California Environmental Protection Agency AIR RESOURCES BOARD	MITSUBISHI HEAVY INDUSTRIES, LTD.	EXECUTIVE ORDER U-R-035-0313 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)
2011	BMVXL03.3AAH	3.3	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Mechanical Direct Injection, Turbocharger	Crane, Loader, Tractor, Dozer, Pump, Compressor, Generator and Industrial Equipment

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 < 56	Tier 4 Interim	STD	N/A	N/A	4.7	5.0	0.30	20	15	50
		CERT	--	--	4.2	1.2	0.24	6	3	9

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 27 day of January 2011.

Annette Hebert, Chief
Mobile Source Operations Division

V1.2EZ -3/07

Family Information Form-Template

Manufacturer:

Engine category:

Cert contact:

U-R-035-0313

1.0

1. Model Year: **2011**
2. Carry over: **Yes**
   If yes, list the previous family: **AMVXL03.3AAH**
3. Process Code: **New Submission**
   Date EPA Fee Paid:
4. EPA Standard Engine Family: **BMVXL03.3AAH**
5. Mfr's Family Name: **S4S-DTDPB**
6. Engine Cycle: **Diesel**
7. Displacement(s) (CID or Liters) **3.3L**
8. Engine Configuration: **L4**
   Use the following format:V-8 or I-6

Applicable Regulations

- ○ Part 89
- ○ Part 1039 } Nor
- ○ Part 60 only certified to requirements of Part 1039
- ○ Part 60 only certified to requirements of Part 89 } Stat only
- ○ Part 60 and Part 1039
- ◉ Part 60 and Part 89 } Sta Nor

9. Emission Control & Aftertreatment:

Check all that apply

Electronic control	**Lean NOx**
X **Engine Modification**	**SCR**
3WCatalyst	**DOC**
Smoke puff limiter	**None**
Passive DPF	**Other**
Active DPF	
EGR	
NOx adsorber	

If Other Describe:

10. Fuel Type: **Diesel**
11. Fuel System Type: **Mechanical Direct Injection**
12. Method Of Aspiration: **Single Stage Turbo**
    Turbocharger Type **fixed turbo**
    Aftercooling **None**

13 Useful Life Period: **10 years / 8,000 hours**

14. Deterioration Factor Type
    A. Gaseous Exhaust: **Additive**
    B. Smoke: **Additive**

15. Intended Service Class **NR 4 (~~37-75~~)** 37-56
    If CFF, Select which category:

16. Projected Sales : FED
    CA
    TOTAL

17. Estimated Production Period: Start
    End

18. Sales Area: ○ **Fed** ○ **Cal** ◉ **50 St**

19. Plant Contact:
    Mr. Eiji Nutaba

20. Plant Location:
    3000 Tana, Chuo-ku, Sagamihara-shi
    Kanagawa-ken 252-5293 Japan

21. ABT Information: Check all that apply

In the split family program	**NMHC+NOx**
PM	**NA**
NOx	

22. Family Emission Limits:
    PM
    NOx
    NMHC + NOx
    Units:

23. Nonroad Engine Equipment Types:

X **Crane**	X **Dozer**	X **Generator Set**
X **Loaders**	X **Pump**	**NA**
X **Tractor**	X **Compressor**	**Other...**

Cristhael Rhen 1/11/2011

[signature] 1/13/2011

24. Auxiliary Emission Control Devices:

AECD	Sensed	PARAMETER	Controlled	VMT	TONS/ENGINE	Reduces effectivness of emission control?