

# OWNER'S MANUAL

## SPECTRA 22 AND 33 ELECTROSTATIC LOUDSPEAKER SYSTEM

**ACOUSTAT**

A Division of Rockford Corporation  
612 South Rockford Drive

Spectra 22 and 33 are the easiest speakers to assemble ever manufactured by Acoustat. However, there are a few warnings we will make now which will save you trouble later:

1) Spectra arrays are MIRROR IMAGE, i.e. there are LEFT and RIGHT arrays.

Each is identified by a small hole (3/16" diameter) located in the TOP METAL CAPTURE PLATE. The hole is on the LEFT side of the LEFT array and RIGHT side of the RIGHT array--when viewed from the listening side. The two interfaces and bases are IDENTICAL.

2) The hardwood bases are easily scratched. They require careful handling and following of precautions given later.

3) The light colored cloth arrays are easily soiled, and all colors are very prone to picking up lint from being laid on a carpet. The protective plastic bag should be left on them until the arrays are brought into final installed upright position.

4) Spectra's sectored operation requires a more complex connection-set from interface to array than previous constant-area Acoustats. More care is required when making the connections.

We will repeat these warnings when appropriate.

## INTERFACE/BASE ASSEMBLY

1) Remove the interfaces (step-up transformer units) from their shipping cartons. Needed hardware is enclosed in a hardware bag in each interface carton.

2) Remove the hardwood bases from their shipping carton.

3) Referring to FIGURE 1, place one of the interfaces in INVERTED position, on the rug or other protective surface.

4) Select the four 1" screws and the four METAL flat washers from the hardware bag.

5) Carefully place one of the hardwood bases (INVERTED) over the inverted interface so that its mounting holes align with the threaded holes in the bottom of the interface. Avoid excessive sliding of wood on metal.

Be sure the 4-hole pattern on the base is closest to the REAR of the interface.

6) Using the 1" screws and METAL flat-washers, start all four screws through the base and into the threaded holes on the interface.

7) Tighten all 4 screws firmly.

8) Turn the mated base/interface right side up.

The other base is identically assembled.

## ARRAY MOUNTING

Referring to FIGURE 2:

1) Place one of the interface-shipping plastic bags over the entire front part of the hardwood base, to prevent marring the wood surface.

2) Lay the selected array face down on the floor with its top on the floor, and its bottom resting up over the protective plastic bag you placed over the base. If you have removed the array protective bag, lay it under the array for protection from the floor.

3) Retrieve the 3 sleeved wire-bundles out of the end of the array-shipping bag.

4) Study the wiring diagram Insert in FIGURE 2 carefully. The COLORS YELLOW and BLACK appear on TWO pin-plugs and on TWO pin-jacks. On closer inspection you will see that the proper connections are unambiguous--there are two DIFFERENT GROUPS: A BLUE group and a WHITE group.

jacks. There is only one correct set of these connections, but there are 5039 incorrect ones.

-----WARNING-----

The next steps have a very high chance of scratching the hardwood base. Both the TILT BRACKETS and the STAPLES under the array are quite capable of scratching the wood. It is highly desirable to use TWO PEOPLE if possible for these steps.

BEFORE you stand up the array:

1) RECHECK for the presence of the protective plastic bag covering the front of the wood base.

2) LOCATE the four 1/2" screws and the four black NYLON flat washers.

3) Carefully stand up the array. Now bring the array back to mate with the interface. You will have to guide the wire bundles into a "U-TURN" loop fitting into the empty space at the right end of the interface and also get the TILT BRACKETS to enter INSIDE the edges of the interface.

4) Make sure that none of the individual wires get pinched between the TILT BRACKET and the interface side.

5) Now install two of the 1/2" screws through each side of the interface, into the threaded inserts in the TILT BRACKETS. Be sure to include the black NYLON washers under each screw head.

6) At this time you can remove the protective sheet covering the wood base and the protective bag over the array.

