

## **Correction**

The Telephone Number for Keith Bragg in the attached leaflet is incorrect. It should be 01507 327880

## BRASS BOILERS.

- 4.1. All new boilers are to be tested in accordance with the standards applied to those of copper material.
- 4.2. IT IS STRONGLY RECOMMENDED THAT BOILERS ARE *NOT* MANUFACTURED FROM BRASS, however for those that are, including various commercial units, then second and subsequent tests must be carried out ANNUALLY TO TWICE THE DECLARED WORKING PRESSURE. An inspection should be made for corrosion and Zinc leaching.

## STEEL BOILERS.

- 5.1. IT IS STRONGLY RECOMMENDED THAT BOILERS ARE *NOT* MANUFACTURED FROM STEEL. M.P.B.A. affiliated clubs and societies are not obliged to offer testing facilities for such units. In all cases steel boilers require an annual test.

## SAFETY VALVES.

- 6.1. A safety valve or valves must be fitted to all boilers, the lack of provision for such will mean test rejection. To ensure correct and continued operation of valves, operators of steam powered models must carry out checks for correct functioning on each occasion that steam is raised. Lift should occur within 10% of the normal declared working pressure.
- 6.2. Safety valves of the fixed rate type, i.e., non-adjustable, should be subjected to a steam test, the lift-off pressure should not exceed 10% above the normal declared working pressure. If found to be otherwise then the working pressure must be calculated to correct the differential. The new figure must be proven by test, recorded on the test certificate and endorsed by the test panel.

## MONOTUBE BOILERS.

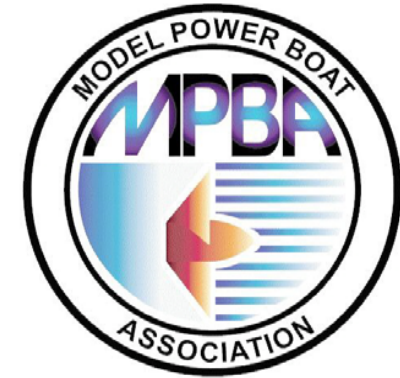
- 7.1. Monotube, also called 'Flash Steam' boilers do NOT require a test certificate.

## PRESSURISED FUEL CONTAINERS/TANKS [L.P.G.].

- 8.1. All refillable containers/tanks used to hold gas, i.e. BUTANE OR BUTANE/PROPANE combinations used in model steam craft must be tested every two years. Their design and construction must be to the same standards as those for boilers, be made of copper and designed to have a maximum internal volume of 450cc. L.P.G. tanks of commercial origin manufactured from brass are acceptable. It is recommended that liquid gas is not stored in such tanks after use. The test pressures used must be appropriate to the gas mix that is declared as used by the operator. **GAS TEST PRESSURES:-**

GAS MIX %	TEST PRESSURE	
Butane100	14.50 bar	210.50 psig.
Butane/Propane 90/10	17.50 bar	254.00 psig.
Butane/Propane 80/20	18.50 bar	268.50 psig.
Butane/Propane 70/30	23.00 bar	333.50 psig.
Butane/Propane 60/40	26.00 bar	377.50 psig.
Pressure to nearest 0.5 including	x1.9 Safety factor.	

# ASSOCIATION STEAM RULES & TESTING



*The National Body  
for Organised  
Model Power Boating  
in Great Britain  
Founded in 1924*

Explanation Leaflet

## TEST PANELS AND CERTIFICATES

Model boat clubs, societies and groups of clubs that are affiliated to the M.P.B.A. and operate steam powered models, are encouraged to establish testing panels (minimum two persons, preferably three) for the purpose of testing model boilers and pressure vessels. Where clubs may find this impractical the advice of the area representatives or the General Secretary should be sought. In addition to official M.P.B.A. certificates, those issued by THE NORTHERN

ASSOCIATION OF MODEL ENGINEERS, THE SOUTHERN FEDERATION OF MODEL ENGINEERING SOCIETIES and other recognised bodies, including those not residual in the United Kingdom, will be acceptable, providing their test methods and standards are similar to those of the M.P.B.A..

