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MC-15

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EMERGENCY DIESEL GENERATORS

1.0 PURPOSE

To provide instructions to Station Operating Personnel for proper operation of the Emergency Diesel Generators and their associated auxiliaries.

2.0 RESPONSIBILITY

The Operating Engineer shall be responsible for ensuring the proper implementation of this procedure.

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INFORMATION COPY

3.0 DISCUSSION

3.1 Three completely independent emergency diesel generator (EDG) provide reliable onsite emergency power to vital equipment in the event offsite power is lost. During normal station operations, the units are shutdown and in a standby mode and will automatically start if any of the following conditions:

1. Undervoltage on respective 4160 V emergency bus
2. High drywell pressure (+1.69 psig)
3. Low reactor water level (-132.5", level 1)

3.2 Should a diesel generator start as a result of a sustained undervoltage condition on an emergency bus, and a transfer to the RSST is unsuccessful, the diesel generator supply breaker 1R22*ACB-101-8 (102-8 or 103-8) will close as soon as the generator voltage is above 90% of rated.

3.3 If the units start as a result of either condition 2 or 3 in paragraph 3.1 above, the diesel generator breaker will not close automatically, unless accompanied by a loss of offsite power.

3.4 Each emergency diesel generator is protected by the following trips:

*1. Reverse power
*2. Loss of excitation
3. Overcurrent
4. Generator phase differential
*5. Lube oil low pressure
*6. Lube oil high temperature
*7. Turbo oil low pressure
*8. Jacket water high temperature
*9. Crankcase high pressure
10. Overspeed

* Trips are bypassed when the emergency diesel generator is operating in response to an accident condition.

3.5 Failure of EDG 101 (102, 103) to achieve a speed greater than 400 RPM in less than 25 seconds after a start signal will cause relay K1 (run relay) to drop out, locking out breaker 1R22*ACB-101-8 (102-8, 103-8). This relay will also cause breaker 1R22*ACB-101-8 (102-8, 103-8) to trip and lockout if the speed of the machine drops below 400 RPM for 25 seconds after the EDG output breaker has closed. The relay is automatically re-energized when a loss of voltage or LOCA signal is present and the diesel speed is less than 100 RPM or when the manual start button is depressed.

3.6 The low voltage protection for the emergency switchgear is bypassed when the emergency diesel generator is operating in parallel with offsite power. If the NSST (RSST) is supplying less than 1600 amps to the 4160V normal switchgear, then loss of offsite power could cause the emergency

diesel generator to pick up the normal bus loads without the directional trip of the 1R22*ACB101-1 or 101-2 (102-1, 102-2, 103-1, 103-2) breaker actuating.

3.7 The following topics are contained in this procedure:

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NOTE: 1. All equipment component identification numbers are preceded by the system number 1R43, unless specified otherwise.

2. All Main Control Room control panel component identification numbers are preceded by the system number 1H11 unless specified otherwise.

4.0 PRECAUTIONS

4.1 Ear protection should be worn by personnel in the diesel generator room during diesel operation.

4.2 When manually starting a diesel generator for testing from the Main Control Room, an operator should be stationed in the diesel generator room to monitor operation of diesel and auxiliary equipment.

4.3 Sustained operation of the diesel generator in the range of 250 to 400 rpm (critical speed) should be avoided.

4.4 Ensure that when the diesel engine is being barred, the mode selector switch at the diesel control panel *PNL-DG1 (2,3) is in LOCKOUT.

4.5 A sudden increase in lubricating oil temperature and amount of vapor from the crankcase ventilating discharge can indicate some overheated internal part of the engine. This could signal an approaching piston seizure and a possible crankcase explosion. A sudden increase in lube oil temperature requires immediate unloading and securing of diesel unless the diesel is required to mitigate the consequences of an accident.

4.6 When leaving a diesel generator room, ensure that the fire doors between individual diesel generator rooms are closed.

4.7 An emergency diesel generator should not be operated at less than 25% of rated load (~875 kw). As soon as practicable after a diesel start the generator should be loaded to ≥875 kw.

4.8 Do not attempt to parallel three source (Diesel Generator, NSST and RSST). This will result in a trip of the diesel generator, and the bus.

4.9 If the diesel generator is to be removed from standby service for maintenance, the mode selector switch should be placed in LOCKOUT, preventing movement of the fuel rack. This action will defeat diesel automatic initiation. See References 11.3 and 11.4 for specific guidance.

4.10 Closing Valves 1R43*03V-0210 and 1R43*03V-0211 will cause the fuel rack to fail in Open position.

4.11 Check for and remove accumulated water from Day Oil Tank (*TK-135A/B/C) if diesel operates equal to or greater than 1 hour.

4.12 Ensure the Turbo Drip Full Flow Bypass is closed when the engine is secured. If the valve is found open and the B&A pump has been running, DO NOT start the engine. An evaluation of turbo charger oil flooding is required.

4.13 The NSST (RSST) breaker (1R22*ACB101-1, 101-2, 102-1, 102-2, 103-1, 103-2) must be opened manually during a loss of offsite power when EDG 101, (102, 103) is operating in parallel with the emergency bus and the NSST (RSST) transformer is supplying less than 1600 amps to the normal 4160V busses. <12

4.14 With any Emergency Diesel Unit operating in parallel with an offsite power source, disconnect that unit from the offsite power source if the offsite source reliability or performance becomes questionable.

4.15 When operating the Diesel at load, Appendix 12.4 data shall be taken every half hour at each load level.

4.16 Emergency Diesel Rooms are equipped with total flooding CO_2 systems. When CO_2 system actuates a red light and horn will actuate, leave room immediately.

4.17 Declare systems/components inoperable as required by Technical Specifications prior to removing equipment from service. <12

5.0 PREREQUISITES

5.1 Systems and checklists are delineated in the Prerequisite Checklist, SPF 23.307.01-1 shall be available prior to a planned startup. Each Diesel Generator requires a separate Prerequisite Checklist.

5.2 Each engine shall be barred over and then rolled with air in accordance with Appendix 12.5 of this procedure prior to any normal start.

5.3 Each engine shall be barred over and then rolled with air in accordance with Appendix 12.5 of this procedure once per week for an engine in standby.

5.4 Each engine shall be barred over and then rolled with air in accordance with Appendix 12.5 of this procedure prior to returning an engine to service after maintenance work.

5.5 Prior to any major overhaul or outage the Diesel should be run at 25%, 50%, 75%, 100% of load. Record data every half hour at each load level on Appendix 12.4.

6.0 LIMITATIONS AND ACTIONS <12

6.1 Technical Specifications

6.1.1 For Power Operation, Startup or Hot Shutdown (CONDITION 1, 2 or 3), the LCO's of Reference 11.3 shall apply.

6.1.2 For Cold Shutdown or Refueling (CONDITION 4 or 5) or when handling irradiated fuel or a spent fuel shipping cask in the secondary containment, the LCO's of Reference 11.4 shall apply.

6.1.3 References 11.1 and 11.2 are applicable whenever the diesel generators are required to be operable.

6.1.4 If an engine fails to start for any reason, immediately notify the Watch Engineer.

6.1.5 If an engine unexpectantly shutsdown, immediately notify the Watch Engineer. <12

6.2 Operating Limits

6.2.1 Continuous loading of any Emergency Diesel should not exceed 3300 KW.

6.2.2 Clean lube oil strainers when ΔP reaches 20 PSID.

6.2.3 Change lube oil filters when ΔP reaches 20 PSID.

6.2.4 Clean fuel oil strainers when ΔP reaches 2 PSID.

6.2.5 If it becomes necessary to run the emergency diesel generators for eight hours or more of continuous no load operation, the engine shall be loaded up to a minimum of 25 percent of full load for one hour prior to being placed back to standby service and data should be recorded on Appendix 12.4.

6.3 Do not operate more than one Emergency Diesel Unit in parallel with any offsite power sources.

6.4 The Emergency Diesel Units are not to be operated in parallel with offsite power supplies except for short periods of time for the sole purpose of Emergency Diesel testing.

6.5 Prior to paralleling an Emergency Diesel Unit to an offsite power supply, verify that no other emergency power supply is operating in parallel with an offsite power supply.

6.6 Emergency Diesel Generator Loading

6.6.1 Electrical loading of emergency busses 101, 102, and 103, should be balanced to preclude operating one Emergency Diesel Generator at a higher load than the other two. For example, if only two emergency core cooling pumps are required for long term decay heat removal purposes, then at least one low pressure ECCS pump on busses 101, 102, and 103 should be secured to equalize electrical loading.

7.0 MATERIALS OR TEST EQUIPMENT

N/A

8.0 PROCEDURE

8.1 Normal Performance

NOTE: 1) This procedure describes the steps for operating Emergency diesel Generator *G-101 and its auxiliary equipment. Operation of Emergency Diesel Generators *G-102 and *G-103 and their associated equipment will be shown in parenthesis (), where applicable.

NOTE: 2) It is important that engine hours, starts, stops and load levels be recorded on Appendix 12.4. Also EDG 101 connecting rod bearing #4 lower #5 upper and #6 lower are restricted to a maximum of 300 hrs. at 100% load and 1150 hrs at less than 100% load and 1150 hrs at less than 100% operation. This item is required per LDR-2412.

8.1.1 Placing the Diesel Generator in Standby

NOTE: Each diesel generator is normally kept in a standby condition.

8.1.1.1 Verify the Prerequisite Checklist, SPF 23.307.01-1 has been completed for the appropriate diesel(s). (Each Diesel Generator requires a separate prerequisite checklist).

8.1.1.2 Diesel generator *G-101 (*-102, 103) is now in standby, ready to start automatically, and supply the emergency bus.

8.1.2 Manual Start of Diesel Generator (Control Room)

NOTE: 1) If an emergency start of the diesel generator is required, proceed to Section 8.1.2.9 below.

