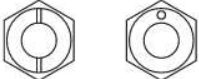
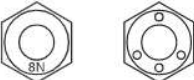
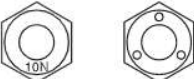
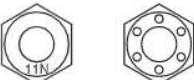
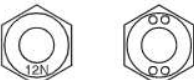


## SERVICE SPECIFICATIONS – STANDARD BOLT

SS-3

## HOW TO DETERMINE NUT STRENGTH

## Nut Type

| Present Standard Hexagon Nut                                                                             | Old Standard Hexagon Nut                                                                                 |                                                                                                 | Class    |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------|
|                                                                                                          | Cold Forging Nut                                                                                         | Cutting Processed Nut                                                                           |          |
| No Mark<br>             |                                                                                                          |                                                                                                 | 4N       |
| No Mark (w/ Washer)<br> | No Mark (w/ Washer)<br> | No Mark<br>   | 5N (4T)  |
|                         |                                                                                                          |                                                                                                 | 6N       |
|                                                                                                          |                         |               | 7N (5T)  |
|                       |                                                                                                          |                                                                                                 | 8N       |
|                       |                       | No Mark<br> | 10N (7T) |
|                       |                                                                                                          |                                                                                                 | 11N      |
|                       |                                                                                                          |                                                                                                 | 12N      |

## HINT:

- \*: Nut with 1 or more marks on one side surface of the nut.
- Use the nut with the same number of the nut strength classification or greater than the bolt strength classification number when tightening parts with a bolt and nut.

## Example:

- Bolt = 4T
- Nut = 4N or more

## SERVICE SPECIFICATIONS – 1NZ-FE ENGINE MECHANICAL

SS-9

## TORQUE SPECIFICATIONS

| Part tightened                                                         | N <sup>m</sup>                  | kgf <sup>cm</sup>                | ft. <sup>lbf</sup>              |
|------------------------------------------------------------------------|---------------------------------|----------------------------------|---------------------------------|
| Generator x Engine<br>: for bolt A                                     | 18.5                            | 189                              | 14                              |
| Generator x Engine<br>: for bolt B                                     | 54                              | 550                              | 40                              |
| Vane pump x Engine                                                     | 44                              | 449                              | 33                              |
| No. 2 camshaft bearing cap x Cylinder head                             | 13                              | 1339                             | 9                               |
| No. 1 camshaft bearing cap x Cylinder head                             | 23                              | 235                              | 17                              |
| Camshaft timing sprocket x No. 2 camshaft                              | 64                              | 653                              | 47                              |
| Screw plug x Timing chain cover                                        | 15                              | 153                              | 11                              |
| Cylinder head cover x Cylinder head                                    | 10                              | 102                              | 7                               |
| Ignition coil x Cylinder head cover                                    | 9.0                             | 92                               | 80 in. <sup>lbf</sup>           |
| No. 2 cylinder head cover x Cylinder head                              | 7.0                             | 71                               | 62 in. <sup>lbf</sup>           |
| No. 1 chain vibration damper x Cylinder block                          | 9.0                             | 92                               | 80 in. <sup>lbf</sup>           |
| Chain tensioner slipper x Cylinder block                               | 9.0                             | 92                               | 80 in. <sup>lbf</sup>           |
| No. 1 chain tensioner x Cylinder block                                 | 9.0                             | 92                               | 80 in. <sup>lbf</sup>           |
| Engine mounting insulator RH x Engine and body<br>: for bolt A         | 45                              | 459                              | 33                              |
| Engine mounting insulator RH x Engine and body<br>: for bolt B         | 52                              | 530                              | 38                              |
| Liquid tube x Body                                                     | 9.8                             | 100                              | 7 in. <sup>lbf</sup>            |
| Camshaft timing oil control valve x Cylinder head                      | 7.5                             | 76                               | 66 in. <sup>lbf</sup>           |
| Crankshaft pulley x Crankshaft                                         | 128                             | 1,305                            | 95                              |
| Oil pan drain plug x No. 2 oil pan                                     | 37.5                            | 383                              | 28                              |
| Stud bolt x Cylinder head<br>: for bolt A                              | 10                              | 102                              | 7.4 in. <sup>lbf</sup>          |
| Stud bolt x Cylinder head<br>: for bolt B                              | 4.0                             | 41                               | 35 in. <sup>lbf</sup>           |
| Stud bolt x Cylinder head<br>: for bolt C                              | 10                              | 102                              | 7.4                             |
| Stud bolt x Cylinder head<br>: for bolt D                              | 9.0                             | 92                               | 80 in. <sup>lbf</sup>           |
| Oil control valve filter x Cylinder head                               | 30                              | 306                              | 22                              |
| No. 1 taper screw plug x Cylinder head                                 | 44                              | 449                              | 33                              |
| Cylinder head x Cylinder block                                         | 1st: 29<br>2nd: 90°<br>3rd: 90° | 1st: 300<br>2nd: 90°<br>3rd: 90° | 1st: 22<br>2nd: 90°<br>3rd: 90° |
| Camshaft timing gear x No. 1 camshaft                                  | 64                              | 653                              | 47                              |
| Oil dipstick guide x Cylinder head                                     | 9.0                             | 92                               | 80 in. <sup>lbf</sup>           |
| Intake manifold x Cylinder head                                        | 30                              | 306                              | 22                              |
| Exhaust manifold support bracket x Cylinder block and exhaust manifold | 44                              | 449                              | 32                              |
| No. 1 exhaust manifold heat insulator x Exhaust manifold               | 8.0                             | 82                               | 71 in. <sup>lbf</sup>           |
| Front exhaust pipe x Exhaust manifold                                  | 43                              | 438                              | 32                              |
| Water filler x Body                                                    | 7.5                             | 76                               | 66 in. <sup>lbf</sup>           |
| No. 1 water by-pass pipe x Engine                                      | 9.0                             | 92                               | 80 in. <sup>lbf</sup>           |
| Engine hanger x Cylinder block                                         | 40                              | 408                              | 30                              |
| Engine coolant temperature sensor x Cylinder head                      | 20                              | 204                              | 15                              |
| Exhaust manifold x Cylinder head                                       | 27                              | 275                              | 20                              |
| Booster vacuum tube x Cylinder head                                    | 9.0                             | 92                               | 80 in. <sup>lbf</sup>           |
| Drive plate x Crankshaft                                               | 88                              | 900                              | 65                              |

SS

## SS-10

## SERVICE SPECIFICATIONS – 1NZ-FE ENGINE MECHANICAL

| Part tightened                                                                      | N*m                 | kgf*cm               | ft.*lbf             |
|-------------------------------------------------------------------------------------|---------------------|----------------------|---------------------|
| Flywheel x Crankshaft                                                               | 1st: 49<br>2nd: 90° | 1st: 500<br>2nd: 90° | 1st: 36<br>2nd: 90° |
| Engine and transaxle assembly x Suspension crossmember                              | 64                  | 653                  | 47                  |
| Engine mounting bracket LH x Engine mounting insulator LH                           | 49                  | 500                  | 36                  |
| Front suspension crossmember x Body<br>: for bolt A                                 | 116                 | 1,183                | 86                  |
| Front suspension crossmember x Body<br>: for bolt B                                 | 70                  | 714                  | 52                  |
| Front suspension member reinforcement LH x Front suspension<br>crossmember and body | 47                  | 479                  | 35                  |
| Front suspension member reinforcement RH x Front suspension<br>crossmember and body | 47                  | 479                  | 35                  |
| Front suspension arm lower LH x Steering knuckle                                    | 98                  | 999                  | 72                  |
| Tie rod end LH x Steering knuckle                                                   | 49                  | 500                  | 36                  |
| Speed sensor frond LH x Steering knuckle                                            | 8.0                 | 82                   | 71                  |
| Front axle hub LH nut x Drive shaft                                                 | 216                 | 2,203                | 160                 |
| Cylinder block water drain cock x Cylinder block                                    | 35                  | 357                  | 26                  |
| Stud bolt x Cylinder block                                                          | 5.0                 | 51                   | 44                  |
| Crankshaft bearing cap x Cylinder block                                             | 1st: 22<br>2nd: 90° | 1st: 224<br>2nd: 90° | 1st: 16<br>2nd: 90° |
| Connecting rod cap x Connecting rod                                                 | 1st: 15<br>2nd: 90° | 1st: 153<br>2nd: 90° | 1st: 11<br>2nd: 90° |
| Oil pan x Cylinder block                                                            | 24                  | 245                  | 18                  |
| Oil strainer x Cylinder block                                                       | 11                  | 112                  | 8.1                 |
| No. 2 oil pan x Oil pan                                                             | 9.0                 | 92                   | 80 in.*lbf          |
| Oil filter union x No. 2 oil pan                                                    | 30                  | 306                  | 22                  |
| Oil filter x Oil filter union                                                       | 17.5                | 178                  | 13                  |
| Camshaft position sensor x Cylinder head                                            | 8.0                 | 82                   | 71 in.*lbf          |
| Timing chain cover x Cylinder head and cylinder block<br>: for bolt A               | 24                  | 245                  | 18 in.*lbf          |
| Timing chain cover x Cylinder head and cylinder block<br>: for bolt B               | 11                  | 112                  | 8.1 in.*lbf         |
| Timing chain cover x Cylinder head and cylinder block<br>: for bolt C               | 11                  | 112                  | 8.1 in.*lbf         |
| Timing chain cover x Cylinder head and cylinder block<br>: for bolt D               | 24                  | 245                  | 18                  |
| Timing chain cover x Cylinder head and cylinder block<br>: for nut E                | 24                  | 245                  | 18                  |
| Water pump x Timing chain cover                                                     | 11                  | 112                  | 8                   |
| Engine mounting bracket RH x Timing chain cover                                     | 55                  | 561                  | 41                  |
| Water pump pulley x Water pump                                                      | 15                  | 153                  | 11                  |
| Fuel delivery pipe x Cylinder head<br>: for bolt A                                  | 19                  | 194                  | 14                  |
| Fuel delivery pipe x Cylinder head<br>: for bolt B                                  | 9.0                 | 92                   | 80 in.*lbf          |
| Camshaft timing oil control valve x Cylinder block                                  | 7.5                 | 76                   | 66 in.*lbf          |
| Ventilation valve x Cylinder head cover                                             | 27                  | 275                  | 20                  |
| Water inlet x Cylinder block                                                        | 9.0                 | 92                   | 80 in.*lbf          |
| Spark plug x Cylinder head cover                                                    | 18                  | 184                  | 13                  |

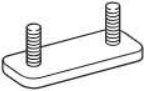
## SERVICE SPECIFICATIONS – STANDARD BOLT

SS-1

## STANDARD BOLT

HOW TO DETERMINE BOLT  
STRENGTH

## Bolt Type

| Hexagon Head Bolt                                                                                                                                                       |                                                                                                                                                                         | Stud Bolt                                                                                                                                                                | Weld Bolt                                                                           | Class |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|
| Normal Recess Bolt                                                                                                                                                      | Deep Recess Bolt                                                                                                                                                        |                                                                                                                                                                          |                                                                                     |       |
|                                                                                        | No Mark<br>                                                                            | No Mark<br>                                                                             |  | 4T    |
|       |                                                                                        |                                                                                                                                                                          |                                                                                     | 5T    |
|                                                                                        | w/ Washer<br>                                                                          |                                                                                         |                                                                                     | 6T    |
|   |   |                                                                                                                                                                          |                                                                                     | 7T    |
|                                                                                      |                                                                                      |   |                                                                                     | 8T    |
|                                                                                      |                                                                                      |                                                                                                                                                                          |                                                                                     | 9T    |
|                                                                                      |   |                                                                                                                                                                          |                                                                                     | 10T   |
|                                                                                      |   |                                                                                                                                                                          |                                                                                     | 11T   |

