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## Introduction

### The Boat Safety Scheme Essential Guide



**Welcome to the second edition of the Boat Safety Scheme Essential Guide, a valuable handbook for any boater who takes safety seriously and understands the importance of properly installed and maintained boat systems.**

This Guide takes you step-by-step through the Boat Safety Scheme, identifying hazards, approaches to risk-reduction techniques, the legal requirements of the navigation authorities and the best practice standards to keep you and your crew safe when aboard, or close to the boat.

We have also included information about routine safety checks that you can easily carry out yourself, booking and preparing for a BSS examination, and the national and international standards for marine installations and appliances.



### 1.1 What is the Boat Safety Scheme?

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**Boating is a relaxing, enjoyable and even addictive leisure and lifestyle pursuit. For hundreds of thousands of people each year it is a tranquil and safe activity. To help it to continue to be that, all your boat's systems need to be installed, maintained and used with safety in mind.**

The Boat Safety Scheme, or BSS, works on behalf of the UK's navigation and harbour authorities to help sustain safety and promote pollution avoidance on the inland waterways in respect of boats, their installations and components. The BSS does this through advice, identification of hazards, promoting techniques to avoid risks and information gathering and research.

The navigation authorities are committed to help prevent boat fires, explosions, or pollution harming other people and property.

The Scheme reduces the risk of such incidents by using the BSS examination to verify that systems and appliances on any given boat at least meet the minimum safety requirements.

### 1.2 History

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**On inland waterways, safety requirements, some dating back to the very earliest part of the twentieth century, have been stipulated for boats following fires, explosions and other types of incident. In 1997 its current owners, the Environment Agency and British Waterways, established the BSS to set a common and specific list of safety standards for boats, their systems, installations and appliances.**

Following an independent review of the Scheme in 2001, the full set of BSS Standards was split into essential safety/environmental requirements and best safety-practice recommendations.

## 1.3 The current Scheme

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Today, the BSS is much more than an examination. Education, persuasion and promotion of safety is equally important, perhaps even more so as there are hazards and risks linked to the use of fuels and appliances even when the boat itself is in safe condition. Now the navigation authorities have asked the BSS to promote advice to help maintain and improve the quality of the water of inland navigations.

## 1.4 The navigation authorities' legal requirements

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There are 31 legal requirements listed below for privately-owned and privately-managed boats. These requirements, known as the BSS General Requirements, are expressed in goal-setting terms. They are supported by expected means of compliance that are set out in Chapters 2 to 9 of this Guide.

### Permanently installed fuel systems and fixed engines

- 1 All permanently installed fuel systems and fixed engines must be designed, installed and maintained in a way that minimises the risks of explosion, or of fire starting or spreading.

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- 2 Fuel filling arrangements must prevent any overflow from entering the interior of the vessel.

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- 3 All fuel filling points must clearly identify the fuel in use.

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- 4 Marking must be provided to identify the location of fuel system emergency shut-off devices, or their means of operation, which are not in open view.

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- 5 All permanently installed fuel systems must be designed, installed and maintained to ensure fuel-tight integrity.

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- 6 All permanently installed fuel tanks and fuel system connections must be accessible for inspection.

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- 7 The pressure systems of steam-powered installations must have a current inspection certificate issued by a recognised competent person.

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## **The navigation authorities' legal requirements (continued)**

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### **Electrical systems**

- 8** All electrical systems must be designed, installed and maintained in a way that minimises the risks of explosion or of fire starting and spreading.

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- 9** All electrical systems must be capable of being safely and quickly disconnected from their power source(s) in an emergency.

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- 10** Control and emergency devices, or their means of operation, must be marked when not in clear view, or when their function is not clear.

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- 11** All battery compartments containing unsealed or open-vented batteries must be adequately ventilated to prevent a build-up of a flammable mix of gases.

### **Electrical propulsion systems**

- 12** All motors, controller equipment and charging equipment relating to electrical propulsion must be adequately ventilated.

