

# Schilling Robotics

Bulletin Title
<b>TITAN 4 Jaw Pin</b>

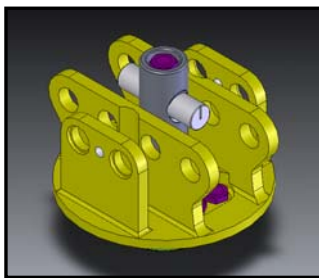
Document Type	Bulletin Status*	Date
<b>BULLETIN, SERVICE</b>	<b>ADVISORY</b>	<b>November 2014</b>

## AFFECTED PRODUCTS

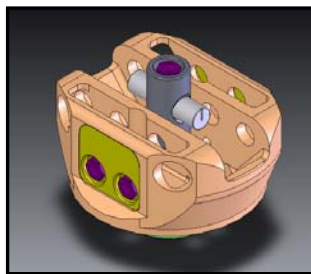
Titan 4 and Orion 7P systems

## AFFECTED COMPONENT

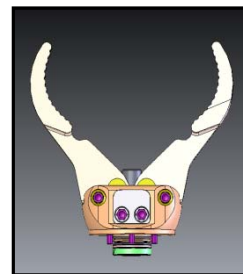
Pin Design Nose Blocks 101-6930, 101-7282 and jaw assemblies listed in Table 1



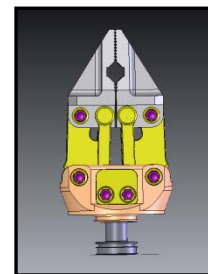
101-6930



101-7282



Intermeshing Jaw



Parallel Jaw

<b>(PA) Parallel Jaws</b>	101-6610	101-7709, 101-7709-1	101-8623, 101-8623-1	
<b>Intermeshing Jaws</b>	101-6659	101-7284, 101-7284-1	101-7867 All Variances	101-8634, 101-8634-1

**Table 1**

<b>*BULLETIN STATUS LEVELS</b>	
MANDATORY	Field action must be performed to ensure personnel safety, equipment functionality, and/or continuation of warranty coverage.
RECOMMENDED	Field action is not required but will result in significantly increased levels of personnel safety and/or equipment functionality.
ADVISORY	Bulletin contains advisory information to assist the owner/operator in more effective operation or service of the product.
If you have any questions about this service bulletin, contact the Customer Service Department at: Tel: +1 530 753 6718 (USA-DAV) or +1 281 598 4100 (USA-HOU) or +44 (0) 1224 215300 (UK) Fax: +1 530-753-1534 (USA-DAV) or +1 281 598 4130 (USA-HOU) or +44 (0) 1224 215301 (UK) e-mail: <a href="mailto:schilling.TS@fmcti.com">schilling.TS@fmcti.com</a> • Web site: <a href="http://www.fmctechnologies.com/SchillingRobotics">http:// www.fmctechnologies.com/SchillingRobotics</a>	

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## **! WARNING**

Failure to follow applicable safety procedures when working on the system can cause injury or death.

- Connect grounding cables while equipment is on deck.
- Before starting any service, always turn off hydraulic power and lock out/tag out electrical power to the system.
- Always wear personal protective equipment (PPE) appropriate to the task and as required by applicable safety regulations and procedures. Use a safety harness secured from above when working at or above heights specified in applicable safety regulations and procedures.
- Never stand on or crawl under suspended and unsupported system components, regardless of latch state or handling/lifting system. Always place appropriate load-rated stands under system components for support before climbing on or crawling under them.
- Lock out/tag out electrical power and isolate hydraulic power to any launch and recovery equipment used with the system. Also release any stored or residual mechanical, electrical, and hydraulic energy to prevent unintended movements or operation.

## **! CAUTION**

Electrostatic discharge (ESD) can permanently damage sensitive electrical components like printed circuit assemblies (PCAs), integrated circuits (ICs), and other ESD-sensitive components. The damage can cause component failure or faulty or intermittent performance that can be difficult to detect and diagnose.

