



Boat Safety

Boat Safety Scheme

Edition January 1993

Issued September 1995



The Clear English Standards apply to the introduction pages only

Price £1.00



ENVIRONMENT
AGENCY

Subject	Part	Page
Introduction		2
Scope of scheme	1	12
Inboard engines	2	14
Electrical installation	3	19
Electrically propelled vessels	4	21
Outboard and portable engines	5	23
Fire prevention and extinguishing equipment	6	25
LPG installation	7	28
Appliances	8	31
Pollution	9	33
Hire boats/New boats not covered by EC directive	10	34
Exemptions	11	36
Summary of EC directive Essential safety requirements	Annex I	40
Glossary		42
References		44
Acknowledgments		46

Introduction

British Waterways (BW) and the Environment Agency (EA) place great emphasis on safety for boaters and everyone else who comes to the rivers and canals to enjoy their peace and tranquillity.

We have a duty to promote the safe control and operation of our waterways. This includes the setting of technical requirements for good and safe boatbuilding practice and maintenance. These requirements form part of the Boat Safety Scheme. We have developed the Scheme in co-operation with boat-user representatives and the boating trade. The aim of the scheme is to minimise the risks of fire and explosion on your boat and this principle has always been supported by responsible boat owners and boatyards. The Scheme applies to boats on BW and EA waterways and other navigation authorities may also adopt it.

The use of inland waterways in Great Britain is regulated by general and local legislation. The standards we have set out in the Boat Safety Scheme will be legally enforceable by the navigation authorities through local Acts/ or through byelaws made under them. Examples are the British Waterways Act 1995 and the Thames Navigation Licensing and General Byelaws 1993.

What does the Boat Safety Scheme do?

The main point of the Boat Safety Scheme is to help you keep your boat in a safe condition and boats subject to the Scheme will need to be independently examined at least once every 4 years by people authorised to do so. Owners of boats that successfully pass the examination will get a Boat Safety Certificate. This will allow them to apply to use waterways run by navigation authorities adopting the Scheme.

Various boat safety requirements have been enforceable for many years. The Boat Safety Scheme replaces and updates these requirements and gives a single arrangement to help you keep your boat safe. An EC directive about recreational craft comes fully into force in 1998 and affects boatbuilding. Our Scheme will dovetail with it. For details, see paragraph 9 page 8.

Association of Pleasure Craft Operators
 Association of Waterways Cruising Clubs
 Boat Museum (Ellesmere Port)
 British Marine Industries Federation
 Canal Boatbuilders Association
 Commercial Narrowboat Operators Association
 Community Boats Association
 Electric Boat Association
 Heritage Afloat
 Inland Waterways Amenity Advisory Council
 Inland Waterways Association
 Institute of Marine Engineers
 Marine Safety Agency
 Midland Boatbuilders Association
 historic Narrow Boat Owners Club
 National Association of Boatowners
 NRA (EA)
 National Waterways Museum
 Prism Fund (Science Museum)
 Residential Boat Owners Association
 Royal Institution of Naval Architects
 Royal Yachting Association
 Society of Consulting Marine Engineers & Ship Surveyors
 Steam Boat Association
 Wooden Canal Craft Trust
 The Yacht Harbour Association
 Yacht Brokers, Designers & Surveyors Association

BW and EA also wish to express their thanks to the companies, organisations and, in particular to the individuals, who have so actively contributed to the development of the training courses.

Boating Enterprise Skills Training (Brian Tomlinson)
 British Marine Electronics Association
 Fire Protection Association
 Lee Sanitation Ltd
 Liquefied Petroleum Gas Association
 Marine and Engineering Training Association
 Marine Engines and Equipment Manufacturers Association
 Southampton Technical College (Maritime Technology Centre)

Merchant shipping notices

M 984

Use of L.P.G. in domestic installations and appliances on ships, fishing vessels, barges, launches, and pleasure craft

Available from: H.M.S.O.,
49, High Holborn,
London WC1V 6HB

Codes of Practice

L.P.G.A. Code of Practice No.18. Recommendations for the safe use of L.P.G. as a propulsion fuel for boats, yachts and other craft

Available from:
The Liquefied Petroleum Gas Association,
William Culross & Son Ltd.,
Coupar Angus,
Perthshire.

Regulations for the Electrical & Electronic Equipment of Ships.

Available from:
The Institution of Electrical Engineers,
P.O. Box 26,
Hitchin, Herts.

British Marine Electronics Association (BMEA) Code of Practice for Electrical and Electronic Installations in Boats.

