

## SOP-PRT-003 Auxiliary Plant Operations

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### 1.0 Introduction

This Standard Operating Procedure (SOP) describes the vessel’s auxiliary mechanical systems and their basic operations. Details of auxiliary system operations are detailed in the manufacturer’s manuals. The following list of systems is identified as auxiliary on board the R/V Proteus.

- Fuel oil transfer pump
- Engine room ventilation fan
- Air compressors
- Air condition system
- Bow thruster
- Generator

### 2.0 Responsibility

The Chief Engineer is responsible for the operation, inspection and maintenance of all auxiliary systems. The Chief Engineer will delegate various inspection and maintenance duties to the engineering staff.

### 3.0 Procedures

Brief operating instructions for auxiliary plant systems are as follows.

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### 3.1 Fuel Oil Transfer Pump (FOTP)

#### Start Up

(All F.O. transferred to Day Tanks go through the centrifuge)

- Take soundings on each tank involved in operation
- Open the appropriate valves on the fuel oil manifold
- Press start button on the FOTP
- Continuously monitor each tank by soundings
- To fill the starboard side day tank
  - Take sounding on each tank involved in operation
  - Utilize sight glass on day tank
  - Open appropriate valves on the fuel oil manifold
  - Monitor each tank by sounding he sight glass on day tank
- Once the desired amount of fuel has been transferred, secure the system and shut down the FOTP. Do NOT exceed 85% Tank Capacity

#### Shut Down

- Press stop button on FOTP
- Secure all valves opened at fuel oil manifold
- Record in appropriate engineering logs and fuel oil logs

### 3.2 Engine Room Ventilation Fans - Port and Starboard

#### Start Up

- Ensure that the main breaker in the main switch board is turned on (closed)
- Switch on the local control panel
- On the main switch board

#### Shut Down

- Switch off on blower control boxes in engine room
- Emergency Shut Off located at Main Deck Accommodation Entrance

### 3.3 Air Compressors #1 and 2, Drain water from air tanks

#### Start Up

- Set local control box switch to on
- Work in auto mode
  - Pressure switches regulate tank pressure

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Shut Down

- Set local control box switch to off

**3.4 Air Conditioning System**

**3.4.1 Scientific Room, Office, Navigation Room, Captain’s Cabin, Hospital, Meeting Room**

Start Up

- Ensure all service valves are open (Pump Suction-Delivery-Condenser inlet-outlet)
- Start the Seawater Condenser Pump
- Switch On the breaker on the A/C units (A/C Room)
- Start the A/C thermostat on each area and set the temp

Shut Down

- Turn off the A/C in each area
- Switch Off the breaker on the A/C units (A/C Room)
- Turn Off the SeaWater Condenser Pump
- Close all valves

**3.4.2 Crew Cabins A/C (Second Deck)**

Start Up:

- Switch On the breaker on the A/C unit (Second Deck)
- Switch On the fan on the A/C unit (Second Deck)
- Start the A/C in Chief Engineer’s cabin and set temp

Shut Down:

- Turn Off the A/C in Chief Engineer’s cabin
- Switch Off the fan breaker on the A/C unit (2nd Deck)
- Switch Off the A/C unit breaker on the A/C unit (2<sup>nd</sup> Deck)

**3.4.3 Galley Area A/C (Main Deck)**

Start Up:

- Switch On the panel of A/C unit (Galley)
- Turn on the A/X Unit on the Galley and set temp

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Shut Down:

- Turn Off the A/C unit in the Galley
- Switch Off the A/C box of A/C unit in Galley

### 3.5 Bow Thruster

Start Up

- Check oil level in crankcase, reduction gear, propulsion gear, propulsion unit (Expansion Tank)
- Check water level of expansion tank
- Make sure fuel valve is in open position
- Make sure air starting valve is open
- Drain the Air Reservoir and check the air pressure
- Put the handle on starting position
- Push the air starting valve
- Check the pressure of oil & fuel oil

Shut Down

- Push back the governor handle until the engine stops
- Close air valves

### 3.6 Generators

#### 3.6.1 A/E #1 Cat 3406

Start Up

- Check oil level in crankcase
- Check water level of expansion tank
- Make sure fuel valve are in open position
- Put Lube Oil Pressure Stop in Run position
- Put the Governor Handle on Idle Starting Position
- Push the Start Button
- Increase the Engine RPM to 1850
- Check the Voltage on MSB main switch board
- Close breaker on the MSB

Shut Down

- Open the breaker on the MSB
- Reduce RPM to 1200

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- Pull the L.O. Low Pressure Stop Device until the engine stops

### 3.6.2 A/E #2 C-9

#### Start Up

- Check crankcase oil level
- Check the water level in expansion tank
- Turn the key to starting position until the generator starts and then release
- Increase speed to 1800 RPM
- Check the MSB for Hz and voltage
- Close the switch on MSB

#### Shut Down

- Open the switch in MSB
- Reduce RPM to 1200
- Turn key to Stop position until generator stops and release

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