BSS Examination Checking Procedures – Part 7 - Liquefied Petroleum Gas (LPG) systems

Recommendations for change May 2012

7.2.1	**Is the cylinder locker ~~LPG-tight~~, up to the level of the top of the cylinder valves or other high-pressure components, free of any path for leaked LPG to enter the interior of the vessel?**	**R**

Determine the level of the top of the cylinder valves, or other high-pressure components where these are located higher.

Check the height of the LPG cylinder locker sides.

Determine which parts of the locker structure if holed or damaged could create a path for LPG leaked to enter the interior of the vessel.

~~Check the extent of the LPG-tight area of all LPG cylinder lockers.~~

Visually check the locker construction material and the condition of all cylinder locker bottoms, ~~and~~ sides and seams.

~~Cylinder lockers must be LPG-tight to the level of the top of the cylinder valves, and other high-pressure components where these are located higher.~~

The sides of every cylinder locker must extend at least up to the level of the top of the cylinder valves, or other high-pressure components where these are higher.

~~Within the required LPG-tight area~~ Up to the level of the top of the cylinder valves, or other high-pressure components where these are higher, the bottom, sides, and seams of every cylinder locker must be free of ~~holes, cracks, damaged welds, significant corrosion or other damage~~.any..:

- holes, e.g. caused by drilling, rust or cutting; or ,
- cracks, splits or de-laminations; or,
- missing or damaged welds at seams; or,
- other signs of damage or deterioration…

…. that can be determined by visual examination to penetrate the locker to the interior of the vessel.

Cylinder locker bottoms, sides and seams covered by this check must not rely upon glue or sealant to prevent any leaked LPG from entering the interior of the vessel.

~~The above requirements also apply where any part of a cylinder housing forms an integral part of the craft's hull or superstructure.~~

Applicability - the above requirements also apply where any part of a cylinder housing forms an integral part of the craft's hull or superstructure.

Applicability – the checking action applies to the external as well as the internal surfaces of cylinder lockers and housings, where these can be seen.

Applicability – prior to checking the condition of cylinder lockers and housings examiners must ensure all loose portable items are removed.

Applicability –where a part of the locker or housing is obstructed, e.g. by the cylinders themselves, a false base or mat, or ponded water, then the check cannot be completed until the obstruction has been removed, moved aside or cleared. Examiners should not disconnect cylinders connected to the LPG system, but where cylinders prevent the condition of the locker or housing being verified the check cannot be completed until the cylinders have been moved to allow access. Lockers or housings not accessible enough to allow an assessment of condition 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 their condition has been verified.

Applicability – hatches and any similar temporary openings, however constructed or sealed, are not permitted within the area of LPG cylinder lockers 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.

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

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

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

Rationale

- check question change – the reference to' LPG-tight' is removed to ensure an appropriate level of responsibility for examiners, whilst at the same time supporting the navigation authority interests by examiners checking for any path for LPG to enter the vessel (neutral impact change) .
- checking section – the examiner's checking sequence is made very clear (editorial change)
- checking and requirements section – Enhanced check introducing a check for gas locker construction material used, including any seams. The impact assessment is that in the main the changes do not add to the previously published check other than the introduction of the express disallowance of any reliance placed upon glue or sealant to prevent any leaked LPG from entering the interior of the vessel. It is not anticipated that the enhanced check will add significant cumulative cost to boat owners because it is anticipated that only between 10 - 20 boats will affected annually. The risk assessment is the change is necessary to address the potential for leaked LPG into the interior of the vessel (GR 20).

  1st Requirements section change– emphasises the need for sides of lockers to be sufficiently high and replaces to concept of LPG-tight area (neutral impact change)

