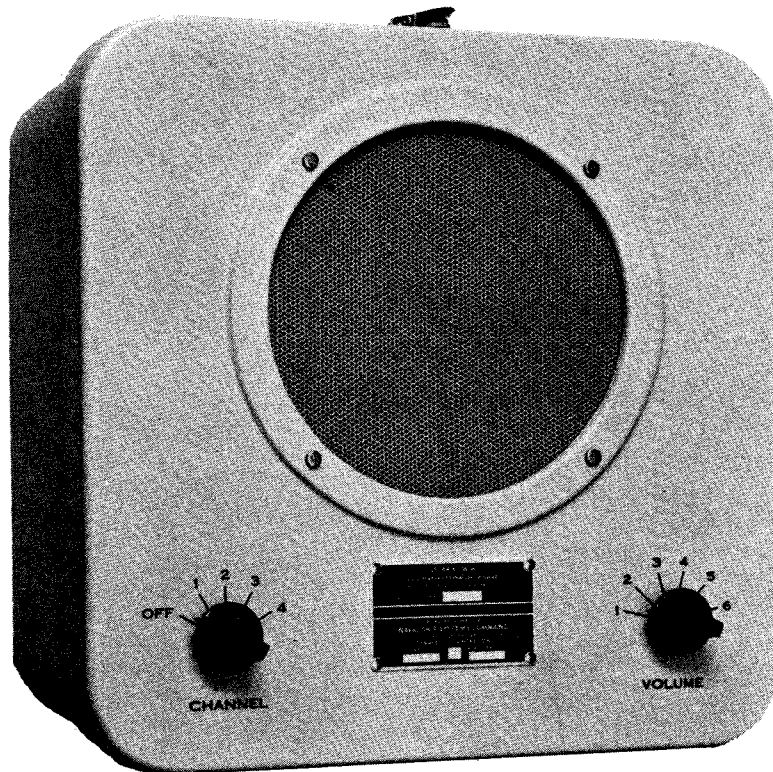


NAVSEA 0965-LP-123-9010

**INSTRUCTIONS
FOR
LOUDSPEAKER, PERMANENT MAGNET
LS-443/WIH AND LS-444/WIH**



DECEMBER 1975

DYNALEC
CORPORATION

**SPECIALISTS IN SHIPBOARD INTERIOR
COMMUNICATIONS**

87 WEST MAIN STREET

SODUS, N.Y. 14551

(315) 483 - 6923
(716) 546 - 8168

DESCRIPTION

The LS-443/WIH and LS-444/WIH loudspeakers are permanent magnet, 5-watt units designed for use in entertainment and general interior communication installations. The LS-443/WIH and LS-444/WIH loudspeaker units (Dynalect Part Nos. 60100-001 and 60100-002 respectively) are electrically and physically identical except for mounting hole dimensions. These units consist of an 8-inch direct radiator type loudspeaker, a matching transformer, volume and channel selectors and a terminal board housed in an enclosure.

The enclosure is constructed of epoxy fiberglass reinforced polyester material and is designed for bulkhead mounting. A removable access panel is provided on the bottom of the enclosure for installation wiring. The front panel is hinged at the lower edge and held closed by a spring latch on the top.

General specifications are listed below:

Power Capacity	-5 Watts
Impedance	-8 Ohms
Frequency Response	-100 to 7000 Hz
Output Sound Pressure	-94 db (Min.) at 10 ft.
Channel Selection	-4 Channels and Off
Volume Selection	-6 Levels in 3 db Steps
Overall Dimensions	-14 ³ / ₈ in. H x 13 ³ / ₄ in. W x 8 in. D
Weight	-11 Pounds (5 Kg)

OPERATION

Two front panel controls are provided. The CHANNEL control rotary switch on the left side of the panel provides a means of selecting up to four (4) different program channels. The fifth or OFF position when selected, silences the loudspeaker. The VOLUME control rotary switch on the right side of the panel provides a means of selecting up to six (6) volume levels in 3 db steps. The loudspeaker output is increased as the control is turned clockwise.

