

**KIRBY MORGAN SUPERLITE DEEP SEA DIVING HELMET
MODELS 17A/B, 17C, 17K, 27, and KM-37, KM-47, KM-57, KM-77
MONTHLY INSPECTION AND MAINTENANCE CHECKLIST**

Appendix A2.2

4-14-09

This inspection is the minimum recommended maintenance and **should be** performed at least **ONCE A MONTH** with Helmet(s) in continuous use (used for more than 20 diving days in a month) or at least every **TWO (2) MONTHS**, with Helmet(s) used less than 10 diving days a month.

This checklist is intended to aid persons performing routine maintenance and inspections of all KMDSI Helmets. This checklist should be used in conjunction with the applicable Operations and Maintenance Manual for the model helmet being serviced and is primarily intended to guide and document the maintenance as it is completed. Specific detailed procedures for each section of this checklist can be found in the Operations and Maintenance Manuals. This checklist when completed should be retained in the equipment maintenance files. This checklist is intended to be used for all models of KMDSI SuperLite and KM-37 Helmets.

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

NOTE: Helmets being used in polluted waters, or extreme environments, will require more frequent inspection and maintenance.

NOTE: This checklist should be used in conjunction with the most current Operations and Maintenance Manual. For latest Manual revisions please check the KMDSI web page at www.kirbymorgan.com.

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

NOTE: Perform the Yoke/Neck Clamp Assembly, Helmet, and Side Block/Demand Regulator inspection procedures with gas supplies not connected to the Side Block. Attach the gas supply at Step 5 of the "Side Block/Demand Regulator" inspection procedure.

Date:
Helmet Serial #:

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Associated Equipment Serial #(s):
Technician (print name):

PROCEDURES	INITIALS
SL-17A/B YOKE / NECK CLAMP ASSEMBLY Helmet Attachment Components	
NOTE: For SL-17K, SL-17C, SL-27, and KM-37, KM-47, KM-57, skip to step 1, page 3	
NOTE: 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 remain in service if the user/owner elects and should be inspected at least weekly I.A.W. Steps 1-6 of this procedure.	
1. Remove the Yoke/Neck Clamp Assembly from the Helmet. Perform a visual inspection of all components. Ensure the Neck Dam has no holes, tears, and/or damage. The neoprene must be firm. The Neck Dam should fit snug, but should never fit a diver tight enough to cause discomfort. Guidance SL-17A/B O&M Manual.	
2. 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 SL-17A/B O&M Manual.	
3. Visually inspect the Adjustment Stud on the Neck Clamp for signs of cracking, distortion, bending, stripped and/or damaged threads by loosening Nut (4) all the way to the shoulder of the Stud, and manually squeezing the Neck Dam Clamp to expose the portion of the Stud that is normally hidden by the Stud Block. If any damage is present the, Neck Clamp requires replacement. Guidance SL-17A/B O&M Manual.	
4. Check the Rear Hinge Tab and Hinge for signs of cracking, bending, distortion, and/or loose fasteners. Guidance, 7.9.4 SL-17A/B O&M manual	

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<p>5. Check the Latch Catch Assembly for proper operation. Check for worn and/or damaged parts as well as loose and/or missing screws. Ensure the proper Safety Pin is present. Guidance SL-17 A/B O&M Manual.</p>	
<p>6. Test mate the Yoke/Neck Clamp to the Helmet. Check for proper Clamp adjustment and smooth operation. When properly adjusted, use a 7/16" open-end wrench on Nut as a back-up wrench and a 7/16" deep well socket with a torque wrench. Ensure Lock Nut is torqued to 60 inch lbs. Repair/replace and/or adjust parts as necessary. Guidance 17A/B O&M Manual.</p>	
<p>HELMET MODELS: SL-17K, SL-17C, SL-27, KM-37, KM-47, KM-57, KM-77 HELMET ATTACHMENT COMPONENTS (Neck Ring Assembly)</p>	
<p>1. Remove the Neck Ring Assembly from the Helmet. Remove and inspect the O-ring for damage or deterioration, nicks and / or cuts. Clean and inspect the O-ring groove for damage. Lightly lubricate with recommended lubricant and reinstall. Guidance, applicable O&M Manual.</p>	
<p>2. Inspect the Chin Strap of the head liner and/or new style chin strap attached inside helmet attachment components for signs of wear or damage. Guidance, applicable O&M Manual. Note: KMDSI recommends at least one style of the chin strap be used. Either the strap on the headliner or the chin strap that attaches inside the helmets.</p>	
<p>3. Inspect the Neck Dam material for signs of wear or damage. Ensure the Neck Dam has no holes, tears, and/or damage. The neoprene must be firm. The Neck Dam should fit snug, but should never fit a diver tight enough to cause discomfort. Check to ensure it is free of deterioration. Guidance, applicable O&M Manual.</p>	
<p>4. Visually inspect the locking collar for signs of damage. Check to ensure the neck pad can slide to allow for proper adjustment. Check for loose or missing fasteners. Guidance, applicable O&M Manual.</p>	

