Kirby Morgan®
Deep Sea Diving Helmets

SuperLite® 17B

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 SL 17B model helmet. The checklist should be used in conjunction with the latest version of the applicable KMDSI Modular Operations and Maintenance Manual for the model helmet being serviced. This checklist is primarily intended to guide and 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 latest KMDSI Modular Operations and Maintenance Manuals and when completed should be retained in the equipment maintenance files. This checklist is generic in nature and should be used for all models of KMDSI Helmets.

⚠ 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.

NOTE 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 may be reused if inspection reveals the O-rings are serviceable.

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

NOTE Helmets being used in extreme environments will require more frequent inspection.

NOTE This checklist should be used in conjunction with the most current KMDSI Modular Operations and Maintenance Manual. Please check the KMDSI web page at www.kirbymorgan.com.

Date: _____

Helmet Model: _____

Helmet Serial Number: _____

Regulator Serial Number/Model _____ ☐ No Serial Number

Technician *(print name)*: _____

1. SL 17A/B Yoke/Neck Clamp Assembly

KMDSI recommends that Neck Clamps older than five years old be removed from service and replaced. However, neck clamps that show no signs of damage and or deterioration can be kept in service if they are carefully inspected least weekly I.A.W. the Monthly Inspection A2.2, steps 1-7.

CHECK THE FOLLOWING:

Procedures	Initials
1. Remove Safety Pin then remove Yoke / Neck Clamp Assembly from Helmet. Remove the neoprene Neck Dam completely and carefully inspect for tears, holes, and damaged areas and deterioration. This MUST be done to ALL types of SL 17B Neck Dams, PRE '84, Lock in dress, Cold Water and standard drawstring style. Replace the Neck Dam if any damage is present or if the material shows signs of deterioration. Visually inspect all metal parts of the Clamp Assembly for damage. Check the Hinge Pins for loose fit, signs of cracking, distortion, and/or any damage. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
2. Disassemble the Rear Hinge Tab and Hinge from the Yoke/Neck Clamp. Inspect all parts for damage in the form of corrosion and cracking, especially on the old style sleeve. Replace parts as necessary. Fiberglass yoke , inspect for fiberglass damage/cracking. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
3. Remove and Inspect Yoke Strap and Strap Guide. If the yoke strap is old and worn out, replace both Strap Guide and Yoke Strap.	

Procedures	Initials
NOTE KMDSI Recommends using the new bolt and Lock Nut. If using the old style sleeve and bolts, use thread locking compound and torque to 20 inch lbs. (2.2 Nm). If the single ⅜" bolt and lock nut are used, tighten the nut until the bolt protrudes at least one thread past the nylon in the nut. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
4. Remove the lock nut, washer, and nut from the clamp adjustment stud. Clean the Stud with a wire brush and inspect for signs of line cracking, pitting, or corrosion damage. If any damage, deterioration or deformation is present, the Neck Clamp will require replacement. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
5. Remove the Latch Catch Assembly from the Yoke. Inspect the mounting screws. Replace screws if any damage is found. Inspect the Spring and Plunger Shaft, for signs of corrosion; test operate the mechanism, disassemble and clean and overhaul if any corrosion or damage is found. Repair/Replace parts as necessary, reassemble. Fiberglass yoke, inspect for fiberglass damage/ cracking. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
6. Re-assemble all Yoke/Neck Clamp/Dam Components. Replace the Lock Nut. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
7. Test-mate the Yoke/Neck Clamp to the Helmet. Check for Clamp adjustment and smooth Clamp operation. When properly adjusted, the Clamp should close with moderate resistance as the handle approaches the center of travel, and then should snap firmly against the Helmet due to the cam tension. When adjusting, a deep well socket should be used with a torque wrench on the lock nut and a back-up wrench, on the nut. After Neck Clamp is adjusted, tighten nut using sound engineering practices. Repair/ replace parts as necessary. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	

Procedures	Initials
NOTE **All Kirby Morgan helmet models, must be equipped with an internal chin strap.** This internal chin strap is intended as a secondary helmet retainer in an unlikely event the helmet should separate from the neck ring/clamp assembly.	
8. Visually inspect the helmet Chin Strap and fasteners. Clean as necessary. Inspect for signs of wear or damage. Replace if any damage is found. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	

2. Helmet Assembly

NOTE Remove any and all NON KMDSI factory stickers from the fiberglass helmet shell for proper inspection.

