

	Doc or ECO #:	GTO-017-ASSM-001	Date:	12/9/2019	Author:	JK
	Rev. #:	A				
Engineering Change Order (ECO)	Engineering Approval:	aeg	Date:	12/6/2019	Quality Approval	DO

P/N #:	GTO-017-ASSM	Effective Date:	December 9, 2019
Title:	Polypropylene Material Switch		

1.0 Purpose / Summary

Thruster Nozzle **[GTO-017-RM]** was made from foamed polyethylene with an unspecified density. The mass of the nozzle varied over the life span of the part creating ballasting concerns. The density range overlapped with Polypropylene. Switching to polypropylene eliminates the density variable and improves strut adhesion.

This also allows the PRO4 and MSS thruster nozzles to be made from the same molded blank.

2.0 Parts Affected

Part Number	Notes	Removed	Added	Modified	REV
GTO-017-ASSM	Change Nozzle to PP, Update Print	☐	☐	☒	D
GTO-017-RM	Material change from foamed HDPE to Polypropylene	☐	☐	☒	B

3.0 Detail

Thruster Nozzle **[GTO-017-RM]** was made from foamed polyethylene with an unspecified density. When the vendor went out of business the new vendor needed a density target. Samples were evaluated from various historic batches to reveal a density target; the result was a 20gram variance (volumes were all equal). It also revealed a density overlap between the foamed polyethylene and the polypropylene nozzles molded from the same tool to make Thruster Nozzle **[70004]** for M5 thrusters. Two nozzles per vehicle produce a 40g variance that can upset the vehicle ballasting. Switching to polypropylene eliminates the density variable, improves strut adhesion, allows thruster nozzles for Pro 4 and M5 thrusters to be made from the same molded blanks.

Rev C and D can be used interchangeable functionally. Aesthetically these parts vary slightly so vehicles should be built with matching Thruster Nozzle Assembly Revisions either Rev C or D.

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4.0 Disposition of Material

Use stock Rev C to completion, but ensure they are used in pairs.

5.0 Action Items

Action	Department	Acknowledgement Initials
Update Revisions in Epicor	Purchasing	RN
Send updated drawings and Coordinate FAI with Vendors	Purchasing	NS
Acknowledge Change	Production	KK

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
12/9/2019	-	Initial Draft	JK