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5. Check the two sealed Pull Pins for smooth operation. Visually inspect for signs of oil leakage. Guidance, applicable O & M Manual.	
Caution: If Sealed Pull Pins do not operate smoothly, or if oil is leaking, from the Pull Pins, the Pull Pins should be serviced by an Authorized / Certified KMDSI Repair Technician trained to overhaul Pull Pins.	
6. Visually inspect the metal Helmet Ring at the base of the Helmet for signs of damage to the sealing surface. Any damage requires an inspection by an Authorized KMDSI Technician. Guidance Applicable O&M Manual.	
7. Check the Swing Tongue Catch for smooth operation. Check for obvious worn or damaged parts and components. Guidance O&M Manual.	
HELMET SHELL, All MODELS OF KMDSI SUPERLITE AND KM HELMETS	
1. Visually inspect Helmet Shell exterior for loose and/or missing fasteners and obvious signs of fiberglass damage; including cracks, gouges, and/or depressions.	
NOTE: Any gouges deeper than 1/16" should be repaired. Fiberglass and gel coat repairs must be completed by a technician that has received certification for Helmet Shell repairs by KMDSI or Dive Lab, Inc.	
2. Remove and inspect Helmet Liner/Cushion for tears, broken snaps and/or neck strap damage. Check the condition of the foam. Repair/replace as necessary. Guidance O&M Manual.	
3. Remove the Earphones and Microphones from their holders. Remove the covers from the Earphones and inspect. Remove microphone from Oral Nasal Mask. Clean and repair/replace as necessary. Perform a communications check. Guidance O & M Manual.	

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<p>4. Remove the Nose Clearing Device and Oral Nasal Mask. Remove the Oral Nasal Valve body as an assembly. Clean the oral nasal valve and Valve Body as an assembly. Clean the Oral Nasal Mask. Inspect Mask and Valve Assembly for damage and/or deterioration. Replace the Oral Nasal Mask if any damage is found. Replace the Oral Nasal Valve if it appears dried, stiff, or does not lay flat. Clean and inspect the Nose Clearing Pad, Shaft and O-rings for wear. Replace the Pad if deteriorated and/or damaged. Replace O-rings if any signs of wear or damage is present. Lightly lubricate the Shaft O-rings and the Shaft, then reinstall. Reinstall Oral Nasal Mask and Valve Assembly. Guidance O & M Manual.</p>	
<p>5. On The SL-17 A/B Remove Helmet O-ring at the base of the Helmet. Wipe O-ring and O-ring groove with a clean cloth. Inspect the O-ring groove for damage. Inspect the O-ring for cracking, cuts, and/or signs of damage/deterioration and replace if necessary. Lightly lubricate the Neck Dam O-ring and reinstall on the Helmet. Guidance O & M Manual.</p>	
<p>6. Without air to the Helmet, check the operation of the Steady Flow Valve and Emergency Supply Valve. If the Valves do not operate smoothly they should be disassembled, cleaned, and lubricated. Guidance, applicable O&M manual.</p>	
<p>7. Remove the Main Exhaust Valve Cover and inspect the Main Exhaust/Dewatering Valve and Seat for damage and/or contamination. Ensure the Valve material is not hardened, distorted, and/or warped. Replace the Valve if questionable. Reinstall the Cover. Guidance, applicable O&M manual.</p>	
<p>SIDE BLOCK/DEMAND REGULATOR</p>	
<p>NOTE: Ensure gas supplies ARE NOT attached to the Helmet EGS and steady flow valve; remove protective dust caps, DO NOT open the Steady Flow/Defogging Valve.</p>	
<p>1. Check the Umbilical Supply One-Way Valve for proper operation by sucking on the Umbilical Adapter with the Emergency Valve open and the steady flow valve shut. No gas should be drawn through the One-Way Valve. Guidance applicable O&M manual.</p>	

