State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-13-57
Relating to Certification of New Heavy-Duty Motor Vehicle Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board by Sections 43100, 43102 and 43103 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-45-3;

IT IS ORDERED AND RESOLVED: That the following Caterpillar, Inc. 1991 model-year diesel engines are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) over 8,500 pounds:

| Engine Family | Displacement Liters | (Cubic Inches) | Exhaust Emission Control Systems |
|---|---|---|---|
| MCT0403FZC1 | 6.6 | (403) | Smoke Puff Limiter<br>Charge Air Cooler<br>Turbocharger |
| MCT0403FZD2 | 6.6 | (403) | Smoke Puff Limiter<br>Charge Air Cooler<br>Turbocharger |
| MCT0629FZD4 | 10.3 | (629) | On-Board Diagnostic System /ECM<br>Charge Air Cooler<br>Turbocharger |
| MCT0893FZD5 | 14.6 | (893) | On-Board Diagnostic System /ECM<br>Charge Air Cooler<br>Turbocharger |
| MCT0893FPBX | 14.6 | (893) | Smoke Puff Limiter<br>Charge Air Cooler<br>Turbocharger |

Engine models and codes are listed on attachments.

The following are the certification emission standards for these engine families:

| Hydrocarbons gm/bhp-hr | Carbon Monoxide gm/bhp-hr | Nitrogen Oxides gm/bhp-hr | Particulates gm/bhp-hr |
|---|---|---|---|
| 1.3 | 15.5 | 5.0 | 0.25 |

The following are the certification emission values for these engine families:

| Engine Family | Hydrocarbons gm/bhp-hr | Carbon Monoxide gm/bhp-hr | Nitrogen Oxides gm/bhp-hr | Particulates gm/bhp-hr |
|---|---|---|---|---|
| MCT0403FZC1 | 0.9 | 1.3 | 4.9 | 0.21 |
| MCT0403FZD2 | 0.3 | 1.2 | 4.7 | 0.20 |
| MCT0629FZD4 | 0.2 | 3.5 | 4.4 | 0.25 |
| MCT0893FZD5 | 0.4 | 1.6 | 4.8 | 0.23 |
| MCT0893FPBX | 0.3 | 1.3 | 5.0 | 0.25 |

BE IT FURTHER RESOLVED: That the Executive Officer has been provided all material required to demonstrate certification compliance with the Board's emission control system warranty regulations (Health and Safety Code Section 43205.5 and Title 13, California Code of Regulations, Section 2036).

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

The Bureau of Automotive Repair will be notified by copy of this order and attachments.

Executed at El Monte, California this 1st day of November, 1990.

R. B. Summerfield
Assistant Division Chief
Mobile Source Division

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MHDD

1991 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY-DUTY DIESEL ENGINES

Manufacturer Caterpillar Inc. Engine Family MCT0403FZC1

Liter (CID) 6.6 (403) Engine Type I6

Emission Control Sys. and (Special Features) EM, SPL (TC,CAC,DI)

(Use abbreviations per SAE J1930 JUN 88)

| Engine Model (Eng. Code) | Fuel Pump* MFR. P/N | Injector MFR. P/N | Rated HP @ RPM | Fuel Rate @ Rated HP $mm^3$/stroke | Part. Trap/ Catalyst MFR. P/N |
|---|---|---|---|---|---|
| 3116 | | | | | |
| (A) | 4P1486 | 4P1735 | 185 @ 2600 | 85 | --- |
| (A) | 4P1486 | 4P1735 | 185 @ 2600 | 85 | --- |
| (B) | 4P1486 | 4P1735 | 170 @ 2600 | 78 | --- |

Revisions:
042090

*Basic Fuel Pump 4P1734 (Reference Page No. 16.04-0403FZC-1).

