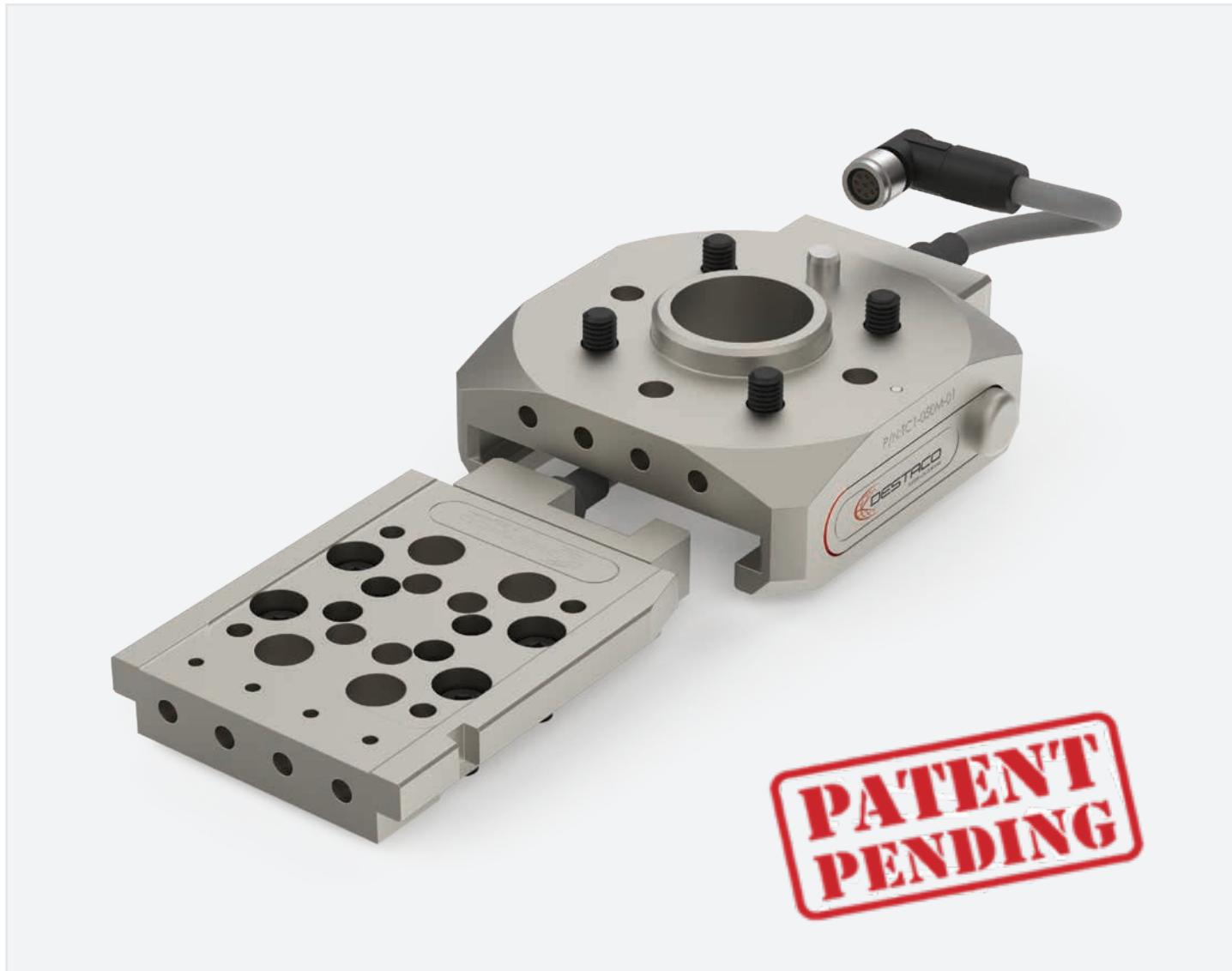


TC1 Series Service Manual



WARNING: This is a controlled document. It is your responsibility to deliver this information to the end user of the DESTACO CAMCO product. Failure to deliver this could result in your liability for injury to the user or damage to the machine. For copies of this manual, call your Customer Service Representative at 1-800-645-5207.

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DOCUMENT SYMBOLS AND MARKINGS	
SYMBOL	DEFINITION
 CAUTION	Indicates a situation which, if not avoided, could result in damage to the unit, equipment, or environment.
 WARNING	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Electric shock hazard
	Falling object hazard
	Denotes the orientation with respect to gravity

Personal Protective Equipment (PPE)

The personal protective equipment (PPE) described below must be provided by the unit owner and be worn by the responsible operating personnel when working with the unit.

