

Job Safety Analysis

Uprising – Strive for the best ROV



General ROV Development

Task	Hazards	Control
Soldering circuit board and other electronic components	Chemical inhalation	Perform work under a fume hood or in a well-ventilated area
	Fire Hazard	Make sure soldering switch off when not use
	Skin Burn	Ensure place soldering iron on its holder after each use
Using heavy machinery and power tools	Hearing damage	Wear earmuffs to prevent noise-induced hearing loss
	Flesh wound	Touch heavy machineries if and only if they are completely stopped
	Respiratory irritation and damage	Wear mask to prevent breathe any matter's particles.
	Eye injury	Wear safety goggles to prevent flying debris from causing eye injury
Waterproofing electronic components	Chemical inhalation	Perform work under a fume hood or in a well-ventilated area
	Irritation	Wear protective gloves and safety goggles when using epoxy
Making buoyancy foam	Burns	Turn off the foam cutter when not in use

Onsite ROV Station Setup

Unpacking of ROV control panel	Back injury from lifting heavy loads	Use proper lifting techniques and share loads if possible
	Tripping over unpacking materials	Make sure the workplace is clean without litter, setup according to station design with clear duty division, keep an eye on the tether
	Toe and foot injury from dropping items	Ensure a tight hold on ROV before lifting it, wear shoes instead of bare foot
Carrying ROV to the pool side	Back injury from lifting heavy loads	Use proper lifting techniques and ask for helping hands if needed
	Tangled in tether	Keep tether in tight bundle to avoid dangling cable
	Toe and foot injury from dropping ROV	Ensure a tight hold on ROV before lifting it, wear shoes instead of bare foot
Connect power to ROV	Electroshock	Never handle with wet hands, keep electrical appliances dry, keep metal parts sealed in insulations
Connect supporting system to ROV	Trip over wires	Setup according to connection design with clear duty division, keep an eye on the wires
Dry system operation test	Electrical fire from damaged components	Inspect all hardware before test, run the propulsion system at low speed
	Poisonous smoke from electrical fire	Test under good ventilation condition
	Hands injury from accidental touch propeller blade	Warn before test to raise awareness, label all risk clearly on ROV
Wet system operation test	Electric shock	Check overall insulation and waterproofing elements, use fuse

Launching ROV in water	Back strain from improper gesture	Kneel down and keep back straight, avoid twisting, use proper lifting techniques and share loads if possible
	Wrist injury from lifting heavy	Use proper lifting techniques and share loads if possible
	Slipping and falling on pool side	Wear non-slippery shoes, stay low and keep body down
Transportation of ROV	Impact injury from being hit or running over by cart	Keep the way clean and drive slow, beware of people suddenly come from other direction
	Tripping on tether or transportation item falling from cart	Tie things up on the cart to avoid fallen objects, keep an eye on the tether
Setting up the air pump	Over-pressurized air pump	Constantly check the pressure reading to ensure that it is keep at a safe level of about 2.75 bars.
Retrieval		
Removing ROV from water	Back strain from improper gesture	Always have at least two people pull ROV out of the water, kneel down to ensure one neither over-stretches or bends down too far
Removing air pump	Explosion due to high pressure inside air pump	Release all the gas before remove
Transporting the ROV	Impact injury from being hit or running over by cart	Keep the way clean and drive slow, beware of people suddenly come from other direction
Required Personal Protection and Trainings		
Required Personal Protection Equipment	Non-slippery close-toed shoes, gas masks, noise-blocking earmuffs, safety gloves and glasses	
Required Trainings	IC Safety Training	