

# Standards and Service Limits

## 5. Engine/Cylinder Head, Valve Train

|               | MEASUREMENT  |           | STANDARD (NEW)                          | SERVICE LIMIT  |
|---------------|--|-----------|---|--|
| Compression   | 250 min <sup>-1</sup> (rpm) and wide-open throttle     | 1.8 ℓ     | Nominal<br>Minimum<br>Maximum variation | 1,177 kPa (12.0 kg/cm <sup>2</sup> , 171 psi)<br>931 kPa (9.5 kg/cm <sup>2</sup> , 135 psi)<br>196 kPa (2 kg/cm <sup>2</sup> , 28 psi) |
|               |  | 2.0 ℓ     | Nominal<br>Minimum                      | 1226 kPa (12.5 kg/cm <sup>2</sup> , 178 psi)<br>931 kPa (9.5 kg/cm <sup>2</sup> , 135 psi)   |
|               |  | 2.2 ℓ     | Maximum variation                       | 196 kPa (2 kg/cm <sup>2</sup> , 28 psi)  |
| Cylinder head | Warpage<br>Height                                      |           | 99.95–100.05 (3.935–3.938)              | 0.05 (0.002)   |
| Camshaft      | End play<br>Oil clearance<br>Runout<br>Cam lobe height | IN        | 1. F18A2: 0.05–0.15 (0.002–0.006)       | 0.50 (0.020)   |
|               |  |           | 2. F20A2: 0.05–0.089 (0.002–0.0035)     | 0.150 (0.006)  |
|               |  |           | 3. F20A3: 0.015 (0.0006)                | 0.030 (0.001)  |
|               |  |           | 4. F20A4: 38.095 (1.4998)               | —  |
|               |  |           | 5. F20A5: 38.526 (1.5167)               | —  |
|               |  |           | 6. F20A6: 38.526 (1.5167)               | —  |
|               |  |           | 7. F22A2: 38.526 (1.5167)               | —  |
|               |  |           | 8. F22A3: 38.741 (1.5252)               | —  |
|               |  |           | 9. F22A9: 38.741 (1.5252) MT            | —  |
|               |  |           | 10. F22A9: 38.741 (1.5252) AT           | —  |
|               |  | EX        | 1. F18A2: 38.741 (1.5252)               | —  |
|               |  |           | 2. F20A2: 37.890 (1.4917)               | —  |
|               |  |           | 3. F20A3: 38.778 (1.5266)               | —  |
|               |  |           | 4. F20A4: 38.778 (1.5266)               | —  |
|               |  |           | 5. F20A5: 38.972 (1.5343)               | —  |
|               |  |           | 6. F20A6: 38.972 (1.5343)               | —  |
|               |  |           | 7. F22A2: 38.972 (1.5343)               | —  |
|               |  |           | 8. F22A3: 39.356 (1.5494) MT            | —  |
|               |  |           | 9. F22A9: 38.972 (1.5343) AT            | —  |
|               |  |           | 10. F22A9: 38.972 (1.5343)              | —  |
| Valve         | Valve clearance  | IN        | 0.24–0.28 (0.0094–0.0110)               | —  |
|               |  | EX        | 0.28–0.32 (0.0110–0.1259)               | —  |
|               | Valve stem O.D.  | *1        | 5.485–5.495 (0.2159–0.2163)             | 5.455 (0.2147)   |
|               |  | *2        | 5.480–5.490 (0.2157–0.2161)             | 5.450 (0.2145)   |
|               | Stem-to-guide clearance                                | *1        | 5.450–5.460 (0.2145–0.2149)             | 5.420 (0.2133)   |
|               |  | *2        | 0.020–0.045 (0.0007–0.0017)             | 0.075 (0.0029)   |
| Valve seat    | Width<br>Valve stem installed height                   | IN and EX | 0.025–0.050 (0.0009–0.0019)             | 0.080 (0.0031)   |
|               |  | IN        | 0.055–0.080 (0.0021–0.0031)             | 0.12 (0.0047)  |
|               |  | EX        | —                                       | —  |
| Valve spring  | Free Length  | IN (NH)   | 1. F18A2: 1.25–1.55 (0.049–0.0610)      | 2.00 (0.0787)  |
|               |  |           | 2. F20A2: 48.245–48.715 (1.8994–1.9179) | —  |
|               |  |           | 3. F20A3: 50.315–50.785 (1.9809–1.9994) | —  |
|               |  |           | 4. F20A4: 56.28 (2.2157)                | —  |
|               |  |           | 5. F20A5: 54.82 (2.1582)                | —  |
|               |  |           | 6. F20A6: 54.82 (2.1582)                | —  |
|               |  |           | 7. F22A2: 53.15 (2.0925)                | —  |
|               |  |           | 8. F22A3: 53.15 (2.0925)                | —  |
|               |  |           | 9. F22A9: 53.15 (2.0925)                | —  |
|               |  | (CH)      | 1. F18A2: 56.26 (2.2149)                | —  |
|               |  |           | 2. F20A2: 54.81 (2.1578)                | —  |
|               |  |           | 3. F20A3: 54.81 (2.1578)                | —  |
|               |  |           | 4. F20A4: 53.16 (2.0929)                | —  |
|               |  |           | 5. F20A5: 53.16 (2.0929)                | —  |
|               |  |           | 6. F20A6: 54.81 (2.1578)                | —  |
|               |  |           | 7. F22A2: 53.16 (2.0929)                | —  |
|               |  |           | 8. F22A3: 53.16 (2.0929)                | —  |
|               |  |           | 9. F22A9: 53.16 (2.0929)                | —  |

1. F18A2: 1.8 ℓ CARB  
 2. F20A2: 2.0 ℓ CARB with CATA  
 3. F20A3: 2.0 ℓ CARB  
 4. F20A4: 2.0 ℓ PGM-FI with CATA  
 5. F20A5: 2.0 ℓ PGM-FI  
 6. F20A6: 2.0 ℓ CARB with CATA  
 7. F22A2: 2.2 ℓ PGM-FI  
 8. F22A3: 2.2 ℓ PGM-FI with CATA  
 9. F22A9: 2.2 ℓ PGM-FI with CATA for KQ  
 NH: NIHON HATSUJO  
 CH: CHUO HATSUJO

\*1: CARB, 7. F22A2 and 9. F22A9  
 \*2: PGM-FI except 7. F22A2 and 9. F22A9

## 5. Engine/Cylinder Head, Valve Train

|              | MEASUREMENT                  | STANDARD (NEW) | SERVICE LIMIT               |
|--------------|------------------------------|----------------|-----------------------------|
| Valve spring | Free length                  | EX (NH)        |                             |
|              |                              | 1. F18A2:      | 59.89 (2.3578)              |
|              |                              | 2. F20A2:      | 59.89 (2.3578)              |
|              |                              | 3. F20A3:      | 59.89 (2.3578)              |
|              |                              | 4. F20A4:      | 55.78 (2.1960)              |
|              |                              | 5. F20A5:      | 55.78 (2.1960)              |
|              |                              | 6. F20A6:      | 59.89 (2.3578)              |
|              |                              | 7. F22A2:      | 55.78 (2.1960)              |
|              |                              | 8. F22A3:      | 55.78 (2.1960)              |
|              |                              | 9. F22A9:      | 55.78 (2.1960)              |
|              |                              | (CH)           |                             |
|              |                              | 1. F18A2:      | 59.88 (2.3574)              |
|              |                              | 2. F20A2:      | 59.88 (2.3574)              |
|              |                              | 3. F20A3:      | 59.88 (2.3574)              |
|              |                              | 4. F20A4:      | 55.80 (2.1968)              |
|              |                              | 5. F20A5:      | 55.80 (2.1968)              |
|              |                              | 6. F20A6:      | 59.88 (2.3574)              |
|              |                              | 7. F22A2:      | 55.80 (2.1968)              |
|              |                              | 8. F22A3:      | 55.80 (2.1968)              |
|              |                              | 9. F22A5:      | 55.80 (2.1968)              |
| Valve guide  | I.D.                         | IN and EX      | 5.515–5.530 (0.2171–0.2177) |
|              | Valve guide installed height | IN             | 23.75–24.25 (0.9148–0.9547) |
|              |                              | EX             | 15.05–15.55 (0.5925–0.6122) |
| Rocker arm   | Arm-to-shaft clearance       | IN             | 0.017–0.050 (0.0007–0.0020) |
|              |                              | EX             | 0.018–0.054 (0.0007–0.0021) |

