Boat Safety Scheme

Examination Checking Procedures

Introduction

This document is published as part of the Boat Safety Scheme Quality Assurance system to support the overall goal of customer satisfaction in the delivery of BSS Examinations.

The checking procedures contained in this book detail the methods by which the Boat Safety Scheme and its owners, the Navigation Authorities, require examinations to be performed. Examiners are required to follow these checking procedures and satisfactory performance will be assessed against them. The procedures in this book supersede the checking procedures previously found in the BSS Technical and Examiners manuals.

It is critical that BSS Examiners are familiar with the contents of this book to help ensure that the delivery of the examination process is consistent and fair. Examiners are therefore expected to adhere to the checking procedures.

Updates to this document will be distributed by the BSS office in response to changes in Standards and associated checking procedures. It is the responsibility of the holder to ensure that it is kept up to date and that any acknowledgement slips which accompany update materials are promptly returned to the BSS office.

This document is a controlled issue to the safe-keeping of the holder. It remains the property of the BSS office and

must be returned on request. Loss, theft or damage requiring replacement must be reported without delay. A reasonable charge may be made for the issue of a replacement.

If you have any questions or comments about this book or its contents these can be directed to the BSS Office.

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The BSS Office would like to record its appreciation to Brian Hayes, Peter Hasler, Phillip Mitchell, Roger Page, Michael Godding, Paul Morris and David Fuller for their contributions to the development of this document.

Update Record		
Update Description (Section & Pages)	**Date**	**Signed**

General Guidance

1. Don't forget that it is the **owner's** responsibility to comply with the BSS Standards as a condition of obtaining a licence. As a BSS Examiner you are only on the boat to check compliance.

2. It is vital that the owner understands this responsibility and the need to prepare the boat for examination. Don't forget to make sure that the owner understands this when you are discussing the examination arrangements.

3. This also means that it is the owner's responsibility to demonstrate compliance to you. If the owner cannot do that, or the owner is not on board, then you have no option but to fail that item until such time as it is presented for checking or supporting information is provided.

4. For example, Check 3.5.6 is tied to the requirement for those circuits that are permitted to bypass the master switch to be protected by a fuse or circuit breaker. If you cannot trace the circuits then it is up to the owner to demonstrate to you that no unprotected circuits bypass the switch. Do not guess!

5. The navigation authorities are relying on you to check out every boat you see to their published standards and issue the correct certificate. Don't forget that it is your name on the certificate and if things go wrong you will have to be prepared to co-operate with the investigation. Every investigation has the potential to lead to de-authorisation so it is in your own interests to make every effort to be sure that you do not certify anything that you have not checked.

6. Everyone makes the odd mistake and the Scheme can accommodate these. Wilful disregard for checking

procedures and instructions or failure to co-operate with the BSS office are not acceptable and could lead to disciplinary action being taken.

7. If you are unsure whether or not some aspect to a boat is compliant you can contact the BSS office for assistance. The office is there to support you in your role without assuming your responsibility to carry out the examination diligently.

Glossary of Terms

For the purposes of the Boat Standards only the following shall mean:

"accessible" Capable of being reached for inspection, removal or maintenance without removal of any craft structure.

(NOTE**:** Hatches are not regarded as permanent craft structure in this sense, even if tools such as wrenches or screwdrivers are needed to open them. Hatches for inspection or maintenance of fuel tanks may be covered by uncut carpet, provided that all tank fittings can be inspected and maintained through other openings)

(Source: BS EN ISO 10088:2001)

"battery compartment" an enclosure specifically designed to contain the batteries only

"commercial vessel" anything which is solely used as a tug, work boat or for the carriage of goods

"cruising waterway" a watercourse which is principally available for cruising, fishing and other recreational purposes

(Source: Transport Act 1968)

"manually propelled vessel" a vessel or craft of every description which is wholly and exclusively propelled by non mechanical means and does not carry nor is fitted with an auxiliary engine as an optional means of propulsion

"open vessel"	a vessel in which all the accommodation is completely open to the elements
"passenger carrying vessel"	a vessel which requires a passenger certificate under the Merchant Shipping Acts
"privately owned boat"	any pleasure boat not being a hire boat *(Source: British Waterways Act 1971)*
"readily accessible"	capable of being reached for operation, inspection or maintenance without removal of any craft structure or use of any tools or removal of any item of portable equipment stowed in places intended for storage of portable equipment such as lockers, drawers or shelves ***(Source: BS EN ISO 10088:2001)***
"sailing vessel"	a vessel or craft of every description which is wholly and exclusively propelled by sail and does not carry nor is fitted with an auxiliary engine as an optional means of propulsion
"sanitation system"	A system comprising equipment designed for installation on board a vessel, to receive, retain, treat or discharge sewage, and equipment using any process to treat such sewage. ***(Source: BS MA 101)***
"sewage"	human body wastes and the wastes from toilets intended to receive or treat human body wastes ***(Source: BS MA 101)***

Examination Checking Procedures – Part 2
Inboard engines and fixed fuel systems

Standard 2.1 ***Fuel Filling Installations***

Filling pipes shall be taken to deck level or so arranged as to ensure that any fuel overflowing will not be discharged into any part of the vessel including the bilges.

2.1.1 If the vessel has a deck, or part-deck with fuel tank(s) installed below it, visually check that filler pipe is taken to deck level

Exceptions Identify:

- existing historic narrowboats
- existing diesel engined sea-going sailing craft
- close-coupled diesel tanks
- outboard powered open vessels with no accommodation with a continuous deck or sole which is fuel tight to the hull interior and bilge spaces, containing engines, electrical components and batteries (diesel or petrol)
- diesel fuel fillers on craft with self draining cockpits with a continuous deck or sole that is fuel tight to the hull interior, and bilge spaces, containing engines, electrical components and batteries

2.1.2 Visually check that fuel overflowing from filling points will not enter any part of the vessel.

Exceptions Identify:

- existing historic narrowboats
- existing diesel engined sea-going sailing craft
- close-coupled diesel tanks
- outboard powered open vessels with no accommodation with a continuous deck or sole which is fuel tight to the hull interior and bilge spaces, containing engines, electrical components and batteries (diesel or petrol)
- diesel fuel fillers on craft with self draining cockpits with a continuous deck or sole that is fuel tight to the hull interior, and bilge spaces, containing engines, electrical components and batteries

Standard 2.2	***Fuel Filling Pipes***
	The filling pipe shall have an internal diameter of at least 38mm (1½"), and any flexible hose shall be of non-kinking material suitable for the fuel used, and must be connected with leak-proof joints between the top of the tank and a screwcap or plate forming the filling connection. Deck filling connections shall be outside the coaming. All flexible hoses shall be adequately supported and of minimum practicable length, with all joints or connections readily accessible. ***[see Exemption 11.1]***
2.2.1	Measure the internal diameter of the filling pipe (38.5mm for hose, 31.5mm for rigid) or if the internal diameter cannot be measured measure the external diameter and estimate whether the internal diameter meets the requirement.
	Exemption 11.1 ***Vessels manufactured prior to 16 June 1998 and having a fuel filling pipe of an internal diameter of at least 32mm (1¼") are not required to comply with that part of Standard 2.2 which requires that a fuel filling pipe shall have an internal diameter of at least 38mm (1½").***
2.2.2 [Exemption 11.1]	Measure the internal diameter of the filling pipe (minimum 31.5mm 1¼ in). If internal diameter cannot be measured make an estimate from the outside diameter.

2.2.3 Visually check filling pipe, where accessible, for kinks, damage and deterioration, particularly at any bends or connections.

Check that the flexible filling pipe cannot be compressed by squeezing it by hand.

2.2.4 Petrol & 2.2.5 Diesel

Visually check that flexible hoses are marked as suitable for the fuel used or their use is supported by an appropriate declaration.

Visually and manually check for any signs of :

- corrosion
- decay
- damage or deterioration
- leaks

Metal filling pipes must be examined carefully to ensure that the pipe and its connections show no signs cracking or slackness etc caused by metal fatigue due to vibration.

2.2.6 Visually and manually check:

- connection of filling pipe to top of tank
- presence of leaking fuel at joints
- that the pipe is securely connected

2.2.7 Visually and manually check:

- connection of filling pipe to deck filling point
- presence of leaking fuel at joints
- that the pipe is securely connected

2.2.8 Visually check deck filling connection is outside coaming

Exceptions:

- outboard powered open vessels with no accommodation with a continuous deck or sole which is fuel tight to the hull interior and bilge spaces, containing engines, electrical components and batteries (diesel or petrol)

- diesel fuel fillers on craft with self draining cockpits with a continuous deck or sole that is fuel tight to the hull interior, and bilge spaces, containing engines, electrical components and batteries

2.2.9 Visually and manually check the filling pipe for any movement which would bring it into contact with anything likely to damage it.

2.2.10 Visually check that filling pipe continuously falls from filling point to tank.

2.2.11 Visually and physically check all joints and connections in filling pipe are accessible. The use of inspection aids e.g. a torch or mirror is permitted.

Standard 2.3 ***Deck & fuel filling connections***

All deck and fuel filling connections shall be situated so as to minimise the risk of cross-contamination and shall be clearly marked on the deck fittings or immediately beside then indicating the purpose of each connection and, in the case of fuel connections, the exact type of fuel.

2.3.1 Visually check that risk of cross-contamination is minimised.

2.3.2 Visually inspect petrol filling point is correctly and clearly marked.
This is not a failure point providing the marking is immediately adjacent

2.3.3 Visually check petroil filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

2.3.4 Visually check paraffin filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

2.3.5 Visually check diesel filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

2.3.6 Visually check LPG filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

2.3.7 Visually check water filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

2.3.8 Visually check pump out point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

2.3.9 Visually check rinse out point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

2.3.10 Visually check deck connections, filling or discharge points other than those specified in 2.3.2 – 2.3.9 are correctly and clearly marked. Unused connections or points must be marked appropriately

Standard 2.4 ***Fuel tank vent pipes***

A vent pipe of minimum practicable length with an internal diameter of not less than 12mm (½") shall be fitted at the highest point of every fuel tank and connected with leak proof joints. The material used shall be non-kinking and suitable for use with the fuel concerned. [see Exemption 11.2]

2.4.1 Visually check that flexible vent pipe follows shortest practicable route or continuously falls to tank

2.4.2 Visually check that a vent pipe is fitted to each fuel tank (except day tanks with overflow arrangements).

Exemption 11.2 ***Vessels manufactured prior to 16 June 1998 and having a vent pipe of an internal diameter of at least 9.5mm (3/8") are not required to comply with that part of Standard 2.4 which requires that a vent pipe shall have an internal diameter of at least 12mm (½"). In the case of vessels manufactured prior to 16 June 1998 having no vent pipe, a vent in the screwcap or filling pipe above deck level may be fitted provided that there is a flame arrester complying with the requirements of Standard 2.5 The flame arrester shall have a minimum diameter of 12mm.***

2.4.3 [Exemption 11.2]

If a vent pipe not fitted to a fuel tank, visually check for the presence of a vent in the screwcap or filling pipe.

If present, visually check that vent is:

- above filling point level, and
- provided with a flame arrester: which

- complies with 2.5.3 and has a minimum internal diameter of 11.5 mm

2.4.4

Measure the internal diameter of the vent pipe (minimum 11.5mm)

Where it is not possible or practical to measure the internal diameter, an estimate can be made by measuring the external diameter.

Exemption 11.2

Vessels manufactured prior to 16 June 1998 and having a vent pipe of an internal diameter of at least 9.5mm (3/8") are not required to comply with that part of Standard 2.4 which requires that a vent pipe shall have an internal diameter of at least 12mm (½"). In the case of vessels manufactured prior to 16 June 1998 having no vent pipe, a vent in the screwcap or filling pipe above deck level may be fitted provided that there is a flame arrester complying with the requirements of Standard 2.5 The flame arrester shall have a minimum diameter of 12mm.

2.4.5 [Exemption 11.2]

Existing boat - Measure the internal diameter of the vent pipe (minimum 9.5 mm)

Where it is not possible or practical to measure it, an estimate of the internal diameter can be obtained by measuring the external diameter.

2.4.6

Visually check that the vent pipe is connected to the top of the tank.

2.4.7

Visually and manually check vent pipes for leaking fuel at joints.

2.4.8

Visually check vent pipe for kinks, damage and deterioration, particularly at any bends or connections.

Check that the pipe cannot be compressed by squeezing it by hand.

2.4.9 Petrol & 2.4.10 Diesel

Visually check that the pipe is marked as suitable for the fuel used or its use is supported by an appropriate declaration.

Visually and manually check for any signs of :

- corrosion
- decay
- damage or deterioration
- leaks

Metal vent pipes must be examined carefully to ensure that the pipe and its connections show no signs of deterioration or slackness

Standard 2.5 Vent pipe installation

A vent pipe shall extend to a height equal to or greater than that of the deck filling connection and the open end of a vent pipe shall be fitted in a position where no danger will be incurred from escaping fuel or vapour. Each opening shall be furnished with an effective wire gauze diaphragm flame arrester of non-corrosive material. The flame arrester shall be fitted with gauze of mesh not less than 11 to the linear centimetre (28 to the linear in.) and the total area of the clear openings of the gauze shall not be less than the cross-sectional area of the air pipe.

2.5.1 Visually check height of vent pipe outlet or swan's neck in relation to the height of the filling point.

2.5.2 Visually check that the vent pipe terminal is clear of any potential source of ignition in a position where no danger will be incurred.

2.5.3 Visually check for presence of proprietary flame arrester or gauze of 11/cm mesh. Flame arresters not recognised must be provided with satisfactory documentation.

Visually check that openings in the flame arrester are of the same area as the cross-sectional area of the vent pipe and for the presence of any dirt or debris restricting the passage of air and vapour through the flame arrester.

2.5.4 Not Checked

2.5.5 Not Checked

Standard 2.6 Fuel tanks

Fuel tanks shall be properly secured and be installed as low as practicable and shall be constructed of a suitable non-corrosive material. Materials used in the construction of fuel tanks shall have a fire resistance of 30 minutes in accordance with BS 476: Part 20. Tanks shall have sustained a pressure test of 0.25kgf/cm² (3.5lbf/in²) before installation and be marked to indicate this. All joints and seams of tanks shall be efficiently welded, brazed or close riveted to sustain a pressure test of 0.25kgf/cm² (3.5lbf/in²). [see Exemption 11.3]

2.6.1 There is no check for the presence of a securing mechanism but all tanks are to be visually and manually checked for movement or any signs that movement has occurred.

2.6.2 Visually check that main fuel tanks are installed as low as practicable.

2.6.3 Visually and manually check material of tank for suitability.(See appendix for information on plastic fuel tanks)
Visually and manually check all tanks for any signs of material failure such as:

- corrosion
- heavy flaking
- deep pitting
- fuel seepage

Where accessible pay particular attention to areas under dipsticks/sounding pipes

2.6.4 If there is no marking or other indication that the material meets the fire resistance requirements, visually check tank for any signs of overheating or heat damage.

