PART 5

FINAL REGULATION ORDER

Tier 4 Off-Road Compression-Ignition Engines

Title 13 California Code of Regulations

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FINAL REGULATION ORDER

Note: This document is written in a style to indicate changes from the existing provisions. All existing regulatory language is indicated by plain type. All additions to the regulatory language are indicated by underlined type. All deletions to the regulatory language are indicated by ~~strikeout~~. Only those portions containing modifications from existing provisions are included. All other portions remain unchanged and are indicated by the symbol [* * * * *] for reference.

Article 4. Off-Road Compression-Ignition Engines and Equipment

Amend §§ 2421, 2423, 2424, 2425, 2425.1, 2426, and 2427, title 13, California Code of Regulations, to read as follows:

§ 2421. Definitions.

(a) The definitions in Section 1900(b), Chapter 3, Title 13 of the California Code of Regulations, shall apply with the following additions:

(1) "1996-1999 Heavy-Duty Test Procedures" means the document ~~en~~titled "California Exhaust Emission Standards and Test Procedures for New 1996-1999 Heavy-Duty Off-Road Compression-Ignition Engines, Part I-A," which includes the standards and test procedures applicable to 1996-1999 heavy-duty off-road compression-ignition engines, as adopted May 12, 1993, and as amended January 28, 2000. This document is incorporated by reference herein.

(2) "1996-1999 Smoke Test Procedures" means the document ~~en~~titled "California Smoke Test Procedures for New 1996-1999 Off-Road Compression-Ignition Engines, Part III," which includes the standards and test procedures applicable to 1996-1999 heavy-duty off-road compression-ignition engines, as adopted May 12, 1993, and as amended January 28, 2000. This document is incorporated by reference herein.

(3) "2000 Plus Limited Test Procedures" means the document titled "California Exhaust Emission Standards and Test Procedures for New 2000 and Later Tier 1, Tier 2, and Tier 3 Off-Road Compression-Ignition Engines, Part I-B," which includes the standards and test procedures applicable to 2000 and later model year off-road compression-ignition engines, as adopted January 28, 2000, and as amended October 20, 2005. This document is incorporated by reference herein.

(4)(A) "2008-2010 ~~and Later~~ Test Procedures" means the document titled "California Exhaust Emission Standards and Test Procedures for New 2008-2010 ~~and Later~~ Tier 4 Off-Road Compression-Ignition Engines," which

includes the standards and test procedures applicable to 2008-2010 ~~and later~~ model year off-road compression-ignition engines, as adopted October 20, 2005, and as last amended October 25, 2012. This document is incorporated by reference herein.

(B) "2011 and Later Test Procedures" means the collection of documents titled "California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Parts I-D, I-E, and I-F," which include, respectively, the emission standards, general compliance provisions, and engine testing procedures applicable to 2011 model year and later off-road compression engines, as adopted October 25, 2012. These documents are incorporated by reference herein.

* * * * *

(15) "Constant-speed engine" means

(A) for engines subject to the 2000 and Later Plus Limited Test Procedures, an off-road compression-ignition engine that is governed to operate only at rated speed, or

(B) for engines subject to the 2008-2010 ~~and Later~~ Test Procedures, an off-road compression-ignition engine certified to operate only at constant speed~~.~~, where ~~C~~constant-speed operation means engine operation with a governor that controls the operator input to maintain an engine at a reference speed, even under changing load. For example, an isochronous governor changes reference speed temporarily during a load change, then returns the engine to its original reference speed after the engine stabilizes. Isochronous governors typically allow speed changes up to 1.0 %. Another example is a speed-droop governor, which has a fixed reference speed at zero load and allows the reference speed to decrease as load increases. With speed-droop governors, speed typically decreases (3 to 10) % below the reference speed at zero load, such that the minimum reference speed occurs near the engine's point of maximum power, or

(C) for engines subject to the 2011 and Later Test Procedures, and off-road compression-ignition engine certified to operate only at constant speed, where constant-speed operation means engine operation with a governor that automatically controls the operator demand to maintain engine speed, even under changing load. Governors do not always maintain speed exactly constant. Typically speed can decrease (0.1 to 10) % below the speed at zero load, such that the minimum speed occurs near the engine's point of maximum power.

* * * * *

(19) “Date of manufacture” or “Build date” means one of the following:

(A) For engines, the date on which the crankshaft is installed in an engine block, with the following exceptions:

1. Reserved.

2. Manufacturers may assign a date of manufacture at a point in the assembly process later than the date otherwise specified under this definition. For example, a manufacturer may use the build date printed on the label or stamped on the engine as the date of manufacture.

(B) For equipment, the date on which the engine is installed, unless otherwise specified in this Article 4. Manufacturers may alternatively assign a date of manufacture later in the assembly process.

[NO CHANGES TO DEFINITIONS (19) – (33) EXCEPT TO RENUMBER TO (20)-(34)]

(~~34~~35) “Maximum Engine Power” means the maximum brake power point on the nominal power curve for a specific engine configuration, rounded to the nearest whole kilowatt. The “nominal power curve” of an engine configuration means the relationship between maximum available engine brake power and engine speed for a specific engine configuration, as determined using the mapping procedures specified in Part 1065 of the 2008-2010 ~~and Later~~ Test Procedures or Part I-F of the 2011 and Later Test Procedures as applicable, based on the manufacturer’s design and production specifications for that engine. This relationship may also be expressed by a torque curve that relates maximum available engine torque with engine speed. The nominal power curve shall be within the normal production variability of actual power curves for production engines of the same engine configuration. This definition of Maximum Engine Power shall be applicable for all references to a specific power value or range of power values with respect to engines subject to the 2008-2010 or 2011 and Later Test Procedures as applicable, except as otherwise noted or permitted by the Executive Officer. Maximum Engine Power shall be used as the basis for categorizing engine families into appropriate Tier 4 power categories.

(~~35~~36) “Maximum Rated Power” means the maximum brake kilowatt output of an engine at rated speed as stated by the manufacturer in the manufacturer’s sales and service literature and in the application for certification. Maximum Rated Power shall be used as the basis for categorizing engine families into appropriate Tier 1, Tier 2, and Tier 3 power categories, except as otherwise noted or permitted by the Executive Officer.

(~~36~~37) “Maximum Test Speed” has the same meaning as defined in Part 1065.1001 of the 2008-2010 and 2011 and Later Test Procedures.

(~~37~~38) “Model year” means the manufacturer’s annual production period which includes January 1 of a calendar year or, if the manufacturer has no annual production period, the calendar year. Other examples for the determination of model year are identified in §1039.801 of the 2008-2010 and the 2011 and Later Test Procedures, as applicable.

[NO CHANGES TO DEFINITIONS (38) – (64) EXCEPT TO RENUMBER TO (39)-(65)]

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code. Reference: Sections 43013, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

§ 2423. Exhaust Emission Standards and Test Procedures – Off-Road Compression-Ignition Engines.

(a) This section shall be applicable to new heavy-duty off-road compression-ignition engines, produced on or after January 1, 1996, and all other new 2000 and later model year off-road compression-ignition engines. For the purposes of this section, these engines shall be called “compression-ignition engines.”

(b)(1)(A) Exhaust emissions from new off-road compression-ignition engines, as sold in this state and as appropriate based on model year and maximum rated power, shall not exceed the levels contained in Table 1a with respect to steady-state testing. Table 1a follows:

Table 1a. – Tier 1, Tier 2, and Tier 3 Exhaust Emission Standards
(grams per kilowatt-hour)

Maximum Rated Power (kW)[1]	*Tier*	*Model Year*	*NO_x*[2]	*HC*[3]	*NMHC+ NO_x*[4]	*CO*[5]	*PM*[6]
kW<8	Tier 1	2000-2004	—	—	10.5	8.0	1.0
	Tier 2	2005-2007[7]	—	—	7.5	8.0	0.80
8≤kW<19	Tier 1	2000-2004	—	—	9.5	6.6	0.80
	Tier 2	2005-2007[7]	—	—	7.5	6.6	0.80
19≤kW<37	Tier 1	2000-2003	—	—	9.5	5.5	0.80
	Tier 2	2004-2007[7]	—	—	7.5	5.5	0.60
37≤kW<56	Tier 1	2000-2003	9.2	—	—	—	—
	Tier 2	2004-2007	—	—	7.5	5.0	0.40
	Tier 3[8]	2008-2011	—	—	4.7	5.0	0.40
56≤kW<75	Tier 1	2000-2003	9.2	—	—	—	—
	Tier 2	2004-2007	—	—	7.5	5.0	0.40
	Tier 3	2008-2011	—	—	4.7	5.0	0.40
75≤kW<130	Tier 1	2000-200~~3~~2	9.2	—	—	—	—
	Tier 2	2003-2006	—	—	6.6	5.0	0.30
	Tier 3	2007-2011	—	—	4.0	5.0	0.30
130≤kW<225	Tier 1	1996-2002	9.2	1.3	—	11.4	0.54
	Tier 2	2003-2005	—	—	6.6	3.5	0.20
	Tier 3	2006-2010	—	—	4.0	3.5	0.20
225≤kW<450	Tier 1	1996-2000	9.2	1.3	—	11.4	0.54
	Tier 2	2001-2005	—	—	6.4	3.5	0.20
	Tier 3	2006-2010	—	—	4.0	3.5	0.20
450≤kW≤560	Tier 1	1996-2001	9.2	1.3	—	11.4	0.54
	Tier 2	2002-2005	—	—	6.4	3.5	0.20
	Tier 3	2006-2010	—	—	4.0	3.5	0.20
kW>560	Tier 1	2000-2005	9.2	1.3	—	11.4	0.54
	Tier 2	2006-2010	—	—	6.4	3.5	0.20

1. kW means kilowatts.
2. NO_x means Oxides of Nitrogen.
3. HC means Hydrocarbons.
4. NMHC+NO_x means Non-Methane Hydrocarbons plus Oxides of Nitrogen.
5. CO means Carbon Monoxide.
6. PM means Particulate Matter.
7. Tier 2 standards for propulsion marine compression-ignition engines below 37 kW remain in effect beyond the 2007 end date.
8. Manufacturers may optionally certify engine families to the interim Tier 4 standards in Table 1b for this power category through 2012.

(B) Exhaust emissions from new off-road compression-ignition engines, as sold in this state and as appropriate based on model year and maximum engine power, shall not exceed the levels contained in Table 1b, with respect to steady-state testing, transient testing, and, after application of the criteria in Table 1c, not-to-exceed testing, as applicable. Other compliance options are ~~permissible as~~ provided in the 2008-2010 or 2011 and Later Test Procedures as applicable.

