APOGEE ACOUSTICS, INC.

DUETTA SIGNATURE SERIES

FULL RANGE RIBBON SPEAKER SYSTEM

OWNER'S MANUAL AND ASSEMBLY INSTRUCTIONS

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FULL RANGE RIBBON SPEAKERS

Apogee Acoustics, Inc. is pleased to present the "DUETTA SIGNATURE SERIES" mid-sized full range ribbon loudspeaker. The speaker offers full range ribbon technology in a product of moderate cost and size. The DUETTA SIGNATURE SERIES incorporates two ribbon transducers, a woofer and an integrated midrange tweeter and advanced passive electronics.

Full range ribbon design provides exceptional sonic qualities in the areas of sound stage and imaging. The two element woofer and midrange tweeter ribbons coupled with seamless internal crossovers provide unparalleled clarity, precise imaging over a wide listening area, rise times consistent with the fastest amplifiers and excellent dynamic impact.

The DUETTA SIGNATURE SERIES features:

- A trapezoidal woofer ribbon providing deep rich transparent base.
- A unique narrow, canted combination midrange tweeter ribbon offering excellent horizongal and vertical dispersion.
- Advanced internal circuitry provides for both a seamless crossover and improved transducer separation.
- A Three Position Switch for adjusting the sonic characteristics of the speaker.
- High performance speaker support.
- Attractive architectural quality that readily fits into the decor of a wide range of listen ing rooms.

The geometry of the ribbons has been scaled to provide a combination of good power handling, dispersion and balanced tonal quality over the bass, midrange and tweeter frequencies. The woofer averages 12 inches in width and 47 inches in height while the midrange tweeter functions are provided by a single ribbon with dimensions of less than 1 inch in width and 47 inches in height.

The DUETTA SIGNATURE SERIES stands 58 inches high, 26 inches wide and 3 inches deep. It weighs 95 pounds per speaker and is available in three colors: Anthracite, Grey or Taupe.

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SPEAKER SET-UP

APOGEE speakers' performance is affected by the quality and compatibility of the front end equipment such as the turntable, cartridge, electronics, cable and connections. The room acoustics and the placement of the speakers also have an important affect on the quality of the sound. Care in selection of high quality compatible equipment and placement of the speakers within the room will be very rewarding in terms of sonic quality of your music system.

ASSEMBLY

The DUETTA SIGNATURE SERIES full range ribbon speaker system is packed in two cartons. Before opening the cartons be sure there is no visible sign of damage and the boxes are placed with PRINTED SIDE UP.

SETTING UP PACKAGED SPEAKERS WITHIN ROOM (See Diagram No. 1)

Clear an 8 ft. x 8 ft. area near the final speaker location to permit assembly of the speakers. Locate the shipping boxes as shown in Diagram No. 1. The right speaker container is oriented on the right side of the room with PRINTED SIDE UP. The left speaker container is oriented in a similar fashion on the left side of the room.

CAUTION --- USE CARE --- DO NOT ALLOW ANY OBJECT TO TOUCH THE RIBBONS!!!

REMOVE ALL OBJECTS FROM SHIRT POCKET SUCH AS PENS, PENCILS AND LIGHTERS AS THEY MAY FALL FROM POCKETS ONTO RIBBON DRIVERS WHICH CAN CAUSE DAMAGE.

OPENING OUTER SPEAKER PACKAGING (See Diagram No. 2)

The first box to be opened should have a Tools and Owner's Manual designation. Remove outer DUETTA SIGNATURE SERIES packing box. Take top cover off and remove and read OWNER'S MANUAL before proceeding further. Remove the top inner corrugated cover and open the back wrapping exposing the back side of the speaker. Remove tools which are located adjacent to the base of the speaker.

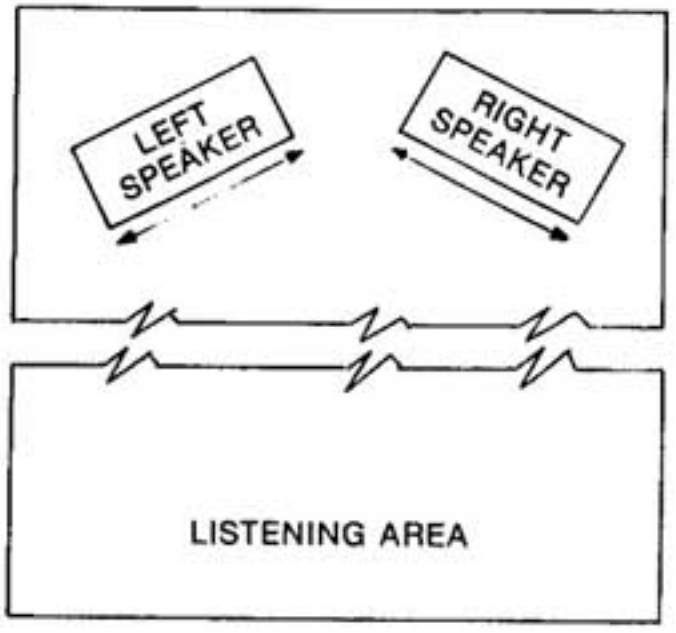


DIAGRAM NO. 1

1. PLACE THE BOXED SPEAKERS AS SHOWN IN DIAGRAM NO. 1 ABOUT 3 - 4 FEET FROM THE BACK WALL.

   POSITION THE BOXES SO THAT THE LONG SIDE RUNS IN THE SAME DIRECTION AS THE ARROWS.

