

**For discussion
on 15 December 1998**

**Legislative Council
Panels of Environmental Affairs and Transport
A Proposal to Introduce LPG Taxis – A Consultation Paper**

Introduction

Members requested at the Joint Panel meeting held on 27 November 1998 for a written response from the Administration to the submissions made by a deputation and the following issues raised at the meeting for further discussion:

- (a) the provision of vehicle workshop and mechanics for servicing LPG taxis;
- (b) the safety requirements for a vehicle workshop for LPG taxis;
- (c) training to equip taxi drivers with the necessary skills to undertake maintenance works for LPG taxis themselves; and
- (d) improving driving skill to reduce the level of smoke emissions.

The Deputation's Views and the Administration's Responses

2. Two written submissions were made by the deputation at the meeting on 27 November 1998. Our specific responses are set out in Annex 1 and 2.

LPG Vehicle Workshop and Safety Requirements

3. The repair and maintenance of those parts related to the fuel system of an LPG vehicle must be undertaken at authorised workshops which are classified as notifiable gas installation under the Gas Safety Ordinance, Chapter 51. Construction and use of these workshops require approval from the Gas Authority (i.e. the Director of Electrical and Mechanical Services) to ensure gas safety during repair and maintenance of the LPG fuel system on an LPG taxi.

4. The Electrical and Mechanical Services Department (EMSD) has already prepared preliminary guidelines on the safety requirements for an LPG vehicle workshop. A copy of the requirements is at Annex 3. The basic requirements are good ventilation (usually by mechanical means) and provision of a gas detection system as a safety precaution. These requirements are not technically difficult to comply with.

5. Efforts are being made to explain the requirements to the trade. In addition to briefing those members of the trade who have approached us for further information, the EMSD has recently briefed a vehicle repair trade association which is said to represent over 70% of the stakeholders in the taxi repair industry.

6. So far, over 90 vehicle workshops have expressed interests in equipping themselves for servicing LPG taxis. More parties are expected to be interested in setting up workshops for maintaining LPG vehicles when the fleet of LPG taxis grows.

7. Among the 90 vehicle workshops, 40 of them have been inspected. 11 vehicle workshops have been found suitable for servicing LPG vehicle if proper safety measures are put in.

8. To serve the whole fleet of 18,000 LPG taxis, around 60 LPG vehicle workshops of various sizes (equivalent to around 400 maintenance bays) would be required, taking into account that the repair and maintenance of parts unrelated to the fuel system of an LPG vehicle

could be undertaken by regular vehicle workshops. The Administration will closely monitor the development in this respect and will take all necessary measures to help ensure that sufficient LPG vehicle workshops can be set up.

LPG Vehicle Mechanics

9. Under the Gas Safety Ordinance, only a competent person who has received proper training and has substantial practical experience can carry out work on or in relation to a gas pipe. The Vocational Training Council is organising free training courses on a part-time basis to provide in-service motor mechanics with the additional training needed to become competent persons for servicing LPG vehicles.

10. The first course for the motor mechanics started on 29 October 98. The original plan of the Vocational Training Council (VTC) was to train 100 mechanics per year. In response to the large number of applications to attend the course, VTC will increase the number of part-time training courses by 50% and incorporate LPG vehicle training in the syllabus of their existing full-time courses. Thus, we estimate that at least 150 LPG motor mechanics can be trained per year.

11. To serve the entire fleet of 18,000 taxis, about 500 LPG motor mechanics would be sufficient. The current arrangement should be able to train sufficient LPG vehicle mechanics to keep pace with the vehicle servicing needs of LPG taxis.

Driver's Training

12. It is not necessary for drivers of LPG taxis to undergo special training for the operation of such vehicles since they are constructed to be user friendly and operate in very similar manner as diesel taxis. To enable the public, including the drivers of LPG taxis, to gain proper understanding of LPG vehicles, the Electrical and Mechanical Services Department is now preparing an information pamphlet which will be

circulated to members of the trade and the public.

13. If taxi drivers or any other persons wish to carry out maintenance works on the LPG fuel system of the taxis, they have to undertake the training course organized by VTC to acquire the necessary knowledge and skill for gas safety reasons. This, apart from being a statutory requirement, is also essential to achieving the highest safety standards for maintaining LPG vehicles.