Available from:
British Marine Industries Federation,
Meadlake Place, Thorpe Lea Road,
Egham, Surrey, TW20 8HE

List of consultees

BW and EA wish to express their deep thanks and appreciation to the helpful and constructive contribution which the following organisations have made to the Boat Safety Scheme. This consultation process will continue.

The Boat Safety Scheme has been notified to the European Commission in accordance with Article 12 of Directive 83/189/EEC (as amended).

Which craft are covered by the Boat Safety Scheme?

3

The Boat Safety Scheme requirements will apply to:

- All boats built before 16 June 1998 not covered by the EC directive including those let out for hire or reward. A boatbuilder may instead choose to apply the directive from 16 June 1996. For details, see paragraph 9 page 8.
- All new DIY-built boats and other boats not covered by the EC directive. For details, see paragraph 9 page 8.
- DIY elements of all partly completed boats.
- Boats that are subject to the EC directive after 4 years from new. For example, if a boat is manufactured in June 1996 to the EC directive requirements, it would need to have a Boat Safety Certificate from June 2000. See paragraphs 9 and 10 pages 8-10 for more details.
- All commercial vessels on cruising and remainder waterways. See Boat Safety Scheme Standard 1.6 for more detail.

Special arrangements can be made for boat collections owned by museums registered with the Museum and Galleries Commission. For further information contact the address in paragraph 7 page 6.

When will the Boat Safety Scheme come into force?

4

British Waterways

When renewing a licence or licensing for the first time, you will need to provide a Boat Safety Certificate as follows:

Boat built	Certificate needed from
1970 and before	1 January 1998
1971 and after	1 January 1997

3

Environment Agency

In the Thames and Anglian Regions, when renewing a licence or licensing for the first time, you will need to provide a Boat Safety Certificate as follows:

Boat built	Certificate needed from
1959 and before	1 January 2000
1960 - 70	1 January 1997
1971- 80	1 January 1998
1981- 90	1 January 1999
1991 and after	1 January 2000

Dates for introduction of the Scheme on the River Medway (EA Southern Region) will be announced in due course.

Other navigation authorities adopting the Scheme will separately announce dates for introducing it.

How do I get a Boat Safety Certificate?

There are three main steps:

- Get a copy of the current list of authorised marine surveyors and examiners from your local BW Waterway office or EA Regional office;
- Arrange an appointment for the examination with the surveyor or examiner of your choice and agree a price;
- Prepare your boat for examination.

We will not set the cost of getting a Boat Safety Certificate but surveyors and examiners will charge a competitive rate for the work.

The Boat Safety Scheme Pack includes a list of the faults which would prevent a Boat Safety Certificate from being issued, so this will help you to check that your boat does comply. It will also provide a maintenance checklist to help you ensure that your boat continues to meet the requirements.

You can also buy a Boat Safety Scheme Technical Manual which gives you more information about the

BS 7162

Waste water fittings on yachts

BS EN 1021 Parts 1 and 2

Ignitability tests for furnishing materials

BS EN 28846

Small craft – Electrical devices -Protection against ignition of surrounding flammable gases

BS EN 60309 Part 2

Industrial Plugs, socket outlets, and couplers for A.C. and D.C. supplies

BS EN ISO 7840

Small craft – Fire resistant fuel hoses

BS MA 101

Toilet retention and recirculation systems for the treatment of toilet waste on small craft

Available from:

British Standards Institution
(Sales Dept.), Linford Wood,
Milton Keynes,
BUCKS MK14 6LE

Statutory instruments

S.R.O. 1929 No. 952

The Petroleum Spirit (Motor Vehicles etc.)
Regulations 1929

S.I. 1982 No: 630

The Petroleum Spirit (Plastic Containers)
Regulations 1982

S.I. 1983 No. 708

The Merchant Shipping (Distress Signals and
Prevention of Collisions) Regulations 1983

S.I. 1989 No. 2169

Pressure Systems and Transportable Gas Containers
Regulations

References

British Standards

BS 476 Part 7

Surface spread of flame tests for materials

BS 476 Part 20

Fire resistance test for materials

BS 952 Part 1

Glass for glazing

BS 1470

Specification for wrought aluminium and aluminium alloys for general engineering purposes: plate, sheet and strip

BS 2977

Domestic lighting appliances for use with L.P.G.

