

## Chapter 9

# Accessories for the Kirby Morgan BandMasks®

### 9.1 Introduction

This section provides the manufacturer's advice on how to install KMDSI accessories including the hot water shroud, low pressure inflator hoses, the weld lens assembly, and hard shell. The installation procedures shown here are typical for most Kirby Morgan masks and helmets.

### 9.2 Hot Water Shroud

The Hot Water Shroud (Part #525-100) should be used whenever diving in water colder than 35.6 °F (2 °C). The KMDSI hot water kit is designed to be integrated with a hot water supply to help maintain breathing gas temperature at an acceptable level for the diver.

In addition the hot water reduces the possibility of ice forming in the demand regulator or gas train components. Even with water temperatures of 40 °F (4 °C) the diver can experience discomfort and severe heat loss through the respiration process. For this reason, KMDSI recommends installing the hot water shroud when diving in waters colder than 40 °F (4 °C).

Water supply to the shroud assembly should be at least 1 gallon (3.7 liters) per minute at a minimum temperature of 105 °F (42 °C). When diving operations are conducted during severe cold surface temperatures a hot water shroud should be used to prevent ice from developing in and on gas train components while the diver is on the surface.

#### 9.2.1 Hot Water Shroud Installation Procedures

Tools Required:

1/4 inch flat blade screwdriver

7/8 inch open end wrench

torque wrench

7/8 inch open end attachment for torque wrench

11/16 inch open end attachment for torque wrench

1) Disconnect the bent tube assembly at the side block end only. Loosen the jam nut at the regulator. If the bent tube will not swivel freely, you must loosen the large nut at the regulator.

2) Remove the defogger knob, locknut, and spring.

3) Remove the emergency valve knob, nut, and spring.

4) Screw the regulator adjustment knob in all the way.

5) To install the rubber regulator cover, slide it over the bent tube assembly and stretch it over the regulator adjustment knob.



*Loosen the bent tube.*



*Remove the free flow knob.*



*Pull the shroud over the regulator.*



*Position the shroud over the side block.*



*Slide one of the PVC pieces over the bent tube and insert it into the regulator shroud.*

6) Install the rubber side block cover. Start by inserting the non-return valve through the square hole on the back side of the cover. All the other holes will then line up correctly.

7) Slide one of the PVC Flanges (Part #520-046) over the bent tube and insert it into the regulator shroud.

8) Slide the corrugated tube over the bent tube. The PVC flange previously installed in the regulator shroud mates with the corrugated tube, with the tube rubber going over the PVC Flange and the regulator shroud rubber.

9) Install the second PVC flange in the other end of the corrugated tube. (1/4 of the flange should still show).

10) Attach the side block end of the bent tube to the side block assembly. Using the torque wrench and 11/16 attachment, tighten to "100" inch lbs ("11.3" Newton Meters). If the regulator end of the bent tube was loosened, torque the jam nut to "40" inch lbs ("4.5" Newton Meters).

11) Slide the PVC flange up towards the side block and install it in the side block rubber tube. (1/4 of the flange should still show).

12) Stretch the corrugated tube over the PVC flange and the side block rubber tube.

13) Wrap the tie wraps around the corrugated tube at the PVC stiffeners and tighten.

14) Trim the excess ends from the tie wraps.

15) Reinstall the defogger knob, spring, and lock nut.



*Install the corrugated tube and secure with tie-wraps.*

Tighten with a flat blade screwdriver until the valve stem is flush with the lock nut face.

16) Reinstall the emergency valve knob, spring, and nut. Tighten the locknut with a flat blade screwdriver until the valve stem is flush with the lock nut face.

### 9.3 Low Pressure Inflator Hose

The low pressure inflator system may be used with either a buoyancy compensator or dry suit systems. For certain pieces of equipment it may be necessary to use a longer inflator hose than is originally supplied by the manufacturer of the low pressure system.

