

**SAFE  
LOADING  
PASS  
SCHEME**

# LPG Inspection Manual

This manual is to be used for the  
inspection of vehicles which carry  
UN1011, UN1965 and UN1978 gases



*Any mention of De-energizing electrical control = master switch and vice versa*

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### Acknowledgement

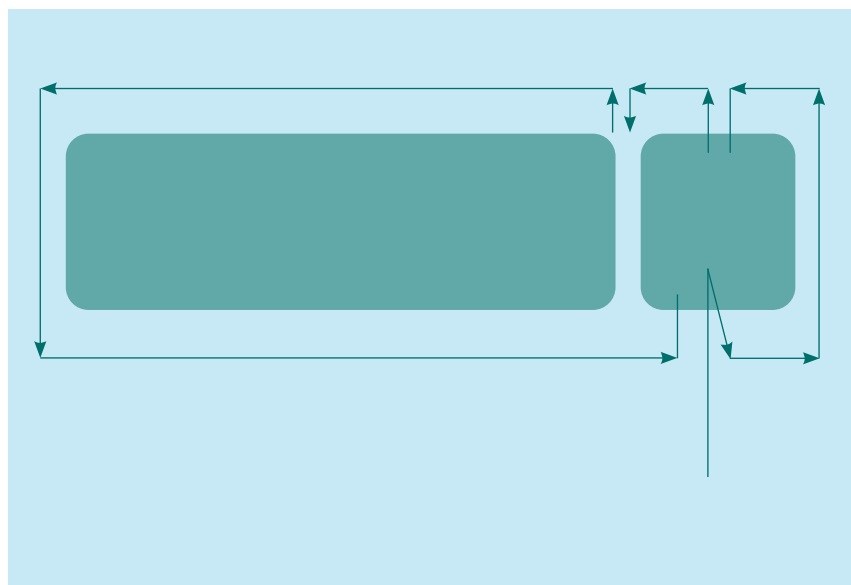
The following text is reproduced with permission from the Energy Institute's publication: Petroleum road tankers: Recommendations for a standard method of inspection for a safe loading pass (first edition).

Before beginning inspection, providers must have suitable measures in place for the prevention and control of environmental contamination, fire and explosion.

The principle for the standard method of inspection is based on the following general sequence.

**Warning: An LPG tanker has a number of valves where flammable gas will be discharged if opened. NEVER OPEN OR OPERATE ANY VALVES DURING THE INSPECTION PROCESS.**

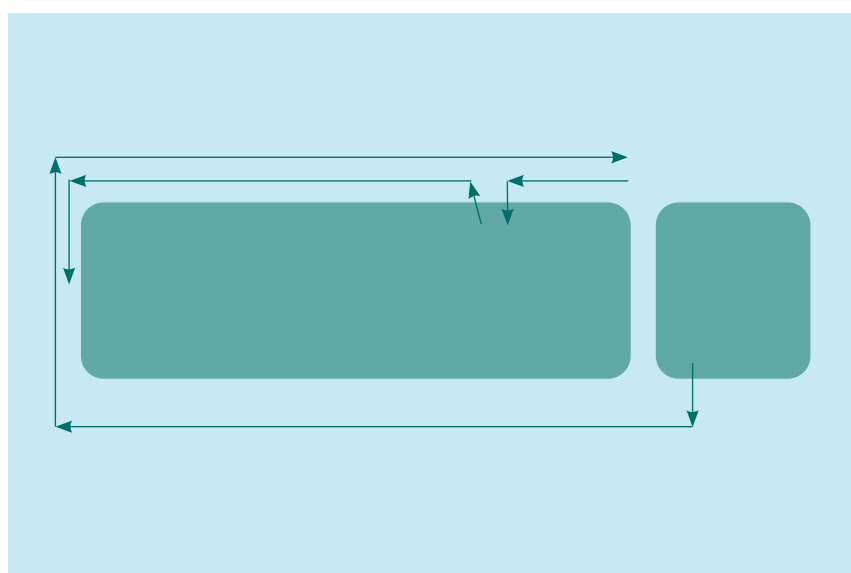
## 1 Inspect the tanker for sources of ignition and other safety items (sections 2–6)



- Start in the cab
- Exit the cab and work around the front of the cab to the nearside
- Inspect the nearside door area and proceed to the rear of the cab and exhaust system\*
- Inspect the batteries\*
- Proceed along the nearside and around the rear of the tanker, and complete the inspection when returning to the cab
- Verify that all outlet valves on the vehicle are secured closed or a sign is attached to the valve stating "Do not open valve"

\*The sequence may need adaption to take account of the location of these components

## 2 Inspect the tanker for product containment and electrical continuity (sections 7–13)



- Exit the cab and proceed down the offside of the vehicle inspecting the cargo tank
- Continue around to the rear of the tanker and descend into the pit if available to inspect the underside pipework and belly of the tank
- Continue to the front nearside of the tank
- Inspect the loading area, control system and loading gantry connections

**Use of this procedure will avoid any inspection item being missed**

# The tank certificates

## 1 Tank certificates (not applicable to tractors)

### 1.1 Tank certificate – initial/intermediate/periodic

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Method of inspection | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The most recent statutory tank inspection certificate is valid.</p> <ul style="list-style-type: none"> <li>ADR TC2 Tank initial certificate for a tank which has not yet had its first intermediate inspection, or ADR TC3 Tank intermediate or periodic certificate (most recent) for a tank which has had its first intermediate inspection</li> <li>VCA Certificate – Old tank (pre-2004 and not ADR), or non-ADR tank</li> <li>Most recent PRV test certificate (within previous 3 years and indicates set pressure &gt;238psi)<br/><i>Note: check for certificates relating to Burst Disc</i></li> </ul> <p><i>Note: for LPG tankers marked as constructed before 10 May 2004 or at any time to EN12493 Annex C, ADR certification is not required.</i></p> | Verification.        | <p>Statutory tank certificate expired or otherwise invalid.</p> <p>PRV certificate has expired, or if the certificate will expire within the next 6 months, the SLPS pass shall not exceed this date.</p> <p>Tankers in receipt of a derogation for extended PRV replacement intervals are acceptable, indicated by a note from the inspection body attached to the certification stating the tanker has been exempt from a 3 year PRV exchange.</p> <p>PRV certificate indicates a set pressure &lt;238psi.</p> <p>LPG tanks fitted with a Burst Disc, which is not proceeded by a PRV, shall not be issued a SLPS pass.</p> |

# The vehicle

## 2 Cab interior

### 2.1 Roof hatch

| Requirement                                                                                                                                                                                                           | Method of inspection | Reason for failure                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>If fitted, the roof hatch is:</p> <ul style="list-style-type: none"> <li>secured closed and unopenable, or</li> <li>fitted with seals in accordance Annex A if designed to be used as an emergency exit</li> </ul> | Visual inspection.   | <p>Roof hatch is:</p> <ul style="list-style-type: none"> <li>not secured, or</li> <li>openable, or</li> <li>not sealed in accordance with requirements in Annex A</li> </ul> |

### 2.2 Fire extinguisher

| Requirement                                                                                                                                                                                        | Method of inspection | Reason for failure                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The in-cab fire extinguisher:</p> <ul style="list-style-type: none"> <li>is readily accessible from the driver's seat when wearing a seat belt, even if sited in a cab locker/drawer</li> </ul> | Visual assessment.   | <p>Fire extinguisher is:</p> <ul style="list-style-type: none"> <li>fitted in passenger foot well, or;</li> <li>if located in cab locker/drawer, it is 'buried', or;</li> <li>otherwise not readily accessible</li> </ul> |

| Requirement                                                                                                                                                                        | Method of inspection                                               | Reason for failure                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>if sited in cab locker/drawer, there is a readily visible sticker (from the driver's seat) indicating the extinguishers location</li> </ul> | Visual assessment.                                                 | <ul style="list-style-type: none"> <li>there is no sticker, or it is not readily visible</li> </ul>                                                                                                                            |
| <ul style="list-style-type: none"> <li>is secure in its stowage point and is readily releasable from it</li> </ul>                                                                 | Removal of the extinguisher(s) from its stowage (and replacement). | <ul style="list-style-type: none"> <li>not secure in its stowage position</li> <li>not readily releasable from its stowage position</li> </ul>                                                                                 |
| <ul style="list-style-type: none"> <li>has a holder/stowage which is itself secure</li> </ul>                                                                                      | Manipulation.                                                      | <ul style="list-style-type: none"> <li>stowage insecure</li> </ul>                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>is serviceable</li> </ul>                                                                                                                   | Visual inspection.                                                 | <ul style="list-style-type: none"> <li>container or mechanism damaged</li> <li>next inspection date passed</li> <li>security seal damaged or broken</li> <li>pressure gauge needle not showing in the green section</li> </ul> |
| <ul style="list-style-type: none"> <li>shall be at least 2kg capacity dry powder type or other suitable extinguishant agent</li> </ul>                                             | Visual inspection.                                                 | <ul style="list-style-type: none"> <li>not at least 2kg capacity dry powder type or other suitable extinguishant agent</li> </ul>                                                                                              |

### 2.3 Tachograph

| Requirement                                                                                              | Method of inspection            | Reason for failure                                                                                                         |
|----------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| The tachograph is Ex marked, for Stoneridge Tachograph not marked see communication 2/2/24.              | Visual inspection.              | Tachograph not clearly Ex marked.                                                                                          |
| The tachograph is working                                                                                | Operation and visual inspection | Tachograph not working                                                                                                     |
| The tachograph is free from damage and in good condition                                                 | Visual inspection               | Housing or screen incomplete damaged – cracked or broken.                                                                  |
| Tachograph power supply cable* is distinguishable and is fitted with an Ex-certified fuse (also see 4.5) | Visual inspection               | <p>Auxiliary supply for other equipment is taken from plugs A or B *</p> <p>Cable indistinguishable from other cables.</p> |

\* DVSA advise Tachograph plugs A and B must not be interred with (dedicated); plugs C and D may be used for other electrical equipment but this equipment shall be minimum Zone 2 rated as will be permanently energised (also see 2.4 and 4.5)

### 2.4 Additional in-cab electrical equipment

| Requirement                                                                                                                                                                                   | Method of inspection | Reason for failure                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Any added in-cab electrical equipment, including any cab phone/communication system, is secure.</p> <p>Any exposed wiring is secure, with grommets and glands in place as appropriate.</p> | Visual inspection.   | <p>Insecurity of any added electrical equipment.</p> <p>Wiring insecure.</p> <p>Grommets and glands not fitted to components or missing.</p> |

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                     | Method of inspection                                                                                                                                         | Reason for failure                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where equipment is permanently powered from the vehicle battery, it is:</p> <ul style="list-style-type: none"> <li>Ex certified</li> <li>fed via an Ex fuse</li> <li>fed by a cable which complies with section 4.5</li> <li>provided with a certificate in accordance Annex B</li> </ul>                                                                                                                                    | Visual inspection.                                                                                                                                           | <p>Equipment permanently powered and is:</p> <ul style="list-style-type: none"> <li>not Ex certified</li> <li>not fed via an Ex fuse</li> <li>fed by a cable which does not comply with 4.5</li> <li>not provided with a certificate in accordance with Annex B</li> </ul>                                      |
| <p>Where equipment is powered from its own button cell battery (maximum 2 button cells) and <i>has no electrical socket</i>, no additional requirements apply.</p>                                                                                                                                                                                                                                                              | Visual inspection.                                                                                                                                           | –                                                                                                                                                                                                                                                                                                               |
| <p>Where equipment is powered from its own battery:</p> <ul style="list-style-type: none"> <li>which is not a button cell</li> <li>and/or has an electrical socket (indicating a lithium ion cell is used)</li> </ul> <p>The equipment is fitted with an 'on-off' switch or is suitably Ex marked and has a sleep function to blank the screen.</p> <p>Any power or charging connections switch off with the master switch.</p> | <p>Visual inspection.</p> <p>Using a multimeter, locate a suitable earth and verify no voltage is present on any connections with the master switch off.</p> | <p>Equipment powered with its own battery other than a button cell:</p> <ul style="list-style-type: none"> <li>and/or having an electrical socket</li> <li>having no 'on-off' switch or the device is not Ex marked and cannot blank the screen</li> <li>connections live with the master switch off</li> </ul> |
| <p>Any Radio Frequency Identification (RFID) tag/s must be:</p> <ul style="list-style-type: none"> <li>secure</li> <li>free from damage</li> <li>mounted where there is no risk of an individual brushing past</li> <li>marked adjacently to indicate:<br/><b>WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD</b></li> </ul>                                                                                                  | Visual inspection.                                                                                                                                           | <p>An RFID tag:</p> <ul style="list-style-type: none"> <li>insecure</li> <li>damaged</li> <li>mounted where there is a risk of an individual brushing past</li> <li>not marked</li> </ul>                                                                                                                       |

