

ETWB (E)55/01/156

LEGISLATIVE COUNCIL BRIEF

Air Pollution Control Ordinance (Cap.311)

**Air Pollution Control (Vehicle Design Standards) (Emission)
(Amendment) Regulation 2003**

INTRODUCTION

The Secretary for the Environmental, Transport and Works has made the Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2003, at the **Annex**, under section 43 of the Air Pollution Control Ordinance Chapter 311) to introduce emission standards for liquefied petroleum gas (LPG) light buses and tighten up the emission standards for certain classes of vehicles. As the light buses and the other vehicles concerned are already meeting the new requirements, the amendments are merely for formalizing an existing position through including the new requirements in the Regulations.

BACKGROUND AND ARGUMENT

2. Motor vehicles are the major source of roadside air pollution in Hong Kong. To reduce vehicle emissions, one of the Administration's policies is to require newly registered vehicles to meet the most stringent emission standards where the technology is practicable and commercially available. With the approval of the Legislative Council, we have been progressively tightening up the emission standards for newly registered vehicles by amending the Regulations. For example, Euro II and equivalent emission standards were introduced in 1997; Euro III and equivalent emission standards were introduced for certain classes of vehicles in 2001;

and on-board diagnostic (OBD) system has become a requirement for newly registered petrol vehicles since 2001.

LPG light Buses

3. LPG light buses have been introduced into Hong Kong since the trial in 2000. In August 2002, the Government launched an incentive scheme to encourage the early replacement of diesel light buses with LPG or electric light buses. Since LPG light buses are new to Hong Kong, there is not yet a set of emission standards applicable to them in the Regulations. LPG light buses are equipped with positive ignition engines, but the current Regulations require all vehicles equipped with these engines to use unleaded petrol except for taxis, which can use either unleaded petrol or LPG. As an interim arrangement to allow the registration of LPG light buses, we have been granting newly registered LPG buses exemption from the Regulations. Now that more and more LPG light buses are imported to Hong Kong, we propose to formalize the administrative exemption arrangement by amending the Regulations to formally allow light buses equipped with positive ignition engines, as in the case of taxis, to use either LPG or unleaded petrol, as well as to add to the Regulations a set of Euro III or equivalent emission standards for LPG light buses.

4. The current Regulations also require every motor vehicle equipped with a positive-ignition engine, except for LPG taxis, to be fitted with an OBD system. The OBD system is a technology mainly designed for petrol vehicles. The European Union does not require LPG vehicles to be equipped with OBD systems. Therefore, we propose to amend the Regulations to exempt also LPG light buses from the OBD requirement as in line with the European Union's arrangement.

Diesel Light Buses

5. When we introduced Euro III emission standards for diesel vehicles over 3.5 tonnes in 2001, diesel light buses were deliberately excluded as we were then

developing the alternative-fuel light bus programme. Now that the incentive scheme to encourage the early replacement of diesel light buses with LPG or electric ones is up and running, we propose to extend the Euro III emission requirement to newly registered diesel light buses. This is merely for formalizing an existing position, as all diesel light buses being imported to Hong Kong are already meeting the Euro III emission standards.

LPG Taxis, Petrol Vehicles over 3.5 tonnes

6. The Japanese Government has introduced a new set of emission standards for newly registered LPG taxis and petrol vehicles of a design weight over 3.5 tonnes since 1 September 2002. To tie in with that, we propose to tighten the corresponding emission requirements in the Regulations to the same stringency. Again, as the vehicles concerned being imported to Hong Kong are already meeting the new standards, the amendment will merely formalize an existing position.

