

ALTERNATOR STARTUP

Turning gear to full operation.

Procedure initiated by: _____ . 7/03

Before starting procedure, remove all check marks.

<input type="checkbox"/>	1. Check log book for incomplete compliance for further operation.	
<input type="checkbox"/>	2. Check High Yard Breaker ALC-C2 Protective Relays for “flags” (Make note of any flags to log book and notify c-mod control room)	
<input type="checkbox"/>	3. Check Alternator Substation 3000 KVA Transformer oil contamination bunker for water or oil. If any water is in the bunker open gate valve and drain the water. When the water has drained out of the containment bunker than close the gate valve. If oil has leaked into the containment bunker from the transformer than do not open the valve and take appropriate action.	
<input type="checkbox"/>	4. Print PLC screens and place copy in 3 hole binder	
<input type="checkbox"/>	5. Motor control center A & B.	
Assure all breakers are setup for full operation.		
<input type="checkbox"/>	Breakers – ON MCCB: (2A) (2C) (2E) (2G) (2I) (3E) (3G) (3I) (3K) (1G) (1I) MCCA: (2E) (3E) (3I) (3J) (4I) (4K) (6G) (6K)	
<input type="checkbox"/>	Breakers – ON Summer season weekends	
<input type="checkbox"/>	MCCA: (4B) (4C) Front and Rear Alt. Heaters.	
<input type="checkbox"/>	6. PLC operational, assure PLC is scanning.	
<input type="checkbox"/>	7. Alternator fault call out system - Disarm	203
<input type="checkbox"/>	8. Lube oil pump 1 & 3 SB switches – Run then Auto start	443/203
<input type="checkbox"/>	9. Lube oil pump 2 & 4 SB switches – Stop then Auto start	443/203
<input type="checkbox"/>	10. Exciter cooling water pump – ON	202
<input type="checkbox"/>	11. Seal oil tank drain pump – OFF	202
<input type="checkbox"/>	12. Alternator equipment inspection. Check condition of equipment.	
UPPER LEVEL		
<input type="checkbox"/>	Exciter power supply – Fault reset & close main breaker	437/474
<input type="checkbox"/>	Main motor brush box interior – Check, carbon build. When cleaning is necessary (See drive system isolation procedure).	
<input type="checkbox"/>	Motor lift pumps – Check oil tank level, pressure and leakage	442
<input type="checkbox"/>	Alternator lift pumps – Check pump leakage and sound	208/209
<input type="checkbox"/>	City water auto valve – Check mechanical – Open	270
<input type="checkbox"/>	Air pressure – Check (indicated range)	
<input type="checkbox"/>	Alternator bearing’s strainers – Check pressure (indicated range)	239
<input type="checkbox"/>	Hot water system – Check temp. & pressure (indicated range)	211
<input type="checkbox"/>	Building fans – Check proper seasonal settings	

<input type="checkbox"/>	MTR Blower Exhaust Louver Open	255
LOWER LEVEL INSPECTION		
<input type="checkbox"/>	Air compressor – Check pressure (indicated range) Blow out tank water and check oil level weekly (Mondays)	289
<input type="checkbox"/>	Main vacuum pump – Check oil level (indicated range)	485
<input type="checkbox"/>	Ground cables and signs – (operating position)	485
<input type="checkbox"/>	Flywheel lift pumps – Check leakage and sound – area	485
<input type="checkbox"/>	Flywheel seal oil equipment – Check leakage, Wipe up.	
<input type="checkbox"/>	13. Alternator vapor extractor valve – Open to 4 “ WC	457
<input type="checkbox"/>	Seal oil pit – Check for excessive oil leakage	
<input type="checkbox"/>	14. Vacuum tank vent valve 41 – ½ turn open (If Pump Cavitates)	PIT
<input type="checkbox"/>	Assure vacuum tank level is up on upper glass.	
<input type="checkbox"/>	15. Vacuum tank drain valve SO 73 – Close	PIT
<input type="checkbox"/>	16. Seal oil tank drain valve SO 74 – Close	PIT
<input type="checkbox"/>	17. Open seal oil valve # 80	
<input type="checkbox"/>	18. Main seal oil pump – ON	202
<input type="checkbox"/>	19. Main vacuum pump – ON	202
<input type="checkbox"/>	20. Helium cabinet DC fused disconnect – ON	216E
CONTINUE LOWER LEVEL INSPECTION		
<input type="checkbox"/>	Machine gas pressure – (indicated range)	132
<input type="checkbox"/>	DC instrument panel – Voltage (indicated range)	216E
<input type="checkbox"/>	AC instrument panel – Voltage (indicated range)	217
<input type="checkbox"/>	Motor control center A – Voltage (indicated range)	210
<input type="checkbox"/>	Motor control center B – Voltage (indicated range)	201
<input type="checkbox"/>	House power distribution center – Voltage (indicated range)	201
<input type="checkbox"/>	Signal source UPS – ON (indicated by yellow light) Voltage, amps (indicated range)	201
<input type="checkbox"/>	Turning gear – ON – Check	202
<input type="checkbox"/>	21. Core monitor (date chart recorder), (power switch – ON), (sight glass, indicated range, adjust with HE 54), (Reset, reset button, assure fault clears), (Inactive switch – Active).	
<input type="checkbox"/>	22. 480 Volts diesel back transfer panel – Key switch in auto position - Green indicator should be –ON	503
<input type="checkbox"/>	23. Flywheel strainers – Check differential pressure, leakage etc.	
<input type="checkbox"/>	24. Limit amp – Check –(doors properly locked), (isolation switch – ON position), (fused disconnect – Closed, green indicator – ON), (phase loss indicator –Reset)	112
<input type="checkbox"/>	25. Limit amp safety switch, Key – B- Ready position	112
<input type="checkbox"/>	26. Vibration monitor system – Operational	476

