

1 MAY 1968

I-N-D-E-X T-O

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1 MAY 1968

EMERGENCY DIESEL GENERATOR - TEST AND INSPECTION OF

1. The emergency diesel generator will be given a thrity (30) minute test run at least once each week under full load conditions when practicable. The results of these test runs shall be entered in the Engineering Log. The following will be recorded in the Emergency Diesel Generator Record located in the Emergency Diesel Room.

- (a) Date and time started.
- (b) Volts generated: Load amperes:
- (c) Highest Lube oil Pressure & Temperature.
- (d) Highest Water Temperature.
- (e) Time stopped.
- (f) The operator will affix his initials on the first line below the last entry "Time Stopped".
- (g) He will report any deficiencies immediately after finding same.

2. A systematic inspection will be made prior to making the operational test run. This inspection will cover all external working parts of the diesel Engine, the generator and the voltage regulating equipment, controls, etc., including the following items:

- (a) Diesel Engine Oil Level.
- (b) Diesel Engine Cooling Water Level.
- (c) Diesel Engine Lube Oil Filters.
- (d) Diesel Engine Lube & Fuel oil Strainers are clean.
- (e) Lube Oil in fuel injection pump and governor.

3. Before starting the Emergency Diesel, the generator will be checked for the following:

- (a) Inspect for loose or unseated brushes, commutator and slip rings for scores.

4. During operational test runs, check the oil pressures, temperatures, sparking of commutator and slip rings; note any undue noises, vibration or unusual conditions. Once each fifteen (15) minutes of the test run, turn the cutter on the Cuno-Filters.

5. Change Lube Oil after 100 hours operation, S.A.E. #30.

6. After 1000 hours operation; (a) Change filter element.
(b) Clean oil pump suction screen.

7. One (1) two (2) hour continuous run each month.


Chief Engineer

1 MAY 1968

OPERATING INSTRUCTIONS FOR DIESEL EMERGENCY GENERATOR

Starting from under emergency conditions. This generator is for emergency use. It is kept in operating condition and tested regularly. The throttle control and control panel rheostat are kept at operating settings at all times. To start it, it is necessary only to:

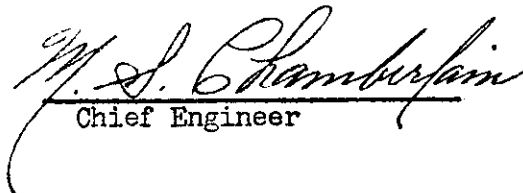
- 1 Turn starter switch to start position.
2. Close main switch.
3. Close circuit breaker.
4. Open vent door of air supply to radiator.

The operator should then check the following:

1. Voltage and amperage (240 volts)
2. Lube oil pressure (35# to 45#)
3. Engine Temperature (Not to exceed 180° F.)

SECURING WHEN SHIP POWER IS RESTORED:

1. Trip circuit breaker.
2. Pull main switch.
3. Stop engine by pushing governor control to stop position. Leave throttle set at operating position.
4. Close vent doors.


Chief Engineer

OPERATING INSTRUCTIONS: CHECK OFF LIST FOR CUTTING IN COLD BOILER

TIME: 4½ Hours before orders for getting underway.

1. a. Close all furnace openings.
b. Close all openings into gas and air passages.
c. See that all manhole and hand hole plates that have been out are properly seated and set up.
d. See that the bottom blow down valves are closed.
e. Close water wall header drains.
f. Close economizer drains.
2. a. Open all gauge cocks.
b. Make sure that gauge glass drains and gauge cocks work properly and are closed.
c. Open all superheater drains and vents.
d. Open all desuperheater drains and vents.
e. Open "1" bleeder valve on superheater outlet.
3. a. Open boiler air cock.
4. a. Blow down water until it is just out of sight of the bottom gauge glass.
5. a. Open main feed stop.
b. Bring water level to 1" above bottom of glass using the EMERGENCY feed pump.
c. Then use main feed pump to bring water level to 1½" above bottom of glass.

NOTE: This is mandatory whenever lighting off a cold boiler, Log this action.