THE AMENDMENT REGULATION

7. The Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2003 –

- (a) allows light buses equipped with a positive-ignition engine to run on LPG, introduce Euro III or equivalent emission standards for newly registered LPG light buses, and exempt LPG light buses from the OBD requirement;
- (b) tightens the emission standards for newly registered light buses equipped with a compression-ignition engine and having a design weight of more than 3.5 tonnes to the Euro III or equivalent standards; and

- (c) tightens the emission standards for newly registered taxis fuelled by LPG and vehicles equipped with a positive-ignition engine fuelled by unleaded petrol and having a design weight of more than 3.5 tonnes to the latest standards adopted in Japan.

Legislative Timetable

8. We will publish the amendment Regulation in the Gazette on 16 May 2003 and table it at the Legislative Council for negative vetting on 21 May 2003. Subject to the negative vetting by the Legislative Council, the amendments will take effect on 1 August 2003.

BASIC LAW IMPLICATIONS

9. The Department of Justice advises that the proposed amendments are consistent with the Basic Law.

HUMAN RIGHTS IMPLICATIONS

10. The proposal is in conformity with the Basic Law, including the provisions concerning human rights.

BINDING EFFECT OF THE LEGISLATION

11. The proposed amendments will not affect the current binding effect of the Air Pollution Control (Vehicle Design Standards)(Emission) Regulations.

FINANCIAL AND STAFF IMPLICATIONS

12. Implementation of the proposed amendments will not require any additional financial commitment from the Government. Additional staff are not required.

ECONOMIC IMPLICATIONS

13. There will be no economic implications as the proposed amendments will only formalize the existing position.

ENVIRONMENTAL IMPLICATIONS

14. Euro III is the updated standards for motor vehicle emission. A Euro III diesel vehicle emits about 30% less particulates and 30% less nitrogen oxides than a Euro II one. The proposed amendments will be conducive to our effort to improve Hong Kong's air quality.

CONSULTATION

15. We consulted the Motor Traders Association in August 2001. We also informed relevant sectors of the transport trade of the proposed amendments in April 2003. They raised no objection to the proposal.

16. We consulted the Advisory Council on the Environment on the proposal on 10 March 2003. Members supported the proposal.

17. In July 2002, we informed Members of the Panels on Environmental Affairs and Transport of our plan to upgrade the emission standards for newly registered

LPG and diesel light buses to Euro III or equivalent vide Paper No. CB(1) 2194/01-02. We also informed Members of the Panel on Environmental Affairs of our proposal vide Panel Paper No. CB(1)1582/02-03. Members did not raise objection to it.

PUBLIC REACTION

18. As the vehicle models concerned are already meeting the new emission standards, the proposal will merely formalize an existing position and will not cause disruption to the transport trade. In addition, the proposal is conducive to our effort to improve Hong Kong's air quality. Therefore, we expect no adverse reaction from the general public and the transport trade.

PUBLICITY

19. A press release will be issued on 16 May 2003. We will inform the transport trade of the amendments again after the amendment Regulation has gone through the negative vetting process. A spokesman will be available for answering media enquiries.

ENQUIRIES

20. For any enquiries, please contact Mr. Tony Lee, Assistant Secretary for the Environment, Transport and Works at 2136 3359.

Environment, Transport and Works Bureau

May 2003

**AIR POLLUTION CONTROL (VEHICLE DESIGN STANDARDS)
(EMISSION)(AMENDMENT) REGULATION 2003**

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**AIR POLLUTION CONTROL (VEHICLE DESIGN STANDARDS)
(EMISSION)(AMENDMENT) REGULATION 2003**

(Made under section 43 of the Air Pollution Control Ordinance
(Cap. 311) after consultation with the Advisory Council
on the Environment)

1. Commencement

This Regulation shall come into operation on 1 August 2003.

