

Stainless Steel Helmets with SuperFlow[®] 350 or 455 Balanced Regulators Pod

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1.1 Pod System

1.1.1 Pod System and Regulator Removal

The stainless steel helmets use a unique pod system. The pod is designed to serve as the mounting point for the regulator. Under normal conditions, it is not necessary to remove the pod to service the regulator.



NOTE

There are two different length pod mounting screws; six short screws and two longer screws. Also, the two bottom screw heads are positioned on the inside of the helmet shell, while others are on the outside.

The regulator exhaust and exhaust valve in the pod are made of high grade silicone. The regulator and pod exhaust are very durable and resilient, however they should be replaced at least once a year or whenever inspection reveals any signs of damage or deterioration.

All O-rings should be replaced at least once a year or whenever damage/deterioration is present or suspected. In order to replace the regulator exhaust valve, the demand regulator must be removed from the helmet. Removing the regulator is not difficult, see "1.1.4 Removal of Regulator Alone" on page POD-4.

The regulator can be removed without removing the pod. However, during overhauls the pod should be removed for inspection and gasket replacement.

1.1.2 Removal of the Pod/Regulator Assembly

Tools required:

- $\frac{3}{8}$ " Nut Driver or $\frac{3}{8}$ " Open End Wrench
- $\frac{5}{32}$ " Hex Key (Ball End is Helpful)
- $\frac{1}{4}$ " Flat Blade Screwdriver
- #1 Phillips Head Screwdriver

1. Remove the chin strap by removing the screws that secure it.



To remove the pod, start by removing the chin strap.

2. Remove the two snap tabs adjacent to the swing catch assembly.
3. Remove the screws that secure the whisker to the port retainer. Take care not to lose the whisker.

ker spacers, or the zinc anodes. If the helmet has no anodes (standard on stainless steel helmets since late 2012) it will have kidney plates on the whiskers.



Remove the screws that secure the zinc anodes, whisker spacers and whiskers.

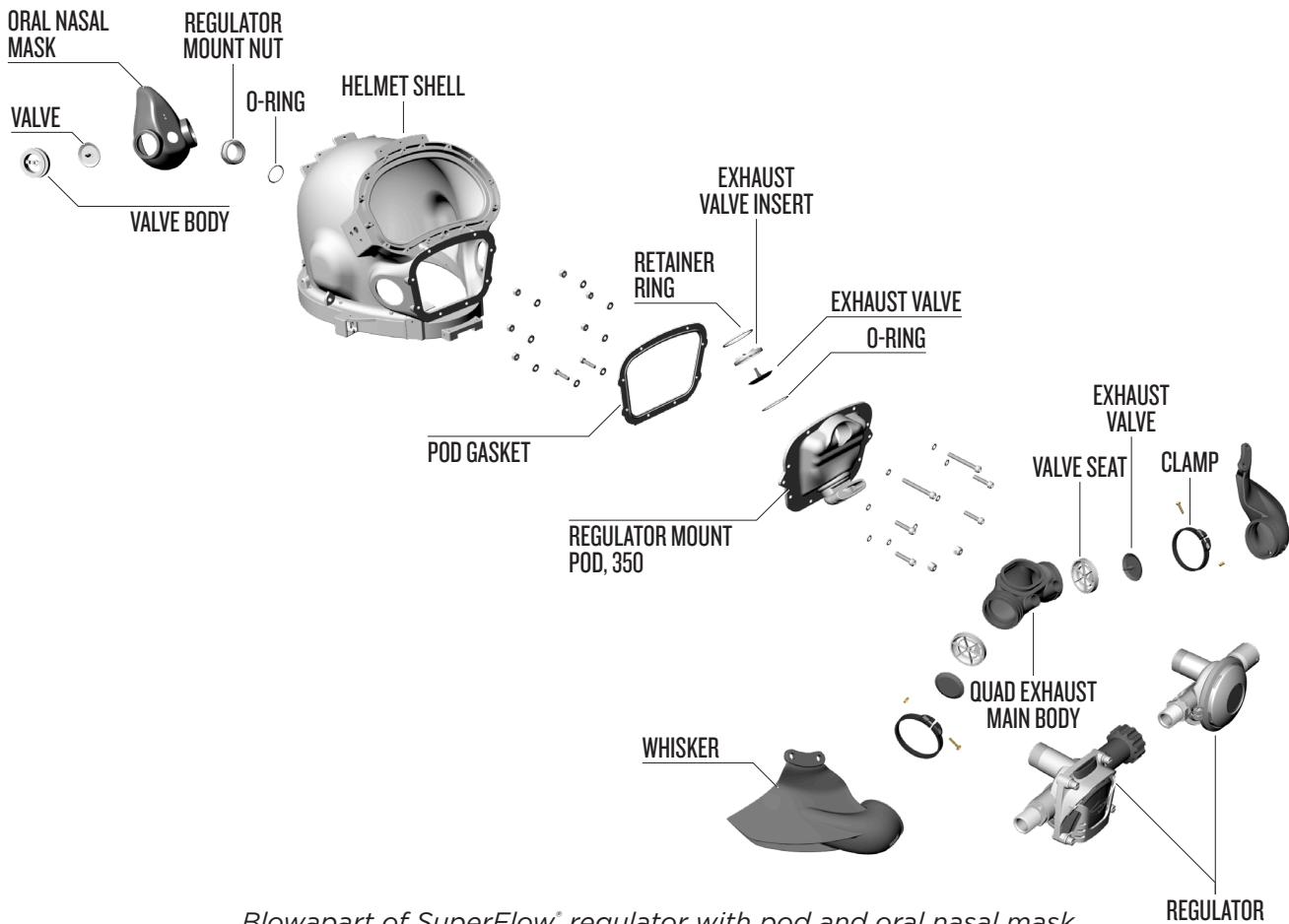
4. Remove the bent tube assembly as per "1.2.1 Removal of the Bent Tube Assembly" on page BNT-1.

