

FLOTEC

Training Presentation for Authorized Repair Centers

This presentation is designed to supplement M-Service Manual InGage Regulator.doc

Flotec, Inc. provides for three levels of authorization for the repair of InGage Series Regulators.

ARC Level 1

Testing & External component replacement

ARC Level 2

Internal component replacement

ARC Level 3

Reimbursed Warranty



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Training Presentation Swivel Connector Removal and Repair

WARNING Replacement of parts on high-pressure regulators should be made only by qualified personnel familiar with their operation. Do not remove or install parts with the regulator installed on a cylinder. Use only the proper repair tools and parts. Always wear eye protection when servicing high-pressure regulators.

WARNING Contaminants or hydrocarbons may, in the presence of an ignition source and oxygen, combine and burn violently. Never permit oil, grease or other combustible substances to come in contact with oxygen cylinders, regulator parts or repair tools. Provide a clean; oil free surface on which to place disassembled regulator parts.

WARNING Always open high-pressure oxygen cylinder valves **SLOWLY**. This should always be done in order to allow the heat of gas compression to dissipate. Always verify that the oxygen cylinder valve is fully closed (clockwise) before disconnecting the regulator from the cylinder.

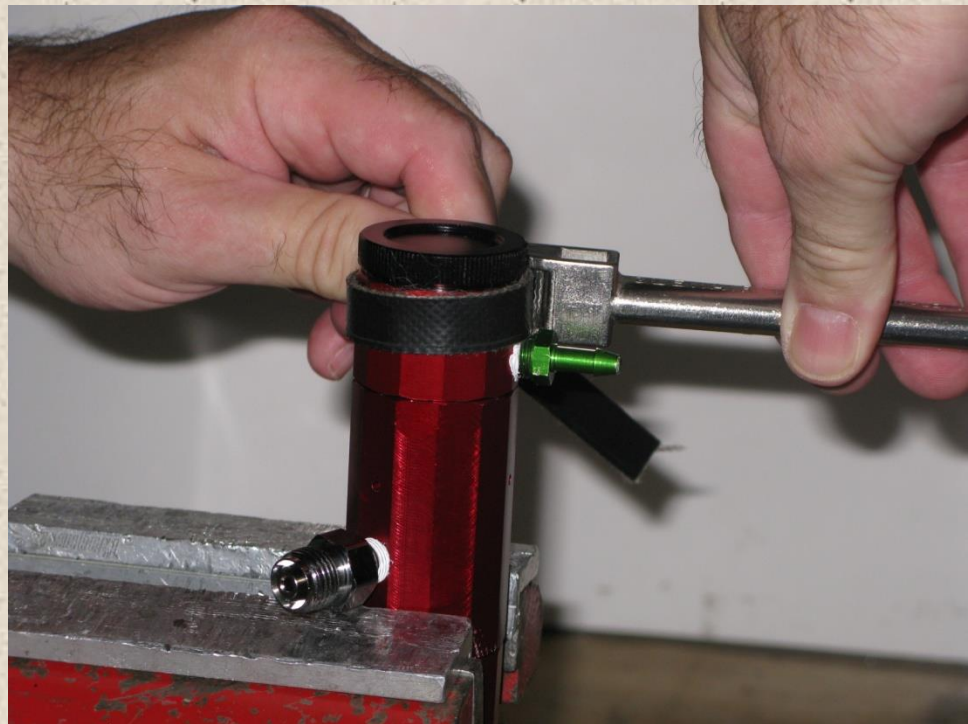
WARNING Do not obstruct the vent holes in the body of the regulator. These holes must be open to atmosphere for proper regulator operation.

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Authorized Repair Center Level 2 and 3

Flowmeter Removal from Regulator

Place the InGage Regulator into a vise that clamps on the body above the DISS-1240 Check Valves, if installed, and below the Flowmeter section of the Regulator. Remove the Flowmeter with a strap wrench or 1-1/2" Open end box wrench



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Remove Screw

Place the Flowmeter
Assembly into a vise
and remove the Phelps
Head screw from the
Knob Shaft

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Remove Screw

Push the Knob Shaft
through the Rotor
Assembly and
completely out of the
Flowmeter body.

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Remove Screw

Remove all the o-rings, and teflon washers and discard. Keep the springs and ball detents for reuse.