2) Ensure that diesel generator *G-101 (102, 103) is in standby as per Section 8.1.1 of this procedure.

CAUTION: 1) Except under emergency conditions, prior to starting a diesel generator, station an operator in, and establish communications with the operator in the diesel generator room.

2) Ensure the Turbocharger Drip Full Flow Bypass has been closed. If the valve is found open and the engine B&A pump has been running, DO NOT start the engine. An evaluation of Turbocharger oil flooding is required.

8.1.2.1 Check the following:

.1 Lube oil sump level $<$19" down from face of mounting flange and temperature $>$ 140°F.

.2 Jacket water temperature $>$140°F and standpipe level 35" (10 o'clock position on gauge).

.3 Fuel oil day tank level $>$ 24 in.

8.1.2.2 Except for emergencies, complete Appendix 12.5 Emergency Diesel Generator engine barring checklist, prior to starting any engine.

8.1.2.3 Place the B&A pump in "HAND" position and open the turbocharger drip full flow bypass valve 2 min. prior to engine start. If the engine start does not occur

immediately, reclose the valve, correct the reason for not starting, and reopen the valve 2 min. prior to starting. 12

8.1.2.4 At Main Control Room control panel *MCB-01 place the control switch for diesel generator *G-101, (102, 103) in START and hold for at least 3 seconds.

NOTE: If the diesel does not start in 3 seconds, the start switch must be released for 90 seconds in order to reset the time delay relay before another start can be attempted.

8.1.2.5 Observe the following on panel *MCB-01:

.1 Diesel generator tachometer 450 rpm.

.2 Diesel generator output voltmeter indicates approximately 4160 volts once rated speed is achieved.

.3 Diesel generator output frequency stabilizes at 60 Hz.

8.1.2.6 If necessary, adjust diesel generator output voltage and generator frequency using the voltage regulator and govern or speed changer control switches on panel *MCB-01.

NOTE: Adjust service water flow to ≈700 GPM by throttling jacket water cooler outlet valves 1P41*06V-0015 (A) (B) (C).

8.1.2.7 Observe the following at the local diesel generator control panel *PNL-DG1 (DG2, DG3) and Engine Skid.

.1 Tachometer 450 rpm after start.
.2 Lube oil pressure 50-65 psig.
.3 Jacket water pressure 20-30 psig.
.4 Fuel oil pressure 20-35 psig.
.5 Combustion air pressure 5 in-hg.
.6 Turbocharger inlet oil pressure 25-35 psig.
.7 Service water flow ~700 gpm.
.8 Exhaust temperatures approximately 300-375°F.

8.1.2.8 When turbocharger oil pressure is ≥30 psig, close turbocharger drip full flow bypass valve and return B&A pump to the auto condition.

8.1.2.9 Diesel generator *G-101 (102, 103) is ready for synchronization and loading. Refer to Section 8.1.4 of this procedure.

NOTE: The Emergency Diesel Generator should not be operated for extended periods at less than 25% of rated load (875 kw).

8.1.2.10 Verify EDG-101 (102, 103) Emer. Supply Fan (1X60*FN-028A (B, C)) started and room is in temperature limits per Reference 11.2.

8.1.2.11 Record date on Appendix 12.4 every half hour at each load level.

8.1.3 Manual Start of Diesel Generator (Local)

NOTE: 1) If any emergency start of the diesel generator is required, proceed to Section 8.1.3.2 below.

2) Ensure that diesel generator *G-101 (102, 103) is in standby as per Section 8.1.1 of this procedure.

CAUTION: Except under emergency conditions, prior to starting a diesel generator, station an operator in, and establish communications with the operator in the diesel generator room.

8.1.3.1 Perform Sections 8.1.2.1 to 8.1.2.9 of this procedure prior to continuing with this section.

8.1.3.2 At the local diesel control panel *PNL-DG1 (DG2, DG3) place the mode selector switch to LOCAL.

8.1.3.3 At the local diesel control panel *PNL-DG1 (DG2, DG3) press and hold the diesel START pushbutton for 3 seconds.

NOTE: If the diesel does not start in 3 seconds, the start switch must be released for 90 seconds in order to reset the time delay relay before another start can be attempted. Immediately notify the Watch Engineer before any attempt to restart the engine is made.

8.1.3.4 Observe the following on panel *PNL-DG1 (DG2, DG3) and Engine Skid:

.1 Tachometer 450 rpm ±13.5 RPM.

.2 Lube oil pressure 50-65 psig.

.3 Jacket water pressure 20-30 psig.

.4 Fuel oil pressure 20-35 psig.

.5 Combustion air pressure 5 in.-hg.

.6 Turbocharger inlet oil pressure 25-35 psig.

.7 Service water flow ≈700 gpm.

.8 Exhaust temperatures approximately 350°F at full load (Temperatures are load dependent).

8.1.3.5 When turbocharger oil pressure is ≥30 psig, close turbocharger drip full flow bypass valve and return B&A pump to the auto condition.

8.1.3.6 If necessary, adjust diesel generator speed using the governor speed changer control switch on local diesel control panel *PNL-DG1 (DG2, DG3). (RAISE, LOWER positions, spring return to NEUTRAL).

8.1.3.7 If necessary, adjust diesel generator output voltage using the voltage regulator on local generator control panel *PNL-GP1 (GP2, GP3).

8.1.3.7.1 Record data on Appendix 12.4 every half hour at each load level.

8.1.3.8 Observe the following on Main Control Room control panel *MCB-01:

.1 Diesel generator tachometer 450 rpm.

.2 Diesel generator output voltmeter indicates approximately 4160 volts once rated speed is achieved.

.3 Diesel generator output frequency stabilizes at 60 Hz.

8.1.3.9 Diesel generator *G-101 (102, 103) is ready for synchronization and loading. Refer to Section 8.1.4 of this procedure.

NOTE: The emergency diesel generator should not be operated for extended periods of less than 25% of rated load (875 kw).

8.1.3.10 Verify EDG-101 (102, 103) Emer. Supply Fan (1X60*FN-028A (B, C)) started and maintaining temperature limits per Reference 11.2.

8.1.3.11 Ensure that the mode selector switch at local diesel control panel *PNL-DG1 (*PNL-DG2, DG3) is returned to the REMOTE position after completing diesel operations or prior to leaving the diesel generator room.

8.1.4 Paralleling a Diesel Generator with an Emergency Bus

NOTE: 1) The emergency buses (101, 102, 103) are normally supplied from the normal station service transformer (NSST). Transfer of an emergency bus to its respective Emergency Diesel Generator will be performed only during accident conditions or periodic testing.

2) Paralleling of a diesel generator with its emergency bus is accomplished at the main control panel *MCB-01.

8.1.4.1 Start diesel generator *G-101 (102, 103) as per section 8.1.2 or 8.1.3 of this procedure. <12

8.1.4.1.1 Record data on Appendix 12.4 every half hour at each load level.

8.1.4.2 Place the diesel generator *G-101 (102, 103) Diesel Breaker 101-8 (102-8, 103-8) Synchronizing Selector control switch to ON. The synchroscope is now activated.

8.1.4.3 Observe incoming and running voltmeters. Adjust incoming voltage to slightly higher than running voltage using voltage regulator.

8.1.4.4 Observe that the synchroscope is sweeping slowly in a clockwise direction. Adjust generator frequency using the governor speed changer.

CAUTION: Prior to performing the next step, verify that no other Emergency Diesel Generator Unit is operating in parallel with any offsite power supply.

CAUTION: The NSST (RSST) breaker (1R22*ACB101-1, 101-2, 102-1, 102-2, 103-1, 103-2) must be opened manually during a loss of offsite power when the NSST (PSST) transformer is supplying less than 1600 amps to the normal 4160V busses.

8.1.4.5 When the synchroscope reaches the "12" position, CLOSE emergency diesel generator breaker ACB 101-8 (102-8, 103-8). Observe that the unit ammeter indicates some load is picked up by the diesel generator.

NOTE: The voltage regulator control switch may have to be adjusted during loading to maintain 4160 Volts.

8.1.4.6 Gradually increase diesel generator load until at least 875 kw is being carried by the diesel generator.

8.1.4.6.1 Record data on Appendix 12.4 every half hour at each load level.

NOTE: The next step will isolate the Emergency Bus 101 (102, 103) from the NSST and the RSST.

8.1.4.7 When all loads desired are being carried by the diesel generator *G-101 (102, 103), OPEN the normal station service transformer (NSST) Normal Supply Breaker 1R22*ACB-101-1 (102-1, 103-1), or the reserve station service transformer (RSST) reserve 1R22*ACB-101-2 (102-2, 103-2), by placing its control switch to the AUTO-AFTER-TRIP position.

8.1.4.8 Emergency Diesel Generator *G-101 (102, 103) is now carrying all desired load on emergency bus 101 (102, 103).

8.1.5 Paralleling the NSST (RSST) with the Emergency Bus

NOTE: 1) The emergency buses (101, 102, 103) are normally supplied from the NSST. If the emergency bus loads are being supplied by the emergency diesel generator and transfer to the NSST is desired, the following paralleling operation is conducted from the main control room panel *MCB-01.

2) If it is necessary to supply the emergency buses from the RSST the paralleling operation is shown in brackets [] below.

8.1.5.1 Place the NSST [RSST] Normal [Reserve] Supply Breaker 1R22*ACB-101-1 (102-1, 103-1) [101-2, 102-2, 103-2] Synchronizing Selector control switch to the ON position. The synchroscope is now activated.

8.1.5.2 Observe incoming and running voltmeters. Adjust incoming (Generator) voltage to be slightly higher than running voltage by holding the voltage regulator control switch to the raise position.

