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05-25-90

GENERATOR AND ENGINE CONTROL PANEL FUNCTIONAL TEST PROCEDURE

REV.	REASONS FOR REVISION	DATE
0	New Procedure	11/02/89
1	Correct Typos	02/20/90
2	Correct Typos, Correct completion Sheet	

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1.0 PURPOSE

The purpose of this procedure is to verify the control system functions. This procedure is not intended to verify the calibration of the devices within the panel.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 If only portions of the procedure are required:

2.1.1 Contact the Maintenance Foreman.

2.1.2 Use only the steps that apply.

2.1.3 Document the steps used in the comments section of the "Completion" or "Data" sheet.

2.1.4 N/A the steps that were not used.

2.2 Steps in this Procedure may be performed out of sequence only:

2.2.1 With prior approval of the Maintenance Foreman.

2.2.2 If they do not violate the intent of the Procedure.

2.2.3 Are documented in the "Comments" section of the "Completion" Sheet.

2.3 Maintenance area cleanliness in accordance with Procedure 21427-C, "Maintenance Cleanliness And Housekeeping Control".

3.0 PREREQUISITES AND INITIAL CONDITIONS

3.1 Prior to beginning work, notify QC if:

3.1.1 Hold points are indicated on the "Completion" AND/OR "Data Sheet".

3.1.2 The MWO/Work Package has a QC hold point.

3.2 Starting air pressure must be available to the control panel.

3.3 AC and DC power to the panel must be available.

3.4 Fuel supply to the engine is isolated and tagged out.

3.5 DG breaker is racked out to prevent inadvertent closure.

3.6 Local/Remote switch is in the remote position

3.7 Both starting air receiver are above the low alarm set point.

4.0 TEST SET-UP MAINTENANCE MODE AND ENGINE ROLL CHECKOUT

4.1 TEST SET-UP

4.1.1 */* Verify all prerequisites and Initial conditions have been met.

4.1.2 */* Notify Shift supervisor of work to be performed.

4.1.3 */* Verify all applicable equipment is fully isolated and tagged in accordance with procedure 00304-C, "Equipment clearance and tagging".

4.1.4 */* Disconnect and lift instrument, control and power leads from the equipment as required.

a. Ensure each wire is marked so that it can be uniquely identified with its termination point.

b. Record their removal by wire number and termination point in the "Power and Signal Removal/Replacement Data" Sheet.

c. To install jumpers or lift wires, other than those directly associated with the equipment tag number(s) or scheme number(s) listed on the Work Order.

(1) Notify Shift Supervisor.

(2) Comply with his instructions.

NOTE

The following procedural steps are intended to prepare the engine control system for actual functional tests. All numbers shown in ( ) are wire numbers.

4.1.5 Trip - "Low Pressure Lube Oil":

4.1.5.1 */* Disconnect incoming tubing at bulkhead fitting E10-A in panel and cap bulkhead fitting.

4.1.5.2 */* Disconnect incoming tubing at bulkhead fitting E-10B in panel and cap bulkhead fitting.

4.1.5.3 */* Disconnect incoming tubing at bulkhead fitting E-10C in panel and cap bulkhead fitting.

4.1.6 Trip - "Low Pressure Turbocharger Lube oil":

4.1.6.1 */* Disconnect incoming tubing at bulkhead fitting E-92 in panel and cap bulkhead fitting.

4.1.7 Trip - "Low Pressure Jacket Water":

4.1.7.1 */* Disconnect incoming tubing at bulkhead fitting E-14 in panel and cap bulkhead fitting.

4.1.8 Open the following sliding link terminals:

4.1.8.1 */* A-Bank Starting Air Valve.
Terminals E5 (4) and E4 (2).

4.1.8.2 */* B-Bank Starting Air Valve.
Terminals L5 (105) and L4 (102).

4.1.8.3 Field Flash, Exciter Reg Enable.
Terminals E19 (53), E22 (56), E17 (51), and E21 (55).

4.1.8.4 */* Preset V.R. and Gov.:
Terminals E23 (57), E18 (52), and E24 (59).

4.1.8.5 */* Ready to Load, DG Brkr.:
Terminals F5 (77) and F6 (78).

4.1.8.6 */* Ready to Load, HVAC Sys.:
Terminals E57 (46) and E58 (47).

4.1.8.7 */* Ready to Load, Spare.
Terminals E59 (48) and E60 (49).

4.1.8.8 */* Start, Spare.
Terminals F1 (73) and F2 (74).

4.1.8.9 Stop, Spare.
/
Terminals F3 (75) and F4 (76).

4.1.8.10 Pre-position Gov and V.R.
/
Terminals L30 (170) and L31 (171).

4.1.8.11 186C Trip Delay
Terminals L32 (172) and L33 (173).

4.1.8.12 Field Flash, Exciter Reg Enable.
/
Terminals L23 (153), L20 (141), L21 (144), and L24 (155).

4.1.8.13 Trip 52G.
/
Terminals L51 (159) and L52 (160).

4.1.8.14 Emergency Stop.
/
Terminals L53 (164) and L54 (165).

4.1.8.15 Running, Spare.
/
Terminals L55 (166) and L56 (167).

4.1.8.16 Running, Spare.
/
Terminals L57 (168) and L58 (169).

4.1.8.17 Overspeed, Spare.
/
Terminals L59 (179) and L60 (180).

4.1.8.18 Running W/Delay.
/
Terminals L35 (175) and L36 (176).

4.1.8.19 Ready to Load - HVAC System.
/
Terminals L9 (137) and L10 (138).

4.1.8.20 Ready to Load - Spare.
/
Terminals L11 (139) and L12 (140).

4.1.8.21 Emergency Stop.
/
Terminals L14 (336) and L15 (337).

4.1.8.22 ERF Computer.
/
Terminals L49 (S4B1) and L50 (S4B2).

4.1.8.23 Emergency Stop Annunciation.
/
Terminals L25 (79-180) and L26 (90-180).

4.1.8.24 CC Fan #1.
/
Terminals C3 (244) and C9 (245).

4.1.8.25 CC Fan #2.
/ Terminals C5 (246) and C11 (247).

4.1.8.26 Generator Space Heater Control.
/ Terminals C7 (239) and C8 (240).

4.1.8.27 Running Contacts.
/ Terminals G3 (253), G4 (254), G5 (255), G6 (256), G7 (257), G8 (258), G9 (259), G10 (260), G11 (161), and G12 (162).

4.1.8.28 Running W/Delay Contacts.
/ Terminals G13 (263), G14 (264), G15 (265), G16 (266), G17 (267), G18 (268), G19 (269), G20 (270), G21 (271), G22 (272), G23 (273) and G24 (274).

4.1.8.29 Loss of DC Annunciation.
/ Terminals H1 (275) and H2 (276).

4.1.8.30 Mechanical Trouble Alarm.
/ Terminals H19 (298) and H20 (299).

4.1.8.31 Lockout Alarm.
/ Terminals H3 (277) and H4 (278).

4.1.8.32 Failed to Start.
/ Terminals H7 (281) and H8 (282).

4.1.8.33 Unit Available Local Control.
/ Terminals H9 (283) and H10 (284).

4.1.8.34 Unit Available.
/ Terminals H11 (285), H12 (286), H13 (287), H14 (288), H15 (289), and H16 (290).

4.1.8.35 Alarm.
/ Terminals H17 (296) and H18 (297).

4.1.8.36 Loss of DC Power.
/ Terminals A35 (612) and A36 (613).

4.1.8.37 DG Brkr Inop.
/ Terminals F7 (79) and F8 (80).

4.1.9 Open toggle switches to de-energize hourmeter.
/

4.1.10 A-Bank Starting Air Valve:

4.1.10.1 ___/___ At on-engine "EJBA" Junction Box, disconnect engine wire number 4 and tape wire end.

4.1.11 B-Bank Starting Air Valve:

4.1.11.1 ___/___ At on-engine "EJBB" Junction Box, disconnect engine wire number 105 and tape wire end.

4.1.12 ___/___ Verify that all circuit breakers are closed.

4.1.13 ___/___ Verify 60 psi at control air pressure gauge.

4.1.14 ___/___ Verify 125 vdc across circuit breakers CB-1 and CB-2, CB-3 and CB-4.

4.1.15 Manual Permissive Start - "A" Side:

4.1.15.1 Jumper terminals E49 (3) and E50 (11).

4.1.16 Manual Permissive Start - "B" Side:

4.1.16.1 Jumper terminals L37 (106) and L42 (110).

4.2 MAINTENANCE MODE AND ENGINE ROLL CHECKOUT

4.2.1 ___/___ Jumper terminals L45 (101) and L48 (129), Control Room permissive for maintenance mode.

4.2.2 Lockout Alarm & Unit Available.

4.2.2.1 ___/___ Disconnect jumper across terminals H4 (278) and H12 (286) and verify:

4.2.2.2 ___/___ Open contact across terminals H3 (277) and H4 (278).

4.2.2.3 ___/___ Open contact across terminals H9 (283) and H10 (284).

4.2.2.4 ___/___ Open contact across terminals H11 (285) and H12 (286).

4.2.2.5 ___/___ Contact closure across terminals H13 (287) and H14 (288).

4.2.2.6 ___/___ Contact closure across terminals H15 (289) and H16 (290).

4.2.3 Depress maintenance mode pushbutton and verify:

4.2.3.1 */* Engine shutdown cylinder is extended.

4.2.3.2 */* Maintenance lockout alarm is energized.

4.2.3.3 */* Unit available emergency status light is deenergized.

4.2.3.4 */* Group I pressure gauge indicates 0 psi.

4.2.3.5 */* The engine barring device lockout pin can be removed.

4.2.3.6 The stopping light is energized.

4.2.3.7 */* Contact closure across terminals B21 (565) and B22 (566).

4.2.3.8 */* Contact closure across terminals H3 (277) and H4 (278).

4.2.3.9 */* Contact closure across terminals H9 (283) and H10 (284).

4.2.3.10 */* Contact closure across terminals H11 (285) and H12 (286).

4.2.3.11 */* Open contact across terminals H13 (287) and H14 (288).

4.2.3.12 */* Open contact across terminals H15 (289) and H16 (290).

4.2.4 */* Reconnect jumper across H4 (278) and H12 (286).

4.2.5 Push engine roll pushbutton and verify:

4.2.5.1 */* 125 vdc across terminal E4 (2) and E5 (4), "A" side starting valve.

4.2.6 Push normal start pushbutton and verify:

4.2.6.1 */* No voltage across terminals E4 (2) and E5 (4), "A" side starting air valve.

4.2.6.2 ___/___ No voltage across terminals L4 (102) and L5 (105), "B" side starting air valve.

4.2.7 ___/___ Disconnect wire 564 (tape wire) at PS-46N and verify:

4.2.7.1 ___/___ Relay R35 is de-energized.

4.2.7.2 ___/___ Open contact across terminals B21 (565) and B22 (566).

4.2.7.3 ___/___ Maintenance lockout alarm is de-energized.

4.2.8 Release engine barring device and verify:

4.2.8.1 ___/___ Barring device engaged alarm energized.

4.2.8.2 ___/___ Contact closure across terminals B27 (590) and B28 (591).

4.2.8.3 ___/___ Relay R35 is energized.

4.2.9 Push return to operational pushbutton:

4.2.9.1 Push engine roll pushbutton and verify:

4.2.9.1.1 ___/___ 125 vdc across terminals E4 (2) and E5 (4), "A" side starting valve.

4.2.9.2 Push normal start pushbutton and verify:

4.2.9.2.1 ___/___ No voltage across terminals E4 (2) and E5 (4), "A" side starting air valve.

4.2.9.2.2 ___/___ No voltage across terminals L4 (102) and L5 (105), "B" side starting air valve.

4.2.10 Lockout engine barring device and verify:

4.2.10.1 ___/___ Barring device engaged alarm is de-energized.

4.2.10.2 ___/___ Open contact across terminals B27 (590) and B28 (591).

