# Waratah Pre-Steaming Procedure (Feb 2024)

### Introduction

This procedure assumes that the boiler was warmed the previous day. It also assumes that at least 2 people are working in the last 1.5 hrs of preparation.

The times are based on crew members who are familiar with the tasks. More time should be allowed if trainees are involved.

This procedure aims to:

* Limit the heating rate of the boiler to below the maximum rate allowed (at the time of writing this is 30o C per hour)
* Limit heat loss while preparing the fires
* Prevent the condenser from overheating
* Have the ship ready on time

### Departure minus 24 hrs:

Chief engineer checks the boiler temperature to ensure that the “previous day warm-up” has started. The temperature graph is available here:

<https://emoncms.org/dashboard/view/both&apikey=30301d38578cfcd4fe64ed9cc10024b6>

or here:



The temperature should reach 125 o C.

### Departure minus 4 hrs:

Someone with a boiler ticket lights the fires or supervises someone else doing it.

Follow these steps:

* Check that shore power is on – the green light near the speaking tube should be on.
* Check the fore peak water tank level
* Check the gauge glass. Top up water with the electric pump if necessary.
* Remove ash from the fire grates. Partially burned coal can remain.
* Prepare the fires
* Release the funnel cover tie-down (if engaged) and open the funnel cover.   
  Note: Tying down the funnel cover when it is closed is unnecessary and is discouraged.
* Light the fires.
* Clean the ash pit.
* Start the circ. pump. If the pump does not want to start press the Off button and then the On button – the Off button has been known to stick in the Activated position, and operating it will free it.
* Feel the temperatures of the pipes to check that water is actually circulating.
* Make a temperature-raising plan that does not exceed the maximum allowed rate of heating. Note: Allow one hour to get the fires big enough. Aim for 160 degrees 20 minutes before departure.
* As heating progresses record times and temperatures on the blackboard.
* The circ pump will switch off at 120degrees. Close all valves in the water circulation path.

### Departure minus 1.5 hrs:

The rest of the engineering crew arrive. (This is arranged at the discretion of the chief engineer a day or 2 before the trip.)

**Anchor winch:**

This can be started when there is 40psi of steam.

* Warm the steam pipe slowly, followed by the engine.
* Lubricate the engine while it is warming.
* Run the engine forwards and backwards.
* Engage the warping drums and remind yourself which way they turn relative to the engine direction. Disengage the warping drums.
* Shut the steam valve on the boiler and shut down the engine.

**Steering engine:**

* Set the exhaust steam cock to Overboard (not Condenser).
* Open the steam valve on the boiler and the exhaust valve on the engine.
* Open the drains.
* Crack the steam valve to warm the engine slowly.
* Lubricate the engine while it warms.
* Close the drains and open the steam valve fully.
* Test the steering engine by turning the black rod that comes down from the wheelhouse.

**Fill the domestic water tank:**

* Warm and lubricate the aux feed pump.
* Set the valves to draw water from the fore peak tank and discharge it to the domestic tank.
* Run the pump until water overflows into the plastic bucket just for’ard of where you are standing when operating the pump.
* Empty the contents of the bucket overboard. (The purpose of the bucket is to keep the hull dry to reduce rusting.)

**Start the auxiliary condenser cooling, and open the main sea suction valve:**

* Warm and lubricate the GS pump.
* Set the valves to draw water from the sea and discharge it into the condenser.
* Also open the main sea suction butterfly valve. (Do it NOW so it does not get forgotten.)
* Start the pump and check the overboard discharge.
* Note: The pump speed will increase as the boiler pressure rises, so run it slowly.

**Switch the steering engine exhaust to go into the condenser.**

### Departure minus 1 hr:

**Main engine – warm and lubricate:**

Warm it for 40 minutes, then roll ahead (or astern, as directed by the master) for 20 minutes

* Slowly warm the main engine steam pipe, taking care to avoid water hammer.
* Periodically open the pipe drain to release water.
* When the pipe is hot open the steam valve on the boiler fully.
* Open the engine’s drains.
* Start warming the engine. At the time of writing the HP valve was very worn so the engine direction lever can be left in neutral while warming.
* Monitor the IP pressure gauge. Adjust the throttle to maintain about 4 psi on the gauge, to ensure a reasonable rate of warming.
* Lubricate the engine while it is warming.
* Put all wicks in, including the intermediate shaft bearings.
* After about 40 minutes the engine should be thoroughly warm.
* Roll ahead (or astern) after getting permission from the master.
* Close the condenser drain.

**Sundries:**

* Open the steam to the whistle.
* Open the steam to the urn.
* Check the level in the sullage tank.

**Ship system testing:**

With the master, test the following:

* Steering
* Whistle
* Telegraph
* Alarms

**Shore power:**

This does NOT have to be left till the last minute – there is enough battery power to last many hours (on a daytime trip).

* Switch off the power at the electrical pillar on the dock.
* Disconnect the electric cable from the ship and store it on the dock, protected from rain.