Comments Submitted During Summer 2012 on Proposed Changes to the BSS Examination Checking Procedures and the BSS Response to Each Comment

Agreed changes are indicated in bold red font

03 Oct 2012

Reference	Comments Received	BSS Office Response
General comment		
General	RBOA - The Residential Boat Owners' Association (RBOA) feels that it has had many opportunities to have input into the proposed revisions of the Examiner Checking Procedures (ECPs) via its representative on BSSAC, and feels that most of the specific details of the checks have been well aired via this route. However, it seems that there are likely to be certain aspects of the ECPs where there is a need for the BSS Examiner to inspect certain items, and might not legally / for H & S reasons be able to do this without specific preparation having been made. Specific examples might be the need for the Examiner to examine the condition of the gas locker, necessitating the removal of the gas bottles; or the need for an a.c. shore line to be disconnected, prior to its being visually examined. RBOA would urge BSS to ensure that written guidance is provided to Examiners on the need to alert boaters to the need to make items readily accessible for examination, prior to attending to undertake the actual examination. This could mean removing gas bottles, disconnecting shore leads, uncovering any "hidden" connections, and so on. Therefore, if the boater does not plan to be present during the BSS examination to remove/uncover relevant items, then (s)he should be made aware in advance of the preparations which should be made. To avoid any doubt about whether such instructions have been given, we would suggest a brief ticklist of required preparations could be handed to / emailed to the boater when the test booking is made.	No change to the proposals is considered necessary. The points raised are fully accepted and have been represented previously at BSSAC by RBOA and NABO. The need for examiners to pre-arrange with owners access to gas lockers and disconnection of a.c. power supplies will form part of the examiner seminar training planned for November/December. The message to owners that they will need to provide access gas lockers and disconnect a.c. power supplies in advance of the BSS examination will form a key part of communications of the ECP changes. Help in spreading this message from the national boat user groups will be much appreciated.

Part 2 - Permanently installed fuel systems and fixed engines		
2.2.1	NABSE observation - What does 'free of signs of leaks' actually mean. If the Examiner was to find a 'signs of leak'in the form of a stain on a flexible hose / fuel tank top surface, what is the boat owner meant to do about it – change the hose based upon the fact that an (unspecified) stain has been observed ? What is the difference in responsibility on the Examiner between checking for 'signs of leaks' rather than to confirm a fuel system is 'leak-free? NABSE comment - The dilemma presented by his change proposal is, that by changing the standard engineering term relevant to this check to 'signs of' means that the Examiner can only apply a visual check to establish the fact that a fuel system is free of 'signs of leaks'. By contrast, the freedom to ensure that a fuel system is 'leak free' enables the use of a combination of sight, touch and smell. On the assumption that the '*difference in responsibility'* does not imply any change to the Examiner's insurance liabilities, the original terms should be retained.	No change to the proposals is considered necessary. The change from 'leak free' to 'signs of leaks' places an appropriate level of responsibility on examiners conducting BSS examinations. The change is for an examiner to check for 'signs of leaks' by sight and touch rather than to check (and then by way of issue of the BSS Certificate, certify that) a fuel system component is 'leak-free'; which may infer that the component has somehow been tested and verified as such. What to do if an examiner finds a stain on a hose is and can be covered by training and the question is equally relevant to the existing checks for 'leak free' components.
2.2.2	NABSE observation - The *Rationale* for the change states that: *"The risk assessment is the change is necessary to address the potential for petrol escape into the tank space. (GR 5)"* However, this ECP CLI relates to the 'self-draining' characteristics of a fuel filling line (and is not directed at a particular fuel type). NABSE comment - Because GR5 relates to *'design, installation and, maintenance'* this ECP CLI does not have 'a loophole' because there is no anomaly for the simple reason that the requirement for this check relates to the risks associated with the retention of fuel in a kinked or otherwise non-falling fuel filler pipe. The original text should be retained for the following reasons: The objective of this CLI is related to **fuel**. As written, the check has been hi-jacked by specific reference to **petrol (thereby falsely justifying the need of a non-existent ENHANCED check)** The cited risk justification does not exist (ie: a craft with a non-kinked, falling fuel filler pipe which is properly secured (2.2.1) will predominantly mitigate the potential for petrol fuel escape into the tank space.	No change to the proposals is considered necessary. The change can be supported by reference to other General Requirements such as GR1. The check is not only to do with the 'self-draining' characteristics of a fuel line it is also covers the potential for fuel to be retained in the line. The impact of the check is to ensure that petrol is never retained in a filling hose, the risk is that petrol will degrade the hose causing petrol to enter the interior of the vessel. Because of this heightened risk, published small craft fuel installation standards require petrol fillers to be connected to the top plate of metal fuel tanks or the highest part of the side of the tank and for any spigot to be welded to the tank and extend upward above the top of the tank. The BSS ECP change is necessary to address the current loophole in the BSS requirements that currently do not prescribe the connection of petrol filling lines to tanks, properly address the risk and align with the accepted installation practice.
2.2.3	NABSE observation - While the need to incorporate the statement in TN01.06.ECP01 (RINA DIP/66/96 hoses) is understood, how should the case of Freeman fuel filler hose which is marked 'EXHAUST' be communicated to all Examiners? NABSE comment - Consideration should be given to publishing the detail of the 'agreement' between the BSS Office and the cited hose supplier in a Tech Note / Appendix to the ECP's to cut down the number of phone calls / emails to the BSS Office on 'case-by-case' basis	No change to the proposals is considered necessary. Agreed. We will add information to the Tech Clinic for examiners concerning the Freeman fuel filler hose and to the BSS public facing website for boaters.

2.3.5	NABSE observation - While the need to incorporate the statement contained in TN01.06.ECP01 (RINA DIP/66/96 hoses) is understood, what about cases where the fuel tank vent line is achieved by an equally suitable length of (properly sized and fitted) hose whose flame resistance and fuel transport capability matches / exceeds those of BS 7840 (eg: SAE 100 / EN 853)? Because SAE 100 / 853 hose is fire rated to ISO 15540/41 (30mins at 800°C), which exceeds that of BS 7840 (2.5mins at 600°C) why isn't this class of hose included in the BSS 'Approved List'? NABSE comment - In addition to the specific comment at 2.2.3 above, consideration should also be given to publishing the detail of all fuel hose data held by the BSS Office in a Tech Note / Appendix to the ECP's to cut down the number of phone calls / emails to the BSS Office on 'case-by-case' basis	No change to the proposals is considered necessary. Agreed. We will add information about the acceptability of hoses fire tested to ISO 15540 to the Tech Clinic for examiners and to the BSS public facing website for boaters. The reason why it is not listed along with the other accepted 'markings' is that hoses tested to ISO 15540 are generally not marked as such. Evidence that fuel hoses were tested to this standard would be regarded as equivalent to ISO 7840. Secondly such hoses are very rare and are more likely to be found on commercial vessels.
2.10.1/2/3/4	NABO - All this section is specifically about fuel lines. The change to this ECP introduces the term "on-engine hoses" and the change is understood. However, there can be many types of on-engine hoses including, water cooling, air, vacuum and breather hoses. The use of the word "fuel" is not consistent throughout the ECPs, and omitted in the text with the term "on engine pipes". "Fuel" should either be used everywhere, or omitted in the text and reliance placed on the title of the section. This is to protect against over zealous examining.	A slightly amendments agreed as follows, this is to make consistent with changes already made in other parts of 2.10 to directly link on-engine lines to fuel lines only. Section title - **2.10 Fuel feed, return, and on-engine ~~fuel~~ lines** Check question at 2.10.1 - **Are all ~~rigid~~ fuel feed, ~~and~~ return and on-engine pipes ~~lines~~ made of suitable materials?** First checking action at 2.10.1 - **Check the material of all ~~rigid~~ fuel feed, ~~and~~ return and on-engine pipes ~~lines~~ that can be seen and check for evidence of suitability**.
2.10.1	NABSE observation - The proposed amended CLI title does not align with that proposed for 2.10.2 The cited applicability (reproduced below) primarily focuses on the instance where a boat owner has made a temporary repair to a high pressure (diesel) metallic fuel pipe by use of a non-metallic line (which has become a 'permanent' repair). *Applicability – to incorporate agreement from BSSTC Meeting #32 addressing a significant potential risk of failure of high-pressure diesel fuel lines. The impact assessment is that this will affect perhaps one or two boat hose in this application will be unreasonably be relying upon a 'get-me-home' temporary fix of a injector pipe fracture. The risk assessment is the change is necessary to address the potential for diesel spray over a hot engine leading to a fire (GR 1).* Once again, a broad application CLI has been 'tinkered' with to address a SPECIFIC issue whose risk quotient was judged by the BSSTC to be significant. The issue here is clear – ONE of the checks the Examiner needs to confirm is that fuel **LINES** between diesel injection pumps and injectors are of a composition that is suitable for the fuel pressures present in this environment ! Furthermore, the statement: The risk assessment is the change potential for diesel spray over a hot engine leading to a fire (GR 1). **acknowledges that a fire risk is present** and therefore makes a mockery of the proposed deletion of the requirement to lag / shield exhaust components at	A slightly amendment to the Check question at 2.10.1 agreed, see above entry. The BSSTC assessment is that, because of the high pressures involved, the use of any hose is unsuitable for diesel high pressure injector lines, other than as a temporary 'get-me-home' fix. The BSSTC position regarding 2.15.2 is that lagged exhausts will present an ignition source to diesel spray as the surface temperature will generally exceed the self-ignition temperature of diesel – hence the removal of the lagging requirement at 2.15.2. The BSSTC position is that the BSS should address the potential for diesel to spray over hot exhausts, hence this proposed amendment to 2.10.1 disallowing temporary 'get-me-home' hose fixes. An increase in claims against examiners/BSS is not anticipated in this respect.

