## ENGINE TECHNICAL DATA [SKYACTIV-G 2.0, SKYACTIV-G 2.5]

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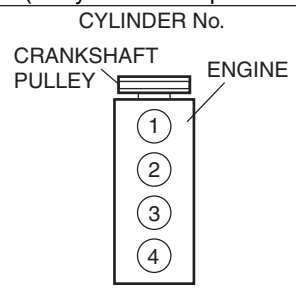
| Item | Specification |
|---|---|
| Idle speed (MTX: Neutral Position, ATX: P, N position) [SKYACTIV-G 2.0] | MTX: 500—600 rpm<br>ATX: 550—650 rpm |
| Idle speed (MTX: Neutral Position, ATX: P, N position) [SKYACTIV-G 2.5] | MTX: 560—660 rpm<br>ATX: 550—650 rpm |
| Ignition timing [SKYACTIV-G 2.0] | MTX: Approx. BTDC 14°<br>ATX: Approx. BTDC 12° |
| Ignition timing [SKYACTIV-G 2.5] | Approx. BTDC 12° |
| CO concentration | Within the regulation |
| HC concentration | Within the regulation |
| Idle-up speed (MTX: Neutral Position, ATX: P, N position) | A/C on: 650—800 rpm<br>Electrical loads on: 600—750 rpm |
| Compression [SKYACTIV-G 2.0, European (L.H.D. U.K.) specs.] | Standard: 978 kPa {9.97 kgf/cm$^2$, 142 psi}[300 rpm]<br>Minimum: 783 kPa {7.98 kgf/cm$^2$, 114 psi}[300 rpm]<br>Maximum difference between cylinders: 166 kPa {1.69 kgf/cm$^2$, 24.1 psi} |
| Compression [SKYACTIV-G 2.0, Except European (L.H.D. U.K.) specs.] | Standard: 885 kPa {9.02 kgf/cm$^2$, 128 psi}[300 rpm]<br>Minimum: 708 kPa {7.22 kgf/cm$^2$, 103 psi}[300 rpm]<br>Maximum difference between cylinders: 150 kPa {1.53 kgf/cm$^2$, 21.8 psi} |
| Compression [SKYACTIV-G 2.5] | Standard: 954 kPa {9.73 kgf/cm$^2$, 138 psi}[300 rpm]<br>Minimum: 763 kPa {7.78 kgf/cm$^2$, 111 psi}[300 rpm]<br>Maximum difference between cylinders: 161 kPa {1.64 kgf/cm$^2$, 23.4 psi} |
| OCV coil resistance | 6.9—7.5 ohms [20°C {68°F}] |
| Cylinder head bolt length L | 145.2—145.8 mm {5.717—5.740 in} |
| Cylinder head bolt length L maximum | 146.5 mm {5.767 in} |
| Front oil seal press on amount | 0—0.5 mm {0—0.019 in} |
| Rear oil seal press on amount | 0—0.5 mm {0—0.019 in} |
| Engine oil capacity [SKYACTIV-G 2.0] (approx. quantity) | Oil replacement: 4.0 L {4.2 US qt, 3.5 Imp qt}<br>Oil and oil filter replacement: 4.2 L {4.4 US qt, 3.7 Imp qt}<br>Total (dry engine, without oil cooler): 4.9 L {5.2 US qt, 4.3 Imp qt}<br>Total (dry engine, with oil cooler): 5.0 L {5.3 US qt, 4.4 Imp qt} |
| Engine oil capacity [SKYACTIV-G 2.5] (approx. quantity) | Oil replacement: 4.3 L {4.5 US qt, 3.8 Imp qt}<br>Oil and oil filter replacement: 4.5 L {4.8 US qt, 4.0 Imp qt}<br>Total (dry engine): 5.4 L {5.7 US qt, 4.8 Imp qt} |
| Oil pressure (reference value) [coolant temperature: 80—90 °C {176—194 °F}] | Lo: 110—175 kPa {1.13—1.78 kgf/cm$^2$, 16.0—25.3 psi} [1,500 rpm]<br>Hi: 300—430 kPa {3.06—4.38 kgf/cm$^2$, 43.6—62.3 psi} [4,500 rpm] |
| Cooling system cap valve opening pressure | 93.2—122.6 kPa {0.951—1.250 kgf/cm$^2$, 13.6—17.7 psi} |
| Thermostat initial-opening temperature | 80.5—83.5 °C {177—182 °F} |
| Thermostat full-open temperature | 95 °C {203 °F} |
| Thermostat full-open lift | 8.5 mm {0.33 in} or more |
| Fuel pressure | 405—485 kPa {4.13—4.94 kgf/cm$^2$, 58.8—70.3 psi} |
| Fuel hold pressure | 230 kPa {2.35 kgf/cm$^2$, 33.4 psi} or more |
| Fuel injector resistance | 1.74—2.04 ohms [20 °C {68 °F}] |
| Battery parasitic draw (When the ignition is off (key is removed), all doors and the bonnet are closed.) | 40—65 mA |
| Battery electrolyte specific gravity [20 °C {68 °F}] (Vehicle without i-stop) | 1.22—1.29 |
| Battery load test current (Vehicle without i-stop) | 55D23L (48 A·h/5HR, 55 A·h/20HR): 180 A<br>75D23L (52 A·h/5HR, 65 A·h/20HR): 195 A |
| Battery slow charge current (Vehicle without i-stop) | 55D23L (48 A·h/5HR, 55 A·h/20HR): 4.5—5.5 A<br>75D23L (52 A·h/5HR, 65 A·h/20HR): 5.0—6.0 A |
| Battery quick charge current [30 min] (Vehicle without i-stop) | 55D23L (48 A·h/5HR, 55 A·h/20HR): 30 A<br>75D23L (52 A·h/5HR, 65 A·h/20HR): 35 A |
| Generator standard voltage [IG-ON] | Terminal B: B+<br>Terminal P: Approx. 1 V or less<br>Terminal D: Approx. 0 V |