Remember, the light cloth is easily soiled and your hands are likely now oily from handling the hardware.

The TOP screws serve as pivot points and the bottom screws, when loosened, allow up to 5 degrees of back tilt for the array. The effects of array-tilt are discussed later.

The other speaker is assembled identically. Remember to check again the LEFT and RIGHT identifiers before you make final placement.

We recommend that you keep all the boxes if possible. If storage space is limited, keep all of them for a while until you are satisfied that both speakers are performing properly.

In any event you should keep PERMANENTLY the two INTERFACE boxes, and all the plastic parts from all the cartons, as these take little space and will save you money if you ever need new boxes in the future.

Experience has shown that if service or a factory modification is ever needed, it is most likely to involve sending ONLY the interfaces to Acoustat. Our packaging materials are top-of-the-line and much more protective than most home-made arrangements. (See In Case of Difficulty.)

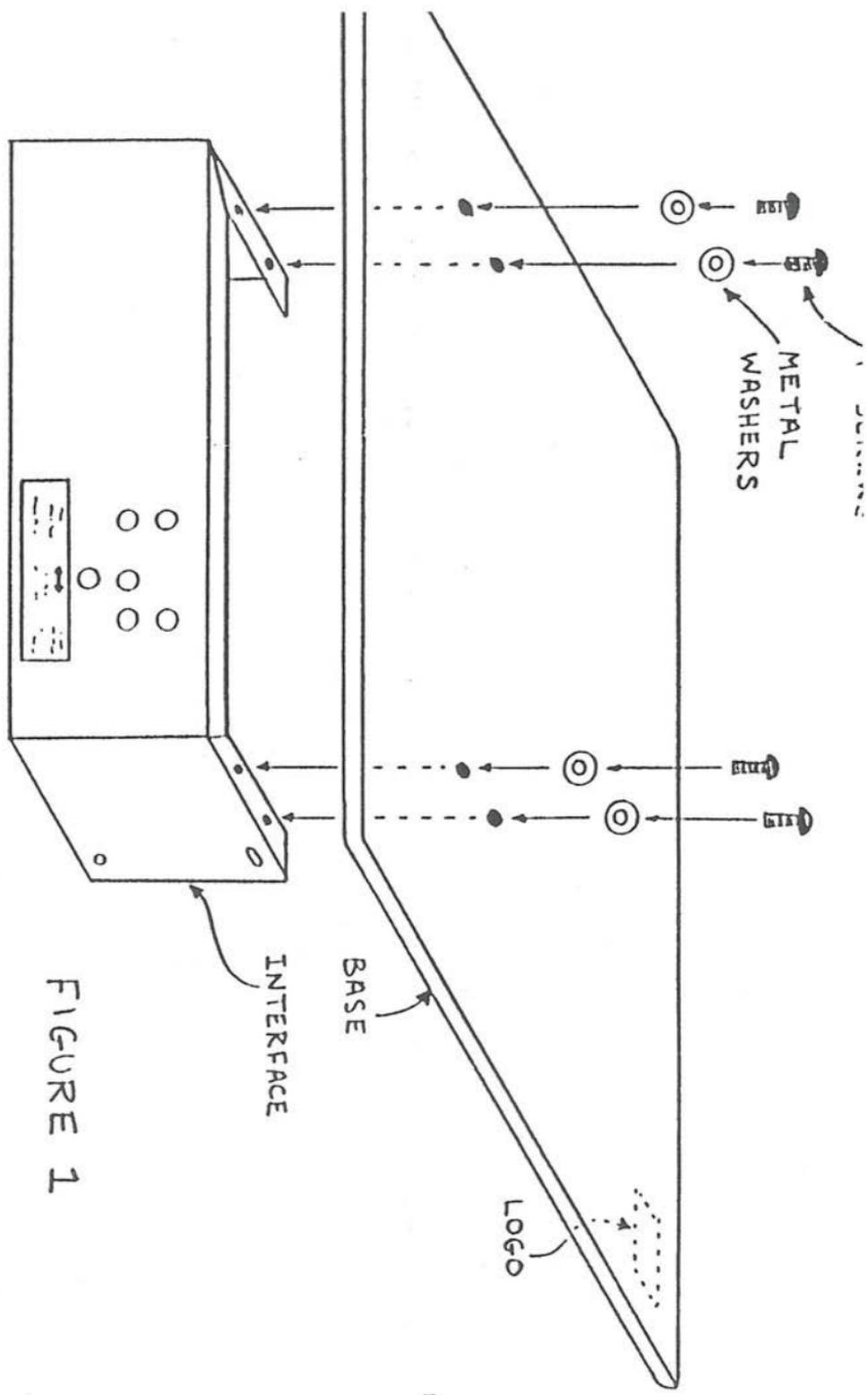
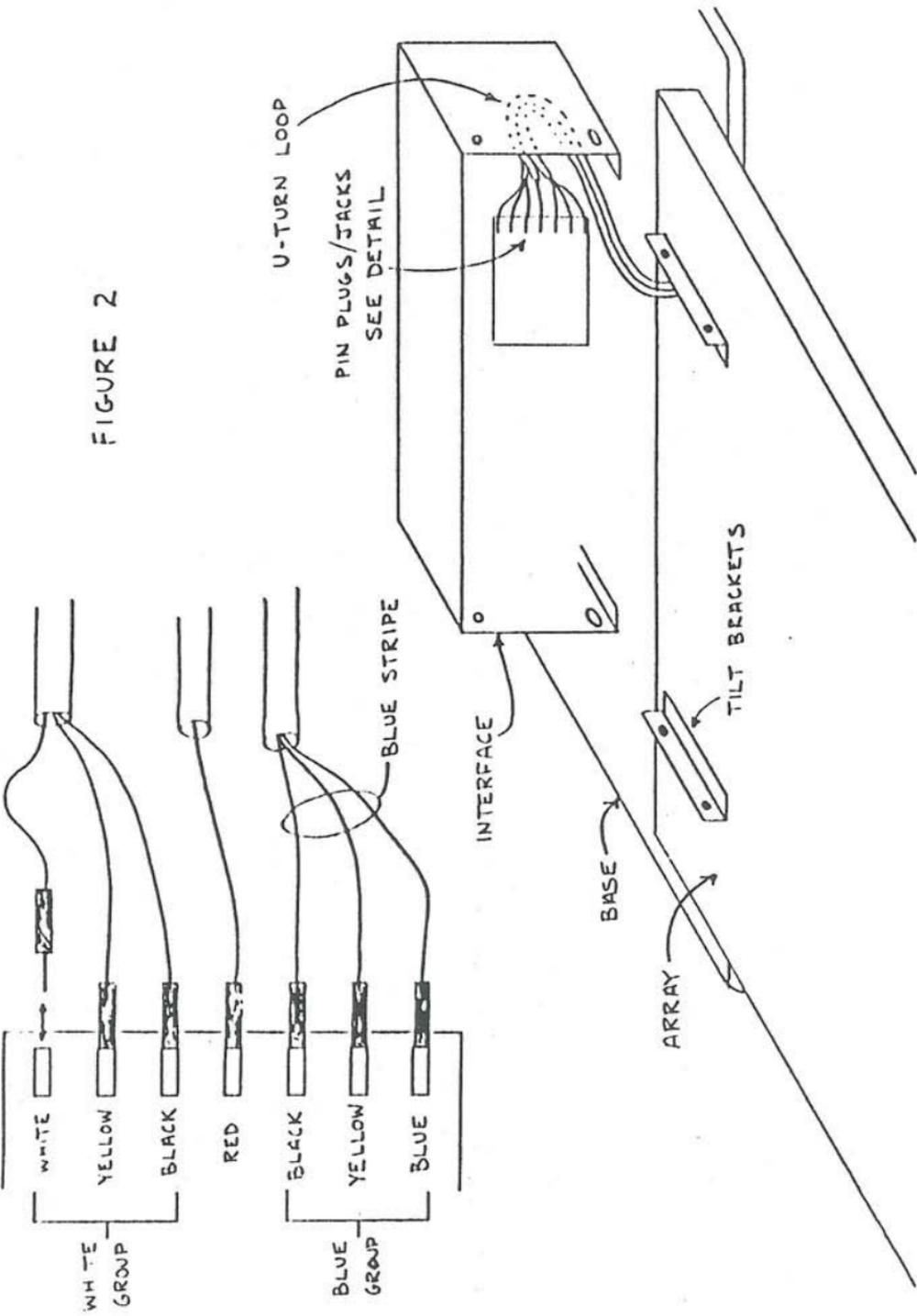


