California Environmental Protection Agency AIR RESOURCES BOARD	Mitsubishi Heavy Industries, Ltd.	EXECUTIVE ORDER U-R-035-0048 New Off-Road Compression-Ignition Engines

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-02-003;

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. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2003	3MVXL05.0AAC	3.3, 5.0	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger	Tractor, Dozer, Pump, Generator

The engine models and codes are attached.

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

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
37≤ KW < 75	Tier 1	STD	N/A	9.2	N/A	N/A	N/A	20	15	50
		CERT	--	8.5	--	--	--	11	9	19

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

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

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 27TH day of January 2003.

Allen Lyons, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model Summary Form

Manufacturer: Mitsubishi Heavy Industries, Ltd.

Engine category: Nonroad CI

EPA Engine Family: 3MVXL05.0AAC

Mfr Family Name: S6S-DT, S4S-DT

Process Code: New Submission

U-R-035-0048

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
S6S-DT D5G	S6S-DT	99@2400	48	37	257ftlb@1400	54	26	DI TC
S6S-DT 939	S6S-DT	96@2400	47	36	262ftlb@1400	55	26	DI TC
S4S-DT61TG	S4S-DT	77@2500	50	27	173ftlb@1600	57	20	DI TC
S4S-Y1DT61D	S4S-DT	66@1800	58	23	205ftlb@1350	65	19	DI TC
S4S-Y1DT65D	S4S-DT	66@1800	58	23	205ftlb@1350	65	19	DI TC
S4S-Y1DT61D	S4S-DT	81@2500	54	30	194ftlb@1500	60	20	DI TC
S4S-Y1DT61H	S4S-DT	77@2200	56	27	195ftlb@1500	62	20	DI TC