BS 3212

Flexible Rubber Tubing and Hose for L.P.G. Installations

BS 3837 Part 1

Expanded polystyrene boards, Specification for boards manufactured from expandable beads

BS 5258 Part 11

Flueless catalytic combustion heaters

BS 5423

Portable fire extinguishers

BS 5440 Part 1

Installation of flues and ventilation for gas appliances of rated input not exceeding 60KW (1st, 2nd and 3rd family gases)

BS 5482 Part 3

Code of practice for L.P.G. installations in boats, yachts, and other vessels

BS 6575

Specification for fire blankets

technical requirements. In addition, you can receive direct up-to-date technical information about the Scheme by completing the Boat Safety Scheme Update Service form in the manual. The cost of the Technical Manual is £40 (July 1995 price) and the annual charge for the Update Service is £15 per year (July 1995 price). Prices will be regularly reviewed. For further details, see paragraph 7 page 6.

It is important to remember that your Boat Safety Certificate relates to the condition of the boat when it was examined. **It is your responsibility** to maintain your boat so that it complies with the Boat Safety Scheme requirements between examinations.

What if my boat fails the examination?

If your boat fails the examination, the Boat Failure Certificate will say why.

You should then rectify the failure points and have the boat re-examined.

Certain remedial work can be dangerous to you or someone nearby. Seek professional advice if you are not sure what to do.

If you consider that the failure is unjustified, you can appeal (see paragraph 7 page 6).

Your licence to navigate the waterways adopting the Boat Safety Scheme depends on your meeting the safety requirements and maintaining your boat to those requirements.

If you use the waterway without a valid licence, you could be prosecuted.

Your licence conditions specify that you must maintain your boat to the safety requirements between examinations. If this is not done, the licence can be revoked.

7 What if I have a complaint about the Boat Safety Scheme, the way it is operated, or just want further information?

For further information about the Boat Safety Scheme, contact:

David Allison
Manager, Boat Safety Scheme
Willow Grange
Church Road
Watford
WD1 3QA
Tel: 01923 201408
Fax: 01923 226081

If you have a complaint about the Scheme or you think your boat should not have failed, then you should send all relevant details to the Manager, Boat Safety Scheme.

We will:

- acknowledge your complaint on receipt;
- investigate your complaint; and
- provide you with a full written response, upon completion of the investigation, usually within 21 working days. If we cannot respond within 21 days, we will keep you informed about progress.

If you are still not satisfied and are unable to obtain a licence because your boat has failed, we will:

- put your complaint to the Boat Safety Scheme Appeals Panel. Its decision is final and binding on all parties.

Where a case goes to appeal, normally no action will be taken until the Appeals Panel reaches a decision unless we think the boat poses a serious risk to people or property.

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: ISO 10088(E))

Recognised competent person

a person having practical and theoretical knowledge and actual experience of the type of machinery or plant which he/she has to examine as will enable him/her to detect defects or weaknesses which it is the purpose of the examination to discover and to assess their importance in relation to the strength and functions of the machinery or plant

(Source: ROSPA Handbook on Construction Regulations)

Remainder waterway

a waterway owned or managed by BW which is not specified in Schedule 12 of the Transport Act 1968.

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)

Glossary

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 permanent 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: ISO 10088(E))

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

Privately owned boat

any pleasure boat not being a hire boat, commercial vessel or passenger carrying vessel.
(Source: British Waterways Act 1971)

Passenger carrying vessel

a vessel which requires a passenger certificate under the Merchant Shipping Acts

If you have a complaint against a professional marine surveyor or examiner participating in the Scheme, we will:

- acknowledge your complaint on receipt;
- send the relevant facts to the surveyor or examiner for comment, allowing 14 working days for response;
- review what both parties say and send you a full written response, usually within 21 working days. If more than 21 days are needed, we will keep you informed about progress.

If the surveyor fails to respond to the facts presented to him or her, or we regard the response as unsatisfactory, we will:

- pass the facts of the case to the surveyor's professional organisation for investigation under its terms of membership. In these circumstances, the investigation is in the hands of the professional organisation. We therefore have no control over the timing or duration of its investigation. We will let you know the outcome and will take appropriate action based on the finding of the investigation. We may require the surveyor to undergo further training, suspend the surveyor temporarily, or withdraw the surveyor's authorisation permanently.

If the examiner fails to respond to the facts presented to him or her, or we regard the response as unsatisfactory, we will, in the case of alleged technical misconduct:

- appoint an independent professional marine surveyor, at no cost to you, to carry out an investigation. The surveyor will re-survey the boat within 7 working days of being appointed and will submit the findings to us within a further 7 working days. We will let you know the outcome and will take appropriate action based on the findings of the investigation. We may require the examiner to undergo further training, suspend the examiner temporarily or withdraw the examiner's authorisation permanently.

Will the Boat Safety Scheme technical requirements change?

