



31 August 2021

## The Interim Review of the BSS Examination Checking Procedures – Every Change Explained – August 2021

### 1 Introduction

This document is for BSS Examiners and BSS Committee members and introduces the improvements made to the BSS Examination Checking Procedures (ECP) as an outcome of the recently completed Interim Review of the 2015 version. In this document every change is explained.

In summary, other than:

- one newly introduced BSS Requirement affecting a very small number of boats; and,
- several changes involving a slight relaxation of the BSS Requirements or the addition of further compliance options...

... the changes are purely editorial, supporting the consistent application of the Checks by BSS Examiners.

There are however a considerable number of significant editorial changes, some involving Check number deletions and Check number additions, and many others changing the nature of the previously published Check.

It follows that BSS Examiners will need a keen understanding of the key changes before the launch date of the revised Checks. This in order to ensure that the revised Checks are applied consistently.

It is predicted that the improvements will have a very positive impact on the level of consistency of the application of the Checks by existing BSS Examiners, and will significantly improve the uptake of knowledge and understanding of new-entrant Examiners going through initial training and assessment.

### 2 The review process

The ECP set out how the BSS Requirements are to be applied during BSS Examinations on privately owned and privately managed vessels.<sup>1</sup>

The interim review task began in earnest in 2019 and the aims were limited to:

- a) ensuring that the published ECP support the consistent application of the Checks by BSS Examiners; and,
- b) ensuring that the Checking actions/Requirements/Applicabilities<sup>2</sup> concerning each individual Check can be trained to effectively, at the time of any refresher training and at the time new-entrant Examiners are initially trained.

<sup>1</sup> The ECP also act as the 'core' Requirements for hire boats

<sup>2</sup> 'Applicabilities' contain information relating to the applicability of the Check and any reporting implications and actions that BSS Examiners take account of in the event of a fail.

In assessing the need to make any interim changes, the following factors were taken account of:

- a) a review of the historic comments, Check-by Check, made by Examiners on the (Salesforce) BSS Examination database. Comments can indicate the level of understanding of the application of the Check; and,
- b) previous recorded discussions at BSS Technical Committee meetings; and,
- c) a review of the technical enquiries received into the BSS Office or collected during BSS Examiner Field Assessments or the initial training course; and,
- d) comments made Examiners in the course of investigating formal complaints against them alleging that they have not properly applied the ECPs; and,
- e) information, generally from the marine industry that a specific Check may appear to contravene the way that boats are being built to comply with the Recreational Craft Directive, or that may appear to conflict with a supporting ISO standard; and more recently,
- f) the development of the new BSS Examiner Training Course learning material influenced the final changes.

Proposals were accepted or refined at BSS Technical Committee and involved members in a considerable amount of detailed work. A sub-group of BSS Advisory Committee subsequently considered each proposal for change against the following terms of reference:

- Does each proposed change make sense?
- Does each proposed change support the aim of the project as set out above?
- Can each proposed change be applied consistently in the field?
- Are there any unforeseen consequences associated with each proposed change?

The interim reviewed ECP will be used by all BSS Examiners from 28 September 2021.

It is intended that ratification of the agreed changes will be formalised from Spring 2022.

The final ECP will be published as a 'controlled document' soon afterwards.

By way of web information, boaters will be informed of the changes to the 2015 ECP and both Examiners and boaters will have access to information explaining every change.

It is not intended that any formal public consultation will be carried out, because new Requirements do not feature and the only one developed affects very few boats and proposals are being made known to those affected directly. See *New BSS Requirement Incorporated*, below.

Existing BSS Examiners are to undertake online training to the changes to the ECP during September 2021 and will be assessed against the key changes.

Examiners are to complete an online training programme covering all BSS Checks in their reviewed form. This programme is built of 19 separate modules of varying length, with the programme to be completed by September 2022.

Fundamental review of those BSS Requirements deemed necessary to modernise, will commence in 2022, in priority order.

### 3 Interim Review outcome

In total, around 540 individual changes were made to the 181 Checks in the original 2015 ECP.

Minor Editorial Changes - The majority of changes (55%) are of a minor editorial nature, intended to support the consistent application of the Checks by BSS Examiners.

Minor editorial changes include small text changes that:

- i) better aligns the Requirements with the Checking actions or Check question; and,
- ii) ensure common terminology throughout the ECP; and,
- iii) separate out any multiple Requirements into bullet points, to ensure none are overlooked; and,
- iv) include helpful pointers to supporting information in the Appendices.

Significant Editorial Changes - 25% of the changes made are considered to be significant, including:

- i) the re-wording of the Check to improve its clarity; and,
- ii) adding words such as 'where they can be seen', to qualify the expected extent of the Checking action; and,
- iii) changing the focus of the Check, for example, introducing the Requirement for components to be of 'suitable proprietary manufacture' rather than describing specific design characteristics; and,
- iv) adding new detail in the Requirement to better describe concepts such as 'completeness' or 'good condition'.
- v) adding new Examiner actions to contact the BSS Office for guidance, where appropriate.

Lesser Requirement of more compliance options – 17 of the changes involve a slight relaxation of the BSS Requirement or added compliance options, generally to align with latest versions of ISO standards.

Significant Check scope changes – Just under 15 of the changes made involve Checks that have had changes to the scope. For example, it could be that:

- i) a Check has been amended to focus on one specific aspect, such as 'accessibility'; or,
- ii) because a Check has been deleted, the next Check in the section is re-numbered and so is completely different to the original Check number.

New BSS Check numbers added – 7 brand new Check numbers are added. However, as explained in the text relevant to the specific Checks concerned, and as summarised in Table B, there are no technical changes.

Reference to Essential Information into an Annex added – Each BSS Part now has its own Appendix and most include a 'Section 1' which contains essential material needed by BSS Examiners to be able to apply certain Checks. There are 22 references in the reviewed ECP to such essential information.

Significant Guidance for owners added – 17 new Guidance for owner insertions appear in the reviewed ECP, aligning with published BSS guidance and to amplify the shared responsibility for safety.

Check numbers deleted – 7 Check numbers are deleted. Three Checks are deleted because otherwise double-accounting of faults would continue. As explained in the text relevant to the specific Checks concerned, and as summarised in Table B, there are no technical changes.

Check is unamended – 21 Checks are unamended from the original 2015 ECP (11.6% of the total number of Checks).

New BSS Requirement Incorporated – It is considered that one new BSS Requirement has been introduced.

Section 8.2 covers LPG refrigerators on vessels with petrol propulsion engines. The hazard requiring controlling is the permanent low-level flame on the fridge that could ignite any escaped petrol vapour at the time of re-fuelling petrol. This hazard led to many significant boat explosions in the 1980s and 90s.

A Wilderness Boats conversion of a of an Electrolux RM 212 fridge is an acceptable compliance option because the burner box and flue outlet are enclosed by mesh that does not permit any vapour to be ignited. Because such conversions are 30-40 years old, a new BSS Requirement at Check 8.2.2 requires owners to provide documentary evidence that the refrigerator has been serviced by Wilderness Boats or a Gas Safe registered engineer within the previous 12 months of the date of the Examination.

It is estimated that a maximum of 70 boats (all made by Wilderness Boats) are affected and that Wilderness Boats’ direct contact with the owners is sufficient and so no public consultation is required.

Table A below provides a representation of the type and number of changes introduced following the interim review of the original 2015 ECP.

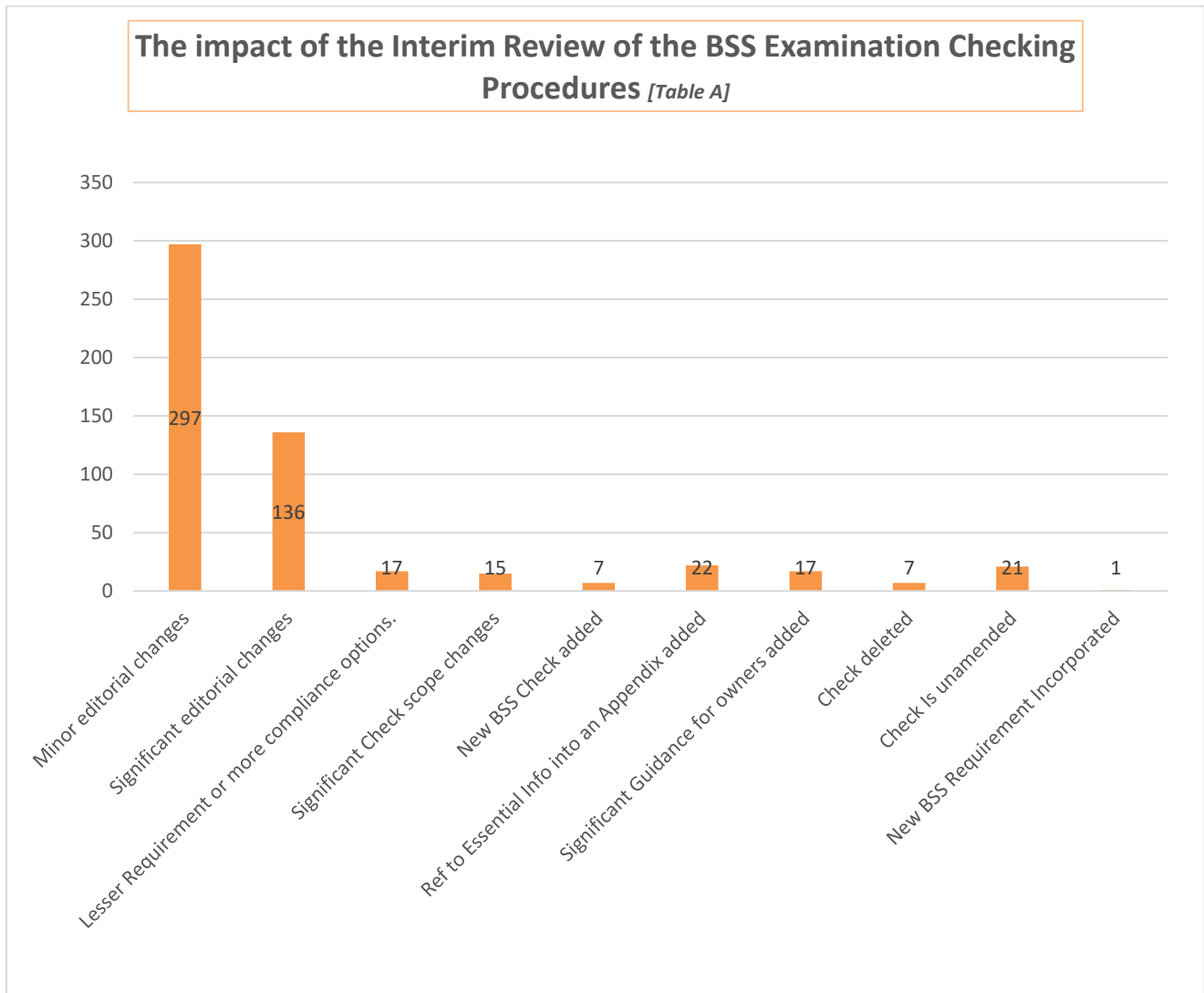


Table B below summarises the seven added Check numbers and the seven deleted Check numbers.

It also lists two checks (Checks 4.1.1 and 8.1.1) where the Requirement is deleted but the Check number is kept as ‘intentionally not used’, in order that the following Checks do not require to be renumbered.

Deleted and added Check numbers explained [Table B]		
Check no.	What has happened	Impact
2.8.5	This is a new Check number. The Check clarifies and simplifies how unused fuel tank connections are to be addressed. Considered editorial because previously Examiners would have applied existing Checks.	New Check number but no technical change
2.16.2	Check 2.16.2 deleted is not a stand-alone Check, but rather allows the double accounting of BSS Faults causing a fail if the fuel supply to a steam boiler does not compliant with another BSS Part.	Deleted – to avoid double accounting

3.4.3	The whole Check has been moved from 3.3.3 and inserted at new Check 3.4.3. This is because the Check addresses cable connections which are addressed at section 3.4 rather than section 3.3.	New Check number but no technical change
3.5.3	New Check addressing the three DC charge circuits removed from Check 3.6.2 (see explanation at 3.6.2).	New Check number but no technical change
4.1.1	Check 4.1.1 is deleted but the number is kept as intentionally not used	Deleted – to avoid double accounting
5.1.2	The original Checks 5.1.2 - 4 are now deleted, and the original Check 5.2.1 are renumbered as a re-worked Check 5.2.1, to sit under Section 5.2, portable fuel systems rather than Section 5.1.	Deleted Check number but no technical change
5.1.3	Ditto	Deleted Check number but no technical change
5.1.4	Ditto	Deleted Check number but no technical change
5.3.4	This new Check replaces Check 5.2.2 and 5.3.1 in the original 2015 ECP in order to cover the storage of spare petrol (containers and tanks) only once.	New Check number but no technical change
6.1.4	Existing 2015 Checks 6.1.1, 6.1.2 and 6.1.3 have been combined into a single Check covering the criteria for suitable portable fire extinguishers and the required number and minimum combined fire ratings. 6.1.4 now deleted but becomes 6.1.2.	Deleted Check number but no change
6.1.5	Ditto 6.1.5 now deleted but becomes 6.1.3	Deleted Check number but no change
7.2.5	Three new Checks 7.2.5 – 7, sperate out Checks for LPG cylinder housings. Considered editorial because previously Examiners would have applied existing Checks.	New Check number but no technical change
7.2.6	Ditto	New Check number but no technical change
7.2.7	Ditto	New Check number but no technical change
8.1.1	Check 8.1.1 is deleted but the number is kept as intentionally not used	Deleted – to avoid double accounting
8.9.2	Check 8.9.2 is deleted and the Check incorporated as Guidance for owners in Check 8.9.1.	Deleted Check, and incorporated as Guidance for owners in Check 8.9.1.

## 4 Changes to the ECP Appendices

The Appendices within the ECP provide supporting information to BSS Examiners.

Some of the appendices have a 'Section 1' which contains essential material needed by BSS Examiners to be able to apply certain Checks.

Improvements to the Appendices to the ECP are too numerous to list but can be appreciated by reading them through.

A summary of the improvements to the Appendices is provided below in Table C.

A summary of the improvements to the Appendices [Table C]		
App. No.	Title	Improvement/Change
A	People or property in 'immediate danger' or 'at risk'	Interim-reviewed, and aligned with current practice and web text and the reviewed ECP.
B	'Immediately hazardous boats'	Interim-reviewed, and aligned with current practice and web text and the reviewed ECP.
C	LPG installations tightness testing using a manometer ('U'-gauge)	Improved 2020 version now incorporated.
D	LPG installations tightness testing using a post 2008 ALDE 4071 bubble tester	Improved 2020 version now incorporated.
D1	LPG installations tightness testing using a pre-2008 ALDE 4071 leak detector, or other make of bubble tester	New Appendix, introduced in 2020 and now incorporated. This is largely the previous Appendix D re-numbered.
E	Flue spillage test – open-flued appliances	This Appendix is unamended.
F	230v AC Safe Disconnection Process	Previously numbered as Appendix M as the BSS Safe Isolation Procedure. This was never formally ratified as an Appendix and so existed as BSS managers instructions.  Now interim-reviewed in association with NICIEC, improved and re-launched as Appendix F.
G	Disabled and decommissioned systems	Interim-reviewed, and aligned with current practice and web text and the reviewed ECP.
2 (2a & 2b) to 9	All Parts 2 to 9	Each Part now has its own Appendix.  All but Parts 4 and 9 are divided into two Sections: <ul style="list-style-type: none"> <li>• Section 1 contains essential material needed by BSS Examiners to be able to apply certain Checks</li> <li>• Section 2 contains additional information to support BSS Examiners' understanding of the BSS Requirements.</li> </ul> Two sub-Appendices at Appendix 2 and one at Appendix 8 cover one subject.

## 5 Each change to the ECP explained

Before proceeding to the detailed changes note that:

- For reference, the original 2015 ECP Checks are provided [here](#).
- A clean version of the improved ECP is provided [here](#) (not yet live).

- c) A clean version of the improved Appendices is included at the end of the reviewed ECP referred to above.
- d) The 21 Checks that are unamended from the original 2015 ECP are not included in this document.

The following changes are adopted across the ECP and may not be individually highlighted within this document:

- a) Where used, 'Advice for owners' is changed to 'Guidance for owners', the latter being the defined term within the ECP Glossary.
- b) Where Requirements are bullet-pointed they will be linked with a bold '**and**' or an '**or**' (as appropriate).
- c) A capital E will be used for 'Examiner' and for 'Examination', and a capital R for Requirement(s) whether or not they are preceded by 'BSS'. Also, a capital C will be used for Check where it refers to an ECP Check item.
- d) Where, within Check Applicabilities, Examiners are required to contact the BSS Office the current use of various similar terms will be consolidated into '... contact the BSS Office for guidance'.
- e) To cut down on the repetition of the words 'paraffin' and 'kerosene', where appropriate they will be deleted within the Checks and replaced with a paragraph within the relevant new supporting Appendix that during BSS Examinations paraffin and kerosene are to be treated as diesel.
- f) Use of similar terms are being consolidated into 'boat owner or their representative'.
- g) For certain Checks, the word 'determined' or 'determine' is replaced with 'identified', 'identify' or 'establish', etc. This change has been prompted by those developing the new Examiner training course material because the use of these words could be ambiguous and the true meaning not clearly understood by Examiners, owners, etc.
- h) To formalise the position that from April 2017 the Core (2015) ECP has applied to hire boats as well as private boats, and that certain Checks are advisory for private boats but mandatory Requirements for hire boats. The status of the Check as an Advice Check denoted by the letter 'A' is now denoted by 'A/R'.

The following pages identify all changes including minor edits.

Deletions over the 2015 ECP version are shown in ~~red strikethrough~~ and insertions are shown in blue underline. Also, green underlined content is existing 2015 ECP text that has been relocated.

Drafted by Graham Watts, BSS Support Executive  
31 August 2021

**2.1 Fuel filling points**

2.1.1	<p><b>Does the location and condition of the fuel filling point ensure that any fuel overflow is prevented from entering the interior of the vessel?</b></p>	R
<p>Check the location of fuel filling points and assess the potential for any overflowing fuel to enter the interior of the vessel.</p> <p>Check the condition of fuel filling points where they can be seen or reached, and assess the potential for any overflowing fuel to enter the interior of the vessel around the filling point.</p>		
<p>Fuel overflowing from filling points must be prevented from entering any part of the interior of the vessel.</p> <p>Accordingly, fuel filling points must be positioned so that...</p> <ul style="list-style-type: none"> <li>• the camber or configuration of the deck; <b>or</b>,</li> <li>• a coaming; <b>or</b>,</li> <li>• a diverter arrangement;</li> </ul> <p>... <del>causes any overflow to discharge overboard</del> <u>prevents overflowing fuel from entering the interior of the vessel.</u></p> <p>Fuel filling points must be secure, and free of signs of damage or deterioration which could lead to overflowing fuel entering the interior of the vessel.</p>		
<p>Applicability – this Requirement does not apply to the following provided there is no risk of unseen spillage:</p> <ul style="list-style-type: none"> <li>• historic (i.e. bona fide ex-working <del>boat</del>) diesel-engined <del>narrow</del>boats (<u>Examiners should seek guidance from the BSS Office when determining whether a boat is a bona fide ex-working boat</u>);</li> <li>• diesel tanks, of up to a maximum capacity of <del>30</del> <u>27</u> litres.</li> </ul> <p>Applicability – open vessels such as RIBs having a continuous deck or sole that is fuel-tight to the interior of the vessel and bilge spaces, meet this Requirement.</p> <p><u>Guidance for owners – in order to address the potential for explosion and/or fire:</u></p> <p>i) <u>petrol overflowing from filling points must be avoided through careful fuel handling; and,</u></p> <p>ii) <u>beware of the accumulation of petrol vapour where petrol filling points are located in self draining cockpits.</u></p>		

Explanation of changes		
1	<p>... <del>causes any overflow to discharge overboard</del> <u>prevents overflowing fuel from entering the interior of the vessel.</u></p>	<p>The Requirement is better focused on overflowing fuel not entering the interior of the vessel.</p>
2	<ul style="list-style-type: none"> <li>• historic (i.e. bona fide ex-working <del>boat</del>) diesel-engined <del>narrow</del>boats (<u>Examiners should seek guidance from the BSS Office when determining whether a boat is a bona fide ex-working boat</u>);</li> <li>• diesel tanks, of up to a maximum capacity of <del>30</del> <u>27</u> litres.</li> </ul>	<p>To help ensure a consistent approach by Examiners.</p> <p>ECP now standardise on 30 litres because of known tanks to that capacity.</p>
4	<p><u>Guidance for owners – in order to address the potential for explosion and/or fire:</u></p> <p>i) <u>petrol overflowing from filling points must be avoided through careful fuel handling; and,</u></p> <p>ii) <u>beware of the accumulation of petrol vapour where petrol filling points are located in self draining cockpits.</u></p>	<p>Guidance for owners added to help place appropriate responsibility for owners to handle petrol carefully, and not to place sole reliance on the location and condition of the fuel filling point.</p>



2.1.2	Is the fuel in use correctly and clearly marked on or adjacent to the fuel filling point?	R
Check for markings on or adjacent to fuel filling points.	<p>The specific fuel type in use must be correctly and clearly marked on or adjacent to all fuel filling points:</p> <ul style="list-style-type: none"> <li>• ‘DIESEL’, ‘FUEL OIL’, ‘GAS OIL’, ‘DERV’, or ‘BIODIESEL’; <b>or</b>,</li> <li>• ‘PETROL’, or ‘GASOLINE’; <b>or</b>,</li> <li>• ‘LPG BUTANE/PROPANE’ as appropriate; <b>or</b>,</li> <li>• ‘PARAFFIN’ or <u>‘KEROSENE’</u>; <b>or</b>,</li> <li>• ‘PETROIL’.</li> </ul>	
<p><u>Examiner action – Examiners must refer to Section 1 of Appendix 2 for essential information on internationally accepted fuel symbols. The marking of a fuel filling point with an appropriate international symbol is acceptable.</u></p> <p>Applicability – the use of embossed tape (e.g. Dymo) <del>or other lettering that can become illegible through cleaning or normal use</del> is not acceptable. The marking must be legible with all lettering complete.</p> <p>Applicability – marking fuel filling points solely with ‘fuel’ or ‘gas’ is not acceptable.</p> <p><del>Applicability – marking fuel filling points with the internationally accepted symbol is acceptable. If an Examiner is unable to verify a symbol, the BSS Office should be contacted for guidance.</del></p>		

Explanation of changes		
1	PARAFFIN’ or <u>‘KEROSENE’</u> ; <b>or</b> ,	To ensure the completeness of the list.
2	<u>Examiner action – Examiners must refer to Section 1 of Appendix 2 for essential information on internationally accepted fuel symbols. The marking of a fuel filling point with an appropriate international symbol is acceptable.</u>	To reference the essential new material included in Appendix 2.
3	Applicability – the use of embossed tape (e.g. Dymo) <del>or other lettering that can become illegible through cleaning or normal use</del> is not acceptable. The marking must be legible with all lettering complete.	The deletion is because it’s not reasonable to expect Examiners to know what other lettering might become illegible through cleaning or normal use.
4	<del>Applicability – marking fuel filling points with the internationally accepted symbol is acceptable. If an Examiner is unable to verify a symbol, the BSS Office should be contacted for guidance.</del>	Now covered in the Examiner action above

2.1.3	Are all disused fuel filling points disabled?	R
<p>Check all fuel filling points and other deck connections.</p> <p>Identify any that are marked as fuel filling points, or that may be taken to be fuel filling points but are no longer connected to a fuel tank.</p> <p>Check for signs of disabling.</p>		<p><del>Unused</del> <u>Fuel filling points that are no longer connected to a tank</u> must be permanently disabled to such an extent that it would require the use of tools to remove the disabling method.</p>

Applicability – the use of a suitable proprietary adhesive to secure filling point caps or plugs in place etc meets this Requirement.

Explanation of changes		
1	<p><del>Unused</del> Fuel filling points <a href="#">that are no longer connected to a tank</a> must be permanently disabled to such an extent that it would require the use of tools to remove the disabling method.</p>	<p>To ensure the Checking action and the Requirement are aligned.</p>

2.1.4	Does the internal diameter of the fuel filling point meet the specified requirements?	R
<p>Measure the internal diameter of each fuel filling point.</p>	<p><del>Fuel filling points must have a minimum internal diameter of 31.5mm (1¼in).</del></p> <p><a href="#">Fuel filling points must have a minimum internal diameter of:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">31.5mm (1¼in) where they are connected to a filling hose; or</a></li> <li>• <a href="#">28.5mm (1 1/8in) where they are connected to a filling pipe; or</a></li> <li>• <a href="#">28.5mm (1 1/8in) where they open directly into a tank.</a></li> </ul>	
<p>Safety <del>advice notice</del> – metallic measuring devices are not to be used on metallic petrol filling points.</p> <p>Applicability – if it is not practicable to measure the internal diameter at fuel filling points, an estimate based upon the external diameter of the fuel filling line can be made.</p>		

Explanation of changes		
1	<p><del>Fuel filling points must have a minimum internal diameter of 31.5mm (1¼in).</del></p> <p><a href="#">Fuel filling points must have a minimum internal diameter of:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">31.5mm (1¼in) where they are connected to a filling hose; or</a></li> <li>• <a href="#">28.5mm (1 1/8in) where they are connected to a filling pipe; or</a></li> <li>• <a href="#">28.5mm (1 1/8in) where they open directly into a tank.</a></li> </ul>	<p>To align with the ISO and have the required i/d for filler pipes at 28.5mm and retain the BSS minimum i/d requirement for hoses at 31.5mm</p>
2	<p>Safety <del>advice notice</del> – metallic measuring devices are not to be used on metallic petrol filling points.</p>	<p>To align with the term used in the explanatory section at the beginning of the ECP – How these procedures are laid out.</p>

## 2.2 Fuel filling lines

2.2.1	Are the fuel filling line connections free of signs of leaks and in good condition, and are all fuel filling hose connections accessible for inspection?	R
<p>Check <del>for the presence</del> <a href="#">the accessibility</a> of fuel filling hose connections, and <a href="#">check their</a> <del>the</del> condition by sight and touch.</p> <p>Check the condition of fuel filling pipe connections where they can be seen or reached.</p>		<p>All fuel filling hose connections must be:</p> <ul style="list-style-type: none"> <li>• <a href="#">accessible for inspection; and</a></li> <li>• <a href="#">secure; and</a></li> <li>• <a href="#">free of signs of leaks; and</a></li> <li>• <a href="#">free of signs of damage or deterioration.</a></li> </ul> <p>Fuel filling pipe connections must be:</p> <ul style="list-style-type: none"> <li>• <a href="#">secure; and</a></li> <li>• <a href="#">free of signs of leaks; and</a></li> <li>• <a href="#">free of signs of damage or deterioration.</a></li> </ul>
<p>Applicability – <a href="#">where</a> hose connections <a href="#">are</a> not accessible for inspection, <a href="#">Check 2.2.1</a> must be recorded as ‘not verified’ on your checklist, and <del>the Check must be considered incomplete</del> <a href="#">it must be considered that the Check has not been completed</a> until such time as the condition has been verified.</p>		

Explanation of changes		
1	Check <del>for the presence</del> <a href="#">the accessibility</a> of fuel filling hose connections, and <a href="#">check their</a> <del>the</del> condition by sight and touch.	The align with the rest of the ECP. Where there is a Requirement for an item to be accessible for inspection, the Checking action should reflect this.
2	<p>All fuel filling hose connections must be:</p> <ul style="list-style-type: none"> <li>• <a href="#">accessible for inspection; and</a></li> <li>• <a href="#">secure; and</a></li> <li>• <a href="#">free of signs of leaks; and</a></li> <li>• <a href="#">free of signs of damage or deterioration.</a></li> </ul> <p>Fuel filling pipe connections must be:</p> <ul style="list-style-type: none"> <li>• <a href="#">secure; and</a></li> <li>• <a href="#">free of signs of leaks; and</a></li> <li>• <a href="#">free of signs of damage or deterioration.</a></li> </ul>	The Requirements have not been changed, but for ease of reference have been separated into a bullet-pointed list.
3	Applicability – <a href="#">where</a> hose connections <a href="#">are</a> not accessible for inspection, <a href="#">Check 2.2.1</a> must be recorded as ‘not verified’ on your checklist, and <del>the Check must be considered incomplete</del> <a href="#">it must be considered that the Check has not been completed</a> until such time as the condition has been verified.	Editorial changes to improve clarity and to align with all other Checks where the ‘not verified’ Applicability is employed.

2.2.2	Is the fuel filling line self-draining so that fuel is not retained and is it free of kinks or other restrictions?	R
<p>Check the fall of each fuel filling line <a href="#">where it can be seen or reached</a>.</p>		<p>Fuel filling lines must be connected to the top of the fuel tank and be ‘self-draining’ i.e. fall continuously from the filling point to the fuel tank connection so that fuel is not retained.</p>

Check for any kinks or other obvious restrictions in fuel filling lines where they can be seen or reached.	Fuel filling lines must not be kinked or restricted.
<p>Applicability – fuel filling lines must not have their internal bore diameter restricted to less than <a href="#">28.5mm (1 1/8 in) for pipe or 31.5mm (1¼in) for hose</a>.</p> <p>Applicability - petrol filling pipes connected to the sides of metal petrol tanks are acceptable provided that the tank spigot is welded to the tank and <del>reaches</del> <a href="#">extends</a> above the top of the tank.</p> <p>Applicability – diesel fuel filling lines into the sides of fuel tanks are acceptable provided the arrangements comply with the Requirements at 2.10 and 2.11.</p> <p>Applicability – diesel fuel filling lines into fuel tank balance lines are acceptable provided the arrangements comply with the Requirements at 2.9, 2.10 and 2.11.</p>	

Explanation of changes		
1	Check the fall of each fuel filling line <a href="#">where it can be seen or reached</a> .	To qualify the expected extent of the Checking action.
2	Applicability – fuel filling lines must not have their internal bore diameter restricted to less than <a href="#">28.5mm (1 1/8 in) for pipe or 31.5mm (1¼in) for hose</a> .	To align with i) the ISO and ii) Check 2.1.4 above.
3	tank and <del>reaches</del> <a href="#">extends</a> above	Better word.

<b>2.2.3</b>	<b>Is the material of the fuel filling line suitable and in good condition?</b>	<b>R</b>
Check the material and condition of fuel filling lines which can be seen or reached.	Fuel filling lines must not show signs of fuel leaks, damage or deterioration.	
Check the markings on any fuel filling hose.	Fuel filling hose must be marked as suitable for the fuel in use or supported by an appropriate declaration.	
<p>Applicability – diesel filling hose in good condition may be accepted without marking or declaration, provided it can be examined over its entire length.</p> <p><a href="#">Applicability- hoses marked ISO 7840, ISO 8469, ISO 15540, SAE J 1527, DIN 4798 or RINA DIP/66/96 may be accepted as being suitable for use with petrol or diesel.</a></p> <p>Applicability – in cases where the filling hose is suitably marked, enough of the hose must be accessed in order that the Examiner can make a reasonable assessment as to its general condition.</p> <p><del>Applicability – hoses marked with the correct type of fuel in use are acceptable. Hoses marked ISO 7840, or equivalent, are recommended, and hoses marked to SAE J 1527, DIN 4798, RINA DIP/66/96 are equivalent to ISO 7840.</del></p>		

Explanation of changes		
1	<a href="#">Applicability- hoses marked ISO 7840, ISO 8469, ISO 15540, SAE J 1527, DIN 4798 or RINA DIP/66/96 may be accepted as being suitable for use with petrol or diesel.</a>	For completeness and for consistency with other Part 2 hose suitability Checks.

2	<del>Applicability – hoses marked with the correct type of fuel in use are acceptable. Hoses marked ISO 7840, or equivalent, are recommended, and hoses marked to SAE J 1527, DIN 4798, RINA DIP/66/96 are equivalent to ISO 7840.</del>	Explanation as above. Also the Applicability sequence is changed for a better flow.
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### 2.3 Fuel tank vents

2.3.1	<b>Does every fuel tank have a vent facility?</b>	<b>R</b>
Check all fuel tanks for the provision of a vent facility.		A vent line must be fitted to each fuel tank, or a vent must be fitted to either the filling cap, <del>or</del> filling line, <a href="#">or tank top</a> .
<p><del>Applicability – vents in filler caps, lines or tank tops must have their outlets at, or above the filling point level.</del></p> <p>Applicability – multiple diesel fuel tank arrangements having a shared vent facility are acceptable provided the arrangements comply with all other Requirements at 2.3 <a href="#">and 2.4</a>.</p> <p><a href="#">Supporting information on fuel tank vent facility arrangements is provided at Appendix 2.</a></p>		

Explanation of changes		
1	A vent line must be fitted to each fuel tank, or a vent must be fitted to either the filling cap, <del>or</del> filling line, <a href="#">or tank top</a> .  Applicability – vents in filler caps, <a href="#">filling</a> lines or tank tops must have their outlets at, or above the filling point level.	To ensure the Requirement and Applicability are aligned.
2	<del>Applicability – vents in filler caps, lines or tank tops must have their outlets at, or above the filling point level.</del>	The deleted Applicability was unnecessary as the height/position of vent outlets is addressed at Check 2.4.1.
3	Applicability – multiple diesel fuel tank arrangements having a shared vent facility are acceptable provided the arrangements comply with all other Requirements at 2.3 <a href="#">and 2.4</a> .	Added consistency and accuracy. The Requirements at section 2.4 apply as well as those at 2.3.
4	<a href="#">Supporting information on fuel tank vent facility arrangements is provided at Appendix 2.</a>	To point to the supporting information in Appendix 2 that illustrates the optional tank vent arrangements.

2.3.2	<b>Does the fuel tank vent line have a minimum internal diameter of 9.5mm (3/8in)?</b>	<b>R</b>
Measure the outside diameter of fuel vent lines.		The internal diameter of vent lines must be at least 9.5mm (3/8in).
<p>Applicability – <a href="#">the internal diameter</a> <del>this</del> may be verified by measuring the outside diameter and estimating wall thickness. <del>The following are approximate indications, copper 11.5mm (1/2in), steel 12.5mm (1/2in) and hose 15.5mm (3/4in).</del></p> <p><del>Applicability – the small hole in the filler cap as provided by the original engine or fuel tank manufacturer, on tanks of no more than 27 litres capacity, is deemed to meet this Requirement. Examples are those found on Stuart Turner petrol tanks, Yanmar engine close-coupled tanks or diesel tanks supplying appliances.</del></p> <p><a href="#">Applicability – where the internal diameter of a vent line is found to be less than 9.5mm and the boat is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</a></p>		

Explanation of changes		
1	Applicability – <del>the internal diameter</del> <a href="#">this</a> may be verified by measuring the outside diameter and estimating wall thickness. <del>The following are approximate indications, copper 11.5mm (½in), steel 12.5mm (½in) and hose 15.5mm (½in).</del>	It is suggested that competent Examiners should be able to determine pipe/hose i.d. from the o.d. (see approach at 2.1.4.). Also, this is covered in the new Examiner training course material.
2	<del>Applicability – the small hole in the filler cap as provided by the original engine or fuel tank manufacturer, on tanks of no more than 27 litres capacity, is deemed to meet this Requirement. Examples are those found on Stuart Turner petrol tanks, Yanmar engine close-coupled tanks or diesel tanks supplying appliances.</del>	Check 2.3.2 is about vent lines. The small hole vent facility option is covered off at Check 2.3.1 and by the supporting information in Appendix 2 (as sign-posted at Check 2.3.1).
3	<a href="#">Applicability – where the internal diameter of a vent line is found to be less than 9.5mm and the boat is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</a>	To align the BSS Requirements with the ISO standard.

2.3.3	Are the fuel tank vent line connections free of signs of leaks and in good condition, and are all vent hose connections accessible for inspection?	R
<p>Check <del>for the presence</del> <a href="#">the accessibility</a> of fuel tank vent hose connections, and <a href="#">check their</a> <del>the</del> condition by sight and touch.</p> <p>Check the condition of fuel tank vent pipe connections where they can be seen or reached.</p>	<p>All vent hose connections must be:</p> <ul style="list-style-type: none"> <li>• <a href="#">accessible for inspection; and,</a></li> <li>• <a href="#">secure; and,</a></li> <li>• <a href="#">free of signs of leaks; and,</a></li> <li>• <a href="#">free of signs of damage or deterioration.</a></li> </ul> <p>Vent pipe connections must be:</p> <ul style="list-style-type: none"> <li>• <a href="#">secure; and</a></li> <li>• <a href="#">free of signs of leaks; and</a></li> <li>• <a href="#">free of signs of damage or deterioration.</a></li> </ul>	
<p><a href="#">Applicability – where hose connections are not accessible for inspection, Check 2.3.3 must be recorded as ‘not verified’ on your checklist, and it must be considered that the Check has not been completed until such time as their condition has been verified.</a></p>		

Explanation of changes		
1	Check <del>for the presence</del> <a href="#">the accessibility</a> of fuel tank vent hose connections, and <a href="#">check their</a> <del>the</del> condition by sight and touch.	Where there is a Requirement for an item to be accessible for inspection, the Checking action should reflect this.
2	<p>All vent hose connections must be:</p> <ul style="list-style-type: none"> <li>• <a href="#">accessible for inspection; and</a></li> <li>• <a href="#">secure; and</a></li> <li>• <a href="#">free of signs of leaks; and</a></li> <li>• <a href="#">free of signs of damage or deterioration.</a></li> </ul> <p>Vent pipe connections must be:</p>	The Requirements have not been changed, but for ease of reference have been separated into a bullet-pointed list.

	<ul style="list-style-type: none"> <li>• secure; <b>and</b></li> <li>• free of signs of leaks; <b>and</b></li> <li>• free of signs of damage or deterioration.</li> </ul>	
3	<a href="#">Applicability – where hose connections are not accessible for inspection, Check 2.3.3 must be recorded as ‘not verified’ on your checklist, and it must be considered that the Check has not been completed until such time as their condition has been verified.</a>	To ensure a consistent approach with Check 2.2.1

<b>2.3.5</b>	<b>Is the material of the fuel tank vent line suitable and in good condition?</b>	<b>R</b>
<p>Check the material and condition of vent lines which can be seen or reached.</p> <p>Check the markings on any vent hose.</p>	<p>Vent lines must not show signs of fuel leaks, damage or deterioration.</p> <p>Vent hose must be marked as suitable for the fuel in use or supported by an appropriate declaration.</p>	
<p>Applicability – diesel tank vent hose in good condition may be accepted without marking or declaration provided it can be examined over its entire length.</p> <p>Applicability- hoses marked ISO 7840, ISO 8469, ISO 15540, SAE J 1527, DIN 4798 or RINA DIP/66/96 may be accepted as being suitable for use with petrol or diesel.</p> <p>Applicability – in cases where the vent hose is suitably marked, enough of the hose must be accessed in order that the Examiner can make a reasonable assessment as to its general condition.</p>		

<b>Explanation of changes</b>		
1	Applicability- hoses marked ISO 7840, ISO 8469, ISO 15540, SAE J 1527, DIN 4798 or RINA DIP/66/96 may be accepted as being suitable for use with petrol or diesel.	Applicability is moved up in sequence, to align with Check 2.2.3.

## 2.4 Fuel tank vent outlets

<b>2.4.2</b>	<b><a href="#">Are petrol tank vent outlets fitted with a suitable proprietary flame arrester in good condition?</a> <del>Is the fuel tank vent outlet fitted with an effective flame arrester or flame-arresting gauze?</del></b>	<b>R</b>
<p><del>Check each vent outlet for the presence of a flame arrester or flame-arresting gauze.</del></p> <p><a href="#">Check each petrol tank vent outlet for the presence of a suitable proprietary flame arrester.</a></p> <p><a href="#">Check the condition of the suitable proprietary flame arrestor(s) including the flame arresting gauze.</a></p>	<p><del>Vent outlets must be fitted with either a suitable proprietary flame arrester <b>or</b> gauze of at least 11 wires per linear cm (28 wires per inch) mesh.</del></p> <p><del>Where the flame arrester is not of a suitable proprietary type the openings in the arrester’s body must be at least of the same area as the cross-sectional area of the vent line.</del></p> <p><del>Flame arresters or gauze must be complete and free of damage or restrictions.</del></p> <p><a href="#">Petrol tank vent outlets must be fitted with a suitable proprietary flame arrester.</a></p> <p><a href="#">Suitable proprietary flame arresters and their flame arresting gauze must be free of signs of restrictions, or other damage or deterioration.</a></p>	

Applicability – flame arresters not recognised as ~~proprietary must be supported by satisfactory documentation being of suitable proprietary manufacture may be supported by satisfactory documentation.~~ Examiners must be careful not to mistake a water tank vent outlet for a suitable proprietary flame arrestor; supporting information is provided at Appendix 2.

Applicability – the small hole in the filler cap as provided by the original engine or fuel tank manufacturer, on fuel tanks of no more than ~~30~~ 27 litres capacity, is deemed to meet this Requirement.

Explanation of changes		
1	<u>Are petrol tank vent outlets fitted with a suitable proprietary flame arrester in good condition?</u> <del>Is the fuel tank vent outlet fitted with an effective flame arrester or flame-arresting gauze?</del>	To align the BSS Requirement with the ISO standard, which does not require flame arrestors on diesel tank vents.  Also, to move away from the subjective term 'effective' to arresters of 'suitable proprietary manufacture'
2	<del>Vent outlets must be fitted with either a suitable proprietary flame arrester or gauze of at least 11 wires per linear cm (28 wires per inch) mesh.</del>  <del>Where the flame arrester is not of a suitable proprietary type the openings in the arrester's body must be at least of the same area as the cross-sectional area of the vent line.</del>  <del>Flame arresters or gauze must be complete and free of damage or restrictions.</del>  <u>Petrol tank vent outlets must be fitted with a suitable proprietary flame arrester.</u>  <u>Suitable proprietary flame arresters and their flame arresting gauze must be free of signs of restrictions, or other damage or deterioration.</u>	As above and because boats are, as manufactured, very likely to have arresters of 'suitable proprietary manufacture' and to continue with specified mesh size may cause a conflict.  The Check then becomes a check of condition of the proprietary flame arresters and their flame arresting gauze.
3	Applicability – flame arresters not recognised as <del>proprietary must be supported by satisfactory documentation</del> <u>being of suitable proprietary manufacture may be supported by satisfactory documentation.</u> <u>Examiners must be careful not to mistake a water tank vent outlet for a suitable proprietary flame arrestor; supporting information is provided at Appendix 2.</u>	To add clarity to the existing Applicability.  To remove reference in the Check to Examiners attempting to assess the gauze mesh size, and to point to the supporting information in Appendix 2 concerning how to identify suitable proprietary flame arrestors on petrol tanks.
4	Applicability – the small hole in the filler cap as provided by the original engine or fuel tank manufacturer, on fuel tanks of no more than <del>30</del> <u>27</u> litres capacity, is deemed to meet this Requirement.	To standardise on 30 litres because of known tanks to that capacity.

2.4.3	<b>Is the fuel tank vent outlet in a position where no danger will be incurred from leaking fuel or escaping vapour?</b>	R
Check the position of each vent outlet.		Vent outlets must be clear of any potential sources of ignition and must be in a position where no danger will be incurred from leaking fuel or escaping vapour into the interior of the vessel.



~~Applicability – the small hole in the filler cap as provided by the original engine or fuel tank manufacturer, of diesel tanks of no more than 27 litres capacity meet this Requirement.~~

Applicability – vent outlets located within open vessels such as RIBs having no accommodation and having a continuous deck or sole which is fuel-tight to the interior of the vessel, including bilge spaces, meet this Requirement.

Applicability – diesel vent outlets within self-draining cockpits having a continuous deck or sole that are fuel-tight to the interior of the vessel, including bilge spaces, meet this Requirement.

Explanation of changes		
1	<del>Applicability – the small hole in the filler cap as provided by the original engine or fuel tank manufacturer, of diesel tanks of no more than 27 litres capacity meet this Requirement.</del>	As the Requirement relates to the position of vent outlets it is proposed that this Applicability is not relevant at this Check.

## 2.5 Fuel tank design and condition

2.5.1	<u>Are non-integral fuel tanks incapable of movement under light manual force?</u> <del>Are the fuel tanks secure?</del>	R
<p><del>At each fuel tank check for signs that movement has occurred.</del></p> <p>Where enough of the tank can be reached, assess the extent of possible movement by applying light manual force to each non-integral tank.</p>		<p><del>Fuel tanks must be free of signs of movement and</del> <u>Non-integral fuel tanks must be</u> incapable of <u>unintended</u> movement under light manual force.</p>
<p><u>Examiner action – light manual force should only be applied to the main tank structure and not to tank spigots or attached fuel filler, vent, supply or return lines.</u></p> <p>Applicability – Examiners need not apply light manual force to fuel tanks assessed to be too heavy to move.</p> <p><u>Applicability – slight movement is acceptable on tanks of up to 30 litres providing there are no pipe connections to the tank and providing there is no evidence that any movement is putting strain on connected hoses or other fittings.</u></p> <p><u>Guidance for owners – although not a BSS Requirement, it is recommended that all fuel tanks are permanently secured by boat structures, brackets, straps etc, and that any existing securing arrangements are kept in good condition.</u></p>		

Explanation of changes		
1	<u>Are non-integral fuel tanks incapable of movement under light manual force?</u> <del>Are the fuel tanks secure?</del>	It is illogical for the Check to apply to fuel tanks integral to the boat's structure.  Also, the Requirement applies light manual force and so should the Check question.
2	<del>At each fuel tank check for signs that movement has occurred.</del> <u>Where enough of the tank can be reached,</u> assess the extent of possible movement...	To improve Examiner consistency and help ensure that Examiners do not require all of the tank to be accessible.

3	<del>Fuel tanks must be free of signs of movement and</del> <a href="#">Non-integral fuel tanks must be</a> incapable of <a href="#">unintended</a> movement under light manual force.	As 1) above. Also to move away from 'signs of movement', and to bring in 'unintended movement' to allow a little flexibility as allowed by the 2 <sup>nd</sup> Applicability.
4	<a href="#">Examiner action – light manual force should only be applied to the main tank structure and not to tank spigots or attached fuel filler, vent, supply or return lines.</a>	To ensure light manual force is applied to an appropriate part of the tank, where accessible.
5	<a href="#">Applicability – slight movement is acceptable on tanks of up to 30 litres providing there are no pipe connections to the tank and providing there is no evidence that any movement is putting strain on connected hoses or other fittings.</a>	Reflecting where any damage may be expected to occur, to look more specifically for spigot damage if the tank was subject to unintended movement.
6	<a href="#">Guidance for owners – although not a BSS Requirement, it is recommended that all fuel tanks are permanently secured by boat structures, brackets, straps etc and that any existing securing arrangements are kept in good condition.</a>	To reflect the approach in the current ISO, and to reintroduce the published approach in the 2002 ECP/Technical Manual

2.5.2	Are fuel tanks made of suitable materials?	R
At each fuel tank check the material and check for evidence of obvious suitability.	<p>Fuel tanks must not be manufactured with obviously unsuitable materials.</p> <p>Materials obviously suitable for diesel include:</p> <ul style="list-style-type: none"> <li>• aluminium alloy</li> <li>• 'CE' marked plastic</li> <li>• FRP</li> <li>• mild steel</li> <li>• stainless steel.</li> </ul> <p>Materials obviously suitable for petrol include:</p> <ul style="list-style-type: none"> <li>• aluminium alloy</li> <li>• brass</li> <li>• 'CE' marked plastic</li> <li>• stainless steel.</li> </ul>	
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 2 for essential information on examining plastic fuel tanks.</a></p> <p>Applicability – the fuel tank must be accessible enough to allow a general assessment of material. Tanks not accessible to assess the material must be recorded as 'not verified' on your checklist, and it must be considered that the check has not been completed until such time as the suitability of the material has been verified.</p> <p>Applicability – Examiners are not required to identify whether fuel tanks are lined or otherwise internally coated. A judgement must be made as to a tank's suitability from a visual assessment of the tank's external surfaces.</p> <p>Applicability – where after assessment of the tank material its suitability cannot be verified, and where the material is not obviously unsuitable, apply the condition Checks at 2.5.3. If the condition Requirements are met mark your checklist as being a pass at 2.5.2 and 2.5.3. If the condition Requirements at 2.5.3 are not met mark your checklist as a fail at 2.5.2 and 2.5.3. <a href="#">This Applicability does not apply to plastic tanks; plastic tanks that are not CE marked, or otherwise recognised as being suitable, must be recorded as non-compliant.</a></p> <p><del>Supplementary information on assessing plastic fuel tanks is provided at Appendix F</del></p>		

Explanation of changes		
1	<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 2 for essential information on examining plastic fuel tanks.</a></p> <p><del>Supplementary information on assessing plastic fuel tanks is provided at Appendix F</del></p>	To reference the essential new material included in Appendix 2.
2	<p><a href="#">This Applicability does not apply to plastic tanks; plastic tanks that are not CE marked, or otherwise recognised as being suitable, must be recorded as non-compliant.</a></p>	Post meeting #57 addition adding clarity concerning the application of the Applicability to plastic tanks.

