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# Values on the Diagnosis Tool

## VALUES ON THE DIAGNOSIS TOOL

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|---|---|
| **note** | • The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to M.U.T.-III SE display items.<br>• Numerical values in the following table are reference values.<br>• These values are input/output values that ECM receives/transmits and may differ from actual operations.<br>Example: The ignition timing shown by the timing light may differ from the ignition timing displayed on the data monitor.<br>This occurs because the timing light shows a value calculated by ECM according to signals received from the camshaft position sensor and other sensors related to ignition timing.<br>• For outlines of following items, refer to M.U.T.-III SE FunctionCONSULT Function. |

| Monitor Item | Condition | Values/Status |
|---|---|---|
| COOLANT TEMP/S | Engine: After warming up | More than 70°C (158°F) |
| BATTERY VOLT | Ignition switch: ON (Engine stopped) | 11 – 14 V |
| INT/A TEMP SE | Engine: After warming up | Indicates intake air temperature |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| Ignition timing 1 | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle | 0 – 10 BTDC |
| | | 2,000 rpm | 30 – 50 BTDC |
| PURG VOL C/V | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle<br>(Accelerator pedal: Not depressed even slightly, after engine starting) | 0 % |
| | | 2,000 rpm | 1 – 90 % |
| FUEL T/TMP SE | • Ignition switch: ON | | Indicates fuel tank temperature |
| FUEL LEVEL SE | • Ignition switch: ON | | Depending on fuel level of fuel tank |
| EVAP SYS PRES | • Ignition switch: ON | | Approx. 1.8 – 4.8 V |
| CAL/LD VALUE | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle | 5 – 35 % |
| | | 2,500 rpm | 5 – 35 % |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| HO2S2 (B1) | • Engine: After warming up<br>• After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load. | Revving engine from idle up to 3,000 rpm quickly | 0 – 0.3 V ←→ 0.6 – 1.0 V |
| | | | LEAN ←→ RICH |
| ENG OIL TEMP | Engine: After warming up | | More than 70°C (158°F) |
| A/F ALPHA-B1 | See Diagnosis Procedure DTC Diagnosis Procedure. | | |
| MAP SENSOR | • Engine: After warming up<br>• Selector lever: P or N<br>• Air conditioner switch: OFF<br>• No load | Idle | Approx. 1.16 V |
| | | 2,000 rpm | Approx. 0.9 V |
| A/F S1 HTR (B1) | Engine: After warming up, idle the engine (More than 140 seconds after starting engine) | | 4 – 100% |
| ATOM PRES SEN 2 | Ignition switch: ON | | 0 V |
| EXH/V TIM B1 | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle | −5 – 5 °CA |
| | | Around 2,500 rpm while the engine speed is rising | 12 - 60 °CA |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| EGR VALVE POSITION | Ignition switch: ON | | 0.0 deg |
| | Engine: Idle | | 0.0 deg |
| FUN DUTY | Engine: Running | | 0 – 100 % |
| A/GRLL SHTTR POSITION | • Engine RPM: idle speed.<br>• Vehicle speed: 0 km/h (0 MPH). | | F/OPEN |
| | Vehicle speed: 30 km/h (19 MPH) or faster. (Comply the condition of active grille shutter operation.) | | F/OPEN →MOVING→F/ CLOSE |
| ENG SPEED | • Connect the tachometer.<br>• Run engine and compare M.U.T.-III SE value with the tachometer indication. | | Almost the same speed as the tachometer indication. |
| TRVL AFTER MIL | Ignition switch: ON | | 0 – 65.535 km |