CHECK THE FOLLOWING:

Procedures	Initials
1. Remove and inspect the Helmet Liner/Cushion. Check the condition of the foam and the liner material. Inspect Snaps and Chin Strap. Lightly lubricate male snaps with silicone 111, Repair/replace as necessary. **GUIDANCE:** Head Cushion, Head Cushion Foam Spacer (HCFS) and Chin Cushion (HDCSH) or 17B Head Cushion (17BHC)	
2. Remove Earphones and Microphones from their holders. Remove covers from Earphones and inspect. Remove Microphone from Oral Nasal Mask. Perform a communications check. **GUIDANCE:** Communications on SuperLite® 17B and 17C Helmets, KMB 18 and 28 BandMasks® (17COM)	
3. KMDSI recommends yearly removal of the Alignment Screw from the rear weight. Also, conduct a visual inspection of the tapped threads used by the Alignment Screw in the Rear Weight. Ensure the threads are in good condition. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	

Procedures	Initials
4. Visually inspect the Alignment Sleeve and ensure it is not damaged and/or deformed. Replace as necessary. Clean all residual Loctite® from the Alignment Screw, using a stainless or brass wire brush. Thoroughly inspect all threaded surfaces for corrosion and/or degradation. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
5. Apply thread locker such as Loctite® 248 or equivalent, to the Alignment Screw and insert into the Rear Weight, torque to 35 inch lbs. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
6. Inspect the fiberglass helmet shell for gouges deeper than 1⁄16″ (1.5 mm) and signs of fiberglass showing, cracks and depressions with fractures.	
NOTE Any gouge into the gelcoat that goes through the gel coat and into the fiberglass **MUST** be repaired as soon as possible. Any gouge deeper than 1⁄16 inch should be inspected by a KMDSI/ Dive Lab Inc, certified technician. ONLY KMDSI technicians that have received certification for HELMET SHELL repairs by KMDSI or Dive Lab, INC. can perform helmet shell repairs.	

⚠ 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.

7. Remove the Nose Block Device. Clean and inspect the Nose Block Pad, Shaft. Replace O-rings. **GUIDANCE:** Face Port, Port Retainer and Nose Block (FCPRT)	
8. Remove Oral Nasal Mask and Oral Nasal Valve as an assembly. Remove valve and valve body as an assembly. Clean and inspect Mask and Valve Assembly for damage. Replace Valve and reinstall into Valve Body. Reinstall Valve Body into Mask. **GUIDANCE:** Oral Nasal Mask (ON)	

Procedures	Initials
9. Remove the Helmet O-ring at the base of the helmet. Clean and inspect the O-ring groove for damage. Lightly lubricate a new O-ring and install. **GUIDANCE:** SuperLite® 17B Neck Clamp Area (Including Internal Chin Strap and Yoke) (17BNK)	
10. Remove the bent tube and replace the Teflon® O-ring at the Side Block end, as well as the O-ring at the Demand Regulator inlet side of the bent tube. NOTE Replace the bent tube if it is excessively scratched, dented or compressed deeper than ⅛" (3.18 mm). Check for erosion of the metal or severe corrosion. Replace if any erosion is present or integrity is in question.	
11. Remove the Demand Regulator, whisker wings, and main exhaust body as a single unit from the helmet and set it aside. **GUIDANCE:** SuperFlow® Regulator (SF)	
12. Remove the exhaust main body, along with both the right and left whiskers from the regulator body. Completely disassemble exhaust system clean and inspect. Replace exhaust system rubber components if the rubber shows any signs of deterioration, wear, and/or damage.	
13. Replace the exhaust valves at least annually or any time they show any signs of deterioration, wear, and/or damage. **GUIDANCE:** Quad Valve and Tri-Valve® Exhaust (QUAD)	
14. Remove the Face Port Retainer, Face Port and O-ring. Inspect for obvious signs of corrosion damage. NOTE The face port should be replaced anytime cracks are present, anytime nicks and scratches deeper than 1⁄16" are present, or anytime the condition is questionable. **GUIDANCE:** Face Port, Port Retainer and Nose Block (FCPRT) and 17B Handle and Weights (17BHNDL)	