Clean the Flowmeter body and Knob. Take care when cleaning the knob so the decal is not moved or damaged

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Flowmeter Removal and Replacement

Place the InGage Regulator into a vise that clamps on the body below the DISS-1240 Check Valves, if installed, and above the Flowmeter section of the Regulator.



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Top View of Flowmeter

Place the Flowmeter so that threaded side is down and the port is pointed toward the 6 o'clock position.



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Flowmeter Removal and Replacement

Place the InGage Regulator into a vise that clamps on the body below the DISS-1240 Check Valves, if installed, and above the Flowmeter section of the Regulator.



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Spring Placement

Place one spring in
each pocket



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Swivel Connector Removal and Replacement

Rotate the Yoke for access to 5/8" hex on the Swivel Connector. Place modified 5/8" socket (part # 707-0208-001) over hex.



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Swivel Connector Removal and Replacement

Insert the 1/4" drive
extension
(part # 707-0208-002)
through opening at the
top of the yoke and
into the 5/8" socket
(part # 707-0208-001)



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Removal and Replacement



Step

If necessary, insert the
1/4" by 3/8" drive
adapter
(part # 707-0208-003)
into the 1/4" drive
extension.



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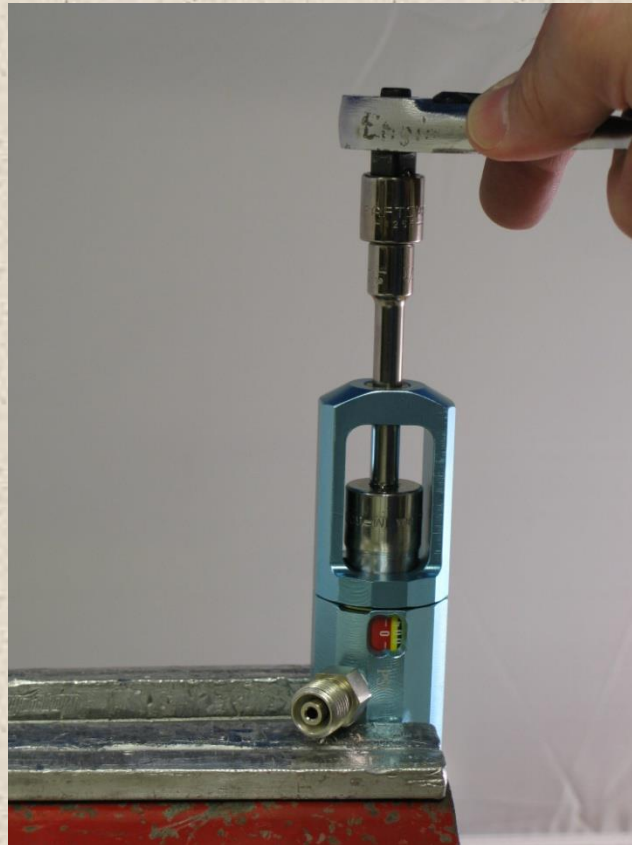
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Swivel Connector Removal and Replacement

Using either a 1/4" or



Swivel Connector
counter clockwise to
completely unscrew
the Swivel Connector.
**DO NOT USE Torque
Wrench.**

