

GAS SAFETY Bulletin



Message from the Editor

Greetings to all. For good environmental practice, the Gas Safety Bulletin will go paperless from the next issue onwards and electronic copies will be sent to our readers' registered e-mail addresses. For details, please refer to the article "Gas Safety Bulletin to Go Paperless" in the "Did you know?" column. This issue of the Gas Safety Bulletin will explain a few important matters to note when conducting testing and resuming gas supply after completion of works on gas pipes, the safe operation of liquefied petroleum gas (LPG) road tankers, and matters to note about revalidation of LPG fuel tanks and replacement of LPG fuel inlet hoses. Readers will also find useful legal knowledge about gas safety, as well as gas incident and prosecution statistics by type of cases in the first half of 2016 for reference.

Matters to Note When Conducting Testing and Resuming Gas Supply after Completion of Works on Gas Pipes

As the Mandatory Building Inspection Scheme initiated by the Buildings Department is now underway, persons responsible for the management of their buildings, while arranging for inspection to be carried out at their buildings, may take advantage of the scaffolding erected around the external walls of the buildings and arrange for a registered gas contractor to conduct gas pipe inspections or pipe replacement/renovation works. In view of the significant number of gas pipe replacement/renovation works being undertaken recently, and to avoid compromising the safety of gas supply system and to ensure gas safety, we would like to take this opportunity to explain a few matters worthy of your attention when conducting testing and resuming gas supply following the completion of works on gas pipes.

Works on gas pipes include the fabrication, connection, disconnection, testing, commissioning, decommissioning, maintenance or replacement of gas pipes. All gas pipe installation and replacement works must be personally carried out by registered gas installers of the appropriate class employed by registered gas contractors. Upon completion of the installation or replacement works, the gas pipes must go through the procedures of testing, pneumatic leak test and purging, etc. The owner of the gas pipes must also contact the gas supply company to arrange resumption of gas supply.

Pressure Tests on Gas Pipes

A person who installs a gas pipe shall, after such installation and before the pipe is commissioned, carry out a pressure test on such pipe to ensure that it is structurally sound and gastight. As stipulated in regulation 20(2) of the Gas Safety (Gas Supply) Regulations, a person who carries out a pressure test on a gas pipe shall ensure that precautions have been taken to protect the persons carrying out the test, any persons working in the vicinity and members of the public against any dangers which may arise if such pipe fails the test. Please note that the responsible person shall conduct appropriate pressure tests in accordance with internationally recognised standards and in light of the actual condition of the works on gas pipes. Should you have any questions about the test, please refer to the guidelines devised by professional training institutes or consult

the gas supply company. Upon completion of the pressure test, the responsible person shall as soon as possible reduce to zero the pressure in the gas pipe in respect of which such test was carried out.



Figure 1: A portable gas detector

Matters Relating to Testing and Purging of Gas Pipes

Upon completion of the works on gas pipes (including service risers and installation pipes), the gas pipes must go through the testing and purging procedures. Before commencement of the test, one shall check whether the pressure gauge, tee-piece, rubber tubing and other relevant equipment are gastight. As stipulated in regulation 20(1) of the Gas Safety (Installation and Use) Regulations, where a person carries out work in relation to an installation pipe which might affect the gastightness of any part of such pipe, he shall immediately thereafter ensure that such part is tested and examined to verify that it is gastight. After such testing and examination, he shall apply a protective coating to the joints of such part if such joints are exposed to any substance which may corrode them. Moreover, when carrying out work in relation to a gas fitting which might affect the gastightness of the gas supply system, one shall immediately thereafter test such system for gastightness at least as far as the nearest gas valves upstream and downstream in such system.

A purging procedure shall be carried out before a gas pipe can be commissioned, recommissioned or decommissioned. In carrying out the purging procedure, one shall ensure the following requirements are met:

- The persons carrying out such purging, any persons working in the vicinity and members of the public are protected against any dangers which may arise from such purging;
- The risk of an explosive mixture of gas and air arising in the



Figure 2: Pneumatic leak test – to gauge the system pressure using an electronic pressure gauge

pipe is minimised; and

- No air or inert gas remains in the pipe after such purging which may affect the continuity of the gas supplied downstream of such pipe and cause an unsafe situation to arise.

In addition, where work is being carried out in relation to an installation pipe and gas is being supplied to the pipe, the person carrying out such work shall ensure that:

- Purging is carried out throughout every installation pipe through which gas can then flow so as to remove safely all air and other gases;

- Immediately after such purging, if such pipe is not to be put into immediate use, it is sealed off at each outlet; and
- If during such purging the connection is found loosened, such connection is retested for gastightness after it has been retightened.

Matters to Note Regarding Gas Resumption

To ensure works on gas pipes will not affect the operation and safety of the gas supply system, the responsible person should contact the gas supply company to arrange an inspection of the gas supply system and resumption of gas supply upon completion of such procedures as testing, pneumatic leak test and purging. ▲

Safe Operation of LPG Road Tankers

Regulation of LPG Road Tankers

Under the Gas Safety (Gas Supply) Regulations, gas vehicles (LPG road tankers) may not carry LPG on a road unless they have been issued a permit by the Gas Authority. The ambit of the Regulations covers equipment installed to comply with gas safety requirements, requirements for persons employed to work on gas vehicles, inspections required to be carried out by gas vehicle owners, and the power of the Gas Authority to conduct inspection, examination or testing on gas vehicles, etc.

