California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR INC.	EXECUTIVE ORDER A-013-0150 New On-Road Heavy-Duty Engines

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code (HSC) Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by HSC Sections 39515 and 39516 and Executive Order G-45-9; and

Pursuant to the December 15, 1998 Settlement Agreement between the Air Resources Board and the manufacturer, and any modifications thereof to the Settlement Agreement;

IT IS ORDERED AND RESOLVED: That the following engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZE (liter)	FUEL TYPE	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS
2002	2CPXH0893ERK	14.5	Diesel	Diesel	Heavy-Heavy-Duty

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	ENGINE MODELS / CODES (rated power in horsepower, hp)
DDI, TC, CAC, ECM	See Attachment
ABBREVIATIONS: OC=oxidizing catalyst TWC=three-way catalyst WU (prefix) =warm-up catalyst O2S=oxygen sensor HO2S=heated O2S TBI=throttle body fuel injection MFI=multiport fuel injection SFI=sequentialMFI DDI/IDI=direct /indirect diesel injection TC/SC=turbo/super charger CAC=charge air cooler EGR=exhaust gas recirculation AIR=secondary air injection PAIR=pulsed AIR SP=smoke puff limiter ECM/PCM=engine /powertrain control module EM=engine modification 2 (prefix)=parallel (2) (suffix)=in series	

The following are the exhaust emission standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for this engine family for hydrocarbons (HC) or non-methane hydrocarbons (NMHC), oxides of nitrogen (NOx), or NMHC+NOx, carbon monoxide (CO), particulate matter (PM), and formaldehyde (HCHO) in grams per brake horsepower-hour (g/bhp-hr) under the "Federal Test Procedure" (FTP) (Title 13, California Code of Regulations, (13 CCR) Section 1956.1 (urban bus) or 1956.8 (other than urban bus)), and under the "Euro III Test Procedure" (EURO) in the Settlement Agreement, including a EURO's "Not-to-Exceed" NOx standard: (The emission standards and certification levels for default operations permitted under 13 CCR Section 1956.1 or 1956.8 are in parentheses.)

														EURO'S NOT-TO-EXCEED NOx STD	7.0
* = not applicable	HC		NMHC		NOx		NMHC+NOx		CO		PM		HCHO		
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	
(DIRECT) STD	1.3	1.3	*	*	4.0	6.0	*	*	15.5	15.5	0.10	0.10	*	*	
AVERAGE STD	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
FEL	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
CERT	0.1	0.1	*	*	3.7	5.3	*	*	1.4	0.4	0.08	0.03	*	*	

BE IT FURTHER RESOLVED: That certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR Sections 1965 (emission control labeling), and 2035 et seq. (emission control system warranty).

BE IT FURTHER RESOLVED: That the listed engine models are conditionally certified subject to the following conditions: (1) The Settlement Agreement is in effect; and, (2) The manufacturer is in compliance with all applicable certification requirements of the Settlement Agreement and any modifications thereof.

Engines certified under this Executive Order shall conform to all applicable California emission regulations and all requirements under the Settlement Agreement and any modifications thereof.
The Bureau of Automotive Repair will be notified by copy of this Executive Order.
This Executive Order is not valid for engines produced on or after October 1, 2002.

Executed at El Monte, California on this 20th day of December 2001.