2.6.5 Visually check for any form of marking which states that the tank has been tested and the pressure to which it was tested (minimum 20kPa/2.9 psi/0.2bar).

Exemption 11.3
Vessels manufactured prior to 16 June 1998 are not required to comply with that part of Standard 2.6 which requires that fuel tanks must have sustained a pressure test of 0.25kgf/cm^2 (3.5lbf/in^2) before installation and be marked to indicate this.

2.6.6 [Exemption 11.3] Exemption from pressure test available for existing craft (pre-June 1998).

2.6.7 Visually and manually check seams of tank for any signs of material failure such as:

- corrosion
- heavy flaking
- deep pitting
- fuel seepage

Standard 2.7 Petrol & paraffin tanks

No petrol or paraffin tank of more than 2.5 litres (½ gallon) shall be installed within 1 metre (39½") of any engine or heating appliance unless it is insulated and protected by an efficient baffle of fire resistant material.

2.7.1 Measure the distance between the petrol or paraffin tank and the engine or heating appliance

If less than 100 mm visually check for the presence of a baffle of fire resistant material.

Visually check the side of baffle facing the heat source for signs of over-heating.

Standard 2.8 Fuel level indicators

Glass or plastic fuel sight tube gauges shall not be used. Fuel level indicators, if fitted, shall be of a type, which does not allow escape of fuel or vapour in the event of damage to the indicator. Dipsticks when fitted shall be calibrated and only used via gas-tight fittings. Where a dipstick is used it must be made so it cannot strike the bottom of the tank. [see Exemption 11.4]

2.8.1 Clear tube or strip type gauge glasses are not permitted on petrol tanks

Visually check for presence of glass or plastic tube gauge – diesel tanks only.

Where fitted check that the gauge is:

- protected against physical damage; and
- closely coupled (connected) to the tank; and,
- fitted with self-closing valves at top and bottom (note that the self-closing valve at the top is not required if the gauge connection is made to the top of the tank)

2.8.2 Visually check for presence of fuel level indicator and if present check for:

- fuel leaks
- damaged or missing components and fixings
- damage to any glass or other transparent cover
- fuel behind transparent cover

2.8.3 Visually check any dipstick(s) for calibration marks

2.8.4 Visually check type of liquid tight fitting for dipstick

Visually check for any sign of fuel leaks at the point of entry to the tank

2.8.5 Manually check that dipstick(s) does not strike bottom of tank.

Exemption 11.4

Any diesel fuelled vessel formerly used for the commercial carriage of freight or passengers or as a tug or as an icebreaker and which is to be licensed for use as a pleasure boat, commercial carrying vessel or registered for use as a houseboat unless used for the purposes of hire or reward shall not be required to comply with Standard 2.8.

2.8.6 [Exemption 11.4] Check owner's documentation to confirm both the original use of the vessel and its current use.

Where this is not available for examination, or the validity cannot be determined, application for exemption will have to be made to the Manager of the Boat Safety Scheme.

Standard 2.9 ***Fuel tanks shall be accessible and all connections shall be readily accessible for inspection.***

2.9.1 Check that fuel tanks are accessible enough to make a general assessment of their condition. Note that condition of tank is checked under 2.6.3

2.9.2 Identify all tank connections and visually check that the point of connection to the tank(s) is accessible.

The use of inspection aids e.g. a torch or mirror is permitted

Standard 2.10 ***Bonding of fuel tanks***

Tanks shall be effectively bonded by low resistance metallic conductors of adequate strength to their deck filling connections, and in the case of a non-conducting deck or hull, tanks shall also be electrically bonded to an earth point in direct electrical contact with the surrounding water, for the discharge of static electricity.

2.10.1 Applies to petrol fuel filling system.

Visually check for low resistance bond between tank and deck filling connection

There must be:

- no movement at any of the connections
- no sign of damage, deterioration, or corrosion in the cable or its connections

2.10.2 Applies to petrol fuel tank

Identify non-conducting deck or hull and visually check that fuel tank is electrically bonded to an earth point in direct electrical contact with the surrounding water.

Standard 2.11	***Fuel tank drains***
	Tanks may be drained only by a suitable drain valve fitted with a plug on the outlet. [see Exemption 11.5]
2.11.1	Visually check for presence of a drain valve on a fuel tank and confirm connections are leak-free and a 'tools to remove' plug is fitted to the drain valve outlet.
	Exemption 11.5
	Vessels manufactured prior to 16 June 1998 and having a fuel tank drain without a valve are not required to comply with that part of Standard 2.11 which requires that fuel tanks shall have a suitable drain valve fitted with a plug on the outlet.
2.11.2 [Exemption 11.5]	Exemption from requirement for a valve to be fitted on a tank drain for pre-June 1998 vessels.

Standard 2.12 ***Fuel supply and return – tank connections***

The fuel supply shall be drawn through the top of the tank or as near to the top of the tank as is practicable by means of an internal pipe extending to near the bottom of the tank. In the case only of gravity feed systems a feed from a cock or valve directly screwed in near the bottom of the tank is permitted. Any return fuel line required to be connected to the fuel tank shall be connected through the top of the tank or as near to the top as is practicable.
[see Exemption 11.6]

2.12.1 Identify type of fuel feed and if it is not an existing gravity fed system, visually check position of connection of fuel supply lines to tank.

If the fuel feed connection is below the top or the highest point of the sides or ends of the diesel tank check that the connection is either protected by a valve or, if welded, by the feed pipe reaching above the top of the tank

2.12.2 Identify gravity feed tank. If present, visually check presence of cock/valve screwed or attached directly to the tank.

2.12.3 Visually check for connection of return pipe to fuel tank.

If the fuel return connection is below the top or the highest point of the sides or ends of the diesel tank check that the connection is either protected by a valve or, if welded, by the return pipe reaching above the top of the tank

Exemption 11.6

Diesel fuelled vessels manufactured prior to 16 June 1998 are not required to comply with that part of Standard 2.12 which requires that the fuel supply and return pipes shall be taken through the top of the tank or as near to the top of the tank as is practicable.

2.12.4 Exemption 11.6	Exemption for pre-June 1998 diesel fuelled vessels from 2.12.1 and 2.12.3.

Standard 2.13 ***Fuel pipes & balance pipes***

All fixed fuel feeds and pipes permanently charged with fuel shall be made of softened copper, stainless steel, aluminium alloy, or (for diesel installations only) mild steel of suitable size, fixed clear of exhaust systems and heating apparatus and adequately supported to minimise vibration and strain. Balance pipes are only permitted in diesel fuelled installations. Any balance pipe between fuel tanks must comply with the requirements of this standard and must in addition be fitted with valves directly attached to the tank and so constructed that the valves will not become slack when operated. [see Exemption 11.7]

2.13.1 Identify pipes and hoses permanently charged with fuel and visually and manually check for signs of:

- damage
- corrosion or deterioration

2.13.2 Visually check routing of pipes and hoses for clearance from unshielded or unlagged exhaust systems. Where clearance is less than 75mm check for damage to fuel system. Note that the failure point is on damage not distance.

2.13.3 Visually check routing of fuel pipes and hoses for clearance from unshielded or unlagged heating apparatus. Where clearance is less than 75mm check for damage to fuel system. Note that the failure point is on damage not distance.

2.13.4 Manually check that fuel pipes including connectors and fittings are adequately secured against damage from vibration i.e. no movement under gentle hand manipulation.

2.13.5 Identify type of fuel in tanks and check for presence of balance pipe. Balance pipes not permitted in petrol systems

2.13.6 Identify flexible balance pipe and check compliance with Standard 2.14 and 2.15.

Visually and manually check balance pipe(s) for signs of:

- damage
- corrosion or deterioration

2.13.7 Visually check that the valves are directly attached to each tank so that there is no pipe work between the tank and the valve.

Exemption 11.7	***Diesel fuelled vessels manufactured prior to 16 June 1998 and fitted with a balance pipe between close coupled tanks are not required to comply with that part of Standard 2.13 which requires valves to be fitted where it is not practicable to do so.***
2.13.8 [Exemption 11.7]	Exemption available for pre-June 1998 diesel vessels. Check that it is not practicable to fit valves to an existing balance pipe where the pipe: • is not long enough to take the valves, or • could not be removed and then replaced with the valves in position
2.13.9	Visually and manually check balance pipe valves valve for slackness and signs of leaking fuel.

Standard 2.14 ***Flexible fuel hose***

Flexible tubing may only be used in the engine compartment and shall be suitable for the fuel used. It shall be of minimum practicable length, be reinforced and have an internal diameter of not more than half its external diameter and shall have a fire resisting quality as required by BS EN ISO 7840 or DIN 4798.

2.14.1 Not checked

2.14.2 Visually check that the fuel hose is marked as suitable for the fuel used or its use is supported by an appropriate declaration.

Visually and manually check for any signs of :

- damage or deterioration
- leaks
- any restriction of the bore due to collapse of the walls
- "soft" spots

2.14.3 Check that flexible fuel supply hose follows minimum practicable route

2.14.4 Not checked

2.14.5 Visually check that flexible hose is marked to BS EN ISO 7840 or an equivalent or higher standard.

Standard 2.15 ***Fuel pipe connections***

All connections permanently charged with fuel shall be made with efficient screwed, compression, cone, brazed or flanged joints. Soft soldered joints shall not be used.

2.15.1 Visually identify use of approved connection in rigid fuel pipes.
Manually and visually check for signs of fuel leaks at the joint or connection.

Check flexible hose connections which use hose clips or clamps for:

- appropriate clip/clamp size (minimum band width of 8mm on fuel supply and return systems but clamps fitted on small bore hose on engines may be smaller)
- appropriate clip/clamp tightness
- damage or deterioration to clip/clamp
- damage or deterioration to hose

Standard 2.16 ***Fuel filters***

All fuel filters shall be suitable for marine use and shall be of fire resistant quality.

2.16.1 Visually examine fuel filter for signs of corrosion or impact damage to any part of the filter body and its connections.

If the filter is not marked, or is not recognized as suitable for marine use, the owner will need to provide evidence that the filter complies with this Standard.

2.16.2 Visually examine any fuel filter located inside an engine compartment.

If the filter is not marked, or is not recognized as a fire resistant filter, the owner will need to provide evidence that the filter complies with this Standard.

Standard 2.17 ***Fuel system shutoff cocks***

A cock or valve shall be fitted in the fuel feed pipe as near as possible to the fuel tank in a position where it is readily accessible. If it is not visible the position shall be clearly marked. In all petrol engine installations where the steering position is remote from the fuel tank a second cock or means of operating the main cock or valve close to the tank shall be fitted immediately accessible from the steering position.

2.17.1 Visually check for presence of fuel cock or valve in the fuel feed pipe from every fuel tank.

If not present check for:

- either,
  all fuel lines, including those on the engine, being above the level of the top of the tank;
- or,
  an anti-siphon valve at the tank;
- or,
  a valve or cock in a position in the fuel line which is self-draining from valve to tank (valve to be capable of being closed from an indicated readily accessible position outside the engine compartment);
- or,
  an electrically operated valve at the tank, activated to open only during engine starting or running. Check that a manual emergency operating or bypassing device is provided.

2.17.2 Visually check location of cocks or valves in relation to fuel tanks. Ready accessibility takes precedence over need to be as near as possible to the fuel tank.

2.17.3 Visually check fuel cocks and valves are readily accessible.

2.17.4 Check that fuel cocks or valves are visible. If not, visually check that the location of the valve or cock is clearly marked and in open view.

2.17.5 For gravity-fed petrol installations visually check that a second cock, or a means of operating the main cock, is within approximately 1 metre or arms length of every steering position.

2.17.6 Not checked

Standard 2.18 ***Fuel pipes & bilge water***

Fuel pipes shall be installed above bilge water level.

2.18.1 Visually check that any fuel pipes in the bilge area are above bilge water level.

Standard 2.19	***Carburettors***	
	Carburettors (other than of the down draught type) shall be fitted so as to allow any overflow there from to drain into a spirit-tight metal drip tray the top of which shall be covered with copper or brass gauze of flame arresting mesh soldered to the tray all round. The tray shall be removable or be fitted with a cock for emptying. A flame trap or air filter must be fitted to the air intake of petrol, petroil and paraffin engines.	
2.19.1	Visually check presence of an effective drip tray for non down-draught type of carburettor.	
2.19.2	Visually check for signs of fuel leaking from the drip tray.	
2.19.3	Visually compare gauze covering drip tray with sample of copper or brass gauze.	
2.19.4	Visually compare gauze with sample of gauze of correct mesh Visually check the gauze for holes or signs of damage.	
2.19.5	Visually check that there are no gaps or defects in the soldered seams.	
2.19.6	Visually check that the drip tray is removable or fitted with an emptying cock.	
2.19.7	For petrol, petroil and paraffin engines visually check location of air intake or presence of flame trap or air filter.	

Standard 2.20 ***Installation of engines***

The engine shall be securely installed.

2.20.1 Visually check all parts of the engine mounting system for:

- fractured engine mounting brackets
- loose, missing or fractured bolts or nuts
- evidence of breakdown of flexible mounts

Manually check that the engine is not capable of movement in any direction other than the movement allowed by the use of any flexible mounts.

Standard 2.21	***Reversing***
	Every vessel shall have effective means of reversing operable from the steering position. The engine stop control shall be located as near to the steering position as is practicable. [see Exemption 11.8]
2.21.1	Visually check presence of a reverse gear selector and that it is connected to the gear changing mechanism. Visually check that it can be operated from every steering position. ***Exemption 11.8*** ***Vessels manufactured prior to 16 June 1998 are not required to comply with that part of Standard 2.21 which requires effective means of reversing.***
2.21.2 [Exemption 11.8]	Check vessel was built before 16 June 1998 and apply exemption
2.21.3	Visually check that the stop control is located as near to every steering position as practicable.

Standard 2.22 ***Engine tray***

An oil-tight tray made of metal or other suitable material, the sides of which must be carried up as high as practicable, shall be fitted beneath every engine and gearbox so as to prevent leakage of oil escaping into any part of the vessel or overboard. A tray is not required if oil-tight structural members are fitted fore and aft of the engine. No fixed bilge pump is to draw from the oil-tight area. [see Exemption 11.9]

2.22.1 Visually check for presence of oil tray or other means of containing oil leaks from engines and gearboxes and check for signs of oil outside the tray or oil-tight area.

2.22.2 Visually check that the sides of the engine tray or oil-tight area tray are carried as high as practicable (recommended minimum 100mm).

2.22.3 **Exemption 11.9 has been rescinded.**

2.22.4 Visually check that any oil leaking from the engine or gearbox will be collected in the engine tray or oil-tight area.

