

Guidance

With respect to

Steam-boiler's Operation,

(utfærdiget av Det kgl. Departament for Sociale Saker i henhold til lov om arbeiderbeskyttelse i industrielle virksomheter av 18de september 1915 § 9.)

Before the Firing:

The Water-Level.

1. Make sure the water is visible in the water sight glass.
2. Investigate/check if the Sight-glass and connected pipes are in good order.
Important. *By opening the blowdown tap for the sight-glass and closing it again. The water should immediately settle to its previous position.*

Test-Taps/valves.

3. Investigate/check if the bottom test-tap/valve gives water.
4. Let the topmost Tap/valve or other tap/valve for the boiler stay open, so the air may have a way to get out; close it when it is building steam pressure.

Bottom plug/tap/valve.

5. Make sure the bottom plug/tap/valve is sealed, and that everything so far is in order.

After Firing and When the Steam Pressure Begins Rising:

Water-Sight-Glass

6. Check if the Water sight-glass apparatus is in order when under blowdown of the sight-glass and the piping it is connected to, alternating closing the top and bottom sight-glass taps.
Important. *When both taps are then opened and the blow-off/blowdown tap is closed, the water should show a clear oscillation up and down in the glass tube/sight-glass.*
Check/test the sight-glass and the test-taps multiple times daily.

The Safety-valves.

7. Lift a bit on the safety valve(s) and check to make sure they haven't gotten stuck or that something isn't hindering their free movement.

Water feed pump/Injector.

8. Turn on the Feed-pump/injector as soon as possible to test if it is in working order and provides sufficient amounts of water: If it is not in a usable

condition, turn the reserve/secondary Pump/injector on as soon as possible.

The Manometer.

9. Check if the Manometer is right (see if it shows the boilers Maximum working pressure when the safety valve begins to blow. And if it goes back to zero, when the pressure is weak).

Release of Steam.

10. Opening and closing of valves and Taps must always be done slowly and carefully. Opening of the release valve must be taken especially careful.

Overboiling/overcooking/overfiring.

11. If overboiling/overfiring/cooking occurs, the release valve must be closed, the firebox door must be opened and fire reduced, until the water has settled. Before continuing with firing, check carefully whether there is water in the sight-glass. If this is not the case, proceed as written under point 16.

Stopping.

12. In the event of an unexpected stop, such as machine damage and the like, the greatest and utmost care must be taken, the fire must be reduced immediately, by shutting off the blower or opening the firebox door, after which the feed-pump/injector can be started. The Fireman must not leave the boiler until everything is in order or the fire is snuffed out.

Feeding.

13. **Remember that a fireman's first duty is to watch and take care of the water level.**

Feeding the boiler with water must be done evenly and not in large portions at a time.

14. The water must never completely fill the sight glass.

Unclean water.

15. If the water is found to be impure/unclean a Blowdown must be carried out 1 to 2 times a day. The bottom drain-plug/tap is to be closed when the water reaches approximately 30mm (1,18 in) bellow the normal water level.

Water Level Too Low.

16. Is the water level not visible in the sight-glass, or it appears to be clogged, the fire must be immediately removed/raked out and the boiler cooled down.
17. Do not touch the safety valve and do not turn the feed water pump/injector on. Leave the outlets unchanged.

“Dry-Boiling”.

- 18.If the boiler has been boiled dry, it must not be fired again until it has been examined by a competent person (a boiler inspector) and found to be satisfactory. A report of the incident must be sent to the factory inspector immediately.

At Shutdown:

- 19.Pump in water, so there is a full water level for the next firing.
- 20.Rake out and extinguish/put out the fire; Then close the firebox door and the ash-door/pan.
- 21.The fireman must not leave the boiler until this has been observed and completed.

General Provisions:

22. **It is strictly forbidden to change the set loads (settings) of the safety valves beyond the specifications by authorities.**
- 23.The regulations issued by the supervisory authority must be carefully observed.
- 24.The boiler must be cleaned as often as necessary (under normal conditions every 6th or 12th week; more frequently if the water is impure); sludge and the boiler's scum must be carefully removed. When cleaning the outside, fire tubes/boiler flues and boiler sides must be freed/cleared of ash and rust. Boiler cleaning should be carried out with the utmost care, as this is one of the most important conditions for the preservation of the boiler.
- 25.For any boiler cleaning, the boiler should be carefully inspected inside and out, small faults or damage must be repaired. Major faults must be reported to the supervisory authority.
- 26.Repair of leaks in the boiler, when it is under steam, is not allowed.
- 27.A spare water sight-glass should always be at hand.
- 28.The audit book prescribed in the “regulations” must always be accurately kept and always kept up to date.
- 29.The fireman must not leave their post during relief, when the boiler is in operation.
- 30.Order and cleanliness must prevail in the boiler room. **Unauthorized persons must not stay there without the authority's permission.**