	CLI 2.15.2. NABSE comment - For continuity with 2.10.2, amend title to read: **Are all ~~rigid~~ fuel feed, ~~and~~ return and on-engine pipes ~~lines~~ made of suitable materials?** Two (related) issues exist here – the need to recognise and act on: □ The discovery of a 'temporary' fix to a diesel HP injector pipe effected by fuel hose (presumably secured by worm drive clips). □ **The acceptability of HP injector lines being implemented in HP hose (eg: SAE 100 / EN 853).** Before this ECP change proposal is ratified, this issue must be re-addressed by the BSSTC. Additionally, the rationale supporting the proposal to delete the requirement to lag / shield exhaust components at CLI 2.15.2 **needs be re-assessed** as it exposes the fact that the risk methodology /analysis methods employed by the BSSTC are flawed. **Have the hull insurers' been consulted on this proposed amendment ? If not does the BSS Office believe that they (the insurers') would agree with the fact that an opportunity for sensible risk mitigation (exhaust lagging / shielding) has been deleted by the BSS (on behalf of the participating Navigation Authorities) thereby nullifying the overall objective of the CLI and opening the door to both 1st and 3rd party claims ?**	
2.10.2	NABSE observation – *1st Applicability – hoses marked to SAE J 1527, and DIN 4798 or RINA DIP/66/96 are acceptable.* While the need to incorporate the statement in TN01.06.ECP01 (RINA DIP/66/96 hoses) is understood, there are many instances of telephone calls from Examiners seeking advice on the acceptability of specific on-engine fuel hoses. If the BSS Office holds a database on these hoses, should this information not be published in the ECPs (as an Appendix ?). *New 5th 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.* In this context, what does 'small capacity diesel containers' mean ? NABSE comment – *1st Applicability* – In addition to the comments at 2.2.1 which also apply in this instance, if the BSS Office holds a database of specific on-engine fuel hoses (including those certified by the USCG), can this information be published in the ECPs (as an Appendix ?). *New 5th Applicability* - This CLI amendment should include an indication of **maximum permitted tank capacity** to reduce the number of phone calls to the Office to establish what constitutes a small capacity diesel container'.	No change to the proposals is considered necessary. *1st Applicability* There is no BSS Office database of accepted fuel hoses. Where a fuel marking is established that can be universally accepted as equivalent to ISO 7840 then this is published for examiners and boaters. Hose specifications are generally unique to the hose maker and may be specific to a year of manufacture. Enquiries from examiners generally involve direct contact with the makers by the BSS Office team. *New 5th Applicability* 'Small capacity diesel containers to the cold start facility on older diesel engines' are relevant to old Perkins engines and will be rarely found. For examiners, identifying 'small capacity diesel containers' as used for cold starting diesel engines is considered to be a matter of training. No maximum capacity requirement is considered necessary to include in the new 5th applicability. For boaters, they will know if their old diesel engine has a cold start facility fed by a small capacity diesel container.

2.10.4	NABSE observation – The Applicability states: *'pay particular attention to rotating engine components, sharp or hot engine and exhaust components, engine bearers and other vessel structures'.* In relation to **what** criteria ? NABSE comment – In addition to the comments at 2.2.1 which also apply in this instance, suggest that the wording of the Applicability be amended to read: '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'.	The suggested amended words of the 'applicability' is regarded as an improvement and is accepted. The following text is supported: **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.**
2.11.1	NABSE observation – *New 3rd 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.* In this context, what does 'small capacity diesel containers' mean ? NABSE comment – This CLI amendment should include an indication of **maximum permitted tank capacity** to reduce the number of phone calls to the Office to establish what constitutes a 'small capacity diesel container'.	No change to the proposals is considered necessary. See also 2.10.2 above. For examiners, identifying 'small capacity diesel containers' as used for cold starting diesel engines is considered to be a matter of training. No maximum capacity requirement is considered necessary to include in the new 5th applicability. For boaters, they will know if their old diesel engine has a cold start facility fed by a small capacity diesel container.
2.11.3	BSS Office - The suggested checking action deletion needs to be slightly extended to be effective in removing the check for fuel leaks that is already published at 2.11.1. 'Check flexible fuel hose connections made with hose clips or clamps that can be seen and reached, ~~assess their condition and look and feel for leaks.~~	Agreed, the additional deletion is necessary, in fact a slight re-word is necessary to align the checking action to the check question and requirement. The 1st paragraph of the checking section at 2.11.3 must read: **Check the effectiveness and condition ~~flexible~~ of all fuel hose connections made with hose clips or clamps that can be seen and reached.** **Pull using light manual force to check security of all hose connections that can be reached.** Also delete the word '**~~flexible~~**' from in front of the word 'hose', in the check question and in the first sentence of the requirement, for consistency.
2.12.3	NABSE observation – With the proposed deletion of 2.12.2 on the stated grounds, this remaining CLI concentrates purely on the fire resistant qualities of fuel filters. Should the opportunity not be taken to expand this CLI to specifically include devices such as **stand alone water separators / agglomerators and combined filter / agglomerators (which are mandated for incorporation on diesel systems by BS EN ISO 10088:2001) ?** NABSE comment – Because the majority of these devices can incorporate a glass or plastic sight-bowl, have the BSSTC performed a risk assessment in this regard ?	No change to the proposals is considered necessary. Published BSS material already covers this comment. At 2.12.1 the 'applicability' in the Examination Checking procedures and the 'note' in the BSS Essential Guide states that – *the requirements at Section 2.12 must be applied to all forms of fuel filters, including water traps, sedimenters, agglomeraters, etc*.

2.14.4	NABSE observation – The Applicability states: *there is no requirement for examiners to dismantle the air filter to determine the nature of the filter element.* The 2nd Rationale states: *The impact assessment is that replacement gauze and pleated-'paper' filter elements are an inherent maintenance cost and only a tiny proportion of petrol boats will not have them fitted. It is anticipated that between 10 - 20 boats per year subject to BSS examination may be affected. The risk assessment is that filters must have filter elements to be effective and that the change is necessary to address the potential for petrol backfire leading to a petrol vapour ignition and fire. (GR 1).* NABSE comment – The risk assessment in this critical safety area indicates: "... filters must have filter elements to be effective ..." While this impact may be perceived to be lessened by estimating that the **arising rate** of the risk being realised is low (ie: 10 to 20 boats will not have a filter fitted), logic dictates that the Examiner must award an **NV** for every petrol engined boat with an enclosed air filter housing as he / she is unable to determine if a filter is present **Is the BSSMC satisfied that the proposed amendment provides a credible solution to this high-impact problem ? Have the hull insurers' been consulted on this proposed amendment ? If not, does the BSS Office believe that they (the insurers') would agree with the fact that an opportunity for sensible** **risk mitigation has been diluted by the BSS (on behalf of the participating Navigation Authorities) to a point where the overall objective of the CLI is nullified and opens the door to both 1st and 3rd party claims ?**	No change to the proposals is considered necessary. The BSS examination consists mainly of a series of visual and manual checks and is generally conducted without causing the dismantling of any components or by examiners using tools. The exception to this is where 'accessibility' is made a BSS requirement, for example concerning safety-critical features such as fuel tank connections. The adoption of a check for 'obviously missing' elements or components is supportable for the following reasons: a) the checking action aligns with the visual and manual check concept; b) boat owners will now be certain that flame traps and air filters having missing elements or components will be deemed non-compliant with BSS requirements and will be better inclined to replace them; c) the approach is appropriate to the level of risk; d) the approach can be modified in the future if the evidence from incident data points to a need to.
2.15.3	NABSE observation – The Title of this new CLI does not align with: □ the content of the 'Checking items to be performed' box, □ the 'Requirements to be met for a pass' box, □ the Applicability or the Rationale in that aspects of a portable fuel system are included. NABSE comment – Simply put, there is little-to-no justification for this (over-complicated) new CLI.; the requirements for **Permanently installed fuel systems and fixed engines** are addressed by Part 2; those for **Outboard and portable combustion engines and portable fuel systems** are addressed by Part 5. The composition of any 'interface' between fixed and portable fuel system is already contained within extant ECP's and is sufficient to manage all eventualities. The only 'embellishment' worthy of consideration is the provision of adequate cross-referencing between Part 2 and Part 5 (based upon the wording of the Applicability at ECP CLI 8.1.1)	No change to the proposals is considered necessary. The BSS disagrees, this new check is simple and it fills a potential loophole that would allow portable fuel tanks to be located in the engine space.