INSTALLATION

The loudspeaker should be mounted so that the space in front is clear of obstructions and the speaker axis is directed toward the center of the area to be covered. Mounting to a bulkhead is to be accomplished with three 7/16-inch bolts or studs, flat washers and lockwashers supplied by the installing activity as appropriate to the particular installation. Access to the enclosure mounting holes is gained by releasing the spring latch at the top of the loudspeaker enclosure and swinging the front panel down. The three 1/2-inch holes in the rear will then be exposed. Mounting dimensions are shown on figure 1.

WARNING

Hazardous voltages may be present on the audio systems output lines to this unit. Verify that the audio system is turned off before attempting installation wiring.

Remove the access panel on the bottom of the enclosure to allow system wiring connection to the appropriate terminals on terminal board TB-101 (See figure 2). The appropriate terminals for connection are determined by the electrical characteristics of the system within the particular installation. Refer to the schematic wiring diagram shown on figure 3 for the wiring connections.

MAINTENANCE

The only preventative maintenance required for the loudspeakers is periodic cleaning and checking for physical damage.

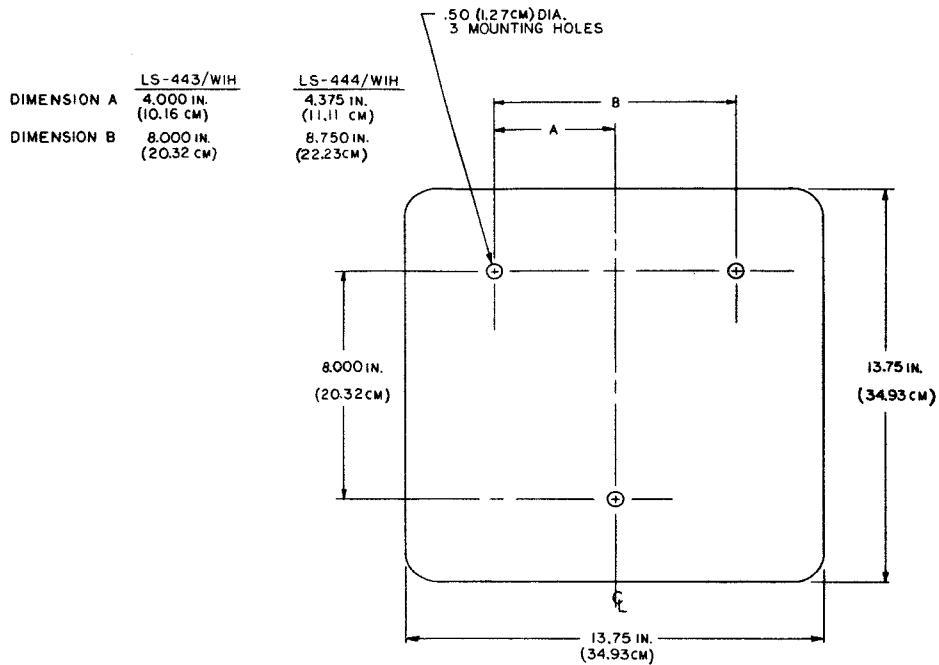


Figure 1. Mounting Dimensions

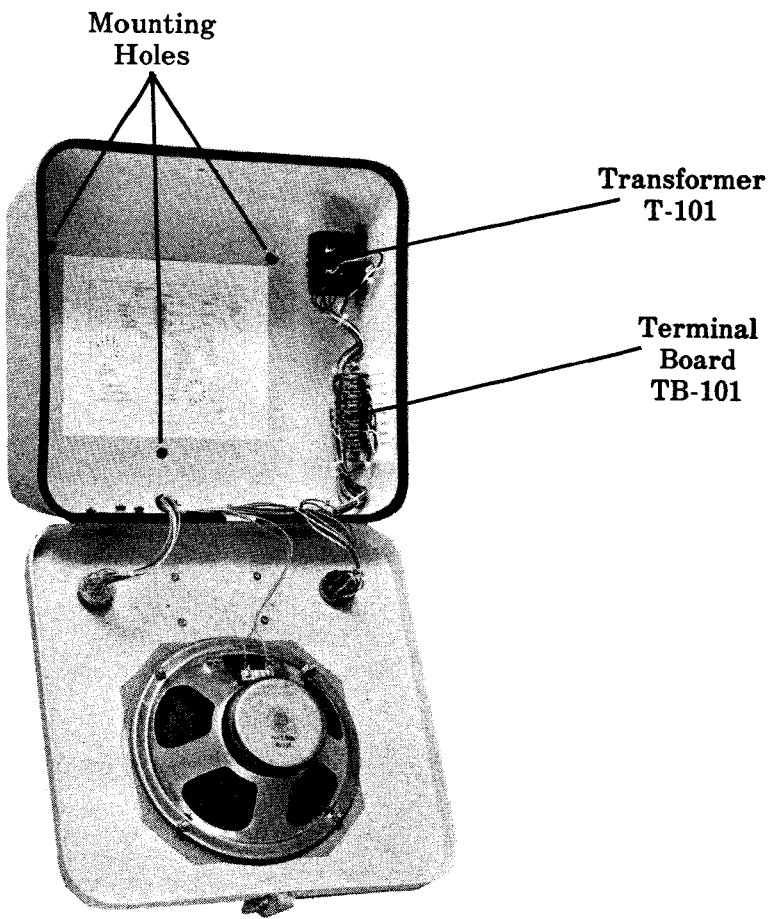
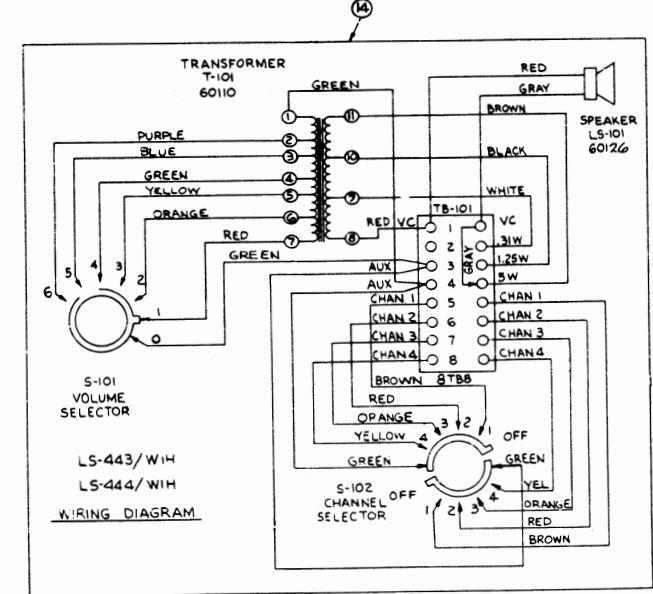
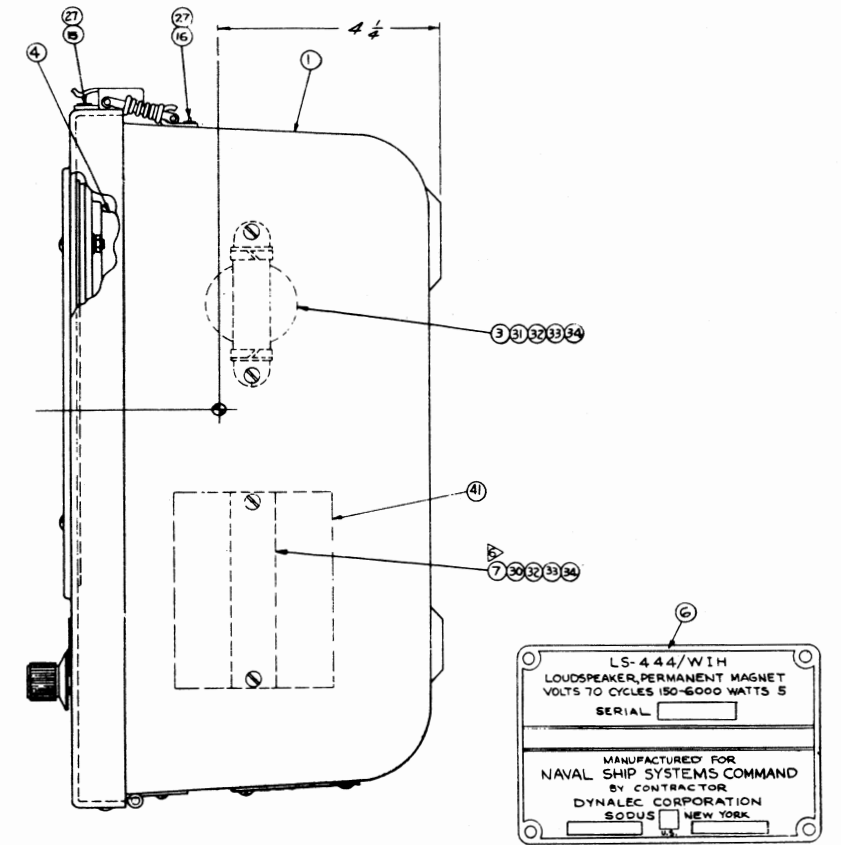
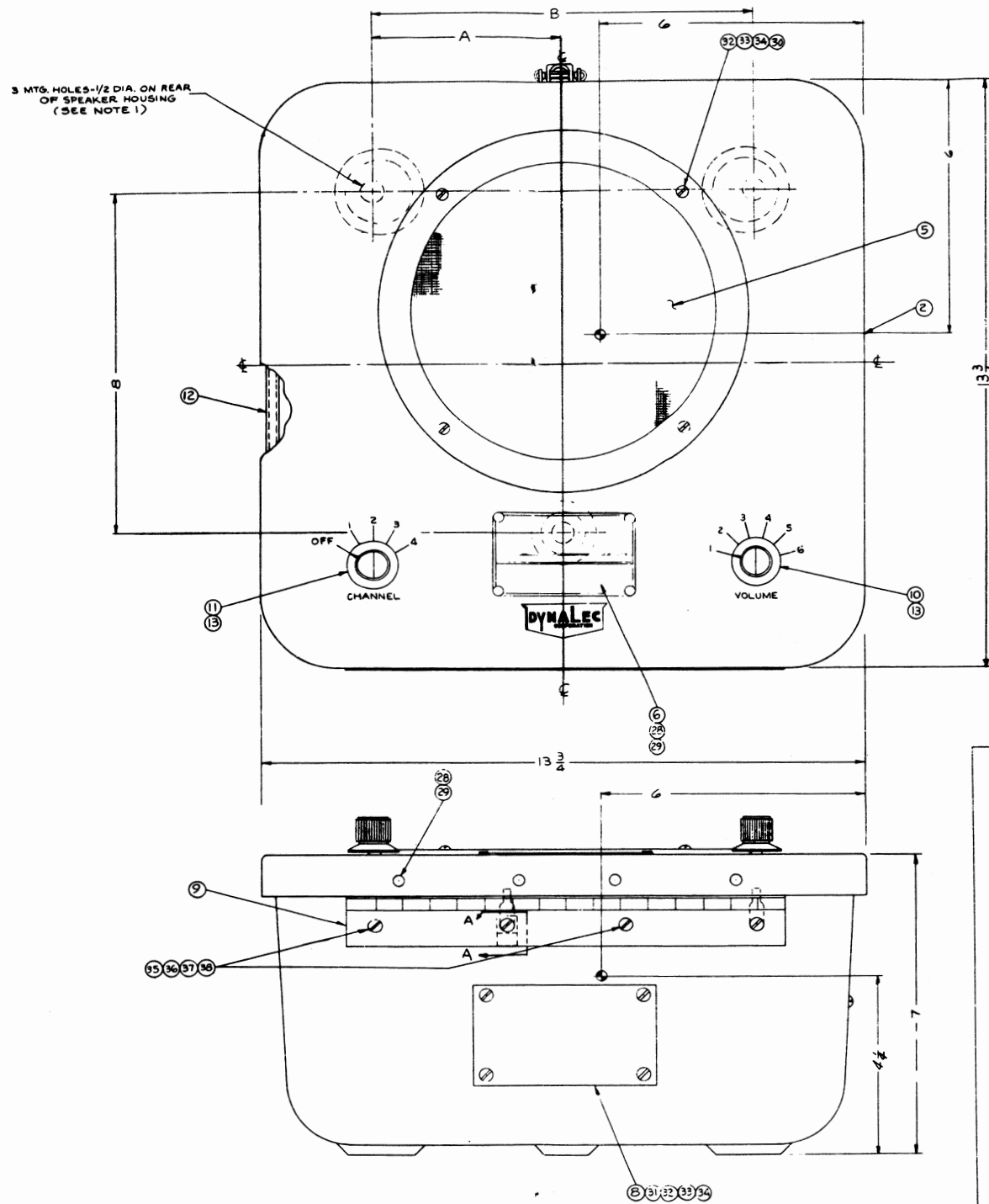