2.22.5 Visually check for presence of oil outside the engine tray or oil-tight area.

Visually check the engine tray or oil-tight area, including joints and seams, for signs of corrosion, damage and deterioration.

2.22.6 Visually check for presence of a fixed bilge pump or fixed suction pipe in engine tray or oil-tight area.

Standard 2.23 ***Exhaust cooling, lagging and shielding***

The cylinders and exhaust system shall be effectively cooled and shall allow for the dissipation of heat. In the case of air-cooled engines or where water is not passed through the exhaust system the exhaust pipe silencer and flanges shall be effectively lagged or shielded.

2.23.1 Visually check for the presence of an appropriate method of engine cooling which must be a complete installation with all joints and connections made and in good condition.

The engine and its components must be carefully examined for any signs of overheating such as:

- blistered paintwork
- cracks or heat damage to rubber or flexible hoses
- melted or burnt insulation on cables

2.23.2 Visually check for the presence of an appropriate method of exhaust system cooling which must be a complete installation with all joints and connections made and in good condition.
Visually check the route of the exhaust system for any signs of heat damage.

2.23.3 Identify presence of air cooled engine or exhaust system not cooled by water and visually check presence of lagging or shielding.

Visually check lagging for:

- signs of damage and deterioration
- complete coverage of exhaust pipe
- securing with appropriate fastenings

Visually check shielding for damage and deterioration. Visually examine all adjacent structures for signs of heat damage from the exhaust.

Standard 2.24 ***Exhaust noise***

Exhaust noise shall be effectively suppressed and no form of exhaust silencer cut-out shall be used.

2.24.1 Visually check for presence of a silencer cut-out (diverter valve) in the exhaust pipe before it enters the silencer.

Noise levels will not be checked at present during the Boat Safety Examination but surveyors/examiners must satisfy themselves that:

- an exhaust system, including a silencer/expansion box, is installed, and that all elements are properly connected
- there are no signs of excessive damage or corrosion, or leaks of exhaust gases

Standard 2.25 ***Steam engines***

In any steam powered engine installation:

i) Pressure systems shall have a current inspection certificate issued by a Recognised Competent Person and shall be covered for third party risks by a current insurance policy.

ii) Where the boiler is fuelled by liquefied petroleum gas, the gas installation shall comply with Part 7 of these Standards as applicable.

iii) Where the boiler is fuelled by diesel, paraffin or similar fuels, the fuel installation shall comply with the appropriate requirements of Part 2 of these Standards as applicable.

iv) In the case of a duel fuel system no flame failure device is required so long as the boiler when in use is constantly attended.

2.25.1 Visually check validity of current inspection certificate and confirm that the details recorded on the certificate are those of the vessel being examined.

2.25.2 Visually check validity of current insurance policy or certificate and confirm that the details recorded are those of the vessel being examined.

2.25.3 Where the boiler is fuelled by LPG, the gas installation is to comply with Part 7 of the standards as applicable:

The LPG installation must be checked under Part 7 and if any fault recorded concerns the LPG supply to the engine, a fault is also to be recorded at 2.25.3

2.25.4 Where the boiler is fuelled by liquid fuel visually identify type of fuel used and apply relevant parts of Part 2 of the standards

Standard 2.26 ***LPG engines***

All vessels with internal combustion engines fuelled by Liquefied Petroleum Gas (LPG) must comply with the Liquefied Petroleum Gas Association (LPGA) Code of Practice No.18 except that engine installations shall not be constructed to allow the use of a dual fuel system where LPG constitutes one of the fuels employed.

2.26.1 Checking of LPG fuelled engines is currently performed by special arrangement with the BSS office.

2.26.2 Visually identify dual fuel installation and refer to BSS office for acceptability.

Examination Checking Procedures – Part 3
Electrical systems

Standard 3.1 ***Battery securing***

All batteries shall be securely installed so as to prevent movement and damage. All battery compartments shall be adequately ventilated and covered with insulating and non-corrosive material. No battery may be fitted beneath or adjacent to any petrol or LPG tank, cylinder, cock, pipe or filter.

3.1.1 Visually check presence of battery securing system. Manually check for movement that must not exceed 10mm in any direction.

3.1.2 Calculate the ventilation requirements for the battery compartment from the following formula:

Ventilation (mm^2) = no. of cells x capacity in Ah x 1.935

Visually check ventilation provision. (See appendix for ready reckoner)

3.1.3 Visually check presence of a battery cover or terminal covers and identify material used.
Visually check that no part of any metal terminal or any metal connection is exposed.

3.1.4 Visually check that no part of any battery is fitted beneath or within 0.5m of any petrol or LPG tank.

3.1.5 Visually check that no part of any battery is fitted beneath or within 0.5m of any petrol or LPG cylinder.

3.1.6 Visually check that no part of any battery is fitted beneath or within 0.5m of any petrol or LPG cock.

3.1.7 Visually check that no part of any battery is fitted beneath or within 0.5m of any petrol or LPG pipe.

3.1.8 Visually check that no part of any battery is fitted beneath or within 0.5m of any petrol or LPG filter.

Standard 3.2 ***Electrical Cables***

Cables shall be of adequate current carrying capacity and of suitable construction and grade. They shall be insulated and/or sheathed so as to be impervious to attack by fuel or water. They shall be adequately supported or run in adequately supported suitable conduits.

3.2.1 Verify that following cables are of minimum size:
Battery to master switch 25mm^2
Battery to starter motor 25mm^2
Battery/Battery 25mm^2
Other cables between battery and fuse/distribution box suitable current carrying capacity for the installation.

Note that outboard engines, which have the engine manufacturer's original loom, are not required to meet these dimensions.

3.2.2 Visually check the type of any conductors that can be seen at any termination or junction.
Visually check cables for presence of suitable terminations and connectors. All connections and terminations must be examined for signs of:

- corrosion
- damage
- loose connections
- overheating

3.2.3 Visually check all cables that can be seen for signs of:

- damage or deterioration
- overheating

3.2.4 Visually check for presence of outer insulation or sheathing to cables and for any signs of damage and deterioration caused by reaction with fuel or water.

3.2.5 Visually and manually check cables for either: support in a safe position or enclosure in supported conduit

Visually check conduit for signs of damage by:

- heat
- burning
- impact

Standard 3.3 ***Main circuits***

Main circuits shall be installed above bilge water level and all except starter circuits shall be protected by circuit breakers or fuses of the appropriate rating and of suitable design.

3.3.1 Visually check position of main circuits in relation to normal bilge water level.

3.3.2 Visually examine any fuses or circuit breakers that can be seen and check that rating is not greater than that specified on the fuse holder or body of the circuit breaker. Check that fuse rating is less than the current capacity of the cable protected.

3.3.3 Visually examine distribution box for presence of lid or cover if required.

Visually examine fuses and circuit breakers and determine:

- the correct wire or cartridge is fitted

Visually examine fuses and circuit breakers to ensure that they are:

- not damaged
- fitted securely
- not held closed by any tape or other device

Standard 3.4 Protection of cables against damage

All cables shall be installed as high as is practicable in the vessel, and they shall be run clear of all sources of heat such as exhaust pipes. They shall not be run adjacent to fuel or gas pipes unless contained in suitable conduit. PVC insulated and/or sheathed cables shall not be run in direct contact with polystyrene thermal insulation. [see Exemption 11.10]

3.4.1 Visually check height of all visible cables within the vessel

3.4.2 Visually check routing of cables for proximity of heat sources and examine cable for signs of heat damage e.g. deterioration of insulation

3.4.3 Visually check electrical cables are supported clear of fuel pipes. Minimum clearance is not specified

3.4.4 Visually check electrical cables are supported 30mm clear of gas pipes.

Exemption 11.10

Vessels manufactured prior to 16 June 1998 and having PVC insulated or sheathed cables in direct contact with polystyrene thermal insulation are not required to comply with that part of Standard 3.4 which requires that PVC cables shall not run in direct contact with polystyrene thermal insulation until such time that an insulation resistance test discloses an electrical fault in cables in direct contact with polystyrene thermal insulation.

3.4.5 [Exemption 11.10]

Visually examine any insulation in contact with PVC insulated or sheathed cables.

Where visual examination is not possible, Exemption 11.10 will be applied and the owner advised to have the installation tested by a competent electrician with experience in the marine environment.

3.4.6 [Exemption 11.10]

Exemption 11.10 will also be applied in cases where a visual examination of the insulation is not possible (see previous check).

Standard 3.5 ***Battery master switch***

A master switch capable of disconnecting the system (including starter circuits) shall be installed in a readily accessible position as close to the battery as possible. The master switch must be capable of carrying the maximum current of the system. Electric bilge pumps, security alarms, fire pumps and electronic navigation equipment with memories when fitted may have circuits which by-pass the master switch but only if separately protected by fuses or circuit breakers. If the master switch is not visible, its position must be clearly marked.

3.5.1 Visually check presence of master switch (es).

3.5.2 Where there are separate batteries or banks of batteries and the switch (es) is installed in the positive line, visually check that a switch is provided for each battery or bank of batteries and that switch disconnects all non-essential equipment.

3.5.3 Visually check every master switch is readily accessible when boat is in normal use.

3.5.4 Visually check master switch as close as possible to batteries. Note that accessibility takes precedence over distance.

3.5.5 Visually examine the master switch and the cables connected to it for any signs of:

- overheating
- missing components
- loose connections

3.5.6 Visually check that circuits supplying equipment which may bypass the battery master switch i.e. electric bilge pumps, security alarms, fire pumps and electronic navigation equipment with memories are protected by a suitable fuse or circuit breaker.

3.5.7 If the master switch is not visible, visually check that position is clearly marked with the marking in open view

Standard 3.6 Main, starter & spark plug leads

Main and starter motor leads subject to high current shall have soldered or pressure crimped connectors. Spark plug leads shall be supported clear of the engine block and cylinder head.

3.6.1 Visually check that main leads are fitted with soldered ends or crimped connectors.

Visually check for battery terminals fitted with screw clamps on existing vessels and verify use of spreader plate in terminal.

3.6.2 Visually check that starter motor leads are fitted with soldered ends or crimped connectors.

3.6.3 Visually check that spark plug leads are supported so they are not touching the engine block or cylinder head.

Visually check leads for signs of heat damage.

Standard 3.7	***Ignition protected equipment***
	All electrical devices fitted in any compartment containing petrol or gas shall be ignition protected in accordance with BS EN 28846 . [see Exemption 11.11]
3.7.1	Visually check for presence of electrical devices in any petrol compartment and determine presence of marking to indicate compliance with BS EN 28846.
3.7.2	Visually check for presence of electrical devices in any gas compartment and determine presence of marking to indicate compliance with BS EN 28846.
Exemption 11.11	***Vessels manufactured prior to 16 June 1998 are not required to comply with Standard 3.7 which requires that all electrical devices fitted in any compartment containing petrol or gas shall be ignition protected in accordance with BS EN 28846 where it is not practicable to comply. This exemption will be rescinded at some future date by amendment.***
3.7.3 [Exemption 11.11]	The exemption will be applied at the request of the owner and surveyors/examiners will make a note in their records that this was done. When any device is replaced or any modifications or additions are made, the new or replacement device must be ignition protected in accordance with BS EN 28846 .

Standard 3.8 Two wire systems

All electrical equipment shall be two-wire insulated except in respect of engine circuits where there must be a low resistance return conductor between the battery and the engine. Engine installations with two wire insulated electrical systems do not require fitting of the low resistance return conductor.

3.8.1 Visually check suitable device e.g. horn, headlamp, navigation light for presence of two wire insulated cable.

A single wire installation will have only one insulated conductor connected.

3.8.2 Identify any temperature, oil pressure sender, stop solenoid etc mounted on the engine and count the wires going to the device.

If there is only one wire, the engine is a single wire installation and a visual check must be made for the presence of a low resistance return conductor between the battery and the engine.

Standard 3.9 Electrical suppression

The spark ignition and generating systems of engines and all electrical equipment on the vessel shall be effectively suppressed against causing radio and television interference.

3.9.1 & 3.9.2 At present, suppression of radio and TV interference will not be checked as part of the Boat Safety Examination.

Examination Checking Procedures – Part 4
Electrically propelled boats

Standard 4.1 ***The installation shall comply with the requirements of Part 3 of these standards insofar as they are applicable, and in all cases with the appropriate British Standards and with the Institution of Electrical Engineers (IEE) Regulations for the Electrical and Electronic Equipment of Ships as appropriate to the size of the installation.***

4.1.1 Carry out the checks required by Part 3 and if any fault recorded is applicable to the electrical propulsion installation (other than 3.5.4, 3.5.6, 3.6.2, 3.6.3, 3.7.1, 3.7.2, 3.7.3 for a boat powered solely by batteries) a fault is to be recorded at 4.1.1.

4.1.2 If any fault recorded in the Boat Safety Standards (3.2, 3.7, 4.6) is applicable to the electrical propulsion installation a fault is to be recorded at 4.1.2

4.1.3 Record a fault if any fault recorded at 3.1.1 to 3.1.8 is applicable to an electrical propulsion installation, or a fault is recorded at 4.2.1, 4.2.2 and 4.8.1.

Standard 4.2 ***The arrangement of batteries, including in particular their stowage and the requirements in respect of adequate ventilation shall comply with the IEE Regulations for the Electrical and Electronic Equipment of Ships - Section 14.***

4.2.1 Record a fault if any fault recorded at 3.1.1 to 3.1.8 is applicable to an electrical propulsion installation, and also record a fault at 4.1.3 "Installation does not comply with IEE Regulations".

4.2.2 Visually check power output of battery charger.

Record a fault if the output is less than 2kW and a fault is assessed at 3.1.2.

If output more than 2kW, identify presence of mechanical ventilation system.

If not fitted, a fault is to be recorded.

Standard 4.3 ***The propulsion motor shall be securely installed.***

4.3.1 Visually check all parts of the motor mounting system for:

- damage
- corrosion
- rot or other deterioration
- unsuitable fastenings
- missing or loose fastenings

Manually check that the motor is not capable of movement in any direction other than the movement allowed by the use of any flexible mounts.

Standard 4.4 *Every vessel shall have an effective means of reversing operable from the steering position.*

4.4.1 Visually check presence of a reverse gear selector.

4.4.2 Visually check that reverse gear selector can be operated from every steering position.

Standard 4.5 ***A manually operated master switch that can be operated from the steering position shall be fitted. It shall be capable of cutting off the electrical supply to the propulsion motor.***

4.5.1 Visually check that a manually operated propulsion motor master switch is fitted.

4.5.2 Identify propulsion motor master switch and visually examine the switch and the cables connected to it for any signs of:

- overheating
- missing components
- loose connections
- unauthorised modifications

4.5.3 Visually check that propulsion motor master switch is located within approximately 1 metre or arms length of every steering position.