2.5.3	Are fuel tanks, including seams and openings, in good condition and free of signs of leaks?	R
Check the condition of all fuel tank surfaces, seams and openings which can be seen and reached.	<p>Fuel tanks including seams and openings must be free of signs of <del>leaks, heavy corrosion, deep pitting or any other signs of material failure</del> <a href="#">of damage or deterioration, including:</a></p> <ul style="list-style-type: none"> <li>• leaks; or,</li> <li>• heavy corrosion (including deep pitting); or,</li> <li>• chafing, irregular indentations or punctures on plastic tanks; or,</li> <li>• softening or environmental stress cracking on plastic tanks.</li> </ul> <p>All inspection and cleaning access <del>closing</del> plates <a href="#">and other external fittings such as fuel gauge sender units</a> must be secured in place and free of signs of leaks.</p>	
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 2 for essential information on examining plastic fuel tanks.</a></p> <p>Applicability – the fuel tank must be accessible enough to allow a general assessment of condition. Tanks not accessible to assess condition must be recorded as ‘not verified’ on your checklist, and it must be considered that the check has not been completed until such time as their general condition has been verified.</p> <p>Applicability – where accessible, pay particular attention to areas under dipsticks/sounding pipes for evidence of damage from dipstick ‘bounce’.</p> <p><del>Supplementary information on assessing plastic fuel tanks is provided at Appendix F.</del></p>		

Explanation of changes		
1	<p>Fuel tanks including seams and openings must be free of signs of <del>leaks, heavy corrosion, deep pitting or any other signs of material failure</del> <a href="#">of damage or deterioration, including:</a></p> <ul style="list-style-type: none"> <li>• leaks; or,</li> <li>• heavy corrosion (including deep pitting); or,</li> <li>• chafing, irregular indentations or punctures on plastic tanks; or,</li> <li>• softening or environmental stress cracking on plastic tanks.</li> </ul>	<p>Relects the Checks where the bulleted approach is regarded as easier to follow.</p> <p>Brings in material failure of plastic tanks. This builds a bridge to the Essential information in Appendix 2, referred to below.</p>
2	<p>All inspection and cleaning access <del>closing</del> plates <a href="#">and other external fittings such as fuel gauge sender units</a> must be secured in place and free of signs of leaks.</p>	Post meeting #57 addition ensuring that other external fittings such as fuel gauge sender units are covered by the Check.

3	<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 2 for essential information on examining plastic fuel tanks.</a></p> <p><del>Supplementary information on assessing plastic fuel tanks is provided at Appendix F</del></p>	To reference the essential new material included in Appendix 2.
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<b>2.5.4</b>	<b>Are fuel tanks within engine spaces suitably fire resistant or otherwise protected against the effects of fire?</b>	<b>R</b>
<p>Identify fuel tanks located within engine spaces.</p> <p>If present, at each non-metallic fuel tank look for the manufacturer’s plate for evidence of intrinsic fire resistance or verify this by examining any presented declaration from the manufacturer or supplier.</p> <p>At each metallic fuel tank check for signs of soft-soldered seams where these can be seen or reached.</p>		<p>Non-metallic fuel tanks must have intrinsic fire resistance of at least 2.5 minutes at <del>600°C</del> <u>650°C</u> or be otherwise protected from fire.</p> <p>Metallic tanks must not have soft-soldered seams.</p>
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 2 for essential information on examining plastic fuel tanks.</a></p> <p><a href="#">Applicability – non-metallic fuel tanks CE marked and marked ISO 21487 may be accepted as having an intrinsic fire resistance of at least 2.5 minutes at 650°C.</a></p> <p><del>Supplementary information on assessing plastic fuel tanks is provided at Appendix F</del></p>		

<b>Explanation of changes</b>		
1	Non-metallic fuel tanks must have intrinsic fire resistance of at least 2.5 minutes at <del>600°C</del> <u>650°C</u> or be otherwise protected from fire.	To reflect the temperature figure used in the relevant ISO.
2	<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 2 for essential information on examining plastic fuel tanks.</a></p> <p><del>Supplementary information on assessing plastic fuel tanks is provided at Appendix F</del></p>	To reference the essential new material included in Appendix 2.
3	<a href="#">Applicability – non-metallic fuel tanks CE marked and marked ISO 21487 may be accepted as having an intrinsic fire resistance of at least 2.5 minutes at 650°C.</a>	The 2.5min/650°C test for non-metallic tank is embedded within ISO 21487 (Permanently installed petrol and diesel fuel tanks). So non-metallic tanks marked ISO 21487 can be accepted as being suitably fire resistant.

<b>2.5.5</b>	<b>Are petrol tanks installed at the required distances from heat sources or protected by a heat baffle?</b>	<b>R</b>
<p>Measure the distance from any petrol tank to any engine, exhaust system or other heat source.</p> <p>Check for the presence of a fire-resistant baffle between any such petrol tank and heat source.</p>		<p>Petrol tanks must be located:</p> <ul style="list-style-type: none"> <li>• at least 100mm (4in) from general heat sources; <b>and</b>,</li> <li>• at least 250mm (10in) from a dry exhaust.</li> </ul>

	If the distances are less than those prescribed a fire-resistant baffle in good condition must protect the tank from radiated heat.
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Explanation of changes		
1	<p>Petrol tanks must be located:</p> <ul style="list-style-type: none"> <li>at least 100mm (4in) from general heat sources; <b>and</b>,</li> <li>at least 250mm (10in) from a dry exhaust.</li> </ul>	In line with the accepted bulleted approach, regarded as easier to follow.

## 2.6 Fuel gauges

2.6.1	<del>Are any glass or plastic tube or strip-type fuel gauges fitted to diesel tanks only?</del> <a href="#">Are petrol tanks free of glass or plastic tube or strip-type fuel gauges?</a>	R
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.

Explanation of changes		
1	<del>Are any glass or plastic tube or strip-type fuel gauges fitted to diesel tanks only?</del> <a href="#">Are petrol tanks free of glass or plastic tube or strip-type fuel gauges?</a>	The original 2015 Check question was not consistent with the Requirement.

2.6.2	Are any glass or plastic tube or strip-type fuel gauges <a href="#">closely coupled to the tank, fitted with a self-closing valve and in good condition</a> <del>protected against damage and by self-closing valves?</del>	R
<p>Check each diesel <del>or paraffin</del> tank for the provision of glass or plastic tube or strip-type fuel gauges.</p> <p>If provided check the installation arrangements.</p>		<p>Glass or plastic tube or strip-type fuel gauges must be:</p> <ul style="list-style-type: none"> <li><del>protected against physical damage; and,</del></li> <li>closely coupled (<del>connected</del>) to the tank; <b>and</b>,</li> <li><del>fitted with self-closing valves at top and bottom (note that the self-closing valve at the top is not required if the gauge connection is made to the top of the tank or the highest part of the side of the tank); and,</del></li> <li><a href="#">fitted with a self-closing valve at the bottom; and,</a></li> <li>complete and free of signs of leaks and other signs of damage <a href="#">or deterioration</a>.</li> </ul>
<p>Applicability – self-closing valves are not required for fuel gauges on 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 vessel, or registered for use as a houseboat, unless used for the purposes of hire or reward. Documentary evidence of former use addressed to the BSS manager is required to enjoy this exception.</p> <p>Applicability – self-closing valves are not required on sight gauge arrangements on day tanks having a maximum capacity of up to <del>30</del> <a href="#">27</a> litres.</p>		

Explanation of changes		
1	Are any glass or plastic tube or strip-type fuel gauges <u>closely coupled to the tank, fitted with a self-closing valve and in good condition</u> <del>protected against damage and by self-closing valves?</del>	The Check question is made relevant to the Requirements, reference to 'protected against damage' is removed and to remove potential conflict with the ISO.  Also because looking for signs of damage or deterioration is adequate.
2	Check each diesel <del>or paraffin</del> tank	See introductory paragraphs, 'paraffin' deleted to prevent repetition.
3	Glass or plastic tube or strip-type fuel gauges must be: <ul style="list-style-type: none"> <li><del>protected against physical damage; and,</del></li> <li>closely coupled (<del>connected</del>) to the tank; <del>and,</del></li> <li><del>fitted with self-closing valves at top and bottom (note that the self-closing valve at the top is not required if the gauge connection is made to the top of the tank or the highest part of the side of the tank); and,</del></li> <li><u>fitted with a self-closing valve at the bottom; and,</u></li> </ul>	The Requirement is simplified to reflect available products and remove potential conflict with the ISO.  Reference 1 above, the reference to 'protected against damage' is removed.  'Close-coupled' is used elsewhere in the ECP and 'connected' is an unnecessary addition.  The deletion removes the need for a self-closing valve at the top of the gauge.
4	<ul style="list-style-type: none"> <li>complete and free of signs of leaks and other signs of damage <u>or deterioration</u>.</li> </ul>	To employ correct Glossary term
5	.... day tanks having a maximum capacity of up to <u>30</u> <del>27</del> litres.	To standardise on 30 litres because of known tanks to that capacity.

2.6.3	Are all fuel gauges and level-indicators in good condition and free of signs of leaks?	R
Check any fuel tank fuel gauge and level-indicator for condition.	Fuel gauges and fuel level-indicators: <ul style="list-style-type: none"> <li><u>must be free of signs of leaks and/or signs of damage or missing components and fixings that could lead to a leak; and,</u></li> <li><u>must not have fuel behind any transparent cover, <del>or damage to any glass or other transparent cover.</del></u></li> </ul>	
Applicability – loose or damaged gauge needles, or other such level-indicators, mounted behind any glass or transparent cover do not constitute a failure.		

Explanation of changes		
1	Fuel gauges and fuel level-indicators: <ul style="list-style-type: none"> <li><u>must be free of signs of leaks and/or signs of damage or missing components and fixings that could lead to a leak; and,</u></li> <li><u>must not have fuel ....</u></li> </ul>	The Requirements have not been changed, but for ease of reference have been separated into a bullet-pointed list.

2	<ul style="list-style-type: none"> <li>• <del>must not have fuel behind any transparent cover,</del> <del>or</del> <del>damage to any glass or other transparent cover.</del></li> </ul>	The deletion is because damage or deterioration to glass/transparent cover is already adequately covered in the first bullet point.
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## 2.7 Petrol fuel system electrical bonding

2.7.2	<b>Are all parts of electrical bonding systems in good condition?</b>	<b>R</b>
<p>Check the condition of the electrical bonding connections <del>and cables where they can be seen or reached</del> <u>by sight or touch</u>.</p> <p><u>Check the condition of bonding</u> cables where they can be seen or reached.</p>	<p>The electrical bonding system must show:</p> <ul style="list-style-type: none"> <li>• no movement at any of the connections; <u>and</u>,</li> <li>• no signs of damage or deterioration, <del>or corrosion,</del> along the cables or at their connections.</li> </ul>	
<p>Applicability – all necessary electrical bonding connections must be seen or reached in order to be able to establish the existence of adequate bonding provision.</p>		

Explanation of changes		
1	<p>Check the condition of the electrical bonding connections <del>and cables where they can be seen or reached</del> <u>by sight or touch</u>.</p> <p><u>Check the condition of bonding</u> cables where they can be seen or reached.</p>	<p>To separate out the two parts of the Checking action between connections and cables.</p> <p>The addition of ‘by sight or touch’ ensures that the first part of the Checking action aligns with the Applicability.</p>
2	<ul style="list-style-type: none"> <li>• no movement at any of the connections; <u>and</u>,</li> <li>• no signs of damage or deterioration, <del>or corrosion,</del> along the cables or at their connections.</li> </ul>	<p>‘and’ added to be consistent with other bulleted Requirements.</p> <p>‘or corrosion’ deleted because the glossary term ‘damage or deterioration’ adequately covers it.</p>

## 2.8 Fuel tank connections

2.8.1	<b><u>Are any</u> <del>is the</del> fuel tank drains <u>closed</u> <del>fitted</del> with a plug or cap, <u>or valve</u>, which can only be <u>opened</u> <del>removed</del> with tools, <u>and are the drains and their connections in good condition and free of signs of leaks?</u></b>	<b>R</b>
<p>Check each fuel tank for the presence of a fuel drain facility.</p> <p><del>If present, check the drain outlet for the presence of a plug, cap or blank.</del></p> <p><u>Check fuel tank drains by sight and touch for:</u></p> <ul style="list-style-type: none"> <li>• <u>the presence of a ‘tools to remove’ plug or cap on the outlet; and/or,</u></li> <li>• <u>a ‘tools to operate’ shut-off valve.</u></li> </ul> <p><u>Check the condition of fuel tank drains, their connections and any valves by sight and touch.</u></p>	<p><del>If present, the outlets from fuel tank drains and drain valves must be terminated with a ‘tools to remove’ plug, cap or blank.</del></p> <p><u>If present, fuel tank drains must be closed by either:</u></p> <ul style="list-style-type: none"> <li>• <u>a ‘tools-to-remove’ plug or cap on the outlet; or,</u></li> <li>• <u>a ‘tools-to-operate’ shut-off valve at the tank connection.</u></li> </ul> <p><u>Fuel tank drains, their connections and any valves must be:</u></p> <ul style="list-style-type: none"> <li>• <u>secure; and,</u></li> <li>• <u>free of signs of leaks; and,</u></li> <li>• <u>free of signs of damage or deterioration.</u></li> </ul>	

~~Applicability — the provision of a fuel tank drain facility is not a Requirement.~~

Applicability – where compliance is achieved using a ~~The~~ plug, or cap ~~or blank~~ it must be of suitable proprietary manufacture and/or be metallic and it must be fixed in place by a screw mechanism which requires a tool to remove it.

Explanation of changes		
1	<p><del>Are any</del> <del>is the</del> fuel tank drains <del>closed</del> <del>fitted</del> with a plug or cap, <u>or valve</u>, which can only be <del>opened</del> <del>removed</del> with tools, <u>and are the drains and their connections in good condition and free of signs of leaks?</u></p>	<p>The Check is re-worked to have all fuel tank drain Checks in one place.</p> <p>‘Are any’ promotes the fact that the provision of a fuel tank drain facility is not a BSS Requirement.</p> <p>The addition of ‘valve’ is added to reflect common practice concerning diesel tank drain facilities.</p>
2	<p><del>If present, check the drain outlet for the presence of a plug, cap or blank.</del></p> <p><u>Check fuel tank drains by sight and touch for:</u></p> <ul style="list-style-type: none"> <li>the presence of a ‘tools to remove’ plug or cap on the outlet; <u>and/or</u>,</li> <li>a ‘tools to operate’ shut-off valve.</li> </ul>	<p>The Checking action is separated into bulleted actions and the allowance for ‘tools to operate’ shut-off valves is introduced.</p>
3	<p><u>Check the condition of fuel tank drains, their connections and any valves by sight and touch.</u></p>	<p>The specific tank drain facility condition check is new and clarifies that fuel leaks etc at fuel tank drains need to be checked.</p> <p>This previously was not made adequately clear at the fuel tank condition Check 2.5.3.</p>
4	<p><del>If present, the outlets from fuel tank drains and drain valves must be terminated with a ‘tools-to-remove’ plug, cap or blank.</del></p> <p><u>If present, fuel tank drains must be closed by either:</u></p> <ul style="list-style-type: none"> <li>a ‘tools-to-remove’ plug or cap on the outlet; <u>or</u>,</li> <li>a ‘tools-to-operate’ shut-off valve at the tank connection.</li> </ul>	<p>The option for a ‘tools-to-operate’ shut-off valve at the tank connection reflects common practice.</p>
5	<p><u>Fuel tank drains, their connections and any valves must be:</u></p> <ul style="list-style-type: none"> <li><u>secure; and,</u></li> <li><u>free of signs of leaks; and,</u></li> <li><u>free of signs of damage or deterioration.</u></li> </ul>	<p>As 3) above, the specific tank drain facility condition requirements are new and add clarity, where these were previously not made adequately clear at the fuel tank condition Check 2.5.3.</p>
6	<p>be of <u>suitable</u> proprietary manufacture and/or <u>be</u></p>	<p>To use the full Glossary term.</p>



2.8.2	Are the petrol feed <del>and return (if fitted)</del> line connections in lift-pump systems made to the top of the tank?	R
<p>Check for the presence of a petrol fuel system with a lift-pump supply.</p> <p>If present, check all petrol feed <del>and return (if fitted)</del> line connections are made to the top of the tank.</p>	<p>Petrol feed lines <del>and return lines</del> must be connected to the top of the fuel tank on lift-pump feed systems.</p>	
<p>Applicability – ‘top of the tank’ means the top plate of the fuel tank or the highest part of the side of the tank.</p> <p><a href="#">Applicability – the Requirement also applies to petrol return lines where these are fitted.</a></p>		

Explanation of changes		
1	Are the petrol feed <del>and return (if fitted)</del> line connections in lift-pump systems made to the top of the tank?	The deletion reflects the fact that return lines on petrol system are very rare. Also, ‘if fitted’ is not consistent with the general ECP approach.
2	If present, check all petrol feed <del>and return (if fitted)</del> line connections are made to the top of the tank.	Ditto
3	Petrol feed lines <del>and return lines</del> must be connected to the top of the fuel tank on lift-pump feed systems.	Ditto
4	<a href="#">Applicability – the Requirement also applies to petrol return lines where these are fitted.</a>	The reference to petrol return lines is retained within an Applicability.

2.8.3	Is the petrol feed line on a gravity system fitted with a <del>cock-or</del> valve directly attached to the tank?	R
<p>Check for the presence of a gravity-fed petrol installation and check for the presence of a <del>cock-or</del> valve in the petrol feed line directly attached to the tank.</p>	<p>The petrol feed line on gravity-fed petrol installations must be protected by a <del>cock-or</del> valve directly attached to the tank.</p>	
<p>Applicability – a gravity-fed petrol installation is one where there is no lift-pump to move the fuel from the tank to the engine and the height of the tank is above that of the engine.</p>		

Explanation of changes		
1	a <del>cock-or</del> valve	Throughout the ECP reference to ‘cock’ is removed and sole reliance placed upon the word ‘valve’.

2.8.4	<b>Are tank connections <del>and tank valves</del> accessible for inspection, <del>in good condition and free of signs of leaks?</del></b>	R
Check the accessibility of tank connections <del>and tank valves, and check condition</del> by sight and touch.		Fuel tank connections <del>and tank valves</del> must be accessible for inspection, <del>secure and free of signs of leaks, signs of damage or deterioration.</del>
<p><del>Applicability – tank connections and tank valves not accessible for inspection must be recorded as ‘not verified’ on your checklist, and it must be considered that the check has not been completed until such time as their general condition has been verified.</del></p> <p>Applicability – this Requirement applies to all <del>tank connections and valves, including</del> fuel supply and return lines, fuel filling lines, vent lines <del>and</del> balance <del>line pipes and any disused</del> connections.</p>		

Explanation of changes		
1	<b>Are tank connections <del>and tank valves</del> accessible for inspection, <del>in good condition and free of signs of leaks?</del></b>	<p>The Check is simplified and modified to remove duplication. The result is that the Check is purely concerning the accessibility of the specified list of tank connections.</p> <p>Note that:</p> <ul style="list-style-type: none"> <li>a) tank drains (including drain valves) are covered at 2.8.1 and as they are meant to be operated, will invariably be accessible.</li> <li>b) sight gauges are covered at 2.6.2 and as they are meant to be operated and viewed they will invariably be accessible.</li> <li>c) tank surfaces, seams and all openings are covered at 2.5.3.</li> <li>d) the leak-free nature of tank filler and vent connections are covered at 2.2.1 and 2.3.3, respectively.</li> <li>e) the leak-free nature of balance lines is covered at 2.9.2</li> <li>f) the leak-free nature of fuel supply and return lines is covered at 2.10.3</li> </ul>
2	Applicability – this Requirement applies to all <del>tank connections and valves, including</del> fuel supply and return lines, fuel filling lines, vent lines <del>and</del> balance <del>line pipes and any disused</del> connections.	<p>As explained above.</p> <p>Note that disused connections are now covered in new Check 2.8.5.</p>

<u>2.8.5</u>	<u><b>Are any unused tank connections closed with a plug or cap which can only be opened with tools, and are unused connections in good condition and free of signs of leaks?</b></u>	<u>R</u>
<p><u>Where it can be seen or reached, check each fuel tank for the presence of unused connections.</u></p> <p><u>If present, check each unused tank connection for the presence of a ‘tools to remove’ plug or cap, and check its condition.</u></p>		<p><u>Unused tank connections must be:</u></p> <ul style="list-style-type: none"> <li>• <u>closed with a ‘tools-to-remove’ plug or cap; <b>and,</b></u></li> <li>• <u>secure; <b>and,</b></u></li> <li>• <u>free of signs of leaks; <b>and,</b></u></li> <li>• <u>free of signs of damage or deterioration.</u></li> </ul>
<p><u>Applicability – each plug or cap must be of suitable proprietary manufacture and/or be metallic and must be fixed in place by a screw mechanism which requires a tool to remove it.</u></p>		

Applicability – unused fuel lines connected to tanks must be closed with a ‘tool-to-remove’ plug or cap and be in good condition and free of signs of leaks.

Explanation of changes		
1	Concerning the new Check.	<p>This new Check clarifies and simplifies how unused fuel tank connections are to be addressed.</p> <p>It is considered to be an editorial change because previously Examiners would have applied existing Checks to any open-ended or leaking unused fuel tank connections or unused fuel lines extending from the tank.</p> <p>The new Check also takes account of other editorial changes concerning ‘in-use’ connections at Section 2.8 Checks including that 2.8.4 now only relates to the accessibility of tank connections.</p> <p>The 1<sup>st</sup> Applicability addresses what is required of plugs or caps.</p> <p>The 2<sup>nd</sup> Applicability takes account of the fact that unused fuel lines may extend a short distance from the tank and that any fuel line found will need plugging or capping.</p>

## 2.9 Fuel tank balance lines

2.9.2	Are balance lines on diesel tank systems made of suitable materials and are they in good condition and free of signs of leaks?	R
<p>Check the material of all diesel balance lines that can be seen and check for evidence of suitability.</p> <p>Check the condition of each balance line and its connections where they can be seen or reached.</p> <p>Check the markings on any hose used as a balance line.</p>	<p>Diesel system balance lines must be made of suitable materials, <del>and must be free of signs of leaks, signs of damage or deterioration.</del></p> <p>Metallic materials suitable include:</p> <ul style="list-style-type: none"> <li>• aluminium alloy</li> <li>• copper</li> <li>• mild steel</li> <li>• stainless steel</li> </ul> <p>Non-metallic materials suitable include:</p> <ul style="list-style-type: none"> <li>• FRP</li> <li>• Hose marked to denote both suitability for the fuel used, and fire resistance, to BS EN ISO 7840 or an equivalent standard.</li> </ul> <p><u>Diesel system balance lines must be free of signs of leaks and signs of damage or deterioration.</u></p>	
<p>Applicability – where after assessment of any metallic or FRP balance line material its suitability cannot be verified, and where the material is not obviously unsuitable apply the condition checks only.</p> <p>Applicability – balance line connections must comply with the Requirements at 2.11 (Fuel line connections). If not compliant with all the Requirements at 2.11 a fault shall be recorded at 2.9.2.</p> <p>Applicability – when fuel filler hose is connected to a balance line, it must be checked in the same way as a hose permanently charged with fuel – see 2.10 <u>and 2.11.</u></p>		

Explanation of changes		
1	<p>Diesel system balance lines must be made of suitable materials, <del>and must be free of signs of leaks, signs of damage or deterioration.</del></p>	<p>Moved down to a separate Check of condition, to align with ECP practice.</p>

2	<a href="#">Diesel system balance lines must be free of signs of leaks and signs of damage or deterioration.</a>	As above.
3	Applicability – when fuel filler hose is connected to a balance line, it must be checked in the same way as a hose permanently charged with fuel – see 2.10 <a href="#">and 2.11.</a>	To clarify that the connections of filler hoses into balance lines are also covered by the Applicability.

## 2.10 Fuel feed, return, and on-engine lines

<b>2.10.1</b>	<b>Are all fuel feed, return and on-engine pipes made of suitable materials?</b>	<b>R</b>
Check the material of all fuel feed, return and on-engine pipes that can be seen and check for evidence of suitability.	Fuel pipes must be made of suitable materials. Suitable materials include: <ul style="list-style-type: none"> <li>• aluminium alloy</li> <li>• copper</li> <li>• mild steel (for diesel only)</li> <li>• stainless steel.</li> </ul>	
<p>Applicability – where after assessment of the material its suitability cannot be verified, and where the material is not obviously unsuitable apply the condition checks at 2.10.3. If the condition Requirements are met mark your checklist as being a pass at 2.10.1 and 2.10.3. If the condition Requirements at 2.10.3 are not met mark your checklist as a fail at 2.10.1 and 2.10.3.</p> <p>Applicability – the use of hose and other non-metallic components within high-pressure diesel fuel lines between injection pumps and injectors is not permitted. Where such lines are obviously not metallic or where the material type cannot be <a href="#">identified</a> <del>determined</del> mark your checklist as a fail.</p> <p><a href="#">Applicability – fuel lines connecting small capacity diesel containers to the cold start facility on older diesel engines are exempt from this Requirement.</a></p>		

Explanation of changes		
1	material type cannot be <a href="#">identified</a> <del>determined</del> mark your checklist as a fail	As explained in the introduction. Using ‘identified’ removes the connotations associated with the word ‘determined’.
2	<a href="#">Applicability – fuel lines connecting small capacity diesel containers to the cold start facility on older diesel engines are exempt from this Requirement.</a>	The change is purely to be consistent with the 2015 ECP reference at Check 2.10.2 (5 <sup>th</sup> Applicability) concerning the exemption of cold-start facilities.

<b>2.10.2</b>	<b>Are all fuel feed, return and on-engine hoses suitable for the fuel used and fire resistant?</b>	<b>R</b>
Check the marking on all fuel feed, return and on-engine hoses.	Fuel feed, return and on-engine hoses must be marked, to denote both suitability for the fuel used and fire resistance, to BS EN ISO 7840 or an equivalent standard.	
<p>Applicability – hoses marked to SAE J 1527, DIN 4798 or RINA DIP/66/96 are acceptable.</p> <p>Applicability – the presence of armoured or other external braiding is not evidence of hose suitability or fire resistance. Such hoses must be marked as above.</p> <p><del>Applicability – where a hose is not marked to an accepted standard but the boat owner claims suitability the Examiner should contact the BSS Office.</del></p>		

Applicability – fuel-hose suitability may be supported by a written declaration from the hose manufacturer or supplier or, if appropriate, from the engine manufacturer/supplier or mariniser.

~~Applicability – the nylon type fuel hose material connecting small capacity diesel containers to the cold start facility on older diesel engines should be considered as exempt from this Requirement.~~

Applicability – fuel lines connecting small capacity diesel containers to the cold start facility on older diesel engines are exempt from this Requirement.

Applicability – fuel hoses in permanently installed fuel systems to outboard engines may be to type B1 or B2 of ISO 8469 (or be suitable proprietary outboard engine fuel hose), provided the hose and its connections are located in the open air and where any fuel spillage would drain overboard (e.g. self-draining cockpits or outboard wells not enclosed by a canopy or other cover). Open vessels such as RIBs having a continuous deck or sole that is fuel-tight to the interior of the vessel and bilge spaces, meet this Requirement.

Supporting information on permanently installed fuel systems to outboard engines is provided at Appendix 5.

Explanation of changes		
1	<del>Applicability – where a hose is not marked to an accepted standard but the boat owner claims suitability the Examiner should contact the BSS Office.</del>	Removed as unnecessary and because it is not consistent with other ECP marking Checks.
2	<del>Applicability – the nylon type fuel hose material connecting small capacity diesel containers to the cold start facility on older diesel engines should be considered as exempt from this Requirement.</del> <u>Applicability – fuel lines connecting small capacity diesel containers to the cold start facility on older diesel engines are exempt from this Requirement.</u>	Editorial change to be consistent with the text at Check 2.10.1.
3	<u>Supporting information on permanently installed fuel systems to outboard engines is provided at Appendix 5.</u>	In the context of the Applicability immediately above, supporting information covering installed fuel systems to outboard motors is included in Appendix 5.

2.10.3	Are all feed, return and on-engine pipes secure and in good condition?	R
Check the condition of all fuel feed, return and on-engine pipes which can be seen or reached.  Apply light manual force to check security of all fuel feed, return and on-engine pipes that can be reached.	Fuel feed, return and on-engine pipes must be free of signs of leaks, signs of damage or deterioration.  Fuel feed, return and on-engine pipes must not move under light manual force.	
<del>Applicability – pay particular attention to fuel pipes etc close to hot exhausts and other sources of heat, and to any high pressure diesel fuel pipes between injection pumps and injectors.</del>		

Explanation of changes		
1	<del>Applicability – pay particular attention to fuel pipes etc close to hot exhausts and other sources of heat, and to any high pressure diesel fuel pipes between injection pumps and injectors.</del>	This information is better addressed in Examiner training.

2.10.4	<b>Are all fuel feed, return and on-engine hoses properly supported and in good condition?</b>	<b>R</b>
<p>Check the condition of all fuel feed, return and on-engine hoses which can be seen or reached.</p> <p>Check fuel feed, return and on-engine hoses where they can be seen or reached for support and protection.</p>	<p>All fuel feed, return and on-engine hoses must be free of signs of leaks <u>or damage or deterioration including</u>, flaws, brittleness, cracking, abrasion, kinking and ‘soft spots’.</p> <p>On hoses covered with metal braiding the braiding must be free of signs of damage or deterioration including corrosion and kinking.</p> <p>Fuel feed, return and on-engine hoses must be supported clear of anything likely to damage them, or be otherwise protected.</p>	
<p><del>Applicability — pay particular attention to fuel hoses located in close proximity to rotating engine components, sharp or hot engine and exhaust components, engine bearers and other vessel structures.</del></p>		

Explanation of changes		
1	All fuel feed, return and on-engine hoses must be free of signs of leaks <u>or damage or deterioration including</u> , flaws, brittleness, cracking, abrasion, kinking and ‘soft spots’	To be consistent with other ECP Checks
2	<del>Applicability — pay particular attention to fuel hoses located in close proximity to rotating engine components, sharp or hot engine and exhaust components, engine bearers and other vessel structures.</del>	This information is better addressed in Examiner training.

2.10.5	<b>Do the <u>diesel</u> injector leak-off (spill rail) arrangements meet specified Requirements?</b>	<b>R</b>
<p><del>Check the arrangements for the injector leak-off (spill rail).</del></p> <p><u>Apply the Checking actions from Checks 2.10.1–4 and 2.11.1-3 to the diesel injector leak-off arrangements, and refer to Appendix 2a if necessary.</u></p>	<p><del>Injector leak-off (spill rail) arrangements must meet all the requirements for fuel feed and return pipes, hose and connections, or</del></p> <ul style="list-style-type: none"> <li><del>• utilise the direct return to tank, or</del></li> <li><del>• return to the fuel system through a non-return valve.</del></li> </ul> <p><u>Diesel injector leak-off (spill-rail) arrangements must meet:</u></p> <ul style="list-style-type: none"> <li>• <u>all the relevant Requirements at Checks 2.10.1–4 and 2.11.1-3, or,</u></li> <li>• <u>one of the alternative compliance options listed in Appendix 2a.</u></li> </ul>	
<p>Applicability – vintage and traditional engines designed to return the injector leak-off fuel to a catch pot are acceptable provided the catch pot is securely mounted and is free of signs of leaks, signs of damage or deterioration.</p> <p>Applicability – injector leak-off hoses fitted by the manufacturer within an enclosure on the engine meet this Requirement.</p>		

Explanation of changes		
1	<b>Do the <u>diesel</u> injector leak-off (spill rail) arrangements meet specified Requirements?</b>	Added for extra clarity.
2	<del>Check the arrangements for the injector leak-off (spill rail).</del>	The alternative compliance options for leak-off

<p><a href="#">Apply the Checking actions from Checks 2.10.1–4 and 2.11.1-3 to the diesel injector leak-off arrangements, and refer to Appendix 2a if necessary.</a></p> <p><del>Injector leak-off (spill rail) arrangements must meet all the requirements for fuel feed and return pipes, hose and connections, or</del></p> <ul style="list-style-type: none"> <li><del>• utilise the direct return to tank, or</del></li> <li><del>• return to the fuel system through a non-return valve.</del></li> </ul> <p><a href="#">Diesel injector leak-off (spill-rail) arrangements must meet:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">all the relevant Requirements at Checks 2.10.1–4 and 2.11.1-3, or</a></li> <li>• <a href="#">one of the alternative compliance options listed in Appendix 2a.</a></li> </ul>	<p>arrangements are included in a new Appendix 2a.</p> <p>It makes sense to simply refer to the Appendix where the compliance options are explained and illustrated.</p>
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## 2.11 Fuel feed, return, and on-engine fuel line connections

2.11.1	Are all fuel line connections of the correct type and free of signs of leaks?	R
<p>Check the type of fuel line connections that can be seen or reached and check for signs of leaks by sight or touch.</p>	<p>Fuel line connections must be screwed, compression, cone, brazed or flanged.</p> <p>Fuel hose connections must be either pre-made end fittings on hose assemblies, or hose clips/clamps onto hose nozzles or formed pipe-ends.</p> <p>Fuel line connections must be free of signs of leaks, signs of damage or deterioration.</p>	
<p>Applicability – soft-soldered joints are not acceptable. Examiners concerned that particular joints may have been made using soft solder must require the owner to provide proof that this is not the case.</p> <p>Applicability – injector leak-off (spill rail) arrangements having push-on connections on flexible fuel lines are acceptable for options covered by the <a href="#">alternative compliance options set out in Appendix 2a</a> <del>bullet points at Check Item 2.10.5.</del></p> <p>Applicability – the push-fit end connections on the fuel lines connecting small capacity diesel containers to the cold start facility on older diesel engines should be considered as meeting this Requirement if the connections are free of signs of leaks.</p> <p>Applicability – fuel hoses in permanently installed fuel systems to outboard engines may terminate at the outboard <del>end</del> with a proprietary quick-release self-closing connector conforming to <a href="#">5.2.1</a> <del>5.1.2.</del></p>		

Explanation of changes		
1	<p>Applicability – injector leak-off (spill rail) arrangements having push-on connections on flexible fuel lines are acceptable for options covered by the <a href="#">alternative compliance options set out in Appendix 2a</a> <del>bullet points at Check Item 2.10.5.</del></p>	<p>To take account of the fact that the information has moved into Appendix 2a from 2.10.5</p>
1	<p>Applicability – fuel hoses in permanently installed fuel systems to outboard engines may terminate at the outboard <del>end</del> with a proprietary quick-release self-closing connector conforming to <a href="#">5.2.1</a> <del>5.1.2.</del></p>	<p>‘end’ is not needed.</p> <p>Check 5.1.2 is no longer an ECP Check and now components of portable fuel systems of suitable proprietary manufacture are covered at Check 5.2.1.</p>

2.11.32	Are fuel hose connections made with hose clips or clamps effective and in good condition?	R
<p>Check the effectiveness and condition of all fuel hose connections made with hose clips or clamps that can be seen or reached.</p> <p>Pull using light manual force to check security of all hose connections that can be reached.</p>	<p>Fuel hose connections made with hose clips or clamps must:</p> <ul style="list-style-type: none"> <li>• be suitably sized, that is, not so oversized that the band forms an elliptical shape or so undersized that no tightness is achieved; <b>and</b>,</li> <li>• be appropriately tight, that is, not so loose that the connection can be pulled forward or back under light manual force, nor so tight that the hose is excessively pinched; <b>and</b>,</li> <li>• show no signs of damage or deterioration at the clip or clamp; <b>and</b>,</li> <li>• show no signs of damage or deterioration at the hose caused by the clips or clamps.</li> </ul>	
<p>Applicability – the light manual force Check must not be applied to injector leak-off (spill rail) arrangements having push-on connections. <del>Supplementary information on spill rail options is provided in the BSS Technical Update August 2003.</del></p>		

Explanation of changes		
1	<p><del>Supplementary information on spill rail options is provided in the BSS Technical Update August 2003.</del></p>	<p>No longer needed at this Check.</p> <p>Included at Check 2.10.5.</p>

2.11.23	Are all fuel line connections, <del>cocks</del> , valves, fittings and other components secure?	R
<p>Apply light manual force to check security of all fuel line connections, <del>cocks</del>, valves, fittings and other components that can be reached.</p>	<p>Fuel line connections, <del>cocks</del>, valves, fittings and other components must not move under light manual force.</p>	
<p><u>Applicability – at connections between pipe and hose it is acceptable for there to be some movement at the connection provided the pipe is fixed in place within 100mm of the connection and there is no movement of the pipe at its fixing point.</u></p>		

Explanation of changes		
1	2.11.23	<p>Check numbers 2.11.2 and 2.11.3 are exchanged in order that the type of fuel line connections (2.11.1) is followed in sequence by the type of fuel hose connections (2.11.2) and followed in turn the check of security of all fuel line connections.</p>
2	..fuel line connections, <del>cocks</del> , valves, fittings and other components..	<p>Throughout the ECP reference to ‘cock’ is removed and sole reliance placed upon the word ‘valve’.</p>
3	<p><u>Applicability – at connections between pipe and hose it is acceptable for there to be some movement at the connection provided the pipe is fixed in place within 100mm of the connection and there is no movement of the pipe at its fixing point.</u></p>	<p>The allowances reflects how installations are presented and aligns with the provisions of the relevant ISO.</p>



## 2.12 Fuel filters

<b>2.12.1</b>	<b>Are fuel filters in good condition?</b>	<b>R</b>
Check the condition of all fuel filters.		Fuel filters must be free of signs of leaks and signs of damage or deterioration to any part of the filter assembly.
Applicability – the Requirements at Section 2.12 must be applied to all forms of fuel filters, <del>including water traps, sedimenters, agglomeraters, etc.</del>		

Explanation of changes		
1	Applicability – the Requirements at Section 2.12 must be applied to all forms of fuel filters, <del>including water traps, sedimenters, agglomeraters, etc.</del>	Types of filters are best covered in the Examiner training material.

<b>2.12.2</b>	<b>Are all fuel filters inside engine spaces fire resistant?</b>	<b>R</b>
Check all fuel filters (including drain plugs) located inside engine spaces are marked or recognised as fire resistant. If not marked or recognised as being suitably fire resistant, verify this by examining any presented declaration from the manufacturer or supplier.		Fuel filters (including drain plugs) located inside engine spaces must have intrinsic fire resistance of at least 2.5 minutes at <del>65</del> 90°C.
Applicability – all-metal fuel filters are accepted as being sufficiently fire resistant.		
Applicability – fuel filters marked with ISO 10088 are acceptable.		

Explanation of changes		
1	... intrinsic fire resistance of at least 2.5 minutes at <del>65</del> 90°C.	To align with temperature value in the ISO, and also to align with Check 2.5.4.

## 2.13 Fuel shut-offs

<b>2.13.1</b>	<b>Is an emergency fuel shut-off installed in every fuel feed line?</b>	<b>R</b>
Check the means to shut off the fuel in the fuel feed line from every fuel tank.		<p>An effective emergency shut-off must be installed in all fuel feed lines. Any of the following methods are acceptable:</p> <ul style="list-style-type: none"> <li>• a manual shut-off valve <del>or cock</del> as close as practical to the tank; or,</li> <li>• all fuel lines, including those on the engine, being above the level of the top of the tank; or,</li> <li>• an anti-siphon valve at the tank, <del>providing it was installed by the boat builder</del>; or,</li> <li>• an electrically operated valve at the tank activated to open only during engine starting or running, provided that a manual emergency operating or bypassing device is present.</li> </ul>
<u>Applicability – in regard to manual shut-off valves, accessibility takes precedence over proximity to the tank.</u>		
Applicability – if an Examiner cannot verify a claim from an owner that the emergency shut-off facility is provided by way of an anti-siphon valve or an electrically operated valve, they should contact the BSS Office for help verifying the claim.		

~~Advice to owners — when purchasing solenoid controlled shut-off valves an assurance should be sought from the supplier as to their suitability for use with the fuel in use.~~

Explanation of changes		
1	<ul style="list-style-type: none"> <li>a manual shut-off valve <del>or cock</del> <u>as close as practical to the tank</u>; <b>or</b>,</li> </ul>	<p>Previous versions of the BSS Requirements specified that the cock or valve must be fitted as near as possible to the fuel tank, but the proximity to the tank element was missing from the 2015 ECP. This omission may have been accidental/editorial.</p> <p>The relevant ISO requires such cocks/valves to be as close as practical to the tank.</p>
2	<ul style="list-style-type: none"> <li>an anti-siphon valve at the tank, <del>providing it was installed by the boat builder</del>; <b>or</b></li> </ul>	<p>Removed because builder installation of anti-siphon valves could in most cases not be established.</p>
3	<p><u>Applicability – in regard to manual shut-off valves, accessibility takes precedence over proximity to the tank.</u></p>	<p>To help ensure a pragmatic approach.</p>
4	<p><del>Advice to owners — when purchasing solenoid controlled shut-off valves an assurance should be sought from the supplier as to their suitability for use with the fuel in use.</del></p>	<p>The agreed approach for the ECP review is to only include Guidance for owners where there is a significant reason for doing so in terms of safety.</p> <p>The deletion is because advice regarding the purchase of solenoid shut-off valves is considered not to align with the agreed approach.</p>

2.13.2	<b>Are all fuel shut-off valves <del>or cocks</del>, or their means of operation, in a readily accessible position?</b>	<b>R</b>
<p>Check for the presence of fuel shut-off valves <del>or cocks</del>. If present, check their accessibility or the accessibility of their means of operation.</p>		<p>Fuel shut-off valves <del>or cocks</del>, or their means of operation, must be installed in a readily accessible position.</p>

Explanation of changes		
1	<p>...shut-off valves <del>or cocks</del>...</p>	<p>Throughout the ECP reference to 'cock' is removed and sole reliance placed upon the word 'valve'.</p>

2.13.3	<b>Are all fuel shut-off valves <del>or cocks</del>, or their means of operation, in open view or their location clearly marked?</b>	<b>R</b>
<p>Check for the presence of fuel shut-off valves <del>or cocks</del>.</p> <p>If present, check that fuel shut-off valves <del>or cocks</del>, or their means of operation, are in open view with all removable lids, deck boards, curtains, doors etc. in place.</p> <p>If not in open view check their location is clearly marked in open view.</p>		<p>Fuel shut-off valves <del>or cocks</del>, or the means to operate them, must:</p> <ul style="list-style-type: none"> <li>be in open view with all removable lids, deck boards, curtains, doors etc. in place; <b>or</b>,</li> <li>have their location clearly marked in open view.</li> </ul>

[Applicability – the use of embossed tape \(e.g. Dymo\) is not acceptable. The marking must be legible with all lettering complete.](#)

Explanation of changes		
1	...shut-off valves <del>or cocks...</del>	Throughout the ECP reference to 'cock' is removed and sole reliance placed upon the word 'valve'.
2	<a href="#">Applicability – the use of embossed tape (e.g. Dymo) is not acceptable. The marking must be legible with all lettering complete.</a>	To be consistent with Check 2.1.2.

2.13.4	Are petrol gravity-fed fuel lines provided with the required fuel shut-off facilities?	R
<p>Check for the presence of a gravity-fed petrol installation.</p> <p>If present, check that a second shut-off valve <del>or cock</del>, or a means of operating the main <u>emergency fuel shut-off valve</u> <del>or cock</del>, can be reached from the steering position and check its accessibility.</p>		<p>Gravity-fed petrol installations must have a second <u>shut-off valve</u> <del>cock</del>, or a means of operating the main <u>emergency fuel shut-off valve</u> <del>cock</del>, in a readily accessible position within approximately 2m of the steering position.</p>

Explanation of changes		
1	...shut-off valve <del>or cock...</del>	Throughout the ECP reference to 'cock' is removed and sole reliance placed upon the word 'valve'.
2	operating the main <u>emergency fuel shut-off valve</u> <del>cock</del> , in a readily accessible	The term 'emergency fuel shut off valve' is used to be consistent with Check 2.13.1.

## 2.14 Carburettors

2.14.2	Is the carburettor drip tray in good condition, free of signs of leaks, and easily emptied?	R
<p>Check the condition of any carburettor drip tray.</p> <p>Check that it is removable or fitted with an emptying <u>facility</u> <del>cock</del>.</p>		<p>Carburettor drip trays must be:</p> <ul style="list-style-type: none"> <li>• removable or fitted with an emptying <u>facility</u> <del>cock</del>; and,</li> <li>• must be free of signs of leaks, signs of damage or deterioration.</li> </ul>

Explanation of changes		
1	<ul style="list-style-type: none"> <li>• ... removable or fitted with an emptying <u>facility</u> <del>cock</del>; and,</li> </ul>	<p>Throughout the ECP reference to 'cock' is removed and sole reliance placed upon the word 'valve'.</p> <p>The opportunity is taken to separate the Requirements into bullet points, to align with the approach throughout the ECP.</p>

2.14.4	Is <a href="#">the petrol engine air intake</a> <del>a petrol, petroil or paraffin engine</del> fitted with flame trap or air filter?	R
<p>Identify the air intake of petrol, <del>petroil and paraffin</del> engines and look for the presence of a flame trap or air filter.</p> <p>Check the flame trap or air filter for condition and completeness where they can be seen.</p>		<p>Petrol, <del>petroil and paraffin</del> engines must have a flame trap or air filter fitted to the air intake.</p> <p>Flame traps and air filters must show no signs of damage or deterioration, or obviously missing sections or components.</p>
<p>Applicability – there is no Requirement for Examiners to dismantle the air filter to <a href="#">establish</a> <del>determine</del> the nature of the filter element.</p>		

Explanation of changes		
1	Is <a href="#">the petrol engine air intake</a>	To better align the Check item text with the Requirement.
2	<del>, petroil and paraffin</del>	<p>As now set out in Section 1 of Appendix 2, petroil engines are to be examined as petrol engines so there is no need to reference ‘petroil’ separately. Also, as now set out in Section 1 of Appendix 2, paraffin is to be treated as diesel.</p> <p>It is possible that there are a very small number of vintage ‘tractor vaporising oil’ engines in traditional boats, which start on petrol and then switch over to a form of paraffin when warm (both fuels being spark-ignited). However, any such engines are likely to be so few in number that the inclusion of ‘paraffin’ at Check 2.14.4 is likely to be an unnecessary complication for most Examiners.</p>
3	the air filter to <a href="#">establish</a> <del>determine</del> the nature of the filter element.	As explained in the introduction. Using ‘establish’ removes the connotations associated with the word ‘determine’.

