



ASM-LS150

**LS150-001
Cabin Speaker**



INSTALLATION AND OPERATION MANUAL

REV 1.00 Date July 19, 2017

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LS150-001 Cabin Speaker Installation and Operation Manual

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LS150-001 Cabin Speaker Installation and Operation Manual

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Section 1.0 Description

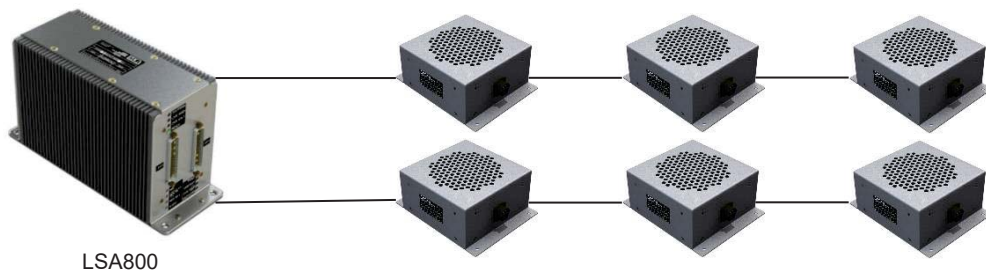
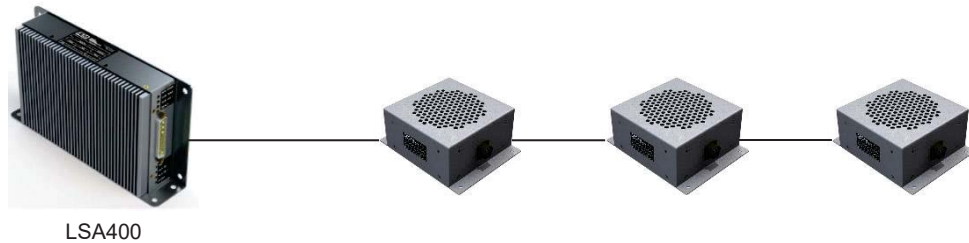
1.1 Introduction

Information in this section consists of product description, design features and specifications for the LS150-001 Cabin Speaker. All derivative product information will be contained in the applicable manual supplement, which may be obtained from AEM as required.

Review all notes, warnings and cautions.

1.2 Product Description

The LS150-001 is a 150W internal cabin speaker for use in cabin and/or cargo areas. It can be used in a three-speaker system with the LSA400 Loud Speaker Amplifier or as a six-speaker system with the LSA800 Loud Speaker Amplifier.



1.3 Design Features

The LS150-001 Cabin Speaker has a water-resistant cone and dust cap making it suitable for exposure to external environments. It is designed to meet the operational requirements of cabin PA systems intended for use in high noise environments found in many medium and large helicopters.



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1.4 Specifications

1.4.1 Electrical Specifications

The LS150 is designed to meet the following performance requirements:

Impedance	6 Ohms
Maximum Power input	150 Wrms
Maximum Sound Pressure	117 ±3 dB SPL at 1 kHz: 1m from speaker, 30 Vrms (150W) input signal
Frequency Response	≤ 20 dB from 350 - 5000 Hz: 1m from speaker, 2.45 Vrms (1W) input signal
Sensitivity	96 ±3 dB SPL at 1 kHz: 1m from speaker, 2.45 Vrms (1W) input signal
Distortion	≤ 3% THD at 1 kHz: 1m from speaker, 2.45 Vrms (1W) input signal

1.4.2 Physical Specifications

Length	9.00" (228.6 mm)
Width	7.00" (177.8 mm)
Height	3.50" (88.9 mm)
Weight	4.1 lb (1.9 kg)
Mounting	4 x AN4 (1/4-28)
Connector	1 x 6-Pin Circular

1.4.3 Environmental Specifications

The LS150 is designed to meet the following environmental requirements:

Temperature	-40 to +60°C (operating) -55 to +85°C (survival)
Altitude	25,000 feet max.
Humidity	95% Non-condensing
Shock	Operational Shock, Standard; 6g for 11msec in all axes Crash Safety, Impulse; 20g for 11msec in all axes Crash Safety, Sustained; 20g for > 3sec in all axes
Vibration	DO-160G category 'U2', Profiles 'F' and 'F1'



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1.4.4 Product Approval/Certification

No product approval/certification sought.

1.5 Product Limitations

The LS150-001 is intended for voice applications only.

End of Section 1.0



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Section 2.0 Installation

2.1 Introduction

Information in this section consists of: unpacking and inspection procedures, installation procedures, post-installation checks, and installation drawings.

2.2 Unpacking and Inspection

Unpack the equipment carefully. Inspect the unit visually for damage due to shipping and report all such claims immediately to the carrier involved. Note that each unit should have the following:

- LS150-001
- Acceptance Test Report
- Certificate of Conformity or Release certification

Verify that all items are present before proceeding and report any shortage immediately to your supplier.

2.2.1 Warranty

All Anodyne Electronics Manufacturing Corp. (AEM) products are warranted for 2 years. See the website www.aem-corp.com/warranty for complete details.

2.3 Installation Procedures

2.3.1 Warnings

WARNING:
When the speaker is connected to an appropriate amplifier, the system is capable of producing high sound pressure levels. Proper personal protective equipment is required to prevent hearing damage.