<input type="checkbox"/>	27. Cuno filter – ON –Check	202
<input type="checkbox"/>	28. Hot gas circulator – OFF	202
<input type="checkbox"/>	29. Hot water pump – ON – Check	202
<input type="checkbox"/>	30. Motor blower switch position – Auto	202
<input type="checkbox"/>	Exhaust louvers – Open – (check yellow light indication)	202
<input type="checkbox"/>	31. 2000 HP Motor blower – ON	202
<input type="checkbox"/>	32. Main river water pump – ON	202
<input type="checkbox"/>	33. Flywheel DC seal oil fused disconnect – ON	216C
<input type="checkbox"/>	34. Alternator DC seal oil fused disconnect – ON	216D
<input type="checkbox"/>	35. Exciter DC breaker & protective relay fused disconnect – ON	216I
<input type="checkbox"/>	Check – protective power indicator lights – ON – or trip	202
<input type="checkbox"/>	36. Alternator DC lube oil breaker – ON	216F
<input type="checkbox"/>	37. Flywheel DC lube oil breaker –ON –Alarm reset	216G
<input type="checkbox"/>	38. Alt. DC lube oil pump starter, SB switch position – Auto start	104
<input type="checkbox"/>	Ready standby green light illuminates	104
<input type="checkbox"/>	DC system problem blue light clears.	104
<input type="checkbox"/>	39. Alt. DC seal oil pump starter, SB switch position – Auto start	105
<input type="checkbox"/>	Ready standby green light illuminates	105
<input type="checkbox"/>	DC system problem blue light clears.	105
<input type="checkbox"/>	40. Flywheel DC seal oil pump starter, SB switch position – Auto start	450
<input type="checkbox"/>	Ready standby green light illuminates	450
<input type="checkbox"/>	DC system problem blue light clears.	450
<input type="checkbox"/>	41. Flywheel DC lube oil pump starter, SB switch position – Auto start	449
<input type="checkbox"/>	Ready standby green light illuminates	449
<input type="checkbox"/>	DC system problem blue light clears.	449
<input type="checkbox"/>	42. City water valve CW 6 – Open	202
<input type="checkbox"/>	43. All system fault lights – Cleared – Check	201/202/203
<input type="checkbox"/>	44. PLC. Starting procedure, All faults cleared for starting.	
<input type="checkbox"/>	45. Before starting – Notify – Comm Electric (Wareham) Phone #: 9-617-541-7835	
<input type="checkbox"/>	46. Alternator house personal – Notify – About to start, stand clear.	
<input type="checkbox"/>	47. Zero speed fault – Rest	111
<input type="checkbox"/>	48. 2000 HP motor lock out switch, Key – A _ Position _ Ready	111
<input type="checkbox"/>	49. Drive start procedure (read completely before starting)	
<input type="checkbox"/>	Limit amp start bottom – Activate	111
<input type="checkbox"/>	Observe indicated AC current – 100 amps each phase	111
<input type="checkbox"/>	If current is abnormal (125+ amps) stop button – Active	111
<input type="checkbox"/>	Permissive green light illuminates – Check	111