Procedures	Initials
15. Perform View Port Insert Pull Test and complete port insert test sheet (A2.1 MUST include completed test sheet) If inserts fail the test, the helmet shell must be sent to an authorized KMDSI repair facility. Replace View Port O-ring. **GUIDANCE:** Thread Insert Testing Procedure found on the Kirby Morgan website under Support > Checklists > Misc. Appendices	
 NOTE Testing of the Port Inserts should be done ONCE A YEAR, and/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.	
Water Dump Body removed? ☐ Yes ☐ No  NOTE You do not need to physically remove the Water Dump Body from the helmet shell each year unless there is excessive corrosion. KMDSI recommends that, at a minimum, the Water Dump Body be removed from the helmet, cleaned, and reinstalled at least every three (3) years, in accordance with the modular O & M Manual. **GUIDANCE:** Quad Valve and Tri-Valve® Exhaust (QUAD) 16. Remove the Water Dump Cover/Adapter and replace the Water Dump Valve. Clean and inspect the seating surface for damage and/or contamination. Service the entire exhaust system.	

3. 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:** One Way Valve (OWV)	
2. Remove and replace Umbilical Adapter with a new one.	
3. Remove, disassemble, and overhaul the Emergency Valve and Steady Flow Valve components, replace all O-rings. **GUIDANCE:** Stainless Steel Side Block (SSB) or Brass/Chromed Brass Side Block (SB) NOTE Visually inspect parts for corrosion. Look for discoloration, pitting and micro cracks. These conditions could result in a part failure. Corrosion pitting may have deep cavities that are not visible. If there's any doubt about the integrity of the part it should be replaced.	

4. Demand Regulator

KMDSI recommends the soft goods, including diaphragm and exhaust valves on all Demand Regulator models be replaced at least annually and/or as dictated by condition revealed during daily/monthly inspection. Monthly inspections will reveal the need for overhaul with greater accuracy.

CHECK THE FOLLOWING:

Procedures	Initials
1. Disassemble the Demand Regulator. Visually inspect the interior of the Regulator Body for corrosion and/or contamination. **GUIDANCE:** SuperFlow® Regulator (SF) 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:** SuperFlow® Regulator (SF)	
3. Re-assemble the Demand Regulator. **GUIDANCE:** SuperFlow® Regulator (SF)	
4. Ensure adjustment shaft has smooth operation after reassembly by rotating the adjustment completely knob in and out. **GUIDANCE:** SuperFlow® Regulator (SF)	

Procedures	Initials
5. Re-install the Exhaust Main Body onto the Exhaust Flange of the Regulator and attach the Whiskers to each side of the Face Port Retainer. **GUIDANCE:** Quad Valve and Tri-Valve® Exhaust (QUAD)	
6. Mount the Regulator in the Helmet. **GUIDANCE:** SuperFlow® Regulator (SF)	
7. Install the bent tube. Ensure Teflon® washer and O-ring have been replaced. **GUIDANCE:** Bent Tube (BNT)	
8. Reinstall Oral Nasal Mask Valve Assembly and Nose Block Device. **GUIDANCE:** Oral Nasal Mask (ON) and Face Port, Port Retainer and Nose Block (FCPRT)	
9. Inspect the regulator for proper function and make fine adjustments if needed. **GUIDANCE:** SuperFlow® Regulator (SF)	

5. Emergency Gas Supply (EGS)

NOTE

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

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.	

Procedures	Initials
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, corrosion and internal contamination. Pressure test hose assembly to 250 psig (17 Bar) if in doubt of hose integrity. Replace any hose(s), fittings that show signs of leakage/damage. KMDSI recommended hoses be tested the maximum working pressure of the hose in use at least once a year. If a Quick Connect EGS hose is being used, check the quick connect and fittings for signs of wear or damage. Replace O-rings as needed.	
4. Check the Submersible Pressure Gauge, ensure it has been compared to a gauge of known accuracy and the results documented. Check HP submersible hose for signs of corrosion and damage. Replace the hose if any damage is found. KMDSI recommends that all EGS HP hoses be leaked / pressure checked at least annually and/or to the maximum working pressure that it will be used.	
5. Overhaul and test the overpressure relief valve. **GUIDANCE:** Overpressure Relief Valve (OPRV) or KMDSI Bleed/Relief Valve Cleaning, Inspection, and Overhaul Procedure.	
6. Log the lifting pressure _____ psig.	
 NOTE A regulated pressure of at least 200 psig (14 Bar) is required for adjusting the overpressure relief valve.	
 NOTE The overpressure relief valve should be adjusted to start relief between 180–200 psig (12–14 bar) when tested.	
7. Check the intermediate pressure setting of the First Stage to ensure it is within the manufacturer's specified pressure range. For KMDSI Helmets and Masks, the recommended intermediate pressure for the emergency supply is between 135 psig to 165 psig (9.3-11.38 bar) Log the intermediate pressure.	

