

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	2H3XL2.00N84	1.496 and 1.995	Diesel	3000, 5000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Indirect Diesel Injection			Loader, 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 1	STD	N/A	N/A	9.5	6.6	0.80	20	15	50
19≤KW<37	Tier 1	STD	N/A	N/A	9.5	5.5	0.80	20	15	50
		CERT	--	--	4.2	1.3	0.36	5	4	7

**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 19<sup>th</sup> day of December 2001.

  
R. B. Summerfield, Chief  
Mobile Source Operations Division

ATT. ELEMENT 1 OF 1

Engine Model Summary Form

u-r-026-0044

Manufacturer: Ishikawajima-Shibaura Machinery Co., Ltd.

Engine category: Nonroad CI

EPA Engine Family: 2H3XL2.00N84

Mfr Family Name: N/A

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
103-15	KE25/2300	24.8@2300	27.4+/-1.5	10.4+/-0.6	56.8@2000	27.5+/-1.5	9.1+/-0.5	IFI
103-15	KE27/2300	26.9@2300	31.3+/-1.8	11.9+/-0.7	64.9@1700	32.7+/-1.6	9.2+/-0.4	IFI
103-15	KE28/2200	28.2@2200	33.1+/-1.8	12.0+/-0.7	64.9@1650	33.8+/-1.7	9.2+/-0.5	IFI
103-15	KE28/2500	27.7@2500	27.7+/-2.4	11.4+/-1.0	62.9@1500	32.1+/-1.6	7.9+/-0.4	IFI
103-15	KE32/2600	32.2@2600	29.2+/-2.1	12.5+/-0.9	66.5@2450	33.8+/-1.7	13.6+/-0.7	IFI
103-15	KE32/2800	31.5@2800	29.2+/-2.1	13.5+/-1.0	64.4@2100	32.1+/-1.6	11.1+/-0.6	IFI
103-15	KE32/2800H	31.5@2800	29.2+/-2.1	13.5+/-1.0	64.4@2100	32.1+/-1.6	11.1+/-0.6	IFI
104-19	KF33/2500	33.3@2500	25.3+/-2.4	13.9+/-1.3	83.2@1700	30.9+/-1.6	11.5+/-0.6	IFI
104-19	KF37/2300	37.3@2300	31.0+/-2.1	15.7+/-1.1	83.9@1800	30.4+/-1.5	12.0+/-0.6	IFI
104-19	KF39/2500	39.0@2500	29.8+/-2.1	16.4+/-1.2	83.2@2000	30.9+/-1.6	13.6+/-0.7	IFI
104-19	KF43/2800	42.5@2800	29.2+/-2.1	18.0+/-1.3	85.3@2200	31.5+/-1.6	15.2+/-0.8	IFI
403C-15	HL28/2200	27.8@2200	31.1+/-2.1	11.3+/-0.8	70.8@1800	33.5+/-2.7	9.9+/-0.8	IFI
403C-15	HL30/2400	29.9@2400	31.1+/-2.1	12.3+/-0.8	70.8@1800	33.5+/-2.7	9.9+/-0.8	IFI
403C-15	HL31/2600	31.4@2600	31.1+/-2.1	13.3+/-0.9	70.8@1800	33.5+/-2.7	9.9+/-0.8	IFI
403C-15	HL33/2800	32.7@2800	30.0+/-1.8	13.8+/-0.8	70.8@1800	32.9+/-2.7	9.9+/-0.8	IFI
403C-15	HL34/3000	33.7@3000	29.6+/-1.8	14.6+/-0.9	70.8@1800	32.9+/-2.7	9.9+/-0.8	IFI
N843-2	28/2500	27.4@2500	28.3+/-0.6	11.7+/-0.2	66.4@1500	32.7+/-1.6	8.1+/-0.4	IFI
N843-2	29/2500	29.0@2500	29.9+/-1.9	12.3+/-0.8	65.7@1800	33.2+/-1.7	9.8+/-0.5	IFI
N843-2	30/2600	30.0@2600	29.9+/-1.9	12.8+/-0.8	65.8@1800	33.2+/-1.7	9.8+/-0.5	IFI
N843-2	32/2900-L465	31.9@2900	29.9+/-1.7	14.3+/-0.8	66.5@1800	35.0+/-1.7	10.4+/-0.5	IFI
N843-2	33/3000-CM	33.0@3000	30.9+/-2.1	15.3+/-1.0	62.9@2200	33.7+/-1.7	12.2+/-0.6	IFI
N843-2-H	38/3200-L485	37.8@3200	30.3+/-0.9	16.0+/-0.5	70.8@2000	34.4+/-1.7	11.3+/-0.6	IFI
N843-4	32/2900-LS140	32.1@2900	29.2+/-1.8	13.9+/-0.9	71.2@1700	34.0+/-2.0	9.5+/-0.6	IFI
N843-4	TC30/2600	30.0@2600	29.5+/-1.8	12.6+/-0.8	69.7@1700	34.2+/-2.0	9.6+/-0.6	IFI
N843-4	TC33/2800	33.0@2800	32.6+/-1.6	15.0+/-0.8	73.0@2000	35.5+/-2.5	11.7+/-0.8	IFI
N843-4-H	38/3200-LS150	38.0@3200	32.7+/-1.9	17.2+/-1.0	75.5@2000	34.9+/-2.0	11.5+/-0.7	IFI