

## SOP-EMMA-001 Critical Equipment

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### 1.0 Purpose

Chapter 10 “Maintenance of Ships and Equipment” establishes the definitions of critical and standby critical equipment and sets forth the guidelines that will ensure all this equipment on our vessels is identified and maintained in readiness at all times.

This SOP lists the critical systems, equipment, standby critical equipment, and recommended spares specific to the R/V Emma McCall.

### 2.0 Critical Systems and Equipment

The Company recognizes the importance of all vessel equipment, but has identified the following systems as critical for the R/V Emma McCall:

Systems: Subsystems	Recommended Spares
Ship’s Hull: Hull Internal bulkheads Watertight doors	1 Damage control kit
Electrical Generation Plant Main generators: Two 3306 Caterpillar Main switchboard panel Electronic Governor batteries	2 Cylinder heads 6 Pistons 1 Fuel Pump 1 starter each 1 Pump, Water 2 Pump, Fuel, Transfer 6 Injector, Fuel 6 Line, Fuel Injector 1 Sensor, Speed 1 Sensor, Pressure, Oil 1 Sensor, Pressure, Fuel 1 Sensor, Temperature, Oil 1 Sensor, Temperature, Coolant 1 Voltage Regulator, Automatic

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Propulsion Main engines: Two 3508 Caterpillar Electronic Engines	1 Spare water pump 2 Spare fuel pump 1 Injectors set 1 Pump, Water 1 Pump, Aux Water 1 Pump, Fuel Transfer 8 Injector, Fuel 1 Tube, Injector 1 Sensor, Speed 1 Sensor, Pressure, Oil 1 Sensor, Pressure, Fuel 1 Sensor, Temperature, Oil 1 Sensor, Temperature, Coolant 1 Regulator, Temperature 1 Starter, Pneumatic
Steering Gear Two Steering pumps/ Vickers	1 Solenoids set 1 Packing, Main Propulsion Shaft

### 3.0 Standby Critical Equipment

Air Compressors	Recommended Spares
Pressure Tanks	Filters, compressor oil 1 Unloader, Pneumatic, Air Compressor 1 Unloader, Hydraulic, Air Compressor 4 filters 5 gallons comp oil
Electrical Supply	none

Lifesaving Appliances	Recommended Spares
Life rafts & Life vests	

Firefighting Apparatus	Recommended Spares
Fire pumps, Smoke Alarms / Detectors Gas Detectors	

Communications	Redundancy (no spares)
VHF Radios General Alarm	Multiple units and portables, VSAT, Single side band Ship's PA, whistle, horn

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Ship's whistle/ horn	Portable, manual horns
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<b>Navigation</b>	<b>Recommended Spares</b>
Radar, Satellite Compass, GPS	Redundancy in place

<b>Bilge Systems</b>	<b>Recommended Spares</b>
Ballast pump	redundancy with fire and ballast pumps
Bilge alarm - Engine Room, Bow Thruster	Float switches for all locations
Bilge pump #1 and #2	redundancy with fire and ballast pumps Mechanical Seal, Bilge Pump
Oily Water Separator	Solenoids

<b>Ship Security Surveillance and Warning system</b>	<b>Recommended Spares</b>
Cameras	Four (4) Spare Cameras and connections

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#### 4.0 Maintenance

General maintenance procedures established to ensure their reliability are recorded in the computer-based maintenance program.

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