**When you handle ESD-sensitive components, follow these ESD prevention guidelines:**

- Prepare an ESD workstation by grounding all items in the work area (work surfaces, people, equipment, etc.) to the same electrical ground point (called the common point ground). Keep the work area free of nonessential insulators (such as plastic cups, bags, and envelopes).
- If possible, disconnect all power sources, signal sources, and loads connected to the component before you begin maintenance or service.
- Always ground yourself before you touch ESD-sensitive equipment. Discharge any static electricity by touching ground on the workstation each time that you approach and sit at the workbench.
- Ground all tools that may come into contact with the ESD-sensitive equipment.
- Before you handle PCAs, ICs, and other ESD-sensitive components, attach a grounding wrist strap and confirm that the strap is connected to the grounding pad.
- Handle PCAs by the base or edges; always avoid contact with pins.
- Do not unnecessarily pick up, hold, or carry ESD-sensitive devices that are not in shielded packaging.
- Always store and seal ESD-sensitive components in the anti-static packaging in which they were shipped, or in equivalent storage material.

## SERVICE ISSUE Part A – Issue Description

The jaw pin **001-9837** can migrate through the ends of the jaw actuator bearings **001-9835** and contact the inside of the jaw rockers. This can result in the jaws becoming mechanically sticky, or possibly static. A long term solution to this issue is currently being tested. Customers will be notified when it becomes available. The situation can be avoided through regular inspection and servicing. This bulletin describes the inspection and service methods.

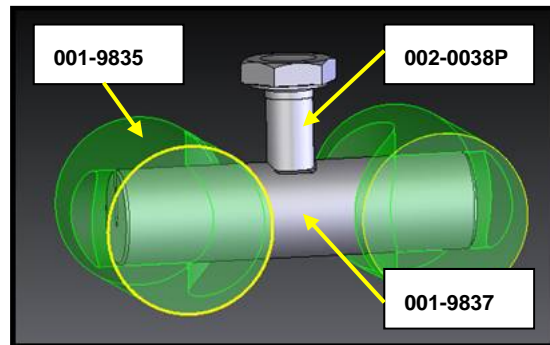
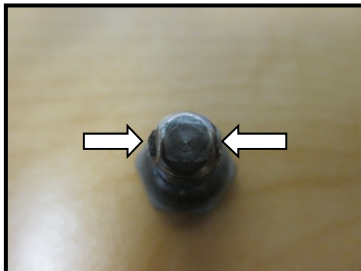
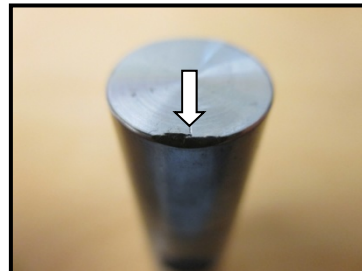