## 2.15 Engine installation

2.15.1	Are all parts of engine mounting systems secure and in good condition?	R
<p>Check engine mounting systems for condition and completeness where they can be seen or reached.</p>		<p>Engine mounting systems must:</p> <ul style="list-style-type: none"> <li>• show no signs of fractured engine mounting brackets; <b>and</b>,</li> <li>• not have loose, missing or fractured bolts or nuts; <b>and</b>,</li> <li>• show no evidence of significant deterioration of any flexible mounts; <b>and</b>,</li> <li>• show no signs of damaged or heavily corroded metal bearers or rotten timber bearers.</li> </ul>
<p><a href="#">Applicability – for internal combustion engines housed in the original equipment manufacturer’s cocoon, this Check applies to the cocoon’s mounting system.</a></p>		

Explanation of changes		
1	<a href="#">Applicability – for internal combustion engines housed in the original equipment manufacturer’s cocoon, this</a>	To help ensure that the Requirements are applied consistently.

	<a href="#">Check applies to the cocoon's mounting system.</a>	
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<b>2.15.2</b>	<b>Are the structures and surfaces surrounding exhaust system components free of signs of heat damage?</b>	<b>R</b>
Check all structures and surrounding surfaces near all exhaust system components which can be seen for signs of heat damage.	The structures and surrounding surfaces near all exhaust system components must not show signs of heat damage such as scorching, melting or burning.	
<p>Applicability – this Check covers all types of exhaust system components including those on ‘wet’ or ‘dry’ exhaust systems including those parts of ‘dry’ systems that are lagged or shielded.</p> <p><a href="#">Guidance for Advice to owners</a> – ‘Dry’ exhaust systems, or those parts of ‘wet’ exhaust systems not cooled by water, located in ‘walk through’ engine spaces or cabins/deck spaces or other areas where normal crew movement about the vessel can be anticipated, should be effectively lagged, shielded or otherwise protected by craft structures.</p>		

<b>Explanation of changes</b>		
1	<a href="#">Guidance for Advice to owners</a> – ‘Dry’	‘Guidance for owners’ is the term defined on page 5 of the ECP.

<b>2.15.3</b>	<b>Are all fuel system components in fixed inboard engine spaces permanently installed?</b>	<b>R</b>
Check for the presence of a fixed inboard engine.  Check the type of fuel system supplying the fixed inboard engine.	All fuel system components in fixed inboard engine spaces must be permanently installed.	
<p>Applicability – in the event a fixed inboard engine’s fuel supply system includes portable components, all such components and the connection between the portable fuel system and the permanently installed system must be located outside of the engine space. In addition, the point of connection of the permanently installed fuel supply to the portable fuel system must be made with a proprietary quick-release, self-closing connector. All portable fuel system components must comply with the applicable BSS Requirements at <del>5.1.2–5.1.4</del> <a href="#">5.2.1 and 5.2.2</a>.</p>		

<b>Explanation of changes</b>		
1	BSS Requirements at <del>5.1.2–5.1.4</del> <a href="#">5.2.1 and 5.2.2</a> .	To reflect the proposed changes at Part 5.

## 2.16 Steam engines

<b>2.16.1</b>	<b>Is the steam engine pressure system supported by an inspection certificate issued by a competent person?</b>	<b>R</b>
Read carefully the steam engine pressure-system inspection	Steam engine pressure systems must be supported by an inspection certificate. Pressure system inspection certificates must:	

certificate. Check the validity of the certificate and check the terminology indicates the pressure system is in a satisfactory condition.	<ul style="list-style-type: none"> <li>relate to the vessel being examined; <b>and,</b></li> <li>be completed by a competent person; <b>and,</b></li> <li>indicate satisfactory condition; <b>and,</b></li> <li>must be less than 14 months old or within any 'run-out' date.</li> </ul>
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[Supporting information on the assessment of pressure system inspection certificates is provided at Appendix 2b.](#)

~~Supplementary information—guidance on the assessment of pressure system inspection certificates is provided at Appendix J.~~

#### Explanation of changes

1	<a href="#">Supporting information on the assessment of pressure system inspection certificates is provided at Appendix 2b.</a>	To align with the revised approach and to refer to the change of location for the supporting information.
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<b>2.16.2</b>	<del>Is the steam engine boiler fuel supply system compliant with the applicable BSS Requirements?</del>	<b>R</b>
Identify the type of fuel to the steam engine boiler.	Steam engine boiler fuel supply systems must be compliant with the applicable BSS Requirements.	
Applicability—concerning diesel, paraffin, spirit, or LPG fuel supply systems, apply Part 2 or Part 7 respectively.		

#### Explanation of changes

1	Check deleted.	Note that Checks 8.1.1 and 4.1.1 are deleted. As with those two Checks, this Check does not meet the general criterion for the ECP is that they should be written and compiled in such a way that a fault cannot be recorded at more than one Check/Requirement.  Check 2.16.2 is not a stand-alone Check, but rather allows the double accounting of BSS Faults.
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### 2.17 LPG engines

<b>2.17.1</b>	<b>Are fuel supply arrangements to LPG-fuelled propulsion engines compliant with <del>UKLPG CoP 18</del> <a href="#">BS EN ISO 15609</a>, or an equivalent standard, and are any dual-fuel petrol/LPG arrangements of an acceptable type?</b>	<b>R</b>
<i>[LPG-fuelled propulsion engines can only be checked for compliance by prior arrangement by the owner with the BSS Office]</i>	The fuel supply arrangements to LPG-fuelled propulsion engines must comply with <del>UKLPG Code of Practice (CoP) 18</del> <a href="#">BS EN ISO 15609</a> , or an equivalent standard.	
Check the fuel supply type to propulsion engines and identify those fuelled by LPG or dual-fuel petrol/LPG.	Any dual-fuel arrangements must be installed and maintained in accordance with the engine manufacturer's guidelines for marine applications.	
Applicability <a href="#">Examiner action</a> - during initial dealings with customers, Examiners should seek to establish whether the propulsion engines are fuelled by LPG. In cases where LPG-fuelled engines are identified, customers should be advised to contact the BSS Office. It will arrange for a full examination of the vessel to be undertaken by an Examiner competent to apply <del>UKLPG CoP 18</del> <a href="#">BS EN ISO 15609</a> .		

~~Applicability—installations in accordance with EN 15609 are equivalent.~~

Applicability – Examiners may establish ~~determine~~ compliance of portable LPG-fuelled generators to applicable BSS Requirements..

Applicability – steam-propelled vessels having boilers fuelled by LPG are not covered by this check.

Explanation of changes		
1	<del>UK LPG CoP 18</del> <u>BS EN ISO 15609</u> ,	To reflect that the industry standard/code has changed.
2	<del>Applicability – Examiner action – during</del>	This supplementary information is an Examiner action rather than an Applicability.
3	<del>Applicability—installations in accordance with EN 15609 are equivalent.</del>	No longer necessary as 15609 is now the main reference point.
4	may <u>establish</u> <del>determine</del> compliance	As explained in the introduction. Using ‘establish’ removes the connotations associated with the word ‘determine’.

### 3.1 Battery storage

3.1.1	Are all unsealed or open-vented batteries ventilated to prevent risk of explosion through hydrogen accumulation?	R
<p>Identify the location of all batteries.</p> <p>If batteries are stored within an engine, accommodation or other non-dedicated battery space, check that the space is ventilated.</p> <p>If batteries are stored within a dedicated battery space or box:</p> <ul style="list-style-type: none"> <li>• check if the space or box has any ventilation; and,</li> <li>• check the height of the ventilation provision and the route of any ducted ventilation.</li> </ul> <p>Check the ventilation pathway from all battery storage locations leads to the outside of the hull or superstructure.</p>		<p>All unsealed or open-vented batteries must be stored within a ventilated space.</p> <p>Dedicated battery spaces or boxes for unsealed or open-vented batteries must be ventilated at the top or the highest point of the sides of the space or box and any ductwork used must run horizontally or upwards.</p> <p>The ventilation pathway from all battery storage locations must lead to the outside of the hull or superstructure.</p>
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 3 for essential information on recognising unsealed or open-vented batteries.</a></p> <p>Applicability - if batteries of a ‘sealed’ type are stored in a <u>non-ventilated space</u> verify that storage in unventilated spaces meets with the battery manufacturer’s recommendations by reference to presented documentation from the manufacturer.</p> <p>Applicability – ventilation pathways into accommodation spaces having fixed high-level ventilation or into canopied areas are acceptable.</p> <p>Applicability – battery covers must not allow the accumulation of hydrogen gas.</p> <p>Guidance for owners – <del>in the event that no ventilation provision is identified for unsealed or open-vented batteries</del> <a href="#">the above are minimum Requirements and boat owners should refer to the battery manufacturer for guidance on the correct minimum ventilation specification. However, where this information is not available owners this may be calculated a generic minimum ventilation provision</a> using the following formula. Ventilation (mm<sup>2</sup>) = number of cells x capacity in Ah x 1.935. <del>Supplementary guidance is given at Appendix G.</del></p> <p>Guidance for owners – if any batteries are connected to an alternator, or alternative battery charging source, having a maximum charge rate in excess of 2kW (approx. 150 Amps at 13.8 volts) it is strongly recommended to install a <a href="#">suitable fan-assisted ducted ventilation system that reflects the battery manufacturer’s recommendations</a>. <del>Fan-assisted ducted ventilation should be installed with the fan motor placed external to the duct and battery space. The fan should operate automatically during charging and the safe operation of the facility should be checked by a competent person on a routine basis.</del></p> <p>Guidance for owners – batteries should be located away from heat sources.</p> <p><a href="#">Supporting information on recommended minimum ventilation for unsealed and open-vented batteries is provided at Appendix 3.</a></p>		

Explanation of changes		
1	<a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 3 for essential information on recognising unsealed or open-vented batteries.</a>	To reference the essential new material included in Appendix 3.
2	<p>Guidance for owners – <del>in the event that no ventilation provision is identified for unsealed or open-vented batteries</del> <a href="#">the above are minimum Requirements and boat owners should refer to the battery manufacturer for guidance on the correct minimum ventilation specification. However, where this information is not available owners this may be calculated a generic minimum ventilation provision</a> using</p>	During the development of the new Examiner training course advice from industry experts has questioned the validity of the longstanding BSS battery ventilation calculation, and questioned its current standing. Such advice has also suggested that different battery types require different ventilation requirements, so owners should always follow the battery manufacturer’s specification where possible.



	the following formula. Ventilation (mm <sup>2</sup> ) = number of cells x capacity in Ah x 1.935.	
3	install a <a href="#">suitable</a> fan-assisted ducted ventilation system	To help make the guidance more robust.
4	<a href="#">that reflects the battery maker's recommendations.</a> <del>Fan-assisted ducted ventilation should be installed with the fan motor placed external to the duct and battery space. The fan should operate automatically during charging and the safe operation of the facility should be checked by a competent person on a routine basis.</del>	To move away from the prescriptive technical specifications as different battery manufacturers may have different requirements.
5	<a href="#">Supporting information on recommended minimum ventilation for unsealed and open-vented batteries is provided at Appendix 3.</a>	To point to the available supporting information in the Appendix.

<b>3.1.2</b>	<b>Are batteries secure against excessive movement in any direction?</b>	<b>R</b>
<p>Check by visual assessment the extent all batteries, battery boxes, cradles, frameworks etc, can move.</p> <p>Apply light manual force to all battery boxes, cradles, frameworks etc, to verify the extent of possible movement.</p>		<p>All battery boxes, cradles, frameworks etc, must be free of signs of movement or possible movement, <a href="#">and must not move under the application of light manual force.</a></p> <p>All batteries must be incapable of movement in excess of 10mm in any direction.</p>
<p>Applicability – restraint against vertical movement is generally required. However, batteries may be secured by means of a cradle or framework sufficient to ensure batteries remain secure under any condition up to 45° to the horizontal. Recesses, cradles or frameworks extending to half the height of the battery meet this allowance.</p>		

<b>Explanation of changes</b>		
1	All battery boxes, cradles, frameworks etc, must be free of signs of movement or possible movement, <a href="#">and must not move under the application of light manual force.</a>	To align with the approach being adopted within the ECP in general that the Requirement and Checking action must reflect each other.

<b>3.1.3</b>	<b>Are battery terminals correctly insulated or protected?</b>	<b>R</b>
<p>Check for the presence of a battery cover or terminal covers.</p> <p>Check material and condition of any battery cover or terminal covers.</p>		<p>All metal parts of battery terminals <del>and</del> <a href="#">or</a> connections must be insulated or protected by battery covers or terminal covers.</p> <p>All battery covers or terminal covers:</p> <ul style="list-style-type: none"> <li>• must be made of insulating material; <b>and</b>,</li> <li>• must not allow any metal part of the terminal or connection to be exposed; <b>and</b>,</li> <li>• must be free of signs of <a href="#">damage or deterioration.</a></li> </ul>
<p>Applicability – 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.</p>		

<b>Explanation of changes</b>		
1	terminals <a href="#">and</a> <del>or</del> connections	Because terminals and connections may be found together.
2	signs of <a href="#">damage or deterioration.</a>	For consistent use of the Glossary term 'damage or deterioration'

3.1.4	Are batteries installed away from metallic petrol and LPG system components?	R
<p>Measure the distance between battery <del>ies tops not in a box</del> and any metallic petrol or LPG system components installed <del>directly</del> above them.</p> <p>Where battery <del>ies tops</del> are installed within 300mm (12in) <del>directly</del> under metallic petrol or LPG system components, check the components for the presence of a conduit, shield or enclosure made of insulating material.</p>		<p>All battery <del>ies tops</del> must:</p> <ul style="list-style-type: none"> <li>• be at least 300mm (12in) away from all metallic petrol and LPG system components installed <del>directly</del> above them; <b>or</b>,</li> <li>• the components must be contained within a conduit, shield or enclosure made of insulating material.</li> </ul>
<p>Applicability – all metallic petrol and LPG system components are covered by this Check including tanks, cylinders, pipes, valves, filters, connectors etc.</p> <p><a href="#">Supporting information on the spacing between battery tops and metallic petrol or LPG system components is provided at Appendix 3.</a></p>		

Explanation of changes		
1	<p>Measure the distance between battery <del>ies tops not in a box</del> and any metallic petrol or LPG system components installed <del>directly</del> above them.</p>	<p>To provide added clarity and to bring the wording in-line the ISO.</p> <p>Also, the words ‘not in a box’ have been removed from the Checking action as they are not consistent with the Requirement.</p>
2	<ul style="list-style-type: none"> <li>• be at least 300mm (12in) away from all metallic petrol and LPG system components installed <del>directly</del> above them; <b>or</b>,</li> <li>• the components must be contained within a conduit, shield or enclosure made of insulating material.</li> </ul>	<p>Bullet-points introduced to make the two compliance options clearer.</p>

### 3.2 Cable specifications and condition

3.2.2	Are battery cables of a sufficient current-carrying capacity?	R
<p>Check the size of the following cables by comparing them against a typical sample cable.</p> <ul style="list-style-type: none"> <li>• battery to <del>battery isolator master-switch</del>;</li> <li>• battery or <del>battery isolator master-switch</del> to starter solenoid;</li> <li>• battery to battery;</li> <li>• engine return to battery or <del>battery isolator master-switch</del>;</li> <li>• battery to bow thruster motor;</li> <li>• battery to anchor winch motor;</li> <li>• battery to inverter system (over 1000w size);</li> <li>• <a href="#">battery to electric-propulsion motor.</a></li> </ul>		<p>The battery cables prescribed in the <del>check</del> <a href="#">Checking action</a> must <del>have a minimum cross-sectional area of</del> <del>be</del> <del>approximately</del> 25mm<sup>2</sup>.</p>
<p>Applicability - outboard engines having the engine manufacturer’s original loom are not required to meet these dimensions.</p> <p><a href="#">Applicability – cables between batteries and battery isolators are permitted to have a cross-sectional area of less than 25mm<sup>2</sup> where it can be confirmed that the circuit only supplies low current domestic and/or navigation equipment (e.g. lighting, fridges, pumps, radios, etc).</a></p> <p><del>Applicability – the actual layout of cable runs may vary depending whether battery isolators master-switches are installed in the positive or negative cables.</del></p> <p>Guidance for owners – the above are <a href="#">the</a> minimum <a href="#">Requirements</a> <del>recommendations</del>. Systems may call for larger cable sizes, depending upon the loads encountered.</p>		

Explanation of changes		
1	battery to <a href="#">battery isolator</a> <del>master switch</del> ;	To be consistent with the term 'battery isolator' at section 3.6.
2	<a href="#">battery to electric-propulsion motor</a> .	The ECP interim review of Part 4 (electrically propelled boats) has identified that it is appropriate to include the high-current cables to electric propulsion motors within the bullet-pointed list.
3	<del>check</del> <a href="#">Checking action</a>	To use the correct term.
4	<a href="#">have a minimum cross-sectional area of</a> <del>be approximately</del> 25mm <sup>2</sup> .	New text added for clarity as the existing text does not give any context to the 25mm <sup>2</sup> Requirement, and 25mm <sup>2</sup> is a minimum not an absolute figure.
5	<a href="#">Applicability – cables between batteries and battery isolators are permitted to have a cross-sectional area of less than 25mm<sup>2</sup> where it can be confirmed that the circuit only supplies low current domestic and/or navigation equipment (e.g. lighting, fridges, pumps, radios, etc).</a>	The ECP interim review has identified that it is not appropriate to enforce the 25mm <sup>2</sup> requirement on cables between batteries and battery isolators where the circuit is only supplying low current domestic/navigation equipment. To enforce the 25mm <sup>2</sup> on such circuit cables could be in conflict with the ISO standard.
6	<del>Applicability – the actual layout of cable runs may vary depending whether battery isolators master switches are installed in the positive or negative cables.</del>	The ECP interim review has identified that this Applicability is not necessary. That there are multiple different potential circuit/cable configurations, and that Examiners need to be thorough and methodical in their approach to finding and checking such cables is now covered in the new Examiner training material.
7	the above are <a href="#">the</a> minimum <a href="#">Requirements</a> <del>recommendations</del> .	Change made for accuracy. 25mm <sup>2</sup> is a Requirement not a recommendation.

3.2.3	Are all electrical cables free of damage or deterioration?	R
<del>Check the condition of all electrical cables which can be seen.</del>	All electrical cables <a href="#">insulation and sheathing must not show signs of damage or deterioration, including</a> <del>must be free of:</del> <ul style="list-style-type: none"> <li>• <a href="#">overheating; or,</a></li> <li>• <a href="#">chafing; or,</a></li> <li>• <a href="#">reaction with water or fuel.</a></li> <li>• <del>signs of overheating; and,</del></li> <li>• <del>signs of damage or deterioration, such as broken cable strands, chafing, or heat damage.</del></li> </ul> <del>Insulation and sheathing must show no signs of damage or deterioration caused by a reaction with water or fuel.</del>	
<p>Applicability – this Check applies to both AC and DC cables.</p> <p><a href="#">Applicability – in the event significant overheating is seen on cable insulation and/or sheathing take the actions described in Appendix A and B.</a></p>		

Explanation of changes		
1	All Checking action and Requirement changes.	With the existing Check there is a duplication of the Requirements at Checks 3.2.3 and 3.4.3 in that both currently refer to the condition of cable wires/strands. An underlying principle of the ECP is that Requirements are not duplicated at Checks. The change therefore is to limit the scope of 3.2.3 to the insulation/sheathing, and for the

		condition of connections, including adjacent cable wires/strands to be covered at 3.4.3.
2	<a href="#">Applicability – in the event significant overheating is seen on cable insulation and/or sheathing take the actions described in Appendix A and B.</a>	Appendix B in the 2015 ECP (and the corresponding text in the 2002 ECP) recognises that heat damaged cables or other electrical fire risks may place people or property in ‘immediate damager’ or ‘at risk’ and that a Warning Notice and/or Hazardous Boat Notification may be issued accordingly. However, the corresponding instructions to Examiners to apply Appendix A and B at relevant Checks within the 2015 ECP are missing. The proposed new Applicability corrects this previous omission.

### 3.3 Cable location

3.3.1	Are all electrical cables supported in a safe position?	R
<p>Check the run of all <a href="#">electrical</a> cables which can be seen, and identify any structure or item of equipment likely to cause impact or abrasion damage.</p> <p>Identify any cables subject to the possibility of impact or abrasion damage and check for means of protection or support.</p> <p>Check arrangements where cables can be seen passing through bulkheads or structural members.</p> <p>Check the condition of all cable conduit, <a href="#">trays or trunking</a> <del>or cable trays</del> which can be seen.</p>	<p>All electrical cables must be:</p> <ul style="list-style-type: none"> <li>located where they will not be susceptible to impact or abrasion damage; <b>or</b>,</li> <li>supported away from any structure or item of equipment likely to cause impact or abrasion damage; <b>or</b>,</li> <li>contained in a <a href="#">cable</a> conduit, <a href="#">tray or trunking</a> <del>or cable trays supported away from it.</del></li> </ul> <p>Cables passing through bulkheads or structural members must be protected against chafing damage by the use of grommets, <a href="#">glands</a>, sleeves or sealant used effectively.</p> <p>Cable conduit, <del>or cable</del> trays <a href="#">and trunking</a> must be free of signs of overheating or damage.</p>	
<p>Applicability – this Check applies to both AC and DC cables.</p> <p><a href="#">Applicability – cables passing through wooden bulkheads or structural members and that are free of signs of chafing damage, are not subject to this Check.</a></p> <p>Applicability – <del>for cables confirmed as double insulated cables</del>, where <a href="#">sheathed</a> <del>such</del> cables pass through bulkheads and other structural members, the <del>outer insulation (sheathing)</del> should be considered as <a href="#">providing</a> adequate protection; <del>as long as providing the insulation it</del> is in good condition.</p>		

Explanation of changes		
1	Check the run of all <a href="#">electrical</a> cables which can be seen	‘electrical’ added for consistency and clarity.
2	<a href="#">cable</a> conduit	‘Cable’ added for consistency and clarity.
3	<a href="#">trunking</a>	‘Trunking’ added to bring terminology in-line with ISO standards.
4	<del>supported away from it.</del>	The text ‘.. supported away from it.’ makes no sense when read with the whole sentence.
5	by the use of grommets, <a href="#">glands</a> , sleeves or sealant used effectively.	To better reflect what is being used in practice.
6	<a href="#">Applicability – cables passing through wooden bulkheads or structural members and that are free of signs of chafing damage, are not subject to this Check.</a>	The new Applicability limits the application of the Check to the higher risk bulkheads or structural members made of metal or FRP, etc and reflects

		current practice where wood is drilled to pass cables through.
7	Applicability – <del>for cables confirmed as double-insulated cables</del> , where <del>sheathed such</del> cables pass through bulkheads and other structural members, the <del>outer insulation (sheathing)</del> should be considered as <del>providing</del> adequate protection, <del>as long as providing the insulation it</del> is in good condition.	To remove the reference to ‘double-insulated’, which is technically incorrect and therefore potentially misleading, and to replace it with ‘sheathed’ which is an industry recognised term.

<b>3.3.2</b>	<b>Are all <u>electrical</u> cables clear of LPG and fuel <del>supply lines pipes</del>?</b>	<b>R</b>
<p>Check the clearance of all electrical cables which can be seen from LPG or fuel <del>supply lines pipes</del>.</p> <p><u>If cables are seen touching LPG or fuel pipes check whether the cable is sheathed with a non-conducting material.</u></p> <p><u>If a conduit, tray or trunking is seen touching an LPG or fuel pipe check whether the conduit, tray or trunking is made from a non-conducting material.</u></p> <p><del>Check any conduit is of a non-conducting material.</del></p>		<p>Electrical cables must be installed clear of LPG and fuel <del>supply lines pipes</del> unless <del>they the cables</del> are <del>sheathed with a in-a-conduit made of</del> non-conducting material.</p> <p><u>Cable conduit, trays or trunking touching LPG or fuel pipes must be made of non-conducting material.</u></p>
<p>Applicability – this Check applies to both AC and DC cables.</p> <p><del>Applicability – cables confirmed as double insulated (sheathed) cables are not subject to this check.</del></p>		

Explanation of changes		
1	<del>supply</del>	Removed to ensure the Requirement is applied to all LPG and fuel pipes. At ECP Part 2 fuel lines are separated into ‘supply, return and on-engine’. By referencing just ‘supply’ at this Check it could be interpreted that ‘on-engine and return’ fuel pipes are not covered.
2	<del>lines pipes</del>	To remove the applicability to LPG and fuel hoses to bring the BSS requirement in line with ISO standards.
3	<p><u>If cables are seen touching LPG or fuel pipes check whether the cable is sheathed.</u></p> <p><u>If a conduit, tray or trunking is seen touching an LPG or fuel pipe check whether the conduit, tray or trunking is made from a non-conducting material.</u></p> <p><del>Check any conduit is of a non-conducting material.</del></p>	To make the Checking action more logical and therefore easier to understand and apply.
4	<p><u>sheathed</u></p> <p><del>Applicability – cables confirmed as double insulated (sheathed) cables are not subject to this check.</del></p>	To remove the reference to ‘double-insulated’, which is technically incorrect and therefore potentially misleading, and to replace it with ‘sheathed’ which is an industry recognised term. By placing ‘sheathed’ within the Requirement rather than referencing it as a separate Applicability, the overall quantity of text is reduced and the general approach simplified.
5	<p>fuel <del>supply lines pipes</del> unless <del>they the cables</del> are <del>sheathed with a in-a-conduit made of</del> non-conducting material.</p>	To make the Requirement more logical and therefore easier to understand and apply. Same approach/reasons as item 3.

	<a href="#">Cable conduit, trays or trunking touching LPG or fuel pipes must be made of non-conducting material.</a>	
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<b>3.3.3</b>	<b>Are all electrical cable connections above bilge water level or suitably protected?</b>	<b>R</b>
<p>Check the position of all cable connections which can be seen. Where cable connections are below bilge water level check for the presence of watertight enclosures marked as compliant with IP 67.</p>		<p>All cable connections must be above bilge water level or be protected by a watertight enclosure meeting the IP 67 standard.</p>
<p>Applicability—this check applies to connections on both AC and DC cables.  Applicability—the final cable connection to submersible bilge pumps and transducers or any other equipment intended for operation below bilge water level must be presumed to comply.  Applicability—bilge water level can be established by any apparent bilge water tidemark.</p>		

<b>Explanation of changes</b>	
1	The whole of Check 3.3.3 has been moved to section 3.4 and added as new Check 3.4.3. This is because the Check addresses cable connections which are addressed at section 3.4 rather than section 3.3.

<b>3.3.3 4</b>	<b>Are spark plug leads free of damage or deterioration and properly supported?</b>	<b>R</b>
<p>Check the support and condition of spark plug leads.</p>		<p>Spark plug leads must be:</p> <ul style="list-style-type: none"> <li>• free of signs of damage or deterioration; <b>and</b>,</li> <li>• properly supported away from the engine block or cylinder head.</li> </ul>

<b>Explanation of changes</b>	
1	The Check is renumbered because the previous Check is moved to section 3.4.

### 3.4 Cable connections

<b>3.4.1</b>	<b>Are all battery cable connections effective and in good condition?</b>	<b>R</b>
<p><del>Check the type and condition of connectors to the cables listed at Check Item 3.2.2.</del></p> <p><a href="#">For the cables listed at Check Item 3.2.2, visually check the type and condition of all the cable connections (including those at the batteries, battery isolators, and the engine/equipment, etc), where they can be seen.</a></p>		<p>All battery cables listed at Check Item 3.2.2 must be fitted with soldered or crimped lug connectors or other <del>pre-made</del> connections of suitable proprietary manufacture.</p> <p>All battery cable connections on cables listed at Check Item 3.2.2 must <del>not show signs of damage or deterioration, including</del> <b>be free of:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">missing or loose components; or</a>,</li> <li>• <a href="#">excessively exposed and/or damaged cable strands; or</a></li> <li>• <a href="#">heat damage; or</a>,</li> <li>• <a href="#">corrosion.</a></li> <li>• <del>missing components or loose or poorly made connection; and,</del></li> <li>• <del>signs of damage or deterioration; and,</del></li> <li>• <del>excessively exposed and/or damaged cable strands.</del></li> </ul>

Applicability – battery terminals fitted with screw clamps are acceptable if the cable strands are protected by the use of spreader plates or tinned cable ends in the terminal.

Applicability – ‘crocodile’ type clips are not acceptable as battery connections for permanently installed cables.

[Applicability – in the event significant overheating is seen on battery cable connections take the actions described in Appendix A and B.](#)

Explanation of changes		
1	<p><del>Check the type and condition of connectors to the cables listed at Check Item 3.2.2.</del></p> <p><a href="#">For the cables listed at Check Item 3.2.2, visually check the type and condition of all the cable connections (including those at the batteries, battery isolators, and the engine/equipment, etc), where they can be seen.</a></p>	<p>Although actual battery terminal connections will be visible to Examiners it is possible that some battery cable connections away from the batteries will not. As such, to ensure that 3.4.1 can be reasonably applied, and that it is consistent with other Checks, there is a need to confirm that Examiners only apply the Requirement to cable connections they can see.</p> <p>Also, to make it clear that the Check applies to all related connections, not just those at the batteries (particularly relevant given the proposal at check 3.6.4 to remove the reference to battery isolator cable connections).</p>
2	<p><del>pre-made</del> connections</p>	<p>‘Pre-made’ is not a term/concept that Examiners can apply in a consistent or meaningful way.</p>
3	<p>All battery cable connections on cables listed at Check Item 3.2.2 must <a href="#">not show signs of damage or deterioration, including be free of:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">missing or loose components; or,</a></li> <li>• <a href="#">excessively exposed and/or damaged cable strands; or</a></li> <li>• <a href="#">heat damage; or,</a></li> <li>• <a href="#">corrosion.</a></li> </ul> <p><del>• missing components or loose or poorly made connection; and,</del></p> <p><del>• signs of damage or deterioration; and, excessively exposed and/or damaged cable strands.</del></p>	<p>As is being adopted elsewhere within the ECP at relevant Checks – to make ‘damage or deterioration’ the focus of the Requirement with the bullet-pointed list being examples of damage or deterioration.</p>
4	<p><a href="#">Applicability – in the event significant overheating is seen on battery cable connections take the actions described in Appendix A and B.</a></p>	<p>As similar new Applicability at Check 3.2.3.</p>

3.4.2	Are all electrical circuit cable connections effective and in good condition?	R
Check the type and condition of all electrical circuit cable connections which can be seen.	<p>All electrical circuit cable connections must <a href="#">not show signs of damage or deterioration, including be free of:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">missing or loose components; or,</a></li> <li>• <a href="#">excessively exposed and/or damaged cable strands; or</a></li> <li>• <a href="#">heat damage; or,</a></li> <li>• <a href="#">corrosion.</a></li> </ul>	

	<ul style="list-style-type: none"> <li>• <del>missing components or loose or poorly made connections e.g. applying compression crimp terminals without using the appropriate tool; and,</del></li> <li>• <del>signs of damage or deterioration; and,</del></li> <li>• <del>excessively exposed and/or damaged cable strands.</del></li> </ul>
<p>Applicability – this Check applies to both AC and DC cables.</p> <p><u>Applicability – in the event significant overheating is seen on circuit cable connections take the actions described in Appendix A and B.</u></p>	

Explanation of changes		
1	<p>All electrical circuit cable connections must <u>not show signs of damage or deterioration, including be free of:</u></p> <ul style="list-style-type: none"> <li>• <u>missing or loose components; or,</u></li> <li>• <u>excessively exposed and/or damaged cable strands; or</u></li> <li>• <u>heat damage; or,</u></li> <li>• <u>corrosion.</u></li> <li>• <del>missing components or loose or poorly made connections e.g. applying compression crimp terminals without using the appropriate tool; and,</del></li> <li>• <del>signs of damage or deterioration; and,</del></li> <li>• <del>excessively exposed and/or damaged cable strands.</del></li> </ul>	<p>As is being adopted elsewhere within the ECP at relevant Checks – to make ‘damage or deterioration’ the focus of the Requirement with the bullet-pointed list being examples of damage or deterioration.</p>
2	<del>e.g. applying compression crimp terminals without using the appropriate tool</del>	Because it cannot be applied consistently by Examiners.
3	<u>Applicability – in the event significant overheating is seen on circuit cable connections take the actions described in Appendix A and B.</u>	As similar new Applicability at Check 3.2.3.

<b>3.4 3.3</b>	<b><u>Are all electrical cable connections above bilge water level or suitably protected?</u></b>	<b>R</b>
<p><u>Check the position of all electrical cable connections which can be seen.</u></p> <p><u>Where cable connections are below bilge water level check for the presence of watertight enclosures marked as compliant with IP 67 or greater.</u></p>		<p><u>All electrical cable connections must be above bilge water level or be protected by a watertight enclosure at least meeting the IP 67 standard.</u></p>
<p><u>Applicability – this Check applies to connections on both AC and DC cables.</u></p> <p><u>Applicability – the final cable connection to submersible bilge pumps and transducers or any other equipment intended for operation below bilge water level must be presumed to comply.</u></p> <p><u>Applicability – bilge water level can be established by any apparent bilge water tidemark.</u></p>		

Explanation of changes		
1	The whole Check has been cut from 3.3.3 and inserted here as 3.4.3 (see original 3.3.3 for explanation).	
2	Where cable connections are below bilge water level check for the presence of watertight enclosures marked as compliant with IP 67 <u>or greater.</u>	There are IP ratings with higher figures than 67 which are acceptable (e.g. IP 68). Therefore, it’s appropriate that this is reflected in the Check.



	All electrical cable connections must be above bilge water level or be protected by a watertight enclosure <a href="#">at least</a> meeting the IP 67 standard.	
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### 3.5 Fuses and circuit breakers

<b>3.5.1</b>	<b>Are all AC and DC fuses and <del>miniature</del> circuit-breakers <del>appropriately rated</del>, complete and in good condition?</b>	<b>R</b>
<p>Check the <del>rating</del>, completeness and condition of all <del>miniature</del> circuit-breakers (<del>MCBs</del>) and fuses which can be seen.</p> <p><del>Fuses and MCBs must be complete and free of signs of heat damage or deterioration, and be fitted securely.</del></p> <p><u>Fuses and circuit breakers must not show signs of damage or deterioration, including:</u></p> <ul style="list-style-type: none"> <li>• <u>being insecurely fitted; or,</u></li> <li>• <u>missing or loose components; or,</u></li> <li>• <u>heat damage; or,</u></li> <li>• <u>corrosion.</u></li> </ul> <p><del>Fuses and fuse wire must be rated not greater than any rating marked on the fuse holder</del></p> <p>Fuse holders must contain appropriate fuses or fuse wire and not nails, silver paper, etc.</p> <p><del>MCBs</del> <u>Circuit breakers</u> must not be held closed by the use of tape or other devices.</p>		
<p>Applicability - Examiners are encouraged to confirm during prior dealings with the owner, the location of the fuse box/distribution board and any in-line fuses, and to encourage their accessibility for Examination.</p> <p>Applicability - <u>except on battery charge circuits, and on load circuits requiring a continuous supply which are connected directly to the battery(s),</u> <del>On DC systems,</del> the lack of a fuse or <del>MCB</del> <u>circuit breaker</u> on DC systems is not in itself a fail point – AC systems are subject to a check for the presence of a consumer unit or acceptable alternative, see 3.9.2.</p> <p>Applicability – Examiners are not to remove/unscrew fuses or fuse wire holders or remove <del>miniature</del> circuit breakers. The Checking action for fuses and <del>miniature</del> circuit breakers which cannot be seen without their removal should be confined to the checks for completeness and condition.</p> <p><del>Guidance Advice for owners – it is strongly advised that a Residual Current Device (RCD) is installed to provide appropriate electric shock protection on AC systems.</del></p> <p><u>Applicability – in the event significant overheating is seen on fuses or circuit breakers take the actions described in Appendix A and B.</u></p>		

Explanation of changes		
1	<del>miniature</del> <del>MCBs</del> <u>circuit breakers</u>	<p>The term miniature circuit breaker refers to a particular type of breaker and other types of breaker are found in increasing numbers especially on DC systems. Circuit breaker is therefore the correct term.</p>
2	<del>Fuses and MCBs must be complete and free of signs of heat damage or deterioration, and be fitted securely.</del> <u>Fuses and circuit breakers must not show signs of damage or deterioration, including:</u> <ul style="list-style-type: none"> <li>• <u>being insecurely fitted; or,</u></li> <li>• <u>missing or loose components; or,</u></li> </ul>	<p>As being adopted in general – to place ‘damage or deterioration’ as the focus of the Requirement with examples then being given.</p>

	<ul style="list-style-type: none"> <li>• <a href="#">heat damage; or,</a></li> <li>• <a href="#">corrosion.</a></li> </ul>	
3	<del>Fuses and fuse wire must be rated not greater than any rating marked on the fuse holder</del>	Deleted because Examiners cannot determine the Requirement consistently.
4	<del>Except on battery charge circuits, and on load circuits requiring a continuous supply which are connected directly to the battery(s), On DC systems</del> the lack of a fuse or MCB <del>on DC systems</del> is not in itself a fail point – a.c systems are subject to a check for the presence of a consumer unit or acceptable alternative, see 3.9.2.	Separated into a new Applicability for clarity. New text added to help ensure that the Applicability is technically correct.
5	<del>Guidance Advice for owners—it is strongly advised that a Residual Current Device (RCD) is installed to provide appropriate electric shock protection on AC systems.</del>	This Guidance is also included at Check 3.9.2 and it is not necessary for it to appear twice. 3.9.2 is considered to be the more appropriate location.
6	<a href="#">Applicability – in the event significant overheating is seen on fuses or circuit breakers take the actions described in Appendix A and B.</a>	As similar new Applicability at Check 3.2.3.

<b>3.5.2</b>	<b>Are all fuse panels, boxes, holders and consumer units <a href="#">in good condition and complete</a> <del>and in good condition?</del></b>	<b>R</b>
<p><del>Check all fuse panels, boxes, holders and consumer units which can be seen for the presence of lids or covers covering exposed terminals, when designed to have one.</del></p> <p>Check the condition of all fuse panels, boxes, holders and consumer units which can be seen.</p> <p><a href="#">Where they are designed to have one, check all fuse panels, boxes, holders and consumer units which can be seen for the presence of lids or covers covering exposed terminals.</a></p>		<p>All fuse panels, boxes, holders and consumer units <del>designed to have a cover</del> must:</p> <ul style="list-style-type: none"> <li>• <del>have lids or covers covering exposed terminals; and</del></li> <li>• be free of signs of damage or deterioration; <a href="#">and,</a></li> <li>• <a href="#">be fitted with a lid or cover over exposed terminals where they are designed to have one.</a></li> </ul>
<p>Applicability – this Check applies to both AC and DC supplies.</p> <p><a href="#">Applicability – in the event significant overheating is seen on fuse panels, boxes, holders or consumer units take the actions described in Appendix A and B.</a></p>		

Explanation of changes		
1	All changes – in general.	<p>The Requirement for condition of fuse panels, boxes, holders and consumer units has been placed before the Requirement for lids or covers. This is because the Requirement for condition will apply on all boats where there are DC and/or AC systems installed, whereas the Requirement for lids/covers will only apply to certain types of panels, boxes, holders and consumer units.</p> <p>Also, the Checking action addressing lid or covers has been rewritten to make it clearer.</p>
2	<a href="#">Applicability – in the event significant overheating is seen on fuse panels, boxes, holders or consumer units take the</a>	As similar new Applicability at Check 3.2.3.

	<a href="#">actions described in Appendix A and B.</a>	
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<b>3.5.3</b>	<b><a href="#">Are DC charge circuits that are connected directly to the battery(s) protected by a fuse or circuit-breaker?</a></b>	<b>R</b>
<p>Identify whether DC charge circuits from any of the following sources are connected directly to the battery(s), including the unswitched (battery) side of the battery isolator(s) where they can be seen:</p> <ul style="list-style-type: none"> <li>• <a href="#">battery charger outputs (including combination inverter/chargers); or,</a></li> <li>• <a href="#">solar panels; or,</a></li> <li>• <a href="#">wind turbines.</a></li> </ul> <p>If such circuits are identified check the charging equipment, and the charge circuits where they can be seen, for the presence of a fuse or circuit breaker:</p>		<p>Battery charge circuits connected directly to the battery(s), including the unswitched (battery) side of the battery isolator(s), from:</p> <ul style="list-style-type: none"> <li>• <a href="#">battery charger outputs (including combination inverter/chargers); and,</a></li> <li>• <a href="#">solar panels; and,</a></li> <li>• <a href="#">wind turbines.</a></li> </ul> <p><a href="#">must be protected by a fuse or circuit-breaker.</a></p>
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 3 for essential information on charge circuits connected directly to batteries or to the unswitched side of the battery isolator(s).</a></p> <p><a href="#">Applicability – charge circuits from engine-driven alternators, including those routed through split charge relays, diodes, etc, are not covered by this Check.</a></p> <p><a href="#">Applicability – if the fuse or circuit-breaker protecting the specified charge circuits cannot be found in places where the circuit can be seen, mark your checklist as a fail. This because it is extremely unlikely that the fuse or circuit-breaker will be located where the circuit is hidden.</a></p> <p><a href="#">Guidance for owners – although not a BSS Requirement at this time, charge circuits connected to the switched (circuit/equipment) side of battery isolators should also be protected by a fuse or circuit breaker. Furthermore, charge circuits should only be connected to the switched (circuit/equipment) side of battery isolators where this is recommended by the charge equipment manufacturer and/or following guidance from a competent marine electrician.</a></p>		

<b>Explanation of changes</b>		
1	New Check addressing the three charge circuits removed from Check 3.6.2 (see explanation at 3.6.2). No new Requirements have been introduced, but it has been deemed appropriate to address charge circuits and load circuits separately as the Requirements for each are slightly different.	
2	<a href="#">Applicability – engine -driven alternators are not covered by this Check.</a>	Reflects current industry practice.
3	<a href="#">Applicability – if the fuse or circuit-breaker protecting the specified charge circuits cannot be found in places where the circuit can be seen, mark your checklist as a fail. This because it is extremely unlikely that the fuse or circuit-breaker will be located where the circuit is hidden.</a>	Reflects the existing approach at Check 3.6.2.
4	<a href="#">Guidance for owners – although not a BSS Requirement at this time, charge circuits connected to the switched (circuit/equipment) side of battery isolators should also be protected by a fuse or circuit breaker. Furthermore, charge circuits should only be connected to the switched (circuit/equipment) side of battery isolators where this is recommended by the charge equipment manufacturer and/or following guidance from a competent marine electrician.</a>	<p>The proposed new Guidance for owners reflects that although not currently covered by the BSS Requirements such circuits connected to the switched side of battery isolators should be installed as recommended by the equipment manufacturer/competent marine electrician.</p> <p>The connection of charge circuits to the switched side of battery isolators should be</p>

	swept up within the fundamental review of Part 3.
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### 3.6 Battery isolators

3.6.1	Are <a href="#">suitable</a> battery isolator(s) fitted and are they as close as practicable to the battery?	R
<p>Check for the presence of <a href="#">one or more</a> <a href="#">suitable</a> battery isolator(s) at each battery or bank of batteries.</p> <p>Check the distance of battery isolators from batteries.</p>		<p>Battery isolators <a href="#">of suitable proprietary manufacture</a> must be fitted to each battery or bank of batteries.</p> <p>Battery isolators must be located as close as practicable to the batteries.</p>
<p>Applicability - accessibility takes precedence over proximity to the batteries.</p> <p>Applicability – if there are separate circuits connected to separate batteries, each of them must have a battery isolation switch. A combined-switch can be used, for example, in two battery system, where one battery is used for starting the boat’s engine and the other used for domestic services.</p> <p><a href="#">Applicability – solenoid operated battery isolators may be accepted as a suitable battery isolator.</a></p> <p><a href="#">Applicability – quick-release battery terminal clamps may not be accepted as suitable battery isolators.</a></p>		

Explanation of changes		
1	<a href="#">suitable</a> <a href="#">of suitable proprietary manufacture</a> <a href="#">Applicability – quick-release battery terminal clamps may not be used as battery isolators.</a>	To qualify that battery isolators must be of suitable proprietary manufacture.
2	<b>isolator(s)</b> <a href="#">one or more</a>	To qualify that one or more battery isolation switches may be installed in a system (also see Check 3.6.2).
3	<a href="#">Applicability – solenoid operated battery isolators may be accepted as a suitable battery isolator.</a>	To ensure Examiners are aware such isolators are acceptable.
4	<a href="#">Applicability – quick-release battery terminal clamps may not be accepted as suitable battery isolators.</a>	To qualify that such fittings are not deemed to be suitable battery isolators.

