Kirby Morgan®
KMB 18/28 BandMask®

A2.1
Annual Inspection/Overhaul/Maintenance Checklist

THIS INSPECTION AND MAINTENANCE SHOULD BE PERFORMED **AT LEAST ANNUALLY** AND AS DICTATED BY CONDITION REVEALED DURING DAILY/MONTHLY INSPECTION. MONTHLY INSPECTIONS DETERMINE NECESSITY FOR OVERHAUL WITH MORE ACCURACY THAN SIMPLY PLACING A NUMBER OF HOURS OF USE.

This checklist is intended to aid persons performing routine overhauls of the KMDSI KMB 18/28 Band Masks. The checklist should be used in conjunction with the latest version of the KMDSI Modular Operations and Maintenance Manual for the KMB 18 and 28 BandMasks. This checklist is primarily intended to document the maintenance as it is completed and to help guide the technician during overhauls. Specific detailed procedures for each section of this checklist can be found in the Modular Operations and maintenance manuals. This checklist, when completed should be retained in the equipment maintenance files. This checklist is generic in nature and should be used for all models of the KMDSI Band Masks.

⚠ WARNING

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.

⚠ WARNING

Counterfeits, although similar in appearances (including packaging), are not the same strength or quality. Please DO NOT be fooled into thinking they are the "real thing". Spare parts obtained from unauthorized sources may be made of inferior materials, not to specifications and poor quality that will interfere with the performance characteristics of the life support equipment and may jeopardize the diver's safety. This can lead to improper function or failure of your Kirby Morgan® equipment, possibly causing serious injury or death!

Remove any and all NON KMDSI factory stickers from the Mask Shell for proper inspection.

KMDSI strongly recommends that all repairs be performed by trained personnel.

Masks being used in extreme environments will require more frequent inspection.

When performing the A2.1 as a scheduled overhaul, all O-rings must be replaced. When using the A2.1 as an "inspection" only, in-between annual overhauls, O-rings and exhaust valves may be reused if inspection reveals the soft goods are serviceable.

Date: _____

Mask Serial Number _____

Associated Equipment Serial #(s): _____

Technician *(print name)*: _____

2. Hood Assembly

CHECK THE FOLLOWING:

Procedures	Initials
1) . Remove Head Harness (Spider) and inspect for signs of tearing, deterioration, and/or damage. Ensure all five legs of the Spider are present. Replace if necessary. Guidance Modular O & M Manual.	
2) Remove the Earphones from their pockets in the Hood. Remove the Hood from the Mask. Perform a visual inspection of all components. Guidance Modular O & M Manual.	
3) Visually inspect the Hood for signs of damage, and/or deterioration. Replace if necessary. Guidance Modular O & M Manual.	
4) Remove the Top and Bottom Bands from the Hood. Visually inspect all metal parts of the Band Assembly and Band Keeper components, including the Band Screws, for damage. Replace if necessary. Guidance Modular O & M Manual.	

3. Mask Assembly

CHECK THE FOLLOWING:

Procedures	Initials
1) Visually inspect the Mask exterior and interior for loose and/or missing fasteners and obvious signs of damage; including cracks, gouges, and/or depressions **NOTE** On the KMB 18 any gouges in the fiberglass shell deeper than 1⁄16″ (1.5 mm) exposing fiberglass should be repaired. Fiberglass and gel coat repairs MUST be completed by a technician that has received certification for BandMask® shell repairs by KMDSI or Dive Lab, Inc. Any cracks or depressions with fractures must be checked by an Authorized KMDSI Repair Facility. Any cracks or damage in the plastic frame of the KMB 28 will require replacement of the frame. Further info contact Dive Lab.	
2) Remove the Covers from the Earphones. Remove Microphone from the Oral Nasal Mask. Inspect and repair/replace as necessary. Perform a complete communications check. Guidance Modular O & M Manual.	

⚠ CAUTION

The Nose Block device MUST be removed when removing or installing the Oral Nasal Mask. Stretching the Oral Nasal Mask over the Nose Block Device will cause the Oral Nasal Mask to tear.