<input type="checkbox"/>	<input type="checkbox"/>	IOC active (yellow light illuminates) – Check	111
<input type="checkbox"/>	<input type="checkbox"/>	Drive start button – Activate	111
<input type="checkbox"/>	<input type="checkbox"/>	Drive stop button illuminates red	111
<input type="checkbox"/>	<input type="checkbox"/>	Monitor drive current, soft start approx. 250 amps DC peak	111
<input type="checkbox"/>	<input type="checkbox"/>	If excessive current – Active stop button.	111
<input type="checkbox"/>	<input type="checkbox"/>	If no acceleration within 60 sec. – Activate stop button.	111
<input type="checkbox"/>	<input type="checkbox"/>	50. Preheat may be used for rotor heating during acceleration to speed #1 – 15 minutes on then 10 minutes off	
<input type="checkbox"/>	<input type="checkbox"/>	51. Exciter field supplies.	
<input type="checkbox"/>	<input type="checkbox"/>	Fault panel – Reset	473/474
<input type="checkbox"/>	<input type="checkbox"/>	Excitation – Fault system – Reset	131
<input type="checkbox"/>	<input type="checkbox"/>	AC yard breakers #1 – Close – Red light indication	443
<input type="checkbox"/>	<input type="checkbox"/>	DC field breakers – Close – both indicate red	443
<input type="checkbox"/>	<input type="checkbox"/>	Excitation – Fault system – Reset	131
<input type="checkbox"/>	<input type="checkbox"/>	Exciter power – ON – Activate	131
<input type="checkbox"/>	<input type="checkbox"/>	Preheat button – Activate	131
<input type="checkbox"/>	<input type="checkbox"/>	Exciter power supply current – Check – 600 amps	131
<input type="checkbox"/>	<input type="checkbox"/>	52. All lift pumps shut off at 200 RPM – Check	202
<input type="checkbox"/>	<input type="checkbox"/>	53. Vacuum tank vent valve – start closing throughout speed 1 and 2	
<input type="checkbox"/>	<input type="checkbox"/>	54. When speed #1 is reached, preheat may be necessary to assure rotor temperature of 135°F or higher before proceeding to speed #2 – 15 minutes ON then 10 minutes OFF	
<input type="checkbox"/>	<input type="checkbox"/>	55. Activate PLC fault circuit	
<input type="checkbox"/>	<input type="checkbox"/>	56. Speed #2 button – Activate	111
<input type="checkbox"/>	<input type="checkbox"/>	57. When speed #2 is reached, preheat may continue to be necessary to assure rotor temperature is above 140°F before proceeding to speed #3. – 15 minutes on then 10 minutes off Check hot water system temperature indications.	202/203
<input type="checkbox"/>	<input type="checkbox"/>	58. Mechanical room cooling water and air system – Checklist	BLDG NW21
<input type="checkbox"/>	<input type="checkbox"/>	59. Take a PLC printout before proceeding to speed 3	
<input type="checkbox"/>	<input type="checkbox"/>	60. Speed #3 button – Activate – Observe current & Voltage	111
<input type="checkbox"/>	<input type="checkbox"/>	61. Alternator water re-circulator – ON- Check If pump fails - OPEN river water valve #20 for direct cooling	
<input type="checkbox"/>	<input type="checkbox"/>	62. At 1260 RPM auto transformer switches out.	
<input type="checkbox"/>	<input type="checkbox"/>	63. Observe switch gear shift and current limits	170A/111
<input type="checkbox"/>	<input type="checkbox"/>	64. Open helium gas dryer valves # 30 and # 31 and start the gas dryer circulator pump. Assure pump suction pressure is lower than machine gas pressure.	
Seal oil make up tank high level – Alarms			

Check Operational Notes		
<input type="checkbox"/>	65. Flywheel seal oil valve #97 – Close	458
<input type="checkbox"/>	66. Turn OFF Flywheel solenoid valve key switch	Pit
<input type="checkbox"/>	67. Vacuum Valve V#41 – Close	
<input type="checkbox"/>	68. When speed #3 is reached – Check correct RPM (1700)	111
<input type="checkbox"/>	69. Record gas % relative humidity (meter should read below 10%)	
<input type="checkbox"/>	70. Shut off gas dryer circulator pump and CLOSE valves#30 &# 31	
<input type="checkbox"/>	71. 15 KV air switch – Operational	289
<input type="checkbox"/>	Remove kirk lock key	289
<input type="checkbox"/>	Connect air quick connect to switch	289
<input type="checkbox"/>	Open air valve as indicated	289
<input type="checkbox"/>	Assure 15 KV pressure switch indicates – OK	203
<input type="checkbox"/>	Bleed air tank some to start compressor if pressure is not – OK	289
<input type="checkbox"/>	72. Call control room every run day, “machine is ready. You are in control.”	289
<input type="checkbox"/>	73. To assure systems and equipment are operating properly record	
<input type="checkbox"/>	Check sheet readings 2 times daily at 9:30 am and 2 :00 pm	
<input type="checkbox"/>	Carry rags to wipe off equipment and gauges	
<input type="checkbox"/>	Record any and all equipment discrepancies into logbook and job worksheet.	
<input type="checkbox"/>	74. Seal oil pit – Drain Alt. Diet alarm and seal oil diet alarm	PIT
<input type="checkbox"/>	Wipe down oil drippings and drain drip trays – DAILY	PIT
<input type="checkbox"/>	Also wipe down seal oil equipment – DAILY	PIT
<input type="checkbox"/>	75. Main oil tanks – Check 4 to 5” extractor pressure, Wipe down	
<input type="checkbox"/>	Tank tops and cuno filter, including base and drip tray.	

OPERATIONAL NOTES		
<input type="checkbox"/>	Seal oil make up tank high level	
<input type="checkbox"/>	Assure vapor extractors are alarm ON and at 4” to 5” WC	457
<input type="checkbox"/>	Assure lube oil tank levels are in working range. Alt tank 12 O’clock or better.	
<input type="checkbox"/>	Assure Alt. bearing vapor pressure gauge is not more than 0.5 psi	
<input type="checkbox"/>	Open valve #SO-74 and start drain pump until level is stable. Then secure pump and valve #SO-74	
<input type="checkbox"/>	Check temp. of bearing overflow line for reverse flow. Close valve SO #20 until stable. Record in logbook if left closed.	