State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-26-10
Relating to Certification of New Off-Road Compression-Ignition Engines

ISHIKAWAJIMA-SHIBAURA MACHINERY CO., LTD.

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:

Model Year: 2001

Typical Equipment Usage: Riding Mower, Tractor, Compressor and Generator

Fuel Type: Diesel

Engine Family	Engine Displacement (liters)	Useful Life (hours)	Emission Control Systems and Special Features
1H3XL.954S5V	0.954	3000	Indirect Diesel Injection

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

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

Engine Power Rating (kw)	Emission Standard Category		Exhaust Emissions (g/kw-hr)					Smoke Opacity (%)		
			HC	NOx	NMHC+NOx	CO	PM	Accel	Lug	Peak
8≤KW<19	Tier 1	Standard	N/A	N/A	9.5	6.6	0.80	20	15	50
		Certification	--	--	6.7	1.5	0.67	14	2	23

BE IT FURTHER RESOLVED: That the listed engine models also comply with "Emission Control Labels— 1996 and Later Off-Road Compression-Ignition Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 and 2426).

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

Executed at El Monte, California this 17TH day of January 2001.

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

ATTACHMENT

Model Year: 2001
Manufacturer: Ishikawajima-Shibaura Machinery Co., Ltd
Engine Family: 1H3XL.954S5V

Issued: 11/6/98
Revised: 11/6/2000
E.O. Number: U-R-26-10

Small Off-Road Engine Model Summary Form

Units for Table: hp

Worst Case?	47. Model Designation	48. Sales Code	49. Displ (cc)	50. Bore/ Stroke	51. Ignition Timing	52. Max Power	53. Rated Speed (RPM)	54. Rated Torque	55. Torque Speed (RPM)	56. Emiss Control Sys
	KD18/2200	50-State	954	75/72	N/A	18.1	2200	44.8	2000	IFI
X	KD18/2300	50-State	954	75/72	N/A	18.4	2300	42.8	2000	IFI
	KD17/2500	50-State	954	75/72	N/A	17.0	2500	42.0	1800	IFI
	KD19/2500	50-State	954	75/72	N/A	19.3	2500	42.7	2000	IFI
	TC18/2600	50-State	954	75/72	N/A	18.5	2600	41.9	2000	IFI
	KD20/2800	50-State	954	75/72	N/A	20.3	2800	42.7	2000	IFI
	KD21/2800	50-State	954	75/72	N/A	21.2	2800	44.8	2000	IFI
	KD22/2900	50-State	954	75/72	N/A	21.6	2900	39.1	2500	IFI
	KD20/3000G	50-State	954	75/72	N/A	19.8	3000	N/A	N/A	IFI
	KD22/3000	50-State	954	75/72	N/A	22.3	3000	39.1	2500	IFI
	KD22/3600G	50-State	954	75/72	N/A	22.1	3600	N/A	N/A	IFI
	KD24/3600	50-State	954	75/72	N/A	23.5	3600	39.1	2400	IFI
	24/3600	50-State	954	75/72	N/A	23.5	3600	39.1	2400	IFI
	18/2400	50-State	954	75/72	N/A	18.1	2400	40.9	2000	IFI
	24/3350	50-State	954	75/72	N/A	24.4	3350	44.3	2400	IFI