

# **User Guide For Surface Supplied MOD-1**



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# WARRANTY

## *USE ONLY KIRBY MORGAN® GENUINE PARTS*

Kirby Morgan Dive Systems Inc., (KMDSI) warrants every new helmet, BandMask®, Full Face Mask, SCUBA regulator or air control system (KMACS 5) (each, a Product) to be free from defects in workmanship for a period of three hundred sixty five (365) days from the date of purchase from a KMDSI authorized dealer. This warranty covers all metal, fiberglass, and plastic parts, but does NOT cover rubber parts, communications components, head cushions, chin cushions, or foam spacers.

Any defect of the product in workmanship or material covered by this warranty discovered within three hundred sixty five (365) days from the date of purchase must be promptly communicated in writing to the nearest authorized KMDSI dealer or (if no such dealer in the buyer's country) contact KMDSI directly at (805) 928-7772. No Product returns will be accepted by KMDSI without a returned merchandise authorization (RMA) number from KMDSI. Upon receipt of the RMA from KMDSI, the buyer should return the defective Product or part, freight prepaid, to an authorized KMDSI dealer or the KMDSI plant, as directed by the RMA department. KMDSI will repair or replace the Product at no charge, within a reasonable time, as it deems necessary.

### **THIS WARRANTY IS NULL AND VOID IF:**

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- 2) The Product has not been properly serviced and/or maintained by KMDSI factory trained/approved personnel, according to factory recommended procedures provided in the manual, along with the KMDSI Appendices Checklists, and/or Product updates have not been performed as recommended by KMDSI, or
- 3) Unauthorized attachments or modifications have been made to the Product, or
- 4) The Product has been used for purposes other than those for which it was designed, or otherwise has been abused, misused, or subjected to unusual conditions, or the Product's intended service has been exceeded.

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In purchasing any Product subject to this warranty, the buyer agrees that its sole and exclusive remedy and KMDSI's entire obligation in contract, tort, or otherwise under this contract will be repair or replacement at KMDSI's option of the Product or any parts which KMDSI determines during the applicable warranty period are defective in workmanship or material covered by this warranty. All exchanged parts are the property of KMDSI. The buyer's exclusive remedy and KMDSI's entire liability in contract, tort, or otherwise is the payment by KMDSI of the buyer's actual damages up to but not to exceed the amount paid by the buyer for the Product.

In no event shall KMDSI be liable to the buyer for indirect, special, incidental or consequential damages (including, but not limited to, damages for lost profits, lost sales, loss of business opportunity, or for injury to persons or property arising out of the use of the Products). Any claim or action for breach of warranty must be commenced within one year following delivery of the Product to the buyer.

Buyer acknowledges that this warranty is the sole and exclusive warranty of the Product and that it supersedes any and all oral or written representations and undertakings between KMDSI, its dealers, and the buyer relating to the Products. This warranty allocates the risks of product failure between KMDSI and the buyer, which allocation is recognized by both parties and is reflected in the price of the goods. The buyer acknowledges that they have read this agreement, understand it, and are bound by its terms.

**IMPORTANT:** Please register your purchase online at [www.kirbymorgan.com/support/product-registration-form](http://www.kirbymorgan.com/support/product-registration-form). If you have a problem with the online registration, please contact your Kirby Morgan dealer, or Kirby Morgan directly by calling (805) 928-7772, or email [sales@kirbymorgan.com](mailto:sales@kirbymorgan.com).

**Kirby Morgan® thanks you for your purchase.**

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# Definitions of Signal Words and Terms Used in this Guide

The original language of the Kirby Morgan Manuals is English. Translation into other languages will be provided upon request. KMDSI may charge a fee for these services.

Throughout this user guide we will use certain words to call your attention to conditions, practices or techniques that may directly affect your safety. Pay particular attention to information introduced by the following signal words:

## **DANGER**

**This word indicates an imminently hazardous situation, which if not avoided, could result in death or serious injury.**

## **WARNING**

**This word indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.**

## **CAUTION**

**This word indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.**

## **NOTICE**

**This word is used to address practices not related to personal injury.**

This user guide contains important safety information and should always be available to those personnel operating this equipment. Read, understand, and retain all instructions before operating this equipment to prevent injury or equipment damage.

If you sell or loan this equipment to another person, be sure that this user guide accompanies the gear when you transfer possession to them.

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# Terms used in this Guide

**IAW:** In Accordance With

**EGS:** Emergency Gas System

**Nose Dam:** Located on the inside of the mask, is an extended barrier that separates the upper (visual) portion of the mask from the lower (oral) part of the mask.

**PPE:** Personal Protective Equipment

## Introduction



### NOTE

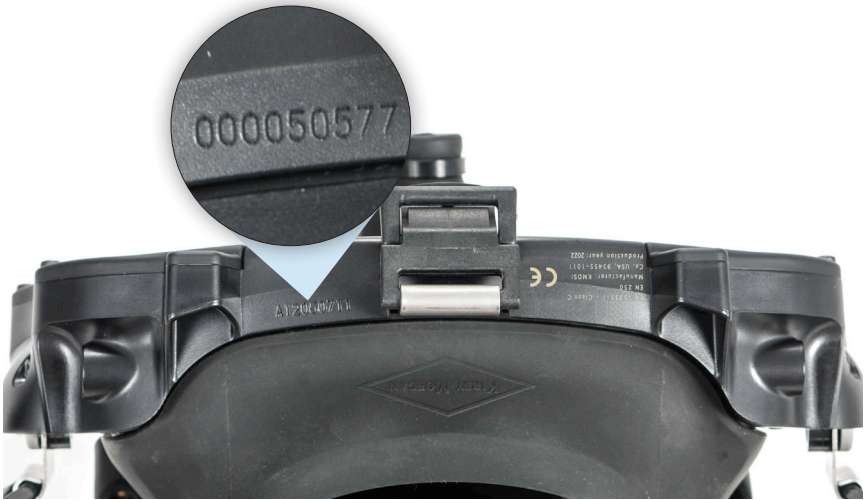
Further information pertaining to the Surface Supplied MOD-1 can be found in the Description and Operational Specifications and General Information KMDSI Products modules, along with the Kirby Morgan website: [www.kirbymorgan.com](http://www.kirbymorgan.com).

The Surface Supplied Pod is the latest addition to our Modular Full Face Mask product line.

The new Surface Supplied Pod is constructed of specialty polymers/elastomers and machined components of titanium and high grade stainless steels. The oral cavity has extremely low volume and greatly reduces residual levels of CO<sub>2</sub>. The volume also works well for communications. This Pod is designed to be operated only in the surface supplied diving configuration.

## **Serial Number Location**

The M-48 MOD-1 serial number is printed on the left side of the upper leading edge of the mask frame along with the part number for the mask and the CE mark on the right hand side.



The serial number is located on the bridge of the Surface Supplied Pod Assembly.

## Communications



The communications are modular, with earphone/microphone elements routed to an externally mounted communication module which is easily removed and replaced if needed. Current model has the microphone easily removable as a complete plug-in microphone assembly, or the microphone element can be separated by itself. Future improvements will be independent attachments for the earphone elements as well.

## Hood Assembly

Includes earphone pockets. The attached hood is easily removed for replacement.

## Regulator

The main tube assembly is a slight variation from the main tube assembly of the balanced SCUBA regulator. All parts are interchangeable except the balance spacer, P/N 850-170 and adjustable nipple P/N 550-163.

The regulator assembly has been designed and manufactured with pride, according to Kirby Morgan's world renowned exacting standards for quality and performance. The Kirby Morgan Balanced SCUBA Regulator is a high performance regulator which was designed for the professional diver. The second stage is a modified version of the same regulator used on the Kirby Morgan 97 helmet and stand alone 455 balanced regulator. Many of the parts used in this regulator are identical to those used on the KM 97 helmet and 455 balanced regulator. This is helpful to dealers in stocking parts for service and repair.