2.3.2 Cabling and Wiring

All wire shall be selected in accordance with the original aircraft manufacturer's Maintenance Instructions or AC43.13-1B Change 1, Paragraphs 11-76 through 11-78. Unshielded wire types shall qualify to MIL-W-22759 as specified in AC43.13-1B Change 1, Paragraphs 11-85, 11-86, and listed in Table 11-11. For shielded wire applications, use Tefzel MIL-C-27500 shielded wire with solder sleeves (for shield terminations) to make the most compact and easily terminated interconnect. Follow the interconnect drawing in Section 2.7 as required.

Maintain wire segregation and route wiring in accordance with the original aircraft manufacturers Maintenance Instructions.

Unless otherwise noted, all wiring shall be a minimum of 14 AWG. Reference the Interconnect drawing for additional specifications. Check that the ground connection is clean and well secured.



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2.3.3 Post-Installation Checks

2.3.3.1 Voltage/Resistance Checks

Do not connect or power up the Amplifier System (LSA400 or LSA800) or connect the LS150-001 speakers to the wiring harness until the following conditions are met.

Referencing the Interconnect drawing listed in Section 2.6, perform the following:

- a) Check aircraft connector pin B, of the unit farthest from the amplifier source, for continuity to ground, should be less than 2Ω .
- b) Check all speaker connections to/from each connector to ensure that there are no unintended connections to power or ground.
- c) Check all speaker connections to/from each connector to ensure that there are no unintended connections between speaker wires or the shields.

Ensure all connectors are tight and the mechanical installation is sound.

Upon satisfactory completion of all performance checks, make all required log book entries, electrical load, weight and balance amendments and other documentation as required by your local regulatory agency before releasing the aircraft for service.

2.4 Accessories Required But Not Supplied

The LS150-001 does not currently have a specific installation kit.

2.5 Continued Airworthiness

If periodic maintenance is required for a AEM product a description of how airworthiness shall be maintained is required. Normal circumstances dictate that most AEM products do not require periodic maintenance such that the following example shall normally apply.

Maintenance of the LS150-001 Cabin Speaker is 'on condition' only. Periodic maintenance of this product is not required.



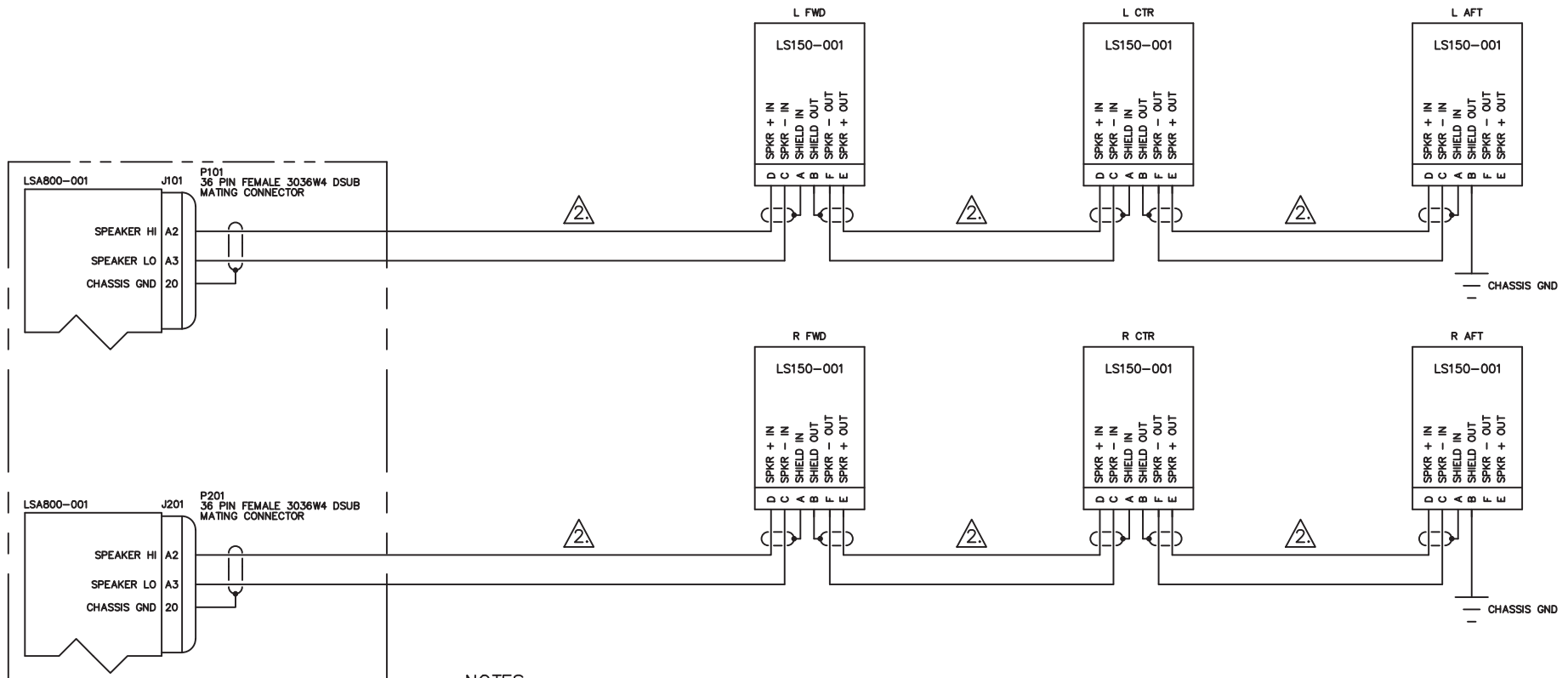
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2.6 Installation Drawings

Use of the "#" symbol in the REV. column indicates that the document is listed elsewhere in the manual. Refer to the applicable AEM Part No. to locate the referenced document.




