Creo Products Inc.	Engineering Change Order		ECO#: C716
	Originator: Derrick To		Page: 1
	Department: Eng	Date: 99 Jan. 29	

Engineering Changes

Part # (incl version)	Rev/Status From	To	Description	Prod line(s)	Related ECR's	Backwards compatible?	Srvc class	Prod class	Reason
50-1088A	H	J	ASSY,MECH,TRAILING EDGE ACTUATOR,CTP	3244 ENG ZZ	B783	Y	F	4	1
57-2104A	L	M	FAB,TE CLAMP ACTUATOR BACKBONE,ALUM	3244 ENG ZZ	NONE	Y	NA	4	3
57-2188B	B	C	PIN,TE CLAMP REGISTRATION,SS	3244 ENG ZZ	NONE	Y	NA	5	4

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(double click the footer to open it up)

Add the following people to this ECO's distribution list:
Jake Los
Vera Wilkins
Gil Lippingwell
HDPP
Neil Mclean Steve Froese

Print or type name:	Date:
Derrick To	99. Jan. 29
Colin Evans	99. Jan. 29

Status	Service class	Production class	Reason for change
IN Inactive OB Obsolete PR Pre-release	R Retrofit S Next Call F Next Fail T Their Cost N Not Up-Gradable N/A Not Applicable	1 Retrofit all units 2 Finished goods 3 WIP 4 Future 5 Documentation	1 Design 2 Manufacturing 3 Assembly 4 Documentation 5 Cost 6 Maintenance 7 Reliability 8 Software 9 Other

Details of Problem and the Changes

Details:

Problem:

1. The wave washer between the TEC cylinder and slider bracket may break.
2. Not related to service. The TEC registration pins are not always a press fit into the backbone

Solution:

1. Washer removed and assy procedure changed.
2. The pins and backbone have been modified. The holes are now masked before anodizing

Background:

After a few years of operation, the wave washer between the TEC cylinder and slider bracket may break. This could adversely affect the adjustment of the unlock position causing one or more of the TEC bodies not to release from the backbone.



The wave washer compensates for misalignment between the cylinder rod and the slider bracket. The assembly has been modified so that the washer is no longer necessary.

The Preventative Maintenance document has been updated to describe the procedure for adjusting the TEC slider to the TEC bodies.

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Field Service Implementation

Field Upgrade Kit: 05- Description: TEC Slider Repair Kit.
For units:

(double click spreadsheet to open it up)

Part No.	Description	Qty	Std. Unit Cost	Total Cost
55-0065	CYL,9/16"*1/2",DB AC,SG RD,DB & PVT MNT	1.00	$19.18	$19.18
52-4341	NUT,10-32,JAM,S-PLATED	2.00	$0.20	$0.40
89-0050	SUPP,LOCTITE,290	1.00	$20.00	$20.00
89-0041	SUPP,LOCTITE,PRIMER,N	1.00	$11.00	$11.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
				$0.00
	Material Cost:			**50.58**
		Hours	**Rate**	**Total**
	Labour Cost:	$ 1.00	$ 80.00	$ 80.00

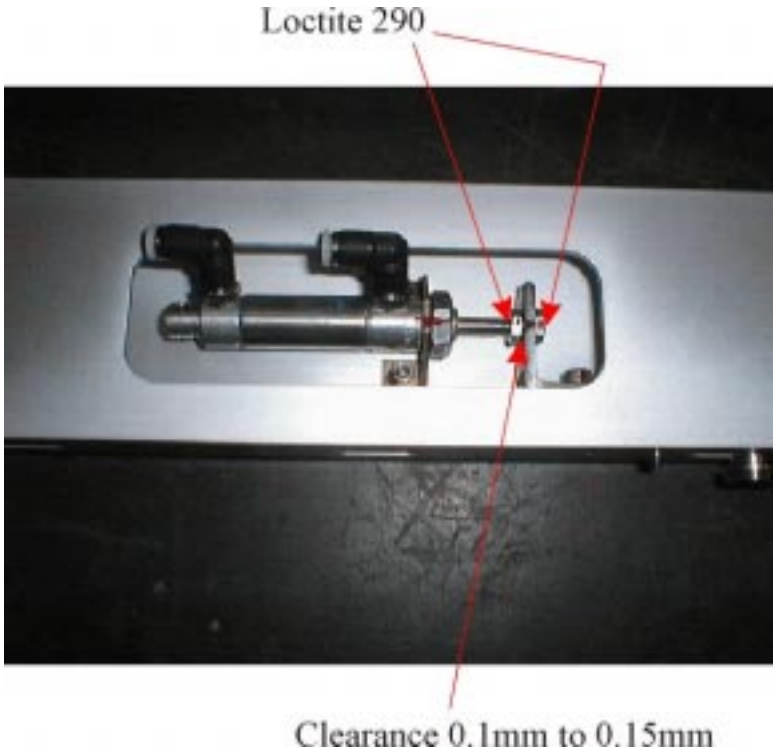
Special Tools Required:

