

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-13-15  
Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

DEUTZ CORPORATION 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 Corporation GmbH 1998 model-year engines, 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: Pump, Generator Set, Air Conditioner

Fuel Type: Diesel

| <u>Engine Family</u> | <u>Displacement<br/>Liters (Cubic Inches)</u> | <u>Exhaust Emission Control<br/>Systems and Special Features</u> |
|----------------------|---|--|
| WDZXL07.1004         | 7.1/4.8 (436/290)                             | Turbocharger<br>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 matter (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>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> |
| 0.3                                 | 0.8       | 6.3        | 0.1       | 6                        | 4          | 10          |

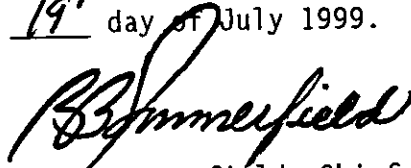
BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

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 19<sup>th</sup> day of July 1999.



R. B. Summerfield, Chief  
Mobile Source Operations Division

EO U-R-13-15

W02XLO7.1004

BES: TC, SPL

| Engine type | Engine code      | Nominal Power ± 5%<br>kW | Nominal speed ± 50 rpm<br>rpm | Mean effective pressure<br>bar | Injection rate at nom. speed, ± 1mm <sup>3</sup><br>mm <sup>3</sup> /stroke | Peak torque ± 5%<br>Nm | Mean effective pressure at peak torque<br>bar | Speed at peak torque ± 100 rpm<br>rpm | Low idle (+ 400rpm, dep. on engine applic.)<br>rpm | High idle (+ 300 rpm, dep. on engine applic.)<br>rpm |
|-------------|------------------|--------------------------|-------------------------------|--------------------------------|---|------------------------|---|---------------------------------------|--|--|
| 1           | BF6M1013E C141/1 | 141                      | 2500                          | 9.47                           | 86  | 632                    | 11.12   | 1500                                  | 700  | 2600   |
| 2           | BF6M1013E C145/1 | 145                      | 2400                          | 10.15                          | 91  | 667                    | 11.73   | 1500                                  | 700  | 2500   |
| 3           | BF6M1013E C145   | 145                      | 2300                          | 10.59                          | 94  | 702                    | 12.35   | 1400                                  | 700  | 2400   |
| 4           | BF6M1013E C137   | 137                      | 2300                          | 10.00                          | 89  | 667                    | 11.73   | 1400                                  | 700  | 2400   |
| 5           | BF6M1013E C130   | 130                      | 2300                          | 9.49                           | 84  | 632                    | 11.12   | 1400                                  | 700  | 2400   |
| 6           | BF6M1013E C123   | 123                      | 2300                          | 9.08                           | 80  | 598                    | 10.52   | 1400                                  | 700  | 2400   |
| 7           | BF6M1013E C139   | 139                      | 2200                          | 10.61                          | 93  | 702                    | 12.35   | 1400                                  | 700  | 2300   |
| 8           | BF6M1013E C132   | 132                      | 2200                          | 10.08                          | 89  | 667                    | 11.73   | 1400                                  | 700  | 2300   |
| 9           | BF6M1013E C132   | 125                      | 2200                          | 9.54                           | 84  | 632                    | 11.12   | 1400                                  | 700  | 2300   |
| 10          | BF6M1013E C132   | 110                      | 2200                          | 9.08                           | 80  | 598                    | 10.52   | 1400                                  | 700  | 2300   |
| 11          | BF6M1013E C134   | 134                      | 2100                          | 10.72                          | 93  | 702                    | 12.35   | 1400                                  | 700  | 2180   |
| 12          | BF6M1013E C128   | 128                      | 2100                          | 10.24                          | 89  | 667                    | 11.73   | 1400                                  | 700  | 2180   |
| 13          | BF6M1013E C121   | 121                      | 2100                          | 9.68                           | 84  | 632                    | 11.12   | 1400                                  | 700  | 2180   |
| 14          | BF6M1013E C115   | 115                      | 2100                          | 9.20                           | 80  | 598                    | 10.52   | 1400                                  | 700  | 2180   |
| 15          | BF6M1013E C122   | 122                      | 2000                          | 10.24                          | 89  | 667                    | 11.73   | 1400                                  | 700  | 2080   |
| 16          | BF6M1013E C116   | 116                      | 2000                          | 9.74                           | 85  | 632                    | 11.12   | 1400                                  | 700  | 2080   |
| 17          | BF6M1013E C110   | 110                      | 2000                          | 9.24                           | 80  | 598                    | 10.52   | 1400                                  | 700  | 2080   |
| 18          | BF6M1013E D145   | 145                      | 2400                          | 10.15                          | 91  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 19          | BF6M1013E D141   | 141                      | 2400                          | 9.87                           | 89  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 20          | BF6M1013E D128   | 128                      | 2400                          | 8.96                           | 81  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 21          | BF6M1013E D135   | 135                      | 2000                          | 11.34                          | 97  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 22          | BF6M1013E D123   | 123                      | 2000                          | 10.33                          | 89  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 23          | BF6M1013E D130   | 130                      | 1846                          | 11.83                          | 101   | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 24          | BF6M1013E D118   | 118                      | 1846                          | 10.72                          | 91  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 25          | BF6M1013E D134   | 134                      | 1800                          | 12.50                          | 106   | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 26          | BF6M1013E D128   | 