

**Kirby Morgan®**  
 Deep Sea Diving Helmets  
 KM Diamond

**A2.3**  
 Helmet and Emergency Gas System Daily  
 Set-Up and Functional Checklist

THIS DAILY SET-UP AND FUNCTIONAL CHECKLIST SHOULD BE COMPLETED PRIOR TO COMMENCEMENT OF DAILY DIVING OPERATIONS OR AT LEAST ONCE A DAY IF BEING USED DURING CONTINUOUS DIVING.

**NOTE:** During removal of components for inspection, O-rings and other consumable items may be re-used, providing they are clean and a visual inspection does not reveal any damage or deterioration.

<b>⚠ WARNING</b>
<b>These are recommended minimum checks when using Kirby Morgan Helmets or Masks. Additional checks may be required as dictated by the conditions and tasks being performed. Failure to perform in-water checks may result in serious injury or death.</b>

<b>⚠ CAUTION</b>
<b>All diving conducted using Kirby Morgan Helmets or Band Masks must include the use of a fully functional, properly maintained Emergency Gas System (“EGS”). The EGS should be maintained in accordance with the Modular Operations and Maintenance Manual(s).</b>

**NOTE:** Section “3. EGS Inspection” on page 4, use the EGS for setting up and checking the Helmet systems. For a proper check of the Demand Regulator adjustment, the First Stage Regulator must have an intermediate supply pressure output between 135-150 psig (10-11 bar). The First Stage Bleed/Relief Valve should be set between 180-200 psig (12-14 bar). Do not attach the Umbilical until Step 6.

Date: \_\_\_\_\_

Helmet Serial Number \_\_\_\_\_ Diamond Main Tube # \_\_\_\_\_

Diamond POD Serial # \_\_\_\_\_ Diamond Exhaust Serial # \_\_\_\_\_

Associated Equipment Serial #(s): \_\_\_\_\_

Technician (*print name*): \_\_\_\_\_

# 1. Neck Ring Assembly and Helmet Attachment Components

DIVER/TENDER - CHECK THE FOLLOWING:

Procedures	Initials
1) Visually inspect the Neck Dam Ring Assembly for signs of damage. Check for tears, holes, and/or cuts in the neck dam neoprene. Ensure the Neck Dam is of the proper size and fit.	
2) Lightly lubricate the Neck Ring O-ring.	
3) Ensure Adjustable Neck Pad is set to correct position for diver.	
4) Test-mate the Neck Dam Ring Assembly to the helmet.	
5) Confirm the Sealed Pull Pins work properly and show no signs of oil leakage.	
6) Inspect the Head Cushion for proper fit, broken snaps, tears, and/or rips.	
<p><b>NOTE:</b> All Kirby Morgan helmet models, must be equipped with an internal chin strap. This internal neck strap is intended as a secondary helmet retainer in an unlikely event the helmet should separate from the neck ring/clamp assembly</p>	
7) Visually inspect the internal helmet Chin Strap and fasteners. Inspect for signs of wear or damage. Replace if any damage is found. Guidance: Modular O & M Manual.	

## 2. Visually Inspect the Helmet

### DIVER/TENDER - CHECK THE FOLLOWING:

Procedures	Initials
1) Visually inspect Helmet Shell interior and exterior for damage and/or contamination.	
2) Confirm Oral Nasal Valve is correctly installed into the mask.	
3) Confirm Oral Nasal Mask and Oral Nasal Insert are installed CORRECTLY.	
4) Confirm Inhalation Tube is secured correctly into pod and Oral Nasal Mask is secured properly around leading edge..	
5) Confirm five Water Shroud Tie Wraps are secure and in place.	
6) Open and close Open Circuit/Overpressure Relief Valve on Diamond Exhaust Valve to confirm smooth operation. Finish test in the closed position.	
7) With the OPRV closed, pull the pin away from the assembly. Ensure the puck with pin moves freely away and re-seats on valve insert.	
8) Rotate Control Handle on Surface Bypass Valve and verify smooth operation. Finish in the forward position (parallel).	
9) Confirm Breathing Equalizer Tube is in place and secure with tie wrap.	
10) Ensure the Nose Clearing Device operates smoothly.	
11) Confirm WATER PURGE Assembly is secure and pick up tubes attached in the correct angle.	

Procedures	Initials
12) Ensure the earphones and microphones are installed correctly and the outside locking ring on the communications module is tight.	
13) Conduct helmet pressure test, Exhaust regulator OPV and Water Purge assemblies for proper lift settings, if adjustment are necessary, Guidance Modular O & M Manual "KM Diamond Water Purge Assembly Maintenance and Testing" & "KM Diamond Surface Bypass Valve Maintenance and Testing" modules.  <b>NOTE:</b> This can be done every seven days if diving operations are continuous.	

### 3. EGS Inspection

**NOTE:** The EGS being used must be properly maintained and fully functional.

#### DIVER/TENDER - CHECK THE FOLLOWING:

Procedures	Initials
1) Inspect all EGS Hoses from bailout system for signs of damage.	
2) Inspect the cylinder and valve for obvious signs of damage. Check hydro date and ensure the cylinder is within the VIP and hydrostatic date.	
3) Confirm the First Stage Regulator I.P. and Over-Pressure Bleed/Relief Valve settings have been checked within the past month.	
4) Inspect the Safety Harness and Cylinder Retaining bands for wear and/or damage. Repair/replace as necessary.	