2.17.1	BSS Office –the word ‘standard’ needs to be added to the check question, as follows: **Do the fuel supply arrangements to LPG-fuelled propulsion engines comply with UKLPG ~~LPGA~~ CoP 18 or equivalent standard, and are any dual-fuel petrol/LPG arrangements of an acceptable type?**	Agreed, the additional is desirable. **Do the fuel supply arrangements to LPG-fuelled propulsion engines comply with UKLPG CoP 18 or equivalent standard, and ….?**

Part 3 - Electrical systems		
Part 3 General	NABSE via the web facility - The NABSE Partners wish to communicate to you their belief that the proposed changes to Part 3 regarding, particularly, the inspection of 230 Volts AC systems on boats will put Examiners in serious peril and, as currently proposed, may well be in breach of Statutory legislation. We would draw your attention to the Health & Safety at Work Act 1974 and the Electricity at Work Regulations 1989, particularly Regulation 14 and, for your guidance, page 6 of the Electricity Safety Council Best Practice Guide No 4 – Electrical installation condition reporting: (http://www.esc.org.uk/fileadmin/user_upload/documents/industry/best_practice/BestPracticeGuide4-Locked.pdf) It is the NABSE Partners view that the proposed checks cannot be 'Advisory' and any dangerous situation discovered must be made safe at the time of the inspection. It is not satisfactory to simply make the owner (or their representative) aware of the danger because an agreement should be made with the client to make safe, normally through 'isolation' of any dangerous condition. 'Best Practice' also requires any faulty installation to be formally reported in writing through the use of a modified 'Warning Notice' along with the labelling of such installations to make it perfectly clear the 'Danger' is present even after isolation. The measures described are similar in many respects to the actions currently required by Section 7 ECP 7.12.2 (which are mandated by GSIUR Regulation 34) For these reasons alone, the NABSE Partners believe the checks relating to 230 Volt AC systems cannot be 'Advisory' and must be mandatory and be complemented by a requirement for any identified problems to be made safe before the examination is concluded. We would therefore propose an urgent meeting with yourselves and the HSE to resolve our grave concerns on behalf of all BSS Examiners. Finally, it is also our strong belief that to protect the examiner and client, all 230 Volt sources of supply must be isolated before any checks, including 'visuals' are undertaken as, at the time of the Examination an (as yet undiscovered) electrocution risk may be present on the craft. 'Live working' must be avoided at all times and is only permitted in the electrical industry when accompanied by an appropriately authorised 'Permit to Work' scheme	No change to the proposals is considered necessary. This response is in the context of our involvement with HSE in respect of UK law. The BSS does not agree with the NABSE submission that the *inspection of 230 Volts AC systems on boats will put Examiners in serious peril and, as currently proposed, may well be in breach of Statutory legislation* The proposals for changing Part 3 ECPs fall from a risk review conducted for BSSTC but to a certain extent they also fall from the logic that if an examiner identifies a hazardous electrical situation, then it makes every sense that risk concerns are passed on to the boat owner in some formal way and that they are given prior notification of those situations within the BSS Essential Guide, and that the information is not kept from him/her. Concerning the EAWR, it is our view that neither the BSS or BSS Examiners have 'control' over the 230V electrical installations on boats examined to BSS requirements and as such the regulations largely do not apply. The BSS does not consider that examiners 'work on' or 'test' 230V electrical installations on boats, they examine them to laid down BSS checking procedures alongside checks of many other boat systems, and as such the relevance of EAWR and HSWA is limited. Concerning the HSWA, it is our view that the BSS has a duty to examiners to help keep them safe – hence the coverage of risk in the electrical course – and also to be competent to carry out the BSS checks. We do not believe that we owe wider duties under this legislation to the wider public. We accept that we should and we do make it clear to customers what BSS examiners actually check and what they don't examine, and this is made clear in the BSS Essential Guide and on the BSS website. Concerning the NABSE Partners view that the proposed checks cannot be 'Advisory', - the response is that the navigation authorities use of mandatory the response is that BSS mandatory requirements are kept to the means to prevent explosions, fires, the spread of fires and pollution. It follows that electrocution risks are not included. Concerning the suggestion that 230V supplies must be isolated before all BSS examinations, before a BSS examination is undertaken. The BSS considers that sufficient examiner training and general guidance is provided to adequately address any risk situations that may present themselves to examiners. Published guidance includes abandoning the examination, the issue of warning notices etc. The onus will be on examiners to communicate in advance with owners

		concerning the need to disconnect the a.c. system prior to the examination. It is not considered necessary to discontinue an examination if a boat with the a.c connection is found connected upon arrival to carry out the examination. Examiners must not disconnect the a.c. supply themselves unless contracted separately so to do. If examiners were to disconnect the a.c system it is predicted that the BSS examiners will be subject to civil claims in the event appliances are not reset correctly upon leaving the vessel, leading to damage/loss/ sinking etc., it is unlikely that examiner insurance would cover such claims.
Part 3 General	Boat Owner - To my mind the biggest risk of electrical fires is the way cables are threaded around gunwales and though bulkheads, with no protection from abrasion whatsoever. It is very simple, and fairly inexpensive to install all cable runs in plastic conduit, keeping of course 12/24v and 230v separate. This should at least be a recommendation in the BSS	No change to the proposals is considered necessary. BSS requirements currently assess cable condition and address cable support and protection at points where the cable is most susceptible to damage.
Part 3 General	Marine trade representative - As time progresses & demand for 240v on boats increase daily, we see 100's of boat fitted with DIY 240volt shore supply systems. Some of which are 'very' dangerous (no earth) and normally we either disconnect or advise customer accordingly.240v systems can be more dangerous then household electrics so they should be under some sort of certification/testing. It's easy for you to introduce and will no doubt save a life in the future. Any questions let me know or survey of visiting boats let me know.	No change to the proposals is considered necessary. The risk review accepted that DIY installation is part of the reason why the new advice checks are deemed necessary. The BSS recommends the use a competent person to design, install and maintain, we also support boat buyer's asking to see a test certificate for the boat's 230 V electrical system.
3.1.2	NABSE observation – The requirement to apply light manual force to the batteries has been deleted from the 'Checking items to be performed' box despite the fact that the 'Requirements to be met for a pass' box states that "*All batteries must be incapable of movement in excess of 10mm in any direction*"" How is this 'incapability of movement' to be assessed ? NABSE comment – By omitting the criterion to check for battery movement, the stated rationale **fails to clarify** the requirement. Amend wording in the 'Checking items to be performed' box to read: • 'Apply light manual force to all batteries, battery boxes, cradles, frameworks etc to verify the extent of possible movement'.	No change to the proposals is considered necessary. The BSS disagrees. The BSS position is that: a) examiners should not touch lead-acid batteries to avoid the possibility of personal harm; b) the extent of any possible battery movement can generally and reasonably be assessed visually.