  2nd Requirements section change – specifies in detail the requirements for lockers to be free of defects that could allow LPG a path into the vessel (neutral impact change)
- 3rd Requirements section change – the introduction of the disallowance of glue or sealant to effect the LPG tightness of the locker. See enhanced check rationale above.
- new 1st applicability – the sentence is move from the requirements section to the applicabilities where it is best placed (editorial change)
- new 2nd applicability – encourages examiner to look at outer as well as inner locker (neutral impact change)

  new 3rd applicability – encourages examiners to be thorough in their examination by removing portable objects that could affect the condition assessment (neutral impact change)
- new 4th applicability – encourages examiners to be thorough in their examination and where items in the locker, including the cylinder, prevent a full assessment, the owner or his/her representative must provide access (neutral impact change)
- new 5th applicability – continues with disallowance of hatches in gas lockers, where they lead to the interior of the vessel (neutral impact change).
- new 5th applicability – this repeats the applicability at 7.4.5, this time in the context of gas-tight integrity (editorial change).
- 1st Advice for owners – previously the onus was on examiners to bring to the attention of owners the need for lockers to be accessible for careful inspection. This is now to be published for owners (neutral impact change).
- 2nd Advice for owners – this is added to help allay BSSAC concerns. It places onus on owners to address corrosion evident on gas locker surfaces. Note that it would equally be open for examiners to report concerns about corrosion on Status Report Form E or any form of written reporting (neutral impact change)

7.2.2	**Are the sealing arrangements on pipework exiting the cylinder locker of the correct type to ensure LPG-tightness and in good condition?**	**R**
Check the position, type and condition of sealing arrangements on pipework exiting cylinder lockers and housings.	Pipework must exit LPG cylinder lockers through either, a bulkhead fitting, or a cable gland fitting, or be above the LPG-tight level. The sealing arrangements must be free of signs of damage and deterioration. The above requirements also apply where any part of a cylinder housing forms a part of the craft's hull or superstructure and where the LPG pipe exits the housing into the interior of the vessel.	
Applicability – in the event the pipework exits the locker below the LPG-tight level through a conduit, it is acceptable that the pipework is protected by ~~the effective use of~~ sealant ~~within the conduit~~ which is in good condition and free of any holes, that completely seals the area between the pipework and the conduit inner walls and does not noticeably move or dislodge when the LPG pipework is subject to light manual force.		
Rationale – to define 'effective use of sealant' within conduits as agreed at BSSTC #37 (editorial change).		

7.2.3	**Are arrangements on side-opening cylinder lockers compliant with ISO 10239?**	**R**
Check that the location of any side-opening locker door is outside of the interior of the vessel. Visually check the condition of the door seals. If the seals appear free of gaps, damage and deterioration, then apply the check at 7.2.4. If the seals appear free of gaps, damage and deterioration, and the arrangements do not satisfy the check at 7.2.4, ring the BSS Office for further advice concerning conducting smoke pellet tests.	Side-opening lockers must not be able to be opened from the interior of the vessel. The seals of any side-opening cylinder locker door must be ~~LPG-tight and must be~~ free of signs of gaps in the contact with the locker body and must be free of damage or deterioration. Door seals with no signs of gaps or damage must satisfy check 7.2.4 or pass the smoke pellet test.	
Applicability – in the event the test is unsuccessful and the arrangements satisfy Checklist Item 7.2.4 record N/A on the BSS Checklist at 7.2.3.		
Rationale – to move away from 'LPG-tight' because this is over-onerous for examiners to determine (editorial change)		

7.2.4	**Do the arrangements in a self-draining cockpit prevent LPG entering the interior of the vessel?**	**R**
Verify the cockpit is self-draining. Verify the presence of LPG cylinders not in a cylinder locker. If present, verify whether the self-draining cockpit arrangements prevent LPG entering the interior of the vessel by checking: • the height of cockpit drain outlets in relation to the normal laden waterline; and, • the height to which cockpit is LPG-tight;	If the effectiveness of side-opening cylinder locker door seals cannot be verified, or if cylinders are stored in cylinder housings, then the arrangements of a self-draining cockpit must be as follows: • the height of cockpit drain outlet(s) must be above normal laden waterline; and, • the cockpit must be water ~~LPG~~-tight to the interior of the vessel at least to a height equal to that of the height of the top of the LPG cylinder valves and other high-pressure components where these are	

and, • the condition of any hatches or openings, and associated seals, gaskets, below the height of the cylinders, regulators and associated equipment.	located higher; and, • hatches or openings, and associated seals, gaskets, below the height of the LPG cylinder valves and other high-pressure components where these are located higher must be free of signs of damage or deterioration.
Applicability – this Checklist Item is relevant to cylinders in self-draining cockpits where, either the side-opening cylinder locker door seal fails the test at 7.2.3, or, cylinders are not stored in any enclosure or, cylinders are stored in a cylinder housing. Applicability – in the event the test at Checklist Item 7.2.3 is successful record N/A on the BSS Checklist at 7.2.4.	
Rationale – to move away from 'LPG-tight' because this is over-onerous for examiners to determine. Watertight is used because self-draining cockpits will invariably meet this (editorial change)	

