Minimum Mandatory Customer Tanker Requirements – BDTL Diesel Tankers

Introduction

The Minimum Mandatory Requirements are provided to give guidance to customers intend to use their own tank vehicles to lift diesel from Bulk Diesel Top Loading (BDTL) – Bapco. Satisfying the requirements described in these documents is needed to meet a minimum level of safety for the transportation of diesel from BDTL to customers destinations. A comprehensive inspection will be undertaken on customers tanker trailers to confirm their compliance with these requirements and accordingly issued an admission badge to enter BDTL.

Mandatory Requirements are as following:

Identification of the inspected vehicle
Of the vehicle/attached vehicle
Vehicle insurance
Contractors ALL Risks Insurance Policy (CAR Policy)
Vehicle Identification Number (VIN)

Owner/Operator details:
Vehicle/tanker owner/operator
Operator license number (if applicable)

Tank details:
Tank manufacturer
Shell material
Date of tank manufacture
Tank vehicle ID number/tank serial number
Traffic Directorate Approval Certificate
Civil Defense Approval Certificate
Number of compartments
Capacity of each compartment
Hydrostatic Test Certificate
Total design approval weight or volume

1. Cleanliness
To ensure that the vehicle/tanker is presented in a condition that is safe for the inspector to inspect and that any evidence of product residue on the outside of the vehicle is investigated thoroughly.
Guidance
Evidence of product residue or contamination on the exterior of the tank or on the vehicle below the tank must be investigated. This contamination may indicate that cracks exist in the tank structure or there is leakage from valves. Dust adhering to residues in the vicinity of closures and valves may indicate weeping seals. If so, the integrity of the seals must be determined.

2. Suitable and free of risk-creating defect

The inspector must undertake a general external visual inspection of the vehicle/tanker. The inspector must be satisfied that no safety critical defects were noted with the general vehicle/tank vehicle equipment.

Guidance

The item concerns the inherent safety of the vehicle/tanker. The vehicle/tanker must not exhibit a serious defect that could reasonably cause a loss of vehicle control or develop into a failure resulting in loss of containment. The condition of the vehicle/tanker is to be determined by visual inspection.

3. Emergency information panels

To ensure that emergency information panels (EIPs)/hazardous chemical (HAZCHEM) signs are attached to the tank vehicle and that the panels carry accurate information for the product carried.

Guidance

Diesel tank vehicles are required to be placarded with EIPs/HAZCHEM as required. EIPs shall be placed on both sides of a tank vehicle as close as practicable to the front of the tank. Another EIP shall be placed at the rear of the vehicle (or combination). The lowest edge of each EIP should be at least 1 meter from the ground.

4. Hydrostatic test

A hydrostatic test should be conducted periodically to verify that the tank and all its valves and closures do not leak.

Guidance

A hydrostatic test is mandatory for a new tanker. The test details must be recorded on the approval plate/certificate. Subsequent hydrostatic tests to validate the condition of the tank should be conducted in accordance with initial hydrostatic tests. When conducted, the details of the test shall be recorded on a plate attached to the tanker or certificate for later reference. It is standard for tank vehicle hatch, vent, and valve testing to be undertaken as a hydrostatic test without removal of the hatch. If such a hydrostatic test is undertaken, the details of the test must be recorded on a plate affixed to the vehicle details of the plate that is required when a hydrostatic test is conducted.

5. Hydrostatic test plate or Certificate

To verify that tank hydrostatic test(s) have been conducted and their date(s) have been recorded. There must be a plate/certificate showing the date of the last hydrostatic test and the name of the authority or organization that witnessed that test.

Guidance

The first hydrostatic test can be recorded on the compliance plate. Subsequent tests must be evidenced by a test plate or certificate that reports the date of the test and the organization that conducted the test. Multiple test dates can be recorded on one plat/certificate.

6. External tank condition

The tank condition must not present a risk of loss of containment. The shell and tank attachments must be free of leaks, cracks, defective welding, serious impact damage and structural corrosion. Visually check the barrel and all attachments.