Yes. To take account of advances in technology or new safety issues, we may change the requirements from time to time, but see paragraph 10 page 10.

Before any changes are made, we will:

take account of any other boat safety requirements of other inland navigation authorities whose waterways join BW and EA waterways;

- consult the Inland Waterways Amenity Advisory Council about the proposed changes;
- consult organisations that represent builders, owners, and operators of boats affected by the proposed changes;
- bring the proposed changes to the attention of builders, owners and operators and give at least 84 days notice about when they will come into effect. In exceptional cases where the changes are needed to avoid serious risk of danger to people or property, less than 84 days notice may be given.

How will the Boat Safety Scheme link with the EC Directive on Recreational Craft?

The directive should help to remove trade barriers between EC member states. Boatbuilders may choose to apply the directive from 16 June 1996, but it becomes mandatory from 16 June 1998. Under the directive, boatbuilders can place on the Community market any boat or component that:

- meets the Essential Safety Requirements (ESRs) set out in the directive which are summarised in Annex 1 of this booklet.
- carries the European mark of conformity (the "CE" mark),

without having to meet additional national rules.

- **Steering system including**
Emergency arrangements
- **Gas system**
- **Fire protection including**
Fire-fighting equipment
- **Navigation lights**
- **Discharge prevention**

For further information contact:

Tony Bond
Department of Trade and Industry
3.117 Red Zone
151 Buckingham Palace Road
London
SW1W 9SS

or

Tom Nighy
Technical Manager
British Marine Industries Federation
Meadlake Place
Thorpe Lea Road
Egham
TW20 8HE

Annex 1

Summary of the EC Directive essential safety requirements

An EC directive about the design and construction of recreational craft comes fully into force on 16 June 1998. When fully implemented, manufacturers of boats will have to comply with the directive which contains Essential Safety Requirements. The Essential Safety Requirements cover:

• Boat Design Categories

• General requirements including:

- Hull identification
- Builder's plate
- Protection from falling overboard and means of reboarding
- Visibility from the main steering position
- Owner's manual

• Integrity, structural requirements

- Structure
- Stability and freeboard
- Buoyancy and flotation
- Openings in hull, deck and superstructure
- Flooding
- Manufacturer's maximum recommended load
- Liferaft stowage
- Escape
- Anchoring, mooring and towing

• Handling characteristics

• Installation requirements including

- Engines and engine spaces:
 - Inboard engine
 - Ventilation
- Exposed parts
- Outboard engines starting

• Fuel system including

- fuel tanks

• Electrical system

The directive covers:

- newly-built boats, partly-completed boats and certain components when introduced on the market and put into service for the first time; and
- second-hand boats from non-EC States placed on the market and put into service for the first time.

Boats built for your own use (DIY-built) covered by the scope of the Boat Safety Scheme and not placed on the Community market within 5 years of completion are exempt from the directive. DIY-built boats will therefore fall within the scope of the Boat Safety Scheme, and will require a Boat Safety Certificate from new.

The directive does not apply to boats built before 16 June 1998 unless a boatbuilder has chosen to apply it to boats built from 16 June 1996. Neither does the directive apply to CE-marked boats after they have been put into service. The Boat Safety Scheme is needed to apply standards to boats outside the scope of the directive. The Scheme and the directive will complement and not overlap each other. Working together the Scheme and the directive will ensure that all craft using our waterways meet and are maintained to appropriate safety standards. Until 16 June 1998 boats may be placed on the EC market and put into service if they comply with national rules, in this case The Boat Safety Scheme. There is therefore a need to maintain and update the Scheme over this period.

Over the next few years, the European Community will be developing a series of harmonised standards (CEN standards) to support the directive. These will set out precisely how boatbuilders can meet the ESRs. If boatbuilders follow the CEN standards (or their British equivalent, called BS EN), the boat will be presumed to comply with the directive. Use of CEN standards is not mandatory for boats covered by the directive. Technology develops rapidly, so boatbuilders are free to develop new methods provided they continue to meet the general ESRs.

Pending the issue of the appropriate harmonised (CEN) standards, the Boat Safety Scheme will recognise standards other than British Standards providing they offer the same (or higher) level of safety as those set out in the Scheme.

How will the EC Directive and the Boat Safety Scheme work together?

After 16 June 1998, when the directive takes full effect, all new boats on sale and put into service for the first time within the EC must comply with the ESRs.

If such a boat:

- carries the CE-mark; and
- has at least a declaration of ESR compliance from the boatbuilder or notified body,

the end user of the boat will have 4 years from the point of sale in which he or she will not need a Boat Safety Certificate when using our waters or those of other navigation authorities adopting the Scheme.