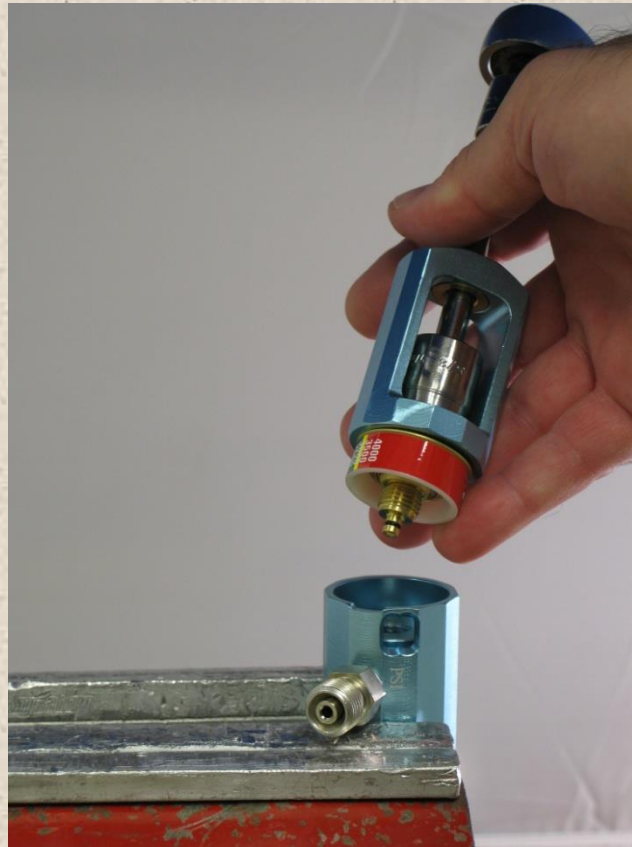


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Swivel Connector Removal and Replacement

Lift the entire Yoke,
Swivel Connector and
Gauge Assembly from
the Regulator Body.

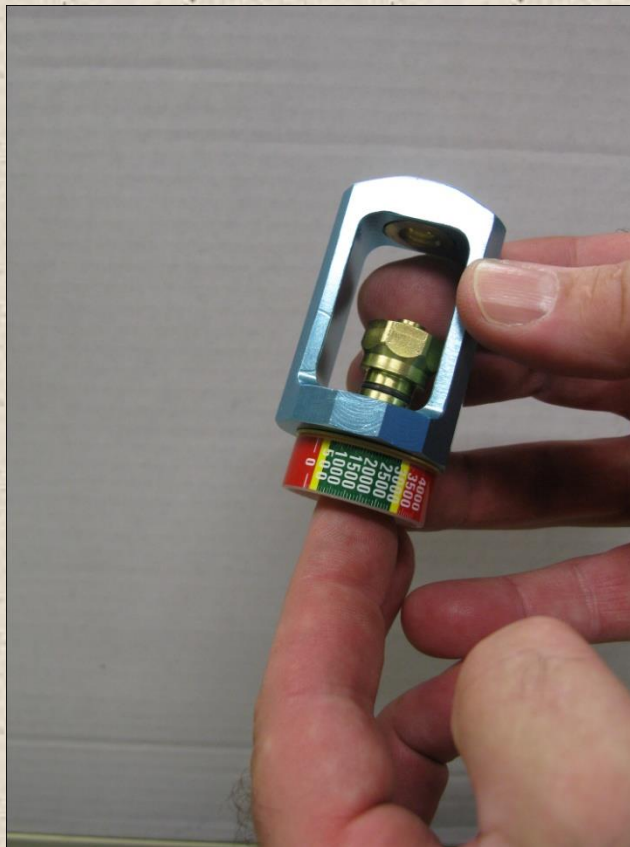


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Swivel Connector Removal and Replacement

Push the Swivel Connector upwards and out of the gauge assembly chamber and the Yoke. Set the Swivel Connector aside for return to



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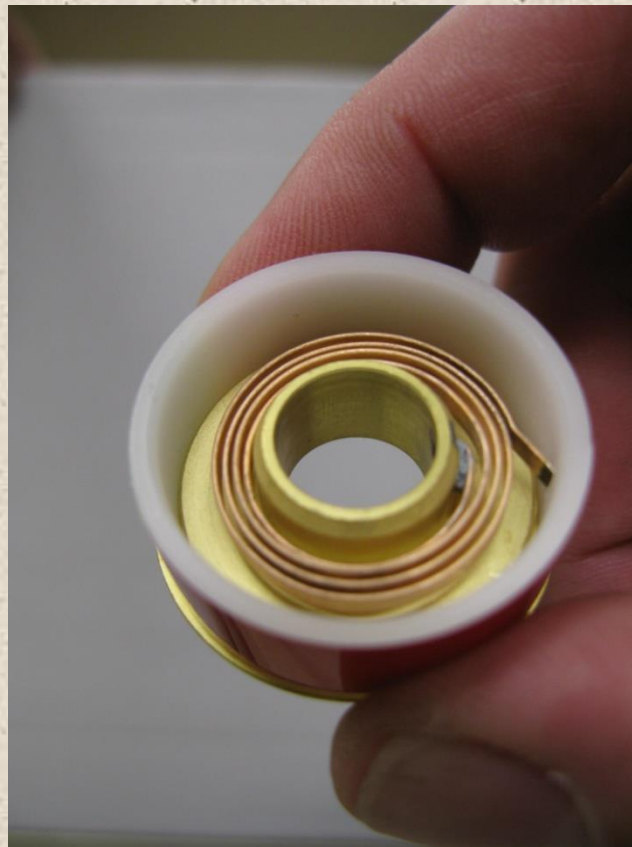