Driving Skill and Smoke Emissions

14. A major cause leading to large number of smoky vehicles is the lack of proper maintenance. To address this, an extensive education campaign is being conducted. The Environmental Protection Department has prepared a leaflet providing full range of tips for preventing excessive smoke emissions, one of which is on driving skill. This leaflet has been attached to every emission testing notice we send out. The department is also seeking a wider circulation of this leaflet through the transport associations. A copy of the leaflet is attached at Annex 4 for Members' information. This education programme is being backed up by stronger enforcement action against smoky vehicles and by the introduction of better testing equipment that will expose failure to maintain vehicles properly.

Planning, Environment and Lands Bureau
December 1998

Responses to the Written Submission from Dr. Gordon S. Maxwell

Views

Dr. Maxwell considered that the following could help introduce LPG taxis to Hong Kong on a large scale:

- (a) Financial incentives
 - Financial incentives should be provided to assist the introduction of LPG taxis.
 - The Government should provide interest-free loan to taxi company to introduce new LPG taxis in 1999.
- (b) Training on vehicle maintenance
 - LPG training courses should be provided free of charge to the vehicle mechanics to preclude any excuse for not taking the course.
- (c) Publicity
 - LPG the Hong Kong Way – a scheme for all, not just taxis: this may take the burden and focus out of taxis and place the responsibilities and opportunities of urban air quality enhancement on the shoulders of all car owning citizens.
 - Start an LPG trend, e.g. a top person or a movie star “runs on LPG”. This might get over the false idea that LPG is a “slow fuel” compared to petrol.
 - Make taxi drivers and their company managers who convert to LPG “Heroes of Hong Kong”.

- Link the LPG scheme to tourism as a sort of brave new Hong Kong running clean in 1999.

He also believed that the following factors also contribute to excessive emissions from diesel vehicles:

- (a) low quality diesel fuel
- (b) poorly maintained and serviced vehicles
- (c) sub-standard or inappropriate driving practice.

Responses

(a) Introducing LPG taxis

- We would like to thank Dr. Maxwell for his suggestions to help introduce LPG taxis to Hong Kong on a large scale.
- We shall consider his views on providing financial incentives along with all the other feedback provided during the consultation exercise.
- The Vocational Training Council has already started the first course for training in-service vehicle mechanics to service LPG vehicles. The course is free of charge to its students. Their original plan was to train up to 100 vehicle mechanics per year, but in response to the very strong demand, they will increase the number of part-time training courses by 50%. To ensure adequate provision of mechanics to service LPG taxis in the long term, they will incorporate LPG vehicle training in the syllabus of their existing full-time courses.
- As explained in our previous response, our current air pollution problem with respirable suspended particulates and nitrogen oxides mainly comes from diesel vehicles. Using LPG vehicles to

replace petrol vehicles will not help solve the air pollution problems in Hong Kong. Our target is therefore diesel vehicles and introducing LPG taxi is the first step. We wish to thank Dr. Maxwell for his publicity proposals and will take them into account when promoting LPG vehicles.

(b) Excessive Emissions from Diesel Vehicles

- The requirements for the quality of motor diesel in Hong Kong are as stringent as those of the European Union and are at a leading position in Asia. Both the diesel fuel quality and diesel vehicle emission standards in Hong Kong are better than those in New Zealand. In addition, the Customs and Excise Department has already intensified their effort in stamping out the use of illegal diesel.
- To raise the maintenance standards of diesel vehicles, we are now introducing an advanced smoke test, which is done with the aid of a chassis dynamometer. Although the current smoke test is widely used in many developed countries, the more advanced test will be more effective. After introducing this new technology, Hong Kong will become one of the few places in the world using dynamometers for routine enforcement purpose to control vehicle smoke. In addition, we are also considering increasing the fixed penalty fine for smoky vehicles to enhance the deterrent effect and to ensure vehicle drivers pay more attention to proper preventive maintenance.