Revision No. 1 - 17 DEC 90

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# 1991 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

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## HEAVY-DUTY DIESEL ENGINES

Manufacturer Caterpillar Inc. Engine Family MCT0403FZD2

Liter (CID) 6.6 (403) Engine Type I6

Emission Control Sys. and (Special Features) EM, SPL (TC,CAC,DI)

(Use abbreviations per SAE J1930 JUN 88)

| Engine Model (Eng. Code) | Fuel Pump* MFR. P/N | Injector MFR. P/N | Rated HP @ RPM | Fuel Rate @ Rated HP $mm^3$/stroke | Part. Trap/ Catalyst MFR. P/N |
|---|---|---|---|---|---|
| 3116 (A) | 7E6193 | 7E6396 | 250 @ 2600 | 109 | --- |
| (B) | 7E6193 | 7E6396 | 215 @ 2600 | 94 | --- |

*Basic Fuel Pump 4P2995 (Reference Page No. 16.04-0403FZD-1).

Revisions: No. 1 04 OCT 90
No. 2 17 DEC 90

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# 1991 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

## HEAVY-DUTY DIESEL ENGINES

Manufacturer Caterpillar Inc. Engine Family MCT0629FZD4

Liter (CID) 10.3 (629) Engine Type I6

Emission Control Sys. and (Special Features) EM (TC,CAC,OBD,MPI)

(Use abbreviations per SAE J1930 JUN 88)

| Engine Model (Eng. Code) | Fuel Pump MFR. P/N | Injector MFR. P/N | Rated HP @ RPM | Fuel Rate @ Rated HP $mm^3$/stroke | Part. Trap/ Catalyst MFR. P/N |
|---|---|---|---|---|---|
| 3176 | | | | | |
| (A) | 4P0509* | 4P9310 | 250 @ 2100 | 115 | --- |
| | 4P0509* | 4P9310 | 250 @ 2100 | 115 | --- |
| | 4P0509* | 4P9310 | 250 @ 2000 | 119 | --- |
| | 4P0509* | 4P9310 | 250 @ 1900 | 124 | --- |
| | 4P0509* | 4P9310 | 250 @ 1800 | 130 | --- |
| | 4P0509* | 4P9310 | 250 @ 1800 | 130 | --- |
| (G) | 4P0509* | 4P9310 | 275 @ 2100 | 124 | --- |
| | 4P0509* | 4P9310 | 275 @ 2100 | 124 | --- |
| | 4P0509* | 4P9310 | 275 @ 2000 | 129 | --- |
| | 4P0509* | 4P9310 | 275 @ 1900 | 134 | --- |
| | 4P0509* | 4P9310 | 275 @ 1800 | 141 | --- |
| (H) | 4P0509* | 4P9310 | 300 @ 2100 | 135 | --- |
| | 4P0509* | 4P9310 | 300 @ 2100 | 135 | --- |
| | 4P0509* | 4P9310 | 300 @ 2000 | 141 | --- |
| | 4P0509* | 4P9310 | 300 @ 1900 | 146 | --- |
| | 4P0509* | 4P9310 | 300 @ 1800 | 153 | --- |
| | 4P0509* | 4P9310 | 285 @ 1800 | 146 | --- |
| (F) | 4P0510** | 4P9320 | 325 @ 2100 | 145 | --- |
| | 4P0510** | 4P9320 | 325 @ 2000 | 151 | --- |
| | 4P0510** | 4P9320 | 325 @ 1900 | 158 | --- |
| | 4P0510** | 4P9320 | 325 @ 1800 | 166 | --- |

Revisions:
042090

*Basic Fuel Pump 4P9510 (Reference Page No. 16.04-0403FZD-1).
**Basic Fuel Pump 4P9520 Revision No: 1 (04 FEB 91)
2 (13 FEB 91)
3 (18 FEB 91)
4 (01 MAR 91)
5 (05 APR 91)

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1991 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HEAVY-DUTY DIESEL ENGINES

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Manufacturer Caterpillar Inc. Engine Family MCT0629FZD4

Liter (CID) 10.3 (629) Engine Type I6

Emission Control Sys. and (Special Features) EM (TC,CAC,OBD,MPI)