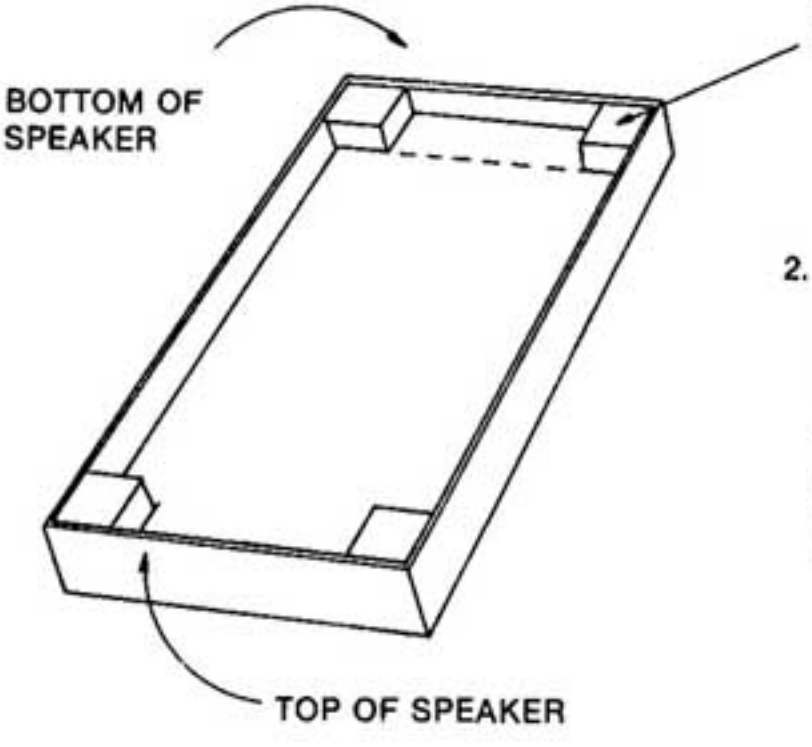


DIAGRAM NO. 2

2. CUT TAPE AND OPEN RIGHT SPEAKER BOX. SET COVER ASIDE FOR FUTURE USE.

   THE SPEAKER IS SUPPORTED WITHIN THE CORRUGATION BY FOUR CORNER SUPPORT BLOCKS.

ATTACHMENT OF BASE SUPPORT BRACES TO SPEAKER (See Diagram No. 3)

The two base support braces are attached to the back of the speaker by means of four machine screws as shown in Diagram No. 3.

1. Align the four holes of the brace with the four holes located at the bottom area of the back of speaker.

2. Using the screws from the plastic tool bag, screw the braces to the speaker. Tighten the screws so that the brace is firmly attached to the speaker. DO NOT OVER TORQUE THE SCREWS TO PREVENT STRIPPING OF THREADS.

3. Screw in the pointed leveler bolts to the back and front holes of the brace. The bolts should not extend below the level of the back brace to avoid floor damage during initial set-up.

CAUTION --- BEFORE PROCEEDING BE SURE TO CHECK THAT ALL SCREWS ARE TIGHT AND SECURE.

ORIENTING SPEAKER TO UPRIGHT POSITION

Be sure hands are clean before proceeding. Using two people, lift the speaker out of the box. One person should then hold the speaker at the top of the speaker while the other person holds the bottom. Place speaker close to the final location to minimize need for final placement adjustments.

CAUTION --- DO NOT TOUCH THE FRONT SPEAKER GRILL AREA TO AVOID DAMAGE TO THE RIBBONS.

PLACING SPEAKER IN ROOM (See Diagram No. 4)

Move speaker to the nominal Right and Left positions in the room as shown in Diagram No. 4. Speaker may be moved by a series of rotations about the vertical axis of the speaker. Note the woofer ribbons should be closest to their respective side walls and the midrange ribbons should be approximately six feet apart.