**2. Vehicle design standards for
certain motor vehicles**

Regulation 7(1) of the Air Pollution Control (Vehicle Design
Standards)(Emission) Regulations (Cap. 311 sub. leg. J) is amended -

(a) in paragraph (ca) -

(i) by repealing "registered on or after 1 August
2001,";

(ii) by repealing everything after "conforms" and
substituting -

"-

(i) if it is registered between 1
August 2001 and 31 July 2003
(both dates inclusive), to the
standards specified in Part
I(a), (b) or (c) of Schedule 10A;

(ii) if it is registered on or after
1 August 2003, to the standards

specified in Part II(a), (b) or

(c) of Schedule 10A;"

(b) in paragraph (d), by adding "and constructed to operate on unleaded petrol only" before "and which";

(c) by adding -

"(da) every light bus which -

- (i) is equipped with a positive-ignition engine;
- (ii) is constructed to operate on liquefied petroleum gas only;
- (iii) has a design weight of not more than 1.7 tonnes; and
- (iv) is registered on or after 1 August 2003,

shall be so constructed that the emission from that light bus conforms to the standards specified in Part I(a), (b) or (c) of Schedule 10C;"

(d) in paragraph (f), by adding "and constructed to operate on unleaded petrol only" before "and which";

(e) by adding -

"(fa) every light bus which -

- (i) is equipped with a positive-ignition engine;
- (ii) is constructed to operate on liquefied petroleum gas only;

(iii) has a design weight of more than 1.7 tonnes but not more than 2.5 tonnes;
and

(iv) is registered on or after 1 August 2003,

shall be so constructed that the emission from that light bus conforms to the standards specified in Part II(a), (b) or (c) of Schedule 10C;"

(f) in paragraph (h), by adding "and constructed to operate on unleaded petrol only" before "and which";

(g) by adding -

"(ha) every light bus which -

(i) is equipped with a positive-ignition engine;

(ii) is constructed to operate on liquefied petroleum gas only;

(iii) has a design weight of more than 2.5 tonnes but not more than 3.5 tonnes;
and

(iv) is registered on or after 1 August 2003,

shall be or shall have such engine so constructed that the emission from that light bus conforms to the standards specified in Part III(a), (b) or (c) of Schedule 10C;"

- (h) in paragraph (j) -
 - (i) by adding "and constructed to operate on unleaded petrol only" before "and which";
 - (ii) in subparagraph (iv), by repealing "on or after 1 October 2001" and substituting "between 1 October 2001 and 31 July 2003 (both dates inclusive)";
 - (iii) by adding -
 - "(v) if it is registered on or after 1 August 2003, to the standards specified in Part III(a) or (b) of Schedule 6A;"
- (i) by adding -
 - "(ja) every light bus which -
 - (i) is equipped with a positive-ignition engine;
 - (ii) is constructed to operate on liquefied petroleum gas only;
 - (iii) has a design weight of more than 3.5 tonnes; and
 - (iv) is registered on or after 1 August 2003,shall have such engine so constructed that the emission from that light bus conforms to the standards specified in Part IV(a) or (b) of Schedule 10C;"

(j) in paragraph (k) -

- (i) by repealing ", light bus" where it twice appears;
- (ii) in subparagraphs (i) and (ii), by repealing "、小型巴士";
- (iii) by repealing subparagraph (iii) and substituting -

"(iii) if it is registered on or after 1 October 2001, to the standards specified in Part II(a) or (b) of Schedule 6A;"

(k) by adding -

"(ka) every light bus which is equipped with a compression-ignition engine and which has a design weight of more than 3.5 tonnes but not more than 4 tonnes shall have such engine so constructed that the emission from that light bus conforms -

- (i) if it is registered between 1 April 1995 and 30 September 1998 (both dates inclusive), to the standards specified in Part IV(a) or (b) of Schedule 3;
- (ii) if it is registered between 1 October 1998 and 31 July 2003 (both dates inclusive), to the standards

specified in paragraph (a) or (b) of
Schedule 6;

- (iii) if it is registered on or after 1
August 2003, to the standards
specified in Part II(a) or (b) of
Schedule 6A;".