3.2.3	NABSE observation - *These requirements are proposed to ensure the existence of a BALANCED requirement between ECP CLI's 3.2.3 and 3.3.1 in addition to recognising the fact that the item / object that caused the impact damage may / may not be present at the time of examination.* NABSE comment – The wording of bullet 2 and the last paragraph of the 'Requirements to be met for a pass' box should be amended to read: • *signs of impact damage, chaffing, abrasion, broken strands or heat damage.''* *New Applicability: 'Insulation and sheathing must show no signs of damage where cables pass through bulkheads or craft structure or deterioration caused by reaction with water or fuel.'*	This check is not proposed to change and so no change to the proposals is considered necessary. The suggestion would cause a move away from the 'damage and deterioration' concept as defined in the glossary and is not supported. The suggested new applicability is unnecessary partly because check 3.3.1 covers cable protection where cables pass through bulkheads or structural members.
3.3.1	NABSE observation – Good design of cable support and / or containment systems will provide protection from mechanical damage (impact, abrasion or chaffing). To legislate against the **possibility** of **impact damage** from 'any structure' or 'item of equipment' is an **uncontrolled variable** for the Examiner to make judgement upon. If all cables were in containment (conduit), the impact / abrasion / chaffing risk would be minimised; however, such an imposition in impractical. For cables not in containment, they should be adequately supported by clipping at regular intervals and / or supported in adequately sized cable tray. The primary objective of this check should be to establish if the craft's cables are adequately **supported** (in terms of cable runs and through-bulkhead penetrations. Cable **condition** should addressed under ECP CLI 3.2.3. The wording of the second 'Applicability' paragraph is factually incorrect – the term 'double-insulated' only applies to electrical equipment (also referred to as Class II). The layer of insulation on a conductor (basic insulation) provides protection from electric shock and mechanical damage. Where multi-core cables employ a sheath (for support and mechanical protection) this layer does not 'double insulate' the cable because the material properties of the sheath are optimised against wear, abrasion, heat etc. NABSE comment – Amend wording in the 'Checking items to be performed' box to read: *'Check the run of all cables which can be seen and confirm that they are supported along their length at regular) by surface clipping intervals (250mm horizontal and 400mm vertical *) or located and supported within adequately sized cable tray.' Alternatively, recommended clipping distances could be included under 'Advice for owners' (best practise). * Spacing as recommended by BS7671: 2008 (2011) OSG Appendix D Table D1. The wording of second 'Applicability' paragraph should be amended to read: 'Single core cables with basic insulation and no outer sheath should not pass through bulkheads and other structural members without additional protection – ie: grommets, sleeves. Where multiple core cables are enclosed in a sheath, the sheathing should be considered as adequate protection, providing the sheathing material is in good condition.'*	No change to the proposals is considered necessary. The ECP change proposal is a minor editorial change making it more likely that examiners will apply the check consistently and for boat owners to understand the scope of the check more readily. The cable clipping suggestion by NABSE would represent a major change and did not come through the ECP Review process and if accepted would impose a significant additional requirement on boat owners. The suggestion is not supported by BSSTC. The term 'double-insulated' cables is well understood by examiners and has been around since 2005 without previous comment – it is not considered necessary to alter the term at this late stage.

3.4.1	NABSE observation – The wording of the new 2nd 'Applicability' states: 'Crocodile' type clips are not acceptable as battery connections for permanently installed cables' What evidence is available to indicate that the use of 'crocodile clips' contributes to the fire / explosion risk ? In cases where a craft has a permanently fitted (proprietary) battery charger/ PV Panel which employs 'crocodile clip' terminations, are the charging leads regarded as ''permanently installed cables' ? NABSE comment – The wording of the second 'Applicability' paragraph should be amended to read: ''Crocodile clips terminations on battery chargers / PV Panels are only acceptable where the battery charger / PV Panel (and all associated cables) are permanently installed.	No change to the proposals is considered necessary. The suggested amendment to the 2nd applicability is not agreed. For the purpose of the BSS examination, crocodile clips are not considered an appropriate method of connection, other than for temporary/portable equipment that does not form part of the boats permanent electrical installation.
3.5.1	NABSE observation – Firstly it should be noted that there is no distinction of fuse type for use in ac or dc final circuits. While it is generally accepted that the device trip current will be about the same for either ac or dc, the majority of 'domestic' ac breakers rely on the voltage passing through zero twice per cycle to extinguish the arc drawn between the contacts by the fault current as the breaker trips. By contrast, a dc arc is continuous and needs other means to extinguish the arc (larger contact spacing, blow out magnets that push the arc out sideways from the gap and into contact some heat absorbing insulation). For dc applications, the dc voltage rating and the maximum fault current that the breaker is guaranteed to interrupt may also be a lot lower than the ac voltage and fault current interrupt ratings. Accordingly, normal 'domestic' circuit breakers should not be used in dc final circuits. A dc circuit breaker should be specified such that the fault current and applied voltage of a particular final circuit fall within the selected specification of the selected devices specs. The objective is to install a circuit breaker not a fire starter! The wording of the 1st 'Applicability' paragraph has been amended to specify dc systems only. From the fire safety perspective ac and dc systems are equally capable of hosting over-current conditions which, if not protected by some form of circuit protection could result in an electrical fire. REMEMBER that circuit protection devices (fuses, circuit breakers etc only protect circuits from over-current situations - they DO NOT PROVIDE ANY PROTECTION FROM ELECTRICAL SHOCK by automatic disconnection of supply ! Any final circuit whose cable size and associated protective device is not adequately designed can be a source of an electrical fire under short-circuit or over-current conditions. A new item in the 'Checking items to be performed' box has been introduced: *'Fuses and fuse wire must be rated not greater than any rating marked on the fuse holder'* By contrast, the new 2nd 'Applicability' states: 'examiners are not to remove/unscrew fuses or fuse wire holders or remove circuit breakers. The checking action for fuses and circuit breakers which cannot be seen without their removal should be confined to the checks for completeness and condition'.	No change to the proposals is considered necessary. The NABSE comments concerning MCB design have largely been raised, considered, debated and ultimately decided upon during this ECP review process and the concerns are largely theoretical and not supported by risk data. Concerning the fusing of dc systems the comments *dc systems are equally capable of hosting over-current conditions* are accepted, the ECP review process did not support a new BSS requirement for dc fusing at this time. The BSS do not support the re-instatement of the requirement *for fuses to be rated less than the current carrying capacity of the cable protected* for the simple reason that examiners can no longer determine the current-carrying capacity of cables. The 600 watt inverter description theoretical example which can be dealt with as a one-off through BSS support if the framework of the ECPs is considered insufficient to deal with the arrangements found. The suggestion to reconsider the definitions is a good one and can be added to the BSSTC 'risk review list'.

	The ‘Advice for owners’ provides a blanket recommendation to fit an RCD: ‘to provide appropriate electric shock protection on ac systems’. NABSE comment – The title should be amended to read: *Are all fuses and circuit breakers fitted to the craft appropriately rated, complete and in good condition ?* The Second bullet point in the ‘Requirements to be met for a pass’ – ie: □ rated less than the current carrying capacity of the cable protected and; should be re-instated as this is the **PRIMARY** REASON FOR THE INCLUSION OF A CIRCUIT PROTECTIVE DEVICE (ac or dc application). These 2 statements are contradictory. How can the examiner establish if the fuse / fuse wire is correctly rated or even contains a fuse / fuse wire (as opposed to a nail) if the examiner is not permitted to remove or unscrew the fuse/fuse carrier ? As written, the checks will only establish if the fuse holder / circuit breaker is complete / incomplete and in good / poor condition. While the cited amendments may ‘help ensure examiner safety’ they do very little to establish the absence of problems that could result in an electrical fire. For example, how should an Examiner deal with a 600W inverter mounted within a galley base unit whose only purpose is to provide an ac supply to power the 230v igniters on a cooker / hob ? Should this configuration be regarded as an ac system ? What if this is the only ac item aboard the craft ? If found, should the output from such an inverter be fed via a consumer unit (equipped with an RCD) ? For completeness (and to assist with such a quandary), the glossary of terms needs definitions for: □ an electrical system □ ac system □ dc system	
3.5.2	NABSE observation – While the title for this ECP CLI asks if the items listed are ‘complete’, this requirement is not tested in the ‘Checking items to be performed’ or the ‘Requirements to be met for a pass’ box’ and is limited to checking for the presence of a lid or cover. While the check concentrates on enclosures designed to have a cover or lid which must be fitted to prevent / contain the travel of molten metal from a ruptured fuse, the check should also encompass the safe enclosure of inline fuse holders of the automotive type and those housing midi and mega fuse types – why are they not specifically considered ? What if a mega fuse holder is discovered within a battery box ? In the case of a rupture at cranking current rates, what risk analysis has been performed for such a situation when combined with a ‘gassing’ battery ? While the ‘Applicability’ box states that this CLI is for both ac and dc supplies, there is insufficient acknowledgement of the risks involved in relation to the	No change to the proposals is considered necessary. The BSS proposal for changing the ECPs at 3.5.2 is a very simple editorial change inserting ‘consumer unit’ to replace distribution box, in line with modern terminology and new check 3.9.2. What NABSE propose is a significant change suggestion that did not come through the ECP Review process and requires careful and separate consideration. It is proposed to add this suggestion to the BSSTC ‘risk review list’.

