SOP-PRT-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 Proteus.

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 Proteus:

Systems: subsystems	**Recommended Spares**
Ship's Hull: Hull, Internal bulkheads Watertight doors	1 Damage control kit
Electrical Generation Plant Main generators: One 210kw Generator 3406 Caterpillar One 175kw Generator C-9 Caterpillar Main switchboard panel **** John Deere deck generator listed in standby critical equipment can handle full vessel load should a main generator go down**	1 Cylinder head 1 Piston 1 Fuel Nozzle sets 1 Automatic Voltage Regulator (AVR) 1 Water pump 1 Wire harness (for C-9) Electric Starter Fuel Pump Turbo Charger Pick-Up sensor

	Belt Serpentine
Propulsion Main engines: Two Caterpillar D-398	1 Water pump 1 Fuel pump 1 Complete Turbocharger 1 Turbocharger cartridge 1 Turbocharger housing 1 Fuel nozzle set (12 nozzles) Cylinder Head
Steering Gear Two Steering pumps/ Vickers	1 Vickers Solenoids set Shaft Packing Gland 1” Rudder Packing gland 1”
Air Compressors	**Recommended Spares**
Pressure Tanks – Two (2) Quincy	6 Filters Compressor oil 5 gals
Electrical Supply	none

3.0 Standby Critical Equipment

Electrical Generators	**Recommended Spares**
Standby Generators: One Yanmar 75Kw One John Deere deck generator 160 kw	1 Injector set 1 Fuel pump 1 Electric starter

Propulsion	**Recommended Spares**
Throttle controls	4 steering relays 4 clutch relays 4 control diaphragms

Lifesaving Appliances	**Recommended Spares**
Life rafts Life vests	

Firefighting Apparatus	**Recommended Spares**
Fire pumps Flame detector Fixed fire extinguisher system Fire detection alarm panel	

Communications	Redundancy (no spares)
GMDSS VHF Radios General Alarm Ship's whistle/ horn	EPIRB, VSAT, SART Multiple units and portables, VSAT, Single side band Ship's PA, whistle, horn Portable, manual horns

Navigation	Recommended Spares
Radar Gyro GPS	Redundancy in place

Bilge Systems	Recommended Spares
Ballast pump	redundancy with fire and ballast pumps
Bilge alarm - Engine Room and Engine Room Passageway, #5 P/S Storage Tanks, MSD Room, A/C Room, Steering Gear	Float switches for all bilge locations
Bilge pump #1 and #2	redundancy with fire and ballast pumps
Oily Water Separator	2 Solenoids 1 Screw pump

Ship Security Surveillance Warning system	Recommended Spares
Cameras	4 spare cameras 4 spare camera connections

4.0 Maintenance

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