



IMPORTANT SAFETY INFORMATION

Safe Use and Handling of Liquefied Petroleum (LPG) Gas in Mobile Catering Vehicles

The following guidance is taken from Code of Practice No. 24 Part 3 –
Liquefied Petroleum Gas Association in conjunction with the
Health and Safety Executive.

In addition to the general requirements of the Health and Safety at Work etc. Act 1974, when being transported on, or travelling on, a public highway, the equipment covered in this guidance is also subject to the Carriage of Dangerous Goods by Road Regulations 1996 and Carriage of Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations 1996.

Competent Gas Installer - For the purposes of the above Code, a 'Competent gas Installer' is a business or individual which is Gas Safe registered. Installation and servicing work on a gas system within the scope of the Gas Safety (Installation and Use) Regulations 1998, and any relevant work MUST be carried out by employees of a Gas Safe registered engineer.

Suitably Trained Person – For the purposes of this guidance, this is the owner or operator of a mobile unit, or an employee, who has received basic training in safe handling and usage of LPG. Basic training should include at least the following:

- Gas characteristics
- Use of appropriate regulators
- Leak tracing
- Proper combustion
- The dangers of ineffective ventilation and flues
- Hose inspection
- Emergency action and use of fire extinguishers.

Design and Construction – Cylinders carried on the vehicle or trailer should be located in a position which minimises the risk of damage in road an accident and preferably in the open air. Alternatively they may be located in a well ventilated housing mounted outside the vehicle, or within a compartment sealed from the interior of the vehicle. Compartments, including the base, should be constructed of materials which provides a standard minimum of 30 minutes fire resistance to meet BS 476, with joints fire stopped to maintain the fire resistance standard. It should be located preferably to the nearside of the vehicle to afford the greatest protection from traffic accidents, mechanical damage and for the protection of persons changing cylinders.

Cylinder compartments or housing should be adequately ventilated through the access door (not under the vehicle) at high and low level directly to the outside. Each vent should not be less than 1/100th of the compartment floor size. No source of ignition should be within a zone extending 1 metre horizontal radius outside the vehicle and from ground level up to 0.3 metres above a housing compartment vent. It is essential also that suitable means for securing cylinders in the upright position should be provided to prevent movement during transit.

Unauthorized access should be prevented when the vehicle is unattended.

A suitable notice should be fixed to the exterior of the housing or compartment to warn of the presence of gas. Pictorial signs should conform to the Safety (Signs and Signals) Regulations and consist of a red hazard diamond showing a flame and wording “*Extremely Flammable LPG*”.

Cylinders may be located outside the vehicle during use when parked provided they are adjacent to the vehicle on firm and level ground. They should not be located where they would be vulnerable to being struck by passing vehicles nor where operators may be out at risk whilst changing cylinders. Cylinders should not be left or located outside the vehicle unattended in a place to which the public have access unless they are adequately protected against unauthorised interference.

Gas Installation Pipe-work – Installation of LPG appliances and fittings at vehicle trailer manufacturers factory premises, should be carried out by *suitably qualified and competent installers*. Subsequent work, inspection and servicing, unless carried out on premises designated a ‘factory’ within the definition of the Factories Act 1961, must be carried out by a Gas Safe registered installer.

Length of pipe-work should be as short as possible using solid drawn copper tube with copper or alloy fittings, or stainless steel tube to BS 3605 and appropriate soldered, compression or screwed fittings. Steel tubes to BS 1387 can be used with steel compression fittings or malleable cast iron fittings for low pressure stages. Copper pipe-work should NOT be placed where temperatures exceed 1000C. Pipe-work running beneath the vehicle should be installed where most protection is given against mechanical damage, impact by stones etc. All pipe-work must be suitably secured. The pipe-work installation should allow for vibration and flexing of the vehicle structure during transit.

The number of pipe fittings should be kept to a minimum and changes of direction avoided as far as possible, allowing for flexing. Jointing compounds where used must be compatible with LPG, Pipe bends should be used where practicable rather than fittings.

Flexible hoses for cookers and ovens should be as short as practicable but in no case exceed 700mm in length and either:

- a) Flexible hose or tubing to BS 3212. Such tubing should be protected by armour or over-braiding. It should not be used where it could be subjected to temperatures above 600C or;
- b) strip wound flexible hoses to BS 669 Part 1:1989;
- c) Corrugated metallic hose and end fittings to BS 669, Part 2

High pressure stage pipe-work (close to the cylinder regulator), should be outside of the vehicle or within the sealed compartment referred to earlier. Flexible hoses should be to BS 3212 Type 2 with end connections attached by *factory assembled* swaging or crimping.

Flexible connector between a regulator and rigid pipe-work should be to BS 3212 Type 1 or 2 and should be attached to connectors with purpose made hose clips or factory fitted connections.

Tubing and hoses should only be as long as necessary to facilitate connection or disconnection of cylinders, or the temporary movement of appliances for service whilst not putting any part into tension or torsion.

WARNING: Hoses on push-on connectors without the security of hose clips, are dangerous and cannot be relied upon to remain attached.

Fryers and Fish and Chip Ranges – Fryers and fish and chip ranges should have a canopy or ventilation hood fitted incorporating a flue to the outside air unless the total fume emissions are such that vehicle trailer ventilation design guarantees adequate removal to sustain a safe working environment. The canopy should extend at least 15 cm beyond the cooking area on all sides and have 27cm² of flue area for every 1000cm² of canopy base area.

A control thermostat should be fitted to prevent the maximum temperature of oil or fat exceeding 205°C.

Ventilation and Flues – ALL gas burning appliances produce water vapour and carbon dioxide. Concentrations of carbon monoxide can build up if there is depletion of air and combustion products re-circulate back into the burner air, or if there is insufficient maintenance resulting in poor combustion. It is essential that adequate ventilation is provided in every compartment where an appliance is used.

