



# **Job Safety Analysis (JSA)**

Lancer Lumineers 2023-2024

**Pasadena City College**

1570 E Colorado Blvd

Personal Protective Equipment/ Procedure
<p><b>General</b></p> <p>PPE</p> <ul style="list-style-type: none"> <li>- Closed toed shoes</li> <li>- Protective eyewear on location</li> <li>- Keep all ears open when safe</li> </ul> <p>Procedure</p> <ul style="list-style-type: none"> <li>- Keep walkways clean and clear</li> <li>- No running near pool</li> <li>- When picking up items bend at the knees and not the back</li> <li>- Have a spotter when moving things</li> <li>- Keep recovery equipment in the case of people falling in pool</li> </ul> <p><b>Mechanical</b></p> <p>PPE</p> <ul style="list-style-type: none"> <li>- Pants and tight clothing when operating machinery</li> <li>- Longer hair must be secured</li> <li>- Remove all jewelry</li> </ul> <p>Procedure</p> <ul style="list-style-type: none"> <li>- Generalized safety training for machine shop</li> <li>- Generalized tooling training</li> </ul> <p><b>Electrical</b></p> <p>Procedure</p> <ul style="list-style-type: none"> <li>- Depower completely before working on anything</li> <li>- Fans for soldering to keep all fumes out of face</li> <li>- General electrical safety training for all members working with electronics</li> <li>- Keep flammables away from soldering equipment and electronics</li> </ul>

**Main Deck Crew (Pilot, Co-pilot, Time Manager, Prop Manager, Tether Operator)**

Task	Job Step	Potential Hazards	Procedure or Correction	Responsible Personal
Unpacking	Initial Setup	<p>Potential to pinch or harm hands</p> <p>Potential for Bodily harm/ Strain</p>	<p>Follow generalized procedure for lifting</p> <p><b>Keep</b> walkways clear</p> <p><b>Ensure</b> everyone is alert and have clear audio and visuals</p> <p><b>DO NOT</b> touch the ROV when in operation unless cut power</p>	Main Deck Crew

<b>Plug in the power source</b>	<b>Initial Setup</b>	<b>Electrocution</b>	<p><b>Keep</b> anything with power running through it clear of any debris so people can spot it easily</p> <p><b>Maintain</b> awareness of locations of power components</p> <p><b>Place</b> power components on stable, flat locations.</p> <p><b>Place</b> the power box on an elevated clear area so people can spot it</p> <p><b>Keep</b> an eye out for puddles of water or potential liquid spills</p> <p><b>Ensure</b> everyone is alert and have clear audio and visuals</p> <p><b>DO NOT</b> touch the ROV when in operation unless cut power</p>	<b>Pilot, Co-pilot, Time Manager</b>
<b>Connect Ethernet to computer</b>	<b>Initial Setup</b>	<b>Potential to Pinch fingers</b>	<p><b>Grab</b> ethernet by cable or middle/ end of head when plugging in rather than the front of it</p> <p><b>Ensure</b> everyone is alert and have clear audio and visuals</p> <p><b>DO NOT</b> touch the ROV when in operation unless cut power</p>	<b>Pilot, Co-pilot</b>
<b>Place strain relief</b>	<b>Initial Setup</b>	<p><b>Potential to pinch fingers</b></p> <p><b>Electrocution</b></p>	<p><b>Grab</b> the tether when securing a good distance away from the location of securement</p> <p><b>Keep</b> an eye out for any liquids on location and potential rips in the tether</p> <p><b>Ensure</b> everyone is alert and have clear audio and visuals</p> <p><b>DO NOT</b> touch the ROV when in operation unless cut power</p>	<b>Tether Operator</b>