Figure 2. Loudspeaker Enclosure (Open)

BILL OF MATERIALS

LS-443/WIH,LS-444/WIH

ITEM NO.	DESCRIPTION	QTY	PART NO.	MFG.	MFG. NO.	REMARKS
1	HOUSING, SPEAKER	1	60101-001/002			
2	COVER	1	60102			
3	TRANSFORMER	1	60110			
4	SPEAKER, 8" DIA	1	60126			
5	SPEAKER GRILL	1	60112			
6	NAME PLATE	1	60103			
7	TERMINAL BOARD	1	14052-003	KULKA	8T88	
8	PLATE, STUFFING TUBE	1	60104			
9	HINGE	1	60105			
10	SWITCH, VOLUME	1	60113			
11	SWITCH, CHANNEL	1	60114			
12	GASKET, RUBBER	1	60106			
13	KNOB	2	14092-002	ROGAN	RB311	
14	CIRCUIT LABEL	1	60108			
15	LATCH	1	60115	REX	14L16-1-AA	
16	CATCH	1	60116	REX	14L15-1-AA	
17	WIRE, 22 GA, BRN	6'	15002-001	ALPHA	1551(7)	
18	WIRE, 22 GA, RED	9'	15002-002		1551(3)	
19	WIRE, 22 GA, ORN	6'	15002-003		1551(8)	PART OF
20	WIRE, 22 GA, YEL	6'	15002-004		1551(5)	ITEM #39
21	WIRE, 22 GA, GRN	9'	15002-005		1551(4)	
22	WIRE, 22 GA, BLUE	2'	15002-006		1551(6)	
23	WIRE, 22 GA, VIOLET	2'	15002-007		1551(10)	
24	WIRE, 22 GA, GRAY	3'	15002-008		1551(9)	
25	WIRE, 22 GA, WHITE	2'	15002-009		1551(1)	
26	WIRE, 22 GA, BLACK	2'	15002-010		1551(2)	
27	RIVET, HOLLOW, 1/8 x 5/16	4	12604-010			
28	RIVET, HOLLOW, 1/8 x 1/4	8	12604-008			
29	RIVET, WASHER, 1/8 HOLE	8	12211-003			
30	SCREW, PH, SS, 8-32 x 7/8	6	12126-006			
31	SCREW, PH, SS, 8-32 x 1/2	6	12126-003			
32	FLAT WASHER, SS, #8	12	12211-007			
33	LOCK WASHER, SS, SPLIT #8	12	12203-004			
34	NUT, HEX, SS, 8-32	12	12301-004			
35	SCREW, PH, SS, 6-32 x 1/2	2	12116-003			
36	FLAT WASHER, SS, #6	4	12211-006			
37	LOCK WASHER, SS, SPLIT #6	4	12203-003			
38	NUT, HEX, SS, 6-32	4	12301-003			
39	CABLE ASSEMBLY	1	60117			
40	SCREW, PH, SS, 6-32 x 3/4	2	12116-005			
41	LABEL, TERMINAL BOARD	1	60118			
42	TY-RAP	2	14128-040			