Gas Safety Design of LPG Road Tankers

At present, the maximum carrying capacity of the vessels is limited to nine tonnes of LPG. The vessels shall be designed, constructed, heat-treated, inspected and tested to internationally recognised standards such as the American Society of Mechanical Engineers Boiler & Pressure Vessel Code Section VIII. The design of the vessels shall be based on a vapour pressure of at least 1.725 MPa. The vessels shall also have a minimum of 1 mm additional wall thickness for corrosion allowance, and shall have adequate external protection against corrosion arising from the elements. A fire proof coating, of a type which is approved by the Gas Authority, shall be applied to the surface of the vessels to afford fire protection to the vessels when subject to a jet fire for 30 minutes and a pool fire for 100 minutes.

As far as the gas safety design requirements for LPG road tankers are concerned, in addition to the safety and fire-resistant designs of the vessels, the Electrical and Mechanical Services Department (EMSD) also has regulations in place regarding vehicle design, engine, air inlet, exhaust, valves, fittings, pipework, and electrical systems, etc. For details, please refer to sections 3 and 4 of the Code of Practice for Hong Kong LPG Industry, Module 3 - Handling and Transport of LPG in Bulk by Road.

Testing and Examination of LPG Road Tankers

The LPG system, control and safety devices, etc. of LPG road tankers in operation shall be tested and examined at least once a year to ensure the continued safe operation of the vehicles. Moreover, road tankers shall have their LPG systems revalidated once every five years. Vessel revalidation to be carried out by Class 1 Competent Persons involves: visual inspection of the internal surface of the vessel for corrosion in welds, dents and defects; magnetic particle tests on all welds on the shell of the tank internally; ultrasonic thickness tests to record the wall thickness of the vessel; and hydrostatic pressure tests to test the vessel's integrity, etc. For detailed requirements of testing and



examination, please refer to section 5 of Module 3 of the Code of Practice.

Operational Requirements for LPG Road Tankers

Under the Gas Safety (Gas Supply) Regulations, LPG road tankers shall be operated by trained persons with practical experience, whereas owners of road tankers shall also ensure that no fewer than two competent persons work on the road tankers. Gas supply companies shall ensure the competency of their LPG road tanker operators is up to standard and retain their training records for surprise inspection by gas safety inspectors.


Owners of road tankers shall have the written loading and unloading procedures including emergency action available and understood by the driver and attendant with their responsibilities clearly defined. All road tanker owners shall have arrangements for dealing with road tankers that have been involved in an accident or leaking LPG outside of the terminal to include full details of the arrangements for transporting LPG to another vehicle, and shall formulate specific written emergency response procedures with clear step-by-step procedures and appropriate schematic diagrams. All possible accident scenarios, including the tanker upright on its wheels, lying on either side or upside down, should be included.

Reporting Gas Emergency

If there is an accident in which significant damage is done to a gas vehicle or the LPG contained in a gas vehicle is leaked/lost, the registered gas supply company concerned shall immediately report the emergency to the Gas Authority and provide it with the required information and details in relation to the emergency. Moreover, it shall, within 28 days after the day on which the emergency occurred, furnish the Gas Authority with a written report stating the cause of the emergency and measures that have been taken to prevent the recurrence of any similar emergency. ▲

Regular Revalidation of LPG Fuel Tanks and Replacement of LPG Fuel Inlet Hoses for Gas Safety

During the period between late 2015 and early 2016, EMSD identified a number of cases involving late revalidation of LPG vehicle fuel tanks after the deadline. In view of this, we would like to remind all LPG vehicle owners to pay attention to the deadline for LPG vehicle fuel tank revalidation and arrange the revalidation as soon as possible. If revalidation is carried out after the deadline, the vehicle owner would have breached the Gas Safety Ordinance and is liable on conviction to a fine of \$10,000 and, in the case of a continuing offence, to a daily penalty of \$1,000.

The LPG fuel inlet hose of the LPG vehicle fuel tank is a rubber hose (see right figure) that connects the LPG inlet and the LPG fuel tank. In the past year, EMSD noticed a rise in the number of gas leak incidents involving inlet hoses. After prolonged use, such rubber hoses will age, wear out or crack or worse still, lead to gas leaks. As advised by vehicle dealers, owners of LPG vehicles should replace the LPG fuel inlet hose once every five years and arrange regular examination. 