R. B. Summerfield, Chief
Mobile Source Operations Division

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **On-highway HDDE**

EPA Engine Family: **2CPXH0893ERK**

Mfr Family Name: **NA**

Process Code: **New Submission**

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
Cert Eng '97	C-15	550 @ 1800	294	177.9	1850 @ 1200	339	136.8	EM, DI, TC, ECM, CAC
1	C-15	550 @ 1800	319	193.2	1850 @ 1200	334	134.8	EM, DI, TC, ECM,
2	C-15	550 @ 1800	319	193.2	1850 @ 1200	334	134.8	EM, DI, TC, ECM,
3	C-15	515 @ 1800	304	183.9	1850 @ 1200	339	136.9	EM, DI, TC, ECM,
4	C-15	515 @ 1800	304	183.9	1750 @ 1200	320	129.2	EM, DI, TC, ECM,
5	C-15	515 @ 1800	304	183.9	1850 @ 1200	339	136.9	EM, DI, TC, ECM,
6	C-15	515 @ 1800	304	183.9	1850 @ 1200	339	136.9	EM, DI, TC, ECM,
7	C-15	515 @ 1800	304	183.9	1750 @ 1200	320	129.2	EM, DI, TC, ECM,
8	C-15	515 @ 1800	304	183.9	1750 @ 1200	320	129.2	EM, DI, TC, ECM,
9	C-15	515 @ 1800	304	183.9	1650 @ 1200	301	121.6	EM, DI, TC, ECM,
10	C-15	515 @ 1800	301	182.1	1850 @ 1200	336	135.5	EM, DI, TC, ECM,
11	C-15	515 @ 1800	301	182.1	1750 @ 1200	317	128.0	EM, DI, TC, ECM,
12	C-15	515 @ 1800	301	182.1	1850 @ 1200	336	135.5	EM, DI, TC, ECM,
13	C-15	515 @ 1800	301	182.1	1850 @ 1200	336	135.5	EM, DI, TC, ECM,
14	C-15	515 @ 1800	301	182.1	1750 @ 1200	317	128.0	EM, DI, TC, ECM,
15	C-15	515 @ 1800	301	182.1	1750 @ 1200	317	128.0	EM, DI, TC, ECM,
16	C-15	515 @ 1800	301	182.1	1650 @ 1200	298	120.4	EM, DI, TC, ECM,
17	C-15	500 @ 1800	294	178.2	1850 @ 1200	339	136.9	EM, DI, TC, ECM,
18	C-15	490 @ 1800	290	175.5	1650 @ 1200	301	121.7	EM, DI, TC, ECM,
19	C-15	490 @ 1800	290	175.5	1650 @ 1200	301	121.7	EM, DI, TC, ECM,
20	C-15	490 @ 1800	290	175.5	1750 @ 1200	320	129.1	EM, DI, TC, ECM,
21	C-15	490 @ 1800	290	175.5	1650 @ 1200	301	121.7	EM, DI, TC, ECM,
22	C-15	490 @ 1800	287	173.8	1650 @ 1200	299	120.5	EM, DI, TC, ECM,
23	C-15	490 @ 1800	287	173.8	1650 @ 1200	299	120.5	EM, DI, TC, ECM,
24	C-15	490 @ 1800	287	173.8	1750 @ 1200	317	127.8	EM, DI, TC, ECM,
25	C-15	490 @ 1800	287	173.8	1650 @ 1200	299	120.5	EM, DI, TC, ECM,
26	C-15	475 @ 1800	282	170.9	1750 @ 1200	320	129.1	EM, DI, TC, ECM,
27	C-15	475 @ 1800	282	170.9	1650 @ 1200	301	121.7	EM, DI, TC, ECM,
28	C-15	475 @ 1800	279	169.2	1750 @ 1200	317	127.8	EM, DI, TC, ECM,
29	C-15	475 @ 1800	279	169.2	1650 @ 1200	299	120.5	EM, DI, TC, ECM,
30	C-15	470 @ 1800	279	169.1	1750 @ 1200	320	129.2	EM, DI, TC, ECM,
31	C-15	470 @ 1800	279	169.1	1550 @ 1200	284	114.7	EM, DI, TC, ECM,