### **Outboard and portable combustion engines and portable fuel systems**

- 13** All portable and outboard engines and portable fuel systems must be designed, installed and maintained in a way that minimises the risks of explosion, or of fire starting and spreading.

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- 14** All spare petrol must be stored in a way that minimises the risk of fire and explosion.

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- 15** All portable and outboard engines with integral petrol or LPG tanks, and all portable petrol tanks, must be stored in a way that minimises the risks of fire, or explosion when not in use.

### **Fire extinguishing and escape**

- 16** All vessels must carry specified fire-fighting equipment.

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- 17** All fire-fighting equipment must be in good condition and kept readily accessible for safe use in an emergency.

### **LPG systems**

- 18** All LPG systems must be designed, installed and maintained in a way that minimises the risks of explosion, or of fire starting and spreading.
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- 19** All LPG containers and high-pressure components must be secured in a position where escaping gas does not enter the interior of the vessel.
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- 20** All LPG systems must be designed, installed and maintained to ensure gas-tight integrity.
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- 21** All LPG system connections and flexible hoses must be accessible for inspection.
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- 22** All LPG control and shut-off devices, or the means to operate them must be readily accessible.
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- 23** LPG shut-off valves, or their means of operation, must be marked when not in clear view, or when their function is not clear.
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- 24** All LPG systems must have a suitable means to test that the system is gas-tight.
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#### **Appliances and flues**

- 25** All appliances must be designed, installed and maintained in a way that minimises the risks of explosion, or of fire starting and spreading.
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- 26** All liquid-fuelled appliances must have an emergency shut-off valve located at a safe distance from the appliance.
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- 27** a) **LPG and liquid-fuel burning appliances installed from 3 Jan 2000** All burners and pilot lights shall be fitted with a device that automatically shuts off the fuel supply if the burner flame fails.
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- b) **LPG and liquid-fuel burning appliances installed before 3 Jan 2000** Burners on catalytic appliances, appliances with continuously-burning flames and pilot light burners shall be fitted with a device that automatically shuts off the fuel supply if the burner flame fails.
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- 28** All appliance flues must be designed, installed and maintained in a way that minimises the risk of fire.
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- 29** All fuel and power supply systems for appliances must meet these navigation authority requirements where relevant.
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#### **Pollution prevention**

- 30** Any leakage of oil from engine equipment must be contained and prevented from being avoidably discharged overboard.
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- 31** Bilge pumping and toilet systems must be designed, installed and maintained in a way that minimises the risk of avoidable pollution.
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## 1.5 The BSS Essential Guide and why it's essential reading

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**Carrying out routine maintenance is highly recommended, as is using this Guide to check that the boat still complies with the BSS General Requirements, especially when making alterations or additions.**

Making time to read the Guide will pay dividends, both before booking your BSS examination and when preparing your boat for examination. The information in this Guide about the compliance options is exactly the same information as authorised examiners use to carry out a BSS examination.

For these reasons, it has been designed as a companion publication for you to keep on board for quick and easy reference.

## 1.6 Fitting out or making changes

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**It is important to remember that this Guide is not a DIY instruction manual on boat construction, repairs or maintenance. You should always refer to a manufacturer or supplier for such information. We also recommend having a competent person replace, modify or repair any part of your boat's installations, components and appliances.**

Before making changes to your boat, check the latest editions of relevant British and International Standards as well as marine or other relevant industry codes of practice. There are references to some relevant ones in each chapter and useful sources of information in the contact list.

## 1.7 Meeting the requirements

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**The compliance checks in the Guide were devised with the help of the BSS committees. They form our expectations of how a boat will meet the General Requirements.**

Checking that your boat meets these expectations will probably mean that at the time of examination, a certificate can be issued without delay. If however, an installation on your boat does not match the expectations set out in the Guide, then you have four options:

- a) Seek guidance from the BSS Office that you are interpreting the published check and guidance in the way the Scheme originally envisaged, or;
- b) make alterations to the installation, system or appliance so that it meets the expectation(s), or;
- c) contact the BSS Office directly with documentary evidence that it still complies with the relevant BSS General Requirement(s). An assessment and judgement will be made within a very short time of having all the evidence for appreciation, or;

- d) if at this stage, the BSS Office is still of a view that the navigation authorities' requirements are not complied with, you will be allowed to present the evidence to a formal appeals process.

