

**Discussion Draft
Off-Road Compression-Ignition Engine
Emission Regulations**

**Transportation Systems Branch
Environment Canada**

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Preamble

This document contains the discussion draft of the planned *Off-Road Compression Ignition Engine Emissions Regulations*. Its purpose is to solicit comments from stakeholders prior to publishing a formal proposal in the Canada Gazette Part I.

The planned regulations, under Part 7, Division 5 of the *Canadian Environmental Protection Act, 1999*, will establish emissions standards for diesel-fueled engines of model year 2006 and later, that are typically found in agricultural, construction and forestry machinery. Emission regulations for these off-road engines are among initiatives in the Federal Agenda on Cleaner Vehicles, Engines and Fuels, published in the February, 17, 2001 Canada Gazette, Part I.

The regulations are designed to align with "Tier 2" and "Tier 3" standards of the U.S. Environmental Protection Agency (EPA) rules for Nonroad Compression Ignition Engines¹. Environment Canada plans alignment with U.S. EPA "Tier 4" standards² when the final rule becomes available. "Tier 4" standards would be phased-in between 2008-14 as proposed in the U.S.

Along with the "Tier 4" standards the U.S. EPA proposes to limit the level of sulphur in off-road diesel fuel to 500 parts per million (ppm) in 2007, and to 15 ppm in 2010. Environment Canada plans to consult with stakeholders over the summer of 2003 with a view to matching these levels in Canada.

Recognizing that many engines are sold in both Canada and the U.S., the regulations minimize additional administrative requirements for engines that are certified by the U.S. EPA. Stakeholders are asked to comment on the existence or likelihood of engines not used in the U.S. being imported into Canada. Comments are also requested on any unique features on Canadian engines that could affect emissions.

Comments received by August 15th, 2003 will be considered in developing a formal written proposal in the Canada Gazette Part I in the fall. Please provide your written comments to:

Mr. Morrie Kirshenblatt
Head, Off-Road Regulations Section
Transportation Systems Branch
Environment Canada
351 St. Joseph Blvd.
Gatineau, QC K1A-0H3

or via e-mail: offroad_comments@ec.gc.ca

¹ Title 40, chapter I, subchapter C, part 89 of the United States Code of Federal Regulations

² Documents pertaining to this proposed rulemaking can be retrieved from the U.S. Federal Register at <http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2003/pdf/03-9737.pdf>

Discussion Draft

OFF-ROAD COMPRESSION-IGNITION ENGINE EMISSION REGULATIONS

INTERPRETATION

1. (1) The following definitions apply in these Regulations.

"Act" means the *Canadian Environmental Protection Act, 1999*.
(*Loi*)

"CFR" means Title 40, chapter I, subchapter C, part 89, of the *Code of Federal Regulations* of the United States as amended from time to time. (*CFR*)

"element of design" means, in respect of an engine,

(a) any control system including, computer software, electronic control systems and computer logic;

(b) any control system calibrations;

(c) the results of systems interaction; or

(d) any hardware items. (*élément de conception*)

"emission control system" means any device, system or element of design that controls or reduces the emission of substances from an engine. (*système antipollution*)

"engine" means an off-road engine that is prescribed under subsection 5(1). (*moteur*)

"EPA" means the United States Environmental Protection Agency. (*EPA*)

"EPA certificate" means a certificate of conformity to United States federal standards issued by the EPA. (*certificat de l'EPA*)

"exhaust emissions" means substances emitted into the atmosphere from any opening downstream from the exhaust port of an engine. (*émissions de gaz d'échappement*)

"machine" means anything, including a vehicle, device, appliance or implement, that is powered by an engine. (*machine*)

"model year" means the year, as determined under section 4, that is used by a manufacturer to designate a model of

engine. (*année de modèle*)

"off-road engine" means an engine, within the meaning of section 149 of the Act,

(a) that is used or designed to be used by itself and that is designed to be or is capable of being carried or moved from one location to another; or

(b) that is used or designed to be used

(i) in or on a machine that is designed to be or capable of being carried or moved from one location to another,