8.1.5.2.1 Record data on Appendix 12.4 every half hour at each load.

CAUTION: The NSST (RSST) breaker (1R22*ACB101-1, 101-2, 102-1, 102-2, 103-1, 103-2) must be opened manually during a loss of offsite power when the NSST (RSST) transformer is supplying less than 1600 amps to the normal 4160V busses.

8.1.5.3 Observe that the synchroscope is sweeping slowly in a clockwise direction. Make frequency adjustments using the governor speed changer control switch.

CAUTION: Synchroscope must make at least one revolution. After paralleling with the NSST (RSST) breaker, place the governor speed changer to raise to prevent all the load from shifting from the diesel generator to the NSST (RSST) and reverse powering the diesel.

8.1.5.4 When the synchroscope reaches the "5 to 12" position, CLOSE normal [reserve] supply breaker 1R22*ACB-101-1 (102-1, 103-1) [101-2, 102-2, 103-2].

NOTE: The voltage regulator may have to be adjusted during diesel generator unloading to maintain 4160 volts.

8.1.5.5 Adjust diesel generator load until all but 875 kw of the emergency bus load has been returned to the NSST (RSST).

8.1.5.6 Run the emergency diesel generator for 10 minutes to allow for unit cooldown.

8.1.5.7 Gradually decrease diesel generator load to 200-300 KW.

8.1.5.8 OPEN Emergency Diesel Generator breaker ACB 101-8 (102-8, 103-8).

NOTE: The amount of time a diesel generator operates unloaded should be minimized to prevent fouling of the diesel and its exhaust system.

8.1.5.9 Emergency diesel generator *G-101 (102, 103) may now be shut down. Refer to Section 8.1.6.

8.1.6 Shutdown of the Diesel Generator

NOTE: This procedure returns the diesel generator to the normal standby condition. Ensure Appendix 12.4 has been completed as required.

CAUTION: Observe local annunciator panel and report any alarm condition to main control room prior to stopping diesel.

8.1.6.1 Verify that Emergency Diesel Generator breaker ACB 101-8, (102-8, 103-8) is OPEN.

8.1.6.2 Diesel generator *G-101 (102, 103) can be shutdown from main control room panel *MCB-01 [1], or at local control panel *PNL-DG1 (*PNL-DG2, DG3) [2]. Proceed using either Step 1 or 2 below.

CAUTION: Prior to diesel shutdown, ensure turbocharge drip full flow bypass valve is closed. If valve has been left open during engine run, close valve. An evaluation of turbocharger oil flooding is required.

REMOTE

.1 With the local mode selector switch in REMOTE, momentarily press the STOP pushbutton or panel *MCB-01. Observe that the diesel tachometer shows decreasing RPM's.

LOCAL

.2 With the local mode selector switch in LOCAL, momentarily press the STOP pushbutton on local panel *PNL-DG1 (*PNL-DG2, DG3). Observe that the local diesel tachometer shows decreasing RPM's.

8.1.6.3 If the diesel generator was started from the local diesel control panel, return the mode selector switch to the REMOTE position.

8.1.6.4 Verify that the fuel oil day tank contains $\geq$ 275 gallons ($\geq$24").

8.1.6.5 Each engine shall be barred over and then rolled with air per SP 27.307.02, Emergency Diesel Generator Cylinder Head Leak Detection Test four hours after an engine has been shutdown and then once again twenty four hours after shutdown.

8.1.7 Automatic Initiation

NOTE: 1) Auto initiation signals are as follows:

.1 Undervoltage on respective 4160V emergency bus.

.2 High drywell pressure (+ 1.69 psig).

.3 Low reactor water level (level 1, -132.5").

2) Upon auto initiation, the diesel generator will start and close on the respective emergency bus only if there is a concurrent bus undervoltage condition with NSST & RSST breakers tripped.

3) If the diesel generator fails to auto start, manually start the unit as per section 8.1.2.9 - 8.1.2.14 of this procedure.

4) If diesel fails to start on an undervoltage signal, diesel must be placed in lockout to prevent continuous cranking.

8.1.7.1 At Main Control Room control panel *MCB-01 verify that the Emergency Diesel Generator is up to speed (450 RPM) and that the emergency bus loads are maintained at 60 Hz and 4160 volts. If the D.G. breaker is CLOSED adjust frequency and voltage as necessary using the governor speed changer and voltage regulator control switches.

8.1.7.2 Place the diesel generator breaker control switch in agreement with ACB 101-8 (102-8, 103-8).

8.1.7.3 If normal or reserve supplies are available shutdown per 8.1.6.

8.2 Abnormal Performance

8.2.1 Loss of a Diesel Generator During an Accident Condition

NOTE: 1) This procedure assumes that diesel generator *G-101 (*G-102, 103) has started automatically and is supplying emergency bus 101 (102, 103) loads during an accident condition when it is lost.

2) The following conditions will cause a diesel generator to trip during accident conditions:

.1 Overcurrent (neutral ground)

.2 Generator phase differential

.3 Overspeed (517 RPM increasing)

.4 Mode selector switch in the LOCKOUT position (local panel *PNL-DG1, 2, 3)

.5 Manual pushbutton (control room panel *MCB-01 or local panel *PNL-DG1, 2, 3 with mode selector switch in the LOCAL position).

.6 Manual pushbutton on D.G. skid. "STOP" depressed.

8.2.1.1 Indication

NOTE: Not all indications may appear.

.1 DIESEL 1 (2,3) SYSTEM INOP (ARP 0369, 0375, 0337) annunciator and alarm on control room panel *MCB-01.

.2 UNIT NOT AVAILABLE (ARP 6022, 6072, 6522) annunciator and alarm on local panel *PNL-DG1 (DG2. 3).

.3 DIESEL 1 (2,3) ENGINE OVERSPEED (ARP 0372, 0378, 0366) annunciator and alarm on control panel *MCB-01.

.4 OVERSPEED SHUTDOWN (ARP 6017, 6067, 6517) annunciator and alarm on local panel *PNL-DG1, (DG2, 3).

.5 BUS 101 (102, 103) UNDERVOLTAGE (ARP 0062, 0063, 0064) annunciator and alarm on control room panel *MCB-01.

.6 EMERG GEN 1 (2, 3) GROUND OVER CUR (ARP 0107, 0091, 0121) annunciator and alarm on control room panel *MCB-01.

.7 Diesel engine tachometer goes to zero.

8.2.1.2 Immediate Action

.1 Ensure that the remaining diesel generators are supplying their emergency bus loads.

.2 Ensure the remaining core spray pump(s) is operating as dictated by plant conditions.

.3 Ensure the remaining RHR pumps are operating as dictated by plant conditions.

.4 Ensure the service water pumps are operating as necessary to meet service water requirements.

.5 Determine the status of systems affected by the loss of 480V Swgr Bus 111 (112, 113) and evaluate effects on plant conditions.

.6 Attempt to re-energize Emergency Bus 101, (102, 103) from the NSST and RSST.

8.2.1.3 Follow-up Action

.1 If the emergency bus cannot be re-energized, ensure that adjustments are made to affected systems in accordance with appropriate operating procedures.

.2 Determine cause for losing diesel generator and initiate a Maintenance Work Request.

8.2.2 Loss of Electronic Governor Control

NOTE: 1) The diesel generator electronic governor fails high. The diesel generator will increase speed until the mechanical governor high speed stop is reached.

2) When the diesel generator mode selector switch is in the REMOTE position, the unit is controlled by the electronic governor through the governor speed changer control switch on control room panel MCB-01.

8.2.2.1 Indication

.1 Increase in diesel generator speed and frequency.

.2 Failure to the diesel generator to respond to governor speed changer LOWER signal.

8.2.2.2 Immediate Action

.1 If the diesel generator is running in loaded, trip the unit by pressing the STOP pushbutton on control room panel *MCB-01.

.2 If the diesel generator is loaded, send an operator to the diesel generator room and establish communications with the operator in the control room.

.3 At the local diesel generator control panel *PNL-DG1 (DG2, 3) place the mode selector switch to the LOCAL position. Control diesel speed with local switch. If unsuccessful proceed with Step 8.2.2.2.4.

.4 Decrease diesel generator speed by turning the governor speed changer control switch on 1R43-SIC-800A(B, C) on skid to the LOWER position. Observe decreasing speed on the panel tachometer.

.5 Verify diesel generator frequency has returned to normal with the control room operator.

8.2.2.3 Follow-up Action

.1 As soon as practicable, shut down the diesel generator and determine the cause of the electronic governor control failure.

.2 If the diesel generator is to be placed out of service, refer to Reference 11.3, 11.4 for specific guidance.