Procedures	Initials
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.	

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

Recorded service in helmet maintenance log book? ☐ Yes ☐ No

A2.1.1 Water Test Completed ? ☐ 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.

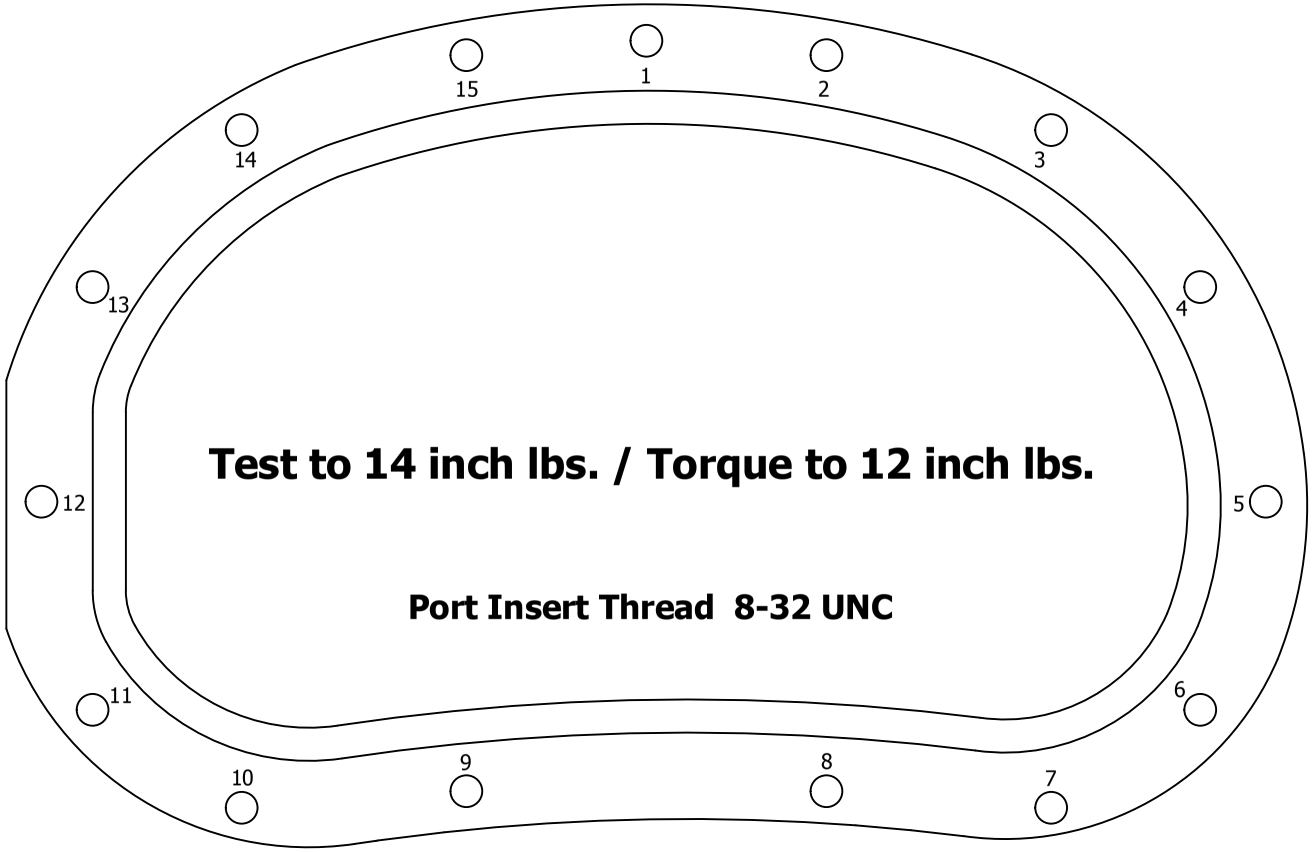
The Maintenance Log, Appendix 3, found in the Misc. Appendices checklists on the Kirby Morgan website, may be used as a template to create blank pages to record all the maintenance performed.

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_____



Test to 14 inch lbs. / Torque to 12 inch lbs.

Port Insert Thread 8-32 UNC

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.

Fiberglass Helmets ONLY