Guidance

Leaks Any sign of product weeping, accumulated residue or evidence of road grime accumulating on residue shall constitute a fail and warrant further investigation. A release of vapor can result in a product film near to seals between valve bodies and the tank skin. Dust may attach to this film. Such a film of product may not constitute a leak.

Defective welding, welding must be failed if the repair weld is not substantially similar to the adjacent original equipment weld. Poor-quality welding that is irregular in width and shows substantial undercutting or craters is unacceptable.

7. Internal tank condition

To identify internal defects. If the internal inspection is to be undertaken manually, appropriate safety precautions (including confined space entry) shall be undertaken in accordance with health and safety legislation. Manual internal inspections shall only be undertaken by suitably qualified personnel at premises equipped for such inspections. Photographs/records of previous repairs should be taken by the inspector and kept for later reference. All compartments must be inspected. The tanker must be freed of dangerous goods prior to a comprehensive internal inspection taking place.

Guidance

A preliminary internal inspection, undertaken from outside the compartment, shall be conducted. A comprehensive internal inspection shall be conducted when the preliminary inspection identifies suspected reasons for rejection. A comprehensive internal inspection should be done by a suitably qualified person inspecting inside the tank

8. Closures closed and secured

To ensure that vibration or movement during transit does not result in the opening of a valve, or loss of a cap or cover, and thereby create a risk of the loss of product.

Guidance

The requirement to be secured is necessary to provide a high degree of protection against the closure coming open under normal conditions or adverse circumstances, such as impact with animals or road debris. Check for the following features:

• A product containment valve must have a catch, spring or locking mechanism to secure it.

• Caps on tank closures located on the top of a tank shall have a locking (security) feature, such as a split pin, cable tie, spring clip or equivalently effective securing feature.

• In tank vehicles not fitted with a compartment foot valve, a quick-acting shut-off valve must be fitted to, or immediately adjacent to, the outlet/outlet flange. Acceptable securing of cam lock arms can be achieved using spring clips, padlocks, polyamide (cable) ties or some other reliable method. Dust caps on API valves do not need a secondary locking (securing) feature.

9. Landing legs/support points on semi-trailers

To ensure that the tanker can be safely separated from the prime mover vehicle.

Guidance

The tanker must be fitted with landing legs or support points that are:

• securely attached

• adequately strong

• free from impact and mounting damage

• operable. If the landing legs are not fitted the tanker must have provision in the structure for external support.

10. Tank attachment

To ensure that the tank remains securely attached on tank vehicle where the tank is separate from the vehicle chassis.

Guidance

The means of attachment of a tank to a road vehicle (mounting brackets, pins, bolts, etc.) must be structurally sound and free of any defect except for cosmetic damage/surface imperfection. Inspect the attachments and mounts for cracks, twists, bends or loose/broken bolts. Mild steel attachment hardware is unacceptable.

11. Drive away protection (DAP)

To ensure that the vehicle/tanker is immobilized when cargo transfer is being undertaken.

Guidance

There are risks associated with the vehicle moving while the product transfer is being undertaken and a risk of structural damage if the vehicle were to drive off with delivery hoses attached. The vehicle must be fitted with a means of ensuring that these risks are addressed. Any vehicle/tanker not fitted with a 'no-air-in-motion system' shall have some other means or feature that protects against the DAP operating when the vehicle is being normally driven.

12. Vehicle/tanker attachments

To ensure that attachments to the vehicle/tanker cannot cause structural damage to the tank if left unsecured or projecting.

Guidance

Any attachment that could cause structural damage to the tank if not securely stowed in the designed position shall be interlocked with the vehicle braking system (DAP).

13. Rear-impact protection

To ensure that the product containing elements of the tanker are sufficiently protected from damage by a rear impact.

Guidance

The rear of the tank vehicle must be fitted with a substantial bumper and/or barrier system with an impact surface that is the full width of the vehicle. The bumper must be attached to the sub-frame of the road tanker or the vehicle chassis and must not be attached directly to the tank. The impact face of the bumper bar must have a clearance of greater than 150 millimeters measured from the tank or any component or fitting that contains product.

