

## Lighting Off

- Install the exhaust fan on the stack but do not turn it on at this time.
- Make sure the Propane Firing Valve (right side of tender) is closed.
- Open the valve on the first two propane tanks, leave the rear most tank closed. Verify pressure on the gauge and listen and smell for gas leaks. Open the firing valve to verify gas is getting to the firebox, then close the firing valve. Close the tank valve and verify pressure doesn't leak down for 30 seconds. Purge the propane line pressure with the firing valve.
- Open two "In Use" propane tanks for normal running operation and leave one "Full" tank closed for when they run out. When the two tanks run out, close the valves, tag them "Empty", open the full tank and tag it "In Use".
- Verify the blower valve, injector valves and throttle are closed, and the Johnson bar is in mid phase.
- Light the BBQ lighter and hold it in the fire box over the burner. Turn on the propane firing valve. **If the fire does not quickly light, turn off the firing valve, let the propane dissipate and try again.**
- Once you have fire on all of the burners, turn on the exhaust fan.
- Bring the fire up as far as you can without blowing out the bottom of the fire box.

## Steam Up

- As the boiler gets hot, verify the water level in the glass remains constant.
- When the boiler pressure gets to 40 PSI open the blower valve a little and remove the exhaust fan. The exhaust fan is hot, use gloves. Leave the fan plugged in for a few minutes so it can cool down. Adjust the blower valve enough to ensure the flame is properly exhausting through the boiler tubes. As the boiler pressure increases, re-adjust as needed.
- The safety valves will open at 125 PSI and 130 PSI. After they pop off, operate the injectors one at a time. Try the right side first to bring the boiler pressure down below pop off. Allow the boiler to pop off again and use the left injector to bring the pressure to 120 PSI.
- Adjust the fire to maintain a steady 120. PSI.

## Running the Locomotive

- Verify all hoses and wires have been removed from the locomotive.
- Turn the brake compressor on and test both the train and locomotive brakes.
- Open the cylinder cocks by pushing the lever forward. Be careful not to go over center.
- Put the Johnson bar in full forward or reverse direction.
- Open the throttle slowly.
- As the engine runs the cylinders will get warm and you can close the cylinder cocks. When the engine stops for some time, you will need to start with the cylinder cocks open until the cylinders warm up again.
- Going down grade is a good time to run an injector and upgrade you will need build up the fire and turn off the injector.
- As you approach a down grade, use the train brakes just enough to hold the train speed if needed.

## Shut Down

- Once in the steaming bay, set the Johnson bar to mid phase.
- Turn off the propane tank valves in the utility car. When the fire goes out and the propane pressure is 0, close the propane Firing Valve in the tender.
- Turn off the train brake compressor and disconnect the positive side of the battery.
- Remove the foot rests.
- Inspect the engine and lubricate the drive wheel journals, valve motion and drive rods with **standard oil**.
- Fill the **steam oil** cylinder lubricator.

## Blow Down

- Allow the boiler to cool down to 40 PSI. Use the injector to help speed the cool down process, but not less than 40 PSI.
- At 40 PSI, open the blow-down valves. Check to see that the blast area is clear.
- After blow-down stops, open all valves - cylinder cocks (forward), blower, injector, all three sight glass valves, pressure gauge drain, and engine brakes "On" to let the lines dry out
- Remove the safety valves and store in the tender foot well.
- Loosen the caps on the boiler check valves.
- Disconnect the boiler feed lines at the injectors.
- Drain the tender.
- Clean and reinstall the tender filter bowls.
- Wipe down the engine jacket, running gear and tender.
- Replace any empty propane tanks with full ones.
- Fill out the log sheet and replace the book in the utility car.
- Put the engine away in the storage container.
- Attach the battery charger to the battery.

# NGLS Steam Locomotive Check List

## Pre-Start, Inspection and Lube

- Move the engine, tender and utility car to an open steaming bay.
- Check the log book for problems from the last run. Log the current date and time on the next page.
- Verify the cars are coupled together including safety chains and all hoses.
- Attach the power cable to the battery post and the foot rest to the tender.
- Lubricate the engine, drive wheel journals, valve motion and drive rods with **regular 30 weight motor oil**.
- Top off the cylinder lubricator with **steam oil**, and add a few drops in the brake steam line.
- Reconnect the injector lines at the injectors.
- Tighten the caps on top of the boiler check valves.
- Install the safety valves on top of the boiler with thread compound.

## Filling the Boiler and Tender with Water

- Open the cylinder cocks (forward), blower valve, both injector valves, both sight gauge valves and locomotive brake shutoff valve.
- Close both blow-down valves, pressure gauge drain, sight glass drain valve, throttle and set locomotive brakes "off".
- On the tender, clean and reinstall both filter bowls. Close both water feed lines and close the drain valve.
- Attach the water hose to the water spigot and flush out the hose.
- Attach the hose to the locomotive's water hose coupler and fill the boiler to 2/3 full in the sight glass.
- Close the Locomotive's blower valve and both injector valves.
- Fill the tender full of water.