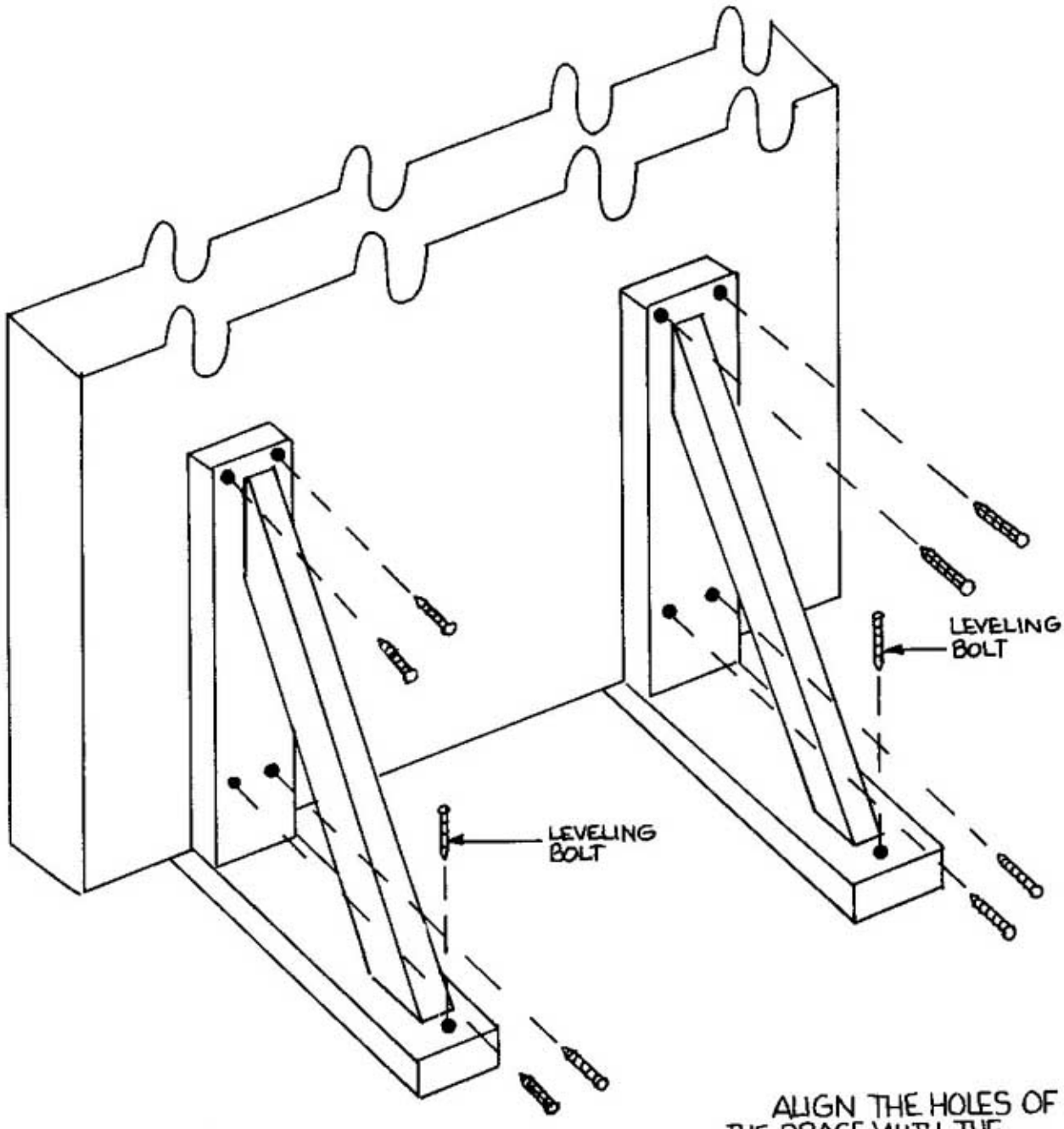


DIAGRAM NO. 3
ATTACHMENT OF
BACK BRACES
TO SPEAKER

ALIGN THE HOLES OF THE BRACE WITH THE BOTTOM BACK OF THE SPEAKER. INSERT AND TIGHTEN THE 10/32 x 1 INCH SCREWS TO FIRMLY ATTACH THE BRACES TO THE SPEAKER.

CHECK SCREWS AND BOLTS TO ENSURE THEY ARE TIGHT AND SECURE.

SPEAKER PLACEMENT

The DUETTA SIGNATURE SERIES loudspeakers are dipoles and require care and consideration in their placement. Of course, every listening room has