4.2.10.3 Relay R35 is de-energized.
/

4.2.11 Reconnect wire 564 at pressure switch PS-46N, Maintenance lockout alarm and verify:
/

4.2.11.1 Relay R35 is energized.
/

4.2.11.2 Maintenance Lockout alarm is energized.
/

4.2.12 Push return to operational pushbutton and verify:

4.2.12.1 Engine shutdown cylinder is retracted.
/

4.2.12.2 Group I pressure gauge indicates 60 psi.
/

4.2.12.3 Maintenance lockout alarm is de-energized.
/

4.2.12.4 Unit available emergency status light is energized.
/

4.2.12.5 The ergine barring device lockout pin is in the locked position.
/

4.2.12.6 The stopping light is de-energized.
/

4.2.12.7 Ensure barring device is retracted.
/

4.2.12.8 Locking pin is installed.
/

4.2.13 Push engine roll pushbutton and varify:

4.2.13.1 No voltage across terminals E4 (2) and E5 (4), "A" side starting air valve.
/

4.2.14 Open circuit breakers CB-1 and CB-2 and verify:

4.2.14.1 No voltage across solenoid valve Sol 202-6A ("A" circuit DC Power Solenoid), wires 1 and 2.
/

4.2.14.2 "A" power available light is de-energized.
/

4.2.14.3 Engine control panel "A" failure (pos 8-2) alarm is energized. ___/___

4.2.14.4 Contact closure across terminals A17 (466) and A18 (467). ___/___

4.2.15 Remove timer TD-1B from relay socket, field flash timer. ___/___

4.2.16 Push normal start push button and verify:

4.2.16.1 125 vdc across terminals L4 (102) and L5 (105), starting air valve for 5 seconds. ___/___

4.2.16.2 Failure to start alarm is energized after 5 seconds. ___/___

4.2.16.3 Relay R1 is de-energized. ___/___

4.2.16.4 Contact closure across terminals H7 (281) and H8 (282). ___/___

4.2.16.5 Contact closure across terminals K33 (581) and K34 (582). ___/___

4.2.16.6 Relay R35 is energized. ___/___

4.2.16.7 Horn is energized. ___/___

4.2.17 Push the annunciator silent, acknowledge and reset pushbutton and verify:

4.2.17.1 Horn is de-energized. ___/___

4.2.17.2 Open contact across terminals H7 (281) and H8 (282). ___/___

4.2.17.3 Relay R35 is de-energized. ___/___

4.2.17.4 Failed to start alarm is de-energized. ___/___

4.2.18 Connect frequency generator to terminals L7 (118) and L8 (119). Push normal start pushbutton again and within 5 seconds turn on generator to 490 Hz (450 RPM) and verify:

4.2.18.1 */* Contact closure across terminals L35 (175) and L36 (176) after approx. 60 sec delay.

4.2.18.2 */* Contact closure across terminals L32 (172) and L33 (173) after approx. 60 sec delay.

4.2.18.3 */* No voltage across terminal L4 (107) and L5 (105), starting air valve.

4.2.18.4 */* Contact closure across terminals L55 (166) and L56 (167).

4.2.18.5 */* Open contact across terminals L57 (168) and L58 (169).

4.2.18.6 */* Unit running light is energized.

4.2.18.7 */* Failed to start alarm remains de-energized.

4.2.18.8 */* Closure across terminals L23 (153) and L21 (144), field flash pressure switch.

4.2.18.9 */* Open circuit across terminal L24 (155) and L23 (153), exciter reg enamble.

4.2.18.10 */* Contact closure across terminals L49 (S4B1) and L50 (S4B2), ERF computer.

4.2.18.11 */* Relays R1, R1AUX1, R2, R2AUX2 and R8 are energized.

4.2.18.12 */* Contact closure across terminals C3 (244) and C9 (245), CC Fan #1.

4.2.18.13 */* Contact closure across terminals C5 (246) and C11 (247), CC Fan #2.

4.2.18.14 */* Contact closure across terminals G3 (253) and G4 (254).

4.2.18.15 */* Contact closure across cerminals G5 (255) and G6 (256).

4.2.18.16 */* Open contact across terminals G7 (257) and G8 (258).

4.2.18.17 */* Open contact across terminals G9 (259) and G10 (260).

4.2.18.18 Open contact across terminals G11 (261) and G12 (262).
/

4.2.18.19 Contact closure across terminals G13 (263) and G14 (264).
/

4.2.18.20 Contact closure across terminals G15 (265) and G16 (266).
/

4.2.18.21 Contact closure across terminals G17 (267) and G18 (268).
/

4.2.18.22 Open contact across terminals G19 (269) and G20 (270).
/

4.2.18.23 Open contact across terminals G21 (271) and G22 (272).
/

4.2.18.24 Open contact across terminals G23 (273) and G24 (274).
/

4.2.19 Push Maintenance Pushbutton and verify:
/

4.2.19.1 Maintenance mode alarm remains de-energized.
/

4.2.20 Push local stop push button and turn off frequency generator and verify:

4.2.20.1 Open circuit across terminals L23 (153) and L21 (144), field flash pressure switch.
/

4.2.20.2 Engine shutdown cylinder is extended and verify that there is no air leakage at the pneumatic cylinder.
/

4.2.20.3 After approx. 120 sec, verify engine shutdown cylinder is retracted and vented.
/

4.2.20.4 Open contact across terminals L55 (166) and L56 (167).
/

4.2.20.5 Contact closure across terminals L57 (168) and L58 (169).
/

4.2.20.6 Unit running light is de-energized.
/

4.2.20.7 Open contact across terminals L35 (175) and L36 (176).
/

4.2.20.8 */*	Open contact across terminals L32 (172) and L33 (173).
4.2.20.9 */*	Open contact across terminals L49 (S4B1) and L50 (S4B2), ERF computer.
4.2.21	Push maintenance pushbutton and verify:
4.2.21.1 */*	Maintenance mode alarm is energized.
4.2.22	Push return to operational pushbutton and verify:
4.2.22.1 */*	Maintenance mode alarm is de-energized.
4.2.23	Install timer TD-1B into Relay Socket, field flash timer.
4.2.24	Momentarily jumper terminals L37 (106) and L43 (104), remote emergency start and verify:
4.2.24.1 */*	125 VDC across terminals L4 (102) and L5 (105), starting air solenoid.
4.2.24.2	Push maincnance mode pushbutton and verify:
4.2.24.2.1 */*	Maintenance mode alarm indication remains de-energized.
4.2.24.3 */*	Contact closure across terminals L23 (153) and L21 (144), field flash.
4.2.24.4 */*	Turn on frequency generator (setting should be at 490 Hz). Check that relays R1, R1A and R2 are energized, if not, manually set relays.
4.2.24.5 */*	Closure across Terminals L23 (153) and L21 (144), field flash pressure switch.
4.2.24.6 */*	Safety injection signal light is energized.
4.2.24.7 */*	Shutdown system active light de-energized.
4.2.24.8 */*	No voltage across terminal L4 (102) and L5 (105), starting air solenoid.

[redacted] */*		Verify jumper across terminals L37 (106) and L43 (104)is removed.
[redacted] */*		Emergency start alarm is energized.
4.2.24.11 */*		Contact closure across terminals B33 (601) and B34 (602), emergency start remote annunciator.
4.2.24.12 */*		Contact closure across terminals L22 (151) and L24 (155), exciter reg enable.
[redacted]		Push normal stop push button and verify:
4.2.25.1 */*		The stopping light remains de-energized.
4.2.26		Disconnect incoming tubing at bulkhead fitting E-18, high temp lube oil shutdown, after 60 seconds from completing step 24 above and verify:
4.2.26.1 */*		Group I pressure gauge reads below 25 psi.
4.2.26.2 */*		Engine shutdown cylinder is not extended.
4.2.26.3 */*		Trip high temp lube oil alarm is energized.
[redacted] */*		The stopping light is not energized.
4.2.26.5 */*		Contact closure across terminals J9 (426) and J10 (427), trip high temp lube oil remote annunciator.
4.2.26.6 */*		Contact closure across terminals 6 and 7 at annunciator pos 5-1, trip high temp lube oil, spare contact.
[redacted] */*		Re-connect incoming tubing at bulkhead fitting E-18, high temp lube oil shutdown and verify:
[redacted] */*		Group I pressure gauge reads 60 PSI.
[redacted] */*		Trip high temp lube oil alarm is de-energized.
4.2.27.3 */*		Open contact across terminals J9 (426) and J10 (427), trip high temp lube oil remote annunciator.

4.2.27.4 */* Open contact across terminals 66 and 7 at annunciator pos 5-1.

4.2.28 Push reset from loca pushbuttonn. Remove plug from bulkhead fitting E-92. trip loww pressure turbo oil and turn off frequency generattor and verify:

4.2.28.1 */* The stopping light is energizeed.

4.2.28.2 */* Trip low Pressure turbo oil alaarm is energized.

4.2.28.3 */* Contact closure across terminaila J21 (457) and J22 (458). Trip low press turbo oill remote annunciator.

4.2.28.4 */* Contact closure across terminalls 10 and 11 at annunciator pos 5-2, trip low ppress turbo oil spare contact.

4.2.28.5 */* Engine shutdown cylinder is exttended.

4.2.29 Manually transfer R10B relay ccontacts at the same time, push maintenance pushbuttton and verify:

4.2.29.1 */* Maintenance mode alarm indicattion remains de-energized.

4.2.30 */* Reinstall plug on bulkhead fittting E-92. Trip low pressure turbo oil and jumper ccontact SS3B wires 101 and 123, ready to load, at "B: side speed transmitter and jumper wires 1223 and 124 at relay UVR1B, under voltage relay and verify:

4.2.30.1 */* Relay R-11B is energized.

4.2.30.1.1 */* Contact closure across terminalls L9 (137) and L10 (138), running-HVAC system.

4.2.30.1.2 */* Contact closure across terminalls L11 (139) and L12 (140), running-spare.

4.2.30.1.3 */* Contact closure across terminalls F5 (77) and F6 (78), ready to load - DG breakeer.

[redacted] */* Ready to load light is energized.

[redacted] */* Remove jumper at SS3B contact, wires 101 and 123, ready to load at "B: side speed transmitter and remove jumper across wires 123 and 124 and verify:

4.2.30.2.1 */* Open contact across terminals L9 (137) and L10 (138), running-HVAC system.

4.2.30.2.2 */* Open contact across terminals L11 (139) and L12 (140), running-spare.

4.2.30.2.3 */* Open contact across terminals F5 (77) and F6 (78), ready to load-DG breaker.

[redacted] */* Ready to load light is de-energized.

4.2.31 Release Emergency Start Button and turn on frequency generator and verify:

4.2.31.1 */* No voltage across terminal L4 (102) and L5 (105), starting air solenoid.

4.2.31.2 */* Relay R5B is energized.

4.2.32 Trip overspeed trip valves on engine and then turn off frequency generator and verify:

[redacted] */* Relay R23B is energized.

4.2.32.2 */* Contact closure across terminals L51 (159) and L52 (160), trip 52G.

4.2.32.3 */* Contact closure across terminals L53 (164) and L54 (165), emergency stop.

4.2.32.4 */* Contact closure across terminals L59 (179) and L60 (180), overspeed-spare.

4.2.32.5 */* Contact closure across terminals L14 (336) and L15 (337), emergency stop.

[redacted] */* Emergency stop light energized.

/	The stopping light energized.
4.2.32.8 */*	Pressure at cylinder port of solenoid 3B.
4.2.32.9 */*	Unit available emergency status light is de-energized.
4.2.32.9.1 */*	Momentarily jumper pressure switch PS-23N, wires 225 and 226 and note no change in light status.
4.2.32.10 */*	Overspeed trip alarm is energized.
4.2.32.11 */*	Contact closure across terminal A9 (442) and A10 (443), overspeed remote annunciator.
4.2.32.12 */*	Relay R35 is energized, locked out alarm.
4.2.32.12.1	Momentarily open sliding link F11 (79) and reset annunciator and verify:
4.2.32.12.1.1 */*	Relay R35 remains energized, locked out alarm.
4.2.32.12.1.2 */*	Disabled non-reset of emergency trip alarm is de-energized.
4.2.32.13	Push normal start pushbutton and verify:
4.2.32.13.1 */*	No voltage across terminals E5 (4) and E4 (2), A-Bank starting air valve.
4.2.32.13.2 */*	No voltage across terminals L5 (105) and L4 (102), B-Bank starting air valve.
4.2.33 */*	Verify that break glass cover is reinstalled on emergency start pushbutton.
4.2.34	Depress reset from LOCA pushbutton.
4.2.35	Reset overspeed trip valves located on engine and verify:
4.2.35.1 */*	Open contact across terminals L59 (179) and L60 (180), overspeed-spare.