SS

## SS-2

## SERVICE SPECIFICATIONS – STANDARD BOLT

## SPECIFIED TORQUE FOR STANDARD BOLTS

| Class | Diameter (mm) | Pitch (mm) | Specified torque  |        |            |                     |        |            |
|-------|---------------|------------|-------------------|--------|------------|---------------------|--------|------------|
|       |               |            | Hexagon head bolt |        |            | Hexagon flange bolt |        |            |
|       |               |            | N*m               | kgf*cm | ft.*lbf    | N*m                 | kgf*cm | ft.*lbf    |
| 4T    | 6             | 1          | 5                 | 55     | 48 in.*lbf | 6                   | 60     | 52 in.*lbf |
|       | 8             | 1.25       | 12.5              | 130    | 9          | 14                  | 145    | 10         |
|       | 10            | 1.25       | 26                | 260    | 19         | 29                  | 290    | 21         |
|       | 12            | 1.25       | 47                | 480    | 35         | 53                  | 540    | 39         |
|       | 14            | 1.5        | 74                | 760    | 55         | 84                  | 850    | 61         |
|       | 16            | 1.5        | 115               | 1,150  | 83         | -                   | -      | -          |
| 5T    | 6             | 1          | 6.5               | 65     | 56 in.*lbf | 7.5                 | 75     | 65 in.*lbf |
|       | 8             | 1.25       | 15.5              | 160    | 12         | 17.5                | 175    | 13         |
|       | 10            | 1.25       | 32                | 330    | 24         | 36                  | 360    | 26         |
|       | 12            | 1.25       | 59                | 600    | 43         | 65                  | 670    | 48         |
|       | 14            | 1.5        | 91                | 930    | 67         | 100                 | 1,050  | 76         |
|       | 16            | 1.5        | 140               | 1,400  | 101        | -                   | -      | -          |
| 6T    | 6             | 1          | 8                 | 80     | 69 in.*lbf | 9                   | 90     | 78 in.*lbf |
|       | 8             | 1.25       | 19                | 195    | 14         | 21                  | 210    | 15         |
|       | 10            | 1.25       | 39                | 400    | 29         | 44                  | 440    | 32         |
|       | 12            | 1.25       | 71                | 730    | 53         | 80                  | 810    | 59         |
|       | 14            | 1.5        | 110               | 1,100  | 80         | 125                 | 1,250  | 90         |
|       | 16            | 1.5        | 170               | 1,750  | 127        | -                   | -      | -          |
| 7T    | 6             | 1          | 10.5              | 110    | 8          | 12                  | 120    | 9          |
|       | 8             | 1.25       | 25                | 260    | 19         | 28                  | 290    | 21         |
|       | 10            | 1.25       | 52                | 530    | 38         | 58                  | 590    | 43         |
|       | 12            | 1.25       | 95                | 970    | 70         | 105                 | 1,050  | 76         |
|       | 14            | 1.5        | 145               | 1,500  | 108        | 165                 | 1,700  | 123        |
|       | 16            | 1.5        | 230               | 2,300  | 166        | -                   | -      | -          |
| 8T    | 8             | 1.25       | 29                | 300    | 22         | 33                  | 330    | 24         |
|       | 10            | 1.25       | 61                | 620    | 45         | 68                  | 690    | 50         |
|       | 12            | 1.25       | 110               | 1,100  | 80         | 120                 | 1,250  | 90         |
| 9T    | 8             | 1.25       | 34                | 340    | 25         | 37                  | 380    | 27         |
|       | 10            | 1.25       | 70                | 710    | 51         | 78                  | 790    | 57         |
|       | 12            | 1.25       | 125               | 1,300  | 94         | 140                 | 1,450  | 105        |
| 10T   | 8             | 1.25       | 38                | 390    | 28         | 42                  | 430    | 31         |
|       | 10            | 1.25       | 78                | 800    | 58         | 88                  | 890    | 64         |
|       | 12            | 1.25       | 140               | 1,450  | 105        | 155                 | 1,600  | 116        |
| 11T   | 8             | 1.25       | 42                | 430    | 31         | 47                  | 480    | 35         |
|       | 10            | 1.25       | 87                | 890    | 64         | 97                  | 990    | 72         |
|       | 12            | 1.25       | 155               | 1,600  | 116        | 175                 | 1,800  | 130        |

## SS-4

## SERVICE SPECIFICATIONS – 1NZ-FE ENGINE CONTROL SYSTEM

# 1NZ-FE ENGINE CONTROL SYSTEM

## SERVICE DATA

### Camshaft timing oil control valve

| Camshaft Timing Oil Control Valve | Condition   | Specified Condition |
|-----------------------------------|-------------|---------------------|
| Standard resistance               | 20°C (68°F) | 6.9 to 7.9 Ω        |

SS

### Camshaft position sensor

| Camshaft Position Sensor | Coolant Temperature | Specified Condition |
|--------------------------|---------------------|---------------------|
| Standard resistance      | Hot                 | 1.630 to 2.740 Ω    |
|                          | Cold                | 2.065 to 3.225 Ω    |

### Engine coolant temperature sensor

| Engine Coolant Temperature Sensor | Condition    | Specified Condition |
|-----------------------------------|--------------|---------------------|
| Standard resistance               | 20°C (68°F)  | 2.29 to 2.60 Ω      |
|                                   | 80°C (176°F) | 0.301 to 0.327 Ω    |

### Knock sensor

| Knock Sensor        | Condition   | Specified Condition |
|---------------------|-------------|---------------------|
| Standard resistance | 20°C (68°F) | 120 to 280 Ω        |

### Throttle position sensor

| Throttle Position Sensor | Tester Connection | Throttle Valve Position | Specified Condition |
|--------------------------|-------------------|-------------------------|---------------------|
| Standard resistance      | 1 (VC) - 2 (E2)   | -                       | 2.5 to 6.0 Ω        |
|                          | 3 (VTA) - 2 (E2)  | Fully close             | 0.2 to 11.0 Ω       |
|                          | 3 (VTA) - 2 (E2)  | Fully open              | 2.0 to 16.0 Ω       |

### EFI relay

| EFI Relay           | Tester Connection | Specified Condition                                                |
|---------------------|-------------------|--------------------------------------------------------------------|
| Standard resistance | 3 - 5             | 10 kΩ or higher                                                    |
|                     | 3 - 5             | Below 1 Ω<br>(when battery voltage is applied to terminal 1 and 2) |

### Circuit opening relay

| Circuit Opening Relay | Tester Connection | Specified Condition                                                |
|-----------------------|-------------------|--------------------------------------------------------------------|
| Standard resistance   | 3 - 5             | 10 kΩ or higher                                                    |
|                       | 3 - 5             | Below 1 Ω<br>(when battery voltage is applied to terminal 1 and 2) |

**SERVICE SPECIFICATIONS – 1NZ-FE ENGINE CONTROL SYSTEM****SS-5****TORQUE SPECIFICATIONS****Camshaft timing oil control valve**

| Part Tightened                                    | N*m | kgf*cm | ft.*lbf    |
|---------------------------------------------------|-----|--------|------------|
| Camshaft timing oil control valve x Cylinder head | 7.5 | 76     | 66 in.*lbf |

**Camshaft position sensor**

| Part Tightened                           | N*m | kgf*cm | ft.*lbf    |
|------------------------------------------|-----|--------|------------|
| Camshaft position sensor x Cylinder head | 8.0 | 82     | 71 in.*lbf |

**SS****Crankshaft position sensor**

| Part Tightened                              | N*m | kgf*cm | ft.*lbf    |
|---------------------------------------------|-----|--------|------------|
| Crankshaft position sensor x Cylinder block | 7.5 | 76     | 66 in.*lbf |

**Engine coolant temperature sensor**

| Part Tightened                                     | N*m | kgf*cm | ft.*lbf |
|----------------------------------------------------|-----|--------|---------|
| Engine coolant temperature sensor x Cylinder block | 20  | 204    | 15      |

**Throttle body**

| Part Tightened                                              | N*m | kgf*cm | ft.*lbf    |
|-------------------------------------------------------------|-----|--------|------------|
| Throttle body x Cylinder block                              | 30  | 306    | 22         |
| Transmission oil filter tube sub-assembly x Cylinder head   | 5.5 | 56     | 49 in.*lbf |
| Oil cooler tube x Transmission oil filter tube sub-assembly | 5.5 | 56     | 49 in.*lbf |
| Accelerator control valve cable x Throttle body             | 13  | 133    | 10         |
| Air cleaner assembly x Body                                 | 7.8 | 80     | 69 in.*lbf |
| Air cleaner inlet x Body                                    | 7.5 | 76     | 66 in.*lbf |

**Knock sensor**

| Part Tightened                | N*m | kgf*cm | ft.*lbf |
|-------------------------------|-----|--------|---------|
| Knock sensor x Cylinder block | 20  | 204    | 15      |

**Idle air control valve**

| Part Tightened                         | N*m | kgf*cm | ft.*lbf    |
|----------------------------------------|-----|--------|------------|
| Idle air control valve x Throttle body | 3.4 | 35     | 30 in.*lbf |

**Throttle position sensor**

| Part Tightened                           | N*m | kgf*cm | ft.*lbf    |
|------------------------------------------|-----|--------|------------|
| Throttle position sensor x Throttle body | 2.0 | 20     | 18 in.*lbf |

**ECM**

| Part Tightened                         | N*m | kgf*cm | ft.*lbf    |
|----------------------------------------|-----|--------|------------|
| Idle air control valve x Throttle body | 3.0 | 31     | 27 in.*lbf |