**Responses to the Written Submission from
The Urban Taxi Associations Joint Committee**

Views

The Committee fully supported the Administration's effort in improving the air quality. However, the economic slump had made it difficult for the taxi trade to switch to LPG within a fixed period. As such, the Committee had the following suggestions:

- (a) Diesel taxis should be allowed to use up to the end of their service life.
- (b) The Administration should provide financial incentives, interest-free loan or free LPG taxis if all diesel taxis had to be phased out within a fixed period.
- (c) To avoid the impression of forcing the taxi trade to use LPG, the Administration should not increase the fixed penalty fine against smoky diesel taxis before LPG becomes the mandatory fuel for taxis.

Responses

In our current proposal, in-service diesel taxis will be allowed to be used to the end of their service life. As a matter of course, however, it is desirable to see all diesel taxis to be replaced by LPG taxis quickly. We shall take into account of all the feedback from the consultation and will work out appropriate measures including financial incentives, if necessary, to encourage all diesel taxis to be replaced by LPG taxis by the end of 2005.

Our proposal to increase fixed penalty fine against smoky vehicles is part of our comprehensive efforts to reduce vehicle air pollution. It is not aimed at forcing the taxi trade to switch to LPG taxis but rather to

encourage vehicle owners to maintain engines properly so as to avoid smoke. We will consult all relevant parties when we have worked out the proposal to increase the fixed penalty fine against smoky vehicles. The views of the Association will be given due consideration along with any other feedback during the course of that consultation exercise.

Preliminary Gas Safety Requirements for LPG Vehicle Workshop

1. Statutory Requirements

- 1.1 An LPG vehicle workshop is classified as a Notifiable Gas Installation and regulated under the Gas Safety Ordinance, Cap 51. As such, the owner of an LPG vehicle workshop is required to apply for construction and use approval from the Gas Authority (i.e. the Director of Electrical and Mechanical Services) for compliance with the necessary safety and ventilation requirements.
- 1.2 The owner of an LPG vehicle workshop has a responsibility to ensure that the workshop and the equipment therein are operated and maintained in a safe manner, and has adequate number of competent persons to carry out repair and maintenance work of LPG vehicles. Motor mechanics, who have successfully completed LPG vehicle training courses, would be assessed by the Gas Authority for enlisting as competent persons.

2. Scope

This document sets out the gas safety requirements of facilities and precautions for an LPG vehicle workshop including any work on LPG vehicles carried out in the workshop.

3. Location

- 3.1 An LPG vehicle workshop shall be readily accessible in a well-ventilated area at ground level, and never below cellars or in basements. A workshop located at upper floors may be considered under special circumstances with a well ventilated access road.

- 3.2 An LPG vehicle workshop should not be located in the same building as residential accommodation, unless it is well ventilated and under special circumstances.
- 3.3 Drains or unventilated pits shall be avoided in the workshop floor area or in the immediate vicinity of the workshop. Where a gully or drain is unavoidable, the opening shall either be securely covered or the drain suitably sealed.
- 3.4 Adequate area shall be provided for repairing and maintenance of LPG vehicles. The perimeter of the workshop area shall be marked conspicuously on the ground.
- 3.5 Warning signs showing “LPG Vehicle Workshop/石油氣車維修工場” and “No Smoking/不准吸煙” shall be prominently displayed at the workshop area.

4. Ventilation

4.1 General

- 4.1.1 The design of an LPG vehicle workshop shall be such that occurrence of a build-up of an LPG/air mixture above the lower flammable limit is minimised by provision of adequate ventilation.
- 4.1.2 Wherever possible, adequate natural ventilation should be provided, but where adequate natural ventilation is unattainable, mechanical ventilation shall be provided as an alternative.
- 4.1.3 An LPG vehicle workshop shall be ventilated utilising air inlets and outlets arranged to provide air movement across the floor as uniformly as practicable and in accordance with Sections 4.2 and 4.3.
- 4.1.4 Ventilation apertures and/or ducts shall be positioned in such a way

so as to prevent accumulation of LPG.

4.2 Natural Ventilation

4.2.1 Apertures for natural ventilation shall be situated in external walls of an LPG vehicle workshop such that :-

- (i) the bottoms of low level ventilation apertures are not more than 150 mm above the floor;
- (ii) the tops of high level ventilation apertures are not more than 500 mm below the ceiling;
- (iii) the effective low level ventilation area is within 500 mm from the floor; and
- (iv) the effective high level ventilation area is within 1000 mm from the ceiling.