## 2.5 De-energizing electrical circuits (Battery Master Switch control)

| Requirement                                                                                                                                                                                                                                                                                                                                                                       | Method of inspection | Reason for failure                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Identification</i></p> <p><i>The in-cab battery master switch control shall be:</i></p> <ul style="list-style-type: none"> <li><i>readily accessible</i></li> </ul> <p><i>The means of operation shall be:</i></p> <ul style="list-style-type: none"> <li><i>distinctly marked, and</i></li> <li><i>designed to incorporate inadvertent operation protection</i></li> </ul> | Visual inspection.   | <p>Battery master switch control is:</p> <ul style="list-style-type: none"> <li>not readily accessible</li> </ul> <p>The means of operation is:</p> <ul style="list-style-type: none"> <li>not distinctly marked</li> <li>not designed to prevent inadvertent operation</li> </ul> |

| Requirement                                                                                                                                | Method of inspection                                                                                                                                                                                                                                  | Reason for failure                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Disconnection</i></p> <p>The control operates to disconnect the batteries within 30 seconds (<i>applicable to all vehicles</i>)*</p> | Operation of the control to verify that it switches the battery master switch to disconnect the batteries within the required time: observe items of electrical equipment (eg, hazard warning lamps) and time the delay taken for them to extinguish. | <p>The delay between operation of the battery master switch control and the disconnection of the batteries exceeds 30 seconds.</p> <p>Any battery master switch control can be operated in any way or sequence to incur a delay in excess of the required limit.</p> |
| <p><i>Reconnection (excludes vehicles registered before May 2004)</i></p> <p>The control operates to reconnect the battery.</p>            | Operation.                                                                                                                                                                                                                                            | The control fails to reconnect the batteries.                                                                                                                                                                                                                        |

\*Note: change to ADR 2025 Clause 9.2.2.8.3

\*Note: Further change will be made in ADR 2027 - 9.2.2.8.2, in respect of Camera Monitoring Systems - see 3.7

## 2.6 Daylight running lights (DRLs) and automatically powered headlights

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                             | Method of inspection            | Reason for failure                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where DRLs, comprising <i>unsealed</i> lenses and filament bulbs in a rubber housing, or automatically powered headlights are fitted, no other light or light circuit (eg, side marker lights) is connected into the DRL/headlight circuit unless it can be disconnected independently.</p> <p>Where the side lights / rear lights comprise low voltage sealed LED lights, they do not require to be disconnected independently.</p> | Operation and visual inspection | <ul style="list-style-type: none"> <li>Other lights illuminate with DRLs/ automatically powered headlights which cannot be independently isolated.</li> </ul>                                                          |
| All lenses and housings are free from damage and evidence of water ingress.                                                                                                                                                                                                                                                                                                                                                             | Visual inspection.              | <p>Cracked / broken/insecure lens</p> <p>Insecure/damaged / distorted housing</p> <p>Evidence of water ingress to any electrical component</p>                                                                         |
| <p>Where other lights are connected into the DRL /headlight circuit:</p> <ul style="list-style-type: none"> <li>either a label is fitted which clearly states the means or method of isolating them</li> <li>or a durable instruction card is present in the cab</li> </ul>                                                                                                                                                             | Visual inspection.              | <p>Independent means or method of isolation not provided with:</p> <ul style="list-style-type: none"> <li>either a clear instruction label</li> <li>or a durable instruction card is not present in the cab</li> </ul> |

|                                                                                                                                                                          |                    |                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Where DRLs, or automatically powered headlights, are automatically activated by an integral sensor, the system shall incorporate <i>low-wattage, sealed LED lights</i> . | Visual inspection. | Unsealed lights or non-LED lights                                                                                           |
| All lenses and housings are free from damage and evidence of water ingress.                                                                                              | Visual inspection. | Cracked/broken/insecure lens<br>Insecure/damaged/distorted housing<br>Evidence of water ingress to any electrical component |

(All tractors and rigid vehicles built after 01/07/2006)

All lights shall be de-energized by the operation of the battery master switch within 30-seconds.

*Note: change to ADR 2025 Clause 9.2.2.8.3 duration*

*Note: Where a lamp or other component is mounted in a Zone 1 or IP65 area; or is permanently energised (minimum Zone 1) according to Annex I, but is unmarked, a copy of the manufacturers' specification sheet or Annex B Certificate detailing the level of approval shall be required.*

## 2.7 Night heater (If fitted)

| Requirement                                                  | Method of inspection             | Reason for failure                                        |
|--------------------------------------------------------------|----------------------------------|-----------------------------------------------------------|
| Any night heater is fitted with an isolation switch.         | Visual inspection and operation. | Night heater not fitted with an isolation switch.         |
| The switch is clearly labelled with the method of isolation. | Visual inspection.               | Switch not clearly labelled with the method of isolation. |

## 2.8 Cigarette lighter socket

| Requirement                                                                                                                        | Method of inspection                                                                                     | Reason for failure                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| No socket is fitted.                                                                                                               | Visual inspection.                                                                                       | A socket is fitted (whether or not disconnected).                                           |
| Sockets other than a cigarette lighter socket are acceptable (eg jack type), they must be wired through the battery master switch. | Using a multimeter, locate a suitable earth and verify no voltage is present with the master switch off. | Sockets other than a cigarette lighter socket, not wired through the battery master switch. |

## 2.9 Electrically operated mirrors

| Requirement                                                                                                                                                                                       | Method of inspection                                                          | Reason for failure                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------|
| If electrically adjustable, mirrors adjust correctly.<br><i>Note: to check the heating function (if fitted), switch on heaters and check glass(es) for temperature when inspecting the doors.</i> | Operation and visual inspection.<br>(The heating function is checked at 3.2). | If fitted, remote adjustment of either mirror does not function. |

*Note: Switch on all lights and heated mirror elements before leaving the cab. Commence to exit the cab in order to inspect the chassis equipment of the tanker including its electrical system.*

Entry to the cab will be required again to test the anti-drive away interlock (see section 8.2).

## 2.10 Cab mounted Electrical Appliances (where fitted)

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Method of inspection                                                                                                                                                                                                 | Reason for failure                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Where ancillary electrical appliances (Fridges, Microwave etc) are permanently fitted inside the cab they shall comply with the following: <ul style="list-style-type: none"> <li>wiring cables shall comply with ADR 9.2.2.2, with additional protection in accordance with 9.2.2.2.2 (to the rear of the cab)</li> <li>the equipment is isolated by the activation of the vehicle Battery Master switch within 30-seconds (<i>applicable to all vehicles</i>)*</li> <li>earth continuity of less than 10 ohms exists between the equipment and the chassis earth point</li> </ul> | <p>Visual inspection</p> <p>Operation and visual inspection; and using a multi-meter, or non-contact voltage tester, to verify no voltage is present with the master switch off.</p> <p>Use of suitable Ohmmeter</p> | <ul style="list-style-type: none"> <li>Cabling does not conform to ADR requirements, and/or the wiring is not suitably protected throughout its entire length</li> <li>Electrical supply not isolated within 30-seconds; or voltage detected (may be residue current)</li> <li>resistance greater than 10 ohms.</li> </ul> |

\*Note: change to ADR 2025 Clause 9.2.2.8.3

## 3 Cab exterior

### 3.1 Wiring in door apertures

Note: wiring in the driver's door aperture is checked at this point when exiting the cab, and that of the passenger's door aperture is checked in sequence between 3.4 and 3.5.

| Requirement                                                   | Method of inspection | Reason for failure                                                                                                       |
|---------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------|
| Wiring to the door and mirror is secure and free from damage. | Visual inspection.   | <p>Evidence of chafing, pinching or other damage to cables.</p> <p>Inadequately secured, protected or routed cables.</p> |

### 3.2 Electrically heated mirrors

| Requirement                                                               | Method of inspection                                               | Reason for failure                                                                        |
|---------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| If electrically heated, the mirror heats, is secure and free from damage. | <p>Tactile inspection.</p> <p>Visual inspection and operation.</p> | <p>Mirror glass fails to heat.</p> <p>Mirror assembly/glass/heating element insecure.</p> |

## Inspection of the cab front

### 3.3 Cab front top outline marker lamps (or other light(s) used to indicate battery master switch is switched 'on')

| Requirement                                                                                                              | Method of inspection             | Reason for failure                                  |
|--------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------|
| Each cab front top outline marker light (or other light) is illuminated when the battery master switch is switched 'on'. | Operation and visual inspection. | Light(s) fail to illuminate/extinguish as intended. |

### 3.4 Cab front lights

| Requirement                                                                                                                                               | Method of inspection | Reason for failure                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Each front showing light unit:</p> <ul style="list-style-type: none"> <li>is operational</li> <li>is free from damage and in good condition</li> </ul> | Visual inspection.   | <p>Light not working.</p> <p>Cracked, broken or insecure lens.</p> <p>If multi-LED light unit, more than 1 in 4 LEDs are not illuminated.</p> |

### 3.5 Rear engine cover and exhaust system

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                            | Method of inspection                                                                | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The rear engine cover is secure and has a minimum number of apertures.</p> <p>It effectively covers all parts of the engine and exhaust system except where the silencer has a surface temperature less than 200°C and carries a manufacturer's label accordingly.</p> <p><i>Note:</i> Parts of the exhaust system situated directly below the fuel tank (diesel) shall have a clearance of at least 100mm or be protected by a thermal shield.</p> | <p>Visual inspection and manipulation.</p> <p>Visual inspection and measurement</p> | <p>Rear engine cover insecure/incomplete/damaged – cracked or broken.</p> <p>Rear engine cover fails to cover rear of engine and exhaust system (except silencer declared to have a maximum surface temperature less than 200°C as attested by a label fitted by its manufacturer).</p> <p>There is not 100mm clearance between the exhaust and the fuel tank, or there is no shield if the distance is less than 100mm.</p> |

### 3.6 Rear window (if fitted)

| Requirement                                                                                                                                                                                                                                             | Method of inspection | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The securing of the glass in any window in the rear of the cab is secure and resistant to fire.</p> <p><i>Note:</i> The Bonding for Scania rear windows has been approved for SLP. There for Scania rear windows do not require retention clips.</p> | Visual inspection.   | <p>Window glass not secure or retained by fire resistant materials.</p> <p><i>Note:</i> Metal frame or clips on the inside and outside of the cab are normally required, bonded window glass larger than the cab window aperture may only require a retention device on one side (where the aperture will retain the other side).</p> <p>Bonded window glass must meet the same fire resistant properties of rubber sealed glass.</p> |

### 3.7 Camera Monitoring System (CMS)

| Do not comply with the test procedure detailed below                                                                                                                                                                                             | Method of inspection                                                                                                      |                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| (i.e., do not de-energised with 30-seconds of activation of external control devices)                                                                                                                                                            | Functional Test                                                                                                           | Do not comply with the test procedure detailed below<br><br>(i.e., do not de-energised with 30-seconds of activation of external control devices) |
| ADR 2027 – 9.2.2.8.2 will include the following requirement:                                                                                                                                                                                     |                                                                                                                           |                                                                                                                                                   |
| 'Vehicles equipped with a Camera Monitoring System according to UN Regulation NO. 46 shall have an additional control device installed outside the driver's cab'                                                                                 |                                                                                                                           |                                                                                                                                                   |
| In addition, ADR 2027 – 8.3.9 will include the following requirement:                                                                                                                                                                            |                                                                                                                           |                                                                                                                                                   |
| 'When vehicles are equipped with a Camera Monitoring System according to UN Regulation No. 46 and have a feature to de-energize the electrical circuits according to 9.2.2.8, use of the external control device should be the preferred option' |                                                                                                                           |                                                                                                                                                   |
| SLP Test procedure:                                                                                                                                                                                                                              |                                                                                                                           |                                                                                                                                                   |
| a)                                                                                                                                                                                                                                               | Turn OFF vehicle engine; DO NOT operate de-energising control device (master switch)                                      |                                                                                                                                                   |
| b)                                                                                                                                                                                                                                               | Safely exit the cab                                                                                                       |                                                                                                                                                   |
| c)                                                                                                                                                                                                                                               | Operate one of the external de-energising control devices (master switch)                                                 |                                                                                                                                                   |
| d)                                                                                                                                                                                                                                               | The CMS equipment, and all other non-permanently energised equipment will de-energize within 30-seconds (see Section 2.5) |                                                                                                                                                   |

## 4 Batteries, battery master switch and associated equipment

### 4.1 Battery box and cover

| Requirement                                                                                                                                                                                 | Method of inspection | Reason for failure                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------|
| The battery box completely surrounds the batteries to protect them; if the battery box is directly mounted to the chassis, the protection is provided on at least its front and both sides. | Visual inspection.   | Battery not fully surrounded by its box/ chassis member. |

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Method of inspection                | Reason for failure                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The battery box is situated:</p> <ul style="list-style-type: none"> <li>‘immediately to the rear of the cab rear engine cover (excluding only the exhaust silencer/after treatment system and air cleaner)</li> </ul> <p><i>Note:</i> Battery cable length should be as short as possible. Where the batteries are mounted behind an air cleaner or exhaust silencer/after treatment system, the components should be adjacent to one another.</p> <ul style="list-style-type: none"> <li>with the nearest battery terminal at least 1,000mm from the nearest point of any loading adaptor.’</li> </ul> | Visual inspection/measurement.      | <p>Battery box not situated:</p> <ul style="list-style-type: none"> <li>immediately to the rear of the cab/ rear engine cover</li> <li>with a battery terminal less than 1,000mm away from any loading adaptor.</li> </ul> |
| The battery box is secure and free from cracks and excessive corrosion (externally).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Manipulation.<br>Visual inspection. | <p>Battery box insecure.</p> <p>Battery box suffering from excessive corrosion, cracks or damage.</p>                                                                                                                      |
| The battery box cover is free from cracks or other damage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Visual inspection.                  | Cover cracked or damaged.                                                                                                                                                                                                  |

*Remove the battery box cover.*

| Requirement                                                                                                                                                                                                        | Method of inspection | Reason for failure                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The battery box cover is made of electrically insulating material, or if made of metal it is electrically insulated on its underside.</p> <p>The battery box is free from excessive corrosion (internally).</p> | Visual inspection.   | <p>Battery box cover not electrically insulating, or made of metallic material and its underside is not insulated.</p> <p>Evidence of excessive corrosion (internal).</p> |

