

Company Name: _____

Company Number: _____

2020 MATE ROV COMPETITION. Excite, Educate, Empower: Students Engineering Solutions to Global Problems

EXPLORER CLASS SAFETY INSPECTION CHECKLIST

Companies must bring this check list, the ROV, tether, surface controls, and any other item used in the deployment and operation of the ROV; they will all be inspected as part of the safety check. In addition, the SID, company safety review, technical documentation, and any additional documentation needed to verify compliance must be made available to the Safety Inspectors during the inspection process.

| 1.0 Initial Safety Inspection | |
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| | Fluid power approved? Fluid power used? If yes to both, see Section 4.0 Pneumatics / Hydraulics |
| | Laser approved? Laser used? If yes to both, see attached laser safety inspection sheet. |
| 2.0 ROV Physical | |
| | All items attached to ROV are secure. |
| | Hazardous items are identified and protection provided. |
| | ALL propellers are completely shrouded to IP-20 standards. Mesh size is less than 12.5 mm. |
| | No sharp edges or elements of the ROV design that could cause injury to personnel or damage the pool surface. |
| 3.0 ROV Electrical | |
| | Tether has proper strain relief at the ROV. |
| | No power conversion before the ROV. |
| | No exposed motors. Brushless motors are considered exposed unless electrically sealed after purchase. Companies should provide proof of sealing procedure. |
| | No exposed copper or bare wire. |
| | All wiring securely fastened and properly sealed.* |
| | Any splices in tether are properly sealed.* |
| 3.1 Surface Controls Electrical & Physical | |
| | Single attachment point to the power source. |
| | Anderson powerpole attachment to power source. |
| | Properly sized (Littlefuse brand) fuse within 30 cm of power supply attachment point. |
| | The surface control station is built in a neat and workmanship like manner. No loose components or unsecured wires. All electrical components are covered inside an enclosure. |
| | No exposed copper or bare wire. |
| | 120VAC wiring is separated from the DC wiring. |
| | 120VAC wiring must be clearly identified from the DC and control voltages with signage and/or wire color schemes. If the color scheme is used, a key must be provided for identification. |
| | All wires entering and leaving the surface control station must have adequate strain relief and wire abrasion protection as the wires pass through the enclosure. |
| | All connectors utilized are properly rated for their application. AC only rated connectors cannot be used for DC. |
| * Properly sealed means that the wires cannot be exposed to water. Tape only sealing will allow the conduction of electricity through water. | |
| At minimum, joints must be soldered, sealed with a proper waterproof sealant, and covered in tape or shrink wrap. For in water taping, silicone self-vulcanizing tape is preferred over thermoplastic tape. Cables with exposed male connections on both ends are not allowed. | |

| 4.0. Pneumatic / Hydraulic (if applicable) | |
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| | Passed fluid power quiz. |
| | Pneumatic or hydraulic diagram (SID) present? |
| | Hydraulic fluid MSDS provided (if water is not used). Hydraulic fluid (other than water) has been approved by MATE ROV Competition Technical Manager. |
| | All pressure lines have a minimum pressure rating of 100 PSI (pneumatic) or 300 PSI (hydraulic) stamped on the line or verified with specifications. |
| | Valves meet the minimum pressure rating of 100 PSI (pneumatic) or 300 PSI (hydraulic) |
| | Attachment to the pressure source is secure. |
| | Pressure is regulated to: 40 PSI max for pneumatics 150 PSI max for hydraulics |
| | Pressure vessels have a stamped pressure rating or verification by inspection. |
| | Pressure vessels have a a current inspection sticker. |
| | Pressure vessels can be secured on the pool deck. |
| | Company fabricated pressure accumulator test results are provided (if used). |
| | No hydraulic fluids are leaking. |
| | Pneumatics utilize compressed air or inert gas. |

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|---|--------------------------|
| SAFETY INSPECTION #1 | PASSED: 30 POINTS |
| Failed: Items to correct noted on rear of this sheet. | |
| SAFETY INSPECTION #2 | PASSED: 20 POINTS |
| Failed: Items to correct noted on rear of this sheet. | |
| SAFETY INSPECTION #3 | PASSED: 10 POINTS |
| Failed: Reason / details are noted on rear of this sheet. | |
| Total Safety Points: | |
| On Site Inspection | |
| 0 to 30 points | |

Inspection #1: Items to address

Judge: _____

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Inspection #2: Items to address

Judge: _____

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Inspection #3: Reason

Judge: _____

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