



Kirklees Model Boat Club Steam Convention 23rd May 2010

In order to help us get the Steam Convention off the ground and to enable as many modellers to join in as possible the Kirklees Club has put together the guidelines as per below. As you can see the event will be run under Southern Federation of Model Engineering Societies rules which will allow a significant percentage of models to enter that fall below the 3 bar-litre limit and therefore do not have a current pressure test certificate, however proof of the original manufacture will be required. It is currently hoped that on the day Steam Test Certificates will be available so as long as the models meet the requirements as per below they will be able to steam.

We would very much like to extend the invitation to join in to all steam enthusiasts around the country however we would appreciate it if anyone intending on bringing a model that they wish to steam that they send an e-mail to any one of the committee members so that we can get a feel for what numbers we need to cater for.

If anyone wishes to have their models Steam Tested and Certified on the day then I would very much appreciate having as much information up front as possible to enable the process to be quick and efficient so please forward all details again to the committee. I am currently anticipating conducting Steam Tests between 10.00 am and midday and there will be no charge for the test and certificate.

Required information will be the following:

Plant make and type
Boiler Capacity
Working Pressure
Serial number of the boiler
Owners Name

It should be remembered however that a Pressure Test Certificate, as opposed to a Steam Test Certificate will be required at any subsequent Model Power Boat Association meeting anyone might wish to attend elsewhere in the country.

Please note:

- 1) Any model that is not supported by current, dated certification including a means of linking the certificate to it's respective boiler as required below will not be allowed to steam on the day.
- 2) Any model that is not fitted with a pressure gauge will not be allowed to steam unless as stated in the small boiler section of the less than 3.0 bar-litres limit.

Please feel free to ask any questions via any of the Committee Members listed in the Contacts section of the Web site.



Kirklees Model Boat Club Steam Model Certification Requirements.

The Kirklees Model Boat Club is a member of The Southern Federation of Model Engineering Societies and as such the following requirements as laid down by the club are based on:

The Examination and Testing of Miniature Steam Boilers (Revised Edition 2008)

distributed by:

Midlands Federation of model Engineering Societies
Northern Association of Model Engineers
The 7 ¼" Gauge Society Ltd.
Southern Federation of Model Engineering Societies

This book is available through any of the above organisations should clarification or further reading be required.

The 3 bar-litre rule

The regulations state that any boiler below the 3 bar-litre limit are not required to be pressure tested however information will be required by the Kirklees Model Boat Club to substantiate any such exemption such as the capacity and the normal working pressure. The capacity of the boiler is best determined by completely filling the boiler with water, ensuring that there is no air remaining inside, and then pouring the water out into a graduated vessel. The capacity of the boiler is this volume of water expressed in litres. The normal working pressure is the pressure at which the boiler would normally be operating at so for a boiler with a means of controlling the burner flame this is the pressure at which the flame turns down. For a boiler with no means of controlling the burner this pressure is the pressure at which the safety valve lifts. Pressure is to be quoted in bar and the working pressure must be marked on the boiler pressure gauge in red paint.

The boiler is then classified by multiplying the capacity by the normal working pressure i.e. a boiler with a capacity of 500ml which operates at a pressure of 45 psi is:

0.5 (Capacity in litres) x 3 (Pressure in bar) = 1.5 bar-litres



The boiler types to be considered in these requirements are as follows:

1) Manufactured boilers below the 3 bar-litre limit

Most model boat boilers fall within this category and therefore do not require a boiler pressure test certificate. Proof however of the boilers origins will be required to ensure that the boiler was manufactured by a business registered to do so. Consequently either the original manufacturer's certification or a subsequent pressure test certificate by a recognised test facility will be required.

Small boilers of the Mamod and Wileco type fall within this category however they will not be required to be fitted with a pressure gauge as long as they were not originally fitted with one by the manufacturer. They will still be required to undergo a Steam Test and demonstrate the same requirements outlined below, particularly as regards operation of the safety valve, unless they are already supported by a valid Steam Test Certificate.

2) Home made boilers below the 3 bar-litre limit

Home made boilers below 3 bar-litres must be supported by the certificates issued during the build process. This will normally consist of two or three certificates issued by a recognised classification society after examination at agreed stages of the build and culminating with a pressure test of 2 x normal working pressure.

3) Manufactured boilers above the 3 bar-litre limit

Manufactured boilers above 3 bar-litres will be required to have valid, dated and numbered pressure test certificates.

4) Home made boilers above the 3 bar-litre limit.

Home made boilers above the 3 bar-litre limit must be supported by the certificates issued during the build process. This will normally consist of two or three certificates issued by a recognised classification society after examination at agreed stages of the build and culminating with a pressure test of 2 x normal working pressure.

5) Steel boilers of any size and type construction

Steel boilers of any size will be required to have valid, dated and numbered certificates of manufacture and pressure test issues by a recognised manufacturer and testing facility.

NB:

All certification provided must be clearly identified as being attached to a specific boiler. Although using identification numbers is the normal means of doing this any other method that clearly identifies a boiler and links it to it's own specific certificate will be considered at the discretion of the inspector. Certificates that cannot be linked to a specific boiler will not be considered as valid.



Procedures

In addition to any requirements as stated above all boilers are to either undergo the following process or provide valid, dated and numbered certification to prove that the following have been completed by an alternative recognised means of testing. A Steam Test Certificate is valid for fourteen months from the test.

- 1) The model pressure gauge will have to be removed and tested against a hydrostatic test kit, which will use a calibrated and certificated pressure gauge. A red paint mark must be visible at the normal working pressure point.
- 2) The pressure gauge will be replaced on the model and the boiler taken up to full pressure. With the burner operating at full flame the safety valve will be observed in operation, ensuring that with the safety valve lifted the pressure in the boiler does not rise to a point above 10% of the normal working pressure. During this process the remaining requirements of the Steam Test will be carried out, paying particular attention to the following:
 - a) There are no excessive leaks in evidence of either steam or water from the boiler or the plant.
 - b) All operating parts of the plant should be demonstrated as working in a safe manner and all moving parts should be demonstrated as being in good working order. This includes such items as feed systems, whistles and other auxiliary components.
 - c) General condition of the plant bearing in mind materials used in construction and insulation and standards of workmanship throughout the plant.
 - d) There is a readily accessible means of shutting off the flame to the burner which may be a readily accessible valve on a gas fired plant or a means of removing the solid fuel quickly and easily in a solid fuel fired plant.
- 3) After this process has been completed a certificate will be issued to the modeller for that particular plant in that particular model. For this to be issued the original manufacturers identification code must be visible.

Facilities are to be made available at Kirklees Model Boat Club to cover the requirements of the Steam Test and calibration of the pressure gauges, which will also be available for such events as the Steam Convention. Club members will be able to obtain certification throughout the year and visitors to the club will be able to obtain Steam Test Certificates on the day.

Bearing in mind the available facilities, experience and expertise at the club pressure testing of boilers will not be available so any boiler that does not meet the requirements of the 3 bar-litre rule must be supported by pressure test certificates issued by an accredited and recognised organisation.