### 4. Check the Helmet EGS

**DIVER/TENDER - CHECK THE FOLLOWING:**

Procedures	Initials
1) Check the One Way Valve for proper operation.	
2) Connect the 1st Stage Regulator to the EGS Cylinder and the Helmet EGS Valve. With the cylinder turned OFF, open and close the Side Block EGS Valve. Confirm smooth operation. Open and close the Defogger Valve to verify smooth operation.	
3) Rotate the Regulator Flex Knob fully in (clockwise) until a clicking sound can be heard, then rotate out (counterclockwise) 3-4 rotations to check for smooth operation. Finish with the Flex Knob turned all the way in (clockwise)	
4) Open EGS Supply Valve on the cylinder. Next open the EGS Valve on the Side Block.	
5) Briefly open Defogger Valve $\frac{3}{4}$ to one full turn. Check for a strong flow of gas out of the Defogging Train, and then close.	
6) Check for gas escaping from the One Way Valve. If any gas flow is detected the One Way Valve should be overhauled or replaced.	

### 5. Check the Demand Regulator Adjustment

**NOTE:** If the Purge Button travels further than  $\frac{1}{4}$ " before gas starts flowing, or has a weak flow of gas when fully depressed, the adjustment of the Regulator is necessary. Guidance Modular O & M Manual.

**DIVER/TENDER - CHECK THE FOLLOWING:**

Procedures	Initials
1) Rotate Flex Knob out (counterclockwise) until a slight free flow develops. Next rotate the flex knob in (clockwise) until the free flow stops.	

Procedures	Initials
2) Slowly depress the purge button area to check for too little travel or excessive travel before gas flow is heard. Flexible cover should travel 1/8"-1/4" (3-6 mm) before gas flow is heard.	
3) Depress the purge button area all the way and verify a strong surge of gas. Prepare to stop run away free flow.	
4) Ensure the Side Block Emergency Valve is shut and the Bail Out Cylinder Valve is open. Log the cylinder pressure _____ psig.	
5) Ensure Inhale Regulator Shroud Lid in firmly closed.	

## 6. Umbilical

### TENDER - CHECK THE FOLLOWING:

Procedures	Initials
1) Blow down the umbilical. Use umbilical main supply hose to blow down exhaust hose. Attach main supply hose to umbilical adapter on the One Way Valve.	
2) Connect exhaust hose to helmet and <b>VERIFY SAFETY LOCK ENGAGED.</b>	
3) Confirm exhaust hose is connected to Surface Vent Control System, if applicable.	
4) Verify constant water supply source, connections and flow rate, if applicable.	

### 7. Check the Communications

DIVER - CHECK THE FOLLOWING:

Procedures	Initials
1) <b>DIVER:</b> Perform communications check, diver to topside and topside to diver.	

### 8. Check the Water Supply

TENDER - CHECK THE FOLLOWING:

Procedures	Initials
1) Check water supply connections and flow rate, if applicable.	

### 9. Leak Test

TENDER - CHECK THE FOLLOWING:

Procedures	Initials
1) <b>TENDER:</b> Pressurize, soap and leak check the Helmet/Mask gas fittings and connections including the EGS.	

### 10. Neck Dam and Locking Collar

TENDER - CHECK THE FOLLOWING:

Procedures	Initials
1) Sealed Pull Pins and Locking Collar in the closed and locked position.	

Procedures	Initials
2) Diver's Safety Harness is in good condition.	
3) Umbilical Strain Release is secure.	
4) EGS supply cylinder is turned on.	
5) Check that EGS hose quick disconnect is connected, in the <b>LOCKED POSITION</b> and in good working order.	
6) Ensure Defogger/Steadyflow is slightly opened with a constant flow of gas entering the helmet.	
7) Ensure Control valve on the Surface Bypass Valve is turned forward to the surface vent position.	
8) Confirm Over Pressure Relief Valve (OPRV) is firmly closed.	
9) Check the Hot Water Supply (if applicable).	
10) Check the dry suit Inflation Hose Connection (if applicable). Ensure the dry suit Inflation Valve and Exhaust Valve function properly	

## 11. Tender

Procedures	Initials
1) Note comments or discrepancies below in the comments section. Log maintenance in the applicable maintenance log.	

Technician Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

KMDSI strongly recommends that a certified KMDSI Repair Technician make all repairs and that only genuine KMDSI repair and replacement parts be used. Owners of KMDSI products that elect to do their own repairs and inspections should only do so if they possess the knowledge and experience. All inspections, maintenance, and repairs should be completed using the appropriate KMDSI user guide and Operations and Maintenance Manual(s). Persons performing repairs should retain all replacement component receipts for additional proof of maintenance history. Should any questions on procedures, components, or repairs arise, please contact Kirby Morgan Dive Systems, Inc., by telephone at (805) 928-7772 or via e-mail at [kmdsi@kirbymorgan.com](mailto:kmdsi@kirbymorgan.com), or contact Dive Lab, Inc., by telephone at (850) 235-2715 or via e-mail at [divelab@divelab.com](mailto:divelab@divelab.com).

**NOTE:** The Maintenance Log, Appendix 3, found in the Misc. Appendices checklists on the Kirby Morgan website, may be used as a template to create blank pages to record all the maintenance performed.