4.2.2 Ventilation apertures shall be provided with a total effective area of at least 0.03 m^2 per m^2 of floor area at low level and 0.015 m^2 per m^2 of floor area at high level.

4.2.3 Ventilation apertures shall be at least 1 m from openings into other buildings or any fixed source of ignition.

4.3 Mechanical Ventilation

4.3.1 A minimum ventilation capacity of 500 litre/s per vehicle shall be provided for mechanical ventilation systems in the workshop area.

4.3.2 The airflow velocity within any exhaust duct of the ventilation system shall not be less than 5 m/s.

4.3.3 The inlet apertures of the ventilation duct system shall be located at not more than 150 mm above the floor level.

4.3.4 The outlet of the ventilation system shall discharge at least 1.5 m away from any opening into the workshop, adjacent buildings, or any fixed source of ignition.

- 4.3.5 A clearance of 150 mm shall be maintained around the air intakes of the ventilation system to prevent blockage of the inlet openings.
- 4.3.6 All electrical apparatus for a mechanical ventilation system shall be of a flameproof type and be suitable for use in Zone 1 hazardous areas in compliance with BS 5345 or equivalent.
- 4.3.7 An audio and visual alarm system indicating failure of the mechanical ventilation system such as interruption of electrical supply, failure of extraction fan, etc. shall be provided for the system. Emergency procedures in response to the alarm shall be prominently displayed in the workshop area.
- 4.3.8 The ventilation system shall be started before the work commences and be kept operating whilst the work is in progress.

5. Gas Detection System

- 5.1 Gas detectors shall be calibrated for detection of LPG and be located at not more than 150 mm above the floor level around the workshop.
- 5.2 A gas detection system shall provide an audible and visual alarm, if there is a flammable gas mixture with concentration reaching 20% of the lower flammable limit.
- 5.3 The detection system shall be capable of activating the mechanical ventilation system if the system is not switched on.

6. Fire Protection

- 6.1 At least 2 fire extinguishers of dry powder type shall be provided at the workshop.

- 6.2 Other fire services requirements shall be adhered to as may be stipulated by the Director of Fire Services.

7. Safety Precautions

- 7.1 Inside the workshop, unless a vehicle has been tested and a leak-free condition has been verified:–
- (i) the space in the vicinity of 3 m from the perimeter of the vehicle to a height of 1 m above the highest point of the LPG fuel system should be classified as Zone 1;
 - (ii) ignition sources shall be kept out of the hazardous zone; and
 - (iii) the gas outlet valve of the LPG cylinder shall be closed at all times, except when checking or testing is being carried out which requires the gas.
- 7.3 All electrical installations or appliances for use in Zone 1 area shall be of flameproof type in compliance with BS 5345 or equivalent.
- 7.4 No smoking is allowed in the workshop area.
- 7.5 Portable combustible gas detectors shall be kept readily available for gas leak detection.

THE GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION
香港特別行政區政府

GAS SAFETY REGULATIONS, CAP. 51

氣體安全規例(第51章)

APPLICATION TO BECOME A COMPETENT PERSON

申請成為勝任人士

For Official Use Only:

只供本署填寫:

GasSO Reference 檔案編號

Date of Receipt 收件日期

Notes 注意:

- (1) This application form is to be used for applying to the Gas Authority for becoming a competent person as defined in the Gas Safety Regulations, Cap. 51, in the class as listed in section A of this form.
本申請表格用作向氣體安全監督申請成為氣體安全規例(第51章)所界定屬於本表於甲部所列載類別的勝任人士。
- (2) The acceptance criteria for each class is listed in the annex as shown in section A of this form. The Gas Authority may require the applicant to attend an interview for verifying the appropriateness of his/her training and experience. The Gas Authority may also require the applicant to submit/present the original copy of all concerned certificates/documents.
各類別的認可準則列載於本表格甲部所註明的附件。氣體安全監督或會要求申請人出席面試,以核實其訓練及經驗是否符合規定。此外,氣體安全監督或會要求申請人遞交/出示所有有關之證明書/文件的正本。
- (3) The applicant should complete all sections of this application form in BLOCK letters and SIGN the form.
申請人應以正楷填寫申請表格各欄,並在表格上簽署。

Declaration:

聲明:

I hereby apply for becoming a competent person in the class as listed in section A of this form and I declare that all particulars, statements and documents submitted in/with this application form are true and correct.