## SS-6

## SERVICE SPECIFICATIONS – 1NZ-FE ENGINE MECHANICAL

# 1NZ-FE ENGINE MECHANICAL

## SERVICE DATA

|                                                                       |                                         |                                                                          |
|-----------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------|
| Ignition timing                                                       | -                                       | 8 to 12° BTDC                                                            |
| Engine idle speed                                                     | M/T                                     | 600 to 700 rpm                                                           |
|                                                                       | A/T                                     | 650 to 750 rpm                                                           |
| Compression                                                           | Standard compression pressure           | 1,471 kPa (15.0 kgf/cm <sup>2</sup> , 213 psi)                           |
|                                                                       | Minimum pressure                        | 1,079 kPa (11.0 kgf/cm <sup>2</sup> , 156 psi)                           |
|                                                                       | Difference between each cylinder        | 98 kPa (1.0 kgf/cm <sup>2</sup> , 14 psi)                                |
| Generator V belt tension                                              | New belt                                | 121 to 143 lbf                                                           |
|                                                                       | Used belt                               | 55 to 88 lbf                                                             |
| Vane pump V belt tension                                              | New belt                                | 99 to 121 lbf                                                            |
|                                                                       | Used belt                               | 55 to 77 lbf                                                             |
| Generator V belt deflection                                           | New belt                                | 7.0 to 8.5 mm (0.28 to 0.33 in.)                                         |
|                                                                       | Used belt                               | 11.0 to 13.0 mm (0.43 to 0.51 in.)                                       |
| Vane pump V belt deflection<br>: Pressing force 98 N (10 kgf, 22 lbf) | New belt                                | 8.0 to 10.0 mm (0.31 to 0.39 in.)                                        |
|                                                                       | Used belt                               | 11.0 to 13.0 mm (0.43 to 0.51 in.)                                       |
| Valve clearance (cold)                                                | Intake                                  | 0.15 to 0.25 mm (0.006 to 0.010 in.)                                     |
|                                                                       | Exhaust                                 | 0.25 to 0.35 mm (0.010 to 0.014 in.)                                     |
| Chain                                                                 | Maximum chain elongation                | 123.2 mm (4.850 in.)                                                     |
| Chain tensioner slipper                                               | Maximum wear                            | 1.0 mm (0.039 in.)                                                       |
| No. 1 chain vibration damper                                          | Maximum wear                            | 1.0 mm (0.039 in.)                                                       |
| Cylinder head for flatness                                            | Maximum warp<br>: Cylinder block side   | 0.05 mm (0.0020 in.)                                                     |
|                                                                       | Maximum warp<br>: Intake manifold side  | 0.10 mm (0.0039 in.)                                                     |
|                                                                       | Maximum warp<br>: Exhaust manifold side | 0.10 mm (0.0039 in.)                                                     |
| Cylinder head set bolt                                                | Standard length                         | 142.8 to 144.2 mm (5.622 to 5.677 in.)                                   |
|                                                                       | Maximum length                          | 147.1 mm (5.791 in.)                                                     |
| Cylinder block for flatness                                           | Maximum warp                            | 0.05 mm (0.0020 in.)                                                     |
| Intake valve                                                          | Standard overall length                 | 89.25 mm (3.5138 in.)                                                    |
|                                                                       | Minimum overall length                  | 88.75 mm (3.4941 in.)                                                    |
|                                                                       | Standard valve stem diameter            | 4.970 to 4.985 mm (0.1957 to 0.1963 in.)                                 |
|                                                                       | Standard margin thickness               | 1.0 mm (0.039 in.)                                                       |
|                                                                       | Minimum margin thickness                | 0.7 mm (0.028 in.)                                                       |
| Exhaust valve                                                         | Standard overall length                 | 87.90 mm (3.4606 in.)                                                    |
|                                                                       | Minimum overall length                  | 87.40 mm (3.4409 in.)                                                    |
|                                                                       | Standard valve stem diameter            | 4.965 to 4.980 mm (0.1955 to 0.1961 in.)                                 |
|                                                                       | Standard margin thickness               | 1.15 mm (0.045 in.)                                                      |
|                                                                       | Minimum margin thickness                | 0.7 mm (0.028 in.)                                                       |
| Valve spring                                                          | Standard free length                    | 45.05 to 45.15 mm (1.774 to 1.778 in.)                                   |
|                                                                       | Maximum deviation                       | 1.6 mm (0.063 in.)                                                       |
|                                                                       | Maximum angle (reference)               | 2°                                                                       |
|                                                                       | Standard installed tension              | 149 to 165 N (15.2 to 16.8 kgf, 33.5 to 37.1 lbf) at 32.5 mm (1.280 in.) |
|                                                                       | Maximum workin                          | 286 to 316 N (29.1 to 32.2 kgf, 64.2 to 71.0 lbf) at 23.9 mm (0.941 in.) |

**SERVICE SPECIFICATIONS – 1NZ-FE ENGINE MECHANICAL****SS-7**

|                                       |                                                                            |                                            |
|---------------------------------------|----------------------------------------------------------------------------|--------------------------------------------|
| Intake valve guide bush               | Bush inside diameter                                                       | 5.010 to 5.030 mm (0.1972 to 0.1980 in.)   |
|                                       | Standard oil clearance<br>: bush and valve                                 | 0.025 to 0.060 mm (0.0010 to 0.0024 in.)   |
|                                       | Maximum oil clearance<br>: bush and valve                                  | 0.08 mm (0.0032 in.)                       |
|                                       | Standard bore diameter (STD)<br>: bush bore diameter of cylinder head      | 9.685 to 9.706 mm (0.3813 to 0.3821 in.)   |
|                                       | Standard bore diameter (O/S 0.05)<br>: bush bore diameter of cylinder head | 9.7355 to 9.756 mm (0.3833 to 0.3841 in.)  |
|                                       | Standard protrusion height                                                 | 9.0 to 9.4 mm (0.354 to 0.370 in.)         |
|                                       | Standard oil clearance<br>: bush and cylinder head                         | 0.025 to 0.060 mm (0.0010 to 0.0024 in.)   |
| Exhaust valve guide bush              | Bush inside diameter                                                       | 5.010 to 5.030 mm (0.1972 to 0.1980 in.)   |
|                                       | Standard oil clearance                                                     | 0.030 to 0.065 mm (0.0012 to 0.0026 in.)   |
|                                       | Maximum oil clearance                                                      | 0.10 mm (0.0039 in.)                       |
|                                       | Standard bore diameter (STD)<br>: bush bore diameter of cylinder head      | 9.685 to 9.706 mm (0.3813 to 0.3821 in.)   |
|                                       | Standard bore diameter (O/S 0.05)<br>: bush bore diameter of cylinder head | 9.7355 to 9.756 mm (0.3833 to 0.3841 in.)  |
|                                       | Standard protrusion height                                                 | 9.0 to 9.4 mm (0.354 to 0.370 in.)         |
|                                       | Standard oil clearance<br>: bush and cylinder head                         | 0.030 to 0.065 mm (0.0012 to 0.0026 in.)   |
| Valve lifter                          | Standard lifter diameter                                                   | 30.966 to 30.976 mm (1.2191 to 1.2195 in.) |
|                                       | Standard lifter bore diameter                                              | 31.000 to 31.025 mm (1.2205 to 1.2215 in.) |
|                                       | Standard oil clearance                                                     | 0.024 to 0.059 mm (0.0009 to 0.0023 in.)   |
|                                       | Maximum oil clearance                                                      | 0.1 mm (0.0039 mm)                         |
| Camshaft timing gear                  | Minimum gear diameter (w/ chain)                                           | 96.2 mm (3.787 in.)                        |
| Camshaft timing sprocket              | Minimum gear diameter (w/ chain)                                           | 96.2 mm (3.787 in.)                        |
| Camshaft                              | Maximum circle runout                                                      | 0.03 mm (0.0012 in.)                       |
|                                       | Standard cam lobe height                                                   | 44.617 to 44.717 mm (1.7566 to 1.7605 in.) |
|                                       | Minimum cam lobe height                                                    | 44.47 mm (1.7508 in.)                      |
|                                       | Standard journal diameter<br>: No. 1 journal                               | 34.449 to 34.465 mm (1.3563 to 1.3569 in.) |
|                                       | Standard journal diameter<br>: Other journals                              | 22.949 to 22.965 mm (0.9035 to 0.9041 in.) |
| No. 2 camshaft                        | Maximum circle runout                                                      | 0.03 mm (0.0012 in.)                       |
|                                       | Standard cam lobe height                                                   | 44.666 to 44.766 mm (1.7585 to 1.7624 in.) |
|                                       | Minimum cam lobe height                                                    | 44.52 mm (1.7528 in.)                      |
|                                       | Standard journal diameter<br>: No. 1 journal                               | 34.449 to 34.465 mm (1.3563 to 1.3569 in.) |
|                                       | Standard journal diameter<br>: Other journals                              | 22.949 to 22.965 mm (0.9035 to 0.9041 in.) |
| Camshaft thrust clearance             | Standard thrust clearance                                                  | 0.040 to 0.095 mm (0.0016 to 0.0037 in.)   |
|                                       | Maximum thrust clearance                                                   | 0.11 mm (0.0043 in.)                       |
| Camshaft oil clearance                | Standard oil clearance                                                     | 0.040 to 0.095 mm (0.0016 to 0.0037)       |
|                                       | Maximum oil clearance                                                      | 0.115 mm (0.0045 in.)                      |
| Camshaft bearing cap setting ring pin | Standard protrusion height                                                 | 8.5 to 9.5 mm (0.335 to 0.374 in.)         |
| Union                                 | Standard protrusion<br>: A                                                 | 29 mm (1.14 in.)                           |
|                                       | Standard protrusion<br>: B                                                 | 44 mm (1.73 in.)                           |
| Intake manifold                       | Maximum warpage                                                            | 0.10 mm (0.004 in.)                        |
| Exhaust manifold                      | Maximum warpage                                                            | 0.70 mm (0.028 in.)                        |

**SS**

## SS-8

## SERVICE SPECIFICATIONS – 1NZ-FE ENGINE MECHANICAL

|                                 |                                                   |                                            |
|---------------------------------|---------------------------------------------------|--------------------------------------------|
| Connecting rod thrust clearance | Standard thrust clearance                         | 0.16 to 0.36 mm (0.0063 to 0.0142 in.)     |
|                                 | Maximum thrust clearance                          | 0.36 mm (0.0142 in.)                       |
| Connecting rod oil clearance    | Standard oil clearance                            | 0.016 to 0.040 mm (0.0006 to 0.0016 in.)   |
|                                 | Maximum oil clearance                             | 0.06 mm (0.0024 in.)                       |
| Crankshaft oil clearance        | Standard oil clearance                            | 0.010 to 0.023 mm (0.0004 to 0.0009 in.)   |
|                                 | Maximum oil clearance                             | 0.07 mm (0.0028 in.)                       |
| Cylinder bore                   | Standard diameter                                 | 75.000 to 75.013 mm (2.9528 to 2.9533 in.) |
| Piston with pin                 | Standard piston diameter                          | 74.945 to 74.955 mm (2.9506 to 2.9510 in.) |
|                                 | Standard piston hole diameter at 20° (68°F)       | 18.013 to 18.016 mm (0.7092 to 0.7093 in.) |
|                                 | Standard piston pin diameter                      | 18.001 to 18.004 mm (0.7087 to 0.7088 in.) |
|                                 | Standard oil clearance<br>: piston and piston pin | 0.009 to 0.015 mm (0.0004 to 0.0006 in.)   |
|                                 | Maximum oil clearance<br>: piston and piston pin  | 0.050 mm (0.0020 in.)                      |
| Piston clearance                | Standard oil clearance                            | 0.055 to 0.078 mm (0.0022 to 0.0031 in.)   |
|                                 | Maximum oil clearance                             | 0.08 mm (0.0032 in.)                       |
| Connecting rod                  | Standard connecting rod inside diameter           | 17.965 to 17.985 mm (0.7073 to 0.7081 in.) |
|                                 | Maximum misalignment                              | 0.05 mm (0.0020 in.) per 100 mm (3.94 in.) |
|                                 | Maximum twist                                     | 0.05 mm (0.0020 in.) per 100 mm (3.94 in.) |
| Piston ring                     | Standard ring groove clearance<br>: No. 1 ring    | 0.02 to 0.04 mm (0.0008 to 0.0016 in.)     |
|                                 | Standard ring groove clearance<br>: No. 1 ring    | 0.02 to 0.04 mm (0.0008 to 0.0016 in.)     |
|                                 | Standard ring groove clearance<br>: No. 2 ring    | 0.01 to 0.03 mm (0.0004 to 0.0012 in.)     |
|                                 | Standard ring groove clearance<br>: Oil ring      | 0.01 to 0.03 mm (0.0004 to 0.0012 in.)     |
|                                 | Standard end gap<br>: No. 1 ring                  | 0.25 to 0.35 mm (0.0098 to 0.0138 in.)     |
|                                 | Maximum end gap<br>: No. 1 ring                   | 0.91 mm (0.0358 in.)                       |
|                                 | Standard end gap<br>: No. 2 ring                  | 0.35 to 0.50 mm (0.0138 to 0.0197 in.)     |
|                                 | Maximum end gap<br>: No. 1 ring                   | 1.06 mm (0.0417 in.)                       |
|                                 | Standard end gap<br>: Oil ring                    | 0.10 to 0.35 mm (0.039 to 0.0138 in.)      |
|                                 | Maximum end gap<br>: Oil ring                     | 0.82 mm (0.0323 in.)                       |
|                                 |                                                   |                                            |
| Connecting rod bolt             | Standard diameter                                 | 6.6 to 6.7 mm (0.260 to 0.264 in.)         |
|                                 | Maximum diameter                                  | 6.4 mm (0.252 in.)                         |
| Crankshaft                      | Maximum circle runout                             | 0.03 mm (0.0012 in.)                       |
|                                 | Standard diameter<br>: main journal               | 45.988 to 46.000 mm (1.8106 to 1.8110 in.) |
|                                 | Maximum taper and distortion<br>: main journal    | 0.02 mm (0.0008 in.)                       |
|                                 | Standard diameter<br>: crank pin                  | 39.992 to 40.000 mm (1.5745 to 1.5748 in.) |
|                                 | Maximum taper and distortion<br>: crank pin       | 0.2 mm (0.0008 in.)                        |
|                                 | Standard sprocket diameter (w/ chain)             | 51.72 mm (2.0362 in.)                      |
|                                 | Minimum sprocket diameter (w/ chain)              | 50.5 mm (1.988 in.)                        |
| Crankshaft bearing cap set bolt | Standard diameter                                 | 7.3 to 7.5 mm (0.287 to 0.295 in.)         |
|                                 | Minimum diameter                                  | 7.2 mm (0.283 in.)                         |