14. Guarding

To ensure that personnel operating power-driven rotating machinery are protected from contact with rotating parts.

Guidance

Guarding requirements apply to driven shafts that are connected to motors and pumps. The exposure exists only when the vehicle is stationary. Guarding is required to protect the operator or bystanders

against inadvertent contact with rotating shafts connected to motors and pumps. The inspection should take account of the possibility that a person might contact the shaft under normal conditions.

15. Tail shaft protection

To ensure that the failure of a vehicle tail shaft does not result in damage to the tank.

Guidance

This item concerns protection against the risk that a vehicle tail-shaft failure could puncture the tank. The exposure only exists when the vehicle is moving. Tail shafts can fail at universal joints, center-bearing assemblies, cast-off fasteners or, more rarely, due to fatigue failure of the tail-shaft tube. There is a risk that one end of the tail-shaft tube might strike the ground and potentially be forced into the tank. This risk exists on all motive vehicles. The risk zone is predominantly between the chassis rails of the vehicle. Protection is required to protect against a tail-shaft failure causing a metal part to strike the tank. The protection can take the form of factory chassis cross-members, fifth wheel mounting plates, suspension brackets, structural elements, etc.

16. Valve operation marking

To ensure that the operation of a product valve is clearly marked and indicated so that an operator knows how to close the valve.

Guidance

Remotely operated valves must be clearly marked so that an operator knows how to close the valve. The sign should be clean, unobscured, and legible. This requirement does not apply to manual top operators.

17. Valves interlocked and protective caps on outlets

To ensure that valves operate as required and are free from defects. To ensure that dust caps cannot come off in transit and cause damage.

Guidance

Internal valves should only be open when a control is operated. Where air pressure is used to control the internal valves, pressure should be used to open these valves. If there are signs of bypassing, product delivery valves may need to be inspected for defects. Caps on liquid discharge openings must be restrained.

18. Battery protection

To ensure that the battery is secured and that short-circuits are controlled.

Guidance

Batteries shall be restrained by features that are effective in the event that the vehicle rolls over. Metal parts above the batteries shall be separated from the battery terminals by a robust electrical insulation. This will usually take the form of a plastic or rubber sheet that is attached to a metal top (if applicable) of the battery box. The battery must be ventilated to dissipate gases. Battery cables should be restrained by insulated features that prevent cable movements and rubs on metal parts that could result in short-circuit. The positive and negative cables should be separated by insulated features so that cables cannot rub against each other.

19. Battery isolation switch

To ensure that the electrical system can be isolated in an emergency.

Guidance

The battery isolation switch shall shut down the engine and isolate all electrical power sources. However, if the vehicle is fitted with suitably protected permanently energized circuits these do not have to be isolated. The Battery Isolation Switch (BIS) shall be clearly visible and labelled and a means of activation shall be located on the driver's side of the vehicle towards the rear of the cabin. Many vehicles are also fitted with a secondary control (trigger switch) or an in-cabin switch. If extra switches are fitted, they must be working, visible and labelled. The lettering shall be sufficiently large to be readily seen. The battery isolation switch control at the rear of the cabin shall be labeled and any other secondary controls shall be labeled.

20. Protection of wiring

To ensure that electrical wiring is adequately protected against impact, abrasion and ingress of product. To ensure that the vehicle ignition circuit supply cables have a manual reset circuit breaker or fuse protection against short-circuit.

Guidance

• Wiring must be protected by conduit or double insulation from the rear of the cabin.

• Connectors and junction boxes must be sealed where wires enter. The sealing must be equivalent to that provided by an unsplit conduit. Therefore, the connector, junction box or light body entry point must have features that allow the cable entry point to be fully sealed against liquid ingress.

• Electrical cables must be adequately protected against vibration, impact, abrasion, corrosion and pull stresses at ends. Conduiting is not mandatory.

21. Road clearance

To ensure that any product containing component of the vehicle/tanker have enough clearances from the roadway to minimize the risk of damage.