Please note this important point: your examiner must not offer a judgement of compliance outside of the actions and notes of the checks published in this Guide, unless he or she has had specific guidance from the BSS Office. Please do not ask the examiner to act on a discretionary basis and please report to the BSS Office any examiner you believe may be doing so.

## **1.8 Advice checks - safer than the minimum requirements**

**During the BSS examination, the examiner will also check a number of items not linked to the enforceable navigation authorities' requirements. These advice checks are just that: good advice that will help you keep the people onboard your boat safe! Although privately-owned boats do not have to comply with any of these to be issued a certificate, each advice check represents best-safety practice. We recommend that your boat meets all of these points. You can then be confident that as an owner, you have achieved a higher standard of safety.**

## **1.9 How to use the guide**

**Beyond the introduction, this Guide is divided into eight chapters describing the compliance expectations in detail. The introduction to each chapter explains in general terms what risks are associated with that particular area of your boat and then lists again the related BSS General Requirements.**

A short note on the nature of the fuel for instance, or of the risk subject of the chapter may follow. These notes offer the background information to understand better the reasons behind the Requirements and how they are supported by the compliance checks. The compliance checks are next. These are grouped into sections. There is a short introduction to the key points covered in the section followed by the details of checks and options. Most checks are also preceded by a short description of the hazard or risk being addressed. In setting out the Guide in this way, our aim is to highlight specific risks and the means to minimise them, along with practical illustrations of how to comply with the requirements. The requirements to protect others from fire, explosion and pollution are clearly distinguished from advice checks and the recommendations for the additional safety of you and your crew.

Here is an example of the information within the Guide:

## 2.6 Fuel gauges

section reference and title

**An inappropriately installed gauge on your tank could introduce a serious weakness**

generic risk description

Glass or plastic fuel sight-tube gauges can easily be damaged by knocks or the heat from a fire leading to a catastrophic leak of the tank contents. With diesel or paraffin tanks, limiting any potential fuel escape is key to maintaining protection.

specific risk description

### 2.6.1/R REQUIREMENT

**Are any glass or plastic tube or strip-type fuel gauges fitted to diesel tanks only?**

Check each petrol tank for glass or plastic tube or strip-type fuel gauges.

Petrol tanks must not be fitted with glass or plastic tube or strip-type fuel gauges.

**When carrying out your own routine examination, answering 'yes' to each appropriate compliance check will give you confidence that your boat meets the expectations. Where they exist, the notes will help you make an accurate assessment. See the example below associated with 3.1.3/R Are battery terminals correctly insulated or protected?**

**Notes** - deck boards, locker lids, etc, made from or lined with insulating material may only be considered as battery covers where they will not be removed for any purpose other than gaining access to the batteries.

The number is the reference R (red) shows it is a requirement. An A (grey) would show it is an advice check.

The question forms the compliance check (red or grey box).

It is followed by the description of the checking action i.e. when the check applies; when it does not; what it applies to; how it applies (blue box).

This is supported by the details of the check criteria and specific requirements when appropriate. These clarify whether the checked item complies or not (yellow box).

Occasionally a compliance check, with or without notes, is followed by another box that may contain advice on industry best practice, installation advice, etc. It is our recommendation for greater safety to supplement that section's expectations. Often this is where the requirement is for historically lower standards than what the industry codes currently stipulate or where we have previously published best practice which continues to be valuable, for example, from the gas section Chapters 7 and 8.

**Best practice**

Regulators have a finite life and we recommend that, in general, they are replaced at least every 10 years.