/

Overspeed Trip alarm is de-energized.

4.2.35.3 */*

Open contact across teerminals A9 (442) and A10 (443).

4.2.36

Push emergency stop reeset pushbutton and verify:

4.2.36.1 */*

Relay R23B is de-energized.

4.2.36.2 */*

Open contact across teerminals L51 (159) and L52 (160), trip 52G.

4.2.36.3 */*

Open contact across teerminals L53 (164) and L54 (165), emergency stop..

4.2.36.4 */*

Open contact across teerminals L14 (336) and L15 (337), emergency stop..

4.2.36.5 */*

Emergency stop light llight de-energized.

4.2.36.6

The stopping light de-energized.

4.2.36.7 */*

Relay R35 is de-energized, locked out alarm.

4.2.37

Jumper across terminalls L39 (101) and L38 (113), loss of offsite power and verify:

4.2.37.1 */*

125 VDC across terminals L4 (102) and L5 (105), starting air solenoid.

4.2.37.2 */*

DG auto start signal llight is energized.

4.2.38

Remove jumper across teerminals L39 (101) and L38 (113), loss of offsitee power and verify:

4.2.38.1 */*

No voltage across terminals L4 (102) and L5 (105), starting air solenoid.

4.2.38.2 */*

DG auto start singal llight is de-energized.

4.2.39

Manually transfer R6B relay contacts and at the same time push emergency stop reset button and verify:

4.2.39.1 */*	Contact closure across terminals L51 (159) and L52 (160).
4.2.39.2 */*	Release emergency stop reset button and then R6B relay contacts and verify:
4.2.39.2.1 */*	Relay R23B is energized.
4.2.39.2.2 */*	Contact closure across terminals L51 (159) and L52 (160).
4.2.39.2.3 */*	Contact closure across terminals L53 (164) and L54 (165).
4.2.40	Push emergency stop reset button to reset relay R23B.
4.2.41	Push emergency stop pushbutton and verify:
4.2.41.1 */*	Disabled non-reset of emergency trip alarm is energized.
4.2.41.2 */*	Contact closure across terminals A33 (503) and A34 (504), emergency trip-remote annunciator.
4.2.41.3 */*	Relay R35 is energized, locked out alarm.
4.2.42	Push emergency stop reset pushbutton and verify:
4.2.42.1 */*	Disabled non-reset of emergency trip alarm is de-energized.
4.2.42.2 */*	Open contact across terminals A33 (503) and A34 (504), emergency trip-remote annunciator.
4.2.42.3 */*	Relay R35 is de-energized, locked out alarm.
4.2.43	Disconnect frequency generator from terminals L7 (118) and L8 (119).
4.2.44 */*	Disconnect jumper across terminals L45 (101) and L48 (129), control room permissive for maintenance mode:
4.2.45	Close Circuit Breakers CB-1 and CB-2, and verify:

4.2.45.1 */*	125 vdc across solenoid valve Sol 202-6A, "A" circuit DC power, wires 1 and 2.
4.2.45.2 */*	"A" power available light is energized.
4.2.45.3 */*	Reset annunciator and verify at engine control power A failure (pos 8-2) alarm is de-energized.
4.2.45.4 */*	Open contact across terminals A17 (466) and A18 (467).
4.2.46	Open circuit breakers CB-3 and CB-4 and verify:
4.2.46.1 */*	No voltage across solenoid valve Sol 202-6B, "B" circuit DC power, wires 101 and 102.
4.2.46.2 */*	"B" power available light is de-energized.
4.2.46.3 */*	Engine control power B Failure (pos 9-2) alarm is energized.
4.2.46.4 */*	Contact clos re across terminals A19 (469) and A 20 (470).
4.2.47	Remove timer TD-1A from socket, field flash timer:
4.2.48	Push normal start pushbutton and verify:
4.2.48.1 */*	125 vdc across terminal E4 (2) and E5 (4), solenoid for 5 seconds.
4.2.48.2 */*	Failure to start alarm is energized after 5 seconds.
4.2.49	Connect frequency generator to terminals E7 (20) and E8 (21). Push normal start pushbutton again and within 5 sec turn on generator to 490 Hz (450 RPM) and verify:
4.2.49.1 */*	No voltage across terminal E4 (2) and E5 (4), starting air solenoid.
4.2.49.2 */*	Closure across panel terminals E19 (53) and E17 (51), field flash pressure switch.
4.2.49.3 */*	Open circuit across terminals E21 (55) and E19 (53), exciter reg enable.

4.2.49.4 */* Contact closure across terminals F1 (73) and F2 (74), start singal for customer's use.

4.2.49.5 */* Starting light is energized, for 5 seconds.

4.2.49.6 */* Relay R1 is energized, run/stop relay.

4.2.49.7 */* The running light is energized.

4.2.50 Disconnect incoming tubing line E-19, high temperature main bearing shutdown, to allow the system to shutdown, then turn off frequency generator and verify:

4.2.50.1 */* Engine shutdown cylinder is extended for approximately 2 minutes.

4.2.50.2 */* Closure across terminals E21 (55) and E19 (53), exciter reg enable after approx 2 minutes.

4.2.50.3 */* Trip high temperature engine main bearing alarm is energized.

4.2.50.4 */* Open circuit across terminals E19 (53) and E17 (51), field flash pressure switch.

4.2.50.5 */* Relays RR1, R1 aux, and R2 are reset.

4.2.50.6 */* Contact closure across terminals L30 (170) and L31 (171) for approximately 2 minutes, pre-position gov and V.R.

4.2.50.7 */* Contact closure across terminals F3 (75) and F4 (76) for approximately 2 minutes, stop signal.

4.2.50.8 */* Unit running light is de-energized.

4.2.50.9 */* Unit stopping light is energized for approximately 2 minutes.

4.2.50.10 */* Contact closure across terminals A3 (432) and A4 (433), main bearing trip-remote annunciator.

4.2.50.11 */* Contact closure across terminals 6 and 7 at annunciator pos. 7-1, main bearing Trip.

4.2.51 After reconnecting line E-19, main bearing trip, verify:

4.2.51.1 */* Trip high temp engine bearings alarm is de-energized.

4.2.51.2 */* Contact is open across terminals A3 (432) and A4 (433), main bearing trip-remote annunciator.

4.2.51.3 */* Contact is open across terminals 6 and 7 at annunciator pos 7-1, main bearing trip.

4.2.52 Install timer TD-1A into relay socket, field flash timer.

4.2.53 Momentarily jumper terminals E49 (3) and E51 (7) for remote emergency start and verify:

4.2.53.1 */* 125 vdc across terminals E4 (2) and E5 (4), starting air solenoid.

4.2.53.2 */* Closure across terminals E19 (53) and E17 (51), field flash pressure switch.

4.2.53.3 */* Turn on frequency generator (setting should still be at 490 Hz). Check that relays R1, R1A, and R2 are energized, if not , manually set relay.

4.2.53.4 */* Shutdown system active light is de-energized.

4.2.53.5 */* No voltage across terminals E4 (2) and E5 (4), starting air solenoid.

4.2.53.6 */* Verify jumper across terminals E49 (3) and E51 (7) is removed.

4.2.53.7 */* Contact closure across terminals E23 (57) and E18 (52), preset V.R. and gov.

4.2.54 Disconnect incoming tubing line E68, trip high pressure crankcase and verify:

4.2.54.1 */* Trip high pressure crankcase alarm is energized.

4.2.54.2 */* The engine shutdown cylinder is not extended.

4.2.54.3 */* Contact closure across terminals A5 (435) and A6 (436), high pressure crankcase remote annunciator.

4.2.54.4 */* Contact closure across terminals 6 and 7 at annunciator pos 8-1, high pressure crankcase spare contact.

4.2.55 */* Reconnect incoming tubing line E-68, trip high pressure crankcase shutdown and verify:

4.2.55.1 */* Trip high pressure crankcase alarm is de-energized.

4.2.55.2 */* Open contact across terminals A5 (435) and A6 (436) high pressure crankcase remove annunciator.

4.2.55.3 */* Open contact across terminals 6 and 7 at annunciator pos 8-1, high pressure crankcase spare contact.

4.2.55.4 */* Engine shutdown cylinder is not extended.

4.2.56 Push reset from loca pushbutton and disconnect incoming tubing line E-23H, high engine vibration shutdown. Turn off frequency generator and verify:

4.2.56.1 */* No voltage across terminals E4 (2) and E5 (4), starting air solenoid.

4.2.56.2 */* Closure across terminals E21 (55) and E19 (53, exciter reg. enable, after approximately 2 minutes.

4.2.56.3 */* Engine shutdown cylinder is extended for approx 2 minutes.

4.2.56.4 */* Trip vibration alarm is energized.

4.2.56.5 */* Contact closure across terminals A7 (439) and A8 (440), trip vibration remote annunciator.

4.2.56.6 */* Contact closure across terminals 6 and 7 and annunciator pos 9-1, trip vibration spare contact.

4.2.56.7 */* Open contact across terminals E23 (57) and E18 (52), preset V.R. and gov.

[illegible] */*		Reconnect incoming tubing line E-23-H, trip engine vibration and verify
4.2.57.1 */*		Trip vibration alarm is de-energized.
4.2.57.2 */*		Open contact across terminals A7 (439) and A8 (440), trip vibration remote annunciator.
4.2.57.3 */*		Open contact across terminals 6 and 7 at annunciator pos 9-1, trip vibration spare contact.
4.2.58		Release emergency start pushbutton and turn on frequency generator. After 60 seconds, depress and install glass in the emergency start pushbutton, push reset from loca pushbutton and disconnect plugged tubing line E-14, low pressure jacket water shutdown, and verify:
4.2.58.1 */*		Trip low pressure jacket water alarm is energized.
4.2.58.2 */*		Engine shutdown cylinder is extended for approximately 2 minutes.
4.2.58.3 */*		Contact closure across terminals A27 (494) and A28 (495), trip low pressure jacket water remote annunciator.
4.2.58.4 */*		Contact closure across terminals 6 and 7 at annunciator pos 17-1, low pressure jacket water spare contact.
4.2.58.5 */*		Contact closure across terminals L51 (159) and L52 (160), for approximately 2 minutes.
4.2.58.6 */*		Contact closure across terminals L23 (153) and L20 (141), exciter reg lockout, for approximately 2 minutes.
4.2.58.7 */*		Contact closure across terminals E19 (53) and E22 (56), exciter reg lockout, for approximately 2 minutes.
4.2.59 */*		Reconnect plug to panel tubing line E14, trip low pressure jacket water. Turn off frequency generator and verify:

[redacted] */*	Trip low pressure jacket water alarm is de-energized.
4.2.59.2 */*	Open contact across terminals A27 (494) and A28 (495), trip low pressure jacket water remote annunciator.
4.2.59.3 */*	Open contact across terminals 6 and 7 at annunciator pos 17-1, low pressure jacket water spare contact
4.2.60	Jumper contact SS3A, wires 1 and 27, ready to load at "A" side speed transmitter, jumper wires 27 and 28 at relay UVR1A, under voltage relay and verify:
4.2.60.1 */*	Relay R-11A is energized and remove jumper after verification of R-11A and completion of steps 60.2, 3 and 4.
4.2.60.2 */*	Contact closure across terminals E57 (46) and E58 (47), ready to load, HVAC system.
4.2.60.3 */*	Contact closure across terminals E59 (48) and E60 (49), ready to load-spare.
4.2.60.4 */*	Ready to load lights energized.
4.2.60.5 */*	Open contact across terminals E57 (46) and E58 (47) ready to load - HVAC system.
4.2.60.6 */*	Open contact across terminal E59 (48) and E60 (49) ready to load - HVAC system.
4.2.60.7 */*	Ready to load light is de-energized.
4.2.60.8 */*	Remove Jumper contact SS-3A, wires 1 and 27, ready to load, at "A: side speed transmitter and jumper at wires 27 and 28 at relay UVR1A, under voltage relay.
4.2.61	Jumper across terminals E54 (1) and E52 (15), loss of Off-site power.
4.2.61.1 */*	125 VDC Across terminals E4 (2) and E5 (4), starting air solenoid.
4.2.61.2 */*	Contact closure across terminals E23 (57) and E18 (52), preset V.R. and gov.