(ii) in or on a machine that is self-propelled,

(iii) in or on a machine that serves a dual purpose by both propelling itself and performing another function, or

(iv) in or on a machine that is designed to be propelled while performing its function. (*moteur horsroute*)

(2) Standards that are incorporated by reference in these Regulations from the CFR are those expressly set out in the CFR and shall be read as excluding

(a) references to the EPA or the Administrator of the EPA exercising discretion in any way;

(b) alternative standards related to the averaging, banking and trading of emission credits, to small volume manufacturers or to financial hardship; and

(c) standards or evidence of conformity of any jurisdiction or authority other than the EPA.

(3) For the purposes of these Regulations, a reference in the CFR to

(a) "nonroad vehicle" and "nonroad equipment" shall be read as "machine";

(b) "nonroad engine" shall be read as "engine"; and

(c) "Tier" shall be read as "groupe" in the French version of these Regulations.

PURPOSE

2. The purpose of these Regulations is to

(a) reduce emissions of hydrocarbons, oxides of nitrogen, particulate matter and carbon monoxide from engines by establishing emission limits for those substances or combinations of those substances;

(b) reduce emissions of the toxic substances formaldehyde, 1,3-butadiene, acetaldehyde, acrolein and benzene through the establishment of emission limits for hydrocarbons from engines; and

(c) establish emission standards and test procedures for engines that are aligned with those of the EPA.

APPLICATION

3. These Regulations apply to engines of the 2006 and later model years.

MODEL YEAR

4. (1) A year that is used by a manufacturer of an engine as a model year shall

(a) if the period of production of a model of engine does not include January 1 of a calendar year, correspond to the calendar year during which the period of production falls; or

(b) if the period of production of a model of engine includes January 1 of a calendar year, correspond to that calendar year.

(2) The period of production of a model of engine shall include only one January 1.

PRESCRIBED ENGINES

5. (1) Subject to subsection (2), the off-road engines that are prescribed for the purposes of the definition "engine" in section 149 of the Act are those that operate as reciprocating, internal-combustion engines and that are not spark-ignition engines within the meaning of the CFR.

(2) The engines referred to in subsection (1) do not include engines that are

(a) designed exclusively for competition and with characteristics, and features that are not easily removed, that render their use other than in competition unsafe, impractical or unlikely;

(b) regulated by the *On-Road Vehicle and Engine Emission Regulations*;

(c) designed to be used exclusively in underground mines;

(d) designed to have a per-cylinder displacement of less than 50 cubic centimetres;

(e) designed to be used in machines designed for use in military combat or combat support; and

(f) being exported and that are accompanied by written evidence establishing that they will not be sold or used in Canada.

(3) For the purpose of section 152 of the Act, the prescribed engines are those referred to in subsection (1) that are manufactured in Canada, except any engine that will be used in Canada solely for purposes of exhibition, demonstration, evaluation or testing.

APPLICATION FOR AUTHORIZATION TO APPLY THE NATIONAL EMISSIONS MARK

6. (1) Any company that intends to apply a national emissions mark in relation to an engine shall apply to the Minister to obtain an authorization.

(2) The application shall be signed by a person who is authorized to act on behalf of the company and shall include

(a) the name and street address of the head office of the company and, if different, its mailing address;

(b) a statement that the company is seeking to obtain the authorization to apply the national emissions mark under the *Off-Road Compression-Ignition Engine Emission Regulations*;

(c) the street address of the location at which the national emissions mark will be applied; and

(d) information to show that the company is capable of verifying compliance with the standards set out in these Regulations.

NATIONAL EMISSIONS MARK

7. (1) The national emissions mark is the mark set out in the schedule.

(2) The national emissions mark shall be at least 7 mm in height and 10 mm in width.

(3) The national emissions mark shall be located

(a) on or immediately next to the emission control information label referred to in paragraph 15(d); or

(b) if there is no such label applied to the engine, in a visible, readily accessible location.