## 5. Engine/Engine Block

|                | MEASUREMENT   | STANDARD (NEW)                | SERVICE LIMIT                 |
|----------------|---|-------------------------------|-------------------------------|
| Cylinder block | Warpage of deck surface                               | 0.07 (0.003) max.             | 0.10 (0.004)                  |
|                | Bore diameter   | 85.00–85.02 (3.3464–3.3472)   | 85.07 (3.3492)                |
|                | Bore taper  | —                             | 0.05 (0.002)                  |
|                | Reboring limit  | —                             | 0.5 (0.02)                    |
| Piston         | Skirt O.D. (At 21 mm (0.83 in.) from bottom of skirt) | A                             | 84.98–84.99 (3.3456–3.4605)   |
|                |   | B                             | 84.97–84.98 (3.3452–3.3456)   |
|                | Clearance in cylinder                                 | 0.02–0.04 (0.0008–0.0016)     | 0.05 (0.0020)                 |
| Piston ring    | Piston-to-ring clearance                              | Top                           | 0.035–0.060 (0.0014–0.0024)   |
|                |   | Second                        | 0.030–0.055 (0.0011–0.0022)   |
|                | Ring end gap  | Top                           | 0.20–0.35 (0.0079–0.0138)     |
|                |   | Second                        | 0.40–0.55 (0.0157–0.0217)     |
|                |   | Oil                           | 0.20–0.70 (0.0079–0.0276)     |
| Connecting rod | Pin-to rod interference                               | 0.013–0.032 (0.0005–0.0013)   | —                             |
|                | Small end bore diameter                               | 21.968–21.981 (0.8649–0.8654) | —                             |
|                | Large end bore diameter                               | Nominal 48 (1.890)            | —                             |
|                | End play installed on crankshaft                      | Nominal 51 (2.008)            | 0.40 (0.016)                  |
| Crankshaft     | Main journal diameter                                 | No. 1, 2 Journals             | 49.976–50.000 (1.9676–1.9685) |
|                |   | No. 3 Journal                 | 49.972–49.996 (1.9674–1.9683) |
|                |   | No. 4, 5 Journals             | 49.948–50.008 (1.9665–1.9688) |
|                | Taper/out-of-round, main journal                      | 0.005 (0.0002) max.           | 0.010 (0.0004)                |
|                | Rod journal diameter                                  | 1.8 ℓ, 2.0 ℓ                  | 44.976–45.000 (1.7710–1.7717) |
|                |   | 2.2 ℓ                         | 47.976–48.000 (1.8888–1.8898) |
|                | Taper/out-of-round, rod journal                       | 0.005 (0.0002) max.           | 0.010 (0.0004)                |
| Bearings       | Main bearing-to journal oil clearance                 | No. 1, 2 Journals             | 0.021–0.045 (0.0009–0.0018)   |
|                |   | No. 3 Journal                 | 0.025–0.049 (0.0010–0.0019)   |
|                |   | No. 4, 5 Journals             | 0.013–0.037 (0.0005–0.0015)   |
|                | Rod bearing-to journal oil clearance                  | 2.2 ℓ                         | 0.021–0.049 (0.0008–0.0019)   |
|                |   | others                        | 0.015–0.043 (0.0006–0.0017)   |
|                |   |                               | 0.05 (0.002)                  |

1. F18A2: 1.8 ℓ CARB
2. F20A2: 2.0 ℓ CARB with CATA
3. F20A3: 2.0 ℓ CARB
4. F20A4: 2.0 ℓ PGM-FI with CATA
5. F20A5: 2.0 ℓ PGM-FI
6. F20A6: 2.0 ℓ CARB with CATA
7. F22A2: 2.2 ℓ PGM-FI
8. F22A3: 2.2 ℓ PGM-FI with CATA
9. F22A9: 2.2 ℓ PGM-FI with CATA

# Standards and Service Limits

## 5. Engine/Engine Block

|                           | MEASUREMENT             |                      | STANDARD (NEW)                | SERVICE LIMIT |
|---------------------------|-------------------------|----------------------|-------------------------------|---------------|
| Balancer<br>Shaft         | Journal diameter        | No.1 journal (Front) | 42.722—42.734 (1.6820—1.6824) | —             |
|                           |                         | (Rear)               | 20.938—20.950 (0.8243—0.8248) | —             |
|                           |                         | No.2 journal         | 38.712—38.724 (1.5241—1.5246) | —             |
|                           | Journal taper           | No.3 journal         | 34.722—34.734 (1.3670—1.3674) | —             |
|                           |                         |                      | 0.005 (0.0002)                | —             |
|                           | End play                | (Front)              | 0.100—0.350 (0.0040—0.0138)   | —             |
|                           |                         | (Rear)               | 0.060—0.180 (0.0024—0.0070)   | —             |
|                           | Runout<br>Oil Clearance |                      | 0.020 (0.0008)                | —             |
|                           |                         | No.1 journal (Rear)  | 0.050—0.075 (0.0020—0.0030)   | —             |
|                           |                         | No.1, 3 journal      | 0.066—0.118 (0.0026—0.0046)   | —             |
|                           |                         | No.2, journal        | 0.076—0.128 (0.0030—0.0050)   | —             |
| Balancer<br>Shaft Bearing | I.D                     | No.1 journal (Front) | 42.800—42.820 (1.6850—1.6858) | —             |
|                           |                         | (Rear)               | 21.000—21.013 (0.8268—0.8273) | —             |
|                           |                         | No.2 journal         | 38.800—38.820 (1.5276—1.5283) | —             |
|                           |                         | No.3 journal         | 34.800—34.820 (1.3701—1.3710) | —             |

## 5. Engine/Engine Lubrication

|              | MEASUREMENT                           |                               | STANDARD (NEW)  | SERVICE LIMIT |
|--------------|---------------------------------------|-------------------------------|---|---------------|
| Engine oil   | Capacity (US. qt., Imp. qt.)          |                               | 4.9 (5.2, 4.3) After engine disassembly<br>3.8 (4.0, 3.3) After oil change, including oil filter<br>3.5 (3.7, 3.1) After oil change, without oil filter |               |
| Oil pump     | Displacement                          |                               | 43.9 ℓ (11.6 US. gal., 9.7 Imp. gal.)/6,000 min <sup>-1</sup> (rpm)   |               |
|              | Inner-to-outer rotor radial clearance |                               | 0.02—0.16 (0.0008—0.0063)   | 0.2 (0.008)   |
|              | Pump body-to-rotor radial clearance   |                               | 0.10—0.19 (0.0040—0.0075)   | 0.21 (0.0083) |
|              | Pump body-to-rotor side clearance     |                               | 0.02—0.07 (0.001—0.003)   | 0.12 (0.005)  |
| Relief valve | Pressure setting 80°C (176°F)         | Idle                          | 69 kPa (0.7 kg/cm <sup>2</sup> , 10 psi) min.   |               |
|              |                                       | 3,000 min <sup>-1</sup> (rpm) | 3431 kPa (3.5 kg/cm <sup>2</sup> , 50 psi)  |               |

Unit of length: mm (in.)

## 5. Engine/Cooling

|             | MEASUREMENT  | STANDARD (NEW)  | SERVICE LIMIT       |
|-------------|--|---|---------------------|
| Thermostat  | Starts to open<br>Full open<br>Valve lift at full open   | 78°C±2 (172°F±3)<br>90°C (194°F)<br>8 (0.31) max.   | 86–90°C (187–194°F) |
| Water Pump  | Displacement   | 160 ℓ (42.2 US gal, 35.2 Imp gal)/6,000 min <sup>-1</sup> (rpm)   |                     |
| Radiator    | Capacity (incl. heater) ℓ (US.qt., Imp. qt)<br>(Includes reservoir tank 0.6 (0.63, 0.53)<br>after overhaul | 1. F18A2: MT: 6.6 (6.97, 5.81) AT: 6.5 (6.87, 6.72)<br>2. F20A2: 7.2 (7.61, 6.34) 7.1 (7.50, 6.23)<br>3. F20A3: 7.2 (7.61, 6.34) 7.1 (7.50, 6.23)<br>4. F20A4: 7.2 (7.61, 6.34) 7.1 (7.50, 6.23)<br>5. F20A5: 7.2 (7.61, 6.34) 7.1 (7.50, 6.23)<br>6. F20A6: 7.2 (7.61, 6.34) 7.1 (7.50, 6.23)<br>7. F22A2: 6.6 (6.97, 5.81) 7.1 (7.50, 6.23)<br>8. F22A3: 7.2 (7.61, 6.34) 7.1 (7.50, 6.23)<br>9. F22A9: 6.6 (6.97, 5.81) 7.1 (7.50, 6.23) |                     |
|             | at change  | 1. F18A2: MT: 3.0 (3.17, 2.64) AT: 2.9 (3.06, 2.55)<br>2. F20A2: 3.6 (3.80, 3.17) 3.5 (3.70, 3.08)<br>3. F20A3: 3.6 (3.80, 3.17) 3.5 (3.70, 3.08)<br>4. F20A4: 3.6 (3.80, 3.17) 3.5 (3.70, 3.08)<br>5. F20A5: 3.6 (3.80, 3.17) 3.5 (3.70, 3.08)<br>6. F20A6: 3.6 (3.80, 3.17) 3.5 (3.70, 3.08)<br>7. F22A2: 3.0 (3.17, 2.64) 3.0 (3.17, 2.64)<br>8. F22A3: 3.6 (3.80, 3.17) 3.6 (3.80, 3.17)<br>9. F22A9: 3.0 (3.17, 2.64) 3.5 (3.70, 3.08) |                     |
|             | pressure cap opening pressure  | 93–123 kpa (0.95–1.25 kg/cm <sup>2</sup> , 13.5–17.8 psi)   |                     |
| Cooling fan | "ON" temperature<br>"OFF" temperature<br>"ON" temperature (Fan timer)<br>"OF" temperature (Fan timer)      | 87°–93°C (189°–199°F)<br>80°–91°C (176°–196°F)<br>105°–111°C (221°–231°F)<br>98°–109°C (208°–228°F)   |                     |