(Use abbreviations per SAE J1930 JUN 88)

| Engine Model (Eng. Code) | Fuel Pump MFR. P/N | Injector MFR. P/N | Rated HP @ RPM | Fuel Rate @ Rated HP $mm^3$/stroke | Part. Trap/ Catalyst MFR. P/N |
|---|---|---|---|---|---|
| 3176 (J) | 4P0509* | 4P9310 | 250 @ 2100 | 115 | --- |
| | 4P0509* | 4P9310 | 250 @ 2100 | 115 | --- |
| | 4P0509* | 4P9310 | 250 @ 2000 | 120 | --- |
| | 4P0509* | 4P9310 | 250 @ 1900 | 125 | --- |
| | 4P0509* | 4P9310 | 250 @ 1800 | 130 | --- |
| | 4P0509* | 499310 | 250 @ 1800 | 130 | --- |
| (G) | 4P0509* | 4P9310 | 275 @ 2100 | 124 | --- |
| | 4P0509* | 4P9310 | 275 @ 2100 | 124 | --- |
| | 4P0509* | 4P9310 | 275 @ 2000 | 129 | --- |
| | 4P0509* | 4P9310 | 275 @ 1900 | 134 | --- |
| | 4P0509* | 4P9310 | 275 @ 1800 | 141 | --- |
| (H) | 4P0509* | 4P9310 | 300 @ 2100 | 135 | --- |
| | 4P0509* | 4P9310 | 300 @ 2100 | 135 | --- |
| | 4P0509* | 4P9310 | 300 @ 2000 | 141 | --- |
| | 4P0509* | 4P9310 | 300 @ 1900 | 146 | --- |
| | 4P0509* | 4P9310 | 300 @ 1800 | 153 | --- |
| | 4P0509* | 4P9310 | 285 @ 1800 | 146 | --- |
| (F) | 4P0510** | 4P9320 | 325 @ 2100 | 145 | --- |
| | 4P0510** | 4P9320 | 325 @ 2000 | 151 | --- |
| | 4P0510** | 4P9320 | 325 @ 1900 | 158 | --- |
| | 4P0510** | 4P9320 | 325 @ 1800 | 166 | --- |
| (K) | 4P0510** | 4P9320 | 350 @ 1900 | 172 | --- |

Revisions: 042090

*Basic Fuel Pump 4P9510 (Reference Page No. 16.04-0403FZD-1).

**Basic Fuel Pump 4P9520 Revision No: 1 (04 FEB 91)

2 (13 FEB 91)

3 (18 FEB 91)

4 (01 MAR 91)

5 (05 APR 91)

6 (17 MAY 91)

7 (15 MAR 94)

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# 1991 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

HHDD

## HEAVY-DUTY DIESEL ENGINES

Manufacturer Caterpillar Inc. Engine Family MCT0893FZD5

Liter (CID) 14.6 (893) Engine Type I6

Emission Control Sys. and (Special Features) EM (DI,TC,CAC,OBD)

(Use abbreviations per SAE J1930 JUN 88)