After that 4 years, CE-marked boats will need a Boat Safety Certificate to enable continued use of those waters. However, if the boat has been maintained to the specification set out in the boatbuilder's or notified body's declaration, the Boat Safety Standards will be treated as having been complied with. An examination of the boat will be required to check that this is the case.

At present British Standards are quoted in this booklet. But as CEN standards are agreed, we will update the booklet to bring the Boat Safety Scheme requirements into line with CEN. This means that, over time, the technical requirements of the directive and the Boat Safety Scheme will become consistent.

In the meantime, pending the issue of the appropriate CEN standards, we will recognise standards other than British Standards providing they offer the same (or higher) level of safety as those set out in the Scheme.

Paragraph 8 page 8 said that the Boat Safety Scheme requirements may change from time to time. It would not be practical to expect boats that currently comply with the Boat Safety Scheme to be modified when new CEN standards are agreed. So,

Vessels manufactured prior to 16 June 1998 are not required to comply with that part of Standard 9.1 which requires that sanitation systems shall comply with the requirements of BS MA 101.

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.

- 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.
- 11.13 Vessels manufactured prior to 16 June 1998 and carrying a fire blanket in good condition are not required to comply with that part of Standard 6.3 which prescribes that fire blankets shall comply with at least the 'light duty' requirements of BS 6575. This exemption will be rescinded on 16 June 2000 or the first Boat Safety Certificate examination after this date.
- 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 complying with the Class 2 requirements of BS 476: Part 7 until such time as visual inspection of the exposed GRP structure shows deterioration.
- 11.15 Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 6.5.
- 11.16 Vessels manufactured prior to 16 June 1998 are not required to comply with the requirements of Standard 6.6.
- 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.
- 11.18 Vessels manufactured prior to 16 June 1998 are not required to comply with that part of Standard 7.3 which requires that the materials used in the construction of a locker or compartment shall have a fire resistance of 30 min in accordance with BS 476 Part 20.

instead, exemptions may be granted to boats built before 16 June 1998 which we consider do not need to comply fully with each new CEN standard, provided this presents no serious risk to people or property.

General

Owners of existing privately owned boats are strongly recommended to comply with the requirements set out in Part 10 of this booklet. Boatbuilders and DIY enthusiasts should therefore add these requirements to the boat's specification.

Throughout the booklet imperial measurements are given in brackets and are intended as an approximate guide to conversion only.

Part 1

Scope of scheme

1.1

The Boat Safety Scheme standards shall apply to all powered vessels, all vessels let out for hire or reward except those stated in Standard 10.8, or vessels carrying fuel or fitted with domestic cooking, heating, refrigerating or lighting appliances.

1.2

A vessel for which there is in force a valid Passenger Certificate issued under the Merchant Shipping Regulations shall not be required to comply with these Standards where the Regulations and associated Guidance Notes for surveyors specify different requirements.

(Note: The Guidance Notes for surveyors are incorporated in the Boat Safety Scheme Technical Manual).

1.3

A Boat Safety Certificate is not required in respect of any privately owned open vessel not carrying nor fitted with domestic cooking, heating, refrigerating or lighting appliances and propelled solely by an outboard engine installation provided that the installation complies with the requirements of Parts 3 and 4 in respect of electrical installations and Part 5 in respect of internal combustion engines.

(Note: Fire extinguishers are considered to be an essential safety item in any vessel which carries fuel. It is strongly recommended that boats not requiring to be certificated under Standard 1.3 should carry a fire extinguisher(s) in accordance with Standard 6.1).

1.4

A valid Boat Safety Certificate may not be required to accompany applications for licences/certificates with a validity of up to 28 days which permit the passage of the vessel on certain waterways.

1.5

Navigation authority maintenance craft shall comply with these standards except that:

- i) where it is not practicable to provide a second means of escape (Standard 6.7 refers) cooking, heating or fuel burning appliances shall be situated at the end of the cabin remote from the exit.

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.

11.6

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.

11.7

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.

11.8

Vessels manufactured prior to 16 June 1998 are not required to comply with that part of Standard 2.22 which requires an oil-tight tray made of metal or other suitable material, the sides of which must be carried up as high as practicable where it is not practicable to comply without the removal of the engine. This exemption will be rescinded on 16 June 2000 or the first Boat Safety Certificate examination after this date.

11.9

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.

11.10

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.

11.11

Part 11

Exemptions

In all cases of boat refitting whether this be in whole or in part the opportunity should be taken to bring exempted installations or equipment up to the requirements specified under Parts 1 to 10 inclusive.