1. F18A2: 1.8 ℓ CARB
2. F20A2: 2.0 ℓ CARB with CATA
3. F20A3: 2.0 ℓ CARB
4. F20A4: 2.0 ℓ PGM-FI with CATA
5. F20A5: 2.0 ℓ PGM-FI
6. F20A6: 2.0 ℓ CARB with CATA
7. F22A2: 2.2 ℓ PGM-FI
8. F22A3: 2.2 ℓ PGM-FI with CATA
9. F22A9: 2.2 ℓ PGM-FI with CATA

# Standards and Service Limits

## 6. Fuel and Emissions

|                             | MEASUREMENT  |  | STANDARD (NEW)   |
|-----------------------------|--|--|--|
| Fuel Pump (PGM-FI)          | Delivery pressure<br>Displacement (minimum in 10 seconds)<br>Relief valve opening pressure |  | 240–279 Pa (2.45–2.85 kg/cm <sup>2</sup> , 35–41 lb-ft)<br>230 cc (7.8 US oz., 8.1 Imp oz.)<br>441–588 kPa (4.5–6.0 kg/cm <sup>2</sup> , 64–85 psi)                          |
| Fuel Pump (CARB)            | Delivery pressure<br>Displacement (minimum in minute at 12V)                               |  | 9–14 kPa (0.09–0.14 kg/cm <sup>2</sup> , 1.3–2.0 psi)<br>760 cc (25.7 US oz., 26.8 Imp oz.)  |
| Pressure Regulator (PGM-FI) | Pressure with regulator vacuum hose disconnected   |  | 240–279 kPa (2.45–2.85 kg/cm <sup>2</sup> , 35–41 psi)   |
| Fuel Tank                   | Capacity   | 2WS:<br>4WS:   | 65 ℓ (17.2 US gal., 14.3 Imp gal.)<br>60 ℓ (15.9 US gal., 13.2 Imp gal.)   |
| Engine                      | Fast idle  |  | 1,400 ± 200 min <sup>-1</sup> (rpm)  |
|                             | Idle speed (with headlights and cooling fan OFF)   | MT with carbureted engine:<br>MT with PGM-FI engine:<br>AT with carbureted engine:<br>AT with PGM-FI engine: | 800±50 min <sup>-1</sup> (rpm)<br>770±50 min <sup>-1</sup> (rpm)<br>750±50 min <sup>-1</sup> (rpm) in [D] position<br>770±50 min <sup>-1</sup> (rpm) in [D] or [N] positions |
|                             | Idle CO  | With CATA:<br>Without CATA:  | 0.1% maximum<br>1.0±1.0%   |

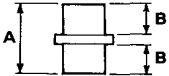
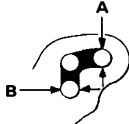
## 7. Clutch

|              | MEASUREMENT  | STANDARD (NEW)   | SERVICE LIMIT                           |
|--------------|--|--|---|
| Clutch pedal | Pedal height<br>Stroke<br>Pedal play<br>Disengagement height | 210 (8.3) to floor<br>142.0 (5.6)<br>9–15 (0.4–0.6)<br>90 (3.5) min. to floor<br>80 (3.1) min. to carpet | —<br>—<br>—<br>—<br>—                   |
| Flywheel     | Clutch surface runout  | 0.05 (0.002) max.  | 0.15 (0.006)                            |
| Clutch disc  | Rivet head depth<br>Surface runout<br>Thickness              | 1.3 (0.05) min.<br>0.8 (0.03) max.<br>8.5–9.2 (0.33–0.36)  | 0.2 (0.008)<br>1.0 (0.04)<br>6.1 (0.24) |
| Clutch cover | Unevenness of diaphragm spring                               | 0.6 (0.02) max.  | 0.8 (0.03)                              |

## 8. Manual Transmission

|                                  | MEASUREMENT  | STANDARD (NEW)   | SERVICE LIMIT   |
|----------------------------------|--|--|---|
| Transmission oil                 | Capacity ℓ (U.S. qt., Imp. qt.)  | 1.9 (2.0, 1.7) at assembly<br>2.0 (2.1, 1.8) at oil change   |   |
| Mainshaft                        | End play<br>Diameter of ball bearing contact area<br>Diameter of third gear contact area<br>Diameter of ball bearing contact area<br>Runout                | 0.10–0.16 (0.0039–0.0063)<br>27.977–27.990 (1.1015–1.1020)<br>37.984–38.000 (1.4954–1.4961)<br>27.987–28.000 (1.1018–1.1024)<br>0.02 (0.008) max.  | Adjust with a shim.<br>29.93 (1.1783)<br>37.930 (1.4933)<br>27.940 (1.1000)<br>0.05 (0.002) |
| Mainshaft third and fourth gears | I.D.<br>End play<br>Thickness 3rd gear<br>4th gear   | 43.009–43.025 (1.6933–1.6939)<br>0.06–0.21 (0.0024–0.0083)<br>32.42–32.47 (1.276–1.278)<br>30.92–30.97 (1.217–1.219)                               | 43.080 (1.6961)<br>0.30 (0.012)<br>32.3 (1.27)<br>30.8 (1.21)                               |
| Mainshaft fifth gear             | I.D.<br>End play<br>Thickness  | 43.009–43.025 (1.6933–1.6939)<br>0.06–0.21 (0.0024–0.0083)<br>30.42–30.47 (1.198–1.200)  | 43.080 (1.6961)<br>0.30 (0.012)<br>30.3 (1.193)   |
| Countershaft                     | End play<br>Diameter of needle bearing contact area<br>Diameter of ball bearing needle bearing contact area<br>Diameter of low gear contact area<br>Runout | 0.05–0.21 (0.0019–0.0083)<br>33.000–33.015 (1.2992–1.2998)<br>24.987–25.000 (0.9837–0.9845)<br>39.984–40.000 (1.5742–1.5748)<br>0.02 (0.0008) max. | 0.50 (0.02)<br>32.95 (1.297)<br>24.94 (0.982)<br>39.93 (1.572)<br>0.05 (0.002)              |