128                      | 1800                          | 11.94                          | 102   | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 27          | BF6M1013E D122   | 122                      | 1800                          | 11.38                          | 97  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 28          | BF6M1013E D120   | 120                      | 1800                          | 11.20                          | 95  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 29          | BF6M1013E D114   | 114                      | 1800                          | 10.64                          | 90  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 30          | BF6M1013E D100   | 100                      | 1800                          | 10.17                          | 86  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 31          | BF4M1013E C95    | 95                       | 2300                          | 10.40                          | 93  | 468                    | 12.35   | 1400                                  | 700  | 2400   |
| 32          | BF4M1013E C90    | 90                       | 2300                          | 9.86                           | 88  | 442                    | 11.66   | 1400                                  | 700  | 2400   |
| 33          | BF4M1013E C86    | 86                       | 2300                          | 9.42                           | 84  | 422                    | 11.13   | 1400                                  | 700  | 2400   |
| 34          | BF4M1013E C81    | 81                       | 2300                          | 8.87                           | 79  | 398                    | 10.50   | 1400                                  | 700  | 2400   |
| 35          | BF4M1013E C92    | 92                       | 2200                          | 10.53                          | 93  | 468                    | 12.35   | 1400                                  | 700  | 2300   |
| 36          | BF4M1013E C88    | 88                       | 2200                          | 10.08                          | 89  | 442                    | 11.66   | 1400                                  | 700  | 2300   |
| 37          | BF4M1013E C83    | 83                       | 2200                          | 9.50                           | 84  | 422                    | 11.13   | 1400                                  | 700  | 2300   |
| 38          | BF4M1013E C79    | 79                       | 2200                          | 9.05                           | 80  | 398                    | 10.50   | 1400                                  | 700  | 2300   |
| 39          | BF4M1013E C89    | 89                       | 2100                          | 10.68                          | 93  | 468                    | 12.35   | 1400                                  | 700  | 2180   |
| 40          | BF4M1013E C85    | 85                       | 2100                          | 10.20                          | 89  | 442                    | 11.66   | 1400                                  | 700  | 2180   |
| 41          | BF4M1013E C81    | 81                       | 2100                          | 9.72                           | 85  | 422                    | 11.13   | 1400                                  | 700  | 2180   |
| 42          | BF4M1013E C76    | 76                       | 2100                          | 9.12                           | 79  | 398                    | 10.50   | 1400                                  | 700  | 2180   |
| 43          | BF4M1013E C82    | 82                       | 2000                          | 10.33                          | 90  | 442                    | 11.66   | 1400                                  | 700  | 2080   |
| 44          | BF4M1013E C78    | 78                       | 2000                          | 9.82                           | 85  | 422                    | 11.13   | 1400                                  | 700  | 2080   |
| 45          | BF4M1013E C74    | 74                       | 2000                          | 9.32                           | 81  | 398                    | 10.50   | 1400                                  | 700  | 2080   |
| 46          | BF4M1013E D95    | 95                       | 2400                          | 9.97                           | 90  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 47          | BF4M1013E D86    | 86                       | 2400                          | 9.03                           | 81  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 48          | BF4M1013E D90    | 90                       | 2000                          | 11.34                          | 97  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 49          | BF4M1013E D82    | 82                       | 2000                          | 10.33                          | 89  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 50          | BF4M1013E D86    | 86                       | 1846                          | 11.73                          | 100   | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 51          | BF4M1013E D78    | 78                       | 1846                          | 10.64                          | 90  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 52          | BF4M1013E D89    | 89                       | 1800                          | 12.45                          | 106   | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 53          | BF4M1013E D85    | 85                       | 1800                          | 11.89                          | 101   | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 54          | BF4M1013E D81    | 81                       | 1800                          | 11.34                          | 96  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 55          | BF4M1013E D79    | 79                       | 1800                          | 11.06                          | 94  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 56          | BF4M1013E D76    | 76                       | 1800                          | 10.64                          | 90  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 57          | BF4M1013E D72    | 72                       | 1800                          | 10.08                          | 86  | n.a.                   | n.a.  | n.a.                                  | n.a.   | n.a.   |
| 58          | BF6M1013 C141/2  | 141                      | 2500                          | 9.47                           | 89  | 697                    | 12.26   | 1400                                  | 700  | 2400   |
| 59          | BF6M1013 C141    | 141                      | 2300                          | 10.29                          | 94  | 697                    | 12.26   | 1400                                  | 700  | 2400   |
| 60          | BF6M1013 C133    | 133                      | 2300                          | 9.71                           | 89  | 662                    | 11.64   | 1400                                  | 700  | 2400   |

