

**2000 MY for Shift Solenoid "B" Performance (Shift Solenoid Valve S2) Monitor (P0755)****2000 MY for Pressure Control Solenoid "B" Performance (Shift Solenoid Valve SL2) Monitor (P0755)**

To return to monitor description, see page [Cm-158](#).

**MONITOR STRATEGY**

|                             |                   |                           |
|-----------------------------|-------------------|---------------------------|
| Required sensors/Components | Main              | Shift solenoid valve No.2 |
|                             | Sub               | None                      |
| Frequency of operation      | Continuous        |                           |
| Duration                    | Less than 10 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                  |                                                           |
| 3RZ-FE (States)                                                   | <b>OFF malfunction</b>           |                                |                                                           |
|                                                                   | Intake air temperature           | -10 °C (-4 °F) or more         | Less than 90 °C (194 °F)                                  |
|                                                                   | Engine coolant temperature       | 55 °C (131 °F) or more         | Less than 105 °C (221 °F)                                 |
|                                                                   | Transmission range               | "D"                            |                                                           |
|                                                                   | Spark retard by KCS control      | -                              | Less than 10° CA                                          |
|                                                                   | <b>Transfer range "Hi" [4WD]</b> |                                |                                                           |
|                                                                   | Throttle valve opening angle     | 0 % or more                    | -                                                         |
|                                                                   | Vehicle speed                    | 5 km/h (3 mph) or more         | -                                                         |
|                                                                   | Battery voltage                  | 10 V or more                   | -                                                         |
|                                                                   | Transmission fluid temperature   | -                              | Less than 130 °C (266 °F)<br>(hysteresis 110 °C (230 °F)) |
|                                                                   | ECM selected gear                | 2nd                            |                                                           |
|                                                                   | Throttle valve opening angle     | 12 % or more                   | Less than 35 %                                            |
|                                                                   | <b>ON malfunction</b>            |                                |                                                           |
|                                                                   | Intake air temperature           | -10 °C (14 °F) or more         | Less than 90 °C (194 °F)                                  |
|                                                                   | Engine coolant temperature       | 55 °C (131 °F) or more         | Less than 105 °C (221 °F)                                 |
|                                                                   | Transmission range               | "D"                            |                                                           |
|                                                                   | Spark retard by KCS control      | -                              | Less than 10° CA                                          |
|                                                                   | <b>Transfer range "Hi" [4WD]</b> |                                |                                                           |
|                                                                   | Throttle valve opening angle     | 0 % or more                    | -                                                         |
|                                                                   | Vehicle speed                    | 5 km/h (3 mph) or more         | -                                                         |
|                                                                   | Battery voltage                  | 10 V or more                   | -                                                         |
|                                                                   | Transmission fluid temperature   | -                              | Less than 130 °C (266 °F)<br>(hysteresis 110 °C (230 °F)) |
|                                                                   | ECM selected gear                | 4th with lock up               |                                                           |

|                          |                              |                        |                           |
|--------------------------|------------------------------|------------------------|---------------------------|
| 5VZ-FE (TACOMA, 4RUNNER) | OFF malfunction              |                        |                           |
|                          | Intake air temperature       | -10 °C (14 °F) or more | Less than 70 °C (158 °F)  |
|                          | Engine coolant temperature   | 60 °C (140 °F) or more | Less than 105 °C (221 °F) |
|                          | Transmission range           | "D"                    |                           |
|                          | Battery voltage              | 10 V or more           | -                         |
|                          | Spark retard by KCS control  | -                      | Less than 8° CA           |
|                          | Transfer range "Hi" [4WD]    |                        |                           |
|                          | Throttle valve opening angle | 0 % or more            | -                         |
|                          | Vehicle speed                | 5 km/h (3 mph) or more | -                         |
|                          | ECM selected gear            | 2nd                    |                           |
|                          | Throttle valve opening angle | 10 % or more           | Less than 30 %            |
|                          | ON malfunction               |                        |                           |
|                          | Intake air temperature       | -10 °C (14 °F) or more | Less than 70 °C (158 °F)  |
|                          | Engine coolant temperature   | 60 °C (140 °F) or more | Less than 105 °C (221 °F) |
|                          | Transmission range           | "D"                    |                           |
|                          | Battery voltage              | 10 V or more           | -                         |
|                          | Spark retard by KCS control  | -                      | Less than 10° CA          |
|                          | Transfer range "Hi" [4WD]    |                        |                           |
|                          | Throttle valve opening angle | 0 % or more            | -                         |
|                          | Vehicle speed                | 5 km/h (3 mph) or more | -                         |
|                          | ECM selected gear            | 4th with lock up       |                           |
| 3RZ-FE (Fed.)            | OFF malfunction              |                        |                           |
|                          | Intake air temperature       | -10 °C (14 °F) or more | Less than 90 °C (194 °F)  |
|                          | Engine coolant temperature   | 55 °C (131 °F) or more | Less than 105 °C (221 °F) |
|                          | Transmission range           | "D"                    |                           |
|                          | Spark retard by KCS control  | -                      | Less than 10° CA          |
|                          | Transfer range "Hi" [4WD]    |                        |                           |
|                          | Throttle valve opening angle | 0 % or more            | -                         |
|                          | Vehicle speed                | 5 km/h (3 mph) or more | -                         |
|                          | Battery voltage              | 10 V or more           | -                         |
|                          | ECM selected gear            | 2nd                    |                           |
|                          | Throttle valve opening angle | 12 % or more           | Less than 35 %            |
|                          | ON malfunction               |                        |                           |
|                          | Intake air temperature       | -10 °C (14 °F) or more | Less than 90 °C (194 °F)  |
|                          | Engine coolant temperature   | 55 °C (131 °F) or more | Less than 105 °C (221 °F) |
|                          | Transmission range           | "D"                    |                           |
|                          | Spark retard by KCS control  | -                      | Less than 10° CA          |
|                          | Transfer range "Hi" [4WD]    |                        |                           |
|                          | Throttle valve opening angle | 0 % or more            | -                         |
|                          | Vehicle speed                | 5 km/h (3 mph) or more | -                         |
|                          | Battery voltage              | 10 V or more           | -                         |
|                          | ECM selected gear            | 4th with lock up       |                           |