## 8. Manual Transmission

|  | MEASUREMENT  | STANDARD (NEW)  | SERVICE LIMIT   |
|--|--|---|---|
| Countershaft low gear                            | I.D.<br>End play   | 46.009–46.025 (1.8114–1.8120)<br>0.04–0.10 (0.002–0.004)  | 46.08 (1.814)<br>Adjust with a washer.                    |
| Countershaft second gear                         | I.D.<br>End play<br>Thickness  | 50.009–50.025 (1.9689–1.9695)<br>0.04–0.10 (0.002–0.004)<br>33.92–33.97 (1.335–1.337)   | 50.08 (1.972)<br>Adjust with a collar.<br>32.8 (1.2913)   |
| Spacer collar (Countershaft second gear)         | I.D.<br>O.D.<br>Length   | 36.48–36.49 (1.4362–1.4366)<br>43.989–44.000 (1.7318–1.7323)<br>29.03–29.05 (1.1429–1.1437)<br>28.98–29.00 (1.1409–1.1417)                                  | 36.50 (1.437)<br>43.94 (1.730)<br>—<br>—                  |
| Spacer collar (Mainshaft fourth and fifth gears) | I.D.<br>O.D.<br>Length   | 31.002–31.012 (1.2205–1.2209)<br>37.989–38.000 (1.4956–1.4961)<br>56.45–56.55 (2.222–2.226)<br>26.03–26.08 (1.0248–1.0268)                                  | 31.06 (1.223)<br>37.94 (1.494)<br>—<br>26.01 (1.024)      |
|  |   | A<br>B  |   |
| Reverse idler gear                               | I.D.<br>Gear-to-reverse gear shaft clearance   | 20.016–20.043 (0.7880–0.7891)<br>0.036–0.084 (0.0014–0.0033)  | 20.09 (0.7909)<br>0.160 (0.006)                           |
| Synchronizer ring                                | Ring-to-gear clearance (ring pushed against gear)  | 0.85–1.10 (0.0335–0.0433)   | 0.40 (0.016)  |
| Shift fork                                       | Synchronizer sleeve groove width<br>Fork-to-synchronizer sleeve clearance  | 6.75–6.85 (0.266–0.270)<br>0.35–0.65 (0.014–0.026)  | —<br>1.0 (0.039)  |
| Reverse shift fork                               | Pawl groove width<br>Fork-to-reverse idle gear clearance<br>Groove width<br>Fork-to fifth/reverse shift<br>Shaft clearance     | 13.0–13.3 (0.51–0.52)<br>0.5–1.1 (0.02–0.43)<br>7.05–7.25 (0.278–0.2854)<br>7.4–7.7 (0.29–0.30)<br>0.05–0.35 (0.002–0.014)<br>0.4–0.8 (0.02–0.03)           | —<br>1.8 (0.07)<br>—<br>—<br>0.5 (0.02)<br>1.0 (0.04)     |
|  |   | at A<br>at B<br>at A<br>at B  |   |
| Shift arm  | I.D.<br>Shift arm-to-shaft clearance<br>Shift fork diameter at contact area<br>Shift-arm-to-shift fork shaft clearance         | 15.973–16.000 (0.6289–0.6299)<br>0.005–0.059 (0.0002–0.0023)<br>12.9–13.0 (0.508–0.512)<br>0.2–0.5 (0.01–0.02)  | —<br>—<br>—<br>0.6 (0.02)                                 |
| Select lever                                     | Pin size of contact area<br>Shaft outer diameter<br>Shift arm cover clearance  | 7.9–8.0 (0.311–0.315)<br>15.41–15.68 (0.607–0.617)<br>0.032–0.102 (0.0013–0.0040)   | —<br>—<br>—   |
| Shift arm lever                                  | O.D.<br>Transmission housing clearance   | 15.941–15.968 (0.6276–0.6287)<br>0.027–0.139 (0.0011–0.0055)  | —<br>—  |
| Inter lock                                       | Bore diameter<br>Shift arm lever clearance   | 16.00–16.05 (0.630–0.632)<br>0.032–0.109 (0.0013–0.0043)  | —<br>—  |
| Ring gear  | Backlash   | 0.085–0.142 (0.0033–0.0056)   | 0.200 (0.0079)  |
| Differential carrier                             | Pinion shaft bore diameter<br>Carrier-to-pinion shaft clearance<br>Driveshaft bore diameter<br>Carrier-to-driveshaft clearance | 18.000–18.018 (0.7087–0.7094)<br>0.017–0.047 (0.0007–0.0019)<br>28.005–28.025 (1.1026–1.1033)<br>0.020–0.062 (0.0008–0.0024)<br>0.055–0.091 (0.0022–0.0036) | —<br>0.100 (0.0039)<br>—<br>0.120<br>0.150                |
| Differential pinion gear                         | Backlash<br>Pinion gear bore diameter<br>Pinion gear-to-pinion shaft clearance   | 0.05–0.15 (0.002–0.006)<br>18.042–18.066 (0.7103–0.7113)<br>0.059–0.095 (0.0023–0.0037)   | Selection with 7 types of washers.<br>—<br>0.150 (0.0059) |
| Differential taper roller bearing                | Preload  | 1.4–2.6 N·m<br>(14–26 kg-cm, 1.0–1.9 lb-ft)   | Selection with 20 types of shims.                         |

# Standards and Service Limits

## 9. Automatic Transmission

|                    | MEASUREMENT  |            | STANDARD (NEW)   | SERVICE LIMIT   |
|--------------------|--|------------|--|---|
| Transmission oil   | Capacity ℓ (U.S. qt., Imp. qt.)                      |            | 2.4 (2.5, 2.1) at oil change<br>6.0 (6.4, 5.2) at assembly   |   |
| Hydraulic pressure | Line pressure at 2,000 min <sup>-1</sup> (rpm)       | Carburetor | 760 kPa<br>(7.75 kg/cm <sup>2</sup> , 110 psi)<br>Throttle valve full- closed<br><br>808 kPa<br>(8.25 kg/cm <sup>2</sup> , 117 psi)<br>Throttle valve more than 2/8 open | 710 kPa<br>(7.25kg/cm <sup>2</sup> , 103 psi)<br>Throttle valve more than 2/8 open  |
|                    |  | PGM-FI     | 784 kPa<br>(8.0 kg/cm <sup>2</sup> , 113 psi)<br>Throttle valve full-closed<br><br>833 kPa<br>(8.5 kg/cm <sup>2</sup> , 120psi)<br>Throttle valve more than 2/8 open     | 735 kPa<br>(7.5 kg/cm <sup>2</sup> , 106 psi)<br>Throttle valve more than 2/8 open  |
|                    | 4th clutch pressure at 2,000 min <sup>-1</sup> (rpm) | Carburetor | 411 kPa<br>(4.2 kg/cm <sup>2</sup> , 59 psi)<br>Throttle valve full-closed<br><br>808 kPa<br>(8.25 kg/cm <sup>2</sup> , 117 psi)<br>Throttle Valve more than 2/8 open    | 352 kPa<br>(3.6 kg/cm <sup>2</sup> , 51 spi)<br>Throttle valve full-closed<br><br>710 kPa<br>(7.25 kg/cm <sup>2</sup> , 103 psi)<br>Throttle valve more than 2/8 open |
|                    |  | PGM-FI     | 509 kPa<br>(5.2 kg/cm <sup>2</sup> , 74 psi)<br>Throttle valve full-closed<br><br>833 kPa<br>(8.5 kg/cm <sup>2</sup> , 120 psi)<br>Throttle valve more than 2/8 open     | 460 kPa<br>(4.7 kg/cm <sup>2</sup> , 66 psi)<br>Throttle valve full-closed<br><br>735 kPa<br>(7.5 kg/cm <sup>2</sup> , 106 psi)<br>Throttle valve more than 2/8 open  |
|                    | 3rd clutch pressure at 2,000 min <sup>-1</sup> (rpm) | Carburetor | 392 kPa<br>(4.0 kg/cm <sup>2</sup> , 57 psi)<br>Throttle valve full-closed<br><br>808 kPa<br>(8.25 kg/cm <sup>2</sup> , 117 psi)<br>Throttle valve more than 2/8 open    | 352 kPa<br>(3.6 kg/cm <sup>2</sup> , 51 psi)<br>Throttle volve full-closed<br><br>710 kPa<br>(7.25 kg/cm <sup>2</sup> , 103 psi)<br>Throttle volve more than 2/8 open |
|                    |  | PGM-FI     | 490 kPa<br>(510 kg/cm <sup>2</sup> , 71 psi)<br>Throttle valve full-closed<br><br>833 kPa<br>(8.5 kg/cm <sup>2</sup> , 120 psi)<br>Throttle valve more than 2/8 open     | 441 kPa<br>(4.5 kg/cm <sup>2</sup> , 64 psi)<br>Throttle valve full-closed<br><br>735 kPa<br>(7.5 kg/cm <sup>2</sup> , 106 psi)<br>Throttle valve more than 2/8 open  |
|                    | 2nd clutch pressure at 2,000 min <sup>-1</sup> (rpm) | Carburetor | 392 kPa<br>(4.0 kg/cm <sup>2</sup> , 57 psi)<br>Throttle valve full-closed<br><br>808 kPa<br>(8.25 kg/cm <sup>2</sup> , 117 psi)<br>Throttle valve more than 2/8 open    | 352 kPa<br>(3.6 kg/cm <sup>2</sup> , 51 psi)<br>Throttle valve full-closed<br><br>710 kPa<br>(7.25 kg/cm <sup>2</sup> , 103 psi)<br>Throttle valve more than 2/8 open |
|                    |  | PGM-FI     | 490 kPa<br>(5.0 kg/cm <sup>2</sup> , 71 psi)<br>Throttle valve full-closed<br><br>833 kPa<br>(8.5 kg/cm <sup>2</sup> , 120 psi)<br>Throttle valve more than 2/8 open     | 441 kPa<br>(4.5 kg/cm <sup>2</sup> , 64 psi)<br>Throttle valve full-closed<br><br>735 kPa<br>(7.5 kg/cm <sup>2</sup> , 106 psi)<br>Throttle valve more than 2/8 open  |
|                    | 1st clutch pressure at 2,000 min <sup>-1</sup> (rpm) | Carburetor | 750—808 kPa<br>(7.75—8.25 kg/cm <sup>2</sup> , 110—117 psi)  | 710 kPa<br>(7.25 kg/cm <sup>2</sup> , 103 psi)  |
|                    |  | PGM-FI     | 784—833 kPa<br>(8.0—8.5 kg/cm <sup>2</sup> , 113—120 psi)  | 735 kPa<br>(7.5 kg/cm <sup>2</sup> , 106 psi)   |