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|     |          |      |     |      |       |     |      |       |      |      |      |
|-----|----------|------|-----|------|-------|-----|------|-------|------|------|------|
| 61  | BF6M1013 | C126 | 126 | 2300 | 9.20  | 84  | 627  | 11.03 | 1400 | 700  | 2400 |
| 62  | BF6M1013 | C110 | 119 | 2300 | 8.69  | 80  | 593  | 10.43 | 1400 | 700  | 2400 |
| 63  | BF6M1013 | C136 | 136 | 2200 | 10.38 | 93  | 697  | 12.26 | 1400 | 700  | 2300 |
| 64  | BF6M1013 | C129 | 129 | 2200 | 9.85  | 89  | 662  | 11.64 | 1400 | 700  | 2300 |
| 65  | BF6M1013 | C122 | 122 | 2200 | 9.31  | 84  | 627  | 11.03 | 1400 | 700  | 2300 |
| 66  | BF6M1013 | C116 | 116 | 2200 | 8.85  | 80  | 593  | 10.43 | 1400 | 700  | 2300 |
| 67  | BF6M1013 | C131 | 131 | 2100 | 10.48 | 93  | 697  | 12.26 | 1400 | 700  | 2180 |
| 68  | BF6M1013 | C125 | 125 | 2100 | 10.00 | 89  | 662  | 11.64 | 1400 | 700  | 2180 |
| 69  | BF6M1013 | C118 | 118 | 2100 | 9.44  | 84  | 627  | 11.03 | 1400 | 700  | 2180 |
| 70  | BF6M1013 | C112 | 112 | 2100 | 8.96  | 80  | 593  | 10.43 | 1400 | 700  | 2180 |
| 71  | BF6M1013 | C120 | 120 | 2000 | 10.08 | 89  | 662  | 11.64 | 1400 | 700  | 2080 |
| 72  | BF6M1013 | C114 | 114 | 2000 | 9.57  | 85  | 627  | 11.03 | 1400 | 700  | 2080 |
| 73  | BF6M1013 | C108 | 108 | 2000 | 9.07  | 80  | 593  | 10.43 | 1400 | 700  | 2080 |
| 74  | BF6M1013 | D137 | 137 | 2400 | 9.59  | 89  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 75  | BF6M1013 | D124 | 124 | 2400 | 8.69  | 81  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 76  | BF6M1013 | D133 | 133 | 2000 | 11.17 | 97  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 77  | BF6M1013 | D121 | 121 | 2000 | 10.16 | 89  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 78  | BF6M1013 | D128 | 128 | 1846 | 11.64 | 101 | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 79  | BF6M1013 | D117 | 117 | 1846 | 10.64 | 91  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 80  | BF6M1013 | D118 | 118 | 1800 | 11.01 | 95  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 81  | BF6M1013 | D112 | 112 | 1800 | 10.45 | 90  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 82  | BF6M1013 | D107 | 107 | 1800 | 9.98  | 86  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 83  | BF4M1013 | C03  | 93  | 2300 | 10.19 | 93  | 464  | 12.24 | 1400 | 700  | 2400 |