## Component T/M Outputs – Solenoid

|                                             |                              |                                                                                                       |                            |
|---------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------|
| 1MZ-FE (AVALON, ES300, CAMRY, CAMRY SOLARA) | <b>OFF malfunction (A)</b>   |                                                                                                       |                            |
|                                             | Engine coolant temperature   | 60 °C (140 °F) or more                                                                                | –                          |
|                                             | Transmission range           | "D"                                                                                                   |                            |
|                                             | ECM selected gear            | 2nd                                                                                                   |                            |
|                                             | Throttle valve opening angle | 10.5 % or more at engine speed<br>3,000 rpm<br>(condition vary with engine speed)                     | –                          |
|                                             | <b>OFF malfunction (B)</b>   |                                                                                                       |                            |
|                                             | Engine coolant temperature   | 60 °C (140 °F) or more                                                                                | –                          |
|                                             | Transmission range           | "D"                                                                                                   |                            |
|                                             | ECM selected gear            | 3rd                                                                                                   |                            |
|                                             | Duration time from shifting  | 1 sec. or more                                                                                        | –                          |
|                                             | Throttle valve opening angle | 10.5 % or more at engine speed<br>3,000 rpm<br>(condition vary with engine speed)                     | –                          |
|                                             | <b>OFF malfunction (C)</b>   |                                                                                                       |                            |
|                                             | Engine coolant temperature   | 60 °C (140 °F) or more                                                                                | –                          |
|                                             | Transmission range           | "D"                                                                                                   |                            |
|                                             | ECM selected gear            | 4th                                                                                                   |                            |
|                                             | Throttle valve opening angle | 10.5 % or more at engine speed<br>3,000 rpm<br>(condition vary with engine speed)                     | –                          |
|                                             | <b>ON malfunction (A)</b>    |                                                                                                       |                            |
|                                             | Engine coolant temperature   | 60 °C (140 °F) or more                                                                                | –                          |
|                                             | Transmission range           | "D"                                                                                                   |                            |
|                                             | ECM selected gear            | 1st                                                                                                   |                            |
|                                             | Vehicle speed                | –                                                                                                     | Less than 40 km/h (25 mph) |
|                                             | Throttle valve opening angle | 15 % or more and<br>10.5 % or more at engine speed<br>3,000 rpm<br>(condition vary with engine speed) | –                          |
|                                             | <b>ON malfunction (B)</b>    |                                                                                                       |                            |
|                                             | Engine coolant temperature   | 60 °C (140 °F) or more                                                                                | –                          |
|                                             | Transmission range           | "D"                                                                                                   |                            |
|                                             | ECM selected gear            | 3rd                                                                                                   |                            |
|                                             | Throttle valve opening angle | 15 % or more and<br>10.5 % or more at engine speed<br>3,000 rpm<br>(condition vary with engine speed) | –                          |
|                                             | <b>ON malfunction (C)</b>    |                                                                                                       |                            |
|                                             | Engine coolant temperature   | 60 °C (140 °F) or more                                                                                | –                          |
|                                             | Transmission range           | "D"                                                                                                   |                            |
|                                             | ECM selected gear            | 4th                                                                                                   |                            |
|                                             | Throttle valve opening angle | 10.5 % or more at engine speed<br>3,000 rpm<br>(condition vary with engine speed)                     | –                          |

|        |                                |                                                                                                      |                            |
|--------|--------------------------------|------------------------------------------------------------------------------------------------------|----------------------------|
| 5S–FE  | OFF malfunction                |                                                                                                      |                            |
|        | Intake air temperature         | –10 °C (14 °F) or more                                                                               | Less than 70 °C (158 °F)   |
|        | Engine coolant temperature     | 60 °C (140 °F) or more                                                                               | Less than 105 °C (221 °F)  |
|        | Transmission range             | "D"                                                                                                  |                            |
|        | Battery voltage                | 10 V or more                                                                                         | –                          |
|        | Spark retard by KCS control    | –                                                                                                    | Less than 10° CA           |
|        | ECM selected gear              | 2nd                                                                                                  |                            |
|        | Throttle valve opening angle   | 10 % or more                                                                                         | Less than 30 %             |
|        | ON malfunction                 |                                                                                                      |                            |
|        | Intake air temperature         | –10 °C (14 °F) or more                                                                               | Less than 70 °C (158 °F)   |
|        | Engine coolant temperature     | 60 °C (140 °F) or more                                                                               | Less than 105 °C (221 °F)  |
|        | Transmission range             | "D"                                                                                                  |                            |
|        | Battery voltage                | 10 V or more                                                                                         | –                          |
|        | Spark retard by KCS control    | –                                                                                                    | Less than 10° CA           |
|        | ECM selected gear              | 4th with lock up                                                                                     |                            |
| 2ZZ–GE | Rationality check (A)          |                                                                                                      |                            |
|        | Engine coolant temperature     | 60 °C (140 °F) or more                                                                               | –                          |
|        | Transmission range             | "D"                                                                                                  |                            |
|        | Transmission fluid temperature | –20 °C (–4 °F) or more                                                                               | –                          |
|        | ECM selected gear              | 1st                                                                                                  |                            |
|        | Vehicle speed                  | 10 km/h (6 mph) or more                                                                              | Less than 40 km/h (25 mph) |
|        | Throttle valve opening angle   | 15 % or more and<br>4.5 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |
|        | Rationality check (B)          |                                                                                                      |                            |
|        | Engine coolant temperature     | 60 °C (140 °F) or more                                                                               | –                          |
|        | Transmission range             | "D"                                                                                                  |                            |
|        | Transmission fluid temperature | –20 °C (–4 °F) or more                                                                               | –                          |
|        | ECM selected gear              | 3rd or 4th                                                                                           |                            |
|        | Vehicle speed                  | 10 km/h (6 mph) or more                                                                              | –                          |
|        | Throttle valve opening angle   | 4.5 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed)                     | –                          |

## Component T/M Outputs – Solenoid

|                         |                              |                                                                                  |                            |
|-------------------------|------------------------------|----------------------------------------------------------------------------------|----------------------------|
| 1ZZ-FE (CELICA), 1NZ-FE | <b>OFF malfunction (A)</b>   |                                                                                  |                            |
|                         | Engine coolant temperature   | 60 °C (140 °F) or more                                                           | –                          |
|                         | Transmission range           | "D"                                                                              |                            |
|                         | ECM selected gear            | 1st                                                                              |                            |
|                         | Vehicle speed                | 9 km/h (6 mph) or more                                                           | Less than 40 km/h (25 mph) |
|                         | Throttle valve opening angle | 7.0 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |
|                         | <b>OFF malfunction (B)</b>   |                                                                                  |                            |
|                         | Engine coolant temperature   | 60 °C (140 °F) or more                                                           | –                          |
|                         | Transmission range           | "D"                                                                              |                            |
|                         | ECM selected gear            | 3rd                                                                              |                            |
|                         | Throttle valve opening angle | 7.0 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |
|                         | <b>OFF malfunction (C)</b>   |                                                                                  |                            |
|                         | Engine coolant temperature   | 60 °C (140 °F) or more                                                           | –                          |
|                         | Transmission range           | "D"                                                                              |                            |
|                         | ECM selected gear            | 4th                                                                              |                            |
|                         | Throttle valve opening angle | 7.0 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |
|                         | <b>ON malfunction (A)</b>    |                                                                                  |                            |
|                         | Engine coolant temperature   | 60 °C (140 °F) or more                                                           | –                          |
|                         | Transmission range           | "D"                                                                              |                            |
|                         | ECM selected gear            | 2nd                                                                              |                            |
|                         | Throttle valve opening angle | 7.0 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |
|                         | <b>ON malfunction (B)</b>    |                                                                                  |                            |
|                         | Engine coolant temperature   | 60 °C (140 °F) or more                                                           | –                          |
|                         | Transmission range           | "D"                                                                              |                            |
|                         | ECM selected gear            | 3rd                                                                              |                            |
|                         | Throttle valve opening angle | 7.0 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |
|                         | <b>ON malfunction (C)</b>    |                                                                                  |                            |
|                         | Engine coolant temperature   | 60 °C (140 °F) or more                                                           | –                          |
|                         | Transmission range           | "D"                                                                              |                            |
|                         | ECM selected gear            | 4th                                                                              |                            |
|                         | Throttle valve opening angle | 7.0 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |

|                  |                                                      |                                                                                  |                            |
|------------------|------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------|
| 1ZZ-FE (COROLLA) | OFF malfunction                                      |                                                                                  |                            |
|                  | Intake air temperature                               | -10 °C (14 °F) or more                                                           | Less than 70 °C (158 °F)   |
|                  | Engine coolant temperature                           | 55 °C (131 °F) or more                                                           | Less than 105 °C (221 °F)  |
|                  | Transmission range                                   | "D"                                                                              |                            |
|                  | Battery voltage                                      | 10 V or more                                                                     | -                          |
|                  | Spark retard by KCS control                          | 9° CA or more                                                                    | -                          |
|                  | ECM selected gear                                    | 2nd                                                                              |                            |
|                  | Throttle valve opening angle                         | 18 % or more                                                                     | Less than 35 %             |
|                  | ON malfunction                                       |                                                                                  |                            |
|                  | Intake air temperature                               | -10 °C (14 °F) or more                                                           | Less than 70 °C (158 °F)   |
|                  | Engine coolant temperature                           | 55 °C (131 °F) or more                                                           | Less than 105 °C (221 °F)  |
|                  | Transmission range                                   | "D"                                                                              |                            |
|                  | Battery voltage                                      | 10 V or more                                                                     | -                          |
|                  | Spark retard by KCS control                          | 9° CA or more                                                                    | -                          |
|                  | ECM selected gear                                    | 4th with lock up                                                                 |                            |
| 1UZ-FE           | OFF malfunction (A)                                  |                                                                                  |                            |
|                  | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | -                          |
|                  | Transmission range                                   | "D"                                                                              |                            |
|                  | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | -                          |
|                  | ECM selected gear                                    | 1st                                                                              |                            |
|                  | Vehicle speed                                        | 2 km/h (1 mph) or more                                                           | Less than 40 km/h (25 mph) |
|                  | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | -                          |
|                  | OFF malfunction (B)                                  |                                                                                  |                            |
|                  | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | -                          |
|                  | Transmission range                                   | "D"                                                                              |                            |
|                  | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | -                          |
|                  | ECM selected gear                                    | 2nd                                                                              |                            |
|                  | Vehicle speed                                        | 2 km/h (1 mph) or more                                                           | -                          |
|                  | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | -                          |
|                  | OFF malfunction (C)                                  |                                                                                  |                            |
|                  | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | -                          |
|                  | Transmission range                                   | "D"                                                                              |                            |
|                  | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | -                          |
|                  | Current ECM selected gear                            | 5th                                                                              |                            |
|                  | Last ECM selected gear                               | 4th                                                                              |                            |
|                  | Vehicle speed                                        | 2 km/h (1 mph) or more                                                           | -                          |
|                  | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | -                          |

## Component T/M Outputs – Solenoid

|        |                                                      |                                                                                  |                             |
|--------|------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------|
| 1UZ-FE | OFF malfunction (D)                                  |                                                                                  |                             |
|        | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | —                           |
|        | Transmission range                                   | "D"                                                                              |                             |
|        | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | —                           |
|        | Current ECM selected gear                            | 5th                                                                              |                             |
|        | Last ECM selected gear                               | 4th                                                                              |                             |
|        | OFF malfunction (E)                                  |                                                                                  |                             |
|        | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | —                           |
|        | Transmission range                                   | "D"                                                                              |                             |
|        | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | —                           |
|        | ECM lock-up command                                  | ON (duty ratio 90 % or more)                                                     |                             |
|        | Throttle valve opening angle                         | 10 % or more                                                                     | —                           |
|        | Vehicle speed                                        | —                                                                                | Less than 100 km/h (62 mph) |
|        | Vehicle speed                                        | 25 km/h (16 mph) or more                                                         | —                           |
|        | ON malfunction (A)                                   |                                                                                  |                             |
|        | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | —                           |
|        | Transmission range                                   | "D"                                                                              |                             |
|        | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | —                           |
|        | Current ECM selected gear                            | 5th                                                                              |                             |
|        | Last ECM selected gear                               | 4th                                                                              |                             |
|        | Vehicle speed                                        | 2 km/h (1 mph) or more                                                           | —                           |
|        | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | —                           |
|        | ON malfunction (B)                                   |                                                                                  |                             |
|        | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | —                           |
|        | Transmission range                                   | "D"                                                                              |                             |
|        | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | —                           |
|        | ECM selected gear                                    | 5th                                                                              |                             |
|        | Vehicle speed                                        | 2 km/h (1 mph) or more                                                           | —                           |
|        | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | —                           |
|        | ON malfunction (C)                                   |                                                                                  |                             |
|        | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | —                           |
|        | Transmission range                                   | "D"                                                                              |                             |
|        | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | —                           |
|        | Current ECM selected gear                            | 5th                                                                              |                             |
|        | Last ECM selected gear                               | 4th                                                                              |                             |