Provided it has been purchased new from an Authorized KMDSI Dealer, your regulator assembly is covered by KMDSI's Limited Warranty. Be sure to read and fill out the warranty card completely and return the bottom portion within ten (10) days of purchase. Also save your sales receipt. A copy of your receipt must be presented whenever obtaining warranty service.

Perhaps more than any other piece of diving equipment, your regulator's function and performance relies greatly on the care and maintenance it will receive, in addition to regularly scheduled dealer service. Before you dive with your new Kirby Morgan regulator, it is important to read this guide in its entirety; to become familiar with its features, as well as the correct procedures for setup, pre-dive inspection, and post-dive maintenance.

## Side Block

The linking component to the regulator, from the side block, is made out of titanium for strength and to eliminate corrosion, and excess weight. The body and additional metal components are made from 316L stainless steel. The design of the control valves is extremely simple and easy to maintain.

## Mask

All current models of the MOD-1 modular full face masks can be converted into the Surface Supplied version with the Pod and associated hardware with a simple modification by an authorized, trained KMDSI dealer.

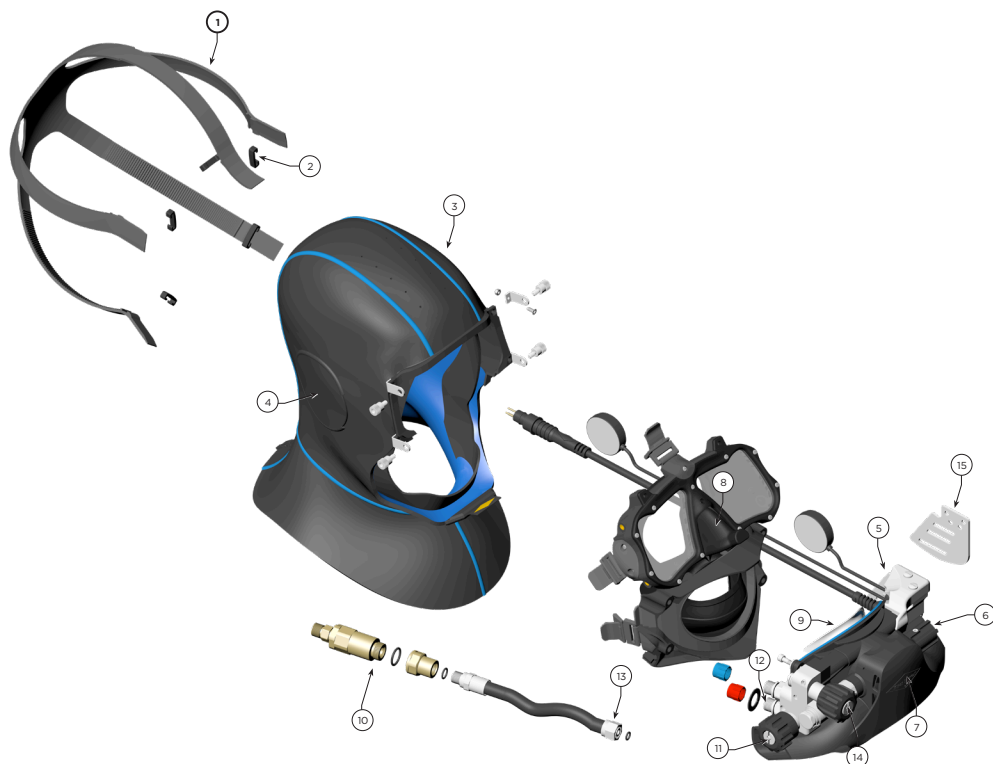
**We do not recommend that this product be operated in contaminated water.** No matter what the Pod configuration used this diving system is **not an acceptable form of protection against biological contaminants.**

## Vent Holes

The mask skirt has two vent holes located in each eye cavity of the mask. Using the defogger control knob and inhaling through the nose, defogs the lenses with ease.



# Components of the Surface Supplied MOD-1



## Loc # Description

1	Mask Strap
2	Strap Keeper
3	Hood
4	Ear Pockets
5	Port Weight
6	Regulator Adjustment Knob
7	Purge Zone

## Loc # Description

8	Nose Pocket
9	Oral Cup
10	One way valve
11	EGS valve
12	EGS supply inlet
13	Main gas supply inlet
14	De-Fog Control
15	Guard

## CE Marking

The Surface Supplied MOD-1 has been tested and conforms to the performance requirements as set forth in Annex II of Regulation (EU) 2016/425 and, as far as applicable, the EN 15333-1 (Class C). It is fully CE marked with Surface Supplied POD (P/N 805-225) and the Surface Supplied MOD-1 P/N 500-800.

This mask is intended for diving to maximum depth of 165 fsw/50 msw and is not intended for the SCUBA diving configuration.

Category of PPE: III

### **⚠ WARNING**

**The Surface Supplied MOD-1 has been tested with air and CE certificated for use with air up to 50 meters. Compressed air must be compliant with the EN 12021. All the tables reporting the technical data and the pressure of use are relative to compressed air.**

On the underside of Pod Housing Sub assembly the CE mark is printed. On the Chamber Cover the data reported is the following:

1. The name and address of the manufacturer and year of manufacture
2. CE marking **CE**
3. The Model (Surface Supplied Pod)
4. Harmonized reference standard EN15333-1
5. Number of notified body





## Notified Body

The Notified Body is:

Eurofins Product Testing Italy  
Via Courgnè, 21 - 10156 Torino  
ITALY  
Identification Number: 0477

## Product Specification

805-225 Surface Supplied Pod: 1.95 lbs. (0.88 Kg)

500-800 Surface Supplied MOD-1: 3.8 lbs. (1.71 Kg)

## Surface Supplied MOD-1 Transport and Storage

Weight of the package: 6.4 lbs. (2.9 Kg)

Package dimension 12 × 12 × 12 inches



## Minimum Equipment for Surface Supplied Diving

The minimum equipment for surface supplied diving with this Pod includes the following:

- Topside gas supply (either low pressure compressor or high pressure cylinders)
- Umbilical with breathing gas supply hose, strength member, communications wire, and pneumo fathometer hose
- One Way Valve (Non-Return)
- Communications box
- Diver worn bail-out bottle with diving harness.
- Bail-out 1st stage regulator with overpressure relief valve and Submersible pressure gauge.
- If the diver's main gas supply fails, the diver must have another source of gas that will enable them to return to the dive station or to a point where a normal gas supply can be reestablished. For this reason, **an emergency gas supply bailout cylinder must be used on all dives.**

## Preparing the Surface Supplied Pod for Diving

### Gas Supply Hoses

Both the main supply (upper) and EGS supply (lower) inlet fittings, found at the attachment point of the side block, are standard SCUBA threads— $\frac{9}{16}$  inch-18 male threads. The supply hoses, from the emergency gas system, should be of sufficient length to allow full movement of the head when connected to the Pod. ALWAYS connect the main umbilical fitting to the jumper hose and check valve assembly that was supplied with the mask.

This mask was specifically designed for divers comfort, mobility and safety by eliminating typical loads that are used with heavier types of diving equipment supply umbilical attachment.

## ⚠ WARNING

**Never connect the main gas supply hose from the diving control station to the Emergency Gas valve assembly (EGS) on the Pod. The EGS fitting is the lower fitting of the two that are on the side block. Failure to incorporate a check valve into the main supply line can result in serious personal injury or death.**

### Main Supply



The inlet fitting for the main gas supply is the upper or top inlet fitting on the side block. A “jumper” SCUBA hose must always be used to connect the main gas supply through a one way valve and to the side block on the Pod. A big bore “jumper” hose comes with the pod which includes an adapter to secure the one way valve directly to the umbilical gas supply hose. This length is a “suggested” length.

