

	Doc or ECO #:	70503-001	Date:	8/8/2018	Author:	JK
	Rev. #:	001				
M5 Thruster Sealing Modifications	Engineering Approval:	AEG	Date:	08/15/18	Quality Approval	DO

P/N #:	70503	Effective Date:	August 8, 2018
Title:	Sealing modifications and BOM Update		

1.0 Purpose / Summary

Several hardware substitutions were required to alleviate availability, lead time, or tolerance issues. This Eco documents these substitutions along with adding a sub assembly for the dyed oil to the bill of material. Work instructions were updated to synchronize the changes.

2.0 Parts Affected

Part Number	Notes	Removed	Added	New	Modified	Inactive
70750	Diaphragm Sub Assembly: Hardware Updated	☐	☐	☐	☒	☐
70749	Sealing Screw: Removed/Replaced	☒	☐	☐	☐	☐
70762	O-ring: Removed/replaced from mechanical seal assembly	☒	☒	☐	☐	☐
70763	Shim: Removed/replaced in mechanical seal assembly	☒	☐	☐	☐	☐
71436	O-ring: Add to replace 70762	☐	☒	☒	☐	☐
71465	Screw: Add to replace 70749	☐	☒	☒	☐	☐
71466	Flat Washer: Add to replace 70749	☐	☒	☒	☐	☐
71464	Shim: Add to replace 70763	☐	☒	☒	☐	☐
71461	Tracer Dye: Add to Assembly	☐	☒	☒	☐	☐
71462	Oil: Add to Assembly	☐	☒	☒	☐	☐
71463	Add Oil Sub Assembly	☐	☒	☒	☐	☐
71467	O-ring: Add to BOM	☐	☒	☒	☐	☐

3.0 Detail

Note that part 70762 was removed from one portion of the assembly but added to another section, so it is designated as both a removed and added part.

10-32x3/16 18-8 Button Head Sealing Screw Buna O-ring **[70749]** has long lead time, to prevent build delays the substitution of 1x4.5mm 70A Buna-N O-ring **[70762]**, BHHS 10/32 x 3/16 18-8 SS **[71465]**, FW .280 ID x .375 OD x .022 THK 18-8 SS **[71466]** was made, these are all stock hardware and readily available.

The mechanical seal assembly would slip in a subset of each job likely due to variance in the accepted tolerances of the mechanical seal parts. 1x4.5mm 70A Buna-N O-ring **[70762]** and .206 ID x .310 OD x

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.020 THK 18.8 SS **[70763]** were replaced with 1.2x4mm 70A Buna-N O-ring **[71436]** and .206 ID x .310 OD x .010 THK 18-8 Shim **[71464]**. This substitution increases the preload on the O-ring increasing the assemblies slip resistance. Reducing the shim thickness is required to offset the increase in O-ring diameter.

M5 Thruster Dyed Oil (1ml) **[71463]** is a sub assembly created to capture the assembly process of adding Kingscote 506250-R16 Red B Leak Tracer Dye (4 oz) **[71461]** to White Mineral Oil Fill Volume 70 SUS, ISO 15 (5 gal) **[71462]**.

1x5.5mm 70A Buna-N O-ring **[71467]** is an O-ring in the diaphragm subassembly that was being referenced in the work instructions by McMaster part number rather than by a VideoRay part number. This McMaster part was assigned a part number and added to the Bill of Materials.

4.0 Disposition of Material

Transfer all stock of the hardware listed below to engineering:

10-32x3/16 18-8 Button Head Sealing Screw Buna O-ring **[70749]**

.206 ID x .310 OD x .020 THK 18.8 SS **[70763]**

5.0 Action Items

Action	Department	Acknowledgement Initials
Update BOM in Epicor	Engineering	RN
Build M5 Thruster 2.0 Assembly [70503] to conform with the ECO	Production	KK, AE
Execute Disposition of Material	Engineering	CH

6.0 Modified / Referenced Documents:

Document	Current Revision
BOM-70503	A
WI-70503	A

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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
8/8/2018	-	Initial Release	JK