2UZ-FE (LX470, LAND CRUISER)

|                              |                                                                                                      |                            |
|------------------------------|------------------------------------------------------------------------------------------------------|----------------------------|
| OFF malfunction (A)          |                                                                                                      |                            |
| Engine coolant temperature   | 40 °C (104 °F) or more                                                                               | —                          |
| Transmission range           | "D"                                                                                                  |                            |
| Transfer range "Hi" [4WD]    |                                                                                                      |                            |
| Throttle valve opening angle | 0 % or more                                                                                          | —                          |
| Vehicle speed                | 5 km/h (3 mph) or more                                                                               | —                          |
| ECM selected gear            | 2nd                                                                                                  |                            |
| Vehicle speed                | 3 km/h (2 mph) or more                                                                               | —                          |
| Throttle valve opening angle | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed)                     | —                          |
| OFF malfunction (B)          |                                                                                                      |                            |
| Engine coolant temperature   | 40 °C (104 °F) or more                                                                               | —                          |
| Transmission range           | "D"                                                                                                  |                            |
| Transfer range "Hi" [4WD]    |                                                                                                      |                            |
| Throttle valve opening angle | 0 % or more                                                                                          | —                          |
| Vehicle speed                | 5 km/h (3 mph) or more                                                                               | —                          |
| ECM selected gear            | 3rd                                                                                                  |                            |
| Vehicle speed                | 3 km/h (2 mph) or more                                                                               | —                          |
| Throttle valve opening angle | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed)                     | —                          |
| OFF malfunction (C)          |                                                                                                      |                            |
| Engine coolant temperature   | 40 °C (104 °F) or more                                                                               | —                          |
| Transmission range           | "D"                                                                                                  |                            |
| Transfer range "Hi" [4WD]    |                                                                                                      |                            |
| Throttle valve opening angle | 0 % or more                                                                                          | —                          |
| Vehicle speed                | 5 km/h (3 mph) or more                                                                               | —                          |
| ECM selected gear            | 4th                                                                                                  |                            |
| Vehicle speed                | 3 km/h (2 mph) or more                                                                               | —                          |
| Throttle valve opening angle | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed)                     | —                          |
| ON malfunction (A)           |                                                                                                      |                            |
| Engine coolant temperature   | 40 °C (104 °F) or more                                                                               | —                          |
| Transmission range           | "D"                                                                                                  |                            |
| Transfer range "Hi" [4WD]    |                                                                                                      |                            |
| Throttle valve opening angle | 0 % or more                                                                                          | —                          |
| Vehicle speed                | 5 km/h (3 mph) or more                                                                               | —                          |
| ECM selected gear            | 1st                                                                                                  |                            |
| Vehicle speed                | 3 km/h (2 mph) or more                                                                               | Less than 40 km/h (25 mph) |
| Throttle valve opening angle | 15 % or more and<br>6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | —                          |

## Component T/M Outputs – Solenoid

|                              |                              |                                                                            |                           |
|------------------------------|------------------------------|----------------------------------------------------------------------------|---------------------------|
| 2UZ-FE (LX470, LAND CRUISER) | ON malfunction (B)           |                                                                            |                           |
|                              | Engine coolant temperature   | 40 °C (104 °F) or more                                                     | —                         |
|                              | Transmission range           | "D"                                                                        |                           |
|                              | Transfer range "Hi" [4WD]    |                                                                            |                           |
|                              | Throttle valve opening angle | 0 % or more                                                                | —                         |
|                              | Vehicle speed                | 5 km/h (3 mph) or more                                                     | —                         |
|                              | ECM selected gear            | 4th                                                                        |                           |
|                              | Vehicle speed                | 3 km/h (2 mph) or more                                                     | —                         |
|                              | Throttle valve opening angle | 6.5 % or more at engine speed 2,000 rpm (condition vary with engine speed) | —                         |
| 3S-FE (2WD)                  | OFF malfunction              |                                                                            |                           |
|                              | Intake air temperature       | –10 °C (14 °F) or more                                                     | Less than 70 °C (158 °F)  |
|                              | Engine coolant temperature   | 60 °C (140 °F) or more                                                     | Less than 105 °C (221 °F) |
|                              | Transmission range           | "D"                                                                        |                           |
|                              | Battery voltage              | 10 V or more                                                               | —                         |
|                              | Spark retard by KCS control  | 10° CA or more                                                             | —                         |
|                              | ECM selected gear            | 2nd                                                                        |                           |
|                              | Throttle valve opening angle | 10 % or more                                                               | Less than 30 %            |
|                              | ON malfunction               |                                                                            |                           |
|                              | Intake air temperature       | –10 °C (14 °F) or more                                                     | Less than 70 °C (158 °F)  |
|                              | Engine coolant temperature   | 60 °C (140 °F) or more                                                     | Less than 105 °C (221 °F) |
|                              | Transmission range           | "D"                                                                        |                           |
|                              | Battery voltage              | 10 V or more                                                               | —                         |
|                              | Spark retard by KCS control  | 10° CA or more                                                             | —                         |
|                              | ECM selected gear            | 4th with lock up                                                           |                           |
| 3S-FE (4WD)                  | OFF malfunction              |                                                                            |                           |
|                              | Intake air temperature       | –10 °C (14 °F) or more                                                     | Less than 70 °C (158 °F)  |
|                              | Engine coolant temperature   | 60 °C (140 °F) or more                                                     | Less than 105 °C (221 °F) |
|                              | Transmission range           | "D"                                                                        |                           |
|                              | Battery voltage              | 10 V or more                                                               | —                         |
|                              | Spark retard by KCS control  | 10° CA or more                                                             | —                         |
|                              | ECM selected gear            | 2nd                                                                        |                           |
|                              | Throttle valve opening angle | 10 % or more                                                               | Less than 30 %            |
|                              | ON malfunction               |                                                                            |                           |
|                              | Intake air temperature       | –10 °C (14 °F) or more                                                     | Less than 70 °C (158 °F)  |
|                              | Engine coolant temperature   | 60 °C (140 °F) or more                                                     | Less than 105 °C (221 °F) |
|                              | Transmission range           | "D"                                                                        |                           |
|                              | Battery voltage              | 10 V or more                                                               | —                         |
|                              | Spark retard by KCS control  | 10° CA or more                                                             | —                         |
|                              | ECM selected gear            | 4th with lock up                                                           |                           |