Standard 4.6 ***The connection from the battery charger on board the vessel to the charging point ashore shall be by means of a 3 core flexible cable of adequate current carrying capacity and of suitable construction and grade, with connectors complying with the splash-proof category of BS EN 60309 Part 2.***

4.6.1 Visually check for presence of 3-core cable.

4.6.2 Visually check current rating of battery charger and verify visually that the supply cable is of adequate current carrying capacity.

4.6.3 Visually identify charging lead is three core cable of suitable construction.

4.6.4 Visually check presence of a charging connector of the correct voltage to the BS EN 60309 Part 2.

Standard 4.7 ***The battery charging panel on the vessel shall be adequately ventilated and shall incorporate a positive switch and an indication light to show when charging of the vessel's batteries is taking place.***

4.7.1 Visually check there is a means of dissipating heat from the battery charging equipment.

Visually check for any signs of overheating of the charging equipment and the immediate surroundings.

4.7.2 Visually check presence of a manually operated ON/OFF switch on the charger control panel.

4.7.3 Visually check presence of charging warning light.

Standard 4.8 ***The battery charging arrangement shall incorporate control of the battery compartment exhaust ventilation fan, when fitted, such that the fan is automatically switched on when battery charging commences, and continues to run for one hour following the completion of charging.***

4.8.1 Visually check power output of battery charger.

If over 2kW, visually check for presence of mechanical exhaust system.

Standard 4.9	***The motor and controller compartments shall be adequately ventilated.***
4.9.1	Visually check there is a means of ventilating the motor compartment. Visually check for any signs of overheating of the motor equipment and the immediate surroundings.
4.9.2	Visually check there is a means ventilating the controller compartment. Visually check for any signs of overheating of the controller equipment and the immediate surroundings.

Examination Checking Procedures – Part 5
Outboard and portable engines

Standard 5.1	***All deck and fuel filling connections shall be situated so as to minimise the risk of cross-contamination and shall be clearly marked on the deck fittings or immediately beside them indicating the purpose of each connection and in the case of fuel connections the exact type of fuel.***
5.1.1	Visually check that risk of cross-contamination is minimised.
5.1.2	Visually inspect petrol filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent
5.1.3	Visually check petroil filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.
5.1.4	Visually check paraffin filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.
5.1.5	Visually check diesel filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

5.1.6 Visually check LPG filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

5.1.7 Visually check water filling point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

5.1.8 Visually check pump out point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

5.1.9 Visually check rinse out point is correctly and clearly marked. This is not a failure point providing the marking is immediately adjacent.

5.1.10 Visually check deck connections, filling or discharge points other than those specified in 5.1.2 – 5.1.9 are correctly and clearly marked. Unused connections or points must be marked appropriately

Standard 5.2	***Permanently installed fuel systems shall comply with Standards 2.1 to 2.19 inclusive and they and all associated pipe work, cocks and fittings shall be suitably protected against external impact.***
5.2.1	Carry out checks 2.1.1 to 2.19.7 inclusive. A fault is to be recorded under 5.2.1 if any fault recorded at Fault Nos. 2.1.1 to 2.19.7 is applicable to the permanently installed fuel system of an outboard or portable engine.
5.2.2	Visually check position of all elements of permanent fuel system in relation to risk of external impact.
5.2.3	Visually check permanent pipework is protected against external impact
5.2.4	Visually check permanently installed fuel cocks are protected against external impact

Standard 5.3 ***Portable fuel tanks, carried inboard and connected by flexible piping to the engine and close coupled fuel tanks forming an integral part of the engine may be used providing they are in sound condition and that the fuel supply can be readily shut off and no unauthorised modifications are made to the equipment as supplied by the manufacturers. Portable fuel tanks shall be clearly marked with the type of fuel to be used and when not in use shall be stowed in accordance with Standards 7.2 and 7.3.***

5.3.1 Visually and manually examine the portable or integral fuel tank and any flexible hose used to connect it to the engine for:

- damage and deterioration
- corrosion
- fuel leaks

5.3.2 Identify portable or integral fuel tank system.

Visually check that fuel supply can be readily shut off by a valve, cock or bayonet fitting.

5.3.3 Visually examine portable or integral fuel tanks, including any flexible hoses, for unauthorised modifications.

5.3.4 Visually check tank for clear marking of type of fuel used.

5.3.5 Visually check that portable fuel tanks not in use are stowed in a drained, gas tight and fire resistant locker that meets the relevant Standards of Part 7.

Standard 5.4 ***Petrol not carried in fuel tanks shall be stowed in containers conforming with the requirements of the Petroleum Spirit (Motor Vehicles &c) Regulations 1929 (SR & O 1929/952) or the Petroleum Spirit (Plastic Containers) Regulations S.I. 1982 No.630 and these shall be stowed in accordance with Standards 7.2. and 7.3.***

5.4.1 Visually check for spare petrol containers and, if present, verify that containers are marked to conform to the 1929 or 1982 Petroleum Spirit Regulations.

5.4.2 Visually check that portable fuel containers are stowed in a drained, gas tight and fire resistant locker that meets the relevant Standards of Part 7.

Standard 5.5 ***All vessels with engines fuelled by Liquefied Petroleum Gas (LPG) shall comply with the Liquefied Petroleum Gas Association (LPGA) Code of Practice No.18 except that engine installations shall not be constructed to allow the use of a dual fuel system where LPG constitutes one of the fuels employed.***

5.5.1 Checking of LPG fuelled engines is currently performed by special arrangement with the BSS office.

5.5.2 Visually identify dual fuel installation and check with the BSS office for acceptability.

Standard 5.6 ***Outboard engines shall be securely fitted.***

5.6.1 Manually check there is no movement in any direction at any of the mounting points.

Visually check all components in the mounting system, including fixings and securing devices, for signs of:

- damage
- deterioration
- corrosion
- unauthorised modifications

Standard 5.7 ***Exhaust noise shall be effectively suppressed.***

5.7.1 At present, actual noise levels will not be checked during the Boat Safety Examination.

Standard 5.8 ***All portable LPG/petrol internal combustion engines/generators with integral fuel tanks when not in use shall be stowed in accordance with the requirements of Standards 7.2 and 7.3. Portable diesel internal combustion engines or generators shall be stored securely when not in use.***

5.8.1 Identify presence of portable LPG or petrol engine/generator.

Visually check out of use storage is in accordance with Part 7 Standards relating to storage of gas cylinders.

5.8.2 No check is being carried out for the storage of portable diesel generators because the higher flash point of diesel does not require special storage arrangements.

5.8.3 Identify portable diesel generator not in use and manually check for excessive movement.

5.8.4 Identify portable diesel engine not in use and manually check for excessive movement.

Examination Checking Procedures – Part 6
Fire prevention and extinguishing equipment

Standard 6.1 ***Powered vessels or vessels carrying or fitted with cooking, heating, refrigerating or lighting appliances shall be equipped with not less than the number of portable extinguishers detailed below, which shall be of a type approved by the BSI and /or the British Approvals of Fire Equipment scheme. Extinguishers shall be kept in readily accessible positions adjacent to fire risk points, and shall be properly maintained in good condition for immediate use. Any portable extinguisher provided for the protection of an engine space shall be capable of being discharged without fully opening the primary access.***

Length of vessel	*Minimum number*	*Minimum fire rating of each*	*Minimum combined fire rating*
Up to 7m (23ft)	*2*	*5A/34B*	*10A/68B*
7m-11m (23-36ft)	*2*	*5A/34B*	*13A/89B*
Over 11m (36ft)	*3*	*5A/34B*	*21A/144B*

The number of extinguishers may be reduced by one fire extinguisher with a fire rating of no more than 5A/34B where either:

i) no cooking, heating, refrigerating, lighting or fuel-burning appliances are carried

or

ii) no engine is installed

(Note: Fire extinguishers which have been manufactured to comply with EN3 and are certified and marked as such by a Certifying Authority and are marked with the fire rating will be considered as acceptable as those which carry the BS kitemark).

[see Exemption 11.12]

6.1.1 Visually check that each extinguisher is marked as an approved type.

6.1.2 Visually check that each extinguisher is readily accessible.

6.1.3 Visually check that extinguishers are kept adjacent to fire risk points.

6.1.4 Visually examine the condition of each extinguisher.

The following are indications that it has not been maintained in good condition:

- missing safety pin
- dents
- gouges
- pressure gauge (where fitted) not in the "green" sector i.e. showing the correct pressure
- perished hose
- rust or other form of corrosion
- wholly or partially discharged
- damage to trigger assembly including deterioration caused by ultra-violet light and heat

6.1.5 If Exemption 11.12 is not applied, visually check the rating of each extinguisher for compliance with the minimum fire rating (individual).

6.1.6 If Exemption 11.12 not applied, add together the ratings shown on the body of each extinguisher and confirm compliance with minimum fire rating (combined).

6.1.7 Count the number of approved extinguishers and confirm compliance with minimum requirement.

Exemption 11.12	***Vessels manufactured prior to 16 June 1998 and complying with the navigation authority's previous requirements for fire extinguishers are not required to comply with that part of Standard 6.1 which prescribes a minimum fire rating for each extinguisher and a minimum combined fire rating until such time as the existing extinguishers are life expired or discharged.***
6.1.8 [Exemption] 11.12	The total weight of the minimum number of approved extinguishers must equal or exceed any Navigation Authority's previous requirements. (see Appendix H)
6.1.9	There is no check for an approved fire extinguisher which is intended for fighting an engine space fire from outside and no check for a way to discharge any extinguisher into an engine space from outside without opening any access hatch or door.

Standard 6.2 ***Any fixed system installed for the protection of a fire risk space shall be in addition to the portable extinguishers required by Standard 6.1 and if remotely operated the release device shall be readily accessible from outside that space.***

6.2.1 Visually check that any remote release device for an engine space fixed fire fighting system is:

- readily accessible as defined in the Glossary to these Standards
- located outside the fire risk space

Standard 6.3 ***In vessels fitted with cooking facilities, a fire blanket marked as complying with at least the "light duty" requirements of BS 6575, and ready for immediate use, shall be kept nearby.***
[see Exemption 11.13]

6.3.1 If cooking facilities are present verify provision of a fire blanket.

6.3.2 Visually check the fire blanket container if fitted, or instruction sheet, is marked to BS 6575 'light duty' or BS EN 1869. Note that a BS 476 blanket is not acceptable.

6.3.3 **Exemption 11.13 has been rescinded**

6.3.4 Visually check that fire blanket is ready for immediate use.

6.3.5 Visually check fire blanket is near but not directly above cooking facilities.

Standard 6.4	***In vessels with hulls constructed of glass-fibre reinforced plastic (GRP) those areas of high fire risk, such as an engine room or fuel compartment, shall have any exposed GRP structure coated with a suitable fire retardant material complying with the Class 2 requirements of BS 476: Part 7. [see Exemption 11.14]***
6.4.1	At present, the use of a fire retardant treatment will not be checked during the Boat Safety Examination.
Exemption 11.14	***Vessels manufactured prior to 16 June 1998 are not required to comply with that part of Standard 6.4 which requires exposed GRP structure to be coated with suitable fire-retardant material until such time as visual inspection of the exposed GRP structure shows deterioration.***
6.4.2 [Exemption 11.14]	Exemption available: Visually check exposed GRP for signs of deterioration such as: • heat damage e.g. charring, scorching, blistering • physical damage to the GRP surface e.g. exposed fibres If deterioration is apparent, a failure is recorded at 6.4.1.

Standard 6.5	***Polystyrene thermal insulation shall comply with the Type A requirements of BS 3837: Part 1. [see Exemption 11.15]***
6.5.1	No check is being made at present for marking to indicate compliance with BS 3837: Part 1. The boards are edge-marked and it is impractical to cut the boards so that each cut piece includes the necessary marking.
Exemption 11.15	***Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 6.5.***
6.5.2 [Exemption 11.15]	Exemption available: Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 6.5.

Standard 6.6	***All soft furnishings, fabrics, and foam materials used in the lining out and furnishing vessels shall be of suitable fire resistant materials, which on combustion release minimal amounts of toxic products. Upholstery fabrics used shall satisfy the cigarette and butane flame tests of BS EN 1021 Parts 1 and 2. [see Exemption 11.16]***
6.6.1	At present, the use of fire resistant materials will not be checked during the Boat Safety Examination but see Exemption 11.16 below.
6.6.2	At present, compliance with the cigarette and butane flame tests will not be checked during the Boat Safety Examination but if there are any indications of heat damage such as burning or scorching this is an indication that the material no longer complies.
Exemption 11.16	***Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 6.6.***
6.6.3 [Exemption 11.16]	Exemption available: Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 6.6.

Standard 6.7	***All vessels shall have two means of escape from accommodation areas. All means of escape shall have a minimum clear opening of 0.2m² (310in²) and a minimum width of 380mm (15").*** ***[see Exemption 11.17]***
6.7.1	Identify at least two means of escape from accommodation areas.
6.7.2	Measure the minimum clear opening of all means of escape. Minimum clear opening is 0.2 m² and minimum width 380mm. Visually check that a means of "breaking out" any fixed window or port designated as an escape route is adjacent to it.
Exemption 11.17	***Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 6.7 where it is not practicable to modify the structure to provide two means of escape.***

6.7.3 [Exemption 11.17]

Exemption available:
Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 6.7 where it is not practicable to modify the structure to provide two means of escape.

Examples of where it would not be practicable to fit a second means of escape are:

- no space to fit the minimum clear opening
- it would be necessary to cut through or remove structural members e.g. deck beams, frames and stiffeners

Examination Checking Procedures – Part 7
LPG installations

Standard 7.1 ***The installation shall comply with BS 5482 - Code of practice for domestic butane and propane gas-burning installations, Part 3: Installations in boats, yachts and other vessels.***
(NOTE: The provision for existing installations contained within Annex A of BS 5482-3 is represented by paragraphs 11.18 and 11.19 and 11.22 to 11.29)

7.1.1 A fault is to be recorded at 7.1.1 if for any reason it was not possible to carry out, or complete, the gas soundness test at 7.22.2, the flame pattern test at 8.2.5, or the flue spillage test at 8.2.2 (k).

Standard 7.2 ***Every cylinder (full or empty, stored or in use) shall be either:***

i) ***Secured on open deck, cabin tops or outside cockpits so that any leakage flows overboard. Cylinders, low pressure regulators and associated equipment shall be at least 1 m away from hatches, other openings and possible sources of ignition.***
(NOTE: Cylinders, low pressure regulators and associated equipment may be enclosed in a shelter on open deck, cabin tops or outside of cockpits provided the shelter conforms to this sub-paragraph 7.2 i)); **or**

ii) ***Secured in a cylinder locker LPG-tight to the hull interior at least to the level of the cylinders, low pressure regulators and associated equipment. Cylinder lockers shall only be openable from the top and shall be provided with a lid or cover to protect cylinders, low pressure regulators and associated equipment from mechanical damage. Cylinder lockers shall be ventilated from outside the vessel to a point above the level of the cylinders.***
(NOTE 1: see paragraph 11.18).