5. Remove the nose block device as per "1.2.1 Nose Block Assembly Removal" on page FCPRT-6.



Protect the nose block device knob with a plastic cap or rag when you remove it.

6. Remove the communication module from the



Blowapart of SuperFlow® regulator with pod and oral nasal mask.

helmet per "1.3.3 Removal of Communications Assembly" on page COM-3.

7. Remove the oral nasal mask by pulling it off the regulator mount nut.



Remove the nose block device, microphone, and oral nasal mask.

8. Loosen the screws gradually and remove along with washers and nuts.



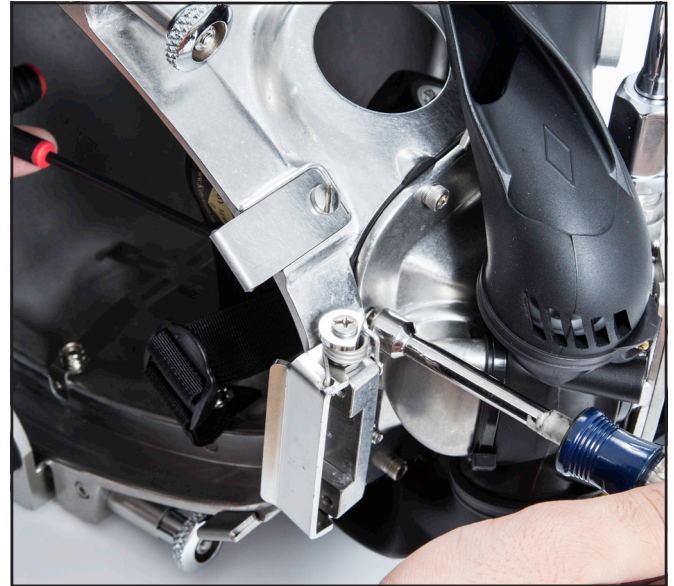
NOTE

The two longest screws secure the nuts (and pod) just below the face port.



