



Boat Safety

Boat Safety Scheme

Guidance Notes

Issued June 1996



EA=Kerr edition Navigation Box 1

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These notes are intended to give boat owners practical advice how to meet the Boat Safety Scheme minimum safety standards. They are not intended to be a fully comprehensive guide to the technical background or provide detail of the standards themselves.

You should read these notes with the standards booklet.

Introduction

These notes are intended to give boat owners practical advice how to meet the Boat Safety Scheme minimum safety standards. They are not intended to be a fully comprehensive guide to the technical background or provide detail of the standards themselves. The technical detail is contained in the Technical Manual which is available from us at:

The Boat Safety Scheme

Willow Grange, Church Road

Watford WD1 3QA

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You should read these notes with the standards booklet.

Remember that in Part 11 of the Standards there are certain Exemptions which owners of existing boats can take into account. These are set out in Part 11 of the standards booklet pages 36 - 39.

These Guidance Notes will be updated periodically.

British Waterways and Environment Agency Advice

If you are building, refitting or modifying your boat, you should take the opportunity to bring your boat up to the full requirements of the standards.

Prepare Your Boat for Examination

The more you can do to make the examination easier the less expensive it should be. Most of the checks are visual. Surveyors and examiners are not expected to use tools to get to areas that contain your fuel, electrical or gas systems. You may therefore need to take up/off covers or hatches before the examination.

Locks, Bridges and Tunnels

Take extreme care when using and navigating locks, bridges and tunnels. Ensure that all parts of your body and those of your family, guests or crew are not likely to be trapped.

REMINDER

There are Exemptions to the Boat Safety Scheme standards. These can be found in Part 11 of the 'blue/grey' booklet on pages 36-39.

Bylaws and Other Aspects to Bear in Mind

(further details from the navigation authority)

Hull

Every boat on British Waterways and Environment Agency waterways must be fit for navigation. This means that the boat must be watertight.

Personal Safety

It is important that you have life jackets or buoyancy aids. This is particularly so for children and non swimmers.

Navigation Lights

Boats navigating between the hours of sun set and sun rise must use correct navigation lights.

Tunnel Light

All boats on British Waterways waters which navigate tunnels are required to have a tunnel light.

Sound Signals

All boats must have a means of making sound signals. These can be made by the use of a whistle or horn.

Bow and Stern Fenders

All boats on British Waterways waters are required to have bow and stern fenders.

Anchors and Chains

Boats navigating rivers must carry a suitable anchor fitted with chain and warps of adequate length and strength.

You will know what has to be done if you do your own checks first using the Checklist.

Keeping Costs Down

- Shop around and get quotes from surveyors and examiners
- make sure the price you have negotiated is clear and agreed by you and the surveyor or examiner
- group together with other boatowners and have your boats examined all in one visit and save multiple travel costs

Existing Boats Definition

In these notes, we refer to 'existing boats'. These are non-CE marked boats manufactured prior to 16 June 1998. This is when the European Recreational Craft Directive comes into full effect. When this happens all new professionally built boats will have to comply with minimum safety standards and be 'CE' marked to comply.

New boats not CE marked will need to comply in full with the Boat Safety Scheme requirements when built.

We expect that boats being built prior to 16 June 1998 will also comply in full with the Boat Safety Scheme standards.

Canoes, Kayaks and Dinghies

The Boat Safety Scheme does not apply to canoes, kayaks and dinghies which carry self contained portable camping appliances as they are not 'fitted with' appliances as defined in the Scope of the Scheme, Standard 1.1. Owners of such boats should be aware of the risks of carrying self contained fuelled appliances.

Part 2 Inboard Engines

2.1 Filling Pipes

The filling pipe should not allow any spillage of fuel into the boat. This can be achieved if the filler cap is positioned so that:

- the camber of the deck will cause any overflow to discharge overboard
- a coaming high enough to prevent spillages reaching the interior of the vessel is fitted
- a diverter arrangement is fitted around the cap

2.2 Filling Pipe

The filling pipe must be of a type suitable for the fuel used that does not suffer a chemical reaction which would lead to the pipe disintegrating over time. Check with your supplier, prior to your boat examination that your filling hose is recommended for the fuel you are using. If there is any doubt, then the pipe should be replaced with pipe complying with BS EN ISO 7840 or DIN 4798.