6. a. Ease off main steam stop valve stems without lifting valve disc.
b. Ease off bulkhead steam stop valve stems without lifting valve disc.
7. a. Make sure that all dampers and fan control mechanisms work correctly and indicators show correct position.
8. a. Line up fuel pump.
b. Make sure that fuel oil valves and steam valves at fuel oil manifold are closed.
c. Cut in fuel oil heater on fuel oil line.
d. Circulate fuel oil through burner manifold until specified temperature is reached. (Be sure to by-pass fuel oil meter)
9. a. Start forced draft blowers.
b. Set combustion control on Manual (never attempt to light off with control on "Automatic").
c. Purge furnace of any gas BEFORE LIGHTING OFF BURNER.
10. a. Insert burner in center register using "C" tip.
b. Close all air register doors "EXCEPT ONE ON CENTER BURNER".

CHECK OF LIST FOR CUTTING IN COLD BOILER (CONT'D)

- c. Push the atomizer and impeller assembly of this burner all the way in.
 - d. Keep the air register doors on other burners closed, atomizers and impeller assembly to be pulled out.
 - e. Use 3/8" rod provided for drain hole (make sure that drain hole is clear).
11. a. Adjust speed of forced draft fan.
b. Set position of air damper to produce 0.2 inches of air pressure in the wind box.
12. a. Open the valve in the oil line from burner manifold to steam control valve.
b. Gradually adjust the oil recirculating valve at the burner manifold to obtain 90 pounds oil pressure at the burner.
c. Open the valve in the steam connection to the atomizer.
d. Close register door.
e. Insert torch through lighting door and light off tube (this is the only method authorized for lighting burners).
f. Open fuel oil root valve wide.
g. Open fuel oil valve slightly until ignition.
h. Immediately following ignition open register door wide.
i. Open fully fuel oil valve.
j. Close recirculating valve until desired pressure is obtained.
k. AFTER THE BURNER IS LIGHTED gradually pull out the atomizer and impeller assembly as the furnace and burner warm up, until the furnace and of the coupling yoke is about 1" from the fire room and of the cover plate packing gland.

TIME: 4 hours.

13. a. Take three (3) hours to bring boiler up to line pressure.
14. a. When steam issues forcibly from the steam drum vent, close this vent.
b. Leave superheater drains cracked open.
c. Leave desuperheater drains cracked open.
15. a. Blow down water gauge glasses (MAKE SURE THAT THEY ARE OPEN AT BOTH ENDS)
16. a. Notify the watch officer, when boiler is ready to put on line or change automatic control (ask his permission).
17. a. Cut boiler in through "DESUPERHEATER" line when pressure is 10 pounds per square inch, BELOW line pressure.
b. Close superheater drains.
c. ~~Close~~ desuperheater drains.
18. a. Make sure that drain on main steam line is open.
b. Warm up main steam line before opening main steam bulkhead stop.

TIME: 1 Hour.

- c. Open valve from feed line for desuperheater astern steam.

M. S. Chamberlain

USNS GENERAL JOHN POPE, (T-AP 110)

1 MAY 1968

SUBJ: OPERATING INSTRUCTIONS - FUEL OIL HEATERS

STARTIN G:

1. Open fuel oil outlet stop valve.
2. Open fuel oil inlet valve.
3. Open steam return stop valve.
4. Open steam inlet valve slowly until all condensate has been removed from heater.
5. When Thermo control valve has taken charge of Fuel Oil temperature setting, open steam to heater full.

SECURIN G:


1. Reverse steps noted under STARTING:

MAINTENANCE

1. Half (1/2") inch relief valve set @ 455# P.S.I.

SAFETY PRECAUTION

1. It is good engineering practice to either leave the fuel oil outlet or inlet valve open when securing, preferably the inlet, except when repairs are in effect. Should the steam valve leak with inlet and outlet valve closed and relief valve failed to open @ 455# P.S.I. a ruptured coil would result.


Chief Engineer

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FPO San Francisco, California

1 MAY 1968

SUBJ: OPERATING INSTRUCTIONS - STANDBY FUEL OIL SERVICE PUMP.

This pump having a simplex fuel oil suction strainer is merely designed for Standby Service. However, it should be run no less than one (1) hour each week to determine it is in good running order.

Further, it should be used in each port of call to remove any sediment or moisture in lower section of each settling tank, it taking suction thru settler low fuel oil suction.

STARTING:

1. Open discharge valve.
2. Open suction valve.
3. Open exhaust valve.
4. Crack throttle valve and open drains on valve chest and cylinders. The drains will be closed when all moisture has been removed from the valve chest and steam cylinders.