## 4.2 Batteries

| Requirement                                                                               | Method of inspection | Reason for failure                                                                                                 |
|-------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------|
| The batteries are positively secured with clamps which are free from excessive corrosion. | Visual inspection.   | <p>Batteries not positively secured with clamps.</p> <p>Any clamp excessively corroded.</p>                        |
| All battery posts and cable terminals are free from corrosion.                            | Visual inspection.   | Any battery post/cable terminal shows evidence of corrosion.                                                       |
| The terminals of all battery cables are secured by solder or crimping.                    | Visual inspection    | <p>Cable terminal is:</p> <ul style="list-style-type: none"> <li>insecure</li> <li>secured using screws</li> </ul> |
| The terminals are fitted with insulating covers.                                          |                      | Cover missing or damaged.                                                                                          |

### 4.3 Cables to the battery master switch

| Requirement                                                                                                                                                                                                                                                                          | Method of inspection              | Reason for failure                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Each cable between the batteries and the battery master switch is: <ul style="list-style-type: none"> <li>insulated throughout its entire length</li> <li>free from chafing or damage</li> <li>if external to the battery box, double insulated (not using split conduit)</li> </ul> | Visual inspection where possible. | Cable not insulated throughout its entire length.<br>Cable damaged.<br>Cable not double insulated (or uses split conduit) if external to the battery box. |
| Where the battery master switch is located outside the battery box, cable terminals on it are insulated.                                                                                                                                                                             | Visual inspection where possible. | Battery cable terminal insulation missing, poorly fitting or degraded.                                                                                    |

### 4.4 Battery master switch negative relay

| Requirement                                                                                                                                                      | Method of inspection                                                                                                                                    | Reason for failure                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| The battery master switch negative relay functions.<br><i>Note:</i> the operation of the positive relay has been checked by the operation of the in-cab control. | With the battery master switch isolated:<br>Connect a suitable Ohmmeter between the battery –ve post and the chassis and verify there is no continuity. | Continuity exists between battery –ve terminal and chassis. |

### 4.5 Tachograph power cable

| Requirement                                                                                                                                                                  | Method of inspection | Reason for failure                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------|
| The power supply cable to the tachograph from its Ex-certified fuse is dedicated and distinguishable throughout its length from other cables by its construction or marking. | Visual inspection.   | Cable not dedicated.<br>Cable indistinguishable from other cables. |
| Where any auxiliary equipment is powered from the Tachograph power supply cable, the equipment shall comply with 5.4 below                                                   | Visual inspection.   | Does not comply with 5.4 (below)                                   |

### 4.6 Battery boost socket (if fitted)

| Requirement                                                                                                                                     | Method of inspection | Reason for failure                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------|
| The boost socket is connected to the switched side of the battery master switch.<br>Its contacts are fitted with an insulating cover or covers. | Visual inspection.   | Socket connected to the live side of the battery master switch.<br>Insulating cover(s) cracked, broken or not fitted. |
| Where any auxiliary equipment is powered from the Tachograph power supply cable, the equipment shall comply with 5.4 below                      | Visual inspection.   | Does not comply with 5.4 (below)                                                                                      |

*Note:* Replace the battery box cover.

#### 4.7 De-energizing electrical external controls (Battery Master Switch control)

|                                                                                                                                                                                                                                |                                                                                                                  |                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Each control operates to isolate the batteries within 30 seconds (applicable to all vehicles) *</i></p>                                                                                                                  |                                                                                                                  | <p>Operation of each control individually to ensure that it switches the battery master switch to isolate the batteries within the required time.</p> <p>(Observe items of electrical equipment (e.g., headlamps) and time the delay to extinguish.)</p> | <p>Battery master switch fails to respond to each control.</p> <p>The delay between the operation of a battery master switch control and the isolation of the batteries exceeds 30-seconds.</p> <p>The battery master switch control can be operated in any way or sequence to incur a delay in excess of the required limit.</p> |
| <p><i>De-energizing installation</i></p> <p>The design of the de-energizing feature shall have protection of at least to IP65 (IEC 60529)</p> <p>NB: only applicable to vehicles first registered from the 1st July 2025</p>   |                                                                                                                  | <p>Visual inspection of the marking of the de-energizing feature</p>                                                                                                                                                                                     | <p>Protection does not meet IP65</p>                                                                                                                                                                                                                                                                                              |
| <p><i>De-energizing cables and connections (up to 25V AC or 60 VDC)</i></p> <ul style="list-style-type: none"> <li>The connections to the de-energizing shall have protection of at least IP54 (IEC 60529), unless:</li> </ul> |                                                                                                                  | <p>Visual inspection (marking) of protection level)</p>                                                                                                                                                                                                  | <p>Protection does not meet IP54</p>                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                | <p>If housed within the battery box, the connections are insulated against short circuits (e.g., rubber cap)</p> | <p>Visual inspection of type of protection against short circuits</p>                                                                                                                                                                                    | <p>Cables and connections are not suitably protected</p>                                                                                                                                                                                                                                                                          |

\*Note: change to ADR 2025 Clause 9.2.2.8.3

#### 4.8 Battery main earth point

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Method of inspection | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The battery main earth connection to the chassis is:</p> <ul style="list-style-type: none"> <li>booted</li> <li>free of corrosion</li> <li>the Battery Earth Point (Negative Pole) is connected to the chassis close to the batteries (i.e., rear of the firescreen); no other connections can be made to this dedicated earth point</li> <li>the chassis manufacturers main earth point shall be forward of the firescreen (and labelled); or, if made by others, it shall conform to Annex C</li> <li>all electrical components rear of the cab shall be connected to the chassis manufacturers (or Annex C) main earth point by insulated return wiring.</li> </ul> | Visual inspection.   | <p>Earth point not:</p> <ul style="list-style-type: none"> <li>not booted</li> <li>not free of corrosion</li> <li>the Battery Earth Point (Negative Pole) is not close to the batteries, and/or other connections are made to the earth point</li> <li>is not located forward of the firescreen, and/or is not clearly labelled, and/or does not comply to Annex C,</li> <li>other earth points are located rear of the firescreen, and/or electrical components are not connected by earth return wiring to the chassis manufacturers (or Annex C) earth point.</li> </ul> |
| <p><i>Note:</i> The negative pole of the battery should be connected to the chassis, via the de-energising system (battery master switch), in the vicinity of the battery box at the vehicle manufacturer's designated connection. In order to preserve the integrity of this connection, no other electrical equipment should be connected to the chassis at this point. It should be clearly labelled.</p>                                                                                                                                                                                                                                                              |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p><i>Note:</i> All other electrical connections to the chassis should only be forward of the fire screen at points designated by the vehicle manufacturer and in the manner used by the manufacturer in order to provide a reliable and durable earth point.</p> <p>The designated points should be clearly labelled with non-corroding tags. The location of the chassis earth point(s) should be clearly shown on a durable plate which is readily visible on the vehicle.</p>                                                                                                                                                                                         |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p><i>Note:</i> Any wiring to the rear of the cab and external to the cab shell should use an insulated return to chassis manufactures (or Annex C) electrical connection (see above); this includes headlamps, sidelamps, fog-lamps, end outline marker lamps and indicators, but excludes any wiring to the engine, clutch and gearbox.</p>                                                                                                                                                                                                                                                                                                                             |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## 5 Electrical system (external to the cab)

### 5.1 Conductors (wiring)

| Requirement                                                                                                                                                                                                                                        | Method of inspection                                                    | Reason for failure                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Conductors shall be adequately insulated.<sup>1</sup></p> <p>Connected parts shall have a protection degree of at least IP54</p>                                                                                                                | <p>Visual inspection.</p> <p>Visual inspection of protection level)</p> | <p>Conductor not insulated.</p> <p>Degraded or missing insulation boot, seal or gland.</p>                                                                                                                                                                                 |
| All circuits are wired 'insulated return' to earth points forward of the rear of the cab.                                                                                                                                                          | Visual inspection.                                                      | Earth points used to the rear of the cab.                                                                                                                                                                                                                                  |
| <p>All wiring is robustly double insulated in accordance with the examples in Annex D and F throughout its entire length.</p> <p><i>Note:</i> Annex F type insulation only applicable for Volvo Group vehicles manufactured after 1 June 2019.</p> | Visual inspection.                                                      | <p>Use of secondary insulation which:</p> <ul style="list-style-type: none"> <li>• is split, abraded, brittle or worn</li> <li>• provides inadequate coverage of wires throughout their length</li> <li>• provides inadequate protection of wires to components</li> </ul> |
| <p>Joints which pierce the insulation are not used.</p> <p><i>(Note: this does not apply to an electro-pneumatic control system of tank equipment or any vehicle/trailer constructed before 01/07/2006.)</i></p>                                   | Visual inspection.                                                      | Use of snap-on connectors or those that pierce the insulation.                                                                                                                                                                                                             |
| Junction boxes are secure and free from damage.                                                                                                                                                                                                    |                                                                         | Junction box or cover loose, excessively corroded, cracked or broken.                                                                                                                                                                                                      |
| <p>Absence of insulation tape and other unsuitable repair.</p> <p><i>Note:</i> The use of Coroplast 832 MPX or Corplast 837 X self-amalgamating tape is permitted.</p>                                                                             | Visual inspection.                                                      | Unsatisfactory/temporary repair or use of insulation tape.                                                                                                                                                                                                                 |

## 5.2 Light units and other electrical components

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Method of inspection                                                                                                                                                                                                                                          | Reason for failure                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>All lights and other electrical components:</p> <ul style="list-style-type: none"> <li>function</li> <li>Are suitable for Zone 1 (or better) if mounted inside a cabinet containing loading/ discharge equipment</li> <li>Are suitable for Zone 1 (or better) if within 0.5 metres of a loading/ vapour adaptor **, breather device or safety relief valves<br/>(excluding LED side marker lamps*; normal bulbs type lamps shall still comply)</li> <li>are marked IP 65 if more than 0.5 metres and less than 1 metre from a loading/vapour adaptor, breather device or safety relief valves<br/>(excluding LED side marker lamps*; normal bulbs type lamps shall still comply)</li> </ul> | <p>Operate lights and verify that all bulbs illuminate.</p> <p>Visual inspection<br/>(Note: Ex N is insufficient as it is only rated for Zone 2.)<br/>(see Annex I)</p> <p>(Note: Ex N is insufficient as it is only rated for Zone 2.)<br/>(see Annex I)</p> | <p>Bulb fails to illuminate to full brilliance.<br/>(If multi-LED light unit, more than 1 in 4 LEDs are not illuminated.)</p> <p>Not suitably marked.</p> <p>Side marker lamps incorporating bulbs (non-LED) are within 0.5 metre from a vapour release point</p> <p>Side marker lamps incorporating bulbs (non-LED) are between 0.5 metre and 1.0 metre from a vapour release point</p> |
| All lenses and housings are free from damage and evidence of water ingress.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Visual inspection                                                                                                                                                                                                                                             | <p>Cracked / broken/insecure lens</p> <p>Insecure/damaged / distorted housing</p> <p>Evidence of water ingress to any electrical component</p>                                                                                                                                                                                                                                           |

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Method of inspection                                                                                                                                                                                                                         | Reason for failure                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where Blind Spot Information System (BSIS) is fitted incorporating a Camera Monitoring Systems (CMS), it shall be examined and/or tested to confirm;</p> <ul style="list-style-type: none"> <li>the external unit camera shall be marked Zone 1 (or better) if permanently energized, or</li> <li>shall be de-energized by the operation of the battery master switch within 30-seconds (<i>applicable to all vehicles</i>)***</li> <li>the internal monitoring screen shall be marked Zone 2 (or better) if permanently energized, or</li> </ul> | <p>Visual inspection</p> <p>Operation of the control to verify that it switches off when the battery master switch (and both outside isolation switches) is operated within the required time: (see Clause 2.5)</p> <p>Visual inspection</p> | <p>Not clearly marked Zone 1 (or better)</p> <p>The delay between operation of the battery master switch control and the disconnection of the batteries exceeds 30-seconds.</p> <p>Not clearly marked Zone 2 (or better)</p> |
| <ul style="list-style-type: none"> <li>shall be de-energized by the operation of the battery master switch within 30-seconds (<i>applicable to all vehicles</i>)***</li> </ul> <p><i>Note:</i> see 'Electrical Zone Summary' for further information.</p> <p>*LED type considered <i>low risk</i></p> <p>**for electronic metering systems see Section 5.6</p> <p>***<i>Note:</i> change to ADR 2025 Clause 9.2.2.8.3</p>                                                                                                                            | <p>Operation of the control to verify that it switches off when the battery master switch (and both outside isolation switches) is operated within the required time: (see Clause 2.5)</p>                                                   | <ul style="list-style-type: none"> <li>The delay between operation of the battery master switch control and the disconnection of the batteries exceeds 30-seconds.</li> </ul>                                                |

*Note:* Where a lamp or other component is mounted in a Zone 1 or IP65 area; or is permanently energised (minimum Zone 1) according to Annex H, but is unmarked, a copy of the manufacturers' specification sheet or Annex B Certificate detailing the level of approval shall be required.