(4) The national emissions mark shall be on a label that

(a) is permanently applied;

(b) is resistant to or protected against any weather condition; and

(c) bears inscriptions that are legible and indelible and that are indented, embossed or in a colour that contrasts with the background of the label.

(5) A company that has been authorized to apply the national emissions mark shall display the identification number assigned by the Minister in figures that are at least 2 mm in height, immediately below or to the right of the national emissions mark.

ENGINE STANDARDS

8. (1) An emission control system that is installed on an engine to enable it to conform to the standards set out in these Regulations shall not

(a) release, in its operation or function, a substance that causes air pollution and that would not have been released if the system were not installed; or

(b) in its operation, function or malfunction, make the engine or the machine in which the engine is installed unsafe, or endanger persons or property near the engine or machine.

(2) No engine shall be equipped with a defeat device as defined in paragraph 107(b), subpart B, of the CFR.

9. (1) Subject to sections 11 to 13, an engine shall conform to the exhaust, crankcase and smoke emission standards set out in paragraph 104(a) and sections 112, 113 and 120 of subpart B, of the CFR that are applicable to engines of the same model year.

(2) The standards referred to in subsection (1) include the test procedures, fuels and calculation methods set out in the CFR for those standards.

10. (1) In this section, "adjustable parameter" means a device, system or element of design that is physically capable of being adjusted to affect emissions or engine performance during emission testing or normal in-use operation, but does not include devices, systems or elements of design that are permanently sealed by the engine manufacturer or that are inaccessible with the use of ordinary tools.

(2) Engines equipped with adjustable parameters must comply with the applicable standards under these Regulations for any specification within the physically available range.

REPLACEMENT ENGINES

11. (1) In this section, "replacement engine" means an engine manufactured exclusively to replace an engine in a machine for which no current model year engine with the physical or performance characteristics necessary for the operation of the machine exists.

(2) A replacement engine may conform to, instead of the standards set out in section 9,

(a) in the case where a replacement engine of a model year later than the original engine and with the physical or performance characteristics necessary for the operation of the machine exists, the exhaust emission standards applicable to an engine of a later model year than the original engine or, if there were none, to the manufacturer's specifications; and

(b) in any other case, the exhaust emission standards applicable to the original engine or, if there were no such standards, the manufacturer's specifications.

(3) In the case of a replacement engine, a label shall be permanently applied immediately next to the national emissions mark or, if there is no national emissions mark,

in a location described in subsection 7(3) and shall be resistant to or protected against any weather conditions.

(4) The label referred to in subsection (3) shall set out, in both official languages, that the engine is a replacement engine.

TRANSITION ENGINES

12. (1) In this section, "transition engine" means an engine that is used to power a new machine for which no current model year engine with the physical or performance characteristics necessary for the operation of the machine exists.

(2) The standards set out in section 9 do not apply to transition engines with a gross power of less than 19 kW until

model year 2007.

(3) The standards for Tier 1 engines referred to in the CFR shall apply to transition engines with a gross power of 37 kW or more instead of the standards set out in section 9 until

(a) model year 2008, in the case of a transition engine with a gross power of 450 kW or more, but less than 560 kW;

(b) model year 2009, in the case of a transition engine with a gross power of 225 kW or more but less than 450 kW, or a gross power of 560 kW or more;

(c) model year 2010, in the case of a transition engine with a gross power of 75 kW or more, but less than 225 kW; and

(d) model year 2011, in the case of an engine with a gross power of less than 75 kW.

(4) In the case of a transition engine, a label shall be permanently applied immediately next to the national emissions mark or, if there is no national emissions mark, in a location described in subsection 7(3) and shall be resistant to or protected against any weather conditions.

(5) The label referred to in subsection (4) shall set out, in both official languages, that the engine is a transition engine.

ENGINES COVERED BY AN EPA CERTIFICATE

13. (1) Every engine of a specific model year that is covered by an EPA certificate and that is sold concurrently in Canada and in the United States shall conform to, instead of the standards set out in sections 8 to 10, the emission standards referred to in the EPA certificate.

