

## 2002 MY for Transmission Range Sensor Circuit Malfunction (PRNDL Input) Monitor (P1780)

## 2002 MY for Park/Neutral Switch Input Circuit Monitor (P1780)

To return to monitor description, see page [Ct-2](#).

### MONITOR STRATEGY

|                             |                                                                                   |                                                                     |
|-----------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Required sensors/Components | Main                                                                              | Park/Neutral position switch                                        |
|                             | Sub                                                                               | None                                                                |
| Frequency of operation      | Continuous                                                                        |                                                                     |
| Duration                    | 3UZ-FE (SC430)                                                                    | 0.5 sec.                                                            |
|                             | 1MZ-FE (RX300, HIGH LANDER)                                                       | Verify switch input<br>0.5 sec.                                     |
|                             | 1MZ-FE (ES300, CAMRY),<br>5VZ-FE (4RUNNER), 2ZZ-GE, 1ZZ-FE (CELICA)               | 0.5 sec.                                                            |
|                             | 1MZ-FE (SIENNA, AVALON, CAMRY SOLARA), 2RZ-FE, 5VZ-FE (Prerunner, TACOMA, TUNDRA) | 30 sec.                                                             |
|                             | 3RZ-FE, 1NZ-FE, 2AZ-FE, 1AZ-FE, 2UZ-FE                                            | Verify switch input<br>0.5 sec.<br>Verify switch cycling<br>30 sec. |
|                             | 3UZ-FE (LS430, GS430), 2JZ-GE                                                     | (A)<br>0.5 sec.<br>(B) & (C)<br>60 sec.                             |
|                             | 1ZZ-FE (COROLLA)                                                                  | (A)<br>0.5 sec.<br>(B)<br>30 sec.                                   |
| MIL operation               | 2 driving cycles                                                                  |                                                                     |
| Sequence of operation       | None                                                                              |                                                                     |

## TYPICAL ENABLING CONDITIONS

| Item                                                              |                                      | Specification                  |                   |
|-------------------------------------------------------------------|--------------------------------------|--------------------------------|-------------------|
|                                                                   |                                      | Minimum                        | Maximum           |
| The monitor will run whenever the following DTCs are not present. |                                      | See page <a href="#">In-39</a> |                   |
| Engine family                                                     | Item                                 | Specification                  |                   |
|                                                                   |                                      | Minimum                        | Maximum           |
| 2AZ-FE (HIGH LANDER)                                              | Verity switch input                  |                                |                   |
|                                                                   | None                                 | –                              | –                 |
|                                                                   | Verity switch cycling                |                                |                   |
|                                                                   | Vehicle speed                        | 70 km/h (43 mph) or more       | –                 |
|                                                                   | Engine speed                         | 1,500 rpm or more              | 2,500 rpm or more |
|                                                                   | Intake air amount per revolution     | 0.3125 g/rev. or more          | –                 |
| 3RZ-FE, 2UZ-FE                                                    | Verity switch input                  |                                |                   |
|                                                                   | None                                 | –                              | –                 |
|                                                                   | Verity switch cycling                |                                |                   |
|                                                                   | Vehicle speed                        | 70 km/h (43 mph) or more       | –                 |
|                                                                   | Engine speed                         | 1,500 rpm or more              | 2,500 rpm or more |
|                                                                   | Intake air amount per revolution     | 0.6 g/rev. or more             | –                 |
| 5VZ-FE (4RUNNER)                                                  | Condition (A)                        |                                |                   |
|                                                                   | None                                 | –                              | –                 |
|                                                                   | Condition (B)                        |                                |                   |
|                                                                   | Neutral position switch              | ON                             |                   |
|                                                                   | L range position switch              | ON                             |                   |
|                                                                   | 2 range position switch              | ON                             |                   |
|                                                                   | R range position switch              | ON                             |                   |
| 3UZ-FE (LS430, GS430), 2JZ-GE                                     | Condition (C)                        |                                |                   |
|                                                                   | Either of following condition is met |                                |                   |
|                                                                   | 4 range switch                       | ON                             |                   |
|                                                                   | L range switch                       | ON                             |                   |
| 2AZ-FE (CAMRY, CAMRY SOLARA)                                      | Verity switch input                  |                                |                   |
|                                                                   | None                                 | –                              | –                 |
|                                                                   | Verity switch cycling                |                                |                   |
|                                                                   | Vehicle speed                        | 70 km/h (43 mph) or more       | –                 |
|                                                                   | Engine speed                         | 1,200 rpm or more              | 2,500 rpm or more |
|                                                                   | Intake air amount per revolution     | 0.4 g/rev. or more             | –                 |
| 1ZZ-FE (COROLLA)                                                  | Condition (A)                        |                                |                   |
|                                                                   | None                                 | –                              | –                 |
|                                                                   | Condition (B)                        |                                |                   |
|                                                                   | Vehicle speed                        | 70 km/h (43 mph) or more       | –                 |
|                                                                   | Engine speed                         | 1,500 rpm                      | 2,500 rpm         |
|                                                                   | Intake air amount per revolution     | 0.6 g/rev. or more             | –                 |