### 5.3 Additional operation/work lamps

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Method of inspection                                                                                                                                                                                           | Reason for failure                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Any additional operations/work lamp and its switch: <ul style="list-style-type: none"> <li>are secure</li> <li>are in good condition</li> <li>function</li> <li>Are suitable for Zone 1 (or better) if mounted inside a cabinet containing loading/ discharge equipment*</li> <li>Are suitable for Zone 1 (or better) if within 0.5 metres of a loading/ vapour adaptor, or safety relief valves*</li> <li>are marked IP 65 if more than 0.5 metres and less than 1 metre from a loading/vapour adaptor, or safety relief valves**</li> </ul> | Visual inspection and operation.<br><br>(Note: Ex 'n' is insufficient as it is only rated for Zone 2.)<br>(see Annex H)<br><br>(Note: Ex 'n' is insufficient as it is only rated for Zone 2.)<br>(see Annex H) | Insecure or damaged component. <ul style="list-style-type: none"> <li>not functioning, or</li> <li>not suitably marked</li> <li>not suitably marked</li> <li>not suitably marked</li> </ul> |
| All lenses and housings are free from damage and evidence of water ingress.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Visual inspection                                                                                                                                                                                              | All lenses and housings are free from damage and evidence of water ingress.                                                                                                                 |

\*Note: if de-energized by master switch, this should occur within 30-seconds (change to ADR 2025 Clause 9.2.2.8.3).

\*\*Note: shall be de-energized by master switch within 30-seconds (change to ADR 2025 Clause 9.2.2.8.3).

Note: Where a lamp is mounted in a Zone 1 or IP65 area; or is permanently energised (minimum Zone 1) according to Annex H, but is unmarked, a copy of the manufacturers' specification sheet or Annex B Certificate detailing the level of approval shall be required.

Note: see 'Electrical Zone Summary' for further information.

### 5.4 Permanently powered equipment (if fitted)

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                | Method of inspection                                                                                      | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Permanently powered equipment is: <ul style="list-style-type: none"> <li>suitable for Zone 1 (or better) when mounted outside of the cab</li> <li>marked ExN (or better) when mounted inside the cab</li> <li>provided with a certificate in accordance with Annex B</li> <li>fed via an Ex marked appropriately rated fuse or barrier unit</li> <li>fed by a distinguishable or clearly marked dedicated cable</li> </ul> | Visual inspection.<br><br>(Note: Ex 'n' is insufficient as it is only rated for Zone 2.)<br>(see Annex H) | Permanently powered equipment is: <ul style="list-style-type: none"> <li>not approved for use in Zone 1 location (in or outside the cab)</li> <li>not approved for use in Zone 1 (or better) location (in the cab)</li> <li>not provided with a certificate in accordance with Annex B</li> <li>not fed via a fuse known to be Ex marked</li> <li>not fed by a distinguishable or clearly marked dedicated cable</li> </ul> |

Note: see 'Electrical Zone Summary' for further information.

Note: Where permanently powered equipment is mounted in a Zone 1 or Zone 2 area; but is unmarked, a copy of the manufacturers' specification sheet or Annex B certificate detailing the level of approval shall be required.

Note: Where an ECU (including that for engine management) is fitted that may continue to require power for a period in excess of 30 seconds after the operation of the battery master switch control, it shall be certified in accordance with the requirements for permanently powered equipment given above.

## 5.5 Radio Frequency Identification (RFID) Equipment

| Requirement                                                                                                                                                                                                          | Method of inspection | Reason for failure                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Any Radio Frequency Identification (RFID) tag/s must be:                                                                                                                                                             | Visual inspection    | An RFID tag                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>secure</li> <li>free from damage</li> <li>mounted where there is no risk of an individual brushing past</li> <li>mounted &gt;1m from any point of vapour discharge</li> </ul> |                      | <ul style="list-style-type: none"> <li>insecure</li> <li>damaged</li> <li>mounted where there is a risk of an individual brushing past</li> <li>mounted &lt;1m from a point of vapour discharge</li> </ul> |
| <ul style="list-style-type: none"> <li>If permanently energized, and externally mounted, suitable for Zone 1 (or better), or</li> </ul>                                                                              | Visual inspection    | <ul style="list-style-type: none"> <li>not suitably marked*</li> </ul>                                                                                                                                     |
| <ul style="list-style-type: none"> <li>If permanently energized, and mounted in cab, suitable for Zone 2 (or better),</li> </ul>                                                                                     | Visual inspection    | <ul style="list-style-type: none"> <li>not suitably marked*</li> </ul>                                                                                                                                     |
| <ul style="list-style-type: none"> <li>marked adjacently to indicate:<br/>WARNING – POTENTIAL<br/>ELECTROSTATIC CHARGING<br/>HAZARD</li> </ul>                                                                       | Visual inspection    | <ul style="list-style-type: none"> <li>not marked</li> </ul>                                                                                                                                               |

*\*Note: Where a RFID component is mounted in a Zone 1, or IP65 area; or is permanently energised (minimum Zone 1 external, or Zone 2 in cab) according to Annex H, but is unmarked, a copy of the manufacturers' specification sheet or Annex B Certificate detailing the level of approval shall be required.*

*Note: if not permanently energized, shall be de-energized by master switch within 30-seconds (change to ADR 2025 Clause 9.2.2.8.3).*

*Note: see 'Electrical Zone Summary' for further information.*

## 5.6 Electronic Metering Systems

| Requirement                                                                                                                                                                              | Method of inspection                        | Reason for failure   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------|
| Electronic metering systems shall comply with the following:                                                                                                                             |                                             |                      |
| <ul style="list-style-type: none"> <li>are suitable for Zone 1 (or better) if within 0.5 metres of a loading/vapour adaptor*, or safety relief valve, or in a cabinet,</li> </ul>        | <i>Visual and measurement (see Annex J)</i> | Not suitably marked. |
| <ul style="list-style-type: none"> <li>are marked IP 65 if more than 0.5 metres and less than 1 metre from a loading/vapour adaptor, or safety relief valve, or in a cabinet.</li> </ul> | <i>Visual and measurement (see Annex J)</i> | Not suitably marked. |

*Note: see 'Electrical Zone Summary' for further information.*

*\*existing electronic metering systems fitted and taken into service before 30 June 2027 are exempt and may continue in use. All new electrical equipment (including metering systems) first registered from 1 July 2027 shall meet the requirements of SLPS LPG Manual (LPG 003/ST/24.04.24, or subsequent versions).*

Electrical equipment (including metering systems) designed and install within 0.5-metre of a loading or vapour adaptor, or in a cabinet, in accordance with previous SLPS LPG Manuals (ie, marked ExN (or better)), may continue in use.

NB: While this means the electrical equipment does not fully comply with the current requirements of the SLP Manual, during loading at terminals the vehicle master switch is de-energized and the electrical supply to the equipment is isolated, therefore this concession is considered *Low Risk*.

*Note:* In accordance with standard procedures during loading and discharge, the tanker driver must ensure that the de-energizing system (battery master switch) has been activated before commencing either process.

## 5.7 Electronic Systems

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Method of inspection | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The battery main earth connection to the chassis is:</p> <ul style="list-style-type: none"> <li>booted</li> <li>the Battery Earth Point (Negative Pole) is connected to the chassis close to the batteries (i.e., rear of the firescreen); no other connections can be made to this dedicated earth point</li> <li>the chassis manufacturers main earth point shall be forward of the firescreen (and labelled); or, if made by others, it shall conform to Annex C</li> <li>all electrical components rear of the cab shall be connected to the chassis manufacturers (or Annex C) main earth point by insulated return wiring</li> </ul> | Visual inspection    | <p>Earth point:</p> <ul style="list-style-type: none"> <li>not booted</li> <li>the Battery Earth Point (Negative Pole) is not close to the batteries, and/or other connections are made to the earth point</li> <li>is not located forward of the firescreen, and/or is not clearly labelled, and/or does not comply to Annex C,</li> <li>other earth points are located rear of the firescreen, and/or electrical components are not connected by earth return wiring to the chassis manufacturers (or Annex C) earth point</li> </ul> |

*Note:* The negative pole of the battery should be connected to the chassis, via the de-energising system (battery master switch), in the vicinity of the battery box at the vehicle manufacturer's designated connection. In order to preserve the integrity of this connection, no other electrical equipment should be connected to the chassis at this point. It should be clearly labelled.

*Note:* All other electrical connections to the chassis should only be forward of the fire screen at points designated by the vehicle manufacturer and in the manner used by the manufacturer in order to provide a reliable and durable earth point.

The designated points should be clearly labelled with non-corroding tags. The location of the chassis earth point(s) should be clearly shown on a durable plate which is readily visible on the vehicle.

*Note:* Any wiring to the rear of the cab and external to the cab shell should use an insulated return to chassis manufactures (or Annex C) electrical connection (see above); this includes headlamps, sidelamps, fog-lamps, end outline marker lamps and indicators, but excludes any wiring to the engine, clutch and gearbox.

### 5.8 Power Train and Regenerative Braking (REESS) systems

| Requirement                                                                                                                                                                                                                                                      | Method of inspection | Reason for failure                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------|
| Trailers with regenerative braking or electrical power train are not permitted                                                                                                                                                                                   | Visual inspection    | Regenerative braking or electrical power train are fitted to the trailer (or draw-bar trailer) |
| REESS cells of rigid vehicles and tractors shall include measures to mitigate danger to the load from heating or ignition in normal operation <sup>1</sup><br><br>The REESS cells shall be effectively covered or screened from product loss (spillage or spray) | Visual inspection    | The cover fails to cover the REESS cell                                                        |

*Note<sup>1</sup>: normal operation conditions also include malfunctioning and reasonably foreseeable accidental situations 5.8 Permanently powered equipment (if fitted).*

### 5.9 Hybrid vehicles equipped with internal combustion engines

| Requirement                                                                                                                                                                                                                                                                                                            | Method of inspection                                                                         | Reason for failure                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The engine propelling the vehicle shall be effectively covered or screened from product loss (spillage or spray) to avoid any danger to the load through heating or ignition                                                                                                                                           | Visual inspection                                                                            | Insufficient protection to prevent leakage from coming into contact with the load or impinging on hot surfaces                                                                                                                                                                                  |
| Fuel tanks and cylinders supplying the engine or fuel cell of the vehicle shall, under normal conditions of carriage <sup>1</sup> , meet the following:<br><br>a) Leakage of liquid fuel or liquid phase of gaseous fuel shall drain to the ground and not come into contact with the load or hot parts of the vehicle | Visual inspection                                                                            | Does not drain directly to the ground, or;<br><br>Leakage may come in contact with the load or impinge on hot surfaces                                                                                                                                                                          |
| The discharge opening(s) of pressure relief devices and/or pressure relief valves of fuel tanks containing gaseous fuels shall be directed away from:<br><br>a) air intakes<br>b) electrical storage systems<br>c) fuels tanks<br>d) the load or hot parts of the vehicle including engine exhausts                    | Visual inspection<br><br>Visual inspection<br><br>Visual inspection<br><br>Visual inspection | Pressure relief of gas from devices or valves may:<br><br>be taken into the vehicle engine<br>pressure release may come into contact with REESS cells<br>pressure release may come into contact with vehicle fuel tanks<br>pressure release may come into contact with hot parts of the vehicle |
| Pipes of fuel systems shall not be fixed on the shell containing the load                                                                                                                                                                                                                                              | Visual inspection                                                                            | Pipework is fixed to the shell containing the load                                                                                                                                                                                                                                              |

*Note<sup>1</sup>: normal operation conditions also include malfunctioning and reasonably foreseeable accidental situations*

### 5.10 Hydrogen Fuel Cell vehicles

| Requirement                                                                                                                                         | Method of inspection | Reason for failure                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------|
| Trailers with hydrogen fuel cells are not permitted                                                                                                 | Visual inspection    | Hydrogen fuel cells are fitted to the trailer (or draw-bar trailer) |
| Fuel systems for engines fuelled by LNG and liquid hydrogen shall so equipped and to avoid any danger to the load due to the gas being refrigerated | Visual inspection    | LNG and Hydrogen fuel cells are adequately protected                |

## 6 General equipment external to the cab

### 6.1 Tyres

| Requirement                             | Method of inspection | Reason for failure                                 |
|-----------------------------------------|----------------------|----------------------------------------------------|
| Each tyre is in a roadworthy condition. | Visual inspection.   | Tyre damaged.<br>Cord showing.<br>Low tread depth. |
| Each tyre's inflation appears correct.  | Visual inspection.   | Obvious under-inflation.                           |

### 6.2 Mudwings

#### Tractors (rear)

| Requirement                                                                                                                                                                                                                                                                | Method of inspection              | Reason for failure                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Each mudwing (other than that for the front axle): <ul style="list-style-type: none"> <li>• is present and secure</li> <li>• covers the tyre(s) at least between 3 o'clock and 9 o'clock; and</li> <li>• is free from excessive corrosion, damage or distortion</li> </ul> | Visual inspection.                | Mudwing is: <ul style="list-style-type: none"> <li>• missing or insecure</li> <li>• does not cover the tyre between 3 o'clock and 9 o'clock</li> <li>• so badly corroded, damaged or</li> <li>• distorted that it does not act as an adequate shield</li> <li>• so damaged that it could be a danger to other road users</li> </ul> |
| <i>Note:</i> Original chassis manufacturers rear wings are acceptable, providing they meet the above criteria                                                                                                                                                              | Visual inspection and measurement |                                                                                                                                                                                                                                                                                                                                     |