|                |                                                      |                                                                                  |                            |
|----------------|------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------|
| 1MZ-FE (RX300) | <b>Rationality check (A)</b>                         |                                                                                  |                            |
|                | Engine coolant temperature                           | 60 °C (140 °F) or more                                                           | –                          |
|                | Transmission range                                   | "D"                                                                              |                            |
|                | Transmission fluid temperature                       | –20 °C (14 °F) or more                                                           | –                          |
|                | ECM selected gear                                    | 1st                                                                              |                            |
|                | Vehicle speed                                        | 10 km/h (6 mph) or more                                                          | Less than 40 km/h (25 mph) |
|                | Throttle valve opening angle                         | 4.5 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |
|                | Engine coolant temperature                           | 60 °C (140 °F) or more                                                           | –                          |
|                | Transmission range                                   | "D"                                                                              |                            |
|                | Transmission fluid temperature                       | –20 °C (14 °F) or more                                                           | –                          |
|                | ECM selected gear                                    | 3rd or 4th                                                                       |                            |
|                | Vehicle speed                                        | 10 km/h (6 mph) or more                                                          | –                          |
|                | Throttle valve opening angle                         | 4.5 % or more at engine speed<br>1,900 rpm<br>(condition vary with engine speed) | –                          |
|                |                                                      |                                                                                  |                            |
| 2JZ-GE (SC300) | <b>OFF malfunction (A)</b>                           |                                                                                  |                            |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | –                          |
|                | Transmission range                                   | "D"                                                                              |                            |
|                | Spark advance from Max. retard timing by KCS control | 10° CA or more                                                                   | –                          |
|                | ECM selected gear                                    | 2nd                                                                              |                            |
|                | Vehicle speed                                        | 10 km/h (6 mph) or more                                                          | –                          |
|                | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | –                          |
|                | <b>OFF malfunction (B)</b>                           |                                                                                  |                            |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | –                          |
|                | Transmission range                                   | "D"                                                                              |                            |
|                | Spark advance from Max. retard timing by KCS control | 10° CA or more                                                                   | –                          |
|                | ECM selected gear                                    | 3rd                                                                              |                            |
|                | Vehicle speed                                        | 10 km/h (6 mph) or more                                                          | –                          |
|                | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | –                          |
|                | <b>OFF malfunction (C)</b>                           |                                                                                  |                            |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | –                          |
|                | Transmission range                                   | "D"                                                                              |                            |
|                | Spark advance from Max. retard timing by KCS control | 10° CA or more                                                                   | –                          |
|                | ECM selected gear                                    | 4th                                                                              |                            |
|                | Vehicle speed                                        | 10 km/h (6 mph) or more                                                          | –                          |
|                | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | –                          |

## Component T/M Outputs – Solenoid

|                 |                                                      |                                                                                  |                            |
|-----------------|------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------|
| 2JZ-GE (SC300)  | <b>ON malfunction (A)</b>                            |                                                                                  |                            |
|                 | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | –                          |
|                 | Transmission range                                   | "D"                                                                              |                            |
|                 | Spark advance from Max. retard timing by KCS control | 10° CA or more                                                                   | –                          |
|                 | ECM selected gear                                    | 1st                                                                              |                            |
|                 | Vehicle speed                                        | 10 km/h (6 mph) or more                                                          | Less than 40 km/h (25 mph) |
|                 | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | –                          |
|                 | <b>ON malfunction (B)</b>                            |                                                                                  |                            |
|                 | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | –                          |
|                 | Transmission range                                   | "D"                                                                              |                            |
|                 | Spark advance from Max. retard timing by KCS control | 10° CA or more                                                                   | –                          |
|                 | ECM selected gear                                    | 3rd                                                                              |                            |
|                 | Vehicle speed                                        | 10 km/h (6 mph) or more                                                          | –                          |
|                 | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | –                          |
|                 | <b>ON malfunction (C)</b>                            |                                                                                  |                            |
|                 | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | –                          |
|                 | Transmission range                                   | "D"                                                                              |                            |
|                 | Spark advance from Max. retard timing by KCS control | 10° CA or more                                                                   | –                          |
|                 | Last ECM selected gear                               | 4th                                                                              |                            |
|                 | Vehicle speed                                        | 10 km/h (6 mph) or more                                                          | –                          |
|                 | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | –                          |
| 1MZ-FE (SIENNA) | <b>OFF malfunction</b>                               |                                                                                  |                            |
|                 | Intake air temperature                               | – 10 °C (14 °F) or more                                                          | Less than 70 °C (158 °F)   |
|                 | Engine coolant temperature                           | 60 °C (140 °F) or more                                                           | Less than 105 °C (221 °F)  |
|                 | Transmission range                                   | "D"                                                                              |                            |
|                 | Battery voltage                                      | 10 V or more                                                                     | –                          |
|                 | Spark retard by KCS control                          | 10° CA or more                                                                   | –                          |
|                 | ECM selected gear                                    | 2nd                                                                              |                            |
|                 | Throttle valve opening angle                         | 10 % or more                                                                     | Less than 30 %             |
|                 | Time after gear-shifting                             | 2 sec. or more                                                                   | Less than 10 sec.          |
|                 | <b>ON malfunction</b>                                |                                                                                  |                            |
|                 | Intake air temperature                               | – 10 °C (14 °F) or more                                                          | Less than 70 °C (158 °F)   |
|                 | Engine coolant temperature                           | 60 °C (140 °F) or more                                                           | Less than 105 °C (221 °F)  |
|                 | Transmission range                                   | "D"                                                                              |                            |
|                 | Battery voltage                                      | 10 V or more                                                                     | –                          |
|                 | Spark retard by KCS control                          | 10° CA or more                                                                   | –                          |
|                 | ECM selected gear                                    | 4th with lock up                                                                 |                            |

2UZ-FE (TUNDRA)

|                                  |                                                                                                      |   |
|----------------------------------|------------------------------------------------------------------------------------------------------|---|
| <b>OFF malfunction (A)</b>       |                                                                                                      |   |
| Engine coolant temperature       | 40 °C (104 °F) or more                                                                               | — |
| Transmission range               | "D"                                                                                                  |   |
| <b>Transfer range "Hi" [4WD]</b> |                                                                                                      |   |
| Throttle valve opening angle     | 0 % or more                                                                                          | — |
| Vehicle speed                    | 5 km/h (3 mph) or more                                                                               | — |
| ECM selected gear                | 2nd                                                                                                  |   |
| Vehicle speed                    | 3 km/h (2 mph) or more                                                                               | — |
| Throttle valve opening angle     | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed)                     | — |
| <b>OFF malfunction (B)</b>       |                                                                                                      |   |
| Engine coolant temperature       | 40 °C (104 °F) or more                                                                               | — |
| Transmission range               | "D"                                                                                                  |   |
| <b>Transfer range "Hi" [4WD]</b> |                                                                                                      |   |
| Throttle valve opening angle     | 0 % or more                                                                                          | — |
| Vehicle speed                    | 5 km/h (3 mph) or more                                                                               | — |
| ECM selected gear                | 3rd                                                                                                  |   |
| Vehicle speed                    | 3 km/h (2 mph) or more                                                                               | — |
| Throttle valve opening angle     | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed)                     | — |
| <b>ON malfunction (A)</b>        |                                                                                                      |   |
| Engine coolant temperature       | 40 °C (104 °F) or more                                                                               | — |
| Transmission range               | "D"                                                                                                  |   |
| <b>Transfer range "Hi" [4WD]</b> |                                                                                                      |   |
| Throttle valve opening angle     | 0 % or more                                                                                          | — |
| Vehicle speed                    | 5 km/h (3 mph) or more                                                                               | — |
| ECM selected gear                | 1st                                                                                                  |   |
| Vehicle speed                    | 3 km/h (2 mph) or more                                                                               | — |
| Throttle valve opening angle     | 15 % or more and<br>6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | — |
| <b>ON malfunction (B)</b>        |                                                                                                      |   |
| Engine coolant temperature       | 40 °C (104 °F) or more                                                                               | — |
| Transmission range               | "D"                                                                                                  |   |
| <b>Transfer range "Hi" [4WD]</b> |                                                                                                      |   |
| Throttle valve opening angle     | 0 % or more                                                                                          | — |
| Vehicle speed                    | 5 km/h (3 mph) or more                                                                               | — |
| ECM selected gear                | 3rd                                                                                                  |   |
| Vehicle speed                    | 3 km/h (2 mph) or more                                                                               | — |
| Throttle valve opening angle     | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed)                     | — |