FIGURE 1

FIGURE 2



## THEORY AND PRACTICE OF SPECTRA OPERATION

---

Spectra 22 and 33 represent a very high state of perfection of full range electrostatic loudspeakers. They also represent exceptional value in terms of performance-to-cost ratio.

The interface techniques allowing the Symmetric Pair Electrically Curved TRANSDUCER (SPECTRA) mode of operation were only perfected in late 1986.

At that time we made a quantum leap in the product of STEP-UP EFFICIENCY and BANDWIDTH which allowed us for the first time ever to combine traditional Acoustat high performance with the half-century old ideal of VARIABLE GEOMETRY operation.

This breakthrough solved the long standing impasse which had not allowed high SPL full range electrostatics to have optimum behavior at all audio frequencies.

You will find Spectra has wide, pleasant dispersion at all frequencies, razor-sharp high-frequency time-alignment, and clean low bass.

Spectra achieves this by effectively changing size and shape at different frequencies. Spectra is about 3" wide at highest frequencies, about 13" wide at middle frequencies, and full array-width at lowest frequencies.

Spectra's excellent midrange results from the magic of wave physics which causes the 13" of array operational at these frequencies to act dispersively for waves leaving both the front and the rear of the array. Spectra is devoid of the midrange beaming common in planar speakers using large flat midrange radiators.

### ROOM PLACEMENT

Spectra, like all full range electrostatics, needs some "breathing space" behind the array for best low frequency

The walls near the speakers should usually be neither excessively absorptive nor reflective.

Some space is desirable from the side walls, but the asymmetric nature of Spectra higher frequency radiation makes side wall reflections less a problem than with most other speakers.

The full range radiation of a Spectra emerges from a vertical sector centered approximately 7" into the array from the INBOARD edge. You will probably want to cant the speakers in so that this line directly faces your center listening spot. However Spectra's quality listening window is unusually wide for an electrostatic.

## ARRAY TILT

Spectra, like all line source type radiators is much more directional vertically than horizontally. The array-tilt is provided so that the high frequency response can be optimized for different listening heights while keeping reasonable speaker height. No tilt may be preferred for always seated conditions, but if conditions require considerable stand-up listening a few degrees of tilt will be preferable.

## INTERFACE REAR PANEL

There are TWO pairs of binding posts on the interface. One pair is the INPUT to the Spectra system from the power AMPLIFIER. The other pair is an OUTPUT to feed a SUB-WOOFER which has its own crossover network at 100 Hz. Normal FULL-RANGE electrostatic operation is achieved in the ARRAY FULL RANGE/WOOFER OFF position of the toggle switch.

When the switch is thrown to the ARRAY ABOVE 100 Hz/WOOFER ON position, LOW frequencies are removed from the electrostatic array and ALL frequencies coming in

the INPUT posts are sent out the OUTPUT posts--for a sub-woofer.

Unexpected loss of bass can often be traced to sinister forces activating this switch since your last listening. It is embarrassing to have this problem discovered by an audiophile friend, if you fail to notice it.

