

GAS SAFETY Bulletin



Message from the Editor

Greetings to all. This issue of Gas Safety Bulletin features information on the importance of maintenance of liquefied petroleum gas (LPG) storage installations and points to note on LPG vehicle fuel system maintenance workshops, plus legal tips on gas safety, as well as regulations requiring the attention of registered gas contractors and registered gas installers. Readers will also find gas incident and prosecution statistics by type in 2015 for easy reference.

2016



GAS SAFETY

Briefing



The Gas Safety Briefing this year was successfully held on 22 February 2016 at the lecture hall of the Hong Kong Science Museum in Tsim Sha Tsui. Topics of the briefing included matters requiring the attention of registered gas installers and registered gas contractors; tips on the safety and use of cylinder wagons; the requirements for town gas installations for catering purposes in restaurants and food preparation establishments; the design, installation, inspection and maintenance of aboveground fuel gas supply systems, as well as the connection of domestic gas cooking appliances.

The Electrical and Mechanical Services Department (EMSD) colleagues, representatives from the Hong Kong and China Gas Company Limited and the Chief Instructor

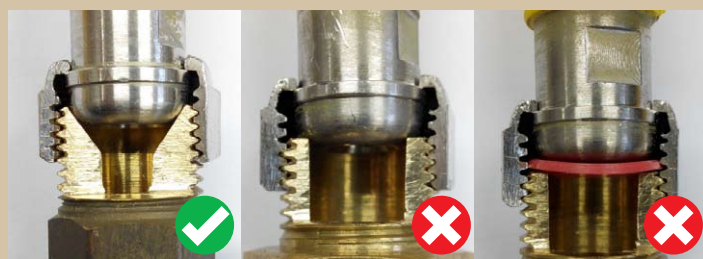


of the Vocational Training Council were at the briefing to provide detailed presentations on gas safety matters to the attendees. To find out more about the briefing and the answers to the questions raised, please browse EMSD's website at <http://www.emsd.gov.hk>.

During the briefing, Mr CHONG Ka-kit, Chief Instructor of Pro-Act Training and Development Centre of the Vocational Training Council, used plenty of pictures and examples to illustrate the correct ways to connect domestic gas cooking appliances, giving the attendees a better understanding of the connection methods of such appliances.

According to regulation 4 of the Gas Safety (Installation and Use) Regulations (Cap. 51C):

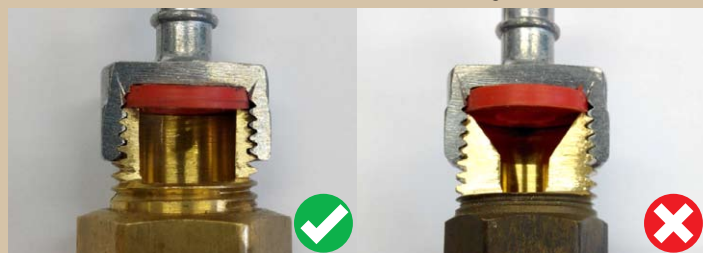
1. No person shall install a gas fitting unless every part of it is of good construction and sound material and of adequate strength and size to secure safety.
2. Without prejudice to the generality of subregulation (1), no person shall install in any premises a gas pipe which is-
 - (a) made of lead or lead alloy; or
 - (b) made of a non-metallic substance unless it is-
 - (i) connected to-
 - (A) a readily movable gas appliance designed for use without a flue; or
 - (B) a portable cylinder; and
 - (ii) not more than 2 metres in length.
3. No person shall carry out work in relation to a gas fitting otherwise than in a proper and workmanlike manner.