3. Requirements as to engine and fuel

Regulation 10 is amended -

- (a) in subregulation (1), by adding "and a light bus" after
"taxi";
- (b) in subregulation (2), by repealing everything after "Every
taxi" and before "shall" and substituting "or light bus
that is equipped with a positive-ignition engine and
registered respectively between 1 January 1992 and 31 July
2001 (both dates inclusive) or 1 January 1992 and 31 July
2003 (both dates inclusive)";
- (c) by adding -

"(3A) Every light bus that is registered on or
after 1 August 2003 and is equipped with a
positive-ignition engine shall be constructed -

- (a) (i) to operate on unleaded
petrol only; and
- (ii) in such a way that a petrol
pump dispensing nozzle
spout with an outside

diameter of 23.6 millimetres cannot be inserted into its filling pipe; or

(b) to operate on liquefied petroleum gas only."

4. Certain motor vehicles to be equipped with on-board diagnostic system

Regulation 14(4) is amended by adding ", (ea)" after "(ba)".

5. Schedule 6 amended

Schedule 6 is amended, in the heading, by repealing "ON OR AFTER 1 OCTOBER 2001" and substituting "BETWEEN 1 OCTOBER 2001 AND 31 JULY 2003 (BOTH DATES INCLUSIVE)".

6. Schedule 6A amended

Schedule 6A is amended -

(a) in the heading, by adding "AND FOR CERTAIN LIGHT BUSES REGISTERED ON OR AFTER 1 AUGUST 2003" after "2001";

(b) in Part I(b), by repealing "13-mode" and substituting "G13-mode";

(c) by adding -

"Part III

Emission shall not exceed -

(a) hydrocarbons 2.55 grams per kilowatt-hour

carbon monoxide	49.7 grams per kilowatt-hour
oxides of nitrogen	5.36 grams per kilowatt-hour

as measured by the Transient Test Procedure for heavy duty Otto cycle engines administered by the Environmental Protection Agency of the United States of America; and evaporative emission shall not exceed 4.0 grams per test as measured by the Sealed Housing for Evaporative Emissions Determination test procedure administered by the Environmental Protection Agency of the United States of America;

(b) hydrocarbons	0.58 gram per kilowatt-hour
carbon monoxide	16.0 grams per kilowatt-hour
oxides of nitrogen	1.40 grams per kilowatt-hour

as measured by the G13-mode operation for heavy duty petrol-powered motor vehicles administered by the Ministry of Land, Infrastructure and Transport of Japan; and evaporative emission

shall not exceed 2.0 grams per test as measured by the Japan Sealed Housing for Evaporative Emissions Determination test administered by the Ministry of Land, Infrastructure and Transport of Japan."

7. Vehicle design standards (emission) for certain taxis registered on or after 1 August 2001

Schedule 10A is amended -

(a) by repealing "Emission" and substituting -

"Part I

Emission";

(b) by adding -

"Part II

Emission shall not exceed -

(a)	non-methane organic gases	0.047 gram per kilometre
	carbon monoxide	2.1 grams per kilometre
	oxides of nitrogen	0.12 gram per kilometre

as measured by the 1975 Federal Test Procedure administered by the Environmental Protection Agency of the United States of America;

(b)	hydrocarbons	0.08 gram per kilometre
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carbon monoxide	0.67 gram per kilometre
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oxides of nitrogen	0.08 gram per kilometre
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as measured by the 10.15-mode operation administered by the Ministry of Land, Infrastructure and Transport of Japan;