## 9. Automatic Transmission

|                    | MEASUREMENT                             |                         | STANDARD (NEW)   | SERVICE LIMIT                                  |
|--------------------|---|-------------------------|--|--|
| Hydraulic pressure | Governor pressure at (37.5 mph) 60 km/h | Carburetor with CATA    | 225–235 kPa<br>(2.30–2.40 kg/cm <sup>2</sup> , 32–34 psi)  | 220 kPa<br>(2.25 kg/cm <sup>2</sup> , 32 psi)  |
|                    |   | Carburetor without CATA | 166–176 kPa<br>(1.70–1.80 kg/cm <sup>2</sup> , 24–25 psi)  | 162 kPa<br>(1.65 kg/cm <sup>2</sup> , 23 psi)  |
|                    | Throttle pressure A                     | Carburetor with CATA    | closed 0   | —  |
|                    |   |                         | open 514–530 kPa<br>(5.25–5.4 kg/cm <sup>2</sup> , 74–76 psi)  | 509 kPa<br>(5.2 kg/cm <sup>2</sup> , 73 psi)   |
|                    |   | Carburetor with CATA    | closed 0   | —  |
|                    |   |                         | open 485–500 kPa<br>(4.95–5.10 kg/cm <sup>2</sup> , 70–72 psi)                                       | 480 kPa<br>(4.9 kg/cm <sup>2</sup> , 69 psi)   |
|                    | Throttle pressure B                     | Carburetor              | closed 0   | —  |
|                    |   |                         | open 760–808 kPa<br>(7.75–8.25 kg/cm <sup>2</sup> , 110–117 psi)                                     | 710 kPa<br>(7.25 kg/cm <sup>2</sup> , 103 psi) |
|                    |   | PGM-FI                  | closed 0   | —  |
|                    |   |                         | open 784–833 kPa<br>(8.0–8.5 kg/cm <sup>2</sup> , 113–120 psi)                                       | 735 kPa<br>(7.5 kg/cm <sup>2</sup> , 106 psi)  |
| Stall speed        | Check with car on level ground          | Carburetor (1.8 l)      | 2.450–2.750 min <sup>-1</sup> (rpm)  |  |
|                    |   | Others                  | 2.350–2.650 min <sup>-1</sup> (rpm)  |  |
| Clutch             | Clutch initial clearance                |                         | 1st hold 0.8–1.0 (0.031–0.039)<br>1st, 2nd 0.65–0.85 (0.026–0.033)<br>3rd, 4th 0.4–0.6 (0.016–0.024) | —<br>—<br>—                                    |
|                    | Clutch return spring free length        | Carburetor              | 1st, 33.9 (1.334)  | 31.9 (1.255)                                   |
|                    |   |                         | 2nd, 30.3 (1.192)  | 28.3 (1.114)                                   |
|                    |   |                         | 3rd, 32.1 (1.263)  | 30.1 (1.185)                                   |
|                    |   |                         | 4th, 32.1 (1.263)  | 30.1 (1.185)                                   |
|                    |   | PGM-FI                  | 1st, 2nd, 3rd, 4th, 33.5 (1.318)   | 31.5 (1.240)                                   |
|                    | Clutch disc thickness                   |                         | 1.88–2.0 (0.074–0.079)   | Until grooves worn out                         |
|                    | Clutch plate thickness                  | Carburetor              | 1st, 3rd, 4th, 1.95–2.05<br>(0.0767–0.0807)  | Discoloration<br>↓<br>Discoloration            |
|                    |   |                         | 2nd, 2.55–2.65<br>(0.1003–0.1043)  |  |
|                    |   | PGM-FI                  | 1st, 1.95–2.05 (0.0767–0.0807)   |  |
|                    |   |                         | 2nd, 2.55–2.65 (0.1003–0.1043)   |  |
|                    |   |                         | 3rd, 4th, 2.25–2.35<br>(0.0885–0.0925)   |  |
|                    | Clutch end plate thickness              | Mark 1                  | 2.05–2.10 (0.081–0.83)   |  |
|                    |   | Mark 2                  | 2.15–2.20 (0.085–0.087)  |  |
|                    |   | Mark 3                  | 2.25–2.30 (0.089–0.091)  |  |
|                    |   | Mark 4                  | 2.35–2.40 (0.093–0.094)  |  |
|                    |   | Mark 5                  | 2.45–2.50 (0.096–0.098)  |  |
|                    |   | Mark 6                  | 2.55–2.60 (0.100–0.102)  |  |
|                    |   | Mark 7                  | 2.65–2.70 (0.104–0.106)  |  |
|                    |   | Mark 8                  | 2.75–2.80 (0.108–0.110)  |  |
|                    |   | Mark 9                  | 2.85–2.90 (0.112–0.114)  |  |
|                    |   | *Mark 10                | 2.95–3.00 (0.116–0.118)  |  |

\* Carburetor engine only.



# Standards and Service Limits

## 9. Automatic Transmission (cont'd)

|   | MEASUREMENT  | STANDARD (NEW)                | SERVICE LIMIT        |
|---|--|-------------------------------|----------------------|
| Valve body                                | Stator camshaft needle bearing contact area I.D. (torque converter side) | 27.000—27.021 (1.0630—1.0638) | Wear or damage       |
|   | Stator camshaft needle bearing contact area I.D. (oil pump side)         | 29.000—29.013 (1.417—1.1422)  | —                    |
|   | Oil pump driven gear I.D.  | 14.016—14.034 (0.5518—0.5525) | Wear or damage       |
|   | Oil pump shaft O.D.  | 13.980—13.990 (0.5504—0.5508) | Wear or damage       |
|   | Oil pump gear side clearance   | 0.03—0.05 (0.0012—0.0020)     | 0.07 (0.0028)        |
|   | Oil pump gear-to-body clearance  | 0.21—0.265 (0.0083—0.0104)    | —                    |
|   | Drive  | 0.07—0.125 (0.0027—0.0049)    | —                    |
| Regulator valve body                      | Sealing ring contact area diameter                                       | 35.000—35.025 (1.3780—1.3789) | 35.050 (1.3799)      |
| Accumulator body                          | Sealing ring contact area diameter                                       | 32.000—32.025 (1.2598—1.2608) | 32.05 (1.2618)       |
| Stator camshaft                           | Sealing ring contact area diameter                                       | 29.000—29.013 (1.1417—1.1422) | 29.05 (1.1436)       |
| Shifting device and parking brake control | Reverse shift fork thickness   | 5.90—6.00 (0.232—0.236)       | 5.40 (0.213)         |
|   | Parking brake ratchet pawl   | —                             | Wear or other defect |
|   | Parking gear   | —                             | Wear or other defect |
|   | Throttle cam stopper   | 18.5—18.6 (0.7283—0.7322)     | —                    |
|   | Carburetor PGM-FI  | 17.0—17.1 (0.6692—0.6732)     | —                    |
| Servo body                                | Shift fork Shaft I.D.  | 14.000—14.005 (0.5512—0.5514) | —                    |
|   |  | 14.006—14.010 (0.5514—0.5516) | —                    |
|   |  | 14.011—14.015 (0.5516—0.5518) | —                    |
|   | Shift fork shaft valve bore I.D.   | 37.000—37.039 (1.4567—1.4582) | 37.045 (1.4585)      |
| Transmission                              | Diameter of needle bearing contact area                                  | 22.980—23.000 (0.9047—0.9055) | Wear or damage       |
|   | On mainshaft and stator shaft  | 31.984—32.000 (1.2592—1.2598) | —                    |
|   | On mainshaft 4th gear collar   | 41.984—42.000 (1.6529—1.6535) | —                    |
|   | On mainshaft 3rd gear collar   | 45.984—46.000 (1.8103—1.8110) | —                    |
|   | Carburetor PGM-FI  | 40.984—42.000 (1.6135—1.6535) | —                    |
|   | On counter shaft 1st gear collar   | 35.980—35.996 (1.4165—1.4171) | —                    |
|   | On counter shaft 4th gear collar   | 35.984—36.000 (1.4166—1.4173) | —                    |
|   | On counter shaft reverse gear collar                                     | 39.984—40.000 (1.5741—1.5748) | —                    |
|   | On counter shaft parking gear  | 31.975—31.991 (1.2588—1.2594) | —                    |
|   | On secondary shaft 1st gear  | 35.984—36.000 (1.4166—1.4173) | —                    |
|   | On secondary shaft 2nd gear  | 14.416—14.434 (0.5675—0.5682) | —                    |
|   | Reverse idle shaft holder I.D.   | 52.000—52.019 (2.0472—2.0479) | —                    |
|   | Mainshaft 3rd gear I.D.  | 38.000—38.016 (1.4960—1.4966) | Wear or damage       |
|   | 4th gear I.D.  | —                             | —                    |

Unit of length: mm (in.)