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System Removal and Replacement

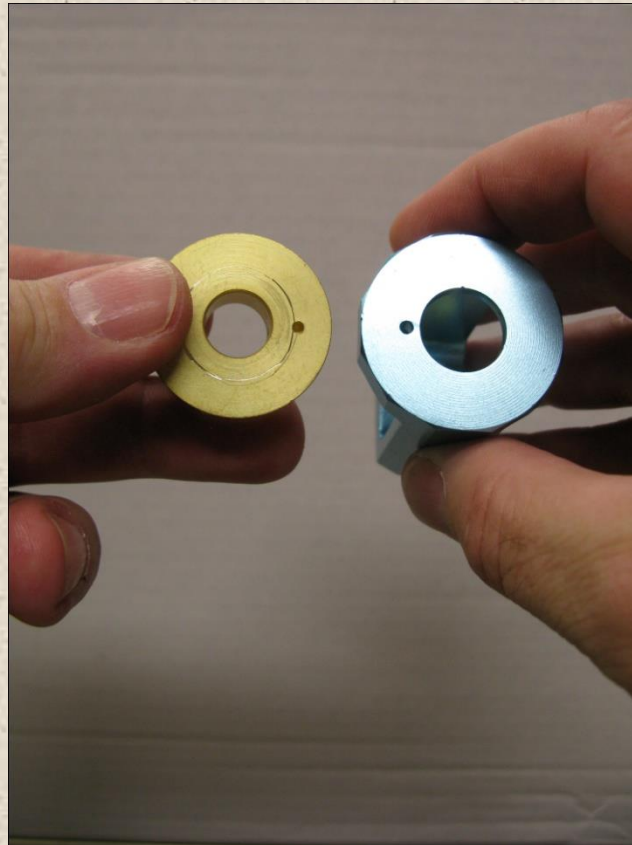
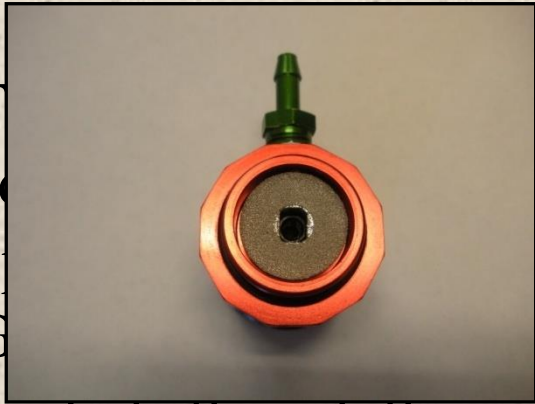
Inspect the Gauge Assembly's inside diameter for contamination and wipe with a clean lint free cloth as needed. **DO NOT** use a metal tool on this critical sealing surface.



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Swivel Connector Removal and Replacement



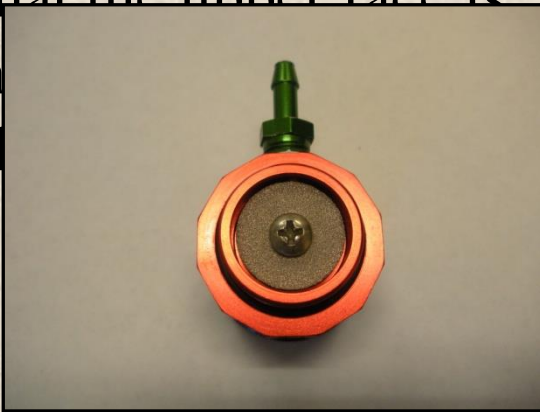
T
a
u
G
the hole through the
Yoke Assembly.
These holes will be
used to reset the gauge
during the final step.

