

OVERVIEW

This service manual contains performance specifications, part lists and the test and repair procedures for the Bose® Acoustic Wave® Cannon™ System II (AWCS II). The following is a brief product description.

The AWCS II is an actively equalized low frequency (25 - 125 Hz) loudspeaker system. The AWCS II loudspeaker uses a high power 12" woofer (same as the Bose Panaray® 502® B Acoustimass® bass enclosure) which is installed into a pipe-shaped enclosure made of custom-extruded PVC plastic pipe.

The AWCS II must be used with a Bose system controller and OC-1 option card for the proper equalization and overload protection. Refer to the ACWS II Owner's Guide for basic system configurations. Consult the owner's guide for a specific system controller for details concerning its operation and installation.

PROPRIETARY INFORMATION

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CANNON™ SYSTEM II TEST PROCEDURES

NOTES: Some of the test procedures may require the user to partially disassemble the unit. Refer to the **Disassembly/Assembly Procedures** section for specific instructions.

1. Woofer Rub and Tick Test

Connect a signal generator to a power amplifier. Adjust the generator frequency to **10 Hz** and the amplifier output to **5 Vrms**. Connect the amplifier output to the driver's input terminals. The input terminals are molded in the driver housing near the barrier strip. **Refer to Figure 1.**

No extraneous noises such as rubbing, scraping or ticking should be heard.

2. Air Leak Test

Plug the end the of the barrel.

Adjust the oscillator frequency to **10 Hz** and the amplifier output to **5 Vrms**. Apply the signal to the positive and negative inputs of the speaker. For at least **5 seconds**, listen for air leaks around the driver basket edge, driver housing seal area, barrier strip, or the driver's dustcap and cone surround.

Repair leaks around the driver by removing the driver and replacing the gasket under the driver flange.

3. Phase Test

Set a **DC** power supply to **8 volts**. Connect the positive (+) supply lead to the positive (+) speaker input terminal and the negative (-) supply lead to the negative (-) speaker input terminal. The woofer cone should move outward.

NOTE: Supply voltage should only be momentarily applied to the speaker input terminals to avoid possible damage to the speaker.

4. Sweep Test

Apply a **15 Vrms, 25 Hz** signal to the speaker's input connectors. Sweep the oscillator from **25 Hz to 125 kHz**, there should not be any buzzes, rattles or extraneous noise.

There should not be any buzzes or rattles from within the speaker cabinet. Redress any wire or component that buzzes.

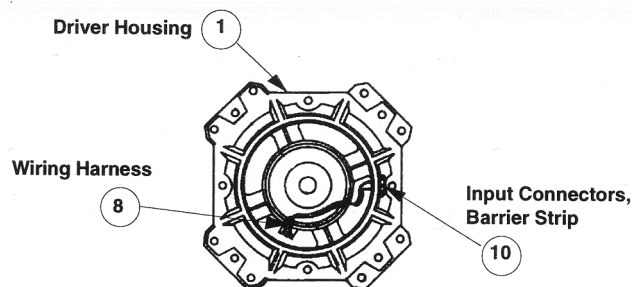


Figure 1. Wiring Harness and Input Connectors

DISASSEMBLY/ ASSEMBLY PROCEDURES

NOTE: Numbers in parentheses represent the item callouts in **Figures 1 and 2**.

1. Driver Removal (Refer to Figures 1 and 2)

Note: Use **Step 1.1** to disassemble the short 3ft driver barrel (**14**) from the 9ft barrel (**15**).

1.1 Use a 3/8" hex-head wrench to remove four flange bolts (**3**), locknuts (**4**) and washers (**5**) that holds the driver housing (**1**) and flange cover (**2**) together.

1.2 Use a hex-head wrench to remove the eight bolts (**6**) that mount the driver (**7**) to the driver housing.

1.3 Use a flat-head screwdriver to pry the driver out from the driver housing. Do not let the driver fall out beyond the distance of the wiring harness (**8**). To remove the risk of damage to the driver, it's advisable to have two people perform this step.

1.4 Remove the two connectors (part of the wiring harness (**8**)) from the driver's terminals.

1.5 Remove the driver from the housing.

2. Driver Replacement (Refer to Figures 1 and 2)

2.1 Place the driver gasket (**9**) into the driver housing (**1**). Align the screw holes in the gasket with the screw holes of the driver housing.

2.2 Connect the two connectors from the wiring harness (**8**) to the terminals of the new driver (**7**).

2.3 Bolt the driver into the driver housing by tightening eight bolts (**6**) with a hex-head wrench.

2.4 Assemble the 3ft driver barrel (**14**) and the 9ft barrel (**15**) by matching up the interlocking tabs on the driver housing (**1**) and flange cover (**2**).