To know how you may check the revalidation date of fuel tanks yourself, please refer to the "LPG Vehicle Fuel Tank 5-Yearly Revalidation Leaflet" available on EMSD's web page at <http://www.emsd.gov.hk>:

Home > Gas Safety > LPG Vehicle Scheme > Publications > General > LPG Vehicle Fuel Tank > LPG Vehicle Fuel Tank 5-Yearly Revalidation > Leaflet



Points to Note on Parking of Cylinder Wagons

As stipulated in regulation 25(2) of the Gas Safety (Gas Supply) Regulations, no person shall use a motor vehicle to carry on a road any LPG cylinder which has a total water capacity of more than 130 litres unless the vehicle is a cylinder wagon and there is a valid permit issued in respect of the wagon. Besides, owners of the cylinder wagons must also comply with the permit conditions and the relevant gas safety regulations.

According to clause 6 of the permit conditions, in districts where designated parking sites are available, all cylinder wagons laden with cylinders shall only be parked in such sites. Parking at other locations within these districts is prohibited. The current designated parking site on Tat Yeung Road, Kwai Chung is available for use by cylinder wagons operating in Yau Ma Tei, Tsim Sha Tsui, Mong Kok, Kwai Chung, Sham Shui Po, Cheung Sha Wan, Tsing Yi Island, and Tsuen Wan districts. It is a breach of the permit conditions if cylinder wagons laden with cylinders in the districts are not parked at that

designated parking site.

In addition, in districts where designated parking sites are not available, cylinder wagons laden with cylinders may be parked outdoors in a location which is neither highly populated nor congested with traffic, and which is at least 15 metres away from any building used for assembly, institutional or multiple residential occupancy. Failure to comply with the above parking conditions is a breach of regulation 28(3) of the Gas Safety (Gas Supply) Regulations and is punishable by a fine of \$5,000.

At present, there are more than 400 cylinder wagons in Hong Kong. Apart from the designated parking site on Tat Yeung Road, Kwai Chung, cylinder wagons may also use the outdoor car parks at the following locations:



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|-------------------|--|
| Hong Kong Island: | 1) Eastern Street North, Sai Ying Pun
2) Fung Mat Road, Sai Ying Pun
3) Pok Fu Lam Road
4) Sheung On Street, Chai Wan |
| Kowloon: | 5) Concorde Road, Kai Tak |
| New Territories: | 6) Tin Hau Road, Tuen Mun |



Legal Knowledge

According to regulation 3(1) of the Gas Safety (Gas Supply) Regulations, storage of LPG cylinders (including empty cylinders) with a total nominal water capacity of over 130 litres (approximately 50 kg nominal weight) without permission is an offence. If convicted, offenders are liable to a fine of up to \$25,000 and imprisonment for six months or to a daily penalty of \$2,000 in the case of a continuing offence.

According to regulation 3(2) of the Gas Safety (Gas Supply) Regulations, any person who knows, or ought reasonably to know, that someone stores LPG cylinders (including empty

cylinders) with a total nominal water capacity of over 130 litres and still supplies gas to that person commits an offence. If convicted, offenders are liable to a fine of up to \$25,000 and imprisonment for six months or to a daily penalty of \$2,000 in the case of a continuing offence.

Between 2013 and 2015, there were 24 prosecutions pertaining to storing excessive LPG cylinders and 25 cases pertaining to supplying excessive LPG upon EMSD's investigation. 🔥



Gas Safety Bulletin to Go Paperless

For good environmental practice, from the next issue onwards, the Gas Safety Bulletin will no longer be available in print and will be distributed electronically. Any registered gas contractors, registered gas installers and relevant individuals who have not yet registered their e-mail addresses with us, or who need to update their e-mail addresses, are kindly requested to supply the information by completing the form below and sending it back to EMSD Gas Standards Office by fax at 2576 5945 or by e-mail at gasso@emsd.gov.hk.

Registered gas contractor Registered gas installer Others

Name of company/

Name: _____ Registration No.: _____

E-mail address: _____

Telephone No.: _____ Fax No.: _____

Signature: _____ Date: _____

Remarks:

(1) Please use a separate sheet if the space provided is insufficient.

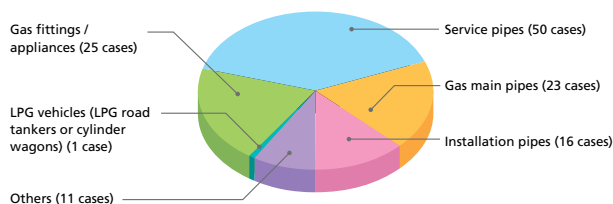
(2) In case you change your e-mail address in future, please notify us by post, fax or e-mail.

(3) Your data will be kept confidential and used only for the purpose of sending the Gas Safety Bulletin and updating registration information.

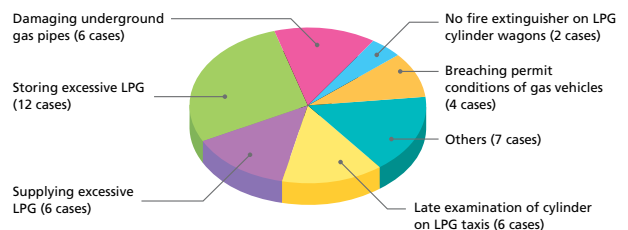
Gas Incident and Prosecution Statistics



Gas Incidents by Type in 2016 (January to June)



Prosecutions by Type for LPG-related Cases in 2016 (January to June)



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