| B/FUEL SCHDL | See Diagnosis ProcedureDTC Diagnosis Procedure. | | |
| MASS AIRFLOW | These items are displayed but not used. | | |
| FUEL PRES SEN | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle | Approx. 3.69 MPa |
| | | 2,000 rpm | Approx. 3.96 MPa |
| ACCEL SEN 1 | Ignition switch: ON (Engine stopped) | Accelerator pedal: Fully released | 0.5 – 1.0 V |
| | | Accelerator pedal: Fully depressed | 4.2 – 4.8 V |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| ACCEL SEN 2* | Ignition switch: ON (Engine stopped) | Accelerator pedal: Fully released | 0.25 – 0.5 V |
| | | Accelerator pedal: Fully depressed | 2.0 – 2.5 V |
| TP SEN 1-B1 | • Ignition switch: ON (Engine stopped)<br>• Selector lever: D position | Accelerator pedal: Fully released | More than 0.74 V |
| | | Accelerator pedal: Fully depressed | Less than 4.75 V |
| TP SEN 2-B1* | • Ignition switch: ON (Engine stopped)<br>• Selector lever: D position | Accelerator pedal: Fully released | More than 0.765 V |
| | | Accelerator pedal: Fully depressed | Less than 4.75 V |
| I/P PULLY SPD | • Connect the tachometer.<br>• Start the engine and compare M.U.T.-III SE value with the tachometer indication. | Vehicle speed: More than 20 km/h (12 MPH) | Almost the same speed as the tachometer indication |
| VEHICLE SPEED | Turn drive wheels and compare M.U.T.-III SE value with the speedometer indication. | | Almost the same speed as the speedometer indication |
| TUMBLE POS SEN | Ignition switch: ON | | Approx. 0.8 V |
| | Engine: After warming up | Idle | Approx. 4.3 V |
| AC PRESS SEN | • Engine: Idle<br>• Both air conditioner switch and blower fan switch: ON (Compressor operates) | | 0.3 – 4.5 V |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| A/F SEN1 (B1) | Engine: After warming up | Maintaining engine speed at 2,000 rpm | Fluctuates around 2.15 V |
| VHCL SPEED SE | Turn drive wheels and compare M.U.T.-III SE value with the speedometer indication. | | Almost the same speed as speedometer indication |
| SET VHCL SPD | Engine: Running | ASCD: Operating | The preset vehicle speed is displayed |
| A/F ADJ-B1 | Engine: Idle | | −0.450 – 0.330 |
| A/F ALPHA-B1 | Diagnosis ProcedureDTC Diagnosis Procedure | | |
| H/P FUEL PUMP DEG | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle | 244.6 deg |
| | | 2,000 rpm | 244.4 deg |
| FUEL PRES SEN V | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle | 0.820 – 1.160 V |
| | | When revving engine up to 4,000 rpm quickly | 0.820 – 2.900 V |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| EOP SENSOR | • Engine oil temperature: 80°C<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle | 1000 – 2000 mV |
| | | 2,000 rpm | 1500 – 3500 mV |
| MASS AIR FLOW SENSOR (g/s) B1 | Diagnosis ProcedureDTC Diagnosis Procedure. | | |
| EGR VALVE POSITION SEN | Ignition switch: ON | | Approx. 0.5 V |
| TOTAL DISTNC-OCS RST 1 | Ignition switch: ON | | 0 - 655,350 km<br>(0 - 407,234 miles)<br>**note** Varies depending on vehicle environment. |
| TOTAL DISTNC-OCS RST 2 | Ignition switch: ON | | 0 - 655,350 km<br>(0 - 407,234 miles)<br>**note** Varies depending on vehicle environment. |
| TOTAL DISTNC-OCS RST 3 | Ignition switch: ON | | 0 - 655,350 km<br>(0 - 407,234 miles)<br>**note** Varies depending on vehicle environment. |
| DETERIORTN VL-OCS RST 1 | Ignition switch: ON | | 0 - 655.35<br>**note** Varies depending |