Existing boats can have a filling pipe which is 32mm (1¼") diameter.

Non-kinking

The filling pipe should not be capable of being easily compressed (squeezed) particularly if the pipe is bent at an angle as it is routed from the tank to its deck connection.

Leak-proof Joints

Worm drive clamps (e.g. of the 'jubilee' type) can be used for making filling pipe connections.

Care should be taken when using worm drive clamps to ensure they are of the correct size for the

Part 10 Hire Boats/New Boats Not Covered by EC Directive

General

Commercial cargo carrying boats on cruising and remainder waterways do not need to meet the requirements set out in Part 10.

New Boat

A new boat is any boat which:

- has its keel or keel plate laid on or after 17 June 1998
- carries the 'CE' mark

Existing Privately Owned Boats

Existing privately owned boats cannot be failed on the Standards in Part 10.

However, these standards are good practice and boat owners are strongly recommended to comply.

Hull Openings

The use of swan neck arrangements are acceptable to achieve the watertightness which is sought for in this standard.

10.3

Part 9 Pollution

9.1 BS MA 101

At present compliance with BS MA 101 is not being checked.

Sealing

All toilets which are capable of discharging directly overboard can be rendered inoperable by either sealing the sea cock closed or by the use of heavy duty tape over the bowl or lid of the appliance.

Boat owners are advised that it is an offence to discharge toilets directly overboard on inland waterways.

Examiners/surveyors are not required to seal sea toilets which allow discharge directly overboard. However, some navigation authorities may wish to seal such toilets whilst on their waterways.

purpose. If a clamp is too large it may not make a proper seal and could lead to the connection leaking. Too small a clamp may not be gripping on the worm and may also cause the pipe to be unnecessarily pinched. This in time would lead to the pipe suffering undue wear.

Where worm-drive clamps are used to secure flexible pipes, they should comply with BS 5315 and ensure that:

- the worm is always fully engaged with the rack
- there is no sign of damage or corrosion to the clamp
- the clamp is not over-tightened
- the exterior of the pipe at the point of application is not damaged in any way by the clamp
- the pipe is securely connected to the fitting and incapable of movement

These joints have to be capable of being seen and/or manually felt in order to establish whether they are secure and not leaking.

Where flexible filling pipe is used for petrol tanks, double clamps are recommended.

Support

Pipes should be supported if necessary at approximately 500mm intervals.

Accessibility

For practical purposes on existing boats only and for the purpose of this standard, it is acceptable for filling pipe joints and connections to be accessible (i.e. capable of being seen and/or manually felt) and not readily accessible as defined in the Glossary to the standards.

2.3 Deck Connections

Cross-contamination from deck and filling connections can be prevented by:

- separating the connections by approximately 250mm (10")
- the camber of the deck carrying any overflow overboard
- installing a diverting arrangement around the connection

Marking

Many deck connections and fittings are already engraved or embossed with the purpose of the connection. If they are not the deck connection should have a label on or immediately beside them to indicate their purpose. The label can be made of plastic, but not 'embossed' tape (e.g. 'Dymo' tape) and can be painted on. Painted deck connections labels are not good practice and are not encouraged, however. The word 'Fuel' is not an acceptable marking as the exact type of fuel must be stated.

2.4 Vent Pipe

Existing boats may have a vent pipe which has a $\frac{3}{8}$ " internal diameter. In the case of existing boats which do not have a vent pipe, a vent in the screwcap would be accepted providing it is fitted with a flame arrester. Check with your supplier that your existing vent pipe is recommended for the fuel you are using.

Accessibility

For practical purposes on existing boats only and for the purpose of this standard, it is acceptable for vent pipe joints and connections to be accessible (i.e. capable of being seen and/or manually felt) and not readily accessible as defined in the Glossary to the standards.

Ventilation should be increased dependant of the number and type of appliances on board.

