

NEW ZEALAND GOVERNMENT RAILWAYS MECHANICAL BRANCH	<b>BOILER TUBES AND FLUES</b>	<b>CODE No. 43</b> Page No. 1 of 1 Issue No 4      Date Issued 31/3/67
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**(1) DEFINITIONS:**

A new tube or flue is one which:-

- (a) Has not previously been in service.
- (b) Has been in service but has not been withdrawn for the first time.

A pieced tube or flue is one which has been withdrawn and has been pieced, the condition of the tube or flue being such that it will be suitable for further service for at least three years.

**(2) APPLICATION:**

When a boiler is in workshops for repairs, the Boiler Inspector or the Boiler Shop Foreman and Inspector at Hutt or Hillside Workshops shall recommend in his Loco. 57 report, the type of tubes and/or flues required, and the Chief Mechanical Engineer shall advise in his Loco. 59 report whether a set of new or pieced tubes or flues shall be fitted.

New tubes or flues may only be used to replace defective units at Locomotive Depots when pieced tubes or flues cannot be obtained.

**(3) WITHDRAWAL:**

The Boiler Inspector, or the Boiler Shop Foreman and Inspector at Hutt or Hillside Workshops shall recommend in his Loco. 57 report, and the Chief Mechanical Engineer, after considering the general condition of the tubes and flues, shall advise in his Loco. 59 report whether tubes or flues are to be withdrawn.

Plugged tubes must not remain in service for a greater period than three weeks.

**(4) EXAMINATION:**

The Boiler Inspector, or the Boiler Shop Foreman and Inspector, shall conduct an internal examination of every locomotive boiler at intervals of not more than six years, and at all intervening periods coinciding with the withdrawal of tubes and flues.

Stationary and crane boilers shall be overhauled and tubes withdrawn in accordance with the Chief Mechanical Engineer's instructions.

(NOTE: This instruction has no bearing upon the Mechanical Branch Code 20 instruction relating to the annual examination of traveling cranes and lifting appliances)

**(5) PIECING:**

Tubes and flues withdrawn from boilers shall have all scale removed by a tube and flue cleaning machine and, if the resultant examination shows them to be suitable for service for at least three years, they are to be pieced as follows:-

- (a) 1¾ inch and 2 inch diameter tubes shall have 3 inches cut from the smoke-box end and at least 6 inches cut from the firebox end. A new piece of tube of the appropriate diameter, at least 12 inches long, shall be pieced to the fire box end of the shortened tube by a butt weld using the electric arc process.
- (b) Flues must be pieced in accordance with the instructions given on B.P. Z 7033. Flues shall be pieced with a butt weld using the electric arc process.

**(6) RECORDS:**

When boiler tubes or flues are replaced at Workshops or Locomotive Depots, full particulars of the replaced tube shall be recorded on the Loco. 57A report and on the Loco. 56A card for the boiler concerned. When new tubes or flue are fitted the W.R. number shall be quoted.

**(7) ANNEALING, SWAGING, AND SETTING:**

Tubes and flues shall be annealed at both ends before being expanded and passed into service. Swaging and setting of tubes and flues shall be in accordance with the following:-

- Boiler tubes for steel tube-plates : Nos. 2 or 4 - B.P. Y4480.
- Boiler flues for steel tube-plates : B.P. Y 20189.

**(8) ORDERING:**

Unless otherwise directed by the Chief Mechanical Engineer, only the tubes and flues specified on B.P. Y20780 are to be ordered.

[ NOTE ON CODE 43  
The boiler inspector shall waive Clause 4 at his discretion.]