	‘completeness’ of ac consumer units. From the ac electrical safety perspective, BS 7671:2008 2011 requires that all ‘enclosures’ – eg: consumer units must be ‘complete’ (eg: ‘knock-outs’ must not be missing as they fail to meet IP4X in that a person could access and touch a live conductor) NABSE comment – The ‘Requirements to be met for a pass’ box should acknowledge that the checking criteria for dc fuse panels, boxes, holders and dc consumer / distribution boxes do not attract the same level of personal safety risks associated with ac consumer units. Accordingly, this aspect should be re-written as follows: All **dc** fuse panels, boxes, holders and dc distribution units incorporating fuse holders and circuit breakers should: □ be complete (including covers / lids where provided). □ be free from signs of deterioration, heat damage and physical damage’ All consumer units used for **ac** distribution must: □ be **complete** and free from signs of physical damage, heat damage and deterioration. □ have no open cable access points (‘knock-outs’) – if present, Appendix A action is to be taken. □ be marked with a label indicating the system voltage ie: 230 V ac or 230 V 50Hz. New applicability: Mega fuse holders are not to be located within battery boxes.	
3.6.1	NABSE observation – See rationale in 3.6.2 below. NABSE comment – The title of this CLI should be amended to read: ‘Are isolators fitted to all sources of dc energy and are they fitted as close as possible to said source(s) of energy ?’	This check is not proposed to change and so no change to the proposals is considered necessary. Section 3.6 concerns battery isolators, the BSS does not consider the proposed re-wording is relevant.
3.6.2	NABSE observation – The amended CLI has become cluttered by the mixing of **sources of energy** (PV panels, wind turbines) within the list of **current taking equipment**. Because there is the possibility that multiple sources of dc energy are fitted to a craft, consideration should be given to the introduction of a new title of this CLI which should make specific reference to dc sources of energy as it the source of energy that is isolated not the circuit being supplied. NABSE comment – Re-word title to read: ‘Is there a facility to isolate all sources of dc energy from the craft’s dc electrical circuits while still ensuring that those services which require a continuous supply are alternatively protected ?’	No change to the proposals is considered necessary. The BSS proposals for changing the ECPs is a very simple editorial change adding ‘d.c.’ and adding one additional electrical circuit that can bypass the battery isolator if fused. Accordingly the BSS does not consider the check to have become cluttered as a result of the proposal. Section 3.6 concerns battery isolators, the BSS does not consider the proposed re-wording is relevant.

3.6.4	NABSE observation – The wording of bullet 2 and the last paragraph of the 'Requirements to be met for a pass' box has been amended to remove the words: '*heat damage indicating an inability to carry the maximum current of the circuit.*' Evidence of heat damage to an electrical / electronic component is invariably a pre-cursor to a (albeit localised) electrical fire. Such evidence should not be ignored ! NABSE comment – The wording of bullet 2 and the last paragraph of the 'Requirements to be met for a pass' box should be amended to read: □ *be free from signs of deterioration, heat damage and physical damage.'*	No change to the proposals is considered necessary. The BSS proposal for changing the ECPs is an editorial change to reflect the consistent approach relying upon the glossary definition of 'damage or deterioration'. As this definition would include heat damage the re-insertion is not supported.
3.8.1	NABSE observation – The whole objective of this CLI is to ensure that the craft employs electrical connectors suitable for use in conditions WHERE THE EFFECTS OF WATER WILL NOT IMPINGE ON PERSONAL SAFETY. While the argument regarding identification of a connector by its design standard (BS EN 60309 / equivalent) is accepted (primarily because identification by this means is largely not consistent), connector types of the class required are always externally marked with their IP Rating. To ensure the availability of adequate 1st and 3rd party personal safety, craft must employ (appliance inlet) connectors rated at IPX4 (or better). The amended words at ECP CLI 3.8.1 state: *"Shore power and battery charging inlet connections must be of suitable proprietary manufacture and must be a plug (male) type"* and *"Shore power and battery charging inlet connections not obviously splash proof must not be located where they are likely to be subject to the weather / splashing"* NABSE comment – This CLI should be remain extant and be re-written without any reference to the design standard (BS EN 60309) and include sufficient words to signify the relevance of the connector's IP rating. (as stated in TN02.07 ECP01) It is not appropriate for the Examiner to decide if a connector is "of suitable proprietary manufacture" It is not appropriate for the Examiner to decide if a connector is "not obviously splash proof". The availability of an externally-marked IP rating will provide the necessary assurance of compliance.	Although we disagree with the NABSE submission that it is not appropriate for examiners to decide if an inlet connection is 'of suitable proprietary manufacture' or 'not obviously splash proof', we agree that connections marked to IP44 or above is good evidence of suitability is both respects. It is suggested to introduce a new 1st applicability as presented below, as this would also help boat owners assess their boat's a.c. inlet connections. **Applicability – shore-power and battery charging 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.**
3.8.1	NABO - In the rationale for 3.8.1 you state that in moving away from BS EN 60309 that "instead reliance is placed upon products encountered being assessed as of 'suitable proprietary manufacture'. Expected markings can be covered in training and reference material" Under the concept of a 'level playing field' the reference material and any assessments should also be made available to the boat owners who have to ensure compliance for the other 3 years 364 days.	No change to the proposals is considered necessary. We of course agree in principle, but the issue is that markings on shore-power and battery charging inlet connections are inconsistent, however in the response above there is recognition that connections marked with an IP rating (e.g. IP44) where the second figure is '4' or higher, provides evidence of suitable proprietary manufacture and splash-proof design. This added information should help. We also think that most boat owners (& examiners) would readily recognise inlet connections of suitable proprietary manufacture. Suitable proprietary manufacture has a precise definition in the glossary to the ECPs - *An item or*

		device that is, on the face of it, manufactured for the purpose determined during the examination. This definition is enough to disallow domestic plug and socket in the cockpit to connect the shore-power supply, but would allow all of the different types of splash-proof inlet connections on the market.
3.8.1 3.8.2 3.8.3	NABO - Although these checks are currently advisory, the 'Applicability' suggests that if a shore connection cable is not presented to the examiner it is entered as 'not verified' and therefore an advisory failure. This is not a good situation. There should not be a requirement that there is a shore connection cable, only that complies if it is present. I equate this to the MOT rule about spare car tires, where you cannot fail for not having one. In the applicability for these checks there is the statement 'do not disconnect shore power or battery charging leads, but if present the owner should be invited to etc.' I do not understand the purpose of this statement and think it will lead to misinterpretation. What if the owner does not wish to disconnect or the owner is not present? We have not said why disconnection is required and I cannot see a reason why it should be. I do not think it right that failure to disconnect is implying that an examination should stop. I suggest to delete the statement(s).	Minor changes to the applicability are agreed. 3.8.1 applies to the boat's inlet connection(s) and 3.8.2 and 3.8.3 apply to the shore-power, battery charging, and other a.c. power source leads and their connections. Concerning 3.8.2 and 3.8.3, the approach is for examiners to *check the condition of any shore-power, battery charging, and other a.c. power source lead cables (or connections) where they can be seen*. It follows that if no such leads are present or if the type of connection cannot be determined because the lead is plugged in, the checks do not apply, because they cannot be seen. The words of the 'applicability' were not intended to indicate a fail, merely to report facts. It is agreed, however that the words are superfluous and can be removed and reliance placed in training and in the introduction to the ECPs on concept that the checks do not apply, as referred to above. It is also intended to record the nature of what was present in respect of a.c. systems through the Salesforce reporting facility. It is also agreed that the checking action at 3.8.1 should be amended to include the 'where they can be seen' qualification, for consistency with 3.8.2 and 3.8.3. The following amends are suggested: The check action at 3.8.1 - **Check the type, condition and location of all a.c. shore-power and battery charging inlet connections where they can be seen** The second applicability at 3.8.1 should be amended as follows: **Applicability – do not disconnect shore power or battery charging leads, but if present the owner should be invited to, providing they first make the system safe to do so. ~~If the type or condition of a shore power or battery charging inlet connections cannot be determined mark the BSS Checklist 'not verified' and note the reason why in your records~~.** The first applicability at 3.8.2 should be amended as follows: **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. ~~If the type of any lead connections cannot be determined mark the BSS Checklist 'not verified' and note the reason why in your records~~.** The first applicability at 3.8.3 should be amended as follows: **Applicability – do not disconnect shore-power, battery charging, and other a.c. power source leads, but if present the owner should be invited**