RUNNING:

1. Oil link gear each half (1/2) hour.

STOPPING:

1. Reverse procedure outlined for starting.

MAINTENANCE

1. Relief valve on suction side set @ 65# P.S.I.
2. Relief valve on discharge side set @ 41# P.S.I.

5- *M. S. Chamberlain*

USNS GENERAL JOHN POPE
OFFICE OF THE CHIEF ENGINEER

Operating Instructions for Fuel Oil Service Pump

1. Open suction and discharge valves and suction valve at settling tank.
2. Open recirculating valve.
3. Start pump at minimum speed and increase speed as necessary.

This pump is controlled from the boiler control board.

This pump must be primed before starting if it has been drained of oil since last used.

Scouring:

1. Slow pump to minimum speed and stop pump.
2. Close suction and discharge valves.

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Chief Engr.

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OPERATING INSTRUCTION FOR STAND-BY FEED PUMP

STARTING:

1. Open steam cylinder drains to clear cylinder of water.
2. Open exhaust valve.
3. Open suction and discharge valves.
4. Make sure that the feed stop valve on the boiler is open.
5. Open throttle valve slowly, leave drain valves cracked until pump has made two complete strokes, then close them.
6. This pump can be controlled either by manual or automatic operation from the boiler control board or manually operated by throttle valve hand wheel which extends to the operating platform.

SECURING:

1. Close throttle valve.
2. Close exhaust valve and open drains.
3. Close Suction and discharge valves.

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OPERATING INSTRUCTION FOR TRIPLEX MAIN FEED PUMPS (#1)

STARTING:

1. Open suction and discharge valves and feed line stop valve, open cushioning valves.
2. Check oil level in pumps and oil in coupling.
3. Start pump at minimum speed and "Ø" stroke and check oil pressure of the lubricating system. Pressure should be approximately 15 lbs. Should lube oil pressure drop below 8 lbs., the system must be checked and the cause discovered and remedied. The self-cleaning strainer should be turned 2 or 3 turns and the push rods operated on the spray nozzles to clean the nozzles.
4. Bring pump up to % of stroke needed and increase speed as necessary and again check lube oil pressure on lube oil system and stroke changing system.

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OFFICE OF THE CHIEF ENGINEER
USNS GENERAL JOHN F. F. E

OPERATING INSTRUCTION FOR TRIPLE MAIN FEED PUMPS (#2)

- Pump speed is controlled by rheostat on boiler operating board.
- Pump stroke can be controlled either by manual or automatic operation from the control board or by manual operation of the pilot head hand wheel.

To put pump on automatic control proceed as follows:

1. Open air supply to control board.
2. Open air supply to relay valve and level control on boiler, check supply pressure at relay valve, the pressure should be 30 Lbs. If not, adjust reducing valve.
3. Open shut-off valves to top and bottom of level control, give control unit a blow down of about 15 seconds and allow unit to cool to normal temperature.
4. Change manual-automatic control on board from "ON" to "OFF" position, keeping a close watch on the % of pump stroke in relation to the boiler water level. If pump speed is sufficient, the pump stroke will increase and decrease as the water level changes and maintain a steady water level. If pump stroke goes to 100% stroke without raising water level the pump speed is too low.

SECURING PUMP:

1. Reduce speed and stroke to minimum.
2. Turn starting switch off and pull knife switch in controller.
3. Close suction and discharge valves and cushioning valves.

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Ch. Engr.

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COMBUSTION CONTROL SCHEDULE

The combustion control conditions and settings will be according to this schedule, a copy of which will be posted at the boiler control station.

1. GENERAL CONDITIONS

A. GENERAL

Burners in use (a)-----All
 Register setting (a)-----Wide Open
 Excess Steam Pressure, lbs-----15

B. CAPACITY RANGE

Boiler range %-----3.9-144
 Burner range % (b)-----10-100

C. OIL CONDITIONS (c)

Oil pressure, lbs-----3-300
 Return pressure, max. lbs. (d)-----3
 Oil temp. deg., F. (e)-----180-210
 Oil viscosity, SSU-----150

D. REFERENCES (f)

Excess Air Chart Ele-473
 Oil Viscosity Chart E3-574
 Combustion Control, Operation Instructions Ele-3705
 Oil Burners, Operation Instructions B & W Book
 Control Equipment, Operating Instructions Mason-Neilan Book
 (a) For all regular conditions, including maneuvering and port.
 (b) Never go below 10% burner capacity. If necessary cut out a burner.
 (c) Conditions at burners.
 (d) If pressure in outlet of bypass goes above 3 lbs. reduce pump speed, and if necessary, choke settling tank suction valve.
 (e) Obtain temperature required for viscosity of 150 SSU from E3-574 and set fuel oil temperature regulator to give this temperature at the burners.
 (f) In Chief Engineer's information file.