Table 1b. – Tier 4 Exhaust Emission Standards
(grams per kilowatt-hour)

Maximum Engine Power	*Model Year*	*Type*	*PM*	*NMHC+ NO~~X~~$_x$*	*NMHC*	*NO~~X~~$_x$*	*CO*
			grams per kilowatt-hour				
kW<8[1]	2008 and later	Final	0.40[2]	7.5	-	-	8.0
8≤kW<19[1]							6.6
19≤kW<37[1]	2008-2012	Interim	0.30	7.5	-	-	5.5
	2013 and later	Final	0.03	4.7			
37≤kW<56[3]	2008-2012	Interim	0.30	4.7	-	-	5.0
	2013 and later	Final	0.03				
56≤kW<75	2012-2014[4]	Phase-In	0.02	-	0.19	0.40	5.0
		Phase-Out		4.7	-	-	
		or/ Alt NO~~X~~$_x$		-	0.19	3.4[5]	
		or/ Alt NO$_x$+NMHC[8]		3.5[5]	-	-	
	2015 and later	Final		-	0.19	0.40	
75≤kW<130	2012-2014[4]	Phase-In	0.02	-	0.19	0.40	5.0
		Phase-Out		4.0	-	-	
		or/ Alt NO~~X~~$_x$		-	0.19	3.4[5]	
		or/ Alt NO$_x$+NMHC[8]		3.5[5]	-	-	
	2015 and later	Final		-	0.19	0.40	
130≤kW≤560	2011-2013	Phase-In	0.02	-	0.19	0.40	3.5
		Phase-Out		4.0	-	-	
		or/ Alt NO~~X~~$_x$		-	0.19	2.0	
		or/ Alt NO$_x$+NMHC[8]		2.1	-	-	
	2014 and later	Final		-	0.19	0.40	
560 kW<GEN[6]≤900 kW	2011-2014	Interim	0.10	-	0.40	3.5	3.5
	2015 and later	Final	0.03		0.19	0.67	
GEN>900 kW	2011-2014	Interim	0.10	-	0.40	0.67	3.5
	2015 and later	Final	0.03		0.19		
ELSE[7]>560 kW	2011-2014	Interim	0.10	-	0.40	3.5	3.5
	2015 and later	Final	0.04		0.19		

Notes:

1 Propulsion marine compression-ignition engines below 37 kW are not subject to Tier 4 standards or requirements. All previously adopted requirements remain applicable for these engines.

2 The Tier 4 PM standard for hand-start, air cooled, direct injection engines below 8 kW is 0.60 g/kW-hr, but is not required until 2010.

3 Engine families in this power category may alternately meet Tier 3 PM standards from 2008-2011 in exchange for introducing final PM standards in 2012.

4 Manufacturers have the option of complying with the Tier 4 standards over a two year period at 50% per year using banked Tier 2 credits or over a three year period at 25% per year without the use of Tier 2 credits. The three year phase-in period is shown. The 2014 model year cannot extend beyond December 30, 2014, when the 3 year phase-in option is used.

5 Manufacturers may comply with the standards during the transitional implementation years using either a phase-in / phase-out approach or by using the Alternate NOx approach. The three year 25% alternate NO$_x$ ~~standard~~ and alternate NO$_x$ + NMHC standards ~~is~~are shown in the table. The two year 50% ~~phase-in~~ alternate NO$_x$ standard would be 2.3 g/kW-hr. The two year 50% alternate NO$_x$ + NMHC standard would be 2.4 g.kW-hr.

6 "GEN" refers to generator engines only.

7 "ELSE" refers to all mobile machinery excluding generator engines.

8 An ALT NO$_x$+NMHC standard equal to 0.5 g/kW-hr is available for one additional model year following the last model year of the ALT NO$_x$+NMHC phase-in shown in the table.

Table 1c. – Criteria for Determining NTE Limits[1]

Pollutant	*Apply NTE Multiplier of 1.25 when ...*	*Apply NTE Multiplier of 1.50 when ...*
NOx	NOx Standard or FEL ≥ 2.5 g/kW-hr	NOx Standard[2] or FEL< 2.5 g/kW-hr
NMHC	NOx Standard or FEL ≥ 2.5 g/kW-hr	NOx Standard[2] or FEL< 2.5 g/kW-hr
NMHC+NOx	NMHC+NOx Standard or FEL ≥ 2.7 g/kW-hr	NMHC+NOx Standard[2] or FEL< 2.7 g/kW-hr
PM	PM Standard or FEL ≥ 0.07 g/kW-hr	PM[2] Standard or FEL[3]< 0.07 g/kW-hr
CO	Always	Never

Notes:
1 Other provisions described in the 2008-2010 or 2011 and Later Test Procedures may affect the calculation of NTE limits.
2 Engines must be certified to these standards without the use of ABT credits.
3 For engines certified to a PM FEL less than or equal to 0.01 g/kW-hr, the PM NTE limit shall be 0.02 g/kW-hr.

(2) Manufacturers may elect to include engine families in one of two averaging, banking, and trading (ABT) programs, corresponding to the engine family's model year and emissions categorization. The provisions of these separate ABT programs are specified in Part 89, Subpart C of the 2000 Plus Limited Test Procedures and Part 1039, Subpart H of the 2008-2010 or Part I-D of the 2011 and Later Test Procedures as applicable.

(A) For engine families subject to the 2000 Plus Limited Test Procedures, the manufacturer must set a family emission limit (FEL) not to exceed the levels contained in Table 2a. The FEL established by the manufacturer serves as the emission standard for that engine family. Table 2a follows:

Table 2a – Upper Limit for Tier 1, Tier 2, and Tier 3 Family Emission Limits (FEL)
(grams per kilowatt-hour)

Maximum Rated Power (kW)	*Tier*	*Model Year*	*NO_x*	*$NMHC+NO_x$*	*PM FEL*
kW<8	Tier 1	2000-2004		16.0	1.2
	Tier 2	2005-2007		10.5	1.0
8≤kW<19	Tier 1	2000-2004		16.0	1.2
	Tier 2	2005-2007		9.5	0.80
19≤kW<37	Tier 1	2000-2003		16.0	1.2
	Tier 2	2004-2007		9.5	0.80
37≤kW<56	Tier 1	2000-2003	14.6		
	Tier 2	2004-2007		11.5	1.2
	Tier 3[1]	2008-2011		7.5	1.2
56≤kW<75	Tier 1	2000-2003	14.6		
	Tier 2	2004-2007		11.5	1.2
	Tier 3	2008-2011		7.5	1.2
75≤kW<130	Tier 1	2000-2002	14.6		
	Tier 2	2003-2006		11.5	1.2
	Tier 3	2007-2011		6.6	1.2
130≤kW<225	Tier 1	2000-2002	14.6		
	Tier 2	2003-2005		10.5	0.54
	Tier 3	2006-2010		6.6	0.54
225≤kW<450	Tier 1	2000	14.6		
	Tier 2	2001-2005		10.5	0.54
	Tier 3	2006-2010		6.4	0.54
450≤kW≤560	Tier 1	2000-2001	14.6		
	Tier 2	2002-2005		10.5	0.54
	Tier 3	2006-2010		6.4	0.54
kW>560	Tier 1	2000-2005	14.6		
	Tier 2	2006-2010		10.5	0.54

1. Manufacturers may optionally certify engine families to the interim Tier 4 FEL caps in Table 2b for this power category through 2012.

(B) For engine families subject to the 2008-2010 or 2011 and Later Test Procedures, the manufacturer must set a family emission limit (FEL) not to exceed, as applicable, the levels contained in Table 2b. Three distinct FEL types (primary, interim, and alternate) are available conditionally. Primary FEL types are applicable to all power categories indefinitely, whereas interim and alternate FEL types are of variable duration

and may be selectively applied as applicable to total or partial engine family production volumes as described in the 2008-2010 or 2011 and Later Test Procedures. The FEL established by the manufacturer serves as the emission standard for that engine family, and is used for determining NTE limits in conjunction with the criteria in Table 1c. Temporary compliance adjustment factors, as explained in the 2008-2010 and 2011 and Later Test Procedures as applicable, shall be applied by the manufacturer to compensate for the use of transitional alternate FELs (Type ALT 20% in Table 2b) when calculating emission credits. Table 2b follows:

Table 2b – Upper Limit for Tier 4 Family Emission Limits (FELs) and Alternate Allowances
Part 1

Maximum Engine Power	*FEL Type*	*Model Year*	*PM*	*NO~~X~~$_x$*	*NMHC+ NO~~X~~$_x$*
			grams per kilowatt-hour		
kW<8	Primary	2008 and later	0.80	-	10.5
8≤kW<19	Primary	2008 and later	0.80	-	9.5
19~~<~~≤kW<37	Interim	2008-2012	0.60	-	9.5
	Primary	2013 and later	0.05	-	7.5
	ALT 20%[1]	2013-2016[3]	0.30	-	7.5
	ALT 5%[2]	2017 and later[3]			
37≤kW<56	Interim	2008-2012[3]	0.40	-	7.5
	Primary	2013 and later[3]	0.05	-	7.5
	ALT 20%	2013-2016[3]	0.30	-	7.5
	ALT 5%	2017 and later[3]			
56≤kW<75	Phase-in	2012-2013/2014[5]	0.04	0.80	-
	Phase-out			-	7.5
	~~Alternate~~ALT NOx Std[4]	2012-2013	0.04	3.0[7]	-
		2012-2014		4.4	
	ALT NO_x+NMHC Std[4]	2012-2013/2014[5]	0.04	-	4.7[7]
	Primary	2014/2015[5] and later	0.04	0.80	-
	ALT 20% PM	2012-2015	0.40		-
	ALT 20% NO~~X~~$_x$	20~~14~~12-2015[6]		4.4	-
	ALT 20% NO_x+NMHC Std	2012-2015[6]	-	-	4.7
	ALT 5%	2016 and later	0.40	4.4	-

Notes:

1 This alternate FEL option is transitional for the four years specified and applies to at most 20% of a manufacturer's U.S. directed population of engine families per year.

2 This alternate FEL option is available indefinitely, but only applies to 5% of a manufacturer's U.S. directed population of engine families per year.

3 These dates correspond to the compliance option of meeting interim standards in 2008; else the primary and alternate FEL caps would begin and/or end one year earlier~~,~~ and 2008-2011 engines would not be eligible for participation in the Tier 4 ABT program.

4 Two alternate NO_x standards and corresponding FEL caps are available for this category with corresponding alternate phase-in options. Two alternate NO_x+NMHC standards are also available; the FEL caps are the previously applicable NO_x+NMHC standards from Table 1a of this section.