		to, providing they first make the system safe to do so. ~~**If the condition of a shore-power, battery charging, and other a.c. power source lead and connectors cannot be determined mark the BSS Checklist 'not verified' and note the reason why in your records**~~**.** Concerning disconnecting the shore-power or other a.c. supply, we need to get the balance right here because although the risk may be small, we do have UK safety law to comply with in respect of examiner safety. In our view the following two aspects of the changes ECPs have perhaps the biggest impact for boat owners, namely that : a) examiners pre-arrange with owners access to gas lockers and disconnection of a.c. power supplies; b) owners will need to provide access gas lockers and disconnect a.c. power supplies in advance of the BSS examination. The BSS position is that an examiner can proceed with the shore-power connected, with caution, and by adopting a risk-assessment approach. Examiners have enough knowledge to identify electrical risks and are compelled to undertake risk assessment and act in the same way with electrical risks as they would should they detect a gas leak or a petrol leak…. if he/she does identify a risk, the examination can be terminated and risk controls put in place using the usual methods, warning notices, informing marina management etc. Boats having their a.c. supplies disconnected do not risk having the examination terminated. See also the NABSE comment below and the associated BSS Office response,
3.8.1 3.8.2 3.8.3	NABSE observation – See comments at 3.4.3 ...PLUS The new 2nd 'Applicability' states: 'if an obvious risk of electrocution is determined take the actions described in Appendix A' This is a classic case of the old electrician's joke: Question - "what is black and crispy and hangs from a ceiling fitting ?" Answer – " An electrician who failed to isolate the supply !" The risk methodology applied to this ECP amendment is FATALLY flawed (PUN INTENDED !). What interpretation / logic is the Examiner to apply to the proposed statement: 'if an obvious risk of electrocution is determined Noticing a non-energised exposed conductor is entirely different to discovering a LIVE exposed conductor. For everybody's benefit, the Examiner (whether accompanied by the owner or not) MUST disconnect any shore power or battery charging connection from the source of supply BEFORE boarding the craft ! NABSE comment – THIS PARTICULAR ECP CLI AMENDMENT WILL BE DISCUSSED BY NABSE AND THE HSE. PENDING THE OUTCOME OF THIS DISCUSSION , NABSE WILL OFFER NO FURTHER COMMENT ON THIS PARTICULAR PROPOSAL	No change to the proposals is considered necessary. This NABSE comment concerns the application of Appendix A to a.c. systems and seeks to ensure the a.c system is invariably disabled before a BSS examination is undertaken. The BSS considers that sufficient training and general guidance is provided to adequately address any risk situations that may present themselves to examiners. Published guidance includes abandoning the examination, the issue of warning notices etc. The onus will be on examiners to communicate with owners concerning the need to disconnect the a.c. system prior to the examination. It is not considered necessary to discontinue an examination if a boat with the a.c connection is found connected upon arrival to carry out the examination. Examiners must not disconnect the a.c. supply themselves unless contracted separately so to do. If examiners were to disconnect the a.c system it is predicted that the BSS examiners will be subject to civil claims in the event appliances are not reset

		correctly upon leaving the vessel, leading to damage/sinking etc. Examiners are not electricians, they don't install they don't test they carry out visual BSS checks of a.c. systems. The position is that examiners are no more at risk than the craft occupants and the BSS incident data does not have any reported a.c. electrocution incidents. It follows that the position adopted at 3.8.1 and the other a.c. checks is both reasonable and supportable. It is agreed that Appendix A can be amended editorially to better cover electrical risks.
3.9.1	NABSE observation – If a 'source of electrocution' is present, what level of risk is present if: □ the Examiner fails to recognise / identify an 'additional power source' ? □ the 'selection' of an alternative power source is automatic ? NABSE comment – THIS PARTICULAR ECP CLI AMENDMENT WILL BE DISCUSSED BY NABSE AND THE HSE. PENDING THE OUTCOME OF THIS DISCUSSION , NABSE WILL OFFER NO FURTHER COMMENT ON THIS PARTICULAR PROPOSAL	No change to the proposals is considered necessary. The questions are not related to the proposals and are as hypothetical as asking *what level of risk is present if an examiner doesn't determine a gas leak* – the answer is that there may well be consequences. All examiners can do is not put themselves at risk, follow their training and apply the checks as published.
3.9.2	Unknown - I do not see the need for a consumer unit where the only means of power is through a single shore line 16A connector that is fed from a 16A industrial socket to a 13 A RCB outlet within the boat where all supply connections in the boat come from the 13A socket via a B 13A plug with fitted fuse. The supply comes from a IET wiring regulation compliant shore supply which provides for a 16 supply via a ELCB. As written the requirement indicates that a consumer unit or additional incoming circuit protection needs to be fitted.	No change to the proposals is considered necessary. The risk review took account of compliant shore supplies, but the decision was to support accepted marine electrical installations arrangements that call for boats to have their own a.c. circuit protection within consumer units.
3.9.2	Professional marine surveyor/BSS examiner - Shore Power thru consumer unit. I have experience of a boat (built under RCD) that was 100% 240-v shore power. It was 4 years old and the hull was disintegrating due to residual current problems. I such cases should BSS not be recommending the fitting of other units such as a galvanic isolator. Those fitted in the BW pedestals are doubtful at best.	No change to the proposals is considered necessary. The focus of the advice check proposal is circuit protection and to encourage the adoption of RCD protection. The circumstances outlined point to poor a.c. installation practice, currently the BSS has no plans refer to galvanic isolators.

Part 5 - Outboard and portable combustion engines and portable fuel systems		
Part 5 General	NABSE via the web facility - Please see our previous submission. for 8.1.2 read 8.1.1	No change to the proposals is considered necessary. The reference to 8.1.2/8.1.1 appear in error.
5.1.1 5.1.2	NABSE observation comment - The 'Crossover Project' report appears to overly-complicate the issue. Fixed or permanently installed fuel supplies are adequately covered by Part 2 and portable fuel systems are also adequately covered by Part 5. A totally adequate set of words (used for cross-referencing between Parts 2, 3 and 7 already exists under the Applicability of ECP CLI 8.1.1) and these should be adopted to 'bridge' between Part 2 and Part 5 in regard to 'hybrid' fuel systems. Regardless of how the words / cross-referencing are constructed (fixed / portable or portable / fixed), the demarcation point that needs to be covered in Parts 2 & 5 and / or Parts 5 & 2 relates simply to the transition method from one fuel system to the other. The Examiner should only be concerned about the realisation of this transition – ie: does it configured from proprietary manufactured component(s) or is it engineered from acceptable components and is it installed in a manner that is compliant with extant ECP CLI's ?	No change to the proposals is considered necessary. The BSS disagrees with NABSE's general statement. The amended checks are simple and for the first time clearly set out how examiners should view 'crossover' systems where fixed fuel systems supply outboard motors, or portable fuel systems supply fixed engines. Publication of the checks will help boat owners plan to be and remain BSS compliant in respect of 'crossover' systems.

