

	Doc or ECO #:	ECO-70017-002	Date:	7/27/21	Author:	Jk
	Rev. #:	A				
Engineering Change Order (ECO)	Engineering Approval:	Aeg	Date:	7/27/21	Quality Approval	aeg

P/N #:	70017	Effective Date:	July 27, 2021
Title:	LED Lens Array Modification for improved potting		

1.0 Purpose / Summary

LED modules were being scrapped at a high rate due to potting defects. There had also been some related water ingress failures in the field.

The reflector array was modified to promote better urethane potting adhesion and to minimize bubble entrapment in the potting.

2.0 Parts Affected

Part Number	Notes	Removed	Added	Modified	REV
70017	Added coating, additional holes, and clearance under the part	☐	☐	☒	C

3.0 Detail

Yields on LEDs became very low. There appeared to be debonding and cracking in the urethane potting compound, but only over the reflector. This was attributed to poor bonding to the aluminum part, constrained thermal stress, and possibly exacerbated by bubble entrapment in the potting under the reflector.

The reflector array was modified with additional holes and added relief under the reflector. The relief under the reflector will allow for easier migration of bubble during potting and decrease thermal stress containment. The additional holes provide more surface area for adhesion and decreased dependence on adhesion.

The reflector was also coated with a chemical conversion coating (clear Alodine, CHEMICAL CONVERSION COATING (Mil-DTL-5541, Type II), PASSIVATION) to promote adhesion.

See 70017 drawing for full geometry.

The QC procedure was also enhanced to include a 2hr full power in water burn in.

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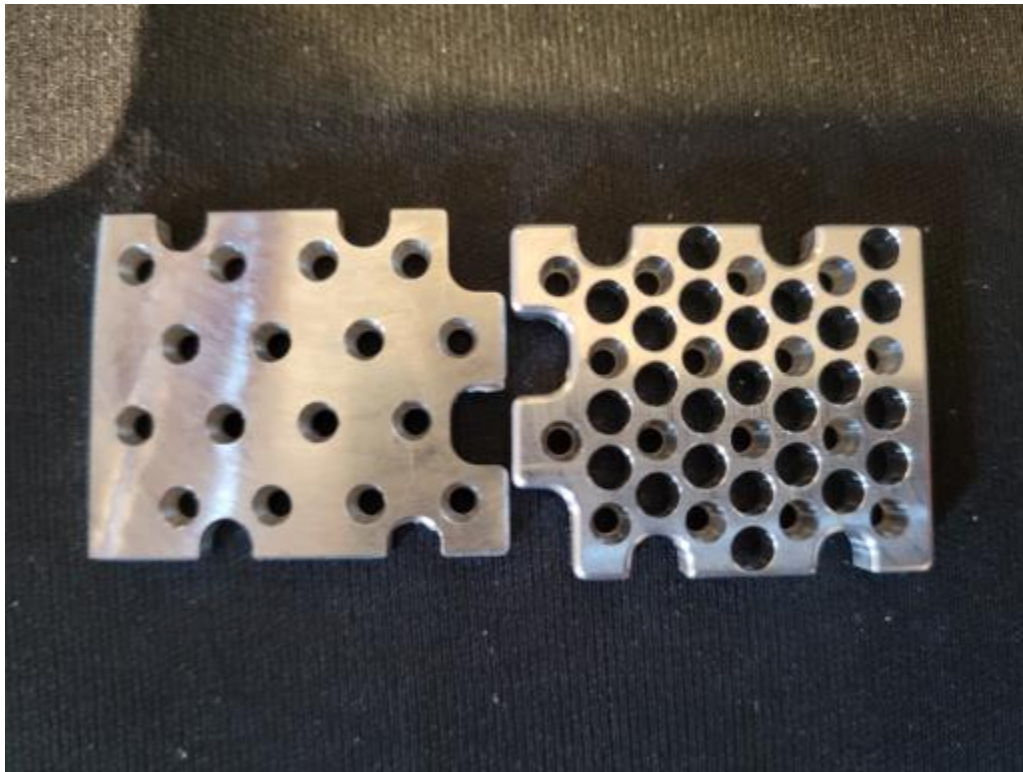


Figure 1. New reflector array on right

4.0 Disposition of Material

70017 All rev A LED Lens Arrays should be removed from inventory and transferred to engineering for rework. Reworked parts will be returned to stock.

All LED Dual Emitter Array Assemblies [70023] already built up can be used and sold if they pass QC.

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5.0 Action Items

Action	Department	Acknowledgement Initials
Update revision in Epicor	Engineering	aeg
Remove legacy part(s) from inventory/production floor	Engineering	SL
Rework parts	Engineering	JKN
Return to stock	Inventory	SL

6.0 Modified / Referenced Documents:

Document	Current Revision
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7.0 Revision History

Date Revised (mm-dd-yyyy)	Location of Change (section, paragraph no., step no., etc.)	Description of Change Made	Name of Person making the Change
7/27/2021	-	Initial Draft	JKN