5 The effective date of the primary FEL cap follows the phase-in period and use of banked Tier 2 NO_x credits of the selected NO_x FEL cap.

6 ~~If interim Tier 4 standards are not met in 2008, the alternate NOx FEL would only be available for 2015~~For manufacturers certifying engines in this power category using a percentage phase-in/phase-out approach instead of the ALT NO_x or ALT NO_x+NMHC standards in Table 1b of §2423(b)(1)(B), the alternate NO_x and NO_x+NMHC FEL caps in the table apply only in the 2014-2015 model years if certifying in accordance with the provisions in §1039.102(d)(1) of the 2011 and Later Test Procedures, and only in the 2015 model year if certifying under §1039.102(d)(2) of the 2011 and Later Test Procedures.

7 If neither the alternate phase-in option nor banked Tier 2 credits are used, either NOx standard, or the NO_x+NMHC standard, and corresponding FEL may be applied for this category.

Table 2b – Upper Limit for Tier 4 Family Emission Limits (FELs) and Alternate Allowances Part 2

Maximum Engine Power	*FEL Type*	*Model Year*	*PM*	*NO~~X~~$_X$*	*NMHC+ NO~~X~~$_X$*
			grams per kilowatt-hour		
75≤kW<130	Phase-in	2012-2013/2014[5]	0.04	0.80	-
	Phase-out			-	6.6
	~~Alternate~~ALT NO~~x~~$_x$ Std[4]	2012-2013		3.0[7]	-
		2012-2014		3.8	-
	ALT NO$_x$+NMHC Std[4]	2012-2013/2014[5]		-	4.0[7]
	Primary	2014/2015[5] and later		0.80	-
	ALT 20% PM	2012-2015	0.30		-
	ALT 20% NO~~X~~$_X$	20~~14~~12-2015[6]		3.8	-
	ALT 20% NO$_x$+NMHC Std[4]	2012-2015[6]	-	-	4.0
	ALT 5%	2016 and later	0.30	3.8	-
130≤kW≤560	Phase-in	2011-2013	0.04	0.80	-
	Phase-out			-	6.6/6.4[8]
	~~Alternate~~ALT NO~~x~~$_x$ Std	2011-2013		2.7	-
	ALT NOx+NMHC Std	2011-2013		-	4.0
	Primary	2014 and later		0.80	-
	ALT 20% PM	2011-2014	0.20		-
	ALT 20% NO~~X~~$_X$	2011-2014[9]		3.8	-
	ALT 20% NO$_x$+NMHC Std	2011-2014[9]	-	-	4.0
	ALT 5%	2015 and later	0.20	3.8	-
GEN>560kW	Interim	2011-2014	0.20	6.2	-
	Primary	2015 and later	0.05	1.07	-
	ALT 20%	2015-2018	0.10	3.5	-
	ALT 5%	2019 and later			-
ELSE>560kW	Interim	2011-2014	0.20	6.2	-
	Primary	2015 and later	0.07		-
	ALT 20%	2015-2018	0.10		-
	ALT 5%	2019 and later			-

Notes:

4 Two alternate NO$_x$ standards and corresponding FEL caps are available for this category with corresponding alternate phase-in options. Two alternate NO$_x$+NMHC standards are also available; the FEL caps are the previously applicable NO$_x$+NMHC standards from Table 1a of this section.

5 The effective date of the primary FEL cap follows the phase-in period and use of banked Tier 2 NOx credits of the selected NOx FEL cap.

6 ~~If interim Tier 4 standards are not met in 2008, the alternate NOx FEL would only be available for 2015~~For manufacturers certifying engines in this power category using a percentage phase-in/phase-out approach instead of the ALT NO$_x$ or ALT NO$_x$+NMHC standards in Table 1b of §2423(b)(1)(B), the ALT NO$_x$ and ALT NO$_x$+NMHC FEL caps in the table apply only in the 2014-2015 model years if certifying in accordance with the provisions in §1039.102(d)(1) of the 2011 and Later Test Procedures, and only in the 2015 model year if certifying under §1039.102(d)(2) of the 2011 and Later Test Procedures.

7 If neither the alternate phase-in option nor banked Tier 2 credits are used, either NOx standard, or the NO$_x$+NMHC standard, and corresponding FEL may be applied for this category.

8 The phase-out NMHC+NOX FEL cap is 6.6 g/kW-hr for engines < 225 kW, and 6.4 g/kW-hr for engines ≥ 225 kW in this category.

9 For manufacturers certifying engines in this power category using the percentage phase-in/phase-out approach instead of the ALT NO$_x$ standard or the ALT NO$_x$+NMHC standard in Table 1b of §2423(b)(1)(B), the ALT NO$_x$ and ALT NO$_x$+NMHC FEL caps in the table applies only for the 2014 model year.

(C) ~~Split family provision~~ *Split family provision*. For generating or using credits in the 56 ≤ kW ≤ 560 power categories during the phase-in of Tier 4 standards, engine manufacturers may elect to split an engine family into two subfamilies (e.g., one which uses credits and one which generates credits for the same pollutant). The engine manufacturer must indicate in the application for certification that the engine family is to be split, and may calculate emission credits relative to different emission standards (i.e., phase-in and phase-out standards) for different sets of engines within the engine family, but must certify the engine family to a single set of standards and FELs. The engine manufacturer shall calculate NMHC+NOx emission credits by adding the NOx FEL to the NMHC phase-in standard for comparison with the applicable NMHC+NOx phase-out standard. Any engine family certified under the provisions of this paragraph (C) must meet the applicable phase-in standard for NMHC. The engine manufacturer shall be responsible for assigning the number and configurations of engines within the respective subfamilies before the due date of the final report required in Part 1039, Subpart H of the 2008-2010 Test Procedures or Part I-D of the 2011 and Later Test Procedures, as applicable. The same label must be applied to each engine in the family, and must include the NOx FEL to which the engine is certified.

(3)(A) The opacity of smoke emissions from new 1996 through 1999 model year heavy-duty off-road compression-ignition engines 175 to 750 horsepower, inclusive, or from all new 2000 and later model year compression-ignition engines sold in this ~~s~~State, shall not exceed, based on the applicable measurement techniques specified in Part 89, Subpart B of the 2000 Plus Limited Test Procedures and Part 1039, Subpart B of the 2008-2010 Test Procedures or Part I-D of the 2011 and Later Test Procedures as applicable, the following:

1. 20 percent during the engine acceleration mode.
2. 15 percent during the engine lugging mode.
3. 50 percent during the peaks in either mode.

(B) The following engines are exempt from the requirements of this paragraph (3):

1. Single-cylinder engines.
2. Propulsion marine compression-ignition engines.
3. Constant-speed engines.
4. Engines certified to a PM emission standard or FEL of 0.07 grams per kilowatt-hour or lower.

(4) Low-emitting Blue Sky Series engines requirements.

(A) ~~Voluntary standards~~ *Voluntary standards*. Engines subject to the standards in (b)(1)(A) may be designated “Blue Sky Series” engines by meeting the voluntary standards contained in Table 3, which apply to all certification and in-use testing. Blue

Sky Series engines shall not be included in the Averaging, Banking, and Trading program. Table 3 follows:

Table 3. – Voluntary Emission Standards
(grams per kilowatt-hour)

Maximum Rated Power (kW)	*NMHC+NO_x*	*PM*
KW<8	4.6	0.48
8≤kW<19	4.5	0.48
19≤kW<37	4.5	0.36
37≤kW<75	4.7	0.24
75≤kW<130	4.0	0.18
130≤kW≤560	4.0	0.12
KW>560	3.8	0.12

(B) ~~Additional standards~~ *Additional standards*. Blue Sky Series engines are subject to all provisions that would otherwise apply under this part, except as specified in (C) of this section.

(C) ~~Test Procedures~~ *Test Procedures*. NO_x, NMHC, and PM emissions are measured using the procedures set forth in 40 CFR part 86, subpart N (July 1, 1999), which is incorporated by reference, in lieu of the procedures set forth in subpart E of the 2000 Plus Limited Test Procedures. CO emissions may be measured using procedures set forth in 40 CFR part 86, subpart N (July 1, 1999), or in subpart E of the 2000 and Later Test Procedures. Manufacturers may use an alternate procedure to demonstrate the desired level of control if approved in advance by the Executive Officer. Engines meeting the requirements to qualify as Blue Sky Series engines must be capable of maintaining a comparable level of emission control when tested using the procedures set forth in both Section 89.112(c) and subpart E of the 2000 and Later Test Procedures. The numerical emission levels measured using the procedures from subpart E of the 2000 Plus Limited Test Procedures may be up to 20 percent higher than those measured using procedures from 40 CFR part 86, subpart N (July 1, 1999), and still be considered comparable.

(5)(A) No crankcase emissions shall be discharged into the ambient atmosphere from any new 1996-1999 model year heavy-duty off-road compression-ignition engine or any Tier 2 or later off-road compression-ignition engine subject to the 2000 Plus Limited Test Procedures. This provision does not apply to petroleum-fueled diesel cycle engines using turbochargers, pumps, blowers, or superchargers for air induction.

(B) For off-road compression-ignition engines subject to the 2008-2010 or 2011 and Later Test Procedures, no crankcase emissions shall be discharged directly into the ambient atmosphere from any engine, unless the sum of those discharged emissions are added to the exhaust emissions (either physically or mathematically) during all

emission testing. To be eligible for this option, a manufacturer must design its engines so that all crankcase emissions can be routed into the applicable sampling systems specified in the 2008-2010 or 2011 and Later Test Procedures as applicable, and must account for deterioration in crankcase emissions when determining exhaust deterioration factors. Crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be discharged directly into the ambient atmosphere. Furthermore, engines using charge-air compression that are certified to a transitional alternate FEL (Type ALT 20% in Table 2b) during the first four years of the Tier 4 standards for the applicable power category are exempt from this subsection, but must instead comply with the requirements in Section 2423(b)(5)(A).

(6) Engine manufacturers that voluntarily certify engines to the Tier 4 standards in Table 1b earlier than required under this article may, according to the provisions in the 2008-2010 or 2011 and Later Test Procedures as applicable, generate additional ABT credits, or as an alternative, offset future Tier 4 compliance requirements should the equipment manufacturer that was provided the engine decline to use its early introduction incentives according to the provisions in Section 2423(d)(9). Table 4, as follows, summarizes the incentives for the early introduction of Tier 4 engines and some of the conditions that determine eligibility.