Figure 1

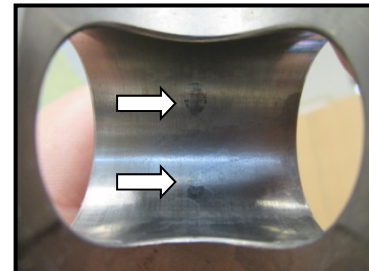
## Part B – Maintenance



002-0038P Hex Head Cap Screw



001-9837 Jaw Pin



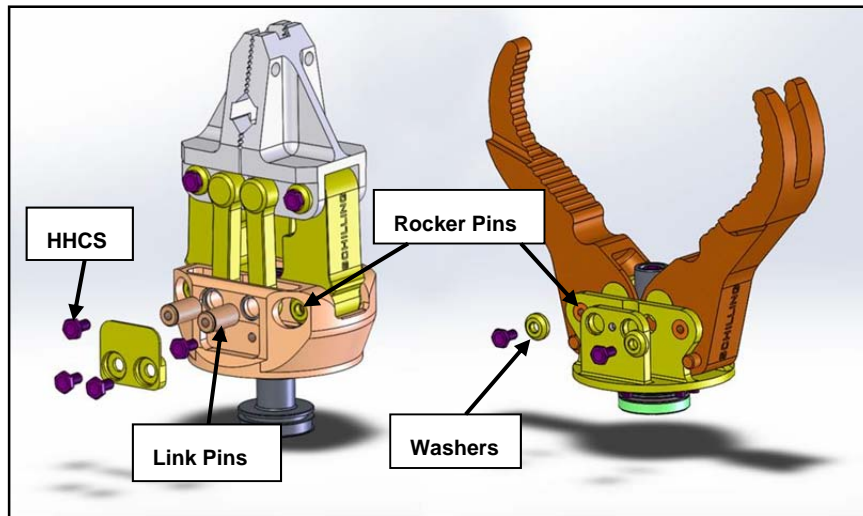
Jaw Rocker

## Part C – Inspection

At each service interval, inspect the individual pieces of the jaw assembly for damage as shown in the pictures above. Look for indentations that indicate there is contact between the parts. Service instructions begin on the next page.

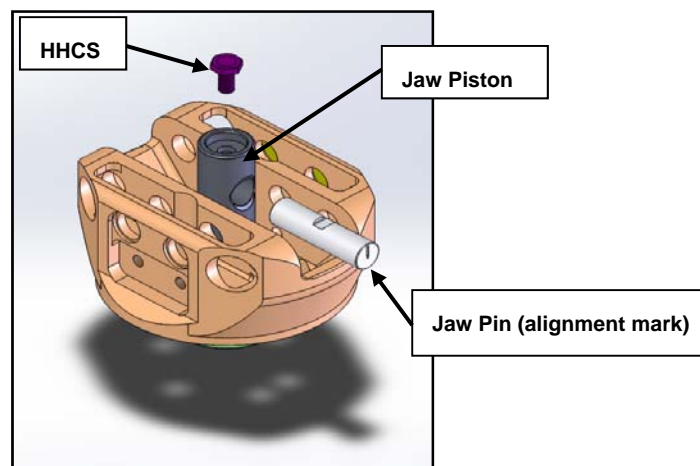
## Part C – Inspection

At each service interval, inspect the pieces of the jaw parts.



**Figure 2**

1. Secure the Manipulator Arm in a stow position. Shut off hydraulics/power on the master controller and the main hydraulics before entering the manipulator envelope.
2. Remove the Hex Head Cap Screws (HHCS) from one side of the nose block (Figure 2.) Push the remaining Rocker Pins with hardware out the opposite side. **Note: two standard jaw variances are shown for reference. Please consult the Drawings and Parts List section of the manual for specific details of the actual jaw assembly in use.**
3. Remove both jaw tines/rockers to expose the affected Jaw Pin and the HHCS fastener (Figure 3).



**Figure 3**

4. Clean and inspect the Jaw Pin and HHCS for damage as described in the maintenance section on page 2.

## Part D – Warranty Information

Replacements will be sent out at no charge retroactive to all affected manipulators for one year from the release of this bulletin 012-0092. After that period has expired, we will honor these replacements at no cost to systems purchased within a year. At such time, it will be necessary to retrieve the system (199-XXXX) serial number to validate this offer. **Note: the serial number for the Titan System can be found on the side of the upper arm; the serial number for the Orion System is located on top of the azimuth base.**

Return the affected parts (001-9837, 002-0038P) with attached RMA form on page 6. Please contact our Customer Service Department if any other damage has been sustained as a result.

North America: +1 281.598.4100 or [schilling.cs@fmcti.com](mailto:schilling.cs@fmcti.com)

Europe and W. Africa: +44 0.1224.215300 or [schilling.cs-uk@fmcti.com](mailto:schilling.cs-uk@fmcti.com)

Asia-Pacific: +65 6861.3011 [schillingsparesasia@fmcti.com](mailto:schillingsparesasia@fmcti.com)