*Rigid chassis (rear) and trailers, and rigid chassis (2nd front)*

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Method of inspection                                                                               | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Each mudwing (other than that for the front axle) is:</p> <ul style="list-style-type: none"> <li>• secure and complete</li> <li>• in a sound condition</li> </ul><br><ul style="list-style-type: none"> <li>• made from steel or aluminium shall have a minimum thickness of: <ul style="list-style-type: none"> <li>— <math>\geq 1.0\text{mm}</math> for steel</li> <li>— <math>\geq 1.4\text{mm}</math> for aluminium</li> </ul> </li> <li>• the metallic section of the wing extends over the full width of the tyre (tread width)</li> <li>• or mudwing manufactured other than from steel or aluminium is marked as complying with fire test procedure WFR TP 0022</li> </ul>                          | <p>Visual inspection.</p><br><p>Visual inspection and measurement</p><br><p>Visual inspection.</p> | <p>Mudwing is:</p> <ul style="list-style-type: none"> <li>• missing or insecure</li> <li>• so badly corroded, damaged or distorted that it does not act as an adequate shield</li> <li>• so damaged that it could be a danger to other road users</li> <li>• the material thickness is below the minimum requirements</li> <li>• the metallic section of the wing does not cover the full width of the tyre (tread width)</li> <li>• is not marked 'Meets WFR TP 002' (if the vehicle was registered after 1.1.2000)</li> </ul>                           |
| <p>Each trailer mudwing/each mudwing on the rear axles of a rigid tanker rear is:</p> <ul style="list-style-type: none"> <li>• secure and complete</li> <li>• in a sound condition</li> </ul><br><ul style="list-style-type: none"> <li>• made from steel or aluminium shall have a minimum thickness of: <ul style="list-style-type: none"> <li>— <math>\geq 1.0\text{mm}</math> for steel</li> <li>— <math>\geq 1.4\text{mm}</math> for aluminium</li> </ul> </li> <li>• the metallic section of the wing extends over the full width of the tyre (tread width)</li> <li>• or mudwing manufactured other than from steel or aluminium is marked as complying with fire test procedure WFR TP 0022</li> </ul> | <p>Visual inspection.</p><br><p>Visual inspection and measurement</p><br><p>Visual inspection.</p> | <p>Mudwing is:</p> <ul style="list-style-type: none"> <li>• missing or insecure</li> <li>• so badly corroded, damaged or distorted that it does not act as an adequate shield</li> <li>• so badly corroded, damaged or distorted that it does not act as an adequate shield</li> <li>• the material thickness is below the minimum requirements</li> <li>• the metallic section of the wing does not cover the full width of the tyre (tread width)</li> <li>• is not marked 'Meets WFR TP 002' (if the vehicle was registered after 1.1.2000)</li> </ul> |

*Note:* the foregoing applies to all tyres of wing construction, including rubber edged

*Note:* Fibreglass wings fitted to tankers registered before 1 April 2022 are not required to be marked (see communication 07/05/2021).

### 6.3 Fire extinguisher(s)

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Method of inspection                                                                              | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Each fire extinguisher is:</p> <ul style="list-style-type: none"> <li>readily removable from its stowage</li> <li>is serviceable</li> </ul> <p>Each fire extinguisher container is:</p> <ul style="list-style-type: none"> <li>accessible and suitably labelled</li> <li>weather proof with a secure lid/door</li> <li>securely mounted and free from damage</li> </ul> <p><i>Note:</i> the minimum capacities for fire extinguishers are:</p> <ul style="list-style-type: none"> <li>external – at least one 6kg (minimum)</li> <li>cab – at least one 2kg (minimum)</li> <li>total capacity per tractor/trailer or rigid chassis – 12kg (minimum)</li> </ul> | <p>Removal of the extinguisher(s) from its stowage and replacement.</p> <p>Visual inspection.</p> | <p>Extinguisher not immediately withdrawable from its stowage with one hand.</p> <p>Extinguisher not immediately replaceable in its stowage without force.</p> <p>Container or mechanism damaged. Next inspection date passed. Security seal damaged or broken. Pressure gauge needle not showing in the green section. Damaged or corroded.</p> <p>Extinguisher container not accessible, suitably labelled, weather proof, secure or free from damage.</p> <p>The combined extinguisher capacities do not meet the minimum <i>total</i> requirements, or do not meet the minimum <i>individual</i> requirements (see note).</p> |

*Note:* where an external fire extinguisher container is fitted to a tractor, trailer or chassis, it should contain a serviceable fire extinguisher of at least 6kg capacity (or equivalent).

Where:

- a tractor is presented for inspection without a trailer, only the cab requirements are applicable
- a trailer is presented for inspection without a tractor, only the external requirements are applicable
- a rigid chassis is presented for inspection, both cab and external requirements are applicable

### 6.4 Electrical continuity to chassis

| Requirement                                                                                                                                                                                                                                                                                                       | Method of inspection      | Reason for failure                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------|
| <p>There is electrical continuity of less than 10Ω:</p> <ul style="list-style-type: none"> <li>between the chassis and the drive axle (tractors only)</li> <li>between the vehicle fuel tank and chassis (all vehicles)</li> <li>between the fifth wheel rubbing plate and the chassis (tractors only)</li> </ul> | Use of suitable Ohmmeter. | Resistance exceeds 10Ω.                                    |
| The earth braiding or cable is in good condition.                                                                                                                                                                                                                                                                 | Visual inspection.        | Braiding or cable damaged, detached or degraded to excess. |

## 6.5 Vehicle rear end protection

| Requirement                                                                                                                                                                                                                                                                 | Method of inspection | Reason for failure                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------|
| A bumper sufficiently resistant to rear impact shall be fitted over the full width of the tank at the rear of the vehicle.                                                                                                                                                  | Visual inspection    | Excessive damage, distortion or unsuitable repairs |
| There shall be a clearance of at least 100 mm between the rear wall of the tank and the rear of the bumper (this clearance being measured from the rearmost point of the tank wall or from projecting fittings or accessories in contact with the substance being carried). | Measurement          | Clearance is less than 100 mm                      |

## 7 Inspection (ground level) of the tank status, tank plates, the tank, gauges, valves and pipework

*Note:* this is not an exhaustive list

*Note:* a safe means of access to the underside of the vehicle should be provided, preferably using an inspection pit but otherwise using a crawler board on level ground.

The following items should be inspected from under the tanker as necessary.

7.3 The complete tank shell including its (integral) supports

7.4 The tank mountings

7.6 Tank and all tank connections and gauges

7.7 External product pipework, flanges and gaskets

11.1 Continuity checks – ground level

### 7.1 Tank plates

| Requirement                                                                                                                                                                                                                                                                 | Method of inspection | Reason for failure                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The tank information plate is displayed and carries legibly the correct statutory information including: <ul style="list-style-type: none"> <li>• manufacturer</li> <li>• tank serial number, and</li> <li>• date of last statutory test (of each relevant type)</li> </ul> | Examination.         | Plate not displayed.<br>Plate illegible.<br>Plate not stamped or stamped with incorrect information.<br>Interval since last test date exceeds requirements. |

### 7.2 Tank status

| Requirement                                                        | Method of inspection                                        | Reason for failure                                             |
|--------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------|
| The tank is empty unclean and with a minimum pressure of 1.5 barg. | Visual inspection of tank content and tank pressure gauges. | Tank is not empty unclean with a minimum pressure of 1.5 barg. |
| If a trailer, the tank is coupled to a vehicle.                    | Visual inspection.                                          | Trailer not coupled to a vehicle.                              |

*Note:* as appropriate, the tank shell and its mountings should be inspected from ground level or from under the vehicle using a pit or crawler board. Empty unclean means that the tank may contain hazardous vapour.

### 7.3 The complete tank shell including its (integral) supports (including trailer upper coupler for the 5th wheel and rear subframe (if fitted))

| Requirement                                                                                                                                                                                                                                                                                                                      | Method of inspection | Reason for failure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The tank shell and its supports are free from:</p> <ul style="list-style-type: none"> <li>cracks</li> <li>damage including dents and gouges</li> <li>excessive corrosion</li> <li>unsatisfactory repairs</li> <li>evidence of liquid or vapour leaks</li> </ul> <p><i>Note:</i> frosting could be present without a leak.</p> | Visual inspection.   | <p>Evidence of:</p> <ul style="list-style-type: none"> <li>crack or other sign of material distress</li> <li>any damage across a weld seam</li> <li>any creasing of the tank shell</li> <li>gouges which have reduced the tank thickness</li> <li>repair below the standard of the original construction</li> <li>excessive corrosion (steel delaminated or pitted)</li> <li>liquid or vapour leaks highlighted by staining, peeling paint, damp patches, frosting and drips, unusual/distinctive cleanliness</li> </ul> |
| Any tell-tale holes in doubler plates are free from evidence of leaking product.                                                                                                                                                                                                                                                 | Visual inspection.   | Evidence of any liquid and/or vapour leak.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>Trailer upper coupler for the 5th wheel and rear subframe (if fitted) are free from:</p> <ul style="list-style-type: none"> <li>cracks</li> <li>damage</li> <li>unsatisfactory repairs</li> <li>excessive corrosion</li> </ul>                                                                                                | Visual inspection.   | <p>Evidence of:</p> <ul style="list-style-type: none"> <li>cracks or other sign of material distress</li> <li>damage across a weld seam</li> <li>repair below the standard of the original construction</li> <li>excessive corrosion (steel delaminated or excessively pitted)</li> </ul>                                                                                                                                                                                                                                |

### 7.4 The (vehicle mounted) mountings for the tank (if applicable)

| Requirement                                                                                                                                                                                            | Method of inspection | Reason for failure                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The tank mountings are in sound condition and free from cracks, excessive corrosion and damage.</p> <p>Any intermediate resilient material (eg balata belting or rubber) is in sound condition.</p> | Visual inspection.   | <p>Evidence of a crack or cracks.</p> <p>Excessive corrosion (pitting/delamination).</p> <p>Damage.</p> <p>Balata belting/intermediate resilient mounting material excessively deformed or degraded.</p> |

### 7.5 Tank mounting fasteners

| Requirement                                                                                                                                                                            | Method of inspection | Reason for failure                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------|
| The tank mounting fasteners and resilient springs are present, in good condition and to the tank manufacturer's recommendations.<br><br>Springs are compressed but are not coil bound. | Visual inspection.   | Loose, missing or distorted fastener.<br><br>Broken/cracked spring.<br><br>Loose or coil bound spring. |

*Note:* as appropriate, discharge/fill lines and external pipework should be inspected from ground level or from under the vehicle using a pit or crawler board.

### 7.6 Tank and all tank connections and gauges

| Requirement                                                                                                                                                | Method of inspection | Reason for failure                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------|
| Tank connections and gauges and actuators are in sound condition and leak tight.<br><br><i>Note:</i> safety relief valves are not required to be inspected | Visual inspection.   | Evidence of cracking, product leak or other material defect with tank connections, gauges or actuators. |

### 7.7 External product pipework, flanges and gaskets

| Requirement                                                                                                   | Method of inspection | Reason for failure                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flanges and their joints between the tank shell, footvalve(s) and pipework are correctly made and leak tight. | Visual inspection.   | Cracks or pinholes in flange welds.<br><br>Nut threads not fully engaged on mating male threads of flange fasteners.<br><br>Loose fasteners and/or missing washers.                                                                                                   |
| Flange gaskets are correctly installed and in a sound condition.                                              | Visual inspection.   | Evidence of gasket: <ul style="list-style-type: none"> <li>deterioration or misalignment</li> <li>swelling or distortion</li> <li>peeling paint, dampness, product drips or frosting</li> </ul>                                                                       |
| External pipework (footvalve(s) to loading connector(s)) is in a sound condition.                             | Visual inspection.   | Excessive corrosion or damage.<br><br>Witness marks of impact/damage.<br><br>Liquid and/or vapour leak as evidenced by: <ul style="list-style-type: none"> <li>staining or unusual cleanliness</li> <li>peeling paint, dampness, product drips or frosting</li> </ul> |
| Pipework supports are in sound condition.                                                                     | Visual inspection.   | Support excessively corroded, damaged or insecure.<br><br>Loose or missing fasteners.                                                                                                                                                                                 |

### 7.8 Tank access cover

| Requirement                                                                                                                                                                   | Method of inspection | Reason for failure                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <p>The bolted access plate shall be inspected for:</p> <ul style="list-style-type: none"> <li>• security</li> <li>• bolt condition</li> <li>• indications of leaks</li> </ul> | Visual inspection.   | <p>Evidence of:</p> <ul style="list-style-type: none"> <li>• insecurity</li> <li>• corrosions or stress</li> <li>• leaks</li> </ul> |

### 7.9 Pipework and hydrostatic relief valves (HRVs)

| Requirement                                                                                                                                                                                                                | Method of inspection | Reason for failure                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The pipework and HRVs:</p> <ul style="list-style-type: none"> <li>• are secure</li> <li>• are free from leaks</li> <li>• are fitted with dust caps</li> </ul> <p>The HRV discharge must not point towards the tank.</p> | Visual inspection    | <p>Evidence of:</p> <ul style="list-style-type: none"> <li>• insecurity</li> <li>• leaks</li> <li>• dust caps missing</li> </ul> <p>HRV discharge pointing towards tank.</p> |

### 7.10 Tank content gauge

| Requirement                                                                                                               | Method of inspection                                                                                                                                                                              | Reason for failure                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The tank content gauge is:</p> <ul style="list-style-type: none"> <li>• secure</li> <li>• in good condition</li> </ul> | <p>Visual inspection:</p> <ul style="list-style-type: none"> <li>• condition of glass</li> <li>• dial markings</li> <li>• content indication needle</li> <li>• glycerine filled gauges</li> </ul> | <ul style="list-style-type: none"> <li>• Insecurity</li> <li>• Glass is cracked/ damaged</li> <li>• Dial markings are not clear and easily read</li> <li>• The content indication needle is bent or not at zero</li> <li>• Damage/signs of leaking (glycerine)</li> </ul> |