Table 4. – Early Introduction Incentives for Engine Manufacturers

Early Introduction	*Power Category*	*Qualifying Standards* [1] *grams per kilowatt-hour*	*Per-Engine Incentive*
Final Tier 4 PM-Only [2]	19 ≤ kW < 56	0.03 PM	3 for 2 PM-Only
	56 ≤ kW < 560	0.02 PM	
Final Tier 4 All	19 ≤ kW < 56	0.03 PM / 4.7 NMHC+NO_x	3 for 2
	56 ≤ kW ≤ 560	0.02 PM / 0.40 NO_x / 0.19 NMHC	
	GEN > 560	0.03 PM / 0.67 NO_x / 0.19 NMHC	
	ELSE ~~≥~~> 560	0.04 PM / 3.5 NO_x / 0.19 NMHC	
Ultra Low NO_x	kW ≥ 19	Final Tier 4 PM & NMHC / 0.20 NO_x	2 for 1

Notes:

1 All engines must meet the Tier 4 crankcase emissions requirements. Engines must certify using all test and other requirements otherwise required for final Tier 4 standards such as for transient and not-to-exceed limits.

2 Offsets must be earned prior to the start of phase-in requirements (prior to 2013 for 19 ≤ kW < 56 engines, prior to 2012 for 56 ≤ kW < 130 engines, prior to 2011 for 130 ≤ kW ≤ 560 engines, prior to 2015 for > 560 kW engines)

(7) ~~Provisions for small-volume manufacturers~~ *Provisions for small-volume manufacturers*. Small-volume engine manufacturers are entitled to special compliance provisions under this paragraph, but must notify the Executive Officer in writing before January 1, 2008, of the intent to use the provisions.

(A) Small-volume engine manufacturers may delay complying with certain otherwise applicable Tier 4 emission standards and requirements as described in the following table:

Table 5. – Small-Volume Engine Manufacturer Provisions

Maximum Engine Power	*Temporary Relief Replacement Standards*	*Delay End Date (Model Year)*
kW < 19	Tier 2	2011
19 ≤ kW < 37	Interim Tier 4	2016
37 ≤ kW < 56	See paragraph (7)(B) of this section for special provisions that apply for engines in this power range.	
56 ≤ kW < 130	Tier 3	2015

(B) The provisions of this paragraph (7) for engines 37 ≤ kW < 56 are applicable per one of the following options:

1. Manufacturers that comply with the 0.30 g/kW-hr PM standard in all model years from 2008 through 2012 without using PM credits may continue meeting that standard through 2015.

2. Manufacturers that choose not to comply with paragraph (7)(B)1. of this section may continue to comply with the standards and requirements in the 2000 Plus Limited Test Procedures for model years through 2012, but must begin complying in 2013 with the Tier 4 standards and requirements specified in Table 1b for model years 2013 and later.

(C) After the period of relief indicated in paragraphs (7)(A) and (B) of this section has expired, small-volume engine manufacturers must comply with the same Tier 4 standards and requirements as all other manufacturers.

(D) For engines not in the 19 ≤ kW < 56 power range, small-volume engine manufacturers must meet the following conditions for the model years in which compliance with the otherwise applicable standards under this paragraph (7) is delayed:

1. Produce engines that meet all the emission standards and other requirements under the 2000 Plus Limited Test Procedures applicable for that model year, except as noted in this paragraph (7).

2. Meet the labeling requirements in the 2000 Plus Limited Test Procedures, but must use the following in place of the otherwise required statement of compliance in

Section 2424(c)(2): "THIS ENGINE COMPLIES WITH CALIFORNIA REGULATIONS FOR [CURRENT MODEL YEAR] OFF-ROAD COMPRESSION-IGNITION ENGINES UNDER 13 CCR 2423(b)(7)." The referencing of similar federal requirements under this provision is permitted.

3. Small-volume engine manufacturers must notify the equipment manufacturer that the engines produced under this section are excluded from the production volumes associated with the equipment manufacturer flexibility program in Section 2423(d).

(E) For engines in the 19 ≤ kW < 56 power range, small-volume engine manufacturers must meet the following conditions for the model years in which compliance with the otherwise applicable standards under this paragraph (7) is delayed:

1. Produce engines in those model years that meet all the emission standards and other requirements that applied for model year 2008 engines in the same power category.

2. Meet the labeling requirements in Section 2424(c)(3), but use the following compliance statement instead of the compliance statement in Section 2423(c)(3): "THIS ENGINE COMPLIES WITH CALIFORNIA REGULATIONS FOR [CURRENT MODEL YEAR] OFF-ROAD COMPRESSION-IGNITION ENGINES UNDER 13 CCR 2423(b)(7)." The referencing of similar federal requirements under this provision is permitted.

3. Notify the equipment manufacturer that engines produced under this section are excluded from the production volumes associated with the equipment-manufacturer allowance program in Section 2423(d).

(F) The provisions of this paragraph (7) may not be used to circumvent the requirements of this article.

(8) ~~Useful life~~ *Useful life*. For purposes of certification, a manufacturer must demonstrate compliance with the standards set forth in this paragraph (b) over the full useful life of the engine, as defined in the applicable test procedures.

(9) ~~NTE deficiencies~~ *NTE deficiencies*. A manufacturer may petition the Executive Officer to accept an off-road compression-ignition engine as compliant with the NTE requirements specified in the 2008-2010 or 2011 and Later Test Procedures as applicable even though specific elements of those requirements may not be fully met. Such grants of compliance, otherwise known as deficiencies, shall be limited to engines that have functioning emission-control hardware capable of allowing the engine to comply with the NTE limits. Deficiencies shall be granted by the Executive Officer according to the following stipulations:

(A) A manufacturer must apply for specific deficiencies at the time of, or prior to, submitting its application for certification. Deficiencies shall be assigned for an engine model within an engine family. The Executive Officer shall not approve deficiencies that are requested retroactively to cover engines already certified. The scope of each deficiency must be clearly identified in the certification application, and any auxiliary emission control device(s) used to control emissions to the lowest practical level must be identified with respect to each deficiency that is being requested.

(B) Deficiencies shall only be approved if compliance would be infeasible or unreasonable considering factors such as the technical feasibility of the given hardware, the availability of lead time, production cycles including the phase-in or phase-out of engines or vehicle designs, and planned computers upgrades. Other relevant factors may be considered.

(C) Deficiencies shall expire after a single model year and may be limited to specific engine configurations. The Executive Officer may approve a manufacturer's request for the same deficiency in the following model year if correcting the deficiency would require extreme hardware or software modifications and the manufacturer has demonstrated an acceptable level of effort toward complying.

(D) The number of deficiencies available to a manufacturer shall not be limited during the first three model years in which NTE limits apply to the manufacturer's engines. For the next four model years, up to three deficiencies per engine family shall be available to a manufacturer. Deficiencies of the same type that apply similarly to different power ratings within a family shall count as one deficiency per family. The Executive Officer may conditionally approve additional deficiencies during these four years, but may impose stipulations on their applicability as appropriate. Deficiencies shall not be approved beyond the seven-year period specified in this paragraph (8).

(10) ~~Adjustable parameters~~ *Adjustable parameters*. Manufacturers that design engines with adjustable parameters must meet all the requirements of this paragraph (b) for any adjustment in the physically adjustable range. An operating parameter is not considered adjustable if it is permanently sealed or if it is not normally accessible using ordinary tools. The Executive Officer may require that the adjustable parameters be set to any specification within the adjustable range during any testing, including certification testing, selective enforcement auditing, or in-use testing.

(11) ~~Prohibited controls~~ *Prohibited controls*. A manufacturer shall not design engines with emission control devices, systems, or elements of design that cause or contribute to an unreasonable risk to public health, welfare, or safety while operating.

(12*)* ~~Defeat devices~~ *Defeat devices*. Engines equipped with a defeat device shall not be certified for sale in California. A defeat device is a component or system that reduces the effectiveness of emission controls under conditions that the engine may reasonably be expected to encounter during normal operation and use. This prohibition

does not apply to auxiliary-emission control devices identified in the certification application if one of more of the following is true:

(A) The operating conditions where the auxiliary-emission control device is active were substantially encountered during all testing requirements as described in Part 1039, Subpart F of the 2008-2010 Test Procedures or Part I-D of the 2011 and Later Test Procedures as applicable.

(B) The design of the auxiliary-emission control device is shown to be necessary for preventing engine (or equipment) damage or accidents.

(C) The auxiliary-emission control device only reduces the effectiveness of emissions control during engine starting.

(c)(1) The test procedures for determining certification and compliance with the standards for gaseous exhaust emissions from new 1996-1999 heavy-duty off-road compression-ignition engines sold in the state are set forth in the 1996-1999 Heavy-Duty Test Procedures.

(2)(A) The test procedures for determining certification and compliance with the standards for gaseous exhaust emissions and the standards for opacity of smoke emissions from new 2000 model year and later off-road compression-ignition engines for which the standards in paragraph (b)(1)(A) are applicable, and sold in the state, are set forth in the 2000 Plus Limited Test Procedures.

(B) The test procedures for determining certification and compliance with the standards for gaseous exhaust emissions, particulate exhaust emissions, opacity of smoke emissions, and not-to-exceed emissions from new 2008 model year and later off-road compression-ignition engines for which the limits in paragraph (b)(1)(B) are applicable, and sold in the ~~s~~State, are set forth in the 2008-2010 or 2011 and Later Test Procedures as applicable.

(3) The test procedures for determining certification and compliance with the standards for particulate exhaust emissions from new 1996 and later off-road compression-ignition engines for which the standards in paragraph (b)(1)(A) are applicable, and sold in the state, are set forth in the PM and Test Cycle Limited Test Procedures.

(4) The test procedures for determining certification and compliance with the standards for the opacity of smoke emissions from new 1996-1999 off-road compression-ignition engines sold in the state are set forth in the 1996-1999 Smoke Test Procedures.