4.2.61.3 */*	DG auto start signal light is energized.
4.2.62 */*	Remove jumper across terminals E54 (1) and E52 (15), loss of Off-site power and verify:
4.2.62.1 */*	No voltage across terminals E4 (2) and E5 (4), starting air solenoid.
4.2.62.2 */*	Open contact across terminals E23 (57) and E18 (52), preset V.R. and gov.
4.2.62.3 */*	DG auto start singal light is de-energized.
4.2.63	Open circuit breakers CB-1 and CB-2 and verify:
4.2.63.1 */*	Unit available emergency status light is de-energized.
4.2.63.2 */*	Disabled D.C. start power failure alarm energized, energized, pos 24-2.
4.2.63.3 */*	Contact closure across terminals K31 (578) and K32 (579), disabled D.C. start power failure-remote annunciation.
4.2.64	Close circuit breakers CB-1, 2, 3, and 4 and verify:
4.2.64.1 */*	Unit available emergency status light is energized.
4.2.64.2 */*	Disabled D.C. start power failure alarm de-energized, pos. 24-2.
4.2.64.3 */*	Open contact across terminals K31 (578) and K32(79), disabled DC start power failure-remote annunciation.
4.2.65	Release emergency start pushbutton and turn on frequency generator. After approx 60 seconds, disconnect plug at tubing line E-10A and verify:
4.2.65.1 */*	Low oil pressure sensor malfunction alarm energized.
4.2.65.2 */*	Contact closure across terminals A15 (463) and A16 (464), low oil pressure sensor malfunction, remote annunciator.

[redacted] */* Disconnect plug at tubing line E-10B.

4.2.665.4 */* Trip low pressure lube oil alarm is energized.

4.2.665.5 */* Low oil pressure sensor malfunction alarm de-energized.

4.2.665.6 */* Contact closure across terminals J15 (448) and J16 (449), low pressure lube oil trip-remote annunciator.

4.2.665.7 */* Contact closure across terminals 10 and 11 at annunciator pos 2-2, pressure lube oil trip spare contact.

4.2.665.8 */* Open contact across terminals A15 (463) and A16 (464), low oil pressure sensor malfunction remote annunciator.

4.2.665.9 */* Relay R23B is energized - emergency stop.

4.2.666 Depress emergency start pushbutton and install glass, push reset from loca, turn off frequency generator and reconnect plugs to tubing line E-10A and B, trip low pressure lube oil, depress emergency stop reset and verify:

4.2.666.1 */* Emergency stop relay R-23B is de-energized.

4.2.666.2 */* Open contact across terminals J15 (448) and J16 (449), low press lube oil trip - remote annunciator.

4.2.666.3 */* Open contact across terminals 10 and 11 at annunciator pos 2-2, pressure lube oil trip - spare contact.

[redacted] Push normal start pushbutton and turn on frequency generator. After approx 60 seconds, disconnect plug from tubing line E10-B and verify:

4.2.667.1 */* Low oil pressure sensor malfunction alarm energized.

4.2.667.2 */* Disconnect plug from tubing line E10-C and verify.

[illegible]	*/*	Low oil pressure sensor malfunction alarm de-energized.
4.2.67.2	*/*	Trip low pressure lube oil shutdown alarm energized.
4.2.67.2.3	*/*	Contact closure across terminals L51 (159) and L52 (160), trip 52G, for approximately 2 minutes.
4.2.68		Turn off frequency generator and reconnect plugs to tubing lines E-10B and C.
4.2.69		Push normal start pushbutton and turn on frequency generator. After approx 60 seconds, disconnect plug from tubing line E10-C and verify:
4.2.69.1	*/*	Low oil pressure sensor malfunction alarm energized.
4.2.69.2	*/*	Disconnect plug from tubing line E10-A and verify.
4.2.69.2.1	*/*	Low oil pressure lube oil shutdown alarm energized.
4.2.70	*/*	Turn off frequency generator and reconnect plugs to tubing lines E10-A and C.
4.2.71		Push normal start pushbutton and turn on frequency generator. After approx 60 seconds, disconnect tubing line E16-A and verify:
4.2.71.1	*/*	High jacket water temp sensor malfunction alarm light is energized.
4.2.71.2	*/*	Contact closure across terminals A31 (500) and A32 (501), high jacket water temp sensor malfunction remote annunciator.
[illegible]	*/*	Disconnect tubing line E16-B, high temp jacket water and verify:
4.2.71.3.1	*/*	High jacket water temp sensor malfunction alarm de-energized.
4.2.71.3.2	*/*	High jacket water temp shutdown alarm energized.
4.2.71.3.3	*/*	Contact closure across terminals J33 (488) and J34 (489), high temp jacket water remote annunicator.

4.2.71.3.4	*/*	Contact closure across terminals 6 and 7 at annunciator pos 15-1, high temp jacket water - spare contact.
4.2.72	*/*	Turn off frequency generator and reconnect tubing lines E16-A and B and verify:
4.2.73	*/*	Push normal start pushbutton and turn on frequency generator. After approx 60 seconds, disconnect tubing line E16-B and verify:
4.2.73.1	*/*	Trip high temp jacket water alarm is de-energized.
4.2.73.2	*/*	Open contact across terminals J33 (488) and J34 (489), trip high temp jacket water - remote annunciator.
4.2.73.3	*/*	Open contact across terminals 6 and 7 at annunciator pos 15-1, high temp jacket water - spare contact.
4.2.73.4	*/*	High jacket water temp sensor malfunction alarm.
4.2.73.5	*/*	Disconnect tubing line E16-C and verify:
4.2.73.5.1	*/*	High temp jacket water shutdown alarm energized.
4.2.74	*/*	Turn off frequency generator and reconnect tubing lines E16-B and C.
4.2.75	*/*	Push normal start pushbutton and turn on frequency generator. After approximately 60 seconds, disconnect tubing line E16-C and verify.
4.2.75.1	*/*	High jacketwater temp sensor malfunction alarm.
4.2.75.2	*/*	Disconnect tubing line E16-A and verify.
4.2.75.2.1	*/*	High jacketwater temp shutdown alarm.
4.2.76	*/*	Turn off frequency generator and reconnect tubing line E16-A and C.

Test bypass. Release emergency start pushbutton after 60 seconds, and then push the test bypass pushbutton to verify.

4.2.77.1 */*
Group I pressure gauge is less than 25 PSI.

4.2.77.2 */*
Bypass test failure light is de-energized.

4.2.77.3
After Group I pressure gauge pressure returns to 60 PSI, depress emergency start pushbutton and install glass, push reset from loca and then push the test bypass pushbutton and verify.

4.2.77.3.1 */*
Bypass test failure light is energized.

4.2.78
Lube oil sump tank level. Push lube oil sump tank level pushbutton and verify:

4.2.78.1 */*
Sump tank level indicator is reading correctly by comparing it with the sump tank dip stick. Acceptance criteria: Indicator reading plus or minus 1/8 of full scale.

4.2.79
Day tank level. Push day tank level pushbutton and verify:

4.2.79.1 */*
Day tank level indicator is reading correctly by comparing it with the day tank dip stick. Acceptance criteria: indicator reading plus or minus 1/8 of full scale.

4.2.80
Annunciator. Push annunciator test button and verify:

4.2.80.1 */*
All alarm indicators are energized.

4.2.80.2 */*
Disconnect horn by disconnecting wire No. 402 at relay R-15 and tape wire end.

4.2.81
Push silence, back and Reset to reset annunciator.

4.2.82		Latch R2 relay, Group II Lockout, manually. Observe the annunciator board and determine if conditions displayed are valid. If conditions, either alarmed or cleared, are in the opposite state from what they should be, advise foreman for document and disposition. Then energize each individual alarm as listed below by momentarily either jumpering the sensor, pressure switch, relay or terminal, or disconnect the wire. Remove relays R16, R17, R18 and R20, also lift wire 437 at PS 22N and tape wire end.
4.2.82.1	*/*	Lube oil filter differential high, PS-4N, pos 6-2.
4.2.82.1.1	*/*	Contact closure across terminals A13 (460) and A14 (461) when alarm is energized and contact open when alarm is de-energized.
4.2.82.1.2	*/*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.1.3	*/*	Contact closure across terminals H19 (298) and H20 (299), mechanical trouble alarm at the same time as alarm is energized.
4.2.82.2		Turbo oil pressure low, right, PS 43N, pos 3-2.
4.2.82.2.1	*/*	Contact closure across terminals J17 (451) and J18 (452) when alarm is energized and contact open when alarm is de-energized.
4.2.82.2.2	*/*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.3		Turbo oil pressure low, left, PS 20N, pos 4-2.
4.2.82.3.1	*/*	Contact closure across terminals J19 (454) and J20 (455), when alarm is energized and contact open when alarm is de-energized.
4.2.82.3.2	*/*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.4		Lube oil pressure low, PS-25N, pos 1-2.
4.2.82.4.1	*/*	Contact closure across terminals J13 (445) and J14 (466) when alarm is energized and contact open when alarm is de-energized.

4.2.82.4.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.5	Loss of generator DC control power, terminals F11 (79) and F10 (89).
4.2.82.5.1 */*	Contact closure across terminals A21 (472) and A22 (473) when alarm is energized and contact open when alarm is de-energized.
4.2.82.6	High F.O. leak tank alarm, terminals C29 (411) and C30 (512) pos 13-2.
4.2.82.6.1 */*	Contact closure across terminals K5 (513) and K6 (514) when alarm is energized and contact open when alarm is de-energized.
4.2.82.7	Lube oil tank level low, terminal C25 (411) and C25 (428) pos 6-1.
4.2.82.7.1 */*	Contact closure across terminals A1 (429) and A2 (430) when alarm is energized and contact open when alarm is de-energized.
4.2.82.8	High level main tank, terminal C31 (411) and C32 (515) pos 14-2.
4.2.82.8.1 */*	Contact closure across terminals K7 (516) and K8 (517) when alarm is energized and contact open when alarm is de-energized.
4.2.82.9	Lube oil inlet temperature low, R16, pins 10 (411) and 9 (412) pos 1-1.
4.2.82.9.1 */*	Contact closure across terminals J1 (414) and J2 (415) when alarm is energized and contact open when alarm is de-energized.
4.2.82.9.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.10	Lube oil outlet temperature low, R17, pins 10 (411) and 9 (416) pos 2-1.
4.2.82.10.1 */*	Contact closure across terminals J3 (417) and J4 (418) when alarm is energized and contact open when alarm is de-energized.
4.2.82.10.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.

4.2.82.11	Lube oil outlet temperature low, R16, pins 6 (419) and 7 (437) pos 3-1.
4.2.82.11.1 */*	Contact closure across terminals J5 (420) and J6 (421) when alarm is energized and contact open when alarm is de-energized.
4.2.82.11.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.12	Lube oil outlet temperature high, R17, pins 6 (422) and 7 (437) pos 4-1.
4.2.82.12.1 */*	Contact closure across terminals J7 (423) and J8 (424) when alarm is energized and contact open when alarm is de-energized.
4.2.82.12.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.13	Low level main tank, terminals D13 (411) and D14 (518) pos 15-2.
4.2.82.13.1 */*	Contact closure across terminals K9 (519) and K10 (520) when alarm is energized and contact open when alarm is de-energized.
4.2.82.14	Generator under frequency, terminals F7 (79) and F9 (81) pos 16-2.
4.2.82.14.1 */*	Contact closure across terminals B1 (522) and B2 (523) when alarm is energized and contact open when alarm is de-energized.
4.2.82.15	Spare alarm, terminals D19 (411) and D20 (527) pos 18-2.
4.2.82.15.1 */*	Contact closure across terminals B5 (528) and B6 (529) when alarm is energized and contact open when alarm is de-energized.
4.2.82.16	Spare alarm, terminals D21 (411) and D22 (530) pos 19-2.
4.2.82.16.1 */*	Contact closure across terminals B7 (531) and B8 (532) when alarm is energized and contact open when alarm is de-energized.
4.2.82.17	Disabled D.G. circuit breaker inoperable, terminals F7 (79) and F8 (80) pos 20-2.