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Swivel Connector Removal and Replacement

Insert the new Swivel Connector, first through the Yoke and then through the Gauge Assembly. Be sure that the upper face is

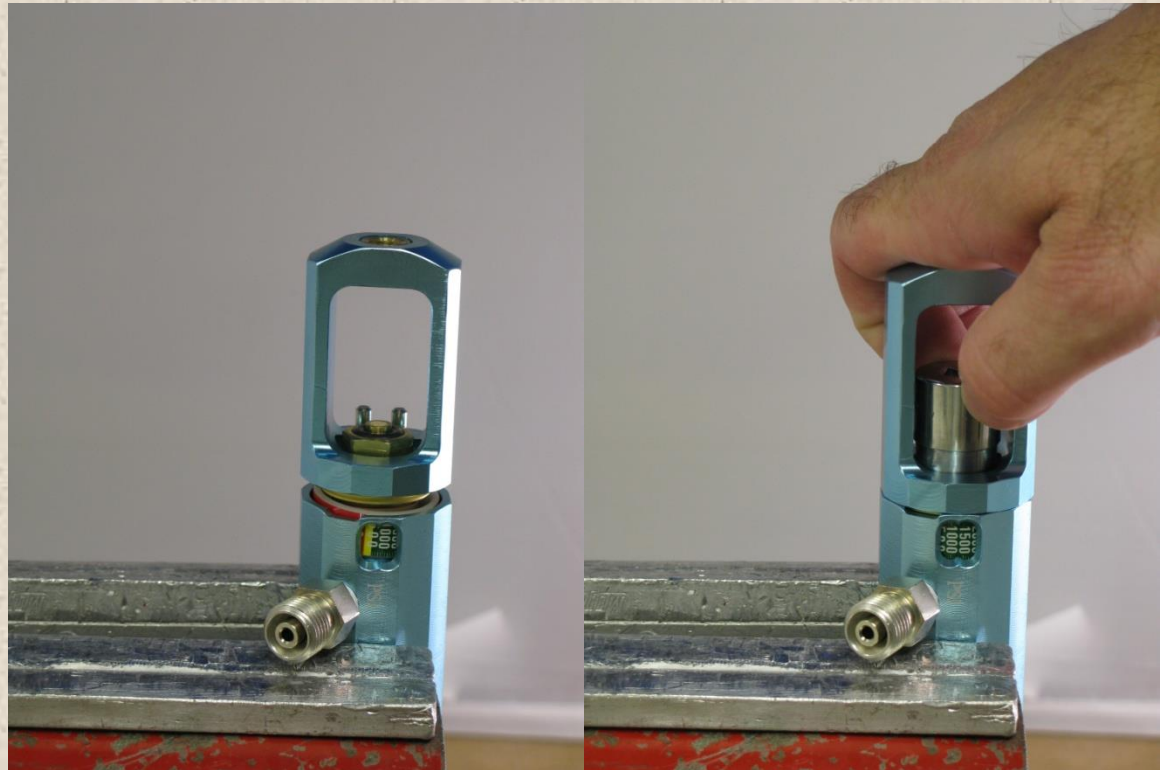


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Swivel Connector Removal and Replacement