(d) ~~Implementation flexibility for equipment and vehicle manufacturers and post-manufacture marinizers~~ *Implementation flexibility for equipment and vehicle manufacturers and post-manufacture marinizers.* For a limited time, off-road equipment and vehicle manufacturers and post-manufacture marinizers may produce equipment with engines that are subject to less stringent emission standards than required by Tables 1a and 1b for new 2000 model year and later off-road equipment and vehicles and marine compression-ignition engines, subject to the requirements of paragraph (e) of this section. Separate provisions are provided for equipment with engines subject to the 2000 Plus Limited Test Procedures versus equipment with engines subject to the 2008-2010 or 2011 and Later Test Procedures as applicable, and are identified accordingly in the following subsections. Only manufacturers that have primary responsibility for designing and manufacturing equipment, and have manufacturing procedures for installing engines in equipment, are eligible to participate in the equipment manufacturer flexibility program provided by the 2008-2010 or 2011 and Later Test Procedures as applicable. Equipment manufacturers participating in this flexibility program must comply with the notification and reporting requirements specified in Section 2423(d)(7). Engines produced for this flexibility program using FELs greater than the applicable standards must be offset with sufficient ABT credits. The following allowances apply separately to each engine power category subject to standards under Section 2423(b)(1):

(1) ~~Percent-of-production allowances~~ *Percent-of-production allowances.*

(A) ~~Equipment rated at or above 37kW and subject to the 2000 Plus Limited Test Procedures~~ *Equipment rated at or above 37kW and subject to the 2000 Plus Limited Test Procedures.* A manufacturer may produce equipment and vehicles with engines rated at, or above, 37kW that are exempted from meeting current model year emission standards for a portion of its California-directed production volume. These percent-of-production flexibility allowances must be used within the seven years immediately following the date on which Tier 2 engine standards first apply to engines used in such equipment and vehicles, provided that the seven-year sum of the U.S.-directed portion of the manufacturer's percent-of-production flexibility allowances does not exceed 80 percent, expressed in cumulative yearly percentage increments, and provided that all such equipment and vehicles contain only engines that have been certified to the Tier 1 or Tier 2 standards;

(B) ~~Equipment rated under 37kW and subject to the 2000 Plus Limited Test Procedures~~ *Equipment rated under 37kW and subject to the 2000 Plus Limited Test Procedures.* A manufacturer or post-manufacture marinizer may produce equipment and vehicles and marine engines with engines rated under 37kW that are exempt from meeting current model year emission standards for a portion of its California-directed production volume. These percent-of-production flexibility allowances must be used within the seven years immediately following the date on which Tier 1 engine standards first apply to engines used in such equipment and vehicles and marine engines, provided that the seven-year sum of the U.S.-directed portion of the manufacturer's

percent-of-production flexibility allowances does not exceed 80 percent, expressed in cumulative yearly percentage increments~~.~~;

(C) ~~Equipment subject to the 2008 and Later Test procedures~~ *Equipment subject to the 2008-2010 or 2011 and Later Test procedures*. A manufacturer may produce equipment and vehicles with engines that are exempt from meeting current model year emission standards for a portion of its California-directed production volume. These percent-of-production flexibility allowances must be used within one of the seven-year flexibility usage periods specified in Table 6 for each applicable power category, provided that the seven-year sum of the U.S.-directed portion of the manufacturer's percent-of-production flexibility allowances does not exceed 80 percent, expressed in cumulative yearly percentage increments, except as provided for in paragraph (d)(6) or (f). Equipment used as percent-of-production flexibility allowances must contain only engines that have been certified to, at least, the standards listed in Table 6, corresponding to the flexibility usage period selected by the manufacturer. All flexibility allowances for a power category must be used within the same flexibility usage period.

Table 6. – Tier 4 Flexibility Allowance Options

Power Category	*7 Year Usage Period*	*Flexibility Standard*[1]
< 19 kW	2008 – 2014	Tier 2
19 ≤ kW < 56	2008 – 2014[~~1~~2]	~~Tier 3~~[2] Tier 2
	2012 - 2018	2008 Interim Tier 4
56 ≤ kW < 130	2012 - 2018	Tier 3
	2014 - 2020	2012 Interim Tier 4
130 ≤ kW ≤ 560	2011 - 2017	Tier 3
	2014 - 2020	2011 Interim Tier 4
> 560 kW	2011 - 2017	Tier 2
	2015 - 2021	2011 Interim Tier 4

Notes:

1 Engines certified to FELs for the flexibility standards indicated still comply with the emission Tier requirements; however, engines using FELs greater than the applicable standards must be off-set with sufficient ABT credits.

~~1~~2 This usage period is not available for allowances greater than or equal to 37 kW unless interim Tier 4 standards have been met starting in 2008.

~~2 Flexibility allowances under 37kW may contain engines certified to the Tier 2 standards.~~

(2)(A) ~~Small volume allowances subject to the 2000 Plus Limited Test Procedures~~ *Small volume allowances subject to the 2000 Plus Limited Test Procedures*. An off-road equipment or vehicle manufacturer or post-manufacture marinizer may exceed the production percentages in paragraphs (d)(1)(A) and (B) of this section for a portion of its California-directed production, provided that in each regulated power category the manufacturer's total number of U.S.-directed off-road equipment and

vehicles and marine diesel applications that contain engines which are exempt from meeting current model year emission standards over the years in which the percent-of-production allowance applies:

1. does not exceed 100 units times the number of years in which the percent-of-production allowance applies, and

2. does not exceed 200 units in any year, and

3. does not use engines from more than one engine family.

(B) *Small volume allowances subject to the 2008-2010 or 2011 and Later Test Procedures as applicable*. As an alternative to the percent-of-production allowance in Section 2423(d)(1)(C), an off-road equipment or vehicle manufacturer may produce equipment with engines that are exempt from meeting current model year emission standards for a portion of its California-directed production volume, provided that the exempt equipment is a subset of the manufacturer's U.S.-directed volume of exempt equipment and the manufacturer is in compliance with the following provisions:

1. ~~Single engine family provision~~ *Single engine family provision*. A manufacturer may claim up to 700 U.S.-directed flexibility allowances within a power category during one of the seven-year flexibility usage periods specified in Table 6, but no more than 200 allowances in a single year within a power category, except as provided for in paragraph(d)(6) or (f). Engines within a power category that are used in these flexibility allowances must be from a single engine family within a given year.

2.a. ~~Multiple engine family provision for flexibility allowances below 130 kW~~ *Multiple engine family provision for flexibility allowances below 130 kW*. A manufacturer may claim up to 525 U.S.-directed flexibility allowances within a power category during one of the seven-year flexibility usage periods specified in Table 6, but no more than 150 allowances in a single year within a power category, except as provided for in paragraph (d)(6) or (f). Engines within a power category that are used in these flexibility allowances may be from multiple engine families within a given year.

b. ~~Multiple engine family provision for flexibility allowances at or above 130 kW~~ *Multiple engine family provision for flexibility allowances below 130 kW*. A manufacturer may produce up to 350 U.S.-directed flexibility allowances within a power category during one of the seven-year flexibility usage periods specified in Table 6, but no more than 100 allowances in a single year within a power category, except as provided for in paragraph (d)(6) of (f). Engines within a power category that are used in these flexibility allowances may be from multiple engine families within a given year.

(3)(A) ~~Inclusion of previous-tier engines~~ *Inclusion of previous-tier engines*. Off-road equipment and vehicles and marine diesel engines built with previous tier or noncertified engines under the existing inventory provisions of the 2000 Plus Limited

Test Procedures (40 CFR Section 89.1003(b)(4)) need not be included in determining compliance with paragraphs (d)(1)(A) and (B) and (d)(2)(A) of this section.

(B) ~~Inclusion of engines not subject to Tier 4 requirements~~ *Inclusion of engines not subject to Tier 4 requirements*. Off-road equipment and vehicles built with engines otherwise exempt from the requirements of the 2008-2010 or 2011 and Later Test Procedures as applicable are not required to be counted toward the percentage, or number, of claimed flexibility allowances under the provisions in Subsections (d)(1)(C) and (d)(2)(B). Such exempted engines include unused inventories produced prior to the effective date of the Tier 4 standards, excluding stockpiled engines, and hand-startable, air cooled, direct-injection engines below 8 kW in 2008 and 2009 that do not meet the Tier 4 PM standard. Nonetheless, manufacturers may choose to include these engines in the count of total equipment produced from which the percentage of flexibility allowances in Subsection (d)(1)(C) is derived.

(4) ~~Early-use of flexibility allowances~~ *Early-use of flexibility allowances*. Manufacturers may start using a portion of the flexibility allowances in Subsections (d)(1)(C) and (d)(2)(B) for equipment and vehicles containing engines not yet subject to the Tier 4 standards, provided that the seven-year period for using flexibility allowances under the 2000 Plus Limited Test Procedures flexibility program has expired. All equipment and vehicles claimed as flexibility allowances under this early-use provision must contain engines that have been certified to, at least, the Tier 1 or Tier 2 standards. Manufacturers must count these Tier 2 or Tier 3 equipment and vehicles toward the total percentage, or number, of flexibility allowances permitted under the provisions of Sections (d)(1)(C) and (d)(2)(B). The maximum cumulative early-use allowance is 10 percent under the percent-of-production provision in Section (d)(1)(C), or 100 units under the small volume provision in Section (d)(2)(B). Table 7 shows the applicable years for using early-use flexibility allowances. Table 7 follows:

Table 7. – Years for Early-Use Flexibility Allowances

Maximum Engine Power	*Calendar Years*
kW < 19	2007
19 ≤ kW < 37	2006 - 2011
37 ≤ kW < 56	2011
56 ≤ kW < 75	2011
75 ≤ kW < 130	2010 - 2011
130 ≤ kW < 225	2010
225 ≤ kW < 450	2008 - 2010
450 ≤ kW ≤ 560	2009 - 2010
> 560 kW	-

(5) ~~Labeling requirements~~ *Labeling requirements.* Allowances claimed under the Tier 2/3 or Tier 4 equipment flexibility programs must be labeled, as appropriate, per the following:

(A) ~~Engine labeling~~ *Engine labeling*. Except for engines used in flexibility allowances prior to January 1, 2007, engine manufacturers shall meet the labeling requirements provided in Section 2424, except that manufacturers may omit the family emission limits from the label only if the limits are more stringent than the emissions standards, with the following substitutions:

For flexibility engines meeting previous year emission requirements, the engine manufacturer shall substitute the following for the statement of compliance required in Sections 2424(c)(1)(E)6 and 2424(c)(2):

> "THIS ENGINE COMPLIES WITH CALIFORNIA EMISSION REQUIREMENTS UNDER 13 CCR 2423(d). SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN FOR THE EQUIPMENT FLEXIBILITY PROVISIONS CITED MAY BE A VIOLATION OF STATE LAW SUBJECT TO CIVIL PENALTY." [Insert Engine Family Name]

For flexibility engines less than 37 kW and not subject to emission requirements under the Tier 2/3 program, the engine manufacturer shall substitute the following for the statement of compliance required in Section 2424(c)(1)(E)6:

> "THIS ENGINE QUALIFIES FOR USE IN EQUIPMENT RATED BELOW 37 KW BY PROVISION OF 13 CCR 2423(d). SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN FOR THE EQUIPMENT FLEXIBILITY PROVISIONS CITED MAY BE A VIOLATION OF CALIFORNIA LAW SUBJECT TO CIVIL PENALTY."