8.2.3 Alarm Response Procedures

The following Alarm Response Procedures (ARP) are associated with this procedure:

1. ARP 0091 EMER GEN 2 GROUND OVER CUR
2. ARP 0107 EMER GEN 1 GROUND OVER CUR
3. ARP 0121 EMER GEN 3 GROUND OVER CUR
4. ARP 0293 EMER GEN 1 VOLT REG RWR FAIL
5. ARP 0294 EMER GEN 2 VOLT REG PWR FAIL
6. ARP 0295 EMER GEN 3 VOLT REG PWR FAIL
7. ARP 0336 DIESEL 3 SYSTEM DEGRADED
8. ARP 0337 DIESEL 3 SYSTEM INOP
9. ARP 0338 DIESEL 3 ENGINE TROUBLE
10. ARP 0339 DIESEL 3 LUBE OIL PRESS LO
11. ARP 0366 DIESEL 3 ENGINE OVERSPEED
12. ARP 0367 DIESEL 3 MN BD CONT DISABLED
13. ARP 0368 DIESEL 1 SYSTEM DEGRADED
14. ARP 0369 DIESEL 1 SYSTEM INOP
15. ARP 0370 DIESEL 1 ENGINE TROUBLE
16. ARP 0371 DIESEL 1 LUBE OIL PRESS LO
17. ARP 0372 DIESEL 1 ENGINE OVERSPEED
18. ARP 0373 DIESEL 1 MN BD CONT DISABLED

19. ARP 0374 DIESEL 2 SYSTEM DEGRADED

20. ARP 0375 DIESEL 2 SYSTEM INOP

21. ARP 0376 DIESEL 2 ENGINE TROUBLE

22. ARP 0377 DIESEL 2 LUBE OIL PRESS LO

23. ARP 0378 DIESEL 2 ENGINE OVERSPEED

24. ARP 0379 DIESEL 2 MN BD CONT DISABLED

25. ARP 6001 LUBE OIL LOW PRESS

26. ARP 6002 LUBE OIL HIGH TEMP

27. ARP 6003 TURBO OIL LOW PRESS

28. ARP 6004 JACKET WTR HIGH TEMP

29. ARP 6005 JACKET WTR LOW TEMP

30. ARP 6006 JACKET WTR LOW PRESS

31. ARP 6007 JACKET WTR LOW LEVEL

32. ARP 6009 LUBE OIL LOW LEVEL

33. ARP 6010 START AIR LOW PRESS

34. ARP 6011 AUX PUMP CONTROL SW OFF POS

35. ARP 6012 LUBE OIL LOW PRESS SHUTDOWN

36. ARP 6013 LUBE OIL HIGH TEMP SHUTDOWN

37. ARP 6014 TURBO OIL LOW PRESS SHUTDOWN

38. ARP 6015 JACKET WTR HIGH TEMP SHUTDOWN

39. ARP 6016 CRANKCASE HIGH PRESS SHUTDOWN

40. ARP 6017 OVERSPEED SHUTDOWN

41. ARP 6018 SERV WTR LOW FLOW

42. ARP 6021 UNIT FAIL TO START

43. ARP 6022 UNIT NOT AVAILABLE

44. ARP 6024 GEN FIELD MANUAL SHUTDOWN

45. ARP 6025 GEN HEATER LOSS CONT

46. ARP 6026 MAIN BOARD CONTROL DISABLED

47. ARP 6027 FUEL OIL BSTR PMP STRAINER HIGH DIFF P

48. ARP 6028 FO PMP STRAINER HIGH DIFF P

49. ARP 6029 MOTOR DRIVEN FULL PUMP RUNNING

50. ARP 6030 JACKET WTR HIGH CNDCT

51. ARP 6031 FUEL OIL TRANSFER PUMP LOCKED OUT

52. ARP 6032 FIELD FLASH INOPERATIVE

53. ARP 6051 LUBE OIL LOW PRESS

54. ARP 6052 LUBE OIL HIGH TEMP

55. ARP 6053 TURBO OIL LOW PRESS

56. ARP 6054 JACKET WTR HIGH TEMP

57. ARP 6055 JACKET WTR LOW TEMP

58. ARP 6056 JACKET WTR LOW PRESS

59. ARP 6057 JACKET WTR LOW LEVEL

60. ARP 6059 LUBE OIL LOW LEVEL

61. ARP 6060 START AIR LOW PRESS

62. ARP 6061 AUX PUMP CONTROL SW OFF POS

63. ARP 6062 LUBE OIL LOW PRESS SHUTDOWN

64. ARP 6063 LUBE OIL HIGH TEMP SHUTDOWN

65. ARP 6064 TURBO OIL LOW PRESS SHUTDOWN

66. ARP 6065 JACKET WTR HIGH TEMP SHUTDOWN

67. ARP 6066 CRANKCASE HIGH PRESS SHUTDOWN

68. ARP 6067 OVERSPEED SHUTDOWN

69. ARP 6068 SERV WTR LOW FLOW

70. ARP 6071 UNIT FAIL TO START

71. ARP 6072 UNIT NOT AVAILABLE

72. ARP 6074 GEN FIELD MANUAL SHUTDOWN

73. ARP 6075 GEN HEATER LOSS CONT

74. ARP 6076 MAIN BOARD CONTROL DISABLED

75. ARP 6077 FO BSTR PMP STRAINER HIGH DIFF P

76. ARP 6078 FUEL OIL PMP STRAINER HIGH DIFF P

77. ARP 6079 MOT DRIVEN FUEL PUMP RUNNING

78. ARP 6080 JACKET WTR HIGH CNDCT

79. ARP 6081 FO TRANSFER PMP LOCKED OUT

80. ARP 6082 FIELD FLASH INOPERATIVE

81. ARP 6501 LUBE OIL LOW PRESS

82. ARP 6502 LUBE OIL HIGH TEMP

83. ARP 6503 TURBO OIL LOW PRESS

84. ARP 6504 JACKET WTR HIGH TEMP

85. ARP 6505 JACKET WTR LOW TEMP

86. ARP 6506 JACKET WTR LOW PRESS

87. ARP 6507 JACKET WTR LOW LEVEL

88. ARP 6509 LUBE OIL LOW LEVEL

89. ARP 6510 START AIR LOW PRESS

90. ARP 6511 AUX PUMP CONTROL SW OFF POS

91. ARP 6512 LUBE OIL LOW PRESS SHUTDOWN

92. ARP 6513 LUBE OIL HIGH TEMP SHUTDOWN

93. ARP 6514 TURBO OIL LOW PRESS SHUTDOWN

94. ARP 6515 JACKET WTR HIGH TEMP SHUTDOWN

95. ARP 6516 CRANKCASE HIGH PRESS SHUTDOWN

96. ARP 6517 OVERSPEED SHUTDOWN

97. ARP 6518 SERV WTR LOW FLOW

98. ARP 6521 UNIT FAIL TO START

99. ARP 6522 UNIT NOT AVAILABLE

100. ARP 6524 GEN FIELD MANUAL SHUTDOWN

101. ARP 6525 GEN HEATER LOSS CONT

102. ARP 6526 MAIN BOARD CONTROL DISABLED

103. ARP 6527 FUEL OIL BSTR PMP STRAINER HIGH DIFF P

104. ARP 6528 FO PUMP STRAINER HIGH DIFF P

105. ARP 6529 MOTOR DRIVEN FUEL PUMP RUNNING

106. ARP 6530 JACKET WTR HIGH CNDCT

107. ARP 6531 FUEL OIL TRANSFER PUMP LOCKED OUT

108. ARP 6532 FIELD FLASH INOPERATIVE

9.0 ACCEPTANCE CRITERIA

N/A

10.0 FINAL CONDITIONS

Ensure all documentation has been completed and signed.

11.0 REFERENCES

11.1 Technical Specifications, Section 3/4.7.7.3

11.2 Technical Specifications, Section 3/4.7.9

11.3 Technical Specifications, Section 3/4.8.1.1

11.4 Technical Specifications, Section 3/4.8.1.2

11.5 Volume I, Delaval Model DSR-48 Diesel Engines, Instruction Manual, File Code 1R43.120, D009 120.02.

11.6 Volume II, Delaval Model DSR-48 Diesel Engines, Associated Publications Manual, File Code 1R43.100, D009 120.03.

11.7 S&W FM-44A, Fuel Oil Transfer Sys

11.8 S&W FM-47A, Diesel Gen Air Start

11.9 S&W FM-47A, Service Water System

11.10 SP 23.108.01, Diesel Generator Fuel Oil Storage and Transfers

11.11 I&E Information Notice No. 84-69, Operation of Emergency Diesel Generators

11.12 LILCO Deficiency Report LDR-2412

12.0 APPENDICES

12.1 SPF 23.307.01-1 - Prerequisite Checklist

12.2 SPF 23.307.01-4 - Valve Lineup Checklist

A Diesel 101
B Diesel 102
C Diesel 103

12.3 SPF 23.307.01-5 - System Component Power Supply Checklist

A Diesel 101
B Diesel 102
C Diesel 103

12.4 SPF 23.307.01-6 - Operational Surveillance log sheets

12.5 SPF 23.307.01-7 - Emergency Diesel Generator Engine Barring Checklist.

EMERGENCY DIESEL GENERATORS

PREREQUISITE CHECKLIST

	Signature	Initials	Time	Date
Authorization for Start	_____ (Watch Engineer)	_____	_____	_____
Initiated by	_____	_____	_____	_____
Completed by	_____	_____	_____	_____
Reviewed by	_____ (Watch Engineer)	_____	_____	_____

EMERGENCY DIESEL GENERATOR *G-(101, 102, 103)
(Circle One)

Step No.	Procedure	Initials
5.0	This Prerequisite Checklist is for one Emergency Diesel Generator. Each Emergency Diesel generator requires a separate Checklist.	_____
5.1	Tagging Log and Lifted lead and Jumper Log reviewed.	_____
	NOTE: Prior to any breaker operations, place control switches and pushbutton operated components in the OFF position (Green indicating lights).	_____
5.2	Equipment energized per System Component Power Supply Checklist SPF 23.307.01-5A (B,C) Section *G-101 (102, 103).	_____
5.3	125-VDC Power Distribution in operation per SP 23.315.01.	_____
5.4	CO_2 system in operation per SP 23.501.01 or fire watch stationed in diesel room.	_____

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5.5 Reactor Building Service Water in operation per SP 23.122.01. _____ <12

5.6 HVAC - Emergency Diesel Generators in operation per SP 23.414.01. _____

5.7 Valve Lineup Checklist, Section *G-101 (102, 103) completed, SPF 23.307.01-4A (B,C). _____

5.8 Diesel Generator Fuel Oil Storage and Transfer System in operation. _____

5.9 Diesel *G-101 (102, 103) lube oil sump level - 19" down from face of mounting flange and lube oil temperatures - 140°F. _____