3.6.2	Do all <b>DC</b> electrical <a href="#">load</a> circuits pass through a battery isolator, or are those requiring a continuous supply otherwise protected?	R
<p><a href="#">Identify whether any DC load circuits are connected directly to the battery(s), or to the unswitched side of the battery isolator(s) where they can be seen.</a></p> <p><del>Identify any DC electrical circuits bypassing the battery isolator.</del></p> <p><del>Check that any electrical circuits bypassing the battery isolator supply the following equipment:</del></p> <p><a href="#">If DC electrical load circuits are found connected directly to the battery(s), or to the unswitched side of the battery isolator(s), check whether they are connected to the following equipment (which may be taken as requiring a continuous supply):</a></p> <ul style="list-style-type: none"> <li>• automatic bilge pumps; <b>or</b>,</li> <li>• security alarms (including marine radios); <b>or</b>,</li> <li>• fire pumps; <b>or</b>,</li> <li>• electronic navigation equipment with memories; <b>or</b>,</li> <li>• <a href="#">inverters, or combination inverter/chargers (DC input); <b>or</b>,</a></li> </ul>		<p><del>All DC electrical circuits must pass through a battery isolator, except those which feed equipment requiring a continuous supply which must be protected by a suitable fuse or circuit-breaker.</del></p> <p><a href="#">Except those which feed equipment requiring a continuous supply, all DC electrical load circuits must pass through a battery isolator.</a></p> <p><a href="#">Circuits which feed equipment requiring a continuous supply</a></p>

<ul style="list-style-type: none"> <li>• <a href="#">solenoid, on a solenoid activated battery isolator; or</a></li> <li>• any other equipment where the manufacturer’s instructions indicate or specifically require direct connection to a battery, such as diesel-fired central heating boilers.</li> <li>• <del>battery charger outputs;</del></li> <li>• <del>inverters or combination inverter/chargers;</del></li> <li>• <del>solar panels and wind turbines.</del></li> </ul> <p>Check electrical circuits supplying any equipment on the specified list, and which <a href="#">are connected directly to the battery(s) or to the unswitched side of the battery isolator(s)</a> <del>bypass a battery isolator</del>, for the presence of a fuse or circuit-breaker, where the circuit can be seen.</p>	<p><a href="#">which do not pass through a battery isolator must be protected by a suitable fuse or circuit-breaker.</a></p>
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 3 for essential information on how to check for DC load circuits that do not pass through a battery isolator.</a></p> <p><a href="#">Applicability – in cases where the cable connections to battery isolator(s) cannot be seen Examiners are recommended to make a note on their checklist accordingly, but the lack of access is not a BSS fail.</a></p> <p>Applicability – in cases where <a href="#">load</a> circuits which do not lie in the specified list are found <a href="#">bypassing the battery isolator(s)</a> <del>directly connected to the battery</del> Examiners <del>may</del> <b>must</b> verify compliance by examining any presented declaration from the manufacturer or supplier.</p> <p>Applicability – if the fuse or circuit-breaker protecting specified equipment bypassing a battery isolator cannot be found in places where the circuit can be seen, mark your checklist as a fail. This because it is extremely unlikely that the fuse or circuit-breaker will be either located where the circuit is hidden, or be more than a short distance from the battery.</p>	

Explanation of changes		
1	<p><a href="#">Identify whether any DC load circuits are connected directly to the battery(s), or to the unswitched side of the battery isolator(s) where they can be seen.</a></p> <p><del>Identify any DC electrical circuits bypassing the battery isolator.</del></p> <p><del>Check that any electrical circuits bypassing the battery isolator supply the following equipment:</del></p> <p><a href="#">If DC electrical load circuits are found connected directly to the battery(s), or to the unswitched side of the battery isolator(s), check whether they are connected to the following equipment (which may be taken as requiring a continuous supply):</a></p> <p>Check electrical circuits supplying any equipment on the specified list, and which <a href="#">are connected directly to the battery(s) or to the unswitched side of the battery isolator(s)</a> <del>bypass a battery isolator</del>, for the presence of a fuse or circuit-breaker, where the circuit can be seen.</p>	To turn the Checking actions around so that they focus on the actions that Examiners have to undertake.
3	<a href="#">or,</a>	To qualify that the items are not mutually inclusive.
4	inverters, or combination inverter/chargers (DC input); <a href="#">or,</a> <a href="#">solenoid, on a solenoid activated battery isolator; or</a>	To confirm that the DC input solenoid activated battery isolators, may bypass battery isolators
5	<del>battery charger outputs;</del> <del>inverters or combination inverter/chargers;</del> <del>solar panels and wind turbines.</del>	Battery charge circuits moved to new Check at 3.5.3.

6	<p><del>All DC electrical circuits must pass through a battery isolator, except those which feed equipment requiring a continuous supply which must be protected by a suitable fuse or circuit-breaker.</del></p> <p><u>Except those which feed equipment requiring a continuous supply, all DC electrical circuits must pass through a battery isolator.</u></p> <p><u>Circuits which feed equipment requiring a continuous supply which do not pass through a battery isolator must be protected by a suitable fuse or circuit-breaker.</u></p>	To separate out the different elements of the Requirement to make it easier to understand.
7	<p><u>Examiner action – Examiners must refer to Section 1 of Appendix 3 for essential information on how to check for DC load circuits that do not pass through a battery isolator.</u></p>	A pointer to essential information contained in Appendix 3.
8	<p><u>Applicability – in cases where the cable connections to battery isolator(s) cannot be seen Examiners are recommended to make a note on their checklist accordingly, but the lack of access is not a BSS fail.</u></p>	‘Examiner action’ moved across from Check 3.6.4. as Check 3.6.2 is a more appropriate location, and turned into an Applicability as this is more in-keeping with the nature of the guidance.
9	<p>cases where <u>load</u> circuits which do not lie in the specified list are found <u>bypassing the battery isolator(s)</u> <del>directly connected to the battery</del> Examiners <u>may</u> <del>must</del> verify compliance by examining any presented declaration from the manufacturer or supplier.</p>	To help ensure consistent and appropriate application by Examiners.

<b>3.6.4</b>	<b>Are battery isolators <u>securely mounted</u> <del>and connections complete</del> and in good condition?</b>	<b>R</b>
Check the <u>securing arrangements</u> <del>completeness</del> and condition of all battery isolators <del>and connections</del> where they can be seen.	<p>Battery isolators <del>and connections</del> must <u>be securely mounted, and not show signs of damage or deterioration, including be:</u></p> <ul style="list-style-type: none"> <li>• <u>missing components; or,</u></li> <li>• <u>heat damage.</u></li> <li>• <del>free of missing fixings; and,</del></li> <li>• <del>free from signs of damage or deterioration.</del></li> </ul>	
<p><del>Examiner action – in cases where the connections to battery isolators are not accessible for inspection, assess only the isolator for completeness and condition and make a note in your records accordingly.</del></p> <p><u>Applicability – in the event significant overheating is seen on battery isolators take the actions described in Appendix A and B.</u></p>		

Explanation of changes		
1	<u>securely mounted</u> <del>and connections complete</del>	The original 2015 ECP Requirement for battery isolators to be ‘free of missing fixings’ supported the presumption that isolators would be secure. By making the Requirement more specific helps with the understanding and should lead to improved Examiner consistency.
2	Check the <u>securing arrangements</u> <del>completeness</del> and condition	Removed as reference considered unnecessary (it’s covered by the general condition Check/Requirement).
3	.... of all battery isolators <del>and connections</del> where they can be seen.	To remove the reference to cable connections as isolator cable connections should be addressed at section 3.4 only.

4	<p>... must <a href="#">be securely mounted, and not show signs of damage or deterioration, including be:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">missing components; or,</a></li> <li>• <a href="#">heat damage.</a></li> <li>• <del>free of missing fixings; and,</del></li> <li>• <del>free from signs of damage or deterioration.</del></li> </ul>	As is being adopted elsewhere within the ECP at relevant Checks – to make ‘damage or deterioration’ the focus of the Requirement with the bullet-pointed list being examples of damage or deterioration.
5	<del>Examiner action—in cases where the connections to battery isolators are not accessible for inspection, assess only the isolator for completeness and condition and make a note in your records accordingly.</del>	Examiner action moved to Check 3.6.2.
6	<a href="#">Applicability – in the event significant overheating is seen on battery isolators take the actions described in Appendix A and B.</a>	As similar new Applicability at Check 3.2.3, etc.

### 3.7 Two-wire [DC](#) systems

Explanation of changes		
1	<b>Two-wire <a href="#">DC</a> systems</b>	So that the Section heading better reflects the scope of the two Checks at 3.7.

3.7.1	<a href="#">Is the DC electrical system made up of ‘two-wire’ circuits?</a> <del>Is the electrical system insulated from the hull?</del>	A/R
<p>Check any <a href="#">DC</a> wiring that can be seen to a suitable device such as a horn, headlamp, or navigation light for the presence of a ‘two-wire’ <del>circuit-insulated-cable.</del></p>		<p><a href="#">Direct current (DC) electrical systems must be made up of ‘two-wire’ circuits, and must not use the boat’s structure as a circuit conductor.</a></p> <p><del>Electrical systems using the hull as a conductor will not pass this check.</del></p>
<p><a href="#">Applicability – 3.7.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></p> <p><del>Applicability—an electrical fitment attached to a metal hull or superstructure and having only a single wire connected indicates the use of the hull as a conductor.</del></p>		

Explanation of changes		
1	All changes to Check Item text, Checking action and Requirement.	To add clarity as to the intent of the Requirement, and to better align the Check item text and the Requirement with the Checking action.
2	<a href="#">Applicability – 3.7.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	General addition for all Advice checks to ensure appropriate application to the various boat classes.
3	<del>Applicability—an electrical fitment attached to a metal hull or superstructure and having only a single wire connected indicates the use of the hull as a conductor.</del>	This sentence is no longer needed as the Check Item text, Checking action and Requirement are better aligned.

3.7.2	Is a low resistance return cable provided from the engine or starter motor to the battery?	R
Identify the low resistance return cable from the engine or starter motor to the battery (or battery master switch in systems having negative switching). Apply the cable sizing checks at 3.2.2.		A low resistance return cable ( <a href="#">with a minimum cross-sectional area of 25mm<sup>2</sup></a> ) from the engine or starter motor to the battery must be provided on all installations.

Explanation of changes		
1	A low resistance return cable ( <a href="#">with a minimum cross-sectional area of 25mm<sup>2</sup></a> ) from the	To add clarity (from Check 3.2.2).

### 3.8 Shore-power and other alternating current (AC) electrical inlet and lead connections

3.8.1	Are all AC shore-power <del>and battery charging</del> lead inlet connections of the correct type in good condition, and suitably protected from the weather?	A/R
Check the type, condition and location of all AC shore-power <del>and battery charging</del> inlet connections where they can be seen.	<p>Shore-power <del>and battery charging</del> inlet connections must be of suitable proprietary manufacture and must be a plug (male) type.</p> <p><a href="#">Shore-power inlet connections must be securely fitted and free of signs of damage or deterioration including:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">missing components; or,</a></li> <li>• <a href="#">cracked or broken components; or</a></li> <li>• <a href="#">heat damage; or</a></li> <li>• <a href="#">corrosion.</a></li> </ul> <p><del>Shore-power and battery charging inlet connections must be:</del></p> <ul style="list-style-type: none"> <li>• <del>securely fitted; and,</del></li> <li>• <del>free of missing components; and,</del></li> <li>• <del>free of signs of damage or deterioration.</del></li> </ul> <p>Shore-power <del>and battery charging</del> inlet connections not obviously splash-proof must not be located where they are likely to be subject to the weather or splashing.</p>	
<p><a href="#">Applicability – 3.8.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></p> <p>Applicability – shore-power <del>and battery charging</del> inlet connections marked with an IP rating (e.g. IP44) where the second figure is '4' or higher, provides acceptable evidence of suitable proprietary manufacture and splash-proof design.</p> <p>Applicability – do not disconnect shore power <del>or battery charging</del> leads, but if present the owner should be invited to, providing they first make the system safe to do so.</p> <p>Applicability – if an obvious risk of electrocution is identified take the actions described in Appendix A.</p> <p><a href="#">Applicability – in the event significant overheating is seen on inlet connections take the actions described in Appendix A and B.</a></p>		

Explanation of changes		
1	<del>and battery charging</del>	Because shore-power and battery charging inlet connections are the same thing, so inclusion of 'battery charging' does not add anything and is therefore not needed.
2	<a href="#">Shore-power inlet connections must be securely fitted and free of signs of damage or deterioration including:</a> <ul style="list-style-type: none"> <li>• <a href="#">missing components; or,</a></li> <li>• <a href="#">cracked or broken components; or</a></li> </ul>	As adopted at other Checks – to make damage or deterioration the focus, with examples then being given.



	<ul style="list-style-type: none"> <li>• <a href="#">heat damage; or</a></li> <li>• <a href="#">corrosion.</a></li> </ul> <p>Shore power and battery charging inlet connections must be:</p> <ul style="list-style-type: none"> <li>• <del>securely fitted; and,</del></li> <li>• <del>free of missing components; and,</del></li> <li>• <del>free of signs of damage or deterioration.</del></li> </ul>	
3	<a href="#">Applicability – 3.8.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	General addition for all Advice checks to ensure appropriate application to the various boat classes.
4	<a href="#">Applicability – in the event significant overheating is seen on inlet connections take the actions described in Appendix A and B.</a>	To be consistent with the similar new Applicability at Check 3.2.3.

3.8.2	Are all shore-power, <del>battery charging,</del> and other AC power source lead connections of a suitable type?	A/R
	<p>Check the type of any shore-power, <del>battery charging</del> or other AC lead connections where they can be seen.</p> <p>Check for the presence of any alternating current leads used to connect individual power sources (e.g. generators and inverters) to the alternating current distribution system. Where such leads are present check the type (e.g. male plug, or female socket) of the lead connections.</p>	<p>Shore-power <del>and battery charging</del> leads must be fitted with a female type socket at the end which connects to the vessel's inlet connection.</p> <p>Alternating current leads within the vessel used to connect individual power sources to the vessel's alternating current distribution system must be fitted with a male type plug (or be permanently connected) at the end which connects to the power source, and a female type socket at the end which connects to the distribution system.</p>
	<p><a href="#">Applicability – 3.8.2 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></p> <p>Applicability - do not disconnect alternating current leads, but if present the owner should be invited to, providing they first make the system safe to do so.</p> <p>Applicability – if an obvious risk of electrocution is identified take the actions described in Appendix A.</p>	

Explanation of changes		
1	power, <del>battery charging</del>	As above.
2	<a href="#">Applicability – 3.8.2 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	General addition for all Advice checks to ensure appropriate application to the various boat classes.

3.8.3	Are all shore-power, <del>battery charging,</del> and other AC power source leads and connectors in good condition?	A/R
	<p>Check the condition of any shore-power, <del>battery charging,</del> and other AC power source lead cables where they can be seen.</p> <p>Check the condition of the connectors fitted to the cable/s.</p>	<p>Shore-power, <del>battery charging,</del> and other AC power source lead cables must be free of:</p> <ul style="list-style-type: none"> <li>• signs of damage or deterioration; <b>and,</b></li> <li>• repairs.</li> </ul> <p>Shore-power, <del>battery charging,</del> and other AC power source lead connectors must be complete, secured onto the cable with no inner conductors visible, and be free of:</p> <ul style="list-style-type: none"> <li>• signs of damage or deterioration; <b>and,</b></li> <li>• repairs.</li> </ul>

[Applicability – 3.8.3 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.](#)

Applicability – do not disconnect shore-power, ~~battery charging~~, and other AC power source leads, but if present the owner should be invited to, providing they first make the system safe to do so.

Applicability – if an obvious risk of electrocution is identified take the actions described in Appendix A.

[Applicability – in the event significant overheating is seen on shore-power leads or other AC power source leads or their connections take the actions described in Appendix A and B.](#)

Explanation of changes		
1	power, <del>battery charging</del>	As above.
2	<a href="#">Applicability – 3.8.3 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	General addition for all Advice checks to ensure appropriate application to the various boat classes.
3	<a href="#">Applicability – in the event significant overheating is seen on shore-power leads or other AC power source leads or their connections take the actions described in Appendix A and B.</a>	As similar new Applicability at Check 3.2.3.

### 3.9 Alternating current (AC) systems – multiple power sources and consumer units

Explanation of changes		
1	<a href="#">(AC)</a>	For continuity with header at section 3.8.

#### Check 3.9.1 - changes found to be necessary, as set out below -

3.9.1	Is it impossible to connect simultaneously more than one power source to the <del>alternating current</del> AC distribution system?	A/R
<p>Check for the presence of one or more AC shore-power inlet connections.</p> <p>Check for the presence of additional AC power sources (e.g. generators and inverters).</p> <p><a href="#">If two or more power sources are identified, visually check for the presence of one or more means of selection between all the identified power sources.</a></p> <p><del>Check that the selection facilities prevent more than one power source being connected to the alternating current distribution system at any one time, and that they prevent the male pins on shore-power inlet connections being 'live' when an alternative power source is selected.</del></p>		<p>Only one power source may be connected to the <del>alternating current</del> AC distribution system at any one time.</p> <p>The male pins on shore-power inlet connections must not be 'live' when an alternative power source is connected to the alternating current distribution system.</p>
<p><a href="#">Applicability – 3.9.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></p> <p>Applicability – the requirement for <a href="#">only</a> one power source to be connected does not apply to synchronised multiple power sources. In cases where the boat owner claims that multiple power sources are synchronised but this cannot be verified, the Examiner should contact the BSS Office.</p> <p>Applicability – power source selectors may comprise of a multi-position manual switch, an electronic switch, or a single (male type) plug connector on the alternating current distribution system and a range of leads with corresponding (female) sockets attached to the individual power sources (see Check 3.8.2). It is also possible there may be more than one selection facility.</p> <p><del>Applicability – do not operate selection facilities, but the owner if present, should be invited to do so in order to verify compliance. If the presence of appropriate power source selection cannot be determined mark your checklist 'not verified' and note the reason why in your records.</del></p>		

Applicability – Examiners are only required to identify whether AC power source selector(s) are present, they are not required to establish whether the power source selector(s) prevent more than one power source being connected to the AC distribution system at any one time. Examiners must not operate power source selectors.

Applicability – in the event a fault is identified take the actions described in Appendix A.

Explanation of changes		
1	<del>alternating current</del> <u>AC</u>	For continuity with general approach at section 3.8.
2	<u>If two or more power sources are identified, visually</u> <del>C</del> check	For clarity that the Checking action is a visual one only, and only has to be undertaken if two or more power sources are present.
3	<u>Applicability – 3.9.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</u>	General addition for all Advice checks to ensure appropriate application to the various boat classes.
4	<del>Check that the selection facilities prevent more than one power source being connected to the alternating current distribution system at any one time, and that they prevent the male pins on shore power inlet connections being ‘live’ when an alternative power source is selected. Applicability – do not operate selection facilities, but the owner if present, should be invited to do so in order to verify compliance. If the presence of appropriate power source selection cannot be determined mark your checklist ‘not verified’ and note the reason why in your records.</del> <u>Applicability – Examiners are only required to identify whether AC power source selector(s) are present, they are not required to establish whether the power source selector(s) prevent more than one power source being connected to the AC distribution system at any one time. Examiners must not operate power source selectors.</u>	Experience has shown that the Checking action from the 2015 ECP cannot reasonably and consistently be undertaken by Examiners and the Applicability may not always be applied consistently. The Requirement remains unchanged, but the unreasonable responsibility previously placed on Examiners or owners to determine whether selectors work is removed.
5	for <u>only</u> one	For clarity.

3.9.2	Do all AC electrical circuits pass through a consumer unit <u>or distribution board</u> ?	A/R
Check, <u>where they can be seen</u> , that all AC electrical circuits pass through a consumer unit (also known as fuse/circuit-breaker box or distribution board).	All AC circuits must pass through a consumer unit <u>or distribution board</u> .	
<u>Applicability – 3.9.2 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</u>		
Applicability - Examiners are encouraged to confirm during prior dealings with the owner, the location of the consumer unit <u>(s)</u> .		
Applicability – for the purpose of this Check, residual current breakers with overcurrent protection (RCBOs) may be considered an acceptable alternative to a consumer unit.		
Applicability – in cases where the only power source is via a shore-power lead, an acceptable alternative to a consumer unit is an <u>RCD</u> , MCB or RCBO incorporated within the lead.		

Guidance for owners – [there is no BSS Requirement for a Residual Current Device \(RCD\) to be incorporated within the main consumer unit or otherwise installed. However](#), it is strongly [recommended](#) ~~advised~~ that a Residual Current Device (RCD) is installed to provide appropriate electric shock protection on AC systems.

Explanation of changes		
1	a consumer unit <a href="#">or distribution board</a> .	To reflect what is being used in practice and the help ensure a consistent approach by Examiners.
2	Check, <a href="#">where they can be seen</a> , that all AC electrical circuits pass through a consumer unit (also known as fuse/circuit-breaker box or distribution board).	The current Checking action cannot be undertaken robustly or consistently by Examiners without testing the AC system/s. By adding the caveat 'where they can be seen' the Checking action is made more reasonable and can be applied consistently.  Note, however, the Requirement for all AC electrical circuits to pass through a consumer unit remains, to be achieved by boat owners.
3	<a href="#">Applicability – 3.9.2 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	General addition for all Advice checks to ensure appropriate application to the various boat classes.
4	is an <a href="#">RCD</a> , MCB or RCBO incorporated	To better reflect the type and name of equipment in use.
5	Advice for owners – <a href="#">there is no BSS requirement for a Residual Current Device (RCD) to be incorporated within the main consumer unit or otherwise installed. However</a> , it is strongly <a href="#">recommended</a> <del>advised</del> that a Residual Current Device (RCD) is installed to provide appropriate electric shock protection on AC systems.	To ensure that Examiners do not over-apply the requirement by requiring RCDs to be installed.

## BSS Examination Checking Procedures – Part 4 - Electrical propulsion systems

### 4.1 Electrically propelled boats

<a href="#">4.1.1</a>	<a href="#">Check 4.1.1 is intentionally not used</a>	

<del>4.1.1</del>	<del>Is the electrical propulsion supply system compliant with Part 3 as applicable?</del>	<del>R</del>
<del>Identify boats having an electrical propulsion system. Apply all of Part 3 to the electrical supply system.</del>	<del>The electrical supply systems on all electrically propelled boats must comply with the applicable BSS Requirements in Part 3.</del>	
<del>Advice for owners – if batteries are connected to a battery charging source, having a maximum charge rate in excess of 2kW (approx. 150 Amps at 13.8 volts), we strongly recommend installing a fan-assisted ducted ventilation system. The fan’s motor is best placed externally to the duct and battery space to avoid any potential for spark ignition. The fan should operate automatically during charging and run for an hour when charging is completed. We also recommend that its safe operation is checked by a competent person on a routine basis.</del>		

Explanation of changes	
1	<p>Similar to Check 8.1.1, Check 4.1.1 is deleted but the Check number is retained as ‘unused’ to keep the existing numbering system.</p> <p>Concerning the original Check, Examiners recorded a non-compliance at 4.1.1 if a fault had already been found and recorded at ECP Part 3. The deletion of the Check stops the double accounting of BSS faults, and accordingly there is no technical change or weakening of BSS risk control measures.</p> <p>In addition, the Advice for owners at the original Check 4.1.1 is a direct copy of the text at Check 3.1.1. There is no particular benefit, or precedence, for having such guidance at multiple locations within the ECP, and therefore it will not impact on the ECP to delete the Applicability.</p>

### 4.2 Electrical propulsion motor and controller

<del>4.2.1</del>	<del>Are all parts of the electric-propulsion motor mounting systems secure and in good condition?</del>	<del>R</del>
<del>Check electrical-propulsion motor mounting systems for condition and completeness where they can be seen or reached.  Apply light manual force to check the extent of any electric outboard motor movement.</del>	<del>Electrical-propulsion motor mounting systems must <u>not show signs of damage or deterioration, including</u>:  <ul style="list-style-type: none"> <li><del>show no signs of</del> fractured engine mounting brackets; <u>or and</u>,</li> <li><del>not have</del> loose, missing or fractured bolts or nuts; <u>or and</u>,</li> <li><del>show no</del> evidence of significant breakdown of any flexible mounts; <u>or and</u>,</li> <li><del>show no signs of</del> damaged, rusted or rotten motor bearers.</li> </ul>                     Electric outboard motors must be securely mounted so that there is no movement in any direction at the mounting points.</del>	
<del>Applicability – the check for condition and completeness includes mounting systems to electric outboard motors.  Applicability – Examiners need not apply light manual force to electric outboard motors assessed to be too heavy to move.</del>		

Explanation of changes		
1	<p>Electrical-propulsion motor mounting systems must <a href="#">not show signs of damage or deterioration, including:</a></p> <ul style="list-style-type: none"> <li>• <del>show no signs of</del> fractured engine mounting brackets; <a href="#">or and</a>,</li> <li>• <del>not have</del> loose, missing or fractured bolts or nuts; <a href="#">or and</a>,</li> <li>• <del>show no</del> evidence of significant breakdown of any flexible mounts; <a href="#">or and</a>,</li> <li>• <del>show no signs of</del> damaged, rusted or rotten motor bearers.</li> </ul>	<p>As has been adopted at other Checks through the ECP, the Requirement has been restructured with the focus on 'damage or deterioration' and the bullet-pointed list being examples of such.</p>

4.2.2	Is the motor and controller equipment adequately ventilated and in good condition?	R
<p>Check for any means to dissipate heat from the motor and controller equipment.</p> <p>Check the condition of the motor and controller equipment <a href="#">and the surrounding surfaces where they can be seen.</a></p>	<p>Electric-propulsion motor and controller equipment spaces must be adequately ventilated by:</p> <ul style="list-style-type: none"> <li>• the volume of the space being 10 or more times greater than the volume of the equipment; <a href="#">or</a>,</li> <li>• the provision of ventilation <a href="#">into the space.</a></li> </ul> <p>Electric-propulsion motor and controller equipment must <a href="#">not show signs of damage or deterioration, including</a> <del>be free of:</del></p> <ul style="list-style-type: none"> <li>• any obviously missing components; <a href="#">or and</a>,</li> <li>• <a href="#">water ingress</a> <del>signs of damage or deterioration;</del> <a href="#">or and</a>,</li> <li>• <del>signs of</del> overheating on the equipment <a href="#">or and</a> the surrounding surfaces.</li> </ul>	
<p><a href="#">Applicability – liquid-cooled electric propulsion motors, and liquid cooled controllers, are not subject to the Requirements for adequate ventilation at this Check.</a></p> <p><a href="#">Applicability – this Check does not apply to outboard electric motors.</a></p> <p><a href="#">Applicability – where the ventilation of the electric motor or controller equipment is found not to comply with the Requirements set out above and the boat is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</a></p> <p><a href="#">Guidance for owners – although not a BSS Requirement, controller equipment spaces should be ventilated at high and low level to ensure the adequate dispersion of heat from the controller.</a></p>		

Explanation of changes		
1	<p>Check the condition of the motor and controller equipment <a href="#">and the surrounding surfaces where they can be seen.</a></p>	<p>The last part of the Requirement addresses 'surrounding surfaces', but this previously was not covered within the Checking action. The addition of 'surrounding surfaces' therefore ensures the Check action and Requirements are mirrored.</p> <p>To ensure that the limit of the Checking is reasonable. Without the inclusion of 'where they can be seen' there is an assumption that the Examiner will check every part of the motor and controller.</p> <p>'Reached' has not been included as Examiners should not be guided to touch electrical components.</p>
2	<p>ventilation <a href="#">into the space.</a></p>	<p>To help ensure Examiners (and others) know where the ventilation provision needs to be located.</p>
3	<p>Electric-propulsion motor and controller equipment must <a href="#">not show signs of damage or deterioration, including</a> <del>be free of:</del></p>	<p>As has been adopted at other Checks through the ECP, the Requirement has been restructured with the focus on</p>

	<ul style="list-style-type: none"> <li>any obviously missing components; <b>or and</b>,</li> <li>water ingress <del>signs of damage or deterioration</del>; <b>or and</b>,</li> <li><del>signs of</del> overheating on the equipment <b>or and</b> the surrounding surfaces.</li> </ul>	'damage or deterioration' and the bullet-pointed list being examples of such.
4	<a href="#">water ingress</a>	'Water ingress' has been added as an example of damage or deterioration as electric motor experts supporting the development of the new Examiner training course report that this is one of the most common types of damage.
5	<a href="#">Applicability – liquid-cooled electric propulsion motors, and liquid cooled controllers, are not subject to the Requirements for adequate ventilation at this Check.</a>	Development of the new Examiner training material has identified that an increasing number of electric motor (particularly hybrids) are water cooled. The existing Requirements regarding the ventilation of electric motor spaces are based on them being air cooled. The new Applicability therefore helps ensure Examiners to not apply the Requirements in error to water cooled motors.
6	<a href="#">Applicability – this Check does not apply to outboard electric motors.</a>	Adds clarity that there is no Requirement for electric outboard covers/hoods to comply with the Requirement.
7	<a href="#">Applicability – where the ventilation of the electric motor or controller equipment is found not to comply with the Requirements set out above and the boat is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</a>	A new RCD harmonised standard was introduced in 2016 covering electric propulsion systems [ISO 16315:2016 Small craft -Electric propulsion systems]. This standard requires electrical propulsion systems to be adequately cooled/ventilated and where enclosures are installed there must be adequate ventilation openings through the enclosure or sufficient cooling surface to dissipate the heat. As such the BSS option for the volume of the space inside an enclosure to be 10 or more times greater than the volume of the equipment is not directly replicated within the ISO.
8	<a href="#">Guidance for owners – although not a BSS Requirement, controller equipment spaces should be ventilated at high and low level to ensure the adequate dispersion of heat from the controller.</a>	Advice from electric motor experts supporting the development of the new Examiner training material has identified that the Requirement relating to the ventilation of electric motor spaces may not be adequately robust. Given that a fundamental review of Part 3 and Part 4 is planned, it is proposed to leave the current ventilation Requirements as they are, but to guide owners towards better practice until the fundamental review has been undertaken.

### 4.3 Battery charging equipment

4.3.1	Is the battery charging equipment ventilated, complete and in good condition?	R
<p>Check for any means to dissipate heat from the battery charging equipment.</p> <p>Check the condition of battery charging equipment <a href="#">and the surrounding surfaces where they can be seen.</a></p>	<p>Battery-charging equipment <a href="#">spaces compartments</a> must be adequately ventilated by:</p> <ul style="list-style-type: none"> <li>the volume of the space being 10 or more times greater than the volume of the equipment; <b>or</b>,</li> <li>the provision of ventilation <a href="#">into the space.</a></li> </ul> <p>Battery-charging equipment must <a href="#">not show signs of damage or deterioration, including be free of:</a></p> <ul style="list-style-type: none"> <li><del>any</del> obviously missing components; <b>or and</b>,</li> <li><a href="#">water ingress</a> <del>signs of damage or deterioration</del>; <b>or and</b>,</li> <li><del>signs of</del> overheating on the equipment <b>or and</b> the surrounding surfaces.</li> </ul>	

Applicability – this Check does not require the removal of covers provided by the [battery charging](#) equipment manufacturer.

[Guidance for owners – although not a BSS Requirement, battery-charging equipment spaces should be ventilated at high and low level, to ensure the adequate dispersion of heat from the charger.](#)

Explanation of changes		
1	Check the condition of the motor and controller equipment <a href="#">and the surrounding surfaces where they can be seen.</a>	To ensure that the limit of the Checking is reasonable.
2	equipment <a href="#">spaces</a> <del>compartments</del>	To ensure consistent use of terms between Checks 4.3.1 and 4.2.2, and to be consistent with the use of 'space' in the first bullet-point.
3	ventilation <a href="#">into the space.</a>	To help ensure Examiners (and others) know where the ventilation provision needs to be located.
4	Battery-charging equipment must <a href="#">not show signs of damage or deterioration, including</a> <del>be free of:</del> <ul style="list-style-type: none"> <li>• <del>any</del> obviously missing components; <del>or and,</del></li> <li>• <a href="#">water ingress signs of damage or deterioration;</a> <del>or and,</del></li> </ul> <del>signs of</del> overheating on the equipment <del>or and</del> the surrounding surfaces.	As has been adopted at other Checks through the ECP, the Requirement has been restructured with the focus on 'damage or deterioration' and the bullet-pointed list being examples of such.
5	<a href="#">water ingress</a>	'Water ingress' has been added as an example of damage or deterioration.
6	by the <a href="#">battery charging</a> equipment manufacturer.	So that the term is consistent through the Check.
7	<a href="#">Guidance for owners – although not a BSS Requirement, battery-charging equipment spaces should be ventilated at high and low level, to ensure the adequate dispersion of heat from the charger.</a>	Advice from electric motor experts supporting the development of the new Examiner training material has identified that the Requirement relating to the ventilation of battery charger spaces may not be adequately robust. Given that a fundamental review of Part 3 and Part 4 is planned, it is proposed to leave the current ventilation Requirements as they are, but to guide owners towards better practice until the fundamental review has been undertaken.



**BSS Examination Checking Procedures – Part 5 - Outboard and portable combustion engines, and portable fuel systems and spare fuel**

Explanation of changes		
1	<a href="#">and spare fuel</a>	To reflect that the Requirements also address spare fuel.

**5.1 Permanently installed fuel systems supplying outboard and portable engines ~~Portable fuel systems~~**

5.1.1	Do permanently installed fuel systems supplying outboard and portable combustion engines comply with the applicable BSS requirements for the fuel supply system?	R
Identify permanently installed fuel systems supplying outboard and portable combustion engines. Apply the relevant Part of the BSS <a href="#">Examination Checking Procedures requirements</a> to the permanently installed fuel system.	Permanently installed fuel systems supplying outboard and portable combustion engines must be compliant with the applicable BSS requirements of Part 2 or Part 7.	
<p>Applicability – <del>LPG-fuelled outboard engine fuel installations</del> <a href="#">outboard engines supplied with fuel from permanently installed LPG systems</a> are assessed by special arrangement with the BSS Office. See Check Item 5.5.1.</p> <p>Applicability – <del>In the event an examiner identifies a portable combustion engine</del> <a href="#">other than an (excluding outboard engines) (e.g. a portable LPG or petrol generator)</a> supplied with fuel from a permanently installed fuel system the BSS Office should be contacted for advice.</p> <p><a href="#">Applicability – fuel hoses in permanently installed fuel systems to outboard engines may be to type B1 or B2 of ISO 8469 (or be suitable proprietary outboard engine fuel hose), provided the hose and its connections are located where any fuel spillage would drain overboard (e.g. self-draining cockpits or outboard wells). Open vessels such as RIBs having a continuous deck or sole that is fuel-tight to the interior of the vessel and bilge spaces, meet this requirement. On such fuel system installations the Checks at Part 2, sections 10 and 11 apply to the hose and its connections.</a></p> <p><a href="#">Supporting information on permanently installed fuel systems supplying outboard engines is provided at Appendix 5.</a></p>		

Explanation of changes		
1	<a href="#">Permanently installed fuel systems supplying outboard and portable engines</a> <del>Portable fuel systems</del>	Sub-Section 5.1 is made specific to permanently installed fuel systems supplying outboard and portable engines’ and separates these from portable systems. 5.1.1 was never wholly applicable to portable fuel systems and therefore is it potentially misleading for it to be included under the heading of ‘portable fuel systems’.
2	<a href="#">Examination Checking Procedures requirements</a>	To be consistent with terms and to make reference clearer.
3	Applicability – <del>LPG-fuelled outboard engine fuel installations</del> <a href="#">outboard engines supplied with fuel from permanently installed LPG systems</a> are assessed by special arrangement with the BSS Office.	The suggested new text makes it clear that it is only outboard fuelled by permanently installed LPG systems that are assessed by special arrangement. Outboard supplied with LPG from cartridges are not subject the special arrangement.
4	Applicability – <del>In the event an examiner identifies a portable combustion engine</del> <a href="#">other than an (excluding outboard engines) (e.g. a portable LPG or petrol generator)</a> supplied with fuel from a permanently installed fuel system the BSS Office should be contacted for advice.	To make the Applicability clearer.
5	<a href="#">Applicability – fuel hoses in permanently installed fuel systems to outboard engines may be to type B1 or B2 of ISO 8469 (or be suitable proprietary</a>	This text comes from the 6 <sup>th</sup> Applicability at Check 2.10.2. Using it again here ensures a consistent approach between Part 2 and Part 5.

	<a href="#">outboard engine fuel hose), provided the hose and its connections are located where any fuel spillage would drain overboard (e.g. self-draining cockpits or outboard wells). Open vessels such as RIBs having a continuous deck or sole that is fuel-tight to the interior of the vessel and bilge spaces, meet this requirement. On such fuel system installations the Checks at Part 2, sections 10 and 11 apply to the hose and its connections.</a>	
6	<a href="#">Supporting information on permanently installed fuel systems supplying outboard engines is provided at Appendix 5.</a>	A pointer to supporting information contained in Appendix 5.

## 5.2 Portable fuel systems

5.2.1.1.2	Are all components of portable fuel systems of suitable proprietary manufacture?	R
<p>Check the type of all components of portable fuel systems including the tank, fuel hose and priming bulb, and hose connections.</p> <p><a href="#">Where individual components cannot be identified as being of suitable proprietary manufacture from visual assessment alone, examine any presented declaration from the manufacturer or supplier.</a></p> <p><del>Verify components not identified as of suitable proprietary manufacture, if necessary by examining any presented declaration from the manufacturer or supplier.</del></p>	<p>Portable fuel system components must be of suitable proprietary manufacture, for example:</p> <ul style="list-style-type: none"> <li><a href="#">tanks must be intended for use with the fuel in use;</a></li> <li><a href="#">the maximum capacity of tanks must not exceed 30 litres, and they must be fitted with a carrying handle;</a></li> <li><a href="#">it must be possible to disconnect tanks from the fuel system or engine without the use of tools, in a way that prevents spillage of fuel, for removal and filling outside the vessel;</a></li> <li><del>tanks must be designed to store the fuel in use and permit convenient carrying and removal for refilling outside the vessel;</del></li> <li>hoses and other fuel components must be intended for use with the fuel in use;</li> <li>hose connections must be secured with proprietary clamps, clips or ties.</li> </ul> <p>Portable fuel system components not identified <a href="#">through visual assessment</a> to be of suitable proprietary manufacture <del>must</del> <a href="#">may</a> be supported by an appropriate declaration from the manufacturer or supplier.</p>	
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 5 for essential information on portable fuel systems of suitable proprietary manufacture.</a></p> <p><a href="#">Applicability – where an outboard or portable combustion engine intended to be supplied with fuel from a portable fuel system is present during an examination, a complete portable fuel system must also be present. In such circumstances, where a complete portable fuel system is not present mark your checklist at Part 5 as ‘not verified’. It must be considered that the Part 5 checks have not been completed until such time as a complete portable fuel system can be examined.</a></p> <p><a href="#">Applicability – where outboard engine fuel lines across outboard wells are routed through trunking of suitable proprietary manufacture, with tools to remove connections at the engine and outboard well bulkhead, Examiners are not required to apply the Checking action to the enclosed fuel line. However, in such cases examines must check the trunking for signs of fuel leaks. A fuel leak should be recorded as a non-compliance at Check 5.2.2.</a></p> <p><del>Applicability – in cases where verification of components to be of suitable proprietary manufacture is not achieved your checklist must be marked as ‘not verified’ and the item considered as non-compliant until such time as verification is achieved.</del></p> <p><del>Applicability – the point/s of connection of any outboard engine portable fuel system to any permanently installed fuel system must be made in the open air and where any fuel spillage would drain overboard (e.g. self-draining cockpits or outboard wells not enclosed by a canopy or other cover). Open vessels such as RIBs having a continuous deck or sole that is fuel-tight to the interior of the vessel and bilge spaces, meet this requirement. Such connections must be made with proprietary quick-release, self-closing connectors. In such installations all of the portable fuel system components must comply with the applicable BSS requirements at 5.1.2 – 5.1.4.</del></p> <p>Applicability – In the event an examiner identifies a portable fuel system supplying a permanently installed inboard engine, refer to check 2.15.3.</p>		

Explanation of changes			
1	<a href="#">5.2 Portable fuel systems</a>	<p>Inserted here as this is the beginning of the section dealing with portable fuel systems.</p> <p>This section now only covers portable fuel system components in terms of their suitability and condition. Check 5.2.1 is concerned with suitability.</p>	
2	<del>5.2.1.1,2</del>	The original Checks 5.1.2, 5.1.4 and the original Check 5.2.1 are renumbered as new Check 5.2.1, to sit under Section 5.2, portable fuel systems.	
3	<p><a href="#">Where individual components cannot be identified as being of suitable proprietary manufacture from visual assessment alone, examine any presented declaration from the manufacturer or supplier.</a></p> <p><del>Verify components not identified as of suitable proprietary manufacture, if necessary by examining any presented declaration from the manufacturer or supplier.</del></p>	New text makes it clearer.	
4	<ul style="list-style-type: none"> <li>• <a href="#">tanks must be intended for use with the fuel in use;</a></li> <li>• <a href="#">the maximum capacity of tanks must not exceed 30 litres, and they must be fitted with a carrying handle;</a></li> <li>• <a href="#">it must be possible to disconnect tanks from the fuel system or engine without the use of tools, in a way that prevents spillage of fuel, for removal and filling outside the vessel;</a></li> <li>• <del>tanks must be designed to store the fuel in use and permit convenient carrying and removal for refilling outside the vessel;</del></li> </ul>	<p>These changes are intended to add more clarity as to what is deemed to be of 'suitable proprietary manufacture'.</p> <p>Adding in the reference to 30 litres, carrying handles and tank disconnections here also means that 2015 Check 5.2.1 is incorporated. Also see new supporting information in Appendix 5.</p> <p>ECP now standardise on 30 litres because of known tanks to that capacity.</p>	
5	Portable fuel system components not identified <a href="#">through visual assessment</a> to be of suitable proprietary manufacture <del>must</del> <a href="#">may</a> be supported by an appropriate declaration from the manufacturer or supplier.	'must' was incorrect – 'may' is more appropriate. The inclusion of 'through visual assessment' qualifies that the initial step in determining whether a component is of suitable proprietary manufacture is a visual assessment of the component. Checking any documentation come second.	
6	<a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 5 for essential information on portable fuel systems of suitable proprietary manufacture.</a>	To reference the essential new material included in Appendix 5.	

7	<p><u>Applicability – where an outboard or portable combustion engine intended to be supplied with fuel from a portable fuel system is present during an examination, a complete portable fuel system must also be present. In such circumstances, where a complete portable fuel system is not present mark your checklist at Part 5 as ‘not verified’. It must be considered that the Part 5 checks have not been completed until such time as a complete portable fuel system can be examined.</u></p>	<p>Adds clarity in regard to decommissioned and out-of-use systems.</p>	
8	<p><u>Applicability – where outboard engine fuel lines across outboard wells are routed through trunking of suitable proprietary manufacture, with tools to remove connections at the engine and outboard well bulkhead, Examiners are not required to apply the Checking action to the enclosed fuel line. However, in such cases examines must check the trunking for signs of fuel leaks. A fuel leak should be recorded as a non-compliance at Check 5.2.2.</u></p>	<p>To ensure a consistent approach by Examiners. Such trunking is increasing in its use/popularity.</p>	
9	<p><del>Applicability – in cases where verification of components to be of suitable proprietary manufacture is not achieved your checklist must be marked as ‘not verified’ and the item considered as non-compliant until such time as verification is achieved.</del></p>	<p>The ‘not verified’ approach is not relevant here. Once the Examiner has not recognised the item to be of suitable proprietary manufacture and where there is no documentary evidence supporting its use, then the item fails the Check</p>	
10	<p><del>Applicability – the point/s of connection of any outboard engine portable fuel system to any permanently installed fuel system must be made in the open air and where any fuel spillage would drain overboard (e.g. self-draining cockpits or outboard wells not enclosed by a canopy or other cover). Open vessels such as RIBs having a continuous deck or sole that is fuel tight to the interior of the vessel and bilge spaces, meet this requirement. Such connections must be made with proprietary quick-release, self-closing connectors. In such installations all of the portable fuel system components must comply with the applicable BSS requirements at 5.1.2 –5.1.4.</del></p>	<p>Now addressed entirely at Check 5.1.1 and this Applicability moved there, albeit edited.</p>	

<p><b>5.2.2.4</b> <b>3</b></p>	<p><b>Are all components of portable fuel systems complete and in good condition?</b></p>	<p><b>R</b></p>
<p>Check the completeness and condition of all portable fuel system components including the tank, fuel hose and priming bulb, and hose connections <a href="#">by sight and touch</a>.</p> <p>Check the completeness and condition of support structures and fixings on transom-mounted tank arrangements <a href="#">where they can be seen or reached</a>.</p> <p>Portable fuel systems <del>s</del> <a href="#">components</a> must be complete including the fuel tank cap, the hose, and hose clamps/clips/ties.</p> <p>Components of portable fuel systems must be free of:</p> <ul style="list-style-type: none"> <li>• <a href="#">fuel</a> leaks; <a href="#">and</a>,</li> <li>• signs of damage or deterioration; <a href="#">and</a>,</li> <li>• <a href="#">signs of repair</a>.</li> </ul> <p><del>Portable fuel tanks must be free of signs of significant pitting or repairs on metal tanks, or corrosive attack or repairs on plastic tanks.</del></p> <p>The support structures and fixings on transom-mounted tank arrangements must be complete and free of signs of damage or deterioration.</p>		
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 5 for essential information on damage or deterioration of portable fuel systems components.</a></p> <p>Applicability – all <a href="#">external</a> surfaces and seams on components, including tank undersides, should be examined.</p> <p><del>Supplementary information on assessing deterioration of plastic fuel tanks is provided at Appendix F</del></p>		

Explanation of changes		
1	<p>The original Check 5.1.3 is renumbered as Check 5.2.2, to sit under portable fuel systems and cover completeness and system component condition.</p>	<p>The changes ensure a logical sequence of Checks at Section 5.2.</p>
2	<p>priming bulb, and hose connections <a href="#">by sight and touch</a>.</p> <p>Check the completeness and condition of support structures and fixings on transom-mounted tank arrangements <a href="#">where they can be seen or reached</a>.</p>	<p>To provide added clarity to the scope of the Checking actions.</p>
3	<p>Portable fuel systems <del>s</del> <a href="#">components</a> must be complete including the fuel tank cap, the hose, and hose clamps/clips/<a href="#">ties</a>.</p>	<p>‘Portable fuel system components’ brings the Requirement in line with the Check question text and the Checking action.</p> <p>The addition of ‘ties’ is consistent with the existing 5.1.2 and reflects the use of ties on portable system fuel hose connections.</p>
4	<p>Components of portable fuel systems must be free of:</p> <ul style="list-style-type: none"> <li>• <a href="#">fuel</a> leaks; <a href="#">and</a>,</li> <li>• signs of damage or deterioration; <a href="#">and</a>,</li> <li>• <a href="#">signs of repair</a>.</li> </ul> <p><del>Portable fuel tanks must be free of signs of significant pitting or repairs on metal tanks, or corrosive attack or repairs on plastic tanks.</del></p>	<p>To provide added clarity. See full descriptions of damage or deterioration at Appendix 5</p>
5	<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 5 for essential information on damage or deterioration of portable fuel systems components.</a></p>	<p>To reference the essential new material included in Appendix 5.</p>

	<del>Supplementary information on assessing deterioration of plastic fuel tanks is provided at Appendix F</del>	
6	Applicability – all <a href="#">external</a> surfaces and seams on components, including tank undersides, should be examined.	To ensure the Check is not over applied in the field.

Check 5.1.4 from the 2015 ECP – is deleted as improved wording is now included at Check 5.2.1 and is a criterion of the suitability of a portable fuel system.

Check 5.2.1 from the 2015 ECP – Check deleted as the concept of convenient carrying, and maximum volumes that can be safely carried, are now included at proposed new Check 5.2.1 and is a criterion of the suitability of a portable fuel system.

Check 5.2.2 from the 2015 ECP – Check deleted as it makes more sense to cover the storage of spare petrol (containers and tanks) only once at new proposed Check 5.3.4.

### 5.3 Spare fuel containers and spare portable petrol tanks

The changes at Section 5.3 are as described in the brief summary above.

Because of the extent of the changes it is not possible to efficiently annotate the amends from the existing 2015 ECP Sections.

The following commentary provides further explanation of the proposed changes at Section 5.3.

The changes add clarity by introducing clear separation between the Checks and maintaining a logical sequence of Checks of any spare fuel containers and any spare portable petrol tank.

The four new Checks at Section 5.3 incorporate the Checking actions and Requirements of the original three Checks as well as allow an update of the Requirements to align with the Petroleum (Consolidation) Regulations 2014, whilst at the same time place due responsibility on boat owners for full compliance with the regulations.

The additional Check is arrived at because new Check 5.3.3 now separates petrol container numbers and individual and combined capacity Requirements from the original 2015 ECP suitability Check 5.3.2 and updates the capacities to align with the Petroleum (Consolidation) Regulations 2014.

5.3.1 - Are all spare fuel containers in good condition? – A check of condition of all spare fuel containers is seen as the first logical step as this will determine the number of containers, what they contain and will identify any that are leaking and that need to be removed from the boat to mitigate any risk.

The new 5.3.1 directly replaces the existing 5.3.3 in the original 2015 ECP.

5.3.2 - Are all spare petrol containers suitable for the purpose? – This Check is limited to petrol containers and draws on previous ‘suitability’ markings Requirements in the existing 5.3.2 but makes these more readily identifiable in the field and brings them up to date with the Petroleum (Consolidation) Regulations 2014.

