

BSS Examination Checking Procedures – Part 8 - Appliances and flues

Recommendations for change May 2012

8.1.1	<u>Do Does</u> the fuel or power supply <u>arrangements</u> to <u>all an</u> installed appliances meet the applicable BSS requirements?	R
For each installed appliance, identify the type of fuel or power supply arrangements and apply the relevant Part of the BSS requirements.		The fuel or power supply arrangements for all installed appliances must meet the applicable BSS requirements.
Applicability – concerning diesel, paraffin, spirit, electric, or LPG appliances, apply Part 2, Part 3 or Part 7 respectively, as appropriate.		
Rationale - <u>Checking question, checking and requirement sections – to remove and unnecessary word 'power' (editorial change)</u>		

8.4.1	Are appliances and surrounding surfaces clear of signs of heat damage and leaking fuel?		R
Check all appliances and all their surrounding surfaces for signs of heat damage and leaking fuel.	Appliances and all their surrounding surfaces must not show signs of: <ul style="list-style-type: none"> • scorching, blistering or discolouration; or, • fuel leakage; or, • smoke or soot deposits; or, • heat damage or deterioration to appliance structure. 		
Applicability – this check applies to <u>all</u> fuel-burning appliances <u>and 'bullseye' (also known as 'domed') decklights and their surrounding and adjacent surfaces.</u>			
Rationale – <u>Enhanced check</u> to address the known risk of 'bullseye' decklight fires and to incorporate the agreed ECP change published in Technical Newsletter TN 02.10. The impact assessment is that this will not add significant cost to boat owners as adjacent surfaces to 'bullseyes' can be easily insulated from the effects of heat or possibly the 'bullseye' decklight modified in some way to alter the focal length characteristics. It is estimated that between 5 – 10 boats examined annually will be found non-compliant. The risk assessment is the change is necessary to address the known and accepted potential for 'bullseye' fires (GR 25). This change does need the introduction of a definition of the term 'appliance' in the Glossary.			

8.4.2	Are all curtains, blinds and other textile materials near to appliances free of heat damage?		R
Check all curtains, blinds and other textile materials near appliances for signs of heat damage.	Curtains, blinds and other textile materials near all appliances must not show signs of heat damage such as scorching or burning.		
<u>Applicability - this check applies to curtains, blinds and other textile materials near all fuel-burning appliances and 'bullseye' (domed) decklights.</u>			
Rationale – <u>Enhanced check</u> to address the known risk of 'bullseye' decklight fires and to incorporate the agreed ECP change published in Technical Newsletter TN 02.10. The impact assessment is that this will not add significant cost to boat owners will not add significant cost to boat owners as textile materials adjacent to 'bullseyes' can be easily removed or possibly the 'bullseye' decklight modified in some way to alter the focal length characteristics. It is estimated that between 5 – 10 boats examined annually will be found non-compliant. The risk assessment is the change is necessary to address the known and accepted potential for 'bullseye' fires (GR 25). This change does need the introduction of a definition of the term 'appliance' in the Glossary.			

8.4.3	Are non-portable appliances properly secured against accidental or unintended movement?	R
<p>Check for the presence and condition of securing systems on all non-portable appliances.</p> <p>Where practicable, apply light manual force to check the security of all non-portable appliances.</p> <p>Where a manual check is not practicable, such as with solid fuel and oil-fired stoves, check the condition of securing systems.</p>		<p>Non-portable appliances must be incapable of unintended movement in any direction.</p> <p>Securing systems must be installed on all non-portable appliances and securing systems and their fixing points must be of suitable strength and must:</p> <ul style="list-style-type: none"> • show no signs of fractured mounting brackets; • not have loose, missing or fractured bolts or nuts.
<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.</p> <p>Applicability - this check applies to all fuel-burning appliances but does not apply to electrical appliances. liquid fuel, solid fuel and LPG appliances only</p>		
<p>Rationale –</p> <ul style="list-style-type: none"> • checking section – ‘oil-fired’ is added to provide clarity as to the size of appliances for which the application of ‘light manual force’ to check for securing may not be appropriate (editorial change) • last applicability - for consistency and clarity and better aligning with the applicabilities at 8.4.1 and 8.5.1 (editorial change) 		

8.5.1	Are all vessel structures, equipment, and curtains, blinds and other textile materials near all appliance flues and exhausts free of signs of heat damage?	R
<p>Check vessel structures, equipment, and curtains, blinds and other textile materials near all appliance flues and exhausts for signs of heat damage.</p>		<p>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.</p>
<p>Applicability – this check applies to all fuel-burning appliances with flues or exhausts.</p>		
<p>Rationale – to align the check question with the checking and requirements section (editorial change)</p>		

8.8.1	Are all LPG appliance burners in good condition and delivering a proper flame?	R
<p>Light all LPG appliance burners and operate them at their maximum setting at the same time.</p> <p>Compare the flame pictures at each burner to the ‘burner flame trouble chart’ at Appendix L.</p>		<p>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>
<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>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.</p> <p>Examiner action - the test should not be carried out if flue damage, obstruction or unsuitability of an open flued appliance is determined. Before operating the burners on any open flued appliances</p>		

such as instantaneous water heaters or closed flue appliances carry out the checks at 8.10.2 and 8.10.3.

