

## 2003 MY for 1 – 2 Shift Monitor (P0781)

To return to monitor description, see page [Ct-26](#).

### MONITOR STRATEGY

|                             |                                  |                                 |
|-----------------------------|----------------------------------|---------------------------------|
| Required sensors/Components | Main                             | Valve body                      |
|                             | Sub                              | Automatic transmission assembly |
| Frequency of operation      | Continuous                       |                                 |
| Duration                    | (A) & (B), (A) & (C)<br>0.4 sec. |                                 |
|                             | (A) & (D), (A) & (E)<br>0.5 sec. |                                 |
| MIL operation               | 2 driving cycles                 |                                 |
| Sequence of operation       | None                             |                                 |

### TYPICAL ENABLING CONDITIONS

| Item                                                              |                                                      | Specification                                                                    |                            |
|-------------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------|
|                                                                   |                                                      | Minimum                                                                          | Maximum                    |
| The monitor will run whenever the following DTCs are not present. |                                                      | See page <a href="#">In-39</a>                                                   |                            |
| Engine family                                                     | Item                                                 | Specification                                                                    |                            |
|                                                                   |                                                      | Minimum                                                                          | Maximum                    |
| All models                                                        | <b>Condition (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                                                                    | –                          |
|                                                                   | <b>Transfer range "Hi" [4WD]</b>                     |                                                                                  |                            |
|                                                                   | Vehicle Speed Sensor "A" circuit                     | Not circuit malfunction                                                          |                            |
|                                                                   | Output Speed Sensor circuit                          | Not circuit malfunction                                                          |                            |
|                                                                   | Transfer neutral position switch                     | OFF                                                                              |                            |
|                                                                   | ECM                                                  | Not circuit malfunction                                                          |                            |
|                                                                   | <b>Condition (B)</b>                                 |                                                                                  |                            |
|                                                                   | ECM selected gear                                    | 2nd                                                                              |                            |
|                                                                   | Vehicle speed                                        | ≥ 2 km/h (1 mph) and<br>≥ 2nd – 1st down shift point                             | –                          |
|                                                                   | Throttle valve opening angle                         | 6.5 % or more at engine speed<br>2,000 rpm<br>(condition vary with engine speed) | –                          |
|                                                                   | <b>Condition (C)</b>                                 |                                                                                  |                            |
|                                                                   | ECM selected gear                                    | 4th                                                                              |                            |
|                                                                   | 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) | –                          |

|            |                                                 |     |                             |
|------------|-------------------------------------------------|-----|-----------------------------|
| All models | <b>Condition (D)</b>                            |     |                             |
|            | Current ECM selected gear                       | 5th |                             |
|            | Last ECM selected gear<br>(During 4 to 5 shift) | 4th |                             |
|            | Vehicle speed                                   | –   | Less than 100 km/h (62 mph) |
|            | <b>Condition (E)</b>                            |     |                             |
|            | ECM selected gear<br>(After 4 to 5 shift)       | 5th |                             |
|            | Vehicle speed                                   | –   | Less than 100 km/h (62 mph) |

## TYPICAL MALFUNCTION THRESHOLDS

| Engine family | Detection criteria                                                        | Threshold                          |
|---------------|---------------------------------------------------------------------------|------------------------------------|
| All models    | <b>Following conditions met a. and (b. or (c. or d.))</b>                 |                                    |
|               | <b>a. = (A) &amp; (B)</b>                                                 |                                    |
|               | Input speed/Output speed (NT/NO)                                          | $3.30 \leq \text{NT/NO} \leq 7.50$ |
|               | <b>b. = (A) &amp; (C)</b>                                                 |                                    |
|               | Input speed/Output speed (NT/NO)                                          | $1.28 \leq \text{NT/NO} \leq 1.53$ |
|               | <b>c. = (A) &amp; (D)</b>                                                 |                                    |
|               | Input speed – Output speed x 4th gear ratio<br>(NT – NO x 4th gear ratio) | 1,000 rpm or more                  |
|               | <b>d. = (A) &amp; (E)</b>                                                 |                                    |
|               | Input speed – Output speed x 5th gear ratio<br>(NT – NO x 5th gear ratio) | 1,000 rpm or more                  |