As an alternative for flexibility engines produced under the Tier 2/3 program, and for which the engine manufacturer offers proof to the Executive Officer that the otherwise required statements of compliance in this subsection would be unduly burdensome or costly to implement, engine manufacturers may instead use the following:

> "THIS ENGINE CONFORMS TO CALIFORNIA OFF-ROAD COMPRESSION-IGNITION ENGINE REGULATIONS UNDER 13 CCR 2423(d)." [Insert Engine Family Name if Certified]

These revised statements of compliance do not preclude the referencing of similar federal requirements that would be satisfied simultaneously by meeting the provisions of Section 2423(d). Furthermore, the Executive Officer may, upon request, approve alternate labeling specifications that are equivalent to the specifications in this subsection.

(B) ~~Equipment Labeling~~ *Equipment Labeling*. For all allowances claimed under the Tier 4 flexibility program, equipment manufacturers shall affix a permanent label to the engine, or to a readily visible section of the equipment that cannot be easily removed. The label shall be in the English language, shall supplement the manufacturer's emission control information label, and shall include the following information:

1. The label heading "EMISSION CONTROL INFORMATION".
2. The equipment manufacturer's corporate name and trademark.
3. The calendar year in which the equipment is manufactured.
4. ~~The name,~~An e-mail address~~,~~ and phone number ~~of a person~~ to contact for further information, or a website that includes this contact information.
5. The following statement:
   "THIS EQUIPMENT [or identify the type of equipment] HAS AN ENGINE THAT MEETS CALIFORNIA EMISSION STANDARDS UNDER 13 CCR 2423(d)."

This label content does not preclude the referencing of similar federal requirements that would be satisfied simultaneously by meeting the provisions of Section 2423(d).

(6) ~~Technical hardship allowances~~ *Technical hardship allowances*. Equipment manufacturers may apply for additional flexibility allowances should extreme and unusual circumstances occur leading to technical obstacles in complying with the Tier 4 requirements. A manufacturer may request additional allowances for power categories 19 ≤ kW ≤ 560 if it claims allowances under the provisions of Section 2423(d)(1)(C), but may only request additional allowances for power categories 19 ≤ kW < 56 if it claims allowances under the provisions of Section 2423(d)(2)(B). Additional flexibility allowances shall not be provided when the engine and equipment are produced by the same manufacturer, or affiliate. The Executive Officer shall review requests for additional flexibility allowances according to the following stipulations:

* * * * *

(7) ~~Notification and reporting requirements for using Tier 4 flexibility allowances~~ *Notification and reporting requirements for using Tier 4 flexibility allowances*. As a prerequisite to using any Tier 4 flexibility allowances, the equipment manufacturer shall notify the ARB of its intent to use such allowances. The manufacturer shall also send an annual report after each year that flexibility allowances have been used to verify that the allowances claimed do not exceed the number of allowances permitted.

(A) Before ~~January 1 of the first year that~~ flexibility provisions will be used, a written notice informing ARB of the manufacturer's intent to use flexibility allowances must be sent to the Chief of the Mobile Source Operations Division, or designee, containing the following information:

1. The equipment manufacturer's name and address, and the name and address of the parent company, if applicable.

2. The name, ~~and~~ telephone number, and e-mail address of a person to contact for more information.

3. The calendar years for which the Tier 4 flexibility provisions shall apply.

4. ~~The~~Each engine manufacturer's name and address ~~that~~ expected to produce~~s~~ the engines which will be used in the equipment claimed as flexibility allowances.

5. An accurate estimate of the number of flexibility allowances in each power category that will be produced under the percent-of-production provisions in Section 2423(d)(1)(C), or the small volume provisions in Section 2423(d)(2)(B).

6. A tabulation of U.S.-directed flexibility allowances in each power category that have been sold in previous calendar years under the provisions of Section 2423(d) and 40 CFR 89.102(d).

(B) For each year that Tier 4 flexibility allowances are used, the equipment manufacturer shall submit, by March 31 of the following year, a written report to the Chief of the Mobile Source Operations Division, or designee, documenting the utilization of those allowances. In ~~This~~the report, the manufacturer shall ~~include~~ identify the total ~~number~~count of equipment sold by the manufacturer during the preceding year for each power category, based on actual U.S.-directed production information, and shall identify the flexibility allowances in each power category by reporting the percentages of U.S.-directed flexibility production, and, if available, California-directed production volumes, corresponding to the number of equipment in each power category. If the manufacturer(s) of the engine installed in the equipment has not already been identified as required in §2423(d)(7)(A)4., the equipment manufacturer shall identify the name and address of this engine manufacturer(s) in the report. The report shall also identify the cumulative yearly totals and percentages for all flexibility allowances sold for each power category. Alternatively, the percentage figures may be omitted from the report if the report states that percent-of-production allowances were not used. ~~If available, end of year percentage figures for California-directed sales shall also be included in this report.~~

(8) ~~Import restrictions on the use of Tier 4 flexibility allowances~~ *Import restrictions on the use of Tier 4 flexibility allowances*. Foreign equipment manufacturers may only import equipment with exempted flexibility engines into California according to the stipulations in Section 1039.626 of the 2008-2010 Test Procedures or Part I-D of the 2011 and Later Test Procedures as applicable. These stipulations address the potential for abuse whereby individual importers could collectively import more flexibility allowances than permitted based on the foreign equipment manufacturer's total

production for the United States market. The stipulations include acceptance by the foreign equipment manufacturer of random audits by the ARB or its representatives, and the posting of a monetary bond for each imported engine to cover the cost of any potential enforcement actions. Foreign equipment manufacturers who comply with the stipulations will be eligible to receive the same flexibility allowances as domestic manufacturers.

(9) ~~Early introduction incentives for equipment manufacturers~~ *Early introduction incentives for equipment manufacturers*. In addition to the equipment flexibility allowances provided in Subsections (d)(1)(C) and (d)(2)(B), equipment manufacturers, as provided in the 2008-2010 or 2011 and Later Test Procedures,as applicable, may earn additional allowances for the early introduction of equipment with engines meeting the Tier 4 standards in Table 1b. Equipment manufacturers installing engines at or above 19 kW that comply with the final Tier 4 PM and NOx standards could earn one flexibility allowance for each early Tier 4 compliant engine used in its equipment. Equipment manufacturers installing engines 56 ≤ kW ≤ 560 that comply with the final Tier 4 PM standard and the alternative NOx standard could earn one-half of a flexibility allowance for each early Tier 4 engine used in its equipment. Table 8, below, summarizes the incentives for the early introduction of Tier 4 compliant equipment and some of the conditions that determine eligibility. Should an equipment manufacturer decline flexibility allowances earned with this provision, the allowances would then be available to the engine manufacturer that had supplied the early introduction engine, subject to the provisions in Section 2423(b)(6).

Table 8. – Early Introduction Incentives for Equipment Manufacturers

POWER CATEGORY	QUALIFYING STANDARDS (g/kW-hr)	INSTALLATION DEADLINE	FLEXIBILITY ALLOWANCE
19 ≤ kW < 56	0.03 PM / 4.7 NMHC+NOx	December 31, 2012 [1]	1 for 1
56 ≤ kW ≤ 130	0.02 PM / 0.40 NOx / 0.19 NMHC	December 31, 2011	1 for 1
	0.02 PM / 3.4 NOx / 0.19 NMHC [2]		1 for 2
130 ≤ kW ≤ 560	0.02 PM / 0.40 NOx / 0.19 NMHC	December 31, 2010	1 for 1
	0.02 PM / 2.0 NOx / 0.19 NMHC [2]		1 for 2
GEN > 560	0.03 PM / 0.67 NOx / 0.19 NMHC	December 31, 2014	1 for 1
ELSE > 560	0.04 PM / 3.5 NOx / 0.19 NMHC		

Notes:
1 The installation date for 37 ≤ kW ≤ 56 engines purchased from manufacturers choosing to opt out of the 2008 model year Tier 4 standards and instead comply with the Tier 4 standards beginning in 2012 would be December 31, 2011.
2 To be eligible, engines must meet the 0.02 g/kW-hr PM standard and the alternative NOx standards.

(e) ~~Recordkeeping and calculation to verify compliance~~ *Recordkeeping and calculation to verify compliance*. The following shall apply to off-road equipment or vehicle manufacturers and post-manufacture marinizers who produce flexibility equipment or vehicles or marine diesel engines under both the Tier 2/3 and Tier 4 flexibility provisions of paragraph (d) of this section, except as otherwise noted:

* * * * *

(2) An off-road equipment or vehicle manufacturer or post-manufacture marinizer shall keep records of all off-road equipment and vehicles and marine diesel engines sold in California under the provisions of paragraph (d) of this section, for each power category in which flexibility allowances are claimed. These records shall include equipment and engine model numbers, serial numbers, engine family name, and dates of manufacture, engine rated power for Tier 2/3 flexibility engines, and maximum engine power for Tier 4 flexibility engines. In addition, the manufacturer shall keep records sufficient to demonstrate the verifications of compliance required in paragraph (e)(1) of this section and the notifications and reports specified in Section 2423(d)(7), as applicable. All records shall be kept until at least two full years for flexibility allowances under the Tier 2/3 program and five full years for flexibility allowances under the Tier 4 program after the final year in which allowances are available for each power category, and shall be made available to the Executive Officer upon request.

(f) ~~Economic hardship relief~~ *Economic hardship relief*. Off-road equipment and vehicle manufacturers and post-manufacture marinizers may request relief from the Executive Officer, or designee, subject to the following requirements:

* * * * *

(3) The Executive Officer may impose other conditions on the granting of relief, including provisions to recover the lost environmental benefit. The labeling requirements in the 2008-2010 and 2011 and Later Test Procedures apply as applicable.

(g) ~~Alternative Flexibility for Post-Manufacture~~ *Marinizers Alternative Flexibility for Post-Manufacture Marinizers*. Post-manufacture marinizers may elect to delay the effective date of the Tier 1 standards for marine propulsion diesel engines rated under 37kW by one year, instead of using the provisions of paragraphs (d) and (f) of this section. Post-manufacture marinizers wishing to take advantage of this provision must inform the Executive Officer of their intent to do so in writing before the date that the standards would otherwise take effect.