7.3.1	Is there a drain in the cylinder locker and is the drain outlet above the waterline?	R
Identify the presence of a cylinder locker drain in each cylinder locker. Identify the cylinder locker drain outlet on the outside of the hull and verify that it is above the normal laden waterline.	All cylinder lockers must be fitted with a drain facility. Cylinder locker drain outlets must be on the outside of the hull above the normal laden waterline.	
Applicability – If for any reason water can enter the cylinder locker through the locker drain, there must always be a higher drain hole(s) or enlarged 'slot' which is open to the outside air in accordance with 7.3.6 to ensure an unobstructed passage of leaked LPG to the outside.		
Rationale – to ensure consistency including with 7.3.4 and to place 'outside of the hull' requirement in this first and most appropriate check of the cylinder locker drain (neutral impact change)		

7.3.4	Does the drain line fall continuously from the cylinder locker to the drain outlet ~~external connection~~ and are both ends clear of blockage?	R
Check the completeness and fall of the drain line to the drain outlet ~~external connection~~ where it can be seen. Check the drain openings in the cylinder locker and at the drain outlet ~~external connection~~ for obstruction.	Cylinder locker drain lines must be continuous and must fall continuously to the drain outlet in the hull ~~external connection~~ so as not to retain leaked LPG. Drain openings in the cylinder locker and at the drain outlet ~~external connection~~ must not be blocked.	
Applicability – with the consent of the owner, a bucket of water can be used to aid verification of Checklist Items 7.3.4 to 7.3.6.		
Rationale – all sections – 'drain outlet' replaces 'external connection' to ensure consistency of terms including with 7.3.1 (editorial change)		

7.3.5	Is the drain line material, including the connections, in good condition?	R
Check the condition of cylinder locker drain line material that can be seen. Check the condition of all drain line connections that can be seen. Where connections can be reached, pull using light manual force to check	The material of drain lines must be ~~in good condition~~ free of signs of damage or deterioration. ~~and~~ All connections must be complete and free of signs of damage or deterioration. Drain pipe connections must be appropriately tight, that is,	

security of all hose connections.	not so loose that the pipe moves under light manual force. Drain hoses must be free of any signs of damage and deterioration, including 'soft' spots or kinking of the walls. Drain hose connections made with hose clips or clamps must: • be suitably sized, that is, not so oversized that the band forms an elliptical shape or so undersized that no tightness is achieved; and, • be appropriately tight, that is, not so loose that the hose ~~connection~~ can be pulled forward or back under light manual force nor so tight that the hose is excessively pinched; and, • show no signs of damage or deterioration at the clip or clamp; and, • show no signs of damage or deterioration at the hose.
Rationale – • checking section - 'line' is used to ensure the check is consistently applied to pipes as well as hoses (editorial change).. • requirement section - the term 'good condition' is replaced with the common 'damage and deterioration' text used throughout the ECPs (editorial change) • requirement section - Enhanced check introducing a check for drain pipe connections to be assessed the same as drain hose connections. This addresses a loophole in the current check. The impact assessment is that it is not anticipated that the enhanced check will add significant cumulative cost to boat owners because it is anticipated that only between 5 - 10 boats will affected annually. The risk assessment is the change is necessary to address the potential for leaked LPG into the interior of the vessel (GR 20). • to rationalise the use of the term 'connection', as agreed at BSSTC. In this case the term 'connection' is removed. (editorial change).	

7.4.1	Are all cylinders secured and stored upright with the valve at the top?	R
Determine by moving the cylinders carefully the extent of any movement. Check that all cylinders are secured to prevent potential damage to regulators or pipework. Check the completeness and condition of support structures and fixings on transom-mounted LPG cylinder arrangements. Check all cylinders are secured in the upright position with the valve uppermost.	The extent of any LPG cylinder movement must not cause any pulling of pipework or pulling tight of hose ~~connections~~. Cylinders must be secured so that the possibility of cylinders damaging low-pressure regulators, pipework or other LPG system components is minimised. The support structures and fixings on transom-mounted LPG cylinder arrangements must be complete and free of signs of damage or deterioration. Cylinders must be secured in the upright position with the valve uppermost.	
Rationale – Enhanced check to ensure consistency of application and to make it clear that 'pulling on hoses' is a fail. In one sense this can be seen as an editorial change because pipework could be deemed to include hose and hose connections. The impact assessment is that 'pulling of hose' will likely already be being picked up under this check and so the impact could be considered editorial. In terms of added consistency it is anticipated that between 5 - 10 additional boats may be caught by this enhanced check. The risk assessment is that change is necessary to address the potential for hose to be damaged leading to a leak of gas and then fire. (GR 20).		