Holding the Swivel
Con**Picture 1: TOP
VIEW OF BARE FM
BODY**



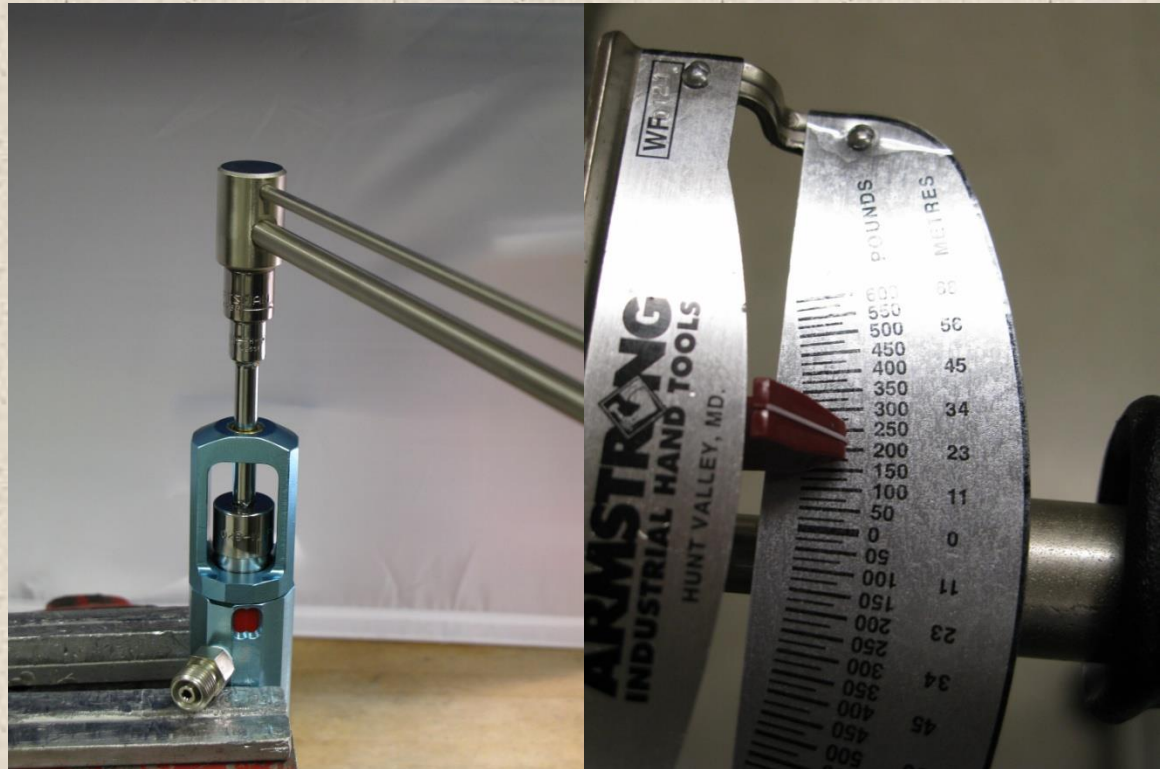
Picture 2.
INSERT 1

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Swivel Connector Removal and Replacement

Reinstall the socket, extension, and adapter following the same steps. Now install torque wrench (part # 707-0208-004) into adapter and torque clockwise to 175 to 200 inch pounds.

