

Greater Vancouver Regional District

Non-Road Diesel Engine Emission Regulation Bylaw No. 1137, 2011

Whereas:

- A. The *Environmental Management Act* authorizes the Greater Vancouver Regional District to provide the service of air pollution control and air quality management and, for that purpose, the Board of the Greater Vancouver Regional District may, by bylaw, prohibit, regulate and otherwise control and prevent the discharge of air contaminants;
- B. The *Environmental Management Act* authorizes the Greater Vancouver Regional District to, by bylaw, establish different prohibitions, regulations, rates or levels of fees, conditions, requirements and exemptions for different persons, operations, activities, industries, trades, businesses, air contaminants or works, to establish different classes of persons, operations, activities, industries, trades, businesses, air contaminants and works, and to require the keeping of records and the provision of information respecting air contaminants and their discharge; and
- C. It is deemed desirable to regulate the discharge of particulate matter from non-road diesel engines.

NOW THEREFORE the Board of Directors of the Greater Vancouver Regional District in an open meeting duly assembled enact as follows:

Citation

1. For citation purposes, the name of this bylaw is the "Greater Vancouver Regional District Non-Road Diesel Engine Emission Regulation Bylaw No. 1137, 2011" ("this bylaw").

Definitions

2. In this bylaw:

“**annual**” means a consecutive 365-day period;

“**approved**” means an approval given by the district director;

“**emission reduction measure**” includes a retrofit, re-power, re-manufacture, or similar device, alteration or technological change made to a non-road diesel engine that reduces the particulate matter emission rate;

“**emission standard**” means the particulate matter emission standard for each engine tier classification as determined by the district director;

“**engine tier classification**” means the classification of a non-road diesel engine as determined in accordance with Schedule 1;

“**government body**” includes a federal, provincial, and local government body, including an agency or ministry of the Crown in right of Canada or British Columbia, and any other body or entity prescribed by the district director;

“**hp**” means the maximum horsepower of a non-road diesel engine;

“**kW**” means the maximum power of a non-road diesel engine expressed in kilowatts;

“**label**” means a label, decal or other approved mark;

“**land owner**” means a person who is in possession, has the right to control, or occupies or controls the use of land on which a non-road diesel engine is or will be operated;

“**low-use engine**” means a non-road diesel engine operated within the Greater Vancouver Regional District for a cumulative total of 200 hours or less in a consecutive 365-day period;

“**machine**” includes a stationary or mobile vehicle, equipment, device, appliance or implement that is powered by a non-road diesel engine;

“monthly” means a consecutive 30-day period;

“non-road diesel engine” means a diesel-fueled or alternative diesel-fueled compression ignition engine in a machine that is not primarily used or intended to be used for transportation on a public street, road or highway;

“opacity” means the degree to which the discharge of an air contaminant reduces the passage of light or obscures the view of a background object as determined through the use of an opacity meter, or by a certified observer and expressed numerically from 0 per cent (transparent) to 100 per cent (opaque), averaged over a 6-minute period, measured at the point of discharge into the air;

“operator” means a person who is in control of or responsible for the operation of a non-road diesel engine;

“owner” means a person who is in possession of, has the right to control, or occupies or controls the operation of a non-road diesel engine;

“particulate matter” means the particles emitted into the environment from the exhaust of a non-road diesel engine;

“particulate matter emission rate” means the rate of particulate matter emitted from a non-road diesel engine, expressed in grams of particulate matter per horsepower-hour;

“period of registration” means the number of days for which the registration of a non-road diesel engine is valid;

“person” includes a land owner, an owner, an operator and a government body and any director, officer, employee or agent of a person or government body;

“registrant” means a person who has paid the registration fee for the period of registration;

“registration fee” means the fee prescribed in Schedule 2 for the period of registration;

“registration number” means the unique identification number issued under this bylaw;

“retire” means a Tier 0 or Tier 1 non-road diesel engine that is permanently retired from present and future operation;

“**Tier 0**” means the engine tier classification of a non-road diesel engine as Tier 0 in accordance with Schedule 1;

“**Tier 1**” means the engine tier classification of a non-road diesel engine as Tier 1 in accordance with Schedule 1;

“**Tier 2**” means the engine tier classification of a non-road diesel engine as Tier 2 in accordance with Schedule 1;

“**upgrade**” means to make an approved emission reduction measure to a non-road diesel engine;

“**written anti-idling procedures**” means a written policy or procedure established for the operation of a machine.