The formula for calculating ventilation is:

$$\begin{aligned} & \text{minimum effective area (mm}^2\text{)} \\ & = [2200 \times U] + [440 \times F] + [650 \times P] \end{aligned}$$

where:

U = input rating for all unflued appliances
(inc. cookers) in (kW)

F = input rating for all open flued appliances in (kW)

P = number of persons for which the compartment is designed

(The rating for your appliances will be on the manufacturers plate on the appliance and/or in the operating instructions).

The ventilation requirements should then be split equally between high level (cabin roof) and low level (level of lowest burner). Venting to low level can be achieved by spillage of cold air from vents in doors and/or bulk-heads or means of ducting from a higher level.

Vessels which regularly proceed to sea and would experience severe weather conditions may have ventilators which can be closed to prevent the ingress of water in such conditions. **Extreme caution is advised** in such vessels in closing down ventilators if appliances are operating.

8.5 Combustible Materials

Combustible materials adjacent to appliances should be suitably insulated. There should be at least a 25mm gap between any appliance and any surface which is likely to reach 50°C or over.

Laminated plastic e.g. 'Formica' can be accepted as a fire retardant when fixed in the vertical position.

8.6 Installation

Appliances should be installed so that they are:

- level from side to side and front to back
- secured i.e. incapable of movement in any direction unless in gimbals
- not set flush unless so designed

To allow cookers and refrigerators to be removed for cleaning or servicing, removable fixings such as hooks and chains may be used providing the arrangements prevent the appliance from toppling over.

8.8 Flues

Appliances which require a flue are:

- multi-point instantaneous water heaters
- single point instantaneous water heaters supplying a bath or shower
- any appliance which is fitted with a flue spigot
- solid fuel appliances

The flue cowl must be sufficiently robust to prevent accidental damage.

8.10 Ventilation

Where LPG or fuel appliances are installed there must be at least 4000mm² (6.2ins²) of ventilation.

Vent Pipe

The recommended height for a vent pipe outlet is at least 100mm above the filling connection.

The outlet of the vent pipe can be below the level of the deck filling connection providing it is near to the deck filling connection and there is a swan's neck to the underside of the deck. With this arrangement the vent pipe can then terminate at a lower level through the hull.

Where the vent pipe is not near to the filling connection, the camber of the deck may make the vent pipe or the top of the swan neck well below the level of the deck connection. This would not be acceptable.

Fuel Tanks

These should be non corrosive to the type of fuel used. Suitable non-corrosive materials for the construction of fuel tanks are:

DIESEL FUEL

- untreated mild steel
- mild steel (hot dip zinc coated after fabrication)
- aluminum alloy (containing not more than 0.1% copper)
- GRP
- stainless steel

The following must not be used for diesel tanks:

- lead coated steel
- copper
- internally galvanised steel

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PETROL

- aluminum alloy (containing not more than 0.1% copper)
- lead-coated steel
- brass
- copper (tin coated internally)
- internally galvanised mild steel
- stainless steel

The following must not be used for petrol tanks:

- untreated mild steel
- interior painted tanks
- GRP

Pressure Testing

For existing boats only, tanks need not be pressure tested. However, tanks, joints and seams should not be corroded to such an extent that leaks might arise.

2.8 Dipsticks

Dipsticks should not strike the bottom of the tank as this could cause unseen damage to the interior of the tank bottom, eventually leading to a leak. To prevent the dipstick striking the bottom, a cross pin arrangement wider than the filling connection should be fitted to the dipstick.

2.9 Fuel Tanks – Accessibility

It is not necessary for the tank to be accessible for removal or maintenance as defined in BSS Glossary but it is necessary for the tank to be capable of being reached for inspection.

For those parts of the tank which can be seen or touched, the examiner/surveyor will visually and manually check that there is/are no apparent:

Part 8 Appliances

Petrol Engined Vessels

8.2

Petrol vapour is extremely dangerous. It would be difficult, but not impossible, for any gas refrigerator other than a room sealed appliance to be safely installed in a petrol engined boat in accordance with the manufacturer's installation requirements. If in doubt seek advice from the appliance manufacturer.