### 7.11 Tank pressure gauge

| Requirement                                                                                                                | Method of inspection                                                                                                                                                                              | Reason for failure                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The tank pressure gauge is:</p> <ul style="list-style-type: none"> <li>• secure</li> <li>• in good condition</li> </ul> | <p>Visual inspection:</p> <ul style="list-style-type: none"> <li>• condition of glass</li> <li>• dial markings</li> <li>• content indication needle</li> <li>• glycerine filled gauges</li> </ul> | <ul style="list-style-type: none"> <li>• Insecurity</li> <li>• Glass is cracked/ damaged</li> <li>• Dial markings are not clear and easily read</li> <li>• The pressure gauge needle is bent</li> <li>• The pressure gauge reading does not match the expected pressure of the product on board</li> <li>• Damage/signs of leaking (glycerine)</li> </ul> |

## 7.12 Blanked connections

| Requirement                                                                                                                                                                                 | Method of inspection | Reason for failure                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If fitted, controls shall be checked for: <ul style="list-style-type: none"> <li>bolts tightened</li> <li>studs and nuts secure</li> <li>good condition</li> <li>free from leaks</li> </ul> | Visual inspection.   | <ul style="list-style-type: none"> <li>Bolts loose</li> <li>Missing or insecure studs and nuts</li> <li>Insecurity</li> <li>Is cracked/damaged</li> <li>Damage/signs of leaking/frosting</li> </ul> |

## 8 Inspection of the control system, interlocks and loading connectors

### 8.1 Control systems

| Requirement                                                                                                                                            | Method of inspection             | Reason for failure                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If loading control cabinet is fitted, the cabinet for the pneumatic control system is secure; if mounted alone, its door is secure and secures closed. | Visual inspection.               | Control cabinet insecure or damaged.<br>Control cabinet door loose or does not secure firmly closed.<br>Control fails to reset to safe condition when door is closed (if intended by design). |
| Instruction and control labels are visible and legible.                                                                                                | Visual inspection.               | Labels missing, concealed, illegible, damaged or faded.                                                                                                                                       |
| Controls are clearly identified.                                                                                                                       | Visual inspection.               | Control not identified.                                                                                                                                                                       |
| All controls are fitted and secure.                                                                                                                    | Visual inspection, manipulation. | Control missing, damaged or not secure.                                                                                                                                                       |
| The air pressure gauge (if fitted) for the pneumatic control system functions and is free from damage.                                                 | Visual inspection.               | Gauge broken or otherwise non-operational.                                                                                                                                                    |
| Where fitted, the air line antifreeze-lubricator is functioning.                                                                                       | Visual inspection.               | Where fitted, air line lubricator empty or not functioning.                                                                                                                                   |

### 8.2 Anti-drive away function

*Note:* the following describes the requirements for a conventional pneumatic system. Other systems may be used providing the same functionality is provided.

Any of the following systems may be used, or a combination of both of them (eg loading adaptors and vapour adaptor mounted behind the guard bar.

| Requirement                                                                                                                                                                        | Method of inspection                                                                                                                                                                                | Reason for failure                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| The cabinet/guard bar/release interlock cover devices, when operated, immediately activates the brake interlock ('anti-drive away system').                                        | Visual inspection/attempted connection.<br>Aural test where possible (eg spring brake chambers exhausting).                                                                                         | As is relevant to the design, any loading gantry connection can be made without the brakes being applied by the action of the connections being made. |
| The tanker cannot be driven (or otherwise be moved) more than 150mm with its wheels rotating when the cabinet, guard bar or release interlock cover device is in an open position. | Attempt to drive the tanker with a connection made to: <ul style="list-style-type: none"> <li>a loading connector</li> <li>the vapour connector</li> </ul> See Annex E for detailed test procedure. | Tanker can be moved more than 150mm with wheels rotating when any gantry connection (liquid, vapour) is made to the tanker's connections.             |

### 8.3 Loading connectors

| Requirement                                                                                                                                                                                                                                                                                                                                                                               | Method of inspection                              | Reason for failure                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The cabinet door (or guard bar): <ul style="list-style-type: none"> <li>• is present and secure</li> <li>• effectively covers gantry connections as intended</li> </ul>                                                                                                                                                                                                                   | Manipulation and operation.<br>Visual inspection. | The cabinet door (or guard bar): <ul style="list-style-type: none"> <li>• missing or insecure</li> <li>• damaged, distorted or fails to cover gantry connections as intended</li> </ul>                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>• positioning, when set, must prevent joining to the loading connector</li> <li>• operates freely and smoothly</li> <li>• is secure in both open and 'safe' positions, and where it has a device to hold it open, it is effective</li> <li>• rests on stops when in the safe (running) position and not on the guard bar locking pin(s)</li> </ul> | Visual inspection.<br>Manipulation and operation. | <ul style="list-style-type: none"> <li>• when set, the cabinet door positioning must prevent joining to the loading connector</li> <li>• excessive effort required to move or control</li> <li>• mechanism worn to excess</li> <li>• inadequate retention or security in open/closed positions</li> <li>• guard bar rests on guard bar locking pins (not its stops)</li> </ul> |
| The cabinet door (or guard bar) locks: <ul style="list-style-type: none"> <li>• are securely mounted</li> <li>• register correctly with the cabinet frame</li> </ul>                                                                                                                                                                                                                      | Visual inspection, manipulation and operation.    | The cabinet door (or guard bar) lock device: <ul style="list-style-type: none"> <li>• insecurely mounted</li> <li>• not operating correctly (eg sticking)</li> <li>• not engaging correctly or reliably with the door/guard bar</li> <li>• cabinet door lock and/or register plate worn or misaligned</li> </ul>                                                               |

### 8.4 Control system – emergency shut down operators

| Requirement                                                                                                                                                  | Method of inspection                                                                                                                                                                                                           | Reason for failure                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Each emergency shut down (ESD) control is clearly and visibly labelled.<br><br>Each emergency shut down (ESD) control is accessible and functions correctly. | Visual inspection.<br><br>Operation of the pneumatic control system to prime the system and the opening (repeatedly as required to test each emergency control) of a footvalve, followed by the operation of each ESD control. | Label missing, faded or illegible.<br><br>ESD control not accessible, inoperative, slow to respond or reset.<br><br>Control system fails to shut down completely within 15 seconds when each ESD control is operated. |

### 8.5 Control system – fill footvalve operation

| Requirement                                                                                                                                                                                       | Method of inspection                                                                            | Reason for failure                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| The fill footvalve opens and closes smoothly when operated by its control.<br><br>The visual indicator (eg visiwink) or other means of verifying its setting (open or closed) operates correctly. | Operation of relevant control.<br>Aural test (if possible).<br>Operation and visual inspection. | Footvalve operation slow or fails to open and close.<br><br>Visual indicator slow to operate or fails to indicate 'open' and 'closed' status correctly. |

## 9 Inspection of labels and hazard panels

### 9.1 Hazard warning panels

| Requirement                                                                                                                      | Method of inspection | Reason for failure                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The mountings of each hazard warning panel are secure.</p> <p>Each hazard panel displays the correct information clearly.</p> | Visual inspection.   | <p>Mountings excessively corroded or damaged.</p> <p>Incorrect product being displayed.</p> <p>Board damaged.</p> <p>Colours excessively faded.</p> |

## 10 Inspection of loading connections

### 10.1 ACME tank connections and caps

| Requirement                                                                                                                                                                                              | Method of inspection | Reason for failure                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Each ACME seal connection is present and in good condition.</p> <p>Each connection and cap blanking is free from damage and retained.</p> <p>Each connection has a seal and cap secures reliably.</p> | Visual inspection.   | <p>An ACME seal connection is not present and in good condition.</p> <p>A connection or cap blanking is not free from damage and retained.</p> <p>A connection does not have a seal or cap does not secure reliably.</p> |

### 10.2 ACME connectors

| Requirement                                                                                           | Method of inspection                                                                                                                                                                                                                                                                                           | Reason for failure                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>All connections pass the ACME wear gauge test.</p> <p>See Annex G for wear gauge instructions.</p> | <p>Check with ACME thread wear gauges.</p> <p>The gauge should be offered square to the axis of the thread to be checked, this will prevent the gauge from attempting to cross thread.</p> <p><i>Note:</i> The gauges have a line marked at the start of the thread to help determine the number of turns.</p> | <p>No seal in connection.</p> <p>Failure of wear gauge test.</p> <p>If the ACME thread to be checked accepts the gauge for more than one turn, ie the gauge screws on for more than one turn.</p> |

### 10.3 Fill line check valves

| Requirement                                                                                            | Method of inspection                                                                                                                            | Reason for failure             |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Check valve to be incorporated in the fill line between the fill isolation valve and the blanking cap. | <p>Visual inspection</p> <p><i>Note:</i> Do not look directly into the fill line, use an alternative method of inspection such as a mirror.</p> | Check valve missing/not fitted |

### 10.4 Dry coupling

| Requirement                                                                                                                                                                  | Method of inspection | Reason for failure                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------|
| <p>The tank unit dry gas coupling (DGC) is:</p> <ul style="list-style-type: none"> <li>in good condition</li> <li>free from leaks</li> <li>fitted with a dust cap</li> </ul> | Visual inspection.   | <p>Evidence of:</p> <ul style="list-style-type: none"> <li>damage</li> <li>leaks</li> <li>dust cap missing</li> </ul> |

*Note:* All the above inspections MUST be carried out where a tanker uses a dry disconnect coupling.

## 11 Electrical continuity checks – ground level

### 11.1 Earth pin to tank and service equipment

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Method of inspection        | Reason for failure                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------|
| <p>Electrical continuity of less than 10 ohms exists between the earth pin fitted and:</p> <ul style="list-style-type: none"> <li>any separate earth pins on the tank (if fitted), or the tank itself if only one earth pin is fitted</li> <li>each loading connector</li> <li>loading/discharge and vapour pipework</li> <li>for a trailer, the chassis of the attached tractor unit</li> </ul> <p>Where any earth continuity cable or braid is fitted, it should be in good condition.</p> | Use of a suitable Ohmmeter. | <p>Resistance greater than 10 ohms.</p> <p>Earth continuity cable damaged, detached or corroded.</p> |

### 11.2 Earth pin to axles and wheels

| Requirement                                                                                                                                                                                                                                                                                                                                                                                | Method of inspection        | Reason for failure                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Electrical continuity of less than 1,000 ohms exists between the earth pin fitted and:</p> <ul style="list-style-type: none"> <li>all the trailer wheels, or</li> <li>all the drive axle wheel positions of a rigid vehicle or tractor</li> </ul> <p>Where any earth continuity cable or braid is fitted, it should be in good condition, particularly any connecting to the axles.</p> | Use of a suitable Ohmmeter. | <p>Resistance greater than 1000 ohms</p> <p>(The required electrical resistance figure (below 1,000 ohms) may be considered satisfactory even if rotation of the wheel is required to obtain it.)</p> <p>Continuity cable or braiding showing signs of wear or corrosion.</p> <p>Inadequate or unreliable attachment.</p> |

## Annex A

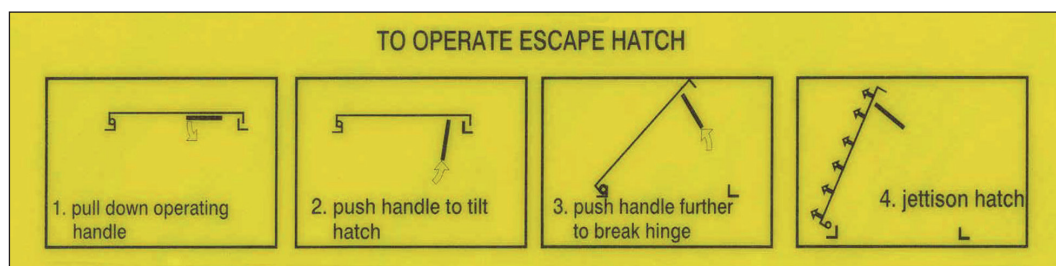
(See section 2.1 – Roof hatch)

Roof hatch designed for emergency egress, showing information labels and sealing arrangement