## 9. Automatic Transmission

|              | MEASUREMENT                            | STANDARD (NEW)                | SERVICE LIMIT       |
|--------------|--|-------------------------------|---------------------|
| Transmission | Counter shaft 1st gear I.D.            | 47.000—47.016 (1.8504—1.8510) | Wear or damage<br>↑ |
|              | 4th gear I.D.                          | 42.000—42.016 (1.6535—1.6541) |                     |
|              | reverse gear I.D.                      | 42.000—42.016 (1.6535—1.6541) |                     |
|              | idle gear I.D.                         | 48.000—48.016 (1.8897—1.8903) |                     |
|              | Secondary shaft 1st gear I.D.          | 37.000—37.016 (1.4566—1.4573) |                     |
|              | 2nd gear I.D.                          | 42.010—42.025 (1.6539—1.6545) | ↓<br>Wear or damage |
|              | Mainshaft 3rd gear collar length       | 20.000—20.050 (0.7874—0.7893) |                     |
|              | 4th gear collar length                 | 47.500—47.550 (1.8700—1.8720) |                     |
|              | Counter shaft 1st gear collar length   | 27.500—27.550 (1.0826—1.0846) |                     |
|              | 4th gear collar length                 | 20.04—20.08 (0.7889—0.7905)   |                     |
|              | reverse gear collar length             | 15.00—15.05 (0.5905—0.5925)   |                     |
|              | Secondary shaft distance collar length | 4.95—5.00 (0.1948—0.1968)     |                     |
|              | Counter shaft 1st gear thickness       | 1.45—1.50 (0.0570—0.0590)     |                     |
|              | Counter shaft parking gear length      | 25.030—25.048 (0.9854—0.9861) |                     |

# Standards and Service Limits

## 9. Automatic Transmission (cont'd)

Unit of length: mm (in.)

|                        | MEASUREMENT                         | STANDARD (NEW) |               |               |              |
|------------------------|-------------------------------------|----------------|---------------|---------------|--------------|
|                        |                                     | WIRE DIA.      | O.D.          | FREE LENGTH   | No. of COILS |
| Spring<br>(Carburetor) | 1st One way ball spring             | 0.29 (0.0114)  | 4.0 (0.01574) | 14.0 (0.5511) | 13.0         |
|                        | Regulator valve spring A            | 1.80 (0.0708)  | 14.7 (0.5787) | 85.1 (3.3503) | 16.5         |
|                        | Regulator valve spring B            | 1.80 (0.0708)  | 9.6 (0.3779)  | 44.0 (1.7328) | 7.5          |
|                        | Stator reaction spring              | 5.50 (0.2165)  | 37.4 (1.4724) | 30.3 (1.1929) | 2.1          |
|                        | Throttle modulator spring           | 1.20 (0.0472)  | 9.4 (0.3700)  | 27.2 (1.0708) | 8.0          |
|                        | with CATA                           | 1.20 (0.0472)  | 9.4 (0.3700)  | 26.3 (1.0354) | 8.0          |
|                        | without CATA                        | 1.10 (0.0433)  | 8.4 (0.3307)  | 36.8 (1.4488) | 12.0         |
|                        | Torque convertor check valve spring | 1.00 (0.0393)  | 8.4 (0.3307)  | 39.1 (1.5393) | 15.1         |
|                        | Relife valve spring                 | 1.10 (0.0433)  | 8.4 (0.3307)  | 46.8 (1.8425) | 17.0         |
|                        | Cooler check valve spring           | 1.0 (0.0393)   | 18.8 (0.7401) | 44.3 (1.7440) | 4.0          |
|                        | Governor spring A                   | 1.0 (0.0393)   | 18.8 (0.7401) | 25.8 (1.0157) | 4.0          |
|                        | with CATA                           | 0.9 (0.0354)   | 11.8 (0.4645) | 18.4 (0.7244) | 6.2          |
|                        | Governor spring B                   | 0.9 (0.0354)   | 11.8 (0.4645) | 21.4 (0.8425) | 6.2          |
|                        | without CATA                        | 0.7 (0.0275)   | 6.6 (0.2598)  | 53.3 (2.0984) | 20.5         |
|                        | Second oilfice control spring       | 0.9 (0.0354)   | 7.1 (0.2795)  | 61.2 (2.4094) | 28.2         |
|                        | Servo oilfice spring                | 1.0 (0.0393)   | 8.5 (0.3346)  | 21.0 (0.8267) | 5.8          |
|                        | Throttle spring A                   | 0.8 (0.0314)   | 6.2 (0.2440)  | 30.0 (1.1811) | 8.0          |
|                        | Throttle adjust spring A            | 1.6 (0.0629)   | 8.5 (0.3346)  | 41.4 (1.6299) | 11.7         |
|                        | Throttle spring B                   | 0.5 (0.0196)   | 4.6 (0.1811)  | 42.3 (1.6653) | 25.0         |
|                        | 1-2 shift spring                    | 0.6 (0.0236)   | 6.1 (0.2401)  | 42.3 (1.6653) | 21.1         |
|                        | with CATA                           | 0.4 (0.0157)   | 4.5 (0.1771)  | 13.0 (0.5118) | 8.7          |
|                        | 1-2 shiftball spring                | 0.4 (0.0157)   | 4.5 (0.1771)  | 12.6 (0.4960) | 8.7          |
|                        | with CATA                           | 0.9 (0.0354)   | 7.6 (0.2992)  | 70.0 (2.7559) | 28.2         |
|                        | 2-3 shift spring                    | 0.8 (0.0314)   | 7.6 (0.2992)  | 58.9 (2.3188) | 16.8         |
|                        | without CATA                        | 0.5 (0.0196)   | 4.5 (0.1771)  | 11.7 (0.4606) | 10.5         |
|                        | 2-3 shft ball spring                | 0.5 (0.0196)   | 4.5 (0.1771)  | 14.1 (0.5551) | 10.5         |
|                        | with CATA                           | 0.9 (0.0354)   | 9.6 (0.3779)  | 35.8 (1.4094) | 10.3         |
|                        | 3-4 shift spring                    | 0.9 (0.0354)   | 9.6 (0.3779)  | 27.7 (1.0905) | 10.3         |
|                        | without CATA                        | 0.5 (0.0196)   | 4.5 (0.1771)  | 11.5 (0.4527) | 7.4          |
|                        | 3-4 shift ball spring               | 0.5 (0.0196)   | 4.5 (0.1771)  | 11.3 (0.4448) | 7.4          |
|                        | with CATA                           | 4.0 (0.1574)   | 21.5 (0.8464) | 71.7 (2.8228) | 8.3          |
|                        | 1st hold accumulator spring         | 2.1 (0.0826)   | 16.3 (0.6417) | 96.0 (3.7795) | 17.1         |
|                        | 1st accumulator spring              | 2.6 (0.1023)   | 16.0 (0.6292) | 84.6 (3.3307) | 14.3         |
|                        | 4th accumulator spring              | 3.2 (0.1259)   | 20.7 (0.8149) | 80.7 (3.1771) | 10.8         |
|                        | 2nd accumulator spring              | 2.6 (0.1023)   | 17.5 (0.6889) | 78.6 (3.0944) | 11.0         |
|                        | 3rd accumulator spring              | 0.9 (0.0354)   | 7.6 (0.2992)  | 73.7 (2.9015) | 32.0         |
|                        | L/C shift spring                    | 1.0 (0.0393)   | 6.6 (0.2598)  | 84.0 (3.3070) | 42.4         |
|                        | L/C timing spring B                 | 1.0 (0.0393)   | 6.6 (0.2598)  | 79.1 (3.1141) | 42.4         |
|                        | without CATA                        | 0.9 (0.0354)   | 6.6 (0.2598)  | 55.9 (2.2007) | 27.3         |
|                        | L/C timing spring A                 | 0.9 (0.0354)   | 6.6 (0.2598)  | 50.0 (1.9685) | 27.3         |
|                        | without CATA                        | 0.8 (0.0314)   | 7.6 (0.2992)  | 44.5 (1.7519) | 17.0         |
|                        | Governor cut spring                 | 0.7 (0.0275)   | 6.6 (0.2598)  | 42.9 (1.6889) | 14.1         |
|                        | L/C control spring                  | 1.4 (0.0551)   | 9.4 (0.3700)  | 31.2 (1.2283) | 10.9         |
|                        | CPC valve spring                    | 0.9 (0.0354)   | 7.6 (0.2992)  | 62.7 (2.4684) | 27.5         |
|                        | 3rd kick down spring                | 0.7 (0.0275)   | 7.1 (0.2795)  | 40.0 (1.5748) | 20.8         |
|                        | Reverse control spring              | 0.7 (0.0275)   | 7.6 (0.2992)  | 31.0 (1.2204) | 12.7         |
|                        | L/C cut spring                      | 1.2 (0.0472)   | 7.7 (0.3031)  | 45.6 (1.7952) | 21.8         |
|                        | Accumulator control spring          | 1.2 (0.0472)   | 7.1 (0.2795)  | 46.9 (1.8464) | 20.6         |
|                        | 2nd kick down spring                | 0.9 (0.0354)   | 6.4 (0.2519)  | 32.5 (1.2795) | 17.5         |
|                        | Servo control spring                | 0.7 (0.0275)   | 5.6 (0.2204)  | 33.0 (1.2992) | 21.7         |
|                        | 2-1 timing spring                   | 0.8 (0.0314)   | 6.1 (0.2401)  | 51.1 (2.0118) | 26.6         |
|                        | 4th exhaust spring                  |                |               |               |              |