## SERVICE SPECIFICATIONS – 1NZ-FE FUEL

SS-11

**1NZ-FE FUEL****SERVICE DATA****Fuel**

| Fuel                   | Condition                                               | Specified Condition                                           |
|------------------------|---------------------------------------------------------|---------------------------------------------------------------|
| Standard fuel pressure | at Idle                                                 | 304 to 343 kPa 3.1 to 3.5 kgf/cm <sup>2</sup> , 44 to 50 psi) |
|                        | Remains as specified for 5 minutes after engine stopped | 147 kPa (1.5 kgf/cm <sup>2</sup> , 21 psi)                    |

SS

**Fuel injector**

| Fuel Injector             | Injection Volume                                            | Difference Between Each Injector        |
|---------------------------|-------------------------------------------------------------|-----------------------------------------|
| Standard injection volume | 47 to 58 cm <sup>3</sup> (2.9 to 3.5 cu in.) per 15 seconds | 11 cm <sup>3</sup> (0.6 cu in.) or less |

**Fuel pump**

| Fuel Pump           | Condition   | Specified Condition |
|---------------------|-------------|---------------------|
| Standard resistance | 20°C (68°F) | 0.2 to 3.0 Ω        |

## SS-12

## SERVICE SPECIFICATIONS – 1NZ-FE FUEL

## TORQUE SPECIFICATIONS

## Fuel injector

| Part Tightened                            |                        | N <sup>m</sup> | kgf <sup>cm</sup> | ft. <sup>lbf</sup>    |
|-------------------------------------------|------------------------|----------------|-------------------|-----------------------|
| Fuel delivery pipe x<br>Cylinder head     | Bolt A (delivery pipe) | 19             | 194               | 14                    |
|                                           | Bolt B (fuel tube)     | 9.0            | 92                | 80 in. <sup>lbf</sup> |
| No. 2 cylinder head cover x Cylinder head |                        | 7.0            | 71                | 62 in. <sup>lbf</sup> |

## Fuel pump

SS

| Part Tightened                               |  | N <sup>m</sup> | kgf <sup>cm</sup> | ft. <sup>lbf</sup>    |
|----------------------------------------------|--|----------------|-------------------|-----------------------|
| Fuel tank vent tube set plate x<br>Fuel tank |  | 6.0            | 61                | 53 in. <sup>lbf</sup> |
| Rear seat cushion support<br>bracket x Body  |  | 5.0            | 51                | 44 in. <sup>lbf</sup> |

## Fuel tank

| Part Tightened                       |           | N <sup>m</sup> | kgf <sup>cm</sup> | ft. <sup>lbf</sup>    |
|--------------------------------------|-----------|----------------|-------------------|-----------------------|
| Check valve support x Fuel tank      |           | 3.5            | 36                | 31 in. <sup>lbf</sup> |
| Check valve protector x Fuel tank    |           | 3.5            | 36                | 31 in. <sup>lbf</sup> |
| Fuel tank assembly x Body            |           | 32             | 326               | 24                    |
| Fuel tank filler pipe x<br>Fuel tank | for clamp | 7.5            | 76                | 66 in. <sup>lbf</sup> |
| No. 3 parking brake cable x Body     |           | 15             | 153               | 11                    |
| No. 2 parking brake cable x Body     |           | 15             | 153               | 11                    |

SS-12

SERVICE SPECIFICATIONS – 1NZ-FE EMISSION CONTROL

1NZ-FE EMISSION CONTROL  
SERVICE DATA

|                                            |                     |                 |                           |
|--------------------------------------------|---------------------|-----------------|---------------------------|
| Vacuum switching valve (Purge VSV)         | Standard resistance |                 | 23 to 26 Ω at 20°C (68°F) |
| Heated oxygen sensor (for Bank 1 Sensor 1) | Standard resistance | 1 (HT) - 2 (+B) | 11 to 16 Ω at 20°C (68°F) |
|                                            |                     | 1 (HT) - 4 (E1) | 10 kΩ or higher           |
| Heated oxygen sensor (for Bank 1 Sensor 2) | Standard resistance | 1 (HT) - 2 (+B) | 11 to 16 Ω at 20°C (68°F) |
|                                            |                     | 1 (HT) - 4 (E1) | 10 kΩ or higher           |

SS

**SERVICE SPECIFICATIONS – 1NZ-FE EMISSION CONTROL****SS-13****TORQUE SPECIFICATIONS**

| <b>Part Tightened</b>                                                                 | <b>N*m</b> | <b>kgf*cm</b> | <b>ft.*lbf</b> |
|---------------------------------------------------------------------------------------|------------|---------------|----------------|
| Charcoal canister x Body                                                              | 19         | 194           | 14             |
| Ventilation valve x Cylinder head cover                                               | 27         | 275           | 20             |
| Heated oxygen sensor (for bank 1 sensor 1) x Front exhaust pipe : for use with SST    | 44         | 449           | 32             |
| Heated oxygen sensor (for bank 1 sensor 1) x Front exhaust pipe : for use without SST | 40         | 408           | 30             |
| Heated oxygen sensor (for bank 1 sensor 1) x Front exhaust pipe : for use with SST    | 44         | 449           | 32             |
| Heated oxygen sensor (for bank 1 sensor 1) x Front exhaust pipe : for use without SST | 40         | 408           | 30             |

**SS**

1NZ-FE EXHAUST  
SERVICE DATA

|                                   |                     |
|-----------------------------------|---------------------|
| Compression spring minimum length | 40.5 mm (1.594 in.) |
|-----------------------------------|---------------------|



SS-14

SERVICE SPECIFICATIONS – 1NZ-FE EXHAUST

TORQUE SPECIFICATIONS

| Part tightened                                                                           | N*m | kgf*cm | ft.*lbf |
|------------------------------------------------------------------------------------------|-----|--------|---------|
| Heated oxygen sensor (for Bank 1 Sensor 2) x Front exhaust pipe<br>: for use with SST    | 40  | 408    | 30      |
| Heated oxygen sensor (for Bank 1 Sensor 2) x Front exhaust pipe<br>: for use without SST | 44  | 449    | 32      |
| Tail pipe x Front exhaust pipe                                                           | 32  | 326    | 24      |
| Front panel brace x Body                                                                 | 20  | 204    | 14      |

SS

**SS-14****SERVICE SPECIFICATIONS – 1NZ-FE COOLING****1NZ-FE COOLING****SERVICE DATA**

|                         |                           |                 |                                                                        |
|-------------------------|---------------------------|-----------------|------------------------------------------------------------------------|
| Thermostat              | Valve opening temperature |                 | 80 to 84°C (176 to 183°F)                                              |
|                         | Valve lift                | at 95°C (203°F) | 8.5 mm (0.33 in.) or more                                              |
| Radiator cap            | Standard opening pressure |                 | 93 to 123 kPa (0.95 to 1.25 kgf*cm <sup>2</sup> , 13.5 to 17.8 psi)    |
|                         | Minimum opening pressure  |                 | 78 kPa (0.8 kgf*cm <sup>2</sup> , 11.4 psi)                            |
| Fan                     | Standard amperage         | at 20°C (68°F)  | 11.7 to 14.7 A                                                         |
| Cooling Fan Resistor    | Resistance                | at 20°C (68°F)  | 1.17 to 1.43 Ω                                                         |
| No. 1 Cooling fan relay | Resistance                | 3 - 5           | 10 kΩ or higher                                                        |
|                         |                           | 3 - 5           | Below 1 Ω (when battery voltage is applied to terminals 1 and 2)       |
| No. 2 cooling fan relay | Resistance                | 3 - 4           | Below 1 Ω                                                              |
|                         |                           | 3 - 5           | 10 kΩ or higher                                                        |
|                         |                           | 3 - 4           | 10 kΩ or higher (when battery voltage is applied to terminals 1 and 2) |
|                         |                           | 3 - 5           | Below 1 Ω (when battery voltage is applied to terminals 1 and 2)       |

**SS**

SERVICE SPECIFICATIONS – 1NZ-FE COOLING

SS-15

TORQUE SPECIFICATIONS

| Part Tightened                              | N*m | kgf*cm | ft.*lbf    |
|---------------------------------------------|-----|--------|------------|
| Radiator Drain Plug Sub-assembly x Radiator | 13  | 129    | 9.4        |
| Water pump x Cylinder block                 | 11  | 112    | 8          |
| Water pump pulley x Water pump              | 15  | 153    | 11         |
| Water Inlet x Cylinder block                | 9.0 | 92     | 80 in.*lbf |
| Water filler x Radiator                     | 7.5 | 76     | 66 in.*lbf |
| Fan shroud x Radiator                       | 7.5 | 76     | 66 in.*lbf |
| Radiator support upper x body               | 5.0 | 51     | 44 in.*lbf |
| Hood Lock Support x Body                    | 5.0 | 51     | 44 in.*lbf |

SS

## SERVICE SPECIFICATIONS – 1NZ-FE LUBRICATION

SS-15

## 1NZ-FE LUBRICATION

## SERVICE DATA

|                                |                                                                                            |
|--------------------------------|--------------------------------------------------------------------------------------------|
| Oil pressure<br>: at idle      | 29 kPa (0.3 kgf/cm <sup>2</sup> , 4.2 psi) or more                                         |
| Oil pressure<br>: at 3,000 rpm | 150 to 550 kPa (1.5 to 5.6 kgf/cm <sup>2</sup> , 22 to 80 psi) or more                     |
| Oil pump<br>: Tip clearance    | Standard:<br>0.060 to 0.180 mm (0.0024 to 0.0071 in.)<br>Maximum:<br>0.28 mm (0.0110 in.)  |
| Oil pump<br>: Body clearance   | Standard:<br>0.250 to 0.325 mm (0.0098 to 0.0128 in.)<br>Maximum:<br>0.425 mm (0.0167 in.) |
| Oil pump<br>: Side clearance   | Standard:<br>0.03 to 0.09 mm (0.0012 to 0.0035 in.)<br>Maximum:<br>0.15 mm (0.0059 in.)    |

