BOILER TEST CERTIFICATE

Valid for:
- the life of a new copper boiler, or
- 10 years for a steel boiler.

Number: **CSME**……

Date: ……/……/…….

Name of Owner:

Address: ……
……
……

Confirmed by owner that the information supplied is correct in all respects

Signed: ……

Type of Boiler:

Description of locomotive (or other):

Design & drawings by: Built by:

Construction Details	1. Boiler Shell	2. Bushings	3. Joining Materials
Exemption Details OHS Exemption letter Ref. No: …… OHS Exemption letter date: ……../……../……		4.Volume of boiler (litres) ……	5. Design Pressure (kPa) ……

Details and Working Pressure to be hard stamped on boiler or on a permanently fixed plate

Boiler No: ……	Test Pressure ……PSI or……kPa	Working Pressure ……PSI or……kPa
Boiler Inspector Name: …… Signature: ……	Remarks…… …… …… ……	
Address: …… …… …… ……	Date of Test ……../……../……. **Witness** Name: …… Signed: ……	

Re-test Information: (Repeat Test after any boiler repairs at 1.5 x working pressure)

	Date re-test #1 …/…/….	Date re-test #2 …/…/……	Date re-test #3 …/…/….	Date re-test #4 …/…/….
Inspector:(print)	……..	……..	……..	……..
Signature:	……..	……..	……..	……..
Address:	…… …… …… ……	…… …… …… ……	…… …… …… ……	…… …… …… ……

Centurion Society of Model Engineers

Standard procedure – BOILER TESTING

1. All boilers to be operated under steam on the Society's premises must have a boiler test certificate issued by a properly constituted Model Engineering Society or other recognised body.
2. The owner SHALL determine the volume of the boiler to establish whether it is of such a size that it falls within the Occupational Health and Safety Act 1993. If so, a Letter of Exemption and/or a test certificate SHALL be obtained from the appropriate authority and no test carried out by the Society's inspector(s). A boiler test certificate issued by a professional boilermaker as recognised by the Society's inspector(s) shall exempt the boiler from the initial examination/testing by the Society's inspector(s).
3. A boiler examination test SHALL be carried out by one or more of the Society's approved inspectors and a witness, none of whom shall be the designer, builder, or owner of the boiler.
4. The designer and/or builder SHALL satisfy the inspector that the design, materials, construction and solders are entirely suitable for a safe boiler.
5. Reference SHALL be made to the designer/builder to establish the working pressure, and consequently the initial and re-test hydraulic pressures which SHALL be entered on the boiler certificate.
6. When the boiler is presented for the initial examination/testing, all apertures SHALL be blanked off and a test connection supplied to suit the Society's pressure testing equipment.
7. ***INITIAL TEST***
   a. The boiler, fittings, mounting studs on steam dome and safety valves shall be examined as closely as possible off the frames prior to the hydraulic test to ascertain that all welding has been satisfactorily done.
   b. The initial hydraulic test SHALL be twice the working pressure.
   c. The appropriate test pressure (see point 7b) shall be applied slowly and steadily with pauses for examination being made as pressure increases above working pressure. On reaching test pressure an examination shall be made for signs of distortion, or evidence of joint failures.
   d. The pressure shall then slowly be reduced to zero, and provided nothing has been found to cause the boiler to be failed, shall be RE-APPLIED under the same conditions, when it SHALL be held for 10 (ten) minutes while a further examination is made.
   e. On successful completion of the INITIAL test, the boiler shall be stamped by the Society's Inspector(s) with the test and working pressures in *psi* (pounds per square inch) or KPa (KiloPascals), the Society's Boiler Number and the date in a position where it can be easily seen.

8. RE-TEST

9. No further testing in the life of a copper boiler shall be required UNLESS there have been any repairs or replacement of any of the bushes, or any alterations.
10. Steel boilers are subject to a ten year re-test period. In that event, the hydraulic test SHALL be to 1½ (one and one half) times the working pressure, and the boiler re-certificated.
11. The ORIGINAL boiler certificate, recording all relevant details completed by the owner and signed by the Society's Inspector(s) and the witness, shall be handed to the owner and a copy filed in the Society's Register of Boiler Tests.
12. The Society cannot be held responsible for the failure of any boiler due to the above test(s), or for any other reason.

Occupational Health and Safety Act 1993 (Act 85 of 1993) (pp 905)

"design pressure" means the pressure used in the design formulae to determine the dimensions of the component parts of a vessel under pressure;

"boiler" means any apparatus to convert continuously any liquid into steam, vapour or gas at a pressure higher than that due to the atmosphere and where the heat is derived from a source other than steam or the ambient temperature of the atmosphere, and includes any super heater or economiser which is an integral part of a boiler or is separately fired therefrom, but does not include such an apparatus, superheater or economiser in which the product of the design pressure in pascal and the volume in cubic metres is less than the figure 15 000.

For our purposes a conversion to 'Volume in litres x design pressure in kPa must be less than 15000 to fall outside the act' makes more sense.

(Pressure in P.S.I. x 6.894 = kPa) (a rough guide would be that at an operating pressure of 100psi the max volume would be 21.7 litres.