| Item | Specification |
|---|---|
| Generator standard voltage [Idle, 20 °C {68 °F}] | Terminal B: 13—15 V<br>Terminal P: Approx. 3—8 V<br>Terminal D: Turn the electrical loads (headlights, blower motor, rear window defroster, brake lights, etc.) on and verify that the voltage reading increases. |
| Generator generated current minimum value (Vehicle without i-stop) | 70% of the nominal output current (nominal output current: 100 A) [Ambient temp. 20 °C {68 °F}, voltage 13.0—15.0 V, both engine and generator are hot] |
| Generator rotor resistance (between slip rings) [20 °C {68 °F}] | 1.8—2.1 ohms |
| Generator brush length | Standard: 22.5 mm {0.886 in}<br>Minimum: 5.0 mm {0.20 in} |
| Generator brush spring force | Standard: 4.1—5.3 N {0.42—0.54 kgf, 1.0—1.1 lbf}<br>Minimum: 1.7 N {0.17 kgf, 0.38 lbf} |
| Firing order | 1-3-4-2 (all cylinders independent firing)<br>  |
| Spark plug type | PE01-18-110, PE02-18-110, PE5R-18-110, PE5S-18-110 |
| Spark plug gap (PE01-18-110, PE02-18-110) | Standard: 0.75—1.10 mm {0.030—0.043 in}<br>New spark plug (reference): 0.75—0.85 mm {0.030—0.033 in} |
| Spark plug gap (PE5R-18-110, PE5S-18-110) | Standard: 1.05—1.40 mm {0.0414—0.0551 in}<br>New spark plug (reference): 1.05—1.15 mm {0.0414—0.0452 in} |
| Spark plug resistance [25°C {77 °F}] | 3.0—7.5 kilohms |
| Starter no-load test voltage | 11 V |
| Starter no-load test current | Vehicle with i-stop: 90 A or less<br>Vehicle without i-stop: 95 A or less |
| Starter pinion gap (Vehicle Without i-stop) | 0.5—2.0 mm {0.02—0.07 in} |
| Starter armature runout (Vehicle without i-stop) | 0.1 mm {0.004 in} max. |
| Starter commutator diameter (Vehicle without i-stop) | Standard: 29.4 mm {1.16 in}<br>Minimum: 28.8 mm {1.13 in} |
| Segment groove depth of starter commutator (Vehicle without i-stop) | Standard: 0.5 mm {0.02 in}<br>Minimum: 0.2 mm {0.008 in} |
| Starter brush length (Vehicle without i-stop) | Standard: 12.3 mm {0.484 in}<br>Minimum: 5.5 mm {0.22 in} |
| Starter brush spring force (Vehicle without i-stop) | Standard: 15.1—20.4 N {1.54—2.08 kgf, 3.40—4.58 lbf}<br>Minimum: 2.75 N {0.280 kgf, 0.618 lbf} |

**Engine oil [Europe]**

| Recommended engine oil | | Alternative engine oil | |
|---|---|---|---|
| Mazda Original Oil Supra 0W-20 | Mazda Original Oil Ultra 5W-30 | API SM/SN<br>0W-20 | API SL/SM or ACEA A3/A5<br>5W-30 |

**Engine oil [Except Europe]**

| Item | Specifications |
|---|---|
| Grade | API SG/SH/SJ/SL/SM/SN or ILSAC GF-2/GF-3/GF-4/GF-5 |
| Viscosity (SAE) | 10W-30, 10W-40, 10W-50, 5W-20, 5W-30, 5W-40, 0W-20, 0W-30*1 |

*1 : Except China

**Engine coolant capacity (approx. quantity)**

| Specs. | SKYACTIV-G 2.0 MTX | SKYACTIV-G 2.0 ATX | SKYACTIV-G 2.5 ATX |
|---|---|---|---|
| European (L.H.D.) specs., Russia | 7.3 L {7.7 US qt, 6.4 Imp qt} | 7.4 L {7.8 US qt, 6.5 Imp qt} | 7.8 L {8.2 US qt, 6.9 Imp qt} |
| European (U.K.) specs. | 7.4 L {7.8 US qt, 6.5 Imp qt} | — | — |

| Specs. | SKYACTIV-G 2.0 MTX | SKYACTIV-G 2.0 ATX | SKYACTIV-G 2.5 ATX |
|---|---|---|---|
| General (L.H.D.) specs. | 7.3 L {7.7 US qt, 6.4 Imp qt} | 7.5 L {7.9 US qt, 6.6 Imp qt} | 7.7 L {8.1 US qt, 6.8 Imp qt} |
| Australian, General (R.H.D.) specs. | 7.4 L {7.8 US qt, 6.5 Imp qt} | 7.6 L {8.0 US qt, 6.7 Imp qt} | 7.6 L {8.0 US qt, 6.7 Imp qt} |
| Saudi | — | 7.8 L {8.2 US qt, 6.9 Imp qt} | 7.7 L {8.1 US qt, 6.8 Imp qt} |

**Generator generated current (reference value) [Ambient temperature: 20 °C {68 °F}, Engine hot] (Vehicle with i-stop)**

| Engine speed (rpm) | Terminal B voltage (V) | Generator output current (A) |
|---|---|---|
| 1,000 | 13 | 83 |
| 1,000 | 15 | 83 |
| 2,000 | 13 | 98 |
| 2,000 | 15 | 105 |

* Field coil current control signal 100%