Part 6 – Fire extinguishing and escape		
Part 6 General	Private individual - The current document still refers to BS5306-3:2003. This has been BS5306-3:2009 for 3 years. Others may also have changed! The current document states "The requirements in this chapter have been informed by, and may refer to, the following technical references, codes and regulations". BS5306-3:2009 at clause 4 now requires extinguishers to be commissioned as documented within the standard with a clear requirement that "Upon completion of the above procedures the extinguisher should then be installed and positioned in accordance with BS 5306-8". The March 2012 draft for the revision of BS 5306-8 at 8.4.2 Minimum quantities of class C extinguishers required "None are required unless a trained fire-fighter is available (see 8.4.1)". Additionally, at 5.4.3 Use of powder extinguishers "The discharge of a powder extinguisher can cause a sudden reduction of visibility, which could temporarily jeopardize escape, rescue or other emergency action. For this reason water-based extinguishers should ideally be specified for use indoors". To what extent will the revised BSS document be "informed by" these requirements? The visibility issue is especially relevant for narrowboats let alone the health risk implications for individuals with breathing related and /or mobility challenges in narrowboats which readily available / accessible to such individuals. Has the continued use of powder extinguishers in boats been fully risk assessed in the light of proposed changes to BS5306-8? Could a Class F extinguisher be an alternative to a fire blanket and should fire blankets be Kitemarked or similar as are extinguishers? Why are extinguishers on boats exempt from periodic (e.g. monthly) inspections by the user per BS5306-3:2009 at Clause 5 - Visual inspection by the responsible person. "The responsible person should carry out visual inspections of all extinguishers regularly. These visual inspections should be carried out at least monthly. When circumstances require, inspections should be carried out more frequently". (The owner or boatyard being the responsible person and inspections could be recorded in a log created for this purpose). Nor are they required to undergo an annual service to BS5306-3:2009 by a competent person per manufacturer instructions e.g. for Chubb Fire product: “Extinguisher is to be installed and serviced in accordance with BS5306 Part 3 and Part 8” since failure to do so will invalidate any manufacturer warranty or claim for BSEN3 compliance. Finally, Firemaster 1000PR B/C [Brass/Chrome] models marked without the ‘Kitemark’ have not been manufactured since the business was sold some years ago and thus no longer have manufacturer support and will almost certainly will have exceeded age requirements for continued suitability.	No change to the proposals is considered necessary. This general comment received refers to the BSS Essential Guide text at Chapter 6, page one and an amended reference to BS5306-3:2009 can be added when the text is revised later this year. Our current view is that the impact of the revised BS5306 is on commercial companies the subject of the Regulatory Reform (Fire Safety) Order 2005 and that the BS acts as good guidance for owners of private property. The BSS considers that the responsibility for portable fire extinguisher maintenance rests with boat owners and that BSS condition checks are sufficient for the purposes of the navigation authorities. As a result of the comments received this position is to be tested with our competent advisors the Fire Protection Association and through BSSTC. It is considered that as Firemaster 1000PR B/C [Brass/Chrome] models marked without the ‘Kitemark’ are still found the applicability should stay.

Part 7 – LPG installations		
7.2.1	NABSE observation – The **'Checking action to be performed'** box contains the words: *'Check the height of the LPG cylinder locker sides'* **5th Applicability** states: **hatches and any similar temporary openings**, however constructed or sealed, are not permitted within the area of LPG cylinder lockers and housings covered by this check. The LPG tightness Note that the BSS compliance of side-opening cylinder lockers compliant with ISO 10239 is covered at 7.2.3 NABSE comment – The term 'check' means 'measure' or 'compare to a known figure'. To ensure that the Examiner is presented with clear and unambiguous guidance, the intention of the first 2 paragraphs of the **'Checking action to be performed'** should be combined thus: *'Visually determine that the sides of every cylinder locker extend above the height of the cylinder valves /high pressure components (whichever are located highest)'.* While it is appropriate to focus on the 'gas tightness' of any hatches or temporary opening found within the walls / floor of a gas locker, how should the Examiner react when finding a closure plate (especially in larger craft where access to another compartment / part of the craft's hull is achieved via an aspect of structure whose fit / removal is strictly controlled) ? Suggest that the **5th Applicability** be expanded to state: *Gas lockers that contain a closure plate must be recorded as 'not verified' on the BSS Checklist, and it must be considered that the check has not been completed until such time as the status of the identified closure plate has been verified'.*	No change to the proposals is considered necessary. The BSS checking actions invariable break down the steps examiners should take when examining. It follows that to combine the two checking actions would go against the accepted principle adopted throughout the ECPs and no advantage is envisaged in taking forward the NABSE suggestion. Closing plates should be considered to be covered by the 5th Applicability as repeated here, *– hatches and any similar temporary openings, however constructed or sealed, are not permitted within the area of LPG cylinder lockers and housings covered by this check.*
7.3.5	BSS Office –the word 'hose' needs to be replaced by 'drain line' in the 3rd paragraph of the checking section, as follows: 'Where connections can be reached, pull using light manual force to check security of all drain line ~~hose~~ connections'.	Agreed, the change is necessary, in fact a slight re-word is necessary to align the checking action to the check question and requirement. **Check the condition of all cylinder locker drain line material that can be seen or reached.** **Check the condition of all drain line connections that can be seen or reached.** **Where connections can be reached, pull using light manual force to check security of all drain line connections.**
7.3.5	NABSE observation – In addition to checking for the presence of any perforation in the craft's gas locker at ECP CLI 7.2.1 that would permit the passage of leaked LPG to the interior of the craft, **does the BSSTC agree that the risk weighting of the integrity of the locker drain line is equal to that of locker structural integrity ?** Unlike the information provided within the *BSS Essential Guide (below),* nowhere within this ECP CLI is there any requirement to establish the **type of material** that constitutes the drain line. ***EG Ch 7 Page 12: Best practice*** *We recommend you to fit, whenever possible,*	No change to the proposals is considered necessary. The type of locker drain material was considered as part of the review and the decision was not to change from the current ECP text requiring a check the condition of cylinder locker drain line material and connections that can be seen. The BSS Essential Guide best practice guidance remains supportable excepting BS3212 hose is not generally available above 10mm diameters and

	drain hose that complies with a recognised standard such as ISO 7840 for fire resistance or BS 3212 for LPG. NABSE comment – While the ECP suggests that the Examiner may introduce fluid into the drain line to establish that it is *'free of blockage'*, what about the circumstances where the integrity of the drain line(s) is / are compromised thereby allowing a leaking drain line to deliver leaking LPG into the body of the craft ? This ECP proposal (along with ECP CLI 7.3.5) should be reconsidered by the BSSTC and an enhanced check formulated to mitigate against this previously unaddressed risk. Suggest that this enhanced check should include direction along the lines of: *'Where gas locker drain lines can be seen and reached, check for signs of deterioration. Where doubt exists, water should be introduced (with the owner's permission) into the gas locker to establish the integrity of the drain line'.*	so the guidance may be amended slightly. What NABSE propose concerning an additional test from the drain material is a significant change requiring thorough consideration. It is proposed to add this suggestion to the BSSTC 'risk review list'.
7.4.1	NABSE observation – The proposed change to the 1st item in the **'Requirements to be met for a pass'** box states: The extent of any LPG cylinder movement must not cause any pulling of pipework or pulling tight of hose connections. NABSE comment – The proposed wording is amateur. In engineering descriptive terms, 'pulling' = strain, and where strain is present, movement can occur. To reflect these fundamentals, the wording of the 1st item in the **'Requirements to be met for a pass'** box should be amended to read: '*The extent of any LPG cylinder movement must not cause any associated movement of any connected pipework or strain on any connected HP pigtails or LP hoses'.*	No change to the proposals is considered necessary. 'Strain' is not a term used elsewhere and would be difficult to define/apply consistently. The use of the term 'pulling' is generally understood by examiners and boat owners and has been in use since 2005, without comment during this review.
7.8.4	NABSE observation – The wording of the new 2nd 'Applicability' uses the term 'mounting plates'. The correct term for such 'integral fixings' is 'mounting foot'. NABSE comment – The wording of the new 2nd '*Applicability' should be amended to read: 'Bulkhead fittings and / or 'LPG joints / fittings with an integral mounting foot can be considered as meeting this requirement. The pipework adjacent to such fittings / joints does not need to be provided with additional securing fixing within 150mm of each joint connection*.'	No change to the proposals is considered necessary. The BSS does not consider the change of term from 'mounting plate' to 'mounting foot' to be necessary
7.9.1	NABSE observation – Because the title of this ECP CLI now focuses on Low Pressure LPG hoses, the second bullet point in the **'Requirements to be met for a pass'** box should reflect the applicability for both BS 3212 **Type 1** and Type 2 hose. NABSE comment – The second bullet point in the **'Requirements to be met for a pass'** box should be amended to read: □ Must be marked to BS 3212 **Type 1**, Type 2 or equivalent.	No change to the proposals is considered necessary. BS3212 type 1 hose has never been accepted for boat LPG installations because it inferior in many ways to type 2 hose and not just maximum pressure tolerance. This position is supported by PD5482-3:2005. The NABSE suggested is not supported