The new Check also introduces the maximum capacity Requirements for petrol containers as a measure of ‘suitability’. All proposed changes at 5.3.2 are developed with input and support from HSE.

5.3.3 - Are all spare petrol containers, and any spare portable petrol tank, limited to the permitted number and capacity? – this Check separates the original petrol container numbers and individual and combined capacity Requirements from 5.3.2 in the original 2015 ECP and updates the capacities to align with the Petroleum (Consolidation) Regulations 2014 (PCR) – a the maximum permitted capacity of 30 litres of spare petrol.

Note that the second bullet allows for the option for *one spare portable petrol tank filled by the boat owner to only 20 litres and up to two spare petrol containers with an individual or combined marked capacity of no more than 10 litres, or*. If the spare petrol tank were to be a 30 litre tank and if it and the spare petrol container(s) were to be filled to capacity, this clearly would contravene the maximum permitted capacity of 30 litres of spare petrol.

Albeit that the combined marked capacity adds up to potentially 40-litres, the approach allowing up to two containers, in addition to a spare portable petrol tank, takes account of the following agreed factors:

- The use characteristics, whereby the potential need is for a spare portable outboard petrol tank as well as spare petrol containers for any on-board petrol generator with an integral petrol tank, any auxiliary outboard engine with an integral petrol tank and taking account of the fact that some internal combustion engines on boats may be 2-stroke requiring oil to be added to petrol, while others may be 4-stroke.
- The clear need, associated with the above point, to discourage unnecessary petrol decanting.
- Spare petrol containers and portable tanks may not be filled to the brim and the Examiner will have no way of knowing the actual amount of spare petrol onboard.
- The Guidance for Owners places sole responsibility for compliance with PCR maximum limit of 30-litres squarely with the boat owner.
- There is no role for BSS Examiners to enforce PCR and no onus on them to accurately measure the actual amount of spare petrol on any given boat

5.3.4 - Are all spare petrol containers and any spare portable petrol tank, stored to ensure that any leaking fuel or escaping vapour will not enter the interior of the vessel? – It makes more sense to cover the storage of spare petrol (containers and tanks) only once. This Check replaces Check 5.2.2 and 5.3.1 in the original 2015 ECP.

The ‘Applicability’ takes account of any alternative method of storing petrol on CE marked boats. Because of the complexities involved, it’s best for the BSS Office to assess any alternative petrol storage arrangements against the version of BS EN ISO 11105 relevant to the boat build date, and guide Examiners accordingly.

#### Outboard and portable combustion engines

<b>5.4.1</b>	<b>Are all outboard and portable combustion engines free of fuel leaks?</b>	<b>R</b>
Check for the presence of leaking fuel on or around all outboard and portable combustion engines <u>by sight and touch</u> .		Outboard and portable combustion engines must be free of <del>obvious signs of</del> fuel leaks.
Applicability – this Check <u>covers all outboard and portable combustion engines, including such items as chainsaws, but when applying the Checking action examiners are</u> <del>does</del> not required <u>to remove</u> <del>the removal of</del> <u>the manufacturer’s</u> outboard covers or generator hush covers.		

Explanation of changes		
1	engines <u>by sight and touch</u> .	To provide added clarity to the scope of the Checking actions.
2	free of <del>obvious signs of</del> fuel leaks.	To make the approach consistent with other Checks where there is a requirement for there to be no leaks: nowhere else in the ECP is there reference to ‘obvious signs of fuel leaks’.
3	Applicability – this Check <u>covers all outboard and portable combustion engines, including such items as chainsaws, but when applying the Checking action examiners are</u> <del>does</del> not required <u>to remove</u> <del>the removal of</del> outboard covers or generator hush covers.	To provide added clarity.
4	... remove <u>the manufacturer’s</u> outboard covers or generator hush covers.	To improve examiner consistency and to help ensure that the exemption is not applied where a generator, etc is boxed in with plywood (etc).

5.4.2	Are all outboard and portable combustion engines with integral petrol <b>tanks</b> or LPG <b>cartridges</b> stored to ensure that leaking fuel or escaping vapour will not enter the interior of the vessel?	R
<p>Check the storage <del>location</del> <u>arrangements</u> of outboard <u>and portable combustion</u> engines with integral petrol tanks <u>or LPG cartridges</u> <del>and portable combustion engines with integral petrol or LPG tanks.</del></p> <p><u>Outboard and portable combustion engines with integral petrol tanks or LPG cartridges must be stored in:</u></p> <ul style="list-style-type: none"> <li><u>an open location complying with the open location specifications at Check item 7.1.1; or</u></li> <li><u>a locker complying with the requirements at the Check items in sections 7.2 to 7.5.</u></li> </ul> <p><del>Outboard engines with integral petrol tanks and portable combustion engines with integral petrol or LPG tanks must be stored in the open where any leaked petrol would flow overboard unimpeded, or in a suitable locker.</del></p> <p><del>Any locker used to store outboard engines or portable combustion engines with integral petrol or LPG tanks must be:</del></p> <ul style="list-style-type: none"> <li><del>drained to the outside of the hull from at, or close to the bottom of the locker; and;</del></li> <li><del>secure and constructed of a material of the required thickness, in good condition; and;</del></li> <li><del>free from objects that could block the drain, damage the petrol/LPG tank/cylinder or cause petrol/LPG vapour to ignite; and;</del></li> <li><del>fuel/LPG tight to an equal or greater height than the top of the cap for the petrol tank or valve of the LPG cylinder; and;</del></li> <li><del>self-draining and the drain hole must have a minimum internal diameter of 12mm (½in) and must not be blocked.</del></li> </ul> <p><del>The locker must not open into any engine, battery or electrical equipment space.</del></p> <p><del>The drain line material including connections must be complete and in good condition.</del></p>		
<p><del>Applicability – these are identical storage arrangements for LPG cylinders the detail of which is to be found in Part 7 sections 7.1–7.5.</del></p> <p><u>Applicability – this check only applies to outboard and portable combustion engines with integral petrol tanks, or LPG cartridges, that are being stored at the time of the examination. Engines that are running or connected (e.g. outboards mounted on the craft’s transom, or portable generators connected to the craft’s electrical system) at the time of the examination are not subject to this check.</u></p> <p><del>Applicability – outboard or portable combustion engines <u>not stored</u> at the time of the examination, for example, generators or outboards running or connected, must be recorded as compliant.</del></p> <p><u>Applicability – where the stowage arrangements for outboard and portable combustion engines with integral petrol tanks or LPG cartridges not in use are found not to comply with this requirement, but the vessel is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</u></p>		

Explanation of changes		
1	Are all outboard and portable combustion engines with integral petrol <b>tanks</b> or LPG <b>cartridges</b> <del>tanks</del> stored to ensure that leaking fuel or escaping vapour will not enter the interior of the vessel?	To provide added clarity and to be technically more accurate: small portable LPG powered engines will be fitted with cartridges, not tanks.
2	Check the storage <del>location</del> <u>arrangements</u> of outboard <u>and portable combustion</u> engines with integral petrol tanks <u>or LPG cartridges</u> <del>and portable combustion engines with integral petrol or LPG tanks</del>	
3	<u>Outboard and portable combustion engines with integral petrol tanks or LPG cartridges must be stored in:</u> <ul style="list-style-type: none"> <li><u>an open location complying with the open location specifications at Check item 7.1.1; or</u></li> </ul>	The original Requirement text relating to ‘lockers’ listed some, but not all of the specifications from Checks 7.2 to 7.5 (LPG cylinder lockers).



	<ul style="list-style-type: none"> <li>• <a href="#">a locker complying with the requirements at the Check items in sections 7.2 to 7.5.</a></li> </ul> <p><del>Outboard engines with integral petrol tanks and portable combustion engines with integral petrol or LPG tanks must be stored in the open where any leaked petrol would flow overboard unimpeded, or in a suitable locker.</del></p> <p><del>Any locker used to store outboard engines or portable combustion engines with integral petrol or LPG tanks must be:</del></p> <ul style="list-style-type: none"> <li>• <del>drained to the outside of the hull from at, or close to the bottom of the locker; and,</del></li> <li>• <del>secure and constructed of a material of the required thickness, in good condition; and,</del></li> <li>• <del>free from objects that could block the drain, damage the petrol/LPG tank/cylinder or cause petrol/LPG vapour to ignite; and,</del></li> <li>• <del>fuel/LPG tight to an equal or greater height than the top of the cap for the petrol tank or valve of the LPG cylinder; and,</del></li> <li>• <del>self draining and the drain hole must have a minimum internal diameter of 12mm (½in) and must not be blocked.</del></li> </ul> <p><del>The locker must not open into any engine, battery or electrical equipment space.</del></p> <p><del>The drain line material including connections must be complete and in good condition.</del></p>	<p>Some Examiners found it confusing as to whether they had to apply all the Checks from 7.2 to 7.5 or not.</p> <p>The new approach makes it clear that the 7.1 specifications apply in regard to 'open locations', and Checks 7.2 to 7.5 apply in regard to lockers.</p>
4	<p><a href="#">Applicability – this Check only applies to outboard and portable combustion engines with integral petrol tanks, or LPG cartridges, that are being stored at the time of the examination. Engines that are running or connected (e.g. outboards mounted on the craft’s transom, or portable generators connected to the craft’s electrical system) at the time of the examination are not subject to this check.</a></p> <p><del>Applicability – outboard or portable combustion engines not stored at the time of the examination, for example, generators or outboards running or connected, must be recorded as compliant.</del></p>	<p>To provide added clarity as to the scope of the Check.</p>
5	<p><a href="#">Applicability – where the stowage arrangements for outboard and portable combustion engines with integral petrol tanks or LPG cartridges not in use are found not to comply with this requirement, but the vessel is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</a></p>	<p>To be consistent with proposed new 5.3.4.</p>

5.4.3	<b>Are outboard engine mounting systems in good condition?</b>	<b>R</b>
<p>Check the condition of outboard engine mounting systems <a href="#">where they can be seen or reached.</a></p> <p>Assess the extent of any movement by applying light manual force to the outboard engine.</p>		<p>Outboard engine mounting systems must be free of signs of damage or deterioration.</p> <p>Outboard engines must be securely mounted so that there is no movement in any direction at the mounting points.</p>
<p>Applicability – Examiners need not apply light manual force to outboards assessed to be too heavy to move.</p>		

<b>Explanation of changes</b>		
1	<p>Check the condition of outboard engine mounting systems <a href="#">where they can be seen or reached.</a></p>	<p>To provide added clarity to the scope of the Checking actions.</p>

## LPG-fuelled outboard propulsion engines

5.5.1	Do the fuel supply arrangements to LPG-fuelled outboard engines comply with <a href="#">BS EN ISO 15609</a> <del>UKLPG-CoP-18</del> or equivalent standard and are any dual-fuel petrol/LPG arrangements of an acceptable type?	R
<p><i>[LPG-fuelled outboard engines can only be checked for compliance by prior arrangement by the owner with the BSS Office]</i></p> <p>Check the fuel supply type to outboard engines and identify those fuelled by LPG or dual-fuel petrol/LPG.</p>		<p>The fuel supply arrangements to LPG-fuelled outboard engines must comply with <a href="#">BS EN ISO 15609</a> <del>UKLPG-CoP-18</del> or an equivalent standard.</p> <p>Any dual-fuel arrangements must be installed and maintained accordance with the engine manufacturer’s guidelines for marine applications.</p>
<p>Applicability - Examiners should seek to establish engines fuelled by LPG during initial dealings with customers and in cases where LPG fuelled outboard engines are identified customers should be advised to contact the BSS Office who can arrange for an examiner competent to apply <a href="#">BS EN ISO 15609</a> <del>UKLPG-CoP-18</del> to undertake a full examination of the boat.</p> <p>Applicability – <u>all</u> Examiners may determine compliance of portable LPG-fuelled generators, <u>and outboard engine powered solely by LPG cartridges</u>, to applicable BSS requirements.</p>		

Explanation of changes		
1	<a href="#">BS EN ISO 15609</a> <del>UKLPG-CoP-18</del>	To recognise that the code of practice has been superseded by the ISO standard.
2	Applicability – <u>all</u> Examiners may determine compliance of portable LPG-fuelled generators, <u>and outboard engine powered solely by LPG cartridges</u> , to applicable BSS requirements.	The ‘ <u>all</u> ’ adds clarity and the inclusion of <u>and outboard engine powered solely by LPG cartridges</u> makes it clear that this type of engine is not subject to the special arrangements.

**6.1 Portable fire extinguishers**

<b>6.1.1</b>	<b>Are the correct number of suitable portable fire extinguishers provided, and do they have the correct combined fire ratings?</b>	<b>R</b>
<p>Identify all portable fire extinguishers on board.</p> <p>Check all portable fire extinguishers for their individual fire ratings, accredited third-party certification marks, and condition.</p>	<p>The minimum number of suitable portable fire extinguishers and their minimum combined fire ratings must be as prescribed in the following table.</p> <p>To be considered as suitable, portable fire extinguishers must:</p> <ul style="list-style-type: none"> <li>• have an individual fire rating of 5A/34B or greater; <b>and</b>,</li> <li>• be marked with at least one accredited third-party certification mark; <b>and</b>,</li> <li>• not show any of the following indicators of poor condition:             <ul style="list-style-type: none"> <li>– missing safety pin;</li> <li>– dents; gouges; significant rust or other form of corrosion;</li> <li>– perished hose;</li> <li>– pressure gauge (where fitted) indicator in the ‘red’ sector;</li> <li>– obvious under-weight indicating whole or partial discharge;</li> <li>– signs of damage or deterioration to trigger assembly, including deterioration caused by ultraviolet light and heat.</li> </ul> </li> </ul> <p>The minimum number of suitable portable fire extinguishers may be reduced by a maximum of one 5A/34B rated extinguisher where the vessel has either no internal combustion engines, or no fuel-burning appliances.</p>	
	<b>Length of vessel</b>	<b>Minimum number</b>
	Under 7m (23ft)	2
	7–11m (23–36ft)	2
	Over 11m (36ft)	3
		<b>Minimum combined fire rating</b>
		10A/68B
		13A/89B
		21A/144B
<p>Examiner action – Examiners must refer to Section 1 of Appendix 6 for essential information on accredited third-party certification marks for portable fire extinguishers.</p> <p>Examiner action - Examiners are not required to check the standard to which extinguishers have been manufactured. Extinguishers carrying one of the accredited third-party certification marks may have been manufactured to either the previous British Standard BS 5423 or the current standard BS EN3.</p> <p>Applicability – a portable fire extinguisher having passed the manufacturer’s warranty date is not an indicator of poor condition.</p> <p>Applicability – portable fire extinguishers manufactured prior to 1980 may not have fire ratings marked on the extinguisher. In cases where the boat owner claims such an extinguisher has been previously accepted by the BSS as compliant under a navigation authority’s former requirements, and the extinguisher is found to carry an accredited third-party certification mark and be in good condition, the Examiner be should contact the BSS Office.</p> <p>Applicability – fuel-burning appliances include those fuelled by LPG, diesel, paraffin, spirit and solid fuels.</p> <p>Supporting information on portable fire extinguishers is provided at Appendix 6.</p>		

**Explanation of changes**

The original 2015 ECP Checks 6.1.1, 6.1.2 and 6.1.3 are incorporated into new 6.1.1: –

1. The main change is that Checks 6.1.1, 6.1.2 and 6.1.3 from the original 2015 ECP are now incorporated into a single Check (6.1.1) with the main Requirement being that there must be a minimum number of suitable portable fire extinguishers and that their minimum combined fire rating must be as prescribed.


The main advantage of this approach is the removal of the current confusion as to how Examiners should report non-compliant individual extinguishers. For example, under the original 2015 ECP if a boat has a set of compliant PFEs (i.e. 6.1.1 is compliant), but also has an additional surplus, PFE which does not carry an accredited third-party certification mark at Check 6.1.2 should an Examiner record this as non-compliant at 6.1.2 or not? Whereas under the proposed alternative approach the only possible non-compliance (at 6.1.1) is that there are not the required number of suitable PFEs with adequate combined fire ratings. Another advantage is that the 'suitability' checks can be applied logically and systematically to individual PFEs thereby building up a picture as to whether the complement of PFEs is compliant with the main Requirement.

2. The revised approach therefore makes the Checking actions more logical and systematic, will help to improve Examiner consistency during Examinations, and will help to make the reporting of non-compliances simpler for Examiners and thereby easier for boat owners to understand.
3. The revised approach will also mean a reduction in the overall number of Checks at Part 6 section 6.1, which will be reduced from five to three.
4. The example accredited third-party certification marks, and the 1<sup>st</sup> and 2<sup>nd</sup> Applicabilities from 2015 Check 6.1.2, have been moved into section 1 (essential material) at new Appendix 6.
5. The removal of the reference to the manufacturer's express expiry date from the indicators of poor condition was made on advice from the Fire Protection Association. This was because fire extinguishers manufactured to EN3 no longer used the concept of manufacturer express expiry date.
6. References to the navigation authorities' previous requirements referring to weight and not fire ratings are also removed. It was agreed that the original 2015 ECP Appendix H could be removed and reference made in an Applicability to contact the BSS Office if owners seek to continue to claim the previous allowance. This decision was made primarily on the basis that any such PFE would now be at least 30 years old, and a review of Examiner activity showed very few boat owners currently make use of the navigation authorities' previous requirements.

<b>6.1.4 2</b>	<b>Are portable fire extinguishers distributed around the vessel in readily accessible and safe locations adjacent to escape routes?</b>	<b>R</b>
<p>Check the accessibility and location of the portable fire extinguishers identified as <b>compliant at 6.1.1 and 6.1.2</b> <a href="#">contributing to the required complement at 6.1.1.</a></p> <p>Portable fire extinguishers must be readily accessible.          Portable fire extinguishers must be distributed around the vessel adjacent to escape routes.          Portable fire extinguishers must not be mounted in a position that requires the user to reach over a cooking appliance.</p> <p><a href="#">Applicability – 'adjacent to escape routes' means a location on the way out from the accommodation space.</a>  <a href="#">Applicability – the location of any fixed portable fire extinguisher brackets may be used to determine the normal location of any extinguishers found lying loose at the time of an Examination.</a></p> <p>Guidance for owners – extinguishers are best placed on escape routes to allow occupants to <b>be able</b> decide whether it is safe to fight a fire or escape.</p> <p>Guidance for owners – <a href="#">although not a BSS Requirement</a>, it is strongly recommended that portable fire extinguishers are mounted on fixed brackets.</p>		

Explanation of changes		
1	<b>6.1.4.2</b>	Re-numbered due to current 6.1.2 and 6.1.3 being removed.

2	Check the accessibility and location of the portable fire extinguishers identified as <del>compliant at 6.1.1 and 6.1.2 contributing to the required complement at 6.1.1.</del>	To help ensure Examiners only apply the Requirement to the PFEs needed to make up the required complement at 6.1.1.
3	<u>Applicability – ‘adjacent to escape routes’ means a location on the way out from the accommodation space.</u>	For added clarity and to help ensure Examiner consistency.
4	<u>Applicability – the location of any fixed portable fire extinguisher brackets may be used to determine the normal location of any extinguishers found lying loose at the time of an Examination.</u>	Applicability moved from original 2015 ECP Check 6.1.5 as it is considered to be more relevant at new Check 6.1.2.
5	to <del>be able</del> decide	Grammatical correction.
6	<u>although not a BSS Requirement,</u> it is	For added clarity, and to help ensure Examiners do not over apply the Requirement.

<b>6.1.5</b> <u>3</u>	<b>Are all portable fire extinguishers in open view or their location clearly marked?</b>	<b>R</b>
Identify the location of all portable fire extinguishers identified as <del>compliant at 6.1.1 and 6.1.2 contributing to the required complement at 6.1.1.</del> Where portable fire extinguishers are not in open view with all removable lids, doors, curtains etc in place, check for the presence of a label in open view indicating their location.	Portable fire extinguishers, must: <ul style="list-style-type: none"> <li>• be in open view with all removable lids, doors, curtains etc in place; <b>or</b>,</li> <li>• have their location clearly marked by a label in open view.</li> </ul>	
Guidance for owners – the preferred label may be available from local chandlers, internet based suppliers, builders merchants, hardware and DIY stores and has a red background and white image (or off-white luminous) extinguisher. Examples of proprietary designs are shown here.		
		
<del>Applicability – the location of any fixed portable fire extinguisher brackets may be used to determine the normal location of any extinguishers found lying loose at the time of an examination.</del>		

Explanation of changes		
1	<del>6.1.5.3</del>	Re-numbered due to current 6.1.2 and 6.1.3 being removed.
2	Identify the location of all portable fire extinguishers identified as <del>compliant at 6.1.1 and 6.1.2 contributing to the required complement at 6.1.1.</del>	To help ensure Examiners only apply the Requirement to the PFEs needed to make up the required complement at 6.1.1.
3	<del>Applicability – the location of any fixed portable fire extinguisher brackets may be used to determine the normal location of any extinguishers found lying loose at the time of an examination.</del>	Moved to new Check 6.1.2.

## 6.2 Fire blankets

6.2.1	If the vessel has permanently <a href="#">installed</a> cooking facilities, is a fire blanket of the correct specification provided?	R
<p>Check for the presence of permanently <a href="#">installed</a> cooking facilities and, if present, check for the provision of a fire blanket.</p> <p>Check any markings on the fire blanket container.</p>		<p>If permanently <a href="#">installed</a> cooking facilities are present a fire blanket marked to indicate conformity to BS EN 1869, or to <del>the 'light duty' requirements of</del> BS 6575, must be provided.</p>
<p><a href="#">Applicability – permanently installed cooking facilities are those which would require tools to disconnect and/or remove them. Microwave ovens are not permanently installed cooking facilities in the context of this Check.</a></p> <p><del>Applicability – a fire blanket is not required if a microwave oven is the only permanent cooking facility.</del></p> <p>Applicability – if no markings are present on the fire blanket container, conformity to the listed standards may be supported by the boat owner or their representative removing the blanket and confirming the blanket itself is marked. Conformity may also be supported by a written declaration from the blanket manufacturer or supplier.</p> <p>Applicability – <del>evidence of</del> occasional use of solid fuel stoves for cooking does not require the provision of a fire blanket. <a href="#">In cases where a solid fuel stove is the only potential permanently installed cooking facility Examiners should establish from the boat owner or their representative whether the stove is used for cooking on a regular basis.</a></p> <p><a href="#">Supporting information on fire blankets, including manufacturing standards is provided at Appendix 6.</a></p>		

Explanation of changes		
1	<p><b>permanently <a href="#">installed</a> cooking facilities</b></p> <p><a href="#">Applicability – permanent cooking facilities are those permanently installed and which would require tools to disconnect and/or remove them. Microwave ovens are considered not to be permanent cooking facilities in the context of this Check.</a></p> <p><del>Applicability – a fire blanket is not required if a microwave oven is the only permanent cooking facility.</del></p>	To add clarity.
2	to <del>the 'light duty' requirements of</del> BS 6575, must be provided	Although reference to 'the light-duty requirement of BS 6575' has been included within the ECP since 2005, it has been included in error. Within the Technical Manual supporting the 2002 Standards it is clear that blankets marked BS 6575 are acceptable whether additionally marked 'light duty', 'heavy duty' or 'reusable'. The impact of this error and proposed change is likely to be negligible as BS 6575 was superseded by BS EN 1869 in 1997.
3	Applicability – <del>evidence of</del> occasional use of solid fuel stoves for cooking does not require the provision of a fire blanket. <a href="#">In cases where a solid fuel stove is the only potential permanently installed cooking facility Examiners should establish from the boat owner or their representative whether the stove is used for cooking on a regular basis.</a>	To provide greater clarity, and in particular to guide Examiners as to how to obtain the necessary evidence.
4	<a href="#">Supporting information on fire blankets, including manufacturing standards is provided at Appendix 6.</a>	Text added to better inform Examiners to the information included in the new Appendix.

<b>6.2.2</b>	<b>Is the fire blanket located close to the main cooking appliance in a safe and ready-to-use location?</b>	<b>R</b>
Check the location of the fire blanket.	Fire blankets must be located in a readily accessible position within approximately 2m of the main cooking appliance, and not mounted in a position that requires the user to reach over the cooking appliance.	
<p><a href="#">Applicability – the main cooking appliance should normally be taken as the hob.</a></p> <p>Guidance for owners – <a href="#">although not a BSS Requirement, it is strongly recommended that</a> fire blankets mountings should be fixed permanently in position to allow rapid access and use.</p>		

<b>Explanation of changes</b>		
1	<a href="#">Applicability – the main cooking appliance is likely to be the hob.</a>	To add clarity.
2	– <a href="#">although not a BSS Requirement, it is strongly recommended that</a> fire blankets mountings should be fixed permanently in position to allow rapid access and use.	For added clarity, to help ensure Examiners do not over apply the Requirement, and to bring the text in-line with Check 6.1.3.

### 6.3 Emergency escape

<b>6.3.1</b>	<b>Is the vessel provided with adequate means of escape?</b>	<b>A/R</b>
Check each accommodation space for the means to escape. Measure the minimum dimensions of clear openings used as a means of escape such as hatches, windows or ports. If a fixed window or port is designated an escape route, check that a means of 'breaking-out' is present.	Each accommodation space must have at least two means of escape. The minimum clear opening for a means to escape is 0.18 m <sup>2</sup> .and all openings must accommodate a 380mm diameter circle. A means of 'breaking out' any fixed window or port designated as an escape route must be stored adjacent to it.	
<p><a href="#">Applicability – 6.3.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></p> <p><a href="#">Applicability – individual accommodation spaces (cabins), with one door opening into a fore-aft passageway need not have a second means of escape so long as the passageway allows escape at each end.</a></p> <p><a href="#">Applicability – where a hire boat is CE marked according to the Recreational Craft Directive but there are not two means of escape from each accommodation space Examiners should contact the BSS Office for guidance.</a></p> <p><a href="#">Guidance for owners – on boats where a means of escape is locked from the outside it should remain unlocked at all times when the boat is in use. Furthermore, means of escape should never be obstructed, particularly from outside the accommodation space (e.g. by storing items within the forward well deck on a narrowboat).</a></p> <p>Guidance for owners – <del>if the introduction of a second means of escape may involve cutting or removing structural members, e.g. deck beams, frames or stiffeners, owners are advised to seek professional advice from the boatbuilder or supplier or a professional marine surveyor before commencing work – avoid cutting or removing of structural members, e.g. deck beams, frames or stiffeners, to achieve a second means of escape.</del></p> <p>Guidance for owners – if a window or hatch is the secondary means of escape, if one is not already fitted, advise the owner to fit a proprietary label to help people not familiar with the craft to escape in the event of an emergency.</p> <p><a href="#">Supporting information on means of escape is provided at Appendix 6.</a></p>		

Explanation of changes		
1	<a href="#">Applicability – 6.3.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	General addition for all Advice checks to ensure appropriate application to the various boat classes.
2	<a href="#">Applicability – individual cabins, with one door opening into a fore-aft passageway need not have a second means of escape so long as the passageway allows escape at each end.</a>	To formalise the longstanding BSS position that individual cabins, with one door opening into a fore-aft passageway need not have a second means of escape so long as the passageway allows escape at each end.
3	<a href="#">Applicability – where a boat is CE marked according to the RCD but there are not two means of escape from each accommodation space Examiners should contact the BSS Office for guidance.</a>	To establish a process for dealing with CE marked boats which may not have two means of escape, and to ensure Examiners do not fail such arrangements unnecessarily.
4	<a href="#">Guidance for owners – on boats where a means of escape is locked from the outside it should remain unlocked at all times when the boat is in use. Furthermore, means of escape should never be obstructed, particularly from outside the accommodation space (e.g. by storing items within the forward well deck on a narrowboat).</a>	Guidance for owners added to help place appropriate responsibility for keeping doors to escape routes unlocked and unobstructed.
5	Guidance for owners – <del>if the introduction of a second means of escape may involve cutting or removing structural members, e.g. deck beams, frames or stiffeners, owners are advised to seek professional advice from the boatbuilder or supplier or a professional marine surveyor before commencing work</del> – <a href="#">avoid cutting or removing of structural members, e.g. deck beams, frames or stiffeners, to achieve a second means of escape.</a>	Because i) structural alterations are rarely necessary to contemplate and ii) because the BSS should not be seen to be encouraging boat owners to make structural alterations to boats, it is best to guide against it and support individually with any boat owner/hire boat operator who contacts the Scheme who seeks help because struggling to comply.
6	<a href="#">Supporting information on means of escape is provided at Appendix 6.</a>	Text added to better inform Examiners to the information included in the new supporting Appendix 6.

#### 6.4 Carbon monoxide alarms

6.4.2	If any solid fuel stoves are installed, and if the vessel has berths present within any accommodation space, is a carbon monoxide alarm provided within the same accommodation space(s) as the solid fuel stove(s)?	<a href="#">A/R</a>
	Identify the presence of any solid fuel stove <u>and</u> whether berths are present within any accommodation space.  If any solid fuel stove(s) <u>and</u> berths within any accommodation space(s) are present, check for the presence and location of carbon monoxide alarm(s).	All vessels having one or more solid fuel stove(s) installed, and where berths are present within one or more accommodation space(s), must be provided with a carbon monoxide alarm within each accommodation space that contains a solid fuel stove.
<a href="#">Applicability – 6.4.2 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>		



Applicability – the provision of a carbon monoxide alarm(s) in support of the Requirement at Check 6.4.2 does not have to be in addition to the provision at Check 6.4.1. Depending on the configuration of the accommodation spaces (see 2<sup>nd</sup> Requirement at Check 6.4.1) one correctly located alarm might be all that is required to comply with Checks 6.4.1 and 6.4.2.

**Explanation of changes**

1	<a href="#">Applicability – 6.4.2 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	General addition for all Advice checks to ensure appropriate application to the various boat classes.
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6.4.3	Are carbon monoxide alarms in open view and of a suitable type?	R
<p>Where one or more carbon monoxide alarms have been found to be necessary at Checks 6.4.1 and/or 6.4.2, check the location of each required alarm.</p> <p>Check the markings on each required carbon monoxide alarm.</p> <p>Identify the test function button on each required carbon monoxide alarm.</p>	<p>Carbon monoxide alarms must be in open view with all cabin doors, cupboard doors, curtains and loose furniture etc in place.</p> <p>Carbon monoxide alarms must be marked as being certified by an accredited third-party certification body to BS EN 50291 or equivalent.</p> <p>Carbon monoxide alarms must be provided with a test function button.</p>	
<p><a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 6 for essential information on accredited third-party certification marks for carbon monoxide alarms.</a></p> <p>Applicability – the main accredited third-party certification bodies in the UK are BSI and LPCB. For the following makes of carbon monoxide alarm accredited third-party certification to BS EN 50291 can be assumed – BRK, Dicon, Ei Electronics, Fire Angel, FireHawk Alarms, First Alert, Honeywell and Kidde. For other makes, removing the alarm from its base may be necessary to view labels and approval marking on the base. Permission for removal should be sought from the owner (or representative). Documentary evidence of accredited third-party certification to BS EN 50291 is acceptable.</p> <p>Guidance for owners – although not a BSS Requirement, carbon monoxide alarms marked to the ‘BS EN 50291-2’ are the best choice for boats. They have been tested to meet the more onerous conditions found in boats.</p> <p>Supporting information on accredited third-party certification is provided at Appendix 6.</p>		

**Explanation of changes**

1	<a href="#">Examiner action – Examiners must refer to Section 1 of Appendix 6 for essential information on accredited third-party certification marks for carbon monoxide alarms.</a>	To reference the essential new material included in Appendix 6.
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**7.1 LPG cylinder storage**

7.1.1	<p>Are all <b>LPG</b> cylinders and <b>cartridges containers</b> stored in a position where any <b>escaping LPG vapour leakage</b> will be directed safely overboard?</p>	R		
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; vertical-align: top; padding: 5px;"> <p>Check for the presence of any <b>LPG</b>-cylinders or <b>cartridges containers</b>. If present, check whether their location is either in a cylinder locker, <u>a housing</u>, or an open location.</p> <p>If located in a cylinder locker apply the <u>relevant Check Items</u> at sections 7.2-7.5.</p> <p><u>If located in a cylinder housing apply the relevant Check Items at sections 7.2 - 7.4.</u></p> <p>If <u>cylinders or cartridges are to be examined as being</u> in an ‘open location’, <u>check</u>:</p> <ul style="list-style-type: none"> <li>• for any barriers <u>that might prevent escaping leaked LPG vapour</u> flowing overboard <u>unimpeded</u>; <u>and</u>,</li> <li>• for any openings into the interior of the vessel, or any source of ignition, within <u>0.5m 1m</u> distance; <u>and</u>,</li> <li>• <u>if the cylinders or cartridges are in a cockpit, determine if the cockpit is ‘self-draining’ as set out in section 1 of Appendix 7.</u></li> </ul> </td> <td style="width:50%; vertical-align: top; padding: 5px;"> <p>All <b>LPG</b>-cylinders or <b>cartridges containers</b>, whether full, part full or empty must be stored either:</p> <ul style="list-style-type: none"> <li>• <u>in a cylinder locker complying with the relevant Requirements of the Check Items in sections 7.2-7.5</u>; <u>or</u>,</li> <li>• <u>in a cylinder housing complying with the relevant Requirements at Check Items 7.2 - 7.4</u>; <u>or</u>,</li> <li>• <u>in an open location.</u></li> </ul> <p><u>To be accepted as being Cylinders</u> stored in an ‘open location’ <u>cylinders and cartridges must</u>:</p> <ul style="list-style-type: none"> <li>• be in a position where any <b>escaping leaked</b> LPG <b>vapour</b> would flow overboard unimpeded; <b>and</b>,</li> <li>• be where there is no opening into the interior of the vessel, or any source of ignition, within <u>0.5m 1m</u> distance.</li> </ul> <p><u>For cylinders or cartridges to be accepted as being in an ‘open location’ in a cockpit, the cockpit must comply with the ‘self-draining’ specifications set out in section 1 of Appendix 7.</u></p> </td> </tr> </table>			<p>Check for the presence of any <b>LPG</b>-cylinders or <b>cartridges containers</b>. If present, check whether their location is either in a cylinder locker, <u>a housing</u>, or an open location.</p> <p>If located in a cylinder locker apply the <u>relevant Check Items</u> at sections 7.2-7.5.</p> <p><u>If located in a cylinder housing apply the relevant Check Items at sections 7.2 - 7.4.</u></p> <p>If <u>cylinders or cartridges are to be examined as being</u> in an ‘open location’, <u>check</u>:</p> <ul style="list-style-type: none"> <li>• for any barriers <u>that might prevent escaping leaked LPG vapour</u> flowing overboard <u>unimpeded</u>; <u>and</u>,</li> <li>• for any openings into the interior of the vessel, or any source of ignition, within <u>0.5m 1m</u> distance; <u>and</u>,</li> <li>• <u>if the cylinders or cartridges are in a cockpit, determine if the cockpit is ‘self-draining’ as set out in section 1 of Appendix 7.</u></li> </ul>	<p>All <b>LPG</b>-cylinders or <b>cartridges containers</b>, whether full, part full or empty must be stored either:</p> <ul style="list-style-type: none"> <li>• <u>in a cylinder locker complying with the relevant Requirements of the Check Items in sections 7.2-7.5</u>; <u>or</u>,</li> <li>• <u>in a cylinder housing complying with the relevant Requirements at Check Items 7.2 - 7.4</u>; <u>or</u>,</li> <li>• <u>in an open location.</u></li> </ul> <p><u>To be accepted as being Cylinders</u> stored in an ‘open location’ <u>cylinders and cartridges must</u>:</p> <ul style="list-style-type: none"> <li>• be in a position where any <b>escaping leaked</b> LPG <b>vapour</b> would flow overboard unimpeded; <b>and</b>,</li> <li>• be where there is no opening into the interior of the vessel, or any source of ignition, within <u>0.5m 1m</u> distance.</li> </ul> <p><u>For cylinders or cartridges to be accepted as being in an ‘open location’ in a cockpit, the cockpit must comply with the ‘self-draining’ specifications set out in section 1 of Appendix 7.</u></p>
<p>Check for the presence of any <b>LPG</b>-cylinders or <b>cartridges containers</b>. If present, check whether their location is either in a cylinder locker, <u>a housing</u>, or an open location.</p> <p>If located in a cylinder locker apply the <u>relevant Check Items</u> at sections 7.2-7.5.</p> <p><u>If located in a cylinder housing apply the relevant Check Items at sections 7.2 - 7.4.</u></p> <p>If <u>cylinders or cartridges are to be examined as being</u> in an ‘open location’, <u>check</u>:</p> <ul style="list-style-type: none"> <li>• for any barriers <u>that might prevent escaping leaked LPG vapour</u> flowing overboard <u>unimpeded</u>; <u>and</u>,</li> <li>• for any openings into the interior of the vessel, or any source of ignition, within <u>0.5m 1m</u> distance; <u>and</u>,</li> <li>• <u>if the cylinders or cartridges are in a cockpit, determine if the cockpit is ‘self-draining’ as set out in section 1 of Appendix 7.</u></li> </ul>	<p>All <b>LPG</b>-cylinders or <b>cartridges containers</b>, whether full, part full or empty must be stored either:</p> <ul style="list-style-type: none"> <li>• <u>in a cylinder locker complying with the relevant Requirements of the Check Items in sections 7.2-7.5</u>; <u>or</u>,</li> <li>• <u>in a cylinder housing complying with the relevant Requirements at Check Items 7.2 - 7.4</u>; <u>or</u>,</li> <li>• <u>in an open location.</u></li> </ul> <p><u>To be accepted as being Cylinders</u> stored in an ‘open location’ <u>cylinders and cartridges must</u>:</p> <ul style="list-style-type: none"> <li>• be in a position where any <b>escaping leaked</b> LPG <b>vapour</b> would flow overboard unimpeded; <b>and</b>,</li> <li>• be where there is no opening into the interior of the vessel, or any source of ignition, within <u>0.5m 1m</u> distance.</li> </ul> <p><u>For cylinders or cartridges to be accepted as being in an ‘open location’ in a cockpit, the cockpit must comply with the ‘self-draining’ specifications set out in section 1 of Appendix 7.</u></p>			
<p><u>Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on ‘self-draining’ cockpits.</u></p> <p><u>Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on measuring the minimum separation between cylinders in the open and openings into the interior of the vessel or sources of ignition.</u></p> <p><del>Applicability – cylinder housings may be used in open locations. Cylinder housings are ventilated enclosures intended solely for storage of one or more cylinders, pressure regulators and safety devices and located on the exterior of the craft, where any leakage would flow overboard. [ISO 10239]</del></p> <p><del>Applicability – the storage arrangements of cylinders, not in cylinder lockers, stored in self-draining cockpits should be assessed against Check Item 7.2.4.</del></p> <p>Applicability – sources of ignition include open-flame or spark-inducing equipment. Solenoid LPG system shut-off valves of suitable proprietary manufacture should be presumed not to be a source of ignition. Outboard motors within <u>0.5m 1m</u> of cylinders are not to be considered a source of ignition.</p> <p><u>Supporting information on the difference between lockers and housings is provided at Appendix 7.</u></p>				

Explanation of changes		
1	<b>LPG</b> cylinders	To ensure a consistent reference to ‘cylinders’ through the Checks, and because LPG is in the section title.
2	<b>cartridges containers</b>	‘Cartridge’ is the industry recognised term.

3	<a href="#">any escaping LPG vapour leakage</a>	'Escaping LPG vapour' is the industry recognised term.
4	References to 'housings'.	The Applicability reference to housings has been deleted in favour of express coverage of housings within the Checking action and Requirement. This gives equal weighting to 'open location', lockers and housings.
5	within <a href="#">0.5m</a> <del>1m</del> distance.  <a href="#">Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on measuring the minimum separation between cylinders in the open and openings into the interior of the vessel or sources of ignition.</a>	To align the BSS Requirements with ISO 10239 and PD 54823.  With the change in the minimum separation between cylinders in the open and ignition sources/openings into the interior of the vessel reducing from 1m to 0.5m, and to improve Examiner consistency, essential information is now included in Appendix 7 specifying where Examiners should measure from/to.
6	<a href="#">Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on 'self-draining' cockpits.</a>	Essential supporting information defining/describing what is meant by 'self-draining' cockpit is now included within Appendix 7. References are therefore included to this essential information in the Checking action, Requirement and as an Examiner action.
7	<a href="#">Supporting information on the difference between lockers and housings is provided at Appendix 7.</a>	A pointer to supporting information in Appendix 7.

<b>7.1.2</b>	<b>Are all self-contained portable LPG appliances stored so that any <a href="#">escaping LPG vapour leakage</a> will be directed safely overboard?</b>	<b>R</b>
Check for the presence of self-contained portable appliances having <del>LPG</del> cylinders or <a href="#">cartridges</a> <del>containers</del> attached.  If present, apply <del>the</del> <a href="#">Check Item</a> <del>at</del> 7.1.1.	All self-contained portable appliances having <del>LPG</del> cylinders or <a href="#">cartridges</a> <del>containers</del> attached must be stored in accordance with the requirements of <a href="#">Check Item</a> 7.1.1.	
Applicability – this Check applies to camping-style appliances but not items such as <a href="#">refillable butane</a> gas hob lighters.  <a href="#">Guidance for owners – self-contained portable appliances should never be used on board boats as during use there is a risk of fire and/or explosion.</a>  <a href="#">Supporting information on self-contained portable appliances is provided at Appendix 7.</a>		

Explanation of changes		
1	<b>any <a href="#">escaping LPG vapour</a> <del>leakage</del> will be</b>	To align with the accepted term.
2	having <del>LPG</del> cylinders or <a href="#">cartridges</a> <del>containers</del> attached	To ensure common terminology between Part 7 Checks.

3	<a href="#">Check Item</a>	To standardise on Check item.
4	Applicability – .... <a href="#">refillable butane</a> gas hob lighters.	To add clarity, illustrating an example of a self-contained LPG appliance not covered by the Check.
5	<a href="#">Guidance for owners – self-contained portable appliances should never be used on board boats as during use there is a risk of fire and/or explosion.</a>	To align published BSS guidance with national guidance and to amplify the shared responsibility for safety.
6	<a href="#">Supporting information on self-contained portable appliances is provided at Appendix 7.</a>	The help ensure a consistent application concerning self-contained portable appliances.

## 7.2 LPG cylinder locker and housing LPG-tightness

7.2.1	Is the cylinder locker, up to the level of the top of the cylinder valves or other high-pressure components, free of any path for <a href="#">escaping</a> <del>leaked</del> -LPG <a href="#">vapour</a> to enter the interior of the vessel?	R
<p>Determine the level of the top of the cylinder valves, or other high-pressure components where these are located higher.</p> <p><a href="#">Determine</a> <del>Check</del> the height of the <del>LPG</del> cylinder locker sides.</p> <p>Determine which parts of the locker structure if holed or damaged could create a path for <a href="#">escaping</a> <del>leaked</del>-LPG <a href="#">vapour</a> to enter the interior of the vessel.</p> <p>Visually check the <del>locker construction material and the</del> condition of <a href="#">the internal surfaces and seams of</a> all cylinder lockers <del>bottoms, sides and seams.</del></p> <p><a href="#">Visually check the condition of the external surfaces and seams of all cylinder lockers where they can be seen.</a></p>		<p>The sides of every cylinder locker must extend at least up to the level of the top of the cylinder valves, or other high-pressure components where these are higher.</p> <p>Up to the level of the top of the cylinder valves, or other high-pressure components where these are higher, the bottom, sides, and seams of every cylinder locker must be free of any:</p> <ul style="list-style-type: none"> <li>holes, e.g. caused by drilling, rust or cutting; <b>or</b>,</li> <li>cracks, splits or de-laminations; <b>or</b>,</li> <li>missing or damaged welds at seams; <b>or</b>,</li> <li>other signs of damage or deterioration...</li> </ul> <p>.... that can be determined by visual examination to penetrate the locker to the interior of the vessel.</p> <p><del>Cylinder locker bottoms, sides and seams covered by this check must not rely upon glue or sealant to prevent any escaping LPG vapour from entering the interior of the vessel.</del></p>
<p><del>Applicability – the above Requirements also apply where any part of a cylinder housing forms an integral part of the craft's hull or superstructure</del></p> <p><del>Applicability – the checking action applies to the external as well as the internal surfaces of cylinder lockers and housings, where these can be seen.</del></p> <p><a href="#">Examiner action</a> <del>Applicability</del> – prior to checking the condition of cylinder lockers <del>and housings</del> Examiners must ensure all loose portable items are removed.</p> <p><a href="#">Examiner action</a> <del>Applicability</del> – where a part of the locker <del>or housing</del> is obstructed, e.g. by the cylinders themselves, a false base or mat, or ponded water, then the Check cannot be completed until the obstruction has been removed, moved aside or cleared. Examiners should not disconnect cylinders connected to the LPG system, but where cylinders prevent the condition of the locker <del>or housing</del> being verified the Check cannot be completed until the cylinders have been moved to allow access. Lockers <del>or housings</del> not accessible enough to</p>		

allow an assessment of condition must be recorded as 'not verified' on your checklist, and it must be considered that the Check has not been completed until such time as their condition has been verified.

Applicability – hatches and any similar temporary openings, however constructed or sealed, are not permitted within the area of LPG cylinder lockers covered by this Check. ~~Note that the BSS compliance of side opening cylinder lockers compliant with ISO 10239 is covered at 7.2.3~~

~~Applicability – wooden cylinder lockers must incorporate a lining of FRP, or equivalent to meet this Requirement.~~

~~Advice for owners – owners should ensure the examiner can carry out careful checking of the cylinder locker for condition, including the removal of all loose portable items.~~

**Guidance Advice** for owners – locker corrosion may lead to a leak path for LPG vapour to enter the interior of the vessel. LPG cylinder lockers ~~should~~ **must** be maintained in good condition.

Explanation of changes		
1	<del>for escaping leaked-LPG vapour</del>	To align with the accepted term.
2	Visually check the <del>locker construction material and the condition of</del> <u>the internal surfaces and seams of all cylinder lockers</u> <del>bottoms, sides and seams.</del>	Check 7.2.1 is a now solely a check for cylinder locker penetrations to the craft interior.
3	<b>Guidance Advice</b> for owners	'Guidance for owners' is the term defined on page 5 of the ECP.
4	<u>Visually check the condition of the external surfaces and seams of all cylinder lockers where they can be seen.</u>	To ensure a robust check where possible.
5	<del>Cylinder locker bottoms, sides and seams covered by this check must not rely upon glue or sealant to prevent any escaping LPG vapour from entering the interior of the vessel.</del>	The final paragraph of the Requirement has been deleted at this Check but moved to Check 7.4.5. As the paragraph relates to the construction of lockers, 7.4.5 is considered more relevant.
6	<del>Applicability – the above Requirements also apply where any part of a cylinder housing forms an integral part of the craft's hull or superstructure.</del>	The 1st Applicability has been deleted as the LPG-tightness of housings is now a separate Check at 7.2.6.
7	<del>Applicability – the checking action applies to the external as well as the internal surfaces of cylinder lockers and housings, where these can be seen.</del>	The 2nd Applicability referring to the external surfaces of lockers has been deleted, but the content incorporated into the Checking action (and thereby the Requirement).  As examining the exterior of lockers will be relevant to most Examinations it is appropriate that it is addressed within the main Check rather than as an Applicability.
8	The deletion of 'housing'.	'Housing' has been deleted at a number of locations within the supplementary information as there are now separate Checks addressing housings at 7.2.5-7.