3) Remove the Nose Clearing Device. Clean and inspect the Nose Clearing Pad and Shaft. Replace O-rings.	
4) Remove Oral Nasal Mask and Oral Nasal Valve as an assembly. Remove Valve and Valve Body as an assembly. Clean and inspect Mask for damage. Replace Valve and reinstall into Valve Body. Reinstall Valve Body into Mask. Guidance, Modular O & M Manual.	
5) Remove the Comfort Insert [KMB 18 only]. Clean and inspect the Comfort Insert and fastening hardware for damage and/or deterioration. Mark N/A for KMB 28.	
6) Inspect and replace the bent tube if it is excessively scratched, dented, or compressed deeper than 1⁄8″ (3.18 mm). Check for erosion of the metal and severe corrosion. Replace if any erosion is present or integrity is in question. The bent tube is a critical component that routes breathing gas to the regulator system.	

Procedures	Initials
7) Remove the Demand Regulator from the Mask and set aside. Guidance Modular O & M Manual. NOTE Demand Regulator annual maintenance will be addressed in the Demand Regulator section of this checklist.	
8) Remove the Exhaust Main Body from the Regulator Body. Remove the whiskers from the Main Exhaust Body, clean and inspect. Replace the Exhaust Valves at least annually or any time they show any signs of deterioration, wear, and/or damage. Guidance, Modular O & M Manual.	
9) Remove the Face Port Retainer, Face Port and O-ring. Perform View Port Insert Pull Test and complete port insert test sheet (A2.1 MUST include completed test sheet) NOTE Insert replacement and repairs should only be performed by technicians who are trained and certified for insert replacement. Replace the Face Port O-ring. NOTE Testing of the Port Inserts should be done ONCE A YEAR, or whenever Port Insert damage is present or suspected. (KMDSI P/N 525-115 Thread Insert Testing Block Kit) Guidance Basic Repair Technician Training Guide, Thread Insert Testing Procedure.	
10) Install top band keeper mount, and lower band keeper mount (if removed) Guidance Modular O & M Manual.	
11) Remove the Main Exhaust Valve Cover and replace the Main Exhaust/ Dewatering Valve. Inspect seating surface for damage and/or contamination. Guidance Modular O & M Manual.	

4. Side Block

NOTE The Side Block does not need to be physically removed from the Helmet Shell every year in order to overhaul the Steady Flow, Emergency and One Way Valve providing excessive internal corrosion is not present in the side block passages or valve components. However, all valves must be overhauled and soft goods changed in accordance with the Operations and Maintenance manual. **KMDSI recommends at least every THREE (3) years the Side Block Assembly be physically removed from the Helmet, overhauled and reinstalled, per Modular O & M Manual.**

CHECK THE FOLLOWING:

Procedures	Initials
Side Block removed? ☐ Yes ☐ No	
1) Remove, disassemble and overhaul the One-Way Valve. Guidance Modular O & M Manual.	
2) Remove, discard, and replace Umbilical Adapter with a new one.	
3) Remove, disassemble, and overhaul the EGS and Defogger Valve components. Guidance Modular O & M Manual. NOTE It is not required to remove the EGS Valve on the Side Block for the annual overhaul. However, if the Side Block is to be removed or the EGS Valve exhibits excessive corrosion/verdigris, the EGS Valve will require removal, cleaning, and re-sealing with Teflon® tape.	

5. Demand Regulator

NOTE For BandMasks® that have the 455 Balanced regulator, consult the applicable operations and maintenance manual for the recommended soft goods replacement parts and adjustment procedures.

DIVER/TENDER – CHECK THE FOLLOWING:

Procedures	Initials
1) Disassemble the Demand Regulator. Visually inspect the interior of the Regulator Body for corrosion and/or contamination. Clean as necessary. Guidance Modular O & M Manual. As a general guideline dents in the regulator cover should not exceed ⅛"/3.2 mm. Additional guidance on when a SuperFlow®/SuperFlow® 350 regulator cover may need to be replaced: • Sharp dents may require cover replacement even if they do not exceed ⅛"/3.2 mm • Dents that deform the regulator cover slots. These slots are critical for proper regulator function. • Dents next to the purge button which prevent smooth operation of the button • Old regulator covers that appear rippled and thin from long term use. • If there's any doubt about the integrity of the cover it should be replaced.	
2) After the Regulator has been disassembled, clean and inspect all parts. Replace **ALL** O-rings and the inlet valve seat. On Superflow & Superflow 350 regulators, the Adjustment Lock Nut on the inlet valve shaft must never be reused. If the Adjustment Lock Nut is reused, the Regulator may not maintain proper adjustment. Guidance, Modular O& M Manual.	
3) Reassemble the Demand Regulator Modular O & M Manual.	
4) Ensure the Adjustment Shaft P/N 550-057 rotates smoothly and there is no binding.	
5) Install the Exhaust Whisker Main Body onto the Exhaust Flange of the Regulator and attach the whiskers to each side of the View Port Retainer. Guidance Modular O & M Manual. **NOTE** For the KMB18-A KMDSI recommends pressure testing the bent tube Hose Assembly to 400 psig every year as well as replacing the end fitting O-rings. **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.	