2.5 Tighten four flange bolts (**3**), locknuts (**4**) and washers (**5**) with a 3/8" hex-head wrench.

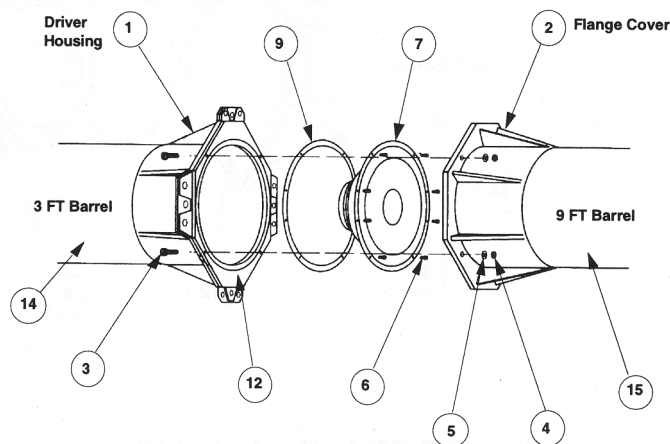


Figure 2. Cannon Assembly

MAIN ASSEMBLY PART LIST (FIGURES 3 AND 4)

Item Number	Description	Part Number	Qty	See Note
1	Housing, Driver, Blk	131073-A	1	
2	Flange, Cover, Blk, 9ft	131080-A	1	
3	Screw, Cap 3/8-16x1 3/4 Hex Hd	134972-28	4	*
4	Nut, Lock, Flange 3/8 X 16	137412	4	*
5	Washer, Flat, 3/8, Black	134976	4	*
6	Screw, Mach, 10-32x.625, Cap, Socket	133508-10	8	
7	Woofer Assy, 12", AWCS II	175484	1	
8	Harness Assy, 12", Cannon	131560	1	
9	Gasket, 12"	131075-B1	1	
10	Connector, Barrier Strip	130133	1	
11	Screw, Tapp, 6-13x.625, Pan, XRC/S	172783-10	2	
12	Gasket, Flange, Cannon	137742	1	
13	Molding, Protective, Cannon	131558	1	
14	Barrel, 3ft Blk	131072-3A	1	
15	Barrel, 9ft, Blk	131072-9A	1	
16	Flange, End, Blk, 9ft	131084-A	1	

*This item is included in the 3ft packaging material, refer to Figure 5.

