

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-22-11  
Relating to Certification of New Off-Road Compression-Ignition Engines

PERKINS ENGINES COMPANY LTD.

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment:

Model Year: 2001

Typical Equipment Usage: Other Industrial Equipment

Fuel Type: Diesel

	Engine		
	Displacement	Useful Life	Emission Control Systems
<u>Engine Family</u>	<u>(liters)</u>	<u>(hours)</u>	<u>and Special Features</u>
1PKXL03.9AM1	3.99	8000	Direct Diesel Injection Turbocharger Smoke Puff Limiter Charge Air Cooler

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The exhaust emission certification standards and certification values for hydrocarbons (HC), oxides of nitrogen (NOx), or non-methane hydrocarbons plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) (units are expressed in grams per kilowatt-hour (g/kw-hr)), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

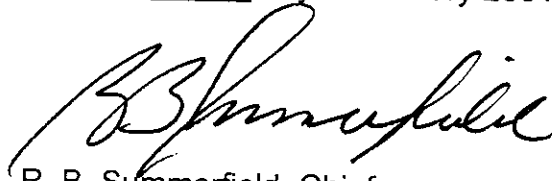
Engine Power <u>Rating (kw)</u> 37≤KW<130	Emission Standard <u>Category</u> Tier 1	Standard Certification	<u>Exhaust Emissions (g/kw-hr)</u>					<u>Smoke Opacity (%)</u>		
			<u>HC</u>	<u>NOx</u>	<u>NMHC+NOx</u>	<u>CO</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
			N/A	9.2	N/A	N/A	N/A	20	15	50
			--	7.4	--	--	--	6	3	10

BE IT FURTHER RESOLVED: That the listed engine models also comply with "Emission Control Labels— 1996 and Later Off-Road Compression-Ignition Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 and 2426).

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

Executed at El Monte, California this 22<sup>nd</sup> day of January 2001.



R. B. Summerfield, Chief  
Mobile Source Operations Division

ATTACHMENT

Engine Model Summary Form

Manufacturer: Perkins Engines Company Ltd  
 Engine category: Nonroad CI  
 EPA Engine Family: 1PKXL03.9AM1  
 Mfr Family Name: AS EPA  
 Process Code: New Submission

u-r-22-11

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
	1987/1800	116.7 @ 1800	105.0	42.3	340.4 @ 1800	105.0	42.3	SPL, TAW, DDI
	1934/2000	111.3 @ 2000	91.0	40.5	328.2 @ 1400	97.0	30.4	SPL, TAW, DDI
	1934/2100	113.3 @ 2100	90.0	40.0	328.2 @ 1400	97.0	30.4	SPL, TAW, DDI
	1934/2200	114.7 @ 2200	89.0	43.6	328.2 @ 1400	97.0	30.4	SPL, TAW, DDI
	5587/2000	108.9 @ 2000	91.0	40.5	322.3 @ 1400	97.0	30.4	SPL, TAW, DDI
	5587/2100	110.9 @ 2100	90.0	40.0	322.3 @ 1400	97.0	30.4	SPL, TAW, DDI
	5587/2200	112.1 @ 2200	89.0	43.6	322.3 @ 1400	97.0	30.4	SPL, TAW, DDI
	1986/2100	119.1 @ 2100	96.0	44.0	320.1 @ 1500	93.0	31.0	SPL, TAW, DDI
	1986/2200	121.1 @ 2200	95.0	46.4	320.1 @ 1500	93.0	31.0	SPL, TAW, DDI
	1986/2300	122.0 @ 2300	94.0	47.6	320.1 @ 1500	93.0	31.0	SPL, TAW, DDI
	5701/2100	116.8 @ 2100	96.0	44.0	314.2 @ 1500	93.0	31.0	SPL, TAW, DDI
	5701/2200	118.7 @ 2200	95.0	46.4	314.2 @ 1500	93.0	31.0	SPL, TAW, DDI
	5701/2300	119.5 @ 2300	94.0	47.6	314.2 @ 1500	93.0	31.0	SPL, TAW, DDI
	1938/2300	122.0 @ 2300	93.5	46.9	328.8 @ 1600	102.0	35.7	SPL, TAW, DDI
	1938/2200	121.6 @ 2200	95.0	45.6	328.8 @ 1600	102.0	35.7	SPL, TAW, DDI
	1938/2100	119.7 @ 2100	96.5	44.3	328.8 @ 1600	102.0	35.7	SPL, TAW, DDI
	Caterpillar	122.0 @ 2300	93.5	46.9	328.8 @ 1600	102.0	35.7	SPL, TAW, DDI
	Caterpillar	111.3 @ 2000	91.0	40.5	328.2 @ 1400	97.0	30.4	SPL, TAW, DDI
	Caterpillar	113.3 @ 2100	90.0	40.0	328.2 @ 1400	97.0	30.4	SPL, TAW, DDI
	Caterpillar	114.7 @ 2200	89.0	43.6	328.2 @ 1400	97.0	30.4	SPL, TAW, DDI
	1987/1500	104.6 @ 1500	110.7	26.2	366.3 @ 1500	110.7	26.2	SPL, TAW, DDI
	Caterpillar 3054	116.7 @ 1800	105.0	42.3	340.4 @ 1800	105.0	42.3	SPL, TAW, DDI