

JOB PERFORMANCE MEASURE

JPM-#- ANO-2-JPM-NRC-AACSU

REV. 01

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SYSTEM/DUTY AREA: Emergency Diesel Generator System

TASK: Start up the AAC diesel generator manually locally

JTA #: 206450201A4

KA VALUE RO: 4.0 SRO: 4.3 KA REFERENCE: 064 A4.01

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: X LAB: _____

TESTING METHOD: SIMULATE: X PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 28 minutes

REFERENCE(S): OP 2104.037 Rev 004-04-0

EXAMINEE'S NAME: _____ SSN: _____ - _____ - _____

EVALUATOR'S NAME: _____ DATE: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____ Start Time _____ Stop Time _____ Total Time

Signature indicates this JPM has been compared to its applicable procedure by a qualified individual (not the examinee) and is current with that revision.

SIGNED: _____ DATE: _____

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The following conditions exist.

1. The unit is at full power.
2. The AAC Generator is in a normal standby condition and is aligned in accordance with OP 2104.037 Attachment "A"
3. The system dispatcher has been contacted
4. Unit 1 has been informed
5. There are no potential grid disturbances.

TASK STANDARD: The AAC Diesel has been manually started locally and is at 4160 V and 900 rpm with the output breaker (2A-1001) closed.

TASK PERFORMANCE AIDS: OP 2104.037 Sections 7.0 and 8.0

INITIATING CUE:

The SS/CRS directs, "Start the AAC diesel manually locally using OP 2104.037 steps 8.5 through 8.6.10 for post maintenance testing."

CRITICAL ELEMENTS (C): 23

START TIME: _____

PERFORMANCE CHECKLIST		STANDARDS		(Circle One)
<u>TRANSITION NOTE:</u>				
Go to the AAC diesel generator building to the AAC diesel switchgear room				
1.	Verify the speed raise/lower switch is OFF. <u>POSITIVE CUE:</u> The speed raise/lower switch is in the middle position.	At panel 2C440, verified the speed raise/lower switch in OFF.	N/A SAT UNSAT	
2.	Verify the voltage raise/lower switch is in OFF. <u>POSITIVE CUE:</u> The voltage raise/lower switch is in the middle position.	At panel 2C440, verified the voltage raise/lower switch in OFF.	N/A SAT UNSAT	
3.	Verify the emergency stop switch is RELEASED. <u>POSITIVE CUE:</u> The emergency stop switch is RELEASED or out.	At panel 2C440, verified the emergency stop switch is away from the base of the collar, but still flush with the outer rim on the collar.	N/A SAT UNSAT	
4.	Verify the engine control switch is in the MIDDLE position. <u>POSITIVE CUE:</u> The engine control switch is in the MIDDLE position.	At panel 2C440, verified the engine control switch was in the MIDDLE position between START and STOP.	N/A SAT UNSAT	

PERFORMANCE CHECKLIST		STANDARDS	(Circle One)
5.	Verify the local/remote switch is in STANDBY. <u>POSITIVE CUE:</u> The local/remote switch is in STANDBY	At panel 2C440, verified the local/remote handswitch in STANDBY.	N/A SAT UNSAT
6.	Verify the generator heater switch is in AUTO. <u>POSITIVE CUE:</u> The generator heater switch is in AUTO and the red light is on.	At panel 2C440, verified the handswitch in AUTO. Observed the red light on for the generator space heater.	N/A SAT UNSAT
7.	Verify the lube oil heater switch is in AUTO. <u>POSITIVE CUE:</u> The lube oil heater switch is in AUTO and the red light is on.	At panel 2C440, verified the lube oil heater switch in AUTO. Observed red light ON for the lube oil heater.	N/A SAT UNSAT
8.	Verify the jacket water heater switch is in AUTO. <u>POSITIVE CUE:</u> The jacket water heater switch is in AUTO and the red light is on.	At panel 2C440, verified the jacket water heater switch in AUTO. Observed the red light on for the jacket water heater switch.	N/A SAT UNSAT
9.	Verify the current limiter circuit breaker is CLOSED. <u>POSITIVE CUE:</u> The current limiter circuit breaker handle is pointing to the right or toward the cabinet door.	Inside panel 2C440, verified the current limiter circuit breaker handle was pointing to the right or towards the panel (2C440) door.	N/A SAT UNSAT