Catalytic Heaters

8.3

The requirements of BS 5258 Part 11 which will be visually checked are:

- provision of a guard which cannot be removed without the use of tools
- 3 position OFF-IGNITE-ON tap
- fitting of a name badge to include the model type and number of the appliance
- clear operating instructions

If the catalytic heater is a portable appliance Standard 7.9 is to be applied in respect of the flexible hose serving that appliance.

Unflued catalytic heaters should not be installed in sleeping quarters designed solely for that purpose.

WARNING

In 1983 the Minister of Consumer Affairs placed a Prohibition Notice on the following brand named catalytic heaters manufactured by Impact Heaters (UK) Ltd as they contain asbestos:

- AGNI
- SUPER SER
- CORCHO

SUSPECT HEATERS SHOULD NOT BE TOUCHED – NOT EVEN WHEN WEARING GLOVES.

The Local Authority should be contacted for the disposal of catalytic heaters which contain asbestos.

7.14 Gas Test Point

Soundness testing for any leaks will be carried out. This will normally require access to a test point, either specially fitted in the low pressure side of the system or on an appliance so that an examiner/surveyor can test for leaks. For existing privately owned boats (boats which are not let out or ply for hire in the course of a business) an acceptable alternative method for leak testing is with a bubble tester fitted in the gas locker. Bubble testers have the added advantage that the owner will be able to regularly and easily check the system for leaks themselves.

For existing boats, a Running Pressure Test (Drop Test) of the gas system is not being carried out in the Boat Safety Scheme examination but there is a need to provide the means to test that the gas system is sound.

Some appliances, and all new appliances, already have test points fitted or the injector to a burner can be used for testing when the body of the burner is removed.

These may be used for testing purposes providing the examiner/surveyor has easy access to fit or use a test gauge.

Operators of hire boats are again reminded that they are subject to the Gas Safety (Installation and Use) Regulations which require regular maintenance and testing of gas installations.

- leaks (around the tank and by examination of the bilges)
- damage or deterioration
- corrosion
- any condition prejudicial to safety

Where the tank areas cannot be easily seen or touched, the examiner/surveyor may use a mirror or inspect for leakage by smell.

Fuel Tank Connections – Accessibility

Fuel supply and return connections (i.e. those normally permanently charged with fuel) must be accessible for inspection and for filling and vent pipes see 2.2 and 2.4 above.

Bonding

Where the filling pipe is made of conducting material it is not necessary to provide an additional metallic conductor between the tank and the filling connection. But, in the case of a non conductive deck or hull e.g. wood or GRP, the tank and deck filling connection must still be bonded to a point in electrical contact with the surrounding water e.g. sea cock or stern gear.

Fuel Supply

It is good marine practice to have the fuel supply line drawn from the top of the tank by means of an internal pipe in the tank. For diesel engined boats only, bottom take offs will be acceptable. Bottom take offs are not permitted for petrol engined boats except in the case of existing boats with engines designed for a gravity feed system (e.g. slipper launches).

When the return line from a diesel engined boat goes back to the tank, this too should be through the top of the tank. The return line does not need to go back

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to the tank if this arrangement is part of the engine manufacturer's standard practice. Any spill rack, however, must not discharge direct into the engine compartment or bilge.

2.13 Fixed Fuel Feeds

Fixed fuel feed pipes permanently charged with fuel should be supported at approximately 500mm intervals.

Balance Pipes

If the connection between the fuel tanks is made of the same material as the tanks and is permanently connected to the tanks by welded or brazed joints it is treated as an integral part of the tank and not as a balance pipe. Flexible hose, including armoured hose, may be used for balance pipes providing the hose is manufactured to, at least, the fire resisting qualities of either BS EN ISO 7840 or DIN 4798 and a valve is fitted at either end. For the purposes of this standard, a close coupled tank is one where there is insufficient space to fit valves.

2.14 Flexible Tubing

Flexible hoses, including armoured hose, are acceptable providing they are manufactured to, at least, the fire resisting qualities of either BS EN ISO 7840 or DIN 4798.