9	<del>Note that the BSS compliance of side-opening cylinder lockers compliant with ISO 10239 is covered at 7.2.3</del>	Not relevant to the amended Check.
10	<del>Applicability – wooden cylinder lockers must incorporate a lining of FRP, or equivalent to meet this Requirement.</del>	The last Applicability has been deleted as it is a duplicated at Check 7.4.5 (and 7.4.5 is a more appropriate location).
11	<del>Advice for owners – owners should ensure the examiner can carry out careful checking of the cylinder locker for condition, including the removal of all loose portable items.</del>	This 'Advice for owners' is deleted because the BSS Office is to develop a single guidance document setting out how boat owners should prepare their boat's for examinations.
12	<del>should</del> <del>must</del> in the Guidance for owners.	It is not appropriate to use the term 'must' in guidance.

7.2.2	Are the sealing arrangements on <b>LPG</b> pipework exiting the cylinder locker of the correct type to ensure LPG-tightness and in good condition?		R
<p><u>Visually</u> check the position, type and condition of sealing arrangements on <b>LPG</b> pipework exiting cylinder lockers <del>and housings</del>.</p> <p><u>Where the pipework exits a locker below the highest point of the high-pressure components apply light manual force to the pipework and check for signs of movement at the sealing arrangement.</u></p>	<p><b>LPG</b> pipework <del>must that</del> exits <b>LPG</b> cylinder lockers <u>below the highest point of the high-pressure stage components must be sealed by through</u> either:</p> <ul style="list-style-type: none"> <li>• a bulkhead fitting; <b>or</b>,</li> <li>• a cable gland fitting; <b>or</b>,</li> <li>• <u>sealant.</u></li> <li>• <del>be above the highest point of the high-pressure stage components</del> <b>LPG-tight level.</b></li> </ul> <p>The sealing arrangements must be free of signs of <u>gaps or other forms of damage</u> <del>or</del> <b>and</b> deterioration.</p> <p><u>There must be no movement of the pipework within the sealing arrangement when light manual force is applied to the pipework.</u></p> <p><u>Where sealant is used it must completely fill the area between the pipe and the adjacent locker structure, and it must not noticeably move or dislodge, and gaps must not open when light manual force is applied to the <b>LPG</b> pipework.</u></p>		
<p><u>Applicability – it is acceptable for pipework to exit a locker into a conduit with the gap between the pipework and the conduit sealed with sealant. The conduit must also be sealed to the locker structure.</u></p> <p><del>Applicability in the event the pipework exits the locker below the highest point of the high-pressure stage components through a conduit, it is acceptable that the pipework is protected by sealant which is in good condition and free of any holes, that completely seals the area between the pipework and the conduit inner walls and does not noticeably move or dislodge when the <b>LPG</b> pipework is subject to light manual force</del></p> <p><u>Applicability – the Requirements also apply to electrical cables routed to ignition protected solenoid shut-off valves, where they pass through locker sides below the highest point of the high-pressure stage components.</u></p>			

Explanation of changes		
1	<a href="#">...apply light manual force to the pipework and check for signs of movement at the sealing arrangement.</a>	<p>New Checking actions and Requirements have been added to ensure Examiners apply light manual force to the pipe when they are checking the integrity of sealing arrangements.</p> <p>The impact of this change is neutral as Examiners are already required to apply light manual force to pipework and joints at other checks and this action would have shown up any fault concerning the condition of any sealing arrangements.</p> <p>If sealant is used, this will be particularly susceptible to failure over the four-year certification period it is important that the Requirement for sealant to be in good condition is applied robustly by Examiners.</p>
2	<ul style="list-style-type: none"> <li>• a bulkhead fitting; <del>or,</del> <a href="#">or,</a></li> <li>• a cable gland fitting; <del>or,</del> <a href="#">or,</a></li> <li>• be above the <a href="#">highest point of the high-pressure stage components</a></li> </ul>	<p>The bullet-points separate out the compliance options and therefore make them clearer.</p> <p>The inclusion of the ‘or’ makes the relationship between the options clearer.</p> <p><a href="#">highest point of the high-pressure stage components</a> <del>LPG-tight level</del> is to add clarity and therefore Examiner consistency.</p>
3	<a href="#">below the highest point of the high-pressure stage components must be sealed by</a>	This text is moved up and transposed, and now the bullet points only relate to any sealing arrangements exiting the cylinder locker below the highest point of the high-pressure stage components.
4	<ul style="list-style-type: none"> <li>• <a href="#">sealant.</a></li> </ul> <p>The sealing arrangements must be free of signs of <a href="#">gaps or other forms of</a> damage <del>or and</del> deterioration.</p>	<p>‘Sealant’ has been added to be main bullet-pointed list of acceptable sealing arrangements in order to better align with ISO 10239.</p> <p>‘Gaps’ has been added to the final Requirement to ensure Examiners expressly look for deterioration of this type.</p>
5	Replacement 1 <sup>st</sup> Applicability	As ‘sealant’ is now included within the Requirement, the original Applicability relating to sealant being acceptable in conduits is deleted. However, related text has been added to the replacement Applicability to ensure that Examiners familiar with the existing Applicability understand it is still acceptable for pipework to exit through a conduit sealed with silicon.
6	<a href="#">Applicability – the Requirements also apply to electrical cables routed to ignition protected solenoid shut-off valves, where they pass through locker sides below the highest point of the high-pressure stage components.</a>	<p>This is, in effect, a new Requirement, and is introduced for consistency and in recognition that cables to solenoid switches, if below the below the highest point of the high-pressure stage components, must be sealed.</p> <p>The impact of the change is regarded as very small because:</p>

	<p>a) unsealed cables would likely have not passed the previous locker integrity Check; and,</p> <p>b) very few boats will have solenoid shut-off valves and even fewer will have cables to them run through the locker and run below the highest point of the high-pressure stage components.</p>
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<b>7.2.3</b>	<b><u>Are side-opening cylinder locker doors located where any escaping LPG vapour would flow overboard unimpeded. Are arrangements on side-opening cylinder lockers compliant with ISO 10239?</u></b>	<b>R</b>
<p>Check that <del>the location of</del> any side-opening <u>cylinder</u> locker door is <u>located outside of the interior of the vessel</u> where any escaping LPG vapour would flow overboard unimpeded.</p> <p><u>If the side-opening locker door is in a cockpit check the arrangements against the specifications for 'self-draining' cockpits and 'open transom' cockpits in section 1 of Appendix 7.</u></p> <p><del>Visually check the condition of the door seals.</del></p> <p><del>If the seals appear free of gaps, damage and deterioration, then apply the check at 7.2.4.</del></p> <p><del>If the seals appear free of gaps, damage and deterioration, and the arrangements do not satisfy the check at 7.2.4, ring the BSS Office for further advice concerning conducting smoke pellet tests.</del></p>	<p><u>Side-opening cylinder locker doors must only be openable where any escaping LPG vapour would flow overboard unimpeded.</u></p> <p><u>For side-opening locker doors in cockpits to be accepted as being located where any escaping LPG vapour would flow overboard unimpeded the cockpit must comply with the:</u></p> <ul style="list-style-type: none"> <li>• <u>'self-draining'; or,</u></li> <li>• <u>'open transom'...</u></li> </ul> <p><u>... specifications set out in section 1 of Appendix 7.</u></p> <p><del>Side-opening lockers must not be able to be opened from the interior of the vessel.</del></p> <p><del>The seals of any side-opening cylinder locker door must be free of signs of gaps in the contact with the locker body and must be free of damage or deterioration.</del></p> <p><del>Door seals with no signs of gaps or damage must satisfy check 7.2.4 or pass the smoke pellet test.</del></p>	
<p><u>Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on 'self-draining' and 'open transom' cockpits.</u></p> <p><u>Examiner action - where side-opening cylinder locker arrangements are found not to comply with this Requirement, but the vessel is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</u></p> <p><del>Applicability – in the event the test is unsuccessful and the arrangements satisfy Check Item 7.2.4 record N/A on your checklist at 7.2.3.</del></p>		

Explanation of changes		
1	<p><b><u>Are side-opening cylinder locker doors located where any escaping LPG vapour would flow overboard unimpeded overboard unimpeded.</u></b></p> <p><b><del>Are arrangements on side-opening cylinder lockers compliant with ISO 10239?</del></b></p>	<p>The outcome of the changes are that the same Requirements are in place, the Check has been made simpler to apply consistently and is aligned with the changes at Check 7.1.1.</p> <p>The reference to ISO 10239 has been removed from the Check Item text as it is misleading.</p> <p>Previous reference to door seals is now solely located in Check 7.2.4.</p>



2	The replacement Requirement and Checking actions.	<p>The original Requirement and Checking action have been replaced with an approach that better aligns with the ISO, the primary Requirement being that side-opening lockers may only be used on the exterior of a boat where any escaping LPG vapour would flow overboard unimpeded.</p> <p>Side-opening lockers in cockpits are permissible providing the cockpit has an open transom [as specified within ISO 10239] or is self-draining [longstanding BSS compliance option].</p> <p>The acceptance of side-opening lockers opening into 'self-draining' cockpits has been retained - as this has been a longstanding permissible arrangement it would be unacceptable to move away from it at this time.</p>
	<a href="#">Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on 'self-draining' and 'open transom' cockpits.</a>	Essential information has been included in Appendix 7 to enable Examiners to recognise cockpits with 'open transoms'.
	<a href="#">Examiner action - where side-opening cylinder locker arrangements are found not to comply with this Requirement, but the vessel is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</a>	<p>As the specifications within ISO 10239 have changed over the years it would be too complicated to introduce revised BSS Requirements to cover all the differing approaches.</p> <p>The new 2<sup>nd</sup> Examiner action therefore guides Examiners to contact the BSS Office in the event a locker arrangement does not comply so that the arrangements can be reviewed against the appropriate version of the ISO.</p>
	<del>If the seals appear free of gaps, damage and deterioration, and the arrangements do not satisfy the check at 7.2.4, ring the BSS Office for further advice concerning conducting smoke pellet tests.</del>	For ease of understanding and to improve consistency that part of the existing Requirement relating to door seals has been moved to a new Check at 7.2.4.
	<del>Door seals with no signs of gaps or damage must satisfy check 7.2.4 or pass the smoke pellet test.</del>	That part of the existing Check relating to smoke pellet testing has been deleted altogether. Examiners have never been trained to undertake the smoke pellet test, the test procedures are not set out anywhere. It is considered that the Requirements at 7.2.4 [for the presence of door seals in good condition] adequately addresses the risk.

7.2.4	<del>Do the arrangements in a self-draining cockpit prevent LPG entering the interior of the vessel?</del>	<del>R</del>
Verify the cockpit is self-draining.	<del>If the effectiveness of side-opening cylinder locker door seals cannot be verified, or if cylinders are stored in cylinder</del>	

<p>Verify the presence of LPG cylinders not in a cylinder locker.</p> <p>If present, verify whether the self draining cockpit arrangements prevent LPG entering the interior of the vessel by checking:</p> <ul style="list-style-type: none"> <li>• the height of cockpit drain outlets in relation to the normal laden waterline; and,</li> <li>• the height to which cockpit is watertight to the interior of the vessel; and,</li> <li>• the condition of any hatches or openings, and associated seals, gaskets, below the height of the cylinders, regulators and associated equipment.</li> </ul>	<p>housings, then the arrangements of a self draining cockpit must be as follows:</p> <ul style="list-style-type: none"> <li>• the height of cockpit drain outlet(s) must be above normal laden waterline; <b>and,</b></li> <li>• the cockpit must be watertight to the interior of the vessel at least to a height equal to that of the height of the top of the LPG cylinder valves and other high-pressure components where these are located higher; <b>and,</b></li> <li>• hatches or openings, and associated seals, gaskets, below the height of the LPG cylinder valves and other high-pressure components where these are located higher must be free of signs of damage or deterioration.</li> </ul>
<p>Applicability — this Check Item is relevant to cylinders in self draining cockpits where, either the side opening cylinder locker door seal fails the test at 7.2.3, <u>or</u>, cylinders are not stored in any enclosure or, cylinders are stored in a cylinder housing.</p> <p>Applicability — in the event the test at Check Item 7.2.3 is successful record N/A on your checklist at 7.2.4.</p>	

<b>7.2.4</b>	<b><u>Where required, are side-opening locker door seals continuous, in good condition and effective?</u></b>	<b><u>R</u></b>
<p><u>For side-opening lockers where the door opening is in a cockpit with an ‘open-transom’ (other than those that are also ‘self-draining’), check for the presence of a continuous seal around the door or opening, and check the condition of the seal.</u></p> <p><u>For side-opening lockers where the door opening is within 0.5m of any opening into the interior of the vessel, or any source of ignition, check for the presence of a continuous seal around the door or opening, and check the condition of the seal.</u></p> <p><u>With the door shut, visually check for signs of gaps between the door seal and the locker body.</u></p>		<p><u>Side-opening lockers located:</u></p> <ul style="list-style-type: none"> <li>• <u>in cockpits with ‘open transoms’ (other than those that are also ‘self-draining’); or,</u></li> <li>• <u>within 0.5m of an opening into the interior of the vessel, or any source of ignition,</u></li> </ul> <p><u>must be fitted with a continuous seal around the whole door.</u></p> <p><u>On side-opening doors where seals are required, the seals must be free of signs of:</u></p> <ul style="list-style-type: none"> <li>• <u>damage or deterioration; and,</u></li> <li>• <u>gaps with the locker body when the door is closed.</u></li> </ul>
<p><u>Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on ‘self-draining’ and ‘open transom’ cockpits.</u></p> <p><u>Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on measuring the minimum separation between side-opening cylinder lockers and openings into the interior of the vessel or sources of ignition.</u></p> <p><u>Applicability – sources of ignition include open flame or spark inducing equipment. Solenoid LPG system shut-off valves of suitable proprietary manufacture should be presumed not to be a source of ignition.</u></p>		

Explanation of changes		
1	The original 2015 ECP Check 7.2.4 is deleted.	The original Check text has been replaced. The original text related to ‘self-draining’ cockpits, is better addressed at Appendix 7.

2	Focus of new Check 7.2.4	<p>Check 7.2.4 now addresses door seals. Door seals are required on side-opening lockers where they are in cockpits that are not 'self-draining' or where they are within 0.5m of openings into the interior of the vessel or sources of ignition.</p> <p>Door seals are required in these locations due to the heightened risk; if side-opening lockers are in 'self-draining' cockpits or on the exterior of the vessel where any escaping LPG vapour would flow overboard unimpeded, and they are more than 0.5m away from openings or sources of ignition, the risk of escaping vapour entering the interior/ignition source is suitably low.</p>
3	Impact of new Requirement text at Check 7.2.4	The proposed Requirements at 7.2.4 have been carried over from existing Check 7.2.3 - no new Requirements have been introduced.
4	The concept that side opening lockers in boats with 'open-transoms' require effective door seals.	<p>Side-opening lockers can only be located in cockpits that are 'open transom' or 'self-draining' (although a cockpit with an open transom may also be self-draining). Side-opening lockers in cockpits that are self-draining do not need to have effective door seals as such cockpits are in effect in an 'open location' where any escaping LPG vapour would flow overboard unimpeded (this is a longstanding BSS and PD approach).</p> <p>However, 'open transom' is a concept from recent versions of ISO 10239, and within the ISO lockers in open transom cockpits must be provided with door seals. Within cockpits that are open transom but not self-draining there is less assurance that escaping LPG vapour would flow overboard unimpeded. It is essential that Examiners understand these concepts and apply Check 7.2.4 consistently.</p>

<b>7.2.5</b>	<b><u>Is the cylinder housing opening(s) in an 'open location', and is the housing ventilated to the outside?</u></b>	<b>R</b>
<p><u>Identify any cylinders or cartridges stored in housings.</u></p> <p><u>Determine whether the housing opening is in an 'open location' by checking:</u></p> <ul style="list-style-type: none"> <li><u>for any barriers that might prevent escaping LPG vapour flowing overboard unimpeded;</u></li> <li><u>for any openings into the interior of the vessel, or any source of ignition, within 0.5m distance; and,</u></li> <li><u>if the cylinders or cartridges are in a cockpit determine if the cockpit is 'self-draining' as set out in section 1 of Appendix 7.</u></li> </ul> <p><u>Where the housing opening is fitted with a door(s), check for the presence of fixed ventilation to the outside when the door(s) is shut.</u></p>		<p><u>Cylinder housing openings must be in an 'open location'.</u></p> <p><u>To be accepted as being in an 'open location' housing openings must:</u></p> <ul style="list-style-type: none"> <li><u>be in a position where any escaping LPG vapour would flow overboard unimpeded; and,</u></li> <li><u>be where there is no opening into the interior of the vessel, or any source of ignition, within 0.5m distance.</u></li> </ul> <p><u>For housing openings to be accepted as being in an 'open location' in a cockpit, the cockpit must comply with the 'self-draining' specifications set out in section 1 of Appendix 7.</u></p>

	<a href="#">Housings must be provided with fixed ventilation to the outside when any door(s) are shut.</a>
<a href="#">Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on ‘self-draining’ cockpits.</a>	
<a href="#">Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on measuring the minimum separation between cylinder housing openings and openings into the interior of the vessel or sources of ignition.</a>	
<a href="#">Examiner action - where cylinder housing arrangements are found not to comply with this Requirement, but the vessel is CE marked according to the Recreational Craft Directive, Examiners should contact the BSS Office for guidance.</a>	
<a href="#">Applicability - the nature and precise location of fixed ventilation for housings is not assessed.</a>	
<a href="#">Supporting information on the difference between lockers and housings is provided at Appendix 7.</a>	

Explanation of changes		
1	Check 7.2.5 is new.	7.2.5 is a new Check, the first of three new Checks addressing cylinder housings.
2	Impact of the new Check.	No new Requirements have been introduced; the three new Checks bring together the Requirements for housings that were previously mixed up with the Requirements for lockers.  The outcome is increased clarity.

<b>7.2.6</b>	<b><a href="#">Is the cylinder housing free of any path for escaping LPG vapour to enter the interior of the vessel?</a></b>	<b>R</b>
<p><a href="#">Visually check the condition of the internal surfaces and seams of cylinder housings.</a></p> <p><a href="#">Visually check the condition of the external surfaces and seams of cylinder housings where they can be seen.</a></p> <p><a href="#">Determine which parts of the housing structure if holed or damaged could create a path for escaping LPG vapour to enter the interior of the vessel.</a></p>	<p><a href="#">Housing sides, top and bottom must be free of:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">holes, e.g. caused by drilling, rust or cutting; or,</a></li> <li>• <a href="#">cracks, splits or de-laminations; or,</a></li> <li>• <a href="#">missing or damaged welds at seams; or,</a></li> <li>• <a href="#">other signs of damage or deterioration...</a></li> </ul> <p><a href="#">... that can be determined by visual examination to penetrate the housing to the interior of the vessel.</a></p>	
<p><a href="#">Examiner action – prior to checking the condition of cylinder housings Examiners must ensure all loose portable items are removed.</a></p> <p><a href="#">Examiner action – where a part of the housing is obstructed, e.g. by the cylinders themselves or a mat, then the Check cannot be completed until the obstruction has been removed, moved aside or cleared. Examiners should not disconnect cylinders connected to the LPG system, but where cylinders prevent the condition of the housing being verified the Check cannot be completed until the cylinders have been moved to allow access.</a></p> <p><a href="#">Housings not accessible enough to allow an assessment of condition must be recorded as ‘not verified’ on your checklist, and it must be considered that the Check has not been completed until such time as their condition has been verified.</a></p>		

Applicability – hatches and any similar temporary openings, however constructed or sealed, that open into the interior of the vessel are not permitted within housings.

Explanation of changes		
1	Check 7.2.6 is new.	7.2.6 is a new Check, the second of three new Checks addressing cylinder housings.
2	Impact of the new Check.	No new Requirements have been introduced; the three new Checks bring together the Requirements for housings that were previously mixed up with the Requirements for lockers.  The outcome is increased clarity.

7.2.7	<u>Are the sealing arrangements on LPG pipework exiting the cylinder housing of the correct type to ensure LPG-tightness to the interior of the vessel?</u>	R
<p><u>Determine whether LPG pipework exiting cylinder housings does so into the interior of the vessel.</u></p> <p><u>Where pipework exits cylinder housings into the interior of the vessel, visually check the type and condition of the sealing arrangements.</u></p> <p><u>Apply light manual force to the pipework and check for signs of movement at the sealing arrangement.</u></p>	<p><u>LPG pipework exiting cylinder housings into the interior of the vessel must exit through either:</u></p> <ul style="list-style-type: none"> <li>• <u>a bulkhead fitting; or,</u></li> <li>• <u>a cable gland fitting; or,</u></li> <li>• <u>sealant.</u></li> </ul> <p><u>The sealing arrangements must be free of signs of gaps or other forms of damage and deterioration.</u></p> <p><u>There must be no movement of the pipework within the sealing arrangement when light manual force is applied to the pipework.</u></p> <p><u>Where sealant is used it must completely fill the area between the pipe and the adjacent housing structure, and it must not noticeably move or dislodge and gaps must not open when light manual force is applied to the LPG pipework.</u></p>	
<p><u>Applicability – it is acceptable for pipework to exit a housing into a conduit with the gap between the pipework and the conduit sealed with sealant. The conduit must also be sealed to the housing structure.</u></p> <p><u>Applicability – the Requirements also apply to electrical cables routed to ignition protected solenoid shut-off valves where they pass through housing structures into the interior of the vessel.</u></p>		

Explanation of changes		
1	Check 7.2.7 is new.	7.2.7 is a new Check, the third of three new Checks addressing cylinder housings.
2	Impact of the new Check.	No new Requirements have been introduced; the three new Checks bring together the Requirements for housings that were previously mixed up with the Requirements for lockers.  The outcome is increased clarity.

### 7.3 LPG cylinder locker drains

7.3.1	Is there a drain in the cylinder locker and is the drain outlet above the waterline?	R
<p>Identify the presence of a cylinder locker drain in each cylinder locker.</p> <p>Identify the cylinder locker drain outlet on the outside of the hull and verify that it is above the normal laden waterline.</p>		<p>All cylinder lockers must be fitted with a drain facility.</p> <p>Cylinder locker drain outlets must be on the outside of the hull above the normal laden waterline.</p>
<p>Applicability – <a href="#">on lockers where there is no drain line and the drain outlet is the hole through the locker side</a>, if for any reason water can enter the cylinder locker through the locker drain, there must always be a higher drain hole(s) or enlarged ‘slot’ which is open to the outside air in accordance with 7.3.6 to ensure an unobstructed passage <a href="#">for escaping of leaked-LPG vapour</a> to the outside.</p> <p><a href="#">Guidance for owners – on boats where river/canal water can enter a cylinder locker through a locker drain, boat owners are advised to regularly assess the condition of the locker to ensure water cannot enter the interior of the vessel. Owners are also advised to consider changing the cylinder locker arrangement to prevent river/canal water entering the drain and/or locker.</a></p> <p><a href="#">Supporting information on cylinder lockers with openings below the normal laden waterline is provided at Appendix 7.</a></p>		

Explanation of changes		
1	<a href="#">Applicability ....on lockers where there is no drain line and the drain outlet is the hole through the locker side</a> , if for any reason water can enter....	To add immediate clarity concerning the scope of the Applicability.
2	<a href="#">..for escaping of leaked-LPG vapour</a> to the outside...	To align with the accepted term.
3	<a href="#">Guidance for owners – on boats where river/canal water can enter a cylinder locker through a locker drain, boat owners are advised to regularly assess the condition of the locker to ensure water cannot enter the interior of the vessel. Owners are also advised to consider changing the cylinder locker arrangement to prevent river/canal water entering the drain and/or locker.</a>	<p>The Guidance for owners’ is added because, according to insurance company data, ‘wet’ cylinder lockers lead to a significant number of boat sinkings.</p> <p>This proposed new published BSS guidance is intended to help boats owners be more aware of the associated risks and take responsibility for them.</p>
4	<a href="#">Supporting information on cylinder lockers with openings below the normal laden waterline is provided at Appendix 7.</a>	A pointer added to the updated supporting information in Appendix 7.

7.3.2	<b>Is the drain opening at or close to the bottom of the cylinder locker <del>or is any volume beneath the drain opening minimised by the use of suitable material?</del></b>	R
<p>Check the location of the cylinder locker drain openings.</p> <p><del>If the drain opening is above the bottom of the locker check that any area below the drain</del></p>		<p>Cylinder locker drain openings must be located <a href="#">not greater than 30mm above the lowest point of the locker at the bottom of the locker or at the lowest point of the side</a>.</p>

<del>opening that could retain leaked LPG is filled with LPG-resistant material.</del>	<del>Any area in the cylinder locker below the drain that could retain leaked LPG must be filled with a LPG-resistant material.</del>
<p><a href="#">Applicability – where drain openings are greater than 30mm above the lowest point of the locker structure it is acceptable for the space below the drain opening to be filled with a suitable material.</a></p> <p><del>Applicability—drain openings on the side of cylinder lockers not greater than 25mm above the bottom of the locker may be considered as at the lowest point of the side.</del></p> <p><a href="#">Supporting information on the proximity of drain openings to the lowest point of cylinder lockers, and on filling space below cylinders, is provided at Appendix 7.</a></p> <p><a href="#">Guidance for owners - on boats where the space below the drain opening is filled with a suitable material, boat owners are advised to occasionally remove the material and assess the condition of the locker material for signs of damage or deterioration.</a></p>	

Explanation of changes		
1	<del>or is any volume beneath the drain opening minimised by the use of suitable material?</del>	The deleted text is unnecessary.
2	<p><del>If the drain opening is above the bottom of the locker check that any area below the drain opening that could retain leaked LPG is filled with LPG-resistant material.</del></p> <p><del>Any area in the cylinder locker below the drain that could retain leaked LPG must be filled with a LPG-resistant material</del></p>	The deleted text is irrational – if the area below the opening is already filled then the opening will be at the bottom of the locker already.
3	<del>not greater than 30mm above the lowest point of the locker at the bottom of the locker or at the lowest point of the side.</del>	To align the Requirement with ISO 10239 and PD54823.
4	<a href="#">Applicability – where drain openings are greater than 30mm above the lowest point of the locker structure it is acceptable for the space below the drain opening to be filled with a suitable material.</a>	To confirm that it is acceptable to fill the space between the lowest point of the locker structure and the drain with a suitable material.
5	<del>Applicability—drain openings on the side of cylinder lockers not greater than 25mm above the bottom of the locker may be considered as at the lowest point of the side.</del>	No longer necessary as covered in the Requirement
5	<a href="#">Supporting information on the proximity of drain openings to the lowest point of cylinder lockers, and on filling space below cylinders, is provided at Appendix 7.</a>	A pointer added to the updated supporting information in Appendix 7.
7	Add a new Guidance for owners. <a href="#">‘Guidance for owners - on boats where the space below the drain opening is filled with a suitable material, boat owners are advised to occasionally remove the material and assess the condition of the locker material for signs of damage or deterioration.’</a>	<p>A new Guidance for owners is considered necessary to address the obvious but hidden potential corrosion hazard associated with placing material on the surface of steel locker. The Guidance for owners is necessary in order to:</p> <ul style="list-style-type: none"> <li>• limit the claims potential, linked to the BSS Requirement being seen as the reason for any hidden deterioration of the locker bottom, leading to loss.</li> <li>• introduce the concept for owners of a maintenance regime associated with using suitable material to effectively fill the area beneath a drain outlet.</li> </ul>

7.3.4	<b>Does the drain line fall continuously from the cylinder locker to the drain outlet and are both ends clear of blockage?</b>	<b>R</b>
<p>Check the completeness and fall of the drain line to the drain outlet where it can be seen <a href="#">or reached</a>.</p> <p>Check the drain openings in the cylinder locker and at the drain outlet for obstruction.</p>		<p>Cylinder locker drain lines must be continuous and must fall continuously to the drain outlet in the hull so as not to retain <a href="#">escaping leaked</a> LPG <a href="#">vapour</a>.</p> <p>Drain openings in the cylinder locker and at the drain outlet must not be blocked.</p>
<p>Applicability – with the consent of the owner, a bucket of water can be used to aid verification of Check Items 7.3.4 to 7.3.6.</p> <p><a href="#">Supporting information on drain line fall is provided at Appendix 7.</a></p>		

Explanation of changes		
1	seen <a href="#">or reached</a> .	To confirm that Examiners should check drain lines by sight or by hand.
2	....not to retain <a href="#">escaping leaked</a> LPG <a href="#">vapour</a> .	To align with the accepted term.
3	<a href="#">Supporting information on drain line fall is provided at Appendix 7.</a>	A pointer added to the updated supporting information in Appendix 7.

7.3.5	<b>Is the drain line material, including the connections, in good condition?</b>	<b>R</b>
<p>Check the condition of all cylinder locker drain line material that can be seen or reached.</p> <p>Check the condition of all drain line connections that can be seen or reached.</p> <p>Where connections can be reached, pull using light manual force to check security of all drain line connections.</p>		<p>The material of drain lines must be free of signs of damage or deterioration.</p> <p>All connections must be complete and free of signs of damage or deterioration.</p> <p>Drain pipe connections must be appropriately tight, that is, not so loose that the <a href="#">connection or</a> pipe moves under light manual force.</p> <p>Drain hoses must be free of any signs of damage and deterioration, including ‘soft’ spots or kinking of the walls.</p> <p>Drain hose connections made with hose clips or clamps must:</p> <ul style="list-style-type: none"> <li>• be suitably sized, that is, not so oversized that the band forms an elliptical shape or so undersized that no tightness is achieved; <b>and,</b></li> <li>• be appropriately tight, that is, not so loose that the hose can be pulled forward or back under light manual force nor so tight that the hose is excessively pinched; <b>and,</b></li> <li>• show no signs of damage or deterioration at the clip or clamp; <b>and,</b></li> <li>• show no signs of damage or deterioration at the hose.</li> </ul>



Explanation of changes		
1	...that the <a href="#">connection or</a> pipe moves under light manual force	To ensure completeness, that pipe connection movements as well as pipe movements are caught by the Requirement.

7.3.6	Does the drain <del>facility line, or the drain opening,</del> have a minimum appropriate internal diameter or equivalent area?		R
Measure the internal diameter, <a href="#">or area</a> , of each cylinder locker drain opening.  <a href="#">Where it can be seen or reached</a> , check <a href="#">any</a> <del>the</del> drain line <del>that can be seen</del> for no obvious reductions <a href="#">in its diameter</a> .	Cylinder locker drains must have a minimum internal diameter of 12mm (½in) or increased pro-rata up to 19mm (¾in), <a href="#">or have an equivalent area</a> .		
	Total capacity	<a href="#">Minimum</a> internal diameter of drain opening or equivalent area	
	1-18kg	12mm (½in)	113mm <sup>2</sup>
	19-29kg	14mm (9/16 in)	154mm <sup>2</sup>
	30-37kg	17mm (5/8in)	227mm <sup>2</sup>
38kg or greater	19mm (¾ in)	283mm <sup>2</sup>	
<p><del>Applicability – equivalent areas of differently shaped drain openings are acceptable.</del></p> <p>Applicability - total capacity must be calculated from the sum of all cylinders <a href="#">and any cartridges</a> housed in the same drained cylinder locker.</p> <p>Applicability - if two or more drains exist in one locker, their internal diameters or equivalent areas should be added together when checking for compliance.</p>			

Explanation of changes		
1	Does the drain <del>facility line, or the drain opening,</del> have a minimum appropriate internal diameter or equivalent area?	Simplification.
2	<a href="#">Where it can be seen or reached</a> , check <a href="#">any</a> <del>the</del> drain line <del>that can be seen</del> for no obvious reductions <a href="#">in its diameter</a> .	Simplification to aid clarity.
3	...increased pro-rata up to 19mm (¾in), <a href="#">or have an equivalent area</a> .	To ensure drain facilities shaped other than as circles are taken account of in the Requirement and to be consistent with the Check question.
4	<a href="#">Minimum</a> internal diameter of drain opening or equivalent area	Adding the word 'minimum' clarifies that the diameters are the smallest acceptable and can be larger.  Otherwise, the diameters may be taken literally and Examiners could potentially fail drain openings of larger diameters (or equivalent areas).

5	<del>Applicability—equivalent areas of differently shaped drain openings are acceptable.</del>	Applicability no longer needed as the equivalence is now written into the Requirement.
6	sum of all cylinders <a href="#">and any cartridges</a> housed in the same drained cylinder locker	To be consistent with the text at Check 7.1.1,

#### 7.4 Protecting LPG cylinders and components against damage

<b>7.4.1</b>	<b>Are all cylinders secured and stored upright with the valve at the top?</b>	<b>R</b>
<p><a href="#">Check all cylinders are secured in the upright position with the valve uppermost.</a></p> <p>Determine by moving the cylinders carefully the extent of any movement.</p> <p>Check that all cylinders are secured to prevent potential damage to regulators or pipework.</p> <p>Check the completeness and condition of support structures and fixings on <a href="#">any</a> transom-mounted <b>LPG</b> cylinder arrangements <a href="#">where they can be seen or reached</a>.</p>		<p><a href="#">Cylinders, whether full or empty, must be secured in the upright position with the valve uppermost so that:</a></p> <ul style="list-style-type: none"> <li>the extent of any <b>LPG</b>-cylinder movement cannot cause any pulling of pipework or pulling tight of hose; <a href="#">and</a>,</li> <li>the possibility of cylinders damaging low-pressure regulators, pipework or other LPG system components is minimised.</li> </ul> <p>The support structures and fixings on transom-mounted LPG cylinder arrangements must be complete and free of signs of damage or deterioration.</p>

Explanation of changes		
1	<a href="#">Check all cylinders are secured in the upright position with the valve uppermost.</a>	This checking action and requirement are moved to the top of the Check to reflect the main focus of the Check.
2	<a href="#">Cylinders, whether full or empty, must be secured in the upright position with the valve uppermost so that:</a>	'whether full or empty' added for necessary added clarity.
3	...pulling tight of hose; <a href="#">and</a> .	Requirements simplified into bullet points.
4	...fixings on <a href="#">any</a> transom-mounted <b>LPG</b> cylinder arrangements <a href="#">where they can be seen or reached</a> .	To make it clear that Examiners need not check transom-mounted support structures and fixings where they are inaccessible and possibly hazardous to check.

<b>7.4.2</b>	<b>Is the cylinder locker <a href="#">or housing secured</a> <del>secure</del> <a href="#">against unintended movement</a>?</b>	<b>R</b>
<p>Apply light manual force to check that cylinder lockers <a href="#">and housings</a> are secured <a href="#">against unintended movement</a>.</p>		<p>Cylinder lockers <a href="#">and housings</a> must be <a href="#">secured against unintended movement under light manual force</a> <del>secured against unintended movement</del>.</p>
<p><a href="#">Applicability – Examiners need not apply light manual force to cylinder lockers that are integral to the boat's hull or superstructure.</a></p>		

Explanation of changes		
1	<p>Is the cylinder locker <a href="#">or housing secured</a> <del>secure</del>-<a href="#">against unintended movement</a>?</p> <p>Also the change is made in the Checking action and Requirement.</p>	<p>Section 4 of ECP Part 7 addresses the protection of LPG cylinders and components against damage. ‘... and housing’ has been added alongside ‘cylinder locker’ at Checks 7.4.2 and 7.4.4.</p> <p>Although housings have not been expressly included at these Checks previously it is logical and reasonable that they are. The change/inclusion is likely to have a very small, or no, negative impact on the compliance of housings as it is anticipated that many Examiners are likely to already be applying 7.4.2/4 to housings.</p>
2	<p>Cylinder lockers <a href="#">and housings</a> must be <a href="#">secured against unintended movement under light manual force</a>.<del>secured against unintended movement.</del></p>	<p>To align the Requirement with the accepted concept of unintended movement, and to take account of the rare arrangements where lockers are on rails.</p>
3	<p><a href="#">Applicability – Examiners need not apply light manual force to cylinder lockers that are integral to the boat’s hull or superstructure.</a></p>	<p>To state the obvious.</p>

7.4.3	Are <del>LPG</del> cylinders in a locker protected against falling objects?	R
<p>Check for the presence of a lid or cover on all top-opening cylinder lockers.</p> <p>If not present check that the cylinders, regulators and associated equipment are otherwise protected.</p>	<p>Top-opening <del>LPG</del> cylinder lockers must either have:</p> <ul style="list-style-type: none"> <li>• a lid or cover; <u>or</u>,</li> <li>• cylinders, and other LPG system components <a href="#">within the locker</a> must be otherwise protected against falling objects.</li> </ul>	

Explanation of changes		
1	<p>cylinders, and other LPG system components <a href="#">within the locker</a> must be otherwise protected against falling objects.</p>	<p>To give added clarity.</p>

7.4.4	Is the cylinder locker <a href="#">or housing</a> clear of any items that could damage the LPG equipment or ignite <del>escaping leaked</del> LPG vapour?	R
<p>Check the contents of all cylinder lockers <a href="#">and housings</a>.</p>	<p>Cylinder lockers <a href="#">and housings</a> must not contain loose sharp or heavy items such as anchors or mooring pins that could damage the cylinders or other LPG system components.</p> <p>Cylinder lockers <a href="#">and housings</a> must not contain any item that could ignite <del>escaping leaked</del> LPG vapour.</p>	
<p>Applicability – sources of ignition include open flame or spark inducing equipment. Solenoid LPG system shut-off valves of suitable proprietary manufacture should be presumed <u>not</u> to be a source of ignition.</p>		

[Guidance for Advice-to](#) owners – when purchasing solenoid controlled shut-off valves an assurance should be sought from the supplier as to their suitability for use with LPG.

Explanation of changes		
1	Is the cylinder locker <a href="#">or housing</a> clear of any items that could damage the LPG equipment	See 7.4.2. Section 4 of ECP Part 7 addresses the protection of LPG cylinders and components against damage. ‘and housing’ has been added alongside ‘cylinder locker’ at Checks 7.4.2 and 7.4.4.
2	... or ignite <a href="#">escaping leaked</a> LPG vapour?	To align with the accepted term.
3	<a href="#">Guidance for Advice-to</a> owners – when purchasing	To align with the correct term.

7.4.5	Is the cylinder locker <a href="#">or housing of suitable proprietary manufacture, and has it been maintained to ensure its integrity is retained</a> <del>constructed of material of the required thickness?</del>	R
<p><a href="#">Determine whether the cylinder locker or housing is of suitable proprietary manufacture.</a></p> <p><a href="#">Where lockers or housings are not obviously of suitable proprietary manufacture, determine the material type, estimate the thickness, and determine how the seams have been</a> <del>the cylinder lockers are constructed from and estimate the thickness of the cylinder lockers.</del></p> <p>Determine the materials used in any repair to cylinder lockers <a href="#">and housings</a>.</p>		
<p>Cylinder lockers <a href="#">and housings</a> must be <a href="#">of suitable proprietary manufacture</a>.</p> <p><a href="#">Cylinder lockers and housings may be accepted as being of suitable proprietary manufacture if they are</a> constructed of materials that are either:</p> <ul style="list-style-type: none"> <li>the same material and thickness of the surrounding hull structure; <b>or</b>,</li> <li>metal of minimum thickness of approximately 1mm <a href="#">with fully welded or brazed seams</a>; <b>or</b>,</li> <li>FRP of minimum thickness of approximately 5mm thickness.</li> </ul> <p><a href="#">The integrity of cylinder locker and housing seams must not rely upon glue or sealant.</a></p> <p><a href="#">To ensure the original integrity is retained, a</a>ny repairs to cylinder lockers <a href="#">or housings</a> must meet the thickness Requirements above; <b>and</b>:</p> <ul style="list-style-type: none"> <li>metal locker <a href="#">or housing</a> repairs must be made using a plate of similar metal and must be seam welded or brazed;</li> <li>FRP locker <a href="#">or housing</a> repairs must be made using fiberglass fabric/matting and resin.</li> </ul>		
<p><a href="#">Applicability – lockers and housings of suitable proprietary manufacture made from moulded plastic are considered as replacement items and therefore if damage or deterioration has affected their integrity they should be replaced with new and not repaired.</a></p> <p><a href="#">Applicability - it is acceptable for lockers or housings made from the same material as the surrounding hull structure, metal or FRP to be repaired, but it is recognised that it is sometimes difficult to identify the repair method if the repair has been covered in paint. If the method of repair is in doubt but otherwise looks sound, Examiners should pass the arrangements and record notes of their findings on their checklist.</a></p> <p><a href="#">Applicability – the above Requirements only apply where a failure of the locker or housing structure could lead to gas escaping from the cylinder or system components within the locker or housing flowing directly into the interior of the vessel, or where the locker or housing structure is within 0.5m of openings into the interior of the vessel or any source of ignition.</a></p>		

Applicability – a combination of wooden cylinder lockers lined with FRP of a lesser thickness than 5mm may be estimated as equivalent.

~~Applicability – it is accepted that it is sometimes difficult to identify the repair method after the repair has been covered in paint. If the method of repair is in doubt but otherwise it looks sound, the BSS Examiner should pass the arrangements and record notes of his/her findings.~~

[Supporting information on lockers and housings of suitable proprietary manufacture is provided at Appendix 7.](#)

Explanation of changes		
1	Emphasis on cylinder lockers or housings of suitable proprietary manufacture.	<p>The amends change the emphasis of the Requirement, with the primary Requirement now being that lockers and housings must be of a suitable proprietary type.</p> <p>This change is necessary to accommodate the presence in the market of ‘off the shelf’ lockers, usually made from moulded plastic, that are found on many production GRP cruisers and yachts.</p> <p>The current approach of only specifying metal and GRP of particular minimum thicknesses is not consistent with ISO 10239, which does not include any specifications for locker or housing construction.</p>
2	<a href="#">The integrity of cylinder locker and housing seams must not rely upon glue or sealant.</a>	The final part of the Requirement from 7.2.1 (addressing locker and housing seams) has been moved to 7.4.5.
3	<ul style="list-style-type: none"> <li>metal of minimum thickness of approximately 1mm <a href="#">with fully welded or brazed seams</a>; <b>or</b>,</li> </ul>	‘with fully welded or brazed seams’ has been added to the 2 <sup>nd</sup> bullet-point to add clarity as to what constitutes suitable proprietary manufacture and to align with the existing Requirement for repairs and indeed the 2005 ECP.
4	<a href="#">Applicability – lockers and housings of suitable proprietary manufacture made from moulded plastic are considered as replacement items and therefore if damage or deterioration has affected their integrity they should be replaced with new and not repaired.</a>	New applicability making it clear that moulded plastic lockers or housings cannot be repaired and if damaged must be replaced.
5	<del>Applicability – it is accepted that it is sometimes difficult to identify the repair method after the repair has been covered in paint.</del> <a href="#">Applicability - it is acceptable for lockers or housings made from the same material as the surrounding hull structure, metal or FRP to be repaired, but it is recognised that it is sometimes difficult to identify the repair method if the repair has been covered in paint. If the method of repair is in doubt but otherwise looks sound, Examiners should pass the arrangements and record notes of their findings on their checklist.</a>	New applicability making it clearer how to examine and record lockers/housings that look repaired.

6	<a href="#">Applicability – the above Requirements only apply where a failure of the locker or housing structure could lead to gas escaping from the cylinder or system components within the locker or housing flowing directly into the interior of the vessel, or where the locker or housing structure is within 0.5m of openings into the interior of the vessel or any source of ignition.</a>	Limiting the application of the Check to where any leaking LPG vapour could flow directly into the interior of the vessel, or where the locker or housing structure is within 0.5m of openings into the interior of the vessel or any source of ignition.  This aligns with the approach for cylinders stored in ‘open locations’ at Check 7.1.1.
7	<a href="#">Supporting information on lockers and housings of suitable proprietary manufacture is provided at Appendix 7.</a>	Supporting information will be included in Appendix 7 to help Examiners recognise ‘off the shelf’ proprietary lockers and housings.

### 7.5 Cylinder locker openings

7.5.1	<a href="#">Is the cylinder locker opening</a> <del>Are all openings to cylinder lockers</del> outside of any engine <a href="#">or</a> battery <del>or electrical equipment</del> space?	R
Check the location of <del>any opening of any</del> <a href="#">the</a> cylinder locker <a href="#">opening</a> .	Cylinder lockers must not open into <a href="#">any</a> : <ul style="list-style-type: none"> <li><a href="#">engine space</a>; <a href="#">or</a>,</li> <li>battery <del>or electrical equipment</del> space.</li> </ul>	
<a href="#">Examiner action - where a cylinder locker is found to open into an engine space the Examiner should contact the BSS Office to determine whether there is a known acceptable compliance option available for the model of boat.</a>		

Explanation of changes		
1	<a href="#">Is the cylinder locker opening</a> <del>Are all openings to cylinder lockers ...</del>	Beginning of the Check question made clearer, as there is likely to only be one opening into a cylinder locker, the reference to ‘all openings to cylinder lockers’ has been replaced with ‘the cylinder locker opening’.
2	<del>...outside of any engine</del> <a href="#">or</a> battery <del>or electrical equipment</del> space?	Reference to ‘electrical equipment space’ has been deleted because it was very difficult to define and because risk review did not support its continuation.
3	Check the location of <del>any opening of any</del> <a href="#">the</a> cylinder locker <a href="#">opening</a> .	For the same reason at 1) above.
4	<a href="#">Examiner action - where a cylinder locker is found to open into an engine space the Examiner should contact the BSS Office to determine whether there is a known acceptable compliance option available for the model of boat.</a>	It is likely that some of the boats that fail this Check will be of a class of boat where there is a known compliance option already in place (such as with the Seamaster 23).  The new Examiner action therefore helps to ensure that boats are not failed unnecessary at this Check where relatively simple compliance options are available.

### 7.6 LPG system shut-off valves

7.6.1	Are all LPG system shut-off valves, or their means of operation, in a readily accessible position?	R
Identify all valves used for the LPG system shut-off facility and check the accessibility of valves or their means of operation.		LPG system shut-off valves, or their means of operation, must be installed in a readily accessible position.
Applicability – <u>the</u> LPG system shut-off valve(s) <u>should normally be taken as being the cylinder valve(s)</u> . <del>may be cylinder valves.</del> Applicability – systems with clip-on regulators do not require an additional system shut-off valve.		

Explanation of changes		
1	Applicability – <u>the</u> LPG system shut-off valve(s) <u>should normally be taken as being the cylinder valve(s)</u> . <del>may be cylinder valves.</del>	Amend made to add clarity.