<b>Test run water leaks</b>	<b>Initial Testing</b>	<b>Electrocution</b>	<p><b>Ensure</b> everyone is alert and have clear audio and visuals</p> <p><b>Make doubly</b> sure ROV is powered off when placing in water and retrieving for issues with water leaks</p> <p><b>Be</b> aware of general lifting procedure</p> <p><b>DO NOT</b> touch the ROV when in operation unless cut power</p>	<b>Prop Manager, Time Manager</b>
<b>Power up roV and run code</b>	<b>Initial Testing</b>	<b>Electrocution</b>	<p><b>Be</b> aware when exactly the ROV is powered up and when it is powered down</p> <p><b>Ensure</b> everyone is alert and have clear audio and visuals</p> <p><b>Keep</b> a wide clear area for the checks</p> <p><b>DO NOT</b> touch the ROV when in operation unless cut power</p>	<b>Pilot, Co-pilot, Time Manager, Prop Manager</b>
<b>Check Thrusters individually (on land)</b>	<b>Initial Testing</b>	<p><b>General Bodily injury</b></p> <p><b>Electrocution</b></p>	<p><b>Keep</b> a wide clear area for the checks</p> <p><b>Make</b> sure all electronics are turned off before working on anything</p> <p><b>Communicate</b> properly with all operators</p> <p><b>Make</b> sure all controllers are disconnected/ turned off when working on thrusters</p> <p><b>Ensure</b> everyone is alert and have clear audio and visuals</p> <p><b>DO NOT</b> touch the ROV when in operation unless cut power</p>	<b>Pilot, Co-pilot, Time Manager, Prop Manager</b>
<b>Rotate claw</b>	<b>Initial Testing</b>	<p><b>Electrocution</b></p> <p><b>General Bodily</b></p>	<p><b>Keep</b> a wide clear area for the checks</p> <p><b>Disconnect/ Turn off</b></p>	<b>Pilot, Co-pilot, Time</b>

		<b>Injury</b>	controller when working on claw <b>Ensure</b> everyone is alert and have clear audio and visuals <b>DO NOT</b> touch the ROV when in operation unless cut power	<b>Manager, Prop Manager</b>
<b>Place in water</b>	<b>Beginning Operations</b>	<b>Electrocution</b> <b>General Bodily injury</b> <b>Drowning</b>	<b>Keep</b> an eye out for any debris <b>Keep</b> safety equipment nearby <b>Ensure</b> everyone is alert and have clear audio and visuals <b>Keep</b> in mind general lifting procedure <b>DO NOT</b> touch the ROV when in operation unless cut power	<b>Main Deck Crew</b>
<b>Grabbing ROV</b>	<b>In Operation/ Retrieval</b>	<b>Electrocution</b> <b>General Bodily injury</b> <b>Drowning</b>	<b>Cut</b> all power <b>Keep</b> safety equipment nearby <b>Ensure</b> everyone is alert and have clear audio and visuals <b>Keep</b> in mind general lifting procedure <b>DO NOT</b> touch the ROV when in operation unless cut power	<b>Tether Operator</b>
<b>Operating tether</b>	<b>In Operation</b>	<b>tripping/ slipping</b> <b>electrocution</b>	<b>Keep</b> safety equipment nearby <b>Ensure</b> everyone is alert and have clear audio and visuals <b>Have</b> someone managing the tether at all times <b>Keep</b> all portions of the tether not in water away from the walkway and close to the power source to avoid excess strain	<b>Tether Operator</b>

			<b>Keep</b> an eye out for rips or tears in tether and alert promptly if there are any	
<b>Power down</b>	<b>Striking</b>	<b>Electrocution</b>	<b>Cut</b> all power at source Be aware of when the power has been cut <b>Ensure</b> everyone is alert and have clear audio and visuals	<b>Pilot, Co-pilot, Time Manager</b>
<b>Disconnect</b>	<b>Striking</b>	<b>Electrocution</b> <b>Pinching fingers</b>	<b>Ensure</b> everyone is alert and have clear audio and visuals <b>Ensure</b> no one is working on ROV unless it is powered down <b>Ensure</b> everyone knows when the power is cut	<b>Main Deck Crew</b>
<b>Clean up</b>	<b>Striking</b>	<b>Tripping/ Slipping</b> <b>General Bodily harm</b> <b>Electrocution</b> <b>Drowning</b>	<b>Ensure</b> everyone is alert and have clear audio and visuals <b>Keep</b> safety equipment nearby <b>Keep</b> in mind general lifting procedure <b>Ensure</b> everyone knows when the power is cut	<b>Main Deck Crew</b>
<b>Grabbing Props</b>	<b>Striking</b>	<b>Tripping/ Slipping</b> <b>General Bodily harm</b> <b>Drowning</b>	<b>Ensure</b> everyone is alert and have clear audio and visuals <b>Keep</b> safety equipment nearby <b>Keep</b> in mind general lifting procedure <b>Have</b> at least one person watching the person grabbing props so they do not slip <b>Keep</b> an eye out for debris near edge and puddles of liquid	<b>Prop Manager</b>
<b>Place in bag</b>	<b>Striking</b>	<b>Tripping/</b>	<b>Ensure</b> everyone is alert	<b>Tether</b>

		<b>Slipping</b> <b>General Bodily harm</b>	and have clear audio and visuals <b>Keep</b> in mind general lifting procedure <b>Work</b> carefully and slowly so no appendages or fingers are caught in anything when placing items back in the bag <b>Keep</b> an eye out from any liquids	<b>Operator</b>
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