Wear safety shoes



Wear safety goggles



Product Specification

WARNING

The TC1 series product ratings can be found in our catalog at www.destaco.com. Operating the tool changer or accessories outside the parameters specified may result in damage to the unit, attached equipment, facilities, and/or personal injury. It is the responsibility of the user to install and operate the products within the parameters specified in the catalog.

1. Product Safety

Recommended Decoupling Procedure

CAUTION Before decoupling the tool plate, depressurize any connected pneumatic utilities. Failure to do so may result in compressed air loss and/or damage to the O-Ring seals.

WARNING Whenever possible, decouple the tool plate from the master plate while it is in a horizontal orientation (see Fig.1) so that the master plate can be removed in a horizontal direction rather than a vertical direction. **FAILURE TO FOLLOW THIS PROCEDURE MAY RESULT IN THE TOOL FREE FALLING DUE TO GRAVITY AND MAY RESULT IN DAMAGE TO THE UNIT AND/OR PERSONAL INJURY.**

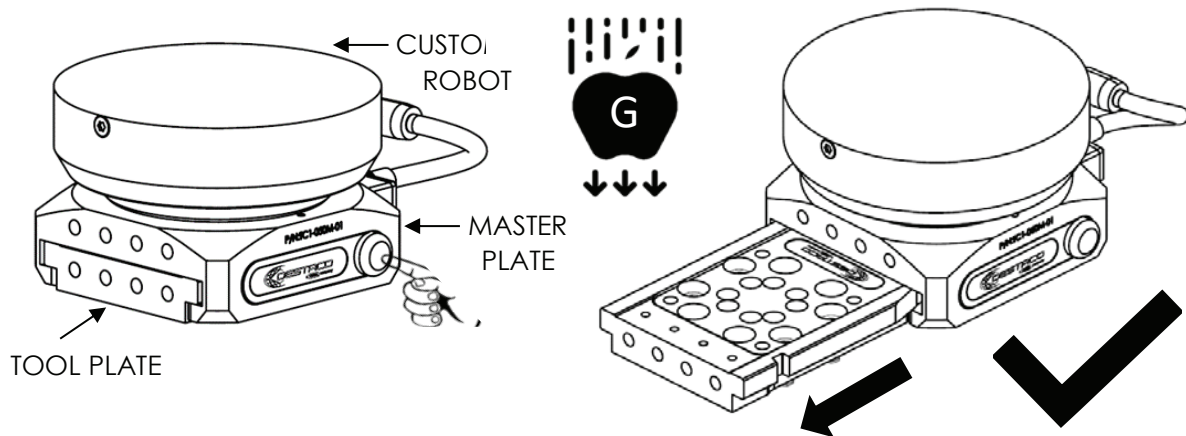


Fig.1

WARNING Use additional caution if it is necessary to decouple the tool plate in the vertical orientation (see Fig.2). **DEPRESSING THE RELEASE BUTTON IN THE VERTICAL ORIENTATION MAY RESULT IN THE TOOL FREE FALLING DUE TO GRAVITY AND MAY RESULT IN DAMAGE TO THE UNIT AND/OR PERSONAL INJURY.** Whenever possible, decouple the tool plate in the horizontal orientation (see Fig.1).