## Component T/M Inputs – Shift Range

|                                                                                    |                                  |                          |                     |
|------------------------------------------------------------------------------------|----------------------------------|--------------------------|---------------------|
| 1NZ-FE                                                                             | Verity switch input (A)          |                          |                     |
|                                                                                    | None                             | —                        | —                   |
|                                                                                    | Verity switch input (B)          |                          |                     |
|                                                                                    | Park Neutral switch              | ON                       |                     |
|                                                                                    | L range position switch          | ON                       |                     |
|                                                                                    | R range position switch          | ON                       |                     |
|                                                                                    | Verity switch cycling            |                          |                     |
|                                                                                    | Vehicle speed                    | 70 km/h (43 mph) or more | —                   |
|                                                                                    | Engine speed                     | 1,200 rpm                | 2,500 rpm or less   |
|                                                                                    | Intake air amount per revolution | 0.6 g/rev. or more       | —                   |
| 1AZ-FE                                                                             | Verity switch input              |                          |                     |
|                                                                                    | None                             | —                        | —                   |
|                                                                                    | Verity switch cycling            |                          |                     |
|                                                                                    | Vehicle speed                    | 70 km/h (43 mph) or more | —                   |
|                                                                                    | Engine speed                     | 1,500 rpm                | 4,000 rpm or less   |
|                                                                                    | Intake air amount per revolution | 0.6 g/rev. or more       | —                   |
| 1MZ-FE (SIENNA, AVALON, CAMRY SOLARA)                                              | Vehicle speed                    | 40 km/h (25 mph) or more | —                   |
| 2RZ-FE, 5VZ-FE (Prerunner, TA-COMA, TUNDRA)                                        | Vehicle speed                    | 70 km/h (43 mph) or more | —                   |
| 1MZ-FE (SIENNA, AVALON, CAMRY SOLARA)                                              | Engine speed                     | 1,500 rpm or more        | Less than 4,000 rpm |
| 2RZ-FE, 5VZ-FE (Prerunner, TA-COMA, TUNDRA)                                        | Engine speed                     | 1,200 rpm or more        | 2,500 rpm or less   |
| 1MZ-FE (SIENNA, AVALON, CAMRY SOLARA)                                              | Intake air amount per revolution | 0.55 g/rev. or more      | —                   |
| 2RZ-FE, 5VZ-FE (Prerunner, TA-COMA, TUNDRA), 1MZ-FE (SIENNA, AVALON, CAMRY SOLARA) | Intake air amount per revolution | 0.6 g/rev. or more       | —                   |

## TYPICAL MALFUNCTION THRESHOLDS

| Engine family                                                                      | Detection criteria                             | Threshold           |
|------------------------------------------------------------------------------------|------------------------------------------------|---------------------|
| 1MZ-FE (RX300, HIGH LANDER), 2ZZ-GE, 1ZZ-FE (CELICA), 2AZ-FE (HIGH LANDER)         | Shift lever position signal (P, R, N, D, 2, L) | Any 2 or more input |
| 1MZ-FE, (SIENNA, AVALON, CAMRY SOLARA), 2RZ-FE, 5VZ-FE (Prerunner, TACOMA, TUNDRA) | PNP signal                                     | ON                  |
| 1MZ-FE (ES300, CAMRY)                                                              | Shift lever position signal (P, R, D, 2, L)    | Any 2 or more input |
| 3RZ-FE                                                                             | <b>Verify switch input</b>                     |                     |
|                                                                                    | Shift lever position signal (R, 2)             | Any 2 or more input |
|                                                                                    | <b>Verify switch cycling</b>                   |                     |
| 5VZ-FE (4RUNNER)                                                                   | PNP signal                                     | ON                  |
|                                                                                    | <b>Condition (A)</b>                           |                     |
|                                                                                    | Shift lever position signal (R, N, D, 2, L)    | Any 2 or more input |

|                               |                                                      |                     |
|-------------------------------|------------------------------------------------------|---------------------|
| 2UZ-FE                        | <b>Verify switch input</b>                           |                     |
|                               | Shift lever position signal (P, R, 2, L)             | Any 2 or more input |
|                               | <b>Verify switch cycling</b>                         |                     |
|                               | PNP signal                                           | ON                  |
| 3UZ-FE                        | <b>Verify switch input</b>                           |                     |
|                               | Shift lever position signal (R, N, 2, L)             | Any 2 or more input |
| 3UZ-FE (LS430, GS430), 2JZ-GE | <b>Condition (A)</b>                                 |                     |
|                               | Shift lever position signal (P, R, N, D, 4, 3, 2, L) | Any 2 or more input |
|                               | Park neutral switch                                  | ON                  |
|                               | <b>Condition (B)</b>                                 |                     |
|                               | All of following conditions are met                  |                     |
|                               | Park neutral switch                                  | OFF                 |
|                               | <b>Condition (C)</b>                                 |                     |
|                               | "R" switch                                           | ON                  |
| 2AZ-FE (CAMRY, CAMRY SOLARA)  | <b>Verify switch input</b>                           |                     |
|                               | Shift lever position signal (R, D, 4, 2, L)          | Any 2 or more input |
|                               | Park neutral switch                                  | ON                  |
|                               | <b>Verify switch cycling</b>                         |                     |
|                               | PNP signal                                           | ON                  |
| 1ZZ-FE (COROLLA)              | <b>Condition (A)</b>                                 |                     |
|                               | Shift lever position signal (R, N, 2, L)             | Any 2 or more input |
|                               | <b>Condition (B)</b>                                 |                     |
|                               | PNP signal                                           | ON                  |
| 1NZ-FE                        | <b>(A) Verify switch input</b>                       |                     |
|                               | Shift lever position signal (R, D, L)                | Any 2 or more input |
|                               | Park neutral switch                                  | ON                  |
|                               | <b>Verify switch cycling</b>                         |                     |
|                               | PNP signal                                           | ON                  |
| 1AZ-FE                        | <b>Verify switch input</b>                           |                     |
|                               | Shift lever position signal (R, D, 2, L)             | Any 2 or more input |
|                               | <b>Verify switch cycling</b>                         |                     |
|                               | PNP signal                                           | ON                  |