Procedures	Initials
7) Mount the Regulator to the Mask. Guidance Modular O&M Manual.	
8) Install the bent tube in accordance with the O & M modular manual. Ensure the Teflon® washer and O-ring have been replaced.	
9) Reinstall Oral Nasal Mask, Valve Assembly, and Nose Block Device. Guidance Modular O & M Manual.	
10) Check the Regulator for proper operation and fine tune the adjustment if necessary. Guidance Modular O & M Manual.	

6. Emergency Gas Supply (EGS)

The Emergency Gas System consists of a good quality First Stage Regulator equipped with a submersible pressure gauge, an Over Pressure Bleed/Relief Valve, and an Emergency Gas Supply Hose that connects to the Emergency Valve on the Mask Side Block.

DIVER/TENDER – CHECK THE FOLLOWING:

Procedures	Initials
1) Check the hydrostatic date and last visual inspection record ("VIP") of the cylinder. Ensure date(s) are within the specified range. The VIP is done at least annually and the hydrostatic test is done at least every five years.	
2) **Check the maintenance record of the EGS components** to ensure the First Stage Regulator's maintenance has been performed in accordance with the manufacturer's recommendations.	
3) Check all Hoses for signs of blisters, cover slippage, cuts, and/or abrasions and corrosion. KMDSI recommends that all LP hoses be pressure tested to 1.5 times the maximum hose pressure rating. Replace any Hose(s) that show signs of leakage/damage. If a Quick Connect EGS hose is being used, inspect quick connect and fittings for signs of wear/damage. Replace O-rings as necessary.	

Procedures	Initials
4) If a submersible pressure gauge is used, ensure it has been compared to a gauge of known accuracy. Inspect the hose and fittings for signs of damage and corrosion.	
5) Overhaul and test the First Stage Bleed/Relief Valve. Guidance as per "Appendix 4:Bleed/Relief Valve Cleaning, Inspection, and Overhaul Procedures".	
6) Log the lifting pressure _____ psig.  NOTE An adjustable First Stage Regulator and a Gas Cylinder with a minimum of 500 psig (34.5 bar) available are required for this step.  NOTE The Bleed/Relief Valve should be adjusted to start relieving between 180–200 psig (12–14 bar) when tested.	
7) Check the over bottom setting of the First Stage to ensure it is within the manufacturer's specified pressure range. For KMDSI Helmets and Masks, the recommended over bottom for the emergency supply is normally between 135 psig to 165 psig (9–11 bar). Log the intermediate pressure.	
8) Perform a leak check of all EGS components and fittings using soapy water in a pressurized condition. Repair/replace items as necessary.	
9) Inspect the Harness Assembly for signs of wear and/or damage. Repair/replace as necessary. Document any inspection/maintenance on the Maintenance Log (Appendix 3).	

Recorded in service records for BandMask® and EGS System (maintenance log books)? ☐ Yes ☐ No

Recorded service in BandMask® maintenance log book? ☐ Yes ☐ No

I_____ hereby certify that I have performed the work required in the A2.1 and that **I AM** a certified KMDSI / Dive Lab technician.

Print Name: _____

Signature: _____ Date: _____

ID #: _____ Date of Certification: _____

I_____ hereby declare that I have performed the work required in the A2.1 and **I AM NOT** a certified KMDSI/Dive Lab technician.

Technician/Owner Print Name: _____

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, or contact Dive Lab, Inc., by telephone at (850) 235-2715 or via e-mail at divelab@divelab.com.

