

	Doc or ECO #:	ECO-70750-001	Date:	8/5/2019	Author:	JK
	Rev. #:	Draft				
Engineering Change Order (ECO)	Engineering Approval:	aeg	Date:	8/13/19	Quality Approval	DO

P/N #:	70750	Effective Date:	August 5, 2019
Title:	Vented Cap Screw Replacement		

1.0 Purpose / Summary

A series of thruster failures were investigated, and the root cause analysis showed oil leaks in the diaphragm sub-assemblies [70750] due to not enough compression of the rubber thruster diaphragm to produce a seal. A shorter screw is required to ensure enough compression, this eco details the switch to a shorter screw.

2.0 Parts Affected

Part Number	Notes	Removed	Added	Modified	REV
70469	Removed old screw	☒	☐	☐	COTS
72193	Added new shorter screw	☐	☒	☐	COTS
70750	BOM reved	☐	☐	☒	B

3.0 Detail

A series of thruster failures were traced to oil leaks in the diaphragm sub-assemblies. The root cause was 10-32x3/8 18-8 Vented Flat Head Socket Cap Screw [70469] bottoming in the 303 SS 10-32 UNF Female Check Valve [70468] before enough compression was applied to M5 2.0 Thruster Diaphragm [70464]. No thread depth tolerance is provided by the manufacture. The thread depth was measured on a sample of new and old check valves, this revealed that new batches of check valves had slightly shallower threads on average. A tolerance analysis revealed a reduction from 3/8" to 5/16" would eliminate the interference in all cases.

This ECO replaces 10-32x3/8 18-8 Vented Flat Head Socket Cap Screw [70469] with shorter FHCS #10-32 X 5/16" Vented 18-8 SS [72193].

4.0 Disposition of Material

All stock of:

70469 should be removed from the production floor.

70750 should be reworked to Rev B standards

70503 assemblies do not require rework.

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Currently thrusters are not repaired, so no rework in the repair department is necessary.

5.0 Action Items

Action	Department	Acknowledgement Initials
Remove Stock of 70469 from production floor	Engineering	SL
Update BOM is Epicor	Engineering	RN
Rework any in process 70750 assemblies to rev B standards	Production	KK
Alert Production the first time the short screw 72193 is issued for the job, have Production Tech highlight on the sheet so QC can capture the transition serial numbers	Inventory	SL

6.0 Modified / Referenced Documents:

Document	Current Revision
Click here to enter text.	Click here to enter text.

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
8/5/2019	-	Initial Draft	JK