**The importance is to NEVER secure the main gas supply, umbilical hose end, directly to the pod.** An additional jumper hose with one way valve (provided) or manifold block with one way valve must always be used.



## Emergency Gas System (EGS)

The lower/bottom inlet fitting on the side block is for the EGS gas supply. It is recommended to use a set of good quality quick disconnecting fittings with locking sleeves to connect the first stage regulator to a shorter hose that is secured to the emergency valve inlet located on the side block.

### **⚠ WARNING**

**Never connect the main gas supply hose from the diving control station directly to the side block. If this is done there is no one way valve protection for the diver in the event of damage to the umbilical or related equipment. The diver could be exposed to a serious “squeeze”. This can result in serious personal injury or death.**

If the diver's main gas supply fails, the diver must have another source of gas that will enable them to return to the dive station or to a point where a normal gas supply can be reestablished. For this reason, an emergency gas supply (bailout) cylinder must be used on all dives. The bailout cylinder is worn on the back using a combination backpack and lifting harness.

### **⚠ WARNING**

**Do not dive without a diver worn Emergency Gas System. If the main gas supply is lost, you will have nothing to breath and may drown.**

## Installation/Removal of MOD-1 Hood

The hood can be installed with the mask strap on the mask.



1. Bring the hood assembly to the mask.



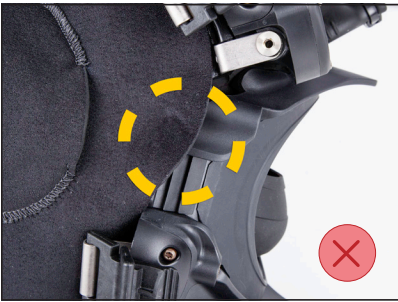
#### **NOTE**

This usually requires forming the neoprene flap at the front of the hood to the mask face seal area. This will make aligning and installing the retaining screws easier.

2. Align tabs to mask and insert screws.



3. Ensure that, on both sides of the mask, the neoprene material tucks inside of the leading edge where the lens body and jaw frame meet.



4. Stretch the pull tab away from the mask and over the apex of the lower jaw frame. Use the nylon pocket to capture the apex of the jaw frame.



## Installation/Removal of Mask Strap

The strap keepers **MUST** be removed to install or remove the mask strap. We recommend replacing the strap keeper back onto the strap groove once it has been pulled through the buckle assembly. This will lower the

chance of losing the strap keeper and ensure correct orientation into the strap groove.

The standard mask strap is a five-point semi-stretch head harnesses, P/N 810-007. The mask strap has five straps branching out from a junction at the bottom OUTER surface of the strap, where “Kirby Morgan” and the diamond logo can be seen. Each strap leg has many buckle adjustment “teeth”. Keep in mind that these teeth should be against the divers head before being threaded into the buckle assembly and the smooth surface should face outward once it has gone through the buckle assembly.

## **Strap Keepers**

Each of the five straps has a strap keeper. The strap keeper is secured in a groove found at the end of the strap before the tapered end. The strap keeper should be installed on the strap, with the small gap in the keeper, oriented with the smooth side of the strap. The mask strap cannot be removed from the mask without removing the Strap Keeper. Installing the strap keeper should be installed after the strap has been threaded through the buckle assembly.

## **Cleaning the Face Port and Interior Surfaces**

The mask frame and Pod components are made of high impact plastic. The flexible face seal and Pod skirts are molded of high-grade injection molded liquid silicone. The lenses are made of tempered glass. Ensure that the viewing lenses are clear and clean. Fogging can be eliminated or reduced by thoroughly cleaning the interior of the lens and applying a good quality anti-fog solution. Follow the manufacturer’s recommendations for use.

## **Communications with the Surface Supplied Pod**

The microphone is connected to the module through a connector body and uses a wire jumper assembly which allows rapid removal and replacement without having to remove the communications assembly from the Pod. The microphone element is captured by a shroud that is designed to refine the diver’s voice transmission. It is easily removable, but not necessary when completing a post dive sanitization and inspection.

## **Communications Check**

Check the communications system for proper operation. Put the mask on without tightening the mask straps and talk normally into the mask. A slow



count up to five and back to one from the diver to the topside operator and topside operator to diver should be the bare minimum test performed to ensure microphone and speaker levels are at a good starting point.

## Attaching the Umbilical to the Harness

Most commercial divers wear a harness (separate from the weight belt) that is used for several purposes. The harness is fitted with large metal rings (usually brass or stainless steel). The umbilical is hooked into one of these rings to keep any strain off the mask. In addition, the rings on the harness are used to hang tools and other equipment. Usually, the harness is also designed to provide a means of lifting an unconscious diver from the water. A harness is the best method of securing the emergency breathing gas to the diver.

### WARNING

**Never dive without attaching the umbilical to a proper harness assembly that meets industry standards and can be used to safely lift an unconscious diver out of the water. The lift point must be done in a way so there is no pull on the diver's mask. Never allow the umbilical to pull on the mask directly or the diver could suffer a neck injury.**

## One Way Valve Check

The one way valve must be tested daily, prior to commencement of diving operations.

1. There are three methods for testing the one way valve.
2. Orally
3. Using regulated low pressure.
4. Using a hand operated Vacuum Pump

### WARNING

**The one way valve must be tested daily, prior to commencement of diving operations. Failure of the one way valve could cause serious injury or death.**

The free flow valve (de-fog control) must be open when performing the test.

## **Oral One Way Valve Check**

1. Test the one way valve for proper operation by blowing and sucking (cycling) on the main gas supply inlet. No gas should be drawn through the one way valve. If you are able to suck any air through the one way valve, it is not working properly and should not be used.

## **Low Pressure One Way Valve Check**

1. Close the emergency and defogger control knobs and screw in the adjustment knob on the regulator all the way.
2. Attach a regulated gas supply (normally using the EGS system), adjusted to between 135-150 psig (9.3-10.3 bar), to the emergency valve.
3. Open the emergency supply valve all the way and then slowly open the gas supply.
4. Check for gas exiting from the one way valve. There should be no gas exiting the umbilical adaptor. If any gas exits through the one way valve it is not working properly and should not be used.

## **Hand Operated Vacuum Pump**

1. Open Free Flow valve.
2. Connect hand vacuum pump and vacuum with gauge to one way valve.
3. Pump hand vacuum pump until gauge reads 20 inches of vacuum.
4. Observe gauge, if needle moves out of the prescribed range the one way valve is not working properly and should not be used.



## Communications



The microphone element is removed and replaced rapidly due to the wire jumper assembly with its terminating pins that can slide into and out of the Connector Body. This allows rapid removal and replacement of the microphone element using needle nose pliers to easily "unplug" the wire connectors from their mating pins in the connector housing. **NEVER remove the connectors by pulling on the wires!**

This entire system, shown above, can be removed and reinstalled to the Pod as a complete unit. When the Pod is installed onto the mask the regulator adjustment knob and weight with guard attached must be removed first before removing the Communication Junction Module Assembly.



It is very important when making adjustments to the Pod that the technician/operator has a way to **add extra light** to the area of the Pod they are working on. Our best recommendation is the use of a head lamp.

## Removal/Installation of a Microphone Assembly into the Surface Supplied Pod

The microphone element is captured by a shroud that is designed to refine the diver's voice transmission. It is easily removable, but not necessary when completing a post dive sanitization and inspection.

### Removal

#### Tools suggested:

- Needle nose pliers



1. Fold back the corner of the oral cup to expose the two wires entering the connector body.



2. Use needle nose pliers to remove wire leads from connector body. Attention should be applied to gripping the crimp fittings and **NOT THE WIRES** when removing.

3. Lightly fold the oral cup to expose the outer face of the microphone and its shroud, push them through the oral cup towards the inside of the mask
4. Lift the corner edge of the Oral Cup out and away from mask.