varying room anomalies. Thus experimentation with speaker placement is well advised in order to achieve optimum results for your music enjoyment.

Outlined below are parameters which should be followed; although room size and other variables must be considered.

SPEAKER LOCATION WITHIN THE LISTENING ROOM

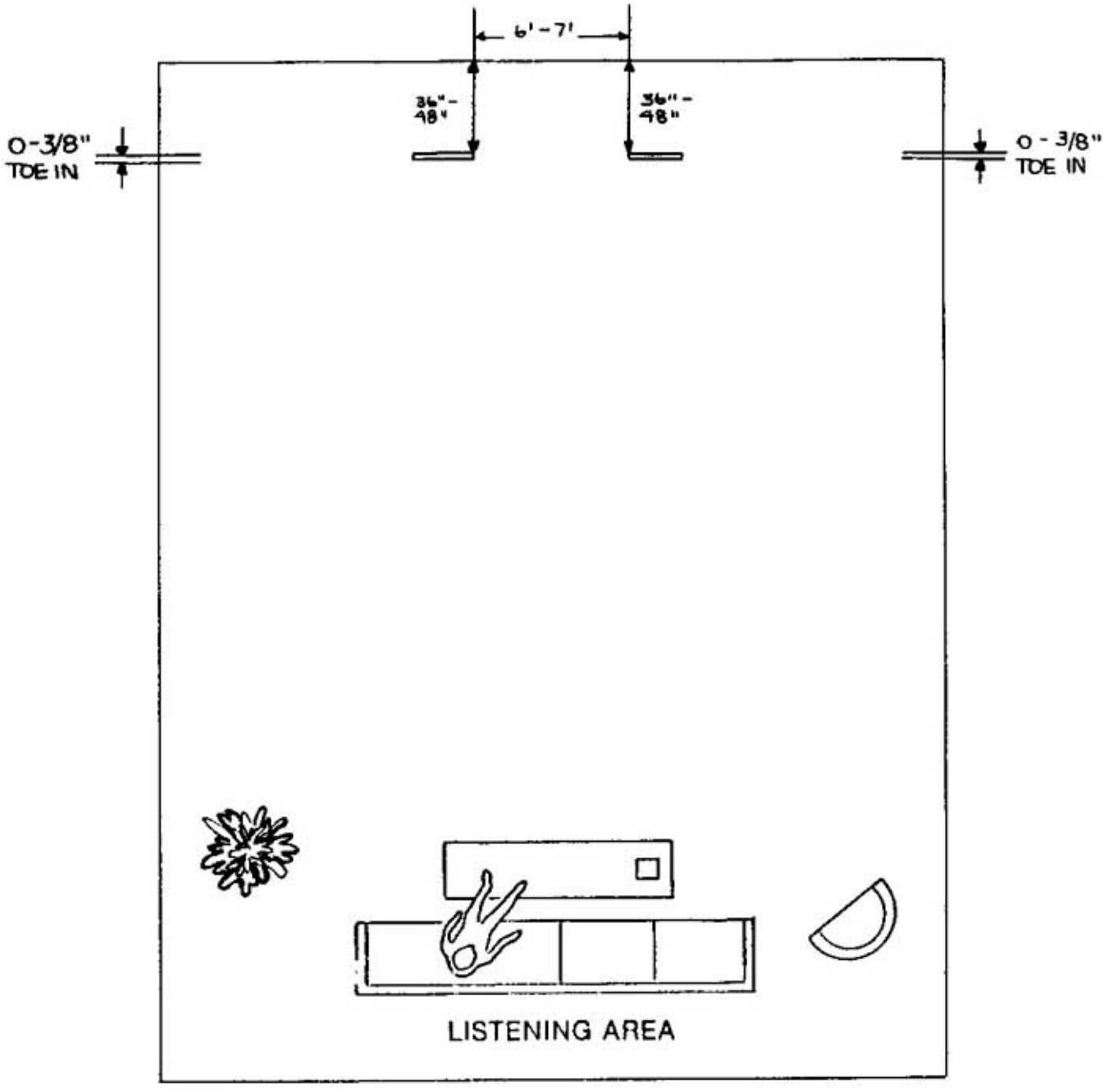
Place DUETTA SIGNATURE SERIES speakers three feet or greater from the rear wall. (See Diagram No. 4) Experimentation is advised.

