ANODYNE ELECTRONICS MANUFACTURING CORP.

SERVICE BULLETIN - OPTIONAL

Part No.: LS300-20x Loudspeakers

Description: Loudspeaker 300W External	
Service Manual: ASM-LS	Service Bulletin No.: ASM-LS-603-0006
ECO No.: ECO1230	Subject: Re-entrant Tip Securing (MOD 4)

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1. Planning Information

1.1 Applicability

This Service Bulletin supersedes the following Service Bulletins:

- ASM-LS-603-0001
- ASM-LS-603-0002
- ASM-LS-603-0004

This Service Bulletin is applicable to all LS300-20x units without MOD 4 applied.

1.2 Reason

AEM received a customer observation that an LS300 Re-entrant Tip loosened after flight.

1.3 Description

Extensive experimentation was conducted to find a more reliable method of securing the Re-entrant Tips and additional DO-160G Operational Shock and Vibration testing was conducted.

MOD 4 consists of adding Threadlocker to the Re-entrant Tip threads and torquing it to 140 in-lb. LS300 Loudspeakers that have MOD 2 incorporated will have their Doubler Plate (with locking tab) replaced with a Doubler Plate that does not have this locking tab.

1.4 Compliance

This Service Bulletin is optional for customers. This change may be performed on all units without MOD 4 applied.

1.5 Approval

No change to existing approval.

1.6 Costing

This modification incorporates a customer request and design improvement which does not constitute changes to correct a malfunction. The modification is therefore not subject to warranty considerations.

1.6.1 Parts and Labour

One (1) hour estimated. Please contact Product Support for current parts pricing.

The following items are required to complete MOD 4:

Part Number	Manufacturer	Description	Qty
LOCTITE® 222	Henkel Adhesives	Low Strength Threadlocker	As Required
125-36-002 [A]	AEM	Phillips #2 Screw, #10 x 3/8", Self-Tapping	4
125-13-009 [A]	AEM	Phillips #3 Screw, 1/4"-20 x 5/8", Stainless	4
150-08-035 [A]	AEM	Doubler Plate (without Locking Tab)	1
LOCTITE® 271 [A]	Henkel Adhesives	High Strength Threadlocker	As Required

A - These parts are only required for LS300-20x Loudspeakers with MOD 2 applied.

1.7 Equipment Required for MOD 4

The following tools are required to complete MOD 4:

Part Number	Manufacturer	Description
WA-001 [B]	AEM	Wrench Adapter (Contact AEM Product Support to Purchase)
156-99-005	AEM	Tool Support for WA-001
85555A413 [C]	McMaster-Carr	3/8" Drive Torque Wrench
5522A33 [D]	McMaster-Carr	Square Drive Size Adapter, 3/8" Female x 1/2" Male
2781N14 [E]	McMaster-Carr	1/4" Drive Torque Screwdriver
N/A	N/A	3/8" Square Drive Extension, 8" or greater
N/A	N/A	Square Drive Bit Adapter, 3/8" Female x #3 Phillips
N/A	N/A	1/4" Hex Drive x #2 Phillips

B - The WA-001 accepts a 1/2" Square Drive Torque Wrench.

C - An approved equivalent capable of 30 - 150 in-lb may be substituted.

D - An approved equivalent may be substituted.

E - An approved equivalent capable of 8 in-lb may be substituted.

1.8 Equipment Required for Periodic Inspection of MOD 4

The following tools are required for periodic inspection of MOD 4:

Part Number	Manufacturer	Description
WA-001 [A]	AEM	Wrench Adapter (Contact AEM Product Support to Purchase)
156-99-005	AEM	Tool Support for WA-001
85555A413 [B]	McMaster-Carr	Torque Wrench, 3/8” Drive
5522A33 [C]	McMaster-Carr	Square Drive Size Adapter, 3/8" Female x 1/2" Male

A - The WA-001 accepts a 1/2" Square Drive Torque Wrench.

B - An approved equivalent capable of 30 - 150 in-lb may be substituted.

C - An approved equivalent may be substituted.

1.9 Weight and Balance

Not affected.

1.10 Electrical Load Data

Not affected.

1.11 References

None.

