

Tom Keeling - Technical Memo 2021/1 – v1

For Sea Otter Owners Club – 8th May 2021

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None of the content of this document may be reproduced or published, and the content remains the copyright of Tom Keeling. This document has been written as a gesture of goodwill, following discussions with a Sea Otter owner, to give clarity on suitable gas hose connections, with regards to the Boat Safety Scheme (BSS) only. It is not a how-to guide, or a guide to ISO or British Standards in any way.

Preamble - Some gas hose connections on Sea Otter boats have been found by the author during BSS examinations to be incorrectly made and do not meet BSS requirements at check item 7.9.5R. A BSS fail was issued as a result of these connections.

The BSS requirements for private boats can be found here:

https://www.boatsafetyscheme.org/media/268789/ecp-private-boats-ed3_rev2_apr2015_public_final.pdf

The BSS requires suitable nozzles to be used where pre-made gas hoses are not utilised; in basic terms, where orange gas hose is used with hose clips a suitable nozzle is required to join the hose to solid pipework or an appliance or gas isolator valve.

A suitable nozzle looks like this. This is a Fulham nozzle on one end and 8mm compression union at the other. The compression end connects to the copper gas pipework or an inlet connector on an appliance and the nozzle end takes the hose and clip.



Photo 1

Nozzles are sometimes incorporated into the castings of isolator valves, or appliance inlets but less so these days due to ISO 10239 requiring permanently made joints. Therefore connections now tend to be compression unions on to standpipe ends from pre-made swaged end hoses assemblies – these are the braided hoses you often see on boats.



Photo 2

Suitable nozzles x 2 on a Sea Otter – top is a drop-leaf gas isolator valve with hose nozzle incorporated into the isolator valve casting, and at the appliance end of the hose is a compression to Fulham nozzle at the heater connection. Both connections are a BSS pass on this year 2000 Sea Otter.



Photo 3

This is an incorrect joint showing the hose joining the copper tube to a nozzle. Fails at BSS check item 7.9.5R on this 2012 Sea Otter.



Photo 4

With the hose removed – the BSS do not accept this nozzle as being suitable.



Photo 5

The BSS requires a suitable nozzle but does not detail in the public facing information what that is. I recently asked and they clarified that they require the nozzles to be of proprietary manufacture e.g. like a Fulham nozzle because that has been designed specifically for use with gas hose, and will adequately secure the hose, particularly where movement is possible. The nozzle shape is also designed to prevent damage to the internal wall (as opposed to say a water hose nozzle which has machined sharp barbs). It is worth pointing out that having seen a few of the non-compliant nozzles now, they are not uniformly made, not straight, and not strong.

The two Sea Otter boats I have found the incorrect nozzles on were built 2012 and 2013, and both were cooker supply hoses from 10mm or 8mm copper tubing. The Sea Otter with the correct nozzles on Photo 2 was built 2000.

The 2012 and 2013 boats with the incorrect nozzles had to have Fulham nozzles fitted in one case, and in the other some minor changes to pipework and a pre-made swaged end hose fitted to get a BSS pass. A local gas safe registered engineer can no doubt provide further advice if required.

<https://www.gassaferegister.co.uk>