2. DAMPER CONTROL.

Condition	Steaming	Maneuvering & Port
Initial Adjustment R. (a)(c)	465	435
Load Adjustment S (b)	7	7
Steam pressure range. (c) (d)	463-468	433-438

- (a) Steam pressure for mean damper opening at 32%
 (b) Permanent inside adjustment.
 (c) For good regulation range of damper opening, from 8 to 57%
 (d) Variation in steam pressure, 5 lbs.

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M. S. Chamberlain
 Chief Eng.

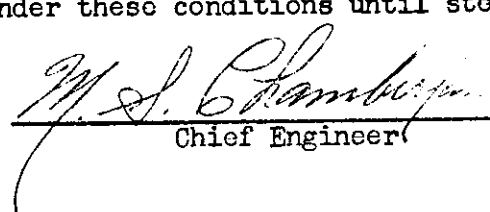
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1 MAY 1968

SUBJ: OPERATING INSTRUCTIONS - COMBUSTION CONTROL, MASON-WEILAN

RAISING STEAM:

1. Open all needle valve supplying air to steam pressure Controller, Fuel-Air Ratio Controllers and Manual Control Units.
2. Put all instruments on Manual Control, designated by "ON" on the Manual Control Units.
3. The time required in raising steam from a "DEAD" boiler should not be less than three (3) hours to avoid burning out the Superheater. One "C" tip should be used in the middle register at about 90% capacity. Steam atomization is used to insure that the hot oil is broken up in fine particles to obtain efficient and smokeless combustion.
4. Set By-Pass Valve to number of stem turns stated on posted chart.
5. Set Manual Ratio Control Unit to 80% control capacity on loading pressure gage. (This opens the Oil Control Valve wide, obtaining rapid circulation while heating the oil).
6. Open recirculating valve and start fuel oil service pump at minimum speed.
7. Adjust recirculating valve to 30% burner capacity as indicated on the burner oil pressure gage located on the boiler front.
8. Start fuel oil heater and bring oil up to temperature required for a viscosity of 150 G.S.V.
9. Start Forced Draft blower at minimum speed & adjust damper to 50% open with Manual Damper Control Unit.
10. Insert middle burner with "C" tip.
11. Close all registers.
12. Open steam trap by-pass, turn on steam to burner header, and open steam valve to burner.
13. Set Manual Ratio Control Unit @ 50% capacity. Adjust recirculating valve to 75% capacity of the burner.
14. Turn oil on burner, light off with torch & open register.
15. Refer to ratio control loading pressure gage & reduce control capacity to 30%.
16. Close recirculating valve light & increase burner capacity to 90%.
17. Close steam trip by-pass valve.
18. Continue operating one burner under these conditions until steam is raised and boiler is put on the line.


Chief Engineer

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1 MAY 1968

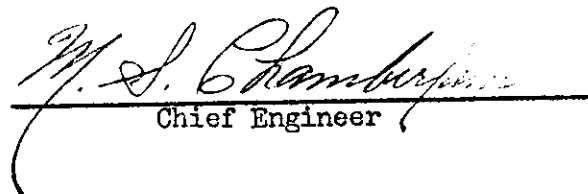
SUB: OPERATING INSTRUCTIONS - COMBUSTION CONTROL - MASON-WEILAN

PORT OPERATION

1. Refer to Ratio Control Loading Air Pressure Gage and increase Control capacity to 33% which will increase the burner capacity to 100%.
2. Insert second burner with a "C" tip.
3. Turn on steam and oil, light off and open the register. This will bring the burner capacity down to about 50%.
4. Increase Control Capacity to 50%, which will increase burner capacity to 75%.
5. Insert the third burner, light off, open register, oil & steam.
6. Set steam pressure controller for 435 P.S.I. steam pressure and adjust Fuel-Air Ratio Controls for "G" tips. (See posted Chart for adjustment).
7. Change from Hand to Automatic Control after boiler pressure has reached approximately 400 P.S.I.

NOTE: If required both boilers may be put on the line for Port Operation, operate them both at a low capacity.

