

Engine Quits - Flat Water

Go Back to Hazard Summary

Warning Signs and Symptoms

- Engine Acting Erratically
- Hard Starting
- Poor Idle Characteristics
- No Water Pump Indication Stream
- Warning Horn for Low or No Oil
- Low Fuel Level

Causes

- Bad or Old Gas, No Oil to Motor, Fuel Restriction, Electrical or Mechanical Problem In System

Potential Effects

- Stranded In Boat, Non Reliable Boat Operation

Mitigation

- Use of Boat Preparation Checklist
- Boat Motor Maintained As Per Manufacturer's Specification
- Use of Fuel Stabilizer in Fuel
- Basic Tools Carried on Board Boat - Spare Fuse
- External Fuel Tank Carried on Boat
- Marine Radio on Boat
- Boats Used in Pair for Out of Area Use
- Paddles Carried on Boat
- Tow Kit Carried on Boat
- Training on Boat Towing
- Rowing Training
- Distress Signals Carried on Boat
- Mechanic Training for Specialized Personnel Training
- Basic Mechanic Training for Full Team

Tasks Needed

- Finalize Boat Preparation Checklist
- Finish Motor Maintenance / Log Book
- Spares in Box on Motor
- Checklists on Boat

Engine Quits - White Water

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Warning Signs and Symptoms

- Engine Acting Erratically
- Hard Starting
- Poor Idle Characteristics
- No Water Pump Indication Stream
- Warning Horn for Low or No Oil

Causes

- Bad or Old Gas, No Oil to Motor, Fuel Restriction,
Electrical or Mechanical Problem In System

Potential Effects

- Loss of Control, Boat Wrapped, Boat Wrapped, Boat Flipped

Mitigation

- Use of Boat Preparation Checklist
- Boat Motor Maintained As Per Manufacturer's Specification
- Use of Fuel Stabilizer in Fuel
- Paddling Training in White Water Conditions
- Downstream Safety
- Marine Radio on Boat
- Contingency Plan for Motor Failure During Safety Brief
- Paddles Carried on Boat
- Scout Out Swiftwater Area Before Boat Operations
- Motor Out Drills - Motor Up, Paddles in Water
- Rowing Training
- Mechanic Training for Specialized Personnel Training
- Basic Mechanic Training for Full Team

Tasks Needed

- Finalize Boat Preparation Checklist
- Finish Motor Maintenance / Log Book
- Motor Out Drills

Motor Doesn't Shut Off

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Warning Signs and Symptoms

Engine Keeps Running After Key to Engine Off

Causes

Poor Or Missing Electrical Connections

Potential Effects

Loss of Lanyard Safety for Operation Thrown Overboard, Motor Damage Due to Inappropriate Shutdown

Mitigation

Test of Lanyard System During Engine Flushing

Boat Motor Maintained As Per Manufacturer's Specification

Test of Key Switch During Engine Flushing

Preferred - Key in Or Chock to Prime Motor During Idle to Flood and Shut Down Motor

Mechanic Capability - Ground Out Power Pack

Mechanic Capability - Disconnect Spark Plug Wires

Disconnect Fuel Supply (Mechanic to Restart Motor, Oil Will Pool In Carburetors)

Chock Off Motor Air Supply

Tasks Needed

Finalize Boat Preparation Checklist

Finish Motor Maintenance / Log Book

Basic Mechanic Training for Personnel

Fire on Deck

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Warning Signs and Symptoms

- Flammable Liquid On Deck

- Sparking or Flammable Source

Causes

- Ignition Source With Presence of Flammable Source

Potential Effects

- Burned Team Members, Stranded Boat, Explosion

Mitigation

- Engine Equipped With Blower System

- Boat Motor Maintained As Per Manufacturer's Specification

- Battery Shutoff Switch Near Battery Source

- Fuel Lines Connected As Per Coast Guards Standard

- Fire Extinguisher On Boat

- External Tank Removable From Boat

- Limit Flammable Materials on Boat

- Clean Deck Regularly

- Internal Fuel Tanks Aluminum and Installed As Per Manufacture Standard

- Shut Off Motor During Fire

- Fuel Lines Certified to USCG Standards

- Battery Shutoff Switch

Tasks Needed

- Drill on Fire on Boat

Steering System Failure

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Warning Signs and Symptoms

- Loose Steering

- Sticky Steering

- Lack of Maintenance on Steering System

- Missing Steering Linkages

Causes

- Linkage Failure Connection or Frozen Steering System

Potential Effects

- Loss of Control of Steering System

Mitigation

- Regular Lubrication of Steering System as Per Manufacturer Spec

- Boat Motor Maintained As Per Manufacturer's Specification

- Steering System Hookup As Per Manufacturer Specification

- Regular Testing and Inspection of Steering System

- Driver Training

- Shutdown of Motor With Steering Failure, Use Paddles

- Check Sheet Inspection Item of Steering System

- Maintain Separation Distance Between Boats

- Plan for Extra Room During Maneuvering Training (Peel and J Turns)

Tasks Needed

- Steering Failure Drill for Driver

Motor Locked in Up or Down Post

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Warning Signs and Symptoms

- Rubbing of Lock Mechanism

- Motor Doesn't Lock Down Into Position Well

- Lack of Maintenance on Steering System

Causes

- Bent Lock Mechanism, Missing Parts or Lack of Lubrication

Potential Effects

- Non-deployable Asset, Unable to Retrieve Boat, Not Able to Conduct Shallow

- Water Missions

Mitigation

- Regular Lubrication of Lock Mechanism as Per Manufacturer Spec

- Boat Motor Maintained As Per Manufacturer's Specification

- Remove Lock Bar to Raise Locked Motor (Engine Off)