- 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").
- 11.2 Vessels manufactured prior to 16 June 1998 and having a vent pipe of an internal diameter of at least 9.5mm (¾") 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.
- 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/cm² (3.5lbf/in²) before installation and be marked to indicate this.
- 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.
- 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.

- ii) the provision of guard-rails around the perimeter of the deck (Standard 10.2 refers) may not be required due to the nature of work undertaken by such vessels.

All commercial vessels on cruising and remainder waterways shall comply with these standards except that the provision of guard-rails around the perimeter of the deck (Standard 10.2 refers) may not be required due to the nature of work undertaken by such vessels.

1.6

Part 2

Inboard engines

The following standards apply to all vessels fitted with inboard engines.

- 2.1 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.
- 2.2 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 paragraph 11.1]
- 2.3 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.
- 2.4 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 paragraph 11.2]
- 2.5 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

Instructions prohibiting the blocking of ventilators shall be inscribed on permanent labels prominently displayed on board the vessel. 10.5

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

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

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. 10.8

Part 10

Hire boats/New boats not covered by the EC directive

In addition to the standards specified in Parts 1– 9 inclusive where applicable, all boats which are let out for hire or reward and new boats not covered by the EC directive shall comply with the following additional requirements.

10.1 At least one life-buoy shall be carried on each vessel in a readily accessible position.

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.

10.3 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") 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.

ii) 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.

10.4 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.

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.

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 mins 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 rivetted to sustain a pressure test of 0.25kgf/cm² (3.5lbf/in²). [see paragraph 11.3]

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.

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 be used via gas-tight fittings. Where a dipstick is used it must be made so that it cannot strike the bottom of the tank. [see paragraph 11.4]

Tanks shall be accessible and all connections shall be readily accessible for inspection.

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.

Tanks may be drained only by means of a suitable drain valve fitted with a plug on the outlet. [see paragraph 11.5]

2.6

2.7

2.8

2.9

2.10

2.11

2.12 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 of the tank as is practicable.

[see paragraph 11.6]

2.13 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 paragraph 11.7]

2.14 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.

2.15 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.

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

2.17 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

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]

- 3.6 All permanently installed domestic cooking, heating, lighting or refrigerating appliances shall be secured in order to eliminate undue strain on pipe-work or fittings and to prevent overturning in the event of a collision and shall be properly installed.
- 3.7 Oil fired or LPG appliances shall not be installed in the engine space in petrol engined vessels.
- 3.8 Every fuel-burning appliance which requires a flue and where fitted a draught diverter shall be of an approved type and properly fitted and maintained. The flue shall be of adequate internal diameter, effectively insulated and of suitable material, to ensure the safe passage of gases to the outside of the vessel.
- 3.9 The water inlet to any water heater shall be piped only from the vessel's cold water system.
- 3.10 Adequate ventilation of a type which cannot be shut off shall be provided in accordance with the requirements of BS 5482 Part 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 by the vessel).
- 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.
- Fuel pipes shall be installed above bilge water level. 2.18
- 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, petrol and paraffin engines. 2.19
- The engine shall be securely installed. 2.20
- 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 paragraph 11.8] 2.21
- 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 paragraph 11.9] 2.22
- 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
- Exhaust noise shall be effectively suppressed and no form of exhaust silencer cut-out shall be used. 2.24

- 2.25 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 dual fuel system no flame failure device is required so long as the boiler when in use is constantly attended.

2.26 All vessels with internal combustion engines fuelled by Liquefied Petroleum Gas (LPG) must comply with the Liquefied Petroleum Gas Association (L.P.G.A.) 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.

The following standards apply to all vessels fitted with cooking, heating, refrigerating and lighting appliances.

(Note: All fires, cookers and other appliances with naked lights must be turned off before taking in fuel).

All fuel installations for cooking, heating, refrigerating and lighting appliances shall be installed in accordance with the appropriate parts of these Standards.

8.1

The pilot lights and/or burners on all gas or paraffin refrigerators installed in petrol engined vessels shall be completely enclosed. Air for combustion must be:

8.2

- i) drawn and exhausted through an approved flame trap,
or
- ii) piped to the appliance from outside the vessel or from a point inside the vessel above the level of the ports, windows or other means of ventilation in the compartment in which the appliance is installed.

All LPG or fuel oil appliances of the catalytic type or with pilot lights or having continuously burning flames shall incorporate a flame failure device to cut off the gas or fuel oil supply to the main and pilot burners. Catalytic appliances shall also comply in all respects with the requirements of BS 5258 Part 11.

8.3

Appliances fired by fuel oil 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 appliances.