5. Remove Microphone with shroud out of the Oral Cup.

## Installation

### Tools suggested:

- Needle nose pliers

The oral cup can remain installed into the Pod.



### NOTE

Make sure the solid side of the microphone element is facing the diver's mouth. Make sure the microphone with shroud is positioned with the two small wings on the shroud, ready to push through the larger hole on the side of the oral cup. This will ensure the correct side of the microphone is facing the diver.



1. Thread the wires through the two small holes of the Oral Cup.



2. Fit the microphone with shroud into the receiving hole until the wings on the shroud pass through the oral cup large hole, and hold the microphone in place. Straighten the wires and pull out all the slack so microphone element is firmly secured into the microphone hole.



3. Fold in the corner of the Oral Cup and insert lead wires into Connector Body using the needle nose pliers.



**NOTE**

Wires can be inserted to either hole of the connector body, as there is no polarity. After re-installation of the microphone, make sure the oral cup is properly connected to the exhaust valve body and properly seated into the pod interior.

4. Perform a communication check.

## Microphone Element Removal

### Tools Required:

- T6 Torx Driver



1. Use a T6 Torx driver to unscrew (counter clockwise) the two screws holding the microphone to the wire jumper.

2. Remove the Microphone



### NOTE

Removing the microphone from the Oral Cup is NOT required on a regular basis or mandatory for the Post-Dive.

3. The microphone element is captured by a shroud that is designed to refine the diver's voice transmission. It is removable, but not necessary when completing a post dive sanitization and inspection.

## Removing the Surface Supplied Pod from the Mask

### Tools suggested:

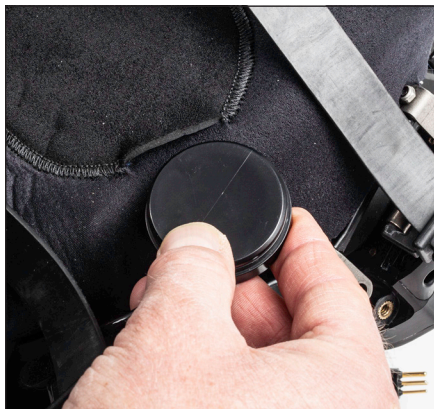
- $\frac{5}{32}$  Inch Ball End Hex Driver
- $\frac{3}{8}$  Inch Open Ended Wrench
- Large Flathead Screwdriver

When installing or removing the Pod from the mask it is best done by loosening/tightening the fasteners in a progressive alternating pattern as



to allow the Pod to move on an even plane either away from or towards the mask.

There are four fasteners that secure the Surface Supplied Pod to the Mask.



1. Remove earphones from hood pockets and clear earphone cable.



2. Using a  $\frac{5}{32}$ " inch ball end hex driver, remove the fastener that secures the weight to the mask.



**NOTE**

Regulator adjustment knob removed for clarity.

3. Remove the two flathead screws with washers from the bottom leading edge of the Pod.





**Helpful  
Hint**

Turn the  $\frac{5}{32}$ " inch ball end hex driver one turn clockwise before applying the  $\frac{3}{8}$ " wrench, then use the wrench to hold the  $\frac{3}{8}$ " hex nut while unthreading the hex driver.



4. Use a  $\frac{5}{32}$ " ball end hex driver and  $\frac{3}{8}$ " open ended wrench to remove the nut and washer, near the side block. Be careful not to misplace the washer that is used with the nylon-insert lock nut. The long hex drive screw will not need to be completely removed



5. Separate the Pod from the Mask.

## Mounting the Surface Supplied Pod to the Mask



### NOTE

The microphone can be secured into the Oral Cup and plugged into the connector body with the Oral Cup properly secured to the Regulator POD Housing.

### Tools suggested:

- $\frac{5}{32}$  Inch Ball End Hex Driver
- $\frac{3}{8}$  Inch Open Ended Wrench
- Large Flathead Screwdriver
- Needle Nose Pliers

There are four fasteners that secure the Surface Supplied Pod to the mask.



1. Ensure Oral Cup is secured properly and the Pod Gasket is in the correct orientation and the side tabs are engaged onto the Pod Housing Sub Assembly.



### NOTE

Pod Gasket must not interfere with microphone clearance and fit into the Oral Cup.

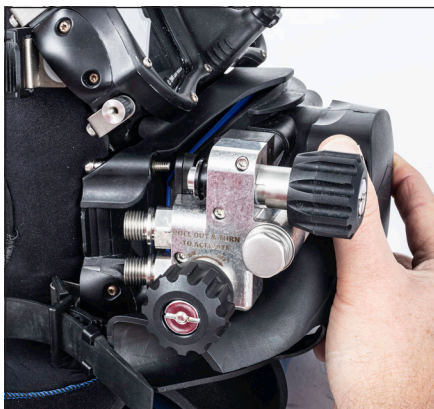




2. Starting from the back of the mask jaw frame, thread the longest mounting fastener into the upper right (starboard side of the mask) threaded insert. Thread the bolt far enough in until it is protruding past the front side of the threaded insert on the Jaw Frame, approximately  $\frac{3}{8}$ ".

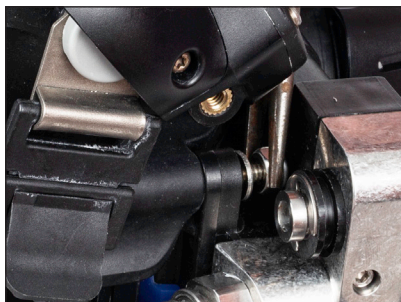


**NOTE** Pre-install the fasteners, shown in steps 6 and 7. This will pre-align the communication module to the pod and make installation of these fasteners simpler.



3. Bring the Pod to the mask. Use the screw as a guide pin to align the Pod to the mask.

4. Insert the flat side of the washer onto the bolt with the washer in place. If necessary, adjust the long fastener with the  $\frac{3}{32}$ " driver until one to two threads are shown through the washer.

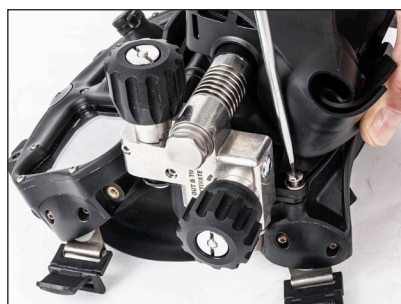




### NOTE

If too many threads are showing, it will make it very difficult to install and tighten the nylon locking hex nut. You should have just enough threads to allow starting the nut by hand.

5. Once the threads have engaged, use the  $\frac{3}{8}$ " open end wrench on the nut while turning the hex driver enough to expose one or two threads coming through the nylon in the nut. If the threads don't come through the nylon enough, remove the  $\frac{3}{8}$ " wrench and turn the hex drive counter clockwise about one turn. Replace the  $\frac{3}{8}$ " wrench and continue turning the hex driver clockwise to get correct exposure through the nylon. Repeat this if needed.
6. Insert the remaining flathead screw with the washer and engage it and the screw/washer previously installed into threaded inserts. Do not tighten down fully. It is usually necessary to fold back the exhaust shroud to gain enough access to the bottom screws.



7. Insert the bolt and engage threads. Do not tighten down fully.



### NOTE

This action will pull this corner of Pod back into the mask's mating surface.

8. Completely tighten down the four corner fasteners until they are bot-

tomed out **in a progressive alternating pattern as to allow the Pod to move on an even plane towards the mask.**



9. Rotate the  $\frac{5}{32}$ " inch driver in a counter clockwise direction until resistance is felt.



**NOTE**

The longer (right) ear-phone cable is routed to the other side of the mask between the lens body and jaw frame. This cable has the lowest position coming out of the junction box and should be routing to the ear pocket first.

10. Push the base of the longer (right) earphone cable under the leading edge of the mask jaw frame.



11. Gently tilt the lens body away from the jaw frame and route the earphone cable across the mask and into ear pocket on the hood.