3. Terms defined in the *Greater Vancouver Regional District Air Quality Management Bylaw No. 1082, 2008* or incorporated by reference into that bylaw have the same meaning in this bylaw.
4. References in this bylaw to an enactment include the enactment as it may be amended from time to time.

Part 1 – Scope of this Bylaw

5. A person must not discharge, or cause, permit, or allow the discharge of any air contaminant into the environment from a non-road diesel engine unless in compliance with this bylaw.
6. This bylaw applies to all non-road diesel engines having a maximum power of 25 hp or greater (37 kW or greater).
7. This bylaw does not apply to non-road diesel engines that power:
 - (1) machines used in agricultural operations;
 - (2) personal recreational machines, including personal snow mobiles and all-terrain vehicles; or

(3) emergency generators or other stationary machines intended to be operated only in cases of emergency.

8. A person who is in compliance with the *Greater Vancouver Regional District Air Quality Management Bylaw No. 1082, 2008* and this bylaw is exempt from the application of section 5 of the *Greater Vancouver Regional District Air Quality Management Bylaw No. 1082, 2008* and from subsections 6(2) and 6(3) of the *Environmental Management Act* in relation to the discharge of air contaminants from a non-road diesel engine if the person is also in compliance with all other applicable provisions of the *Environmental Management Act*.

Part 2 – Commencement

9. Effective January 1, 2012, a person who causes, permits or allows the operation of a non-road diesel engine must comply with Part 9 of this bylaw.
10. Effective January 1, 2012, a person who causes, permits or allows the operation of a Tier 0 non-road diesel engine must comply with the registration and labelling requirements in this bylaw.
11. Effective January 1, 2014, a person who causes, permits or allows the operation of a Tier 1 non-road diesel engine must comply with the registration and labelling requirements in this bylaw.

Part 3 – Registration Requirements

12. In order to effect the registration required in sections 10 and 11, the person must, prior to operation of the non-road diesel engine:

(1) provide the following registration information to the district director:

- (a) the name, mailing address and telephone number of the person who will operate the non-road diesel engine;

- (b) the name of the company or government body under which the person conducts the industry, trade or business, if applicable;
 - (c) the maximum power and year of manufacture of the non-road diesel engine;
 - (d) the engine serial number;
 - (e) the engine tier classification as determined in accordance with Schedule 1; and
 - (f) any additional registration information required under Parts 5, 6 and 7, if applicable;
- and
- (2) pay the registration fee for the engine tier classification of that non-road diesel engine for the period of registration prescribed in Schedule 2 or under Part 6, if applicable.
13. On providing the registration information and paying the registration fee for the period of registration, the district director will issue a registration number to the registrant.
14. A registration number is valid for the period of registration of the non-road diesel engine and expires on:
- (1) the last day of the period of registration; or
 - (2) the date on which an instalment payment amount, as determined in accordance with Schedule 2, is due but not paid.
15. Unless otherwise approved, the registration number must be:
- (1) displayed at all times during operation of the non-road diesel engine;
 - (2) on the exterior housing of the machine or otherwise be visible clearly from the exterior of the machine; and
 - (3) in black characters at least 10 cm (4 in.) tall and 6 cm (2.5 in.) wide on a yellow or white background.
16. If, prior to expiry of registration, a registrant:
- (1) cancels registration; or
 - (2) amends the registration information in accordance with Part 6,

then the district director must refund to the registrant the portion of the registration fee for the number of days in the period of registration that are unexpired on the date of cancellation or amendment less a \$15 administration fee.

Part 4 – Labelling Requirements

17. In order to effect the labelling required in sections 10 and 11, prior to operation of the non-road diesel engine, the machine must:
- (1) have a “T0” label if it is a Tier 0 non-road diesel engine or the particulate matter emitted does not meet the emission standard of a Tier 1 non-road diesel engine; or
 - (2) have a “T1” label if it is a Tier 1 non-road diesel engine or the particulate matter emitted meets the emission standard of a Tier 1 non-road diesel engine but does not meet the emission standard of a Tier 2 non-road diesel engine.
18. A machine is exempt from the labelling requirement if it is a Tier 2 non-road diesel engine or the particulate matter emitted meets the emission standard of at least a Tier 2 non-road diesel engine.
19. Unless otherwise approved, a label required by this bylaw must be:
- (1) painted on or otherwise permanently affixed to the exterior housing of the machine;
 - (2) in black characters at least 15 cm (6 in.) tall and 10 cm (4 in.) wide on a yellow or white background;
 - (3) located at least 1.5 metres (5 feet) above ground; and
 - (4) visible and legible clearly at all times during operation of the non-road diesel engine.