本人現申請成為勝任人士,即列載於本表甲部所列載類別的勝任人士,本人並謹此聲明,在本申請表格內填報的一切資料,所作的陳述及附上的文件全屬真實無訛。

Date:

Signature and Company Chop of Applicant:

日期:

申請人簽署及公司蓋印:

Section A: Class

甲部: 類別

Class 類別	Description 說明	Acceptance Criteria 認可準則
☐ Class 1 第1類	Testing and certification of LPG cylinders, tanks, vaporisers and mains 測試石油氣瓶、石油氣缸、汽化器及供氣主喉和簽發證明書	ANNEX (I) 附件(一)
☐ Class 2 第2類	Inspection and certification of LPG compounds and cylinder stores 檢查石油氣庫及氣瓶儲存室和簽發證明書	ANNEX (II) 附件(二)
☐ Class 3 第3類	Examination and certification of gasholders 檢驗儲氣鼓和簽發證明書	ANNEX (III) 附件(三)
☐ (a)	Carry out monthly/quarterly/annual examination of gasholders 進行儲氣鼓每月/每季/每年一次的檢驗	
☐ (b)	Certify the monthly/quarterly/annual examination of gasholders 為儲氣鼓每月/每季/每年一次的檢驗簽發證明書	
☐ (c)	Carry out internal examination of gasholders 進行儲氣鼓內部檢驗	

Class 類別		Description 說明	Acceptance Criteria 認可準則
☐	Class 4 第4類	Installation, commissioning and maintenance of LPG tanks, vaporisers, pipework, pressure regulators and associated equipment in LPG compounds and cylinder stores as well as LPG mains 安裝及維修石油氣庫及氣瓶儲存室內的石油氣缸、汽化器、管道、調壓器及相關設備，以及供氣主喉，並將有關設備投入運作	ANNEX (IV) 附件 (四)
☐	Class 5 第5類	Installation, commissioning and maintenance of LPG pipework, pressure regulators and associated equipment in LPG vapour withdrawal cylinder stores as well as LPG mains 安裝及維修排出氣態石油氣的氣瓶儲存室內石油氣管道、調壓器及相關設備，以及石油氣供氣主喉，並將有關設備投入運作	ANNEX (V) 附件 (五)
☐	Class 6 第6類	Repair and maintenance of LPG vehicles 修理及維修石油氣車輛	ANNEX (VI) 附件 (六)

Section B: Particulars of Applicant

乙部：申請人資料

- (1) Name: _____ (2) Chinese Name: _____
英文姓名：_____ 中文姓名：_____
- (3) HKID Card No./Passport No.: _____ (4) Date of Birth: _____
香港身份證號碼 / 護照號碼：_____ 出生日期：_____
- (5) Sex (M/F): _____ (6) Present Post: _____
性別 (男 / 女)：_____ 現任職位：_____
- (7) Name of Company: _____
公司名稱：_____
- (8) Address of Company: _____
公司地址：_____
- (9) Correspondence Address (if different from (8)):
通訊地址 (如與 (8) 不同)：_____
- (10) Telephone Number: _____ (11) Fax Number: _____
電話號碼：_____ 傳真號碼：_____
- (12) Registered Gas Installer No. (if applicable): _____
註冊氣體裝置技工號碼 (如適用)：_____
- (13) Company's Gas Contractor Registration No. (if applicable): _____
註冊氣體工程承辦商註冊號碼 (如適用)：_____
- (14) Have you previously applied to become a competent person? *Y / N
你是否曾經申請過成為能勝任的人？ *是 / 否
- (14a) If (14) is yes, when? ____ / ____ / ____ (14b) If (14) is yes, which class? _____
若 (14) 答 '是'，何時申請？ 若 (14) 答 '是'，那一類別？
- (14c) If (14) is yes, was the application successful? *Y / N
若 (14) 答 '是'，申請是否成功？ *是 / 否
- (15) Are you applying for practice in another class? *Y / N
現時你是否有申請從事另一類別的工作？ *是 / 否
- (15a) If (15) is yes, when? ____ / ____ / ____ (15b) If (15) is yes, which? _____
若 (15) 答 '是'，何時申請？ 若 (15) 答 '是'，那一類別？
- (16) Has your name been removed from the competent person list? *Y / N
你的名字是否已從能勝任人士的名單上除去？ *是 / 否
- (16a) If (16) is yes, when? ____ / ____ / ____
若 (16) 答 '是'，何時除去？
- (16b) If (16) is yes, please specify the reasons: _____
若 (16) 答 '是'，請說明原因：_____