8.4

Woodwork and all other combustible materials including curtains adjacent to all appliances shall be suitably insulated and protected against excessive heat or be inherently flame retardant, or be treated with a durable flame retardant.

8.5

Electrical Installation

to the interior of the vessel or outside of a vented container housing; and

ii) for the connections between portable appliances and their control points.

7.10 All fixed pipe work other than that which forms an integral part of gas-burning appliances shall be made of solid drawn copper or stainless steel.

7.11 All fixed pipe work shall be as short, and run as high as practicable and shall be rigidly secured. It shall be adequately protected against mechanical damage and deterioration.

7.12 Pipe work shall be installed above bilge water level and not adjacent to electric cables (unless the cables are contained in suitable conduit – see Standard 3.4) and not adjacent to exhaust pipes or in any other position prejudicial to its safety. It shall not run through petrol engine compartments and/or compartments specifically designed to contain or containing electrical equipment including batteries unless carried in gas-proof conduit admitting jointless pipe only.

7.13 Joints in pipe work shall be kept to a minimum, and they shall be readily accessible for inspection. Joints shall be made with compression fittings and rigidly secured.

(Note: When gas is not being used it is advisable to turn off the valve on the container. Where two containers are connected by a manifold or tee, both container valves should be closed before either container is disconnected. Any spare or empty containers on board must either be on deck or in the ventilated housing).

7.14 An approved gas test point shall be fitted at the furthest practicable point from the supply.

(Note 1: No additional gas test point is required if one is already fitted to an appliance at the furthest practicable point from the supply)

(Note 2: In addition to a gas test point, an approved bubble tester is highly recommended in order that boat owners may easily check for gas leaks. Such a tester shall be securely fixed in the gas tight compartment or box as defined by Standards 7.2 and 7.3).

The following standards apply to all vessels having electrical equipment.

(Note: There is in existence a Code of Practice which addresses Electrical and Electronic Installations in Boats published by the British Marine Electronics Association which includes reference to AC systems which may be referred to for further guidance).

3.1 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.

3.2 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 conduit.

3.3 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 a suitable design.

3.4 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 paragraph 11.10]

3.5 A master battery 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 battery 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 bypass 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.

3.6 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.

3.7 All electrical devices fitted in any compartment containing petrol or gas shall be ignition protected in accordance with BS EN 28846.
[see paragraph 11.11]

3.8 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.

3.9 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.

Any compartment or box as specified under Standard 7.2 (ii) shall be constructed of sheet metal of 0.9mm (20 w.g.) minimum thickness with joints welded or brazed, or of fire-retarding glass-fibre reinforced plastic of adequate thickness. The materials used in the construction of a locker or compartment shall have a fire resistance of 30 min in accordance with BS 476 Part 20.
[see paragraph 11.18]

All containers shall be installed in an upright position with the valve uppermost and not adjacent to any cooking or heating appliance or in an engine or fuel or battery compartment.

Ready access to the main gas valve(s) shall be provided at all times. If the main gas valve(s) are not visible their position(s) shall be clearly marked.

Pressure regulators may be mounted either separately from the cylinder(s) or with a direct connection to the cylinder(s). Pressure regulators not directly connected to cylinders shall be securely fixed and suitably protected within the compartment specified in Standard 7.2 (ii). In both cases a flexible connection to BS 3212 Type 2 shall be fitted to facilitate the replacement of cylinders. Pressure regulators of the external manual-adjustment type shall not be fitted.

Each point intended for use with a portable appliance shall be provided with a readily accessible isolation tap and bayonet or screwed connection.

Where self-contained portable gas appliances having the burner screwed direct to the container are used, such appliances if stored in the vessel shall be placed in a compartment or locker constructed in accordance with standard 7.2 (ii). Self-contained portable gas appliances shall not be used whilst unattended on board any vessel.

Flexible tubing, conforming to BS 3212 Type 2, of minimum practical length shall be used:

i) for the immediate connections to containers or to regulators directly attached thereto but not extended

Part 7

LPG (Liquefied Petroleum Gas) installations

The following standards shall apply to all vessels with LPG installations.

7.1

The installation shall comply with BS 5482 "Domestic Butane and Propane Gas-burning Installations, Part 3: Installations in Boats, Yachts and other Vessels". The maximum pressure drop of 2.5 mbar specified in Appendix C of BS 5482 Part 3 may be exceeded so long as, when all burners are lit, the flames are steady and of the correct proportions and the pressure at each appliance complies with the manufacturer's specification.
(Note: The boatbuilder or the equipment supplier/installer should provide instructions for maintenance, safe use, guidance on ventilation and emergency procedures, in accordance with BS 5482 Part 3 Clause 22 and Appendix A).

