
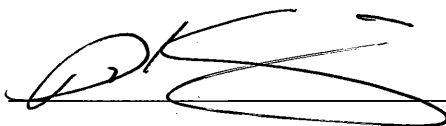


Model Hobby Boilers

BSB 0600-06

Prepared by:

 _____ Don Kinney Date: 08/26/2019
Procedure approved by.

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BOILER SAFETY BUREAU
STANDARD OPERATING PROCEDURE MANUAL

MODEL HOBBY BOILERS – BSB 0600-06 **R4**

1.0 PURPOSE AND SCOPE

To provide uniform, comprehensive inspection requirements for model hobby boilers to ensure that they are safe for continued operation.

This work instruction covers the periodic inspection by Boiler Safety Bureau (Bureau or BSB) Deputy and Special Inspectors, of model hobby boilers that are power boilers, whether stationary or mobile, and have:

- 1.1 A heating surface area of 20 square feet or less
- 1.2 An outer shell diameter of 16 inches or less
- 1.3 A volume of five cubic feet or less
- 1.4 A maximum allowable working pressure (MAWP) of 150 pounds per square inch (PSIG) or less.

2.0 PERSONNEL RESPONSIBILITIES

- 2.1 The Bureau Chief – BSB has the overall responsibility for implementation of this instruction.
- 2.2 The Assistant Bureau Chief has the oversight responsibility for this procedure as it applies to the inspection staff.
- 2.3 The Inspector Supervisors are responsible for ensuring the inspectors use this instruction, as a minimum, in their inspections.
- 2.4 BSB Inspectors are responsible for cognizance, understanding and use of this instruction.

3.0 HEALTH AND SAFETY ISSUES

The purpose of this procedure is to guide inspectors through the process of inspecting these particular objects. This will aid the inspector in performing thorough and effective inspections which will promote the safe operation of the object(s).

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4.0 PROCEDURE

4.1 Construction Requirements

4.1.1 Construction requirements established by the Department of Labor shall not apply to model hobby boilers that:

- a) Successfully pass a general, annual inspection.
- b) Have a properly operating pressure gauge.
- c) ***Have a minimum of two properly operating pressure relief devices (PRD), each individually capable of protecting the boiler. These devices need not be ASME/NB certified (See 13 NCAC 13 .0423), however if an installed PRD is ASME/NB certified for the intended use, with intact seals, and is set and rated for the MAWP and capacity of the boiler, then only one PRD is required.***
- d) Have an easily accessible mud ring blow-down valve.
- e) Have a water gauge glass.
- f) Have appropriate documentation to verify the design and construction specification.
- g) Have been retested after any alteration of the boiler proper.
- h) If constructed of copper, have a fusible plug in the top of the crown sheet.

4.1.2 Piping requirements noted in NCAC 13.13.0400 shall not apply to these boilers.

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- 4.2 In conducting the inspection, the Inspector shall:
- 4.2.1 Conduct a general visual external inspection of the boiler including any welding or brazing, noting any defects such as general deterioration, corrosion, dents, tears, weld or brazing cracks, lack of fill, excessive crown height, undercut exceeding 1/32 inch, or other defects in the weld or braze. Where accessible, the internal dimension of welds and brazing shall be inspected. Welding and brazing procedural and personnel qualification need not conform to ASME criteria. However, the general condition and workmanship of the welds shall comply with ASME rules.
 - 4.2.2 Conduct an ultrasonic thickness test of the shell, and each tube sheet where they are accessible.
 - 4.2.3 Conduct MAWP calculations for a nonstandard boiler as defined in NCAC 13.13.0101(30) (e). Mathematical formula shall be that noted in NCAC 13.13.0500.
 - 4.2.4 Check the pressure relieving devices for relief markings. Due to the size and nature of these relief valves, ASME/NB certification may not be present and is not to be considered a violation of regulations. (*See 4.1.1 (c) above*).
 - 4.2.5 Confirm that the feed water line is clear of obstruction and there is a stop and check valve arrangement in the line. Due to the size and nature of these lines, they need not be sized according to ASME construction codes.
 - 4.2.6 Confirm that a mud ring blow-down valve is installed and that it operates properly by cycling the valve. Due to the size and nature of these valves, they need not be sized according to ASME construction codes.
 - 4.2.7 Conduct an inspection of internal surfaces, both firesides and watersides, where possible.
 - 4.2.8 Have the operator fire the boiler and conduct a test by running the boiler up to lift pressure on the safety valves to confirm their proper operation.
- 4.3 When the pressure gauges are suspect, the Inspector has the right to require calibration testing of the gauges against a known standard using a dead-weight tester.
- 4.4 The Inspector may require testing of the relief valves when dismounted from the boiler to confirm set pressure is within 3% of the set pressure determined by the marking on the relief valve.

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- 4.5 The Inspector may require hydrostatic testing of the boiler not to exceed the set pressure of the relief valves.
- 4.6 The Inspector may require hydrostatic testing of the boiler not to exceed 150% of the set pressure of the relief valve if an alteration to the boiler has occurred within the current inspection cycle.

5.0 CUSTOMER SERVICE REQUIREMENTS

The purpose of following this procedure is to provide the customer, be it the public, employees of the Bureau, or other state agencies, with the most efficient service, information, training and assistance possible.

6.0 DATA AND RECORD MANAGEMENT

- 6.1 The Inspector shall document the inspection, conditions noted, any violations noted, and the MAWP as determined by their calculations on inspection form, BB-101.
- 6.2 Fees assessed for this inspection shall not exceed those fees noted in NCAC 13.13.0213 (b) for internal inspection of a hobby boiler.
- 6.3 ***All documents referenced during the proceedings shall be maintained in accordance with the State Archives of North Carolina General Schedule for State Agency Records as required Functional Schedule for North Carolina State Agencies as adopted by State Archives, a Division of the North Carolina Department of Natural and Cultural Resources.***