4.2.82.17.1 */*	Contact closure across terminals B9 (534) and B10 (535) when alarm is energized and contact open when alarm is de-energized.
4.2.82.17.2 */*	Relay R35, locked out alarm is energized at the same time as alarm is energized.
4.2.82.18	Fuel oil day tank level high/low, terminals D17 (411) and D18 (524) pos 17-2.
4.2.82.18.1 */*	Contact closure across terminals B3 (525) and B4 (526) when alarm is energized and contact open when alarm is de-energized.
4.2.82.19	Generator trouble, terminals E28 (79) and E29 (82) pos 21-1.
4.2.82.19.1 */*	Contact closure across terminals K13 (538) and K14 (539) when alarm is energized and contact open when alarm is de-energized.
4.2.82.20	Fuel filter differential pressure high, PS-5N, pos 12-1.
4.2.82.20.1 */*	Contact closure across terminals K3 (510) and K4 (511) when alarm is energized and contact open when alarm is de-energized.
4.2.82.20.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.21	Low voltage, terminals E28 (79) and E30 (83) pos 22-1.
4.2.82.21.1 */*	Contact closure across terminals K15 (541) and K16 (542) when alarm is energized and contact open when alarm is de-energized.
4.2.82.22	Fuel oil pressure low, PS-28N, pos 11-2.
4.2.82.22.1 */*	Contact closure across terminals K1 (507) and K2 (508) when alarm is energized and contact open when alarm is de-energized.
4.2.82.22.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.23	Jacket water pressure low, PS-22N, pos 16-1.

4.2.82.23.1 */*	Contact closure across terminals A25 (491) and A26 (492) when alarm is energized and contact open when alarm is de-energized.
4.2.82.23.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.24	High temperature gen control panel, terminals E28 (79) and E31 (84) pos 23-1.
4.2.82.24.1 */*	Contact closure across terminals K17 (544) and K18 (545) when alarm is energized and contact open when alarm is de-energized.
4.2.32.25	Jacket water level low, terminals C27 (411) and C28 (496) pos 18-1.
4.2.82.25.1 */*	Contact closure across terminals A29 (497) and A30 (498) when alarm is energized and contact open when alarm is de-energized.
4.2.82.26	Jacket water in temperature low, R18, pins 10 (411) and 9 (474) pos 11-1.
4.2.82.26.1 */*	Contact closure across terminals J25 (476) and J26 (477) when alarm is energized and contact open when alarm is de-energized.
4.2.82.26.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.27	Jacket water out temperature low, R21, pins 10 (411) and 9 (478) pos 12-1.
4.2.82.27.1 */*	Contact closure across terminals J27 (479) and J28 (480) when alarm is energized and contact open when alarm is de-energized.
4.2.82.27.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.28	Jacket water in temperature high, R18, pins 6 (481) and 7 (437) pos 13-1.
4.2.82.28.1 */*	Contact closure across terminals J29 (482) and J30 (483) when alarm is energized and contact open when alarm is de-energized.
4.2.82.28.2 */*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.

4.2.82.29		Jacket water out temperature low, R21, pins 6 (484) and 7 (437) pos 14-1.
4.2.82.29.1	*/*	Contact closure across terminals J31 (485) and J32 (486) when alarm is energized and contact open when alarm is de-energized.
4.2.82.29.2	*/*	Relay R38, mechanical trouble alarm is energized at the same time as alarm.
4.2.82.30		Low excitation, terminals E28 (79) and E32 (85) pos 24-1.
4.2.82.30.1	*/*	Contact closure across terminals K19 (547) and K20 (548) when alarm is energized and contact open when alarm is de-energized.
4.2.82.31		Engine control in local, terminals E28 (79) and E33 (86) pos 25-1.
4.2.82.31.1	*/*	Contact closure across terminals K21 (550) and K22 (551) when alarm is energized and contact open when alarm is de-energized.
4.2.82.31.2	*/*	With R-20 relay energized, verify contact closure across terminals H9 (283) and H10 (284) as long as alarm is energized.
4.2.82.32		Control air pressure low, PS-39N. Pos 21-2.
4.2.82.32.1	*/*	Contact closure across terminals K25 (568) and K26 (569) when alarm is energized and contact open when alarm is de-energized.
4.2.82.33		Diesel start air pressure low, PS-3N1, and PS-4N1, pos 22-2.
4.2.82.33.1	*/*	Contact closure across terminals K27 (572) and K28 (573) when alarm is energized and contact open when alarm is de-energized.
4.2.82.33.2	*/*	Unit available emergency status light de-energized as long as alarm is energized.
4.2.82.34		Diesel start air pressure high, PS-3N2, and PS-4N2, pos 22-2.
4.2.82.34.1	*/*	Contact closure across terminals K29 (575) and K30 (576) when alarm is energized and contact open when alarm is de-energized.

4.2.82.35	Generator fault, terminals E28 (79) and E34 (87) pos 26-1.
4.2.82.35.1 */*	Contact closure across terminals B13 (553) and B14 (554) when alarm is energized and contact open when alarm is de-energized.
4.2.82.35.2 */*	Contact closure across terminals 6 and 7 at annunciator pos 26-1 as long as alarm is energized.
4.2.82.36	Trip generator diff, terminals E28 (79) and E35 (88) pos 27-1.
4.2.82.36.1 */*	Contact closure across terminals B15 (556) and B16 (557) when alarm is energized and contact open when alarm is de-energized.
4.2.82.36.2 */*	Contact closure across terminals 6 and 7 at annunciator pos 27-1 as long as alarm is energized.
4.2.82.37	High generator bearing temp, terminals D31 (411) and D32 (558) pos 28-1.
4.2.82.37.1 */*	Contact closure across terminals B17 (559) and B18 (560) when alarm is energized and contact open when alarm is de-energized.
4.2.82.38	Spare alarm, terminals D33 (411) and D34 (561) pos 29-1.
4.2.82.38.1 */*	Contact closure across terminals B19 (562) and B20 (563) when alarm is energized and contact open when alarm is de-energized.
4.2.82.39	Switch not in auto, terminals D11 (411) and D12 (586) also E55 (79) and E56 (91) pos 26-2.
4.2.82.39.1 */*	Contact closure across terminals B25 (587) and B26 (588) when alarm is energized and contact open when alarm is de-energized.
4.2.82.40	Panel intrusion, pos 28-2.
4.2.82.40.1 */*	Contact closure across terminals B29 (595) and B30 (596) when alarm is energized and contact open when alarm is de-energized.
4.2.82.41	High temp engine control panel, pos 29-2.

4.2.82.41.1 */*	Contact closure across terminals B31 (598) and B32 (599) when alarm is energized and contact open when alarm is de-energized.
4.2.82.42 */*	Install relays R16, R17, R18 and R20. Also reconnect lifted wire 437 to PS22N.
4.2.83 */*	Reset R2 relay, Group II lockout, manually.
4.2.84	Close shutoff valve tubing connection E31L and vent pressure, starting air pressure L.B. and verify: Trip low pressure lube oil -
4.2.84.1 */*	No pressure at starting air pressure L.B. gauge.
4.2.84.2	Momentarily jumper terminals L37 (106) and L43 (104), remote emergency start and verify.
4.2.84.2.1 */*	120 volt D.C. across terminal L4 (102) and L5 (105), starting air solenoid.
4.2.84.3	Momentarily jumper terminals E49 (3) and E51 (7), remote emergency start and verify.
4.2.84.3.1 */*	120 volt A.C. across terminal E5 (4) and E4 (2) starting air solenoid.
4.2.85	Close shutoff valve tubing connection E31R and vent Pressure Below 150 PSIG starting air pressure R.B. and verify:
4.2.85.1 */*	Pressure Below 150 PSIG at starting air pressure R.B. gauge.
4.2.85.2 */*	No pressure at starting air pressure L.B. gauge.
4.2.85.3	Momentarily jumper terminals L37 (106) and L43 (104), remote emergency start and verify:
4.2.85.3.1 */*	No voltage across terminals L4 (102) and L5 (105), starting air solenoid.
4.2.85.4	Momentarily jumper terminals E49 (3) and E51 (7) remote emergency start and verify:
4.2.85.4.1 */*	No voltage across terminals E5 (4) and E4 (2), starting air solenoid.

4.2.86	Open shutoff valve E31R and E31L and verify jumpers are removed across terminals L37 (106) and L43 (104) and L4 (102) and L5 (105).
4.2.87	Open circuit breaker CB-9 and CB-10 and verify:
4.2.87.1 */*	Contact closure across terminals H1 (275) and H2 (276).
4.2.87.2 */*	Contact closure across terminals A35 (612) and A36 (613).
4.2.88	Close circuit breaker CB-9 and CB-10 and verify:
4.2.88.1 */*	Open contact closure across terminals H1 (275) and H2 (276).
4.2.88.2 */*	Open contact closure across terminals A35 (612) and A36 (613).
4.2.89	Trip low pressure lube oil.
4.2.89.1 */*	Trip low pressure lube oil - remove plug at bulkhead fitting E-10A and connect incoming tubing line.
4.2.89.2 */*	Trip low pressure lube oil - remove plug at bulkhead fitting E-10B and connect incoming tubing line.
4.2.89.3 */*	Trip low pressure lube oil - remove plug at bulkhead fitting E-10C and connect incoming tubing line.
4.2.90 */*	Trip - low pressure turbo oil. Remove plug at bulkhead fitting E92 and connect incoming tubing line.
4.2.91 */*	Trip - low pressure jacket water. Remove plug at bulkhead fitting E-14 and connect incoming tubing line.
4.2.92	Close the following sliding link terminals:
4.2.92.1 */*	A-Bank starting air valve. Terminals E5 (4) and E4 (2).
4.2.92.2 */*	B-Bank starting air valve. Terminals L5 (105) and L4 (102).

4.2.92.3 */*	Field flash, exciter reg enable. Terminals E19 (53), E22 (56), E17 (51), and E21 (55).
4.2.92.4 */*	Preset V.R. and Gov. Terminals E23 (57), E18 (52), and E24 (59).
4.2.92.5 */*	Ready to load, DG brkr. Terminals F5 (77) and F6 (78).
4.2.92.6 */*	Ready to load, HVAC sys. Terminals E57 (46) and E58 (47).
4.2.92.7 */*	Ready to load, spare. Terminals E59 (48) and E60 (49).
4.2.92.8 */*	Start, spare. Terminals F1 (73) and F2 (74).
4.2.92.9	Stop, spare. Terminals F3 (75) and F4 (76).
4.2.92.10 */*	Pre-position Gov and V.R. Terminals L30 (172) and L32 (171).
4.2.92.11 */*	186C Trip delay. Terminals L32 (172) and L33 (173).
4.2.92.12 */*	Field flash, exciter reg enable. Terminals L23 (153), L20 (141), L21 (144), and L24 (155).
4.2.92.13 */*	Trip 52G. Terminals L51 (159) and L52 (160).
4.2.92.14 */*	Emergency stop. Terminals L53 (164) and L54 (165).
4.2.92.15 */*	Running, spare. Terminals L55 (166) and L56 (167).
4.2.92.16 */*	Running, spare. Terminals L57 (168) and L58 (169).
4.2.92.17 */*	Overspeed, spare. Terminals L59 (179) and L60 (180).
4.2.92.18 */*	Running W/Delay. Terminals L35 (175) and L36 (176).