#### 9.3.1 Installation of the Low Pressure Inflator Hose

Tools Required:

5/32 inch allen wrench attachment on torque wrench

- 1) Remove the plug from the side block. *Save this plug.*
- 2) Check the O-ring on the low pressure whip to be sure it is present and in good condition. Carefully screw the low pressure whip into the side block.
- 3) Tighten fitting to the specifications provided by the dry suit manufacturer. Do not overtighten.
- 4) Pressurize helmet and test connection for leaks.

**WARNING**

When using the low-pressure port on the side block for attachment of a low-pressure hose, a hose with built in flow restriction or the KMDSI Flow Restrictor Adapter, P/N 555-210 must be used. Without a restrictor, a hose failure could deplete the Emergency Gas Supply very rapidly leading to suffocation. This could result in serious personal injury or death.



*Remove the plug from the side block and install the inflator hose here.*

## 9.4 Weld Lens Assembly

### 9.4.1 Weld Lens Assembly Installation

Tools Required:

3/8 inch Open End Wrench

1/4 inch Flat Blade Attachment on Torque Screwdriver

1) Remove the two plug screws from the port retainer. Refer to the drawing included with the weld lens assembly kit for the remainder of the location numbers.

2) Insert the screws through the weld lens mount

3) With the shield facing out from the helmet or

mask, install and tighten the two mount screws into the port retainer ears.

4) Tighten the two lock nuts on the ends of the hinge studs so that the welding lens assembly can be flipped up, but will not fall down from its own weight.



*Remove the two plug screws from the port retainer.*



*Tighten the weld lens assembly.*



*Install the screws through the mount ears.*

#### **⚠ WARNING**

**Use only the screws provided with the Weld Lens Kit for installation of this assembly. Longer screws will damage the helmet shell and/or the threaded inserts. This could cause flooding through the port.**

## 9.5 Weld Shield Assembly

### 9.5.1 Weld Shield Assembly Installation

Tools Required:

3/8 inch Open End Wrench

1/4 inch Flat Blade Attachment on Torque Screwdriver

- 1) Remove the two plug screws from the port retainer. Refer to the drawing included with the weld shield assembly kit for the remainder of the location numbers.
- 2) Insert the mount screws through the spacer washers and then through the weld shield mount ears.
- 3) With the shield facing out from the helmet or mask, install and tighten the two mount screws into the port retainer.



*The KMDSI Weld Shield Assembly (KMDSI Part #525-400)*

## 9.6 Use of Quick Disconnect

A Quick Disconnect can be used with all bail-out systems. It provides greater convenience on deck while dressing the diver. It also makes it possible to separate the attachment of the bail-out from the helmet should the diver become entangled underwater. All quick disconnects used must be of good quality and be capable of supplying gas without any additional flow restriction. All quick disconnects used in countries that adhere to CE standards must be CE approved.

A quick disconnect hose may be installed in any low pressure port of the diver's bailout regulator. The connector splits the hose into two halves, with a male connector on one end and a female connector on the other. The female connector should be equipped with a sleeve lock that must be properly aligned before the hose can be disengaged.

One end of the hose with the connector attaches to the emergency valve assembly, while the other end of the hose with its mating connector attaches to any of the standard low pressure ports on the KMDSI SuperFlow first stage regulator (or any high performance regulator) used for the bail-out supply.



## 9.7 Hard Shell

The Hard Shell is an accessory that helps to protect the diver's head from small lightweight items that may be dropped from the surface, or when the diver is working in a tight space and bumps their head.

The hard shell cannot protect the diver from head injuries due to heavy objects striking the hard shell, or from neck injuries.



*The Kirby Morgan  
Hard Shell, Part #520-  
010*

### 9.7.1 Hard Shell Installation

- 1) Remove the spider from the mask bands.
- 2) Thread the legs of the spider through the corresponding slots on the interior of the hard shell, allowing enough slack in the spider for the diver to position their head within the hard shell.



*Interior view of the hard shell.*

- 3) The spider with the hardshell is attached to the mask when the diver is ready to dive.
- 4) There is no harm in storing the mask with the hardshell attached.

### 9.7.2 Hard Shell Removal

- 1) Remove the spider from the mask.
- 2) Pull the legs of the spider out of the slots in the hard shell.