1.12 Other Publications Affected

ASM-LS Installation and Operations Manual

2. Modification Procedure for MOD 4

The Modification Status on the Product Label must be updated with a permanent marking to indicate MOD 4 has been incorporated.

The figures in this section are for visual representation only and may differ in appearance from actual components.

2.1 Re-entrant Tip Removal

2.1.1 Per Figure 1, Insert Tool Support for WA-001 (156-99-005) [red semi circle] between the Rubber Collar and Strap of Wrench Adapter (WA-001). Rotate Square Tube of Wrench Adapter counterclockwise to remove slack in Strap and ensure it remains in the channel of Tool Support for WA-001.

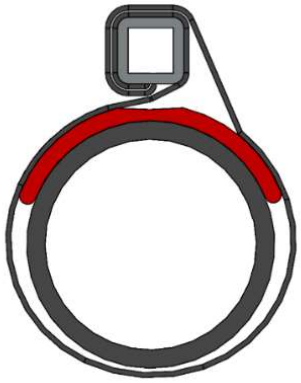

Figure 1 – Wrench Adapter Assembly Configuration for Re-Entrant Tip Removal

2.1.2 Per Figure 2, affix Wrench Adapter Assembly (WA-001 and 156-99-005) to Re-Entrant Tip. Ensure Wrench Adapter Assembly is fully seated on Re-Entrant Tip and does not contact Loudspeaker Bell. Surface damage to the Bell may occur if the Wrench Adaptor contacts it during rotation. The bottom end of the wrench adapter is fitted with a rubber cap to mitigate bell damage.

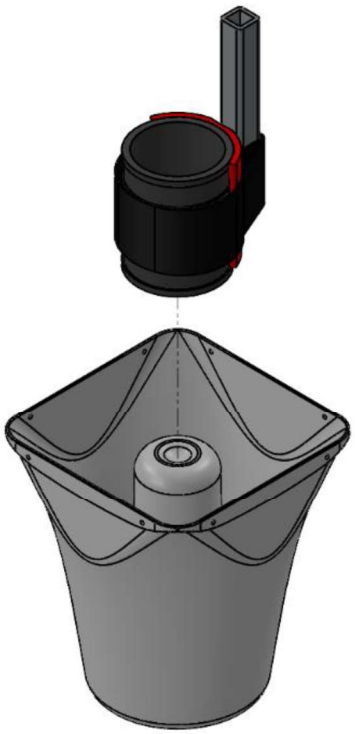

Figure 2 – Wrench Adapter Assembly Position on Re-Entrant Tip

2.1.3 Insert Square Drive Size Adapter (3/8" Female x 1/2" Male) into Torque Wrench (3/8" Drive). Per Figure 3, insert Torque Wrench Assembly into Square Tube of Wrench Adapter Assembly (WA-001 and 156-99-005). Rotate Torque Wrench Assembly counterclockwise until slack in Strap of Wrench Adapter Assembly is removed. Continue rotating Torque Wrench Assembly counterclockwise to remove Re-Entrant Tip. Remove the Re-entrant Tip carefully to ensure the fiber and rubber washers stay inside the Re-entrant Tip. If they do separate, insert the Fiber Washers first and last (Rubber Washers will be between both Fiber Washers). Inspect Re-Entrant Tip for damage. Contact AEM for replacement Re-Entrant Tip as required. Remove Torque Wrench Assembly from Wrench Adapter Assembly and set aside.

Note: For Loudspeakers with MOD 2, a Locking Tab may separate from the Doubler Plate during removal of the Re-Entrant Tip. Ensure any tab debris is removed and discarded from the Speaker Assembly.

Figure 3 – Re-Entrant Tip Removal with Torque Wrench

2.2 Old Doubler Plate Removal (Only Applicable for Loudspeakers with MOD 2 Applied)

2.2.1 Per Figure 4, remove two #2 Phillips Screws (shown in green) and four #3 Phillips Screws (shown in blue). Remove and discard Doubler Plate and all screws. Remove old Threadlocker from threads.