- Bend Locking Switch To Allow To Go into Down Position

Tasks Needed

Leak in Hull

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Warning Signs and Symptoms

- Water in Hull at Take-Out
- Loose Fitting of Through Hull Hardware
- Boat Riding Low or Bow Up in Water
- Impact With Object
- Enough Water in Bilge to Run Bilge Pump

Causes

- Hole Water Can Seep Through

Potential Effects

- Loss of Asses, Slow Speed Only Operations, Boat Sinks, Boat Stranded

Mitigation

- Large Bilge Pumps Installed in Hull
- Inflatable Section Surrounding Hull - Hard to Sink
- Inspection of Hull During Washdown / Takeout
- Shallow Water Operation Techniques
- Unlocking Motor During Shallow Water Driving (Impact Not Carried Fully To Transom)
- Use of Sealant for All Through Hull Hardware
- Two Boat Techniques for Out of Area Operations
- Marine VHF Radios on Board
- Materials on Board for Damage Control (Clothing, Life Jackets, ...)
- Damage Control Training With USCG

Tasks Needed

- Damage Control Drill and Item Check in Bow Bags

Leak in Inflatable Section

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Warning Signs and Symptoms

- Loss of Air in Inflatable Sections During Storage / Operations
- Hissing Sound Near Valves
- Bubbles During Leak Test With Soapy Water
- Impact With Sharp Object Tearing Section

Causes

- Hole in Bladder Section of Sponson, Bad Valve

Potential Effects

- Destabilization of Boat, Loss of Air Pressure Resulting in Dragging Area, Loss of Boat

Mitigation

- Tough External Sponson Material Protecting Bladders
- Predeployment Check of Sponsons
- Bladders Pressure Bled Off Slightly During Storage
- Driver Practice For Boat Handling
- Repair of Sponsons / Bladders As Needed - Commercial Patching Materials
- Spare Bladder Available At Base
- Side to Side Towing Capability
- Marine VHF Radios on Board
- Emergency Repair (DUCT Tape)
- Manual Air Pump and Hose on Boat

Tasks Needed

- Side to Side Towing Training
- Manual Air Pump and Hose on Boat

Motor Will Not Start

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Warning Signs and Symptoms

- Poor Starting

- Poor Idle Qualities

- Erratic Motor Performance

- Missing Lanyard

Causes

- Electrical Starting Circuit Failure, Fuel Problem, Motor Failure, Dead Battery

Potential Effects

- Unable to Accomplish Mission, Dead in Water

Mitigation

- Motor Maintained as Per Manufacturer Specification

- Motor Started and Warm Before Leave Launch Area

- Spare Fuse for Motor

- Spare Boat Battery Available for Large Boats

- Advanced Mechanic Training for Team Member

- Basic Mechanic Training for Team Members

- Towing Training

- Marine VHF Radios on Board

- Flathead Screwdriver or Dive Knife Available for Timing Adjustment - Mechanic Skill

- Fuel Stabilizer Used

- Checksheet on Motor Starting

- Motor Test During Motor Flushing

- Paddle Skills and Paddles on Boats

- Spare Gas Tank on Boat When On Long Range Missions

Tasks Needed

- Spare Fuse for Motor

- More Mechanic Training

Fuel Vapor in Bilge Explodes

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Warning Signs and Symptoms

- Gas Smell in Bilge

- Fluid in Bilge

- Ignition Source On Boat in Bilge

Causes

- Fuel Vapor Ignites and Explodes

Potential Effects

- Death, Destruction of Boat

Mitigation

- Boat Meets USCG Requirements

- Predeployment Check of Bilge for Smell, Fluids

- Run Blower 4 Minutes Before Starting Motor

- New Gas Tanks Installed in Boats

- Advanced Mechanic Training for Team Member

- Store Boat On Trailer With Bilge Plug Out - No Fume Buildup

- Maintain Fuel Tank Wiring and Bilge Wiring in Hull

- Ground Fuel Tank Fill and fuel Tank

Tasks Needed

Out of Gas

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Warning Signs and Symptoms

- Broken Gas Gauge

- Low Fuel Level

- Poor Planning for Fuel Consumption

- Poor Navigation

- Lack of Spare Gas Tank

Causes

- Out of Gas

Potential Effects

- Stranded, Unable to Complete Mission

Mitigation

- Large Gas Tank in Boats - 18 Gallon On Large Boats

- Full Tank When Startup - Checklist Item to Refill on Return to Base

- Mission Planning for Fuel Consumption

- Spare Fuel Tank (Gas in Spare Fuel Tank, Oil for Premix Available)

- Return With Main Tank With Fuel (1/4 Level for Extended)

- Record Fuel Amount Taken When Fillup

- Siphon Hose in Bow Bag

Tasks Needed

- Siphon Hose in Bow Bag

- Fuel Consumption Amount at Different RPM

Failed U Bolt During Boat Lift

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Warning Signs and Symptoms

- Twisted U Bolts
- Cracked Fiberglass Around U Bolt
- Deformation During Pickup
- Overloading Boat During Lift

Causes

- U Bolt Ripped Out or Break During Lift

Potential Effects

- Loss of Boat, Shock Load to Jib Crane

Mitigation

- Backing Plates on U Bolts
- Stress Analysis on Fiberglass and U Bolts
- Slowly Raising Boat From Trailer / Water
- No Personnel In Or Under Boat
- Test Boat Lift From Safe Height / Location
- Weight Boats

Tasks Needed

- Check Backing Plates
- Check Fiberglass Material Around Front Bolts
- Stress Analysis On U Bolts
- Checklist on Using Jib Crane With Boats
- Weight Boats