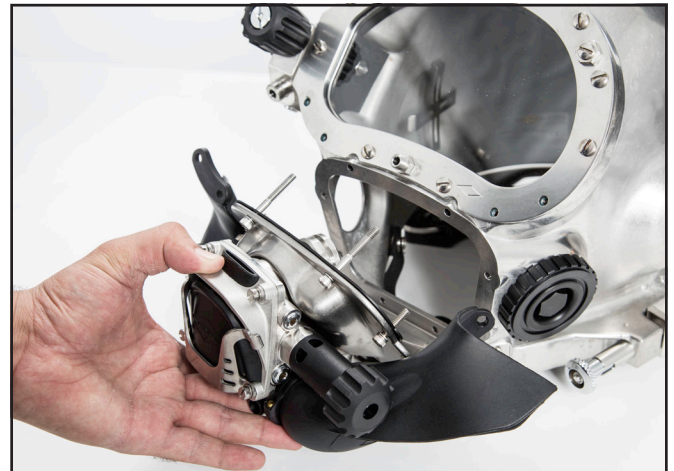
NOTE

The bottom two nuts attach on the exterior of the pod, while the remaining nuts attach on the interior of the pod.



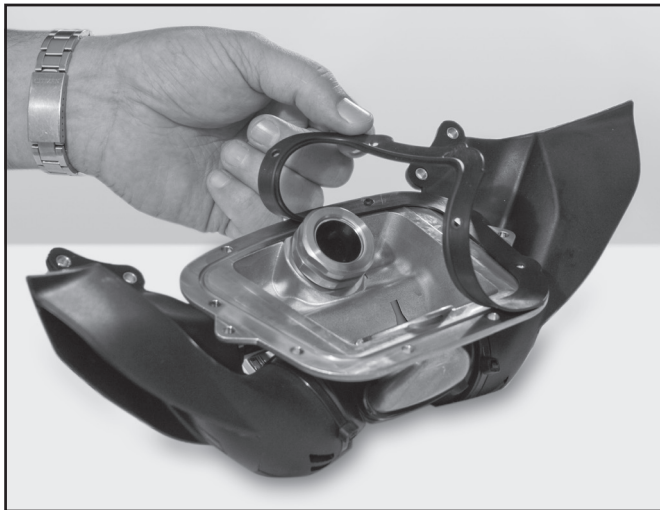
Remove the lock nuts.

9. Separate the pod/regulator assembly from the helmet assembly.



Separate the pod/regulator assembly from the helmet shell.

10. Remove the gasket for cleaning or replacement.



Remove the gasket for cleaning or replacement. Note the ridge on the gasket. This ridge is designed help maintain the proper position of the gasket in the groove in the pod.

11. The lock nuts may be reused, once. Be sure to replace them upon the next pod gasket inspection. Failure to replace the lock nuts on the second scheduled maintenance, or attempting to reuse them more than once could result in an improper seal of the pod, or loosening of the fasteners.

1.1.3 Removal of Water Dump/Exhaust Components

Refer to "Blowpart of SuperFlow® regulator with pod and oral nasal mask." on page POD-2.

1. Remove retainer ring
2. Remove valve insert & valve
3. Remove O-ring.
4. Separate valve insert and valve, make note of how these two parts fit together. The valve **MUST** be reinstalled into the valve insert correctly in order to seal properly.

1.1.4 Removal of Regulator Alone

In most circumstances, it is not essential to remove the pod if you need to service the regulator. To remove the regulator by itself, use the following procedure, for both the SuperFlow® 350 and 455 regulators.