(c) (i) for a vehicle the maximum mass of which does not exceed 2 500 kg -

hydrocarbons	0.20 gram per kilometre
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carbon monoxide	2.3 grams per kilometre
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oxides of nitrogen	0.15 gram per kilometre
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(ii) for a vehicle the maximum mass of which exceeds 2 500 kg and the reference mass of which does not exceed 1 305 kg -

hydrocarbons	0.20 gram per kilometre
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carbon monoxide	2.3 grams per kilometre
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oxides of nitrogen	0.15 gram per kilometre
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(iii) for a vehicle the maximum mass of which exceeds 2 500 kg and the reference mass of which exceeds 1 305 kg and does not

exceed 1 760 kg -

hydrocarbons	0.25 gram per kilometre
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carbon monoxide	4.17 grams per kilometre
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oxides of nitrogen	0.18 gram per kilometre
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(iv) for a vehicle the maximum mass of which exceeds 2 500 kg and the reference mass of which exceeds 1 760 kg -

hydrocarbons	0.29 gram per kilometre
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carbon monoxide	5.22 grams per kilometre
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oxides of nitrogen	0.21 gram per kilometre
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as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 2001/1/EC, both made by the Council."

8. Schedule 10C added

The following is added -

"SCHEDULE 10C

[reg. 7]

VEHICLE DESIGN STANDARDS (EMISSION) FOR
CERTAIN LIGHT BUSES REGISTERED
ON OR AFTER 1 AUGUST 2003

Part I

Emission shall not exceed -

- | | | |
|-----|---------------------------|--------------------------|
| (a) | non-methane organic gases | 0.047 gram per kilometre |
| | carbon monoxide | 2.1 grams per kilometre |
| | oxides of nitrogen | 0.12 gram per kilometre |

as measured by the 1975 Federal Test Procedure administered by the Environmental Protection Agency of the United States of America;

- | | | |
|-----|--------------------|-------------------------|
| (b) | hydrocarbons | 0.08 gram per kilometre |
| | carbon monoxide | 0.67 gram per kilometre |
| | oxides of nitrogen | 0.08 gram per kilometre |

as measured by the 10.15-mode operation administered by the Ministry of Land, Infrastructure and Transport of Japan;

- | | | |
|-----|--------------------------------------------------------------------------|-------------------------|
| (c) | (i) for a vehicle the reference mass of which does not exceed 1 305 kg - | |
| | hydrocarbons | 0.20 gram per kilometre |
| | carbon monoxide | 2.3 grams per kilometre |
| | oxides of nitrogen | 0.15 gram per kilometre |

as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 1999/102/EC, both made by the Council;

- | | | |
|--|------------------------------------------------|--|
| | (ii) for a vehicle the reference mass of which | |
|--|------------------------------------------------|--|

exceeds 1 305 kg but does not exceed 1 760

kg -

hydrocarbons	0.25 gram per kilometre
carbon monoxide	4.17 grams per kilometre
oxides of nitrogen	0.18 gram per kilometre

as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 1999/102/EC, both made by the Council.

Part II

Emission shall not exceed -

(a) non-methane organic gases	0.062 gram per kilometre
carbon monoxide	2.73 grams per kilometre
oxides of nitrogen	0.25 gram per kilometre

as measured by the 1975 Federal Test Procedure administered by the Environmental Protection Agency of the United States of America;

(b) hydrocarbons	0.08 gram per kilometre
carbon monoxide	2.10 grams per kilometre
oxides of nitrogen	0.13 gram per kilometre

as measured by the 10.15-mode operation administered by the Ministry of Land, Infrastructure and Transport of Japan;

(c)	(i) for a vehicle the reference mass of which
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does not exceed 1 305 kg -

hydrocarbons	0.20 gram per kilometre
carbon monoxide	2.3 grams per kilometre
oxides of nitrogen	0.15 gram per kilometre

as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 1999/102/EC, both made by the Council;

(ii) for a vehicle the reference mass of which exceeds 1 305 kg but does not exceed 1 760 kg -

hydrocarbons	0.25 gram per kilometre
carbon monoxide	4.17 grams per kilometre
oxides of nitrogen	0.18 gram per kilometre

as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 1999/102/EC, both made by the Council;

(iii) for a vehicle the reference mass of which exceeds 1 760 kg -

hydrocarbons	0.29 gram per kilometre
carbon monoxide	5.22 grams per kilometre

oxides of nitrogen 0.21 gram per kilometre

as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 1999/102/EC, both made by the Council.