A means to drain LPG away from the vessel shall be provided from the lowest point of the cylinder locker to a point outside the hull above the deepest loaded waterline.
(NOTE 2: see paragraph 11.19).
(NOTE 3: Cylinders may be secured in a cylinder housing in a self-draining cockpit provided the installation is in accordance with Standard 7.7).

7.2.1 Visually check any leaking gas from LPG cylinders on open deck would flow overboard unimpeded.

7.2.2 Visually check there are no hatches or openings within 1 metre of the LPG cylinders on deck.

7.2.3 Visually check there are no sources of ignition within 1 metre (or in the path of leaking gas) of LPG cylinders on deck.

7.2.4 Visually check any cylinders not on the open deck, cabin tops or outside cockpits are in a cylinder locker or a cylinder housing.

For stowage of cylinders in cylinder housings assess against the requirements of Standard 7.7.

7.2.5 Visually check the cylinder locker is LPG-tight to the hull interior to the level of the cylinders, regulators and associated equipment by examination of the bottom, sides, and seams for signs of:

- holes;
- damage;
- cracks;
- corrosion;
- Welding/brazing imperfections e.g. slag intrusions.

7.2.6 Visually check the cylinder locker can only be opened from the top.

7.2.7 Visually check for presence of lid or cover that protects the cylinders, low pressure regulators and associated equipment from mechanical damage.

7.2.8 Visually check for ventilation above the level of the cylinders from outside the vessel.

Exemption 11.18 ***Apart from hire cruisers licensed with the Broads Authority, vessels manufactured prior to 3 January 2000 are not required to comply with that part of Standard 7.2ii) which requires cylinder lockers to be ventilated from outside the vessel to a point above the level of the cylinders.***

7.2.9 [Exemption 11.18] Identify non-Broads Authority hirecraft and apply the exemption.

7.2.10 Visually check there is a drain from the lowest point of the cylinder locker or housing which exits from the hull to a point outside the vessel above the deepest loaded waterline.

Visually check the drain falls continuously to the outside of the hull.

Exemption 11.19 ***Vessels manufactured prior to 3 January 2000 and having a cylinder locker drain as near as practicable to the bottom of the cylinder locker are not required to comply with that part of Standard 7.2ii) which requires the drain to be provided from the lowest point of the cylinder locker.***

7.2.11 [Exemption 11.19] Visually check any area below the drain outlet that could potentially retain LPG is displaced by solid inert material resistant to LPG.

Visually check the drain falls continuously to the outside of the hull.

Standard 7.3 ***All cylinders shall be installed in an upright position with the valve uppermost and secured so that no damage can occur to the cylinders, regulators, hoses or pipework. Cylinders, cylinder lockers or cylinder housings shall not form an obstruction for persons moving about the deck or walkway or interfere with the normal operation of the vessel. Cylinders, cylinder lockers or cylinder housings shall not be located near to heat sources. All cylinders shall be accessible and removable in an emergency.***

7.3.1 Visually check cylinders are installed in the upright position with the valve uppermost.

7.3.2 Visually and manually check cylinders are secured to prevent damage. Check locker or housing is secured against unintended movement.

7.3.3 Visually check cylinders, cylinder lockers or housings are located in a position where they cannot create an obstruction for persons moving about the deck or walkways which could:

- hinder the handling of the vessel;
- cause personal injury.

7.3.4 Visually check for signs of heat damage to exterior surfaces of cylinder, cylinder locker or housing.

7.3.5 Visually check the accessibility of cylinders for removal in an emergency.

Standard 7.4 ***Cylinder lockers or cylinder housings shall be constructed of metal of thickness at least 0.9 mm, with welded or brazed joints, or of fibre reinforced plastics (FRP) of minimum thickness 5 mm, or of materials having a fire resistance of 30 min in accordance with BS 476-20.***

7.4.1 Determine metal thickness is at least 0.9 mm.

Determine FRP thickness is at least 5 mm.

For lesser thicknesses of metal or FRP and for cylinder lockers/housings made of alternative materials, determine whether materials used will provide fire resistance for 30 min to BS 476-20.

7.4.2 Visually check all joints and seams in metal lockers or housings are fully welded or brazed.

Standard 7.5 ***Cylinder locker or cylinder housing drain pipes, hoses and connections shall be of a material suitable for use with LPG and hoses shall be connected in accordance with Standard 7.13. Drains shall have an internal diameter of at least 19 mm (3/4"). (NOTE: see paragraph 11.22).***

7.5.1 Visually check cylinder locker/housing drain pipes, hoses and connections for:

- joints;
- corrosion;
- damage;
- deterioration;
- type of hose.

7.5.2 Visually check cylinder locker/housing drain hose connections for:

- corrosion, damage or deterioration;
- missing components
- freedom from burrs and rough edges;
- over-tightened hose clamps;
- hose clamps fixed by spring tension only;
- over sized clamps causing pinch points;
- under sized clamps causing the clamp rack not to be fully engaged.

Determine by measurement all clips and clamps are at least 8mm in width

7.5.3 Determine by measurement internal diameter of drain is not less than 19 mm throughout.

Exemption 11.22 ***Vessels manufactured prior to 3 January 2000 and having an LPG drain with a minimum internal diameter of 12mm for a cylinder of up to 15kg capacity and which is enlarged proportionally for additional LPG storage, are not required to comply with that part of Standard 7.5 which requires the drain to have an internal diameter of at least 19 mm (¾").***

7.5.4 [Exemption 11.22] Determine by measurement internal diameter of drain is not less than 12 mm for up to and including 15 kg gas capacity and is enlarged proportionately for gas capacity over 15 kg.

TOTAL CAPACITY	VENT PIPE/OPENING internal diameter
15 kg or less	12 mm
19 kg	14 mm
30 kg	17 mm
38 kg	19 mm
47 kg	20 mm
94 kg	30 mm

Standard 7.6 ***The opening into a cylinder locker or cylinder housing shall enable the operation of valves, replacement of cylinders, and access to connections or regulating devices. The opening into a cylinder locker shall not be situated in an accommodation space, engine space, fuel space or battery space.***
(NOTE: see paragraph 11.23 (i)).

7.6.1 Visually and manually check all valves can be reached through cylinder locker or housing opening. *(Warning - do not operate any valves)*

Visually and manually check all connections and regulating devices can be reached.
(Warning - do not test or operate any connections or devices)

7.6.2 Visually check cylinder locker opening is not situated in an accommodation space, engine space fuel space or battery space.

Exemption 11.23	***Vessels manufactured prior to 3 January 2000 that were designed and constructed with a cylinder locker within the hull of the vessel, but outside engine, fuel or battery spaces, are not required to comply with:***
	i) that part of Standard 7.6 which requires that the opening into a cylinder locker shall not be sited in an accommodation space provided the cylinder locker is located in a low risk position,
	and
	ii) that part of Standard 7.9 which requires the main shut off valve to be fitted outside the accommodation space.
7.6.3 [Exemption 11.23 i)]	Exemption available for existing installations:
	Visually check the cylinder locker is of original design and construction.
	Visually check opening into cylinder locker is in a low risk position outside engine, fuel or battery spaces.

Standard 7.7 ***Cylinder housings may open from the side into self-draining cockpits provided that:***

i) the drain outlets from the self-draining cockpit are above the deepest loaded waterline;

and

ii) the design of the craft ensures the self-draining cockpit is LPG tight to the interior of the vessel at least to the height of the LPG cylinders, low pressure regulators and associated equipment. (NOTE: The height of the bridge deck, or any fixed sill to an accommodation space shall be at least to the height specified);

and

iii) any hatches or openings within the self-draining cockpit are watertight;

and

iv) cylinder housings conform to the ventilating and draining requirements of Standard 7.2 and Standards 7.3, 7.4, 7.5, 7.6, and 7.8.

7.7.1 Identify self-draining cockpit and visually check any cylinders are contained in a cylinder locker or housing.

7.7.2 Identify presence of LPG cylinder housing in self draining cockpit.

Visually check cockpit drain outlet(s) are above deepest loaded waterline.

7.7.3 Identify presence of LPG cylinder housing in self draining cockpit.

Visually check the cockpit is LPG-tight to the interior of the vessel to the height of the cylinders, regulators and associated equipment.

7.7.4 Identify presence of LPG cylinder housing in self draining cockpit.

Visually check any hatches or openings, and associated seals, gaskets, below the height of the cylinders, regulators and associated equipment for signs of damage or deterioration.

Standard 7.8 ***Cylinder lockers or cylinder housings shall not contain any items that could damage the low pressure regulator(s) or associated pipework, or obstruct the drain or ignite leaked LPG.***

7.8.1 Visually check the cylinder locker or housing for any item that could damage the regulator(s) or pipework or equipment

7.8.2 Visually check the cylinder locker or housing for any item that could obstruct the drain.

7.8.3 Visually check the cylinder locker or housing for any item that could ignite leaking gas.

Standard 7.9 ***A readily accessible main shut-off valve situated outside the accommodation space shall be fitted and installed as close to the LPG cylinder(s) as practicable.***
(NOTE see paragraph 11.23 ii)).

The valve of any LPG cylinder or of a connected low pressure regulator may be used as the main shut-off except where two or more LPG cylinders are connected by an automatic changeover device. Where an automatic changeover device is fitted the main shut-off valve shall be situated as close to the outlet of the device as practicable. If the main shut-off valve is not in a clearly visible position or is in a space that can be closed off by doors or lids, then its position shall be clearly marked. If there is more than one main shut-off valve, this and the locations of the other main shut-off valves shall be clearly marked on or adjacent to each valve.

7.9.1 Identify the existence of a main shut-off valve and visually check it is not situated inside any accommodation space.

Exemption 11.23 ii) : Shut – Off Value In Accommodation Space.

Vessels manufactured prior to 3 January 2000 that were designed and constructed with a cylinder locker within the hull of the vessel, but outside engine fuel or battery spaces, are not required to comply with that part of Standard 7.9 which requires the main shut-off value to be fitted outside the accommodation space.

7.9.2 [Exemption 11.23 ii)]	Confirm application of exemption 11.23 i) at 7.6.3. Apply exemption 11.23 ii).
7.9.3	Visually check the accessibility of the main shut-off valve.
7.9.4	Visually check the main shut-off valve is located as close to the cylinders as practicable, but note that accessibility has priority over proximity
7.9.5	Identify presence of an automatic changeover device. Visually check no cylinder valve is being used as the main shut-off valve.
7.9.6	Visually check the main shut-off valve is located as close to the outlet of the automatic changeover device as practicable.
7.9.7	Visually check main shut-off valve is visible. If it is not visible, visually check position is clearly marked.
7.9.8	Identify gas installation consists of two or more separate systems. Visually check that the location of all main shut-off valves is marked on or adjacent to each valve.

Standard 7.10	***All high pressure stage components shall be installed on the open deck or cabin tops or outside cockpits, or in a cylinder locker or cylinder housing if there is one. If two or more cylinders are connected, each high pressure stage connection shall be protected by a non-return valve. High pressure stage components not directly attached to the cylinder valve shall be connected by a pre-assembled length of flexible hose conforming to type 2 of BS 3212, fitted with integral threaded metallic ends. The hose shall be of the minimum practicable length to allow for the replacement of cylinders and shall not exceed 1m. High pressure stage components not directly attached to the cylinder valve shall be secured in a position that provides protection from mechanical damage and protects vent holes from the ingress of debris or water. External manual-adjustment type regulators shall not be fitted.***
7.10.1	Visually check all high pressure stage components are installed: • on the open deck, cabin tops, outside cockpits; or • in a cylinder locker or housing.
7.10.2	Identify installation with two or more cylinders connected on the high pressure side and visually check a non-return valve is fitted in each high pressure stage connection.

7.10.3 Identify high pressure stage components not directly attached to cylinders and visually check flexible connection :

- is a pre-assembled length of hose;
- complies with type 2 of BS 3212 or BS EN 1763-1 and 1763-2 [Class 2 or 3 for low pressure side, Class 3 or 4 for high pressure side]
- is fitted with integral threaded metallic ends.

Visually check hose for signs of:

- leaks
- flaws , brittleness, cracking, abrasion
- kinking
- joins

7.10.4 Visually and manually check high pressure stage components are securely fixed.

Visually and manually check that the vent holes of high pressure stage components are protected from the ingress of debris or water.

Visually check all fixings for obvious signs of:

- corrosion;
- damage or deterioration;
- missing components;
- movement.

7.10.5 Visually check presence of manually adjusted regulator. Only permitted in gas supply to steam boilers.

Standard 7.11	***The inlet gas connection on installation pipework shall be securely fixed and readily accessible. For cylinders stowed below decks or in cockpits, the inlet gas connection shall be situated inside the cylinder locker or cylinder housing. Installation pipework from cylinder lockers shall either be from a bulkhead fitting or above the level of the cylinder, low pressure regulator and associated equipment.***
7.11.1	Visually and manually check the inlet gas connection is incapable of movement in any direction.
7.11.2	Identify presence of a cylinder locker or housing below deck or in a cockpit and visually check it contains the inlet gas connection.
7.11.3	Identify presence of a cylinder locker and visually check installation pipework exits the locker: • from a bulkhead fitting; OR • above the level of the cylinders, regulators, and associated equipment.

Standard 7.12 ***Installation pipework shall be made of either:***

i) ***seamless copper tube conforming to BS EN 1057 with copper or copper alloy compression fittings,***

or

ii) ***stainless steel tube, of a grade suitable for use with LPG and a marine environment with appropriate compression or screwed fitting,***

or

iii) ***copper nickel alloy, of a grade suitable for use with LPG and a marine environment with appropriate compression or screwed fittings.***

(NOTE 1: Flexible hose conforming to Standard 7.13 may be used as the appliance connector to a gimballed cooking appliance, or to an appliance that requires movement for hygienic purposes.)
(NOTE 2: If only a cooking appliance is installed, flexible hose may be used to connect it to the low pressure regulator, provided the length does not exceed 1 m.)

7.12.1 Visually check material of pipework for suitability.

7.12.2 Identify any appliance connected by a flexible hose and visually check that either:

- it is a gimballed cooking appliance; OR
- the owner requires it to be able to be moved for hygienic purposes

7.12.3 Identify installation comprising a single cooking appliance connected to low pressure regulator by a flexible hose.

Determine by measurement the length of hose does not exceed 1 m.