(h) ~~Allowance for the production of engines~~ *Allowance for the production of engines.* To meet the demand for engines created under paragraph (d), (f), or (g) of this section, engine manufacturers may produce engines that do not meet current year emission requirements. However, engine manufacturers must receive written assurance from each equipment manufacturer, prior to production, that a certain number of these engines are needed for the equipment manufacturer's Tier 4 equipment flexibility allowances. Engine manufacturers shall provide to the Executive Officer annually, as part of the certification application, a list of the equipment manufacturers requesting such engines for their Tier 2/3 and Tier 4 equipment flexibility allowances. The list shall include the equipment manufacturers' names, engine models, and estimated national production volumes. A copy of the original correspondence from the equipment manufacturer requesting the production of flexibility engines shall be kept on file by the engine manufacturer in addition to, and in accordance with, the provisions of §1039.250 of the 2008-2010 Test Procedures or Part I-D of the 2011 and Later Test Procedures, as applicable, and shall be made available without delay to the Executive Officer upon request. Furthermore, all engines produced for sale in California under either of the transitional flexibility provisions for equipment manufacturers, must be covered by an Executive Order starting January 1, 2007. To obtain an Executive Order for these engines, the engine manufacturer shall comply with the following:

* * * * *

(j)(1) A new compression-ignition off-road engine intended solely to replace an engine in a piece of off-road equipment that was originally produced with an engine manufactured prior to the applicable implementation date as specified in Section 2423, shall not be subject to the emission requirements of Section 2423 provided that:

(A) the engine manufacturer has ascertained that no engine produced by itself or the manufacturer of the engine that is being replaced, if different, and certified to the requirements of this article, is available with the appropriate physical or performance characteristics to repower the equipment; and

(B) unless an alternative control mechanism is approved in advanced by the Executive Officer, the engine manufacturer or its agent takes ownership and possession of the engine being replaced; and

(C) the engine manufacturer does not use the replacement-engine exemption to circumvent the regulations; and

(D) the replacement engine is clearly labeled with the following language, or similar alternate language approved in advance by the Executive Officer:

If the replacement engine is built to a configuration that was not subject to any emission standards under this Article 4, add a permanent label with your corporate name and trademark and the following language:

"THIS ENGINE DOES NOT COMPLY WITH CALIFORNIA~~ AND FEDERAL~~ OFF-ROAD~~ OR ON HIGHWAY~~ EMISSION REQUIREMENTS. SALE OR INSTALLATION OF THIS ENGINE FOR ANY PURPOSE OTHER THAN AS A REPLACEMENT ENGINE FOR AN ENGINE MANUFACTURED PRIOR TO JANUARY 1 [~~INSERT APPROPRIATE YEAR~~Insert appropriate year reflecting when the earliest tier of emission standards began to apply to engines of that size and type]~~ IS~~ MAY BE A VIOLATION OF CALIFORNIA~~ AND FEDERAL~~ LAW SUBJECT TO CIVIL PENALTY."

Beginning January 1, 2013, the following additional information shall also be included on the emission control label:

ENGINE POWER:	{insert the advertised power of the specific engine configuration or the applicable power category for the engine family in kilowatts}
DATE OF MANUFACTURE:	{insert the engine build date}"

In lieu of including "Engine Power" or "Date of Manufacture" on the emissions control label, manufacturers may provide this information on a supplemental label attached to the engine in accordance with the provisions of §2424.

If the replacement engine is built to a configuration that was subject to emission standards under this Article 4, add a permanent label with your corporate name and trademark and the following language:

"THIS ENGINE COMPLIES WITH CALIFORNIA OFF-ROAD EMISSION REQUIREMENTS FOR [Identify the appropriate emission standards (by model year, tier, or emission levels) for the replaced engine] ENGINES UNDER 13 CCR 2423(j). SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN TO REPLACE A [Identify the appropriate emission standards (by model year, tier, or emission levels) for the replaced engine] OFF-ROAD ENGINE MAY BE A VIOLATION OF CALIFORNIA LAW SUBJECT TO CIVIL PENALTY.

Beginning January 1, 2013, the following additional information shall also be included on the emission control label:

ENGINE POWER: {insert the certified power in kilowatts of the specific engine configuration, if applicable, otherwise insert advertised power in kilowatts}

REFERENCE FAMILY NAME: {insert the engine family name of the replacement engine as recorded in the Executive Order for the engine family to which the replacement engine was originally certified}

DATE OF MANUFACTURE: {insert the engine build date}"

In lieu of including "Engine Power," Reference Family Name," or "Date of Manufacture" on the emissions control label, manufacturers may provide this information on a supplemental label attached to the engine in accordance with the provisions of §2424. Manufacturers may alternately state the applicable power category in kilowatts for the certified engine family on the emission control or supplemental label when indicating "Engine Power." Additionally, manufacturers may indicate the "Emissions Tier" of the replacement engine on the emissions control or supplemental label instead of the "Reference Family Name." For the purpose of this section, "Emissions Tier" is the emissions standard designation (e.g., Tier 1, Tier 2, Tier 3, Tier 4i, Tier 4f) of the engine recorded in the Executive Order for the engine family to which the replacement engine was originally certified. Certified power means the configuration-specific power of the replacement engine as originally identified in the application for certification of the reference engine family (see §1039.205(a)). Advertised power means engine power as stated by the manufacturer in sales literature.

2) At the conclusion of each of the 2000 and later model years, the manufacturer must provide, by engine model, the actual number of replacement engines produced for California during the model year, and a description of the physical or performance characteristics of those models that indicate certified replacement engine(s) were not available as per paragraph (1).

(k) Any new engine certified to comply with California emission standards and test procedures for on-road applications may, upon approval by the Executive Officer, be considered to be in compliance with these regulations.

(l) ~~Practices and labeling requirements for rebuilt engines~~ *Practices and labeling requirements for rebuilt engines*. This subsection shall apply as provided in paragraph (1) below to all off-road compression-ignition engines subject to the requirements of Section 2423 that are rebuilt after December 31, 2006, including those engines that were originally manufactured on, or prior to, December 31, 2006.

(1) ~~Practices~~ *Practices*. The rebuilding practices described in Part 89.130 of the incorporated 2000 Plus Limited Test Procedures, including the exemption for engines equal to or greater than 37 kW that meet the Tier 1 standard, and Part 1068.120 of the 2008-2010 Test Procedures or Part I-F of the 2011 and Later Test Procedures as applicable shall apply. These practices are summarized in paragraphs (1)(A) and (1)(B) below, which are provided as respective references for the labeling requirements in paragraphs (2)(A) and (2)(B) of this subsection.

* * * * *

(m) *Stockpiling prohibition*. Manufacturers may not circumvent the provisions of this article by stockpiling engines with a date of manufacture preceding new or changed emission standards by deviating from normal production and inventory practices. For purposes of this paragraph (m), normal production and inventory practices means those practices typically employed for similar engine families in years in which emission standards do not change. The Executive Officer may request the submission of routine production and inventory records from manufacturers that document normal practices for up to eight years to aid in determining whether or not a violation of this section has occurred. Other stockpiling prohibitions in §1068.103 and §1068.105 of the 2011 and Later Test Procedures, Part I-E, apply.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101 and 43104, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43104 and 43211-43212, Health and Safety Code.

§ 2424. Emission Control Labels — 1996 and Later Off-Road Compression-Ignition Engines.

(a) ~~Purpose~~ *Purpose*. The Air Resources Board recognizes that certain emissions-critical or emissions-related parts must be properly identified and maintained in order for engines to meet the applicable emission standards. The purpose of these specifications is to require engine manufacturers to affix a label (or labels) on each production engine (or equipment) to provide the engine or equipment owner and service mechanic with information necessary for the proper maintenance of these parts in customer use.

(b) ~~Applicability~~ *Applicability*.

(1) These specifications shall apply to 1996-1999 model year heavy-duty off-road compression-ignition engines, which have been certified to the applicable emission standards pursuant to Health and Safety Code Section 43013.

(2) These specifications shall apply to 2000 and later model year compression-ignition engines, which have been certified to the applicable emission standards pursuant to Health and Safety Code Section 43013.

(3) Engine manufacturers who have certified such engines shall be responsible for complying with these specifications.

(c) ~~Label Content and Location~~ *Label Content and Location*.

(1) For 1996-1999 heavy-duty off-road compression-ignition engines:

(A) A tune-up label shall be permanently attached to the engine block or other major component in such a way that it will be readily visible after installation of the engine in the equipment. If the equipment obscures the label on the engine, the equipment manufacturer shall attach a supplemental label such that it is readily visible.

(B) In selecting an acceptable location, the manufacturer shall consider the possibility of accidental damage (e.g., possibility of tools or sharp instruments coming in contact with the label). Each label shall be affixed in such a manner that it cannot be removed without destroying or defacing the label, and shall not be affixed to any part which is likely to be replaced during the equipment's useful life. The label(s) shall not be affixed to any component which is easily detached from the engine.

(C) In addition, an engine serial number shall be stamped on the engine block or stamped on a metal label riveted to the engine block. Engine manufacturers shall keep records such that the engine serial number can easily be used to determine if an engine was certified for the applicable model year.

(D) The label shall be in the English language and use block letters and numerals which shall be of a color that contrasts with the background of the label.

(E) The label shall contain the following information:

1. The label heading shall read:

"Important Engine Information."

2. Full corporate name and trademark of the manufacturer.

3. "This (specify equipment or engine, as applicable) is certified to operate on (specify operating fuel(s))."

4. ~~Identification of the Exhaust Emission Control System~~ *Identification of the Exhaust Emission Control System*. Abbreviations may be used and shall conform to the nomenclature and abbreviations found in the Society of Automotive Engineers document J1930 which is incorporated by reference herein [in Section 1977, Title 13, CCR], titled "Diagnostic Acronyms, Terms, and Definitions for Electrical/Electronic Systems."

5. The specifications and adjustments recommended by the manufacturer, including, if applicable: initial injection timing, and fuel rate (in mm^3/stroke) at advertised horsepower. These specifications shall indicate the proper transmission position, (if applicable), during tune-up and what accessories, if any, should be in operation, and what systems, if any (e.g., vacuum advance, air pump), should be disconnected during the tune-up. If the manufacturer does not recommend adjustment of the foregoing specifications, the manufacturer shall include in lieu of the "specifications" the single statement "No other adjustments needed." For all engines, the instructions for tune-up adjustments shall be sufficiently clear on the label to preclude the need for a mechanic or equipment owner to refer to another document in order to correctly perform the adjustments.

6. An unconditional statement of compliance with the appropriate model year California regulations; for example, "This engine conforms to 1996 California regulations for heavy-duty off-road diesel cycle engines as applicable."