If any boiler is on the line operating on Automatic Control and it is desired to cut out the other, it is essential that the pressure of the boiler to be put on the line be approximately equal to that of the boiler already on the line before changing over from Manual to Automatic Control.


Chief Engineer

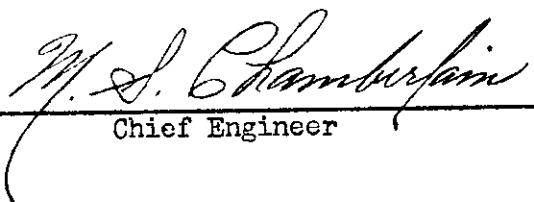
1 MAY 1968

SUBJ: OPERATING INSTRUCTIONS; COMBUSTION CONTROL - MASON-WEILAN

CHANGING FROM PORT TO SEA SERVICE:

1. Change controls from automatic to manual. (Before changing, determine pressure indicated on Loading Pressure gage of Manual Control Unit is same as shown on Fuel-Air Ratio Controller. This will insure the system will not be upset nor firing rate interrupted during change-over.)
2. Reduce control and burner capacity to 16%. (This is done by decreasing the loading pressure to Oil Control Valve by turning knob on Manual Ratio Control Unit to the left.)
3. Set Oil-By-Pass Valve to number of turns given on posted chart for "A" size tips. (This will increase control and burner capacity to 37%.)
4. Shut off oil and steam to one (1) burner, close register & remove burner.
5. Insert burner with "A" sized tip, turn on steam and oil, light off and open register.
6. Follow the same procedure in lighting off second burner.
7. Increase burner capacity to 25% & light off the third burner as explained above.
8. Adjust Fuel-Air Ratio Controller for "A" tips. Change Damper and Ratio Controls from Manual to Automatic.
7. At Departure set steam pressure Controller for 465 P.S.I. and if necessary readjust the Fuel-Air Ratio Controls for steady steaming.

NOTE: When Emergency Operation on one (1) boiler with "A" tips becomes necessary, the procedure is the same as above except that the differential pressure will be set at higher on the oil By-Pass Valve and Fuel Air Ratio controls adjusted accordingly.



Chief Engineer

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FPO San Francisco, California 96601

1 MAY 1968

SUBJ: OPERATING INSTRUCTIONS - COMBUSTION CONTROL

SECURING:

1. Before changing from one boiler to another for port operation, or before shutting down one boiler, controls on boiler being secured should be changed from Automatic to Manual Control.

2. Assuming vessel has just docked and burners fitted with "A" tips, with boilers operating at a low capacity, proceed as follows:

- (a) Change boiler from Automatic to Hand Control.
- (b) Secure oil and steam to burners, close register, remove #1 burner.
- (c) Repeat for #2 burner. (This will give about 36% burner capacity for the one remaining "A" tip.)
- (d) Open recirculating valve & release burner capacity to 15%, referring to burner capacity gage on the boiler front.
- (e) Secure oil and steam, close register & remove burner as above.
- (f) Leave recirculating valve open to keep oil circulating,
- (g) Secure Fuel oil Heater, Fuel oil Pump and Forced Draft Fan.
- (h) Close recirculating valve, shut off air to Ratio Controller to boiler coming off the line and secure boiler generally.

NOTE: When securing the second boiler proceed as above.

In all cases, before shutting down a boiler, its load should be reduced before hand to about 12%.


Chief Engineer

USNS GENERAL JOHN POPE
OFFICE OF THE CHIEF ENGINEER

OPERATING INSTRUCTIONS FOR THE AUXILIARY CIRCULATING PUMP

1. Open sea suction valve.
2. Open circulating water overboard valve.
3. Open pump suction and discharge valves and inlet valve to auxiliary condenser.
4. Vent condenser.
5. Start pump at minimum speed and raise to desired speed.

SECURING PUMP:

1. Reduce speed to minimum and stop pump.
2. Close suction and discharge valves. If condenser is to be worked on or inspected, close sea suction and overboard valves and inlet valve to condenser.

M. A. Chamberlain
C. E. Engr.

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USNS GENERAL JOHN POPE
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OPERATING INSTRUCTIONS FOR MAIN CIRCULATOR

STARTING:

1. Open the main injection high suction valve.
2. Open the circulating water overboard valve.
3. If the main condenser has been open on the water side since last used, open the condenser vent valve until water comes from it, then close it.
4. Turn rheostat to slowest position and push start switch on circulator.
5. The circulator should be operated at the slowest speed which will maintain good vacuum. A check of the temperature difference of the water entering and the water leaving the condenser will indicate whether the circulator is going too fast.
6. When entering port, while in port, and while leaving port the high sea suction will be used. At sea the low sea suction will be used.