7.6.2	<del>Is</del> <b>Are</b> the <del>locations of all</del> LPG system <b>main</b> shut-off valves, or <del>its</del> <del>their</del> means of operation, in open view, or <u>is the <del>their</del> locations of the valve or its means of operation</u> clearly marked?	R
<p><u>Check whether the LPG system main shut-off valve, or the means to operate it, is in open view with all removable lids, deck boards, curtains, doors etc in place.</u></p> <p><u>Where LPG system main shut-off valve, or the means to operate it, is not in open view, check for the presence of marking in open view indicating the location of the valve or the means to operate it.</u></p> <p><del>Identify the locations of the valves used for the LPG system shut-off facility.</del></p> <p><del>Where LPG system shut-off valve(s), or the means to operate them, are not in open view with all removable lids, deck boards, curtains, doors etc in place, check for the presence of marking in open view indicating the location.</del></p>		<p><u>The</u> LPG system <b>main</b> shut-off valves, or the means to operate <u>it</u> <del>them</del>, must:</p> <ul style="list-style-type: none"> <li>• be in open view with all removable lids, deck boards, curtains, doors etc in place; <u>or</u>,</li> <li>• <u>have the <del>their</del> location of the valve, or its means of operation, must be</u> clearly marked in open view.</li> </ul>

Explanation of changes		
1	Reason for the changes	To introduce the term ' <b>main</b> shut-off valve' to be consistent with ISO 10239 and to change the general wording of the Check to reflect that, reasonably, there can only be one 'main shut off valve'.  Also, to remove the reference to .. or their locations clearly marked...

	which was inaccurate as the location of both the valve and its means of operations do not have to be marked.
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### 7.7 LPG high-pressure system components

7.7.1	Are all high-pressure LPG system components <b>accessible for inspection and</b> either inside a cylinder locker or in an open location?	R
<p>Check the location <u>and accessibility</u> of all high-pressure LPG system components.  <del>Apply the checks at Check Item 7.1.1.</del></p>		
<p>All high-pressure components must be <del>installed in accordance with the requirements of Check Item 7.1.1</del> <u>accessible for inspection and located in:</u></p> <ul style="list-style-type: none"> <li>• <u>a cylinder locker; or</u></li> <li>• <u>a cylinder housing; or</u></li> <li>• <u>in an open location</u></li> </ul> <p><u>To be accepted as being located in an 'open location' high-pressure components must:</u></p> <ul style="list-style-type: none"> <li>• <u>be in a position where any escaping LPG vapour would flow overboard unimpeded; and,</u></li> <li>• <u>be where there is no opening into the interior of the vessel, or any source of ignition, within 0.5m distance.</u></li> </ul> <p><u>For all high-pressure components to be accepted as being in an 'open location' in a cockpit, the cockpit must comply with the 'self-draining' specifications set out in section 1 of Appendix 7.</u></p>		
<p><u>Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on 'self-draining' cockpits.</u></p>		

Explanation of changes		
1	<u>accessible for inspection and</u>	The extent of the accessibility of high-pressure components has been clarified for consistency with other LPG system component Checks and to ensure that Examiners are able to check all the high-pressure stage components during examinations.
2	<u>'...and located in:</u> <ul style="list-style-type: none"> <li>• <u>a cylinder locker; or</u></li> <li>• <u>a cylinder housing; or</u></li> <li>• <u>in an open location</u></li> </ul> <u>To be accepted as being located in an 'open location' .....</u> <u>.....For all high-pressure components to be accepted as being in an 'open location' in a cockpit, the cockpit</u>	<p>In the original 2015 Check 7.7.1, in the checking action Examiners were required to 'Apply the checks at Check Item 7.1.1.'</p> <p>The Requirements from Check 7.1.1 cover where cylinders and cartridges can be stored and these have been repeated here in order for Checks 7.7.1 and 7.7.1 to stand alone, and, to ensure high-pressure components other than the cylinder valves are overtly covered by Check 7.7.1.</p>



	<a href="#">must comply with the 'self-draining' specifications set out in section 1 of Appendix 7.'</a>	
3	<a href="#">Examiner action – Examiners must refer to section 1 of Appendix 7 for essential information on 'self-draining' cockpits.</a>	To align with 7.1.1 and to reference the essential new material included in Appendix 7.

<b>7.7.3</b>	<b>Are all hoses on the high-pressure side of pre-assembled lengths not exceeding 1m and to the correct specification?</b>	<b>R</b>
Identify the presence of hose on the high-pressure side. Check the type of hose end fittings. Measure the length of hose. Check the hose markings.	All LPG hoses on the high-pressure side: <ul style="list-style-type: none"> <li>• must consist of pre-made hose assemblies of <a href="#">suitable</a> proprietary manufacture; <b>and</b>,</li> <li>• must not exceed 1m in length; <b>and</b>,</li> <li>• must be marked to BS EN 16436 Class 3; BS 3212 type 2; <b>or equivalent.</b></li> </ul>	
Applicability - steel hose assemblies marked to BS EN ISO 10380 can be regarded as equivalent. <del>Applicability – hoses marked to BS EN 1763 class 3 or 4 are acceptable.</del>		

Explanation of changes		
1	Replace 'proprietary manufacture' with ' <a href="#">suitable</a> proprietary manufacture'.	'Suitable proprietary manufacture' is the glossary term, it should be used in full.
2	must be marked to BS EN 16436 Class 3; BS 3212 type 2; <del>or equivalent.</del>	Equivalent high pressure LPG hose standards numbers will be known to the BSS Office and included in the list in the Requirement. As it is essential that Examiners do not guess at equivalence, the text deletion has taken away this possible outcome.
3	<del>Applicability – hoses marked to BS EN 1763 class 3 or 4 are acceptable.</del>	It is understood that the credibility of this standard is now being questioned within the LPG industry. It is also likely that no hose has ever been made to this standard. Therefore, the BSS would not be comfortable with Examiners/owners considering this hose as acceptable.

<b>7.7.4</b>	<b>Are all high-pressure LPG system components secure and in good condition?</b>	<b>R</b>
Check the <a href="#">security and</a> condition of all regulators and associated high-pressure	All high-pressure components, including regulators and associated equipment, hoses and hose connections, must be secure and free from signs of damage or deterioration.	

<p>equipment and hoses and hose connections <a href="#">by sight and by touch</a>.</p> <p>Check fixings for signs of damage or deterioration.</p>	<p>Hose must be free of leaks, flaws, brittleness, cracking, abrasion, kinking, 'soft' spots, or joins.</p> <p>On hoses covered with metal braiding the braiding must be free of signs of damage or deterioration including corrosion and kinking.</p> <p>Hose connections:</p> <ul style="list-style-type: none"> <li>• must not be made using hose clamps fixed by spring tension; <b>and</b>,</li> <li>• must be free of any missing components, cracks, burrs or rough edges or signs of other damage or deterioration; <b>and</b>,</li> <li>• must not be so narrow as to cut into the hose; <b>and</b>,</li> <li>• must be suitably sized, that is, not so oversized that the band forms an elliptical shape, or so undersized that inadequate compression is achieved; <b>and</b>,</li> <li>• must be appropriately tight, that is, not so loose that the hose can be pulled forward or back under light manual force nor so tight that the hose is excessively pinched.</li> </ul> <p>Fixings for high-pressure LPG equipment must be free of signs of damage or deterioration.</p>
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Explanation of changes		
1	Check the <a href="#">security and</a> condition of all regulators ...	To align the Checking action with the Check question and Check requirement
2	and hose connections <a href="#">by sight and by touch</a> .	To add clarity to the extent of the checking required.

### 7.8 LPG pipework, joints and connections

7.8.1	<b>Is the LPG <del>pipes pipework</del> made of a suitable material, adequately secured and free from damage?</b>	<b>R</b>
<p>Visually check type of material for all LPG <del>pipes pipework</del> that can be seen.</p> <p>Apply light manual force to check security of LPG pipes that can be reached.</p> <p>Check condition of all LPG pipes that can be seen or reached.</p>	<p>LPG <del>pipes pipework</del> must be made of either seamless copper <del>tube</del>, or stainless steel <del>tube</del>, or copper nickel alloy <del>tube</del>.</p> <p>LPG pipes must not move under light manual force.</p> <p>LPG pipes must be free of kinks, restrictions, abrasion damage or <del>other</del> deterioration.</p>	
<p><a href="#">Applicability – Pliable Corrugated Tubing (PCT) to BS EN 15266 and/or BS 7838 can be considered as stainless steel pipework for the purposes of BSS Examinations.</a></p> <p>Applicability – a little movement at the final connection to an appliance is acceptable but any such unsecured pipe should be kept to a minimum and should generally not be more than 500mm in length.</p> <p>Applicability – pay particular attention to the potential for abrasion damage on pipes passing through bulkheads.</p>		

Explanation of changes		
1	... LPG <del>pipes</del> <del>pipework</del> ...	The amend is necessary for accuracy because the Requirement is specific to pipes and not pipework.
2	'LPG pipework must be made of either seamless copper <del>tube</del> , <del>or</del> stainless steel <del>tube</del> , or copper nickel alloy <del>tube</del> '	The proposed amends are less clumsy and add clarity.
3	'LPG pipes must be free of kinks, restrictions, abrasion damage or <del>other</del> deterioration'	Damage or deterioration is the Glossary term.
4	<a href="#">Applicability – Pliable Corrugated Tubing (PCT) to BS EN 15266 and/or BS 7838 can be considered as stainless steel pipework for the purposes of BSS Examinations.</a>	<p>This is a new Applicability, added because the BSS recognises Pliable Corrugated Tubing (PCT) as stainless steel pipework and as being compliant and this allowance appeared in a previous Technical Newsletter.</p> <p>The information has been included as an Applicability rather than as a main Requirement as such tubing is i) rarely found, ii) is not suitable for DIY installation and iii) the makers do not recommend it for use on boats in a salt-water environment.</p> <p>Accordingly, it is a concern that if PCT was listed within the Requirement this may inadvertently promote its general use to boat owners.</p>

<b>7.8.2</b>	<b>Is the LPG pipe protected where it passes through metal bulkheads or decks?</b>	<b>R</b>
Check the protection of LPG pipes passing through metallic bulkheads or decks that can be seen or reached.	LPG pipes passing through metallic bulkheads or decks must be protected by the use of sleeves, grommets, <a href="#">cable glands</a> , <del>or</del> bulkhead fittings, <a href="#">or equivalent</a> .	
<a href="#">Applicability - it is acceptable for pipe to be protected by sealant provided the sealant is in good condition and that it completely seals the area between the pipe and the surrounding material, and provided the sealant does not noticeably move or dislodge when the pipe is subject to light manual force.</a>		

Explanation of changes		
1	sleeves, grommets, <a href="#">cable glands</a> , <del>or</del> bulkhead fittings, <a href="#">or equivalent</a> .	To promote a further proprietary compliance option.
2	<a href="#">Applicability - it is acceptable for pipe to be protected by sealant provided the sealant is in good condition and that it completely seals the area between the pipe and the surrounding material, and provided the sealant does not noticeably move or dislodge when the pipe is subject to light manual force.</a>	To permit the further sealant compliance option without promoting it as normal practice.

<b>7.8.3</b>	<b>Are all LPG pipe joints accessible for inspection and of the correct type?</b>	<b>R</b>
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<p>Check the accessibility and type of all pipe joints.</p>	<p>All LPG pipe joints must be accessible for inspection.</p> <p><del>All LPG pipe joints must be compression fittings on copper pipework or compression or screwed fittings on copper alloy or stainless steel pipework.</del></p> <p><u>All LPG pipe joints used on copper or copper nickel alloy pipe must be:</u></p> <ul style="list-style-type: none"> <li>• <u>brass compression joints; or,</u></li> <li>• <u>brass threaded joints.</u></li> </ul> <p><u>All LPG pipe joints used on stainless steel pipe must be:</u></p> <ul style="list-style-type: none"> <li>• <u>stainless steel compression joints; or,</u></li> <li>• <u>stainless steel threaded joints; or,</u></li> <li>• <u>stainless steel welded joints.</u></li> </ul>
<p>Applicability – joints not accessible for inspection must be recorded as ‘not verified’ on your checklist, and it must be considered that the check has not been completed until such time as their type has been verified.</p> <p><u>Applicability – brazed joints are also permitted, but examiners must take particular care when endeavouring to determine whether such connections are brazed or soft-soldered (which are not permitted). If in doubt Examiners should contact the BSS for advice.</u></p> <p><u>Applicability – the type the material of some appliance joints may not be identifiable. Provided such joints appear to be original to the appliance, Examiners should consider the joint material compliant.</u></p> <p><del>Advice for examiners—owners should be advised of the accessibility requirement at the time of an examiner’s initial dealings and compliance achieved by adding inspection panels is recommended.</del></p>	

Explanation of changes		
1	<p><del>All LPG pipe joints must be compression fittings on copper pipework or compression or screwed fittings on copper alloy or stainless steel pipework.</del></p> <p><u>All LPG pipe joints used on copper or copper nickel alloy pipe must be:</u></p> <ul style="list-style-type: none"> <li>• <u>brass compression joints; or,</u></li> <li>• <u>brass threaded joints.</u></li> </ul> <p><u>All LPG pipe joints used on stainless steel pipe must be:</u></p> <ul style="list-style-type: none"> <li>• <u>stainless steel compression joints; or,</u></li> <li>• <u>stainless steel threaded joints; or,</u></li> <li>• <u>stainless steel welded joints.</u></li> </ul>	<p>Compliance options bullet-pointed to be clearer.</p> <p>Threaded joints on copper and welded joints on stainless steel added to list.</p> <p>These connection methods are included in the relevant BS and ISO standards and have always been acceptable, but unaccountably, not listed at this Check.</p>
2	<p><u>Applicability – the type the material of some appliance joints may not be identifiable. Provided such joints appear to be original to the appliance, Examiners should consider the joint material compliant.</u></p>	<p>To ensure Examiners do not apply the pipework joint Checks to the connection joint on the appliance.</p>

3	<del>Advice for examiners—owners should be advised of the accessibility requirement at the time of an examiner’s initial dealings and compliance achieved by adding inspection panels is recommended.</del>	The advice is deleted because the BSS Office is to develop a single guidance document setting out how boat owners should prepare their boat’s for Examinations.
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<b>7.8.4</b>	<b>Are all LPG pipe joints secure, in good condition and competently made?</b>	<b>R</b>
<p>Measure the distance fixing clips are attached from all joint connections.</p> <p>Apply light manual force to check <a href="#">the</a> security of each joint.</p> <p>Check condition and completeness of fixings and joints.</p> <p>Check all joints for the presence of unnecessary components.</p>	<p>All LPG pipe joints:</p> <ul style="list-style-type: none"> <li>• must have fixing clips attached no more than 150mm from each joint connection and must not move under light manual force; <b>and</b>,</li> <li>• must have fixings that are free of signs of damage or deterioration or missing components; <b>and</b>,</li> <li>• must be free of any signs of missing components, cracks or other signs of damage or deterioration; <b>and</b>,</li> <li>• must be made with a minimum number of individual components.</li> </ul>	
<p>Applicability – fixings are required on all sides of joints.</p> <p>Applicability – joints secured by proprietary integral fixings such as mounting plates or bulkhead fittings can be considered as meeting this requirement. The pipework adjacent to such joints does not need to be provided with additional securing within 150mm of each joint connection.</p> <p>Applicability – joints not accessible for inspection must be recorded as ‘not verified’ on your checklist, and it must be considered that the Check has not been completed until such time as their general condition has been verified.</p> <p>Applicability – the minimum number of components is usually interpreted as two, <a href="#">however, where LPG joints are identified having more than two components, Examiners should contact the BSS Office for guidance.</a></p>		

<b>Explanation of changes</b>		
1	Apply light manual force to check <a href="#">the</a> security of each joint.	Improved grammar.
2	Applicability – the minimum number of components is usually interpreted as two, <a href="#">however, where LPG joints are identified having more than two components, Examiners should contact the BSS Office for guidance.</a>	In rare circumstances, and depending upon the configuration of joints and pipe sizes, it is possible that more than two components will be necessary.  Seeking guidance from the BSS Office will ensure a consistent application.

<b>7.8.5</b>	<b>Are all <a href="#">pipework spurs that are no longer connected to an unused</a> appliance <del>spurs</del> properly capped or plugged?</b>	<b>R</b>
Identify any <a href="#">pipework spurs that are no longer connected to an unused</a> appliance	All <a href="#">pipework that are no longer connected to an unused</a> appliance <del>spurs</del> must be closed with a ‘tools-to-remove’ proprietary <a href="#">stop-end plug or cap</a> .	

<del>spurs</del> and check they are closed with a 'tools-to-remove' proprietary <del>stop-end plug or cap</del> .	
<p><del>Advice for owners— unused spurs should be plugged or capped at the 'T' joint on the LPG supply pipework. The T-joint should ideally be replaced with an in-line or elbow joint or the pipe replaced with a continuous length. The use of a stop-end to a short length of supported spur pipe is acceptable.</del></p> <p><u>Applicability – if a fault is identified take the actions described in Appendix A, and Appendix B if appropriate.</u></p>	

Explanation of changes		
1	Are all <u>pipework spurs that are no longer connected to an unused appliance spurs</u> properly capped or plugged?	Some Examiners/owners have misinterpreted 'unused', so proposed new text is intended to add clarity.
2	<del>stop-end plug or cap</del>	To adopt LPG industry terminology
3	<del>Advice for owners— unused spurs should be plugged or capped at the 'T' joint on the LPG supply pipework. The T-joint should ideally be replaced with an in-line or elbow joint or the pipe replaced with a continuous length. The use of a stop-end to a short length of supported spur pipe is acceptable.</del>	It is considered that there is no need to promote best practice for this one item. Boat owners can refer to Gas Safe registered installers for best practice guidance.
4	<u>Applicability – if a fault is identified take the actions described in Appendix A, and Appendix B if appropriate</u>	It may be that the potential for gas escape is high. Examiners should follow Appendix A or B procedures as appropriate.

7.8.6	Are all LPG pipes running through petrol engine spaces <del>or electrical equipment spaces</del> jointless and <u>adequately supported in a gas-proof conduit</u> ?	R
<p>Check for any LPG pipes running through petrol engine <del>or electrical equipment</del> spaces.</p> <p><u>Within such spaces, and where they can be seen or reached, check the pipes for any joints and for the presence of conduit, trunking or other means of support.</u></p>	<p><u>LPG pipes running through petrol engine spaces must be:</u></p> <ul style="list-style-type: none"> <li><u>jointless; and,</u></li> <li><u>routed within a conduit or trunking, or supported by fixing clips which are no more than 300mm apart.</u></li> </ul> <p><del>LPG pipes run through petrol engine spaces or electrical equipment spaces:</del></p> <ul style="list-style-type: none"> <li><del>— must be jointless and in gas-proof conduit; which also,</del></li> <li><del>— must be jointless with its ends outside the affected space; and,</del></li> <li><del>the conduit must be complete and free of signs of damage or deterioration.</del></li> </ul>	
<p><u>Applicability – as it is not possible for an Examiner to determine whether a proprietary bulkhead fitting is being used as a pipe joint, or as a sleeve for a continuous pipe, such fittings are exempt from this Requirement.</u></p> <p><u>Applicability – for the purposes of this Check, an LPG pipework joint will be deemed to be within the petrol engine space where there is a pathway for LPG to travel from the joint to the petrol engine unimpeded.</u></p>		

[Guidance for owners – at the time of introducing or amending a gas system, proprietary bulkhead fittings should not be used to join LPG pipes within petrol engine spaces.](#)

Explanation of changes		
1	<del>or electrical equipment</del> spaces	Reference to ‘electrical equipment space’ has been deleted because, based on risk assessment, the BSS Requirements at Check 7.8.6 can only apply to petrol engine spaces.
2	<ul style="list-style-type: none"> <li>• <a href="#">jointless; and,</a></li> <li>• <a href="#">routed within a conduit or trunking, or supported by fixing clips which are no more than 300mm apart</a></li> </ul> <del>must be jointless and in gas-proof conduit; which also,</del> <del>must be jointless with its ends outside the affected space; and,</del> <del>the conduit must be complete and free of signs of damage or deterioration.</del>	<p>That part of the Requirement mandating the presence of a gas-proof conduit is removed and replaced with a Requirement for the gas pipe to be in a conduit or trunking or otherwise supported.</p> <p>The new approach aligns the BSS Requirements with the specifications with ISO 10239.</p> <p>Although the change does reduce slightly the specifications any added risk is considered to be insufficient not to align the BSS Requirements with the ISO.</p>
3	<a href="#">Applicability – as it is not possible for an Examiner to determine whether a proprietary bulkhead fitting is being used as a pipe joint, or as a sleeve for a continuous pipe, such fittings are exempt from this Requirement.</a>	Necessary flexibility required.
4	<a href="#">Applicability – for the purposes of this Check, an LPG pipework joint will be deemed to be within the petrol engine space where there is a pathway for LPG to travel from the joint to the petrol engine unimpeded.</a>	<p>Added clarity necessary to ensure consistency of scope of the Check.</p> <p>This text is mirrored at Check 8.3.1 regarding LPG or liquid fuelled appliances in petrol engine spaces.</p>
5	<a href="#">Guidance for owners – at the time of introducing or amending a gas system, proprietary bulkhead fittings should not be used to join LPG pipes within petrol engine spaces.</a>	Connected to the 1 <sup>st</sup> Applicability above and to limit the risk going forward.

## 7.9 Low-pressure LPG hoses and hose connections

7.9.1	Are all low pressure LPG hoses accessible for inspection, of the correct material and in good condition?	R
<p>Check the accessibility of all low pressure LPG hoses.</p> <p>Check the markings of all LPG hoses.</p>	<p>All LPG hoses on the low pressure side:</p> <ul style="list-style-type: none"> <li>• must be accessible for inspection along their entire length; <a href="#">and,</a></li> <li>• must be marked to BS EN 16436 Class 2; <a href="#">or</a> BS EN 16436 Class 3; <a href="#">or</a> BS 3212 type 2; <a href="#">and,</a> <del>or equivalent.</del></li> </ul>	

Check the condition of hoses.	<ul style="list-style-type: none"> <li>must be free of <del>leaks</del>, flaws, brittleness, cracking, abrasion, kinking, 'soft' spots or joins.</li> </ul> <p>On hoses covered with metal braiding the braiding must be free of signs of damage or deterioration including corrosion and kinking.</p>
<p><del>Applicability – hoses marked to BS EN 1763 class 2, 3 or 4 are acceptable.</del></p> <p>Applicability – hoses not accessible for inspection along their entire length must be recorded as 'not verified' on your checklist, and it must be considered that the check has not been completed until such time as their general condition has been verified.</p> <p>Applicability – pre-made hose assemblies conforming to BS 669 <u>or EN 14800</u> may be used to connect <u>free-standing</u> cookers to LPG supply pipework. <del>BS 669 Such</del> hoses usually have a red stripe running along the length of the hose but may not be marked with BS 669. <u>EN 14800 hoses are usually coloured yellow, or have a yellow stripe running along the length of the hose, and should be marked EN 14800.</u> The connections on such hoses must terminate with self-sealing bayonet connections at the connection points to the LPG supply pipework. The portable appliance connection Checks at 7.10 also apply.</p>	

Explanation of changes		
1	<ul style="list-style-type: none"> <li>must be marked to BS EN 16436 Class 2; <u>or</u> BS EN 16436 Class 3; <u>or</u> BS 3212 type 2; <del>and, ; or equivalent.</del></li> </ul>	<p>'or's and 'and' added to align with all other Checks.</p> <p>It is not anticipated that there will be any equivalent hoses and Examiners must not be placed in the position to decide upon equivalence.</p>
2	<ul style="list-style-type: none"> <li>must be free of <del>leaks</del>, flaws, brittleness, cracking, abrasion, kinking, 'soft' spots or joins.</li> </ul>	<p>The inclusion of 'leaks' is not correct at this Check. Examiners test for leaks in the LPG system at Check 7.12.2, not by visual assessment.</p>
3	<p><del>Applicability – hoses marked to BS EN 1763 class 2, 3 or 4 are acceptable.</del></p>	<p>It is understood that the credibility of this standard is now being questioned within the LPG industry. It is also likely that no hose has ever been made to this standard. Therefore, the BSS would not be comfortable with Examiners/owners considering this hose as acceptable.</p>
4	<p>Applicability – pre-made hose assemblies conforming to BS 669 <u>or EN 14800</u> may be used to connect <u>free-standing</u> cookers to LPG supply pipework. <del>BS 669 Such</del> hoses usually have a red stripe running along the length of the hose but may not be marked with BS 669. <u>EN 14800 hoses are usually coloured yellow, or have a yellow stripe running along the length of the hose, and should be marked EN 14800</u></p>	<p>Applicability updated to introduce EN 14800 which supersedes BS 669.</p> <p>For the foreseeable future both standards must be referenced.</p>

<b>7.9.2</b>	<b>Is all low pressure LPG hose protected against damage where it passes through bulkheads, decks or partitions?</b>	<b>R</b>
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Check the protection for low pressure LPG hoses passing through bulkheads, decks or partitions.	Low pressure LPG hose passing through bulkheads, decks or partitions must be protected by the use of sleeves, <del>or</del> grommets, <a href="#">cable glands, or equivalent</a> .
<a href="#">Applicability – hose which itself is covered by a proprietary metal braiding does not require additional protection.</a>	
<a href="#">Applicability - it is acceptable for hose to be protected by sealant provided the sealant is in good condition and that it completely seals the area between the hose and the surrounding material, and provided the sealant does not noticeably move or dislodge when the hose is subject to light manual force.</a>	

Explanation of changes		
1	... sleeves, <del>or</del> grommets, <a href="#">cable glands, or equivalent</a> .	To promote a further proprietary compliance option (similar to Check 7.8.2).
2	<a href="#">Applicability – hose which itself is covered by a proprietary metal braiding does not require additional protection.</a>	For added clarity.
3	<a href="#">Applicability - it is acceptable for hose to be protected by sealant provided the sealant is in good condition and that it completely seals the area between the hose and the surrounding material, and provided the sealant does not noticeably move or dislodge when the hose is subject to light manual force.</a>	To permit a further compliance option without promoting it as normal practice (similar to Check 7.8.2).

<b>7.9.4</b>	<b>Are all low pressure LPG hoses used to connect regulators or appliances to LPG supply pipework only, and are they a maximum of 1m in length?</b>	<b>R</b>
Check the location of all LPG low pressure hoses. Measure the length of any LPG hoses used to connect appliances or regulators to LPG supply pipework.	Except on 'all-hose' systems, low pressure LPG hoses may only be used to connect a <del>LPG</del> cylinder regulator and/or appliances to the LPG supply pipework.  LPG hoses used to connect appliances or regulators to LPG supply pipework must not exceed 1m in length.	
<a href="#">Applicability - where there is a single appliance located very close to the cylinder installation it is permissible for hose to run from the cylinder installation to the appliance without pipework provided the hose length does not exceed 1m.</a>		
Applicability - for 'all-hose' systems apply check 7.9.6		

Explanation of changes		
1	<a href="#">Applicability - where there is a single appliance located very close to the cylinder installation it is permissible for hose to run from the cylinder installation to the appliance without pipework provided the hose length does not exceed 1m.</a>	For added clarity.

7.9.5	Are all low pressure LPG hose connections accessible for inspection, of the correct type, secure and in good condition?	R
<p>Check the accessibility of all low pressure hose connections.</p> <p><del>Check types of all LPG hose connections.</del></p> <p>Check the type, condition, and completeness of all hose connections.</p> <p>Pull using light manual force to check <a href="#">the</a> security of all hose connections.</p>	<p>All low pressure LPG hose connections:</p> <ul style="list-style-type: none"> <li>• must be accessible for inspection; <b>and</b>,</li> <li>• must be part of pre-made hose assemblies of suitable proprietary manufacture <b>or</b> use suitable nozzles secured by crimped or worm-drive <a href="#">clamps</a> <del>clips</del>; <b>and</b>,</li> <li>• must not be made using hose clamps fixed by spring tension; <b>and</b></li> <li>• must be free of any missing components, cracks, burrs or rough edges or signs of other damage or deterioration; <b>and</b>,</li> <li>• <del>must not be so narrow as to cut into the hose; and,</del></li> <li>• where made with crimped or worm-drive clamps, the clamps must be suitably sized, that is, not so oversized that the band forms an elliptical shape, or so undersized that inadequate compression is achieved; <b>and</b>,</li> <li>• be appropriately tight, that is, not so loose that the hose can be pulled forward or back under light manual force nor so tight that the hose is excessively pinched.</li> </ul>	
<p><a href="#">Examiner action – when checking the security of hose connections examiners must not attempt to twist the hose against the connection.</a></p> <p>Applicability – hose connections not accessible for inspection must be marked as ‘not verified’ on your checklist, and it must be considered that the Check has not been completed until such time as their condition has been verified.</p> <p><del>Advice for owners – hose clamps of approximately 8mm width are recommended.</del></p> <p><del>Advice for examiners – owners should be advised of the accessibility requirement at the time of an examiner’s initial dealings and compliance achieved by adding inspection panels is recommended.</del></p>		

Explanation of changes		
1	<del>Check types of all LPG hose connections.</del>	Deleted to avoid duplication with the following checking action.
2	worm-drive <a href="#">clamps</a> <del>clips</del>	To standardise on worm-drive ‘clamps’ in the ECP
3	<del>must not be so narrow as to cut into the hose; and,</del>	Deemed to be too subjective and not applied in a consistent manner. Hose damage will be picked up at Check 7.9.1
4	<a href="#">Examiner action – when checking the security of hose connections examiners must not attempt to twist the hose against the connection.</a>	Twisting hose connections can damage the effectiveness of the connections and cause a leak.
5	<del>Advice for owners – hose clamps of approximately 8mm width are recommended.</del>	It is felt that there is no need to promote best practice for this one item. Boat owners can refer to Gas Safe registered installers, etc, for best practice guidance.
6	<del>Advice for examiners – owners should be advised of the accessibility requirement at the time of an examiner’s initial dealings and compliance</del>	The advice is deleted because the BSS Office is to develop a single guidance document setting out

<del>achieved by adding inspection panels is recommended.</del>	how boat owners should prepare their boat's for examinations.
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<b>7.9.6</b>	<b>Do 'all-hose' systems comply <del>fully</del> with ISO 10239?</b>	<b>R</b>
<p><del>Check that 'all-hose' systems are fully compliant with ISO 10239.</del></p> <p><u>Check for the presence of an 'all-hose' system.</u></p> <p><u>If present:</u></p> <ul style="list-style-type: none"> <li>• <u>Check the routing of all hoses.</u></li> <li>• <u>Check the type and accessibility of all hose connections.</u></li> <li>• <u>Check the hose support.</u></li> <li>• <u>Check for the presence of any LPG pipes.</u></li> </ul>		
<p><del>'All hose' systems must fully comply with ISO 10239 as follows:</del></p> <p><u>In addition to the general hose Requirements at Checks 7.9.1, 7.9.2, 7.9.3 and 7.9.5, 'all-hose' hose assemblies must comply with ISO 10239 as follows:</u></p> <ul style="list-style-type: none"> <li>• each length of hose must be <u>jointless</u> <del>routed</del> from within the cylinder locker or housing directly to the individual appliance or appliance isolation valve; <b>and,</b></li> <li>• hoses must have permanently attached end fittings, such as swaged sleeve or sleeve and threaded insert (<u>worm-drive clamps are not permitted</u>); <b>and,</b></li> <li>• <del>hoses must be accessible for inspection over their entire length and connections must be readily accessible;</del> <b>and,</b></li> <li>• <u>hose connections must be readily accessible;</u> <b>and,</b></li> <li>• hoses must not be routed through an engine <u>space</u> <del>compartment</del>; <b>and,</b></li> <li>• <del>hose connections must be stress free, i.e. not subjected to tension or kinking under any conditions of use;</del> <b>and,</b></li> <li>• hoses must be supported at least at 1m intervals.</li> </ul> <p><u>On 'all-hose' systems there must be no LPG pipes.</u></p> <p><u>All hose systems are only permitted where the cylinder(s) is located within a locker or housing.</u></p>		
<p>Applicability – 'all-hose' systems <del>are those not using rigid pipework and</del> will generally be found on imported boats, CE marked to the RCD, where the builder has chosen to apply ISO 10239.</p> <p>Applicability – for multi-appliance systems to ISO 10239, anticipate a manifold arrangement within the cylinder locker or housing.</p> <p><del>Applicability – all of the hose and hose connection condition checks at 7.9.1 and 7.9.5 also apply.</del></p> <p>Applicability – single cooking appliances connected by hose of no more than 1m in length directly to a regulator are acceptable and need not be assessed against this check.</p>		

Explanation of changes		
1	Do 'all-hose' systems comply <b>fully</b> with ISO 10239?	'Fully' not accurate because only a limited number of ISO 10239 clauses are relevant.
2	Reason for the changes to the Checking actions and Requirements.	As currently written, there is some duplication of the Requirements at 7.9.5 and 7.9.6. The revised text endeavours to remove these duplications.  The changes to the Checking action adopt the approached used at other Checking actions (rather than the Checking action simply repeating the Requirement).

		Other changes have been made to improve the clarity of the Requirements.
3	'each length of hose must be <a href="#">jointless</a> <del>routed</del> from within the cylinder locker ....	'Jointless' added to reflect a clause within ISO 10239
4	'hoses must not be routed through an engine <a href="#">space compartment</a> ; and,'	'Engine space' should be used rather than 'compartment' – to be consistent with the fact that we have a Glossary term 'Engine space', that includes the word 'compartment'?
5	'all-hose' systems <del>are those not using rigid pipework and</del> will generally be found on imported boats, CE marked to the RCD, where the builder has chosen to apply ISO 10239.	Minor editorial change, the deleted words are unnecessary.
6	<del>Applicability – all of the hose and hose connection condition checks at 7.9.1 and 7.9.5 also apply.</del>	Applicability no longer necessary as the first sentence in the Requirement covers this.

### 7.10 Portable appliance connections

<b>7.10.1</b>	<b>Are all portable appliance connection points provided with an isolation valve?</b>	<b>R</b>
Identify all portable appliance connection points and check for the presence of an isolation valve. <del>Apply the checks at 7.11.2 and 7.11.3.</del>		All portable appliance connection points must be fitted with an isolation valve.

<b>Explanation of changes</b>		
1.	<del>Apply the checks at 7.11.2 and 7.11.3.</del>	Forward reference to other appliance isolation valve Checks is not necessary.

### 7.11 Appliance isolation valves

<b>7.11.1</b>	<b>Can all appliance supply hoses be isolated through individual <a href="#">appliance isolation shut-off</a> valves?</b>	<b>R</b>
Identify every appliance connected by hose and confirm the presence of an individual shut-off valve at the connection point to the LPG supply pipework.		Appliances connected by hose must be provided with an individual <a href="#">appliance isolation shut-off</a> valve at the connection point to the LPG supply pipework.
<p>Applicability – for an installation with a single appliance <del>connected by a hose</del> the cylinder valve(s) may be classed as the appliance isolation valve <a href="#">irrespective of the distance between the appliance and the cylinder(s)</a>.</p> <p><del>Applicability – ease of access takes precedence over the requirement for the valve to be located at the connection to the LPG supply pipework.</del></p> <p><a href="#">Applicability - individual appliance isolation valves in the same LPG pipework spur as the appliance connected by hose, can be considered as meeting this Requirement.</a></p> <p>Applicability – hob/oven arrangements may be deemed one appliance for the purposes of this check.</p>		

[Supporting information on the positioning of appliance isolation valves is provided at Appendix 7.](#)

Explanation of changes		
1.	<b>Can all appliance supply hoses be isolated through individual <a href="#">appliance isolation</a> <del>shut-off</del> valves?</b>	The change avoids the use of two terms for the same item – ‘individual shut-off valve’ and ‘appliance isolation valve’.  The text now standardises on ‘appliance isolation valve’, as per the Section title and all further references in Checks 7.11.2 and 7.11.3 and in the ‘Core’ training handbook.  Note that we now standardise on ‘LPG system main shut-off valve’... for main shut-off facility.)
2	Applicability – for an installation with a single appliance <del>connected by a hose</del> the cylinder valve(s) may be classed as the appliance isolation valve <a href="#">irrespective of the distance between the appliance and the cylinder(s)</a> .	To add clarity.
3	<del>Applicability – ease of access takes precedence over the requirement for the valve to be located at the connection to the LPG supply pipework.</del>	Deleted as 7.11.1 is concerned purely with the provision of the ‘appliance isolation valve’ at the connection point, and not its accessibility. Accessibility is covered at Check 7.11.3.
4	‘Appliances connected by hose must be provided with an individual <a href="#">appliance isolation</a> <del>shut-off</del> valve at the connection point to the LPG supply pipework.’	As per 2 above
5	<a href="#">Applicability - individual appliance isolation valves in the same LPG pipework spur as the appliance connected by hose, can be considered as meeting this Requirement.</a>	To align with the PD 54283 and ISO 10239.
6	<a href="#">Supporting information on the positioning of appliance isolation valves is provided at Appendix 7.</a>	A pointer to supporting information illustrating the impact of the Applicabilities contained within Appendix 7.

7.11.2	Are appliance isolation valves of <a href="#">suitable proprietary manufacture</a> <del>the correct type?</del>	R
Identify the type of all appliance isolation valves.	<p><a href="#">Appliance isolation valves must be of suitable proprietary manufacture, and:</a></p> <ul style="list-style-type: none"> <li>Any tapered-plug type valves used as isolation valves must be spring loaded.</li> <li><del>Needle-type valves used as isolation valves are not permitted.</del></li> <li>Appliance isolation valves at floor level must either be of the drop fan or loose-key type or of a type that cannot be operated inadvertently.</li> </ul>	
<p><a href="#">Applicability – the Requirements apply to portable appliance connection isolation valves as well as to isolation valves for permanently installed appliances.</a></p> <p><a href="#">Applicability - needle-type valves are not considered to be of suitable proprietary manufacture.</a></p>		

Applicability – if the spring on a spring-loaded tapered-plug valve is found to be touching the surface behind it, then the valve is not to be considered as being spring-loaded.

[Supporting information on appliance isolation valves of suitable proprietary manufacture is provided at Appendix 7.](#)

Explanation of changes		
1	‘Are appliance isolation valves of <a href="#">suitable proprietary manufacture</a> <del>the correct type?</del> ’	It is considered that the appropriate starting point should be that appliance isolation valves must be of ‘suitable proprietary manufacture’, which should ensure they are suitable for use with LPG.
2	<p>‘Appliance isolation valves must be of <a href="#">suitable proprietary manufacture, and:</a></p> <ul style="list-style-type: none"> <li>Any tapered-plug type valves used as isolation valves must be spring loaded.</li> <li><del>Needle-type valves used as isolation valves are not permitted.</del></li> <li>Appliance isolation valves at floor level must either be of the drop fan or loose-key type or of a type that cannot be operated inadvertently.’</li> </ul>	<p>As above, the requirement that appliance isolation valves to be of suitable proprietary manufacture becomes the overriding requirement.</p> <p>The two additional qualifications to the suitable proprietary requirement are added as bullets. These remain necessary because:</p> <ul style="list-style-type: none"> <li>i) Tapered-plug valves are available for use with LPG, non-spring loaded; and,</li> <li>ii) The potential inadvertent operation of floor level valves is nothing to do with the valve type’s proprietary manufacture.</li> </ul>
3	<a href="#">Applicability – the Requirements apply to portable appliance connection isolation valves as well as to isolation valves for permanently installed appliances.</a>	The Applicability adds necessary clarity that the scope of Check 7.11.2 covers <u>portable</u> appliance connection isolation valves (otherwise covered at Section 7.10).
4	<p><del>Needle-type valves used as isolation valves are not permitted.</del></p> <p><a href="#">Applicability - needle-type valves are not considered to be of suitable proprietary manufacture.</a></p>	The disallowance for needle valves is moved to an Applicability because it does not sit well alongside the above two qualifications and does sit well as an applicability.
5	<a href="#">Supporting information on appliance isolation valves of suitable proprietary manufacture is provided at Appendix 7.</a>	A pointer to supporting information illustrating the impact of the Applicabilities contained within Appendix 7.

7.11.3	Are appliance isolation valves, or the means of operating them, readily accessible?	R
Check the accessibility of all isolation valves, or the means of operating them.	Appliance isolation valves, or the means of operating the valves, must be readily accessible.	
<a href="#">Applicability – the Requirements apply to portable appliance connection isolation valves as well as to isolation valves for permanently installed appliances.</a>		

Applicability - isolation valves located behind free-standing LPG cookers that are restrained from tilting are acceptable provided the restraining method can be unfastened without the use of tools.

**Guidance Advice** for owners – the [LPG system](#) main shut-off valve should be considered as the primary emergency shut-off.

Explanation of changes		
1	<a href="#">Applicability – the Requirements apply to portable appliance connection isolation valves as well as to isolation valves for permanently installed appliances.</a>	The Applicability adds necessary clarity that the scope of Check 7.11.3 covers <u>portable</u> appliance connection isolation valves (otherwise covered at Section 7.10).
2	<b>Guidance Advice</b> for owners – the <a href="#">LPG system</a> main shut-off valve should be considered as the primary emergency shut-off.	‘Guidance for owners’ is the accepted term. To expand the term in full to align with the full description used in the title and throughout section 7.6 – <a href="#">LPG system main shut-off valve</a>

### 7.12 Testing for LPG system tightness

7.12.1	Is there a LPG test point in the system, or a bubble tester in the cylinder locker or housing?	R
Check for the presence and location and accessibility of a means to determine the LPG system tightness.	All LPG systems must be fitted with one of the following means to determine gas-tightness: <ul style="list-style-type: none"> <li>• <a href="#">a readily accessible proprietary test point fitted in the pipework; or,</a></li> <li>• <a href="#">a readily accessible proprietary test point on an appliance; or,</a></li> <li>• a bubble <a href="#">leak detector</a> <del>tester</del> installed in a cylinder locker or cylinder housing.</li> </ul>	

Explanation of changes		
1	Transpose the bullet list, as proposed above: Below is the currently agreed text for reference: ‘All LPG systems must be fitted with one of the following means to determine gas-tightness: <ul style="list-style-type: none"> <li>• a readily accessible proprietary test point on an appliance; <b>or,</b></li> <li>• a readily accessible proprietary test point fitted in the pipework; <b>or,</b></li> <li>• a bubble tester installed in a cylinder locker or cylinder housing.’</li> </ul>	The 2 <sup>nd</sup> bullet of the currently agreed Requirement is moved to the top of the list of optional means to test the tightness of the LPG system. The current bullet point sequence is shown to the left and the proposed change is shown above. The justification is that the Requirement should be promoting pipework test points over appliance ones.
2	<ul style="list-style-type: none"> <li>• a bubble <a href="#">leak detector</a> <del>tester</del> installed in a cylinder locker or cylinder housing.</li> </ul>	Text change to standardise on ‘bubble leak detector’ with ECP/Appendix text.

7.12.2	Is the LPG system free of leaks as defined in the tightness test?	R
Verify the LPG system is free of leaks by carrying out the appropriate tightness test at Appendix C or Appendix D <a href="#">or D1</a> .		All LPG systems must be free of leaks when tested in accordance with the appropriate tightness test procedure.
<p>Applicability – if for any reason a tightness test cannot be completed your checklist must be marked as ‘not verified’ and the item considered as non-compliant until such time as verification of tightness is achieved. The reason for non-completion must be recorded.</p> <p><a href="#">Applicability – if a leak is identified take the actions described in Appendix A. The criteria for a ‘hazardous boat’ notification (Appendix B) to be actioned is set out in Appendix C and D or D1.</a></p> <p><del>Applicability – a leak in the system is classified as ‘immediately dangerous’ and the actions described in Appendix A and B are to be taken.</del></p> <p><a href="#">Examiner action - where, during a tightness test undertaken using a suitable pressure gauge (Appendix C) a regulator is found not to lock-up within industry recommended tolerances, take the actions described in Appendix A, or A and B, and make a note on the BSS Warning Notice about the performance of the regulator. Where it can be established, also note the age of the regulator if it is over 10 years old.</a></p> <p><a href="#">Guidance for owners - where, during a tightness test undertaken using a suitable pressure gauge (Appendix C), a regulator is found not to lock-up within industry recommended tolerances owners are guided to have the regulator tested by a Gas Safe registered LPG in boats installer. Replacement regulators should incorporate a means of protecting the downstream pipework and appliances from overpressure in the event of regulator malfunction. It is recommended that regulators over 10 years old should be replaced.</a></p>		

Explanation of changes		
1	Add ‘... <a href="#">or D1</a> ’ in the Checking action and in the Applicability as illustrated above.	There is a need to reference the test procedure used for older ALDE 4071 bubble testers (Appendix D1).
2	<p><a href="#">Applicability – if a leak is identified take the actions described in Appendix A. The criteria for a ‘hazardous boat’ notification (Appendix B) to be actioned is set out in Appendix C and D or D1.</a></p> <p><del>Applicability – a leak in the system is classified as ‘immediately dangerous’ and the actions described in Appendix A and B are to be taken.</del></p>	To update and add more clarity to the required approach.
3	<p><a href="#">Examiner action - where, during a tightness test undertaken using a suitable pressure gauge (Appendix C) a regulator is found not to lock-up within industry recommended tolerances, take the actions described in Appendix A, or A and B, and make a note on the BSS Warning Notice about the performance of the regulator. Where it can be established, also note the age of the regulator if it is over 10 years old.</a></p>	<p>It is proposed that it is necessary to add the Examiner action about regulator performance based upon the Applicability from the flame pattern test Check 8.8.1.</p> <p>The justification is that:</p> <ul style="list-style-type: none"> <li>i) the LPG tightness test may be done before the flame pattern test and so it makes sense that the regulator performance criteria are repeated here; and,</li> <li>ii) we have guidance about regulator performance for owners at Check 7.12.2, but none for Examiners; and,</li> </ul>



		<p>iii) LPG regulator performance is becoming more sharply into risk focus with outside regulators and within the BSS Risk Register – the time is right to ensure the BSS approach is consistent , at the very least when conducting manometer LPG tightness testing.</p>
<p>4</p>	<p><a href="#">Guidance for owners - where, during a tightness test undertaken using a suitable pressure gauge (Appendix C), a regulator is found not to lock-up within industry recommended tolerances owners are guided to have the regulator tested by a Gas Safe registered LPG in boats installer. Replacement regulators should incorporate a means of protecting the downstream pipework and appliances from overpressure in the event of regulator malfunction. It is recommended that regulators over 10 years old should be replaced.</a></p>	<p>Historically examiners have recorded regulator lock-up pressures when undertaking a tightness test using Appendix C, but there has not previously been any associated guidance for Examiners as to what they should do with the information. The proposed new procedures at Appendix C instruct Examiners to apply the proposed new Guidance for owners at Check 7.12.2.</p> <p>The vast majority of LPG regulators encountered are not of the currently accepted ‘marine’ type and don’t have overpressure (OPSO) protection.</p> <p>It is proposed that it is necessary to add to the ‘Guidance for owners’ to encourage owners to select appropriate replacement regulators.</p> <p>The justification is that:</p> <ul style="list-style-type: none"> <li>i) the BSS is currently silent on replacement regulators and therefore could be perceived to be not aligned with the requirements of PD 54823 and ISO 10239 that call pressure regulation devices that conform to BS EN 16129:2013 and have an overpressure (OPSO) device.</li> <li>ii) LPG regulator performance is becoming more sharply into risk focus with outside regulatory bodies and within the BSS Risk Register – the time is right to ensure the BSS has a well-rounded approach that includes a published position on replacement regulators.</li> </ul>

## BSS Examination Checking Procedures – Part 8 - Appliances and flues

8.1.1	<b><u>Check Item 8.1.1 is intentionally not used</u></b>	R
<b><del>Do the fuel supply arrangements to all installed appliances meet the applicable BSS Requirements?</del></b>		
<del>For each installed appliance, identify the type of fuel supply arrangements and apply the relevant Part of the BSS Requirements.</del>		<del>The fuel supply arrangements for all installed appliances must meet the applicable BSS Requirements.</del>
<del>Applicability – concerning diesel, paraffin, spirit, electric, or LPG appliances, apply Part 2, Part 3 or Part 7 respectively, as appropriate.</del>		

Explanation of changes	
1	<p>Check 8.1.1 is deleted, but the Check number is retained as ‘unused’ to keep the existing numbering system.</p> <p>Check 8.1.1. is not a stand-alone Check, but rather allows the double accounting of BSS faults and as such no longer meets the criteria for BSS Requirements.</p>

8.1.2	<b>Are all liquid-fuelled appliances fitted with shut-off valves, and are the valves or their means of operation, in a readily accessible and safe position?</b>	R
<p>Identify all fuel supplies to liquid-fuelled appliances and check for the presence of valves <del>or cocks</del>.</p> <p>Check the position and accessibility of the valves <del>or cocks</del>, or their means of operation.</p>		<p>Liquid-fuelled appliances must be provided with a valve <del>or cock</del> to shut off the fuel supply.</p> <p>All shut-off valves <del>or cocks</del>, or their means of operation, must be installed in a readily accessible position.</p> <p>All shut-off valves <del>or cocks</del>, or their means of operation, must be installed within reach of the appliance but not in a position that requires the user to reach over or around the appliance to operate them.</p>
<p>Applicability – <u>on installations where the fuel tank is located in close proximity to the appliance the supply valve close to the tank (as required at Check 2.13.1) may be accepted as the appliance shut-off valve. However, for installations where the fuel tank is not located near the appliance (e.g. where the tank also supplies an internal combustion engine and/or is located in an engine space) an appliance shut-off valve is likely to be required in addition to the tank valve at Check 2.13.1. this Check does not cancel out the fuel tank shut-off Requirements at Check Item 2.13.1, which must be met.</u></p> <p>Applicability – the valve <del>or cock</del> should normally be situated in the same compartment as the appliance. However, there may be installations where it is not physically possible or safe to do so. For example: where the appliance is installed on a bulkhead between compartments; or, if there is less than approximately 1m of fuel pipe in the same compartment. In these cases it is acceptable for the valve <del>or cock</del> to be installed at the nearest practicable point.</p> <p>Applicability – automatic fire valves of a suitable proprietary <u>manufacture type</u> are an acceptable alternative to manually operated valves <del>or cocks</del>. Where fire valves are fitted these may be located immediately adjacent to the appliance.</p>		

Applicability – appliances fitted with electrical fuel-supply pumps that shut off the fuel supply when the pump is not in use, are an acceptable alternative to manually operated valves ~~or cocks~~.

