File

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-35-1
Relating to Certification of New Off-Road Compression-Ignition Engines

MITSUBISHI HEAVY INDUSTRIES, 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: Tractor, Dozer and Generator

Fuel Type: Diesel

Engine Family	Engine Displacement (liters)	Useful Life (hours)	Emission Control Systems and Special Features
1MVXL01.8AAA	1.1, 1.3, 1.5 and 1.8	5000	Indirect Diesel Injection

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 Rating (kw)	Emission Standard Category		Exhaust Emissions (g/kw-hr)					Smoke Opacity (%)		
			HC	NOx	NMHC+NOx	CO	PM	Accel	Lug	Peak
19≤KW<37	Tier 1	Standard	N/A	N/A	9.5	5.5	0.80	20	15	50
		Certification	--	--	6.3	1.4	0.48	5	7	8

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 15th day of February 2001.

R. B. Summerfield, Chief
Mobile Source Operations Division

ATTACHMENT

Engine Model S. .nary Form

Manufacturer: **Mitsubishi Heavy Industries, Ltd.**

Engine category: **Nonroad CI** .

EPAEngine Family: **1MVXL01.8AAA**

Mfr Family Name:

Process Code: **New Submission**

U-R-35-1

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
S4L2-Y161KT	S4L2	36.2@2600	27.5	15.7	80.5@1700	28.5	10.6	EM
S3L-Y161DPH	S3L	26.0@3000	24.9	12.2	45.7@2200	23.3	8.4	EM
S3L2-Y161DP	S3L2	28.4@3000	25.0					EM
S3L2-Y114R	S3L2	26.3@2600	27.0	11.6	60.3@1600	28.5	7.5	EM
S3L2-Y114RH	S3L2	26.3@2600	27.0	11.6	60.3@1600	28.5	7.5	EM
S3L2-Y162ST	S3L2	27.0@3000	24.0					EM
S4L-Y161DPH	S4L	35.1@3000	22.7	14.9	65.1@2200	22.7	10.9	EM
S4L-Y161KT	S4L	29.9@2600	22.8	13.0	68.7@1700	25.7	9.6	EM
S4L-Y162ST	S4L	34.9@3000	23.5					EM
S4L2-Y161DG	S4L2	25.5@1800	26.4	10.4	74.1@1350	26.5	7.8	EM
S4L2-Y161DP	S4L2	38.6@3000	25.4	16.5	71.3@2200	24.7	11.9	EM
S4L2-Y162WM	S4L2	38.5@3600	21.7	17.3	56.9@2600	20.5	11.8	EM
S4L2-Y162KL	S4L2	33.0@2400	25.1					EM
S4L-Y161GT	S4L	30.1hp@2600	22.1	12.6	65.1ft-lb@1800	22.5	8.8	EM
S4L2-Y161GT	S4L2	38.0hp@2700	28.0	16.6	75.9ft-lb@1800	26.5	10.5	EM
S4L-Y162KL	S4L	25.8hp@2200	22.5	10.9	61.2ftlb@2000	22.3	9.8	EM
S4L2-Y161CG	S4L2	25.5hp@1800	26.4					EM
S4L2-Y162SD	S4L2	25.5hp@1800	26.4					EM
S4L2-EPA-1	S4L2	38.5hp@2700	28.4	16.8	86.8ft-lb@1600	31.9	11.2	EM
S4L2-Y114R	S4L2	36.5hp@2700	26.2	15.0	79.7ft-lb@1600	27.8	9.5	EM
S3L2-Y162WM	S3L2	28.1hp@3600	21.7	12.9	43.4ftlb@2200	20.8	7.5	EM
S4L2-Y161WM	S4L2	25.5hp@1800	26.4					
S4L2-Y163ES	S4L2	30.8@2200	27.0	13.4	81.9@1600	28.8	10.2	EM
S4L2-EPA1-A	S4L2	38.5hp@2600	29.0	16.6	83.9ft-lb@1700	29.7	11.1	EM
S3L2-Y1SCME	S3L2	26.7@2300	29.3	11.11	60.0@1700	28.1	7.87	EM

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