DOCUMENT	REV	DESCRIPTION	TYPE	SERIAL NO.
LS150-403-0	1.00	Cabin Speaker, 150W	Interconnect	64647+
LS150-405-0	1.00	Cabin Speaker, 150W	Connector Map	64647+
LS150-001-402-0	1.00	Cabin Speaker, 150W	Internal Wiring Diagram	64647+
LS150-001-922-0	1.00	Cabin Speaker, LS150	Mechanical Installation	64647-69473
LS150-001-922-0	1.10	Cabin Speaker, LS150	Mechanical Installation	69474+

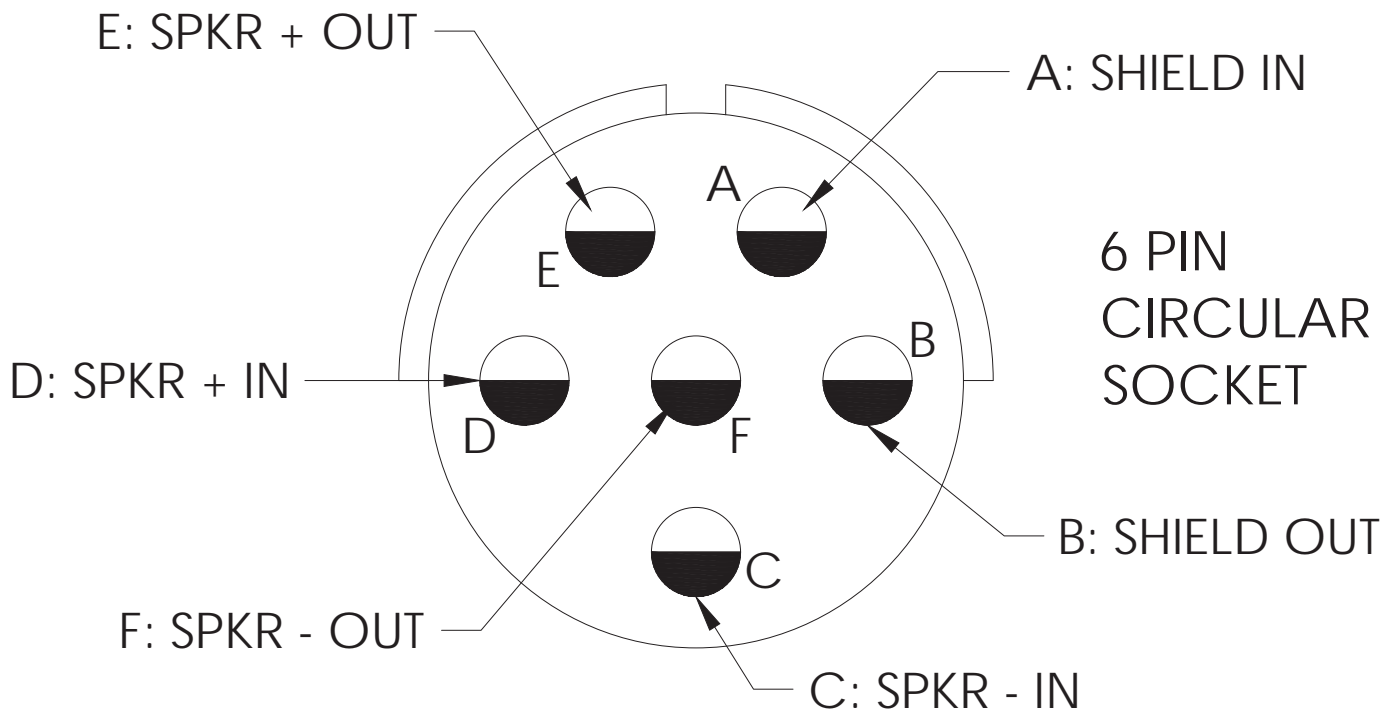
Section 2.0 ends following above documents






NOTES:

1. ALL WIRES SHOULD BE 14 AWG UNLESS OTHERWISE SPECIFIED. ALL UNSHIELDED WIRE SHALL BE SELECTED IN ACCORDANCE WITH AC43.13-1B CHANGE 1, PARAGRAPHS 11-76 THROUGH 11-78. WIRE TYPES SHOULD BE TO MIL-W-22759 AS SPECIFIED IN AC43.13-1B CHANGE 1, PARAGRAPHS 11-85, 11-86, AND LISTED IN TABLE 11-11. ALL SHIELDED WIRE/CABLE SHOULD BE IN ACCORDANCE WITH MIL-C-27500.
2. CABLE LENGTH NOT TO EXCEED 20 FT.
3. SEE APPLICABLE ASM-LSA400 OR ASM-LSA800 INSTALL AND OPS MANUAL FOR SYSTEM LEVEL INTERCONNECTIONS.