12. Insert short (left ) earphone cable into ear pocket on hood.



## Pre-Dive

Follow the M-48 and Surface Supplied Pod PRE-Dive Inspection Appendices as well as the Emergency Gas System Daily Set-Up and Functional Checklist for the Surface Supplied Pod.

### Diving Procedures

Before dressing in for a dive, inspection of the entire diving system must be made to be sure it is in proper working order. This must be done well in advance of the dive so any problems can be fixed without delaying the dive.

Standard Pre Dive procedures and Dive Supervisory checklists should be followed in accordance with safe surface supplied diving operations. Unique to using this mask are as follows:

1. **One way valve MUST BE SECURED** in line with main supply if not installed.
2. **NEVER connect the main gas supply directly to the side block. A jumper hose MUST be used.**
3. Both main supply and EGS supply fittings are standard SCUBA threads- $\frac{1}{8}$  inch-18 male threads.
4. Side Block CONFIGURATION TOP Inlet is MAIN gas supply BOTTOM is EGS gas supply.
5. Normal operation the EGS control knob is in the FORWARD/OFF position.
6. Verify thin and smooth flap seal on the inside of hood is completely **outside of the mask's face seal**. The mask's face seal should be in contact the diver's face. *The hood's Outer Seal neoprene material should not be in contact against the divers face, but touching the outside wall of the mask skirt.*
7. It is recommended to use a defog solution.

### Donning the Mask



#### NOTE

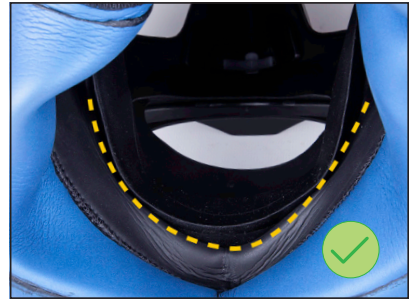
Gas supplies should be hooked up and on.

Before donning the mask, the mask straps should be extended to their full range.

1. Ensure the leading edge of the outer seal is clear of the mask skirt.



The mask skirt should touch the diver's face first and the hood outer seal will surround the face where the mask skirt stops.



2. Unzip bib found on hood and hold the M-48 MOD-1 so that it is hanging from the Mask Strap and the five straps are completely loose.

3. Bring the mask up to your face and inside the hood. Zip the hood down and ensure the Mask Strap junction is resting at the lowest part of the head near the top of the neck in an even position and not off to one side.



4. Pushing the mask up onto your face, get your chin and the nose dam positioned comfortably into the mask, then lightly tighten the Temple Straps first only enough to position the larger area (junction) of the harness at the back of the head and as low as possible.



5. Lightly tighten the lower Jaw Straps, and then lightly tighten the temple straps alternating between the two until the fit is evenly positioned.



The top strap should not be tightened much, but is mainly used to locate the rear mask strap junction. If you feel it is necessary to adjust it, do so after all side straps have been adjusted.

## Equalizing



The nose pocket contains a mechanical equalizing device held in place from the outside of the nose pocket with a low-profile tie-wrap. This advanced feature has been added to assist in pinching the nose throughout a wide range of nose and face sizes while wearing the bulkiest of gloves. Because the actual nose pocket of the mask is very flexible, it allows the pocket to be moved slightly in towards the face and can also be flexed side to side to get the best possible function of the nose pinch assembly. This device is very effective as installed and can be removed if needed to modify or clean.

## Water Entry

Many methods of water entry are possible due to the secure nature of the mask seal. However, the diver should hold the mask & demand regulator firmly against the face when doing a roll off or drop type entry.

Once in the water, the diver should recheck mask fit and re-adjust the strap as needed, check the regulator for ease of breathing, and perform a communications check.

## Regulator Adjustment Knob

The purpose of this adjustment knob is to allow the diver the ability to compensate for variations in umbilical supply pressure. This adjustment device operates by simply increasing or decreasing the amount of spring bias tension on the demand regulator inlet valve.

This adjustment device is not intended as a minimum-maximum device. Minimum and maximum applies to supply pressure only. The adjustment

knob should be adjusted by the diver to be at the easiest breathing setting at all times.

This demand regulator can be adjusted by the diver during the dive by simply rotating the spring bias adjustment OUT (counter clockwise) to make the demand valve more sensitive or IN (clockwise) to make the demand valve less sensitive to the supply pressure.

It may be necessary for the diver to readjust the demand regulator by means of the adjustment knob once at the work site to compensate for the variation in umbilical supply pressure.



The design of the adjustment knob allows very rapid movement, so changes in the regulator will happen more quickly (4:1 ratio).

### NOTE

## Supply Pressure

The proper supply pressure is important to ensure maximum overall breathing performance. The minimum recommended and maximum supply pressures found in the Torque Specs and supply pressure requirements module will allow for at the very least a respiratory work rate of 75 RMV at all depths listed.

The low pressure supply tables were developed to simplify calculation of supply pressure. In order to get the required volume to the diver, you need to have the proper supply pressure. The table starts at 90 psig and increases in 10 psig increments. The user simply selects the lowest pressure that best represents the low cycling pressure of the compressor being used. The table basically shows the maximum depth that can be attained while breathing at *different RMV's (breathing rates in liters per minute X amount breaths per minute)* listed. It is strongly recommended that divers plan for a minimum supply pressure that will allow the diver to work at no less than 50–62.5 RMV.

Dive Lab, Inc. of Panama City Beach, Florida develops all performance standards and requirements for all Kirby Morgan Helmets, Full Face Masks and associated equipment.

For the greatest details and complete list of supply pressure tables on supply pressure parameters for the Surface Supplied MOD-1 are located in the Torque Specs and supply pressure requirements module on the KMDSI website.

## Lens De-Fogging

A slight opening of the control knob is all that is needed to clear the lens, while inhaling through the nose will work well. There should be sufficient gas flow to obtain a comfortable breath. Because this breathing cavity is



basically two separate chambers, the de-fogging process will work most efficiently by inhaling through the nose and exhaling through the mouth. Cycling all breathing through the nose, although possible, will diminish the defogging process efficiency. It is also possible to inhale through the nose **WITHOUT** using steady flow, but this may cause some light regulator pulsating/vibration, but remember to exhale through the mouth. Exhaling through the nose may re-introduce fogging of the lenses.

## **Emergency Procedures**

### **Mask Clearing and Dewatering**

To clear water from the lens body.

1. Maintain a face forward position with your mouth closed and open the steady flow valve.

In the event of partial or complete flooding, the diver may clear the mask quickly by tilting the mask down and opening the defogger control knob. With the mouth closed pressing in on the manual purge button in the center of the regulator cover will evacuate water from the regulator, if any still remains, repeat the process.

### **Main Supply Gas Flow Stops**

A stop of flow in the demand regulator usually indicates the main gas supply has stopped. The diver should first open the emergency valve by pulling the EGS knob out (away from the mask) turning the knob backwards. **THIS IS A QUARTER TURN VALVE. DO NOT TRY TO TURN THIS KNOB MORE THAN A QUARTER TURN!** Once the control has reached the appropriate position, The control has a spring assist to help re-engage the clocking pin. To make certain the control knob has been locked into that position , make sure by lightly pushing in on the knob. This will engage the clocking/ safety pin to prevent unwanted movements. If there is still no flow from the demand regulator, the defogger valve knob should be opened. Keep in mind that if the defogger valve is left open, the bailout bottle will drain very quickly, particularly if the diver is deep.

Immediately notify topside, check to ensure your umbilical is clear and return to the diving station using the emergency breathing supply. Avoid making a rapid ascent if at all possible.