Standard 7.13	***Flexible hose shall conform to type 2 of BS 3212. Flexible hose shall be of the minimum practicable length, not exceeding 1 m, and shall be readily accessible. Flexible hose shall be installed without stress or tight radius turns and hose passing through bulkheads, partitions, deck-heads, or decks shall be protected from abrasion. For low pressure applications, flexible hose shall be a pre-assembled length fitted with integral threaded metallic ends, or secured to nozzles by a metal crimped clip or worm drive hose clamp. Hose clamps fixed by spring tension shall not be used. Hose clips and clamps shall be of the correct size for the hose and at least 8mm in width. Flexible hose shall not be used where it could be subjected to temperatures above 50°C.***
7.13.1	Visually check distribution hose conforms to type 2 of BS 3212, or BS EN 1763-1 and 1763-2 [Class 2 or 3 for low pressure side, Class 3 or 4 for high pressure side]. Visually check hose for signs of : • leaks; • flaws; • brittleness; • cracking; • abrasion; • kinking; • joins.
7.13.2	Visually check all hose is of minimum practicable length. Determine by measurement length does not exceed 1 m.
7.13.3	Visually check all hoses are readily accessible.

7.13.4 Visually check hose is not installed:

- under stress;
- with tight radius turns.

7.13.5 Identify all hose passing through bulkheads, partitions, deck-heads, or decks and visually check there is a means of protecting them from abrasion.

7.13.6 Identify flexible hose used in low pressure applications and visually check the flexible hose connection:

- is a pre-assembled length fitted with integral threaded metallic ends; or

- is secured to nozzles by metal crimped clips or worm drive hose clamps

Visually check hose clips and clamps for:

- security;
- corrosion;
- damage or deterioration;
- missing components;
- movement;
- freedom from burrs, rough edges;
- over-tightening.

7.13.7 Visually identify hose clamps fixed by spring tension only. These are not permitted.

7.13.8 Visually check clips and clamps for:

- security;
- over sizing causing pinch points;
- under-sizing causing rack not to fully be engaged.

Determine by measurement all clips and clamps are at least 8mm in width.

7.13.9 Visually and manually check hose for signs of heat damage or deterioration.

Standard 7.14	***Flexible hose conforming to Standard 7.13 shall be used as the appliance connector between portable appliances and their isolation valves. Flexible hose shall be connected to the isolation valves by means of a bayonet, plug-in or screwed connection. Pipework to portable appliances fitted with a screwed connection shall be properly plugged or capped when the appliance is not connected.***
7.14.1	Identify any portable appliance and check hose connection to isolation valve is made with a bayonet, plug-in or screwed fitting. Visually check bayonet, plug-in or screwed fitting for: • corrosion; • damage or deterioration.
7.14.2	Identify unused control point for portable appliance. Identify whether the control point has a screwed connection and if so visually check it is properly plugged or capped.

Standard 7.15	***Self-contained portable gas appliances having the burner screwed direct to the cylinder or container shall be stored in a cylinder locker or cylinder housing when not in use. Self-contained portable gas appliances shall not be used whilst unattended on board any vessel.***
7.15.1	Identify self-contained portable appliance. Visually check any self-contained portable appliances are stored in a cylinder locker or cylinder housing.

Standard 7.16	***Installation pipework shall be accessible, run as short as practicable particularly between the cylinder(s) and the highest rated appliance(s) and be as high as practicable within the hull, preferably at gunwale level. Pipework shall be rigidly secured with fixing clips spaced no more than 500 mm apart. Pipework shall be routed, or otherwise protected, to minimise the possibility of damage and where pipework penetrates bulkheads or walls it shall be protected from damage by sleeves, grommets or bulkhead fittings.***
7.16.1	Visually check installation pipework is accessible.
7.16.2	Where readily accessible visually check pipework takes shortest route between cylinders and appliances.
7.16.3	Where readily accessible visually check pipework is as high as possible in relation to gunwale level.
7.16.4	Where readily accessible visually and manually check pipe is secure. Visually check fixings for signs of: • corrosion; • damage or deterioration; • missing components. Determine that the fixing clips are spaced approximately 500 mm apart. Note that adhesive is not permitted as securing device

7.16.5 Where readily accessible visually check pipework for any signs of damage.

7.16.6 Identify pipework passing through metal bulkheads or walls and where readily accessible visually check it is protected by the use of sleeves, grommets, or bulkhead fittings.

Identify pipework passing through bulkheads or walls made of other material and where readily accessible visually check for signs of abrasion damage.

Manually check the pipe and associated fittings for movement.

Standard 7.17	***Installation pipework shall not run below bilge water level or in contact with any material that could cause corrosion. Pipework shall not pass through petrol engine spaces or spaces dedicated to electrical equipment (including batteries), unless jointless and enclosed in a gas-proof conduit.***
7.17.1	Visually check position of pipework is above bilge water level.
7.17.2	Visually check pipework for signs of corrosion.
7.17.3	Visually check pipework passing through petrol engine space is contained in gas proof conduit. Visually check the conduit to determine: • the ends are outside the petrol engine space • there are no joints in the conduit • no pipework joints are obviously present within the conduit
7.17.4	Visually check pipework passing through space dedicated to electrical equipment is contained in gas-proof conduit. Visually check the conduit to determine: • the ends are outside the space dedicated to electrical equipment; • there are no joints in the conduit; • no pipework joints are obviously present within the conduit.

Standard 7.18	***Installation pipework shall not pass through ventilation or air conditioning ducts and shall not be exposed to leakage from water services. Installation pipework shall be remote and/or insulated from, and shall not pass through the same duct as, electricity or telecommunication services and shall be separated from electrical cables not in a conduit by at least 30 mm. Installation pipework shall not be situated less than 75 mm from exhaust pipes.***
7.18.1	Identify any ventilation or air conditioning duct and visually check for pipework entering or leaving the duct.
7.18.2	Visually check that no pipework is exposed to leakage from water services. Visually check pipework for any signs of damage or deterioration.
7.18.3	Identify any duct containing electricity or telecommunication services and visually check for pipework entering or leaving the duct.
7.18.4	Determine by measurement that the pipework is separated by at least 30 mm from electrical cables not in a conduit.
7.18.5	Determine by measurement that the pipework is separated from any exhaust pipe by at least 75 mm.

Standard 7.19	***Joints shall be made with compression fittings. (NOTE: For stainless steel and copper alloy pipework screwed fittings are acceptable). Soldered joints shall not be used. Joints shall be readily accessible. Joints shall be rigidly secured and fixing clips shall be attached no more than 150 mm from each joint connection. Joints shall be made at a point where stress is minimised. The number of pipe fittings and joints shall be kept to a minimum.***
7.19.1	Visually check each joint is made as follows: • copper pipework - compression fittings; • stainless steel or copper alloy pipework – compression or screwed fittings.
7.19.2	Visually check all joints are readily accessible.
7.19.3	Manually check each joint for movement. Determine by measurement that fixing clips are attached no more than 150 mm from each joint connection.
7.19.4	Visually check for joints made at points of stress: • pipes entering joints/fittings at abnormal angles; • joints/fittings introduced at pipe bends or curves.
7.19.5	Visually check for presence of unnecessary joints.

Standard 7.20	***Appliance isolation valves shall be installed in the supply line to each appliance, including portable appliances, and shall be readily accessible.*** ***(NOTE 1: see paragraph 11.24.)*** ***(NOTE 2: if there is only one appliance the main shut-off valve is sufficient unless the appliance is a portable appliance)***
7.20.1	For installations comprising more than one appliance, visually check each appliance for presence of an isolation valve in the supply line.
Exemption 11.24	***Vessels manufactured prior to 3 January 2000 are not required to comply with the requirements of Standard 7.20 unless the appliance is connected with flexible hose.***
7.20.2 [Exemption 11.24]	Visually check each appliance connected by a flexible hose has an isolation valve in the supply line. Determine that any appliance connected by rigid metal pipe that does not include an isolation valve in the supply line was installed before 3 January 2000.
7.20.3	Identify any portable appliance or the supply line used for a portable appliance. Visually check each supply line for a portable appliance is fitted with an isolation valve.
7.20.4	Visually check each appliance isolation valve is readily accessible.

Standard 7.21	***Appliance isolation valves not situated immediately adjacent to appliances shall clearly indicate which appliance they serve. If valves operate by rotation, closing shall be clockwise. "Open" and "closed" positions shall be clearly marked on or adjacent to all valves. Tapered plug valves shall be spring loaded. Needle valves shall not be used. Valves at floor level shall be located to prevent inadvertent operation, or shall be of the drop fan or loose key type. Pipework to appliances permanently removed or removed for servicing shall be properly plugged or capped. Isolation valves alone shall not be used for this purpose.***
7.21.1	Identify any appliance isolation valves not immediately adjacent to the appliance served and visually check there is a clear indication of which appliance is controlled.
7.21.2	Confirmation that an appliance isolation valve is closed by clockwise rotation is not checked
7.21.3	Visually check that the open and closed positions are clearly marked on or adjacent to each appliance isolation valve unless these positions are evident by design.
7.21.4	Identify any tapered plug valves and visually check they are spring loaded.

7.21.5 Visually check for presence of any needle valves. Needle valves are not permitted.

7.21.6 Identify any appliance isolation valves at floor level not of the drop fan or loose key type and visually check they cannot be operated inadvertently.

7.21.7 Identify any pipework to an appliance that has been permanently removed and visually check it has been properly plugged or capped.

Standard 7.22 ***A means to determine the gas system is sound shall be fitted by either having:***

i) ***a readily accessible test point on appliances where a test gauge may be attached without dismantling any part of the appliance with the use of tools; or***

ii) ***a readily accessible approved test point fitted in the pipework; or***

iii) ***a bubble tester installed in the cylinder locker.***

(NOTE 1: Information regarding the tests employed to check the soundness of a gas system is contained within BS 5482-3 and the Boat Safety Scheme Technical Manual).
(NOTE 2: Operators of hire/charter vessels and houseboats are reminded that they are subject to the Gas Safety (Installation and Use) Regulations which deal with safe installation, maintenance and use of gas systems).

7.22.1 Visually check for a means to determine gas soundness by any one of the following:

- a readily accessible test point on an appliance
- a readily accessible approved test point fitted in the pipework;
- a bubble tester installed in a cylinder locker.

7.22.2 Determine by carrying out soundness test as appropriate there are no leaks in the system.

Where the test cannot be conducted or is discontinued for any reason, a failure is to be recorded at 7.1.1 not here.

A leak in the system is a dangerous situation and the actions described in the Appendix at A & B are to be taken

Examination Checking Procedures – Part 8
Appliances, flueing & ventilation

Standard 8.1 ***The fuel installation to each appliance shall be in accordance with the appropriate parts of these Standards.***

8.1.1 For each appliance, identify the type of fuel and determine compliance with appropriate Standards as follows:

LPG	-	Part 7 : LPG installations;
Electricity	-	Part3 : Electrical installations;
Fuel oils	-	Part 2: Inboard engines.

Standard 8.2 ***LPG Appliances shall be room sealed with the exception of cooking appliances. (NOTE: see paragraph 11.25).***

LPG appliances shall include a test fitting. (NOTE: see paragraph 11.26).

A satisfactory flame picture shall be present at each appliance burner when all appliance burners in the system are operating at maximum rate.

8.2.1 Identify all non-cooking LPG appliances and visually check they are room-sealed.

Exemption 11.25

Vessels manufactured prior to 3 January 2000 and having non-room sealed appliances are not required to comply with that part of Standard 8.2 which requires LPG appliances, with the exception of cooking appliances, to be room sealed provided the following requirements are complied with:

i) ***Replacements for existing non-room sealed appliances, with the exception of cooking appliances, shall be room sealed and installed in accordance with BS 5482-3 and Parts 7 and 8 of these Standards as appropriate.***

ii) ***Modifications or additions to an existing installation shall be performed in accordance with the appliance manufacturer's recommendations.***

iii) ***Pilot lights and burners on LPG or paraffin refrigerators installed in vessels with a petrol engine shall be completely enclosed. Combustion air and combustion products shall be drawn and exhausted through a suitable flame trap, or combustion air piped to the appliance from outside the vessel or from a point inside the vessel above the level of the windows, other openings, or other means of ventilation in the accommodation space.***

iv) ***Catalytic type appliances shall conform to BS 5258-11 or BS EN 449.***

v) ***The flues and draught diverters of existing appliances shall be of a type approved by the manufacturer, and properly fitted and maintained. Flues shall be of suitable material, effectively insulated, and of appropriate internal diameter to ensure safe transfer of gases to outside the vessel, away from areas that could be enclosed by canopies. Appliances designed for use exclusively with a flue, or draught diverter and flue, shall have one fitted. Only the flue supplied or recommended by the manufacturer shall be used with refrigerators flued to the outside.***
(Note 1: Information regarding the test employed to check the effectiveness of any flue is contained within BS 5482-3 and the Boat Safety Scheme Manual).

8.2.2 [Exemption 11.25]	Exemption available for non-room-sealed LPG appliances fitted before January 2000 provided no faults are recorded in 8.2.2 (a) to 8.2.2 (l) inclusive as relevant.
8.2.2(a) 11.25 (i)	Visually check that no non-room sealed LPG appliances were installed after 3 January 2000. Note that this check does not apply to instantaneous water heaters and cooking appliances.
8.2.2(b) 11.25 (ii)	Visually check for evidence that additions or modifications to an existing installation were made after 3 January 2000. Check additions or modifications were in accordance with appliance manufacturer's recommendations or acceptable documentary evidence. Where these recommendations are not available, alternative documentary evidence may be required.
8.2.2(c) 11.25(iii)	Identify gas or paraffin refrigerator in a petrol engined vessel and visually check burner is totally enclosed. A fault is to be recorded if the burner assembly is not visible.
8.2.2(d) 11.25 (iii)	Identify gas or paraffin refrigerator in a petrol engined vessel. Visually check the method of air intake and exhaust and visually check a suitable flame trap is fitted if required. Visually compare flame trap gauze with sample to determine suitability. A fault is to be recorded if the method of intake and exhaust cannot be determined.

8.2.2(e)
11.25(iii)

Identify gas or paraffin refrigerator in a petrol engined vessel. Identify installation where combustion air is not drawn through a suitable flame trap and visually check the air is piped to the appliance:

- from outside the vessel; or
- from a point inside the vessel above the level of windows, other openings, or other means of ventilation in the accommodation space.

8.2.2(f)
11.25(iv)

Identify catalytic heater and check compliance with those requirements of BS 5258-11 or BS EN 449 that can be determined by visual inspection.

For BS 5258-11 check:

1. Provision of a guard
2. Three position on-off tap
3. Name badge
4. Flexible tubing to 3212

For BS EN 449 check:

1. Legible and durable marking of open, closed and any reduced rate positions on control taps
2. Clear marking of any special position of the control tap for ignition
3. Provision of a fire guard

8.2.2(g)
11.25(v)

Determine each flue/draught diverter is of a type approved by the manufacturer.

Where this cannot be determined visually and manually check the flue system:

- is complete
- not obstructed
- serves only one room or appliance
- has a correctly sited terminal

Note that this check also applies to solid and liquid fuelled appliances.

8.2.2 (h)
11.25(v)

Visually and manually check all parts of the flue system, including fixings and fastenings, for signs of:

- movement;
- damage or deterioration;
- perforations;
- corrosion.