## 9. Automatic Transmission

|                    | MEASUREMENT                         | STANDARD (NEW) |               |               |              |
|--------------------|-------------------------------------|----------------|---------------|---------------|--------------|
|                    |                                     | WIRE DIA.      | O.D.          | FREE LENGTH   | No. of COILS |
| Spring<br>(PGM-FI) | Regulator valve Spring A            | 1.8 (0.0709)   | 14.7 (0.5887) | 86.5 (3.4055) | 16.5         |
|                    | B                                   | 1.8 (0.0709)   | 6.0 (0.2336)  | 44.0 (1.7323) | 12.7         |
|                    | Stator reaction spring              | 5.5 (0.2165)   | 37.4 (1.4724) | 30.3 (1.1929) | 2.1          |
|                    | Torque converter check valve spring | 1.1 (0.0433)   | 8.4 (0.3307)  | 33.8 (1.3307) | 12.5         |
|                    | Relief valve spring                 | 1.0 (0.0394)   | 8.4 (0.3307)  | 39.1 (1.5393) | 15.1         |
|                    | Cooler check valve spring           | 1.1 (0.0433)   | 8.4 (0.3307)  | 46.8 (1.8425) | 17.0         |
|                    | 2nd orifice spring                  | 0.6 (0.0236)   | 6.6 (0.2598)  | 52.2 (2.0551) | 21.0         |
|                    | Servo orifice spring                | 0.8 (0.0315)   | 6.6 (0.2598)  | 52.2 (2.0551) | 33.0         |
|                    | 4th exhaust spring                  | 0.9 (0.0354)   | 7.1 (0.2795)  | 60.8 (2.3936) | 28.9         |
|                    | 1-2 shift spring                    | 1.0 (0.0393)   | 8.6 (0.3386)  | 41.3 (1.6259) | 16.9         |
|                    | 2-3 shift spring                    | 0.9 (0.0354)   | 7.6 (0.2992)  | 57.0 (2.2440) | 26.8         |
|                    | 1st accumulator spring              | 2.1 (0.0826)   | 16.3 (0.6417) | 96.0 (3.7795) | 17.1         |
|                    | 4th accumulator spring              | 2.9 (0.1142)   | 22.0 (0.8661) | 84.5 (3.3267) | 10.9         |
|                    | 2nd accumulator spring              | 3.2 (0.1260)   | 20.7 (0.8149) | 80.7 (3.1771) | 10.8         |
|                    | 3rd accumulator spring              | 2.8 (0.1102)   | 17.5 (0.6889) | 94.2 (3.7086) | 16.1         |
|                    | L/C shift spring                    | 0.9 (0.0354)   | 7.6 (0.2992)  | 73.7 (2.9016) | 32.0         |
|                    | L/C timing spring                   | 0.8 (0.0314)   | 6.6 (0.2598)  | 64.0 (2.5196) | 40.1         |
|                    | D-inhibitor spring                  | 1.0 (0.0394)   | 8.1 (0.3188)  | 52.6 (2.0708) | 22.4         |
|                    | 3rd kick-down spring                | 1.1 (0.0433)   | 7.6 (0.2992)  | 48.3 (1.9015) | 23.3         |
|                    | 2nd kick-down spring                | 1.2 (0.0472)   | 7.1 (0.2795)  | 46.9 (1.8464) | 20.6         |
|                    | Throttle adjust spring              | 0.8 (0.0314)   | 6.2 (0.2440)  | 30.0 (1.1811) | 8.0          |
|                    | Throttle B spring                   | 1.5 (0.0591)   | 8.5 (0.3346)  | 41.5 (1.6334) | 11.2         |
|                    | 1st hold spring                     | 4.0 (0.1574)   | 25.0 (0.9842) | 64.7 (2.5472) | 7.3          |
|                    | L/C modulator valve spring          | 1.4 (0.0551)   | 9.4 (0.3700)  | 33.0 (1.2992) | 10.5         |
|                    | L/C control spring                  | 0.8 (0.0314)   | 6.6 (0.2598)  | 41.0 (1.6141) | 25.0         |

# Standards and Service Limits

## 9. Automatic Transmission (cont'd)

|   | MEASUREMENT                           | STANDARD (NEW)                           | SERVICE LIMIT        |
|---|---------------------------------------|--|----------------------|
| Rign gear                                 | Backlash                              | 0.085–0.142 (0.003–0.006)                | 0.200 (0.008)        |
| Differential carrier                      | Pinion shaft bore diameter            | 18.000–18.018 (0.7087–0.7094)            | —                    |
|   | Carrier-to-pinion shaft clearance     | 0.017–0.047 (0.001–0.002)                | 0.100 (0.004)        |
|   | Driveshaft bore diameter              | 28.005–28.025 (1.1026–1.1033)            | —                    |
|   | Carrier-to driveshaft clearance       | 0.025–0.066 (0.001–0.003)                | 0.120 (0.005)        |
| Differential pinion gear                  | Backlash                              | 0.08–0.15 (0.03–0.006)                   | Adjust with a washer |
|   | Pinion gear bore diameter             | 18.042–18.066 (0.710–0.711)              | —                    |
|   | Pinion gear-to pinion shaft clearance | 0.059–0.095 (0.002–0.004)                | 0.150 (0.006)        |
| Differential taper roller bearing preload | For used bearing                      | 2.5–3.7 N·m (25–37 kg-cm, 1.8–2.7 lb-ft) | Adjust with a washer |
|   | After replacement of bearing          | 2.8–4.0 N·m (28–48 kg-cm, 2.0–2.9 lb-ft) | Adjust with a washer |

## 11. Steering

|                      | MEASUREMENT   | STANDARD (NEW)   |
|----------------------|---|--|
| Steering wheel       | Play  | 10 (0.39) maximum  |
| Gearbox              | Pinion starting torque  | Below 1.0N·m (10 kg-cm, 0.72 lb-ft)  |
|                      | Angle of rack guide screw loosend from locked position  | 35° $\pm$ 5°   |
| Pump                 | Pump pressure with valve closed (oil temperature: 40°C/104°F minimum)<br>Do not run for more than 5 seconds | 7,845–8,826 kPa (80–90 kg/cm², 1,138–1,280 psi) at idle  |
| Power steering fluid | Capacity  | 0.5 ℓ (0.53 US qt., 0.44 Imp qt.)  |
|                      | Reservoir At change (approx.)   | 1.8 ℓ 1.90 US qt. 1.58 Imp qt.)  |
| Power steering belt  | Deflection between pulleys with 98 N (10 kg, 22 lbs) force  | For used belt: 12.5–16.0 (0.50–0.62)<br>For new belt: 9.5–11.5 (0.37–0.45)                       |
|                      | Belt tension between pulleys (measured with tension gauge)  | For used belt: 343–490 N (35–50 kg, 77–110 lb)<br>For new belt: 686–882 N (70–90 kg, 154–198 lb) |
|                      |   |  |

## 12. Suspension

|                 | MEASUREMENT                         | STANDARD (NEW)   | SERVICE LIMIT  |
|-----------------|-------------------------------------|--|--|
| Wheel alignment | Total toe                           | Front: 0±2 (0±0.08)<br>Rear: 2WS: IN 2±2 (0.08±0.08)<br>4WS: IN 3±2 (0.12±0.08)  | —  |
|                 | Camber                              | Front: 0° 00' ± 1'<br>Rear: 2WS: -0° 30' ± 1'<br>4WS: -0° 20' ± 1'   | —  |
|                 | Caster                              | Front: 3° 00' ± 1'   | —  |
|                 | Front Wheel turning angle           | Inward wheel: 2.0/2.2 ℓ engine: 39° ± 2'<br>1.8 ℓ engine: 40° 50' ± 2'<br>4WS: 38° 50' ± 2'<br>Outward wheel: 2.0/2.2 ℓ engine: 29° 30'<br>1.8 ℓ engine: 31° 10'<br>4WS: 29° 30' | —  |
|                 | Rear Wheel turning angle (4WS only) | Inward wheel: 5° 50' ± 1'<br>Outward wheel (reference): 6° 10' ± 1'  | —  |
|                 |                                     |  | —  |
|                 |                                     |  | —  |
|                 |                                     |  | —  |
|                 |                                     |  | —  |
|                 |                                     |  | —  |
| Wheel           | Rim runout                          | Steel wheel: Below 1.0 (0.04)<br>Aluminum wheel: Axial: Below 1.0 (0.04)<br>Radial: Below 0.7 (0.03)<br>Axial: Below 0.7 (0.03)<br>Radial: Below 0.7 (0.03)                      | 2.0 (0.08)<br>1.5 (0.06)<br>2.0 (0.08)<br>1.5 (0.06) |
|                 | End play                            | Front: 0–0.05 (0–0.002)<br>Rear: 0–0.05 (0–0.002)  | —  |

Unit of length: mm (in.)