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Ch. Engr.

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USNS GENERAL JOHN POPE
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OPERATING INSTRUCTIONS FOR THE AUXILIARY CONDENSATE PUMP

STARTING:

1. Open suction and discharge valves and suction valve from auxiliary condenser to be used.
2. Check inlet and outlet valves at auxiliary air ejector, make sure no valve in the condensate line is closed between pump and D.C. Heater.
3. Open recirculating valve until water shows in condenser guage glass.
4. Start pump at minimum speed, open pump vent to condenser to be used, and regulate recirculating valve to insure that pump does not run dry or condenser is not flooded.

SECURING:

1. Slow pump to minimum speed, stop pump and close recirculating valve.
2. Close pump suction and discharge valves and pump vent valve.

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Ch. Engr.

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OPERATING INSTRUCTIONS FOR MAIN CONDENSATE PUMP

STARTING:

1. Open pump suction valve.
2. Open pump discharge valve and any valves which may be closed between the pump and the D.C. Heater, such as Inlet and Outlet of condensate at the main air ejector.
3. Open recirculating valve and leave open until water shows in main condenser guage glass.
4. Open pump vent valve to main condenser.
5. Start pump at minimum speed and regulate recirculating valve so as to insure that pump does not run dry at any time.
6. Pump speed and recirculating water should be regulated so as to operate the pump at as low a speed as possible and still maintain the correct temperature at the main air ejector outlet. In normal operation, this should not exceed 120 deg. F.

SECURING PUMP:

1. Reduce pump speed to minimum and stop pump.
2. Close recirculating valve.
3. Close pump discharge valve, pump suction valve, and pump vent valve.

M. J. Chandler
C. H. Engle

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1 MAY 1968

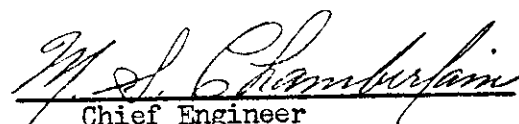
OPERATING INSTRUCTIONS: GLAND SEALING SYSTEM; NORMAL

1. Determine packing box drains are open to the Gland Exhauster.
2. Apply three (3) lb., steam to carbon seals.
3. With 28 or 29 inches vacuum on Main Condenser, adjust gland seals to maintain 1 or 2 inches of vacuum at the Gland Exhauster/or Gland Seal/or Vent Condenser.

UNDERWAY:

1. When all clear signal is received after departure;-
 - (a) Secure 3 lb., gland seal steam.
 - (b) Secure steam seal steam valve to H.P. turbine packing.

Ordinarily with 1 or 2 inches of vacuum at Gland seal Condenser, leak-off from ahead side of L.P. turbine will seal astern side of L.P. packing. Contrary to this open seal steam to after side of H.P. turbine seal to adjust seal on L.P. Turbine.


Chief Engineer

USNS GENERAL JOHN POPE (T-AP 110)

OPERATING INSTRUCTIONS FOR RAISING VACUUM ON MAIN UNIT

1. Put lube oil system in operation.
2. Start main circulator.
3. Start main condensate pump and open recirculating valve enough to insure a continuous flow of condensate through air ejector condenser.
4. Upon receiving permission from the bridge start the jacking gear.
5. Make sure gland drains and gland exhaust valves are open. Put gland seal on main engine and open first stage air ejector inlet valve.
6. Make sure the following valves are open: intercondenser drain to loop seal, loop seal drain to main condenser and air ejector suction valve from main condenser.
7. Cut in one second stage air ejector nozzle. At 20" of vacuum, cut in the first stage nozzle. If it is necessary to raise vacuum in a shorter time than required by the above method it should be done by using two second stage nozzles until 20" of vacuum is reached. Then cut-in two first stage nozzles - when full vacuum is reached, secure one set of nozzles (first stage and one second stage)..