Where required, a gas appliance should be provided with an adequate flue to the manufacturer's instructions. The flue should be constructed from non-combustible materials and should be separated from combustible materials by at least 25 mm.

Maintenance – It is vital that regular frequent checks of the installation are carried out.

Before daily catering commences, the cylinders, pipe-work and appliances should be checked by a suitably trained person on each occasion.

Such checks will largely be limited to visual inspections of flexible hoses, joints in pipe-work and correct burning and operation of appliances. Any suspected gas leaks can be traced by the use of soapy water or proprietary leak detection sprays.

At least annually but preferably every six months, an inspection, test and servicing of the installation should be undertaken by a competent gas installer, to ensure gas soundness of pipe-work and correct operation of appliances, flues and ventilation.

The owner or operator of the mobile unit should keep a written record of the six monthly maintenance tests and service work carried out.

Training and Instruction – Persons responsible for those working in mobile units should ensure that such personnel have adequate instruction and information on basic LPG characteristics and the action to take in an emergency.

Fire Precautions – Adequate fire extinguishers should be provided and located in a readily accessible position adjacent to an exit. Extinguishers should be selected and maintained in accordance with BS 5306, Part 3.

Powder extinguishers conforming to BSEN 3 and BS 7863, or its equivalent to 9kg capacity should be adequate for LPG fires.

Where frying is carried out, a fire blanket should be provided.

Where deep fat frying is carried out, a 9 litre foam extinguisher conforming to BSEN 3 and BS 7863 should be provided.

An additional fire extinguisher suitable for fires associated with the engine should be provided and be readily accessible.

Safety Instructions to be Displayed – (Advice to be displayed is shown *in italics*)

General:

- a) *LPG cylinders must always be used and stored in the upright position with valves uppermost*
- b) *When the vehicle is not in use, free standing cylinders should not be left unattended in any location which is not secure from public access or unauthorised interference. They should NOT be kept inside the vehicle.*
- c) *When the vehicle is in motion the cylinder valves should be closed and all appliances turned off.*

Changing cylinders: - (To be displayed on cylinder compartment door or nearest available location)

The following procedure should be adopted.

- a) *Extinguish any ignition source*
- b) *Where possible change cylinders in the open air*
- c) *Ensure that cylinder valves are in the closed position before disconnecting or removing blanking caps or plugs (for single cylinder supplies, turn off all appliances)*
- d) *Make a firm gas connection using the correct spanner or as directed by the cylinder supplier's instructions. Use soapy water or a proprietary leak detection spray to test the gas tightness. NEVER use a naked flame.*
- e) *After reconnecting a single cylinder supply, make sure all appliances are turned off before opening the cylinder valve.*

Action in the event of Gas Leakage - A gas leak may be detected by smell, or as a result of leak testing – take action, do not ignore it.

If a leak is found or suspected in the pipe-work, fittings or appliances, all persons should leave the vehicle at once. If it is safe to do so then the following actions may be taken;

- a) Extinguish all naked flames and sources of ignition.*
- b) Turn off gas supply and the emergency valve.*
- c) Shut off the gas supply at the cylinder(s).*
- d) If leak is inside the vehicle, open windows or apertures in the vehicle to disperse gas.*
- e) Once the vehicle has been evacuated, call a competent gas installer to correct the fault.*

Action in Case of Fire –

Anyone who discovers a fire in the vehicle or threatening the vehicle should:

- a) Raise the alarm*
 - b) Call the Fire Brigade immediately and advise that gas cylinders are present. The Fire Officer on arrival should be told what gas cylinders are involved and their location, also any other hazardous materials, fuel tanks etc. on the vehicle.*
 - c) If gas is ignited from a cylinder valve and it is considered safe to do so, either try and turn off the gas or move any nearby cylinders or hazardous materials away*
 - d) If in doubt and particularly if there is flame impingement onto a cylinder, evacuate the area immediately and await arrival of the Fire Brigade.*
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Parking During Use – Where parked for use, there should be at a 1 metre distance from any vent of flue terminal of the service vehicle to any other vehicle or structure or external ignition sources. Clear access should be provided for emergency escape routes or for removal and changing cylinders. Vehicles or units should not be parked where they would block emergency exits or impede emergency access.

Safe Handling and Properties of LPG

Everyone concerned with the storage and handling of LPG should be familiar with the following characteristics and potential hazards.

- a) LPG is stored as a liquid under pressure. It is almost colourless and its weight is approximately half that of an equivalent volume of water.
- b) LPG vapour is denser than air: Consequently, the vapour may flow along the ground and into drains, sinking to the lowest level of the surroundings and be ignited at a considerable distance from the source of leakage. In still air, vapour will disperse slowly.
- c) At very high concentrations in air, LPG vapour is an anaesthetic and subsequently an asphyxiant by diluting or decreasing the available oxygen
- d) Escape of even small quantities of LPG can give rise to large volumes of vapour/air mixture and thus cause considerable hazard.
- e) Owing to its rapid vaporisation and consequent lowering of temperature, LPG particularly liquid, can cause severe frost burns if brought into contact with the skin. Personal protective equipment (e.g. hand and eye protection) should be worn if this hazard is likely to occur.
- f) A container which has held LPG and is 'empty' may still contain LPG vapour and therefore is potentially dangerous. In this state the internal pressure is approximately atmospheric. If a valve is leaking or is left open, air can diffuse into the container forming a flammable mixture and creating a risk of explosion.

NOTE: These properties are general characteristics of LPG, and items such as indicated in f) above, should not occur in normal cylinder use.

For further information please contact:

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