SS

**SS-16****SERVICE SPECIFICATIONS – 1NZ-FE LUBRICATION****TORQUE SPECIFICATIONS**

| <b>Part tightened</b>                                                 | <b>N*m</b> | <b>kgf*cm</b> | <b>ft.*lbf</b> |
|-----------------------------------------------------------------------|------------|---------------|----------------|
| Oil pressure switch x Cylinder block                                  | 15         | 153           | 11             |
| Oil filter x Oil filter union                                         | 17.2       | 175           | 13             |
| Oil pump cover x Timing chain cover<br>: for bolt                     | 8.8        | 90            | 78 in.*lbf     |
| Oil pump cover x Timing chain cover<br>: for nut                      | 10         | 102           | 7.6            |
| Oil pump relief valve plug x Timing chain cover                       | 25         | 255           | 18             |
| Timing chain cover x Cylinder head and cylinder block<br>: for bolt A | 24         | 245           | 18             |
| Timing chain cover x Cylinder head and cylinder block<br>: for bolt B | 11         | 112           | 8.1            |
| Timing chain cover x Cylinder head and cylinder block<br>: for bolt C | 11         | 112           | 8.1            |
| Timing chain cover x Cylinder head and cylinder block<br>: for bolt D | 24         | 245           | 18             |
| Timing chain cover x Cylinder head and cylinder block<br>: for nut E  | 24         | 245           | 18             |
| Oil pan drain plug x No. 2 oil pan                                    | 37.5       | 382           | 28             |

**SS**

**SS-16**

**SERVICE SPECIFICATIONS – 1NZ-FE IGNITION**

**1NZ-FE IGNITION**  
**SERVICE DATA**

|            |                        |                                                       |
|------------|------------------------|-------------------------------------------------------|
| Spark plug | Standard electrode gap | 0.7 to 0.8 mm (0.028 to 0.031 in.) for new spark plug |
|------------|------------------------|-------------------------------------------------------|

**SS**

SERVICE SPECIFICATIONS – 1NZ-FE IGNITION

SS-17

TORQUE SPECIFICATIONS

| Part Tightened                               | N*m | kgf*cm | ft.*lbf    |
|----------------------------------------------|-----|--------|------------|
| Spark plug x Cylinder head sub-assembly      | 18  | 184    | 13         |
| Ignition coil assembly x Cylinder head cover | 9.0 | 92     | 80 in.*lbf |

SS

## SERVICE SPECIFICATIONS – U340E AUTOMATIC TRANSMISSION

SS-23

## TORQUE SPECIFICATIONS

## Automatic Transaxle Assembly

| Part tightened                                                       | N*m | kgf*cm | ft.*lbf    |
|----------------------------------------------------------------------|-----|--------|------------|
| Park/neutral position switch assembly (for bolt)                     | 5.4 | 55     | 48 in.*lbf |
| Park/neutral position switch assembly (for nut)                      | 6.9 | 70     | 61 in.*lbf |
| Automatic transaxle housing x Engine block                           | 30  | 301    | 22         |
| Torque converter clutch assembly x Drive plate                       | 27  | 280    | 20         |
| Oil cooler tube clamp x Automatic transaxle                          | 5.5 | 56     | 49 in.*lbf |
| Oil cooler inlet tube sub-assembly No.1 x Automatic transaxle        | 34  | 347    | 25         |
| Oil cooler outlet tube sub-assembly No.1 x Automatic transaxle       | 34  | 347    | 25         |
| Transmission control cable bracket x Automatic transaxle             | 12  | 122    | 9          |
| Transmission revolution sensor x Automatic transaxle                 | 5.4 | 55     | 48 in.*lbf |
| Transmission oil filler tube sub-assembly x Automatic transaxle      | 5.5 | 56     | 49 in.*lbf |
| Wheel nut                                                            | 103 | 1,050  | 76         |
| Starter assembly x Automatic transaxle                               | 37  | 380    | 27         |
| Starter assembly x Starter wire                                      | 9.8 | 100    | 87 in.*lbf |
| Engine mounting bracket LH x Automatic transaxle                     | 64  | 653    | 47         |
| Engine mounting bracket rear x Automatic transaxle                   | 49  | 500    | 36         |
| Engine mounting bracket LH x Ground cable                            | 26  | 260    | 19         |
| Engine mounting bracket rear x Automatic transaxle                   | 49  | 500    | 36         |
| Engine mounting bracket LH x Ground cable                            | 26  | 260    | 19         |
| Engine mounting bracket LH x Engine mounting insulator LH            | 49  | 500    | 36         |
| Engine mounting bracket rear x Engine mounting insulator rear        | 64  | 653    | 47         |
| Hood sub-assembly                                                    | 13  | 132    | 10         |
| Drain plug x Automatic transaxle oil pan                             | 49  | 500    | 36         |
| Automatic transaxle case x Transmission wire                         | 5.4 | 55     | 48 in.*lbf |
| Automatic transaxle oil pan x Automatic transaxle case               | 7.8 | 80     | 69 in.*lbf |
| Oil strainer sub-assembly x Transmission valve body assembly         | 11  | 110    | 8          |
| Transmission valve body assembly x Automatic transaxle               | 11  | 110    | 8          |
| Transmission valve body assembly x Manual detent spring sub-assembly | 11  | 110    | 8          |
| Transmission valve body assembly x Shift solenoid valves             | 11  | 110    | 8          |
| Transmission control cable assembly x Body                           | 5.0 | 51     | 44 in.*lbf |
| Engine hanger x Engine                                               | 40  | 408    | 30         |
| Control shaft lever x Park/neutral position switch assembly          | 13  | 130    | 9          |
| Engine mounting bracket rear x Heat insulator                        | 18  | 180    | 13         |
| Engine block x Heat insulator                                        | 18  | 180    | 13         |
| Air cleaner bracket x Automatic transaxle                            | 19  | 195    | 14         |
| Wire harness clamp bracket x Automatic transaxle                     | 5.0 | 51     | 44 in.*lbf |
| Transmission control cable support x Automatic transaxle             | 12  | 122    | 9          |
| Floor shift assembly x Body                                          | 12  | 122    | 9          |
| Floor shift assembly x Transmission control cable assembly           | 12  | 122    | 9          |
| Transaxle revolution sensor x Transaxle case                         | 5.4 | 55     | 48 in.*lbf |
| Union x Transaxle case                                               | 27  | 275    | 20         |
| Elbow x Transaxle case                                               | 27  | 275    | 20         |
| Manual valve lever shaft x Control lever                             | 13  | 130    | 10         |
| Manual valve lever shaft x Park/neutral position switch              | 6.9 | 70     | 61 in.*lbf |
| Park/neutral position switch x Transaxle case                        | 5.4 | 55     | 48 in.*lbf |
| Screw plug                                                           | 7.4 | 75     | 65 in.*lbf |
| Drain plug                                                           | 49  | 500    | 36         |
| Transaxle case x Oil pan                                             | 7.8 | 80     | 71 in.*lbf |

SS

**SS-24****SERVICE SPECIFICATIONS – U340E AUTOMATIC TRANSMISSION**

| Part tightened                                          | N*m | kgf*cm | ft.*lbf    |
|---------------------------------------------------------|-----|--------|------------|
| Oil strainer x Valve body assembly                      | 11  | 110    | 8          |
| ATF temperature sensor lock plate x Valve body assembly | 11  | 110    | 8          |
| Transaxle wire x Transaxle case                         | 5.4 | 55     | 48 in.*lbf |
| Valve body assembly x Transaxle case                    | 11  | 110    | 8          |
| Detent spring x Valve body assembly                     | 11  | 110    | 8          |
| Parking lock pawl bracket x Transaxle case              | 20  | 205    | 15         |
| Transaxle housing x Transaxle case Bolt A               | 29  | 300    | 21         |
| Transaxle housing x Transaxle case Bolt B               | 22  | 220    | 16         |
| Transaxle housing x Oil separator                       | 9.8 | 100    | 87 in.*lbf |
| Transaxle rear cover x Screw plug                       | 7.4 | 75     | 65 in.*lbf |
| Transaxle rear cover x Transaxle case                   | 25  | 250    | 18         |
| Oil pump x Transaxle case                               | 22  | 220    | 16         |
| Counter drive gear lock nut                             | 280 | 2,855  | 207        |
| Oil pump body x Stator shaft                            | 9.8 | 100    | 7          |
| Valve body assembly x Shift solenoid valve              | 11  | 110    | 8          |
| Accumulator piston cover x Valve body assembly          | 11  | 110    | 8          |
| Pressure relief ball cover x Upper valve body           | 6.5 | 66     | 57 in.*lbf |
| Upper valve body x Lower valve body                     | 11  | 110    | 8          |
| Lower valve body x Lower valve body cover Bolt A        | 6.6 | 67     | 58 in.*lbf |
| Lower valve body x Lower valve body cover Bolt B        | 11  | 110    | 8          |
| Bearing lock plate x Transaxle housing                  | 11  | 110    | 8          |
| Differential case x Differential ring gear              | 88  | 900    | 65         |

**SS**

**SERVICE SPECIFICATIONS – C50 MANUAL TRANSMISSION****SS-29****TORQUE SPECIFICATIONS**

| Part Tightened                                                |        | N*m | kgf*cm | ft.*lbf    |
|---------------------------------------------------------------|--------|-----|--------|------------|
| Transmission control cable assembly x Body                    |        | 5.0 | 51     | 44 in.*lbf |
| Floor shift shift lever assembly x Floor                      |        | 12  | 122    | 9          |
| Wire harness clamp x Manual transaxle                         |        | 5.0 | 51     | 44 in.*lbf |
| Ground cable x Engine mounting bracket LH                     |        | 26  | 260    | 19         |
| Air cleaner bracket x Manual transaxle                        |        | 19  | 195    | 14         |
| Clutch release cylinder x Flexible hose tube                  |        | 15  | 155    | 11         |
| No. 1 engine hanger x Engine                                  |        | 40  | 408    | 408        |
| Front suspension member reinforcement set bolt                |        | 47  | 479    | 35         |
| Front suspension crossmember x body                           | Bolt A | 70  | 714    | 52         |
|                                                               | Bolt B | 116 | 1,183  | 86         |
| Engine mounting bracket LH x Manual transaxle                 |        | 64  | 653    | 47         |
| Rear engine mounting bracket x Manual transaxle               | Bolt A | 64  | 653    | 47         |
|                                                               | Bolt B | 18  | 180    | 13         |
| Engine mounting insulator LH x Engine mounting bracket LH     |        | 49  | 500    | 36         |
| Rear engine mounting insulator x Rear engine mounting bracket |        | 64  | 653    | 47         |
| Starter assembly x Manual transaxle                           |        | 37  | 380    | 27         |
| Starter assembly x Starter wire                               |        | 9.8 | 100    | 87 in.*lbf |
| Manual transaxle x Engine                                     |        | 33  | 340    | 24         |
| Filler plug x Manual transaxle                                |        | 39  | 400    | 29         |
| Drain plug x Manual transaxle                                 |        | 39  | 400    | 29         |
| Bearing lock plate x Front transaxle case                     |        | 11  | 115    | 8.3        |
| No. 1 oil receiver pipe x Manual transmission case            |        | 17  | 175    | 13         |
| No. 2 oil receiver pipe x Manual transmission case            |        | 17  | 17     | 13         |
| Reverse restrict pin plug x Manual transmission case          |        | 13  | 130    | 9.3        |
| Manual transaxle case receiver x Manual transmission case     |        | 11  | 115    | 8.3        |
| No. 1 gear shift fork x No. 1 gear shift fork shaft           |        | 16  | 160    | 12         |
| No. 2 gear shift fork x No. 2 gear shift fork shaft           |        | 16  | 160    | 12         |
| No. 1 gear shift head x No. 2 gear shift fork shaft           |        | 16  | 160    | 12         |
| Reverse shift arm bracket assembly x Front transaxle case     |        | 17  | 175    | 13         |
| Manual transmission case x Front transaxle case               | bolt   | 29  | 300    | 22         |
|                                                               | nut    | 29  | 300    | 22         |
| Reverse idler gear shaft bolt x Manual transmission case      |        | 29  | 300    | 22         |
| No. 2 lock ball assembly x Manual transmission case           |        | 39  | 400    | 29         |
| Shift detent ball x Manual transmission case                  |        | 22  | 224    | 16         |
| Shift detent ball x Front transaxle case                      |        | 22  | 224    | 16         |
| Bearing retainer rear x Manual transmission case              |        | 27  | 280    | 20         |
| No. 3 gear shift fork x Gear shift fork shaft                 |        | 16  | 160    | 12         |
| Manual transmission output shaft rear set nut x output shaft  |        | 118 | 1200   | 87         |
| Manual transmission case cover x Manual transmission case     |        | 18  | 185    | 14         |
| Control shaft cover x Manual transmission case                |        | 20  | 200    | 14         |
| No. 1 lock ball assembly x Manual transmission case           |        | 29  | 300    | 22         |