Part 5 – Low-Use Engine Requirements

20. A person who causes, permits or allows the operation of a non-road diesel engine within the Greater Vancouver Regional District for a cumulative total of 200 hours or less in an annual

period of registration may register that non-road diesel engine as a low-use engine and pay the low-use registration fee prescribed in Schedule 2.

21. Prior to the operation of a low-use engine, the following information must be submitted to the district director in addition to the information required under Part 3:
 - (1) the dates and number of hours during which the person intends to operate the low-use engine;
 - (2) the cumulative number of hours that the low-use engine has been operated during the period of registration; and
 - (3) the location(s) in the Greater Vancouver Regional District where the low-use engine will be operated.
22. Every person who causes, permits or allows the operation of a low-use engine must keep accurate records of the dates and number of hours of operation of the low-use engine.
23. A person required under section 22 to keep records must:
 - (1) record the information required under section 21 for the duration of the period of registration;
 - (2) retain the record for not less than three years after the year in which the record was first made; and
 - (3) make the records available for inspection by, or submit copies to, the district director or an officer within 48 hours of being requested to do so by the district director or officer.
24. The registration of a non-road diesel engine as a low-use engine under this Part is immediately invalidated if that non-road diesel engine is used for more than a cumulative total of 200 hours in the period of registration.

Part 6 – Engines with Approved Emission Reduction Measures

25. A person who causes, permits or allows the operation of a Tier 0 or Tier 1 non-road diesel engine with an approved emission reduction measure is exempt from the requirement to pay

a registration fee under Part 3 if, as a result of the approved emission reduction measure, the particulate matter emission rate of that Tier 0 or Tier 1 non-road diesel engine meets the emission standard of at least a Tier 2 non-road diesel engine.

26. A person who causes, permits or allows the operation of a Tier 0 non-road diesel engine with an approved emission reduction measure that, as a result of the approved emission reduction measure, has a reduced particulate matter emission rate but it does not meet the emission standard of a Tier 1 non-road diesel engine, is eligible to pay a reduced registration fee as determined in accordance with Schedule 3.

27. A person who causes, permits or allows the operation of a Tier 0 or Tier 1 non-road diesel engine with an approved emission reduction measure that, as a result of the approved emission reduction measure, has a reduced particulate matter emission rate such that it meets the emission standard of a Tier 1 but not a Tier 2 non-road diesel engine, is eligible to pay a reduced registration fee as determined in accordance with Schedule 3.

28. In order to be eligible for the exemption from the registration fee under section 25 or the reduced registration fee under sections 26 and 27, the person must, prior to the operation of the non-road diesel engine with an approved emission reduction measure, provide the following additional registration information to the district director:

(1) an accurate and detailed description of the emission reduction measure made to that non-road diesel engine; and

(2) upon request, any other information that the district director or an officer deems is necessary to evaluate the emission reduction measure or the application of this Part.

29. The registration of a non-road diesel engine with an approved emission reduction measure under this Part is immediately invalidated if the approved emission reduction measure is modified, tampered with, removed or otherwise does not operate to reduce the particulate matter emission rate in the manner for which the district director gave approval.

30. If an approved emission reduction measure is modified, tampered with, removed, or otherwise changed, a person who causes, permits or allows the operation of that non-road diesel engine must, prior to operation:
- (1) amend the registration information; and
 - (2) pay the registration fee for the engine tier classification with which the non-road diesel engine conforms.

Part 7 – Partial Fee Refunds

31. A registrant who:
- (1) upgrades a Tier 0 or Tier 1 non-road diesel engine and, as a result of upgrading, the particulate matter emission rate of that Tier 0 or Tier 1 non-road diesel engine meets the emission standard of at least a Tier 2 non-road diesel engine; or
 - (2) permanently retires a Tier 0 or Tier 1 non-road diesel engine from operation; and
 - (3) notifies the district director within 365 days of such upgrading or retirement
- is eligible for a refund of 80% of the registration fees paid in the 1095 days immediately prior to the upgrading or retirement.
32. A registrant who is eligible for a partial refund under this Part must submit any information that the district director or an officer deems necessary to evaluate the application of this Part before the partial refund is given.