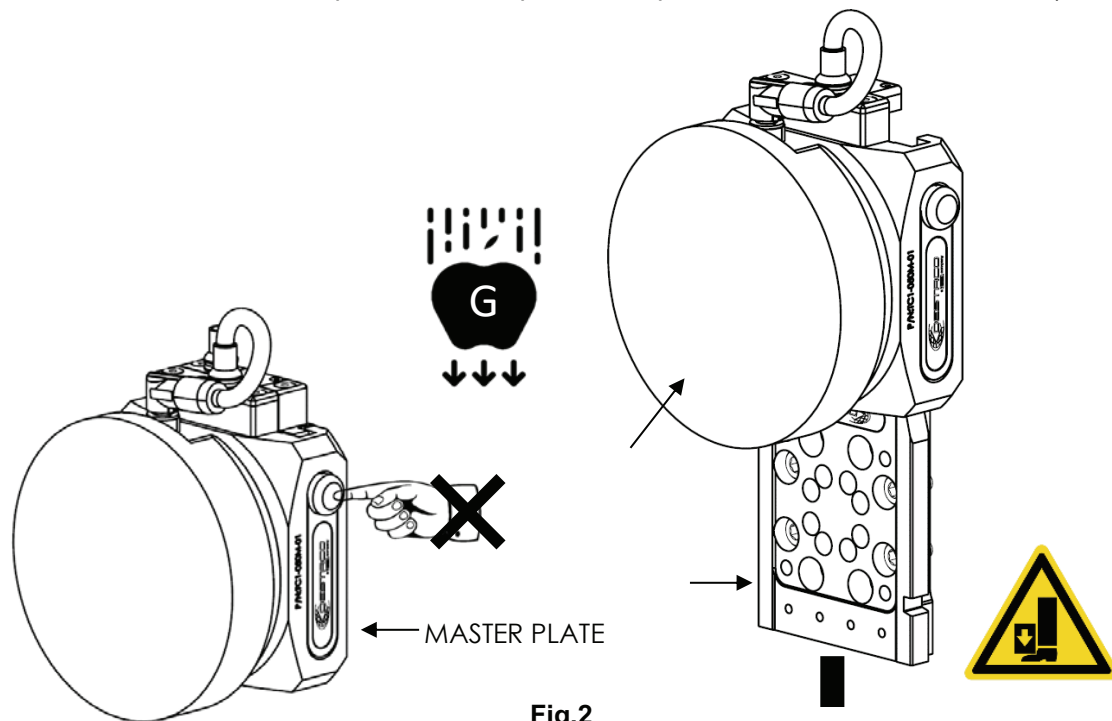


Fig.2

Considerations for Operation in the Vertical Orientation

▲ WARNING Use additional caution when operating the tool changer in the orientation shown in Fig.3, such that gravity would cause the tool plate to free fall in the event of an inadvertent decoupling. Operating in the orientation shown below may result in unintentional decoupling if the user overloads the tool changer or in high vibration conditions. **UNINTENTIONAL DECOUPLING MAY RESULT IN THE TOOL FREE FALLING DUE TO GRAVITY AND MAY RESULT IN DAMAGE TO THE UNIT AND/OR PERSONAL INJURY.**

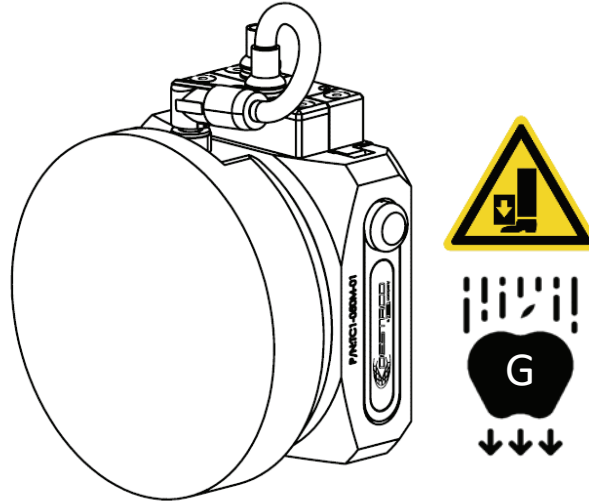


Fig.3

2. Lubrication and Maintenance

Master Plate

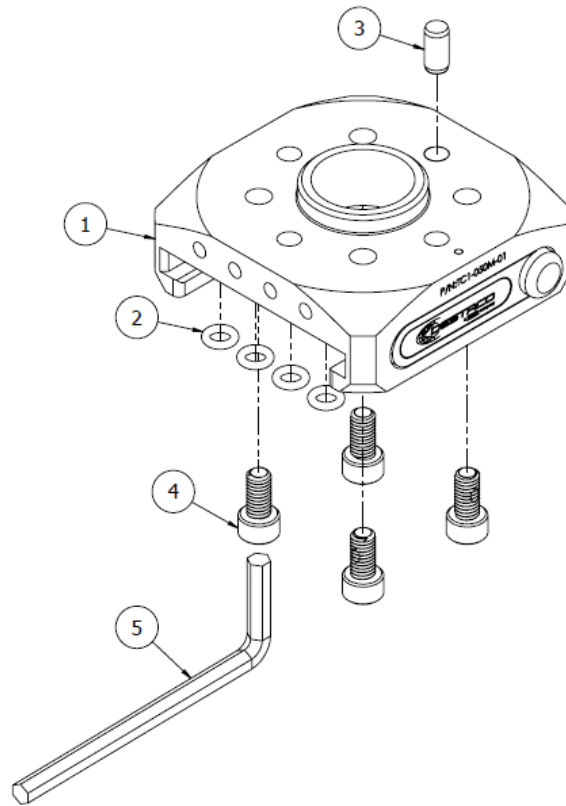


Fig.5

TABLE 1		
ITEM	DESCRIPTION	QTY
1	MASTER PLATE TC1-050M-XX	1
2	O-RING 2X5	4
3	M6 x 12MM DOWEL	1
4	M6 SHCS, 12MM LG PATCH LOCK	4
5	5MM HEX KEY WRENCH	1