## **DANGER**

**Rapid ascent is dangerous. It can lead to air embolism or decompression sickness. Air/gas embolism can cause immediate loss of consciousness and/or death. Even on a no decompression dive, a rapid ascent may cause decompression sickness. A diver must only make a rapid ascent when they are in immediate danger of death by drowning or asphyxiation.**

### **Demand Regulator Free Flow**

If the demand regulator free flows, adjust the knob in (clockwise or toward the diver's face) until it stops. If free-flow continues, open the defog valve all the way. This can sometimes lessen the flow to the demand regulator and terminate a free flow. If the free flow cannot be stopped, the dive should be aborted. Even if there is no serious problem to the diver, the dive should be aborted and the problem with the regulator corrected.

## **Removing the Mask**

The mask can be removed by pushing forward on the release tabs of the two lower jaw strap Buckle Assemblies while pushing the lower half of the mask away from the chin. This will allow the mask to be removed by pulling it up and over the face and clear of the head. It is also possible to push outward on both the Temple and Jaw strap buckle assemblies in a controlled manner, and then proceed to push the entire mask away from the face.

## **Post Dive Procedures/Checklist**

Complete Post-Dive procedures can be performed with the attached hood in place and under standard use does not need to be dismantled. If separation of components is required simple steps can be done in a relatively short time. Order of separation should be:

- Mask strap
- Earphone removed from holders
- Hood
- Pod (Regulator & Side Block)

Completely inspect the M-48 MOD-1/SuperMask® and Pod and all related gear after each dive in accordance with the checklist in the following Post-

Dive Cleaning and Inspection to ensure that all components are in proper working order.

To reference the Post Dive Checklist and all inspection checklists for the Surface Supplied MOD-1 click checklists under the support tab at [Kirbymorgan.com](http://Kirbymorgan.com)

## **⚠ CAUTION**

**When not in use, component inlet/outlet ports shall be protected with clean, dry dust caps. Otherwise, contaminants or debris can enter and cause malfunction, leading to accidents and/or injury.**

## **Cleaning Procedures**

After each day of diving, or between use by different users, the mask, and Pod, should be carefully cleaned and visually inspected and sanitized, sanitizing the mask and Pod should be done after cleaning has been completed.

Cleaning should be accomplished using a mild hand type dish washing soap and cleaning rag. Mix the soap and water approximately 1 tablespoon per gallon of water. Wet all components of the mask and agitate using a cleaning rag. Keep the soap solution in contact with the mask surfaces for at least three to five minutes then thoroughly rinse with clean fresh water and dry. The mask should be transported and stored, completely dried, in the storage bag.



### **NOTE**

The hood can easily and quickly be removed after cleaning to hasten drying time and allow complete drying before storage.

## **⚠ CAUTION**

**Clean and sanitize this mask using only the procedure described in this user's guide. Never use cleaning solvents or petroleum-based chemicals on this mask.**

During a standard overhaul, parts should be cleaned in a warm water and mild soap solution, with a clean rag, and thoroughly rinsed in clean water. Hand dishwashing soap like Joy®, Dawn® or Palmolive® can be used.

Completely inspect the Surface Supplied MOD-1 and all related gear after each dive in accordance with the Post- Dive Cleaning and Inspection checklist to ensure that all components are in proper working order. Checklists for all KMDSI products are found on the KMDSI website under the support tab.

## **WARNING**

**Always sanitize all diving components an individual will be exposed to prior to use by another person. Failure to do so could result in the transmission of communicable diseases, some of which may cause long term disability or death.**

## **CAUTION**

**Carefully dilute germicidal cleansing solutions in accordance with manufacturers' recommendation. If solution is not of the recommended strength, it will not act as an effective disinfectant and the spread of sickness may result.**

## **CAUTION**

**Failure to thoroughly rinse germicidal cleansing solution from the diving equipment may result in lung irritation and/or long-term degradation of rubber and silicone components.**

Sanitizing of the mask and Pod is accomplished using one of the approved germicidal cleansing solutions listed in "Germicidal Solutions Manufacturers" on page 40. Follow the manufacturer's mixing instructions and procedures. It is important to thoroughly rinse with fresh water.

General guidelines are as follows: Wet or immerse all components to be sanitized. Allow to stay in contact with solution for at least ten minutes while lightly scrubbing over components with nylon toothbrush or clean cloth to help remove mucous or saliva build up. If germicidal solution appears to be drying, apply more solution to keep components wet for full ten minutes. After ten minutes, thoroughly rinse components under fresh (potable) running water while brushing or rubbing components.

If equipment is not being used immediately, allow components to air dry or pat dry with clean towel and reassemble.

## **Germicidal Solutions Manufacturers**

1. **SaniZide Plus:** P/N: 34805 (spray) or 34810 (gallon), Ready to use; do not dilute. 1-800-456-7077 <http://safetec.com/products/>
2. **MSA Confidence Plus:** P/N 10009971 (32 ounces) Mix one ounce of concentrate with one gallon of fresh water.
3. **Steramine™:** Steramine Quaternary Sanitizing Tablets – 150 Sanitizer

Tablets per bottle 1 Tablet per gallon of water - Makes 150 gallons of cleaning solution <http://steramine.com/>

## NOTICE

**Store spare valves, and soft goods in a cool, dark, dry place. Avoid prolonged exposure to temperatures above 90 °F (32 °C) and/or exposure to ultraviolet rays or chemical fumes.**

## Conservation and Storage

Ensure the mask and Pod is thoroughly dry before storing.

Store the mask and Pod at room temperature and out of direct sunlight.

## ⚠ WARNING

**When purchasing spare parts, always insist on Kirby Morgan Genuine Parts. Although other parts may look the same, they may not be manufactured to the same standards of quality. Improperly manufactured parts can cause accidents that can lead to injury or death.**

## Scheduled Maintenance

This user guide provides properly trained personnel with the guidance and technical information needed to perform normal scheduled maintenance and adjustments as described herein. Repairs and overhauls must be completed by Surface Supplied Pod Assembly authorized trained technicians.



### NOTE

Read and understand each section before attempting the procedures in the tables found in the user guide.



### NOTE

Before scheduled maintenance is performed, all components should be thoroughly cleaned in accordance with the procedures found in "Cleaning Procedures" on page 39.

## Disassembly Guidelines

Routine cleaning and maintenance is the best way to ensure long equipment life and optimum performance.

Adjustments and Minor Repairs

It is best to look over and familiarize yourself with the associated exploded view drawings prior to performing adjustment or minor repairs.

Supply Pressures

The proper supply pressure is important to ensure maximum overall breathing performance. The minimum recommended and maximum supply pressures listed below will allow for at least a respiratory work rate of 75 RMV at all depths listed.

DEPTH		MIN. SUPPLY PRESSURE		MAX. SUPPLY PRESSURE		NORMAL/ RECOMMENDED SUPPLY PRESSURE	
FSW	MSW	BAR	PSIG	BAR	PSIG	BAR	PSIG
0-50	0-15.2	7	100	19.6	275	83.3	125
50-100	15.2-30.5	10.3	150	19.6	275	12	175
100-125	30.5-38	12	175	19.6	275	13.8	200
125-145	38-44	13.8	200	19.6	275	15.5	225
145-165	44-50.3	15.5	225	19.6	275	17.2	250
165-190	50.3-58	17.2	250	19.6	275	17.2	250

When the diver is working at light to heavy work rates, (15-50 RMV) the minimum recommended Supply Pressure for a particular depth, should offer the smoothest overall performance. Use of the maximum pressure should only be needed at a depth of 165 FSW (50 MSW) or deeper in the event the diver is breathing at the extreme work rate of 75 RMV or greater. The maximum supply pressure is listed primarily due to European CE requirements which requires the maximum and minimum supply pressures be listed. The minimum supply pressures for the depths listed below will allow for a work rate of 75 RMV IAW the CE requirements of EN15333-1.

Performance is based on a minimum of 75 RMV to depths of 165 FSW (50 MSW) using a 3/8" (9.5 mm) umbilical 600 foot (183 meters) long, made up of two 300 foot (91 meter) sections.