The contact surfaces fit with each other
The threads are sufficiently tightened

The contact surfaces do not fit with each other

The O-ring's contact surfaces are not vertical
The O-ring is under excessive stress
The threads are insufficiently tightened



The O-ring has sufficient contact surfaces
The O-ring's contact surfaces are vertical

The O-ring has insufficient contact surfaces
The O-ring is under excessive stress

《氣體快訊》的中英文版本可於以下網頁瀏覽：

The English and Chinese versions of the Gas Safety Bulletin may be viewed in the following website:
<http://www.emsd.gov.hk>



LPG Vehicle Fuel System Maintenance Workshops

Requirements on Mechanics

Pursuant to the Gas Safety (Gas Supply) Regulations (Cap. 51B), only competent persons who are properly trained and possess adequate practical experience are allowed to carry out any work on or in relation to an LPG pipe. As such, the Gas Authority will assess the vehicle mechanics who have successfully completed the training course on LPG vehicle servicing in order to classify them as Competent Persons (Class 6) qualified to repair and maintain the fuel system of LPG vehicles.

For repair and maintenance of LPG vehicles involving the repair, maintenance or replacement of fuel system or associated components (including vaporiser, LPG pipe, pressure regulator, mixer) and replacement of LPG fuel tank, the work must be carried out by a Competent Person (Class 6) or under his supervision. Work involving the structure or internal components or external components of an LPG fuel tank (including replacement of fuel pump inside the tank and associated components, pneumatic leak test of fuel tank and five-yearly revalidation test of fuel tank) must be carried out by a Competent Person (Class 1) or under his supervision at an LPG fuel tank workshop and such work must not be carried out at any other venues.

To facilitate LPG vehicle owners, responsible persons and drivers to identify if any Competent Persons (Class 6) are employed at the vehicle maintenance workshops, EMSD issued certificates and identification cards to all Competent Persons (Class 6) in July 2015 and encouraged them to display their certificates at conspicuous places at the workshops.

Special Equipment

All LPG vehicle fuel system maintenance workshops should be equipped with special equipment so as to ensure a safe working environment and the safe operation of LPG vehicles after servicing. The workshops should have the following items of equipment which are properly maintained to ensure their reliability and

usability:

- Portable combustible gas detector suitable for use in LPG leak detection;
- Suitable purging equipment for LPG vehicle pipes; and
- Adequate ventilation condition and flame proof ventilation equipment to minimise the potential buildup of an LPG/air mixture over the lower flammable limit.



Certificate and identification card of a Competent Person (Class 6)

Vehicle Maintenance Workshops with Approved Notifiable Gas Installations

A vehicle maintenance workshop which stores an aggregated nominal water capacity of more than 130 litres of LPG (i.e. storing more than one LPG vehicle fuel tank) for the purpose of repairing and maintaining LPG vehicles is classified as a notifiable gas installation under the Gas Safety Ordinance (Cap. 51), and shall submit an application for construction and use approval to the Gas Authority. The workshop shall meet the safety requirements in term of the workshop meets the safety requirements in terms of location, ventilation (adequate natural or mechanical ventilation), gas detection system, hazardous areas and electrical installations, notices, and fire precautions.

LPG Vehicle Fuel System Maintenance Workshops

To make it easier for LPG vehicle owners, drivers and the public to identify the vehicle maintenance workshops that provide maintenance services for LPG fuel systems, and to recognise and enhance the gas safety standard of the trade, EMSD launched the Identification Signage Scheme for LPG Vehicle Fuel System Maintenance Workshops in August 2015. This new administrative measure aims to encourage this type of workshops to submit relevant information to EMSD. Upon verification of the submitted information and completion of gas safety inspections, an identification signage will be issued to the workshops accordingly. Workshops displaying a red identification signage are permitted to store an aggregated nominal water capacity of more than 130 litres of LPG (i.e. storing more than one LPG fuel tank), whereas workshops with a blue identification signage are not permitted to store more than 130 litres of LPG. Owners and drivers are also advised to opt for workshops with an identification signage.



Portable combustible gas detector



Purging equipment for LPG vehicle pipe (LPG injection system)



Portable explosion-proof ventilator



Red identification signage



Blue identification signage


The Importance of Maintenance of LPG Storage Installations

For LPG storage installations, good routine maintenance does not only reduce the risk of system failure, fire or even explosion, etc., but also ensures a reliable and stable supply of LPG for consumers. Regulation 6B of the Gas Safety (Gas Supply) Regulations specifies that the owner of a notifiable gas installation (e.g. an LPG storage installation) shall maintain and operate the installation in a safe condition. To assume the responsibility of conducting good maintenance of an LPG storage installation, the owner shall comply with the requirements of regulation 6C of the Gas Safety (Gas Supply) Regulations by regularly arranging for a competent person to carry out inspection and complete the inspection report (Form 109), and submitting a copy of the inspection report to the Gas Authority within four weeks after the inspection. The owner should also refer to the routine maintenance work proposed under section 10 of the Code of Practice for Hong Kong LPG Industry Module 1 - LPG Compounds and Cylinder Stores.

