## State of California AIR RESOURCES BOARD

# EXECUTIVE ORDER U-R-35-10 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: Other industrial Equipment

Fuel Type: Diesel

	Engine		
	Displacement	Useful Life	Emission Control Systems
Engine Family	(liters)	(hours)	and Special Features
1MVXL05.0AAA	3.3 and 5.0	8000	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	Emission Standard	Evh		Exhaus	xhaust Emissions (g/kw-hr)				Smoke Opacity (%)		
Rating (kw)	Category		<u>HC</u>	<u>NOx</u>	NMHC+NOx	<u>CO</u>	<u>PM</u>	<u>Accel</u>	Lug	<u>Peak</u>	
37 <u>&lt;</u> KW<130	Tier 1	Standard	N/A	9.2	N/A	N/A	N/A	20	15	50	
		Certification		7.2				4	4	7	

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

\_day of February 2001.

R. B. Summerfield, Chief

Mobile Source Operations Division

## Engine Model Suc. nary Form

### ATTACHMENT

Manufacturer:

Mitsubishi Heavy Industries, Ltd.

Engine category:

Nonroad Cl

EPAEngine Family: 1MVXL05.0AAA

Mfr Family Name:

Process Code:

**New Submission** 

U-R-35-10

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 J193
S6S-IDI FD35	S6S-IDI	81.0@2400	43	35	184@21800	41	22	E DI, EM
S6S-IDI FD 70	S6S-IDI	93.5@2400	47	36	223@1600	49	26	ÉM
S4S-Y161DG	S4S-IDI	51hp@1800	52	21	150ftlb@1350	52	15	_\ EM
S4S-Y161DP	S4S-IDI	65hp@2500	46	25	148ftlb@1500	48	16	EM
S4S-Y162GT	S4S-IDI	56.0hp@2500	41	23	130ftlb@1500	43	14	EM
S4S-Y162SD	S4S	51hp@1800	52	21	150ftlb@1350	52	15	
S4S-Y165DP	S4S	65hp@2500	46	25	148ftlb@1500	48	16	_\
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