

## **VOLVO POWERTRAIN CORPORATION**

**EXECUTIVE ORDER A-242-0048** New On-Road Heavy-Duty Engines

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The 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 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 SIZES (L)	FUEL TYPE	STANDARDS & TEST PROCEDURE	INTENDED SERVICE	ECS & SPECIAL FEATURES IDLING EMISSIONS
2008	8VPTH10.8H04	10.8	Diesel	Diesel	HHDD	DDI, TC, CAC, ECM, EGR, PTOX 30g
ENGINE (I	L)		ENGINE MODEL			p)
	Cable: GVWR=pross vehicle	reciable sations 42.00	See attachment	for engine mo	dels and rat	ings

=not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; hp=horsepower; kw=kilowatt; hr=hour;

CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;

L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDQ=heavy duty Otto;

ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; NAC=NOx adsorption catalyst; SCR-U / SCR-N=selective catalytic reduction = urea / = ammonia; WU (prefix) =warm-tible-injection; DFF=diesel particulate filter; PTOX=periodic trap oxidizer; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=in-protite body fuel injection; SFI/MFI:-sequential/multi port fuel injection; DGF=direct gasoline injection; GCARB=gaseous carburetor; IDVDDI=indirect/ddirect diesel injection; TC/SC=turbo/control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series;

ESS=engine shuldown system (per 13 CCR 1956.8(a)(6)(A)(1); 30g=30 g/hr NOx (per 13 CCR 1956.8(a)(6)(C); ALT=alternative method (per 13 CCR 1956.8(a)(6)(D); Exempt=exempted per (Rev.: 2007-12-20)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.8; 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavyduty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.8 are in

in	NMHC		NOx		NMHC+NOx		co			PM	НСНО		
g/bhp-hr	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP				
STD	0.14	0.14	*	*	-		_			EURO	FTP	EURO	
FEL	*	*	1.16	1,16	12	4.0	15.5	15.5	0.01	0.01	*	•	
CERT	0.05	0.04	0.98		1.3	1.3			*	*	*	•	
NTE			0.90	1.01	1.0	1.1	<u> </u>	*	0.001	0.000	*	*	
	0.21		1.74		2.0		19.4		0.02		*		

g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle, including RMCSET=ram mode cycle supplemental emissions testing: NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level: NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide: PM=particulate matter; HCHO=formaticehyde;

BE IT FURTHER RESOLVED: 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: Except in vehicle applications exempted per 13 CCR 1956.8(a)(6)(B), engines in this engine family certified under 13 CCR 1956.8(a)(6)(C) [30 g/hr NOx] and section 35.B.4 of the incorporated "California Exhaust Emissions Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" (HDDE Test Procedures) adopted Dec. 12, 2002, as last amended Sep. 1, 2006, shall be provided with an approved "Certified Clean Idle" label that shall be affixed to the vehicle into which the engine is installed.

BE IT FURTHER RESOLVED: The listed engine models have been certified to the split engine family standards under 13 CCR 1956.8(b) [diesel engines] or 13 CCR 1956.8(d) [Otto engines] and the incorporated 40 CFR 86.007-15(m)(9).

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: The listed engine models are conditionally certified pending final approval of "Certified Clean Idle" vehicle label. The manufacturer has until March 31, 2008 to resolve concerns on this conditional certification. This Executive Order is effective through March 31, 2008; engines produced after this date are not covered by this Executive Order.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this day of February 2008.

Mobile Source Operations Division

## ACH WOUT

## **Engine Model Summary Form**

Volvo Powertrain North America, a division of Manufacturer;

On-highway HDDE Engine category:

8VPTH10.8H04 EPA Engine Family:

8VPTH10.8H04 Mfr Family Name:

Process Code:

New Submission

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8.Fuel Rate: 9.Emission Control (lbs/hr)@peak forque Daving Per SAE 11020	En EC, TC, CAC,	(XDI,EGR,DPF, €·CvM	=	=	z	=	=	=	=	=	z	:	=	=	=	E
8.Fuel Rate: (lbs/hr)@peak torque	317.8	6	108.2	100.0	109.9	96.7	88.7	108.2	100.0	92.5	116.7	1 . 7	1.10.7	100.3	85.9	85.9
7.Fuel Rate: mm/stroke@peak torque	317.8	201	287.8	2/0.4	302.5	266.3	244.3	297.9	275,4	254.8	294.5	204 6	C.452	7/0.0	247.9	247.9
6.Torque @ RPM (SEA Gross)	1591 @ 1100	1480 @ 1100	1387 @ 1100	1507 (0 1100	1310 @ 1100	130/ @ 1100	1224 @ 1100	1489 @ 1100	1387 @ 1100	1285 @ 1100	1500 @ 1200	1500 @ 1260	1300 (0 1400	0011	1250 @ 1050	1250 @ 1050
5.Fuel Rate: P (lbs/hr) @ peak HP (for diesels only)	130.3	120.5	1144	153.0	120.6	0.661	124.8	114.4	106.6	102.1	143.8	129.7	1223	120.0	122.3	116.2
4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	197.3	182.4	173.3	233.0	211.0	2007	189.0	173.3	161.4	154.6	217.7	196.4	185.2	1000	7.001	176.0
3.BHP@RPM (SAE Gross)	338 @ 2000	319 @ 2000	301 @ 2000	408 @ 2000	369 @ 2000	330 @ 2000	304 @ 2000	301 @ 2000	281 @ 2000	270 @ 2000	381 @ 2000	343 @ 2000	324 @ 2000	324 @ 2000	00000	308 (@ 2000
2.Engine Model	MP7-395C	MP7 - 365C	MP7 - 345C	MP7 - 405M	MP7 - 365M	MP7 - 325M	MP7 - AASE	MD7 PEFF	1000 - 7 - 1014	WIP / - 323E	D11F - 405	D11F - 385	D11F - 365	D11F - 355	D44E 20E	DIII - 323
1.Engine Code 2.Engine Model	N/A	N/A	N/A	A/A	N/A	A/N	A/N	V/N		(		<b>4</b> /2	N/A	ΚX	Ø/N	