OCN 7.5.4 R/V Oceanus Auxiliary Plant Operation

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1. Purpose

The purpose of this procedure is to set forth general instructions for the operation of the auxiliary plant on R/V Oceanus.

2. Responsibilities

It is the responsibility of the Chief Engineer to ensure the auxiliary systems that make up the auxiliary plant operate properly. The Chief Engineer has designated the maintenances duties to various positions within the engine department.

3. General

Ship's Service Generators:

Oceanus has two KATO 325KW Ship Service Generators driven by Caterpillar D353 Diesel engines. Both generators are run in parallel in restricted maneuvering situations. Once underway and outside of restricted waters, one generator is sufficient to provide both hotel and science operations load. At this point, generator sets are rotated to maintain even running hours and to allow for maintenance.

Warm up/Parallel Procedures

Engines are generally started ½ hour prior to use to allow for a proper warm-up period and to assess if there are any problems prior to use.

For Parallel Operations, refer to Federal Pacific Electric Company Book #D-73-1273

Emergency Generator:

The emergency electrical power system consists of a John Deere 6068 Diesel Generator set (60KW), starting system, emergency switchboard and distribution system. The emergency generator is set for Auto Stand-by while at sea, which senses the main bus (Normal Power). If power is lost, the emergency generator will start up and power the emergency switchboard through an Auto-Transfer breaker.

For Operations: See OCN 08.7

Air Compressors
Oceanus has 2 ship service air compressors. A Quincy Model 350 and a Quincy Model 325. The emergency switchboard powers the Quincy Model 350 unit. Both units are pressure operated to cut in when air receivers are at 150 PSI and to cut out when receivers are at 175 PSI. Oceanus has three air receivers; two for starting air for the main engine and ship service generators and one control air receiver for the throttles, clutches, CP unit, ozone and general service air. The control air circuit is run through an air dryer and reducing station that regulates air pressure down to 125 PSI.

Bilge and Ballast Pump
Oceanus has 1 bilge/ballast pump fed from the emergency bus. The pump is piped for bilge or ballast operations.

Oceanus has eight defined bilge suction valves on the bilge manifolds (fwd/aft) in the engine room. (PBI Drawing #9250-545-1 Sheet # 10) Oceanus has five pairs of ballast tanks and one forepeak tank on the ballast manifold in the engine room

The bilge and ballast system has a duplex strainer on the suction side of pump and a ballast meter on the discharge side.

For operations: See OCN 07.5.9

Fire Pump
Oceanus has two pumps capable of feeding fire main PBI drawing #9250-545 Sheet # 10. The fire pump is powered by the emergency switchboard and a general service pump of equal capacity is powered by the main switchboard. Pumps both have duplex strainers and are piped to feed the fire main and the general service systems. Pumps are rotated evenly to provide dependability and even running hours. During fire drills when fire party is operating hoses on deck, the engineer monitors and controls fire main pressure to assure optimum pressure.

Steering Gear
Oceanus has a Wagner Model L-2 steering gear using a mechanical/hydraulic follow-up system. The functions are detailed in write-up P-1191 in Wagner manual. Oceanus has two hydraulic steering pumps. Both pumps are set for remote control enabling the bridge to control the steering system. The pumps are powered up and warmed up by the bridge prior to departure. The system is also tested in port before departure by the

bridge watch and an engineer in the steering room. The test includes both pumps individually and together and all functions and stations are tested. The pumps are rotated to assure dependability and even running hours.

For Operations, refer to Wm E. Hough Company Book # P1191.

For Emergency Operations: See OCN 07.5.11

4. Reporting

Changes in machinery status are logged in the engineer's logbook.