Section C: Professional/ Technical/ Academic Qualifications

丙部：專業 / 技術 / 學術資格

Professional/ Technical/ Academic Establishment 專業 / 技術 / 學術機構	Class of Membership/ Award 會員 / 獲頒文憑或學位類別	Date Granted 獲頒資格日期

(Please state your disciplines in the HKIE, if any)
(如適用者，請列明在香港工程師學會所屬界別)

Section D: Organisation Chart of Present Company

丁部：現職公司組織圖

(Please indicate your post on the chart)
(請於組織圖上指出你的職位)

Section E: Job Description

戊部：職責說明

Section F: Relevant Working Experience

已部： 有關工作經驗

From (Mth/Yr) 由 (月 / 年)	To (Mth/Yr) 至 (月 / 年)	Description 說明

(Please use additional sheets if necessary)

(如有需要，請另加紙張填寫)

NOTES ON APPLICATION**申請須知****(1) Submission of Application****遞交申請方法**

This application form shall be submitted, by hand or mail, to 'The Gas Authority, Gas Standards Office, Room 616, Electrical & Mechanical Services Department, 98 Caroline Hill Road, Causeway Bay, Hong Kong.'. Photocopy or facsimile of this form will not be accepted.

申請表格必須送交或郵寄「香港銅鑼灣加路連山道九十八號六一六室機電工程署氣體標準事務處氣體安全監督」。申請表格如為影印本或以傳真方式遞交，概不受理。

(2) Personal Data**個人資料**

The personal data collected by means of this form will be used by the Government for the following purposes:

藉本申請表格收集的個人資料，政府會用於以下目的：

- (a) to assess your qualifications in order to determine your eligibility for inclusion in the List of Competent Persons for each class you apply for; and
評估你的資歷，以確定你是否合資格加入你申請加入的勝任人士名單內；及
- (b) to facilitate future communication between the Government and you.
方便將來政府和你通訊。

If you do not provide sufficient information, we may not be able to process your application. Your personal data will be kept at the Electrical and Mechanical Services Department and be disclosed to the data users of the Department. Your name and contact details may be disclosed to the public for their information. You have a right of access and correction with respect to personal data as provided for in sections 18 and 22 and Principle 6 of Schedule 1 of the Personal Data (Privacy) Ordinance. Your right of access includes the right to obtain a copy of your personal data provided by this application form. Enquiries concerning the personal data collected by means of this application form, including the making of access and corrections, should be addressed to the Gas Authority.

如你未有提供足夠資料，本署將無法辦理你的申請。你的個人資料將存於機電工程署，並會向本署的資料使用者披露。你的名字及聯絡資料可讓公眾查閱。根據個人資料（私隱）條例第18及第22條，以及附表1第6原則的規定，你有權查閱及改正個人資料。你的查閱權利包括索取在本申請表格上所提供個人資料的複本。若有任何關於本表格所收集個人資料的查詢，包括要求查閱及改正資料，請向氣體安全監督提出。

附件(六)

ANNEX (VI)

申請成為申請表格 EMSD/GSO/101 甲部所介定的

第六類勝任人士 — 修理及維修石油氣車輛

Application to Become a Competent Person of

Class 6 — Repair and Maintenance of LPG Vehicle

As Defined in Section A of Application Form EMSD/GSO/101

1. 工作範圍

Scope of Work

為石油氣車輛燃料系統的任何部份進行拆卸、裝嵌、測試、投入運作、解除運作、接駁、截離、保養、修理或更換工作。燃料系統包括石油氣瓶、汽化器、管道、調壓器、混合器及相關配件。

To carry out work on dismantling, assembly, testing, commissioning, decommissioning, connection, disconnection, maintenance, repair or replacement of any part of the LPG vehicle fuel system. The fuel system includes LPG cylinder, vapouriser, pipework, regulator, mixer and associated components.