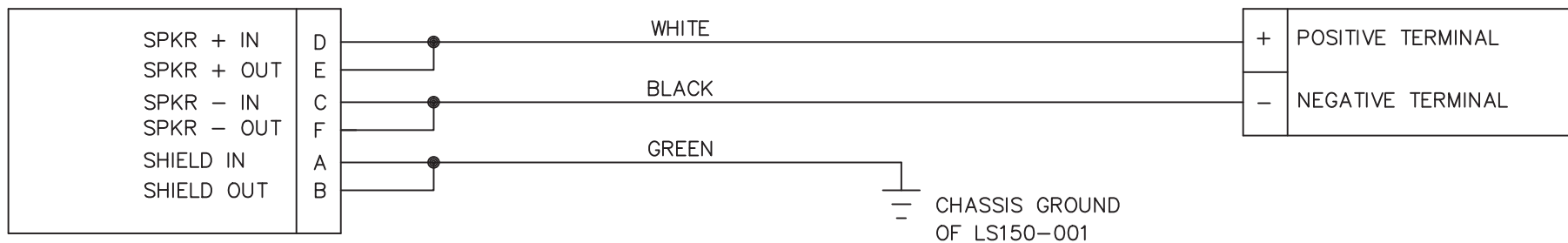
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APPROVED		Jul 19/17	FINISH:				
CONFIDENTIAL AND PROPRIETARY THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ANODYNE ELECTRONICS MANUFACTURING. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF ANODYNE ELECTRONICS MANUFACTURING IS PROHIBITED.			NA	PAPER SIZE: A	CAGE CODE: L9015	PART No.: LS150	REVISION: 1.00
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VIEW IS FROM REAR OF AIRFRAME CONNECTOR


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DRAWN	LAC	13-May-16	DIMENSIONS ARE IN INCHES [MM]			TITLE: CABIN SPEAKER, 150W CONNECTOR MAP			
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LS150-001
CIRCULAR PLUG, 6 PIN

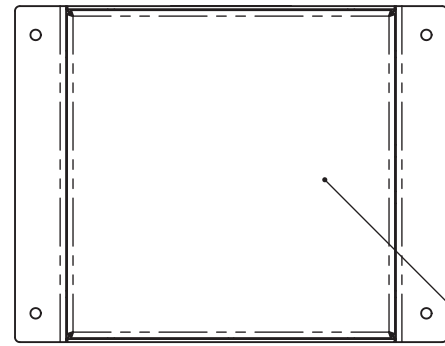


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NOTES:

1. WEIGHT: 4.1 lb [1.9 kg] NOMINAL.
2.  DENOTES CENTER OF GRAVITY (EST.)
3. CHASSIS MATERIAL: 5052-H32 ALUMINUM.
THICKNESS: 0.064 NOMINAL.
FINISH: MIL-DTL-5541, TYPE II, CLASS 3.
PRIMER: MIL-PRF-23377, REV K, TYPE I, CLASS C2.
COLOR: 36231 GREY PER FED-STD-595 WITH CLEAR TOPCOAT.
4. SPEAKER DRIVER: AEM P/N 182-03-002.
MISCO SPEAKERS P/N NR6C-6X.
5. CONNECTOR: AEM P/N 120-31-003.
AMPHENOL P/N JTP02RE-16-6P (014).
MILITARY P/N MS27508E16B6P.
6. WELDED EDGES, CORNER RELIEFS UNWELDED FOR DRAINING (4 PLACES).