7. Total engine displacement (in cubic centimeters, liters, or cubic inches) and engine family identification.

(F)1. The manufacturer of any engine certified with a clean fuel (i.e., low-sulfur diesel fuel) shall at the time of engine manufacture, affix a permanent legible label specifying the appropriate operating fuel(s).

2. The label shall be located immediately adjacent to each fuel tank filler inlet and outside of any filler inlet compartment. It shall be located so that it is readily visible to any person introducing fuel to such filler inlet; Provided, however, that the Executive Officer shall upon application from an engine manufacturer, approve other label locations that achieve the purpose of this paragraph. If the engine is manufactured separately from the equipment, the label shall be affixed to the engine and located so that it is readily visible. Such labels shall be in English and in block letters, which shall be of a color that contrasts with their background.

(2) For 2000 and later Tier 1, Tier 2, and Tier 3 off-road compression-ignition engines, the label content and location must comply with the requirements in Section 89.110 of the 2000~~ and Later~~ Plus Limited Test Procedures.

(3) For 2008 and Later Tier 4 off-road compression-ignition engines, the label content and location must comply with the requirements in Section 1039.135 of the 2008-2010 Test Procedures or Part I-D of the 2011 and Later test Procedures, as applicable.

* * * * *

(l) An emission control information label shall not be altered or removed from an engine, subject to civil penalty under State law, except that a dealer or distributor may remove an incorrect label, prior to the transfer of title of the engine to an ultimate purchaser, and replace the incorrect label with the correct label supplied by the certifying manufacturer or an authorized agent. For the purpose of this section, an incorrect label means an emission control information label that was affixed to an engine in good faith by the certifying manufacturer or authorized agent, but which fails to accurately describe the engine's emission performance as required under this Article due to unintentional or clerical error. In this context, good faith means an honest intent to act without seeking to gain an unfair advantage or to circumvent the regulations. Notwithstanding, an emission control label may be removed and replaced according to the labeling provisions for rebuilt engines in §2423(l). For new replacement engines manufactured in accordance with the provisions of §2423(j), a dealer or distributor may affix supplemental labels, prior to the transfer of title of the engine to an ultimate purchaser, as allowed in §2423(j)(1). Other provisions in §1068.101(b)(7) of the 2011 and Later Test Procedures, Part I-E, may also apply.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104 and 43105, Health and Safety Code.

§ 2425. Defects Warranty Requirements for 1996 and Later Off-Road Compression-Ignition Engines.

(a) ~~Applicability~~ *Applicability.* This section shall apply to new 1996-1999 model year heavy-duty off-road compression-ignition engines and new 2000 and later model year compression-ignition engines. For 2011 and later model year compression-ignition engines the requirements in §1039.120 and §1039.125 of the 2011 and Later Test Procedures, Part I-D, shall also apply. The warranty period shall begin on the date the engine or equipment is delivered to an ultimate purchaser. The use of alternative fuels shall not void the warranties on any engine certified to use such fuel.

(b) ~~General Emissions Warranty Coverage~~ *General Emissions Warranty Coverage*. The manufacturer of each off-road compression-ignition engine shall warrant to the ultimate purchaser and each subsequent purchaser that the engine is:

* * * * *

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 43104 and 43105, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43102 and 43205.5, Health and Safety Code.

§ 2425.1 Defect Investigation and Reporting Requirements.

(a) ~~Applicability~~ *Applicability.* This section shall apply to new off-road compression-ignition engines subject to the standards in Section 2423 (b)(1)(B) and the incorporated 2008-2010 or 2011 and Later Test Procedures as applicable, and shall address defects for any of the emission-related components, or systems containing the components listed in Section 2425(d)(1).

(b) ~~General requirements~~ *General requirements*. Engine manufacturers shall investigate their engines that have been introduced into commerce in California for incorrect, improperly installed, or otherwise defective emission-related components or systems, and shall submit a report to the ARB based on federal triggering thresholds documenting these activities, as required, and their findings. If available, California-specific incidence rates shall also be included in this report.

(c) ~~Investigation and reporting procedures~~ *Investigation and reporting procedures*. Engine manufacturers shall perform the investigation and reporting procedures specified in Part 1068, Subpart F of the 2008-2010 Test Procedures or Part I-E of the 2011 and Later Test Procedures as applicable.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 43104 and 43105, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43102 and 43205.5, Health and Safety Code.

§ 2426. Emission Control System Warranty Statement.

(a) Each manufacturer shall furnish a copy of the following statement with each new 1996-1999 model year heavy-duty off-road compression-ignition engines and each new 2011 and later model year compression-ignition engine, using those portions of the statement applicable to the engine.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The **California Air Resources Board** (and manufacturer's name, optional) is pleased to explain the **emission control system warranty** on your **(years)** engine. In California, new heavy-duty off-road engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. (Manufacturer's name) must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel-injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, (manufacturer's name) will repair your heavy-duty off-road engine at no cost to you including diagnosis, parts, and labor.

MANUFACTURER'S WARRANTY COVERAGE:

The **(year)** and later heavy-duty off-road engines are warranted for **(warranty period)**. If any emission-related part on your engine is defective, the part will be repaired or replaced by (manufacturer's name).

OWNER'S WARRANTY RESPONSIBILITIES:

— As the ~~heavy-duty~~ off-road engine owner, you are responsible for the performance of the **required maintenance listed in your owner's manual**. (Manufacturer's name) recommends that you retain all receipts covering maintenance on your ~~heavy-duty~~ off-road engine, but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

— As the ~~heavy-duty~~ off-road engine owner, you should however be aware that (manufacturer's name) may deny you warranty coverage if your ~~heavy-duty~~ off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

— Your engine is designed to operate on (fuel) only. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.

— You are responsible for initiating the warranty process. The ARB suggests that you present your ~~heavy-duty~~ off-road engine to a (manufacturer's name) dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.

If you have any questions regarding your warranty rights and responsibilities, you should contact (Insert chosen manufacturer's contact) at **1-XXX-XXX-XXXX**.

(b) For 1996-1999 model year heavy-duty off-road compression-ignition engines <u>and 2011 and later model year compression-ignition engines</u>, each manufacturer shall furnish with each new engine a warranty statement which generally describes the obligations and rights of the engine manufacturer and owner under this article. Engine manufacturers shall also include in the warranty statement a phone number the customer may use to obtain their nearest franchised service center.

* * * * *

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43102 and 43205.5, Health and Safety Code.

§ 2427. Production Engine Testing, Selection, Evaluation, and Enforcement Action.

(a) ~~Compliance Test Procedures~~ *Compliance Test Procedures*.

* * * * *

(9) ~~*Primary Sampling Plan*~~ *Primary Sampling Plan*.

* * * * *

(10) ~~Alternate Sampling Plan for Low Volume Engine Family Groups~~ *Alternate Sampling Plan for Low Volume Engine Family Groups*.

* * * * *

(b) ~~Quality-Audit Test Procedures~~ *Quality-Audit Test Procedures*.

* * * * *

(4) ~~Applicability~~ *Applicability*.

These procedures shall apply to all certified 1996-1999 model year heavy-duty off-road compression-ignition engine family groups.

If a manufacturer cannot provide actual California sales data, it shall provide its total production and an estimate of California sales. The manufacturer shall also provide supporting material for its estimate.

(5) ~~Engine Sample Selection~~ *Engine Sample Selection*.

For each family group with California sales volumes of 150 units or more per year, the manufacturer shall select for quality audit testing a representative sample of three engines or one percent of production, whichever is greater, from the highest sales volume engine family within the entire engine family group. For engine family groups with California sales volumes of less than 150 units per year, no testing shall be required unless requested by the Executive Officer based upon information and belief that such engine family groups are in noncompliance with applicable regulations. Each selected engine for quality-audit testing must pass the inspection test, by being equipped with the appropriate emission control systems certified by the ARB. The procedure for selecting engines must be submitted to the Chief, Mobile Source Division, 9528 Telstar Avenue, El Monte, CA, 91731, prior to the start of production for the 1996 model year.

(6) ~~Engine Preparation and Preconditioning~~ *Engine Preparation and Preconditioning*.

* * * * *

(7) ~~Quality-Audit Engine Selection Criteria~~ *Quality-Audit Engine Selection Criteria*.

(A) Engines shall be representatively selected.

(B) At the end of each calendar quarter, all of the data accumulated during the quarter shall be reported to the Executive Officer. Upon accumulation of sufficient data, the compliance of the engine family group with the emission standards is determined.

(8) ~~Standards and Test Procedures; Evaluation~~ *Standards and Test Procedures; Evaluation*.

The exhaust sampling and analytical procedures shall be those described in the 1996-1999 Heavy-Duty Test Procedures. An engine family group is considered to have failed the quality audit test if the average emissions do not comply with the applicable certification standards. Any corrective action to bring the engines into compliance with the standards must be applied to all engines in the engine family group reasonably expected to be in noncompliance based on the audit data and other relevant information.

(9) ~~Reports~~ *Reports*.

* * * * *

(c) ~~Selective Enforcement Audit~~ *Selective Enforcement Audit*.

(1)(A) The 2000 and later model year Tier 1, Tier 2, and Tier 3 off-road compression-ignition engines certified for sale in California shall be subject to the Selective Enforcement Audit requirements specified in Subpart F of the 2000 Plus Limited Test Procedures.

(B) The 2008 and later model year Tier 4 off-road compression-ignition engines certified for sale in California shall be subject to the Selective Enforcement Audit requirements specified in Subpart E of Part 1068 of the 2008-2010 Test Procedures or Part I-E of the 2011 and Later Test Procedures as applicable.

(2) These procedures specify the Selective Enforcement Audit test procedures in conjunction with the 2000 Plus Limited Test Procedures and the 2000 and Later Test Procedures. An engine is in compliance with these Selective Enforcement Audit standards and test procedures only when all portions of these Selective Enforcement Audit test procedures are fulfilled.

(3) Air Resources Board (ARB) personnel and mobile laboratories shall have access to engine or equipment assembly plants, distribution facilities, and test facilities for the purpose of engine selection, testing, and observation. Scheduling of access shall be arranged with the designated manufacturer's representative and shall not unreasonably disturb normal operations.

(d) Any manufacturer obtaining certification under this part shall supply to the Executive Officer, upon request, a reasonable number of production engines selected by the Executive Officer which are representative of the engines, emission control systems, fuel systems, and transmissions offered and typical of production models available for sale under the certificate. These engines shall be supplied for testing at such time and place and for such reasonable periods as the Executive Officer may require. Heavy-duty engines supplied under this paragraph may be required to be mounted in chassis and appropriately equipped for operation on a chassis dynamometer.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102, 43104 and 43105, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104 and 43210-43212, Health and Safety Code.