(2) For the purposes of subsection 153(3) of the Act, the provisions of the CFR that are applicable to an engine referred to in subsection (1) pursuant to the EPA certificate correspond to the emission standards referred to in subsection (1).

(3) For the purposes of subsection 153(3) of the Act, the EPA is the prescribed agency.

EMISSION-RELATED MAINTENANCE INSTRUCTIONS

14. (1) Every company shall ensure that written instructions respecting emission-related maintenance are provided to the first retail purchaser of every engine or machine and that the instructions are consistent with the maintenance instructions set out in paragraph 109(a) of subpart B of the CFR for the applicable model year.

(2) The instructions shall be provided in English, French or both official languages, as requested by the purchaser.

RECORDS

15. In the case of an engine that is covered by an EPA certificate and that is sold concurrently in Canada and in the United States, evidence of conformity for the purposes of paragraph 153(1)(b) of the Act in respect of a company shall consist of

(a) a copy of the EPA certificate covering the engine;

(b) a document demonstrating that the engine covered by the EPA certificate is sold concurrently in Canada and in the United States;

(c) a copy of the records submitted to the EPA in support of the application for the issuance of the EPA certificate in respect of the engine; and

(d) an emission control information label that is permanently affixed in the form and location set out in

section 110 , subpart B, of the CFR for the applicable model year of the engine.

16. In the case of an engine other than one referred to in section 15, evidence of conformity required under paragraph 153(1)(b) of the Act shall be obtained and produced by a company in a form and manner that is satisfactory to the Minister instead of that specified in section 15.

17. On written request by the Minister for the evidence of conformity referred to in paragraphs 15(a) to (c) or section 16, the company shall provide the Minister with the evidence of conformity in respect of any engine manufactured in the eight years preceding the request, in either official language and

(a) within 40 days after the request is delivered to the company; or

(b) within 60 days after the request is delivered to the company, if the evidence of conformity must be translated from a language other than French or English.

IMPORTATION REQUIREMENTS AND DOCUMENTS

18. (1) Subject to subsection (2), any person importing an engine into Canada shall submit a declaration at a customs office, signed by that person or their duly authorized representative, that contains the following information:

(a) the name and street address and, if different, the mailing address of the importer;

(b) in respect of an engine that is not installed in or on a machine, the name of the manufacturer and the model and model year of the engine;

(c) in respect of a machine, the name of the manufacturer and the make, model and type of the machine;

(d) the date on which the engine is imported;

(e) in the case of a company, a statement that

(i) the engine bears the national emissions mark, or

(ii) the company is able to produce the evidence of conformity referred to in section 15 or complies with section 16; and

- (f) in the case of a person that is not a company,
- (i) a statement from the person that the engine bears
 - (A) the national emissions mark,
 - (B) the emission control information label referred to in paragraph 15(d) showing that the engine conformed to the emission standards of the EPA in effect at the time of its manufacture, or
 - (C) a label showing that the engine conformed to the emission standards of the California Air Resources Board in effect at the time of its manufacture, or
 - (ii) a statement from the manufacturer or its duly authorized representative that the engine conformed to the standards set out in these Regulations, or to the standards referred to in clause (i) (B) or (C), at the time of its manufacture.

(2) For the purposes of paragraph 153(1)(b) of the Act, any company that imports 50 or more engines into Canada in a calendar year may provide the information referred to in subsection (1) in any form and manner that is satisfactory to the Minister.

19. The declaration referred to in paragraph 155(1)(a) of the Act shall be signed by the person referred to in that paragraph or their duly authorized representative, and shall contain

- (a) the information described in paragraphs 18(1)(a) to (d);
- (b) a statement that the engine will be used in Canada solely for purposes of exhibition, demonstration, evaluation or testing; and
- (c) the date on which the engine will be removed from Canada or destroyed.

20. A company that imports an engine in reliance on subsection 153(2) of the Act shall submit a declaration at a customs office, signed by its duly authorized representative, that contains the information described in paragraphs 18(1)(a) to (d) and, in addition,

(a) a statement from the manufacturer of the engine that the engine will, when completed in accordance with instructions provided by the manufacturer, conform to the standards prescribed under these Regulations; and

(b) a statement from the company that the engine will be completed in accordance with the instructions referred to in paragraph (a).