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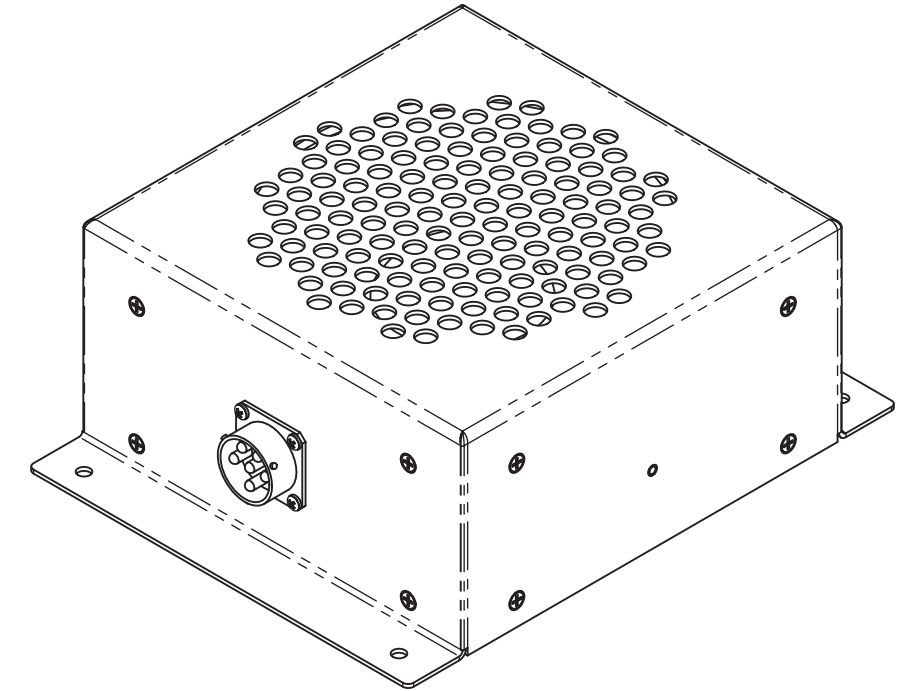
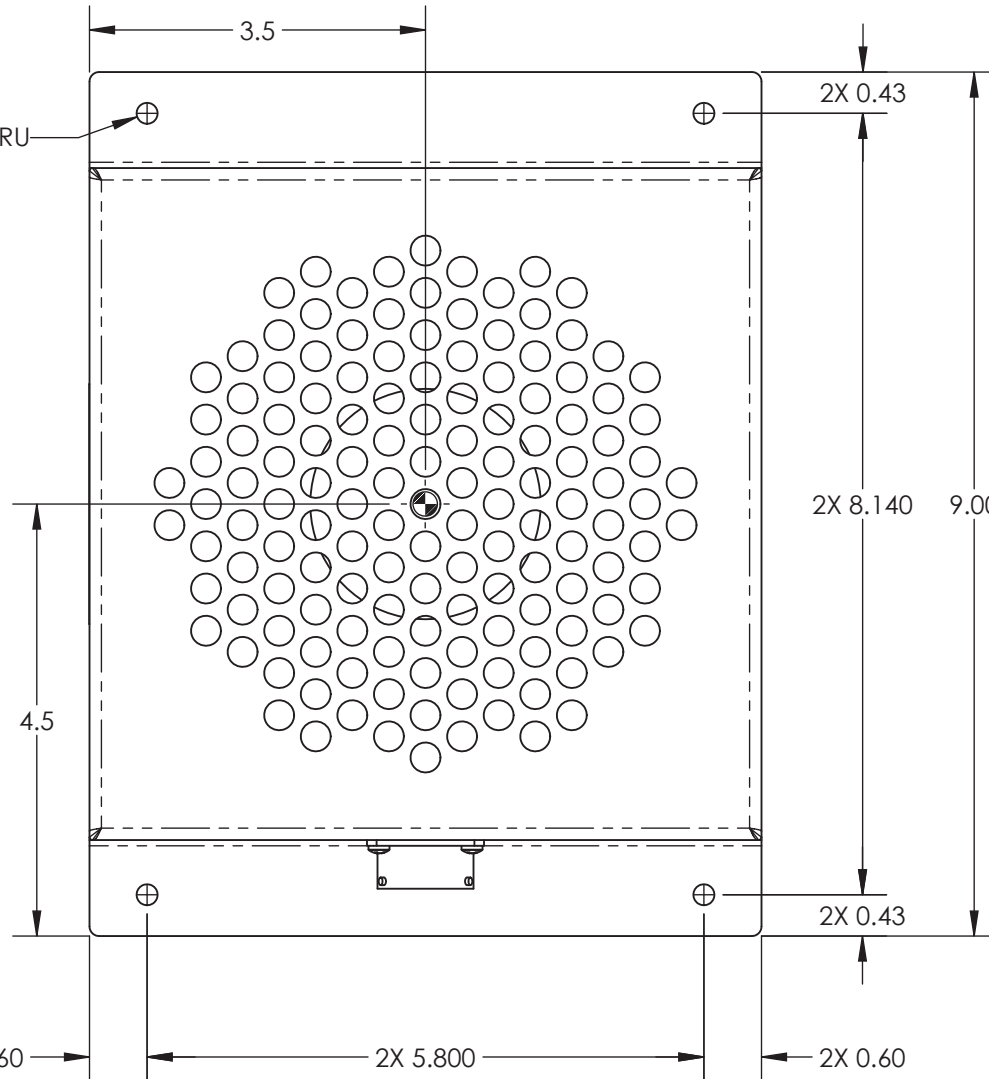
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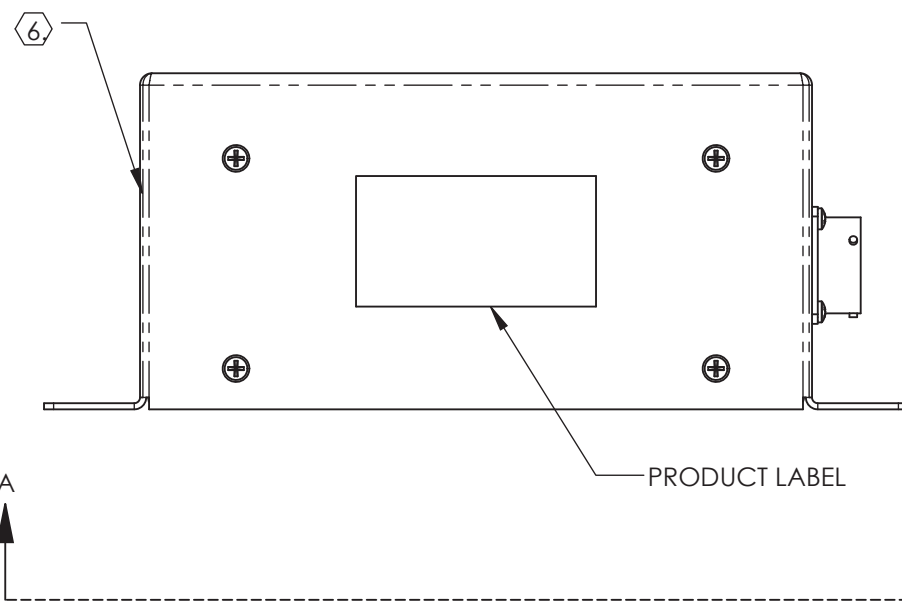