| Engine Model (Eng. Code) | Fuel Pump* MFR. P/N | Injector MFR. P/N | Rated HP @ RPM | Fuel Rate @ Rated HP $mm^3$/stroke | Part. Trap/ Catalyst MFR. P/N |
|---|---|---|---|---|---|
| 3406B PEEC | | | | | |
| A | 4P1406 or 4P1407 | 7W7040 | 310 @ 1900 | 169 | --- |
| A | 4P1406 or 4P1407 | 7W7040 | 310 @ 1800 | 174 | --- |
| A | 4P1406 or 4P1407 | 7W7040 | 320 @ 1800 | 180 | --- |
| A | 4P1406 or 4P1407 | 7W7040 | 310 @ 1800 | 174 | --- |
| B | 4P1406 or 4P1407 | 7W7043 | 350 @ 2000 | 185 | --- |
| B | 4P1406 or 4P1407 | 7W7043 | 350 @ 1800 | 198 | --- |
| B | 4P1406 or 4P1407 | 7W7043 | 330 @ 1800 | 187 | --- |
| B | 4P1406 or 4P1407 | 7W7043 | 350 @ 1800 | 198 | --- |
| B | 4P1406 or 4P1407 | 7W7043 | 350 @ 1800 | 198 | --- |
| C | 4P1406 or 4P1407 | 7W7042 | 400 @ 2000 | 197 | --- |
| C | 4P1406 or 4P1407 | 7W7042 | 400 @ 1800 | 215 | --- |
| C | 4P1406 or 4P1407 | 7W7042 | 375 @ 1800 | 201 | --- |
| D | 4P1406 or 4P1407 | 7W7041 | 425 @ 2000 | 216 | --- |
| D | 4P1406 or 4P1407 | 7W7041 | 425 @ 1900 | 224 | --- |
| D | 4P1406 or 4P1407 | 7W7041 | 425 @ 2000 | 216 | --- |
| D | 4P1406 or 4P1407 | 7W7041 | 425 @ 1900 | 224 | --- |
| E | 4P1406 or 4P1407 | 7W7041 | 425 @ 1800 | 235 | --- |
| E | 4P1406 or 4P1407 | 7W7041 | 425 @ 1800 | 235 | --- |
| H | 4P1406 or 4P1407 | 7W7042 | 460 @ 1900 | 243 | --- |
| H | 4P1406 or 4P1407 | 7W7042 | 460 @ 1800 | 253 | --- |

Revisions:
042090

*Basic Fuel Pump 4P1366 (Reference Page No. 16.04-0893FZD-1).

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# 1991 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

## HEAVY-DUTY DIESEL ENGINES

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Manufacturer Caterpillar Inc. Engine Family MCT0893FPBX

Liter (CID) 14.6 (893) Engine Type I6

Emission Control Sys. and (Special Features) EM,SPL (DI,TC,CAC)

(Use abbreviations per SAE J1930 JUN 88)

| Engine Model (Eng. Code) | Fuel Pump MFR. P/N | Injector MFR. P/N | Rated HP @ RPM | Fuel Rate @ Rated HP $mm^3$/stroke | Part. Trap/ Catalyst MFR. P/N |
|---|---|---|---|---|---|
| 3406B ATAAC (A) | 4P1387(1) | 7W7040 | 320 @ 1800 | 179 | --- |
| | 4P1387(1) | 7W7040 | 310 @ 1800 | 173 | --- |
| | 4P1387(1) | 7W7040 | 300 @ 1800 | 168 | --- |
| | 4P1388 or 4P2044(1) | 7W7040 | 285 @ 1675 | 168 | --- |
| | 4P1388 or 4P2044(1) | 7W7040 | 280 @ 1600 | 173 | --- |
| (B) | 4P2046 (5) | 7W7043 | 350 @ 1950 | 184 | --- |
| (C) | 4P2045(2) | 7W7047 | 350 @ 1800 | 198 | --- |
| (D) | 4P2045(2) | 7W7043 | 330 @ 1800 | 186 | --- |
| (E) | 4P1370 or 4P1371(2) | 7W7043 | 330 @ 1600 | 204 | --- |
| (F) | 4P1391(3) | 7W7042 | 400 @ 2000 | 196 | --- |
| | 4P1402(3) | 7W7042 | 375 @ 1800 | 202 | --- |
| (G) | 4P1398(3) | 7W7041 | 425 @ 2000 | 209 | --- |
| | 4P1402(3) | 7W7041 | 415 @ 1800 | 222 | --- |
| (H) | 4P1390(4) | 7W7041 | 425 @ 2000 | 213 | --- |
| | 4P1389(4) | 7W7041 | 425 @ 1900 | 222 | --- |
| | 4P1397(4) | 7W7041 | 425 @ 1800 | 231 | --- |

(1) Basic Fuel Pump 4P1355
(2) Basic Fuel Pump 4P1378
(3) Basic Fuel Pump 4P4697
(4) Basic Fuel Pump 4P1356
(5) Basic Fuel Pump 4P1357

(Reference Page No. 16.04-0893FPB-1).

Revision : No. 1 OCT 4, 1990
No. 2 JAN 11, 1991
No. 3 FEB 1, 1991
No. 4 MAR 11, 1991