State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-326-11

Relating to Certification of New Heavy-Duty Engines and Vehicles

POWER SYSTEMS ASSOCIATES

Pursuant to the authority vested in the Air Resources Board by Sections 43100, 43102 and 43103 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;

Pursuant to the December 15, 1998 Settlement Agreement between the Air Resources Board and Caterpillar, Inc. and any modifications to the Settlement Agreement;

IT IS ORDERED AND RESOLVED: That the following 1999 model-year Power Systems Associates diesel-cycle engines are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) over 14,000 pounds:

Fuel Type: Compressed Natural Gas (CNG) + Diesel in multi-fuel mode, or Liquefied Natural Gas (LNG) + Diesel in multi-fuel mode, or Diesel

Engine Family	Engine Displacement Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
XPSXH0629E6J	10.3	(629)	Turbocharger Charge Air Cooler Engine Control Module (Diesel) Engine Control Module (CNG/LNG)

Engine models and codes are listed on attachments.

The following are the certification exhaust emission standards for this engine family in grams per brake horsepower-hour: (The standards in parentheses are for diesel-only default operation.)

Non-Methane (Total) Hydrocarbons	Carbon Monoxide	Nitrogen Oxides	Particulates
1.2 (1.3)	15.5 (15.5)	2.5 (4.0)	0.10 (0.10)

The following are the certification exhaust emission values for this engine family in grams per brake horsepower-hour: (The values in parentheses are for diesel-only default operation.)

Non-Methane (Total) Hydrocarbons	Carbon Monoxide	Nitrogen Oxides	Particulates
1.1 (0.2)	7.4 (1.1)	2.4 (3.7)	0.06 (0.08)

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, Section 2035 et seq.).

BE IT FURTHER RESOLVED: That since the default diesel-only operating mode is intended to be used only to provide safe vehicle operation when the multi-fuel modes fail or when there is insufficient CNG or LNG on board to allow multi-fuel operation, and to further this objective the listed engine models exhibit reduced engine power over a wide engine RPM range when the engine is operating in the diesel-only mode, it is appropriate to certify the listed engine models to the optional lower-emission standards identified by California Code of Regulations, Title 13, Section 1956.8(a)(1) Footnote J when operating in CNG-diesel or LNG-diesel multi-fuel modes, and to the mandatory emission standards identified in California Code of Regulations, Title 13, Section 1956.8(a)(1) when operating in the default diesel-only operating mode.

BE IT FURTHER RESOLVED: That the aforementioned engine family has been conditionally certified subject to the following conditions:

1. The Settlement Agreement is in effect.
2. Caterpillar, Inc. is in compliance with all applicable certification requirements of the Settlement Agreement.

Engines certified under this Executive Order must conform to all applicable California emission regulations and to all applicable terms and conditions of the Settlement.

The Bureau of Automotive Repair will be notified by copy of this order and attachments.

Executed at El Monte, California this 14th day of October 1999.

R. B. Summerfield, Chief
Mobile Source Operations Division

8/3/99

LARGE ENGINE MODEL SUMMARY

EO: A-326-11

Manufacturer: **POWER SYSTEMS ASSOCIATES, LLC** Process Code: **New Submission**

EPA Engine Family: **XPSXH0629E6J** Manufacturer Family Name: **DUAL-FUEL**

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
1	DUAL-FUEL C-10	350 @ 1800	17.0 (diesel) 202.0 (gas)	10.2 (diesel) 121.1 (gas)	1050 @ 1400	18.0 (diesel) 183.2 (gas)	8.4 (diesel) 85.4 (gas)	ECM-2,DI,CAC,TC ECM-2,DI,CAC,TC
2	DUAL-FUEL C-10	305 @ 1800	17.0 (diesel) 182.0 (gas)	10.2 (diesel) 108.8 (gas)	1050 @ 1400	18.0 (diesel) 192.2 (gas)	8.4 (diesel) 89.6 (gas)	ECM-2,DI,CAC,TC ECM-2,DI,CAC,TC

ECM-2 { ECM(Diesel) / ECM(ENG/LNG) }