

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-13-3

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

DEUTZ MOTOR GmbH

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 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 Deutz Motor GmbH 1996 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Gensets, Compressors

Fuel Type: Diesel

<u>Engine Family</u>	<u>Liters (Cubic Inches)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
TDZ16.RGDARA	15.8 (969)	Turbocharger Charge Air Cooler Smoke Puff Limiter

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 total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

<u>Exhaust Emissions (g/bhp-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>
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

<u>Engine Family</u>	<u>Exhaust Emission (g/bhp-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>
TDZ16.RGDARA	0.4	0.9	6.0	0.2	20	10	35


BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle 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, Section 2425 et seq.).

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

Executed at El Monte, California this 27th day of June 1996.


R. B. Summerfield
Assistant Division Chief
Mobile Source Division

List of emission related

Engine code	Nominal Power $\pm 5\%$	Nominal speed $\pm 50\text{rpm}$	Mean effective pressure	Injection rate at nom. speed $\pm 5\text{mm}^3$	Nominal torque $\pm 5\%$	Speed at nom. torque $\pm 100\text{rpm}$	Low idle -50-+300 rpm	High idle (+50 - +300 rpm, dep. on engine applic.)
	kW	rpm	bar	mm ³ /strk.	Nm	rpm	rpm	rpm
C240	240	2100	11.52	277	1473	1300	550	2180
C231	231	2100	11.09	268	1418	1300	550	2180
C223	223	2100	10.70	260	1369	1300	550	2180
C217	217	2100	10.41	255	1332	1300	550	2180
C240/1	240	2000	12.09	290	1547	1300	550	2080
C231/1	231	2000	11.64	280	1489	1300	550	2080
C223/1	223	2000	11.24	272	1438	1300	550	2080
C214/1	214	2000	10.78	263	1379	1300	550	2080
C240/2	240	1900	12.73	290	1568	1300	550	1970
C231/2	231	1900	12.25	281	1567	1300	550	1970
C223/2	223	1900	11.83	273	1513	1300	550	1970
C214/2	214	1900	11.35	263	1452	1300	550	1970
C228	228	1800	12.77	283	1476	1300	550	1870
C220	220	1800	12.32	273	1424	1300	550	1870
C211	211	1800	11.81	263	1366	1300	550	1870
C203	203	1800	11.37	254	1314	1300	550	1870
D240	240	2100	11.52	277	n.a.	n.a.	n.a.	n.a.
D250	250	1800	14.00	309	n.a.	n.a.	n.a.	n.a.
D228	228	1800	12.77	283	n.a.	n.a.	n.a.	n.a.
D211	211	1800	11.81	263	n.a.	n.a.	n.a.	n.a.
D231	231	1500	15.52	335	n.a.	n.a.	n.a.	n.a.
D210	210	1500	14.11	305	n.a.	n.a.	n.a.	n.a.
D195	195	1500	13.10	285	n.a.	n.a.	n.a.	n.a.