2. 所需知識

Knowledge Required

必需熟識下列各項：

Must be familiar with the following subjects:

- (a) 氣體安全條例(第 51 章)：

The Gas Safety Ordinance, (Cap. 51);

- (b) 氣體安全(氣體供應)規例(第 51 章)：

The Gas Safety (Gas Supply) Regulations, (Cap. 51)

- (c) 有關石油氣車輛燃料系統設備的操作與維修須知；及

Operating and maintenance instructions pertaining to LPG vehicle fuel supply components; and

- (d) 石油氣的特性。

Properties of LPG.

3. 經驗

Experience

必須是現職汽車修理技工，兼具有三年以上相關工作經驗，並獲現職僱主加以證明。

Being working as a motor vehicle mechanic and having at least 3 years relevant working experience certified by current employer.

4. 資歷

Qualifications

必須修畢職業訓練局所提供的「石油氣汽車機械維修(燃料供應)」或同等課程。

Must complete the 'LPG Vehicle Servicing (Fuel Supply System)' course conducted by the Vocational Training Council or equivalent.

註：

Notes:

- (i) 氣體安全監督或會要求申請人出席面試，以核實其訓練及經驗是否符合規定。

The Gas Authority may require the applicant to attend an interview for verifying the appropriateness of his/her training and experience.

- (ii) 勝任人士如轉換其僱主或通訊地址，須在 28 天內通知氣體安全監督。

If a competent person changes his/her employer or correspondence address, he/she shall notify the Gas Authority of the change within 28 days.



環境保護署

防止車輛噴冒黑煙

車輛黑煙

由車輛噴出的空氣污染物中，黑煙是主要的一種，其成因是由於車輛的發動機缺乏適當保養，或負荷過度，致使燃油未能完全燃燒而產生碳微粒。這些微粒不單污染環境，而且構成本港大氣中含高濃度總懸浮粒子（即塵埃）的主要原因。

車輛黑煙對環境及健康的影響

車輛黑煙所造成的害處包括：

- (a) 引致呼吸系統毛病；
- (b) 令肺病患者病情惡化；
- (c) 引致癌症；
- (d) 令人感覺氣喘；
- (e) 令人呼吸困難；
- (f) 含有異味；及
- (g) 污染建築物及財物。

管制車輛黑煙的法例

道路交通條例規定任何車輛如噴冒過量黑煙，即屬違法，車主可能被判罰款。上述條例更授權監督飭令車主將車輛送往車輛廢氣測驗中心測試噴冒的黑煙。

管制車輛黑煙執法工作

環境保護署負責執行車輛黑煙管制計劃。該計劃工作包括：

- (a) 由環保署人員、經受訓練獲委任的檢舉員或警務人員檢舉噴冒黑煙的車輛；
- (b) 通知車主車輛噴冒過量黑煙；及
- (c) 飭令車主將車輛送往車輛廢氣測驗中心檢驗，包括檢查引擎怠速及最高轉速、空氣過濾器及燃油泵；及
- (d) 受測試的車輛噴出的黑煙須：

- ◇ 1990 年或以後出廠的車輛噴出黑煙少於五十度哈特里奇煙霧單位；或

- ◇ 1990 年以前出廠的車輛噴出的黑煙少於六十度哈特里奇煙霧單位。

此外，警務人員可截停噴冒黑煙的車輛，按情況需要，發出定額罰款告票及驗車指示。

車輛噴冒黑煙的成因

車輛噴冒黑煙多由於發動機出現機械故障所造成，例如：

- (a) 空氣過濾器（風隔）閉塞；
- (b) 燃油過濾器（油隔）閉塞；
- (c) 排氣喉不潔或淤塞；
- (d) 燃油噴咀（塵筆）磨損或毀壞；
- (e) 燃油噴射壓力不足；
- (f) 燃油噴射時間不當；
- (g) 發動機的汽缸壁、活塞及氣環過度磨損；
- (h) 活門不能密封閉合；及
- (i) 活門杯士或油封磨損。