Visually and manually check terminals, including fixings and fastenings, for signs of displacement or damage.
Visually check flue for signs that all joints are sealed.

Note that this check also applies to solid and liquid fuelled appliances.

8.2.2 (i)
11.25(v)

Visually check flue is:

- made of a suitable material;
- not perforated in any way.

Note that this check also applies to solid and liquid fuelled appliances.

8.2.2(j)
11.25(v)

Visually check any part of the vessel, its equipment, or furnishing materials adjacent to the flue for signs of overheating e.g. scorching or blistering.

Note that this check also applies to solid and liquid fuelled appliances.

8.2.2(k)
11.25(v)

Carry out a flue spillage test on all flues connected to open flued appliances as described in the Appendix at F.

[If the flue terminates in an area that could be enclosed by a canopy, do not carry out the spillage test but do record a failure here.]

Continuous smoke spillage is a dangerous situation and the examiner is to take the action described in the Appendix at B for a fault which requires the gas supply to the appliance to be disconnected.

8.2.2(l)
11.25(v)

Visually check a flue or draught diverter and flue is fitted to an appliance designed exclusively for use with one.

Note that this check also applies to solid and liquid fuelled appliances.

8.2.3

At present, no check is being made during the Boat Safety Scheme examination for the presence of a test fitting on an appliance.

Exemption 11.26 ***Vessels manufactured prior to 3 January 2000 are not required to comply with that part of Standard 8.2 which requires LPG appliances to include a test fitting.***

8.2.4 [Exemption 11.26] At present, no check is being made during the Boat Safety Scheme examination for the presence of a test fitting on an appliance.

8.2.5 Confirm that all burners in the system are lit and operating at maximum rate. Visually check a satisfactory flame picture is present at each burner. If the regulator is:

- not operating correctly
- more than 10 years old
- marked in imperial units

Also take the actions described in Appendix A & B for Fault 8.2.5.

The LPG Warning Notice should include a note about the performance or age of the regulator as appropriate.

Standard 8.3 ***Appliances shall be properly installed and in accordance with the manufacturer's recommendations for installation in vessels. Appliances shall be secured against accidental movement and connected so that there is no undue stress on pipework and fittings. Pipework shall not be used to retain the appliance. LPG and fuel oil appliances shall not be installed in petrol engine spaces. Appliances shall be situated in sufficient space, as instructed by the manufacturer, to prevent overheating of nearby surfaces. (NOTE: see paragraph 11.27).***

8.3.1 Determine each appliance is installed in accordance with manufacturer's instructions for installation in vessels.

Where these instructions are not available or do not relate to installation in boats visually and manually check for:

- signs of scorching, blistering or discolouration;
- signs of rubbing or abrasion;
- not level side to side and/or front to back;
- signs of fuel leakage;
- dirty air vents
- signs of smoke or soot deposits
- secured i.e. incapable of movement in any direction unless in gimbals
- not set flush unless so designed

Exemption 11.27 ***Vessels manufactured prior to 3 January 2000 and having woodwork and all other combustible materials including curtains adjacent to all appliances suitably insulated and protected against excessive heat or inherently flame retardant, or treated with a durable flame retardant are not required to comply with that part of Standard 8.3 which requires appliances to be situated in sufficient space, as instructed by the manufacturer, to prevent overheating of nearby surfaces.***

8.3.2 [Exemption 11.27] It is impossible to verify whether materials and surfaces have been treated with flame retardant so the check is for damage.

Visually check that no surface near to the appliance shows signs of overheating such as:

- scorching;
- blistering;
- discoloration;
- smoke or soot marking.

8.3.3 Manually check all appliances, including cooking appliances, are incapable of unintended movement in any direction.

8.3.4 Visually check that appliance is connected to minimise stress on supply pipework and fittings.

8.3.5 Visually check no LPG or fuel oil appliance is installed in a petrol engine space. These appliances must be installed in a separate compartment.

Standard 8.4 ***Cooking appliances (and gimbals, if fitted) shall be securely installed. Gimballed cooking appliances shall be secure at all angles of heel. Materials in the vicinity of cooking appliances shall be non-combustible or protected with a finish of class 1 surface spread of flame rating as specified in BS 476-7. Combustible materials and materials without a class 1 surface spread of flame rating shall not be placed within the following distances of cooking appliances: (NOTE: see paragraph 11.28)***

i) ***400 mm above the cooking appliance, for horizontal surfaces when the vessel is upright;***

ii) ***200 mm above the cooking appliance, for horizontal surfaces when the vessel is heeled to 30°;***

125 mm horizontally from the cooking appliance, for vertical surfaces.

Curtains and other suspended textile materials shall not be fitted within 600 mm of a cooking appliance. (NOTE: see paragraph 11.28)

8.4.1 Visually check the mounting assembly retains any gimballed cooking appliance.

8.4.2 Visually examine all materials in the vicinity of a cooking appliance for signs of overheating as described in 8.3.1.

8.4.3 Determine by measurement all combustible and unprotected materials are not placed within the specified distances from a cooking appliance.

Exemption 11.28	***Vessels manufactured prior to 3 January 2000 and having woodwork and all other combustible materials including curtains adjacent to all appliances suitably insulated and protected against excessive heat or inherently flame retardant, or treated with a durable flame retardant are not required to comply with the distance measurements applied to combustible materials and materials without a class 1 surface spread of flame rating, or the distance measurements applied to curtains and other suspended textile materials, in Standard 8.4.***
8.4.4 [Exemption 11.28]	Visually check that no surface near to the appliance shows signs of overheating such as: • scorching • blistering • discolouration • smoke or soot marking
8.4.5	Determine by measurement all curtains and other suspended textile materials are more than 600 mm from any cooking appliance.
8.4.6 [Exemption 11.28]	Visually check that no curtains in the vicinity of a cooking appliance show signs of overheating such as: • scorching; • discoloration; • smoke or soot marking.

Standard 8.5	***Appliance burners, ignition burners and pilot lights shall be fitted with flame supervision devices that completely close the LPG or fuel oil supply.*** ***(NOTE: see paragraph 11.29).***
8.5.1	Identify each appliance burner, ignition burner, or pilot light and visually check it is fitted with a flame supervision device. The operation of the device is not checked
Exemption 11.29	***Vessels manufactured prior to 3 January 2000 are not required to comply with Standard 8.5 which requires a flame supervision device to be fitted to all appliance burners provided that such devices are fitted to all:*** • ***catalytic type appliances*** • ***appliances with a pilot light*** • ***appliances with a continuously burning flame***
8.5.2 [Exemption 11.29]	Identify all appliances of the types listed in the exemption and visually check a flame supervision device is fitted to all burners.

Standard 8.6 ***The water inlet to any instantaneous water heater shall be piped only from the vessel's cold water system.***

8.6.1 Visually and manually follow the route of the inlet pipe from any instantaneous water heater until a direct connection to the cold water supply of the vessel is established.

Standard 8.7 ***Fuel oil appliances shall have a valve or cock to shut off the fuel supply in a readily accessible position within the same compartment as, but at a safe distance from, the appliance(s).***

8.7.1 Identify any fuel oil appliance and visually check for presence of valve or cock used to shut off the fuel supply.

8.7.2 Visually check each valve or cock is readily accessible

8.7.3 Visually check the valve or cock is located in the same compartment as the appliance.

8.7.4 Visually check the valve or cock is at a safe distance from the appliance.

Standard 8.8 ***Flue components on room sealed appliances, including ductwork and terminals, shall be installed in accordance with the appliance manufacturer's recommendations for installations in vessels. Flue terminals and air inlets shall not be positioned within 500 mm of a ventilator, opening port, hatch, window, refuelling fitting, or fuel tank vent outlet. Flues and flue terminals shall ensure safe transfer of gases to outside the vessel, away from areas that could be enclosed by canopies and in a position that minimises the risk of accidental damage.***
(NOTE 1: Information regarding the test employed to check the effectiveness of any flue is contained within BS 5482-3 and the Boat Safety Scheme Technical Manual).
(NOTE 2: The flueing arrangements on existing appliances are covered in paragraph 11.25(v)).

8.8.1 Determine the flue of any room sealed appliance is installed in accordance with manufacturer's recommendations for installation in vessels or equipment/component manufacturer's instructions or appropriate codes of practice.

Where this cannot be determined, visually and manually check the flue components:

- are complete
- serve only one appliance

8.8.2 Determine the room-sealed appliance was installed after 3 January 2000.

Determine by measurement flue terminals/air inlets are not positioned within 500 mm of any:

- ventilator;
- opening port;
- hatch;
- window;
- refuelling fitting;
- fuel tank vent outlet.

8.8.3 Visually check in the vicinity of the flue for signs of leaking flue gases such as:

- heat damage
- smoke damage
- soot deposits

With the appliance working and taking great care, manually check that flue gases are not issuing from any part of the flue into the interior of the boat.

The leaking of combustion products into the interior of the vessel is a dangerous situation and the examiner is to take the action described in Appendix B for a fault that requires the gas supply to the appliance to be disconnected.

8.8.4 Visually check the flue terminal of any room-sealed appliance is outside the vessel.

Visually check is away from areas that could be enclosed by canopies.

8.8.5 Visually check the flue terminal any signs of physical damage.

Visually check flue pipes and flue terminals of any room-sealed appliance for signs of:

- damage;
- crushing or distortion.

Standard 8.9 ***Adequate fixed ventilation shall be provided in accordance with the requirements of BS 5482-3 in vessels in which LPG or other fuel appliances are used.***
(NOTE: Ventilators should be weathertight to cater for the worst conditions likely to be encountered. Vessels which regularly proceed to sea and would likely experience severe weather conditions may have ventilators which can be closed to prevent the ingress of water in such conditions).

On sea going vessels equipped with closeable ventilators a warning notice shall be attached on or near to all non-room sealed appliances. The wording of the notice should state:

"WARNING - Open ventilator(s) before use"

8.9.1 Calculate the ventilation requirements in accordance with Annex B of BS 5482-3.

Determine by measurement and calculation the effective area of fixed ventilation.

Confirm that the effective area is divided equally between high and low level vents.

No ventilator that can be closed without the use of tools must be included in the calculations unless the 'note' in Standard 8.9 applies.

Where ventilation deficiencies are assessed take the action described in Appendix A.

8.9.2 Where the 'note' in Standard 8.9 applies.

Visually check for presence of warning notice on or near to all non-room sealed appliances.

Visually check warning notice reads *"WARNING - Open ventilator(s) before use"*.

Where ventilation deficiencies are assessed and notices are not placed take the action described in Appendix A.

Examination Checking Procedures – Part 9
Pollution

Standard 9.1 ***No sanitation system capable of discharging sewage overboard shall be fitted in any vessel unless it is capable of being sealed or rendered inoperable. Sanitation systems shall comply with the requirements of BS MA 101. [see paragraph 11.20]***

9.1.1 Visually identify sanitation system capable of discharging sewage overboard.

Surveyors/examiners must make a note in their own records of the type of system installed (if any). No further action is necessary.

9.1.2 At present, compliance with BS MA 101 or ISO 8099 will not be checked during the Boat Safety Examination.

Examination Checking Procedures – Part 10
Hire boats & unregulated passenger boats

Note: Part 10 is no longer mandatory for new private craft

Standard 10.1	***At least one lifebuoy shall be carried on each vessel in a readily accessible position.***
10.1.1	Visually check that at least one lifebuoy is carried
10.1.2	Visually check that at least one lifebuoy is carried in a readily accessible position
Standard 10.2	***Where there are walkways, handrails of adequate strength shall be fitted where practicable for the full length of all cabin tops, or guard-rails shall be fitted around the perimeter of the deck.***
10.2.1	Visually check that hand/guardrails are fitted where required

10.2.2 Manually check all rigid handrails and guardrails for movement

Manually check the supports or stanchions of all flexible guardrails for movement.

Visually check all handrails and guardrails, including supports, fixings, and fastenings for signs of:

- corrosion
- fracture
- damage or deterioration

10.2.3 Visually check length of handrails and guardrails in relation to area to be protected.

Standard 10.3 ***Every opening in the hull of a vessel above the normal laden water-line (including those used as intakes or outlets for air for engine cooling purposes) shall be so positioned that its lowest point is not less than 250mm (10 ins) above the normal laden water-line of the vessel, unless such openings are permanently and securely connected to ducts or pipes which are watertight up to that level.***

i) Self draining cockpits are not required to comply with the 250mm height requirement of this Standard so long as effective arrangements are made to minimise the ingress of water into other parts of the hull by incorporation of non return valves in the drains and/or by provision of bulkhead(s) or sill(s) to a height of 150mm.

A weed hatch if fitted shall have a cover at least 150mm (6") above the normal laden water-line and shall be watertight when secured.

10.3.1 Measure height of all hull openings.

For any opening less than 250mm above n.l.w.l, visually and manually check, where possible, that
a duct or pipe is fitted and the routing of the duct or pipe takes it to a height not less than 250mm above the n.l.w.l. The duct or pipe must be
permanent and secure and there must be no signs of leaks at connections or in the immediate vicinity

10.3.2 Identify self draining cockpit and determine height above waterline.

If height less than 250mm, visually check for presence of non-return valves in scuppers

If non-return valves are not fitted, measure height of any sill(s) and bulkhead(s) and confirm height is at least 150mm above the level of the cockpit deck.

10.3.3 Identify presence of weed hatch and, if present, verify that cover is watertight and is at least 150mm 6" above normal waterline.

10.3.4 Visually check weed hatch cover for signs of damage and deterioration to:

- fastenings including any nuts and bolts
- gaskets

Standard 10.4	***Every opening in the hull of a vessel below the normal laden water-line provided for use as an intake for water shall be fitted with an adequate valve or cock directly adjacent to it and be readily accessible for immediate use.***
10.4.1	Visually and/or manually check for presence of valve or cock.
10.4.2	Visually and/or manually check that cocks or valves fitted to hull openings below the waterline are readily accessible.

Standard 10.5	***Instructions prohibiting the blocking of ventilators shall be inscribed on permanent labels prominently displayed on board the vessel.***
10.5.1	If ventilators are required and fitted visually check presence of permanent labels.
10.5.2	Visually check that labels are prominently displayed in relation to ventilators.

Standard 10.6 ***All port lights, side scuttles, windows, and interior glass partitions shall be safety glass to BS 952 Part 1 or of suitable acrylic or polycarbonate material.***
[see paragraph 11.21]

10.6.1 Visually check all glass for presence of marking to indicate use of safety glass to one of the standards listed below, or an equivalent or higher standard.