Applicability – in the event any appliance burner cannot be lit mark the BSS Checklist ‘not verified’ and note the reason why. In such cases the burner must be considered as non-compliant until such time as its good condition has been verified.

Examiner action – to protect examiners and align with the warning at 8.10.4 (neutral impact change)

8.9.1	Is <u>the vessel provided with adequate</u> fixed ventilation in accordance with the relevant standard?	A
<p>Calculate the fixed ventilation requirements in accordance with Appendix K.</p> <p>Measure the <u>total</u> effective area of fixed ventilation.</p> <p>Confirm that the <u>total effective area of</u> fixed ventilation area <u>(at least up to the calculated fixed ventilation requirement)</u> is divided as equally as practicable between high and low level.</p>		<p>Fixed ventilation must be in accordance with <u>Appendix K Annex B of PD 5482-3.</u></p>
<p>Applicability – ventilators, <u>doors, windows and hatches</u> that can be closed without the use of tools must not be included in the calculations <u>as these are not considered fixed ventilation except for seagoing boats with ventilator closing devices.</u></p> <p>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 total fixed ventilation provision.</p> <p>Applicability – in the event significant shortfalls in <u>fixed</u> ventilation are determined take the actions described in Appendix A. A significant shortfall is:</p> <p>50% of the calculated fixed ventilation requirement or any shortfall in the calculated requirement for continuous-burning appliances or the existence of no high or no low level ventilation.</p> <ul style="list-style-type: none"> • <u>where the total effective area of fixed ventilation is 50%, or less, of the calculated fixed ventilation requirement; or,</u> • <u>where the total effective area of fixed ventilation is less than the calculated fixed ventilation requirement for continuous-burning appliances; or,</u> • <u>where there is no high or no low-level fixed ventilation.</u> <p>Supplementary advice concerning ventilation is provided at Appendix K.</p>		
<p>Rationale –</p> <ul style="list-style-type: none"> • check question change – to reflect the change to the requirements box and to better reflect the intent of the check (editorial change) • checking section - the terms used, ‘total effective area’ and ‘calculated fixed ventilation’ have been standardised (editorial change) • requirements section change – to align with the checking action and to take account of the additional solid fuel stove ventilation formula (neutral impact change) • 1st Applicability – to add clarity and achieve separation from check 8.9.2 (neutral impact change) • 3rd Applicability - to better breakdown the component parts that make up a ‘significant shortfall’ of ventilation and to make clear that the 50% threshold concerns the ‘calculated fixed ventilation’ as opposed to the measured ventilation that could be in excess of this (editorial change). • the supplementary advice is removed because Appendix K is now referred to in the requirements section (editorial change) 		

8.9.2	Are warning notices displayed on sea-going boats with closable ventilators?	A
<u>For vessels for which a fault is recorded at</u>		On all seagoing boats with closable ventilators a

<p>8.9.1. identify seagoing boats with closable ventilators.</p> <p>Check for the presence of, and the wording on, warning notices on or near to all non-room sealed fuel-burning appliances.</p>	<p>warning notice must displayed on or near all non-room-sealed fuel-burning appliances.</p> <p>The warning notice must read: '<i>WARNING – Open ventilator(s) before use</i>', or equivalent wording.</p>
<p>Applicability – if a fault is recorded take the action described in Appendix A.</p>	
<p>Rationale – to align with 8.9.1 and to clarify that 8.9.1 and 8.9.2 are sequential (neutral impact change).</p> <p>Note that there is an argument that 8.9.2 could be removed and reliance placed upon 8.9.1; however the BSS Office position is that 8.9.2 is long-standing and remains relevant in respect of what is likely to be found by examiners and the boat-building practice of some, mainly US boat builders. It is conceded that the presence of a warning notice does provide a secondary means of helping ensure adequate ventilation. To remove the check could place the BSS at risk of claims, for example in the event of a fatality, that we were negligent to remove the advice check.</p>	