4.2.92.19 */*	Ready to load - HVAC system. Terminals L9 (137) and L10 (138).
4.2.92.20 */*	Ready to load - spares. Terminals L11 (139) and L12 (140).
4.2.92.21 */*	Emergency stop Terminals L14 (336) and L15 (337).
4.2.92.22 */*	ERF computer. Terminals L49 (S4B1) and L50 (S4B2).
4.2.92.23 */*	Emergency stop annunciation. Terminals L25 (no wire number) and L26 (no wire number).
4.2.92.24 */*	CC Fan #1. Terminals C3 (244) and C9 (245).
4.2.92.25 */*	CC Fan #2. Terminals C5 (246) and C11 (242).
4.2.92.26 */*	Generator space heater control. Terminals C7 (239) and C8 (240).
4.2.92.27 */*	Running contacts. Terminals G3 (253), G4 (254), G5 (255), G6 (256), G7 (257), G8 (258), G9 (259), G10 (260), G11 (161), and G12 (162).
4.2.92.28 */*	Running W/Delay contacts. Terminals G13 (263), G14 (264), G15 (265), G16 (266), G17 (267), G18 (268), G19 (269), G20 (270), G21 (271), G22 (272), G23 (273), and G24 (274).
4.2.92.29 */*	Loss of DC annunciation. Terminals H1 (275) and H2 (276).
4.2.92.30 */*	Mechanical trouble alarm. Terminals H19 (298) and H20 (299).
4.2.92.31 */*	Lockout alarm. Terminals H3 (277) and H4 (278).
4.2.92.32 */*	Failed to start. Terminals H7 (281) and H8 (282).
4.2.92.33 */*	Unit available local control. Terminals H9 (283) and H10 (284).

4.2.92.34 */*	Unit available. Terminals H11 (285), H12 (286), H13 (287), H14 (288), H15 (289), and H16 (290).
4.2.92.35 */*	Alarm. Terminals H17 (296) and H18 (297).
4.2.92.36 */*	Loss of DC power. Terminals A35 (612) and A36 (613).
4.2.92.37 */*	DG Brkr inop. Terminals F7 (75) and F8 (80).
4.2.93 */*	Open toggle switches to allow hourmeter to be energized.
4.2.94 */*	A-Bank starting air valve. Reconnect engine wire number 4 at engine "EJBA" junction box.
4.2.95 */*	B-Bank starting air valve. Reconnect engine wire number 105 at engine "EJBB" junction box.
4.2.96 */*	Reconnect the horn by reconnecting wire No. 402 at relay R-15, connection is across from wire No. 401A.
4.2.97.1 */*	Manual permissive start "A" side, remove jumper across terminals E49 (3) and E50 (11).
4.2.98 */*	Manual permissive start "B" side, remove jumper across terminals L37 (106) and L42 (110).
4.2.99 */*	Disconnect frequency generator from terminals E7 (20) and E8 (21).
4.2.100 */*	Panel check. Check for disconnected/plugged tubing or fittings. Check for any jumper/disconnected wires. Check for any open terminal links. Control panel should now be operational for engine start.
4.2.101 */*	Notify Shift Supervisor that required maintenance is complete.
5.0	ACCEPTANCE CRITERIA
5.1	Maintenance performed using this procedure is acceptable when:
5.1.1	The "Completion" Sheet is properly filled out.

5.1.2 Deviations from the Procedure data and recommended settings have been reviewed on a case-by-case basis with the Maintenance Foreman.

5.1.3 Divations have been identified in the "Comments" section of the "Completion" Sheet.

5.1.4 The "Completion" Sheet has been approved.

5.1.5 Maintenance Work Orders have been written and submitted for conditions evaluated as needing attention.

6.0 REFERENCES

6.1 00304-C, "Equipment Clearance And Tagging"

6.1.1 20407-C, "Maintenance Cleanliness And Housekeeping Control"

6.2 AX4AK01-509 "Transamerica Deleval Instruction Manual"

Sheet 1 of 1

POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[ ] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

c. Independent verification is only required on safety related equipment. Place N/A in independent verification block for non-safety relsted equipment.

d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION		
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE

COMPLETION SHEET

PROCEDURE	REVISION	SHEET
27563-C	2	1 OF 30
TAG NO.	DESCRIPTION	
SERIAL NO.	MANUFACTURER	MODEL
TEST EQUIPMENT USED	M&TE #	[ ] Safety Related/QC Hold Point [ ] Non-Safety Related

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.1	Prerequisites met	___/___	___	___/___
4.1.2	Shift Supervisor notified	___/___	___	___/___
4.1.5.1	Tubing E-10A disconnected	___/___	___	___/___
4.1.5.2	Tubing E-10B disconnected	___/___	___	___/___
4.1.5.3	Tubing E-10C disconnected	___/___	___	___/___
4.1.6.1	Tubing E-92 disconnected	___/___	___	___/___
4.1.7.1	Tubing E-14 disconnected	___/___	___	___/___
4.1.8.1	A-Bank Starting Air Valve. Terminals E5 (4) and E4 (2).	___/___	___	___/___
4.1.8.2	B-Bank Starting Air Valve. Terminals L5 (105) and L4 (102).	___/___	___	___/___

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.3	Field Flash, Exciter Reg Enable. Terminals E19 (53), E22 (56), E17 (51), and E21 (55).	/		/
4.1.8.4	Preset V.R. and Gov.: Terminals E23 (57), E18 (52), and E24 (59).	/		/
4.1.8.5	Ready to Load, DG Brkr.: Terminals F5 (77) and F6 (78).	/		/
4.1.8.6	Ready to Load, HVAC Sys.: Terminals E57 (46) and E58 (47).	/		/
4.1.8.7	Ready to Load, Spare. Terminals E59 (48) and E60 (49).	/		/
4.1.8.8	Start, Spare. Terminals F1 (73) and F2 (74).	/		/
4.1.8.9	Stop, Spare. Terminals F3 (75) and F4 (76).	/		/
4.1.8.10	Pre-position Gov and V.R. Terminals L30 (170) and L31 (171).	/		/
4.1.8.11	186C Trip Delay Terminals L32 (172) and L33 (173).	/		/
4.1.8.12	Field Flash, Exciter Reg Enable. Terminals L23 (153), L20 (141), L21 (144), and L24 (155).	/		/
4.1.8.13	Trip 52G. Terminals L51 (159) and L52 (160).	/		/
4.1.8.14	Emergency Stop. Terminals L53 (164) and L54 (165).	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.15	Running, Spare. Terminals L55 (166) and L56 (167).	/		/
4.1.8.16	Running, Spare. Terminals L57 (168) and L58 (169).	/		/
4.1.8.17	Overspeed, Spare. Terminals L59 (179) and L60 (180).	/		/
4.1.8.18	Running W/Delay. Terminals L35 (175) and L36 (176).	/		/
4.1.8.19	Ready to Load - HVAC System. Terminals L9 (137) and L10 (138).	/		/
4.1.8.20	Ready to Load - Spare. Terminals L11 (139) and L12 (140).	/		/
4.1.8.21	Emergency Stop. Terminals L14 (336) and L15 (337).	/		/
4.1.8.22	ERF Computer. Terminals L49 (S4B1) and L50 (S4B2).	/		/
4.1.8.23	Emergency Stop Annunciation. Terminals L25 (79-180) and L26 (90-180).	/		/
4.1.8.24	CC Fan #1. Terminals C3 (244) and C9 (245).	/		/
4.1.8.25	CC Fan #2. Terminals C5 (246) and C11 (247).	/		/
4.1.8.26	Generator Space Heater Control. Terminals C7 (239) and C8 (240).	/		/
4.1.8.27	Running Contacts. Terminals G3 (253), G4 (254), G5 (255), G6 (256), G7 (257), G8 (258), G9 (259), G10 (260), G11 (161), and G12 (162).	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.28	Running W/Delay Contacts. Terminals G13 (263), G14 (264), G15 (265), G16 (266), G17 (267), G18 (268), G19 (269), G20 (270), G21 (271), G22 (272), G23 (273) and G24 (274).	___/___	___	___/___
4.1.8.29	Loss of DC Annunciation. Terminals H1 (275) and H2 (276).	___/___	___	___/___
4.1.8.30	Mechanical Trouble Alarm. Terminals H19 (298) and H20 (299).	___/___	___	___/___
4.1.8.31	Lockout Alarm. Terminals H3 (277) and H4 (278).	___/___	___	___/___
4.1.8.32	Failed to Start. Terminals H7 (281) and H8 (282).	___/___	___	___/___
4.1.8.33	Unit Available Local Control. Terminals H9 (283) and H10 (284).	___/___	___	___/___
4.1.8.34	Unit Available. Terminals H11 (285), H12 (286), H13 (287), H14 (288), H15 (289), and H16 (290).	___/___	___	___/___
4.1.8.35	Alarm. Terminals H17 (296) and H18 (297).	___/___	___	___/___
4.1.8.36	Loss of DC Power. Terminals A35 (612) and A36 (613).	___/___	___	___/___
4.1.8.37	DG Brkr Inop. Terminals F7 (79) and F8 (80).	___/___	___	___/___
4.1.9	Toggle switches to hourmeter open.	___/___	___	___/___

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.10.1	At on-engine "EJBA" Junction Box, disconnect engine wire number 4 and tape wire end.	/_____	_____	/_____
4.1.11.1	At on-engine "EJBB" Junction Box, disconnect engine wire number 105 and tape wire end.	/_____	_____	/_____
4.1.12	Verify that all circuit breakers are closed.	/_____	_____	/_____
4.1.13	Verify 60 psi at control air pressure gauge.	/_____	_____	/_____
4.1.14	Verify 125 vdc across circuit breakers CB-1 and CB-2, CB-3 and CB-4.	/_____	_____	/_____
4.2.1	Jumper terminals L45 (101) and L48 (129), Control Room permissive for maintenance mode.	/_____	_____	/_____
4.2.2.1	Disconnect jumper across terminals H4 (278) and H12 (286) and verify:	/_____	_____	/_____
4.2.2.2	Open contact across terminals H3 (277) and H4 (278).	/_____	_____	/_____
4.2.2.3	Contact OPEN	/_____	_____	/_____
4.2.2.4	Contact OPEN	/_____	_____	/_____
4.2.2.5	Contact CLOSED	/_____	_____	/_____
4.2.2.6	Contact CLOSED	/_____	_____	/_____
4.2.3.1	Shutdown Cylinder EXTENDED	/_____	_____	/_____
4.2.3.2	Lockout alarm ENERGIZED	/_____	_____	/_____

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
44.2.3.3	Light De-Energized	/		/
44.2.3.4	Gauge indicates 0 PSI	/		/
44.2.3.5	Lockout Pin REMOVED	/		/
44.2.3.6	STOPPING light ENERGIZED	/		/
44.2.3.7	Contact CLOSED	/		/
44.2.3.8	Contact CLOSED	/		/
44.2.3.9	Contact CLOSED	/		/
44.2.3.10	Contact CLOSED	/		/
44.2.3.11	Contact OPEN	/		/
44.2.3.12	Contact OPEN	/		/
44.2.4	Jumper Removed	/		/
44.2.5.1	125VDC present	/		/
44.2.6.1	No voltage present	/		/
44.2.6.2	No voltage present	/		/
44.2.7	Wire disconnected	/		/
44.2.7.1	Relay R-35 De-energized	/		/
44.2.7.2	Contact OPEN	/		/
44.2.7.3	Lockout alarm de-energized	/		/
44.2.8.1	Barring device engaged alarm ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.8.2	Contact CLOSED	/		/
4.2.8.3	Relay R-35 ENERGIZED	/		/
4.2.9.1.1	125VDC Present	/		/
4.2.9.2.1	No voltage present	/		/
4.2.9.2.2	No voltage present	/		/
4.2.10.1	Barring device engaged alarm ENERGIZED	/		/
4.2.10.2	Contact OPEN	/		/
4.2.10.3	Relay R-35 DE-ENERGIZED	/		/
4.2.11	Wire Reconnected	/		/
4.2.11.1	Relay R-35 DE-ENERGIZED	/		/
4.2.11.2	Lockout alarm ENERGIZED	/		/
4.2.12.1	Shutdown cylinder RETRACTED	/		/
4.2.12.2	Pressure Gauge reads 60PSI	/		/
4.2.12.3	Lockout alarm DE-ENERGIZED	/		/
4.2.12.4	Emergency status light ENERGIZED	/		/
4.2.12.5	Lockout pin in LOCKED position	/		/
4.2.12.6	STOPPING light DE-ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.12.7	BARRING device RETRACTED	___/___	___	___/___
4.2.12.8	Locking pin INSTALLED	___/___	___	___/___
4.2.13.1	No voltage PRESENT	___/___	___	___/___
4.2.14.1	No voltage PRESENT	___/___	___	___/___
4.2.14.2	"A" power light DE-ENERGIZED	___/___	___	___/___
4.2.14.3	Panel "A" failure alarm ENERGIZED	___/___	___	___/___
4.2.14.4	Contact CLOSED	___/___	___	___/___
4.2.15	Timer REMOVED	___/___	___	___/___
4.2.16.1	125VDC PRESENT	___/___	___	___/___
4.2.16.2	Alarm ENERGIZED	___/___	___	___/___
4.2.16.3	Relay DE-ENERGIZED	___/___	___	___/___
4.2.16.4	Contact CLOSED	___/___	___	___/___
4.2.16.5	Contact CLOSED	___/___	___	___/___
4.2.16.6	Relay R-35 ENERGIZED	___/___	___	___/___
4.2.16.7	Horn ENERGIZED	___/___	___	___/___
4.2.17.1	Horn DE-ENERGIZED	___/___	___	___/___
4.2.17.2	Contact OPEN	___/___	___	___/___
4.2.17.3	Relay R-35 DE-ENERGIZED	___/___	___	___/___