W. S. Chumbley
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OFFICE OF THE CHIEF ENGINEER
USNS GENERAL JOHN FOPE

OPERATING INSTRUCTIONS FOR MAIN GENERATORS

STARTING

1. Check oil level to see that it is approximately at the high level on the guage and the oil is in good condition.
2. Check oil temperature by operating the hand oil pumps and reading the thermometers on the cooler. If the oil temperature is below 90 deg F, open the water and steam connections leading to the cooler and operate the hand crank until the temperature is 90 deg. F. In the heating process, the cooling water temperature should not exceed 180 deg. F. Never use steam alone in the cooler.
3. Check the rotor position.
4. Trip the latch of the over-speed tripping mechanism by hand. If it fails to operate, or is sluggish, find and correct the condition before proceeding further.
5. See that the generator main switch is open and that the rheostat resistance is all in circuit.
6. Start the circulating and condensate pumps.
7. See that the packing box drains are open to the gland exhaust system.
8. Drain the sealing steam supply line.
9. See that the valve in the steam seal-off connection is closed and open the valve in the steam supply line.
10. Make sure the throttle valve drain is closed.
11. Put the air ejector in service and build up vacuum. If the air ejector is already in operation open the air ejector suction to the incoming unit very gradually so the vacuum on the other unit will be impaired as little as possible.
12. Thoroughly drain the main steam line ahead of the stop valve.
13. See that the drain from the first stage of the turbine is open.
14. Operate the hand oil pump until the unit is turning at a speed which maintains 7 lbs. pressure on the lube oil system.
15. Force the steam admission valves open manually with the valve lifting crank and admit sufficient steam through the throttle valve to turn the rotor at the minimum speed to maintain 7 lbs. on the lube oil system.

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OPERATING INSTRUCTIONS FOR MAIN GENERATORS (CONT'D)

16. Check the oil temperature again. Never bring the unit up to speed with the lube oil temperature below 90 deg. F.
17. Bring the unit gradually up to speed, continually accelerating until the governor takes control. After the governor has control open the throttle valve wide, then close it about 1/2 turn.
18. Continue to operate on the governor, but without load until it has been definitely established that the mechanical performance of the unit is satisfactory. Pressures and temperatures should be as follows: 440 lbs. steam pressure at the throttle, 28" to 29" of vacuum in the condenser, 1" to 2" vacuum on gland exhaust, 3 lbs. pressure on gland seal supply, 6 to 8 lbs. on lube oil system, 60 lbs. pressure on governor oil system. When the lube oil temperature reaches 110 deg.F. open the cooling water valves so as to maintain temperature of between 110 deg.F. and 120 deg.F. on the lube oil.
19. Close the drain from the first stage of the turbine.
20. See that the governor is maintaining proper no load speed of 1230 to 1235 RPM.
21. Load the unit as follows:
 - If the generator is to operate singly:
 - A. Close the circuit breaker.
 - B. Cut out the rheostat resistance slowly until the generator voltage is 240 volts.
 - C. Close the main switch.
 - If the generator is to operate parallel with other units:
 - A. Close the circuit breaker.
 - B. Slowly cut out the rheostat resistance until the voltage is slightly higher than line voltage.
 - C. Close the main switch.
 - D. Adjust the rheostat so that the generator takes its proper share of the load.

W. S. Chamberlain
Ch. Engr.

OFFICE OF THE CHIEF ENGINEER
USNS GENERAL JOHN POPE

OPERATING INSTRUCTIONS FOR MAIN GENERATOR

SECURING UNIT

1. Take generator off the line by slowly lowering the load with the rheostat so the other generators on the line pick up the load without a heavy surge. When the load is reduced to 0 AMPS, trip the circuit breaker.
2. Open the main switch.
3. Trip the overspeed latch by hand and turn the throttle valve to its closed position, close main line stop valve.
4. When the machine is coming to a stop the hand lube oil pump must be operated from the time the lube oil pressure drops to 7 lbs. until the machine is at a full stop.
5. Secure the air ejector suction, the condensate suction, the loop seal drain, the pump, the recirculating line and the first stage heater drag.
6. Secure the gland sealing steam and open the seal leak-off, the first stage turbine drain and the throttle drain.
7. Keep circulating water on until condenser is cool after vacuum is broken, then secure circulating water being sure the steam valve to the lube oil cooler is securely closed.

DURING NORMAL SHUT DOWN PERIOD:

1. See that all steam valves are tight.
2. Check and clean all oil strainers.
3. Examine oil, if any evidence of contamination is found, run it through the lube oil purifier until it is clean.
4. Correct any abnormal conditions noted while unit was in service.
5. Turn the unit daily.

