California Environmental Protection Agency AIR RESOURCES BOARD	IHI SHIBAURA MACHINERY CORPORATION	EXECUTIVE ORDER U-R-026-0293 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	BH3XL1.13SLV	1.131	Diesel	3000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Indirect Diesel Injection	Tractor 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
8≤KW<19	Tier 4	STD	N/A	N/A	7.5	6.6	0.40	20	15	50
		CERT	--	--	3.9	2.8	0.27	8	8	15

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 22 day of December 2010.

Annette Hebert, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model Summary Template

U-R-026-0293
12/13/2010

Engine Family	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
BH3XL1.13SLV	403D-11	GJ18/2200	18.4@2200	21.1+/-1.2	7.6+/-0.4	46.8@2000	22.5+/-1.2	7.4+/-0.4	IFI
BH3XL1.13SLV	403D-11	GJ20/2200	19.7@2200	22.9+/-1.6	8.3+/-0.6	49.3@2100	23.7+/-1.4	8.2+/-0.5	IFI
BH3XL1.13SLV	403D-11	GJ22/2400	21.6@2400	23.6+/-1.8	9.3+/-0.7	49.3@2100	23.7+/-1.4	8.2+/-0.5	IFI
BH3XL1.13SLV	403D-11	GJ23/2600	23.2@2600	22.3+/-1.6	9.5+/-0.7	49.3@2100	23.7+/-1.4	8.2+/-0.5	IFI
BH3XL1.13SLV	403D-11	GJ23/2800	22.5@2800	20.9+/-1.1	9.6+/-0.5	46.8@2000	22.5+/-1.2	7.4+/-0.4	IFI
BH3XL1.13SLV	403D-11	GJ24/3000	23.7@3000	20.3+/-1.0	10.0+/-0.5	46.8@2000	22.5+/-1.2	7.4+/-0.4	IFI
BH3XL1.13SLV	403D-11	GJ25/2800	24.7@2800	23.0+/-1.6	10.6+/-0.7	49.3@2100	23.7+/-1.4	8.2+/-0.5	IFI
BH3XL1.13SLV	C1.1	GJ18/2200	18.4@2200	21.1+/-1.2	7.6+/-0.4	46.8@2000	22.5+/-1.2	7.4+/-0.4	IFI
BH3XL1.13SLV	C1.1	GJ20/2200	19.7@2200	22.9+/-1.6	8.3+/-0.6	49.3@2100	23.7+/-1.4	8.2+/-0.5	IFI
BH3XL1.13SLV	C1.1	GJ22/2400	21.6@2400	23.6+/-1.8	9.3+/-0.7	49.3@2100	23.7+/-1.4	8.2+/-0.5	IFI
BH3XL1.13SLV	C1.1	GJ23/2600	23.2@2600	22.3+/-1.6	9.5+/-0.7	49.3@2100	23.7+/-1.4	8.2+/-0.5	IFI
BH3XL1.13SLV	C1.1	GJ23/2800	22.5@2800	20.9+/-1.1	9.6+/-0.5	46.8@2000	22.5+/-1.2	7.4+/-0.4	IFI
BH3XL1.13SLV	C1.1	GJ24/3000	23.7@3000	20.3+/-1.0	10.0+/-0.5	46.8@2000	22.5+/-1.2	7.4+/-0.4	IFI
BH3XL1.13SLV	C1.1	GJ25/2800	24.7@2800	23.0+/-1.6	10.6+/-0.7	49.3@2100	23.7+/-1.4	8.2+/-0.5	IFI
BH3XL1.13SLV	S3L7	S3L7-11C	19.7@2800	18.5+/-0.8	8.5+/-0.4	40.7@2350	20.2+/-0.9	7.8+/-0.3	IFI
BH3XL1.13SLV	S3L7	S3L7-12C	21.7@2800	19.9+/-0.7	9.2+/-0.3	44.8@2350	22.8+/-0.8	8.8+/-0.3	IFI
BH3XL1.13SLV	S3L7	S3L7-13C	23.7@2800	21.6+/-1.1	10.0+/-0.5	48.8@2350	24.9+/-1.4	9.6+/-0.5	IFI
BH3XL1.13SLV	S773L-C	19/2200	19.4@2200	22.4+/-1.2	8.1+/-0.4	47.9@1700	25.4+/-1.2	7.1+/-0.3	IFI
BH3XL1.13SLV	S773L-D	25/2800	24.5@2800	21.7+/-1.8	10.0+/-0.8	48.7@2200	22.3+/-1.8	8.1+/-0.7	IFI