7.4.5	**Is the cylinder locker constructed of material of the required thickness?**	**R**
Determine the material the cylinder lockers are constructed from and estimate the thickness of the cylinder lockers. Determine the materials used in any repair to cylinder lockers.	Cylinder lockers must be constructed of materials that are either • the same material and thickness of the surrounding hull structure; or, • metal of minimum thickness of approximately 1mm; or, • FRP of minimum thickness of approximately 5mm thickness. Any repairs to cylinder lockers must meet the thickness requirements above, and: • metal locker repairs must be made using a plate of similar metal and must be seam welded or brazed; • FRP locker repairs must be made using fiberglass fabric/matting and resin.	
Applicability – a combination of wooden cylinder lockers lined with FRP of a lesser thickness than 5mm may be estimated as equivalent. Applicability - it is accepted that it is sometimes difficult to identify the repair method after the repair has been covered in paint. If the method of repair is in doubt but otherwise it looks sound, the BSS Examiner should pass the arrangements and record notes of his/her findings.		
Rationale • cecking and requirements section – Enhanced check introduces requirements for locker repairs The impact assessment is that only a small proportion of vessels having locker repairs put into effect will be repaired using inappropriate materials, however it is thought that inappropriate repair material may be used on between 50 – 100 boats examined annually. The risk assessment is that LPG cylinder lockers are required to be maintained with high integrity and that appropriate repair materials are necessary to address the potential for a leak of gas and then fire. (GR 20). • 2nd Applicability – this takes account of the difficulty in the field of identifying repair integrity if they have been painted over, etc.		

7.7.3	**Are all hoses on the high-pressure side of pre-assembled lengths not exceeding 1m and to the correct specification?**	**R**
Identify the presence of hose on the high-pressure side. Check the type of hose end fittings. Measure the length of hose. Check the hose markings.	All LPG hoses on the high-pressure side: • must consist of ~~pre-assembled lengths of hose~~ pre-made hose assemblies of proprietary manufacture; and, • must not exceed 1m in length; and, • must be marked to BS 3212 type 2 or equivalent.	
Applicability - steel hose assemblies marked to BS EN ISO 10380 can be regarded as equivalent to LPG hose marked to BS 3212 type 2. Applicability – hoses marked to BS EN 1763 class 3 or 4 are acceptable. ~~Applicability - hoses secured with crimped or worm drive clips onto nozzles are not acceptable on the high-pressure side.~~		
Rationale – • requirement section – to clarify the term ‘pre-assembled’ which is not widely understood by hose		

suppliers. Also to ensure that the requirement is applied by examiners to hoses and their end connections. (editorial change). This change of terminology will need to be carefully trained and a glossary definition of 'pre-made hose assemblies' developed.

- applicability - to reflect the equivalence of stainless hose assemblies to ISO 10380 as published in Technical Newsletter TN 01.10 (neutral impact change)
- last applicability – is deleted in view of the fact that BS 3212 does not specify the type of hose end connections, neither should BSS. Reliance can be placed upon examiners assessing 'pre-made hose assemblies' as 'proprietary'. Again, training is paramount here. (neutral impact change)

7.7.4	**Are all high-pressure LPG system components secure and in good condition?**	**R**
Check the condition of all regulators and associated high-pressure equipment and hoses and hose connections. Check fixings for signs of damage or deterioration ~~or missing components~~.	All high-pressure components, including regulators and associated equipment, hoses and hose connections, must be secure and free from signs of damage or deterioration. Hose must be free of leaks, flaws, brittleness, cracking, abrasion, kinking, 'soft' spots, or joins. On hoses covered with metal braiding the braiding must be free of signs of damage or deterioration including corrosion and kinking. Hose connections: • must not be made using hose clamps fixed by spring tension; and • must be free of any missing components, cracks, burrs or rough edges or signs of other damage or deterioration; and, • must not be so narrow as to cut into the hose; and, • must be suitably sized, that is, not so oversized that the band forms an elliptical shape, or so undersized that inadequate compression is achieved; and, • must be appropriately tight, that is, not so loose that the hose can be pulled forward or back under light manual force nor so tight that the hose is excessively pinched. Fixings for high-pressure LPG equipment must be free of signs of damage or deterioration ~~or missing components~~.	