Note: the Loctite products will not be shipped with the ECO. They are consumables and should be in the service tool kit.

Field Upgrade Instructions:

Do this procedure if the machine does not reliably place the TEC clamps on the drum:

1. Remove the TEC backbone from the engine.
2. Lay the backbone on a bench with the clamps facing up. Hold the slider bracket (the piece of angle that attaches the cylinder to the slider bar) and confirm that the slider does not bind and is easy to move. If there is a tight spot, determine where and correct.
3. With the cylinder in the retracted position (unlocked) ensure that the locking pins are centered on the large holes in the clamp bodies. Check all of the clamp bodies. There is little clearance around the clamp so accuracy is important. If the pins are found not to be centered to the clamp bodies due to the washer being broken, then the reason for the clamps not releasing has been found. Continue with this procedure. If the pins are centered and the slider moves freely, no adjustment is necessary. The problem lies elsewhere. Check for a leaking cylinder.



4. Remove the cylinder from the assy. (This is easily done by removing the outer 10-32 jam nut, loosening the 7/16” nut and removing the gold coloured cylinder bracket.
5. Save the 7/16” nut, elbows and the elbow’s gaskets from the cylinder.

6. Discard the cylinder and the two 10-32 jam nuts. (new ones provided in ECO kit.)
7. Replace the elbows and their gaskets. **Caution: do not over tighten, they break easily**
8. Clean the threaded portion of the cylinder rod of all oil and apply Loctite primer N. This is very important for the use of Loctite on stainless steel components.
9. Reinstall the cylinder onto the cylinder bracket but do not tighten the 7/16”nut. Install one of the 10-32 jam nuts onto the cylinder rod
10. Install the cylinder / bracket assy into the backbone.
11. Orient the cylinder as shown in the above photo so that the elbows are close to the cut out of the backbone near the air hoses and tighten down the 7/16” nut.
12. Install the second 10-32 jam nut – sandwiching the slider bracket between the two nuts. **Do not tighten the nuts, they are left loose.**
13. Adjust the position of the slider by moving the nuts along the cylinder rod. In the unlocked position, the pins must be centered on the large holes in the clamp bodies. A **small** amount of clearance between the nut and the slider bracket is required to take up misalignment of the cylinder. If the nuts are tight, back off one of the nuts so that there is 0.1mm to 0.15mm clearance between the nut and the slider bracket.
14. Confirm that the slider bar slides freely. If it does not, the problem must be found and corrected.
15. Apply a drop of Loctite primer N to the junction of the nuts (2) and the thread of the cylinder rod. Apply Loctite 290 (wicking) to the threads of the cylinder at the inside jam nut. **Be careful not to adhere the cylinder shaft or nut to the slider bracket. The shaft must be free to move in the hole of the slider bracket. Avoid getting Loctite on the smooth portion of the cylinder rod as this may work its way into the cylinder and cause damage**.
16. Apply Loctite 290 to the cylinder rod thread at the outer nut. **Be careful not to adhere the cylinder shaft or nut to the slider bracket. The shaft should be free to move in the hole of the slider bracket.**
17. Reinstall the TEC backbone and clamps onto the engine.