Rear wall should have no damping material or very light damping material. Experimentation with degree of damping is advised. Our own experience has taught us that too much damping can cause upper midrange and tweeter suck-out resulting in a somewhat lifeless quality.

Separation of speakers should be approximately 6 feet; greater or less depending on the width of your room. Experimentation is advised.

Speakers should be placed with virtually no toe-in. Should you insist in a gentle toe-in, this should not exceed more than 3/8 inch. The DUETTA SIGNATURE SERIES has exceptional dispersion and focus; stage and imaging is at its best with no toe-in or very gentle toe-in. Never place the DUETTA SIGNATURE SERIES in a position in which the speakers touch the side walls. Allow them to breathe by maintaining at least a distance of eight inches from the side walls. This figure will change, however, with respect to room size.

Placement of speakers on carpeting as opposed to bare floors is preferable. Adjust the leveling bolts to provide a tilt-back of approximately two and one-half degrees from the base to the top of the speaker (See Diagram No. 5).



NOTE: THIS DIAGRAM SHOWS RECOMMENDED STARTING SPEAKER LOCATIONS BEFORE POSITIONING ADJUSTMENT.

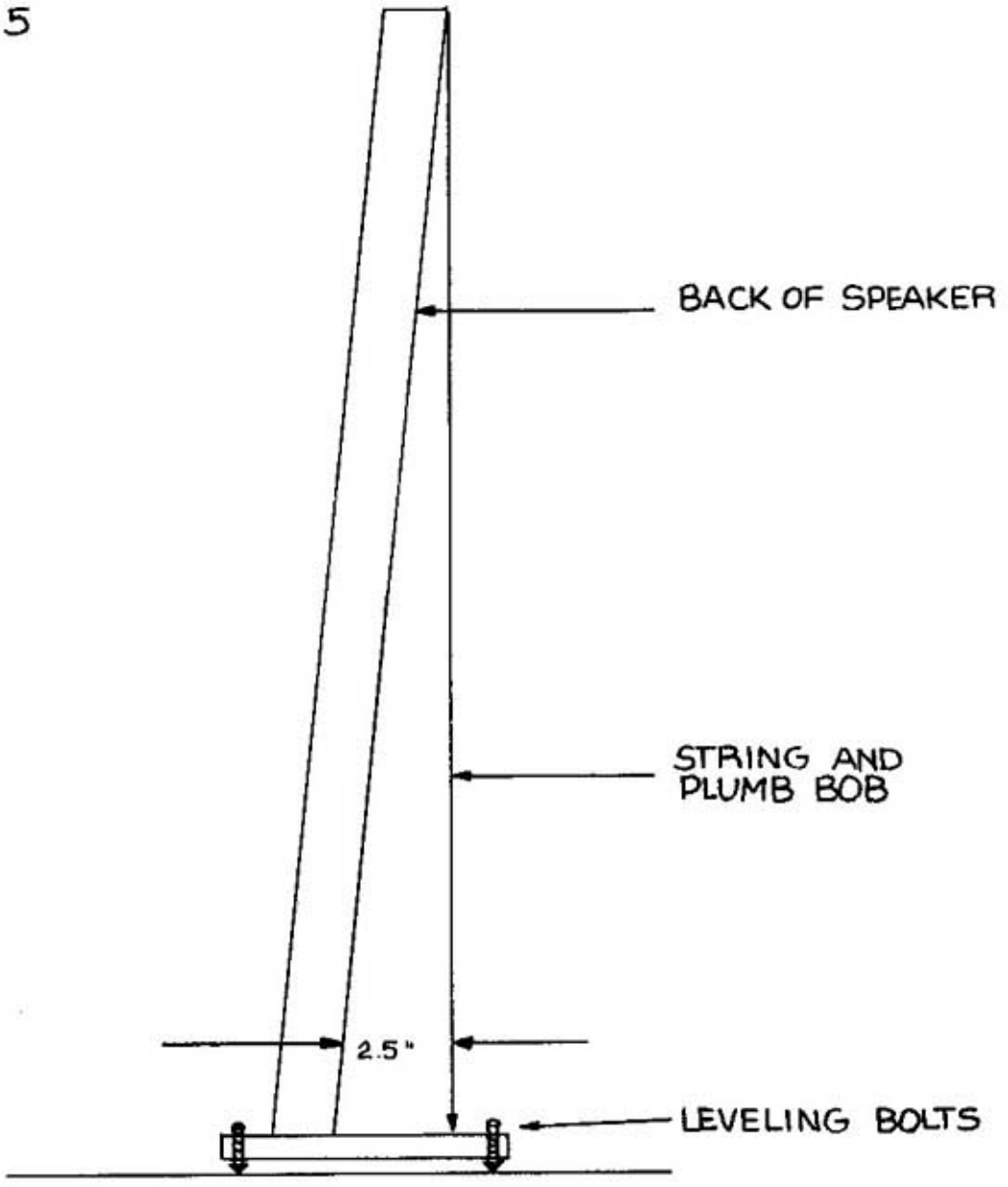
DIAGRAM NO. 4

To verify the tilt-back angle, use the enclosed string and non-magnetic weight. Holding the string at the top rear of the speaker, allow the weight to hover over the speaker at the bottom. The weight should be 2 1/2 inches from the back of the speaker which is equivalent to 2 1/2 degrees.

Tonal Adjustment

There is a three position midrange tweeter tonal adjustment switch on the nameplate which is located at the lower back of the speakers. The switch provides a midrange tweeter tonal balance adjustment to accommodate the listener's preference and variations in the audio chain. Experimentation is advised to determine the most satisfying position for a given set of musical inputs, room and audio system characteristics.

DIAGRAM NO. 5



DUETTA SIGNATURE SERIES

ELECTRICAL CONNECTIONS

There are three recommended amplifier configurations for driving the speakres. The DUETTA SIGNATURE SERIES may be operated utilizing a single stereo amplifier or operated in a bi-amplified mode. A high quality amplifier with a nominal rating of 100 watts is recommended. More or less power may be utilized depending on the size of the room, damping, construction and desired sonic amplitude levels. DO NOT EXCEED A 200 WATT AMPLIFIER RATING.

AMPLIFIER TO SPEAKER WIRING

Single Stereo Amplifier Operation

Connect the high end of the amplifier drive to the RED Binding Post and the low end to the BLACK Binding Post. Use the shorting bar which APOGEE provides and connect the two RED Binding Posts together. Similarly, use the shorting bar to connect the BLACK Binding Posts together. The shorting bars are readily installed on the Binding Posts by the following procedure. Push the long fingers of the bar onto a Binding Post (DO NOT PUT FINGER INTO THE BINDING POST HOLE). Then slide the shorting bar so that the short fingers engage the adjacent Binding Post to be shorted. Be certain to slide the shorting bar to insure full contact with the short finger when the Binding Post is torqued down.

The amplifier's left channel output should be connected to the left speaker Binding Posts and the right channel amplifier output should be connected to the right speaker Binding Posts.

Bi-Wiring Single Stereo Amplifier Operation (See Diagram No. 6)

The bi-wired configuration afforts significant sonic benefits. Two sets of speaker cable are required. Connect the first cable set from the high end of the amplifier drive to the right RED Binding Post. The second cable set is connected in a similar fashion from the same amplifier terminals to the right speaker's left Binding Post. No shorting bars should be used. This wiring arrangement provides a separate cable set for the operation of the woofer and the operation of the midrange tweeter.

The amplifier's left channel output should be connected to the left speaker Binding Posts and the right channel amplifier output should be connected to the right speaker Binding Posts (See Diagram No. 6).

Power Bi-Amp Operation (See Diagram No. 7)

Two stereo amplifiers or a dual set of mono-amplifiers are required. Connect high end of the woofer amplifier to the speaker RED Binding Post (right side) and the low end of the woofer amplifier output to speaker BLACK Binding Post (right side). No shorting bars should be used. The amplifier's left channel output connect to the left speaker and the amplifier's right channel connects to the right speaker.

The midrange tweeter amplifier connects to the speaker Binding Post on the left side of the nameplate. The high end output is connected to the speaker RED Binding Post and the low end amplifier output is connected to the speaker BLACK Binding Post. The amplifier's left channel output connects to the left speaker and the right channel output drives the right speaker (See Diagram No. 7). The woofer and midrange tweeter amplifiers should have the same gain.