Rationale

- checking and requirements sections - to delete reference to 'missing components' that could be unclear to examiners and rely upon 'damage or deterioration', which is defined in the glossary (editorial change)
- requirements section - repeats requirements from 7.9.5 to ensure consistency of application between high-pressure hose connections (7.7) and low-pressure hose connections (7.9) (editorial change)

7.7.5	**Are non-cylinder mounted regulators located to prevent damage?** ~~**Are regulators mounted directly on the cylinder(s) or located to prevent damage, including blocking of vent holes?**~~	**R**
Check the location of regulators not mounted directly on cylinders and check whether they are exposed to possible damage when the cylinders are changed or when cylinders are subjected to the	Regulators not mounted directly on cylinders must be located in a position where they are not exposed to possible damage when changing cylinders and/or from possible movement of cylinders in situ, or they must be	

extent of any possible movement or rocking whilst in situ. Check that the vent holes of high-pressure stage components are protected from the ingress of debris or water.	protected from such possible damage. The vent holes of high-pressure stage components must be protected from the ingress of debris or water.
Rationale – • check question – to add clarity (editorial change) • checking and requirements section - to more clearly address the risks associated with cylinders impacting with regulators (editorial change)	

7.8.1	Is the LPG pipework made of a suitable material, adequately secured and free from damage?	R
Visually check type of material for all LPG pipework that can be seen. Apply light manual force to check security of LPG pipes that can be reached. Check condition of all LPG pipes that can be seen or reached.	LPG pipework must be made of either seamless copper tube, or stainless steel tube, or copper nickel alloy. LPG pipes must not move under light manual force. LPG pipes must be free of kinks, restrictions, abrasion damage or other deterioration.	
Applicability – a little movement at the final connection to an appliance is acceptable but any such unsecured pipe should be kept to a minimum and should generally not be more than 500mm in length. ~~Applicability – adhesive directly applied to the pipe is not acceptable as a fixing method.~~ Applicability – pay particular attention to the potential for abrasion damage on pipes passing through bulkheads.		
Rationale – • 1st Applicability - to provide added guidance (neutral impact change) • 2nd applicability deleted as per risk review - to align with ISO 10239 reliance can be placed upon the 'no movement under light manual force' requirement (neutral impact change)		

7.8.4	Are all LPG pipe joints secure, in good condition and competently made?	R
Measure the distance fixing clips are attached from all joint connections. Apply light manual force to check security of each joint. Check condition and completeness of fixings and joints. Check all joints for the presence of unnecessary components.	All LPG pipe joints: • must have fixing clips attached no more than 150mm from each joint connection and must not move under light manual force; and, • must have fixings that are free of signs of damage or deterioration or missing components; and, • must be free of any signs of missing components, cracks or other signs of damage or deterioration; and, • must be made with a minimum number of individual components.	
~~Applicability – adhesive directly applied to the pipe joints is not acceptable as a fixing method.~~ Applicability – fixings are required on all sides of joints. Applicability – joints secured by proprietary integral fixings such as mounting plates or bulkhead fittings can be considered as meeting this requirement. The pipework adjacent to such joints does		

not need to be provided with additional securing within 150mm of each joint connection. Applicability – joints not accessible for inspection 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 their general condition has been verified. Applicability – the minimum number of components is usually interpreted as two.
Rationale – • 1st applicability deleted as per risk review - to align with ISO 10239 reliance can be placed upon the 'no movement under light manual force' requirement. (neutral impact change) • New 2nd applicability – makes allowance for fixings on fitting mounting plates as a means to secure pipework as per risk review (neutral impact change)