## Part E – Reassembly

1. Refer to the Drawing and Parts list of the manual.
2. Thoroughly clean all jaw pieces.
3. Install Jaw Pin 001-9837 into the jaw piston 001-9836. Ensure that the flat machined surface is facing out by out by referencing the alignment mark (Figure 3).
4. Install HHCS 002-0038p into the jaw piston and torque to 21 ft/lbs.
5. Install thrust bearings into Jaw Rockers, or between Jaw Rockers and the Nose Block (**Consult the Drawings and Parts list section for the actual jaws in use**)
6. Lightly lubricate the jaw bearings 001-9835 with AquaShield and install them into the jaw rockers.
7. Install the jaw rockers onto the nose block assembly (101-6930, 101-7282).
8. Lightly lubricate the Link Pins and/or Rocker Pins with AquaShield and install them through the nose block and jaw rocker.
9. Lubricate the remaining HHCS threads with AquaShield and torque to 21 ft/lbs.
10. Ensure the jaws operate normally through their range of motion and the proper value limits are observed.
  - Value limits -full open +3400 to +2600
  - Value limits - full closed +1700 to +0900

## Part F – Update Technical Manuals

Update the technical manual with Bulletin 012-0092.

Return Material Authorization (RMA) Form							
Company:				Contact Name:			
Address:				Email:			
				Phone:			
RMA No.				Fax:			
Date Issued				Authorized By:			
Shipments received by FMC Schilling Robotics without an RMA number will be refused.							
Qty	Part number	Description	Reason For Return	Serial #	Purchase Order	Date	Internal Movement Number
	001-9387	PIN,T-BAR,MP35N,T4	Warranty (Bulletin 012-0092)	NA			
	002-0038P	HHCS (NAS 6404PU1,NLK)	Warranty (Bulletin 012-0092)	NA			
Additional Comments:				<b>Shipping instructions</b>			
				1. Obtain an RMA number and clearly mark it on the outside of the box(s) with the provided return label. 2. If there are multiple boxes, label and place all packing slips, Return Material Authorization Form, and Manufacturer Affidavit (if applicable) in the 1st box. Example, Box 1 of 3, 2 of 3, and 3 of 3 3. Ship Only the items that are Authorized. 4. Ship authorized return items to the below address.			
				Schilling Robotics LLC		<b>Contact</b>	
				201 Cousteau Place		Jenna Withnell 530-747-2818	
				Davis CA 95618		Jenna.withnell@Schilling.com	
Warranty Claim? Yes <input type="checkbox"/> No <input type="checkbox"/>							
Return Policy and Terms							
* No return will be serviced or credited without a FMC Schilling Robotics authorized RMA number and customer signed <i>Return Material Authorization Form</i> .				* A purchase order must be received within 30 business days of service estimate receipt. Any repair pending purchase order exceeding 30 business will be subject to being returned as-is at the customers expense.			
* Customer will be issued an RMA number will be issued within 2 business days.				* Shipping cost of returned goods are to be prepaid <b>door to door</b> . Failure to do so will result in an invoice for shipping charges with terms net 0.			
* All products received with physical damage, tampered, altered, or abused will void any warranty.				* Any damage obtained to the goods during shipment due to poor packaging is the sole responsibility of the sender and will void any credit/warranty.			
* Please ship the assigned RMA products only. Do not send accessories. (except for credits)				<b>International Return Shipments</b>			
* Warranty period is from date of invoice and all RMA parts must be received by FMC Schilling Robotics prior to the expiration date of warranty.				* <b>DHL and UPS hold power of attorney for Schilling Robotics, LLC and are the preferred carriers. Custom clearance fee's can be \$250 or more if the preferred carriers are not used. Clearance fee's that exceed \$35 (DHL &amp; UPS rates) will be invoiced back to the customer.</b>			
* All return for credit items must be in new condition and are subject to a 15% restocking fee.				* The commercial invoice must state, " <b>US manufactured good(s) being returned for repair</b> " and be accompanied by the Schilling Robotics' Manufacturer Affidavit. Failure to do so will result in an invoice of incurred duties and taxes.			
* Returned items diagnosed "no error found" by a FMC Schilling Robotics technician or decline of repair will be charged a minimum evaluation fee of \$150.00, as well as shipping and handling.							
Customer Signature:				FMC Schilling Robotics' Representative Signature:			
****This form is required to be signed by the customer, as well as a FMC Schilling Customer Service Representative. Failure to do so will result in the RMA being placed on hold until a signature is obtained.****							