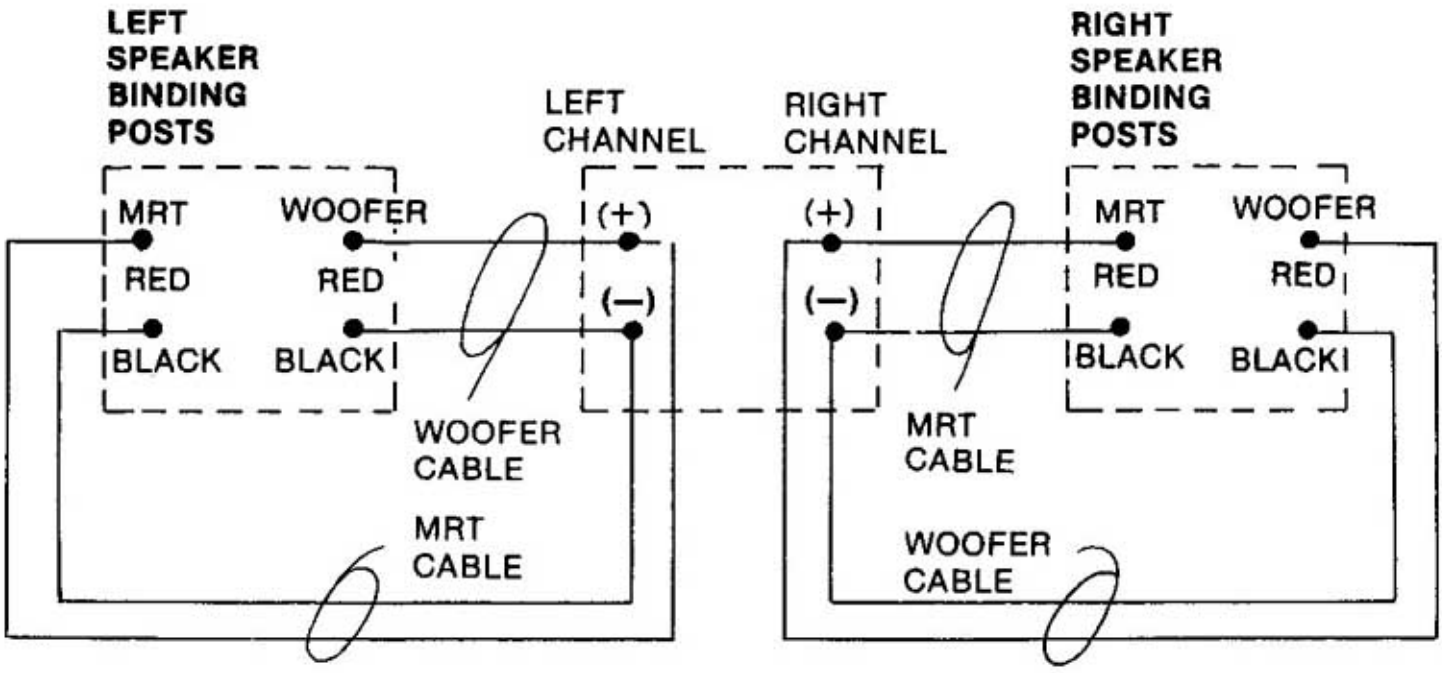
Bi-Amp Operation with an Active Crossover (See Diagrams 8A and 8B)

The DUETTA SIGNATURE SERIES speaker incorporates provision for operation in the bi-amped mode utilizing an active crossover. The use of the active crossover configuration provides many acoustic benefits to the audio system. the benefits include fine grained tonal balance adjustment, increased efficiency and headroom, and superior woofer and midrange frequency shaping.

Configuration A or Configuration B may be utilized for the bi-amped configuration. The selection of the most satisfactory configuration is based on a number of system considerations such as the amplifier, interconnect and cable characteristics and overall acoustic properties resulting from the selected audio configuration.

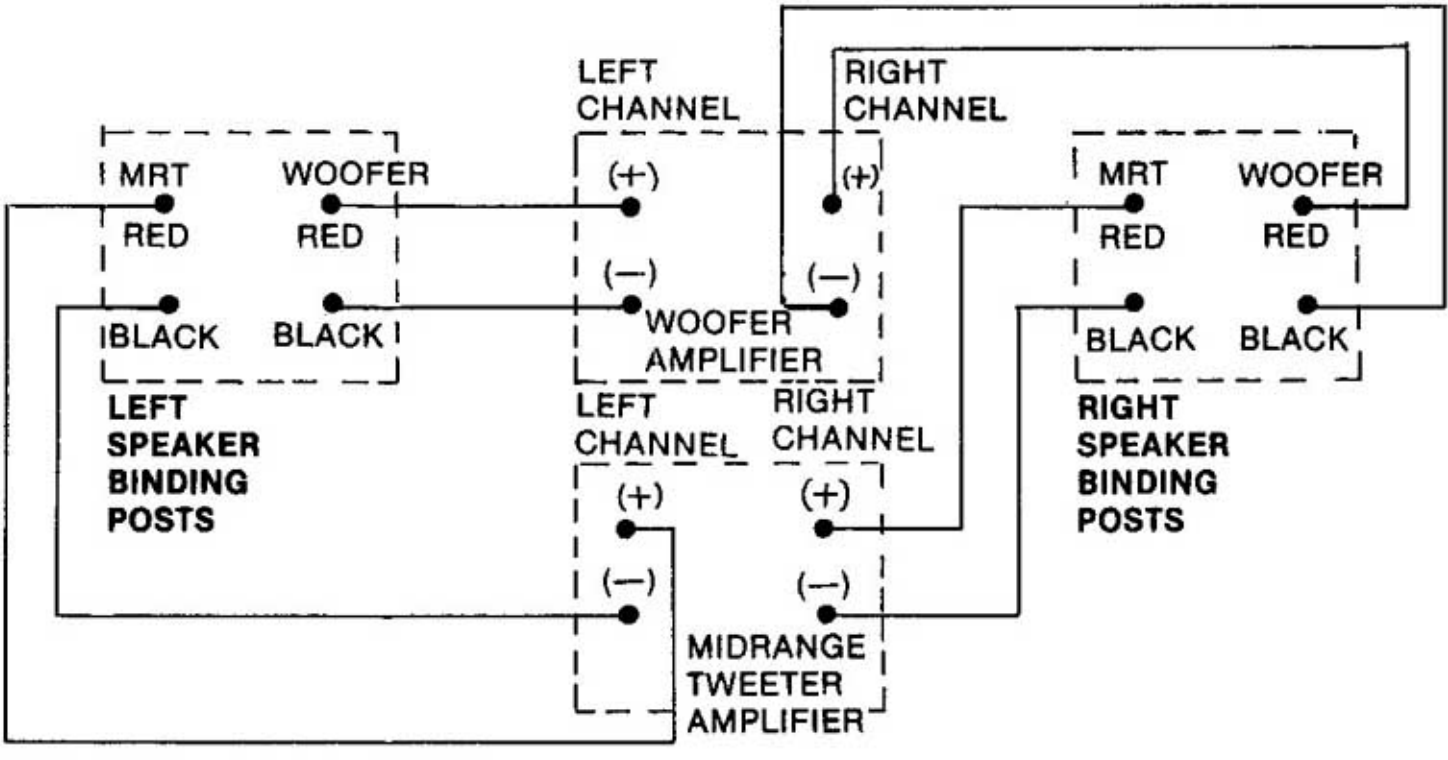
1. Connect crossover between pre-amp and power amps.

