

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-5-85
Relating to Certification of New Off-Road Compression-Ignition Equipment Engines

KOMATSU LTD.

Pursuant to the authority vested in the Air Resources Board (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 exhaust emission control system produced by the manufacturer are certified as described below for use in off-road equipment:

Model Year: 2001

Typical Equipment Usage: Crane, Loader, Tractor, Dozer, Pump, Compressor and Generator

Fuel Type: Diesel

<u>Engine Family</u>	<u>Engine Displacement (liters)</u>	<u>Useful Life (hours)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
1KLXL0359AAA	5.9	8000	Direct Diesel Injection Turbocharger Charge Air Cooler

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 total hydrocarbons (THC), carbon monoxide (CO), oxides of nitrogen (NOx), 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, as amended by Board approval on January 28, 2000):

<u>Engine Power Rating (kw)</u>	<u>Emission Standard Category</u>		<u>Exhaust Emissions (g/kw-hr)</u>				<u>Smoke Opacity (%)</u>		
			<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
75≤KW<130	Tier 1	Standard Certification	N/A	N/A	9.2	N/A	20	15	50
			--	--	5.7	--	3	2	5

BE IT FURTHER RESOLVED: That the listed engine models with rated power equal to or greater than 19 KW but less than 130 KW are **conditionally certified** to, and shall be required to comply with, all amendments to Title 13, California Code of Regulations, Sections 2420 through 2427 adopted by the Board on January 28, 2000 at its hearing "TO CONSIDER AMENDMENTS TO OFF-ROAD COMPRESSION-IGNITION ENGINE REGULATIONS: 2000 AND LATER EMISSION STANDARDS, COMPLIANCE REQUIREMENTS AND TEST PROCEDURES." The listed engine models comply with all such amendments, including, but not limited to:

- the amended "Emission Control Labels—1996 and Later Off-Road Compression-Ignition Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year;
- the Board's amended emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 and 2426) for the listed engine models, as demonstrated by materials submitted by the manufacturer; and
- new California requirements for the Selective Enforcement Audit (SEA) for the listed engine models, as demonstrated by the manufacturer's submission of materials.

BE IT FURTHER RESOLVED: That the conditional certification described in the paragraph above is conditioned on the amendments being approved by the California Office of Administrative Law (OAL) pursuant to Government Code Section 11349.3, and where necessary, authorized by the Administrator of the U.S. Environmental Protection Agency (U.S. EPA) pursuant to Section 209(e)(2) of the Federal Clean Air Act. In the event that the OAL disapproves the amendments or the U.S. EPA decides not to authorize them, the conditional certification herein of the listed engine models with rated power equal to or greater than 19 KW but less than 130 KW shall be deemed null and void.

The conditional certification described herein is not conditioned on further U.S. EPA action on amendments determined by the Board to be within the scope of an existing U.S. EPA authorization.

Engines certified under this Executive Order must conform to the above requirements under Title 13, California Code of Regulations, Chapter 9, Article 4, and all other applicable California emission laws and regulations.

Executed at El Monte, California this 28th day of December 2000.



R. B. Summerfield, Chief
Mobile Source Operations Division

Engine Model Summary Form

Manufacturer: **Komatsu**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **1KLXL0359AAA**
 Mfr Family Name: **A402**
 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
1948;FR90377	S6D102E-1	152@2500	74	62.6	414@1600	83	44.6	DDI, TC, CAC ↓ TC ↓
1948;FR90058	S6D102E-1	152@2500	74	62.6	414@1600	83	44.6	
1948;FR90059	S6D102E-1	148@2200	76	56.2	440@1600	89	47.9	
1948;FR90342	S6D102E-1	148@2200	76	56.2	440@1600	89	47.9	
2071;FR90060	S6D102E-1	140@2000	76	51.2	416@1600	82	44.2	
2071;FR90061	S6D102E-1	135@2200	70	52.1	419@1600	83	44.7	
2071;FR90103	S6D102E-1	118@2400	58	46.6	312@1600	63	33.2	
2071;FR90627	S6D102E-1	135@2400	64	51.7	364@1600	75	40.2	
2071;FR90628	S6D102E-1	130@2500	64	53.6	368@1600	73	39.4	
1902;FR90005	S6D102E-1	110@2400	55	44.6	340@1300	69	30.4	
2146;FR90424	S6D102E-1	136@2000	74	50.0	412@1350	84	38.1	
2146;FR90445	S6D102E-1	135@2400	68	54.8	366@1600	72	38.8	
2508;FR90500	S6D102E-1	126@2250	62	47.3	308@1600	56	33.3	
2550;FR90443	S6D102E-1	146@2200	75	54.5	424@1350	87	39.4	
2604;FR90555	S6D102E-1	111 @ 2400	53	43.2	309@1600	60	32.2	
2604;FR90556	S6D102E-1	145 @ 2500	68	57.4	391@1600	77	41.4	
2462;FR90805	S6D102E-1	118 @ 2400	58	47.0	322 @ 1600	62	33.5	
2071;FR90773	S6D102E-1	139 @ 2400	69	55.8	373 @ 1600	73	39.6	
2071;FR90774	S6D102E-1	128@2400	62	50.3	362@1500	69	35.1	
8065;FR90972	S6D102E-1	115@2400	56	45.7	340@1300	67	29.2	

ATTACHMENT

U-2-5-85