Guidance

Road clearances shall be measured underneath the vehicle/tanker at its lowest component. Minimum clearances and tank filling & discharge connections that are rigidly connected to a tank, must be verified by Traffic Directorate and Civil Defense.

22. Protection against pump seal failure

To ensure that a failed pump seal does not result in the widespread spraying of product liquid that might endanger the health of people.

Guidance

Pump drive shafts should have a suitable shield that prevents leaking product liquid being sprayed to locations where people could be standing.

23. No hoses between foot valve and first outside valve

To ensure that lines running from the bottom of the tank are durable and offer a high level of mechanical protection against breakage.

Guidance

The connection must be a metal pipe.

24. Tanker hatches, vents and valves integrity testing and inspection

To ensure that the tank hatches, vents, and valves are in operable condition.

Guidance

Undertake testing of hatches, vents, and valves either as a full hydrostatic test or individually conduct a bench. Repair as necessary. The period between tests must not exceed 2.5 years. Hatches, valves, vents including vapor vents must be tested either in the tank with the pressure- vacuum vents blocked off, or in a bench test.

25. Tanker Manhole Covers & Accessories (Pressure & Vacuum vents)

The tank shall be placed with emergency venting and tank breathing, to protect the tanker against rupture, division reversal and explosion when either natural or catastrophic internal pressures build-up, and to protect against tank implosion and compartment division reversal.

Guidance

Manhole Covers equipped with Pressure & Vacuum Vents and ancillary equipment must be located above the center line of the tank and above the highest possible liquid level of the compartment concerned.
Recommended Manhole ' 508 mm (20 in) diameter heavy duty Emco Wheaton or Civicon.
Recommended PV vents roll-over type set at 100*or*70 - 20 millibar/minutes on the manhole cover.

26. Condition of pressure: vacuum vents

To ensure that pressure and vacuum vents (PVVs) are operational.

Guidance

Every 2.5 years PVVs must be removed, disassembled, cleaned, and inspected. Seals and gaskets must be replaced with new. The reassembled vents must be tested

27. Stowage of hoses and other loose equipment

To ensure that hoses and other potentially loose equipment are adequately restrained to prevent ejection from the vehicle or damage to the tank as the result of a road incident.

Guidance

The restraints can be elastic straps that stretch between sides of the tray. The ends of the elastic (or spring) straps must be captive in a hole or mounting feature. Alternatively, the hose can be restrained by a post or a loop. A minimum of two restraints should be used per hose. Restraints can be shared between hoses. Removable equipment such as fire extinguishers or wheel chocks must be restrained by features that can be locked into place. The locking feature should not open if it is inverted. Toolbox doors must have a mechanism capable of holding the door closed if the vehicle is inverted.

28. Condition of transfer hoses

To ensure that a hose that is used for product transfer is in a safe condition and has been tested.

Guidance

Transfer hoses must be in good condition so that the risk of failure or product loss during transfer activity is minimized. The inspection should look for rips and cuts in the hose material, cracks in metal ends, cross threads on end fittings, breaks in static wires and worn, torn or missing seals.

29. Shielding of exhausts

To ensure that hot exhaust components are shielded to protect against contact with spilled product.

Guidance

All vehicle hot engine components and engine exhausts must be shielded where there is a possibility of flammable liquid coming into contact with the hot component. There are extra requirements for the shielding of the propulsion engine exhaust. Any vertical propulsion engine exhaust must extend beyond the top of the cabin and must be shielded.

30. Fire extinguisher

To Ensure that fire extinguishers are attached to the vehicle/tanker in suitable place, valid and clearly visible.

Guidance

Vehicles are required to be equipped with one 3kg dry (chemical) powder fire extinguisher at secure and accessible location inside the cabin. Tankers are required to be equipped with two 9kg dry (chemical) powder fire extinguisher at secure and accessible locations on both sides.

31. Tires condition

To ensure that the condition of the tires attached to the vehicle/tanker are in acceptable condition, inspected regularly and replaced when required.

Guidance

Vehicle/tanker are required to be fitted with good condition tires.