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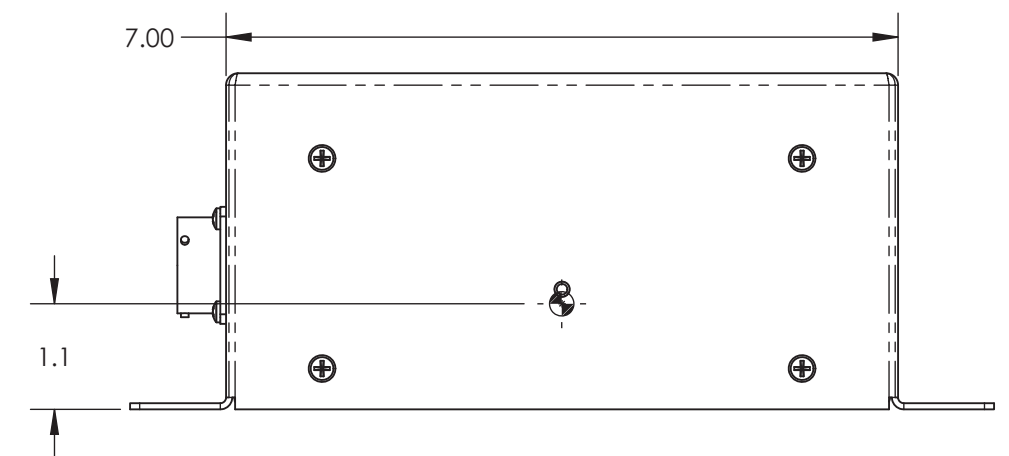
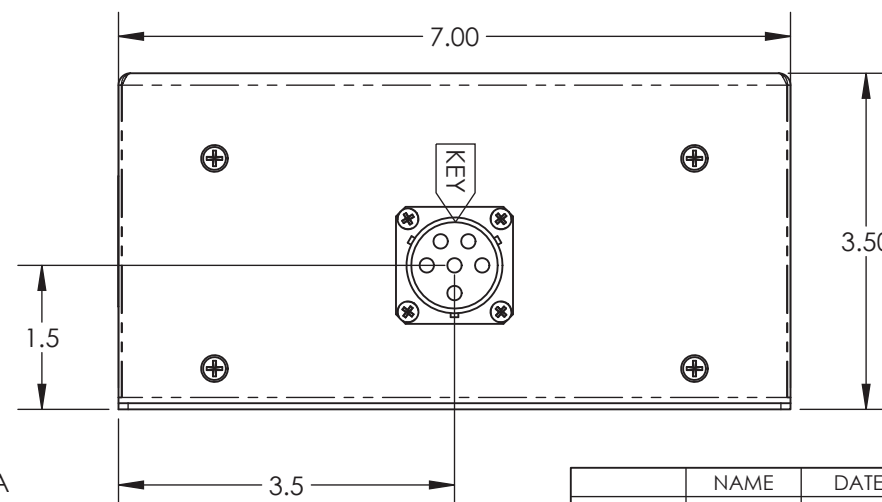
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PRODUCT LABEL