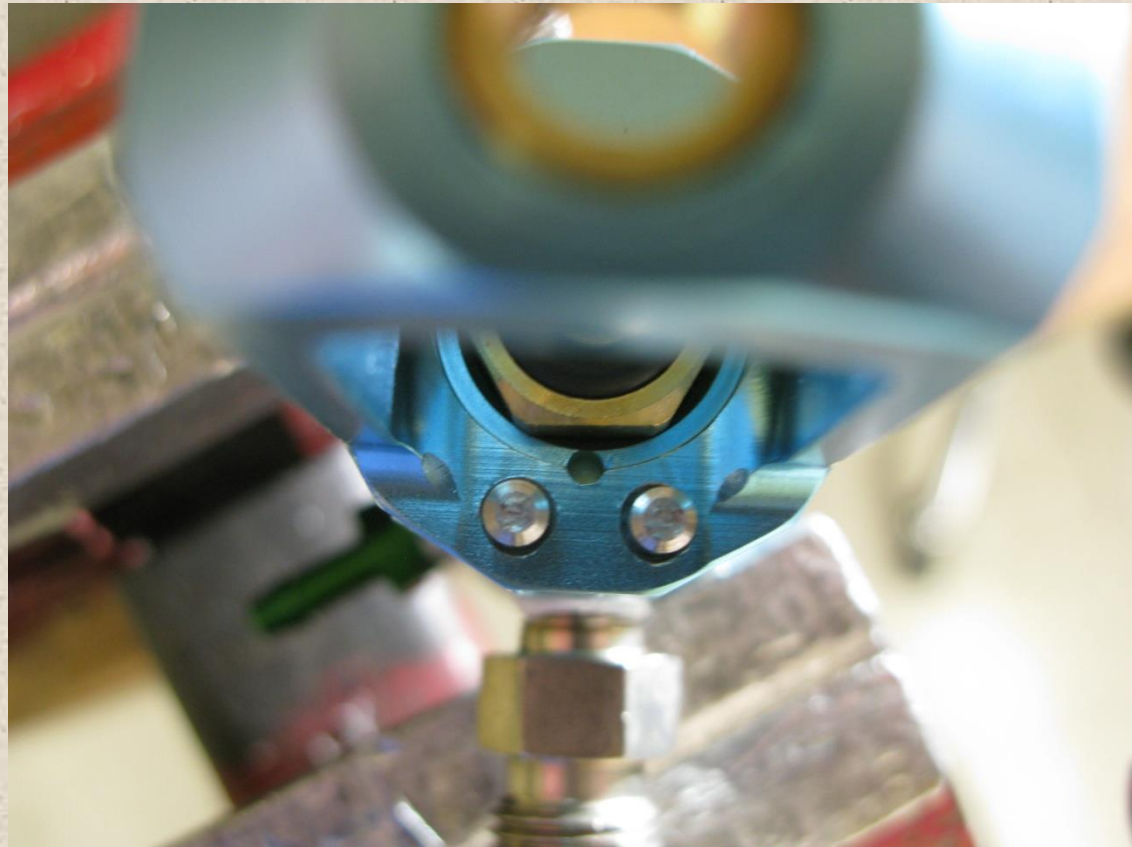


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Swivel Connector Removal and Replacement

Reset the Gauge with Unique Flotec Calibration Tool (part # 707-0208-005) by inserting into hole between the pins of the Yoke. Rotate the Yoke until the tool engages with the hole in the Gauge.

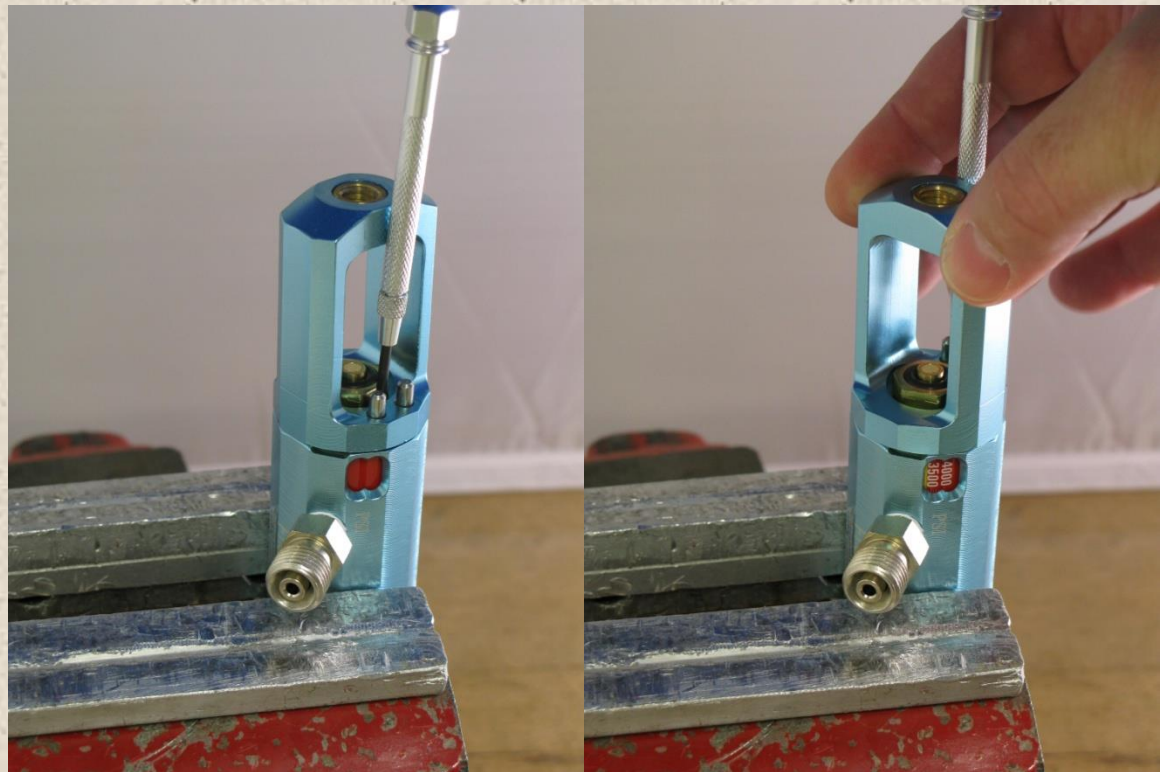


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Swivel Connector Removal and Replacement

While pressing the Calibration Tool down in the Gauge hole, rotate the Yoke. This will turn the Gauge Assembly. Rotate the Gauge until the Zero is aligned with the pointers on the Gauge window.