1. Remove the bent tube assembly. See "1.2.1 Removal of the Bent Tube Assembly" on page BNT-1 for the proper procedure.

2. Cut the tie wrap that holds the regulator on the Quad-Valve extension of the pod.

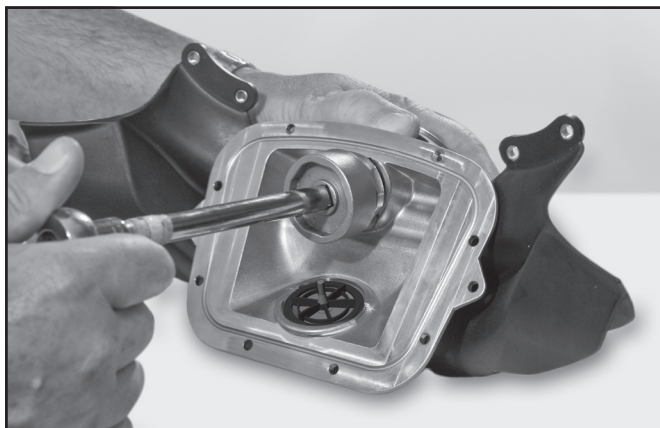
3. Remove the screws that secure the whisker to the port. Take care not to lose the zinc anodes, screws, whisker spacers or kidney plates if present .



Take care not to lose the whisker spacers.

4. Remove the oral nasal mask following the procedure in "1.1.1 Oral Nasal Mask Removal" on page ON-1.

5. Loosen the regulator mount nut. Cut the tie wrap sealing the whisker main body to the water dump/exhaust outlet on the pod.



Removal of the regulator mount nut. (Pod removed to show clear view).

6. Pull the regulator body/whisker away from the helmet.

1.2 Reinstalling the Pod on the Helmet

Tools required:

- 3/8" Nut Driver or 3/8" Open End Wrench
- 5/32" Hex Key (Ball End is Helpful)

1. Install the gasket on the pod. Make sure that the ridge on the gasket is properly seated in the groove in the pod.

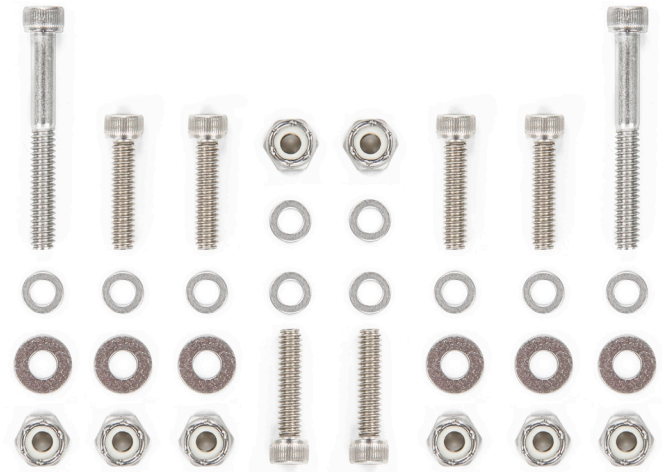
2. Install all of the allen screws and washers through the pod and gasket, with the exception of the bottom two. The screws will help to align the pod and gasket to the helmet.

Thread all of these screws through the gasket slowly so as not to damage the holes in the gasket with possible sharp edges of the thread. These holes have small sealing rings molded around them to seal the threads to the holes in the metal parts. It is recommended to thread the screws through the gasket rather than push it through.



NOTE

Remember that the two long screws are installed in the top two holes of the pod, between the top of the regulator cover and the port retainer.