8.10 Appliance flues and exhausts

8.10.1	Are all appliances requiring a flue <u>or exhaust</u> fitted with one?	A
<p>Check that:</p> <ul style="list-style-type: none"> • 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, • a flue <u>or exhaust</u> is fitted to any appliance fitted with a flue <u>or exhaust</u> spigot and any solid fuel or oil burning appliance; and, • flue components including air intake and flue ductwork and terminals are fitted to all room-sealed appliances; and, • a flue does not serve more than one appliance. 		<p>A flue <u>or exhaust</u> must be fitted to all appliances designed exclusively for use with one as prescribed in the check.</p> <p>Flues must not serve more than one appliance.</p>
<p>Applicability – in the event a fault is determined take the actions described in Appendix A.</p>		
<p>Rationale – Checking question, checking and requirement sections – 'or exhaust' is added for consistency and to better reflect the intention of the check (editorial change)</p>		

8.10.2	Are all <u>appliance</u> flues <u>and exhausts</u> complete and in good condition?	A
<p>Check the condition of all <u>appliance</u> flues <u>and exhausts</u>, including and ductwork, flue/<u>exhaust</u> terminals and flue/<u>exhaust</u> joints and securing mechanisms that can be seen or reached.</p>	<p>All <u>appliance</u> flues <u>and exhausts</u> must be complete, properly fitted and maintained and must show no obvious signs of:</p> <ul style="list-style-type: none"> • obstruction or flue diameter restriction; or, • crushed or blocked terminals; or, • modifications to the flue/<u>exhaust</u> not in accordance with the appliance manufacturer's recommendations; or, • damage or deterioration; or, • evidence of flue/<u>exhaust</u> gases escaping into cabin areas (soot deposits etc). 	
<p>Applicability – in the event a fault is determined take the actions described in Appendix A.</p> <p>Applicability – examples of obvious unsuitable flue modifications include extensions to LPG fridge flues and tin cans used as flue terminals.</p> <p>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.</p> <p>Applicability – instantaneous water heater flue length and terminal suitability will be determined by the flue spillage test at Checklist Item 8.10.4.</p>		

Rationale – checking question, checking and requirement sections – the terms ‘appliance’ and ‘exhaust’ are added for consistency and to better reflect the intention of the check (editorial change)

8.10.3	Do all <u>appliance</u> flues <u>and exhausts</u> terminate directly to outside air?	A
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<p>Check the location of all flue <u>and exhaust</u> terminals.</p> <p>Check for the presence of a canopy or canopy fixings where a flue/<u>exhaust</u> terminates at any part of the vessel which could be enclosed by a canopy.</p>	<p><u>Appliance</u> flue <u>and exhaust</u> terminals must be located outside the interior of the vessel and outside of any areas which may be enclosed by a canopy.</p>
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Applicability – in the event a fault is determined take the actions described in Appendix A.

Rationale – checking question, checking and requirement sections – the terms ‘appliance’ and ‘exhaust’ are added for consistency and to better reflect the intention of the check (editorial change)

8.10.4	Are all open flues <u>to LPG appliances</u> operating effectively?	A
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<p>In the event no fault is recorded 8.10.3 in connection with the appliance, carry out a flue spillage test on all flues connected to <u>LPG</u> appliances with open flues as described in Appendix E.</p>	<p>Open flues <u>to LPG appliances</u> must ensure safe transfer of flue gases to the outside of the boat.</p>
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Examiner action Applicability - the test should not be carried out if flue damage, obstruction or unsuitability is determined ~~at Checklist Item 8.10.2 is likely to prevent the flue operating effectively.~~
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.

Applicability – examiners are not required to undertake a flue spillage test on fridges with open-flues.

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

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. If for any reason the flue spillage test can not be completed mark the BSS Checklist ‘not verified’ and note the reason why.

Rationale –

- check question, checking and requirements sections – to more accurately identify the scope of the check, limited to ‘LPG appliances’ (editorial change)
- examiner action - to protect examiners and align with the warning at 8.8.1 (editorial change)

8.10.5	Are all solid fuel appliances free of unintended gaps?	A
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<p><u>Check the condition of solid fuel appliance surfaces, seams and openings which can be seen.</u></p>	<p>Solid fuel appliances must show no obvious signs of:</p> <ul style="list-style-type: none"> • <u>unintended gaps or cracks in the outside surface or seams of the stove; or,</u> • <u>unintended gaps greater than 2mm in the loading door seal or door glass; or,</u> • <u>loose, damaged or missing cover plates.</u>
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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.

Rationale – New check to reflect the agreement at BSSMC/BSSAC/BSSTC and following on from the solid fuel stove risk review. The impact assessment is that, as an ‘advice’ check, it is for the owner to decide to take remedial action and so there is no imposed cost. It is estimated that between 50 -100 boats will be affected. The risk assessment is the change is necessary to address the known and accepted potential for carbon monoxide to escape from unintended gaps and cracks and for those

gaps and cracks to cause the flue gases to cool and sink in the first place.