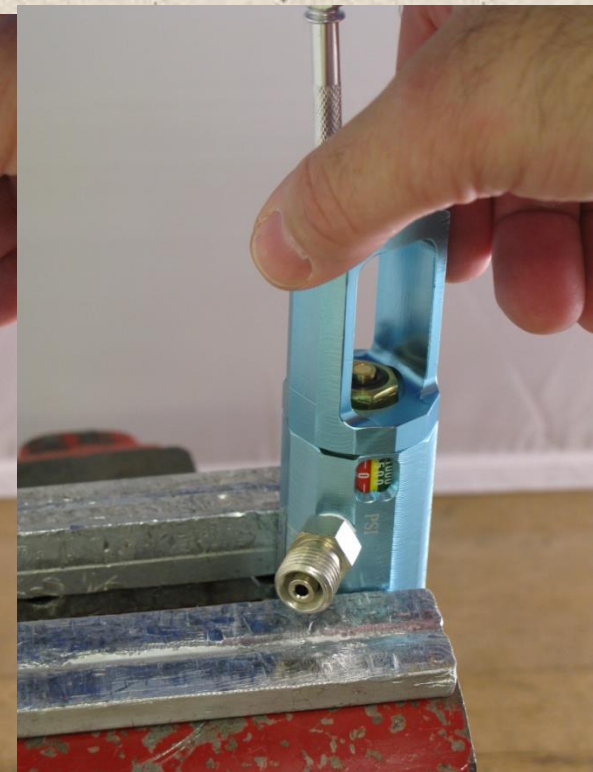


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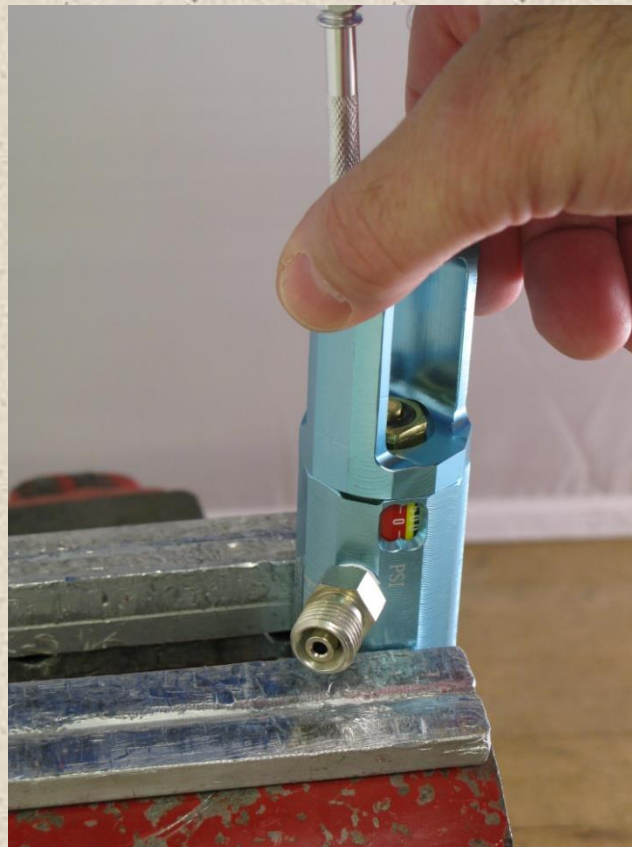


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Swivel Connector Removal and Replacement

Remove the Calibration Tool from the Yoke and Gauge. Remove the Regulator from the vise. The Regulator is now ready for required testing. Reinstall Dome Handle into Yoke.



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Swivel Connector Removal and Replacement

Install the Regulator onto a ½ full cylinder, (1000 psi maximum) and VERY slowly open the post valve. Snoop the area around the Post Valve, Gauge and body of Regulator for leaks. If any leak is detected, return the Regulator and the Swivel Connector to Flotec.

If no leaks are detected, install the Regulator onto a full cylinder, (2015 psi maximum) and VERY slowly open the Post Valve. Snoop the area around the Post Valve, Gauge and body of Regulator for leaks. If any leak is detected, return the Regulator and the Swivel Connector to Flotec.

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Swivel Connector Removal and Replacement

If the swivel function and the gap clearance is within tolerances and the regulator passes the leak test, and the gauge shows correct cylinder pressure the Regulator may be put returned to service.

Contact Flotec Customer Service and obtain an RMA number. Return the Swivel Connector to Flotec individually bagged and marked with serial number, part number, date of repair, and name of authorized repair technician doing the service work and RMA number.