

# MANAGEMENT SYSTEM MANUAL

# ATL 8.7 R/V Atlantis Testing and Running of the Emergency Generator

Originator:	Approved By:
Kevin Fisk	Joe Coburn

#### 1. Purpose

The purpose is to set forth general instructions for the operations of the CATERPILLAR 3406 Emergency Generator installed on ATLANTIS.

## 2. Responsibility

It is the responsibility of the Chief Engineer to maintain guidelines for operating the Emergency Generator. It is also the responsibility of the Chief Engineer to ensure the Emergency Generator is fully functional and tested as per USCG requirements

## 3. References

- a) R/V ATLANTIS Engineering Department Standard Operating Policies and Procedure (located in MCS)
- b) USCG requirements

## 4. General

The Emergency Generator is to be operated without an electrical load (unloaded) for no less than one hour per week, and electrically loaded (with a load) for a minimum no less than 2- hours per month as per USCG 196.15-30.

## 5. Reporting

The testing and general condition of the Emergency Generator is to be recorded in the "official" Engine Room and Bridge logbooks. In addition, an entry must be made in SAFENET.



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# EMERGENCY GENERATOR OPERATING AND TESTING PROCEDURE

# Normal Operation

- 1. Fuel Supply and Return valves are open.
- 2. "Engine Mode Selector Switch" is in the "AUTO" position.
- 3. "Emergency Generator Mode Selector Switch" is in the "NORMAL" position.

# Testing Procedures for the Emergency Generator No-Load Running

1. Place the Emergency generator Mode Selector Switch from "Auto" to "Manual". This will start the generator, bring it up to speed, but will not open the bus-tie breaker or close the generator circuit breaker.

Note: Normal opening time for the ventilation louvers is approximately 3 minutes.

After finishing with no-load run test, place the engine mode selector switch in the "Off" position (This will stop the engine after about 15 seconds). Then place the Engine Mode Selector Switch into the "Auto" position. Note: Normal closing time for ventilation louvers is around 5 seconds.

# Simulation of Load Loss from Main 480-Volt Switchboard.

- 1. Simulation "A":
  - a. Place Emergency generator mode selector switch in the "TEST" position.
  - b. This will trip the emergency generator switchboard bus-tie breaker. When the engine starts and comes up to speed, the generator breaker closes and feeds the Emergency bus and switchboard.
- 2. Simulation "B":
  - a. At the 480 Volt Switchboard, trip breaker # P409 (Emergency Switchboard) to simulate loss of normal power to the emergency switchboard.



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b. This will cause an under voltage trip, which in turn will cause the emergency switchboard bus-tie breaker to open. The generator will start and come up to speed. The generator circuit breaker will close, feeding the emergency bus and switchboard.

# Securing after "Loss of Load" Test

- 1. Simulation "A"
  - a. Place the Engine mode selector switch from the "Auto" position into the "Manual" position.
  - b. Open the Emergency Generator Circuit Breaker.
  - c. Recharge and close the 480-Volt bus-tie circuit breaker at the emergency generator switchboard. This will reapply normal power to the Emergency Switchboard.
  - d. At the emergency generator switchboard, place the engine mode selector switch from the "Manual" position to the "Off" position, (after approximately 15 seconds engine will stop).
  - e. Move the Engine Mode Selector Switch back into "AUTO" position.
  - f. Move the Emergency Generator Mode Selector Switch back to the "Normal" position.

## Simulation "B"

- 1. Close the circuit breaker P409 on 480-Volt Section in switchboard room. This will reestablish normal power to the supply side of the Emergency Switchboard Bus- Tie breaker.
- 2. At the emergency generator switchboard, place the engine mode selector switch in the "Manual" position.
- 3. Open the Emergency Generator Circuit Breaker on the emergency generator switchboard.
- 4. Charge and close the Emergency Switchboard Bus-Tie Breaker, reapplying normal power to the Emergency Switchboard.
- 5. At the emergency generator switchboard, place the engine mode selector switch from the "Manual" position to the "Off" position, (after approximately 15 seconds engine will stop).
- 6. Move the Engine Mode Selector Switch back into "AUTO" position.
- 7. Move the Emergency Generator Mode Selector Switch back to "Normal" position.