Master Plate Pneumatic O-Ring Seal Replacement

The O-Ring seals ensure leak-proof air utility pass through when the master and tool plates are coupled. The seals should be inspected periodically for any cuts, damage, or abrasion. If any damage has occurred to the O-Rings, they must be replaced. The O-Rings are replaced by the following procedure:

1. **⚠ WARNING** Remove all pneumatic and electric power sources from the tool changer before servicing the master plate seals. Servicing or maintaining the tool changer without isolating it from pneumatic and electric power sources may result in electric shock and personal injury. **WHILE SERVICE OR MAINTENANCE WORK SHOULD NEVER BE DONE WITH THE TOOL CHANGER CONNECTED TO A POWER SOURCE**, by way of example, electric shock may result where maintenance or service work involves the use of metallic tools or other electrical conducting materials, particularly when addressing the O-Rings.
2. A seal replacement kit (Part No. SLKT-480) is available, see Table.3 on Page 8.
3. Carefully remove the O-Rings without damaging the tool changer surface or O-Ring grooves.
4. Place the new O-Rings in the O-Ring grooves of the master body and press until they are fully seated (see Fig.4). Lubricate lightly with oil after assembly.

Note: The tool plate does not contain pneumatic O-Ring seals.

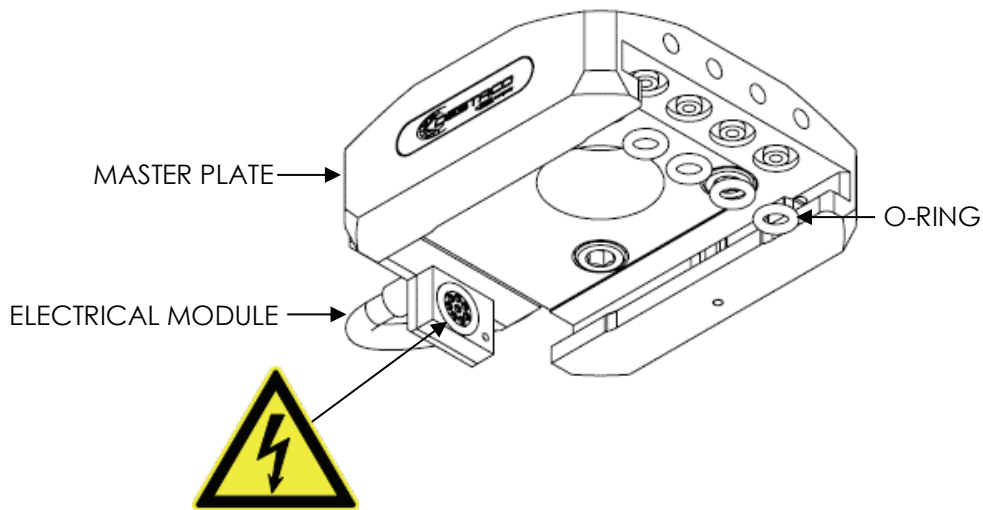


Fig.4

Tool Plate

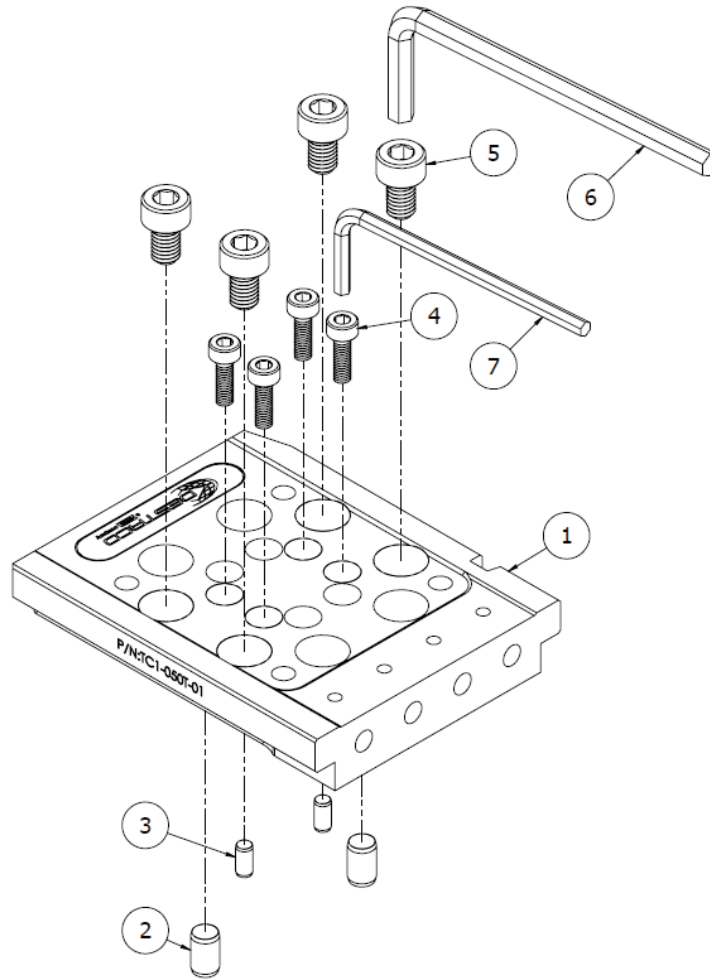


Fig.6

TABLE 2		
ITEM	DESCRIPTION	QTY
1	TOOL PLATE TC1-050T-XX	1
2	M5 x 8MM DOWEL	2
3	M3 x 6MM DOWEL	2
4	M3 SHCS, 10MM LG PATCH LOCK	4
5	M5 SHCS, 8MM LG PATCH LOCK	4
6	5MM HEX KEY WRENCH	1
7	4MM HEX KEY WRENCH	1

Accessories and Maintenance Kits

TABLE 3	
PART NUMBER	DESCRIPTION
SLKT-480	SEAL KIT
TC1-E01M-C01	8 PIN M8 SOCKET ELECTRICAL PASS-THRU MASTER MODULE
TC1-E01T-C01	8 PIN M8 PLUG ELECTRICAL PASS-THRU TOOL MODULE
TC1-E01T-P01	PNP MAGNETO RESISTIVE 4MM SENSING MODULE
TC1-E01T-N01	NPN MAGNETO RESISTIVE 4MM SENSING MODULE
TC1-050H-01	TOOL HOLDER – M6 MOUNTING

Lubrication Faces

1. Master Plate

Lightly lubricate the ways and O-Rings on the master plate as shown with oil as needed.

- TC1-050M-XX

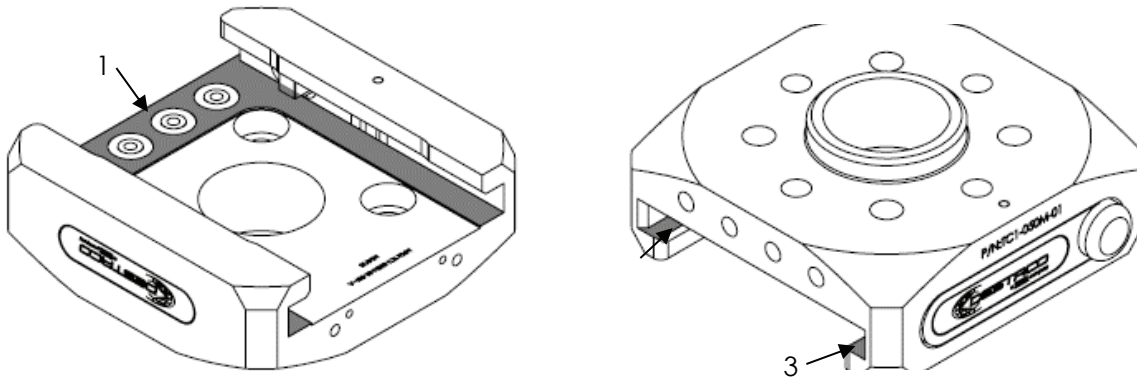


Fig.7

2. Tool Plate

Lightly lubricate the ways on the tool plate as shown with oil as needed.