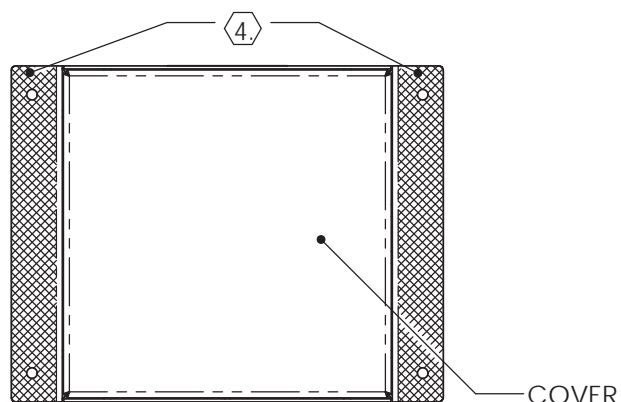
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			THREE DECIMAL PLACE: ±0.010"
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			FINISH:
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			ANODYNE ELECTRONICS MANUFACTURING CORP.		15-1925 KIRSCHNER RD. KELOWNA BC V1Y 4N7 (250)-763-1088 WWW.AEM-CORP.COM
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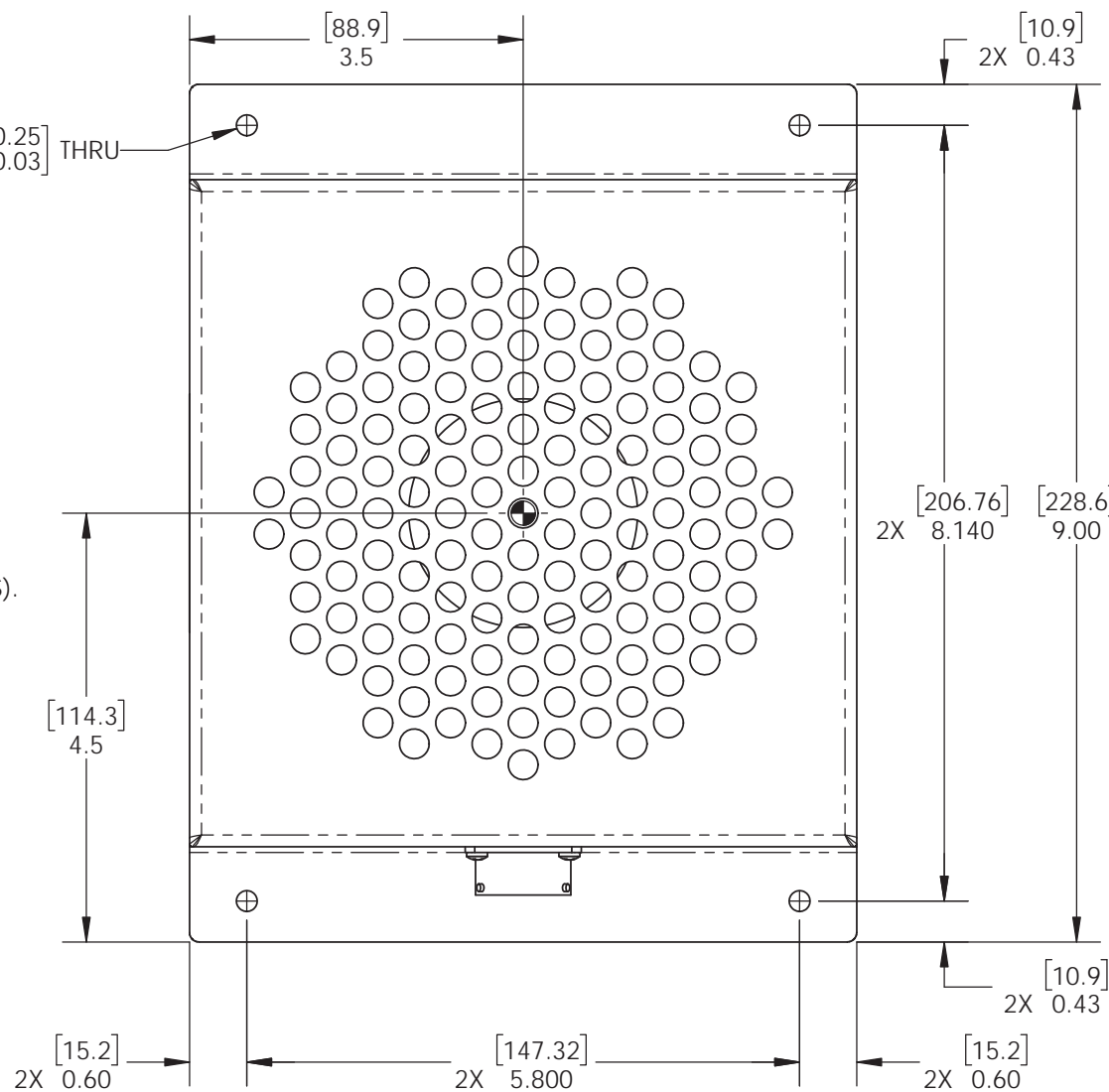
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3. CHASSIS MATERIAL: 5052-H32 ALUMINUM.
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PRIMER: MIL-PRF-23377, REV K, TYPE I, CLASS C2.
COLOR: 36231 GREY PER FED-STD-595 WITH CLEAR TOPCOAT.
4. MASKED AREA FREE OF PRIMER, PAINT, AND CLEAR COAT.
5. SPEAKER DRIVER: AEM P/N 182-03-002.
MISCO SPEAKERS P/N NR6C-6X.
6. CONNECTOR: AEM P/N 120-31-003.
AMPHENOL P/N JTP02RE-16-6P (014).
MILITARY P/N MS27508E16B6P.
7. WELDED EDGES, CORNER RELIEFS UNWELDED FOR DRAINING (4 PLACES).