# 13. Brakes

|                     | MEASUREMENT                                      |                | STANDARD (NEW)                                    | SERVICE LIMIT               |
|---------------------|--|----------------|---|-----------------------------|
| Parking brake lever | Play in stroke 200 N (20 kg, 44 lbs)             |                | To be locked when pulled 4—8 notches              | —                           |
| Foot brake pedal    | Pedal height (from floor)                        | MT<br>AT       | 190 (7.5)<br>195 (7.7)                            | —<br>—                      |
| Master cylinder     | Piston-to-push rod clearance                     |                | 0—0.4 (0—0.016)                                   | —                           |
| Brake drum          | I.D.   |                | 220 (8.66)  | 221 (8.70)                  |
| Lining              | Thickness  |                | 4.5 (0.18)  | 2.0 (0.08)                  |
| Disc brake          | Disc thickness                                   | Front          | 23.0 (0.91)                                       | 21.0 (0.83)                 |
|                     |  | Rear           | 10.0 (0.39)                                       | 8.0 (0.32)                  |
|                     | Disc runout                                      | Front          | —   | 0.10 (0.004)                |
|                     |  | Rear           | —   | 0.15 (0.006)                |
|                     | Disc parallelism                                 | Front and rear | —   | 0.015 (0.0006)              |
|                     | Pad thickness                                    | Front          | 12.5 (0.49)                                       | 1.6 (0.06)                  |
|                     |  | Rear           | 2.2 l model: 12.0 (0.47)<br>9.0 (0.35)            | 1.6 (0.06)<br>1.6 (0.06)    |
| Brake booster       | Characteristics at 20 kg (44 lbs) pedal pressure |                | Line pressure Unit: kPa (kg/cm <sup>2</sup> /psi) |                             |
|                     |  |                | Conventional type                                 | with anti-lock-brake system |
|                     | Vacuum   |                | 922 (9.4/134) minimum                             | 813 (8.3/118) minimum       |
|                     | Brakes   |                | 5,494 (56/796) minimum                            | 6,076 (62/882) minimum      |
|                     | 0 mm (0 in) Hg                                   |                | 8,535 (87/1,237) minimum                          | 8,134 (83/1,180) minimum    |
|                     | 300 mm (11.8 in) Hg                              |                |   |                             |
|                     | 500 mm (19.7 in) Hg                              |                |   |                             |

# 15. Air Conditioner

|                        | MEASUREMENT  |               | STANDARD (NEW)                       |
|------------------------|--|---------------|--------------------------------------|
| Air conditioner system | Lubricant capacity   | Condenser     | 10 cc (0.3 US oz., 0.4 Imp oz.)      |
|                        |  | Evaporator    | 25 cc (0.8 US oz., 0.9 Imp oz.)      |
|                        |  | Line or hose  | 10 cc (0.3 US oz., 0.4 Imp oz.)      |
|                        |  | Reservoir     | 10 cc (0.3 US oz., 0.4 Imp oz.)      |
| Compressor             | Lubricant capacity   |               | 900—950 g (31.7—33.5 oz)             |
|                        | Stator coil resistance at 20°C (68°F)                      |               | 3.4—3.8 Ω                            |
|                        | Pulley-to pressure plate clearance                         |               | 0.35—0.65 (0.014—0.026)              |
| Compressor belt        | Deflection between pulleys with 98N (10 kg, 22 lbs) force  | For used belt | 10—12 (0.4—0.5)                      |
|                        |  | For new belt  | 8.5—11 (0.3—0.4)                     |
|                        | Belt tension between pulleys (measured with tension gauge) | For used belt | 441—588 N (45—60 kg, 99—132 lbs)     |
|                        |  | For new belt  | 931—1,127 N (95—115 kg, 209—254 lbs) |

# Standards and Service Limits

## 16. Electrical

Unit of length: mm (in.)

|                 | MEASUREMENT  |   | STANDARD (NEW)  | SERVICE LIMIT |
|-----------------|--|---|---|---------------|
| Ignition coil   | Rated voltage  |   | 12 Volts  |               |
|                 | Winding resistance   | Primary   | 0.6—0.8 $\Omega$<br><0.5—0.7 $\Omega$ >   |               |
|                 |  | Secondary   | 12.9—19.3 k $\Omega$<br><14.4—21.6 k $\Omega$ >   |               |
| Ignition wire   | Resistance   |   | 25 k $\Omega$ maximum   |               |
| Spark plug      | Type   | standard  | ZFR6F-11 (NGK) or KJ20CR-L11 (ND)<br>KP, KT: ZFR5F-11 (NGK) or KJ16CR-L11 (ND)  |               |
|                 | ( ): Manufacturer  | Option<br>*: Except 2.2 l engines other than KQ, KY types | *: ZFR5F-11 (NGK) or KJ16CR-L11 (ND)<br>KP, KT only: ZFR6F-11 (NGK) or KJ20R-L11 (ND)<br>Except KP, KT: ZFR7F-11 (NGK) or KJ22CR-L11 (ND) |               |
|                 |  | Gap   | 1.0—1.1 (0.039—0.043)   |               |
| Ignition timing | At idling  |   | 15° $\pm$ 2° BTDC   |               |
|                 | KF, KB, KE, KW, KU, KT, KP (AT)<br>KY (AT/MT)                        |   | 10° $\pm$ 2° BTDC<br>10° $\pm$ 2° BTDC  |               |
| Battery         | Lighting capacity (20-hours ratio)<br>< >: KY, KQ, KP, KT            |   | 65Ah<br><47Ah>  |               |
|                 | Starting capacity (voltage after 5 sec.)                             |   | 8.4 V minimum/300 ampere draw at -15°C (59°F)   |               |
| Alternator      | Output<br>< >: Carbureted engine (except KS, KW, KY)                 |   | 80A<br><70A>  |               |
|                 | Rotor coil resistance  |   | 2.8—3.0 $\Omega$<br>14.4 (0.57)   |               |
|                 | Slip ring O.D.   |   | 10.5 (0.41)   |               |
|                 | Brush length<br>Brush spring tension                                 |   | 300—360 g (10.6—12.7 oz)  |               |
| Alternator belt | Deflection at midway between pulleys with 98 N (10 kg, 22 lbs) force |   | 10—12 (0.39—0.47) for used belt<br>8.5—11.0 (0.33—0.43) for new belt  |               |
|                 | Belt tension between pulleys<br>(measured with tension gauge)        |   | 294—441 N (35—45 kg, 77—99 lb) for used belt<br>441—637 N (45—65 kg, 99—143 lb) for new belt  |               |
| Starting motor  | Output   |   | MT: 1.4 kw (2.2 l: 1.6 kw)<br>AT: 1.6 kw<br>MT: 1.4 kw<br>AT: 1.4 kw  |               |
|                 | Manufacturer:<br>Mitsuba   | Mica depth  | 0.4—0.5 (0.016—0.02)  |               |
|                 |  | Commutator runout   | 0—0.02 (0—0.001)  |               |
|                 |  | Commutator O.D.   | 28.0—28.1 (1.10—1.11)   |               |
|                 |  | Brush length  | 15.8—16.2 (0.62—0.64)   |               |
|                 |  | Brush spring tension                                      | 16—18N (1.6—1.8 kg, 3.5—4.0 lbs)  |               |
|                 | Manufacturer: ND   | Mica depth  | 0.5—0.8 (0.02—0.03)   |               |
|                 |  | Commutator runout   | 0—0.02 (0—0.001)  |               |
|                 |  | Commutator O.D.   | 29.9—30.0 (1.18—1.18)   |               |
|                 |  | Brush length  | 15.0—15.5 (0.59—0.61)   |               |
|                 |  | Brush spring tension                                      | 19—24N (1.9—2.4 kg, 4.2—5.3 lbs)  |               |