- TC1-050T-XX

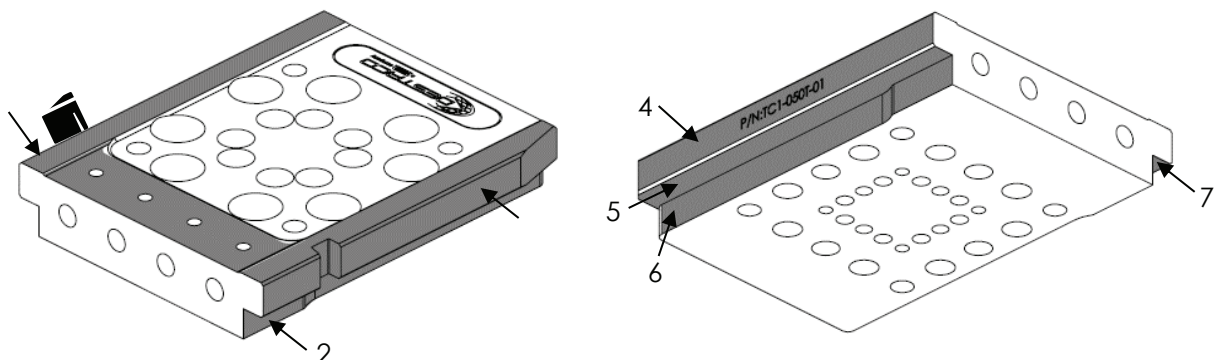


Fig.8

3. Electric Modules

Electric power and signal modules are available in various configurations. See Table 4 for compatibility with master and tool plates.

TABLE 4			
ITEM	PART NUMBER	DESCRIPTION	COMPATIBILITY
1	TC1-E01M-C01	8 PIN M8 SOCKET ELECTRICAL PASS-THRU MASTER MODULE	TC1-050M-XX
2	TC1-E01T-C01	8 PIN M8 PLUG ELECTRICAL PASS-THRU TOOL MODULE	TC1-050T-XX
3	TC1-E01T-P01	PNP MAGNETO RESISTIVE 4MM SENSING MODULE	
3	TC1-E01T-N01	NPN MAGNETO RESISTIVE 4MM SENSING MODULE	

Electric Module Replacement

- ⚠ WARNING** Remove all pneumatic and electric power sources from the tool changer before servicing the electric modules. Servicing or maintaining the tool changer without isolating it from pneumatic and electric power sources may result in electric shock and personal injury.
- Remove the existing electric module by disconnecting the electrical connector and unscrewing the M3 screws using 2.5mm hex key wrench (see Fig.9 or Fig.10).
- Place the new electric module in the same position, apply Loctite 242, 243, or equivalent to the screws and tighten to 0.9 Nm using the 2.5mm hex key wrench. Reconnect the electrical connector.