5.10 Jacket water standpipe level - normal and water temperature - 130°F. _____ <12

5.11 Diesel Generator *G-101 (102, 103) Governs Oil Level - top of sight glass. _____

5.12 Diesel Generator *G-101 (102, 103) Pedestal Bearing oil is in the middle of the sight glass. _____

5.13 Verify barring device disengaged and locked. _____

5.14 Verify that fuel oil day tank *TK-135A (B,C) contains $\geq$ 275 gallons, (24") fuel oil storage tank contains $\geq$ 41,000 gallons, and local diesel control panel *PNL-DG1 (2,3) annunciators FUEL TANK HIGH LEVEL and FUEL TANK LOW LEVEL are cleared. _____

5.15 Check all lube oil, jacket water, fuel oil and starting air systems piping for leaks. _____

5.16 At emergency switchgear *SWG-101 (102, 103) check the following at diesel generator supply breaker ACB101-8 (102-8, 103-8) compartment:

.1 Local breaker control switch in NEUTRAL. _____

.2 Closing springs charged. _____

.3 Green-open indication shown for breaker. _____

.4 Verify all lockouts are reset and all relays show no targets. _____

.5 Primary protection relay 86 P-10-8-1(2,3) reset _____

.6 Backup protection relay 86 B-10-8-1(2,3) reset _____

.7 Primary protection relay 86P-10-8-1 (2,3) reset, with no targets visible. _____

.8 Back-up protection relay 86B-10-8-1 (2,3) reset, with no targets visible. _____

.9 All fuses in compartment in "ON" position. _____

5.17 Place or check the following switches at the emergency diesel generator *G-101 (102, 103) local diesel control panel *PNL-DG1 (2,3) in the positions indicated:

.1 Mode selector switch in REMOTE. _____

.2 Fuel booster pump *P-109A (B,C) in AUTO. _____

.3 Before and after L.O. pump/heater *P-226A (B,C) & H-015A (B,C) in AUTO. _____

.4 Jacket water pump and heater *P-238A (B,C) *H-014A (B,C) in AUTO. _____

.5 Both starting air compressors C-003/004A(B,C) in AUTO. _____

.6 Primary fuel oil transfer pump *P-201A (B,C) in AUTO. _____

.7 Secondary fuel oil transfer pump *P-202A (B,C) in AUTO. _____

.8 AC power switch to ON. _____

.9 DC power switches to ON. _____

.10 White control power available light ON. _____

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5.18 At diesel generator *G-101 (102, 103) skid base verify the lube oil filter and strainer selector switches to the AUTO position. Check each air valve under the auto switches open. _____

5.19 At diesel generator *G-101 (102, 103) hydraulic actuator/governor (1P43-SIC-800A (B,C)), verify the following settings:

.1 Speed droop 0 (Isochronous Mode) _____

.2 Load limit - maximum _____ <12

.3 Speed setting - 101 - 14.09, 102 - 14.02, 103 - (12.00) _____

5.20 At the local generator control panel *PNL-GP1 (2,3) ensure that the diesel shutdown relay is reset by pressing the EMERGENCY SHUTDOWN RESET pushbutton. Local annunciator GEN FIELD MANUAL SHUTDOWN should clear. _____

5.21 Verify starting air pressure as indicated on local diesel control panel *PNL-DG1 (2,3) is greater than 220 psig. _____

5.22 Verify before and after lube oil pump *P-226A (B,C) is operating. _____

5.23 Verify jacket water heater circulating pump *P-238A (B,C) is operating. _____

5.24 Check starting air dryers *AD-002/003A (B,C) to ensure proper operation and cooling fin air passages are not blocked. _____

5.25 Ensure the fire doors between the diesel generator rooms are closed. _____

5.26 At the diesel generator *G-101 (102, 103) section of control room control panel 1H11*MCB-01 verify the following positions and indications:

.1 Diesel generator *G-101 (102, 103) start control switch in AUTO. _____

.2 Governor Speed Changer Gen 101 (102, 103) in NORMAL. _____

.3 Bus 101 (2,3) Program Reset to RESET. _____

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.4 Bus 101 (2,3) Program Test Switch in NORMAL. _____

.5 Diesel Gen 101 (2,3) Hx Outlet valve 1P41*AOV-016A (B,C) in AUTO. _____

.6 Diesel Gen 10 (2,3) voltage regulator in NORMAL. _____

.7 125V Bus DC volts - 125 volts. _____

.8 Bus 125V DC Battery ground detector lights are both dim. _____

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-101

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
	EDG FUEL OIL STORAGE TANKS - YARD		
	EDG ROOM A EL-22' 6"		
1R43* 03V-0210A	AFT STARTING AIR VLV SOV-046A ISO	OPEN	
1R43* 03V-0211A	FWD STARTING AIR VLV SOV-047A ISO	OPEN	
1R43* 01V-221A	SOV-46A BYPS VLV	CLOSED	
1R43* 03V-222A	SOV-47A BYPS VLV	CLOSED	
1R43* 01V-3204A	STARTING AIR TANK *TK-198A DRN	CLOSED	
1R43* 01V-7304A	STARTING AIR TANK *PS-055A ISO	OPEN	
1R43* 01V-7303A	STARTING AIR TANK *PI-064A ISO	OPEN	
1R43* 01V-3205A	STARTING AIR TANK *TK-199A DRN	CLOSED	
1R43* 01V-7305A	STARTING AIR TANK *PS-056A ISO	OPEN	
1R43* 01V-7306A	STARTING AIR TANK *PI-065A ISO	OPEN	
1R43* 01V-3207A	STARTING AIR TANK *TK-200A DRN	CLOSED	

VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-101

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-7307A	STARTING AIR TANK *PS-057A ISO	OPEN	
1R43* 01V-7308A	STARTING AIR TANK *PI-066A ISO	OPEN	
1R43* 01V-3208A	STARTING AIR TANK *TK-201A DRN	CLOSED	
1R43* 01V-7309A	STARTING AIR TANK *PS-058A ISO	OPEN	
1R43* 01V-7310A	STARTING AIR TANK *PI-067A ISO	OPEN	
1R43* 01V-3211A	AIR COMP *C-003A LOW PT DRN	CLOSED	
1R43* 01V-3212A	AIR COMP *C-004A LOW PT DRN	CLOSED	
1R43* 01V-3209A	DIESEL AIR SUPPLY LOW PT DRN	CLOSED	
1R43* 01V-3210A	DIESEL AIR SUPPLY LOW PT DRN	CLOSED	
1R43* 02V-0204A	BOOSTER PUMPS SUCTION SHUTOFF	OPEN	
1R43* 02V-0206A	FUEL OIL RECIRC RETURN SHUTOFF	OPEN	
1R43* 01V-3200A	TANK *TK-135A DRAIN	CLOSED	
1R43* 01V-7200A	*LT-005A ROOT	OPEN	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-101

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-7311A	PUMP *P-109A SUCTION STRAINER *PDS-094A ISO	OPEN	
1R43* 01V-7312A	PUMP *P-109A SUCTION STRAINER *PDS-094A ISO	OPEN	
1R43* 01V-7313A	PUMP *P-242A SUCTION STRAINER *PDS-085A ISO	OPEN	
1R43* 01V-7314A	PUMP *P-242A SUCTION STRAINER *PDS-085A ISO	OPEN	
1R43* 01V-7315A	*PI-074A ROOT	OPEN	
1R43* 01V-7316A	*PI-075A ROOT	OPEN	
1R43* 01V-3213A	FUEL OIL CONSUMPTION TEST CONN	CLOSED	
1R43* 01V-3202A	FUEL OIL CONSUMPTION TEST CONN	CLOSED	
1R43* 02V-0218A	JACKET WTR STANDPIPE FILL	CLOSED	
1R43* 02V-3214	JACKET WTR STANDPIPE DRN	CLOSED	
1P41* 01V-7014A	JACKET WTR CLR *PI-049A ROOT	OPEN	
1P41* 01V-7015A	JACKET WTR CLR PRESS TEST POINT	CLOSED	
1P41* 01V-3039A	INST TRP OFF *PI-049A ROOT	CLOSED	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-101

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1P41* 01V-7018A	JACKET WTR CLR *FT-018A ROOT	OPEN	
1P41* 01V-7019A	JACKET WTR CLR *FT-018A ROOT	OPEN	
1P41* 06V-0015A	JACKET WTR CLR OUTLET ISO	OPEN	
1P41* 01V-3020A	JACKET WTR DISCH VENT	CLOSED	
1P41* 01V-3067A	JACKET WTR RELIEF VALVE DISCH VENT	CLOSED	
1R43* 01V-8002A	PRELUBE FILTER INLET *PI-101A ROOT	OPEN	
1R43* 01V-8003A	PRELUBE FILTER OUTLET *PI-102A ROOT	OPEN	
1R43* 01V-8015A	DUPLEX FILTER *FL-811A HIGH PRESS ROOT	OPEN	
1R43* 01V-8016A	DUPLEX FILTER *FL-811A CROSSTIE	OPEN	
1R43* 01V-8017A	DUPLEX FILTER *FI-811A HIGH PRESS ROOT	OPEN	
1R43* 01V-8018A	DUPLEX FILTER *FL-811A CROSSTIE	OPEN	
1R43* 01V-8019A	LUBE OIL SUMP TANK *TK-802A DRAIN	CLOSED	
1R43* 01V-8023A	*PI-800A ROOT	OPEN	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-101

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-8024A	*PI-801A ROOT	OPEN	
1R43* 01V-8025A	L.O. LOW PRESSURE BLEED VALVE	CLOSED	
1R43* 01V-8027A	*PI-802A ROOT	OPEN	
1R43* 01V-8029A	*PI-803A ROOT	OPEN	
1R43* 01V-8030A	*PI-804A ROOT	OPEN	
1R43* 01V-8038A	INSTRUMENT AIR SUPPLY	OPEN	
1R43* 01V-8039A	*PS-045A ROOT	OPEN	