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<p>2. Remove the Regulator Cover Clamp, Cover, and Diaphragm. Visually inspect the interior of the Regulator Body for corrosion and/or contamination. Clean as necessary. Guidance applicable O&M manual.</p>	
<p>3. Carefully inspect the Diaphragm for cuts, tears, and/or deterioration. If any damage is found, replace the Diaphragm. Guidance applicable O&M manual.</p>	
<p>4. Carefully check the Regulator Exhaust Valve for warping, distortion, stiffness, and/or damage. This is checked by pressing on the Flapper Valve from inside the Regulator. Check the Regulator Body Valve Seat Spokes. The Spokes should be flat and even. Straighten if deformed. If the Valve shows signs of damage and/or deterioration, replace the Valve. Guidance applicable O&M manual.</p>	
<p>5. Attach an air supply source to the Umbilical Adapter and set the supply pressure to between 135 - 150 psig (9.3 – 10.3 bar). Adjust the Regulator Adjustment Knob out, until a slight free flow develops, then adjust in until the free flow just stops and check the Lever play. There should be between 1/16” - 1/8” of play in the Lever. Adjust as necessary. Guidance applicable O&M manual. Reinstall the Diaphragm, the Cover, and the Clamp.</p>	
<p>6. Depress the Purge Button. The Button should travel 1/16” – 1/8” before gas starts to flow and a strong purge should be felt when the Button is fully depressed. If the Regulator Purge travel is less than 1/16” or greater than 1/8”, readjust the Lever. Guidance O&M manual.</p>	
<p>7. Check the Steady Flow Valve for proper operation.</p>	
<p>NOTE: The Steady Flow Valve will rotate approximately two complete revolutions from closed to full open. With the air pressure to the Helmet between 135 - 150 psig (9.3 - 10.3 bar), turning the Steady Flow Valve ½ turn open should result in a strong flow of gas through the Defogger Train.</p>	
<p>8. Secure the gas supply, then bleed down and remove the umbilical from the Inlet Adapter.</p>	

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<p>9. Attach a regulated gas supply (normally the EGS system), adjusted to between 135 – 150 psig (9.3 – 10.3 bar), to the Emergency Valve on the Side Block. On the Side Block, open the Emergency Supply Valve all the way, and then slowly open the regulated gas supply. Check the function of the Regulator Purge, Regulator Adjustment Knob, and the Steady Flow Valve in accordance with previous steps 6 and 7. Check for gas exiting from the One-Way Valve. There should be no gas exiting the Umbilical Adapter.</p>	
<p>NOTE: The Emergency Gas System consists of a good quality First Stage Regulator equipped with, an Over-Pressure Bleed/Relief Valve, and an Emergency Gas Supply Hose that connects to the Emergency Valve on the Helmet Side Block.</p>	
<p>EMERGENCY GAS SUPPLY (EGS)</p>	
<p>1. Check the hydrostatic date and the last visual inspection record (“VIP”) of the cylinder. Ensure the date(s) are within the specified range. The VIP is done at least annually and the hydrostatic test is done at least every five (5) years.</p>	
<p>2. Check the maintenance record of the EGS components to ensure the First Stage Regulator maintenance has been performed in accordance with the manufacturer’s recommendations.</p>	
<p>3. Check all of the Hoses for signs of blisters, cover slippage, cuts, and/or abrasions. Replace any Hose(s) that shows signs of leakage/damage. If a Quick Connect EGS Hose is being used, inspect the quick connect and fittings for signs of wear/damage.</p>	
<p>4. If a Submersible Pressure Gauge is used, ensure it has been compared to a gauge of known accuracy.</p>	
<p>5. Test the First Stage Regulator’s Bleed/Relief Valve. Guidance 6.12 or as per “Appendix 4”: Bleed/Relief Valve Cleaning, Inspection, and Overhaul Procedures”.</p>	
<p>6. Perform a leak check of all EGS components and fittings using soapy water in a pressurized condition. Repair/replace items as necessary.</p>	
<p>7. Inspect the Harness Assembly for signs of wear or damage. Repair/replace as necessary.</p>	

Technician Signature: _____ Date: _____

Comments: _____

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

NOTE: The Maintenance Log, Appendix 3, of the Operations and Maintenance Manual may be used as a template for creating blank pages to record all the maintenance performed.

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