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PERFORMANCE CHECKLIST		STANDARDS	(Circle One)
10.	<p>Verify the idle/rated switch is in RATED.</p> <p><u>POSITIVE CUE:</u> The idle/rated switch is in RATED.</p>	<p>Inside panel 2C440, verified the idle/rated switch in RATED.</p>	N/A SAT UNSAT
11.	<p>Check jacket water outlet temperature (2TI-7156).</p> <p><u>POSITIVE CUE:</u> 2TI-7156 indicates 100°F.</p> <p><u>OR</u> T7156 indicates 100°F.</p>	<p>On panel 2C442, checked that 2TI-7156 indicated >90°F.</p> <p><u>OR</u> On a local computer screen, verified T7156 indicated >90°F.</p>	N/A SAT UNSAT
12.	<p>Check lube oil from cooler temperature.</p> <p><u>POSITIVE CUE:</u> 2TI-7122 reads >70°F.</p> <p><u>OR</u> T7122 reads >70°F.</p>	<p>On panel 2C442, checked that 2TI-7122 read >70°F.</p> <p><u>OR</u> On a local computer screen, checked T7122 read >70°F.</p>	N/A SAT UNSAT
<p><u>TRANSITION NOTE:</u> Go to the AAC diesel generator engine room.</p>			
13.	<p>Check engine sump oil level.</p> <p><u>POSITIVE CUE:</u> Sump oil level is between ADD and FULL on the "Keep Warm" side of the dipstick.</p> <p><u>NEGATIVE CUE:</u> Sump oil level is greater than FULL on the "Engine Running" side of the dipstick.</p>	<p>Using the "Keep Warm" side of the dipstick, checked the oil level between the FULL and ADD marks.</p>	N/A SAT UNSAT

PERFORMANCE CHECKLIST		STANDARDS	(Circle One)
14.	<p>Check jacket water expansion tank level.</p> <p><u>POSITIVE CUE:</u> Level is 1/2 in sight glass.</p>	<p>At the top of the west wall in the engine room, observed the jacket water expansion tank level between 1/4 and 3/4 in the sight glass on the side of the tank.</p>	N/A SAT UNSAT
15.	<p>Check fuel oil day tank level.</p> <p><u>POSITIVE CUE:</u> 2LI-7201A, 2LI-7201B, and L7201 on the PLC read 60%.</p>	<p>On 2LI-7201A, verified the fuel oil day tank level reads between 40 - 80%.</p> <p><u>OR</u></p> <p>On 2LI-7201B verified the fuel oil day tank level reads between 40 - 84%.</p> <p><u>OR</u></p> <p>On the PLC for L7201, verified the fuel oil day tank level reads between 40 - 80%.</p>	N/A SAT UNSAT
16.	<p>Check the manual jacking gear eccentric disengaged.</p> <p><u>POSITIVE CUE:</u> The hex on the west end of the engagement shaft is sticking out of the housing</p> <p><u>OR</u> the gear on the east end of the engagement shaft is observed to NOT be engaged in the engine flywheel.</p>	<p>Observed the east/west position of the engagement shaft to be fully to the west (hex on the west end of the shaft sticking out of the housing)</p> <p><u>OR</u></p> <p>Observed the gear on the east end of the engagement shaft to be NOT engaged in the engine flywheel.</p>	N/A SAT UNSAT
17.	<p>Check generator bearing oil levels.</p> <p><u>POSITIVE CUE:</u> The oil level in the bulls eye on the inboard and outboard generator bearing oil sumps are 1/2 full.</p>	<p>Checked the oil level in the inboard generator bearing oil sump at 1/4 to 3/4 in the bulls eye on the south side of the bearing.</p> <p>Checked the oil level in the outboard generator bearing oil sump at 1/4 to 3/4 in the bulls eye on the south side of the bearing.</p>	N/A SAT UNSAT

EXAMINER'S NOTE:

The manual operating shaft for the overspeed air damper protrudes from the lower left of the west side of the

PERFORMANCE CHECKLIST		STANDARDS	(Circle One)
damper assembly.			
18.	Check the position of the overspeed air damper. <u>POSITIVE CUE:</u> The overspeed air damper pointer indicates open.	Observed the overspeed air damper pointer on the manual operating shaft indicating OPEN.	N/A SAT UNSAT
19.	Check air start motor oiler oil levels. <u>POSITIVE CUE:</u> Oil level indicated in oiler sight glass.	At the air start motor oilers, observed oil level visible in the sight glass.	N/A SAT UNSAT
20.	Check governor hydraulic fluid level. <u>POSITIVE CUE:</u> 1/2 oil level indicated in sight glass.	Locally, observed governor hydraulic fluid level at $\geq 1/2$ in sight glass.	N/A SAT UNSAT
<u>TRANSITION NOTE:</u> Go to the AAC diesel switchgear room			
21.	Verify 4160V breakers 2A901, 2A902, 2A903, and 2A904 are open. <u>POSITIVE CUE:</u> The PLC 4160 V Breakers screen indicates green for 2A901, 2A902, 2A903, and 2A904.	At the local AAC computer, selected "ELECTRICAL BUS CONTROL" Selected "4160V BREAKERS" Observed green open indications for 4160V breakers 2A901, 2A902, 2A903, and 2A904.	N/A SAT UNSAT

PERFORMANCE CHECKLIST		STANDARDS	(Circle One)
	22. Check "start constraints" clear. <u>POSITIVE CUE:</u> Green lights lit for: - "LOCAL/REMOTE SWITCH IN STANDBY" - "FUEL SOLENOID OPEN", and - "PRE-LUBE LEVEL OK".	At the local AAC computer, selected "ENGINE START/STOP" Selected "START SCREEN" Observed green lights lit for: - "KEY SWITCH IN STANDBY" - "FUEL SOLENOID OPEN", and - "PRE-LUBE LEVEL OK".	N/A SAT UNSAT
(C)	23. Start the engine. <u>POSITIVE CUE:</u> Engine starts and accelerates to 900 rpm and 4160V. <u>NEGATIVE CUE:</u> Engine rolls but shuts down.	At the local AAC computer on the START screen touched the START button, and observed engine speed and voltage at normal values.	N/A SAT UNSAT
	24. Verify the generator output breaker closed. <u>POSITIVE CUES:</u> - Engine at 900 rpm and 4160V. - 2A1001 indicates red on the 480V BREAKERS screen, - the building lights dimmed momentarily, - breaker indication at the breaker cubicle is red and white lights on and green light off. - Audible indication of the breaker closing.	On the local AAC computer or on 2C-442, verified engine speed at 900 rpm and machine voltage at 4160V. <u>THEN</u> Selected "ELECTRICAL BUS CONTROL" Selected "480 V BREAKERS" Observed the local AAC computer "480V BREAKERS" screen shows 2A1001 red.	N/A SAT UNSAT

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PERFORMANCE CHECKLIST		STANDARDS	(Circle One)
25.	Verify 2B16B1 closed. <u>POSITIVE CUE:</u> On the "480V BREAKER" screen, 2B16B1 indicates red;	On the local AAC computer at the "480V BREAKER" screen checked breaker 2B16B1 indicates red.	N/A SAT UNSAT
26.	Verify 2B16A1 open. <u>POSITIVE CUE:</u> On the "480V BREAKER" screen, 2B16A1 indicates green;	On the local AAC computer "480V BREAKER" screen checked breaker 2B16A1 indicates green.	N/A SAT UNSAT
END			

STOP TIME: _____

QUESTION

ANSWER

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

1. The unit is at full power.
2. The AAC Generator is in a normal standby condition and is aligned in accordance with OP 2104.037 Attachment "A"
3. The system dispatcher has been contacted
4. Unit 1 has been informed
5. There are no potential grid disturbances.

INITIATING CUE:

The SS/CRS directs, "Start the AAC diesel manually locally using OP 2104.037 steps 8.5 through 8.6.10 for post maintenance testing."