

NEW ZEALAND GOVERNMENT RAILWAYS	BOILER TESTING	CODE No. 75
LOCOMOTIVE BRANCH		Page No. 1 of 2 Issue No 3 Date Issued 1/5/47

EXISTING LOCOMOTIVE CODES TO BE CANCELLED: 146, 147, 160, 161, 162, 163, 164, 172, 195, 197

(1) DURATION AND PERIODS OF TESTS

Type of Boiler.	Testing-periods.	NATURE OF TESTS.	
		Warm-water Test for Five Minutes.	Steam Test for One Hour.
A. All new boilers	Initial test before being placed in service	Tested to a pressure of 50 per cent, in excess of approved working pressure	Tested to a pressure of 10 lb. per square inch in excess of approved working pressure.
B. All locomotive boilers under twelve years of age	Every three years	Tested to a pressure of 33 ¹ / ₃ per cent. in excess of approved working pressure	Tested to a pressure of 10 lb. per square inch in excess of approved working pressure.
C. All locomotive boilers of twelve years of age or over, and all other boilers with an approved working-pressure exceeding 100 lb. per square inch	Every two years	Tested to a pressure of 33 ¹ / ₃ per cent. in excess of approved working-pressure	Tested to a pressure of 10 lb. per square inch in excess of approved working-pressure.
D. All other boilers with an approved working-pressure of 100 lb. per square inch or under	Every two years	Tested to a pressure of 50 per cent. in excess of approved working-pressure	Tested to a pressure of 10 lb. per square inch in excess of approved working-pressure.

(2) PREPARING BOILERS FOR TESTING

In preparation for testing, locomotive boilers must be set up level on beams placed under the smokebox and the front end of the foundation ring, and where possible the testing should be effected over a pit. The boiler mountings, after having been overhauled, should be assembled and placed in position and the firebars and drop-gate gear fully assembled.

The spark-arrester and steam pipes, with the exception of the internal steam pipe, are not to be assembled in position until the boiler tests are completed.

Before the dome-cover is placed in position the regulator valve and connections must be passed by the officer conducting the pressure tests. Gauge-glass guards and water-column drain-pipes must be assembled before the tests are effected, and washout plugs and fusible plugs tightened firmly. The pop-valve should be replaced by a suitable fitting, and the springs in the safety-valve removed and replaced by ferrules out to the required lengths and fitting squarely.

(3) WARM-WATER TEST

Where possible the boiler is to be filled by coupling the hose direct to the feed-check valve, or, alternatively, through the dome before the cover is placed in position. One of the topmost boiler mountings or boiler plugs should be removed so that the air in the boiler displaced by the admission of water may escape freely. The boiler should be filled until water flows from the filling-plug, or from the top of the dome in cases where the filling is effected through that medium.

The fire should then be set and maintained until steam blows through the opened valves. The fire must then be drawn, all valves closed, including the steam and water valves on the water-column mounting, and the test pump applied to the check-valve until the pressure specified in clause (1) is attained.

After the boiler has been subjected to the requisite pressure for the required period, the Boiler Inspector or the Workshops' Officer conducting the test shall conduct a thorough examination of the boiler, marking clearly any leakages for attention as soon as the pressure is released.

(4) STEAM TEST

At the completion of the water test the blow-down cocks and the steam and water valves on the water-column mountings must be opened slowly until the pressure is zero and the water-level correct for steaming. The pop-valve must be mounted in position, and the ferrules on the safety-valve removed and replaced by the springs that were originally fitted, if in good order, or new springs of the same dimensions and strength if renewals are necessary.

Any defects observed during the water test must be remedied while the steam pressure is zero and before the steam test commences.

An additional pressure-gauge must be connected to the distributor mounting and steam raised in the boiler. Safety-valves must be set light at the commencement of the steam test, and, as they blow off with increasing pressure, must be gradually tightened until the pressure indicated on the two pressure-gauges conforms with the test pressure indicated in clause (1). The test pressure must be maintained for one hour, during which time the officer conducting the pressure test must conduct a thorough external examination and mark any leakages for attention when the pressure is released.

NEW ZEALAND GOVERNMENT RAILWAYS	BOILER TESTING	CODE No. 75
LOCOMOTIVE BRANCH		Page No. 2 of 2 Issue No 3 Date Issued 1/5/47

At the conclusion of the steam test, the boiler pressure must be reduced to a pressure that is 10 lb. below the approved working-pressure, and then slowly increased until the actual working-pressure is attained, when the safety-valves must be set. Fires must then be drawn, the water-level checked and the boiler permitted to cool, care being exercised to ensure that all draught is excluded from the firebox, tubes, and tube-plates during the cooling-down process.

When the boiler is cold the pop-valve must be sealed by the application of lock-nuts, and distance pieces cut to the requisite lengths must be fitted to the safety-valve.

On no account must safety-valves or pop-valves be interfered with after having been set at the termination of the boiler tests.

(6) SUPERVISION OF TESTS

The Boiler Shop Foreman shall supervise all boiler tests at locomotive repair workshops. Boiler tests carried out at locomotive depots and car and wagon repair workshops shall be supervised by the Boiler Inspector or an officer authorized by the Chief Mechanical Engineer.

(6) STRIPPING BOILERS FOR EXTERNAL EXAMINATION

All boilers in service must be stripped completely for an external examination at intervals of not more than twelve years. When new half-sides, a new tube-plate, or a new firebox are fitted to a locomotive boiler, the boiler must be stripped completely and an external examination effected. When a boiler is stripped item No. 4 on Loco./57 report must be endorsed accordingly.