

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)
2010	AKLXL78.0ZD1	30.0, 38.0, 50.0, 60.0, 78.0	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Engine Control Modules			Loader, Dozer, Generator Set, and Other 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):

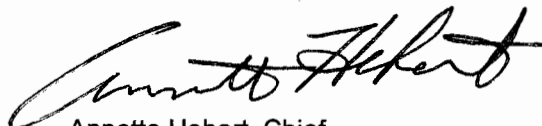
RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
kW > 560	Tier 2	STD	--	--	6.4	3.5	0.20	20	15	50
		CERT	--	--	6.3	1.7	0.13	16	4	25

**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 15 day of December 2010.



Annette Hebert, Chief  
 Mobile Source Operations Division

Attachment 1 of 1

**Engine Model Summary Template**

U-R-005-0379  
12-14-2010

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
AKLXL78.0ZD1	2C01	SAA12V140E-3	1200@1900	322	410	3747@1350	366	332	EM,ECM,TC,CAC,DFI
AKLXL78.0ZD1	2C02	SAA12V140E-3	976@1800	278	336	3313@1350	324	293	EM,ECM,TC,CAC,DFI
AKLXL78.0ZD1	2C03	SAA12V140E-3	899@2000	240	321	2821@1400	280	262	EM,ECM,TC,CAC,DFI
AKLXL78.0ZD1	2C04	SAA12V140E-3	900@2050	236	319	3067@1300	296	254	EM,ECM,TC,CAC,DFI
AKLXL78.0ZD1	2C05	SAA12V140E-3	853@2000	225	300	2806@1400	269	251	EM,ECM,TC,CAC,DFI
AKLXL78.0ZD1	3193:FR6739	SSDA18V170E-2	3759@1800	691	1259.4	N/A	N/A	N/A	DDI,ECM,TC,CAC
AKLXL78.0ZD1	3270:FR6704	SSDA18V170E-2	3500@1900	633	1217.0	10157@1500	647	981.9	DDI,ECM,TC,CAC
AKLXL78.0ZD1	2763:FR6617	SSDA16V160E-2	2700@1900	537	918	7840@1500	561	757	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	2763:FR6618	SSDA16V160E-2	2500@1900	499	853	7257@1500	517	698	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	2766:FR6613	SDA16V160E-2	2000 @ 1800	428	693.5	6169 @ 1500	448	603.7	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	2766:FR6634	SDA16V160E-2	1875 @ 1800	401	648.5	6169 @ 1500	448	603.7	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	2794:FR6623	SDA16V160E-2	1782 @ 1900	369	630	6274 @ 1500	452	610.3	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	8593:FR6471	SSDA16V160E-2	2700@1900	542	926	7840@1500	561	757	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3451:FR6746	SSDA16V160E-2	2500@1900	517	882.8	7257@1500	537	725.6	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3378:FR6732	SDA16V160E-2	1782@1900	371	634	6274@1500	465	627.1	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3378:FR6829	SSDA16V160E-2	1892@1800	405	657.0	6277@1500	462	624	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3416:FR6751	SSDA16V160E-2	2700@1900	550	941.1	7840@1500	558	753	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	2758:FR6630	SDA12V159E-2	1260@1800	358	435	3861@1400	398	376	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	2760:FR6612	SSDA16V159E-2	2000@1900	404	690	5805@1500	433	584	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	2762:FR6609	SDA16V159E-2	1500@1900	306	522	5041@1300	382	447	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	8524:FR6545	SSDA16V159E-2	2300@1900	470	803	6514@1500	467	630	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3391:FR6736	SDA16V159E-2	1500@1900	306	523.9	5041@1300	384	448.5	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3380:FR6735	SDA12V159E-2	1260@1800	356	431.6	4054@1400	414	391.3	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3379:FR6734	SSDA16V159E-2	2000@1900	400	684	5805@1500	433	584	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3380:FR6779	SDA12V159E-2	1200@1800	343	416.2	3681@1400	395	372.5	"DDI,ECM,TC,CAC"
AKLXL78.0ZD1	3380:FR6780	SDA12V159E-2	1086@1800	312	379	3590@1350	374	340.7	"DDI,ECM,TC,CAC"