**SS**

**SS-30****SERVICE SPECIFICATIONS – C50 MANUAL TRANSMISSION**

|                                                                          |    |     |     |
|--------------------------------------------------------------------------|----|-----|-----|
| Selecting bell crank assembly x Manual transmission case                 | 25 | 250 | 18  |
| Floor shift control lever housing support bracket x Front transaxle case | 18 | 188 | 14  |
| Back-up light switch assembly x Manual transmission case                 | 40 | 410 | 30  |
| Speedometer driven hole cover sub-assembly x Manual transaxle            | 11 | 115 | 8.3 |
| Release fork support x Front transaxle case                              | 37 | 375 | 25  |
| Clutch release cylinder assembly x Manual transaxle                      | 12 | 120 | 9   |
| Manual transmission filler plug x Manual transaxle                       | 39 | 29  | 29  |
| Drain plug sub-assembly x Manual transmission case                       | 39 | 29  | 29  |
| No. 2 electing bell crank plate washer x Selecting bell crank            | 12 | 120 | 9   |
| Front differential ring gear x Front differential case                   | 77 | 790 | 57  |

**SS**

## SERVICE SPECIFICATIONS – 1NZ-FE STARTING

SS-17

**1NZ-FE STARTING****SERVICE DATA**

|                                |                     |                             |                                                                     |
|--------------------------------|---------------------|-----------------------------|---------------------------------------------------------------------|
| Starter assembly               | Standard current    |                             | 90 A or less at 11.5 V                                              |
| Starter relay                  | Standard resistance | 3 - 5                       | 10 kΩ or higher                                                     |
|                                |                     | 3 - 5                       | Below 1 Ω<br>(When battery voltage is applied to terminals 1 and 2) |
| Ignition switch                | Standard resistance | All terminals               | 10 kΩ or higher                                                     |
|                                |                     | 1 (AM1) - 3 (ACC)           | Below 1 Ω at ACC                                                    |
|                                |                     | 1 (AM1) - 2 (IG1)           | Below 1 Ω at ON                                                     |
|                                |                     | 1 (AM1) - 3 (ACC)           | Below 1 Ω at ON                                                     |
|                                |                     | 5 (AM2) - 6 (IG2)           | Below 1 Ω at ON                                                     |
|                                |                     | 1 (AM1) - 2 (IG1)           | Below 1 Ω at START                                                  |
|                                |                     | 4 (ST2) - 5 (AM2)           | Below 1 Ω at START                                                  |
|                                |                     | 5 (AM2) - 6 (IG2)           | Below 1 Ω at START                                                  |
| Starter magnet switch assembly | Standard resistance | 50 - C                      | Below 1 Ω                                                           |
|                                |                     | 50 - Body                   | Below 2 Ω                                                           |
| Starter armature assembly      | Standard resistance | Segment                     | Below 1 Ω                                                           |
|                                |                     | Segment - Coil core         | 10 kΩ or higher                                                     |
| Starter armature assembly      | Commutator depth    | Standard                    | 3.1 mm (0.354 in.)                                                  |
|                                |                     | Maximum                     | 3.8 mm (0.150 in.)                                                  |
| Starter commutator end frame   | Brush length        | Standard length             | 9.0 mm (0.354 in.)                                                  |
|                                |                     | Maximum length              | 4.0 mm (0.158 in.)                                                  |
|                                | Standard resistance | Positive (+) - Negative (-) | 10 kΩ or higher                                                     |

SS

SS-18

SERVICE SPECIFICATIONS – 1NZ-FE STARTING

TORQUE SPECIFICATIONS

| Part Tightened                                 | N <sup>o</sup> m | kgf <sup>o</sup> cm | ft. <sup>o</sup> lbf |
|------------------------------------------------|------------------|---------------------|----------------------|
| Starter wire x Terminal C                      | 9.8              | 100                 | 7                    |
| Starter assembly x Cylinder block sub-assembly | 37               | 377                 | 27                   |

SS

SS-18

SERVICE SPECIFICATIONS – 1NZ-FE CHARGING

1NZ-FE CHARGING  
SERVICE DATA

|                                 |                     |                        |                                      |
|---------------------------------|---------------------|------------------------|--------------------------------------|
| Battery                         | Standard voltage    |                        | 12.5 to 12.9 V at 20°C (68°F)        |
| Charging circuit with load      | Standard amperage   |                        | 30 A or more                         |
| Generator brush holder assembly | Brush length        | Standard length        | 9.5 to 11.5 mm (0.374 to 0.453 in.)  |
|                                 |                     | Minimum length         | 4.5 mm (0.177 in.)                   |
| Generator rotor assembly        | Standard resistance | Slip ring              | 2.1 to 2.5 Ω at 20°C (68°F)          |
|                                 |                     | Slip ring - Rotor core | 10 kΩ or higher                      |
|                                 | Slip ring diameter  | Standard diameter      | 14.2 to 14.4 mm (0.559 to 0.567 in.) |
|                                 |                     | Minimum diameter       | 12.8 mm (0.504 in.)                  |

SS

**SERVICE SPECIFICATIONS – 1NZ-FE CHARGING****SS-19****TORQUE SPECIFICATIONS**

| <b>Part Tightened</b>               | <b>N*m</b> | <b>kgf*cm</b> | <b>ft.*lbf</b> |
|-------------------------------------|------------|---------------|----------------|
| Adjusting Bar x Cylinder Head       | 11         | 112           | 8              |
| Generator Assembly x Adjusting Bar  | 18.5       | 189           | 14             |
| Generator Assembly x Cylinder Head  | 54         | 551           | 40             |
| Generator Wire x Generator Assembly | 9.8        | 100           | 7              |

**SS**

## SERVICE SPECIFICATIONS – U340E AUTOMATIC TRANSMISSION

SS-19

# U340E AUTOMATIC TRANSMISSION

## SERVICE DATA

### AUTOMATIC TRANSMISSION ASSEMBLY

|                                                                        |                       |                                                                           |
|------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------|
| Line pressure (Wheel locked)<br>AT stall (Throttle valve fully opened) | D position            | 1,107 to 1,225 kPa (11.3 to 12.5 kgf/cm <sup>2</sup> ,<br>161 to 178 psi) |
|                                                                        | R position            | 1,695 to 1,813 kPa (17.3 to 18.5 kgf/cm <sup>2</sup> ,<br>246 to 263 psi) |
| Engine stall revolution                                                | D positions           | 2,050 to 2,550 rpm                                                        |
| Time lag                                                               | N → D position        | Less than 1.2 seconds                                                     |
|                                                                        | N → R position        | Less than 1.5 seconds                                                     |
| Engine idle speed<br>(A/C OFF)                                         | N position            | 600 to 750 rpm                                                            |
| Drive plate runout                                                     | Maximum               | 0.20 mm (0.0079 in.)                                                      |
| Differential oil seal drive in depth                                   | LH side               | 5.4 to 6.4 mm (0.213 to 0.252 in.)                                        |
|                                                                        | RH side               | 1.5 to 2.5 mm (0.059 to 0.098 in.)                                        |
| Shift point                                                            |                       |                                                                           |
| D position<br>(Throttle valve fully opened)                            | 1 → 2                 | 50 to 55 km/h (31 to 34 mph)                                              |
|                                                                        | 2 → 3                 | 94 to 102 km/h (58 to 63 mph)                                             |
|                                                                        | 3 → 4                 | 147 to 156 km/h (91 to 97 mph)                                            |
|                                                                        | 4 → 3                 | 142 to 151 km/h (88 to 94 mph)                                            |
|                                                                        | 3 → 2                 | 89 to 96 km/h (55 to 60 mph)                                              |
|                                                                        | 2 → 1                 | 41 to 46 km/h (25 to 29 mph)                                              |
| D position<br>(Throttle valve fully closed)                            | 3 → 4                 | 40 to 44 km/h (25 to 27 mph)                                              |
|                                                                        | 4 → 3                 | 30 to 34 km/h (19 to 21 mph)                                              |
| 2 position<br>(Throttle valve fully opened)                            | 1 → 2                 | 50 to 55 km/h (31 to 34 mph)                                              |
|                                                                        | 3 → 2                 | 89 to 96 km/h (55 to 60 mph)                                              |
|                                                                        | 2 → 1                 | 41 to 46 km/h (25 to 29 mph)                                              |
| L position<br>(Throttle valve fully opened)                            | 3 → 2                 | 89 to 96 km/h (55 to 60 mph)                                              |
|                                                                        | 2 → 1                 | 44 to 48 km/h (27 to 30 mph)                                              |
| Lock-up point                                                          |                       |                                                                           |
| D position<br>(Throttle valve opening 5 %)                             | Lock-up ON<br>3 → 3L  | 94 to 102 km/h (58 to 63 mph)                                             |
|                                                                        | Lock-up ON<br>4 → 4L  | 54 to 59 km/h (34 to 37 mph)                                              |
|                                                                        | Lock-up OFF<br>4L → 4 | 66 to 75 km/h (41 to 47 mph)                                              |
|                                                                        | Lock-up OFF<br>3L → 3 | 89 to 96 km/h (55 to 60 mph)                                              |

### OIL PUMP

|                |      |                                        |
|----------------|------|----------------------------------------|
| Body clearance | STD  | 0.10 to 0.15 mm (0.0039 to 0.0059 in.) |
|                | Max. | 0.15 mm (0.0059 in.)                   |
| Tip clearance  | STD  | 0.07 to 0.15 mm (0.0028 to 0.0059 in.) |
|                | Max. | 0.15 mm (0.0059 in.)                   |
| Side clearance | STD  | 0.02 to 0.05 mm (0.0008 to 0.0020 in.) |
|                | Max. | 0.05 mm (0.0020 in.)                   |