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.17.4	Failed to start alarm DE-ENERGIZED	/		/
4.2.18.1	Contact CLOSED	/		/
4.2.18.2	Contact CLOSED	/		/
4.2.18.3	No voltage PRESENT	/		/
4.2.18.4	Contact CLOSED	/		/
4.2.18.5	Contact CLOSED	/		/
4.2.18.6	Running light ENERGIZED	/		/
4.2.18.7	Failed to start alarm DE-ENERGIZED	/		/
4.2.18.8	Contact CLOSED	/		/
4.2.18.9	Contact OPEN	/		/
4.2.18.10	Contact CLOSED	/		/
4.2.18.11	Relay R 1 ENERGIZED	/		/
4.2.18.12	Contact CLOSED	/		/
4.2.18.13	Contact CLOSED	/		/
4.2.18.14	Contact CLOSED	/		/
4.2.18.15	Contact CLOSED	/		/
4.2.18.16	Contact OPEN	/		/
4.2.18.17	Contact OPEN	/		/
4.2.18.18	Contact OPEN	/		/
4.2.18.19	Contact CLOSED	/		/
4.2.18.20	Contact CLOSED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.18.21	Contact CLOSED	/		/
4.2.18.22	Contact OPEN	/		/
4.2.18.23	Contact OPEN	/		/
4.2.18.24	Contact OPEN	/		/
4.2.19	Maintenance Button Pushed	/		/
4.2.19.1	Maintenance mode alarm DE-ENERGIZED	/		/
4.2.20.1	Contact OPEN	/		/
4.2.20.2	Shutdown cylinder EXTENDED	/		/
4.2.20.3	Cylinder retracted and VENTED	/		/
4.2.20.4	Contact OPEN	/		/
4.2.20.5	Contact CLOSED	/		/
4.2.20.6	Unit running light DE-ENERGIZED	/		/
4.2.20.7	Contact OPEN	/		/
4.2.20.8	Contact OPEN	/		/
4.2.20.9	Contact OPEN	/		/
4.2.21.1	Maintenance mode alarm ENERGIZED	/		/
4.2.22.1	Maintenance mode alarm DE-ENERGIZED	/		/
4.2.24.1	125VDC PRESENT	/		/
4.2.24.2.1	Maintenance mode alarm DE-ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.24.3	Contact CLOSED	/		/
4.2.24.4	Relays ENERGIZED	/		/
4.2.24.5	Contact CLOSED	/		/
4.2.24.6	Safety injection signal light ENERGIZED	/		/
4.2.24.7	Shutdown light DE-ENERGIZED	/		/
4.2.24.8	No voltage on solenoid	/		/
4.2.24.9	Jumper REMOVED	/		/
4.2.24.10	EMERGENCY start alarm ENERGIZED	/		/
4.2.24.11	Contact CLOSED	/		/
4.2.24.12	Contact CLOSED	/		/
4.2.25.1	Stopping light DE-ENERGIZED	/		/
4.2.26.1	Pressure gauge below 25 PSI	/		/
4.2.26.2	Shutdown cylinder NOT EXTENDED	/		/
4.2.26.3	Hi temp lube oil alarm ENERGIZED	/		/
4.2.26.4	Stopping light NOT ENERGIZED	/		/
4.2.26.5	Contact CLOSED	/		/
4.2.26.6	Contact CLOSED annunciator "ON"	/		/
4.2.27	Tubing E-18 RECONNECTED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.27.1	Group 1 pressure gauge 60 PSI	/		/
4.2.27.2	Hi temp alarm DE-ENERGIZED	/		/
4.2.27.3	Contact OPEN	/		/
4.2.27.4	Contact OPEN	/		/
4.2.28.1	Stopping light ENERGIZED	/		/
4.2.28.2	Lo pressure alarm ENERGIZED	/		/
4.2.28.3	Contact CLOSED	/		/
4.2.28.4	Contact CLOSED	/		/
4.2.28.5	Engine shutdown Cylinder EXTENDED	/		/
4.2.29.1	Maintenance mode alarm DE-ENERGIZED	/		/
4.2.30	Plug installed on E-92	/		/
4.2.30.1	Relay R11B ENERGIZED	/		/
4.2.30.1.1	Contact CLOSED	/		/
4.2.30.1.2	Contact CLOSED	/		/
4.2.30.1.3	Contact CLOSED	/		/
4.2.30.1.4	Ready to load light ENERGIZED	/		/
4.2.30.2	Jumper Removed	/		/
4.2.30.2.1	Contact OPEN	/		/
4.2.30.2.2	Contact OPEN	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.30.2.3	Contact OPEN	/		/
4.2.30.2.4	Ready to load light ENERGIZED	/		/
4.2.31.1	No voltage PRESENT	/		/
4.2.31.2	Relay R-5B ENERGIZED	/		/
4.2.32.1	Relay R-23B ENERGIZED	/		/
4.2.32.2	Contact CLOSED	/		/
4.2.32.3	Contact CLOSED	/		/
4.2.32.4	Contact CLOSED	/		/
4.2.32.5	Contact CLOSED	/		/
4.2.32.6	Emergency Stop ENERGIZED	/		/
4.2.32.7	Stopping light ENERGIZED	/		/
4.2.32.8	Pressure at Solenoid 3B	/		/
4.2.32.9	Unit available light DE-ENERGIZED	/		/
4.2.32.9.1	No change in status light	/		/
4.2.32.10	Overspeed alarm ENERGIZED	/		/
4.2.32.11	Contact CLOSED	/		/
4.2.32.12	Relay R-35 ENERGIZED	/		/
4.2.32.12.1.1	Relay R-35 ENERGIZED	/		/
4.2.32.12.1.2	Emergency trip DE-ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.32.13.1	No voltage present	/		/
4.2.32.13.2	No voltage present	/		/
4.2.33	Cover INSTALLED	/		/
4.2.35.1	Contact OPEN	/		/
4.2.35.2	Overspeed trip DE-ENERGIZED	/		/
4.2.35.3	Contact OPEN	/		/
4.2.36.1	Relay R23B DE-ENERGIZED	/		/
4.2.36.2	Contact OPEN	/		/
4.2.36.3	Contact OPEN	/		/
4.2.36.4	Contact OPEN	/		/
4.2.36.5	Emergency stop light DE-ENERGIZED	/		/
4.2.36.6	Stopping light DE-ENERGIZED	/		/
4.2.36.7	Relay R-35 DE-ENERGIZED	/		/
4.2.37.1	125VDC present	/		/
4.2.37.2	DG Auto start signal ENERGIZED	/		/
4.2.38.1	No voltage present	/		/
4.2.38.2	DG Auto start signal DE-ENERGIZED	/		/
4.2.39.1	Contact CLOSED	/		/
4.2.39.2.1	Relay R23B ENERGIZED	/		/
4.2.39.2.2	Contact CLOSED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.39.2.3	Contact CLOSED	/		/
4.2.41.1	Emergency trip alarm is ENERGIZED	/		/
4.2.41.2	Contact CLOSED	/		/
4.2.41.3	Relay R-35 ENERGIZED	/		/
4.2.42.1	Emergency trip alarm DE-ENERGIZED	/		/
4.2.42.2	Contact OPEN	/		/
4.2.42.3	Relay R-35 DE-ENERGIZED	/		/
4.2.44	Jumper Disconnected	/		/
4.2.45.1	125VDC across solenoid 202-6A	/		/
4.2.45.2	Power available light ENERGIZED	/		/
4.2.45.3	Annunciator DE-ENERGIZED	/		/
4.2.45.4	Contact OPEN	/		/
4.2.46.1	No voltage across solenoid 202-6B	/		/
4.2.46.2	Power available light DE-ENERGIZED	/		/
4.2.46.3	Power "B" failure ALARM ENERGIZED	/		/
4.2.46.4	CONTACT CLOSED	/		/
4.2.48.1	125VDC PRESENT	/		/
4.2.48.2	FAILURE TO START ALARM ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.49.1	No voltage present	/		/
4.2.49.2	CONTACT CLOSED	/		/
4.2.49.3	OPEN CIRCUIT	/		/
4.2.49.4	CONTACT CLOSED	/		/
4.2.49.5	STARTING LIGHT ENERGIZED	/		/
4.2.49.6	Relay R1 ENERGIZED	/		/
4.2.49.7	RUNNING LIGHT ENERGIZED	/		/
4.2.50.1	SHUTDOWN CYLINDER EXTENDED	/		/
4.2.50.2	Contact Closure	/		/
4.2.50.3	High Temperature trip ENERGIZED	/		/
4.2.50.4	OPEN CIRCUIT	/		/
4.2.50.5	Relay R1, R1AUX, and R2 are reset	/		/
4.2.50.6	Contact Closed	/		/
4.2.50.7	Contact closed	/		/
4.2.50.8	Unit running light DE-ENERGIZED	/		/
4.2.50.9	Stopping light ENERGIZED	/		/
4.2.50.10	Contact CLOSED	/		/
4.2.50.11	CONTACT CLOSED	/		/
4.2.51.1	Hi bearing temp ALARM DE-ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.51.2	CONTACT OPEN	/		/
4.2.51.3	CONTACT OPEN	/		/
4.2.53.1	125V DC PRESENT	/		/
4.2.53.2	CONTACT CLOSED	/		/
4.2.53.3	RELAYS R1, R1A R2, ENERGIZED	/		/
4.2.53.4	SHUTDOWN SYSTEM ACTIVE Light DE-ENERGIZED	/		/
4.2.53.5	NO VOLTAGE PRESENT	/		/
4.2.53.6	Jumper Removed	/		/
4.2.53.7	Contact CLOSED	/		/
4.2.54.1	Hi Pressure Alarm ENERGIZED	/		/
4.2.54.2	ENGINE SHUTDOWN CYLINDER NOT EXTENDED	/		/
4.2.54.3	CONTACT CLOSED	/		/
4.2.54.4	CONTACT CLOSED	/		/
4.2.55	TUBING E-68 RECONNECTED	/		/
4.2.55.1	Hi Pressure Alarm DE-ENERGIZED	/		/
4.2.55.2	CONTACT OPEN	/		/
4.2.55.3	CONTACT OPEN	/		/
4.2.55.4	SHUTDOWN CYLINDER NOT EXTENDED	/		/
4.2.56.1	No voltage present	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.56.2	CONTACT CLOSED	/		/
4.2.56.3	SHUTDOWN CYLINDER EXTENDED	/		/
4.2.56.4	VIBRATION ALARM ENERGIZED	/		/
4.2.56.5	CONTACT CLOSED	/		/
4.2.56.6	CONTACT CLOSED	/		/
4.2.56.7	CONTACT OPEN	/		/
4.2.57	TUBING E-23-H RECONNECTED	/		/
4.2.57.1	VIBRATION ALARM DE-ENERGIZED	/		/
4.2.57.2	CONTACT OPEN	/		/
4.2.57.3	CONTACT OPEN	/		/
4.2.58.1	Jacket Water Lo PRESSURE ENERGIZED	/		/
4.2.58.2	ENGINE SHUTDOWN CYLINDER EXTENDED	/		/
4.2.58.3	CONTACT CLOSED	/		/
4.2.58.4	CONTACT CLOSED	/		/
4.2.58.5	CONTACT CLOSED	/		/
4.2.58.6	CONTACT CLOSED	/		/
4.2.58.7	CONTACT CLOSED	/		/
4.2.59	TUBING E-14 RECONNECTED	/		/
4.2.59.1	JACKET WATER ALARM DE-ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.59.2	CONTACT OPEN	/		/
4.2.59.3	CONTACT OPEN	/		/
4.2.60.1	RELAY R-11A ENERGIZED	/		/
4.2.60.2	CONTACT CLOSED	/		/
4.2.60.3	CONTACT CLOSED	/		/
4.2.60.4	READY TO LOAD LIGHT ENERGIZED	/		/
4.2.60.5	CONTACT OPEN	/		/
4.2.60.6	CONTACT OPEN	/		/
4.2.60.7	READY TO LOAD LIGHT DE-ENERGIZED	/		/
4.2.60.8	JUMPER REMOVED	/		/
4.2.61.1	125VDC PRESENT	/		/
4.2.61.2	CONTACT CLOSED	/		/
4.2.61.3	AUTO START LIGHT ENERGIZED	/		/
4.2.62	REMOVE JUMPER	/		/
4.2.62.1	NO VOLTAGE PRESENT	/		/
4.2.62.2	CONTACT OPEN	/		/
4.2.62.3	AUTO START	/		/
4.2.63.1	UNIT AVAILABLE LIGHT DE-ENERGIZED	/		/
4.2.63.2	POWER FAILURE ALARM ENERGIZED	/		/
4.2.63.3	CONTACT CLOSED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.64.1	UNIT AVAILABLE STATUS LIGHT ENERGIZED	/		/
4.2.64.2	START POWER FAILURE ALARM DE-ENERGIZED	/		/
4.2.64.3	CONTACT OPEN	/		/
4.2.65.1	PRESSURE SENSOR MALFUNCTION ALARM ENERGIZED	/		/
4.2.65.2	CONTACT CLOSED	/		/
4.2.65.3	TUBING E-10B DISCONNECTED	/		/
4.2.65.4	LUBE OIL ALARM ENERGIZED	/		/
4.2.65.5	PRESSURE SENSOR MALFUNCTION ALARM DE-ENERGIZED	/		/
4.2.65.6	CONTACT CLOSED	/		/
4.2.65.7	CONTACT CLOSED	/		/
4.2.65.8	CONTACT OPEN	/		/
4.2.65.9	RELAY R23D DEENERGIZED	/		/
4.2.66.1	RELAY R23D DEENERGIZED	/		/
4.2.66.2	CONTACT OPEN	/		/
4.2.66.3	CONTACT OPEN	/		/
4.2.67.1	MALFUNCTION ALARM ENERGIZED	/		/
4.2.67.2.	PLUG REMOVED FROM TUBING E-10C	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.67.2.1	LO OIL PRESSURE ALARM DE-ENERGIZED	/		/
4.2.67.2.2	LUBE OIL SHUTDOWN ALARM ENERGIZED	/		/
4.2.67.2.3	CONTACT CLOSED	/		/
4.2.69.1	MALFUNCTION ALARM ENERGIZED	/		/
4.2.69.2	PLUG E-10A DISCONNECTED	/		/
4.2.69.2.1	LUBE OIL SHUTDOWN ALARM ENERGIZED	/		/
4.2.70	PLUGS RECONNECTED TO TUBING E10A and E10C	/		/
4.2.71.1	JACKET WATER TEMP SENSOR MALFUNCTION ALARM ENERGIZED	/		/
4.2.71.2	CONTACT CLOSED	/		/
4.2.71.3	Disconnect Tubing E-16B	/		/
4.2.71.3.1	TEMP SENSOR MALFUNCTION ALARM DE-ENERGIZED	/		/
4.2.71.3.2	JACKET WATER TEMP SHUTDOWN ALARM ENERGIZED	/		/
4.2.71.3.3	CONTACT CLOSED	/		/
4.2.71.3.4	CONTACT OPEN	/		/
4.2.72	TUBING E-16 and RECONNECTED	/		/
4.2.73	E16-B Disconnected	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.73.1	Hi Temp. JACKET WATER ALARM DE-ENERGIZED	/		/
4.2.73.2	CONTACT OPEN	/		/
4.2.73.3	CONTACT OPEN	/		/
4.2.73.4	TEMP. SENSOR MALFUNCTION ALARM	/		/
4.2.73.5	TUBING E16-C Disconnected	/		/
4.2.73.5.1	Jacket Water Shutdown ALARM ENERGIZED	/		/
4.2.74	TUBING LINES E16-B AND C RECONNECTED	/		/
4.2.75	Disconnect Tubing E16-C	/		/
4.2.75.1	SENSOR MALFUNCTION ALARM	/		/
4.2.75.2	TUBING E16-A Disconnected	/		/
4.2.75.2.1	JACKETWATERS SHUTDOWN ALARM	/		/
4.2.76	TUBING E16-A and C RECONNECTED	/		/
4.2.77.1	PRESSURE GAUGE READING LESS THAN 25PSI	/		/
4.2.77.2	BYPASS TEST FAILURE LIGHT DE-ENERGIZED	/		/
4.2.77.3.1	BYPASS TEST FAILURE LIGHT ENERGIZED	/		/
4.2.78.1	SUMP TANK READING O.K.	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.79.1	DAY TANK READING O.K.	/		/
4.2.80.1	ALARMS ENERGIZED	/		/
4.2.80.2	Horn Disconnected	/		/
4.2.82.1	LUBE OIL FILTER DIFFERENTIAL HIGH FUNCTIONS	/		/
4.2.82.1.1	ALARM FUNCTIONS Correccly	/		/
4.2.82.1.2	RELAY R38 ENERGIZED	/		/
4.2.82.1.3	CONTACT CLOSED	/		/
4.2.82.2.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.2.2	RELAY R38 ENERGIZED	/		/
4.2.82.3.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.3.2	RELAY R38 ENERGIZED	/		/
4.2.82.4.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.4.2	RELAY R38 ENERGIZED	/		/
4.2.82.5.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.6.1	ALARM FUNCTION CORRECTLY	/		/
4.2.82.7.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.8.1	ALARM FUNCTIONS CORRECTLY	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.9.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.9.2	RELAY R38 ENERGIZED	/		/
4.2.82.10.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.10.2	RELAY R38 ENERGIZED	/		/
4.2.82.11.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.11.2	RELAY R38 ENERGIZED	/		/
4.2.82.12.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.12.2	RELAY R38 ENERGIZED	/		/
4.2.82.13.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.14.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.15.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.16.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.17.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.17.2	RELAY R35 ENERGIZED	/		/
4.2.82.18.1	ALARM FUNCTIONS CORRECTLY	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.19.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.20.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.20.2	RELAY R38 ENERGIZED	/		/
4.2.82.21.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.22.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.22.2	RELAY R38 ENERGIZED	/		/
4.2.82.23.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.23.2	RELAY R38 ENERGIZED	/		/
4.2.82.24.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.25.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.26.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.26.2	RELAY R38 ENERGIZED	/		/
4.2.82.27.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.27.2	RELAY R38 ENERGIZED	/		/
4.2.82.28.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.28.2	RELAY R38 ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.29.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.29.2	RELAY R38 ENERGIZED	___/___	___	___/___
4.2.82.30.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.31.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.31.2	RELAY R20 ENERGIZED CONTACT CLOSED	___/___	___	___/___
4.2.82.32.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.33.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.33.2	EMERGENCY STATUS LIGHT DE-ENERGIZED	___/___	___	___/___
4.2.82.34.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.35.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.35.2	CONTACT CLOSED	___/___	___	___/___
4.2.82.36.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.36.2	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.37.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.38.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___
4.2.82.39.1	ALARM FUNCTIONS CORRECTLY	___/___	___	___/___