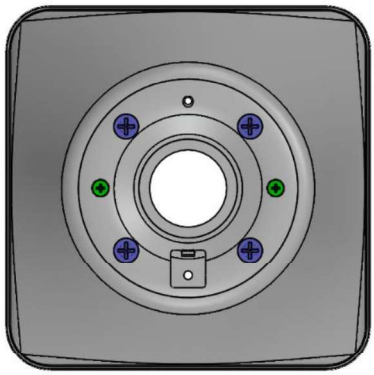

Figure 4 – Old Doubler Plate Removal

2.3 New Doubler Plate Installation (Only Applicable for Loudspeakers with MOD 2 Applied)

2.3.1 Place new Doubler Plate (150-08-035) inside the bell and align its holes with the holes in the bottom of the bell.

2.3.2 Per Figure 5, apply LOCTITE® 271 to four #3 Phillips Screws (shown in blue) and torque to 30 in-lb. Torque four #2 Phillips Screws (shown in green) to 9 in-lb. Do not apply LOCTITE® 271 #2 Phillips Screws.

Note: LOCTITE® 271 sets in 10 minutes and fully cures in 24 hours.

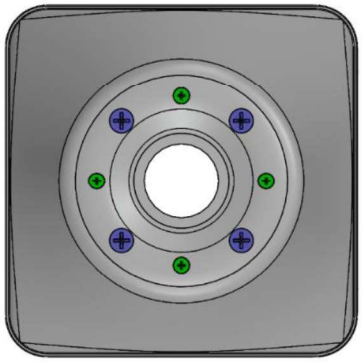

Figure 5 – New Doubler Plate Installation

2.4 Re-Entrant Tip Replacement

2.4.1 Per Figure 6, Insert Tool Support for WA-001 (156-99-005) [red semi circle] between the Rubber Collar and Strap of Wrench Adapter (WA-001). Rotate Square Tube of Wrench Adapter clockwise to remove slack in Strap and ensure it remains in the channel of Tool Support for WA-001.

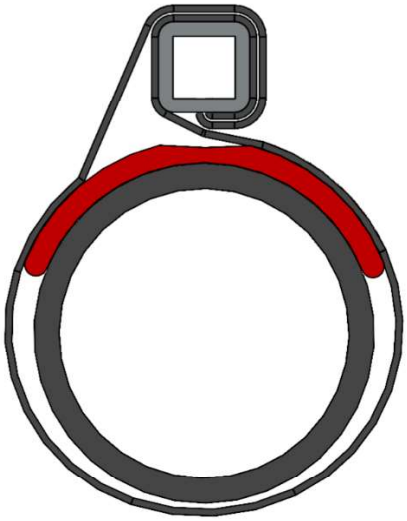

Figure 6 – Wrench Adapter Assembly Configuration for Re-Entrant Tip Replacement

2.4.2 Per Figure 7, apply four thin strips (approx. 0.25” wide) of LOCTITE® 222 to Re-Entrant Tip threads.

Note: LOCTITE® 222 sets in 10 minutes and fully cures in 24 hours.

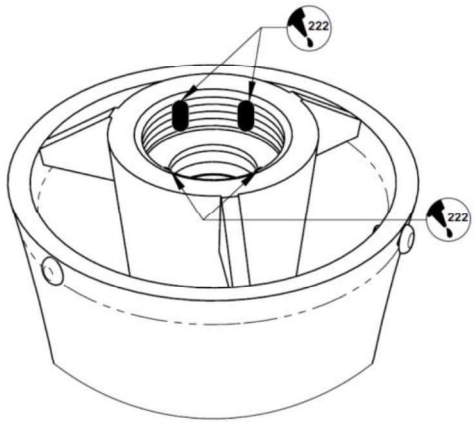

Figure 7 – LOCTITE® 222 Locations for Re-Entrant Tip Replacement

2.4.3 Thread Re-Entrant Tip to Speaker Assembly until hand tight. Per Figure 8, affix Wrench Adapter Assembly (WA-001 and 156-99-005) to Re-Entrant Tip. Ensure Wrench Adapter Assembly is fully seated on Re-Entrant Tip and does not contact Loudspeaker Bell. Surface damage to the Bell may occur if the Wrench Adaptor contacts it during rotation.