7.8.5	Are all unused appliance spurs properly capped or plugged?	R
Identify any unused appliance spurs and check they are closed with a 'tools-to-remove' proprietary plug or cap.	All unused appliance spurs must be closed with a 'tools-to-remove' proprietary plug or cap.	
Advice for owners – unused spurs should be plugged or capped at the 'T' joint on the LPG supply pipework ~~supply line~~. The T-joint should ideally be replaced with an in-line or elbow joint or the pipe replaced with a continuous length. The use of a stop-end to a short length of supported spur pipe is acceptable.		
Rationale – • to rationalise the use of the term 'LPG supply pipework' and remove the term 'supply line' (editorial change) • in recognition of best practice when removing redundant spurs – this advice is drawn from the decommissioning guidance paper (neutral impact change)		

7.9 Low-pressure LPG hoses and hose connections

7.9.1	Are all low pressure LPG hoses ~~on the low pressure side~~ accessible for inspection, of the correct material and in good condition?	R
Check the accessibility of all low pressure LPG hoses. Check the markings of all LPG hoses. Check the condition of hoses.	All LPG hoses on the low pressure side: • must be accessible for inspection along their entire length. • ~~All LPG hoses~~ must be marked to BS 3212 type 2 or equivalent. • ~~Hoses~~ must be free of leaks, flaws, brittleness, cracking, abrasion, kinking, 'soft' spots or joins. On hoses covered with metal braiding the braiding must be free of signs of damage or deterioration including corrosion and kinking.	
Applicability – hoses marked to BS EN 1763 class 2, 3 or 4 are acceptable. Applicability – hoses not accessible for inspection along their entire length 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 their general condition has been verified. Applicability – pre-made ~~flexible~~ hose assemblies ~~connections~~ conforming to BS 669 may be used to connect cookers to LPG supply pipework ~~for cooker connections~~. Such hoses ~~connections~~ usually have a red stripe running along the length of the hose but may not be marked with BS 669. The connections on such hoses ~~and~~ must terminate with self-~~closing~~ sealing bayonet connections at the connection points to the LPG supply pipework. The portable appliance connection checks at 7.10		

also apply.
Rationale – • checking question, checking and requirement sections - ensure consistency of application between high-pressure hose connections (7.7) and low-pressure hose connections (7.9) (editorial change) • requirement section – to provide specific guidance on the condition check to be applied to braided hose, as part of the check of good condition (editorial change) • applicability – to rationalise the use of the term 'connections' and remove the unnecessary word 'flexible' and to reflect the fact that BS 669 hose may not be marked as such. 'Self-closing' changed to 'self-sealing' to align with PD 5482-3 revision. (editorial change)

7.9.2	**Is all low pressure LPG hose protected against damage where it passes through bulkheads, decks or partitions?**	**R**
Check the protection for low pressure LPG hoses passing through bulkheads, decks or partitions.	Low pressure LPG hose passing through bulkheads, decks or partitions must be protected by the use of sleeves or grommets.	
Rationale – checking question, checking and requirement sections – insertion of 'low pressure' ensures consistency of application between high-pressure hose connections (7.7) and low-pressure hose connections (7.9) (editorial change)		

7.9.3	**Is all low pressure LPG hose at least 75mm from exhaust system and flue components?**	**R**
Measure the distance that any low pressure LPG hoses are from exhaust system and flue components.	Low pressure LPG hoses must be at least 75mm from exhaust system and flue components.	
Rationale – checking question, checking and requirement sections – insertion of 'low pressure' ensures consistency of application between high-pressure hose connections (7.7) and low-pressure hose connections (7.9) (editorial change)		

7.9.4	**Are all low pressure LPG hoses used to connecti~~ng~~ regulators or appliances to LPG supply pipework only, and are they a maximum of 1m in length?**	**R**
Check the location of all LPG low pressure hoses. Measure the length of any LPG hoses used to connect appliances or regulators to LPG supply pipework.	Except on 'all-hose' systems, low pressure LPG hoses may only be used to connect a LPG cylinder regulator and/or appliances to the LPG supply pipework. LPG hoses used to connect appliances or regulators to LPG supply pipework must not exceed 1m in length.	
Applicability - for 'all-hose' systems apply check 7.9.6		
Rationale • checking question, checking and requirement sections – Enhanced check to clarify where the use of low pressure hose is acceptable and the change is to fill a loophole. The impact assessment is that the change reflects installation practice and hose will almost never be found other than as stipulated. It is estimated that no more than 1 or 2 boats examined annually will be found non-compliant. The risk assessment is that change is necessary to address the potential for hose to be used inappropriately. The use of hose is considered a weak point in any gas system and presents a heightened risk of failing leading to LPG escape and then fire (GR 18).		

