California Environmental Protection Agency AIR RESOURCES BOARD	MITSUBISHI HEAVY INDUSTRIES, LTD.	EXECUTIVE ORDER U-R-035-0022 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-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. 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)
2002	2MVXL01.8AAA	1.1, 1.3, 1.5, and 1.8	Diesel	5000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Indirect Diesel Injection	Tractor, Dozer and 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
19≤KW<37	Tier 1	STD	N/A	N/A	9.5	5.5	0.80	20	15	50
		CERT	--	--	6.4	1.5	0.45	4	6	6

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 25TH day of January 2002.

Raphael Susnowitz

for R. B. Summerfield, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model S mary Form

U-R-035-0022

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

Engine category: **Nonroad CI**

EPA Engine Family: **2MVXL01.8AAA**

Mfr Family Name:

Process Code: **New Submission**

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	IDI
S3L-Y161DPH	S3L	26.0@3000	24.9	12.2	45.7@2200	23.3	8.4	IDI
S3L2-Y161DPH	S3L2	28.4@3000	25.0					IDI
S3L2-Y114R	S3L2	26.3@2600	27.0	11.6	60.3@1600	28.5	7.5	IDI
S3L2-Y114RH	S3L2	26.3@2600	27.0	11.6	60.3@1600	28.5	7.5	IDI
S3L2-Y162ST	S3L2	27.0@3000	24.0					IDI
S4L-Y161DPH	S4L	35.1@3000	22.7	14.9	65.1@2200	22.7	10.9	IDI
S4L-Y161KT	S4L	29.9@2600	22.8	13.0	68.7@1700	25.7	9.6	IDI
S4L-Y162ST	S4L	34.9@3000	23.5					IDI
S4L2-Y161DG	S4L2	25.5@1800	26.4	10.4	74.1@1350	26.5	7.8	IDI
S4L2-Y161DPH	S4L2	38.6@3000	25.4	16.5	71.3@2200	24.7	11.9	IDI
S4L2-Y162WM	S4L2	38.5@3600	21.7	17.3	56.9@2600	20.5	11.8	IDI
S4L2-Y162KL	S4L2	33.0@2400	25.1					IDI
S4L-Y161GT	S4L	30.1hp@2600	22.1	12.6	65.1ft-lb@1800	22.5	8.8	IDI
S4L2-Y161GT	S4L2	38.0hp@2700	28.0	16.6	75.9ft-lb@1800	26.5	10.5	IDI
S4L-Y162KL	S4L	25.8hp@2200	22.5	10.9	61.2ftlb@2000	22.3	9.8	IDI
S4L2-Y161CG	S4L2	25.5hp@1800	26.4					IDI
S4L2-Y162SD	S4L2	25.5hp@1800	26.4					IDI
S4L2-EPA-1	S4L2	38.5hp@2700	28.4	16.8	86.8ft-lb@1600	31.9	11.2	IDI
S4L2-Y114R	S4L2	36.5hp@2700	26.2	15.0	79.7ft-lb@1600	27.8	9.5	IDI
S3L2-Y162WM	S3L2	28.1hp@3600	21.7	12.9	43.4ftlb@2200	20.8	7.5	IDI
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	IDI
S4L2-EPA1-A	S4L2	38.5hp@2600	29.0	16.6	83.9ft-lb@1700	29.7	11.1	IDI
S3L2-Y1SCME	S3L2	26.7@2300	29.3	11.11	60.0@1700	28.1	7.87	IDI
S4L2-Y1SCMD	S4L2	36.2@2500	27.5	15.1	79.7ftlb@2000	27.0	11.9	IDI
S3L2-Y161DYM	S3L2	28.4@3000	25.0	12.4	50.6ftlb@2200	24.3	8.8	IDI
S3L2-Y162WMA	S3L2	31.0@3000	26.4	12.96	56.7@1700	26.3	9.49	IDI
S4L2-Y162WMA	S4L2	41.4@3000	25.0	17.10	74.6@2400	25.5	13.28	IDI
S3L2-Y115R	S3L2	28.3@2700	27.4	12.2	60.3@1600	28.5	7.5	IDI
S3L2-Y115RH	S3L2	28.3@2700	27.4	12.2	60.3@1600	28.5	7.5	IDI