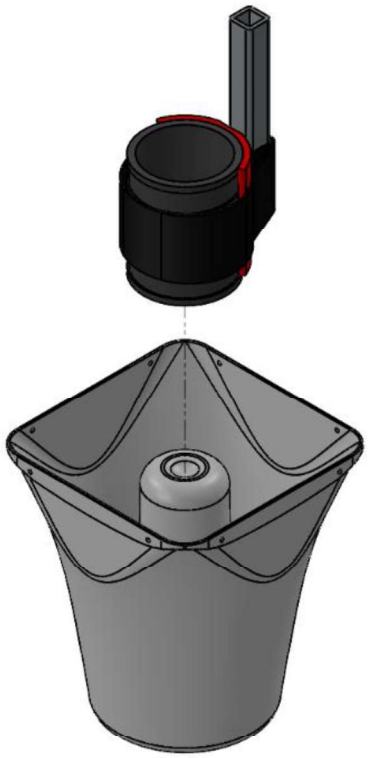

Figure 8 – Wrench Adapter Assembly Position on Re-Entrant Tip

2.4.4 Per Figure 9, insert Torque Wrench Assembly into Square Tube of Wrench Adapter Assembly (WA-001 and 156-99-005). Rotate Torque Wrench Assembly clockwise until slack in Strap of Wrench Adapter Assembly is removed. Continue rotating Torque Wrench Assembly counterclockwise until it reaches 140 in-lb. Wait 1-2 min, then re-torque to 140 in-lb. Inspect Re-Entrant Tip for damage. Contact AEM for replacement Re-Entrant Tip as required. Remove Torque Wrench Assembly from Wrench Adapter Assembly and set aside.

Figure 9 – Re-Entrant Tip Reassembly with Torque Wrench

3. Inspection Procedure for MOD 4

This Inspection Procedure is intended to be performed as required. Do not perform immediately after Section 2.

The figures in this section are for visual representation only and may differ in appearance from actual components.

3.1 Re-entrant Tip Inspection

3.1.1 Per Figure 10, Insert Tool Support for WA-001 (156-99-005) [red semi circle] between the Rubber Collar and Strap of Wrench Adapter (WA-001). Rotate Square Tube of Wrench Adapter counterclockwise to remove slack in Strap and ensure it remains in the channel of Tool Support for WA-001.

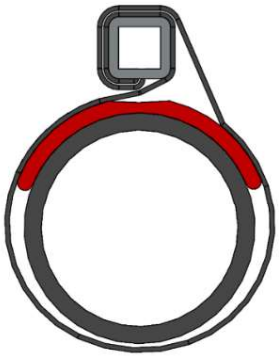

Figure 10 – Wrench Adapter Assembly Configuration for Re-Entrant Tip Inspection

3.1.2 Per Figure 11, affix Wrench Adapter Assembly (WA-001 and 156-99-005) to Re-Entrant Tip. Ensure Wrench Adapter Assembly is fully seated on Re-Entrant Tip and does not contact Loudspeaker Bell. Surface damage to the Bell may occur if the Wrench Adaptor contacts it during rotation.

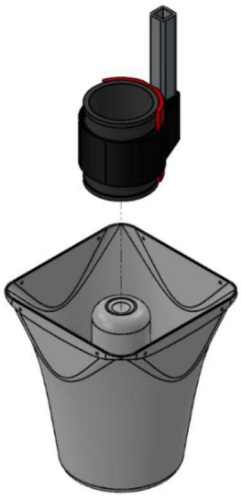

Figure 11 – Wrench Adapter Assembly Position on Re-Entrant Tip

3.1.3 Insert Square Drive Size Adapter (3/8" Female x 1/2" Male) into Torque Wrench (3/8” Drive). Per Figure 12, insert Torque Wrench Assembly into Square Tube of Wrench Adapter Assembly (WA-001 and 156-99-005). Rotate Torque Wrench Assembly counterclockwise until slack in Strap of Wrench Adapter Assembly is removed. Continue rotating Torque Wrench Assembly until it reaches 100 in-lb. Do not exceed 120 in-lb.

If Re-Entrant Tip does not begin to rotate, the inspection is complete.

If Re-Entrant Tip begins to rotate, reference Section 2 as required and contact AEM.

Figure 12 – Re-Entrant Tip Inspection with Torque Wrench Assembly

End of Service Bulletin