7.10.1	NABSE observation – This ECP change proposal changes what was a somewhat generic location (and therefore practically implementable) to a very specific point which, by default, introduces non-implementable restrictions (in terms of compliance with ECP CLI's 7.11.3 and 7.11.1) viz: ECP CLI 7.11,3 **'Requirements to be met for a pass'** box states: Appliance isolation valves or the means of operating the valves, must be readily accessible. If, as suggested by the proposed change, the isolation valve is to be fitted at the **connection point to the appliance** this means that isolation valves will be directly attached to hob gas rails or oven inlet points . However, this specific guidance is virtually negated by the 2nd 'Applicability' of ECP CLI 7.11.1: - ease of access takes precedence over the requirement for the valve to be located at the connection to the supply line. NABSE comment – ECP CLI's 7.11.1 and 7.11.3 need to be re-written to present a **practical**, consistent and unambiguous message regarding the **location** of appliance isolation valves.	No change to the proposals is considered necessary. The NABSE comment appears to concern 7.11.1 rather than 7.10.1 which concerns the dedicated connection points for portable LPG appliances. Concerning the relevance to 7.11.1, the NABSE comment is not relevant because the BSS requirement for appliance isolation valves at 7.11.1 is only to control the use of hose connecting an appliance. It follows that the connection point to an appliance to the supply pipework in this context will invariably not be the final connection to the appliance, it will be at the point on the supply pipework from which a length of flexible hose is used to connect to a moveable appliance.
7.11.1	NABSE observation – In addition to the comments provided at 7.10.1, this ECP CLI contains a long-standing anomaly that needs to be addressed viz: The **1st Applicability** states: *'- for an installation with a single appliance connected by a hose the cylinder valve may be classed as the appliance isolation valve'* If the craft only has one appliance fitted, the above applicability can be applied literally. However, if a craft has 3 appliances fitted (hob, oven / grill) and say an ALDE boiler, if the hob was connected by a flexible hose (and the oven / grill and the ALDE were hard piped) the craft would still only have 'a single appliance connected by a hose As currently written, the 1st applicability provides an arguable contradiction to the baseline requirement because, in the case cited above, this single hose-connected appliance does not need an isolation valve ! NABSE comment – To address this issue, the **1st Applicability** needs to be re-written as follows: '- *for a craft with only one LPG appliance fitted and where that appliance is connected by a hose alone, the cylinder valve may be classed as the appliance isolation valve'.*	No change to the proposals is considered necessary. The BSS proposals for changing the ECPs are simple editorial changes to rationalise terms. There is no proposal to amend the 1st applicability as no comment on this came through the ECP review process. It is proposed to add this suggestion to the BSSTC 'risk review list'.

Part 8 – Appliances and flues		
8.4.1	NABSE observation – The **'Requirements to be met for a pass'** box states Appliances and all their surrounding surfaces must not show signs of: □ scorching, blistering or **discolouration**; or, □ **fuel leakage**; or, □ **smoke or soot deposits**; or, □ heat damage or deterioration to appliance structure On the assumption that the Examiner fails the craft on one (or more) of the highlighted visual indicators, what approach should the Examiner take on a re-examination if the root cause of the problem has been 'cosmetically' addressed – eg: The 'discoloration' on a cabin head lining has been sanded down and re-varnished or repainted. The 'evidence' of discolouration has gone but what about the cause ? The ' fuel leakage' has been 'dried up' sufficiently to comply at the time of re-examination but no attempt has been made to rectify the cause of the leak. What if the fuel leak has stained the flooring beneath the appliance – should the Examiner be expected to decide if a fuel stain is old or new or should the owner be required to replace the contaminated flooring to achieve compliance ? The 'smoke or soot deposits' have been wiped off the appliance cover / surrounding area – if a gas appliance, this could be a developing CO problem (but, as yet, of insufficient magnitude to affect flame pattern and only likely to be detected by a CPA). NABSE comment – While visual indicators of past (or emerging) problems are valuable, in many cases, the owner can effect a very simple 'cure' that addresses the 'problem' but does nothing to address the cause. In such cases the applied risk mitigation intent has failed its purpose. To improve the quality of this ECP CLI , the wording needs to be re-cast to ensure that the Examiner is satisfied (on re-examination) that the owner has adequately addressed the cause of the reported noncompliance (and has truly de-risked the situation)..Training clearly has a part to play as interpretation is clearly an issue.	No change to the proposals is considered necessary. The BSS proposal for changing the ECPs enhances the existing check to address the known risk of' bullseye' decklight fires. The NABSE comments go wider than the proposal and require careful and separate consideration. It is proposed to add this suggestion to the BSSTC 'risk review list'.
8.8.1	NABSE observation – The newly introduced 'Examiner Action' is inappropriately positioned within the CLI and has the potential to jeopardise the safety of the Examiner conducting this check. NABSE comment – The intention of the proposed 'Examiner action' should be transposed into a new first action in the **'Checking action to be performed'** box as follows: *'If open flued appliances are fitted, perform the checks at 8.10.2 and 8.10.3 before lighting any open flued appliance burner(s)'.*	No change to the proposals is considered necessary. The BSS does not consider the suggestion to move the text from the 'examiner action' to the checking section to be either necessary or appropriate.

8.9.1	NABSE observation – The **'Checking action to be performed'** box contains the words: Confirm that the total effective area of fixed ventilation area **(at least up to the calculated fixed ventilation requirement)** is divided as equally as practicable between high and low level. What does the phrase **(at least up to the calculated fixed ventilation requirement)** actually mean ? The first and second bulleted additions to the **3rd Applicability** are meant to be definitions of **'a significant shortfal**l' (in fixed ventilation): □ 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 continuous-burning appliances; or, However, the wording of the second bullet provides more confusion than clarity in relation to the fact that it has little to no bearing on the definition of **'a significant shortfal**l' (in fixed ventilation). NABSE comment – Excess ventilation present on the craft (however divided between high and low levels) is simply excess. Accordingly, the requirement should be re-worded (for clarity of purpose) or deleted to avoid unnecessary interpretation. While the original wording (for the second requirement) could be reemployed here viz; □ where the total effective area of fixed ventilation is 50%, or less, of the calculated fixed ventilation requirement; **or**, □ where there is **ANY** shortfall in the calculated fixed ventilation requirement for continuous burning appliances; or, A much more robust solution would be provided via a stand-alone requirement for *'continuous burning appliances'* (to de-conflict and avoid confusion with the 50% criteria).	No change to the proposals is considered necessary. The BSS disagrees with NABSE on both points made and no changes are regarded as necessary. The editorial changes at 8.9.1 are intended to improve the consistency in examiner application of this check. The concepts of 'calculated fixed ventilation' and the actual 'total effective area of fixed ventilation' provided are clear and consistent throughout this revised check.
8.10.5	NABSE observation – If an 'unintended' gap exists in a surface, seam or opening of an **operating** SFA, checking with a smoke match / pencil will reveal that the smoke will be drawn into the appliance. If an 'unintended' gap (or a broken door glass) is found during the examination of a **non-operating** SFA, what action should the Examiner take ? (because the CLI does not provide guidance as to reporting / recording of this 'Advice' failure point) NABSE comment – If the intention of the SFA risk review was to primarily mitigate against the effects of CO, perhaps more emphasis on the impact of an unswept SFA flue (which has a direct effect on combustion efficiency and CO production) should be included in ECP CLI 8.10.2?	No change to the proposals is considered necessary. As stated in the requirements section at 8.10.5, the examiner actions are to mark a fail against this advice check if he/she finds a solid fuel appliances with obvious signs of unintended gaps or cracks in the outside surface or seams of the stove; or, unintended gaps greater than 2mm in the loading door seal or door glass; or, loose, damaged or missing cover plates. Concerning any obvious signs of a blocked (unswept) flue, it is considered that 8.10.2 already covers it in the bullet point in the requirements section that refers to 'obstruction or flue diameter restriction'. However, the suggestion to add emphasis concerning flue restriction caused by soot/tar build-up at 8.10.2 is something that can be added to the BSSTC 'risk review list'.

Part 9 – Pollution prevention		
9.1.2	Marine trade representative - Over the many years of marine engine design its very common for engine & gearbox oil coolers to be fitted in the raw coolant water circuit (heat exchanger cooled engines). These can often fail, especially on the older boats and as the oil pressure is greater than the water pressure, this will cause the entire oil capacity (engine or gearbox oil) to leave the engine via the exhaust system. This then contaminates the waterways, and as its a thick oil its much worse then a small diesel leak for birds & wildlife. Keel cooled engines do not have the problem. The only way to stop this is to fit a 'bilge type filter' in the circuit or modify the engine to suit. However, cooling the oil is important so many engine manufacturers would find it impossible to modify.	No change to the proposals is considered necessary. The BSS proposal for changing 9.1.2 is editorial. The comments point to an environmental risk that has not come through BSS risk data. It is proposed to add this comment to the BSSTC 'risk review list'.
9.2.1	Boat owner - Currently, discharge from toilet to river is allowed on the Great Ouse system. The wording of the requirements does not seem to include this exemption.	No change to the proposals is considered necessary. The BSS proposals for changing 9.2.1 are editorial to ensure the requirement is not applied to other types of holding tanks, other than toilets. The BSS requirement is for the provision of a valve fitted in the discharge line, Most boats will have this facility to close the discharge line. The requirement does not cut across any specific waterway allowance for sewage discharge.

- Table Ends -