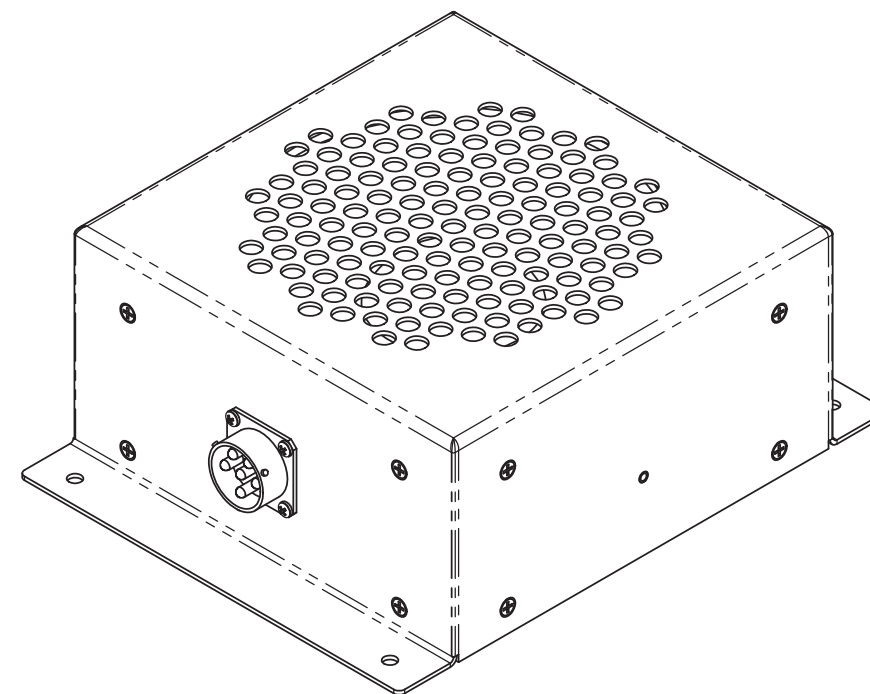
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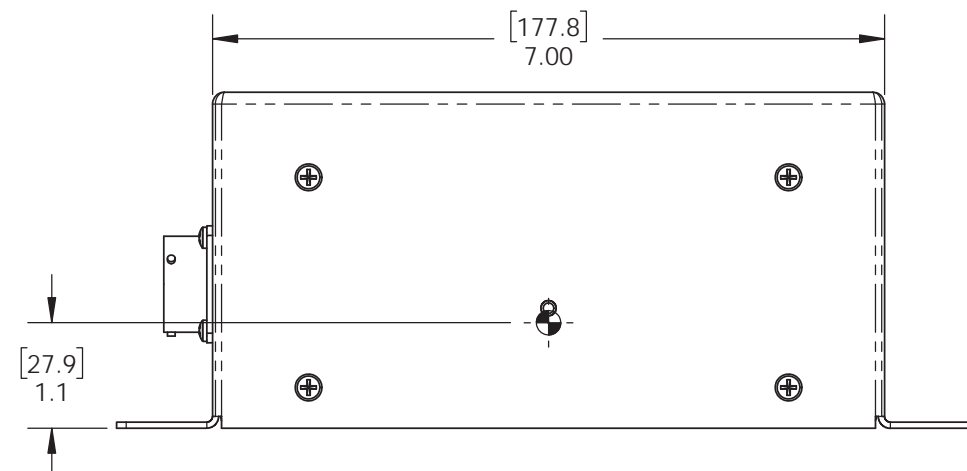
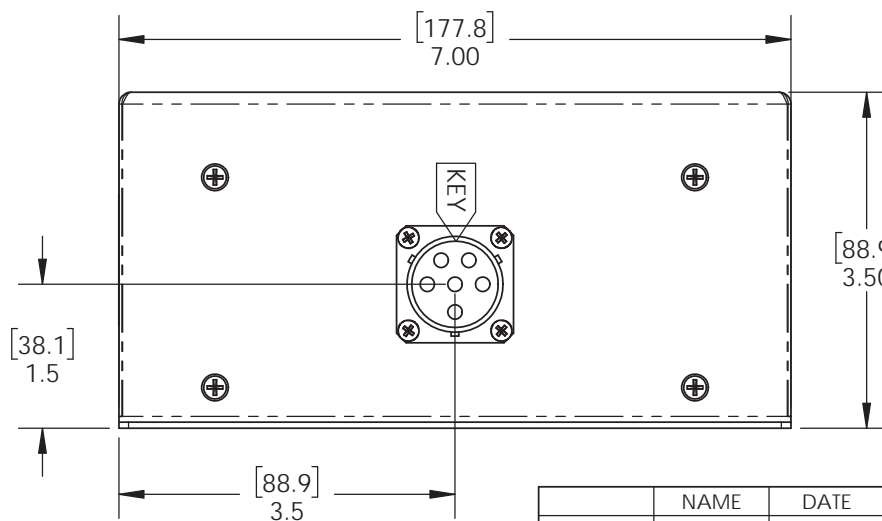
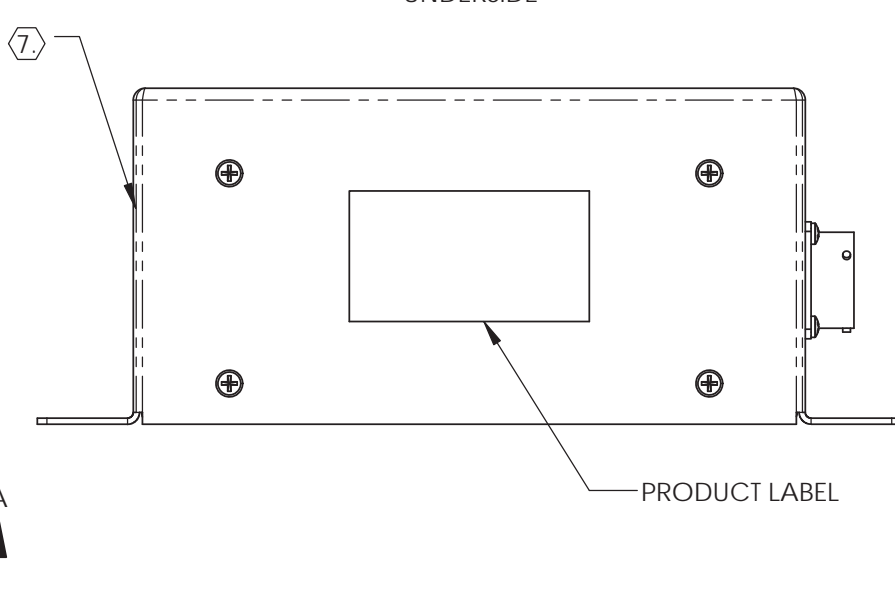
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REVISIONS			
REV.	DESCRIPTION	DATE	NAME
1.10	RAS# 686 - ADDED NOTE 4. NOTE: REV 1.10 IS IDENTICAL TO REV 1.00-ISS4	19-Jul-17	DMF



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		ONE DECIMAL PLACE: ±0.100"
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SCALE: 1:2	DO NOT SCALE DRAWING	DRAWING No.: 922-0	SHEET: 1 OF 1



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Section 3.0 Operation

3.1 Introduction

The LS150-001 Cabin Speaker has no normal user operational aspects.

End of Section 3.0