RENTAL RATE

21. The annual rental rate to be paid to a company by the Minister under subsection 159(1) of the Act, prorated on a daily basis for each day that an engine is made available, is 12% of the manufacturer's suggested retail price of the engine.

EXEMPTION

22. A company applying under section 156 of the Act for an exemption from conformity with any standard prescribed under these Regulations shall submit in writing to the Minister

(a) its name, street address and, if different, its mailing address;

(b) the province or country under the laws of which it is established;

(c) the section number, title and text or substance of the standards from which an exemption is sought;

(d) the duration requested for the exemption;

(e) the estimated number of engines for which the exemption is sought and an estimate of the changes in the level of emissions if the exemption is granted;

(f) the reason for requesting the exemption, including technical and financial information that demonstrates in detail why conformity to the standards would

(i) create substantial financial hardship for the company,

(ii) impede the development of new features for emission monitoring or emission control that are equivalent or superior to those that conform to prescribed standards, or

(iii) impede the development of new kinds of engines or engine systems or components;

(g) if the basis of the application is substantial financial hardship,

(i) the world production of engines manufactured by the company or by the manufacturer that is the subject of the application in the 12-month period beginning two years before the start of the exemption period being sought, and

(ii) the total number of engines manufactured for, or imported into, the Canadian market in the 12-month period beginning two years before the start of the exemption period being sought;

(h) if the company is requesting that information submitted be treated as confidential under section 313 of the Act or otherwise, the reasons for the request; and

(i) the reasons why the granting of the exemption would be in the public interest and consistent with the objectives of the Act.

23. (1) In the case of a model of engine in respect of which the Governor in Council has, by order, granted an exemption under section 156 of the Act, a label shall be permanently applied immediately next to the national emissions mark or, if there is no national emissions mark, in a location described in subsection 7(3) and shall be resistant to or protected against any weather conditions.

(2) The label referred to in subsection (1) shall set out, in both official languages, the standard for which the exemption has been granted, as well as the title and date of the exemption order.

DEFECT INFORMATION

24. (1) The notice of defect referred to in subsections 157(1) and (4) of the Act shall be given in writing and shall contain the following information:

(a) the name of the company giving the notice;

(b) the description of each engine in respect of which the notice is given, including the model, model year, the period during which the engine was manufactured and, if applicable, the EPA engine family identification;

(c) the description of the machine or type of machine in or on which the engine is installed or is likely to be installed;

(d) the estimated percentage of the potentially affected engines that contain the defect;

(e) a description of the defect;

(f) an evaluation of the pollution risk arising from the defect;

(g) a statement of the measures to be taken to correct the defect; and

(h) a description of the means available to the company to contact the current owner of each affected engine.

(2) A company shall, within 60 days after giving a notice of defect, submit to the Minister the initial report referred to in subsection 157(7) of the Act containing

(a) the information required by subsection (1);

(b) the total number of engines in relation to which the notice of defect has been given;

(c) a chronology of all principal events that led to the determination of the existence of the defect;

(d) a description of the measures undertaken to correct the defect; and

(e) copies of all notices, bulletins and other circulars issued by the company in respect of the defect, including a detailed description of the nature and physical location of the defect with diagrams and other illustrations as necessary.

(3) If a company submits an initial report under subsection (2), it shall submit, within 45 days after the end of each quarter, quarterly reports to the Minister respecting the defect and its correction that contain the following information:

(a) the number, title or other identification assigned by the company to the notice of defect;

(b) the number of engines in relation to which the notice

of defect has been given;

(c) the date that notices of defect were given to the current owners of the affected engines; and

(d) the total number or percentage of engines repaired, including engines requiring inspection only.

COMING INTO FORCE

25. These Regulations come into force on the day on which they are registered.

SCHEDULE

(Subsection 7(1))

NATIONAL EMISSIONS MARK