## Component T/M Outputs – Solenoid

|                 |                              |                                                                                  |                           |
|-----------------|------------------------------|----------------------------------------------------------------------------------|---------------------------|
| 2UZ-FE (TUNDRA) | ON malfunction (C)           |                                                                                  |                           |
|                 | Engine coolant temperature   | 40 °C (104 °F) or more                                                           | —                         |
|                 | Transmission range           | "D"                                                                              |                           |
|                 | Transfer range "Hi" [4WD]    |                                                                                  |                           |
|                 | Throttle valve opening angle | 0 % or more                                                                      | —                         |
|                 | Vehicle speed                | 5 km/h (3 mph) or more                                                           | —                         |
|                 | ECM selected gear            | 4th                                                                              |                           |
|                 | Vehicle speed                | 3 km/h (2 mph) or more                                                           | —                         |
|                 | Throttle valve opening angle | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | —                         |
| 5VZ-FE (TUNDRA) | OFF malfunction              |                                                                                  |                           |
|                 | Intake air temperature       | –10 °C (14 °F) or more                                                           | Less than 70 °C (158 °F)  |
|                 | Engine coolant temperature   | 60 °C (140 °F) or more                                                           | Less than 105 °C (221 °F) |
|                 | Transmission range           | "D"                                                                              |                           |
|                 | Battery voltage              | 10 V or more                                                                     | —                         |
|                 | Spark retard by KCS control  | —                                                                                | Less than 8° CA           |
|                 | Transfer range "Hi" [4WD]    |                                                                                  |                           |
|                 | Throttle valve opening angle | 0 % or more                                                                      | —                         |
|                 | Vehicle speed                | 5 km/h (3 mph) or more                                                           | —                         |
|                 | ECM selected gear            | 2nd                                                                              |                           |
|                 | Throttle valve opening angle | 10 % or more                                                                     | Less than 30 %            |
|                 | ON malfunction               |                                                                                  |                           |
|                 | Intake air temperature       | –10 °C (14 °F) or more                                                           | Less than 70 °C (158 °F)  |
|                 | Engine coolant temperature   | 60 °C (140 °F) or more                                                           | Less than 105 °C (221 °F) |
|                 | Transmission range           | "D"                                                                              |                           |
|                 | Battery voltage              | 10 V or more                                                                     | —                         |
|                 | Spark retard by KCS control  | —                                                                                | Less than 8° CA           |
|                 | Transfer range "Hi" [4WD]    |                                                                                  |                           |
|                 | Throttle valve opening angle | 0 % or more                                                                      | —                         |
|                 | Vehicle speed                | 5 km/h (3 mph) or more                                                           | —                         |
|                 | ECM selected gear            | 4th with lock up                                                                 |                           |

|                |                                                      |                                                                                                     |                            |
|----------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------|
| 2JZ-GE (GS300) | <b>OFF malfunction (A)</b>                           |                                                                                                     |                            |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                                              | –                          |
|                | Transmission range                                   | "D"                                                                                                 |                            |
|                | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                                       | –                          |
|                | ECM selected gear                                    | 1st                                                                                                 |                            |
|                | Vehicle speed                                        | 2 km/h (1 mph) or more                                                                              | Less than 40 km/h (25 mph) |
|                | Throttle valve opening angle                         | 8 % or more and<br>6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | –                          |
|                | <b>OFF malfunction (B)</b>                           |                                                                                                     |                            |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                                              | –                          |
|                | Transmission range                                   | "D"                                                                                                 |                            |
|                | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                                       | –                          |
|                | ECM selected gear                                    | 2nd                                                                                                 |                            |
|                | Vehicle speed                                        | 2 km/h (1 mph) or more                                                                              | –                          |
|                | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed)                    | –                          |
|                | <b>OFF malfunction (C)</b>                           |                                                                                                     |                            |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                                              | –                          |
|                | Transmission range                                   | "D"                                                                                                 |                            |
|                | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                                       | –                          |
|                | Current ECM selected gear                            | 5th                                                                                                 |                            |
|                | Last ECM selected gear                               | 4th                                                                                                 |                            |
|                | Vehicle speed                                        | 2 km/h (1 mph) or more                                                                              | –                          |
|                | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed)                    | –                          |
|                | <b>OFF malfunction (D)</b>                           |                                                                                                     |                            |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                                              | –                          |
|                | Transmission range                                   | "D"                                                                                                 |                            |
|                | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                                       | –                          |
|                | Current ECM selected gear                            | 5th                                                                                                 |                            |
|                | Last ECM selected gear                               | 4th                                                                                                 |                            |

## Component T/M Outputs – Solenoid

|                |                                                      |                                                                                  |   |
|----------------|------------------------------------------------------|----------------------------------------------------------------------------------|---|
| 2JZ-GE (GS300) | <b>ON malfunction (A)</b>                            |                                                                                  |   |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | – |
|                | Transmission range                                   | "D"                                                                              |   |
|                | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | – |
|                | Current ECM selected gear                            | 5th                                                                              |   |
|                | Last ECM selected gear                               | 4th                                                                              |   |
|                | Vehicle speed                                        | 2 km/h (1 mph) or more                                                           | – |
|                | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | – |
|                | <b>ON malfunction (B)</b>                            |                                                                                  |   |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | – |
|                | Transmission range                                   | "D"                                                                              |   |
|                | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | – |
|                | ECM selected gear                                    | 5th                                                                              |   |
|                | Vehicle speed                                        | 2 km/h (1 mph) or more                                                           | – |
|                | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | – |
|                | <b>ON malfunction (C)</b>                            |                                                                                  |   |
|                | Engine coolant temperature                           | 40 °C (104 °F) or more                                                           | – |
|                | Transmission range                                   | "D"                                                                              |   |
|                | Spark advance from Max. retard timing by KCS control | 0° CA or more                                                                    | – |
|                | Current ECM selected gear                            | 5th                                                                              |   |
|                | Last ECM selected gear                               | 4th                                                                              |   |