Explanation of changes		
1	valve <del>or cock</del>	Throughout the ECP reference to 'cock' is removed and sole reliance placed upon the word 'valve'.
2	Applicability – <u>on installations where the fuel tank is located in close proximity to the appliance the supply valve close to the tank (as required at Check 2.13.1) may be accepted as the appliance shut-off valve. However, for installations where the fuel tank is not located near the appliance (e.g. where the tank also supplies an internal combustion engine and/or is located in an engine space) an appliance shut-off valve is likely to be required in addition to the tank valve at Check 2.13.1. this Check does not cancel out the fuel tank shut-off Requirements at Check Item 2.13.1, which must be met.</u>	The revised text provides added clarity as to the relationship between the Requirements at 8.1.2 and 2.13.1.
3	Applicability – automatic fire valves of a suitable proprietary <u>manufacture type</u> are an acceptable alternative to manually operated valves <del>or cocks</del> .	The amends aligns the text with the accepted glossary term 'suitable proprietary manufacture'.

## 8.2 LPG ~~or paraffin~~ refrigerators on vessels with petrol propulsion engines

8.2.1	Where the vessel has a petrol propulsion engine, is <u>any the burner of a LPG or paraffin refrigerator of a proprietary room-sealed type, or is it a Wilderness Boats conversion of an Electrolux RM 212 completely enclosed?</u>	R
<p><u>If an LPG refrigerator is present on a petrol-engined boat, determine if it is a proprietary room sealed type, or a Wilderness Boats conversion of an Electrolux RM212.</u></p> <p><del>Identify the presence of a non-room-sealed LPG or paraffin refrigerator in a vessel with a petrol propulsion engine.</del></p> <p><del>If present, check that the burner is totally enclosed or if necessary, any presented declaration from an equipment manufacturer or supplier.</del></p> <p><u>On petrol-engined boats, any LPG refrigerator must be either:</u></p> <ul style="list-style-type: none"> <li><u>a proprietary room sealed type; or,</u></li> <li><u>a Wilderness Boats conversion of an Electrolux RM212.</u></li> </ul> <p><del>The burners of LPG or paraffin refrigerators in a vessel with a petrol propulsion engine must be room-sealed, or completely enclosed.</del></p>		
<p><u>Examiner action – Examiners must refer to section 1 of Appendix 8 for essential information on recognising Wilderness Boats' converted Electrolux RM212 LPG fridges.</u></p> <p><u>Applicability – known room-sealed LPG fridge models include the Electrolux RB180, RB182, RM4213 LSC and RM6401 LSC models.</u></p> <p>Applicability – this Check is limited to petrol engines, including petrol outboard motors, used as the means of propulsion.</p> <p>Applicability – if the <del>owner claims compliance, but the suitability of the fridge cannot be verified from visual assessment</del> <del>burner assembly is not visible</del> and the owner has no declaration from an equipment manufacturer</p>		

or supplier, mark your [checklist Check Item](#) 'not verified'. In such cases, the fridge must be considered as non-compliant until such time as its suitability has been verified.

~~Applicability – known room-sealed models include the Electrolux RB180, RB182, RM4213 LSC and RM6401 LSC models.~~

[Applicability – in the event a paraffin fridge is found on board a petrol-engined boat Examiners should contact the BSS Office for guidance.](#)

Applicability – in the event a fault is determined take the actions described in Appendix A and B.

Explanation of changes	
1	<p>The Check has been re-arranged to focus on a Requirement that fridges on petrol engined boats must either be a proprietary room sealed appliance, or a Wilderness Boats conversion of an Electrolux RM212.</p> <p>The decision reflects the fact that there are no known proprietary LPG room sealed fridge appliances, and no room-sealed conversions other than Wilderness. DIY fridge conversions must not be permitted.</p>
2	<p>mark your <a href="#">checklist Check Item</a> 'not verified'</p> <p>To align the approach with similar Applicabilities at other Checks.</p>
3	<p><del>or paraffin</del></p> <p><a href="#">Applicability – in the event a paraffin fridge is found on board a petrol-engined boat Examiners should contact the BSS Office for guidance.</a></p> <p>As the Check now focuses room-sealed LPG fridges and the Wilderness Boats LPG fridge conversion, the inclusion of 'paraffin' is no longer relevant.</p> <p>Also, it is considered very unlikely that Examiners will come across paraffin fridges, particularly on petrol-engined boats. The concept of paraffin fridges therefore does not warrant specific inclusion within the Requirement.</p> <p>However, in the unlikely event that a paraffin fridge is found on a petrol-engined boat the new Applicability will ensure Examiners seek guidance. In such situations the existing [2015] Requirements can be applied.</p>

8.2.2	<p><del>On vessels with petrol propulsion engines that have non-room-sealed fridges with enclosed burners, is the combustion air drawn and exhausted through a suitable effective flame trap or piped to the appliance as required?</del></p> <p><a href="#">On petrol-engined vessels with a Wilderness Boats conversion of an Electrolux RM 212 refrigerator on board, are the burner enclosure and the flame arrestor at the 'lazy tee' in place, and is there suitable documentary evidence of recent servicing?</a></p>	R
<p><a href="#">On petrol-engined vessels with a Wilderness Boats conversion of an Electrolux RM 212 on board, check for the presence of:</a></p> <ul style="list-style-type: none"> <li><a href="#">a not less than 11 wires per linear cm mesh fitted to the 'lazy tee' on the flue pipe; and,</a></li> <li><a href="#">a not less than 11 wires per linear cm mesh enclosure around the burner; and,</a></li> <li><a href="#">documentation confirming that the refrigerator has been serviced by Wilderness Boats or a Gas Safe registered engineer within the previous 12 months.</a></li> </ul>		<p><a href="#">On petrol-engined vessels with a Wilderness Boats conversion of an Electrolux RM 212 on board:</a></p> <ul style="list-style-type: none"> <li><a href="#">a not less than 11 wires per linear cm mesh must be fitted to the 'lazy tee' on the flue pipe; and,</a></li> <li><a href="#">a not less than 11 wires per linear cm mesh enclosure must be fitted around the burner; and,</a></li> <li><a href="#">there must be documentary evidence that the refrigerator has been serviced by Wilderness Boats or a Gas Safe registered engineer within the previous 12 months of the date of the Examination.</a></li> </ul>

<p>Identify the presence of a <u>non</u> room-sealed LPG or paraffin refrigerator with an enclosed burner in a vessel with a petrol propulsion engine.</p> <p>If present, check the air intake and exhaust for the presence of a suitable flame trap.</p> <p>If the combustion air is not drawn and exhausted through a suitable flame trap visually check how the air is piped to and exhausted from the appliance.</p>	<p>The air intakes and exhausts of <u>non</u> room-sealed LPG or paraffin refrigerators in vessels with petrol propulsion engines must pass through a flame trap with a gauze of not less than 11 wires per linear cm (28 wires/per inch) mesh.</p> <p>If the combustion air is not drawn and exhausted through a suitable flame trap, the combustion air and exhaust must be piped to the appliance from either:</p> <ul style="list-style-type: none"> <li>• outside the vessel; <u>or</u>,</li> <li>• a point inside the vessel above the level of windows, other openings, or other means of ventilation in the accommodation space.</li> </ul>
<p><u>Applicability</u> – if the owner claims compliance but the combustion air intake and/or the burner assembly are not visible mark your Check Item ‘not verified’. In such cases the fridge must be considered as non-compliant until such time as its suitability has been verified.</p> <p><u>Examiner action</u> – Examiners must refer to section 1 of Appendix 8 for essential information on recognising the flame arresting components of Wilderness Boats converted fridges.</p> <p><u>Applicability</u> – Examiners should take a photograph/retain a copy of the presented documentation to be kept on file with the Examination checklist.</p> <p><u>Applicability</u> – if the flame arresting mesh on the ‘lazy tee’ and/or the burner enclosure cannot be seen, Examiners should mark their checklist ‘not verified’. In such cases, the fridge must be considered as non-compliant until such time as its suitability has been verified.</p> <p><u>Applicability</u> – if any part of the flue appears damaged, record a fault at Check 8.10.2 and take the actions described in Appendix A and B.</p> <p><u>Applicability</u> – in the event a fault is determined <a href="#">at this Check</a> take the actions described in Appendix A and B.</p>	

<p><b>Explanation of changes</b></p> <p>The Wilderness Boat converted fridges are now 20 to 30 (plus) years old, that Wilderness Boat owners are reportedly removing the fridges as they can no longer be maintained correctly.</p> <p>Given the high level of risk associated with a failure of the flame arresting enclosures around the burners and flue, requiring these fridges to have been serviced by a competent person within the past 12 months. is a reasonable risk control measure.</p> <p>As the Check now focuses on Wilderness Boat fridges, the Requirement can be more specific in terms of the flame arresting components. This new approach will assist with Examiner application.</p>
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<b>8.3.1</b>	<b>Are petrol-engine spaces free of LPG and/or liquid-fuelled appliances?</b>	<b>R</b>
<p>Check petrol engine spaces for the presence of LPG and/or liquid-fuelled appliances.</p>		<p>LPG and/or liquid-fuelled appliances must not be installed in petrol-engine spaces.</p>
<p><u>Applicability</u> – for the purposes of this Check, an LPG and/or liquid-fuelled appliances will be deemed to be within the petrol engine space where there is a direct pathway for LPG to travel from any LPG appliance to the petrol engine or, where there is a direct pathway for any escaped petrol vapour to travel from the petrol engine to the LPG and/or liquid-fuelled appliance.</p>		

Applicability – in certain circumstances LPG and/or liquid-fuelled appliances may be located in petrol engine spaces where they are installed in a separate vapour-tight compartment. In the event such an installation is identified, or where an owner is claiming compliance or equivalence, Examiners should contact the BSS Office.

Applicability – if the appliance is located outside of the engine space, but the air intake to that appliance is located within the space then a fault is to be recorded.

#### Explanation of changes

1	<p><a href="#">Applicability – for the purposes of this Check, an LPG and/or liquid-fuelled appliances will be deemed to be within the petrol engine space where there is a direct pathway for LPG to travel from any LPG appliance to the petrol engine or, where there is a direct pathway for any escaped petrol vapour to travel from the petrol engine to the LPG and/or liquid-fuelled appliance.</a></p>	<p>Added clarity necessary to ensure consistency of scope of the Check.</p> <p>This text is mirrored at Check 7.8.6 regarding LPG pipework in petrol engine spaces.</p>
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### 8.4 Protection against fire risks from appliance installations

<b>8.4.1</b>	<b>Are appliances and surrounding surfaces clear of signs of heat damage and leaking fuel?</b>	<b>R</b>
<p>Check all appliances and all their surrounding surfaces for signs of heat damage and leaking fuel, <a href="#">where they can be seen</a>.</p>	<p>Appliances and all their surrounding surfaces must not show signs of:</p> <ul style="list-style-type: none"> <li>• scorching, blistering or discolouration; or,</li> <li>• fuel leakage; or,</li> <li>• heat damage or deterioration to appliance structure.</li> </ul>	<p>Applicability – this Check applies to all fuel-burning appliances and 'bullseye' (also known as 'domed') decklights and their surrounding and adjacent surfaces.</p>

#### Explanation of changes

1	<p>.... signs of heat damage and leaking fuel, <a href="#">where they can be seen</a>.</p>	<p>Adding 'where they can be seen' adds clarity as to the scope of the checking.</p>
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<b>8.4.2</b>	<b>Are all curtains, blinds and other textile materials near to appliances free of heat damage?</b>	<b>R</b>
<p>Check all curtains, blinds and other textile materials near appliances for signs of heat damage, <a href="#">where they can be seen</a>.</p>	<p>Curtains, blinds and other textile materials near all appliances must not show signs of heat damage such as scorching or burning.</p>	<p>Applicability - this Check applies to curtains, blinds and other textile materials near all fuel-burning appliances and 'bullseye' (domed) decklights.</p>

#### Explanation of changes

1	<p>.... signs of heat damage, <a href="#">where they can be seen</a>.</p>	<p>Adding 'where they can be seen' adds clarity as to the scope of the checking.</p>
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8.4.3	Are non-portable appliances <del>properly</del> secured against <del>accidental or</del> unintended movement?	R
<p>Check for the presence <del>and condition</del> of securing systems on all non-portable appliances.</p> <p><a href="#">Where they can be seen or reached, check the suitability and condition of the securing systems.</a></p> <p>Where practicable, apply light manual force to check the security of all non-portable appliances.</p> <p><del>Where a manual check is not practicable, such as with solid fuel and oil fired stoves, check the condition of securing systems.</del></p>		<p><del>Non-portable appliances must be incapable of unintended movement in any direction.</del></p> <p>Securing systems must be installed on all non-portable appliances and <a href="#">the</a> securing systems and their fixing points <del>must be of suitable strength and</del> must:</p> <ul style="list-style-type: none"> <li>• <a href="#">be suitable, such as screw/bolt fastenings directly through the appliance's frame (or additional metal brackets) into adjacent boat structure; and,</a></li> <li>• <a href="#">show no signs of damage or deterioration, including fractured mounting brackets, missing, loose or fractured bolts or nuts.</a></li> </ul> <p><del>• show no signs of fractured mounting brackets;</del></p> <p><del>• not have loose, missing or fractured bolts or nuts.</del></p> <p><a href="#">Non-portable appliances must be secured against unintended movement under light manual force.</a></p>
<p>Applicability – appliances in gimbals may tilt, but the retaining mechanism must be secure.</p> <p>Applicability – appliances connected to the fuel supply by hoses or electrical cables may be retained using fixed chains provided there is no possibility of strain on the hose and/or cable connections.</p> <p>Applicability - this Check applies to all fuel-burning appliances but does not apply to electrical appliances.</p>		

Explanation of changes		
1	Are non-portable appliances <del>properly</del> secured against <del>accidental or</del> unintended movement?	In the original 2015 ECP Check, the words 'properly' and 'accidental' are considered to be rather meaningless. As they are not used within the Requirement they are removed from the Check question.
2	Check for the presence <del>and condition</del> of securing systems on all non-portable appliances.  <a href="#">Where they can be seen or reached, check the suitability and condition of the securing systems.</a>	Separating out the condition checking enables the addition of 'seen and reached' (which adds clarity as to the extent of the checking).
3	<del>Where a manual check is not practicable, such as with solid fuel and oil fired stoves, check the condition of securing systems.</del>	The securing checking action is adequately covered by the paragraph above and the condition of securing systems is now separately covered.

4	<del>Non-portable appliances must be incapable of unintended movement in any direction.</del>  <u>Non-portable appliances must be secured against unintended movement under light manual force.</u>	The main part of this Requirement has been moved down so that the order of the Requirements better reflect the Checking actions. Also, the use of ‘...secured against unintended movement under light manual force.’ makes the approach consistent with other similar Checks (see Check 7.4.2).
5	<del>must be of suitable strength and</del>	‘Suitable strength’ is deleted as it cannot be qualified by Examiners.
6	<ul style="list-style-type: none"> <li><u>be suitable, such as screw/bolt fastenings directly through the appliance’s frame (or additional metal brackets) into adjacent boat structure; and,</u></li> <li><u>show no signs of damage or deterioration, including fractured mounting brackets, missing, loose or fractured bolts or nuts.</u></li> <li><del>show no signs of fractured mounting brackets;</del></li> <li><del>not have loose, missing or fractured bolts or nuts.</del></li> </ul>	<p>‘be suitable’ is added as a general Requirement. The additional text helps to qualify what is meant by ‘suitable’.</p> <p>‘damage or deterioration’ added to bullet-pointed list to better align with other similar Requirements and bullet-point listed otherwise realigned to flow better.</p>

### 8.5 Protection against fire risks from appliance flues and exhausts

<b>8.5.1</b>	<b>Are all vessel structures, equipment, and curtains, blinds and other textile materials near all appliance flues and exhausts free of signs of heat damage?</b>	<b>R</b>
Check vessel structures, equipment, and curtains, blinds and other textile materials near all appliance flues and exhausts for signs of heat damage, <u>where they can be seen</u> .	Vessel structures, equipment, and curtains, blinds and other textile materials near all appliance flues and exhausts must not show signs of heat damage such as scorching, blistering or discolouration.	
Applicability – this Check applies to all fuel-burning appliances with flues or exhausts.		

<b>Explanation of changes</b>		
1	.... signs of heat damage, <u>where they can be seen</u> .	Adding ‘where they can be seen’ adds clarity as to the scope of the checking.

<b>8.6.1</b>	<b>Are all LPG catalytic heaters compliant with a suitable manufacturing standard?</b>	<b>R</b>
<u>Identify any LPG catalytic heaters and check for the presence of a guard over the heating elements and check the control tap arrangements.</u>	<p>LPG catalytic heating appliances must comply with the elements of:</p> <ul style="list-style-type: none"> <li>BS 5258-11; <u>or</u>,</li> <li>BS EN 449</li> </ul>	



<p>Identify any LPG catalytic heaters and check compliance with the following aspects of BS 5258-11 or BS EN 449 by visual inspection:</p> <ul style="list-style-type: none"> <li>• For BS 5258-11 check: <ul style="list-style-type: none"> <li>a) <del>provision of a guard; and,</del></li> <li>b) <del>three position on-off tap; and,</del></li> <li>c) <del>flexible tubing to BS EN 16436 Class 2; BS EN 16436 Class 3; or BS 3212 type 2.</del></li> </ul> </li> <li>• For BS EN 449 check: <ul style="list-style-type: none"> <li>a) <del>legible and durable marking of open, closed and any reduced rate positions on control taps; and,</del></li> <li>b) <del>clear marking of any special position of the control tap for ignition; and,</del></li> <li>c) <del>provision of a fire guard.</del></li> </ul> </li> </ul>	<p>as prescribed <u>below</u>: <del>in the check.</del></p> <p><u>For compliance with BS 5258-11:</u></p> <ul style="list-style-type: none"> <li>• <u>the provision of a guard over the heating elements; and,</u></li> <li>• <u>a three position on-off tap.</u></li> </ul> <p><u>For compliance with BS EN 449:</u></p> <ul style="list-style-type: none"> <li>• <u>the provision of a guard over the heating elements; and,</u></li> <li>• <u>legible and durable marking of open, closed and any reduced rate positions on control taps; and,</u></li> <li>• <u>clear marking of any special position of the control tap for ignition.</u></li> </ul>
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Explanation of changes		
1	All	<p>The existing layout, with the Requirements referring to the Checking action, is not consistent with the approach used elsewhere within the ECP.</p> <p>The new approach keeps the Checking action relatively simple and puts the specifications within the Requirement (as is the approach at other Checks).</p>
2	<del>flexible tubing to BS EN 16436 Class 2; BS EN 16436 Class 3; or BS 3212 type 2.</del>	<p>With reference to the deleted Checking action from the existing 8.6.1. There is no benefit in requiring hose specific to catalytic heaters to be to specified standards because Check 7.9.1 specifies the Requirements for all low-pressure hose applications.</p>

### 8.7 Flame supervision devices

<b>8.7.1</b>	<b>Are flame supervision devices fitted to all LPG and liquid-fuelled appliances that require them?</b>	<b>R</b>
<p>Check all LPG and liquid-fuelled appliances for the presence of flame supervision devices, <u>where the burners or pilot lights can be seen</u>.</p> <p>For any LPG appliance not fitted with flame supervision device(s) seek to determine from the owner, or from available documentary evidence, the date the appliance was installed.</p> <p>For any liquid-fuelled appliance not fitted with flame supervision device(s), seek to determine from the owner, or from available documentary evidence,</p>		<p>For LPG appliances:</p> <p>All the burners and pilot lights of LPG appliances installed on or after 3 January 2000 must be fitted with a device that automatically shuts off the LPG supply if the burner flame fails.</p> <p>LPG appliances installed before 3 January 2000 must be fitted with a device that automatically shuts off the LPG supply if the burner flame fails on:</p> <ul style="list-style-type: none"> <li>• the burners on catalytic appliances; <b>and,</b></li> <li>• appliances with continuously-burning flames; <b>and,</b></li> <li>• pilot light burners.</li> </ul> <p>For liquid-fuelled appliances:</p>

whether the appliance manufacturer requires such a device to be fitted.	Flame supervision devices must be fitted to all liquid-fuelled appliances where the appliance manufacture requires such a device to be fitted.
<p>Applicability – Examiners unsure of whether a particular liquid-fuelled appliance should be fitted with a flame failure device, or seeking clarification as to the suitability of such a device, should contact the BSS Office.</p> <p>Applicability – engine-start blowlamps are not required to have <del>FSDs</del> <u>flame supervision devices</u>.</p>	

Explanation of changes		
1	.... supervision devices, <u>where the burners or pilot lights can be seen</u>	Adding ‘where the burners or pilot lights can be seen’ adds clarity as to the extent of the checking.
2	Applicability – engine-start blowlamps are not required to have <del>FSDs</del> <u>flame supervision devices</u> .	The acronym is removed because it appears nowhere else in the ECP.

### 8.8 LPG appliance burner operation

<b>8.8.1</b>	<b>Are all LPG appliance burners <del>in good condition and</del> delivering a proper flame?</b>	<b>R</b>
Light <u>all</u> LPG appliance burners and operate them at their maximum setting at the same time.  <del>Compare the flame pictures at each burner to the ‘burner flame trouble chart’ at Appendix L.</del>	A satisfactory flame picture must be present at each LPG appliance burner when all burners in the system are operating at their maximum setting at the same time.	
<p><u>Examiner action – Examiners must compare flame pictures at each burner to the ‘burner flame trouble chart’ at section 1 of Appendix 8.</u></p> <p>Examiner action - before operating the burners on any flued appliances, carry out the Checks at 8.10.1/2/3. The flame picture assessment should not be carried out if a fault at 8.10.1/2/3 is recorded.</p> <p>Applicability – any appliances with ‘hidden’ burners must be ignited as part of this Check but there is no Requirement to see the burner flame picture.</p> <p><u>Applicability – in the event any appliance burner cannot be lit mark your checklist ‘not verified’ and note the reason why. In such cases the burner must be considered as non-compliant until such time as a satisfactory flame picture <del>its good condition</del> has been verified.</u></p> <p><u>Examiner action - in the event of a poor flame picture, take the actions described in Appendix A or A and B, and if the regulator is found not to lock-up within industry recommended tolerances, take the actions described in Appendix A, or A and B, and make a note on the BSS Warning Notice about the performance of the regulator. Where it can be established, also note the age of the regulator if it is over 10 years old.</u></p> <p><del>Applicability – in the event of a poor flame picture, take the actions described in Appendix A or A and B, and if the regulator is operating outside of the lock-up tolerance, or is more than 10 years old, or is marked in imperial units, the BSS Warning Notice must include a note about the performance or age of the regulator as appropriate.</del></p>		

Explanation of changes		
1	Are all LPG appliance burners <del>in good condition and delivering a proper flame?</del>	The Check question is amended because the Requirement is for a proper flame picture, not for the good condition of the burners themselves.
2	<del>Compare the flame pictures at each burner to the ‘burner flame trouble chart’ at Appendix L.</del> <u>Examiner action – Examiners must compare flame pictures at each burner to the ‘burner flame trouble chart’ at Appendix 8.</u>	Checking action text is turned into an ‘Examiner action’, to be consistent with the approach at other Checks. The Appendix reference has changed from Appendix L to Appendix 8.
3	<u>Applicability – in the event any appliance burner cannot be lit mark your checklist ‘not verified’ and note the reason why. In such cases the burner must be considered as non-compliant until such time as a satisfactory flame picture</u> <del>its good condition</del> <u>has been verified.</u>	Again, the Check is not for the good condition of the burners themselves. The focus of the Check is a satisfactory flame picture.
4	<u>Examiner action - in the event of a poor flame picture, take the actions described in Appendix A or A and B, and if the regulator is found not to lock-up within industry recommended tolerances, take the actions described in Appendix A, or A and B, and make a note on the BSS Warning Notice about the performance of the regulator. Where it can be established, also note the age of the regulator if it is over 10 years old.</u> <del>Applicability – in the event of a poor flame picture, take the actions described in Appendix A or A and B, and if the regulator is operating outside of the lock-up tolerance, or is more than 10 years old, or is marked in imperial units, the BSS Warning Notice must include a note about the performance or age of the regulator as appropriate.</del>	The existing (deleted) Applicability is now the Examiner action immediately above. Slightly changed wording takes account of the fact that the age of the regulator may not always be established at the time of the BSS Examination. Note also that the Applicabilities and Examiner actions have been re-ordered to align the sequence of other Checks.

## 8.9 Ventilation

8.9.1	Is the vessel provided with adequate fixed ventilation?	A/R
Calculate the fixed ventilation Requirements in accordance with Appendix <a href="#">8aK</a> . Measure the total effective area of fixed ventilation. Confirm that the total effective area of fixed ventilation (at least up to the calculated fixed ventilation Requirement) is divided as equally as practicable between high and low level.		Fixed ventilation must be in accordance with Appendix <a href="#">8aK</a> .
<u><a href="#">Applicability – 8.9.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></u> Applicability – ventilators, doors, windows and hatches that can be closed without the use of tools must not be included in the calculations as these are not considered fixed ventilation		

Applicability – permanent and measurable gaps around doors and windows when the windows or doors are fully closed can be taken into account as part of the fixed ventilation provision.

Applicability – in the event significant shortfalls in fixed ventilation are determined take the actions described in Appendix A. A significant shortfall is:

- where the total effective area of fixed ventilation is 50%, or less, of the calculated fixed ventilation Requirement; **or**,
- where the total effective area of fixed ventilation is less than the calculated fixed ventilation Requirement for appliances with continuous-burning flames; **or**,
- where there is no high or no low-level fixed ventilation.

[Guidance for owners – on privately owned boats which have closable ventilators because they proceed to sea, owners are recommended to affix warning notices on or near all non-room-sealed fuel-burning appliances. The warning notice should read: ‘WARNING – Open ventilator\(s\) before use’, or equivalent.](#)

Explanation of changes		
1	.....with Appendix <del>8a</del> <b>K</b> .	Amended to reflect the new Appendix 8 sequence.
2	<u><a href="#">Applicability – 8.9.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></u>	Standard text inserted at all ‘Advice’ Checks to draw attention to the ‘Advice Check’ status.
3	<u><a href="#">Guidance for owners – on privately owned boats which have closable ventilators because they proceed to sea, owners are recommended to affix warning notices on or near all non-room-sealed fuel-burning appliances. The warning notice should read: ‘WARNING – Open ventilator(s) before use’, or equivalent.</a></u>	New Guidance for owners replaces Check 8.9.2. See below

8.9.2	<del>Are warning notices displayed on sea-going boats with closable ventilators?</del>	A
<del>For vessels for which a fault is recorded at 8.9.1, identify seagoing boats with closable ventilators.</del>	<del>Check for the presence of, and the wording on, warning notices on or near to all non-room sealed fuel-burning appliances.</del>	<del>On all seagoing boats with closable ventilators a warning notice must displayed on or near all non-room-sealed fuel-burning appliances.</del>
<del>Applicability – if a fault is recorded take the action described in Appendix A.</del>	<del>The warning notice must read: ‘WARNING – Open ventilator(s) before use’, or equivalent wording.</del>	

Explanation of changes	
1	Check is deleted as it cannot be applied consistently. Historically, the BSS has promoted the view that fixed ventilators should be weathertight to cater for the worst conditions likely to be encountered, and that Checks 8.9.1 and 8.9.2 were intended to be ‘sequential’ and not ‘alternative’ Checks, however, this nuance was not widely understood by all Examiners.  Neither could the application of Check 8.9.2 to ‘seagoing’ boats, be consistently applied as in essence, any boat could be prepared for a sea journey and be considered ‘seagoing’.

	Because of the difficulties described, Check 8.9.2 is deleted and instead there is equivalent 'Guidance for owners' included at Check 8.9.1.
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### 8.10 Appliance flues and exhausts

8.10.1	Are all appliances requiring a flue or exhaust fitted with one?	A/R
<p><a href="#">Where they can be seen or reached, check the flueing or exhaust arrangements on all appliances designed exclusively for use with a flue or exhaust.</a></p> <p><b>Check that:</b></p> <ul style="list-style-type: none"> <li><del>• a flue and draught diverter are fitted to all multi-point instantaneous water heaters and those single point instantaneous water heaters supplying a shower or bath; and,</del></li> <li><del>• a flue or exhaust is fitted to any appliance fitted with a flue or exhaust spigot and any solid fuel or oil burning appliance; and,</del></li> <li><del>• flue components including air intake and flue ductwork and terminals are fitted to all room-sealed appliances; and,</del></li> <li><del>• a flue does not serve more than one appliance.</del></li> </ul>		
<p>A flue or exhaust must be fitted to all appliances designed exclusively for use with one <del>as prescribed in the Check.</del> <a href="#">In particular:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">a flue and draught diverter must be fitted to all multi-point instantaneous water heaters and those single point instantaneous water heaters supplying a shower or bath; and,</a></li> <li><a href="#">a flue or exhaust must be fitted to any appliance fitted with a flue or exhaust spigot and any solid fuel or oil burning appliance; and,</a></li> <li>• <a href="#">flue components including air intake and flue ductwork and terminals are fitted to all room-sealed appliances; and,</a></li> <li>• <a href="#">flues must not serve more than one appliance.</a></li> </ul>		
<p><a href="#">Applicability – 8.10.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></p> <p>Applicability – in the event a fault is determined take the actions described in Appendix A.</p>		

Explanation of changes		
1	All	The existing layout, with the Requirements referring to the Checking action, is not consistent with the approach used elsewhere within the ECP. The new approach keeps the Checking action relatively simple and puts the specifications within the Requirement (as is the approach at other Checks).
2	<a href="#">Applicability – 8.10.1 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	Standard text inserted at all 'Advice' Checks to draw attention to the 'Advice Check' status.

8.10.2	Are all appliance flues and exhausts complete and in good condition?	A/R
<p>Check the condition of all appliance flues and exhausts, including ductwork, flue/exhaust terminals and flue/exhaust joints and securing mechanisms that can be seen or reached.</p>		
<p>All appliance flues and exhausts must be complete, properly fitted and maintained and must show no obvious signs of:</p> <ul style="list-style-type: none"> <li>• obstruction or flue diameter restriction; <b>or,</b></li> <li>• crushed or blocked terminals; <b>or,</b></li> <li>• modifications to the flue/exhaust not in accordance with the appliance manufacturer's recommendations; <b>or,</b></li> <li>• damage or deterioration; <b>or,</b></li> <li>• evidence of flue/exhaust gases escaping into cabin areas (soot deposits etc).</li> </ul>		

[Applicability – 8.10.2 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.](#)

~~Applicability – in the event a fault is determined take the actions described in Appendix A.~~

Applicability – examples of obvious unsuitable flue modifications include extensions to LPG fridge flues and tin cans used as flue terminals.

Applicability – LPG and paraffin fridges in non-petrol-engined boats may be installed without comment, to open-vent into the boat’s interior providing no flue components are added to the appliance’s integral flue stack.

Applicability – instantaneous water heater flue length and terminal suitability will be determined by the flue spillage test at Check ~~Item~~ 8.10.4.

~~Applicability – in the event a fault is determined take the actions described in Appendix A.~~

[Guidance for owners – Examiners only check the condition of flues and exhausts where they can be seen or reached. As deterioration often develops hidden from view, owners are recommended to have flues and exhausts checked annually, or as recommended by the appliance manufacturer, by a competent person.](#)

Explanation of changes		
1	<a href="#">Applicability – 8.10.2 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	Standard text inserted at all ‘Advice’ Checks to draw attention to the ‘Advice Check’ status.
2	<del>Applicability – in the event a fault is determined take the actions described in Appendix A.</del>	The Applicability referring to Appendix A has been relocated further down, to align with the approach elsewhere in the ECP.
3	<a href="#">Guidance for owners – Examiners only check the condition of flues and exhausts where they can be seen or reached. As deterioration often develops hidden from view, owners are recommended to have flues and exhausts checked annually, or as recommended by the appliance manufacturer, by a competent person.</a>	As Examiners only check flues where they can be seen or reached, and because degrading of flues often occurs where they cannot be seen and reached, the relatively high risk of ‘unseen’ degrading warranted a new Guidance for owners.

8.10.3	Do all appliance flues and exhausts terminate directly to outside air?	A/R
Check the location of all flue and exhaust terminals. Check for the presence of a canopy or canopy fixings where a flue/exhaust terminates at any part of the vessel which could be enclosed by a canopy.		Appliance flue and exhaust terminals must be located outside the interior of the vessel and outside of any areas which may be enclosed by a canopy.
<a href="#">Applicability – 8.10.3 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>		
Applicability – in the event a fault is determined take the actions described in Appendix A.		

Explanation of changes		
1	<a href="#">Applicability – 8.10.3 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	Standard text inserted at all ‘Advice’ Checks to draw attention to the ‘Advice Check’ status.

8.10.4	Are all open flues to LPG appliances operating effectively?	A/R
<p><del>In the event no fault is recorded 8.10.3 in connection with the appliance, C</del>arry out a flue spillage test on all <a href="#">open</a> flues connected to LPG appliances <del>with open flues</del> as described in Appendix E</p>		Open flues to LPG appliances must ensure safe transfer of flue gases to the outside of the boat.
<p><a href="#">Applicability – 8.10.4 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></p> <p>Examiner action - before operating the burners on any open-flued appliances such as instantaneous water heaters carry out the Checks at 8.10.2 and 8.10.3. The <a href="#">flue spillage</a> test should not be carried out if a fault at 8.10.2/3 is recorded.</p> <p>Applicability – Examiners are not required to undertake a flue spillage test on fridges with open-flues.</p> <p><del>Applicability – owners should be advised of the importance of making available operational water heaters for testing at the time of an Examiner’s initial dealings.</del> if for any reason the flue spillage test cannot be completed mark your checklist ‘not verified’ and note the reason why.</p> <p>Applicability – in the event a fault is determined, take the actions described in Appendix A.</p>		

Explanation of changes		
1	<del>In the event no fault is recorded 8.10.3 in connection with the appliance, C</del> arry out a flue spillage test on all <a href="#">open</a> flues connected to LPG appliances <del>with open flues</del> as described in Appendix E.	The first part of the sentence is not needed as it’s already covered by the Examiner action. The addition of ‘open’ aligns with the scope of the flue spillage test, and the Check question and reduces the number of references to ‘flue’ in one sentence.
2	The <a href="#">flue spillage</a> test	To help ensure the reference to ‘test’ is understood.
3	<a href="#">Applicability – 8.10.4 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	Standard text inserted at all ‘Advice’ Checks to draw attention to the ‘Advice Check’ status.
4	Applicability - <del>owners should be advised of the importance of making available operational water heaters for testing at the time of an Examiner’s initial dealings.</del>	To apply the general approach of the revised ECP that references to owners preparing their boats are to be removed from the ECP and collected into a single document elsewhere.
5	Note that the last two Applicabilities have been reordered to put the one relating to Appendix A last (as approach elsewhere in ECP).	

8.10.5	Are all solid fuel appliances free of unintended gaps?	A/R
Check the condition of solid fuel appliance surfaces, seams and openings which can be seen.	Solid fuel appliances must show no obvious signs of: <ul style="list-style-type: none"> <li>• unintended gaps or cracks in the outside surface or seams of the stove; or,</li> <li>• unintended gaps greater than 2mm in the loading door seal or door glass; or,</li> <li>• loose, damaged or missing cover plates.</li> </ul>	
<p><a href="#">Applicability – 8.10.5 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a></p> <p>Applicability - some designs of solid fuel appliance have deliberate gaps, commonly above or around the door (to allow air in and help keep the window clean) or below the fuel bed (often by way of a deliberately loose air control) to help keep the fire alight, but where it is clear that components were designed to seal to each other, the above Requirement applies.</p> <p>Applicability – in the event a fault is determined take the actions described in Appendix A.</p>		

Explanation of changes		
1	<a href="#">Applicability – 8.10.5 is an Advice check for privately owned and managed vessels, but is a mandatory Requirement for hire boats.</a>	Standard text inserted at all 'Advice' Checks to draw attention to the 'Advice Check' status.



## BSS Examination Checking Procedures – Part 9 - Pollution prevention

### 9.1 Engine/gearbox oil leak collection

<b>9.1.1</b>	<b>Will all oil leaks from the engine/s or gearbox/es be collected in an engine tray or oil-tight area?</b>	<b>R</b>
<p>Check for the presence <del>and condition</del> of an engine tray or oil-tight area under all fixed internal combustion engines and gearboxes.</p> <p><a href="#">Check the type and condition of the materials that make up the engine tray or oil-tight area where they can be seen.</a></p> <p>Estimate the volume of any engine tray <a href="#">or oil-tight area</a> and the capacity of the protected engine and gearbox.</p>		
<p>All fixed internal combustion engine and gearbox installations must have an engine tray or oil-tight area.</p> <p>Each engine tray or oil-tight area must be at least as long and as wide as the combined length/width of the engine and gearbox.</p> <p>The material of each engine tray or oil-tight area must be non-porous and oil resistant.</p> <p>All engine trays or oil-tight areas, including joints and seams, must be free of signs of leaks, damage <del>or and</del> deterioration.</p> <p>The volume of each engine tray or oil-tight area must be sufficient to retain the estimated capacity of the engine/gearbox sumps.</p>		
<p>Applicability – oil-tight areas must collect from within the engine space and must not extend into other parts of the vessel.</p>		

Explanation of changes		
1	<p>Check for the presence <del>and condition</del> of an engine tray or oil-tight area under all fixed internal combustion engines and gearboxes.</p> <p><a href="#">Check the type and condition of the materials that make up the engine tray or oil-tight area where they can be seen.</a></p>	<p>It is only reasonable that Examiners Check the condition of the engine tray or oil-tight area where they can see it.</p> <p>The proposed new text helps to ensure that the Checking actions are consistent with the Requirements (3<sup>rd</sup> and 4<sup>th</sup> paragraphs)</p>
2	<p>Estimate the volume of any engine tray <a href="#">or oil-tight area</a> and the capacity of the protected engine and gearbox</p>	<p>To ensure consistent use of ‘.. engine tray or oil-tight area..’</p>
3	<p>damage <del>or and</del> deterioration</p>	<p>To ensure consistent use of Glossary term, ‘damage or deterioration’.</p>

<b>9.1.2</b>	<b>Does the bilge pumping system minimise the risk of avoidable pollution?</b>	<b>R</b>
<p>Check for presence of a fixed bilge pump or fixed bilge suction <a href="#">line pipe</a> within an engine tray or oil-tight area.</p> <p>If present, check for the presence of a bilge water filter installed in the overboard discharge line or the facility to discharge to a holding tank.</p> <p>If a bilge water filter is present, verify the discharge level performance by examining any markings on the filter, or if necessary, any presented declaration from the manufacturer or supplier.</p>		
<p>Fixed bilge pumps and <a href="#">fixed</a> bilge suction <a href="#">lines pipes</a> must not draw from an engine tray or oil-tight area, unless the:</p> <ul style="list-style-type: none"> <li>• discharge is through a bilge water filter capable of a 5ppm discharge performance level, as verified by markings on the filter or an appropriate declaration from the manufacturer or supplier; or,</li> <li>• there is a facility to discharge to a holding tank.</li> </ul>		
<p>Applicability – if a <a href="#">portable</a> bilge pump or bilge suction <a href="#">line pipe</a> is discovered within an engine tray or oil-tight area, the owner should be advised to remove it, but no fault recorded.</p>		

Applicability – [for the following makes of bilge water filter a 5ppm discharge performance level can be assumed – Wavestream and Bilgeaway. For all other makes](#), in cases where the discharge performance level of a bilge water filter cannot be verified, ‘not verified’ must be marked on your checklist, and the filter must be considered as non-compliant until such time as the performance level is verified. ~~Owners should be advised of the need to provide a declaration from the manufacturer or supplier at the time of the your initial dealings.~~

Applicability – if a significant quantity of fuel [or oil](#) is found to be escaping into the watercourse, take the actions described in Appendix A and B.

[Guidance for owners – the effectiveness of bilge water filters is entirely dependent on the element/cartridge being unclogged. To help ensure contaminated bilge water is not pumped into the watercourse, boat owners must ensure the element/cartridge is replaced as required.](#)

[Supporting information on recognising 5ppm bilge water filters is provided at Appendix 9.](#)

Explanation of changes		
1	<del>line</del> pipe	Line, pipe and hose are ECP Glossary terms, line being the generic terms covering pipes (i.e. metallic) and hoses (i.e. flexible). Line is the correct term here as they could be pipe or hose.
2	Applicability – <a href="#">for the following makes of bilge water filter a 5ppm discharge performance level can be assumed – Wavestream and Bilgeaway. For all other makes</a> , in cases where the discharge performance level of a bilge water filter cannot be verified, ‘not verified’ must be marked on your checklist, and the filter must be considered as non-compliant until such time as the performance level is verified	Research for the new Examiner training program has established that there are apparently only two makes of 5ppm bilge water filters currently available in the UK. It is therefore appropriate to be upfront about these two makes and advise Examiners, owners and other that 5ppm can be assumed for these two makes.
3	<del>Owners should be advised of the need to provide a declaration from the manufacturer or supplier at the time of the your initial dealings.</del>	The agreed general approach of the interim review is to remove such references; the proposed alternative approach is to collect all such guidance into one new Examiner/boat owner document/material.
4	quantity of fuel <a href="#">or oil</a> is found	Oil is also harmful to the waterway environment and in a pollution situation it is not always possible to tell one from the other.
5	<a href="#">Guidance for owners – the effectiveness of bilge water filters is entirely dependent on the element/cartridge being unclogged. To help ensure contaminated bilge water is not pumped into the watercourse, boat owners must ensure the element/cartridge is replaced as required.</a>	If not maintained correctly bilge water filters will clog and then not be effective. It is not realistic to make it a BSS Requirement that such filters remain unclogged, but it is reasonable that boat owners play their part in helping to prevent avoidable pollution by ensuring that such filters are maintained correctly.
6	<a href="#">Supporting information on recognising 5ppm bilge water filters is provided at Appendix 9.</a>	Supporting material on bilge water filters has been included within the proposed new Appendix 9

## 9.2 Sanitation systems

9.2.1	Is a closable valve fitted in the discharge line of any toilet <del>appliance</del> or toilet holding tank with overboard discharge?	R
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<p>Check all toilets and toilet holding tanks for the presence of an overboard discharge line.</p> <p>If present, check for the presence <del>and condition</del> of a closable valve installed in the discharge line <a href="#">and check its condition and completeness</a>.</p>	<p>All toilets and toilet holding tanks having an overboard discharge line must have a closable valve fitted in the discharge line.</p> <p>The valve and connections must be complete and leak-free.</p>
<p>Applicability – <a href="#">Examiners must not operate sanitation system valves</a> <del>valves must not be operated</del>.</p> <p>Applicability – <a href="#">depending on the system’s actual configuration, on installations with a direct overboard discharge and a holding tank the diverter valve may function as the closable valve</a> <del>some the diverter valves to toilet holding tanks not capable of being discharged overboard satisfy this Check</del>.</p> <p><del>Applicability—discharge outlets having a ‘tools to remove’ cap, and overboard discharge lines from toilet holding tanks discharged solely by shore side pumping arrangements, are not subject to this Check.</del></p> <p>Examiner action – if toilet waste is <a href="#">found determined</a> to be escaping into the watercourse contact the BSS Office and take the relevant actions described in Appendix B. <del>If the arrangements inevitably result in toilet waste discharging overboard contact the BSS Office.</del></p> <p><a href="#">Supporting information on toilet and holding tank configurations with overboard discharge is provided at Appendix 9.</a></p>	

Explanation of changes		
1	toilet <del>appliance</del> or toilet holding tank	The inclusion of ‘appliance’ is unnecessary, and a potential confusion as ‘appliance’ is a defined Glossary term.
2	If present, check for the presence <del>and condition</del> of a closable valve installed in the discharge line <a href="#">and check its condition and completeness</a>	To better align the Checking action with the Requirement
3	<a href="#">Examiners must not operate sanitation system valves</a> <del>valves must not be operated</del> .	To make it clear that it is Examiners (not boat owners) that must not operate valves.
4	Applicability – <a href="#">depending on the system’s actual configuration, on installations with a direct overboard discharge and a holding tank the diverter valve may function as the closable valve</a> <del>some the diverter valves to toilet holding tanks not capable of being discharged overboard satisfy this Check</del> .	When developing the new Examiner training material the original Applicability text was found difficult to interpret. The proposed revised Applicability is clearer and is now supported by text and drawings in the proposed new Appendix 9 (see accompanying paper <i>Doc E2, BSSAC #107/ BSSTC #63</i> ).
5	<del>Applicability—discharge outlets having a ‘tools to remove’ cap, and overboard discharge lines from toilet holding tanks discharged solely by shore side pumping arrangements, are not subject to this Check.</del>	When developing the new Examiner training material the Applicability text was found difficult to interpret. Supporting material has been included within the new Appendix 9 to replace the Applicability .
6	toilet waste is <a href="#">found determined</a> to be escaping	To be consistent with the similar action at Check 9.1.2.
7	<del>If the arrangements inevitably result in toilet waste discharging overboard contact the BSS Office.</del>	‘Inevitably results’ would likely cover all failed boats and so the added action appears overkill, especially as it may

		<p>be the case that the owner uses a Porta Potti whilst on controlled waterways.</p> <p>It is unlikely that Examiners are applying this requirement consistently as i) hardly any call are received and ii) the numbers of boats with sea toilets must be in the many hundreds.</p> <p>It seems that the first sentence Examiner action covering circumstances where pollution is actually occurring is all that is necessary.</p>
8	<p><a href="#">Supporting information on toilet and holding tank configurations with overboard discharge is provided at Appendix 9.</a></p>	<p>Supporting material on holding tank configurations has been included within the new Appendix 9.</p>