TRANSFORMER DATA

PR1	SEC
1K.Ω 20	0.8 Ω
2K.Ω 30	0.9 Ω
4K.Ω 40	1.0 Ω
16K.Ω 60	0.5 Ω
32K.Ω 70	0.1 Ω

SCHEMATIC DIAGRAM

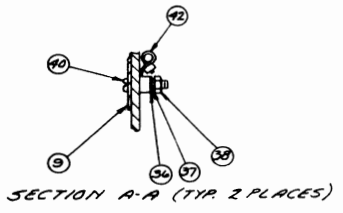
PERFORMANCE DATA

- FREQ. RESPONSE: ±1 1/2 DB. FROM 100-7000 CPS ON 1000 TO 8000 OHM TAP. ±3DB. FROM 100-7000 CPS ON 1600 TO 3200 OHM TAP. USING 400 CPS FOR REFERENCE
- TOTAL PRI. DC RESISTANCE: 470 OHMS ±15%
- SEC. DC RESISTANCE: 0.44 OHMS ±15%
- OPERATING LEVEL: INPUT - 70.7 VRMS 1000 CPS TER. OUTPUT - 5V. A ±20% TERM 11-8. B 1.25V. A ±20% TERM 11-9. B 0.3V. A ±20% TERM 11-10. B
- IMPEDANCE-INPUT IMPEDANCES PER SCHEMATIC C

MANUFACTURERS DATA

PR1	IMPEDANCE
1-2	1000 OHMS
1-3	2000 OHMS
1-4	4000 OHMS
1-5	8000 OHMS
1-6	16000 OHMS
1-7	32000 OHMS
8-11	8 OHMS
9-11	2 OHMS
10-11	0.5 OHMS

NOTE: 1 - FOR ASSEMBLY 60101-001 (LS-443) LOUDSPEAKER, DIMENSION 'A' IS 4" AND DIMENSION 'B' IS 8". FOR ASSEMBLY 60101-002 (LS-444) LOUDSPEAKER, DIMENSION 'A' IS 4 3/8" AND DIMENSION 'B' IS 8 3/4".



60100-001/002 REV G

Figure 3. LS-443/WIH,LS-444/WIH Loudspeaker Assembly and Schematic Diagram

TROUBLESHOOTING

If the loudspeaker does not operate properly on all channel or volume settings, first check that the audio input signal to the speaker is normal. Connect a known good loudspeaker across the input terminals inside the enclosure of the loudspeaker unit being tested. If the output of the loudspeaker is normal, check for a faulty speaker in the suspected unit. If the output of the known good loudspeaker is also faulty, check the matching transformer primary and secondary windings. A list of transformer electrical characteristics is given in Table 1. The CHANNEL

switch must be set to OFF position and one of the speaker leads disconnected in order to measure transformer winding continuity and resistance. If neither the speaker or the transformer is faulty, check all wiring and connections for loose, open or shorted connections.

If the loudspeaker does not operate properly on only one channel or volume setting but operates properly at the other settings, check the wiring associated with the faulty control setting.

Refer to Table 2 for the repair parts list.

TABLE 1
TRANSFORMER ELECTRICAL CHARACTERISTICS

PRIMARY		SECONDARY	
TERMINALS	IMPEDANCE (ohms) *	TERMINALS	IMPEDANCE (ohms) *
1-2	1000	11-8	8
1-3	2000	11-9	2
1-4	4000	11-10	0.5
1-5	8000		
1-6	16,000		
1-7	32,000		
Total DC resistance (Terminals 1-7)=470 ohms \pm 15%		Total DC resistance (Terminals 11-8)=0.44 ohms \pm 15%	

* At 1K HZ

TABLE 2
REPAIR PARTS LIST

DESCRIPTION	FUNCTION	MANUFACTURER'S NAME/ FEDERAL IDENT. CODE	MANUFACTURER'S PART NO./ NATIONAL STOCK NO.
Speaker	Converts electrical audio input to acoustical output	Dynalect Corp. 12763	60126 9N5965-00-951-8010
Transformer	Matches loudspeaker voice coil to audio system signal line	Dynalect Corp. 12763	60110
Switch, Channel	Selects program channel inputs to speaker	Dynalect Corp. 12763	60114
Switch, Volume	Selects volume level of speaker output	Dynalect Corp. 12763	60113