SPF 23.307.01-4A Rev. 12

VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-101

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 04V-0716A	1R43*TK-132A FILL VALVE	CLOSED	
1R43* 01V-7302A	F.O. TRANSFER *PS-054A ISOLATION VALVE	OPEN	
1R43* 01V-0219A	JACKET WATER STANDPIPE *TK-803A FILL VALVE	CLOSED	
1R43* 01V-8021A	JACKET WATER STANDPIPE *TK-803A DRAIN VALVE	CLOSED	
1R43* 02V-801A	JACKET WATER COOLER E-013A THERMOSTATIC VALVE CONTROL	THERMO	
1R43* 02V-800A	L.O. COOLER E-801A TERMOSTATIC CONTROL VALVE	THERMO	
1R43* 01V-0831A	*PI-049A ISOLATION VALVE (SERVICE WATER)	OPEN	
1R43* 01V-7317A	*LT-005A ISOLATION VALVE (HIGH SIDE)	OPEN	
TEMPORARY VALVE	TURBO L.O. DRIP FULL FLOW BYPASS VALVE	CLOSED	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-102

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
	EDG FUEL OIL STORAGE TANKS YARD		
	EDG ROOM B EL 22' 6"		
1R43* 03V-0210B	AFT STARTING AIR VLV SOV-046B ISO	OPEN	
1R43* 03V-0211B	FWD STARTING AIR VLV SOV-047B ISO	OPEN	
1R43* 01V-221B	SOV 46B BYPS VLV	CLOSED	
1R43* 01V-222B	SOV 47B BYPS VLV	CLOSED	
1R43* 01V-3204B	STARTING AIR TANK *TK198B DRN	CLOSED	
1R43* 01V-7304B	STARTING AIR TANK *PS-055B ISO	OPEN	
1R43* 01V-7303B	STARTING AIR TANK *PI-064B ISO	OPEN	
1R43* 01V-3205B	STARTING AIR TANK *TK-199B DRN	CLOSED	
1R43* 01V-7305B	STARTING AIR TANK *PS-056B ISO	OPEN	
1R43* 01V-7306B	STARTING AIR TANK *PI-065B ISO	OPEN	
1R43* 01V-3207B	STARTING AIR TANK *TK-200B DRN	CLOSED	
1R43* 01V-7307B	STARTING AIR TANK *PS-057B ISO	OPEN	

VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-102

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-7308B	STARTING AIR TANK *PI-066B ISO	OPEN	
1R43* 01V-3208B	STARTING AIR TANK *TK-201B DRN	CLOSED	
1R43* 01V-7309B	STARTING AIR TANK *PS-058B ISO	OPEN	
1R43* 01V-7310B	STARTING AIR TANK *PI-067B ISO	OPEN	
1R43* 01V-3211B	AIR COMP *C-003B LOW PT DRN	CLOSED	
1R43* 01V-3212B	AIR COMP *C-004B LOW PT DRN	CLOSED	
1R43* 01V-3209B	DIESEL AIR SUPPLY LOW PT DRN	CLOSED	
1R43* 01V-3210B	DIESEL AIR SUPPLY LOW PT DRN	CLOSED	
1R43* 02V-0204B	BOOSTER PUMPS SUCTION SHUTOFF	OPEN	
1R43* 02V-0206B	FUEL OIL RECIRC RETURN SHUTOFF	OPEN	
1R43* 01V-3200B	TANK *TK-135B DRAIN	CLOSED	
1R43* 01V-7200B	*LT-005B ROOT	OPEN	
1R43* 01V-7311B	PUMP *P-109B SUCTION STRAINER *PDS-094B ISO	OPEN	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-102

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-7312B	PUMP *P-1090B SUCTION STRAINER *PDS-094B ISO	OPEN	
1R43* 01V-7313B	PUMP *P-242B SUCTION STRAINER *PDS-085B ISO	OPEN	
1R43* 01V-7314B	PUMP *P-242B SUCTION STRAINER *PDS-085B ISO	OPEN	
1R43* 01V-7315B	*PI-074B ROOT	OPEN	
1R43* 01V-7316B	*PI-075B ROOT	OPEN	
1R43* 01V-3213B	FUEL OIL CONSUMPTION TEST CONN	CLOSED	
1R43* 01V-3202B	FUEL OIL CONSUMPTION TEST CONN	CLOSED	
1P43* 02V-0219B	JACKET WTR STANDPIPE FILL	CLOSED	
1R43* 02V-3215B	JACKET WTR STANDPIPE DRN	CLOSED	
1P41* 01V-7014B	JACKET WTR CLR *PI-049B ROOT	OPEN	
1P41* 01V-3039B	INST TRP OFF PI-049B ROOT	CLOSED	
1P41* 01V-7015B	JACKET WTR CLR PRESS TEST POINT	CLOSED	
1P41* 01V-7018B	JACKET WTR CLR *FT-018B ROOT	OPEN	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-102

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1P41* 01V-7019B	JACKET WTR CLR *FT-018B ROOT	OPEN	
1P41* 06V-0015B	JACKET WTR CLR OUTLET ISO	THROTTLED OPEN	
1P41* 01V-3020B	JACKET WTR DISCH VENT	CLOSED	
1P41* 01V-3067B	JACKET WTR RELIEF VALVE DISCH VENT	CLOSED	
1R43* 01V-8002B	PRELUBE FILTER INLET *PI-101B ROOT	OPEN	
1R43* 01V-8003B	PRELUBE FILTER OUTLET *PI-102B ROOT	OPEN	
1R43* 01V-8015B	DUPLEX FILTER *FL-811B HI PRESS ROOT	OPEN	
1R43* 01V-8016B	DUPLEX FILTER *FL-811B CROSSTIE	OPEN	
1R43* 01V-8017B	DUPLEX FILTER *FL-811B HI PRESS ROOT	OPEN	
1R43* 01V-8018B	DUPLEX FILTER *FL-811B CROSSTIE	OPEN	
1R43* 01V-8019B	LUBE OIL SUMP TANK *TK-802B DRAIN	CLOSED	
1R43* 01V-8023B	*PI-800B ROOT	OPEN	

SPF 23.307.01-4B Rev. 12

VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-102

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-8024B	*PI-801B ROOT	OPEN	
1R43* 01V-8025B	L.O. LOW PRESSURE BLEED VALVE	CLOSED	
1R43* 01V-8027B	*PI-802B ROOT	OPEN	
1R43* 01V-8029B	*PI-803B ROOT	OPEN	
1R43* 01V-8030B	*PI-804B ROOT	OPEN	
1R43* 01V-8038B	INSTRUMENT AIR SUPPLY TO PNL DG2	OPEN	
1R43* 01V-8039B	*PS-045B ROOT	OPEN	
1R43* 02V-0202B	FUEL OIL TRANSFER PUMP P201B DISCH VALVE	OPEN	
1R43* 02V-0203B	FUEL OIL TRANSFER PUMP P202B DISCH VALVE	OPEN	

SPF 23.307.01-4B Rev. 12

VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-102

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 04V-0216B	1R43*TK-132B FILL VALVE	CLOSED	
1R43* 01V-7302B	F.O. TRANSFER *PS-054B ISOLATION VALVE	OPEN	
1R43* 01V-0219B	JACKET WATER STANDPIPE *TK-803B FILL VALVE	CLOSED	
1R43* 01V-8021B	JACKET WATER STANDPIPE *TK-803B DRAIN VALVE	CLOSED	
1R43* 02V-801B	JACKET WATER COOLER E-013B CONTROL VALVE THERMOSTATIC	THERMO	
1R43* 02V-800B	L.O. COOLER E-801A THERMOSTATIC CONTROL VALVE	THERMO	
1R43* 01V-8031B	PI-049B ISOLATION VALVE SERVICE WATER)	OPEN	
1R43* 01V-7317B	LT-005B ISOLATION VALVE (HIGH SIDE)	OPEN	
TEMPORARY VALVE	TURBO. L.O. DRIP FULL FLOW BYPASS VALVE	CLOSED	

SPF 23.307.01-4C Rev. 12

VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-103

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
	EDG FUEL OIL STORAGE TANKS - YARD		
	EDG ROOM C EL-22'6"		
1R43* 03V-0210C	AFT STARTING AIR VLV SOV-046C ISO	OPEN	
1R43* 03V-0211C	FWD STARTING AIR VLV SOV-047C ISO	OPEN	
1R43* 01V-0221C	SOV 46C BYPS VLVE	CLOSED	
1R43* 01V-0222C	SOV 47C BYPS VLV	CLOSED	
1R43* 1V-3204C	STARTING AIR TANK *TK198C DRN	CLOSED	
1R43* 01V-7304C	STARTING AIR TANK *PS-055C ISO	OPEN	
1R43* 01V-7303C	STARTING AIR TANK *PI-064C ISO	OPEN	
1R43* 01V-3205C	STARTING AIR TANK *TK-199C DRN	CLOSED	
1R43* 01V-7305C	STARTING AIR TANK *PS-056C ISO	OPEN	
1R43* 01V-7306C	STARTING AIR TANK *PI-065C ISO	OPEN	
1R43* 01V-3207C	STARTING AIR TANK *TK-200C DRN	CLOSED	

SPF 23.307.01-4C Rev. 12

VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-103

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-7307C	STARTING AIR TANK *PS-057C ISO	OPEN	
1R43* 01V-7308C	STARTING AIR TANK *PI-066C ISO	OPEN	
1R43* 01V-3208C	STARTING AIR TANK *TK-201C DRN	CLOSED	
1R43* 01V-7309C	STARTING AIR TANK *PS-058C ISO	OPEN	
1R43* 01V-7310C	STARTING AIR TANK *PI-067C ISO	OPEN	
1R43* 01V-3211C	AIR COMP *C-003 LOW PT DRN	CLOSED	
1R43* 01V-3212C	AIR COMP *C-004C LOW PT DRN	CLOSED	
1R43* 01V-3209C	DIESEL AIR SUPPLY LOW PT DRN	CLOSED	
1R43* 01V-3210C	DIESEL AIR SUPPLY LOW PT DRN	CLOSED	
1R43* 02V-0204C	BOOSTER PUMPS SUCTION SHUTOFF	OPEN	
1R43* 02V-0206C	FUEL OIL RECIRC RETURN SHUTOFF	OPEN	
1R43* 01V-3200C	TANK *TK-135C DRAIN	CLOSED	
1R43* 01V-7200C	*LT-005C ROOT	OPEN	