The 5 AMP SLO-BLO FUSE is ONLY in the electrostatic path, and does not protect the woofer out-feed jacks. This is done to enhance system flexibility. Take care to avoid accidental shorts on wires connected to the OUTPUT jacks, particularly if exceptionally high current amplifiers are in service.

If so equipped, the LINE cord is to be plugged in to 120 volt 50/60 Hz, unless the interface is otherwise labelled. The cord should be connected to an ALWAYS ON outlet which has no SWITCHES or LIGHT DIMMERS in series with the outlet. Line-power consumption is less than 5 watts.

For interfaces manufactured after approximately December 1, 1988, the line powered bias supply has been upgraded to a low voltage input, ultrasonic bias power supply. This improved circuit offers tight regulation of the bias voltage (meaning that variations in line voltage do not affect speaker operation) and far greater unit-to-unit consistency.

The supplied wall transformer is to be connected to the labelled input jack on the rear of the interface, and plugged into an ALWAYS ON line outlet. The pilot lamp on the interface will glow whenever the low voltage supply is connected.

## CARE AND FEEDING OF THE HARDWOOD BASES

The hardwood bases are hand finished with Watco Danish Oil. This top quality finish penetrates the wood providing deep protection while enhancing its natural beauty. Watco Satin Wax is then hand rubbed and buffed into the wood, bringing the finish to a high lustre.

This high quality oil finish is easily maintained. We recommend these steps for optimum preservation, preferably once a month.

1) Apply a coat of Satin Oil to clean and polish.

2) Wipe dry with a clean soft cloth.

NATURAL OAK bases should be oiled with Satin Oil and waxed with Natural Satin Wax.

DARK OAK bases should be oiled with Satin Oil and waxed with Dark Satin Wax.

For repairing minor scratches use Watco Danish Oil Finish:

Dark Oak bases should be repaired using Black Walnut Oil.

Natural Oak bases should be repaired using Natural Oil.

Care must be used on speakers with light fabric to shield the cloth from being stained near the base. You can use a piece of cardboard as a protective "fence" as you apply the processes discussed above.

*GOOD LUCK AND GOOD LISTENING!*

## WARRANTY STATEMENT

---

The electrostatic elements of the Spectra 22 and 33 are warranted against defective materials and workmanship for the life of the product. The electronic components contained in the interface are warranted against defective materials and workmanship for a period of ten years from the original date of purchase. This warranty extends to the original owner, purchased from an authorized Acoustat dealer only. A dated proof of purchase must accompany all warranty claims.

For subsequent owners, both the electrostatic elements and electronic components are warranted against defective materials and workmanship for a period of ten years from the date of manufacture. Manufacturing date shall be determined from a code contained in the serial number.

During the warranty period, defective parts will be repaired or replaced, at Acoustat's option, without charge for labor or materials. The warranty does not cover transportation costs to the repair site. Acoustat will return warranty repairs to the owner freight pre-paid. This warranty does not cover damage due to negligence, misuse, modification, shipping damage or accident.

Except as provided herein, Acoustat makes no warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose. Some states do not permit limitation or exclusion of implied warranties; therefore the aforesaid limitations or exclusions may not apply to the purchaser.

## IN CASE OF DIFFICULTY

The Spectra loudspeaker has been designed for a lifetime of trouble-free music enjoyment. On the rare occasions that an apparent malfunction should occur, be sure to check all system signal sources, fuses, and connecting cables. If investigation pinpoints the Spectra as the source of difficulty, please contact (by telephone, preferably) our Customer Service Department before sending any equipment for service. Very often, we can offer further troubleshooting hints that simplify or even eliminate the need for factory service. Should your Spectra loudspeaker require factory service, please use original factory packaging for shipment, and include a copy of a dated Bill of Sale and a brief note describing the difficulty. Every effort will be made to perform service in a timely manner, with typical turn-around times of less than one week, exclusive of transit time.

Acoustat  
Division of Rockford Corporation  
613 South Rockford Drive  
Tempe, Arizona 85281  
602-967-3565