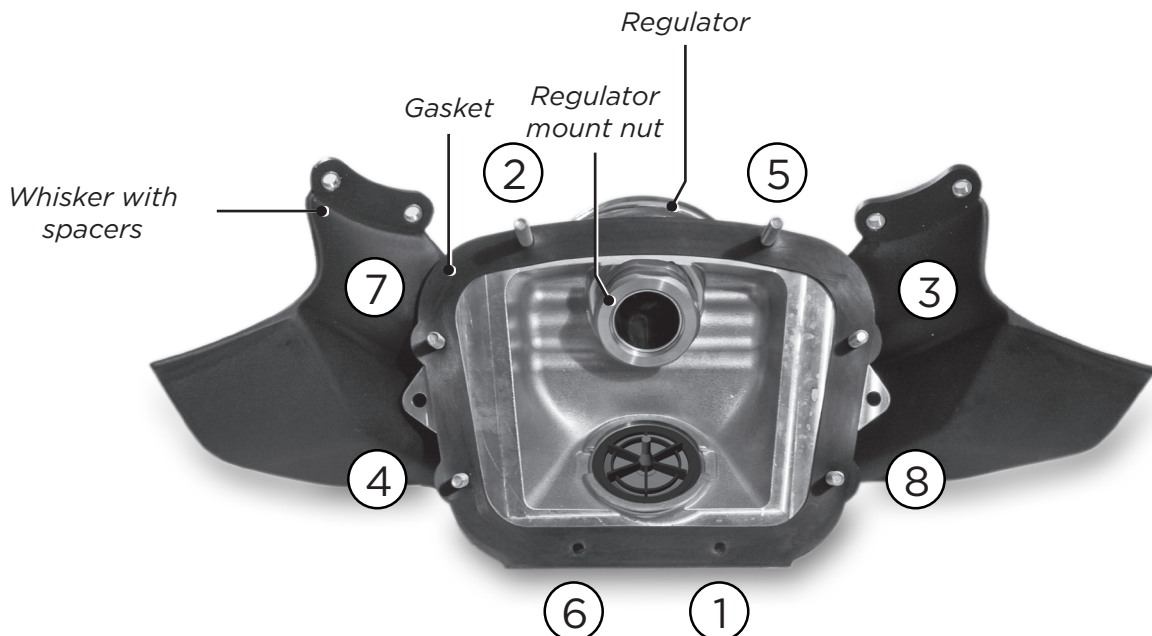
NOTE

For six of the screws, there is a washer on each side of the pod, the thinner washer is used on the outside (hex head side) of the pod and the thicker washer on the inside of the pod (nut side)

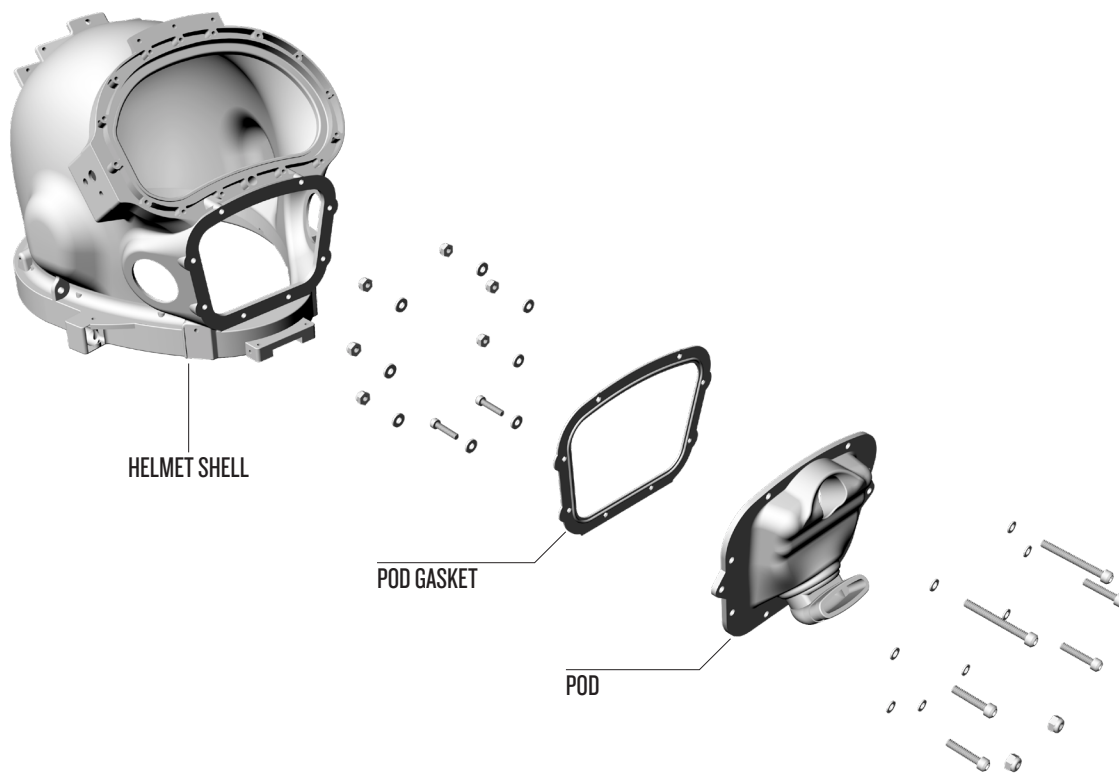
The two longest screws are inserted into the top two holes of the pod. The two bottom screws are secured in the opposite orientation (lock nuts are on the outside of the pod) and both washers are thinner.