2. Connect pre-amp output to crossover input. Connect active crossover woofer output to the woofer amp input and active crossover TWT output to MRT amp input.



BI-WIRED STERIO AMPLIFIER OPERATION

DIAGRAM NO. 6



POWER BI-AMPLIFIED OPERATION

DIAGRAM NO. 7

CAUTION --- PRIOR TO MAKING POWER AMPLIFIER CONNECTIONS TO THE SPEAKER, INSURE THAT ALL FRONT END CONNECTIONS HAVE BEEN PROPERLY MADE IN FULL ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PRE-AMP GAIN SHOULD BE SET LOW AND THEN ADJUSTED TO LISTENING LEVEL.

DO NOT MAKE FRONT END SYSTEM CHANGES WHILE THE POWER IS ON AND SPEAKER CONNECTED. ALL SUCH CHANGES SHOULD BE MADE WITH POWER OFF AND SPEAKER DISCONNECTED.

CONFIGURATION A CONNECTION

3. Connect left channel woofer amplifier output to the terminals labeled "Woofer" of the left speaker Binding Posts.

4. Connect the right channel woofer amp output to the terminals labeled "Woofer" of the right speaker Binding Posts.

5. Connect the left channel of the midrange tweeter amplifier output to the terminals labeled "Midrange Tweeter" of the left speaker Binding Posts.

6. Connect the right channel of the midrange tweeter amplifier output to the terminals labeled "Midrange Tweeter" of the right speaker Binding Posts.

SPEAKER WIRING FOR OPERATION WITH ACTIVE CROSSOVER

The following speaker wiring changes must be performed to permit operation of the DUETTA SIGNATURE SERIES with an active crossover. (See Table 1) The wiring changes are simple and readily performed.

TABLE 1

		WOOFER			MRT	
BINDING POSTS		RED	BLACK		RED	BLACK
STANDARD WIRING PASSIVE CROSSOVER		HEAVY GAUGE COPPER	GREY BLACK		VIOLET	BROWN LIGHT GAUGE COPPER
ACTIVE CROSSOVER		RED	BLACK		BLUE	BROWN

SPEAKER WIRING FOR ACTIVE CROSSOVER OPERATION

1. Remove nameplate by unscrewing screws at the corners of the nameplate.

2. Woofer Wiring

   a. Remove and insulate 12 gauge magnet wire from RED Binding Post.

   b. Remove and insulate GREY wire from BLACK Binding Post. Resecure BLACK wire on BLACK Binding Post.

   c. Remove heatshrink from 12 gauge wire and install on RED Binding Post.

3. Midrange Tweeter Wiring

   a. Remove and insulate VIOLET wire from RED Binding Post.

   b. Remove heatshrink from BLUE wire and install on RED Binding Post.

   c. Remove and insulate 15 gauge magnet wire from BLACK Binding Post.

   d. Resecure BROWN wiring on BLACK Binding Post.