## Accessories/Spares

### Prescription Lenses

The following website is available to install prescription lenses into your MOD-1 mask:

<https://prescriptiondivemasks.com/>

### Jumper Hose P/N 855-010



A “jumper” scuba hose must always be used to connect the main gas supply through a one way valve and to the side block on the pod. A big bore “jumper” hose comes with the pod which includes an adapter to secure the one way valve directly to the umbilical gas supply hose.

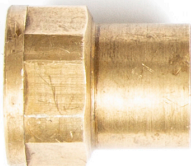


#### NOTE

If using a KMDSI Manifold Block Assembly with One Way Valve, a longer hose from the Manifold Block to the side block fitting can be used instead of the Jumper Hose/One Way Valve that comes with the mask.



**One-Way Valve Assembly  
P/N 505-060**



**Adapter P/N 850-155**



## Over-Pressure Relief Valve P/N 200-017



This valve is designed to be mounted on a first stage bail-out regulator for surface-supplied diving. It allows pressure to bleed from the intermediate pressure hose in the event of a “creeping” first stage. Without this valve, the intermediate pressure hose would burst and the diver would lose his entire emergency gas supply. (Torque specification for installing into low pressure port of first stage regulator: 20 inch pounds).

## KMDSI Mask Bag P/N 800-905



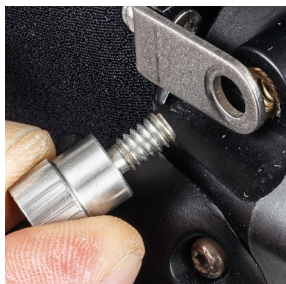
A convenient Mask Bag is available for storage and transportation of the mask, pod, and regulators.

## MOD-1 Hood Assembly w/ Bib L/XL, 7 mm P/N 805-125



The 7 mm hood currently does not include a Hood Mount Stud block and is only available in one size.

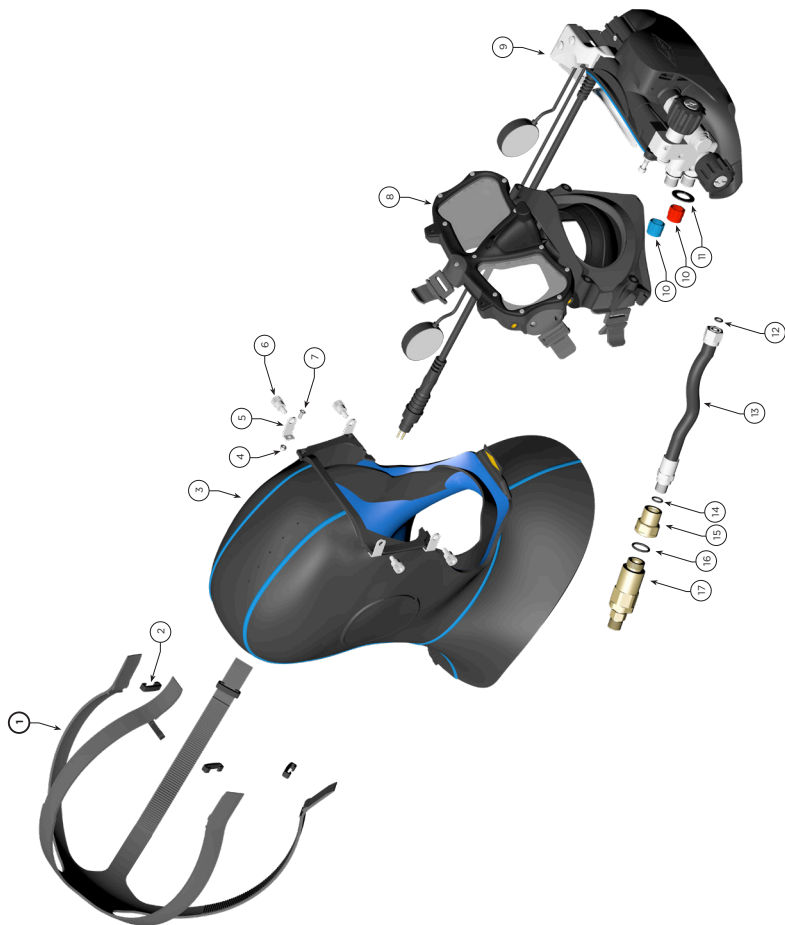
## Hood Mount Stud Block P/N 850-095



This stud block allows easy removal and replacement of the hood without the use of tools. The block has a threaded center hole that can be used for attaching or mounting HUD, light or camera brackets. It is 10-24 UNC  $\frac{3}{8}$ " depth.

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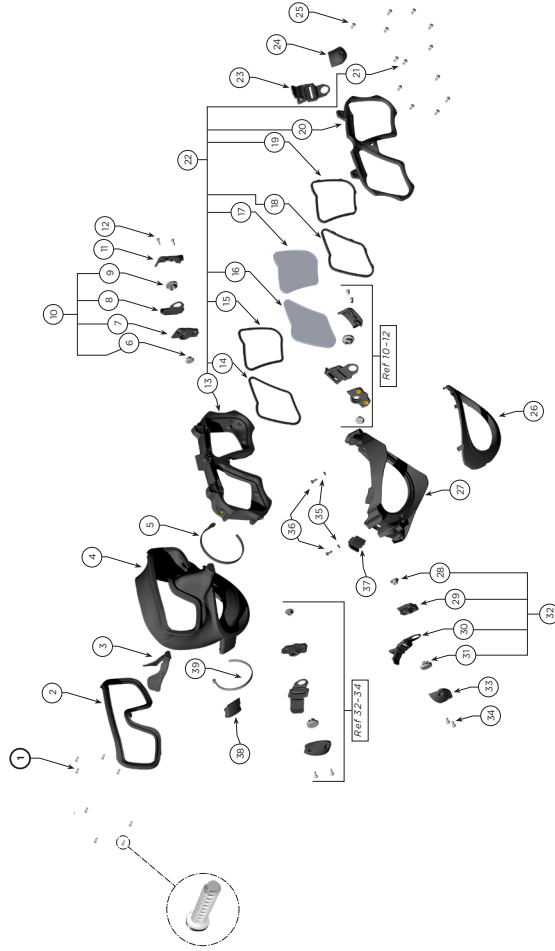
P/N 500-800 Surface Supply Mask BlowApart



Location #	Part #	Description
1	810-007	Mask Strap
2	820-225	Strap Keeper
3	805-125	MOD-1 Hood Assembly w/Bib L/XL, 7 mm (includes loc. #4, 5 and 7)
4	330-105	Nut (included with loc. #3)
5	840-010	Hood Frame Bracket (included with loc. #3)
6	850-095	Hood Mount Block Stud
7	830-047	Screw (included with loc. #3)
8	805-180	Mask, M-48 MOD-1, w/ Vent Passages
9	805-225	Surface Supplied Pod
10	805-038	Cap w/O-ring
11	850-002	EGS Split Washer
12	510-010	O-ring (included with loc. #13)
13	855-010	Jumper Hose (L.P.) Supply Assembly
14	510-012	O-ring (included with loc. #13)
15	850-155	Adapter
16	510-483	O-ring (included with loc. #17)
17	505-060	One-Way Valve Assembly