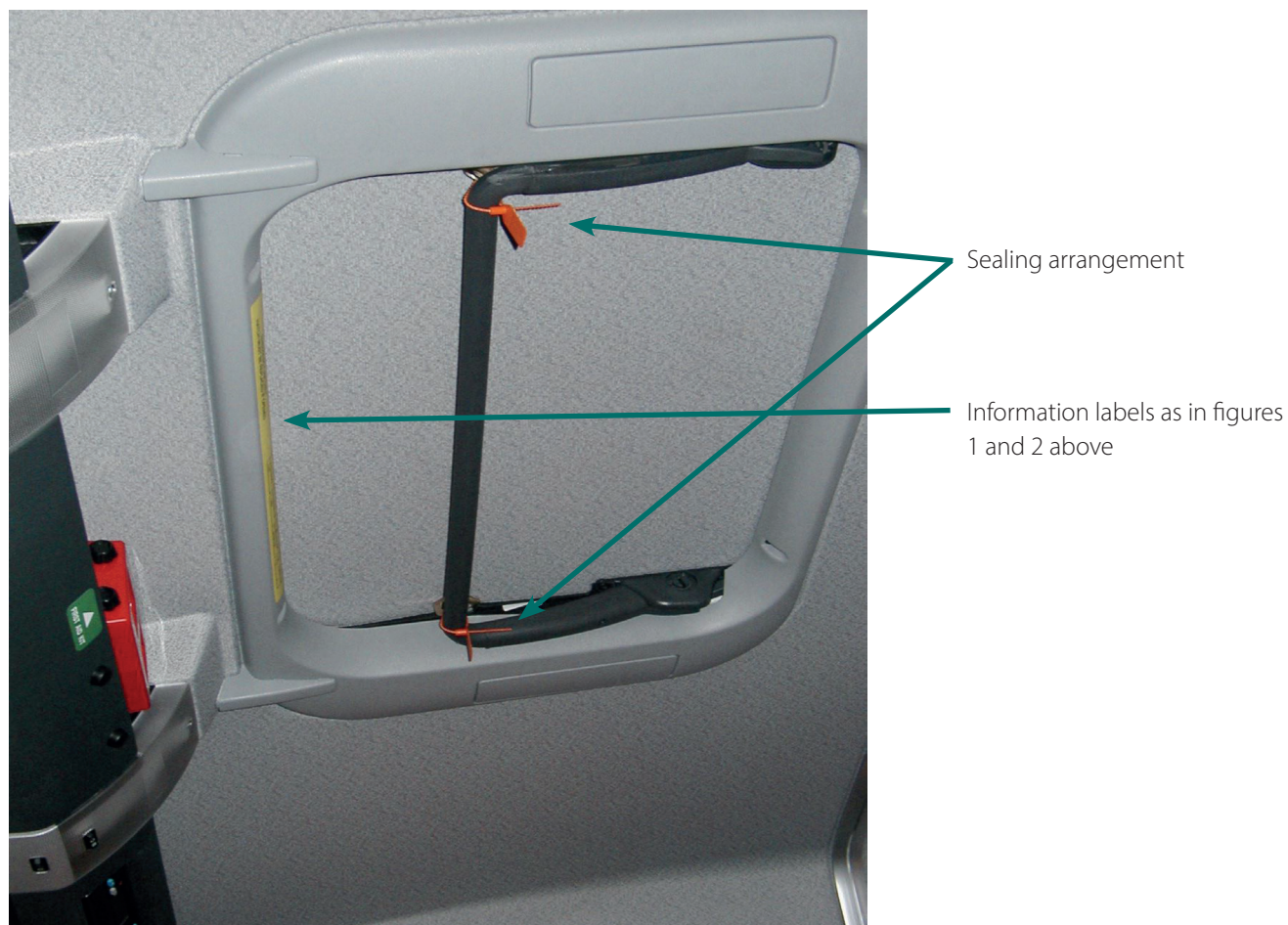
Figure 1



Figure 2



Typical information labels for a roof hatch that may be used for emergency egress



## Annex B

(See section 2.4 – Additional in-cab electrical equipment)

### Approval certificate for permanently powered electrical equipment

#### PERMANENTLY POWERED ELECTRICAL SYSTEM – CERTIFICATE/PLATE OF CONFORMITY

| Vehicle fleet number | Tank number | Registration mark |
|----------------------|-------------|-------------------|
|----------------------|-------------|-------------------|

The general electrical/electronic wiring and equipment on this road tanker is installed in accordance with *El Petroleum road tanker design and construction*. With the exception of the tachograph, and the electrical equipment listed below, the system is totally disabled when the road tanker battery master switch is turned off. There are no energy storage components which remain live 10 seconds after the switch is set to the off position.

The following permanently powered electrical equipment has been installed:

|  |
|--|
|  |
|--|

The permanently powered electrical equipment is: *(delete as appropriate)*

isolated from the main electrical wiring, and has its own battery

located .....

permanently powered from the live side of the master switch via a barrier/fuse unit

located .....

The system complies with the *Energy Institute Petroleum road tanker design and construction*.

It has been certified by \_\_\_\_\_ which is a Notified Body.

Certificate number Ex \_\_\_\_\_.

**This installation must not be modified other than with the detailed authorisation of the supplier.**

|      |          |
|------|----------|
| Name | Position |
| Date | Company  |

## Annex C

(See section 4.8 – Battery main earth point)

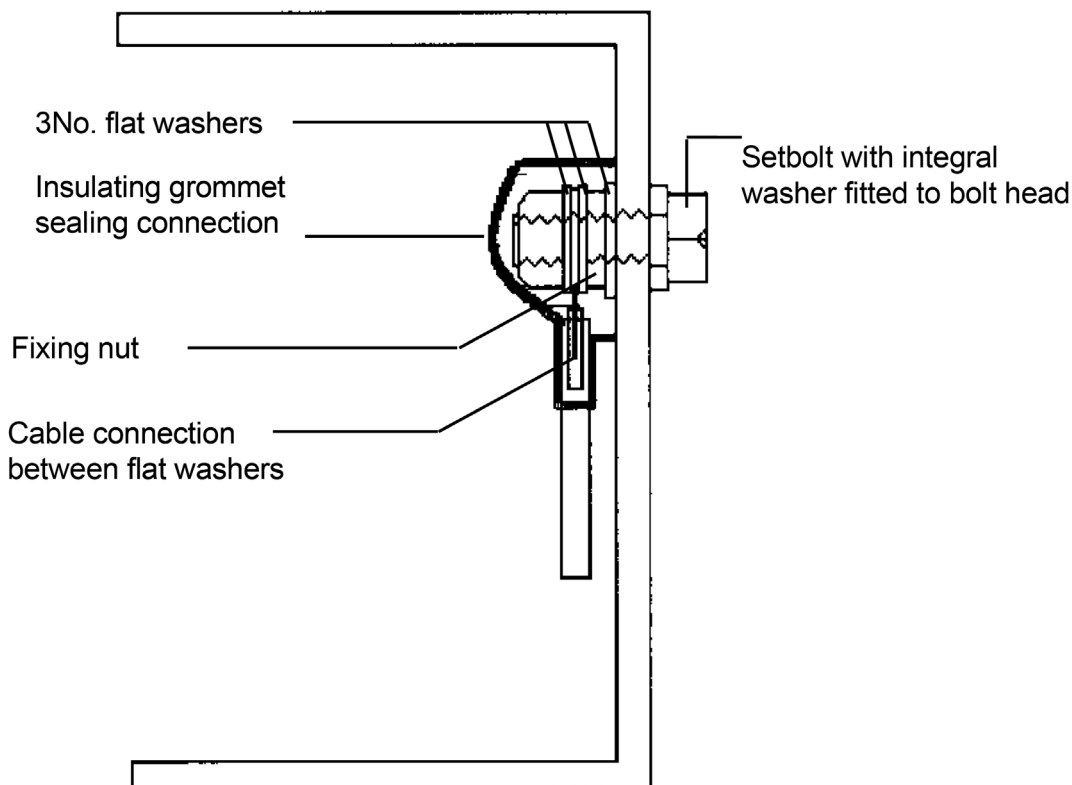
### Alternative design for the connection point of the battery negative cable to the chassis

The bolt should be screwed into the chassis and tightened.

With the bolt in position a flat washer should be fitted, followed by a securing nut also tightened.

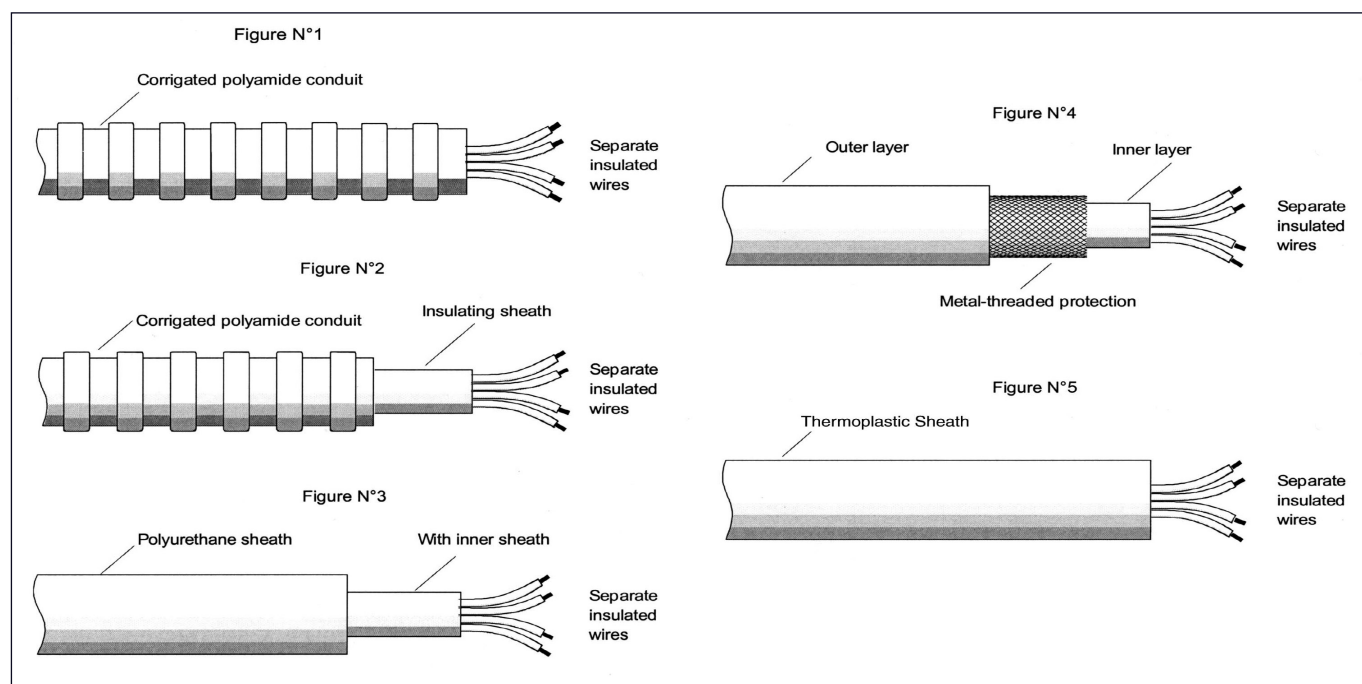
The cable connection should then be made between two further flat washers and secured by a Nyloc nut. When the connection has been completed an insulating boot should be positioned over the assembly to provide weather protection.

*Note:* all fastenings should be tightened to their appropriate tightening torque.



## Annex D

(See section 5 – Electrical system (external to the cab) – examples of secondary insulation)



Note: the outer layer (whether conduit or sheath) may not be split axially unless:

- i) it is secured closed and is double wrapped by diametrically opposed 'C' sections with a feature to prevent rotation, or
- ii) it provides a third layer of protection to the conductor(s)

## Annex E

(See section 8.2 – Anti-drive away function test)

*Note:* this test procedure has been developed to take account of changes in braking systems of some articulated vehicles where the practice of using the service line to assist the parking brake can result in the interlock being ineffective temporarily as the park brake control is released.

### Test procedure

The operation of the interlock arrangement on all rigid vehicles and semi-trailers should be checked as follows.

- 1 Park the tanker in a suitable place, with at least 5 metres clear space in front.
- 2 With the vehicle park brake applied, build up the vehicle air system's pressure to its maximum.
- 3 Open the cabinet/raise guard bar/release interlock cover devices – which prevent the loading gantry interface with Fill Valve and Vapour Valve connections. This test procedure should be by way of a theoretical connection only for the purpose of checking the brake interlock function. It is common for the trailer parking brake to have to be set in order to open cabinets, access guard bars or release valve interlock covers.

*Note:* There may be a requirement to repeat the Function Test where Fill Valves and Vapour Valve connections are independently interlocked.

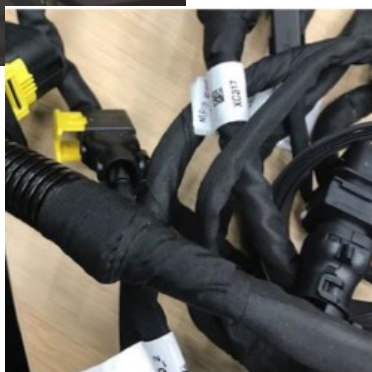
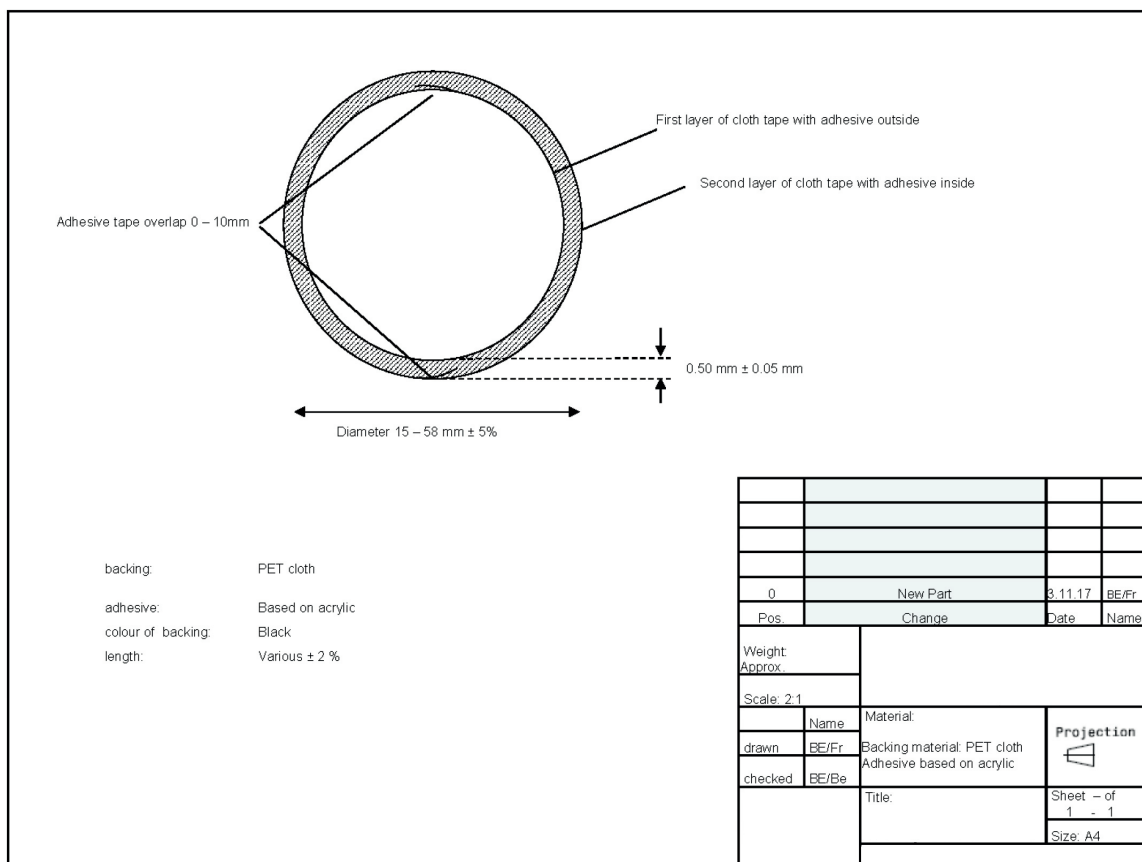
- 4 Return to the cab and after checking that there is nothing in the path of the vehicle, quickly release the park brake and attempt to drive forward in a low gear.