SS

**SS-20****SERVICE SPECIFICATIONS – U340E AUTOMATIC TRANSMISSION**

|                                      |        |                                              |
|--------------------------------------|--------|----------------------------------------------|
| Drive gear thickness                 | Mark 1 | 9.44 to 9.45 mm (0.3709 to 0.3713 in.)       |
|                                      | Mark 2 | 9.45 to 9.46 mm (0.3713 to 0.3717 in.)       |
|                                      | Mark 3 | 9.46 to 9.47 mm (0.3717 to 0.3721 in.)       |
|                                      | Mark 4 | 9.47 to 9.48 mm (0.3721 to 0.3725 in.)       |
|                                      | Mark 5 | 9.48 to 9.49 mm (0.3725 to 0.3729 in.)       |
| Driven gear thickness                | Mark 1 | 9.44 to 9.45 mm (0.3709 to 0.3713 in.)       |
|                                      | Mark 2 | 9.45 to 9.46 mm (0.3713 to 0.3717 in.)       |
|                                      | Mark 3 | 9.46 to 9.47 mm (0.3717 to 0.3721 in.)       |
|                                      | Mark 4 | 9.47 to 9.48 mm (0.3721 to 0.3725 in.)       |
|                                      | Mark 5 | 9.48 to 9.49 mm (0.3725 to 0.3729 in.)       |
| Pump body bushing inside diameter    | STD    | 38.113 to 38.138 mm (1.50050 to 1.50149 in.) |
|                                      | Max.   | 38.138 mm (1.50149 in.)                      |
| Oil seal in depth                    | STD    | 0 +– 0.5 mm (0 +– 0.020 in.)                 |
| Stator shaft bushing inside diameter | STD    | 21.500 to 21.526 mm (0.84646 to 0.84748 in.) |
|                                      | Max    | 21.526 mm (0.84748 in.)                      |

**FORWARD CLUTCH**

|                                  |        |                                          |
|----------------------------------|--------|------------------------------------------|
| Pack clearance                   |        | 1.406 to 1.806 mm (0.0553 to 0.0711 in.) |
| Piston return spring free length |        | 21.69 mm (0.8540 in.)                    |
| Flange thickness                 | Mark - | 3.00 mm (0.1181 in.)                     |
|                                  | Mark 1 | 3.20 mm (0.1260 in.)                     |
|                                  | Mark 2 | 3.40 mm (0.1339 in.)                     |
|                                  | Mark 3 | 3.60 mm (0.1417 in.)                     |

**DIRECT AND REVERSE CLUTCH**

|                                                  |                |                                        |
|--------------------------------------------------|----------------|----------------------------------------|
| Pack clearance                                   | Direct clutch  | 0.62 to 1.02 mm (0.0244 to 0.0402 in.) |
|                                                  | Reverse clutch | 0.86 to 1.26 mm (0.0339 to 0.0496 in.) |
| Piston return spring free length (Direct clutch) |                | 32.9 mm (1.2953 in.)                   |
| Flange thickness (Direct clutch)                 | Mark -         | 3.0 mm (0.118 in.)                     |
|                                                  | Mark 1         | 3.2 mm (0.126 in.)                     |
|                                                  | Mark 2         | 3.4 mm (0.134 in.)                     |
|                                                  | Mark 3         | 3.6 mm (0.142 in.)                     |
| Flange thickness (Reverse clutch)                | Mark -         | 3.0 mm (0.118 in.)                     |
|                                                  | Mark 1         | 3.2 mm (0.126 in.)                     |
|                                                  | Mark 2         | 3.4 mm (0.134 in.)                     |
|                                                  | Mark 3         | 3.6 mm (0.142 in.)                     |

**1ST AND REVERSE BRAKE**

|                                  |        |                                        |
|----------------------------------|--------|----------------------------------------|
| Pack clearance                   |        | 0.8 to 1.206 mm (0.0317 to 0.0475 in.) |
| Piston return spring free length |        | 13.96 mm (0.5496 in.)                  |
| Flange thickness                 | Mark - | 3.4 mm (0.134 in.)                     |
|                                  | Mark 1 | 3.6 mm (0.142 in.)                     |
|                                  | Mark 2 | 3.8 mm (0.150 in.)                     |
|                                  | Mark 3 | 4.0 mm (0.157 in.)                     |

**2ND COAST AND O/D BRAKE**

|                                              |  |                                          |
|----------------------------------------------|--|------------------------------------------|
| Pack clearance                               |  | 2.091 to 2.491 mm (0.0823 to 0.0981 in.) |
| Piston return spring free length (O/D brake) |  | 18.99 mm (0.7476 in.)                    |

**SERVICE SPECIFICATIONS – U340E AUTOMATIC TRANSMISSION****SS-21**

|                  |        |                    |
|------------------|--------|--------------------|
| Flange thickness | Mark 4 | 4.0 mm (0.157 in.) |
|                  | Mark 5 | 4.2 mm (0.165 in.) |
|                  | Mark 6 | 4.4 mm (0.173 in.) |
|                  | Mark 7 | 4.6 mm (0.181 in.) |

**2ND BRAKE**

|                                  |        |                                        |
|----------------------------------|--------|----------------------------------------|
| Pack clearance                   |        | 0.847 to 1.247 mm (0.033 to 0.049 in.) |
| Piston return spring free length |        | 14.65 mm (0.5768 in.)                  |
| Flange thickness                 | Mark - | 3.0 mm (0.118 in.)                     |
|                                  | Mark 1 | 3.2 mm (0.126 in.)                     |
|                                  | Mark 2 | 3.4 mm (0.134 in.)                     |
|                                  | Mark 3 | 3.6 mm (0.142 in.)                     |

**SS****MANUAL VALVE LEVER SHAFT**

|                                            |                                |
|--------------------------------------------|--------------------------------|
| Manual valve lever shaft oil seal in depth | 0 +/- 0.5 mm (0 +/- 0.020 in.) |
|--------------------------------------------|--------------------------------|

**INTERMEDIATE SHAFT**

|                              |                                        |
|------------------------------|----------------------------------------|
| Intermediate shaft clearance | 0.204 to 0.966 mm (0.008 to 0.038 in.) |
|------------------------------|----------------------------------------|

**INPUT SHAFT**

|          |                                        |
|----------|----------------------------------------|
| End play | 0.37 to 1.29 mm (0.0146 to 0.0508 in.) |
|----------|----------------------------------------|

**ACCUMULATOR**

| Spring | Free length / Outer diameter                  | Color |
|--------|-----------------------------------------------|-------|
| B2     | 66.90 mm (2.634 in.) / 15.50 mm (0.610 in.)   | Green |
| C2     | 66.90 mm (2.6339 in.) / 15.50 mm (0.6102 in.) | -     |
| C3     | 80.20 mm (3.158 in.) / 18.70 mm (0.736 in.)   | -     |

**TRANSAXLE REAR COVER ASSEMBLY**

|                                 |                     |
|---------------------------------|---------------------|
| Needle roller bearing clearance | 25.2 mm (0.992 in.) |
|---------------------------------|---------------------|

**TRANSMISSION VALVE BODY ASSEMBLY**

|                                              |                             |
|----------------------------------------------|-----------------------------|
| Valve body assembly installation bolt length | 32 mm (1.26 in.) for bolt A |
|                                              | 22 mm (0.87 in.) for bolt B |
|                                              | 55 mm (2.17 in.) for bolt C |
|                                              | 45 mm (1.77 in.) for bolt D |
| Detente spring installation bolt length      | 14 mm (0.55 in.) for bolt A |
|                                              | 45 mm (1.77 in.) for bolt B |

**COUNTER DRIVE GEAR**

|                 |                                                           |
|-----------------|-----------------------------------------------------------|
| Rotating torque | 0.20 to 0.49 N*m (2 to 5 kgf*cm, <sup>2</sup> to 4 in*lb) |
|-----------------|-----------------------------------------------------------|

**DIFFERENTIAL**

|                                               |               |                                                          |
|-----------------------------------------------|---------------|----------------------------------------------------------|
| Differential drive pinion plug drive in depth |               | 2.5 to 2.6 mm (0.098 to 0.102 in.)                       |
| Side gear backlash                            |               | 0.05 to 0.20 mm (0.002 to 0.008 in.)                     |
| Thrust washer thickness                       | Mark -        | 0.95 mm (0.0374 in.)                                     |
|                                               | Mark -        | 1.00 mm (0.0394 in.)                                     |
|                                               | Mark -        | 1.05 mm (0.0413 in.)                                     |
|                                               | Mark -        | 1.10 mm (0.0433 in.)                                     |
|                                               | Mark -        | 1.15 mm (0.0453 in.)                                     |
|                                               | Mark -        | 1.20 mm (0.0472 in.)                                     |
| Preload (at starting)                         | New bearing   | 0.78 to 1.37 N*m (8.0 to 14.0 kgf*cm, 6.9 to 12.2 in*lb) |
|                                               | Using bearing | 0.39 to 0.69 N*m (4.0 to 7.0 kgf*cm, 3.5 to 6.1 in*lb)   |

**SS-22****SERVICE SPECIFICATIONS – U340E AUTOMATIC TRANSMISSION**

|                                                |         |                                    |
|------------------------------------------------|---------|------------------------------------|
| Shim thickness                                 | Mark 01 | 1.90 mm (0.0748 in.)               |
|                                                | Mark 02 | 1.95 mm (0.0768 in.)               |
|                                                | Mark 03 | 2.00 mm (0.0787 in.)               |
|                                                | Mark 04 | 2.05 mm (0.0807 in.)               |
|                                                | Mark 05 | 2.10 mm (0.0827 in.)               |
|                                                | Mark 06 | 2.15 mm (0.0846 in.)               |
|                                                | Mark 07 | 2.20 mm (0.0866 in.)               |
|                                                | Mark 08 | 2.25 mm (0.0885 in.)               |
|                                                | Mark 09 | 2.30 mm (0.0906 in.)               |
|                                                | Mark 10 | 2.35 mm (0.0925 in.)               |
|                                                | Mark 11 | 2.40 mm (0.0945 in.)               |
|                                                | Mark 12 | 2.45 mm (0.0965 in.)               |
|                                                | Mark 13 | 2.50 mm (0.0984 in.)               |
|                                                | Mark 14 | 2.55 mm (0.1004 in.)               |
|                                                | Mark 15 | 2.60 mm (0.1024 in.)               |
|                                                | Mark 16 | 2.65 mm (0.1043 in.)               |
|                                                | Mark 17 | 2.70 mm (0.1063 in.)               |
|                                                | Mark 18 | 2.75 mm (0.1082 in.)               |
|                                                | Mark 19 | 2.80 mm (0.1102 in.)               |
| Transaxle housing side oil seal drive in depth |         | 2 +- 0.5 mm (0.079 +- 0.020 in.)   |
| Transaxle case side oil seal drive in depth    |         | 5.9 +- 0.5 mm (0.232 +- 0.020 in.) |