Part 8 – Registration Restrictions Effective January 1, 2015

33. If, by December 31, 2014, a Tier 0 non-road diesel engine:
- (1) has not been registered for any period of registration;
 - (2) has registered but the cumulative total days of registration is less than 90 days;
 - (3) has been retired; or

(4) has an approved emission reduction measure but the approved emission reduction measure has been modified, tampered with, removed or otherwise does not operate to reduce the particulate matter emission rate to meet the emission standard of at least a Tier 2 non-road diesel engine

then effective January 1, 2015, that non-road diesel engine may not be registered.

34. If, by December 31, 2019 , a Tier 1 non-road diesel engine:

(1) has not been registered for any period of registration;

(2) has registered but the cumulative total days of registration is less than 90 days;

(3) has been retired; or

(4) has an approved emission reduction measure but the approved emission reduction measure has been modified, tampered with, removed or otherwise does not operate to reduce the particulate matter emission rate to meet the emission standard of at least a Tier 2 non-road diesel engine

then effective January 1, 2020, that non-road diesel engine may not be registered.

Part 9 – Opacity and Idling Restrictions

35. A person must not cause, permit or allow the operation of a non-road diesel engine if the discharge of air contaminants from that non-road diesel engine exceeds 20% opacity, measured after the first three minutes of the start-up of that non-road diesel engine.

36. Subject to section 37, a person must not idle a non-road diesel engine for more than five consecutive minutes.

37. A person may idle a non-road diesel engine for more than five consecutive minutes if idling is:

(1) necessary to ensure the safe operation of the machine or to verify that the machine is in good working order or complies with other conditions specified by the machine manufacturer's manual or other technical document prescribed for that machine;

- (2) for testing, servicing, repairing, or diagnostic purposes, including regeneration of a diesel particulate filter;
- (3) necessary to serve the purpose of the machine in the course of its operation, including during the operation of a crane, cement mixer, cherry picker, boom lift or similar machine;
- (4) in the performance of emergency work or for public safety purposes; or
- (5) in accordance with an approved written anti-idling procedure.

38. A person who causes, permits or allows idling of a non-road diesel engine in accordance with a written anti-idling procedure under subsection 37(5) must submit the written anti-idling procedure to the district director or an officer within 24 hours of being requested to do so by the district director or officer.

Part 10 – Offences

39. A person who gives false information required under this bylaw commits an offence and is liable on conviction to a fine not exceeding \$200,000.
40. A person who contravenes any provision of this bylaw commits an offence and is liable on conviction to a fine not exceeding \$200,000.
41. Nothing in this bylaw limits the district director or the Greater Vancouver Regional District from utilizing any other remedy that would otherwise be available at law.

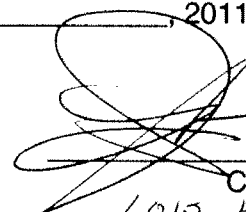
Read a first time this 25 day of February, 2011.

Read a second time this 25 day of February, 2011.

Read a third time this 25 day of February, 2011.

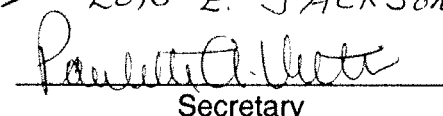
Reconsidered, passed and finally adopted by the Board of Directors of the Greater Vancouver

Regional District this 25 day of February, 2011.



Chair

LOIS E. JACKSON



Secretary

Paulette A. Vetteson

Schedule 1

Engine Tier Classifications

1. “Tier 0” means a non-road diesel engine that has a maximum engine power as specified in Column 1 of Table 1 and:
 - (1) was manufactured for sale in Canada, the United States, or Europe during the period specified in Column 2 of Table 1; or
 - (2) cannot be demonstrated, to the satisfaction of the district director, to meet the emission standard of a Tier 1 or Tier 2 non-road diesel engine.
2. “Tier 1” means a non-road diesel engine that has a maximum engine power as specified in Column 1 of Table 1 and:
 - (1) was manufactured for sale in Canada, the United States or Europe during the period specified in Column 3 of Table 1; or
 - (2) can be demonstrated, to the satisfaction of the district director, to meet the emission standard of a Tier 1 non-road diesel engine.
3. “Tier 2” means a non-road diesel engine that has a maximum engine power as specified in Column 1 of Table 1 and:
 - (1) was manufactured for sale in Canada, the United States or Europe during the period specified in Column 4 of Table 1; or
 - (2) can be demonstrated, to the satisfaction of the district director, to meet the emission standard of a Tier 2 non-road diesel engine.