Event officials should be diligent in ensuring the above is adhered to at all times. A guide, "MPBA STEAM STARTER PACK" is available from Keith Bragg, 6, Meadow Close, Grimoldby, Nr Louth, Lincs. LN11 8HY. 01507 372880. Which outlines the MPBA Record Keeping Systems. Numbered Test Certificates are also available for use by MPBA Affiliated Clubs.

### TESTERS AND TESTING.

**2.1.** All testers should be deemed to have a practical working knowledge and a suitable understanding of the required theory. Testers shall not be the owners or builders of vessels under test.

**2.2.** The pressure gauge used for testing must not be a 'model gauge', but a reliable industrial type having a current calibration certificate.

**2.3.** M.P.B.A. affiliated clubs that carry out testing should maintain records which contain the history of tests, certificates issued, failures, address/ownership changes, calibration certificates and any other relevant documentation.

**2.4.** The M.P.B.A. or any duly appointed testers shall not be deemed liable for any damages to boilers/pressure vessels incurred whilst in the process of testing or certification.

**2.5.** The maximum pressures that affiliated clubs and societies will be willing to test to is entirely at their discretion. Likewise their agreement to test L.P.G. fuel tanks.

**2.6.** If a boiler is deemed to have passed an inspection and pressure test, an MPBA Test Certificate can be issued. They are available only to MPBA Members and no charge is made for the certificate. Refer to the "MPBA Steam Starter Pack" for conditions and record keeping systems. The certificate that is issued confirms that the boiler was satisfactory on the day of the test. It has a life of two years but is not a guarantee that the boiler is safe between the date of issue and the issuing of the next retest certificate. If any changes are made to the boiler, after the date of testing, the certificate will become invalidated and a retest will be necessary.

**2.7.** Current Boiler Test Certificates will need to be available for inspection at MPBA Events regattas.

### COPPER BOILERS/PRESSURE VESSELS.

**3.1.** All new boilers/pressure vessels should be submitted for initial testing under these rules. Commercial units as produced that carry current test certificates will not require testing until they reach two years of age.

**3.2.** All new boilers/pressure vessels will be examined externally and, as far as possible, internally; cladding and/or fittings are to be omitted for the initial test, normally the requestor will supply boilers/pressure vessels with suitable plugs and seals for the various bushes. If problems are encountered then discussion with the testers may offer an alternative. It is recommended that discussion should take place well in advance of the required test in order that problems can be minimised. Following the fitting of the necessary blanking plugs and water feed union, the boiler/pressure vessel shall be subjected to a progressive hydraulic test. During the process of adding water to the test piece care should be exercised to ensure the expulsion of all air from the vessel space, pipe work, fittings and test pump. The test piece shall be subjected to a pressure that equals a figure of twice the declared normal working pressure. Upon reaching the test pressure it shall be held for sufficient time to ensure that a thorough inspection can be executed. If any leaks or weeps occur then the test will be halted until the faults are rectified.

#### ANY LEAK OR WEEP CONSTITUTES A FAILURE.

**3.3.** Any appreciable distortion will cause a boiler/pressure vessel to be rejected. Leaks/weeps should be marked with soft pencil or chalk or otherwise related to the requestor in order that corrective action may be carried out. A retest can then be conducted.

**3.4.** All copper boilers/pressure vessels are to be tested every two years. For renewal after the initial two year period, and any subsequent tests, the test pressure shall be to one and one half times the declared working pressure, it being applied once only. The procedure being the same as that described previously in paragraphs 3.1, 3.2, 3.3,. Second and subsequent tests will also include an examination of boiler fittings, cladding need not be removed unless specifically requested by the test panel. For reasons of safety WATER GAUGE GLASS WILL NOT BE FITTED DURING TESTING, its removal being the responsibility of the requester.

**3.5.** Any boiler/pressure vessel constructed to other than recognised published designs should be presented together with the minimum of a dimensioned sketch, thus enabling basic calculations to be made. It is strongly recommended that designers/builders enter discussions with their testing panel in the early design stages.

**3.6.** The preceding paragraphs refer to boilers/pressure vessels constructed from copper, using silver soldered or hard brazed joints and flanges. Where possible bronze should be used for the manufacture of bushes and fittings, although brass is acceptable.

**3.7.** Any structural modification or repair will require an initial test to be carried out to twice the declared working pressure.