3. Mate the pod to the helmet shell.

4. Install the remaining two bottom screws, washers and nuts. Run the nuts up until they are finger tight. The nuts are positioned on the outside of the pod on the two screws on the bottom, below the regulator.



Install and tighten the nuts and screws in a staggered pattern, as shown here. Tighten the nuts gradually so that the tension is pulled up evenly on all four sides of the pod.



Always remember to install the pod gasket between the pod and the helmet.

5. Using the hex key and nut driver or wrench, tighten the nuts gradually in a staggered pattern, such as the one shown in the diagram on page POD-5. The lock nuts should be tightened to the point where the gasket can be seen just barely starting to extrude out from between the pod and shell.

- $\frac{7}{8}$ " Open End Wrench
- $\frac{7}{8}$ " And $1\frac{1}{16}$ " Open End Attachments

1.3 Reinstalling the 350/455 Regulators on Stainless Steel Helmets



NOTE

If diving with a gas mixture with an oxygen percentage over 50% lubricate all O-rings and moving parts with a light coating of Christo-Lube®, Krytox®, Fluorolube®, or Tribolube®. If diving with gas mixture below 50% oxygen Dow Corning® Molykote® 111 or equivalent is suitable for O-ring lubrication.

Tools required:

- Socket Wrench, Regulator Mount Nut, P/N 525-625 (in Tool Kit P/N 525-620-Included with Helmet) or $1\frac{3}{8}$ " Socket
- Torque Wrench with $\frac{3}{8}$ " Drive Extension, Minimum 3" in Length
- Flat Blade Torque Screwdriver

WARNING

All parts on Kirby Morgan helmets and masks must be adjusted to their proper torque specifications. See "Torque Specs" module for a complete listing of torque specifications for each part. Failure to adjust parts to the recommended specifications could lead to helmet failure and accidents. This could be fatal.

1. Verify that the 350/455 regulator is firmly attached to the exhaust system complete with whiskers. If the exhaust system is not attached to the regulator do so referencing "1.3 Quad Valve Exhaust Valve Replacement" on page QUAD-2.

2. Pre install a tie wrap as shown onto the quad valve exhaust main body. This will make installation onto the water dump extension on the pod much easier and ensure a good seal.



Pre-install the tie wrap.

3. Insert the regulator tube into the pod first while aligning and stretching the quad valve main exhaust body onto the water dump extension on the pod.

4. Carefully tighten the tie wrap, making sure it is completely in the groove of the exhaust main body. Trim the tie wrap as close as possible. Check for a secure fit.

5. Inspect the regulator mount nut for contaminants and damage. Use a tooth brush to clean threads as needed. Lightly lubricate and install the regulator mount nut (sealing) O-ring, then thread the regulator mount nut onto the regulator, finger tight.



NOTE

If this maintenance is during an annual overhaul, replace the Teflon® O-ring at the side block end of the bent tube and the O-ring at the demand regulator inlet side of the bent tube. If not part of annual overhaul lightly lubricate the bent tube O-ring and install into the O-ring groove at the regulator end of the bent tube, then install a new Teflon® O-ring at the side block end.

6. Carefully inspect the bent tube for damage and contaminants. The bent tube must be free of dents and compressions deeper than $\frac{1}{8}$ " and should not have deep scratches or sever corrosion. Replace the bent tube if questionable.