**b****Information**

There are additional handy tips and further information from the BSS Office and examiners shown in information boxes like this.

**i****1.10 More information**

You can find out more information by speaking with your local examiner or contacting the Boat Safety Scheme Office (01923 201278). Further advice if you are unsure about anything connected with the navigation authorities' requirements or the safe use of fuels, installations and appliances is available on [www.boatsafetyscheme.com](http://www.boatsafetyscheme.com) and related links from the site.

**1.11 Where do the requirements apply?**

The Boat Safety Scheme has been endorsed by all the UK navigation authorities, represented by the Association of Inland Navigation Authorities (AINA) and it is a good idea to contact your local navigation authority to see if the BSS applies and whether any other regulations are in force. Some harbour authorities and private marinas also use the BSS.

All licensing and registration queries should be directed to your appropriate navigation or harbour authority. Contact details for some authorities and other useful sources of information are listed at the end of this Guide.

**1.12 Documentation**

There is also a clear plastic wallet included in the Guide where you can keep your certificate and other useful paperwork connected with the safety of your boat. Keeping such documents could be important, for example, invoices for replacement parts or work you may have had done to your boat could be used to help decide its compliance.

This type of documentation is also handy if you are thinking about selling the boat as a prospective buyer will recognise the care you have taken when it comes to ensuring safety.

## **1.13** Do the requirements apply to my craft? (scope)

- All vessels carrying fuel or fitted with domestic cooking, heating, refrigerating or lighting appliances are required to undergo a BSS examination except for those craft covered by an RCD Declaration of Conformity (see 1.14).
- A vessel for which there is in force a valid Passenger Certificate issued under the Merchant Shipping Regulations is considered by some navigation authorities, as meeting their legal requirements.
- A BSS examination is not required in respect of any privately-owned, open vessel (i.e. a vessel in which all the accommodation is completely open to the elements) if it has no domestic cooking, heating, refrigerating or lighting appliances installed and it is propelled solely by an outboard engine. Please note, such boats remain subject to all appropriate navigation authorities' legal requirements.
- Some navigation authorities may allow vessels a short-term or visitor status licence or registration without the need to undergo a BSS examination on the basis that the owner makes a declaration that his or her vessel meets the navigation authorities' legal requirements outlined in this Guide and is willing to allow spot checks by navigation authority officers or authorised agents for the authority. Such boats remain subject to all appropriate navigation authorities' legal requirements.

## **1.14** Notes on the Recreational Craft Directive (RCD)

CE-marked craft conforming to the Recreational Craft Directive (RCD) are considered by some navigation authorities to have met their requirements for the first four years from new. Owners can usually make a licensing or registration application with a suitable Declaration of Conformity (DoC) supplied by the boat's builder.

In the UK the RCD is transposed into UK law by way of the Recreational Craft Regulations (RCR).

### Technical equivalence with the RCD

The last thorough review of the BSS requirements included a comparison with the RCD. The aim was to ensure either alignment with, or, that the BSS requirements do not exceed the demands of the RCD.

To ensure this aim continues to be met, the BSS has available a Technical Equivalence Panel of three independent experts who will offer their guidance on the equivalence of systems or components on CE-marked craft in the circumstances where the item or component fails a BSS examination and an appeal is presented by the owner or supplier.

## 1.15 Part-built boats

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**If you have bought a shell or 'sailaway', or any other partly completed boat as defined by the RCD, you should have received from the builder an Annex IIIa Declaration. This is an important document and by providing it the builder is meeting his obligation under the RCD and declaring that the boat is for completion by others and at the stage of completion at handover it complied with the applicable essential requirements of the RCD.**

A suitable builder's Annex IIIa Declaration is accepted in support of the first licence or registration application by some navigation authorities. Ordinarily owners of such craft will need to produce either a valid certificate issued by a BSS examiner or a full RCD Annex XV Declaration of Conformity for the completed boat in support of the next annual licence application.