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.40.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.41.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.42	RELAYS INSTALLED	/		/
4.2.83	RELAY RESET	/		/
4.2.84.1	NO PRESSURE AT L.B. GAUGE	/		/
4.2.84.2.1	120 VDC PRESENT	/		/
4.2.84.3.1	120 VDC PRESENT	/		/
4.2.85.1	PRESSURE AT R.B.GAUGE	/		/
4.2.85.2	NO PRESSURE AT LB GAUGE	/		/
4.2.85.3.1	NO VOLTAGE PRESENT	/		/
4.2.85.4.1	NO VOLTAGE PRESENT	/		/
4.2.87.1	CONTACT CLOSED	/		/
4.2.87.2	CONTACT CLOSED	/		/
4.2.88.1	CONTACT OPEN	/		/
4.2.88.2	CONTACT OPEN	/		/
4.2.89.1	TUBING RECONNECTED	/		/
4.2.89.2	TUBING RECONNECTED	/		/
4.2.89.3	TUBING RECONNECTED	/		/
4.2.90	TUBING RECONNECTED	/		/
4.2.91	TUBING RECONNECTED	/		/

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PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.92.1	LINKS CLOSED	/		/
4.2.92.2	LINKS CLOSED	/		/
4.2.92.3	LINKS CLOSED	/		/
4.2.92.4	LINKS CLOSED	/		/
4.2.92.5	LINKS CLOSED	/		/
4.2.92.6	LINKS CLOSED	/		/
4.2.92.7	LINKS CLOSED	/		/
4.2.92.8	LINKS CLOSED	/		/
4.2.92.9	LINKS CLOSED	/		/
4.2.92.10	LINKS CLOSED	/		/
4.2.92.11	LINKS CLOSED	/		/
4.2.92.12	LINKS CLOSED	/		/
4.2.92.13	LINKS CLOSED	/		/
4.2.92.14	LINKS CLOSED	/		/
4.2.92.15	LINKS CLOSED	/		/
4.2.92.16	LINKS CLOSED	/		/
4.2.92.17	LINKS CLOSED	/		/
4.2.92.18	LINKS CLOSED	/		/
4.2.92.19	LINKS CLOSED	/		/
4.2.92.20	LINKS CLOSED	/		/
4.2.92.21	LINKS CLOSED	/		/
4.2.92.22	LINKS CLOSED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.92.23	LINKS CLOSED	/		/
4.2.92.24	LINKS CLOSED	/		/
4.2.92.25	LINKS CLOSED	/		/
4.2.92.26	LINKS CLOSED	/		/
4.2.92.27	LINKS CLOSED	/		/
4.2.92.28	LINKS CLOSED	/		/
4.2.92.29	LINKS CLOSED	/		/
4.2.92.30	LINKS CLOSED	/		/
4.2.92.31	LINKS CLOSED	/		/
4.2.92.32	LINKS CLOSED	/		/
4.2.92.33	LINKS CLOSED	/		/
4.2.92.34	LINKS CLOSED	/		/
4.2.92.35	LINKS CLOSED	/		/
4.2.92.36	LINKS CLOSED	/		/
4.2.92.37	LINKS CLOSED	/		/
4.2.93	TOGGLE SWITCHES OPEN	/		/
4.2.94	ENGINE WIRE RECONNECTED	/		/
4.2.95	ENGINE WIRE RECONNECTED	/		/
4.2.96	WIRE 402 RECONNECTED	/		/
4.2.97	JUMPER REMOVE	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.98	JUMPER REMOVE	/		/
4.2.99	FREQUENCY GENERATOR REMOVED	/		/
4.2.100	EQUIPMENT RESTORED TO OPERATIONAL CONDITION	/		/
4.2.101	SHIFT SUPERVISOR NOTIFIED	/		/

Comments/Additional Hold Points _____

QC has reviewed this procedure for Hold Points _____
SIGNATURE

APPROVED ( ) DISAPPROVED ( )	
FOREMAN	DATE

COMPLETED BY	DATE