State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-4-15

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

DEERE POWER SYSTEM GROUP OF DEERE & COMPANY

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 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 Deere Power System Group of Deere & Company 1997 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy- duty off-road equipment:

Typical Equipment Usage: Agricultural Tractor, Loader, Generator Set

Fuel Type: Diesel

Engine Family	Displacement in Liters	Exhaust Emission Control Systems and Special Features
VJD8.1R6DBRA (450HA)	8.1	Turbocharger 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 total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

	Exhaust Emission (g/bhp-hr)				Smoke Opacity (%)		
Engine Family	THC	CO	NOx	PM	Accel	Lug	Peak
VJD8.1R6DBRA (450HA)	0.4	1.0	6.0	0.2	12	4	18

BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle 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, Section 2425 et seq.).

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

Executed at El Monte, California this 23rd day of December 1996.

R. B. Summerfield, Chief
Mobile Source Operations Division

A15

LARGE ENGINE MODEL SUMMARY

Manufacturer: Deere Power Systems Group of Deere & Company

EPA Engine Family: VJD8.1R6DBRA

Manufacturer Family Name: 450HA

Engine Code	Engine Model	BHP @ RPM (SAE Gross)	Fuel Rate: mm/stroke @ peak HP (for diesel only)	Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	Torque @ RPM (SEA Gross)	Fuel Rate: mm/stroke @ peak torque	Fuel Rate: (lbs/hr) @ peak torque	Emission Control Device Per SAE J1930
A. 50 State Codes								
6081HF001J		300@2200	139@2200	103@2200	1024@1200	191@1200	77@1200	TC, CAC, EM
6081HF001C		300@2200	139@2200	103@2200	959@1400	172@1400	81@1400	TC, CAC, EM
6081HF001B		322@1800	175@1800	106@1800	N/A	N/A	N/A	TC, CAC, EM
6081HRW01		268@2200	122@2200	90@2200	871@1200	170@1200	69@1200	TC, CAC, EM
6081HRW06		193@2200	92@2200	67@2200	619@1400	120@1400	55@1400	TC, CAC, EM
6081HRW07		217@2200	106@2200	77@2200	712@1400	135@1400	62@1400	TC, CAC, EM
6081HRW08		241@2200	115@2200	84@2200	785@1200	157@1200	62@1200	TC, CAC, EM
6081HRW10		200@2200	95@2200	69@2200	641@1400	124@1400	57@1400	TC, CAC, EM
6081HRW02		223@2200	109@2200	79@2200	730@1400	138@1400	64@1400	TC, CAC, EM
6081HRW09		247@2200	118@2200	86@2200	805@1200	161@1200	64@1200	TC, CAC, EM
6081HRW03		275@2200	125@2200	93@2200	892@1200	175@1200	71@1200	TC, CAC, EM
6081HZ004		300@2100	145@2100	101@2100	960@1500	180@1500	89@1500	TC, CAC, EM
6081HDW04		182@2200	94@2200	69@2200	841@1000	164@1000	55@1000	TC, CAC, EM
6081HDW03		169@2000	92@2000	61@2000	705@1000	137@1000	45@1000	TC, CAC, EM
6081HDW01		219@2000	119@2000	78@2000	781@1000	150@1000	50@1000	TC, CAC, EM
6081HRW05		266@2100	130@2100	90@2100	900@1200	181@1200	72@1200	TC, CAC, EM
6081HH001		303@2200	143@2200	104@2200	962@1600	176@1600	93@1600	TC, CAC, EM
6081HH004		267@2200	126@2200	92@2200	847@1600	155@1600	82@1600	TC, CAC, EM
6081HH006		303@2200	143@2200	104@2200	962@1600	176@1600	93@1600	TC, CAC, EM
6081HH002		276@2200	131@2200	95@2200	877@1600	160@1600	85@1600	TC, CAC, EM
6081HH003		239@2200	114@2200	83@2200	758@1600	139@1600	73@1600	TC, CAC, EM
6081HH010		276@2200	131@2200	95@2200	877@1600	160@1600	85@1600	TC, CAC, EM
6081HH011		283@2200	134@2200	98@2200	898@1600	164@1600	87@1600	TC, CAC, EM

E.O. U-R-4-15