Examples of acceptable standards are:
BS MA 24; BS MA 25; BS 857; BS 952; BS 6206

[see Exemption 11.21]

10.6.2 At present, the use of suitable acrylic or polycarbonate materials is not being checked
[see Exemption 11.21]

Exemption 11.21 ***Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 10.6 which requires safety glass to BS 952 Part 1 or suitable acrylic or polycarbonate material to be fitted providing that all existing vessels with non safety glass are protected by the use of suitable stick on film by 16 June 2000 or the first Boat Safety Certificate examination after this date***

10.6.3 [Exemption 11.21] It is not possible by visual examination to determine the nature or suitability of the stick-on material used. However, to be effective and provide the protection implied in this exemption the applied film must:

- be free from any defect,
- in total contact with the glass - no "bubbles" etc
- completely cover the glass surface and
- show no signs of lifting at the edges and corners

Standard 10.7 ***Unpowered hotel boats not carrying fuel nor fitted with cooking, heating, refrigerating or lighting appliances shall comply with the requirements of Standard 6.1 as if they were a powered vessel.***

10.7.1 Identify unpowered hotel boat carry out checks 6.1.1 to 6.1.8 inclusive.

Standard 10.8 ***All manually propelled vessels or sailing vessels not carrying fuel nor fitted with cooking, heating, refrigerating, or lighting appliances are not required to comply with the standards as defined.***

Appendices

Appendices

APPENDIX A.

FAULTS REQUIRING A LPG WARNING NOTICE TO BE ISSUED

1. If a failure is recorded for any faults where the examiner judges there is a possibility that continued use of the installation or appliance could create a risk to persons or property the following action must be taken.

2. Explain to the owner[1] the risks involved in continued use of the installation or appliance and the need for the fault(s) to be rectified by a competent person.

3. Complete the BSS LPG Warning Notice (WN).

4. Hand 2 copies of the WN to the owner at the same time as the owner's copies of the BSS Certificate. Advise the owner to leave one copy of the WN displayed in a prominent position on board the boat.

[1] Or the owner's representative

APPENDIX B

FAULTS REQUIRING GAS SUPPLY TO INSTALLATION OR APPLIANCE TO BE TURNED OFF

1. The examiner is to take the additional actions detailed below if a failure is recorded for any of the following faults:

    - 7.22.2
    - 8.2.2 (k)
    - 8.8.3

2. Explain to the owner the risks or dangers and why the gas supply to the installation or appliance should be immediately turned off.

3. Inform the owner that the installation or appliance should not be used until a competent person rectifies the fault(s).

4. Request the owner to turn off the gas supply at cylinder(s), main shut-off valve(s), or the appliance as appropriate and replace any protective caps or plugs to the cylinder connections.

5. Where the gas supply has been turned off by means of the main shut-off valve or the appliance isolation valve, secure the valve in the closed position by means of adhesive warning tape.

6. Secure a LPG Warning Label in a prominent[2] position on or near the main shut-off valve or appliance as appropriate.

ADDITIONAL REPORTING ACTIONS

[2] A prominent position is one where the label will immediately catch the attention of anyone wishing to turn on the gas supply or operate the appliance.

Where the boat is located at any mooring, marina, or basin operated by a third party, notify the person responsible for those moorings of the situation, and the action taken, by the quickest means available. Notify the Manager of the Boat Safety Scheme by the quickest means available.

In the extreme combined circumstances that the gas supply could not be disconnected AND the person responsible for the moorings OR the Manager of the Boat Safety Scheme could not be contacted, then contact the relevant navigation authority by the quickest means available. If necessary by using emergency contact telephone numbers.

IMPORTANT: DISCONNECTING HEATING SYSTEMS

Examiners should take particular care if the action taken results in the disconnection of the heating systems on boats with people living on board in cold weather.

In extreme cases e.g. where there are elderly, young or disabled people on board, it may be necessary for the owner to notify Social Services, or other authorities, or friends or family so that alternative sources of heat can be provided.

APPENDIX C

LPG INSTALLATIONS SOUNDNESS TESTING USING A MANOMETER (U-GAUGE)

C.1 PREPARATIONS

1. Examine high pressure stage components before opening cylinder valves
2. Test high pressure stage components with leak detection fluid
3. Check for presence of main shut-off valve after the regulator
4. Close main shut-off valve (if fitted). If not present, turn off supply at the cylinder(s)
5. Turn off all appliances

C.2 CONNECTING "U" GAUGE

1. Zero "U" gauge
2. Connect "U" gauge to test fitting

C.3 TEST PROCEDURE: LET BY TEST

1. Gradually turn on main shut-off valve
2. Note regulator lock up pressure (see BS 5482-3 Table D.1)
3. Close main shut-off valve
4. Light one appliance and let pressure fall to 5 mbar
5. Close appliance tap
6. Leave for 5 min for stabilisation and record the reading on the "U" gauge
7. Note reading and leave for a further 5 min

8. Record reading on "U" gauge
9. Any rise in the reading indicates let by from the main shut off valve

C.4 TEST PROCEDURE: PIPEWORK LEAKAGE

1. Ensure all appliances and main shut-off valve turned off and appliance isolation valves left on
2. Turn on main shut-off valve and allow system to reach lock up pressure
3. Close the main shut-off valve
4. Light one appliance burner and allow pressure to fall to 30 mbar (propane) and 20 mbar (butane)
5. Close appliance tap and isolation valve
6. Leave for 5 min for stabilisation and record pressure in "U" gauge
7. Identify rise in pressure reading indicating main shut off valve let by has developed
8. Leave for a further 5 min and record pressure in "U" gauge.
9. There must be no discernible pressure drop in the system

C.5 POST-TEST PROCEDURE

1. Release pressure in system by lighting an appliance burner
2. The opportunity should now be taken to light all appliance burners to carry an assessment of all flame pictures as required at 8.2.5 and a check on any flue required by 8.2.2(k) and 8.8.3.
3. When these tests have been completed and the burners turned off, turn off gas supply at main valve and disconnect the "U" gauge
4. Replace test nipple & test fitting using leak detection fluid

APPENDIX D

LPG INSTALLATIONS SOUNDNESS TESTING USING A BUBBLE TESTER

D.1 TEST PROCEDURE

1. Turn on gas supply at main shut-off valve if fitted, otherwise turn on cylinder valves

2. Check all joints and connections between the cylinders and the tester with leak detection fluid.

3. Turn off all appliances but ensure appliance isolation values are open.

4. Operate the tester in the "test" mode as prescribed by the manufacturer

5. If bubbles appear as specified in the operating instructions, there is a leak in the system

6. Return the tester to normal operation mode.

APPENDIX E

FLUE SPILLAGE TEST – Open flued appliances

Note: this check is carried out where there are no manufacturer's recommendations available for testing the flue.

E.1 PREPARATIONS

1. Visual inspection of appliance

2. Close all doors, windows, adjustable ventilators

3. Turn off any extractor fans in the same or adjoining compartments

4. Light the appliance and allow a 5 min warm up period before starting the test

5. Fix a smoke match into a smoke match holder

Note: If the flue passes this check it will be re-tested with these fans operating. See below at E.3.

E.2 TEST PROCEDURE

1. Light the smoke match.

2. The match is lit and held 5-10mm inside the lower lip of the draught diverter or inside the edge of the canopy or smoke hood in the case of a closed flue appliance.

3. The match is moved to encompass as much of the draught diverter or canopy/smoke hood as possible

4. All smoke should be drawn into the flue and removed to the outside air. Any temporary or momentary back-spillage may be discounted.

5. If continuous smoke spillage occurs allow a further warm up period of 10 min and recheck as described above.

E.3 RE-TEST WITH ANY EXTRACTOR FANS IN THE SAME OR ADJOINING COMPARTMENTS OPERATING

1. Switch on any fan(s). If there is a fan in an adjoining compartment it should be operated with the connecting doors open.

2. CARRY OUT RE-TEST AS DESCRIBED ABOVE.

3. All smoke should be drawn into the flue and removed to the outside air.

4. ANY TEMPORARY OR MOMENTARY BACK-SPILLAGE MAY BE DISCOUNTED.

E.4 POST-TEST PROCEDURE

Turn off the appliance and return the system to its pre-test condition.

Appendix F

Plastic Fuel Tanks

Set out below is updated BSS information note 1A concerning permanently installed plastic fuel tanks which supersedes Information Sheet No 1 dated 21 July 1998.

Please read this information carefully.

All fuel tanks, intended for use in recreational craft within the scope of the Recreational Craft Directive, (voluntary from 16 June 1996 and mandatory from 16 June 1998), which are placed on the Community/EEA market, must meet the essential requirements of that Directive and must bear the CE marking of conformity. It should be noted that 'CE' marked products and components enjoy free circulation within Europe given the intended purpose, restrictions on the use and installation requirements provided by the manufacturer.

PERMANENTLY INSTALLED PLASTIC FUEL TANKS

1. In the case of plastic fuel tanks, 'CE' marking to the Recreational Craft Directive (RCD) (94/25/EC) indicates that the product complies with the essential safety requirements of that Directive and accordingly the product has had the 'CE' marking affixed by the manufacturer or his authorised representative.

Note 1 **CE** marking of fuel tanks may be affixed to the tanks, or on its packaging, or on both.

2. Plastic fuel tanks, including 'CE' marked tanks, may also be marked by the manufacturer with the standard or code to which it was constructed provided that this does not mislead third parties with regard to the meaning or form of the CE marking (or reduce its

visibility and legibility), although construction to a standard or code is not the only method whereby a manufacturer might demonstrate compliance of the product with the RCD.

Note 2 *Most standards or codes relating to fuel tanks include a clause requiring the product to be marked with the manufacturer's details, fuel type(s) for which the tank is suitable, design capacity, test pressure and the standard or code number.*

For example: *The* US Coast Guard Code of Federal Regulations (CFR) Part 183.510 of 33 CFR, subpart J is one such code. Conformity with this code can be determined by a visual inspection of the tank manufacturer's plate that should make reference to the CFR Part 183.510 or any of the following voluntary codes:

American Boat and Yacht Council (ABYC) H24 and H33. (N.B. H33 refers to diesel systems and stipulates the same procedures as for petrol systems).

American National Standards Institute/Underwriters Laboratories (ANSI/UL) 1102.1991.

National Fire Protection Association (NFPA) fire protection standard for pleasure and commercial motor craft - NFPA 302.

National Marine Manufacturers Association (NMMA) specification.

3. Where there is no 'CE' marking or other markings or documentation providing guidance to the tanks suitability for the fuel used, or where there is an indication that the 'CE' marking relates to a Directive other than the RCD, then advice should be sought from

the manufacturer or distributor as to its suitability for the intended purpose.

Note 3 *Alternatively, the Boat Safety Scheme may already have such information and advice can be sought from the BSS office particularly as new appropriate standards or codes are published from time to time.*

4. All plastic fuel tanks outside the scope of the RCD, which are not manufactured to an appropriate standard or code, constitutes a failure to meet Boat Safety Scheme requirements.

5. Plastic fuel tanks should be installed in accordance with the manufacturer's instructions and requirements. Manufacturers may specify the intended purpose of the product and should draw attention to any restrictions on the use of the product. Plastic fuel tanks not used in accordance with the intended purpose or not installed in accordance with the manufacturer's instructions may pose a serious risk to public safety.

Note 4 *Restrictions placed on the intended use by manufacturers may include specifying the type of fuel to be stored and/or excluding other types of fuel.*

Note 5 *Manufacturer's installation instructions may also include requirements for the plastic fuel tank to be installed, for example:*

- *with the smooth base surfaces of the tank supported and secured;*
- *in a ventilated area;*
- *above deck or open cockpit locations only;*
- *outside of accommodation spaces;*
- *away from sources of heat, or protected from heat or fire;*
- *away from direct sunlight;*

In the absence of the manufacturer's installation instructions such information may be available from the distributor of the tank. Alternatively information may be available from the Boat Safety Scheme office.

6. Where plastic fuel tanks have been installed in any way other than in accordance with their intended use and manufacturer's installation requirements, this may constitute a failure to meet Boat Safety Scheme requirements under Standard 2.6 and/or Standard 2.7 as appropriate

7. If there are any signs of:

    - fuel leakage from the fuel tank material;
    - physical damage (such as significant chafing or puncture);
    - signs of corrosive attack (such as softening or environmental stress cracking)

    the condition of the plastic fuel tank must be considered unsafe and it must be urgently replaced.

Note 7 *Chafing may potentially occur next to the restraining points on the tank. Chafing may lead to fuel leaks.*

Softening indicates corrosive attack by the fuel causing the fuel to permeate the plastic or tank gasket material. The physical properties of the material will progressively degrade and may ultimately lead to tank failure or fuel leaks. The presence of softening would indicate that the tank is not being used in accordance with its intended purpose.

Environmental stress cracking may develop should the tank be subject to tension or bending stress beyond its design tolerance and over prolonged periods. Environmental stress cracks may cause fuel leaks. Potential areas of stress cracking can be:

Adjacent to a tank spigot;
Next to a means to restrain the tank;
Around a tight radius in the moulded tank surface

8. In all cases, suspected non-compliance with the RCD should be reported to the relevant Local Authority Trading Standards Department in Great Britain or District Councils in Northern Ireland.

Appendix G

Battery Compartment Ventilation Ready Reckoner

Ah	L	W	H	NO. CELLS	AREA mm²	NO. HOLES
6V BATTERY						
105	293	169	222	3	609	2
160	245	169	330	3	929	2
12V BATTERY						
63	381	169	222	6	731	2
105	486	199	222	6	1219	3
160	477	169	330	6	1857	4
24V BATTERY						
63	381	169	222	12	1462	3
105	486	199	222	12	2438	5
160	477	169	330	12	3714	8

Appendix H

NAVIGATION AUTHORITIES' PREVIOUS REQUIREMENTS FOR FIRE EXTINGUISHERS

British Waterways				
Length of craft	Minimum number	Types of extinguisher and minimum total capacity		
		Stored pressure dry powder	Carbon dioxide	Foam
Below 9m	2	2.5kg	4.5kg	18 litre
9m-12m	2	3.5kg	6.0kg	18 litre
Over 12m	3	6.0kg	9.5kg	36 litre
Minimum size of each fire extinguisher		1.0kg	1.25kg	9 litre

National Rivers Authority (Thames Region)				
Length of craft	Minimum number	Types of extinguisher and minimum total capacity		
		Dry powder or B.C.F	Carbon dioxide	Foam
Upto 5m	1	1.5kg	2.25kg	9 litre
5m-8m	2	2.5kg	4.5kg	18 litre
8m-11m	2	3.5kg	5.5kg	18 litre
Over 11m	3	5.5kg	9.5kg	36 litre
Minimum size of each fire extinguisher		1.0kg	2.25kg	9 litre

National Rivers Authority (Anglian Region)			
Length of craft	Minimum number	Types of extinguisher and minimum total capacity	
		Dry powder or B.C.F	Carbon dioxide
Upto 5m	1	1.0kg	2.25kg
5m-8m	2	2.5kg	4.5kg
8m-11m	2	3.5kg	5.5kg
Over 11m	3	6.0kg	9.5kg
Minimum size of each fire extinguisher		1.0kg	1.25kg