| Monitor Item | Condition | Values/Status |
|---|---|---|
| | | on vehicle environment. |
| DETERIORTN VL-OCS RST 2 | Ignition switch: ON | 0 - 655.35<br>**note** Varies depending on vehicle environment. |
| DETERIORTN VL-OCS RST 3 | Ignition switch: ON | 0 - 655.35<br>**note** Varies depending on vehicle environment. |
| TOTAL DISTNC-OCS WRN 1 | Ignition switch: ON | 0 - 655,350 km (0 - 407,234 miles)<br>**note** Varies depending on vehicle environment. |
| TOTAL DISTNC-OCS WRN 2 | Ignition switch: ON | 0 - 655,350 km (0 - 407,234 miles)<br>**note** Varies depending on vehicle environment. |
| TOTAL DISTNC-OCS WRN 3 | Ignition switch: ON | 0 - 655,350 km (0 - 407,234 miles)<br>**note** Varies depending on vehicle environment. |
| DETERIORTN VL-OCS WRN 1 | Ignition switch: ON | 0 - 655.35 |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| | | | **note** Varies depending on vehicle environment. |
| DETERIORTN VL-OCS WRN 2 | Ignition switch: ON | | 0 - 655.35<br>**note** Varies depending on vehicle environment. |
| DETERIORTN VL-OCS WRN 3 | Ignition switch: ON | | 0 - 655.35<br>**note** Varies depending on vehicle environment. |
| CURRENT DETERIORATN VAL | Ignition switch: ON | | 0 - 655.35<br>**note** Varies depending on vehicle environment. |
| LOAD SIGNAL | Ignition switch: ON | Rear window defogger switch: ON and/or Lighting switch: 2nd position | On |
| | | Rear window defogger switch and lighting switch: OFF | Off |
| AIR COND SIG | Engine: After warming up, idle the engine | Air conditioner switch: OFF | Off |
| | | Air conditioner switch: ON (Compressor operates) | On |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| PW/ST SIGNAL | Engine: After warming up, idle the engine | Steering wheel: Not being turned | Off |
| | | Steering wheel: Being turned | On |
| P/N POSI SW | Ignition switch: ON | Selector lever: P or N position | On |
| | | Selector lever: Except above position | Off |
| START SIGNAL | Ignition switch: ON → START → ON | | Off → On → Off |
| CLSD THL POS | Ignition switch: ON (Engine stopped) | Accelerator pedal: Fully released | On |
| | | Accelerator pedal: Slightly depressed | Off |
| HO2S2 MNTR(B1) | • Engine: After warming up | Revving engine from idle up to 3,000 rpm quickly | LEAN ←→ RICH |
| | • After keeping engine speed between 3,500 and 4,000 rpm for 1 minute and at idle for 1 minute under no load. | | |
| IGNITION SW | Ignition switch: ON → OFF → ON | | On → Off → On |
| HEATER FAN SW | Engine: After warming up, idle the engine | Blower fan switch: ON | On |
| | | Blower fan switch: OFF | Off |
| IDL A/V LEARN | • Engine: After warming up<br>• Air conditioner switch: OFF<br>• No load<br>• Throttle valve closed position learning: Completed | Idle air volume learning has already been performed successfully. | CMPLT |
| | | Idle air volume learning has not been performed yet. | YET |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| BRAKE SW | Ignition switch: ON | Brake pedal: Fully released | Off |
| | | Brake pedal: depressed | On |
| COMBUSTION | **note** This item is displayed but are not applicable to this model. | | |
| VIAS S/V-1 | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | When revving engine up to 5,000 rpm quickly | Off → On → Off |
| AIR COND RLY | Engine: After warming up, idle the engine | A/C switch: OFF | Off |
| | | A/C switch: ON (Compressor operates) | On |
| FUEL PUMP RLY | • For 1 seconds after turning ignition switch ON<br>• Engine is running or cranking | | On |
| | Except above | | Off |
| VENT CONT/V | Ignition switch: ON | | Off |
| HO2S2 HTR(B1) | Ignition switch: ON | | Off |
| DIST SW | Ignition switch: ON | DISTANCE switch: Pressed | On |
| | | DISTANCE switch: Released | Off |
| BRAKE SW2 | Ignition switch: ON | Brake pedal: Fully released | On |
| | | Brake pedal: Depressed | Off |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| BRAKE SW1 | Ignition switch: ON | Brake pedal: Fully released | Off |
| | | Brake pedal: Depressed | On |
| SET SW | Ignition switch: ON | SET − switch: Pressed | On |
| | | SET − switch: Released | Off |
| RESUME/ACC SW | Ignition switch: ON | RES + switch: Pressed | On |
| | | RES + switch: Released | Off |
| CANCEL SW | Ignition switch: ON | CANCEL switch: Pressed | On |
| | | CANCEL switch: Released | Off |
| MAIN SW | Ignition switch: ON | ASCD/ACC MAIN switch: Pressed | On |
| | | ASCD/ACC MAIN switch: Released | Off |
| CRUISE LIGHT | Ignition switch: ON | ASCD switch: Pressed at the 1st time → at the 2nd time | On → Off |
| A/GRLL SHTTR CALIBRATION | • Turn ignition switch OFF→ ON<br>• Drive the vehicle at a speed more than 30 km/h (19 MPH) for the first time. | | CMPLT |
| | • Turn ignition switch OFF → ON.<br>• When the vehicle speed does not reach 30 km/h (19 MPH). | | INCMP |
| A/GRLL SHTTR CIRCUIT DIAG | Malfunction of active grill shutter power supply is detected. | | NG |
| | Malfunction of active grill shutter power supply is not detected. | | OK |