因此須定期保養車輛，免致出現這些問題。不良的駕駛習慣，亦會導致車輛噴冒黑煙；不當的使用高波檔上斜坡或加速，會使發動機過度負荷，從而噴冒黑煙。

防止車輛黑煙

作為負責任的車主或駕駛人士，你應確保車輛按製造商的建議期限，由合格技師定期進行維修。此外，應以適當的波檔行車。

查詢

如對車輛黑煙管制計劃有任何查詢，請聯絡：

環境保護署

車輛廢氣組 管制課

九龍觀塘海濱道 123 號環貿商業中心
第一座 10 樓 1001-1003 室

電話：2827 0858

傳真：2827 8230



STOP SMOKE EMISSION FROM MOTOR VEHICLES

Vehicle smoke emission

Smoke is one of the main air pollutants from the exhausts of motor vehicles. Carbonaceous particles are emitted in the form of black smoke due to incomplete combustion of fuel in engines which are not properly maintained or are over strained. This pollutes the environment and is a major contributor to the high Suspended Particulates ('Dust') levels in Hong Kong.

Health and environmental effects of vehicle smoke

The ill effects of vehicle smoke include :-

- (a) inducing respiratory health problems,
- (b) aggravation of lung diseases,
- (c) carcinogenicity (cancer-causing),
- (d) causing the sensation of choking,
- (e) causing difficulty in breathing,
- (f) being unpleasant to smell, and
- (g) causing soiling of structures and properties.

Vehicle smoke control legislation

A provision under the Road Traffic Ordinance makes it an offence for any vehicle to emit excessive smoke and vehicle owners may be fined. The Ordinance provides for the calling in of smoky vehicles to a vehicle emission testing centre where smoke emission is tested.

Enforcement on smoky vehicles

The Environmental Protection Department (EPD) operates a Smoky Vehicle Control Programme which involves :-

- (a) the reporting of smoky vehicles by EPD officers, appointed trained spotters or police officers,
- (b) the notification to vehicle owners about the excessive smoke problem,
- (c) the vehicle owners reporting to a vehicle emission testing centre for the smoke testing of vehicles as well as the checking of idle and maximum engine speed, air filter and fuel pump, and
- (d) the vehicle to be smoke tested to :
 - ✧ less than 50 Hartridge Smoke Unit for vehicles manufactured in or after 1990, or
 - ✧ less than 60 Hartridge Smoke Unit for vehicles manufactured before 1990.

Additionally, police officers may stop smoky vehicles and issue fixed penalty tickets or examination orders as appropriate.

Cause of vehicle smoke

Most of the causes of black smoke are attributable to mechanical problems in an engine, such as :-

- (a) blocked air filter,
- (b) blocked fuel filter,
- (c) choked exhaust pipe,
- (d) worn or damaged injector,
- (e) low injection pressure,
- (f) incorrect injection timing,
- (g) worn cylinder bores, pistons and rings,
- (h) valves not seating properly, and
- (i) worn valve guides and seals.

Regular vehicle maintenance should be carried out to prevent these problems developing. Bad driving habits also contribute to excessive black smoke emissions. Incorrectly engaging a higher gear when climbing uphill or during hard acceleration will unduly strain the engine, thus causing excessive wear and producing smoke unnecessarily.

Fighting vehicle smoke

As a responsible vehicle owner or driver, you should make sure that regular maintenance is carried out by qualified technicians on your vehicle in accordance with the manufacturer's recommended schedule and that your vehicle is driven properly by engaging the correct gear.

Enquiries

Enquiries on the Smoky Vehicle Control Programme should be directed to :-

Control Section
Motor Vehicle Emissions Group
Environmental Protection Department
Room 1001-1003, 10/F
Tower 1, World Trade Square
123 Hoi Bun Road
Kwun Tong, Kowloon
Telephone : 2827 0858
Fax : 2827 8230