The use of flexible fuel hose is restricted to the engine compartment itself and it may only be used as part of the:

- direct connection from the solid drawn fuel feed pipe to the engine
- direct connection from the engine to the solid drawn fuel return line

Fuel hoses should be of minimum practicable length, have a fire resisting quality as stated above and may be armoured. Existing engines may be fitted with

Where pipes run through bulk-heads, with the exception of where they leave the gas locker, they need not have bulk-head fittings but must be protected using a sleeve or grommet.

Pipe Installation

Gas pipework should be approximately 30mm away from electrical cables unless the cables are in a conduit (see Standard 3.4).

Gas pipework should be at least 75mm from exhaust pipes and other sources of heat.

Pipe work can run through petrol engine compartments, dedicated battery compartments, or electrical compartments providing it is:

- carried in gas-proof conduit
- jointless

See Standard 3.1 above for definition of battery compartment. An electrical compartment is an enclosure specifically designed to contain electrical equipment e.g. distribution boards, generators.

Joints

Any in-line joint in straight gas pipe runs will be considered as not keeping joints to a minimum. Make sure therefore that you have the right length of pipe between appliances so that an in-line joint becomes unnecessary.

Soldered joints in rigid gas piping are not allowed. Compression fittings should be used.

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The use of worm drive clamps are permitted on these connections but see the Guidance notes under Standard 2.2 above.

There are no hard and fast rules at present that say that hosing should be replaced at regular intervals. However, flexible hose does not last for ever and they should be replaced if there are any signs of:

- leaks
- flaws
- brittleness
- cracking
- significant bleaching
- abrasion
- kinking

If none of these signs are present, the hose will be deemed acceptable. Boat owners should, however, regularly check the hose condition. If in any doubt, replace it.

7.10 Fixed Pipe Work

All fixed pipe work for gas installations must be solid drawn pipe. Copper pipe should be to BS 2871. It should be noted that thin wall copper pipe, normally used for water, is not suitable for bending and is not recommended.

7.11 Pipe Routing

All pipes should be protected from mechanical damage. The ideal level for pipe work is just under the gunwale. A longer pipe run is acceptable rather than a more direct (shorter) route if this would reduce exposure of the pipe to accidental damage.

Pipe work should be secured at approximately 500mm intervals.

hose to BS MA 102 which is acceptable providing the hose is in good condition. If the condition of the hose is suspect, they should be replaced with hoses complying to the BS EN ISO 7840 or DIN 4798. When replacing previously armoured hoses with new hoses that may not be armoured, care should be taken to ensure continuity of bonding referred to in 2.10 above.

Flexible fuel hose pipes do not last forever and they should be replaced if there are any signs of:

- corrosion or decay
- damage or deterioration
- leaks

Spill racks are expected to be metallic as set out in Standard 2.13.

For existing boats, however, if the use of a flexible spill rack is the sole method recommended for use by the engine manufacturer the flexible tubing must be:

- re-inforced and may be armoured
- comply with the fire resisting quality requirements of BS EN ISO 7840, DIN 4798 or BS MA 102 if in good condition
- be made in accordance with Standard 2.15 with efficient screwed, compression, cone, brazed, or flanged joints

Soft soldered and push on joints must not be used. Plastic tubing is not acceptable.

Fuel Filters

Suitable marine filters are ones which are:

- fire resistant
- non-corrodible
- non-breakable
- impact resistant

2.16

Clear bowl, glass or plastic filters meeting the above criteria will be acceptable providing they are made for the type of fuel being used. Check with your supplier, prior to your boat examination that your fuel filter is recommended for the fuel you are using.

2.17 Second Cock – Petrol Engines

For the purposes of this Standard, the need for a second fuel cock or valve only applies to existing boats with gravity fed petrol engine installations.

2.18 Bilge Water Level

The bilge water level can be determined by:

- the presence of a 'tidemark'
- the position of the bilge pump or its inlet
- the level at which the float switch is set

However, fuel pipes should be run as high as possible and where they run under the cabin floor or sole they should be as close to the underside of the floor as possible.

2.20 Securely Installed

The engine mounting system should show no signs of:

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

The engine should not be capable of movement in any direction other than the movement allowed by the use of any flexible mounts.