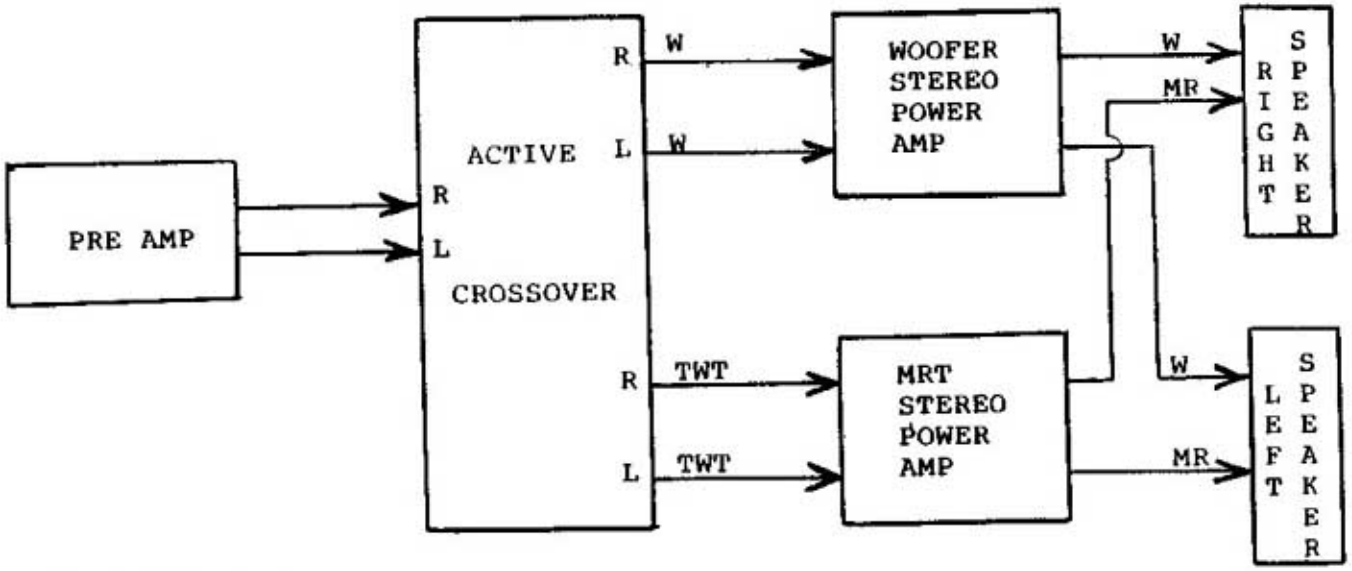
4. Replacing Wire and Nameplates

   a. Press the wires and lugs to be certain that the lugs do not short out to the nameplate or each other and that the wires are not sharply bent.

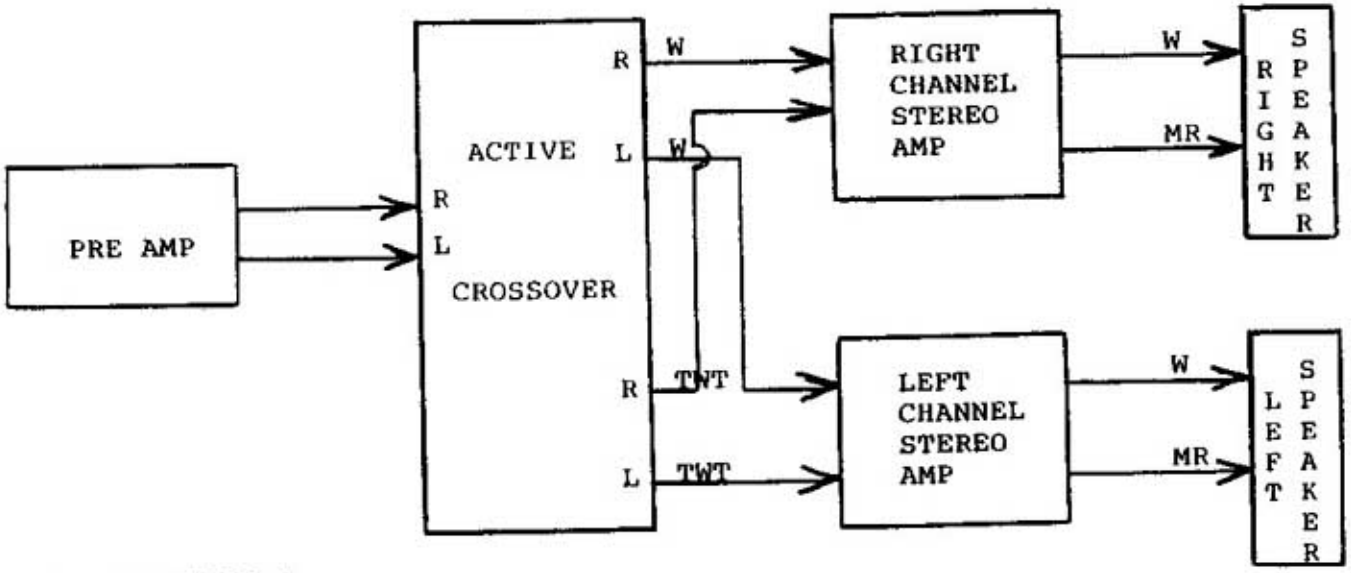
   b. Use electrical tape or heatshrink where instructions call for insulating a given lug and/or magnet wire.

   c. Put the nameplate back in its original position and secure with the screws at the four corners of the nameplate.

The DUETTA SIGNATURE SERIES is now wired for operation in the bi-amped mode utilizing an Active Crossover.



CONFIGURATION A



CONFIGURATION B

BI-AMPED ACTIVE CROSSOVER WIRING

NOTE: INPUT LINE →

OUTPUT LINE —

DIAGRAM 8A AND 8B

Proper bi-amped operation of the DUETTA SIGNATURE SERIES may be achieved utilizing an APOGEE ACTIVE CROSSOVER or a functional equivalent of APOGEE'S ACTIVE CROSSOVER.

APOGEE'S DUETTA SIGNATURE SERIES ACTIVE CROSSOVER is currently not available. Your Apogee dealer will be advised by the factory when the ACTIVE CROSSOVER may be purchased.

GENERAL CAUTIONARY NOTES

1. Do not turn power on to amplifier and/or amplifiers before double checking to verify the correctness of all system wiring.

2. The amplifiers should be turned off prior to initiating any wiring changes.

3. Do not use vacuum cleaners to clean the speakers.

4. Front cover may be cleaned by use of sponge or damp cloth and a mild detergent.

5. Grill cloth may be cleaned by gentle use of a feather duster.

6. Keep any objects containing steel and/or magnetic material away from the speaker to avoid damage.