*Note:* this needs to be done quickly to replicate a known possible fault condition.

- 5 If it is possible to move the vehicle more than 150mm (6 inches) forward with the wheels rotating then the vehicle (rigid, tractor or semi-trailer) should not be issued with a Safe Loading Pass.
- 6 Ensure the vehicle parking brake is re applied. De activate the brake interlocks by closing cabinet doors / resetting and locking guard bars or closing Valve Interlock cover devices.

## Annex F

See section 5 – Electrical system (external to the cab) – secondary insulation type only applicable for Volvo Group vehicles manufactured after 1 June 2019.



## Annex G

## ACME wear gauge instructions



## ACME THREAD WEAR GAUGES (6TPI Class 2G)

Excessively worn ACME connectors may lead to coupling failure during the transfer of gas. KC ProSupply's wear gauges were developed to help reducing the risk by accurately measuring the degree of wear on ACME couplings.

The gauges measure the level of wear on the coupling thread flanks so that worn couplings can be replaced before they reach an unsafe state.

**Guidelines for testing of ACME couplings**

- Before using the ACME wear gauges, perform a visual inspection of the coupling for concentricity. If the thread is distorted or damaged, the coupling will not take the wear gauge even if past the wear limit and should be replaced
- If the wear gauge engages up to one turn, the coupling is getting close to the point of rejection
- If the wear gauge engages more than one turn, the coupling is worn and should be replaced
- Sealing washer condition should be checked before reuse of a coupling

**Handling and care**

Care in handling is essential, as any damage to the gauge faces will affect their application. With frequent use, wear may occur on the gauge itself. However, a worn gauge is fail safe as it will simply reject worn couplings before they have reached the limit. If wear on the gauge is evident, it should be replaced.

**Specifications**

- Designed for use with LPG fittings 6TPI Class 2G
- Right hand sizes: 1 3/4", 2 1/4" and 3 1/4"
- Left hand sizes: 1 3/4" and 2 1/4"
- Made in the UK by KC ProSupply UK Limited (member of the Kosan Crisplant Group)

The gauges are supplied as an aid to detecting wear on the threads of standard LPG ACME couplings. This is, however, only one aspect of the checking procedure.

KC ProSupply does not accept responsibility for any outcome resulting from the use of the gauges.

## Annex H

### Electrical Zone Summary

**Table 1: Summary of Ex-ratings for explosive gas atmospheres (only)**

| Method of Protection   | Ex Code | Permitted Zones |   |   |
|------------------------|---------|-----------------|---|---|
|                        |         | 0               | 1 | 2 |
| Encapsulation          | ma      | ✓               | ✓ | ✓ |
|                        | mb      |                 | ✓ | ✓ |
|                        | mc      |                 |   | ✓ |
| Flameproof             | da      | ✓               | ✓ | ✓ |
|                        | d       |                 | ✓ | ✓ |
|                        | db      |                 | ✓ | ✓ |
|                        | dc      |                 |   | ✓ |
| Intrinsic Safe         | ia      | ✓               | ✓ | ✓ |
|                        | ib      |                 | ✓ | ✓ |
|                        | ic      |                 |   | ✓ |
| Increased Safety       | e       |                 | ✓ | ✓ |
|                        | eb      |                 | ✓ | ✓ |
|                        | ec      |                 |   | ✓ |
| Type of Protection 'n' | nA      |                 |   | ✓ |
|                        | nC      |                 |   | ✓ |
|                        | nR      |                 |   | ✓ |

**Table 2: Recommendations for certification of electrical equipment installed adjacent to tank service equipment that may open, breathe or vent to atmosphere**

| Distance from source of vapour/liquid release | Equipment requirement               |
|-----------------------------------------------|-------------------------------------|
| ≤ 500 mm                                      | Suitable for Zone 1 (see Annex B.2) |
| > 500 mm ≤ 1 000 mm                           | IP 65 <sup>1</sup>                  |
| > 1 000 mm                                    | No restriction                      |

<sup>1</sup> See EN 60529 Specification of degrees of protection provided by enclosures.

## Annex I

### Amalgamating Tape Repairs

A limited number of self-amalgamating tapes have been approved by EU Notified Bodies as meeting the equivalence of ADR 9.2.2.2.2 requirements, and therefore considered as approved for use on CDG vehicles. It could be expected that this approval would require the amalgamating tape to be applied and/or fitted in accordance with the installation guidance provided by the manufacturers and detailed later in this Annex.

The current Energy Institute *Petroleum Road Tanker Design and Construction* publication (4th Edition), upon which the SLPS Manual is based, includes a section relating to the protection of the vehicles' wiring loom (Clause 3.1.6), based on the provision of ADR 9.2.2.2.2 (3rd paragraph) which allows:

*The additional protection is complied with if multicore cables in conformity with ISO 14572:2011; ISO 19642-7:2019; ISO 19642-8:2019; ISO 19642-9:2019 or ISO 19642-10:2019; are used, or one of the examples in figure 9.2.2.2.1 to 9.2.2.2.4 below, or another configuration that offer equally effective protection.*

Various chassis manufactures have successfully applied to a Notified Body (an organisation designated by an EU country to assess the conformity of certain products before being placed on the market), for a variant to their UN-R105 certificate, which covers a series of tests carried out in accordance with the relevant regulation for the evaluation of N category motor vehicles and their O type trailers regarding the transport of dangerous goods, stating that specified types of amalgamating tape 'offer equally effective protection' to conventional forms of wiring protection.

Based on these EC Approvals, the SLPS Manual (SLPS 020/ST/02 04.22) Clause 5.1, permits the use of secondary insulation in accordance with Annex H. Subsequently, the SLPS Management Group have been requested to consider allowing the general use of these 'approved' amalgamating tapes for the repair of electrical wiring.

EC Approval variants have been issued for three types of Coroplast products (*Note: other suppliers' systems may also be 'approved', but the SLPS Management Group is currently unaware of them*).

| Type       | Notified Body | Approval Number      |
|------------|---------------|----------------------|
| 832 MPX    | TÜV Saar      | NOEB0001-00          |
| 832 MPX TT | TÜV Saar      | NOEB0002-01          |
| 837 X TT   | TÜV Rheinland | E1*105R06/00*0062*13 |

Therefore, as EU Notified Bodies have approved the use of these materials in accordance with the provisions of ADR Part 9, the SLPS Management Group have concluded that they cannot restrict their use, but that it shall be limited to the foregoing products, unless evidence is provided of other approved systems.

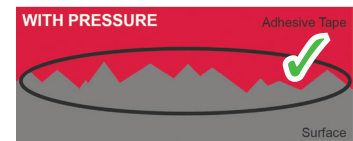
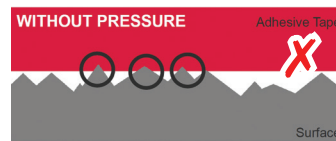
Detailed below is a general outline (*not exhaustive*) of the application of these systems; however, it is the responsibility of the repairer and the SLPS inspector to ensure that the repair is undertaken in accordance with the manufacturers recommendations and provides equivalent protection to the wiring cables and minimises any unintended ignition or short circuit in the event of impact or deformation. The cabling protection **shall** extend throughout the length of the wiring, with particular attention to its termination with electrical components to ensure the integrity of the protection from moisture ingress.

It should be noted, by manufacturers of tank vehicles, there are many examples of low-cost amalgamating tapes available that are not 'approved' for the use on Dangerous Goods vehicles, and may not provide the necessary protection even if applied as per the following guidance.

## Coroplast Wire Harness Tapes

### General Information

Apply sufficient thumb pressure to connect the surface areas



### Wrapping Instructions



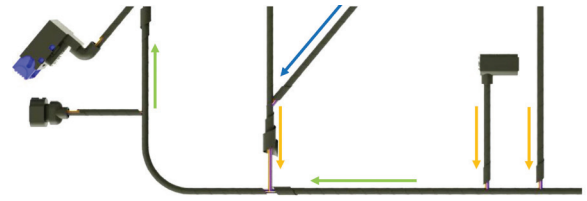
Start wrapping the outer side-branches first



Continue with side-branches closer to the main-branch

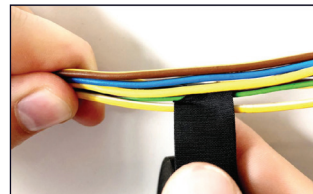


Wrap main-branch at the very end of the process

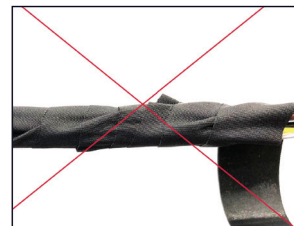


Fix the tape on the harness with a short pressure and start wrapping

To ensure a gapless bond, and better mechanical protection; apply a 50% overlap during the wrapping process



Do not make loose or 'yo-yo' winding



Use the roll close to the harness with a constant, tight winding and a triple final layer



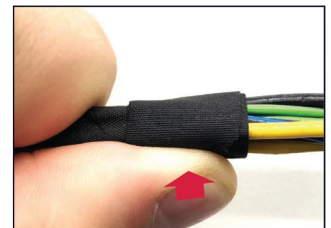
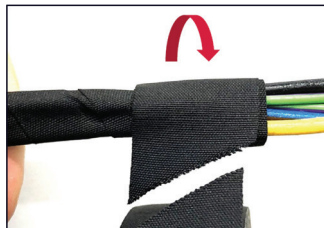
The final winding has to be torn or cut close to the harness



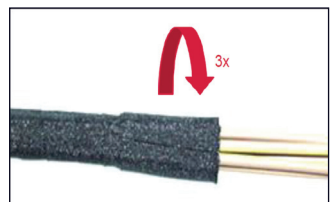
The fixation at the end has to be made by a strong thumb-pressure in the winding direction



Although not shown in the manufacturer's instructions, ensure wrapped section is entered into the gland of any connector



Do not stick the tape's end diagonally on the cable harness



Stick the tape's end on itself with a triple winding and fix with a strong thumb-pressure



Do not stick the tape's end diagonally on the corrugated tubes or sleeves



Stick the tape's end on itself with a triple winding and fix with a strong thumb-pressure

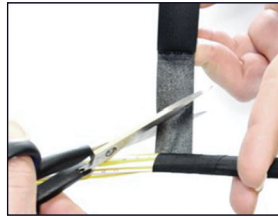


### Cutting process

Cut the tape at an angle, between 20° and 45°



Fix the tape with short thumb-pressure



## Annex J

### Product Recognition Tags

- 9.1 Product Recognition label fitted;

NB: Vehicle Identification, via Vapour Recovery Tag, is optional (delete text if not fitted)

**THIS VEHICLE IS FITTED WITH  
PRODUCT RECOGNITION &  
VEHICLE IDENTIFICATION\* IN  
ACCORDANCE WITH EN 14116**

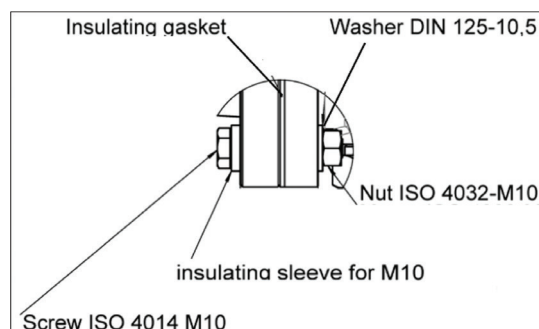
\* Vehicle Identification optional; delete as necessary

- 10.2 Insulating sleeves are fitted to all loading adaptor attachment bolts

&

- 10.3 Insulating sleeves are fitted to vapour recovery adaptor attachment bolts

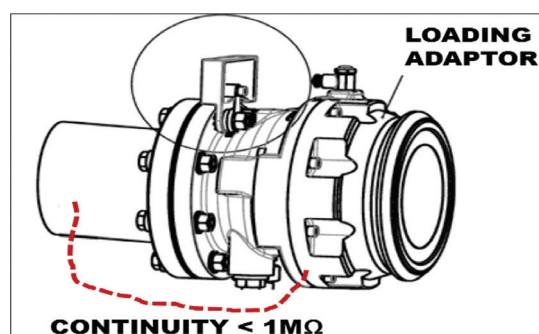
(if vehicle identification Tag is fitted (optional))



- 10.2 Where Product Recognition Tags are fitted, the electrical continuity between each run off pipe (or earth pin/tank) and the attached loading adaptor shall not exceed 1 MΩ

&

- 13.1 (106 ohms)



- 10.3 Where a Vehicle Identification Tag is fitted, the electrical continuity between Vapour Recovery pipe (or earth pin/tank) and the attached adaptor shall not exceed 1 MΩ (106 ohms)

&

- 13.1