Table 1 – Engine Tier Classifications

Column 1	Column 2	Column 3	Column 4
Maximum Engine Power or Machine Type	Tier 0	Tier 1	Tier 2
19 ≤ kW < 37 (25 ≤ hp < 50)	1998 and prior years	1999 to 2003 inclusive	2004 and later years
37 ≤ kW < 75 (50 ≤ hp < 100)	1997 and prior years	1998 to 2003 inclusive	2004 and later years
75 ≤ kW < 130 (100 ≤ hp < 175)	1996 and prior years	1997 to 2002 inclusive	2003 and later years
130 ≤ kW < 225 (175 ≤ hp < 300)	1995 and prior years	1996 to 2002 inclusive	2003 and later years
225 ≤ kW < 450 (300 ≤ hp < 600)	1995 and prior years	1996 to 2000 inclusive	2001 and later years
450 ≤ kW < 560 (600 ≤ hp < 750)	1995 and prior years	1996 to 2001 inclusive	2002 and later years
560 ≤ kW < 900 (750 ≤ hp < 1,200)	1999 and prior years	2000 to 2005 inclusive	2006 and later years
kW ≥ 900 (hp ≥ 1,200)	1972 and prior years	1973 to 2001 inclusive	2002 and later years

Schedule 2

Registration Fees

Annual Registration

1. The registration fee for an annual period of registration is calculated as follows:

$$\text{annual registration fee} = \text{hp} \times \text{prorated annual fee rate} + \$15$$

Where:

prorated annual fee rate is $\frac{[\text{current year fee rate} \times D] + [\text{next year fee rate} \times (365-D)]}{365 \text{ days}}$

D is the number of days calculated from the date of registration to December 31;

current year fee rate is the fee rate specified in Column 3 of Table 2 for the calendar year of registration specified in Column 1 of Table 2 and the engine tier classification specified in Column 2 of Table 2; and

next year fee rate is the fee rate specified in Column 3 of Table 2 for the calendar year after the year of registration specified in Column 1 of Table 2 and the engine tier classification specified in Column 2 of Table 2

2. An annual registration fee may be paid:

- (1) in full, in which the period of registration is for a consecutive 365-day period; or
- (2) in four instalments, in which case the period of registration is only for the instalment period for which the instalment fee is paid.

3. If the annual registration fee is paid in instalments under subsection 2(2) of this Schedule, the amount of an instalment payment:

- (1) which is due must be paid prior to the date of commencement of the instalment period in which the non-road diesel engine will be operated;
- (2) includes interest at 5% *per annum*; and
- (3) includes an administration fee of \$15.

Table 2 – Registration fees per horsepower

Column 1	Column 2	Column 3
Year	Engine Tier	Fee Rate (\$ per hp)
2012	0	4.00
2013	0	6.00
2014	0	8.00
	1	4.00
2015	0	10.00
	1	6.00
2016	0	14.00
	1	8.00
2017 and later	0	20.00
	1	10.00

Monthly Registration

4. The registration fee for a monthly period of registration is calculated as follows:

$$\text{monthly registration fee} = \text{hp} \times \text{number of months} \times \text{prorated monthly fee rate} + \$15$$

Where:

number of months is the number of months in the period of registration

prorated monthly fee rate is $\frac{[\text{current year fee rate} \times D] + [\text{next year fee rate} \times (T-D)]}{T \times 8}$

D is the number of days registered in the current calendar year of registration

T is the total number of days in the period of registration

current year fee rate is the fee rate specified in Column 3 of Table 2 for the calendar year of registration specified in Column 1 of Table 2 and the engine tier classification specified in Column 2 of Table 2; and

next year fee rate is the fee rate specified in Column 3 of Table 2 for the calendar year after the year of registration specified in Column 1 of Table 2 and the engine tier classification specified in Column 2 of Table 2.