There is an information sheet for owners of recently purchased shells, 'sailaways' or other types of partly completed boat available on [www.boatsafetyscheme.com](http://www.boatsafetyscheme.com) or from the BSS Office by post.

Further information about the RCD is available from the British Marine Federation (BMF) ([www.britishmarine.co.uk](http://www.britishmarine.co.uk) - click on 'publications' then 'technical') or the Royal Yachting Association ([www.rya.org.uk](http://www.rya.org.uk) - search on 'Technical').

## **1.16** Buying a boat?

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When a certificate is issued, it relates only to the observations recorded at the time of the examination and does not guarantee that a boat complies at any other time since maintenance could have been lacking or new appliances installed below minimum standards. Furthermore, there are important aspects of safe boating that are not addressed in a BSS examination; for example, the BSS examination is not a full survey and does not cover the condition of the hull or deck, the integrity of through-hull fittings or the stability of the boat.

If you are thinking of buying a boat, we strongly advise you to commission a full condition survey before committing yourself to buy it. Satisfy yourself that the boat complies not just with the minimum safety requirements of the navigation authorities, but in many or all respects that it meets the standards of best practice to keep you and your crew safe.

## **1.17** Updates to this guide?

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The Guide has been designed so that it can be updated quickly and easily if the need arises. On each page there is the reference that will allow you to insert an update and remove redundant pages without disrupting the rest of the Guide. Look out for news from the navigation or harbour authorities and articles in the waterways press and websites such as [www.waterscape.com](http://www.waterscape.com) or [www.boatsafetyscheme.com](http://www.boatsafetyscheme.com) for news of updates.

## Your boat's BSS examination

### 1.18 Booking

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**You can book an examination up to two months before your old certificate or RCD Declaration of Conformity 4-year deadline runs out. If your boat passes first time, the examiner will post-date the new certificate to start from the date when the old one or DoC expires. This means you do not lose any of the full four-year validity of the certificate.**

We recommend taking advantage of this facility, because if your boat fails for any reason, you will still have some time to put things right.

For the same reason even if you have no old certificate or DoC it is a good idea to contact an examiner well in advance of needing to get your boat licensed, registered or take up a mooring.

Finding an examiner is usually quite easy, and there are a number of ways you can do this. You can generate a list of examiners by accessing [www.boatsafety.com](http://www.boatsafety.com). The BSS Office and some local navigation authority offices can also supply tailored lists. The main waterways' magazines often publish details of examiners, or you might like to ask fellow boaters for recommendations.

Be prepared to get two or three quotations, and always have a list of questions to hand so that you can agree the details right at the outset. These could include for example, does the price include the cost of a certificate, are there extra charges if the examiner spends longer inspecting your boat than he expected, and will there be an extra charge if the examiner needs to make a return visit? The examiner might ask you a range of questions about the systems installed on your boat to help him give you an accurate quote. Sorting these details out can help you make an informed choice when selecting an examiner.

Remember, each examiner is free to set his or her own charges, and market forces, the complexity of the boat's installations, VAT applicability, and travelling time will probably influence the prices given to you.

## 1.19 Preparing your boat

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**Regular maintenance to keep your boat safe and complying with the legal obligations when it is on the water should ensure a first-time pass. However, preparing your boat before its examination will pay off. Apart from checking to see that installations, components and fittings comply with the requirements before the examiner arrives, there are several things you can do to make the whole process run smoothly.**

All required items must be capable of being checked effectively and accurately. If not, the examination will be considered to be incomplete. An examiner cannot issue a certificate on an incomplete examination, so here are a few points to keep in mind.

- Ensure that all the boat's installations and appliances are fully functional so that a complete examination can take place. This includes having a fully charged battery and sufficient gas and water, together with any other documentation that shows compliance with the BSS General Requirements.
- If the good condition or suitability of any item cannot be verified where this is a requirement, no certificate will be issued. Ensure full access to all gas joints and as much pipework as possible for a thorough examination. Items such as gas lockers should be unlocked, and boards and panels removed to give access where verification is necessary.
- Notify any relevant landowners who may have to give access to the examiner so that he can get to your boat's mooring.
- Have the existing certificate to hand. This will help the examiner with information about the boat that he or she must record, such as when it was constructed, and with the confirmation of the expiry date of your current certificate.