## TYPICAL MALFUNCTION THRESHOLDS

| Engine family                                     | Detection criteria                                                                                                  | Threshold                                                                                                                     |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 3RZ-FE, 5VZ-FE, 1ZZ-FE (COROLLA),<br>3S-FE, 5S-FE | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                                               |
|                                                   | <b>OFF malfunction</b>                                                                                              |                                                                                                                               |
|                                                   | Engine speed                                                                                                        | $\leq 1\text{st gear ratio} \times \text{NO rpm}$                                                                             |
|                                                   | <b>ON malfunction</b>                                                                                               |                                                                                                                               |
|                                                   | Engine speed                                                                                                        | $\leq 3\text{rd gear ratio} \times \text{NO} - 50 \text{ rpm}$<br>$< 3\text{rd gear ratio} \times \text{NO} + 50 \text{ rpm}$ |
| 1MZ-FE (AVALON, ES300, CAMRY,<br>CAMRY SOLARA)    | <b>OFF malfunction</b>                                                                                              |                                                                                                                               |
|                                                   | <b>Following conditions met a. and b. and c.</b>                                                                    |                                                                                                                               |
|                                                   | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                                               |
|                                                   | <b>a. = OFF malfunction (A)</b>                                                                                     |                                                                                                                               |
|                                                   | Input speed/Output speed (NC2/NO)                                                                                   | $2.07 \leq \text{NC2/NO} \leq 2.37$                                                                                           |
|                                                   | <b>b. = OFF malfunction (B)</b>                                                                                     |                                                                                                                               |
|                                                   | Input speed/Output speed (NC2/NO)                                                                                   | $0.63 \leq \text{NC2/NO} \leq 0.77$                                                                                           |
|                                                   | <b>c. = OFF malfunction (C)</b>                                                                                     |                                                                                                                               |
|                                                   | Input speed/Output speed (NC2/NO)                                                                                   | $0.63 \leq \text{NC2/NO} \leq 0.77$                                                                                           |
|                                                   | <b>ON malfunction</b>                                                                                               |                                                                                                                               |
|                                                   | <b>Following conditions met a. and b. and c.</b>                                                                    |                                                                                                                               |
|                                                   | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                                               |
|                                                   | <b>a. = ON malfunction (A)</b>                                                                                      |                                                                                                                               |
|                                                   | Input speed/Output speed (NC2/NO)                                                                                   | $0.00 \leq \text{NC2/NO} \leq 0.20$                                                                                           |
|                                                   | <b>b. = ON malfunction (B)</b>                                                                                      |                                                                                                                               |
|                                                   | Input speed/Output speed (NC2/NO)                                                                                   | $0.88 \leq \text{NC2/NO} \leq 1.02$                                                                                           |
|                                                   | <b>c. = ON malfunction (C)</b>                                                                                      |                                                                                                                               |
|                                                   | Input speed/Output speed (NC2/NO)                                                                                   | $0.88 \leq \text{NC2/NO} \leq 1.02$                                                                                           |
| 1MZ-FE (RX300), 2ZZ-GE                            | <b>Rationality check</b>                                                                                            |                                                                                                                               |
|                                                   | <b>Following condition met a. or b.</b>                                                                             |                                                                                                                               |
|                                                   | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                                               |
|                                                   | <b>a. = (A) and Rationality check (A)</b>                                                                           |                                                                                                                               |
|                                                   | Input speed/Output speed (NT/NC)                                                                                    | $0.93 \leq \text{NT/NC} \leq 1.07$                                                                                            |
|                                                   | <b>b. = (A) and Rationality check (B)</b>                                                                           |                                                                                                                               |
|                                                   | Input speed/Output speed (NT/NC)                                                                                    | $1.49 \leq \text{NT/NC} \leq 1.63$                                                                                            |

## Component T/M Outputs – Solenoid

|                         |                                                                                                                     |                                                                                                          |
|-------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 1ZZ-FE (CELICA), 1NZ-FE | <b>OFF malfunction</b>                                                                                              |                                                                                                          |
|                         | <b>Following conditions met a. and b. and c.</b>                                                                    |                                                                                                          |
|                         | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                          |
|                         | <b>a. = OFF malfunction (A)</b>                                                                                     |                                                                                                          |
|                         | Input speed/Output speed (NT/NO)                                                                                    | $1.50 \leq \text{NT/NO} < 1.80$                                                                          |
|                         | <b>b. = OFF malfunction (B)</b>                                                                                     |                                                                                                          |
|                         | Input speed/Output speed (NT/NO)                                                                                    | $0.95 \leq \text{NT/NO} < 1.09$                                                                          |
|                         | <b>c. = OFF malfunction (C)</b>                                                                                     |                                                                                                          |
|                         | Input speed/Output speed (NT/NO)                                                                                    | $0.95 \leq \text{NT/NO} < 1.09$                                                                          |
|                         | <b>ON malfunction</b>                                                                                               |                                                                                                          |
|                         | <b>Following conditions met a. and b. and c.</b>                                                                    |                                                                                                          |
|                         | <b>a. = ON malfunction (A)</b>                                                                                      |                                                                                                          |
|                         | Input speed/Output speed (NT/NO)                                                                                    | $2.75 \leq \text{NT/NO} < 3.35$                                                                          |
|                         | <b>b. = ON malfunction (B)</b>                                                                                      |                                                                                                          |
|                         | Input speed/Output speed (NT/NO)                                                                                    | $0.64 \leq \text{NT/NO} < 0.78$                                                                          |
|                         | <b>c. = ON malfunction (C)</b>                                                                                      |                                                                                                          |
|                         | Input speed/Output speed (NT/NO)                                                                                    | $0.64 \leq \text{NT/NO} < 0.78$                                                                          |
| 1UZ-FE                  | <b>OFF malfunction</b>                                                                                              |                                                                                                          |
|                         | <b>Following conditions met a. and b. and c. and d. and e.</b>                                                      |                                                                                                          |
|                         | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                          |
|                         | <b>a. = OFF malfunction (A)</b>                                                                                     |                                                                                                          |
|                         | Input speed/Output speed (NC0/NO)                                                                                   | $3.14 \leq \text{NC0/NO} \leq 7.34$                                                                      |
|                         | <b>b. = OFF malfunction (B)</b>                                                                                     |                                                                                                          |
|                         | Input speed/Output speed (NC0/NO)                                                                                   | $3.14 \leq \text{NC0/NO} \leq 7.34$                                                                      |
|                         | <b>c. = OFF malfunction (C)</b>                                                                                     |                                                                                                          |
|                         | Input speed/Output speed (NC0/NO)                                                                                   | Change as follows<br>$0.93 \leq \text{NC0/NO} \leq 1.07$<br>↓<br>$0.00 \leq \text{NC0/NO} \leq 0.20$     |
|                         | <b>d. = OFF malfunction (D)</b>                                                                                     |                                                                                                          |
|                         | Output record from ECM for 4th → 5th upshifting                                                                     | Recorded                                                                                                 |
|                         | <b>e. = OFF malfunction (E)</b>                                                                                     |                                                                                                          |
|                         | Engine speed – Output speed x 5th gear ratio                                                                        | Less than 35 rpm                                                                                         |
|                         | <b>ON malfunction</b>                                                                                               |                                                                                                          |
|                         | <b>Following conditions met a. and b. and c.</b>                                                                    |                                                                                                          |
|                         | <b>a. = ON malfunction (A)</b>                                                                                      |                                                                                                          |
|                         | Input speed/Output speed (NC0/NO)                                                                                   | Not change as follows<br>$0.93 \leq \text{NC0/NO} \leq 1.07$<br>↓<br>$0.00 \leq \text{NC0/NO} \leq 0.20$ |
|                         | <b>b. = ON malfunction (B)</b>                                                                                      |                                                                                                          |
|                         | Input speed/Output speed (NC0/NO)                                                                                   | $1.30 \leq \text{NC0/NO} \leq 1.55$                                                                      |
|                         | <b>c. = ON malfunction (C)</b>                                                                                      |                                                                                                          |
|                         | Output record from ECM for 4th → 5th upshifting                                                                     | Recorded                                                                                                 |