Daily Registration

5. The registration fee for a daily period of registration is calculated as follows:

$$\text{daily registration fee} = \frac{\text{daily fee multiplier for}}{\text{number of days registered}} \times \text{current year fee rate} \times \text{hp} + \$15$$

Where:

current year fee rate is the fee rate specified in Column 3 of Table 2 for the calendar year of registration specified in Column 1 of Table 2 and the engine tier classification specified in Column 2 of Table 2;

daily fee multiplier is the multiplier specified in Column 2 of Table 3 for the number of days of registration specified in Column 1 of Table 3; and

number of days registered is the number of days of registration, up to a total of no more than 15 consecutive days, specified in Column 1 of Table 3.

Table 3 – Daily fee multiplier

Column 1	Column 2
Number of Days	Multiplier
1	0.0323
2	0.0456
3	0.0559
4	0.0645
5	0.0722
6	0.0791
7	0.0854
8	0.0913
9	0.0968
10	0.1021
11	0.1070
12	0.1118
13	0.1164
14	0.1208
15	0.1250

Low-Use Registration

6. The registration fee for a low-use engine is calculated as follows:

$$\text{low-use registration fee} = \frac{\text{prorated annual fee rate} \times \text{hp}}{4} + \$15$$

Where:

prorated annual fee rate is $\frac{[\text{current year fee rate} \times D] + [\text{next year fee rate} \times (365-D)]}{365 \text{ days}}$

D is the number of days calculated from the date of registration to December 31;

current year fee rate is the fee rate specified in Column 3 of Table 2 for the calendar year of registration specified in Column 1 of Table 2 and the engine tier classification specified in Column 2 of Table 2; and

next year fee rate is the fee rate specified in Column 3 of Table 2 for the calendar year after the year of registration specified in Column 1 of Table 2 and the engine tier classification specified in Column 2 of Table 2.

Schedule 3

Fee Reductions for Approved Emission Reduction Measures

1. The reduced registration fee for a non-road diesel engine with an approved emission reduction measure is calculated as follows:

$$\text{reduced registration fee} = \text{reduced fee rate} \times \text{hp} + \$15$$

Where:

reduced fee rate is the fee rate calculated in accordance with section 2 or section 3 of Schedule 3, as appropriate

2. The reduced fee rate for a Tier 0 non-road diesel engine with an approved emission reduction measure that does not meet the emission standard of a Tier 1 non-road diesel engine is calculated as follows:

$$\text{reduced fee rate} = \text{T1 rate} + \frac{\left[\frac{(100 - Y)}{100} \times \text{T0 standard} \right] - \text{T1 standard}}{\text{T0 standard} - \text{T1 standard}} \times (\text{T0 rate} - \text{T1 rate})$$

Where:

Y is the percentage of reduction in the particulate matter emission rate as a result of the approved emission reduction measure;

T0 rate is the fee rate for a Tier 0 non-road diesel engine without an approved emission reduction measure, for the period of registration;

T1 rate is the fee rate for a Tier 1 non-road diesel engine without an approved emission reduction measure, for the period of registration;

T0 standard is the emission standard of a Tier 0 non-road diesel engine; and

T1 standard is the emission standard of a Tier 1 non-road diesel engine.

3. The reduced fee rate for a Tier 0 or Tier 1 non-road diesel engine with an approved emission reduction measure that meets the emission standard of a Tier 1 non-road diesel engine but does not meet the emission standard of a Tier 2 non-road diesel engine is calculated as follows:

$$\text{reduced fee rate} = \frac{\left[\frac{(100 - Y)}{100} \times R \right] - \text{T2 standard}}{\text{T1 standard} - \text{T2 standard}} \times \text{T1 rate}$$

Where:

- R is the emission standard for the engine tier classification applicable to the non-road diesel engine without the approved emission reduction measure;
- Y is the percentage of reduction in particulate matter emission rate as a result of the approved emission reduction measure;
- T1 rate is the fee rate for a Tier 1 non-road diesel engine without an approved emission reduction measure, for the period of registration;
- T1 standard is the emission standard of a Tier 1 non-road diesel engine; and
- T2 standard is the emission standard of a Tier 2 non-road diesel engine.