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32	C-15	470 @ 1800	279	16[illegible]	1550 @ 1200	284	114.7	DDI, EM, [illegible] TC, ECM, CAC
33	C-15	470 @ 1800	279	16[illegible]	1650 @ 1200	301	121.6	EM, DI, TC, ECM,
34	C-15	470 @ 1800	277	167.5	1750 @ 1200	317	127.9	EM, DI, TC, ECM,
35	C-15	470 @ 1800	277	167.5	1550 @ 1200	281	113.5	EM, DI, TC, ECM,
36	C-15	470 @ 1800	277	167.5	1650 @ 1200	298	120.4	EM, DI, TC, ECM,
37	C-15	470 @ 1800	277	167.5	1550 @ 1200	281	113.5	EM, DI, TC, ECM,
38	C-15	455 @ 1800	272	164.4	1650 @ 1200	301	121.6	EM, DI, TC, ECM,
39	C-15	450 @ 1800	270	163.7	1650 @ 1200	301	121.7	EM, DI, TC, ECM,
40	C-15	450 @ 1800	270	163.7	1550 @ 1200	283	114.4	EM, DI, TC, ECM,
41	C-15	455 @ 1800	269	162.8	1650 @ 1200	298	120.4	EM, DI, TC, ECM,
42	C-15	450 @ 1800	266	162.0	1650 @ 1200	299	120.5	EM, DI, TC, ECM,
43	C-15	450 @ 1800	266	162.0	1550 @ 1200	280	113.2	EM, DI, TC, ECM,
44	C-15	435 @ 1800	261	158.3	1650 @ 1200	301	121.7	EM, DI, TC, ECM,
45	C-15	435 @ 1800	261	158.3	1550 @ 1200	283	114.4	EM, DI, TC, ECM,
46	C-15	435 @ 1800	259	156.8	1650 @ 1200	299	120.5	EM, DI, TC, ECM,
47	C-15	435 @ 1800	259	156.8	1550 @ 1200	280	113.2	EM, DI, TC, ECM,
48	C-15	450 @ 1800	268	162.0	1550 @ 1200	280	113.2	EM, DI, TC, ECM,
49	C-15	515 @ 1800	301	182.1	1650 @ 1200	298	120.4	EM, DI, TC, ECM,

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Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category:

EPA Engine Family: **2CPXH0893ERK**

Mfr Family Name:

Process Code: **New Sub - continued**

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
50	C-15	435 @ 1800	247	149.5	1650 @ 1200	292	118.0	DDI, ~~EM, DI~~, TC ECM, CAC
51	C-15	435 @ 1800	257	149.5	1550 @ 1200	275	111.0	EM, DI, TC, ECM,
52	C-15	403 @ 1800	215	129.9	1550 @ 1200	277	111.8	EM. DI, TC, ECM,
53	C-15	403 @ 1800	215	129.9	1450 @ 1200	260	105.0	EM, DI, TC ECM,
54	C-15	403 @ 1800	215	129.9	1450 @ 1200	260	105.0	EM, DI, TC ECM,
55	C-15	515 @ 1800	301	182.1	1650 @ 1200	298	120.4	EM, DI, TC ECM,
56	C-15	375 @ 1800	213	129.1	1450 @ 1200	259	104.6	EM, DI, TC ECM,
57	C-15	375 @ 1800	213	129.1	1450 @ 1200	259	104.6	EM, DI, TC ECM,
58	C-15	450 @ 1800	268	162.0	1550 @ 1200	280	113.2	EM, DI, TC ECM,
59	C-15	375 @ 1800	213	129.1	1550 @ 1200	276	111.5	EM, DI, TC ECM,
60	C-15	375 @ 1800	213	129.1	1450 @ 1200	259	104.6	EM, DI, TC ECM,
61	C-15	375 @ 1800	213	129.1	1450 @ 1200	259	104.6	EM, DI, TC ECM,
62	C-15	380 @ 1800	204	123.4	1450 @ 1200	258	104.2	EM, DI, TC ECM,
63	C-15	380 @ 1800	204	123.4	1350 @ 1200	243	97.9	EM, DI, TC ECM,
64	C-15	380 @ 1800	204	123.4	1350 @ 1200	243	97.9	EM, DI, TC ECM,
65	C-15	355 @ 1800	202	122.4	1450 @ 1200	259	104.5	EM, DI, TC ECM,
66	C-15	355 @ 1800	202	122.4	1350 @ 1200	243	97.9	EM, DI, TC ECM,
67	C-15	355 @ 1800	202	122.4	1350 @ 1200	243	97.9	EM, DI, TC ECM,
68	C-15	500 @ 1800	291	176.5	1850 @ 1200	336	135.6	EM, DI, TC ECM,

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