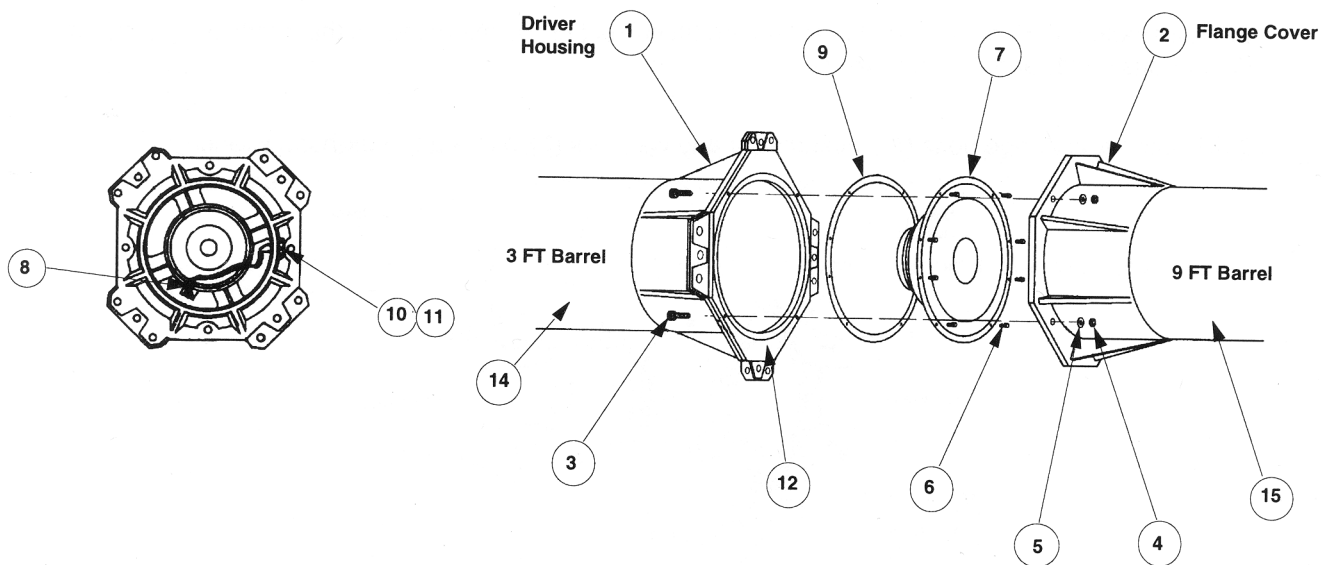


Figure 3. Main Exploded View

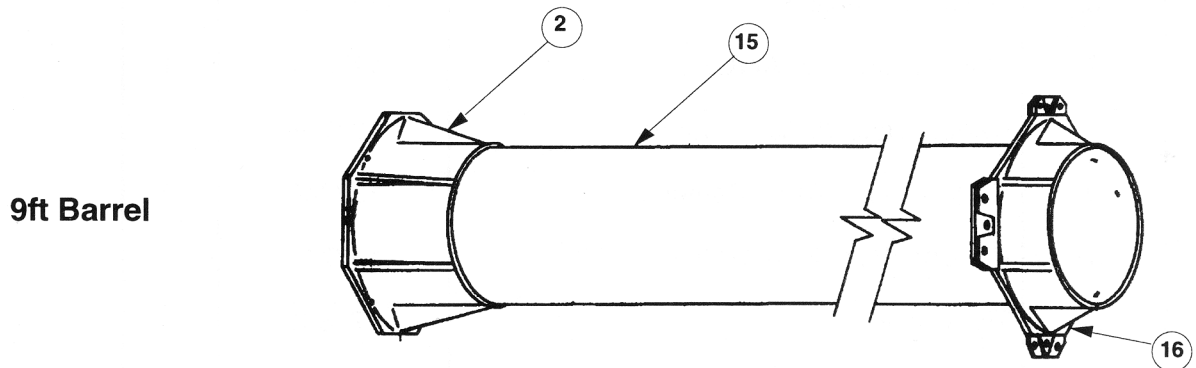
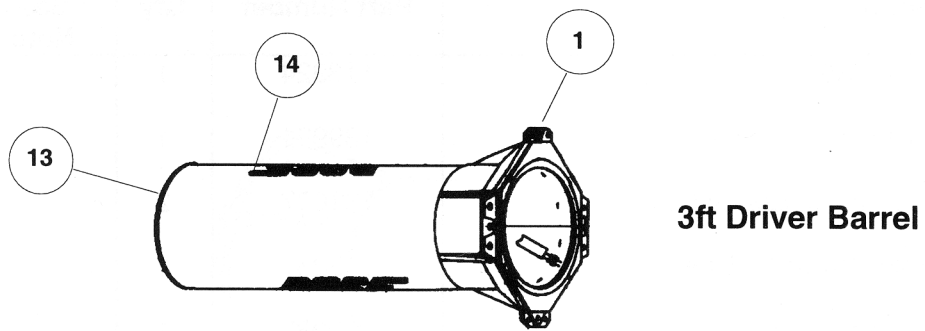
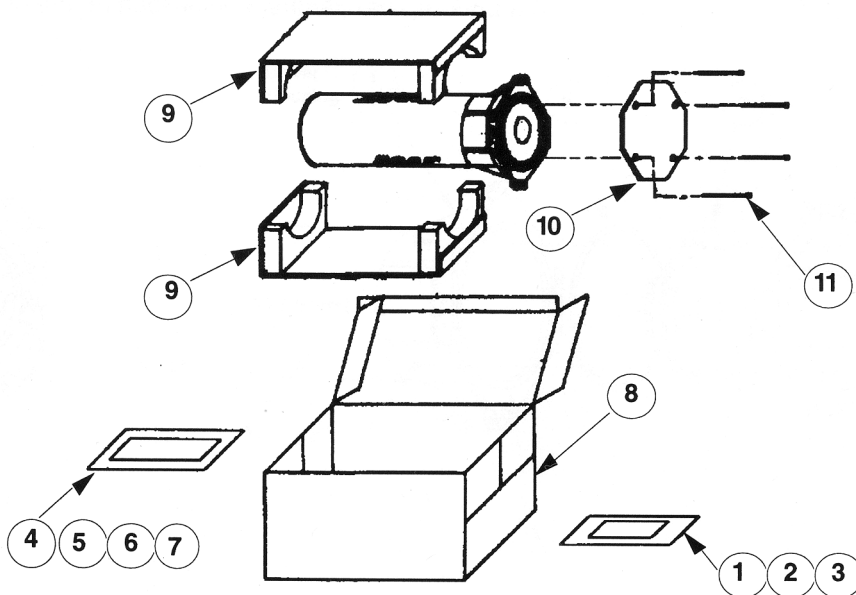


Figure 4. 3ft and 9ft Barrel Sections

PACKAGING PART LIST (FIGURES 5 AND 6)