Gas Cylinder Lockers

Gas cylinders should be stowed in dedicated lockers as described in this standard. The gas locker must be gas tight to the height of the regulator and valve.

Cylinders can be stowed on deck providing that any escaping gas cannot enter the interior of the vessel. Cylinders on deck should be approximately 1m away from hatches or openings into the boat. No hatches or openings should be in the path of escaping gas. Remember LPG is heavier than air.

For existing boats, cylinders may be stowed on brackets or shelves fixed to the outside face of the transom but this is not recommended practice. In these circumstances the cylinders, regulators and associated pipe work must be protected from mechanical damage in the event of a collision and be ventilated to allow escaping gas to flow directly overboard.

In all cases the cylinders must be secured to prevent excessive movement.

Main Gas Valve

The gas locker containing the cylinders and main gas valve may be padlocked when the boat and gas installation are not in use and turned off, providing the position of the main gas valve is clearly marked. When the boat is in use, access to the main gas valve is important and the locker should not be locked.

Flexible Hose

Suitable flexible hose for use with LPG is marked BS 3212/2 (type 2). The hose will also be marked with its year of manufacture. This hosing should be used only in the gas locker and for connections inside the vessel between an isolation tap and a portable appliance, a domestic cooker or refrigerator or gimbaled cooker. Flexible hose should be of minimum practicable length and no more than 1m in length for portable appliances.

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Part 7 LPG Installations

7.1 Gas Installation and General Information

In existing boats only, the gas installation will be deemed to comply with the British Standard for gas installations in boats providing there are no faults recorded under Parts 7 and 8 of the Boat Safety Scheme, the installation passes the burner flame tests and that there is adequate ventilation (see Standard 8.10).

For existing boats only also, the Running Pressure Test (Drop Test) of BS 5482 Part 3 Appendix C is not being carried out. A gas system is acceptable if, when all burners are lit, the flames are steady and are of the correct proportions.

Flue spillage tests will not be conducted at the present time, but a leak test will be conducted (see 7.14 below).

When replacing gas appliances, always opt for having room sealed appliances where available.

Existing Boats

Instantaneous water heaters serving only one sink or washbasin may not require a flue, but it is recommended. However, unflued instantaneous water heaters must NOT be installed in a confined space or in any bathroom or shower room. Multi-point water heaters must always be flued. All gas appliances consume quantities of oxygen and should be attended when in use.

It is essential that there is plenty of ventilation (see Standard 8.10).

Operators of hire boats should be aware that they are subject to the Gas Safety (Installation and Use) Regulations which require regular maintenance and testing of appliances.

Exhaust Noise

2.24

Noise levels are not being checked at present, but the examiner/surveyor will be visually checking for the presence of silencing arrangements. In addition they will be looking for any breaks or leaks in the system which could lead to excessive exhaust noise and for signs of excessive damage or corrosion.

Remember exhaust gas leaks are lethal.

Part 3

Electrical Installation

3.1 Batteries

Batteries do not have to be in a separate locker or compartment and can be located in the engine room. There should be 0.5m separation between any battery which is not in a dedicated locker or compartment and a petrol or LPG installation. Batteries can be free standing providing they are secured but they must not be free standing in accommodation areas unless they are in a dedicated locker or compartment as described in the following paragraph.

Where the batteries are in a dedicated locker or compartment, that locker must be ventilated. If the locker or compartment is in accommodation areas, the locker or compartment should be gas tight and vented to the outside air.

The positive and negative battery terminals should be covered by insulated terminal covers. Where the terminals are not individually covered or where the inter-cell connectors are exposed as in the case of traditional batteries, a cover should be provided to protect the whole of the top of the surface of the battery.

All batteries are to be secured so that there should be no movement in excess of approximately 10mm in any direction.

Battery Compartment

This is an enclosure specifically designed to contain batteries only.

They will need to carry one of the certifying marks listed above and there is no exemption on this requirement.

Exposed GRP

At present, the use of a fire retardant treatment on exposed areas of GRP in high risk areas is not being checked. The examiner/ surveyor will however be looking for signs of heat damage such as charring, scorching, blistering and physical damage.

There are proprietary products available for treating such areas.

