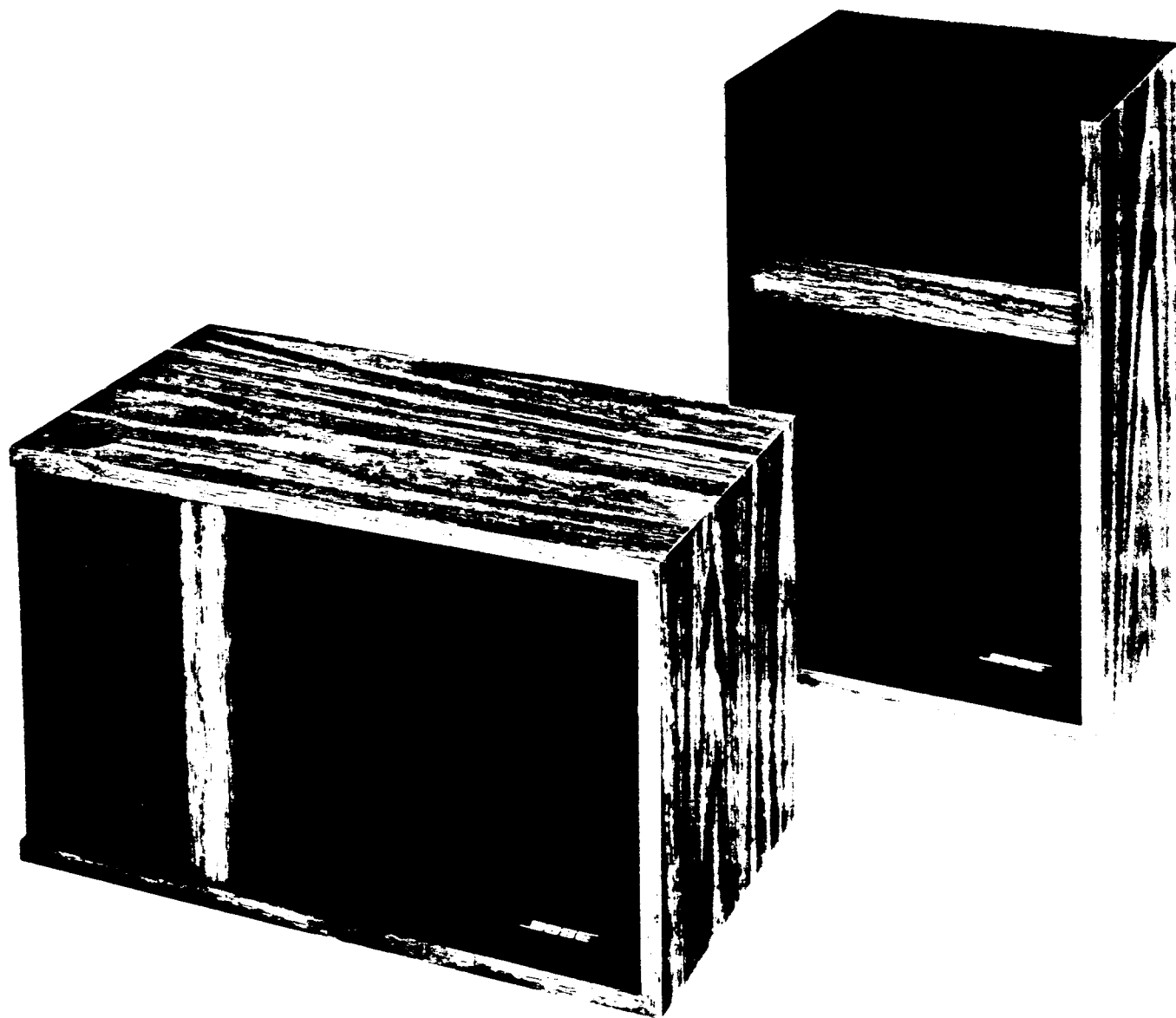




301 SERVICE MANUAL - ALL MODELS



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I. SPECIFICATIONS:

1. SPATIAL CHARACTERISTICS

The Model 301 is a contemporary-styled compact bookshelf speaker system. The Model 301 utilizes Direct Reflecting^R sound characteristics for optimum stereo reproduction, using side wall reflection. The original and the New Model 301 speakers utilize a forward facing woofer and a tweeter that is angled toward the side wall, reflecting sound into the main listening area. The Model 301's have a Direct Energy Control^R that is an adjustable deflector in front of the tweeter which varies the balance of reflected and direct sound at high frequencies. The Direct Energy Control^R maintains proper tonal balance in the listening room for various speaker placements providing optimum spatial properties for each type of program material. The Direct Energy ControlTM directs the high frequencies into the room providing improved localization and Spatial characteristics of the speaker system. The Model 301 is designed in mirror-image pairs and features Asymmetrical design for optimum stereo reproduction.

2. SPEAKER CONFIGURATION:

WOOFER - One 8" high-efficiency woofer, designed for a ported enclosure. Uniform high frequency response to over 3kHz for use with the Dual Frequency CrossoverTM network. Heavy duty suspension for amplifiers with up to 60 watts RMS.

TWEETER - One 3" wide-range tweeter with extended low frequency response to 1200Hz, for use with the Dual Frequency CrossoverTM network. Flat-total-power radiation over 15kHz.

DUAL FREQUENCY CROSSOVERTM NETWORK - One inductor, two resistors and one mylar film capacitor.

Woofer transition frequency: 3kHz.
Tweeter transition frequency: 1200 Hz.

ENCLOSURE - A walnut grain vinyl clad enclosure.

Shipping weight: 40 pounds per pair.