\* Denotes a critical component

# P/N 805-180 Mask, M-48 MOD-1, w/Vent Passages



Loc #	Part #	Description
1	830-050	Screw
2	820-235	Skirt Lens Body Retainer
3	805-130	Noise Pinch Assembly
4	810-037	Mask Skirt w/ Vent Passages
5	820-091	Low Profile Tie Wrap
6	820-025	Lock Plug
7	820-227	Buckle Mount Assembly Can Be Ordered
8	805-028	Buckle Assembly, Non-Mag
9	820-026	Buckle Tab Hold Plug
10	805-153	Buckle Assembly, Non-Mag, Metal/Plastic, Left
11	820-233	Buckle Cap, Left
12	830-014	Screw
13	820-220	Lens Body
14	810-150	Lens Gasket, Right
15	810-151	Lens Gasket, Left
16	865-010*	Lens, Right
17	865-011*	Lens, Left
18	820-223	Lens Keeper, Right
19	820-224	Lens Keeper, Left
20	820-238	Lens Keeper Retainer
21	830-011	Screw
22	805-240	Lens Body Assembly, Surf-Sup
23	805-028	Buckle Assembly, Non-Mag
24	820-230	Buckle Cap, Top
25	830-011	Screw
26	820-041	Jaw Frame Retainer
27	820-036	Jaw Frame
28	820-025	Lock Plug
29	820-226	Buckle Mount Assembly Can Be Ordered
30	805-028	Buckle Assembly, Non-Mag
31	820-026	Buckle Tab Hold Plug
32	805-152	Buckle Assembly, Non-Mag, Right
33	820-232	Buckle Cap, Right
34	830-014	Screw
35	330-205	Washer
36	830-011	Screw

Loc #	Part #	Description
37	820-045	Pod Catch
38	820-155	Comm Port Plug
39	520-038	Tie Wrap

\* Denotes a critical component

# P/N 805-225 Surface Supply Pod Assembly BlowApart



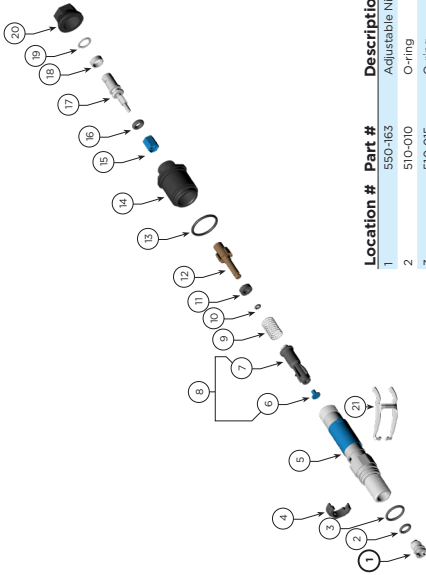
Location #	Part #	Description
1	810-129	Oral Cup
2	810-153	Pod Gasket
3	815-018	Microphone Wire Jumper Assembly (sold individually)
4	815-040	Connector Body Assembly (includes loc. #5 and 6)
5	510-481	O-ring
6	510-013	O-ring
7	850-151	Wheel Nut
8	805-220	Regulator Pod Sub-Assembly
9	815-029	Microphone
10	830-044	Screw
11	810-154	Folding Microphone Stroud
12	830-072	Screw
13	530-527	Washer
14	530-145	Lock Nut
15	815-045	Communications Junction Module Assembly
16	805-250	Main Tube Assembly/Surf-Sup
17	850-015	Adjustment Knob
18	230-017	Adjustment Knob Screw
19	830-076	Screw
20	530-527	Washer
21	530-070	Screw
22	240-009	Packing Lock Clip
23	210-041	Diaphragm
24	535-010	Assist Spring
25	220-1032	Diaphragm Washer
26	220-033	Diaphragm Retainer Ring
27	860-001	Weight
28	530-052	Screw
29	840-015	Guard
30	830-046	Screw
31	830-078	Screw
32	810-131	Regulator Exhaust Cover
33	530-070	Screw
34	530-527	Washer
35	510-017	O-ring
36	820-098	Side Block Mount Frame
37	850-129*	Banjo Tube
38	510-013	O-ring

Location #	Part #	Description
44	830-041	Mount Screw
45	850-001	Muffler Screen
46	850-146	Steady Flow Supply Tube
47	510-011	O-ring
48	510-010	O-ring

Location #	Part #	Description
39	805-205	Side Block Sub-Assembly w/Emergency Valve
40	510-017	O-ring
41	850-124	Cap
42	830-073	Mount Screw, Long
43	830-033	Lock Washer

\* Denotes a critical component

# P/N 805-215 Pod Housing Sub-Assembly and P/N 205-030 Main Tube Assembly BlowApart



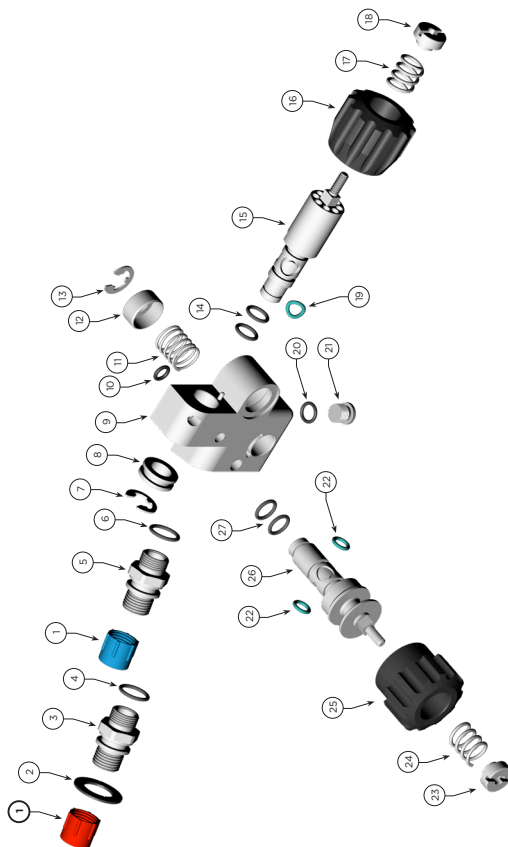
Location #	Part #	Description
1	550-163	Adjustable Nipple (Large Bore)
2	510-010	O-ring
3	510-015	O-ring
4	220-056	Lever Bearing Clip
5	250-059	Main Tube
6	210-060	Valve Seat
7	Order 205-020	Inlet Valve
8	205-020	Inlet Valve Assembly
9	235-015	Spring
10	210-055	O-ring, Balanced
11	250-065	Washer
12	850-170	Balanced Spacer, Surface Supplied
13	510-018	O-ring
14	250-012	Adjustment Guide Insert
15	220-079	Spring Seat
16	210-056	O-ring
17	250-013	Adjustment Shaft
18	220-080	Spacer
19	220-031	Thrust Washer
20	220-021	End Cap Packing Nut
21	240-008	Lever Arm

Location #	Part #	Description
1	220-086	Flow Baffle
2	805-215	Regulator Pod Housing Sub-Assembly
3	510-012	O-ring
4	850-132	Port Plug
5	510-776	Exhaust Valve
6	540-012	Retaining Ring
7	520-022	Valve Seat Insert
8	510-019	O-ring
9	810-025	Valve, Purge
10	510-776	Exhaust Valve
11	810-041	Cover Gasket
12	820-097	Chamber Cover
13	830-014	Screw





P/N 805-205 Side Block Sub-Assembly w/  
Emergency Valve BlowApart



Location #	Part #	Description
1	805-038	Cap w/O-ring
2	850-002	EGS Split Washer
3	850-126*	Hose Adapter
4	510-014	O-ring
5	850-126*	Hose Adapter
6	510-014	O-ring
7	830-074	Spring Clip
8	850-127	Spacer Washer
9	850-065	Side Block Body
10	510-010	O-ring
11	835-004	EGS Spring
12	850-128	Spring Cup
13	830-074	Spring Clip
14	810-012	O-ring
15	850-122	Steady Flow Control Stem
16	520-525	Control Knob
17	555-802	Spring
18	550-019	Lock Nut
19	810-128	Sweep O-ring
20	310-003	O-ring - included w/loc. #21
21	550-095	Plug w/O-ring
22	810-128	Sweep O-ring
23	550-019	Lock Nut
24	555-802	Spring
25	850-175	EGS Control Knob
26	850-121	EGS Control Stem
27	510-012	O-ring

\* Denotes a critical component

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