| Monitor Item | Condition | Values/Status |
|---|---|---|
| A/GRLL SHTTR TEMP DIAG | Abnormal temperature of active grill shutter actuator is detected. | NG |
| | Abnormal temperature of active grill shutter actuator is not detected. | OK |
| A/GRLL SHTTR OVER RUN | Active grill shutter does not stop within normal moving limit. | NG |
| | Active grill shutter stops within normal moving limit. | OK |
| A/GRLL SHTTR STUCK | Detecting the active grille shutter stuck or the operation range less than normal. | NG |
| | Not detecting the active grille shutter stuck or the operation range less than normal. | OK |
| A/GRLL SHTTR CALIB DIAG | Malfunction of active grill shutter initial position learning is detected. | NG |
| | Malfunction of active grill shutter initial position learning is not detected. | OK |
| HO2 S2 DIAG1 (B1) | DTC P0139 self-diagnosis (delayed response) is incomplete. | INCMP |
| | DTC P0139 self-diagnosis (delayed response) is complete. | CMPLT |
| HO2 S2 DIAG2 (B1) | DTC P0139 self-diagnosis (slow response) is incomplete. | INCMP |
| | DTC P0139 self-diagnosis (slow response) is complete. | CMPLT |
| EVAP LEAK DIAG | Ignition switch: ON | Depending on condition of EVAP leak diagnosis |
| EVAP DIAG READY | Ignition switch: ON | Depending on ready condition of EVAP leak diagnosis |
| SYSTEM 1 DIAGNOSIS A B1 | DTC P219A self-diagnosis is incomplete. | INCMP |
| | DTC P219A self-diagnosis is complete. | CMPLT |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| A/F SEN1 DIAG1 (B1) | DTC P015A and P015B self-diagnosis incomplete. | | INCMP |
| | DTC P015A and P015B self-diagnosis is complete. | | CMPLT |
| A/F SEN1 DIAG2 (B1) | DTC P014C and P014D self-diagnosis incomplete. | | INCMP |
| | DTC P014C and P014D self-diagnosis is complete. | | CMPLT |
| SYSTEM 1 DIAGNOSIS B B1 | DTC P219A self-diagnosis is on standby. | | ABSENT |
| | DTC P219A self-diagnosis is under diagnosis. | | PRSENT |
| A/F IMBALNC DIAG-CPS STAT | The vehicle condition is not within the diagnosis range of DTC P219C – P219F. | | ABSNT |
| | The vehicle condition is within the diagnosis range of DTC P219C – P219F. | | PRSNT |
| A/F SEN1 DIAG3(B1) | The vehicle condition is not within the diagnosis range of DTC P014C, P014D, P015A or P015B. | | ABSNT |
| | The vehicle condition is within the diagnosis range of DTC P014C, P014D, P015A or P015B. | | PRSNT |
| A/F IMBLNC DIAG-CPS CMPLT | Self-diagnosis of DTC P219C – P219F and P21A0 – P21A3 is incomplete. | | INCMP |
| | Self-diagnosis of DTC P219C – P219F and P21A0 – P21A3 is complete. | | CMPLT |
| Di inj pulse B1 | • Engine: After warming up<br>• Selector lever: P position<br>• A/C switch: OFF<br>• No load | Idle | About 1.47 – 1.75 ms |
| | | 2,000 rpm | About 1.5 – 1.77 ms |

| Monitor Item | Condition | | Values/Status |
|---|---|---|---|
| DI timing SOI multi inj step1 | • Engine: After warming up<br>• Selector lever: P or N position<br>• A/C switch: OFF<br>• No load | Idle | 28 BTDC |
| | | 2,000 rpm | 48 BTDC |
| THRTL STK CNT B1 | **note** | This item is displayed but are not applicable to this model. | |
| VTC DTY EX B1 | • Engine: After warming up<br>• Selector lever: P or N position<br>• Air conditioner switch: OFF<br>• No load | Idle | 0 % |
| | | When revving engine up to 2,000 rpm quickly | Approx. 0 – 90 % |

*: Accelerator pedal position sensor 2 signal and throttle position sensor 2 signal are converted by ECM internally. Thus, they differ from ECM terminals voltage signal.