Speaker dimensions: 17" wide by 10 1/2" high by 9 1/2" deep.

GRILLE - Polyurethane foam.

3. IMPEDANCE - The impedance of all Model 301 Speaker Systems is rated at 8 ohms.

4. POWER HANDLING:

Minimum power: 10 watts rms into 8 ohms

Maximum power: 60 watts rms into 8 ohms

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II. TEST PROCEDURE:

Connect a sine wave oscillator and power amp to the loudspeaker. Adjust the frequency of the oscillator to approximately 25Hz. Adjust the output to 10 volts rms and connect to the 301 speaker. No extraneous noises such as rubbing, scraping, or ticking should be heard. Then sweep the oscillator from 15 hertz to 3kHz using the 10 volt signal. There should be no loud extraneous noises aside from the normal suspension sounds which will not be heard when playing music. If there is any loud extraneous noises, replace the woofer.

Continue sweeping between 1kHz and 15kHz but reduce the output level to 5 volts rms. If the tweeter is not operating, or if they buzz, replace the tweeter*.

III. REPLACING THE WOOFER

Remove the grille by pulling one corner of the grille away from the front of the cabinet. The grille is attached by Velcro and is easily removed and replaced. Replace the woofer by removing the screws holding it in place. Cut the wires connected to the woofer as close to the woofer terminals as possible. Strip the wires and reconnect to the new replacement woofer. Make certain the yellow wire is connected to the red dot terminal on the woofer. The green wire is connected to the other terminal. When repositioning the woofer, make certain the foam seal is correctly positioned behind the woofer to provide an air tight seal.

Apply a signal of 10 volts rms at 25 hertz. Cover the port and check for any air leaks. Seal any air leaks (a whooshing noise) around the woofer using Mortite or by repositioning the gasket. Repair any air leaks that are audible within 12" from the speaker.

IV. REPLACING THE TWEETERS

After removing the grille panel, remove the screws holding the tweeter in place. Remove the tweeter and cut the wires at the tweeter terminals. With an ohmmeter, check for a shorted crossover capacitor between the "Pos" terminal and the red wire connected to the tweeters. If "shorted" (there is a resistor in series with the circuit), replace the capacitor on the crossover board.

Connect the tweeter the same as the old one, red wire to the red dot on the tweeter with the black wire to the other terminal.

*The New Model 301 incorporates a tweeter protection lamp mounted on the crossover board. If the tweeter appears not to function, check the lamp on the crossover board for continuity.

*When replacing the tweeter in the original 301 (serial number 422,257 and below) add the tweeter protection lamp in series with the positive (red) terminal of the tweeter. Double-stick tape is provided with the lamp to attach the lamp to the back of the tweeter.

Remount the tweeter and repeat the tweeter test found in section II.

V. REMOUNTING GRILLE:

Place the grille or grilles back into place and after aligning the grilles in correctly, press lightly so that the Velcro will fasten itself to the grille.

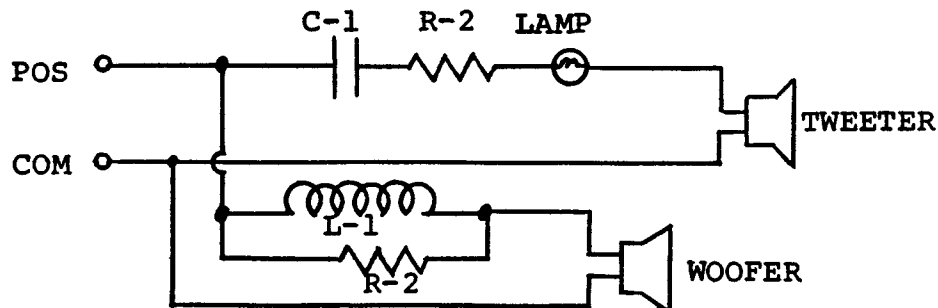
PARTS LIST

Model 301 (S/N 42,257 and below)

New Model 301

| <u>Description</u> | <u>Part Number</u> | <u>Description</u> | <u>Part Number</u> |
|-------------------------|--------------------|-----------------------|--------------------|
| Tweeter | 104837 | Tweeter | 107405 |
| Tweeter Prot. Bulb Assy | 114462 | Tweeter Prot. Bulb | 114462 |
| Woofers | 104836 | Woofers | 104836 |
| Grille, Maroon | 104839-11 | Grille, Maroon | 111083-02 |
| Grille, Black | 106385-1 | Grille, Black | 111082-01 |
| Nameplate | 111084-5 | Nameplate | 111084-5 |
| Capacitor (3uF/50V) | 104130 | Capacitor (2.4uF/50V) | 104131 |
| Inductor (1mH) | 103414 | Inductor (1mH) | 103414 |
| Resistor 9.1 Ohm/15W | 102778-9R1 | Resistor 9.1 Ohm/15W | 102778-9R1 |
| Resistor 1.5 Ohm/15W | 102778-1R5 | Resistor 7.5 Ohm/15W | 102778-7R5 |
| Resistor 1.0 Ohm/15W | 102778-1R0 | Resistor 4.7 Ohm/15W | 102778-4R7 |
| Vane Kit | 113943 | Vane Kit | 113943 |
| Knob | 104935 | Knob | 104935 |
| Spring | 104948-1 | Spring | 104948-1 |
| Cup | 104936 | Cup | 104936 |
| Vane | 107115 | Vane | 107115 |
| Owner's Manual | 108726 | Owner's Manual | 106501 |
| Carton w/fillers | 109085 | Carton w/fillers | 111105 |

CROSSOVER SCHEMATIC DIAGRAM



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