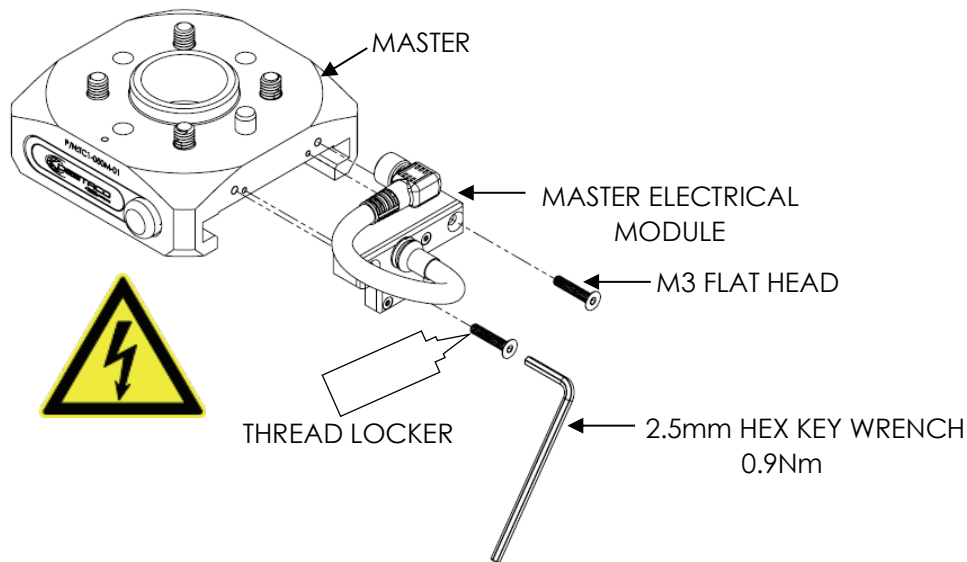


Fig.9

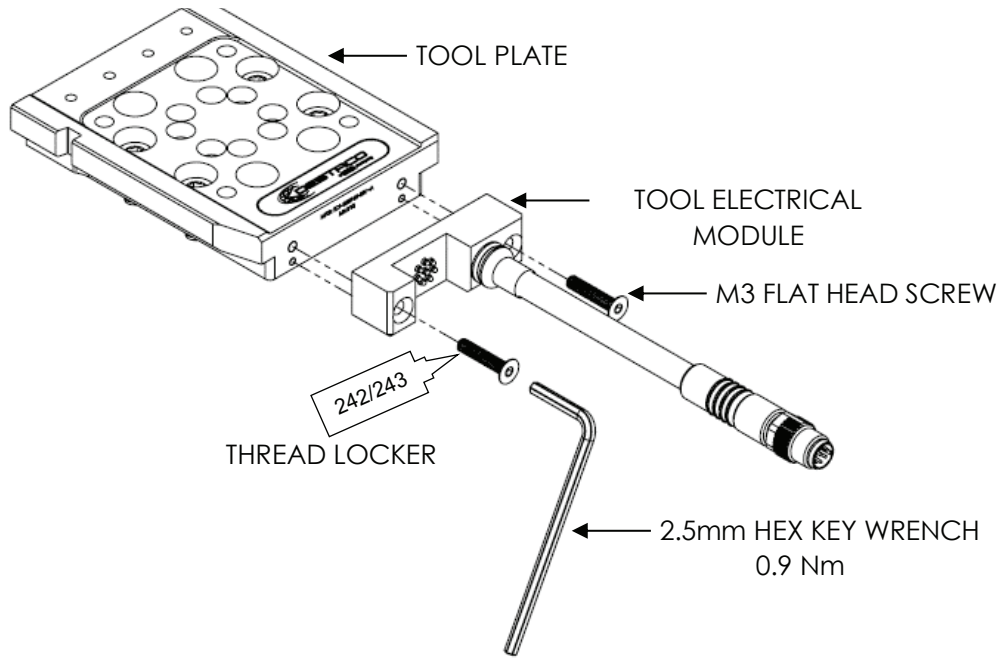


Fig.10

Electric Module O-Ring Seal Replacement

The O-Ring seal in the master electric module protects the electrical interface between the master and tool plates. The seal needs to be checked periodically for any cuts, damage, or abrasion and must be replaced if damaged.

1. **⚠ WARNING** Remove all pneumatic and electric power sources from the tool changer before servicing the master module seal. Servicing or maintaining the tool changer without isolating it from pneumatic and electric power sources may result in electric shock and personal injury. WHILE SERVICE OR MAINTENANCE WORK SHOULD NEVER BE DONE WITH THE TOOL CHANGER CONNECTED TO A POWER SOURCE, by way of example, electric shock may result where maintenance or service work involves the use of metallic tools or other electrical conducting materials, particularly when addressing the O-Rings.
2. A seal replacement kit (Part No. SLKT-480) is available, refer Table.3 on Page 8.
3. Carefully remove the O-Ring and any residual glue without damaging the module surface or O-Ring grooves.
4. Add a small amount of glue to the seal groove of the master module being careful not to contaminate the electrical interface.
5. Place the new O-Ring in the seal groove of the electrical interface of the master module and press until it is fully seated (see Fig.11). Carefully remove any glue that squeezes out without contaminating the electrical contacts. No lubrication is required.

Note: Electric module of tool plate does not contain an O-Ring seal.

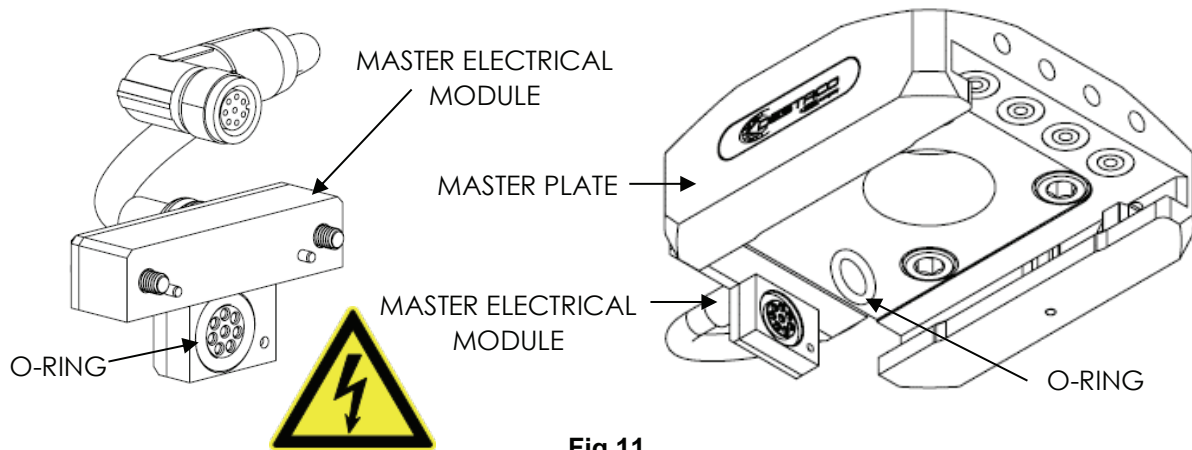


Fig.11

Electric Module Connector Pin Inspection

1. Check the electric module periodically for any debris or darkened pins (see Fig.12 or Fig.13).
2. If there is any contamination, use a nylon brush to clean the connector pins and socket.
3. If there is any damage such as bent, broken, corroded, or missing pins the module must be replaced.