W. S. Chamberlain
Chief Engr.

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FTO San Francisco, California 96601

1 MAY 1968

SUBJ: OPERATING INSTRUCTION - STANDBY LUBE OIL SERVICE PUMP

STARTING:

1. Open steam cylinder drains to clear cylinder of water.
2. Open exhaust valve.
3. Open suction and discharge valves.
4. Determine all valves are open to Lube Oil Gravity Tanks as well as drop valves from Gravity Tanks to Main Propulsion Unit.
5. Open throttle valve slowly, leave drain valves cracked until pump has made two (2) complete strokes, then close them.
6. This pump speed is controlled manually, however there is an orifice in the steam line to control the output of the pump to 10% less than the capacity of the relief valve.

RUNNING:

1. Lubricate valve link gear once each half hour.
2. Control speed of pump to maintain overflow level at the sight glass/or not less than 7# pressure on the bearings when using pressure systems,

SECURING:

1. Reverse action noted under starting.

NOTE: This pump will be operating slowly when maneuvering or when plant failure is eminent.

2. Three and half ($3\frac{1}{2}$) inch relief valve set at 50 P.S.I.


Chief Engineer

USNS GENERAL JOHN FOTE
OFFICE OF THE CHIEF ENGINEER

OPERATING INSTRUCTIONS FOR THE MAIN LUBE OIL PUMP

STARTING:

1. Open suction and discharge valves.
2. Open inlet valve at gravity tank.
3. Open outlet valve at gravity tank.
4. Start pump at minimum speed.
5. When oil overflows past overflow sight glass, turn alarm circuit on and open valve to main engine. Alarm should sound until oil pressure on main engine header reaches 7 lbs.
6. Increase pump speed as necessary to maintain overflow from gravity tank.

SECURING:

1. Reduce pump speed to minimum and stop pump.
2. Secure lube oil valve to main engine. When alarm sounds secure alarm circuit.
3. Secure inlet and outlet at gravity tanks - secure pump suction and discharge valves. This procedure will maintain the gravity tanks at or near the overflow point.

SECURING THE MAIN LUBE OIL SYSTEM:

It must be remembered that the stand-by lube oil pump is kept in readiness to take over the pumping should the main pump fail. In securing the system, the steam stop valve to the stand-by pump should be secured before the main pump is secured, unless a test run is desired on the stand-by pump. In any case the stand-by pump must be secured before the inlet valve to the gravity tank is closed.

M. S. Chamberlain
Lt. Engr.

USNS GENERAL JOHN LONE
OFFICE OF THE CHIEF ENGINEER

INSTRUCTION FOR CHANGING FROM GRAVITY TO PRESSURE LUBRICATING SYSTEM ON
MAIN ENGINE

1. Open valves painted yellow.
2. Close valves painted red.
3. Reduce pump speed and regulate one (1) inch by-pass valve located below cross over line to maintain twelve to fourteen pounds pressure on lube oil header of main engine.

M. S. Chamberlain
Lt. Engr.

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USNS GENERAL JOHN POPE
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OPERATING INSTRUCTIONS FOR LUBE OIL PURIFIER

STARTING:

1. Check oil in purifier gear case.
2. Start purifier and allow it to come up to speed.
3. Prime bowl with hot water until water overflows into discharge chamber. Close cock on priming funnel.
4. Open steam to lube oil heater and return line to drain tank.
5. Open suction valve to purifier and discharge from purifier.
6. Regulate steam to heater so as to maintain a temperature of between 140 deg.F. and 160 deg. F.

Before starting the operator must be sure the bowl cover is properly locked into place and the bowl brake is released.

SECURING:

1. Press stop switch of purifier and pull knife switch in controller box.
2. Close suction valve to purifier.
3. Apply brake and stop bowl.
4. Close steam valve to heater and return from heater.
5. Close purifier discharge valve.

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5. Pump out 1st Effect, allow tubes to thoroughly heat, pump out and repeat as necessary to free scale.
6. Notify Engineer on watch and secure Main Steam Supply to plant.
7. Stop Tube Nest Drain pump, Distilling Condenser Circulating Water and Distillate Condensate pumps.
8. Open all vents on Tube Nest Headers.
9. Secure Sea Suction and Overboard Discharge valves.
10. Remove clean out plates on all effects. Rake out scale that has cracked off the tubes and flush out Shells with fire hose.
11. Open up and clean out all strainers.

M. A. C. Chamberlain
E. A. Engd.