## 1.20 At the end of the examination

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**The examiner must issue you with a BSS Examination Report form after the first examination is completed.**

If your boat fails on any of the checks the examiner carries out, whether they are related to the BSS General Requirements, or to advice checks, the report will explain which were not compliant or unable to be verified as compliant.

The examiner may supplement this information, typically using BSS Form E or using his/her own headed business paper/forms.

Your boat will still be eligible for a certification if your boat only meets the BSS General Requirements, although complying with the advice checks may give you further peace of mind and help you to meet some of your responsibilities to your crew or visitors.

You will get two copies of the certificate dated accordingly. It is the confirmation that your boat has been examined by the examiner against the BSS compliance checks and on the day of examination complied with the navigation authorities' legal requirements. It is important to keep the top copy with the hologram safe and pass it onto the new owner should the boat change hands.

The second copy, which is blue, may be requested by your navigation or harbour authority for checking or retention, as a part of your licence, registration, or mooring application.

On issuing the certificate, the examiner will record some detail of the boat including the appliances. Keep your copy of this safe too, preferably with the new certificate as it could qualify some of the information on the certificate.

Please remember, if your boat is found not to comply with the BSS General Requirements and your boat is on a waterway where there is a legal basis for them, you will either have to bring it up to standard or present reliable documentary evidence supporting a claim of compliance with them.

## **1.21** **Warning notices and dangerous boat notifications**

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### **Warning notices**

In circumstances which are described in the notes section of some of the compliance checks, your examiner may issue your boat with a warning notice. These are issued for two purposes, firstly to alert the owner or person responsible for the craft's condition that a serious and immediately hazardous defect has been found. Secondly, to alert anyone stepping aboard that they could be at risk and should take precautions.

The examiner will have made a brief note about what the defect is. For further information please contact the examiner.

### **What it means / what to do now?**

You must now consider yourself duly alerted to the hazardous defects. Where they relate to BSS General Requirements, your navigation authority will insist that repairs are made as soon as possible.

### **Who has been told?**

This note has been sent or handed to you and a copy has been displayed on the boat in a prominent position. BSS examiners will keep another copy in their records about this vessel.

### **Dangerous boat information**

Where the defects relate to the following hazards further action may be taken:

- Leaking gas
- Leaking fuel
- Gas refrigerators with naked flames on petrol-powered boats
- Significant quantities of fuel or other substances escaping into the watercourse.

The examiner will ask you to make the boat safe immediately and not to use the vessel/appliance until the defects have been properly fixed. The examiner is also required to inform the owner of the moorings and the BSS Office who will alert the appropriate navigation or harbour authority.

### **UK Law**

It may be an offence under the Gas Safety (Installation and Use) Regulations for a person to use or permit a gas installation/appliance to be used that might constitute a danger to any person or property. In the event of injury or damage to property, the existence of known defects may be material to the boat owner's duties under the law of occupier's liability or to the boat owner's insurance.

## **Finally**

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**We trust you will find the following chapters a useful and comprehensive reference to help maintain your boat in a safe and legal condition. If anything is unclear or if you need any support and advice about the examination or compliance options, please contact the BSS Office using the following details:**

<b>BSS Office</b>	<b>Phone: 01923 201278</b>
<b>Willow Grange</b>	<b>Fax: 01923 201420</b>
<b>Church Road</b>	<b>Email: <a href="mailto:bss.enquiries@boatsafetyscheme.com">bss.enquiries@boatsafetyscheme.com</a></b>
<b>Watford WD17 4QA</b>	<b>Web: <a href="http://www.boatsafetyscheme.com">www.boatsafetyscheme.com</a></b>