

Closed Loop Control

Fu004-01

Closed Loop Monitor Description

MODEL YEAR APPLICATION TABLE

Two different fuel systems have been used in Toyota and Lexus vehicles since the introduction of OBD II in 1996. Use the table below to determine which system is used on each model.

A: Front and rear heated oxygen sensor equipped

B: Front A/F sensor and rear heated oxygen sensor equipped

| Engine Family | 1996 MY | 1997 MY | 1998 MY | 1999 MY | 2000 MY | 2001 MY | 2002 MY | 2003 MY | 2004 MY |
|---------------------|---------|------------------------|------------------------|------------------------|------------------------|------------------------|---------|---------|---------|
| 4A-FE and 7A-FE | A | A | – | – | – | – | – | – | – |
| 1AZ-FE and 2AZ-FE | – | – | – | – | – | B | B | B | – |
| 5E-FE | A | A | A | A | – | – | – | – | – |
| 1FZ-FE | A | A | – | – | – | – | – | – | – |
| 1GR-FE | – | – | – | – | – | – | – | – | B |
| 2JZ-GE | A | A | A | A | A | A | A | A | – |
| 2JZ-GTE | A | A | A | – | – | – | – | – | – |
| 1MZ-FE Avalon | A | A | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | B | B | B | – |
| 1MZ-FE (A/T) Camry | A | A | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | B | B | B | – |
| 1MZ-FE (M/T) Camry | A | A | A | A | A | A | – | – | – |
| 1MZ-FE ES300 | A | A | A (Fed.) B (Calif.) | B | B | B | B | B | – |
| 1MZ-FE Highlander | – | – | – | – | – | B | B | B | – |
| 1MZ-FE RX300 | – | – | – | B | B | B | B | B | – |
| 1MZ-FE Sienna | – | – | A | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | B | B | B | – |
| 1MZ-FE (A/T) Solara | – | – | – | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | B | B | B | – |
| 1MZ-FE (M/T) Solara | – | – | – | A | A | A | A | – | – |
| 3MZ-FE | – | – | – | – | – | – | – | – | B |
| 1NZ-FE | – | – | – | – | B | B | B | B | – |
| 2RZ-FE and 3RZ-FE | A | A | A | A | A (Fed.) B (Calif.) | B | B | B | – |
| 3S-FE | A | A | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | – | – | – | – |
| 5S-FE Camry | A | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | – | – | – |
| 5S-FE Celica | A | A | A | A | – | – | – | – | – |
| 5S-FNE Camry CNG | – | – | – | A | A | A | – | – | – |
| 2TZ-FZE | A | A | – | – | – | – | – | – | – |
| 1UZ-FE | A | A | A | A | A | – | – | – | – |
| 2UZ-FE | – | – | A | A | A | A | A | A | – |
| 3UZ-FE | – | – | – | – | – | A | A | A | – |
| 5VZ-FE 4Runner | A | A | A | A (Fed.) B (Calif.) | A (Fed.) B (Calif.) | B | B | – | – |
| 5VZ-FE Others | A | A | A | A | A (Fed.) B (Calif.) | B | B | B | – |
| 1ZZ-FE | – | – | A | A | A | A | A | A | – |
| 2ZZ-GE | – | – | – | – | A | A | A | A | – |

MONITOR SUMMARY

The ECM uses the air/fuel (A/F) sensor (or front oxygen sensor where equipped) to optimize the air/fuel mixture in closed-loop fuel control. This control helps decrease exhaust emissions by providing the catalyst with a nearly stoichiometric mixture.

In oxygen-sensor equipped vehicles, the sensor detects the oxygen level in the exhaust gas and the ECM uses this data to control the air/fuel ratio. The sensor output voltage ranges from 0 V to 1 V. If the signal voltage is less than 0.4 V, the air/fuel ratio is LEAN. If the signal voltage is more than 0.55 V, the air/fuel ratio is RICH. If the conditions for closed-loop fuel control are met and after a specified time-period, the sensor's output signal never indicates RICH, the ECM will conclude that closed-loop fuel control is malfunctioning. The ECM will illuminate the MIL and a DTC is set.

In A/F sensor equipped vehicles, the ECM calculates the A/F ratio in the exhaust stream from the sensor's output signal. When conditions for closed-loop fuel control are met and the sensor's response becomes very slow (calculated as the sensor's "locus" length), the ECM will conclude that closed-loop fuel control is malfunctioning. The ECM will illuminate the MIL and a DTC is set.

RELATED DTC

Previous code:

| | | |
|--------------|-------|--|
| Related DTCs | P0125 | Heated oxygen sensor (or A/F sensor) no activity |
|--------------|-------|--|

Extended code:

| | | |
|--------------|----------------|---|
| Related DTCs | P0134 (Bank 1) | Heated oxygen sensor (A/F sensor) no activity |
| | P0154 (Bank 2) | |

MODEL YEAR CHART

| Model Year | See Page |
|--------------|----------------------|
| 1996 to 2004 | Fu-3 |