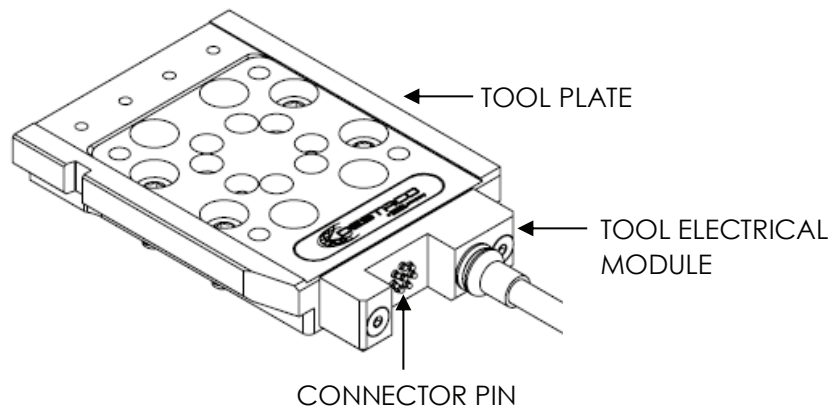


Fig.12

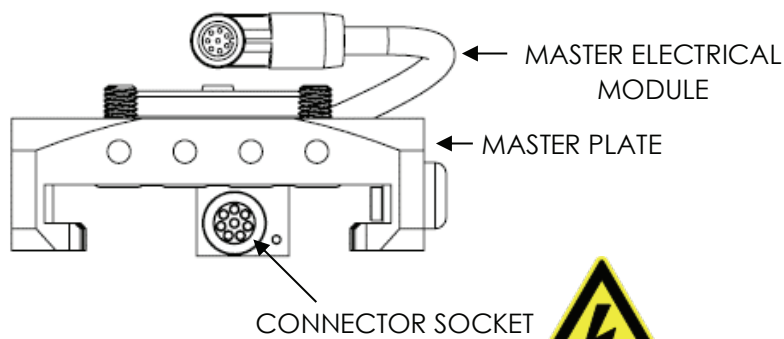


Fig.13

4. Troubleshooting Problems

Problem	Possible Cause
Tool changer doesn't lock or unlock	<ul style="list-style-type: none"> • Spring damage • Burrs in the latch or tool plate notch
Air leakage	<ul style="list-style-type: none"> • O-Ring damage • One or more O-Rings missing • Contamination of O-Rings • Pneumatic fittings loose or damaged
Electrical module not working	<ul style="list-style-type: none"> • Debris present • Connector pin damaged • Tool plate not coupled properly • Cable pinched/damaged
Electrical module contaminated	<ul style="list-style-type: none"> • O-Ring seal damaged • Excess humidity • Environmental contaminants

5. Document Revision History

TABLE 5				
REVISION	ECN	DESCRIPTION	DATE	BY
A	-	INITIAL RELEASE	17-11-2020	SB

GLOBAL SALES CONTACTS

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IN
+91-80-41123421-426
india@destaco.com



MX
mexico@destaco.com



FR
+33-4-7354-5001
france@destaco.com



CN
+86-21-2411-2678
china@destaco.com



NL
+31-297285332
benelux@destaco.com



SG
singapore@destaco.com



UK
+44-1902-797980
uk@destaco.com



TH
+66-2326-0812-6
asia@destaco.com



CZ
+420-603-577-341
czech@destaco.com



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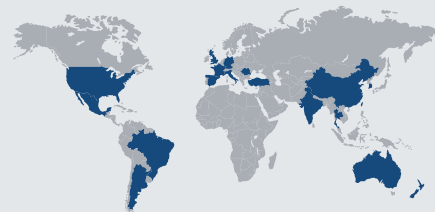


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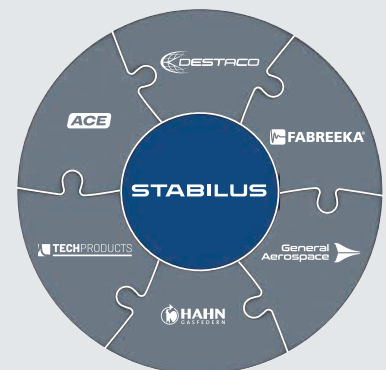
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