SPF 23.307.01-4C Rev. 12

VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-103

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-7311C	PUMP *P-109C SUCTION STRAINER *PDS-094C ISO	OPEN	
1R43* 01V-7312C	PUMP *P-109C SUCTION STRAINER *PDS-094C ISO	OPEN	
1R43* 01V-7313C	PUMP *P-242C SUCTION STRAINER *PDS-085C ISO	OPEN	
1R43* 01V-7314C	PUMP *P-242C SUCTION STRAINER *PDS-085C ISO	OPEN	
1R43* 01V-7315C	*PI-074C ROOT	OPEN	
1R43* 01V-7316C	*PI-075C ROOT	OPEN	
1R43* 01V-3213C	FUEL OIL CONSUMPTION TEST CONN	CLOSED	
1R43* 01V-3202C	FUEL OIL CONSUMPTION TEST CONN	CLOSED	
1R43* 02V-0220	JACKET WTR STANDPIPE FILL	CLOSED	
1R43* 02V-3216	JACKET WTR STANDPIPE DRN	CLOSED	
1P41* 01V-7014C	JACKET WTR CLR *PI-049C ROOT	OPEN	
1P41* 01V-3039C	INST TRP OFF *PI-049C ROOT	CLOSED	
1P41* 01V-7015C	JACKET WTR CLR PRESS TEST POINT	CLOSED	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-103

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1P41* 01V-7018C	JACKET WTR CLR *FT-018C ROOT	OPEN	
1P41* 01V-7019C	JACKET WTR CLR *FT-018C ROOT	OPEN	
1P41* 06V-0015C	JACKET WTR CLR OUTLET ISO	OPEN	
1P41* 01V-3020C	JACKET WTR DISCH VENT	CLOSED	
1P41* 01V-3067C	JACKET WTR RELIEF VALVE DISCH VENT	CLOSED	
1R43* 01V-8002C	PRELUBE FILTER INLET *PI-101C ROOT	OPEN	
1R43* 01V-8003C	PRELUBE FILTER OUTLET *PI-102C ROOT	OPEN	
1R43* 01V-8015C	DUPLEX FILTER *FL-811C HI PRESS ROOT	OPEN	
1R43* 01V-8016C	DUPLEX FILTER *FL-811C CROSSTIE	OPENED	
1R43* 01V-8017C	DUPLEX FILTER *FL-811C HI PRESS ROOT	OPENED	
1R43* 01V-8018C	DUPLEX FILTER *FL-811C CROSSTIE	OPEN	
1R43* 01V-8019C	LUBE OIL SUMP TANK *TK-802C DRAIN	CLOSED	
1R43* 01V-8023C	*PI-800C ROOT	OPEN	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-103

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 01V-8024C	*PI-801C ROOT	OPEN	
1R43* 01V-8025C	L.O. LOW PRESSURE BLEED VALVE	CLOSED	
1R43* 01V-8027C	*PI-802C ROOT	OPEN	
1R43* 01V-8029C	*PI-803C ROOT	OPEN	
1R43* 01V-8030C	*PI-804C ROOT	OPEN	
1R43* 01V-8038C	INSTRUMENT AIR SUPPLY TO PNL-DG3	OPEN	
1R43* 01V-8039C	*PS-045C ROOT	OPEN	
TEMPORARY VALVE	TURBO L.O. DRIP FULL FLOW BYPASS VALVE	CLOSED	
1R43* 02V-0202C	FUEL OIL TRANSFER PUMP P201C DISCH VALVE	OPEN	
1R43* 02V-0203C	FUEL OIL TRANSFER PUMP P202C DISCH VALVE	OPEN	

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VALVE LINEUP CHECKLIST
EMERGENCY DIESEL GENERATORS (EDG)
*G-103

VALVE NUMBER	DESCRIPTION	REQUIRED POSITION	*** INITIALS
1R43* 04V-0216C	1R43*TK-132C FILL VALVE	CLOSED	
1R43* 01V-7302C	FUEL OIL TRANSFER *PS-054C ISOLATION VALVE	OPEN	
1R43* 01V-0219C	JACKET WATER STANDPIPE *TK-803C FILL VALVE	CLOSED	
1R43* 01V-8021C	JACKET WATER STANDPIPE *TK-803C DRAIN VALVE	CLOSED	
1R43* 02V-801C	JACKET WATER COOLER E-013C CONTROL VALVE THERMOSTATIC	THERMO	
1R43* 02V-800C	L.O. COOLER E-801C THERMOSTATIC CONTROL VALVE	THERMO	
1R43* 01V-8031C	PI-049C ISOLATION VALVE (SERVICE WATER)	OPEN	
1R43* 01V-7317C	LT-005C ISOLATION VALVE (HIGH SIDE)	OPEN	
TEMPORARY VALVE	TURBO L.O. DRIP FULL FLOW BYPASS VALVE	CLOSED	

SPF 23.307.01-4C Rev. 12

SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-101

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
1R43*E-113A	Diesel Generator Air Compressor Aftercooler	1R35*PNL-R3 BKR. 11	ON	
1R43*AD-002A	Air Dryer, Diesel Generator 101	1R35*PNL-R3 BKR. 06	ON	
1R43*AD-003A	Air Dryer, Diesel Generator 101	1R35*PNL-R3 BKR. 07	ON	
1R43*PNL*DG1	Diesel Generator 101 Control Panel *PNL-DG1 Engine Control Circuit	1R42*PNL-A1 BKR. 01	ON	
1R43*PNL-DG1	Diesel Generator 101 Control Panel *PNL-DG1 Voltage Regulator Circuit	1R42*PNL-A1 BKR. 02	ON	
1R43*PNL-GP1	Generator Control Panel *PNL-GP1 Field Flash	1R42*PNL-A1 BKR. 12	ON	
1R43*P-109A	Diesel Fuel Oil Booster Pump *P-109A	1R42*PNL-A1 BKR. 09	ON	
1R43*C-003A	Starting Air Compressor *C-003A	MCC-1116/10AC	ON	
1R43*C-004A	Starting Air Compressor *C-004A	MCC-1116/11AC	ON	
1R43*H-012A	Generator Space Heater *H-012A	MCC-1116/10G1	ON	

SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-101

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
1R43*H-014A	Diesel Jacket Water Heater *H-014A	*MCC-1116/10JM	ON	
1R43*H-014D	Diesel Jack Water Heater *H-014D	*MCC-1116/11JM	ON	
1R43*H-015A	Diesel Lube Oil Heater *H-015A	*MCC-1116/10DF	ON	
1R43*P-201A	Diesel Fuel Oil Transfer Pump *P-201A	*MCC-1116/1GI	ON	
1R43*P-202A	Diesel Fuel Oil Transfer Pump *P-202A	*MCC-1116/1JL	ON	
1R43*P-226A	Diesel Before and After L.O. Pump *P-226A	*MCC-1116/11GI	ON	
1R43*P-238A	Diesel Jacket Water Keep Warm Pump *P-238A	*MCC-1116/11DF	ON	
N/A	Diesel 101 Start Circuit 1R43*A12	1R43*PNL-DG1/BKR 1	ON	
N/A	Diesel 101 Start Circuit 1R43*A22	1R43*PNL-DG1/BKR2	ON	
N/A	Diesel 101 Shutdown Circuit 1R43*A23	1R43*PNL-DG1/BKR 3	ON	

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SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-101

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
N/A	Diesel 101 Voltage Regulator Circuit 1R43A26	1R43*PNL-DG1/BKR 4	ON	
1R43*E-112A	Diesel Air Compressor Aftercooler	1R35*PNL-R3 BKR. 09	ON	
1R43*PNL-DG1	Diesel Generator 101 Control Panel *PNL-DG1	1R35*PNL-R3 BKR. 05	ON	
1R43*T1-800A 1R43*FN-081A	Diesel Crankcase Vent Fan Doric Temp Indicator	*PNL-DG1/ AC BKR	ON	
1R43*PNL-DG1	Diesel Generator 101 Control Panel *PNL-DG1	1R42*PNL-A1 BKR 03	ON	
1R43*PNL-GP1	Generator 101 Control Panel Heaters	1R35*PNL-R3 BKR 03	ON	

SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-102

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
1R43*E-113B	Diesel Generator Air Compressor Aftercooler	1R35*PNL-B3 BKR 11	ON	
1R43*AD-002B	Air Dryer, Diesel Generator 102	1R35*PNL-B3 BKR 06	ON	
1R43*AD-003B	Air Dryer, Diesel Generator 102	1R35*PNL-B3 BKR 07	ON	
1R43*PNL-DG2	Diesel Generator 102 Control Panel *PNL-DG2 Engine Control Circuit	1R42*PNL-B1 BKR 01	ON	
1R43*PNL-DG2	Diesel Generator 102 Control Panel *PNL-DG2 Voltage Regulator Circuit	1R42*PNL-B1 BKR 02	ON	
1R43*PNL-GP2	Generator Control Panel *PNL-GP2 Field Flash	1R42*PNL-B1 BKR 12	ON	
1R43*P-109B	Diesel Fuel Oil Booster Pump *P-109B	1R42*PNL-B1 BKR 09	ON	
1R43*C-003B	Starting Air Compressor *C-003B	MCC-1126/11AC	ON	
1R43*C-004B	Starting Air Compressor *C-004B	MCC-1126/12AC	ON	
1R43*H-012B	Generator Space Heater *H-012B	MCC-1126/11GI	ON	

SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-102

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
1R43*H-014B	Diesel Jacket Water Heater *H-014B	MCC-1126/2JM	ON	
1R43*H-014E	Diesel Jacket Water Heater *H-014E	MCC-1126/3JM	ON	
1R43*H-015B	Diesel Lube Oil Heater *H-015B	MCC-1126/11DF	ON	
1R43*P-201B	Diesel Fuel Oil Transfer Pump *P-201B	MCC-1126/1GI	ON	
1R43*P-202B	Diesel Fuel Oil Transfer Pump *P-202B	MCC-1126/1JL	ON	
1R43*P-226B	Diesel Before and After L.O. Pump *P-226B	MCC-1126/12GI	ON	
1R43*P-238B	Diesel Jacket Water Keep Warm Pump *P-238B	MCC-1126/12DF	ON	
N/A	Diesel 102 Start Circuit 1R43*B12	1R43*PNL-DG2/BKR 1	ON	
N/A	Diesel 102 Start Circuit 1R43*B22	1R43*PNL-DG2/BKR 2	ON	
N/A	Diesel 102 Shutdown Circuit 1R43*B23	1R43*PNL-DG2/BKR 3	ON	

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SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-102

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
N/A	Diesel 102 Voltage Regulator Circuit 1R43-B26	1R43*PNL-DG2/BKR 4	ON	
1R43*E-112B	Diesel Air Compressor Aftercooler	1R35*PNL-B3 BKR 09	ON	
1R43*PNL-DG2	Diesel Generator 102 Control Panel	1R35*PNL-B3 BKR. 05	ON	
1R43*TI-800B 1R43*FN-081B	Diesel Crankcase Vent Fan & Doric Temp Indicator	PNL-DG2/ AC BKR	ON	
1R43*PNL-DG2	Diesel Generator 102 Control Panel *PNL-DG2	1R42*PNL-B1 BKR. 03	ON	
1R43*PNL-GP2	Generator 102 Control Panel Heaters	1R35*PNL-B3 BKR. 03	ON	

SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-103

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
1R43*E113C	Diesel Generator Air Compressor Aftercooler	1R35*PNL-02 BKR. 13	ON	
1R43*AD-002C	Air Dryer, Diesel Generator 103	1R35*PNL-02 BKR. 08	ON	
1R43*AD-003C	Air Dryer, Diesel Generator 103	1R35*PNL-02 BKR. 09	ON	
1R43*PNL-DG3	Diesel Generator 103 Control Panel *PNL-DG3 Engine Control Circuit	1R42*PNL-C1 BKR. 01	ON	
1R43*PNL-DG3	Diesel Generator 103 Control Panel *PNL-DG3 Voltage Regulator Circuit	1R42*PNL-C1 BKR. 02	ON	
1R43*PNL-GP3	Generator Control Panel *PNL-GP3 Field Flash	1R42*PNL-C1 BKR. 12	ON	
1R43*P-109C	Diesel Fuel Oil Booster Pump *P-109C	1R42*PNL-C1 BKR. 09	ON	
1R43*E-112C	Diesel Air Compressor Aftercooler	1R35*PNL-02 BKR. 12	ON	
1R43*PNL-DG3	Diesel Generator 103 Control Panel *PNL-DG3	1R35*PNL-02 BKR. 07	ON	
1R43*FN-081C	Diesel Crankcase Vent Fan	PNL-DG3 AC/BKR	ON	

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SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-103

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
1R43*C-003C	Starting Air Compressor *C-003C	MCC-1134/1CE	ON	
1R43*C-004C	Starting Air Compressor *C-004C	MCC-1134/2KM	ON	
1R43*H-012C	Generator Space Heater *H-012C	MCC-1134/3KM	ON	
1R43*H-014C	Diesel Jacket Water Heater *H-014C	MCC-1134/4GJ	ON	
1R43*H-014F	Diesel Jacket Water Heater *H-014F	MCC-1133/2IL	ON	
1R43*H-015C	Diesel Lube Oil Heater *H-015C	MCC-1134/4KM	ON	
1R43*P-201C	Diesel Fuel Oil Transfer Pump *P-201C	MCC-1134/1FH	ON	
1R43*P-202C	Diesel Fuel Oil Transfer Pump *P-202C	MCC-1134/1IK	ON	
1R43*P-226C	Diesel Before and After L.O. Pump *P-226C	MCC-1134/4DF	ON	
1R43*P-238C	Diesel Jacket Water Keep Warm Pump *P-238C	MCC-1134/5AC	ON	

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SYSTEM COMPONENT POWER SUPPLY CHECKLIST
Emergency Diesel Generators
Emergency Diesel Generator *G-103

***A Second Qualified Operator Should Verify Proper Alignment

Component Number	Component Description	Power Supply/ Breaker Number	Required Position	*** Initials
N/A	Diesel 103 Start Circuit 1R43*C12	1R43*PNL-DG3 BKR. 1	ON	
N/A	Diesel 103 Start Circuit 1R43*C22	1R43*PNL-DG3 BKR 2	ON	
N/A	Diesel 103 Shutdown Circuit 1R43*C23	1R43*PNL-DG3/BKR 3	ON	
N/A	Diesel 103 Voltage Regulator Circuit 1R34-C26	1R43*PNL-DG3/BKR 4	ON	
1R43*PNL-DG3	Diesel Generator 103 Control Panel *PNL-DG3	1R42*PNL-C1/BKR 5	ON	
1R43*PNL-GP3	Generator 103 Control Panel Heaters	1R35*PNL-02 BKR. 03	ON	

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OPERATIONAL SURVEILLANCE LOG SHEETS

	Signature	Initials	Time	Date
Authorization for Start	_____ Watch Engineer	_____	_____	_____
Initiated By	_____	_____	_____	_____
Completed By	_____	_____	_____	_____
Review By	_____ Watch Engineer	_____	_____	_____

Step No.	Procedure	Initial
	Time:	
	Date:	
	Hr. Meter Reading Start/Fin.	
	Gen. Load KW/KVAR	
	Lube Oil Temp. In/Out	
	Lube Oil Press. Eng/Turbo	
	Lube Oil Sump Tk. Level	
	Lube Oil Sump Tk. Press.	
	Lube Oil Filt. Diff. Press.	
	Lube Oil Strain. Diff. Press.	
	Jacket Water Temp. In/Out	
	Jacket Water Pressure	
	Jacket Water Level	
	Combustion Air Pressure	

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Combustion Air Temperature							
F.O. Press P.I. At DG Panel							
Fuel Pump Discharge Press.							
F.O. Strainer Diff. Press							
Crankcase Pressure							
Starting Air Pressure							
Group 1 Shutdown Pressure							
Turbo Exhaust Temperature							
Dav Tank Level Start/Finish	/	/	/	/	/	/	/
Fuel Rack Position Cvl. #1							
Gen. Pedestal Brg. Temp.							
Generator Winding Temp.							
Generator Field Current							
Generator Field Voltage							
Generator Stator Current							
Generator Voltage							
Serv. Wtr. Pressure/Flow	/	/	/	/	/	/	/
In/Out Serv. Wtr. To J.W. Cool Temp.	/	/	/	/	/	/	/
Room Temperature							
Outside Temperature							

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Outside Barometric Press.							
Cyl. Exhaust Temp. Cyl. #1							
Cyl. #2							
Cyl. #3							
Cyl. #4							
Cyl. #5							
Cyl. #6							
Cyl. #7							
Cyl. #8							

The following data should be recorded prior to the end of the test run M&TE#_____

Cyl. Firing Press./Rack Position Cyl. #1 /

Cyl. #2 /

Cyl. #3 /

Cyl. #4 /

Cyl. #5 /

Cyl. #6 /

Cyl. #7 /

Cyl. #8 /

Remarks, Comments or Additional Data:

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EMERGENCY DIESEL GENERATOR ENGINE BARRING CHECKLIST

	Signature	Initials	Time	Date
Authorization for Start	_____ Watch Engineer	_____	_____	_____
Initiated By	_____	_____	_____	_____
Completed By	_____	_____	_____	_____
Review By	_____ Watch Engineer	_____	_____	_____

Step No.	Procedure	Initial
	Notify the on-duty NSO that the Emergency Diesel Generator is about to be placed in an inoperable condition and obtain his permission to proceed.	_____
	Place the mode switch for EDG_____in LOCKOUT.	_____
	Open all cylinder head leakage indicator cocks.	_____
	Ensure that the load limit setting on the governor actuator is in the full counterclockwise position (minimum).	_____
	Lower and engage the barring device and bar the engine over two complete revolutions noting if oil or moisture is ejected from the indicator cocks.	_____
	Disengage the barring device and secure in the standby position.	_____
	Place the mode control switch in the LOCAL position.	_____
	Close engine air supply valve 03V-0210.	_____

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Depress the STOP pushbutton located on the diesel engine while depressing at the diesel control panel and allow the engine to roll at least two revolutions. If any resistance to free rotation is noted, immediately notify the Watch Engineer. _____

Release the START pushbutton at the diesel control panel and then release the STOP pushbutton located on the diesel engine. _____

Inspect all indicator cocks for any sign of oil or water. If any is noted immediately notify the Watch Engineer. _____

Return the governor load limit knob on the governor actuator to the maximum position (fully clockwise). _____

Second Verification Signature _____

Close all cylinder head leakage indicator cocks. _____

Second Verification Signature _____

Reopen air supply valve 03V-0210. _____

Second Verification Signature _____

Place the local control switch to REMOTE and notify the on-duty NSO that the barring of Emergency Diesel Generator number_____ is completed and that the second verification have been completed. _____

Second Verification Signature _____

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