Item Number	Description	Part Number	Qty	See Note
1	Bag, Poly, 3x5	113924	1	
2	Allen Wrench	139931	1	
3	Conn, Terminal, Spade Lug	131697	2	
4	Bag, Poly, 10x14.5 , Lit Kit	103351	1	
5	Card, Registration	180089	1	
6	Sheet, Instruction	137743	1	
7	Manual, Owners, AWCS II	174947	1	
8	Carton, Rsc, 3ft Assy, Cannon	137738	1	
9	Carton, Insert Assy, Center, 3ft	137740	2	
10	Packing, Pad, 20.0x20.0, D/C, 3ft	137741	1	
11	Tie, Cable	171861	4	
12	Carton, Hsc, Bottom, 9ft Assy, Cannon	137739	1	
13	Carton, Hsc, Top, 9ft Assy, Cann	138604	1	
14	Carton, Insert Assy, Center, 9ft	137740	2	
15	Insert Assy, End, 9ft	138605	4	



Included in this pack is the attaching hardware for the 3ft and 9ft assembly, Items 3, 4, and 5 from the Main Assembly List

Figure 5. 3ft Driver Packaging

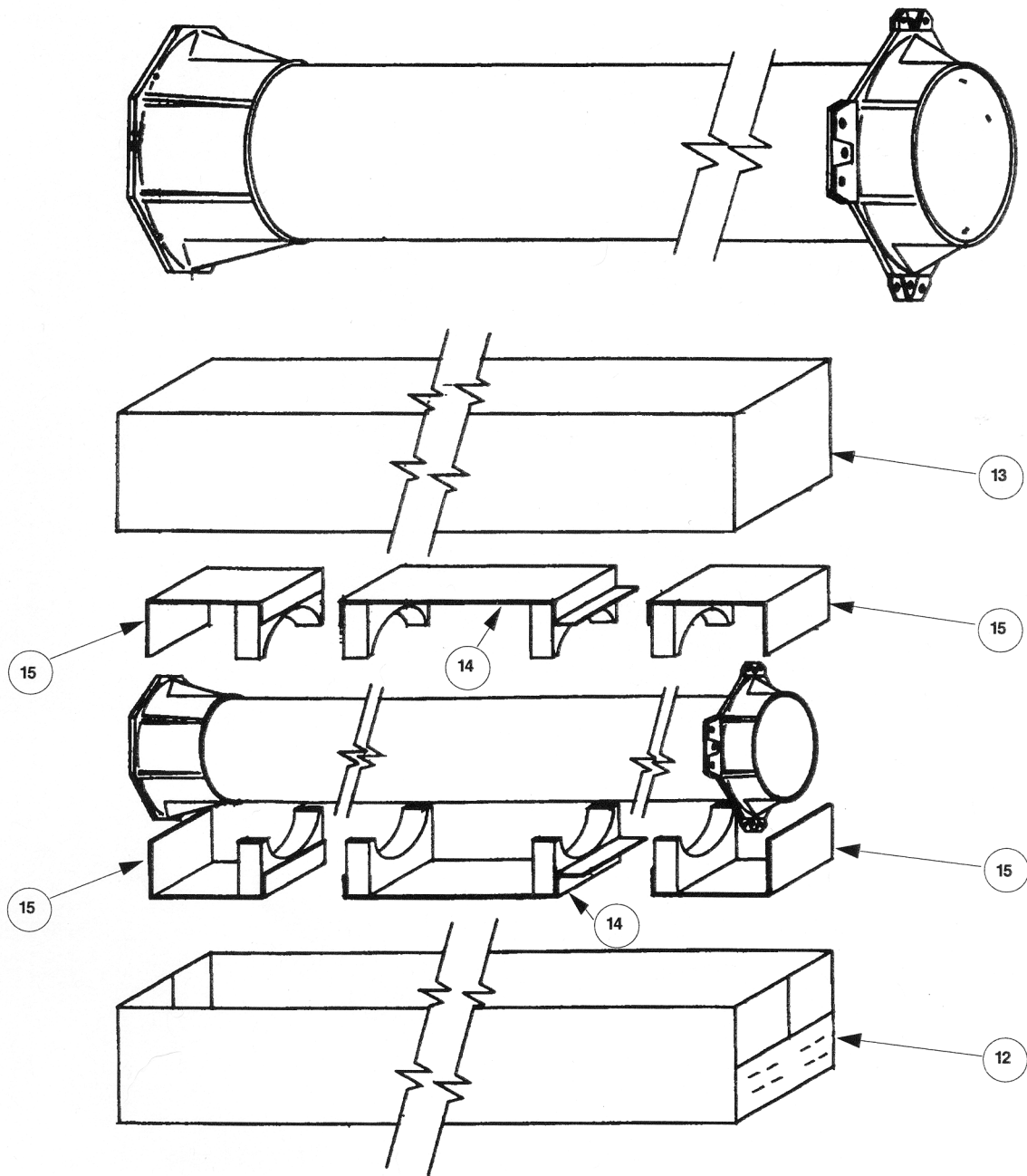


Figure 6. 9ft Barrel Packaging

SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

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