| 84  | BF4M1013 | C88  | 88  | 2300 | 9.64  | 88  | 438  | 11.56 | 1400 | 700  | 2400 |
| 85  | BF4M1013 | C84  | 84  | 2300 | 9.20  | 84  | 418  | 11.03 | 1400 | 700  | 2400 |
| 86  | BF4M1013 | C79  | 79  | 2300 | 8.65  | 79  | 394  | 10.40 | 1400 | 700  | 2400 |
| 87  | BF4M1013 | C90  | 90  | 2200 | 10.30 | 93  | 464  | 12.24 | 1400 | 700  | 2300 |
| 88  | BF4M1013 | C86  | 86  | 2200 | 9.85  | 89  | 438  | 11.56 | 1400 | 700  | 2300 |
| 89  | BF4M1013 | C81  | 81  | 2200 | 9.27  | 84  | 418  | 11.03 | 1400 | 700  | 2300 |
| 90  | BF4M1013 | C77  | 77  | 2200 | 8.82  | 80  | 394  | 10.40 | 1400 | 700  | 2300 |
| 91  | BF4M1013 | C87  | 87  | 2100 | 10.44 | 93  | 464  | 12.24 | 1400 | 700  | 2180 |
| 92  | BF4M1013 | C83  | 83  | 2100 | 9.96  | 89  | 438  | 11.56 | 1400 | 700  | 2180 |
| 93  | BF4M1013 | C79  | 79  | 2100 | 9.48  | 85  | 418  | 11.03 | 1400 | 700  | 2180 |
| 94  | BF4M1013 | C74  | 74  | 2100 | 8.88  | 79  | 394  | 10.40 | 1400 | 700  | 2180 |
| 95  | BF4M1013 | C80  | 80  | 2000 | 10.08 | 90  | 438  | 11.56 | 1400 | 700  | 2080 |
| 96  | BF4M1013 | C76  | 76  | 2000 | 9.57  | 85  | 418  | 11.03 | 1400 | 700  | 2080 |
| 97  | BF4M1013 | C72  | 72  | 2000 | 9.07  | 81  | 394  | 10.40 | 1400 | 700  | 2080 |
| 98  | BF4M1013 | D02  | 92  | 2400 | 9.65  | 90  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 99  | BF4M1013 | D84  | 84  | 2400 | 8.82  | 81  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 100 | BF4M1013 | D89  | 89  | 2000 | 11.21 | 97  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 101 | BF4M1013 | D80  | 80  | 2000 | 10.08 | 89  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 102 | BF4M1013 | D85  | 85  | 1846 | 11.60 | 100 | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 103 | BF4M1013 | D77  | 77  | 1846 | 10.61 | 90  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 104 | BF4M1013 | D78  | 78  | 1800 | 10.92 | 90  | n.a. | n.a.  | n.a. | n.a. | n.a. |
| 105 | BF4M1013 | D75  | 75  | 1800 | 10.50 | 86  | n.a. | n.a.  | n.a. | n.a. | n.a. |