Polystyrene Thermal Insulation

Existing boats, under Exemption 11.15, are not required to comply with this standard.

Soft Furnishings

At present, the use of fire retardant materials are not being checked although signs of burning or scorching may indicate that the material does not comply.

There are proprietary products available for treating such materials.

Two Means of Escape

It is important that every boat has two means of escape from enclosed accommodation. However, it may not be practicable to fit two means of escape where:

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

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Part 6

Fire Prevention and Extinguishing Equipment

6.1 Fire Extinguishers

All fire extinguishers should be marked with one or more of the following:

- the BSI Kitemark
- the British Approvals of Fire Equipment (BAFE) symbol
- the Loss Prevention Certification Board (LPCB) symbol
- or a recognised European certifying body's mark to EN3

Condition

Extinguishers should be serviced annually, but the provision of a service label with a valid date entry is not being checked. The surveyor or examiner will, however, check the condition of the extinguisher. They will be looking for:

- 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 extinguishers
- damage to trigger assembly including deterioration caused by ultra-violet light and heat

The Exemption (11.12) relates only to the fire rating of extinguishers. If they are not fire rated they must meet the weight requirements set out in the BW and EA previous fire extinguisher charts.

Cables

All cables should have multi-stranded conductors. However, for existing boats only, solid conductor wiring will be accepted providing the wiring is supported and shows no sign of damage or deterioration.

Cable Support

Cables should be secured at approximately 300mm intervals. If they run through bulkheads or partitions, they should be protected against damage by grommets or sleeving.

Circuit Breakers and Fuses

Boat owners are reminded that circuits need to be protected by fuses or circuit breakers of the appropriate rating.

Residual Current Devices (RCD) should always be installed on boats with a 240V supply to disconnect the supply before a dangerous situation is reached.

Heat Sources

All cables should be at least 75mm and ideally 125mm clear of any heat sources such as exhaust pipes, water heaters, heating appliances, boilers, cooking appliances and refrigerators.

Fuel and Gas Pipes

All cables should be approximately 30mm away from any fuel or gas pipe unless the pipe or cable is in a suitable conduit.

Suitable Conduit

Conduit for electric cables can be the 'clip together' uPVC type, galvanised steel or wood. Cable conduits should be secured at approximately 900mm intervals.

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Polystyrene Insulation

PVC covered cables in contact with polystyrene react together. This can lead to the breakdown of the cable insulation.

Where polystyrene has been used, but visual examination is not possible due to the interior panelling, Exemption 11.10 will be applied and the owner advised to have the electrical installation tested by a competent electrician with experience in the marine environment.

It is recommended that if there is any doubt that there may be cables in direct contact with polystyrene, the test by a marine electrician should be done each year and a record kept of the results. A change in the results will highlight that a problem is occurring.

3.5

Battery Master Switch(s)

This should be installed in the positive line. If there are separate circuits for starting and boat services connected to separate batteries, each circuit will require a master switch.

For existing boats only, a master switch in the negative line to which all negatives are connected is acceptable. However, remember if the switch is open when the engine is running, it will not disconnect the services except in the case of an insulated return system wired for the purpose.

3.9

Suppression

At present, suppression of radio and television interference is not being checked. However, all vessels are still required to comply with this standard.

Part 5 Outboard and Portable Engines

General

The filling of petrol tanks and transfer of petrol to outboard and portable engine installations is extremely hazardous. Petrol vapour is very volatile and extreme care should be taken.

It is essential during fuel transfer that there are no naked flames around if you have any appliances on board with a lit flame e.g. refrigerators, cookers etc., these are turned off during the refuelling operation.

Portable tanks must be removed from the boat for refuelling.

Permanently Installed

In the case of outboard engines, a permanently installed fuel system is one not designed for or capable of being removed for refuelling.

Portable Fuel Tanks and Supply Lines

These must not be changed from that supplied or approved by the manufacturer.

Noise Level

Noise levels are not being checked at present, but the examiner/surveyor will be visually checking for the presence of silencing arrangements. In addition they will be looking for any breaks or leaks in the system which could lead to excessive exhaust noise and for signs of excessive damage or corrosion.