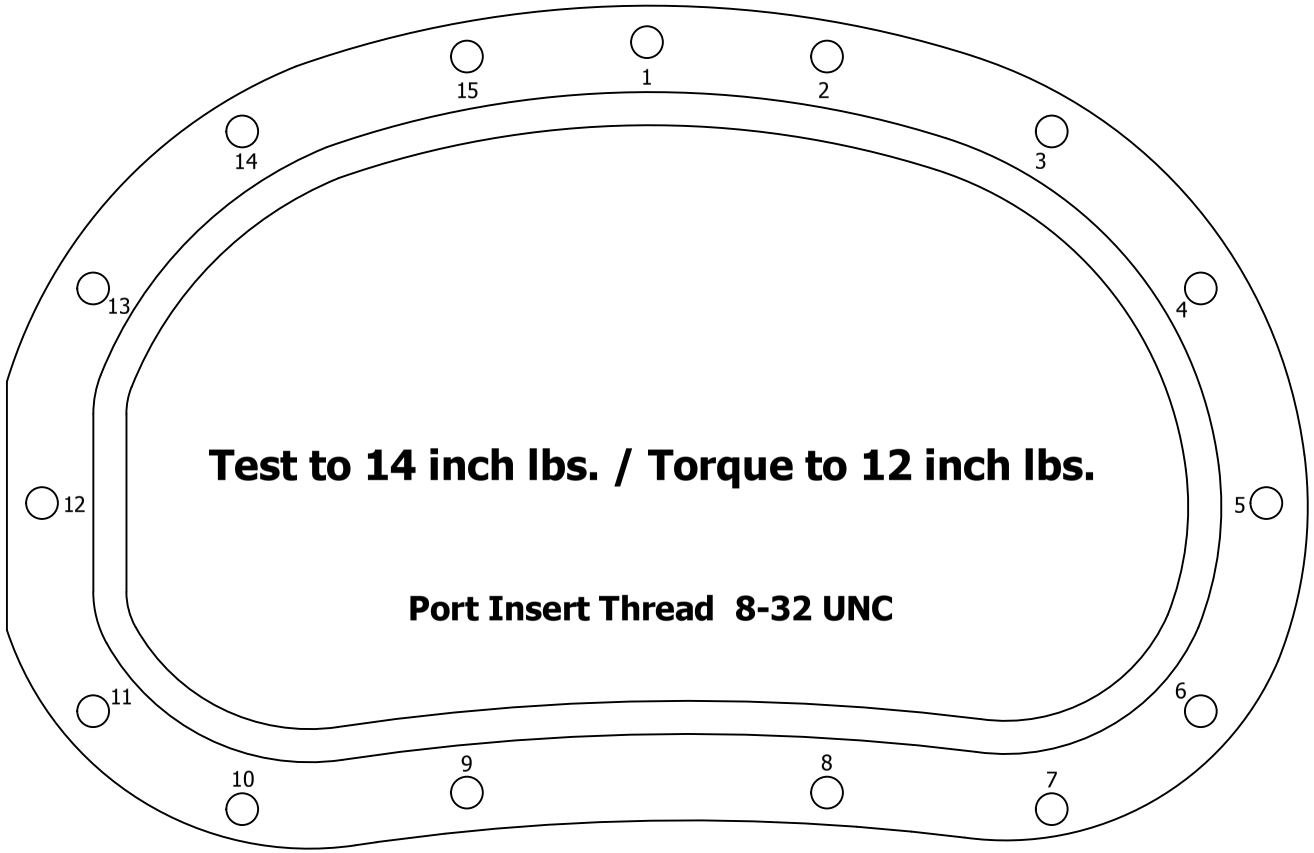
The Maintenance Log, Appendix 3, found in the Misc. Appendices checklists on the Kirby Morgan website, may be used as a template to create blank pages to record all the maintenance performed.

Port Insert Test Sheet

Test Results:
P=Pass F=Fail

1_____
2_____
3_____
4_____
5_____
6_____
7_____
8_____
9_____
10____
11____
12____
13____
14____
15____

Date_____ **Company**_____
Helmet/KMB Model_____ **SN#**_____
Technician_____



Notes/Comments: _____

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Fiberglass repairs must be performed by an authorized KMDSI service center. For more information contact Kirby Morgan Dive Systems or Dive Lab Inc.