To assume the responsibility of conducting good maintenance, the owner should refer to the following points:

- Maintenance work shall be carried out by suitably trained and experienced persons.
- When conducting routine maintenance, all maintenance personnel must comply with the requirements of the maintenance manuals and operation instructions for LPG storage installations.
- Routine maintenance schedule shall be planned in accordance with manufacturers' instructions to ensure safety and proper function of the system.
- Site environment shall be maintained in good condition so that

it is free of overgrown vegetation and irrelevant materials.

- Identification labels, emergency instructions, warning signs and line diagrams shall be checked to ensure that they are in place and legible.
- The earthing and bonding arrangement shall be checked and maintained at regular intervals.
- Each electrical equipment and cable connection shall be inspected and properly maintained in accordance with manufacturers' instructions.
- Vessel chambers and valve chambers shall be checked for integrity and be properly maintained at regular intervals to prevent ingress of water.
- Fire services equipment shall be checked, tested and maintained at regular intervals in accordance with manufacturers' instructions or other schedules specified by the Fire Services Department.
- Vaporisers shall be checked, maintained and replaced at regular intervals in accordance with manufacturers' instructions.
- LPG tanks, pipework and associated fittings shall be inspected and properly maintained at regular intervals against corrosion.
- When "pigtailed" of piped-cylinder stores show visible signs of deterioration or have been used for five years, they shall be replaced immediately.
- All other equipment shall be regularly checked, maintained and replaced to ensure satisfactory condition and proper function of the LPG storage installation in accordance with manufacturers' instructions (the interval is recommended to be not exceeding one year).
- All records of inspection, maintenance and alteration works shall be kept by the owner for the service life of the installation. 



Breaching of Specified Conditions in the Gas Vehicle Permit

A recent case involves the owner of a gas vehicle (cylinder wagon) who failed to comply with the permit conditions in the gas vehicle permit.

The gas vehicle owner was convicted and fined by the court.


What happened was that an operator of a cylinder wagon was loading and unloading LPG cylinders with the wagon parked at a location on the street which was less than 15 metres away from the nearby domestic premises. This was spotted by an enforcement officer who suspected the operator to be in contravention of the specified conditions of the permit issued to the wagon by the Gas Authority, as the wagon had been parked at the said location with loading and unloading activities going on for longer than one hour within a four-hour period.

According to regulation 28(3) of the Gas Safety (Gas Supply) Regulations (Cap. 51B), no person while using a gas vehicle shall contravene any condition specified in the permit issued in respect of the vehicle. Offenders are liable on conviction to a fine of \$5,000.

To ensure gas safety, EMSD urges the owners and operators of gas vehicles to comply with the conditions specified in the permit when they use gas vehicles, including:

- A cylinder wagon shall not, while being used to convey LPG, carry goods of any other description at the same time.
- No less than two competent persons shall be employed on the cylinder wagon when the wagon is conveying LPG cylinders on a road or when the cylinders are being loaded

or unloaded.

- A cylinder wagon, when carrying LPG cylinders, may be parked outdoors on the roadside for not longer than one hour within a four-hour period, during which time one competent person shall be on the wagon. If the wagon is unattended, it shall be parked in a location which is not densely populated or congested with traffic, and which is at least 15 metres away from any buildings used for assembly, functioning as institutions or accommodating a large number of residents.
- In districts where designated parking sites are available, a cylinder wagon carrying LPG cylinders and not engaged in delivery and collection work must be parked in those sites.
- In districts where designated parking sites are not available and if no such parking sites are designated by the Gas Authority in other districts, a cylinder wagon carrying LPG cylinders and not engaged in delivery and collection work may be parked outdoors and unattended at a location which is not densely populated or congested with traffic, and which is at least 15 metres away from any buildings used for assembly, functioning as institutions or accommodating a large number of residents.
- A cylinder wagon which has been damaged in a fire or an accident shall no longer be used to convey LPG cylinders. The owner of such wagon shall report the damage to the Gas Authority in writing within three working days to arrange for a re-examination of the vehicle. 