7.2

Every container (whether in use or not) shall be either:

- i) secured on open deck away from hatches and other openings so that any escaping gas is dispersed overboard; or
- ii) secured in a separate compartment or box above the water line, with gas-proof and flame-retarding sides and bottom, and with a lid or cover. Such a compartment or box shall be of sufficient depth to contain the height of the cylinder(s), cylinder valve(s), and regulator(s). Such a compartment or box shall have provision for allowing any escaping gas to be vented overboard by means of a metal or flexible pipe suitable for use with LPG or a direct opening through the side of the vessel as near as is practicable to the bottom of the compartment or box. The lower pipe or opening shall have a minimum internal diameter of 12mm ($\frac{1}{2}$ ") for a cylinder of up to 15kg capacity and shall be enlarged in cross-sectional area proportionately for additional gas storage.

Part 4

Electrically propelled vessels

The following standards apply to all vessels having electrical propulsion.

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 (I.E.E.) Regulations for the Electrical and Electronic Equipment of Ships as appropriate to the size of the installation.

The arrangement of batteries, including in particular their stowage and the requirements in respect of adequate ventilation shall comply with the I.E.E. Regulations for the Electrical and Electronic Equipment of Ships – Section 14.

The propulsion motor shall be securely installed.

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

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

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.

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.

4.1

4.2

4.3

4.4

4.5

4.6

4.7

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.

4.9 The motor and controller compartments shall be adequately ventilated.

For guidance only

The fire rating of an extinguisher appears as a series of numbers and letters marked on the side eg 5A/34B. The numbers relate to the ability of the extinguisher to successfully put out a fire under test conditions. The bigger the numbers, the bigger the fire on which the extinguisher has been tested.

Class of fire	Extinguishing medium	Colour of extinguisher
A	Water	Signal red
A/B	Foam	Pale cream
A/B/C	Powder	French blue
B/C	CO ₂	Black

where:

CLASS A fire = paper, wood, textiles and fabric

CLASS B fire = flammable liquids

CLASS C fire = flammable gases

NB: In the event of an electrical fire use dry powder or CO₂ ONLY

It should be noted that:

- i) All stored pressure ABC dry powder extinguishers have a Class A/Class B fire rating.
- ii) All stored pressure BC dry powder and CO₂ extinguishers only have a Class B fire rating.
- iii) Most, but not all, aqueous film forming foam (AFFF) extinguishers have a Class A/Class B fire rating. Some small capacity AFFF extinguishers only have a Class B rating.
- iv) CO₂ extinguishers are not to be provided for living spaces.
- v) Halon extinguishers may be retained until life-expired or discharged.
- vi) The number of extinguishers and the total and individual fire ratings (which are marked on all approved extinguishers) depend on the vessel size, engines (whether inboard or outboard), and installation of L.P.G. or other fuel burning appliances.
- vii) Fire buckets with lanyards, where provided, shall be in addition to the extinguishers required.

Outboard and portable engines

remotely operated the release device shall be readily accessible from outside that space.

- 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 paragraph 11.13]
- 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 suitable fire-retardant material complying with the Class 2 requirements of BS 476 Part 7.
[see paragraph 11.14]
- 6.5 Polystyrene thermal insulation, shall comply with the Type A requirements of BS 3837 Part 1.
[see paragraph 11.15]
- 6.6 All soft furnishings, fabrics and foam materials used in the lining out and furnishing of 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 paragraph 11.16]
- 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 paragraph 11.17]

The following standards apply to all vessels fitted with or carrying outboard or portable engines whether in use or not.

- 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.
- 5.2 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.
- 5.3 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.
- 5.4 Petrol not carried in fuel tanks shall be stowed in containers conforming with the requirements of the Petroleum Spirit (Motor Vehicles, &c) Regulations 1929 (S R & O 1929/952) or the Petroleum Spirit (Plastic Containers) Regulations S.I. 1982 No.630 and these shall be stowed in accordance with Standard 7.2 and 7.3.
- 5.5 All vessels with engines fuelled by Liquefied Petroleum Gas (LPG) shall comply with the Liquefied Petroleum Gas Association (L.P.G.A.) 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.

Fire prevention and extinguishing equipment

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 of extinguishers	Minimum fire rating of each extinguisher	Minimum combined fire rating of extinguishers
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 paragraph 11.12]

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

25

- 5.6 Outboard engines shall be securely fitted.
- 5.7 Exhaust noise shall be effectively suppressed.
- 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.