7. Push the O-ring end of the bent tube assembly into the regulator nipple tube. Slide it in until the side block end of the bent tube is aligned with the threads on the side block.

8. Rotate bent tube away from side block and

be sure the Teflon® O-ring is in place on the side block end of the bent tube. Lightly lubricate the threads on the side block then engage the threads to the side block hand tighten only.

9. Start the "regulator to bent tube" mount nut onto the nipple tube of the demand regulator and run it up by hand until resistance is felt.



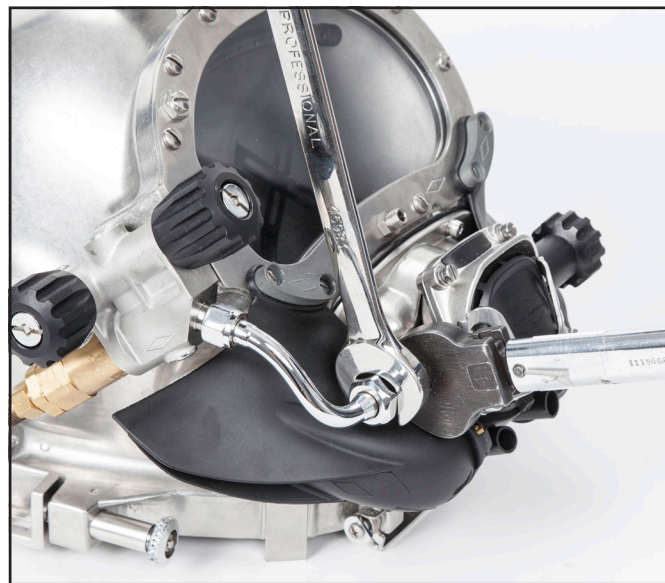
NOTE

Run the mount nut up on the inlet nipple hand tight only.

10. Using a torque wrench, tighten the bent tube assembly nut onto the side block. See "Torque Specs" module.

11. Make certain the regulator end of the bent tube is threaded onto the regulator (nipple tube), by lightly applying torque to the hex nut on that end. When a small amount of resistance is felt, lock it into place with the jam nut.

12. Hold the hex on the bent tube with a wrench and tighten the jam nut against it with a torque wrench. See "Torque Specs" module.



Make sure the connection between the bent tube and the regulator is snug using a $\frac{7}{8}$ " torque wrench and a $\frac{7}{8}$ " standard wrench.

13. Use a torque wrench inside the helmet with a $\frac{3}{8}$ " socket or P/N 525-625 socket wrench, regulator mount nut with a $\frac{3}{8}$ " extension to tighten the regulator mount nut. See "Torque Specs" module.



The regulator mount nut must be tightened, see See "Torque Specs" module. Use a torque wrench to ensure the correct setting.

⚠ WARNING

Avoid any contact between Loctite® and the face port. This can cause the port to fail unexpectedly and drowning could result.

14. Attach the leading edge of exhaust whiskers to each side of the face port retainer using the screws, zinc anodes or kidney plates with spacers. The whiskers should have a straight angled surface from the helmet shell towards the outer edge of the regulator. Realign if needed. **For stainless steel helmets ONLY:** Place a small amount of Loctite® 248 onto the last two or three threads at the end (end opposite the screw head) of each of whisker screws. Using a torque screwdriver with a flat blade screwdriver adapter, carefully torque these screws. See "Torque Specs" module.



Make sure the whisker spacers are in position before tightening the screws that secure the whiskers.



The whiskers are fastened to the face port using two screws on each side.



Only use a torque screwdriver to tighten the screws that secure the whiskers to the face port.

15. Install the oral nasal mask per "1.1.3 Oral Nasal Mask Replacement" on page ON-2.

16. Install the nose block device per "1.2.2 Nose Block Device Replacement" on page FCPRT-6.

17. Install the communications module per "1.3.5 Microphone Replacement" on page COM-5.