Procedures for Capping off a Gas Meter

Sometime earlier a town gas leak incident occurred at a vacant unit. Investigation into it found that a registered gas installer (RGI) had carried out gas supply disconnection work at the unit prior to the incident, but the RGI did not conduct the work in a proper and workmanlike manner, nor test the relevant system for gastightness upon completion of the work. In the end, the RGI was convicted of contravening regulations 4(3) and 5(6) of the Gas Safety (Installation and Use) Regulations (Cap. 51C) and had his registration suspended by the Gas Authority.

It was fortunate that the gas leak was discovered in time, so that nothing worse happened as a consequence. To avoid recurrence of similar incidents, let us revisit the proper procedures for capping off a town gas meter below:

Before capping off the gas meter:

1. Ensure sufficient ventilation and the absence of naked flame
2. Test the gas meter and gas pipe for gastightness
3. Visually inspect the gas meter
4. Suspend the operation of the gas meter and gas pipe
5. Conduct leak test on the valve upstream of the gas meter to



Picture 1: Add a piece of meter cap-off disc to the gas inlet of the gas meter (picture courtesy of the Vocational Training Council)



Picture 2: Turn the lever anti-clockwise to lock and fit it with a new red safety plastic cap (picture courtesy of the Vocational Training Council)

ensure no leakage when the valve is closed

Procedures for capping off the gas meter

1. Ensure the valve upstream of the gas meter is closed
2. Make temporary electrical contact, loosen the upstream joint of the gas meter, and add a piece of meter cap-off disc to the gas inlet of the gas meter (Picture 1)
3. Tighten the upstream joint of the gas meter
4. Open the valve upstream of the gas meter and check for leakage at the valve upstream of the gas meter and the gas inlet of the gas meter, using leak detecting solution or gas detector
5. Close the valve upstream of the gas meter
6. Remove and destroy the yellow plastic cap
7. Loosen the lever, turn it anti-clockwise to install and tighten (turn 180 degrees), and fit it with a new red safety plastic cap (Picture 2)
8. Finally, display a notice about the gas supply disconnection

Since capping off the gas meter will affect the gastightness of the gas supply system, it is therefore necessary for the system to be tested for gastightness upon completion of the relevant procedures.



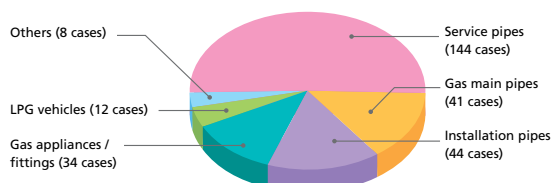
Picture 3: After the gas meter is removed, mark clearly in English and Chinese that the pipe contains gas

If the gas supply is to be suspended for a long period of time, the gas meter has to be removed by an RGI. To prevent the live gas pipes (which are not in use in the premises) from being damaged accidentally, any live gas pipe in the premises should be clearly marked in English and Chinese to the effect that the pipe contains gas for easy identification, before removing a gas meter (Picture 3).

Gas Incident and Prosecution Statistics

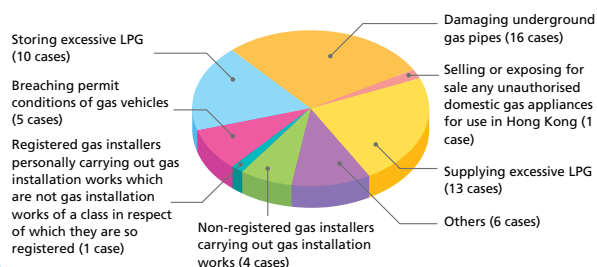


Gas Incidents by Type in 2015 (January to December)



As at March 2016

Prosecutions by Type for LPG-related Cases in 2015 (January to December)



Gas Authority  EMSD

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