Part III

Emission shall not exceed -

(a) non-methane organic gases 0.121 gram per kilometre

carbon monoxide 3.1 grams per kilometre

oxides of nitrogen 0.37 gram per kilometre

as measured by the 1975 Federal Test Procedure administered by the Environmental Protection Agency of the United States of America;

(b) hydrocarbons 0.08 gram per kilometre

carbon monoxide 2.10 grams per kilometre

oxides of nitrogen 0.13 gram per kilometre

as measured by the 10.15-mode operation administered by the Ministry of Land, Infrastructure and Transport of Japan;

(c) (i) for a vehicle the reference mass of which does not exceed 1 305 kg -

hydrocarbons 0.20 gram per kilometre

carbon monoxide 2.3 grams per kilometre

oxides of nitrogen 0.15 gram per kilometre

as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 1999/102/EC, both made by the Council;

- (ii) for a vehicle the reference mass of which exceeds 1 305 kg but does not exceed 1 760 kg -

hydrocarbons	0.25 gram per kilometre
carbon monoxide	4.17 grams per kilometre
oxides of nitrogen	0.18 gram per kilometre

as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 1999/102/EC, both made by the Council;

- (iii) for a vehicle the reference mass of which exceeds 1 760 kg -

hydrocarbons	0.29 gram per kilometre
carbon monoxide	5.22 grams per kilometre
oxides of nitrogen	0.21 gram per kilometre

as measured by the Type I test procedure specified in Council Directive 70/220/EEC as amended by Council Directive 1999/102/EC, both made by the Council.

Part IV

Emission shall not exceed -

(a) hydrocarbons	0.58 gram per kilowatt-hour
carbon monoxide	16.0 grams per kilowatt-hour
oxides of nitrogen	1.40 grams per kilowatt-hour

as measured by the G13-mode operation for heavy duty liquefied petroleum gas-powered motor vehicles administered by the Ministry of Land, Infrastructure and Transport of Japan;

(b) non-methane hydrocarbons	0.78 gram per kilowatt-hour
carbon monoxide	5.45 grams per kilowatt-hour
oxides of nitrogen	5.0 grams per kilowatt-hour

as measured by the procedure of ETC test for gas engines which are for use in vehicles specified in Council Directive 88/77/EEC as amended by Council Directive 1999/96/EC, both made by the Council."

9. Motor vehicles with positive-ignition engines not requiring installation of on-board diagnostic system

Schedule 11 is amended by adding -

"(ea) light bus which is registered on or after 1 August 2003 and constructed to operate on liquefied petroleum gas only; or".

Secretary for the Environment,
Transport and Works

2003

Explanatory Note

This Regulation amends the Air Pollution Control (Vehicle Design Standards)(Emission) Regulations (Cap. 311 sub. leg. J) by -

- (a) imposing vehicle design standards in relation to the emission of air pollutants on light buses that are first registered on or after 1 August 2003, equipped with a positive-ignition engine and constructed to operate on liquefied petroleum gas only;
- (b) allowing light buses that are first registered on or after 1 August 2003 and equipped with a positive-ignition engine to operate on liquefied petroleum gas;
- (c) exempting light buses that are first registered on or after 1 August 2003 and constructed to operate only on liquefied petroleum gas from the requirement to be equipped with an on-board diagnostic system; and
- (d) imposing more stringent vehicle design standards in relation to the emission of air pollutants on the following motor vehicles that are first registered on or after 1 August 2003 -

- (i) light buses that are equipped with a compression-ignition engine and have a design weight of more than 3.5 tonnes;
- (ii) certain motor vehicles that are equipped with a positive-ignition engine and have a design weight of more than 3.5 tonnes; and
- (iii) taxis that are constructed to operate on liquefied petroleum gas only.