|                |                                                                                                                     |                                                                                                          |
|----------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 2JZ-GE (GS300) | <b>OFF malfunction</b>                                                                                              |                                                                                                          |
|                | <b>Following conditions met a. and b. and c. and d.</b>                                                             |                                                                                                          |
|                | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                          |
|                | <b>a. = OFF malfunction (A)</b>                                                                                     |                                                                                                          |
|                | Input speed/Output speed (NC0/NO)                                                                                   | $3.14 \leq \text{NC0/NO} \leq 7.34$                                                                      |
|                | <b>b. = OFF malfunction (B)</b>                                                                                     |                                                                                                          |
|                | Input speed/Output speed (NC0/NO)                                                                                   | $3.14 \leq \text{NC0/NO} \leq 7.34$                                                                      |
|                | <b>c. = OFF malfunction (C)</b>                                                                                     |                                                                                                          |
|                | Input speed/Output speed (NC0/NO)                                                                                   | Change as follows<br>$0.93 \leq \text{NC0/NO} \leq 1.07$<br>↓<br>$0.00 \leq \text{NC0/NO} \leq 0.20$     |
|                | <b>d. = OFF malfunction (D)</b>                                                                                     |                                                                                                          |
|                | Output record from ECM for 4th → 5th upshifting                                                                     | Recorded                                                                                                 |
|                | <b>ON malfunction</b>                                                                                               |                                                                                                          |
|                | <b>Following conditions met a. and b. and c.</b>                                                                    |                                                                                                          |
|                | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                          |
|                | <b>a. = ON malfunction (A)</b>                                                                                      |                                                                                                          |
|                | Input speed/Output speed (NC0/NO)                                                                                   | Not change as follows<br>$0.93 \leq \text{NC0/NO} \leq 1.07$<br>↓<br>$0.00 \leq \text{NC0/NO} \leq 0.20$ |
|                | <b>b. = ON malfunction (B)</b>                                                                                      |                                                                                                          |
|                | Input speed/Output speed (NC0/NO)                                                                                   | $1.30 \leq \text{NC0/NO} \leq 1.55$                                                                      |
|                | <b>c. = ON malfunction (C)</b>                                                                                      |                                                                                                          |
|                | Output record from ECM for 4th → 5th upshifting                                                                     | Recorded                                                                                                 |

## Component T/M Outputs – Solenoid

|                                              |                                                                                                                     |                                                                                                                               |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 2JZ-GE (SC300), 2UZ-FE (LAND CRUISER, LX470) | <b>OFF malfunction</b>                                                                                              |                                                                                                                               |
|                                              | <b>Following conditions met a. and b. and c.</b>                                                                    |                                                                                                                               |
|                                              | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                                               |
|                                              | <b>a. = OFF malfunction (A)</b>                                                                                     |                                                                                                                               |
|                                              | Input speed/Output speed (NC0/NO)                                                                                   | $2.63 \leq \text{NC0/NO} \leq 3.20$                                                                                           |
|                                              | <b>b. = OFF malfunction (B)</b>                                                                                     |                                                                                                                               |
|                                              | Input speed/Output speed (NC0/NO)                                                                                   | $0.00 \leq \text{NC0/NO} \leq 0.22$                                                                                           |
|                                              | <b>c. = OFF malfunction (C)</b>                                                                                     |                                                                                                                               |
|                                              | Input speed/Output speed (NC0/NO)                                                                                   | $0.00 \leq \text{NC0/NO} \leq 0.22$                                                                                           |
|                                              | <b>ON malfunction</b>                                                                                               |                                                                                                                               |
|                                              | <b>Following conditions met ON malfunction a. and b. and c.</b>                                                     |                                                                                                                               |
|                                              | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                                               |
|                                              | <b>a. = ON malfunction (A)</b>                                                                                      |                                                                                                                               |
|                                              | Input speed/Output speed (NC0/NO)                                                                                   | $1.40 \leq \text{NC0/NO} \leq 1.67$                                                                                           |
| 1MZ-FE (SIENNA), 2UZ-FE (TUNDRA)             | <b>b. = ON malfunction (B)</b>                                                                                      |                                                                                                                               |
|                                              | Input speed/Output speed (NC0/NO)                                                                                   | $0.93 \leq \text{NC0/NO} \leq 1.07$                                                                                           |
|                                              | <b>c. = ON malfunction (C)</b>                                                                                      |                                                                                                                               |
|                                              | Input speed/Output speed (NC0/NO)                                                                                   | $0.93 \leq \text{NC0/NO} \leq 1.07$                                                                                           |
|                                              | It is necessary 2 judgments/driving cycle<br>1st judgment; temporary flag ON<br>2nd judgment; pending fault code ON |                                                                                                                               |
|                                              | <b>OFF malfunction</b>                                                                                              |                                                                                                                               |
|                                              | Engine speed                                                                                                        | $\leq 1\text{st gear ratio} \times \text{NO} + 0 \text{ rpm}$                                                                 |
|                                              | <b>ON malfunction</b>                                                                                               |                                                                                                                               |
|                                              | Engine speed                                                                                                        | $\geq 3\text{rd gear ratio} \times \text{NO} - 50 \text{ rpm}$<br>$< 3\text{rd gear ratio} \times \text{NO} + 50 \text{ rpm}$ |