Note that 'all-hose' systems to ISO 10239 remain acceptable because of added controls stipulated in the standard's clauses, check 7.9.6 applies.

- checking question - reference to 'low pressure' ensures consistency of application between high-pressure hose connections (7.7) and low-pressure hose connections (7.9) (editorial change)
- New applicability - points to check 7.9.6 for 'all-hose' systems for added clarity. (neutral impact change)

7.9.5	**Are all low pressure LPG hose connections accessible for inspection, of the correct type, secure and in good condition?**	**R**
Check the accessibility of all low pressure hose connections. Check types of all LPG hose connections. Check the type, condition, and completeness of all hose connections. Pull using light manual force to check security of all hose connections.	All low pressure LPG hose connections: • must be accessible for inspection; and, • must be part of pre-made hose assemblies ~~pre-assembled lengths of hose~~ of suitable proprietary manufacture ~~(high- and low-pressure applications);~~ or use suitable nozzles secured by crimped or worm-drive clips ~~(low-pressure applications only);~~ and, • must not be made using hose clamps fixed by spring tension; and • must be free of any missing components, cracks, burrs or rough edges or signs of other damage or deterioration; and, • must not be so narrow as to cut into the hose; and, • where made with crimped or worm-drive clamps, the clamps must be suitably sized, that is, not so oversized that the band forms an elliptical shape, or so undersized that inadequate compression is achieved; and, • be appropriately tight, that is, not so loose that the hose ~~connection~~ can be pulled forward or back under light manual force nor so tight that the hose is excessively pinched.	
Applicability – hose connections not accessible for inspection must be marked as 'not verified' on the BSS Checklist, and it must be considered that the check has not been completed until such time as their condition has been verified. Advice for owners – hose clamps of approximately 8mm width are recommended. Advice for examiners – owners should be advised of the accessibility requirement at the time of an examiner's initial dealings and compliance achieved by adding inspection panels is recommended.		
Rationale – • checking question, checking and requirement sections – insertion of 'low pressure' ensures consistency of application between high-pressure hose connections (7.7) and low-pressure hose connections (7.9) (editorial change) • requirement section, 2nd bullet – to clarify the term 'pre-assembled', and to ensure that the requirement is applied by examiners to hoses and their end connections. (neutral impact change) This change of terminology will need to be carefully trained and a glossary definition of 'pre-made hose assemblies' developed. • requirement section, last bullet - to rationalise the use of the term 'connections' (editorial change)		

7.10.1	**Are all portable appliance connection~~s~~ points provided with an isolation valve?**	**R**
Identify all portable appliance connection~~s~~ points and check for the	All portable appliance connection~~s~~ points must be fitted with an isolation valve.	

presence of an isolation valve. Apply the checks at 7.11.2 and 7.11.3.	
Rationale - checking question, checking and requirement sections – refers to 'connection points', to rationalise the use of the term 'connections' and to align with 7.10.3 (editorial change)	

7.11.1	**Can all appliance supply hoses be isolated through individual shut-off valves?**	**R**
Identify every appliance connected by ~~a flexible~~ hose and confirm the presence of an individual shut-off valve at the connection point to the LPG supply pipework ~~supply line~~.	Appliances connected by ~~a flexible~~ hose must be provided with an individual shut-off valve at the connection point to the LPG supply pipework ~~supply line~~.	
Applicability – for an installation with a single appliance connected by a hose the cylinder valve may be classed as the appliance isolation valve. Applicability – ease of access takes precedence over the requirement for the valve to be located at the connection to the LPG supply pipework ~~supply line~~. Applicability – hob/oven arrangements may be deemed one appliance for the purposes of this check.		
Rationale – • checking and requirement sections – refers to 'connection points', to rationalise the use of the term 'connections' and to align with 7.10.3 (editorial change) • checking and requirement sections – to remove the unnecessary word 'flexible' (editorial change) • checking and requirement sections and 2nd applicability - to rationalise the use of the term 'LPG supply pipework' and remove the term 'supply line' (editorial change)		