**SS**

SS-24

SERVICE SPECIFICATIONS – CLUTCH

CLUTCH  
SERVICE DATA

|                                                          |               |                                      |
|----------------------------------------------------------|---------------|--------------------------------------|
| Pedal height from dash panel                             |               | 134.3 - 144.3 mm (5.287 - 5.681 in.) |
| Clutch pedal free play                                   |               | 5.0 - 15.0 mm (0.197 - 0.591 in.)    |
| Clutch pedal push rod play at pedal top                  |               | 1.0 - 5.0 mm (0.039 - 0.197 in.)     |
| Slotted spring pin protrusion                            |               | 1.5 - 3.5 mm (0.059 - 0.138 in.)     |
| Clutch release point from pedal full stroke end position |               | 25 mm (0.98 in.) or more             |
| Clutch disc rivet head depth                             | Maximum       | 0.3 mm (0.012 in.)                   |
| Clutch disc assembly runout                              | Minimum       | 0.8 mm (0.031 in.)                   |
| Diaphragm spring finger wear                             | Maximum depth | 0.5 mm (0.020 in.)                   |
|                                                          | Maximum width | 6.0 mm (0.236 in.)                   |
| Flywheel sub-assembly runout                             | Maximum       | 0.1 mm (0.004 in.)                   |
| Diaphragm spring tip non-alignment                       | Maximum depth | 0.5 mm (0.020 in.)                   |

SS

## SERVICE SPECIFICATIONS – CLUTCH

SS-25

## TORQUE SPECIFICATIONS

| Part Tightened                                      | N*m | kgf*cm | ft.*lbf    |
|-----------------------------------------------------|-----|--------|------------|
| Clutch pedal sub-assembly x<br>Clutch pedal support | 37  | 375    | 27         |
| Clutch pedal stopper bolt x Clutch<br>pedal support | 18  | 186    | 13         |
| Clutch pedal support x Body                         | 12  | 120    | 9          |
| Clutch master cylinder push rod<br>clevis lock nut  | 12  | 120    | 9          |
| Clutch master cylinder x Flexible<br>hose tube      | 15  | 155    | 11         |
| Clutch master cylinder x Body                       | 12  | 120    | 9          |
| Clutch release cylinder bleeder<br>plug             | 8.4 | 86     | 74 in.*lbf |
| Clutch release cylinder x<br>Transaxle housing      | 12  | 120    | 9          |
| Clutch release cylinder x Flexible<br>hose tube     | 15  | 155    | 11         |
| Clutch release cylinder x Clutch<br>release union   | 25  | 250    | 18         |
| Clutch cover assembly x<br>Flywheel sub-assembly    | 19  | 195    | 14         |
| Release fork support x Transaxle<br>assembly        | 37  | 375    | 27         |

SS

## SERVICE SPECIFICATIONS – C50 MANUAL TRANSMISSION

SS-25

## C50 MANUAL TRANSMISSION

### SERVICE DATA

|                                                                   |           |             |                                                        |
|-------------------------------------------------------------------|-----------|-------------|--------------------------------------------------------|
| Manual transaxle assembly                                         |           |             |                                                        |
| 5th gear thrust clearance                                         |           | STD         | 0.10 to 0.57 mm (0.0039 to 0.02244 in.)                |
|                                                                   |           | Max         | 0.57 mm (0.02244 in.)                                  |
| 5th gear radial clearance                                         | KOYO made | STD         | 0.015 to 0.058 mm (0.0006 to 0.0023 in.)               |
|                                                                   |           | Max         | 0.058 mm (0.0023 in.)                                  |
|                                                                   | NSK made  | STD         | 0.015 to 0.056 mm (0.0006 to 0.0022 in.)               |
|                                                                   |           | Max         | 0.056 mm (0.0022 in.)                                  |
| No. 3 synchronizer ring back and 5th gear spline end clearance    |           | STD         | 0.75 to 1.65 mm (0.0295 to 0.0650 in.)                 |
|                                                                   |           | Max         | 0.75 mm (0.0295 in.)                                   |
| No. 3 transmission hub sleeve and No. 3 gear shift fork clearance |           | STD         | 0.3 to 0.5 mm (0.012 to 0.020 in.)                     |
| 5th gear inner diameter                                           |           | STD         | 29.915 to 29.931mm (1.1778 to 1.1784 in.)              |
|                                                                   |           | Max         | 29.931mm (1.1784 in.)                                  |
| Reverse idler gear sub-assembly inner diameter                    |           | STD         | 18.040 to 18.058 mm (0.7102 to 0.7109 in.)             |
|                                                                   |           | Max         | 18.058 mm (0.7109 in.)                                 |
| Reverse idler gear shaft outer diameter                           |           | STD         | 17.966 to 17.984 mm (0.7073 to 0.7080 in.)             |
|                                                                   |           | Min         | 17.966 mm (0.7073 in.)                                 |
| Front transaxle case oil seal drive in depth                      |           |             | 15.6 to 16.0 mm (0.6142 to 0.6299 in.)                 |
| Input shaft front bearing drive in depth                          |           |             | 0 to 0.3 mm (0 to 0.012 in.)                           |
| Shift & Select lever shaft bimetal formed bush drive in depth     |           |             | 0 to 0.5 mm (0 to 0.020 in.)                           |
| Front differential case tapered roller bearing preload            |           | New bearing | 0.78 to 1.57 N*m (8 to 16 kgf*cm, 6.9 to 13.9 in.*lbf) |
| Front differential case shim thickness                            |           | AA          | 2.10 mm (0.0827 in.)                                   |
|                                                                   |           | BB          | 2.15 mm (0.0846 in.)                                   |
|                                                                   |           | CC          | 2.20 mm (0.0866 in.)                                   |
|                                                                   |           | DD          | 2.25 mm (0.0886 in.)                                   |
|                                                                   |           | EE          | 2.30 mm (0.0906 in.)                                   |
|                                                                   |           | FF          | 2.35 mm (0.0925 in.)                                   |
|                                                                   |           | GG          | 2.40 mm (0.0945 in.)                                   |
|                                                                   |           | HH          | 2.45 mm (0.0965 in.)                                   |
|                                                                   |           | JJ          | 2.50 mm (0.0984 in.)                                   |
|                                                                   |           | KK          | 2.55 mm (0.1004 in.)                                   |
|                                                                   |           | LL          | 2.60 mm (0.1024 in.)                                   |
|                                                                   |           | MM          | 2.65 mm (0.1043 in.)                                   |
|                                                                   |           | NN          | 2.70 mm (0.1063 in.)                                   |
|                                                                   |           | PP          | 2.75 mm (0.1083 in.)                                   |
|                                                                   |           | QQ          | 2.80 mm (0.1102 in.)                                   |
|                                                                   |           | RR          | 2.85 mm (0.1122 in.)                                   |
|                                                                   |           | SS          | 2.90 mm (0.1142 in.)                                   |
|                                                                   |           | TT          | 2.95 mm (0.1161 in.)                                   |
|                                                                   |           | UU          | 3.00 mm (0.1181 in.)                                   |

SS

**SS-26****SERVICE SPECIFICATIONS – C50 MANUAL TRANSMISSION**

|                                                   |   |                                      |
|---------------------------------------------------|---|--------------------------------------|
| Transmission case oil seal drive in depth         |   | 2.1 +- 2.7 mm (0.0827 +- 0.1063 in.) |
| Transaxle case oil seal drive in depth            |   | 1.6 +- 2.2 mm (0.0630 +- 0.0866 in.) |
| Reverse restrict pin slotted pin drive in depth   |   | 16.0 +- 17.0 mm (0.630 +- 0.670 in.) |
| No. 3 transmission clutch hub snap ring thickness | A | 2.25 mm (0.0886 in.)                 |
|                                                   | B | 2.31 mm (0.0909 in.)                 |
|                                                   | C | 2.37 mm (0.0933 in.)                 |
|                                                   | D | 2.43 mm (0.0957 in.)                 |
|                                                   | E | 2.49 mm (0.0980 in.)                 |
|                                                   | F | 2.55 mm (0.1004 in.)                 |
|                                                   | G | 2.61 mm (0.1028 in.)                 |

|                                                                                     |           |        |                                            |
|-------------------------------------------------------------------------------------|-----------|--------|--------------------------------------------|
| Input shaft assembly                                                                |           |        |                                            |
| 4th gear thrust clearance                                                           |           | STD    | 0.1 to 0.55 mm (0.0039 to 0.0217 in.)      |
|                                                                                     |           | Max    | 0.55 mm (0.0217 in.)                       |
| 3rd gear thrust clearance                                                           |           | STD    | 0.1 to 0.35 mm (0.0039 to 0.0138 in.)      |
|                                                                                     |           | Max    | 0.35 mm (0.0138 in.)                       |
| 4th gear radial clearance                                                           |           | STD    | 0.009 to 0.050 mm (0.0004 to 0.0020 in.)   |
|                                                                                     |           | Max    | 0.050 mm (0.0023 in.)                      |
| 3rd gear radial clearance                                                           | KOYO made | STD    | 0.015 to 0.058 mm (0.0006 to 0.0023 in.)   |
|                                                                                     |           | Max    | 0.058 mm (0.0023 in.)                      |
|                                                                                     | NSK made  | STD    | 0.015 to 0.056 mm (0.0006 to 0.0022 in.)   |
|                                                                                     |           | Max    | 0.056 mm (0.0022 in.)                      |
| Input shaft run out                                                                 |           | Max    | 0.015 mm (0.0006 in.)                      |
| Input shaft outer diameter                                                          | STD       | Part A | 24.885 to 24.900 mm (0.9797 to 0.9803 in.) |
|                                                                                     |           | Part B | 28.991 to 29.006 mm (1.1413 to 1.1419 in.) |
|                                                                                     |           | Part C | 30.985 to 31.000 mm (1.2198 to 1.2204 in.) |
|                                                                                     |           | Part D | 24.985 to 25.000 mm (0.9836 to 0.9842 in.) |
|                                                                                     | Max       | Part A | 24.885 mm (0.9797 in.)                     |
|                                                                                     |           | Part B | 28.991 mm (1.1413 in.)                     |
|                                                                                     |           | Part C | 30.985 mm (1.2198 in.)                     |
|                                                                                     |           | Part D | 24.985 mm (0.9836 in.)                     |
| 4th gear inside diameter                                                            |           | STD    | 34.015 to 34.031 mm (1.3391 to 1.3398 in.) |
|                                                                                     |           | Max    | 34.031 mm (1.3398 in.)                     |
| 3rd gear inside diameter                                                            |           | STD    | 36.015 to 36.031 mm (1.4179 to 1.4185 in.) |
|                                                                                     |           | Max    | 36.031 mm (1.4185 in.)                     |
| 3rd gear synchronizer ring back and 3rd gear spline end clearance                   |           | Min    | 0.75 mm (0.0295 in.)                       |
| 4th gear synchronizer ring back and 3rd gear spline end clearance                   |           | Min    | 0.75 mm (0.0295 in.)                       |
| No. 2 gear shift fork claw and glove of the No. 2 transmission hub sleeve clearance |           |        | 0.15 to 0.35 mm (0.0059 to 0.0137 in.)     |
| No. 2 transmission hub sleeve clearance                                             |           |        | 0.15 to 0.35 mm (0.0059 to 0.0137 in.)     |

**SERVICE SPECIFICATIONS – C50 MANUAL TRANSMISSION****SS-27**

|                                                    |   |                             |
|----------------------------------------------------|---|-----------------------------|
| No. 2 transmission clutch hub snap ring thickness  | 0 | 2.30 mm (0.0906 in.)        |
|                                                    | 1 | 2.36 mm (0.0929 in.)        |
|                                                    | 2 | 2.42 mm (0.0953 in.)        |
|                                                    | 3 | 2.42 mm (0.0953 in.)        |
|                                                    | 4 | 2.54 mm (0.1000 in.)        |
|                                                    | 5 | 2.60 mm (0.1024 in.)        |
| Input shaft rear bearing shaft snap ring clearance |   | 0.1 mm (0.0039 in.) or less |
| Input shaft rear bearing shaft snap ring thickness | A | 2.29 mm (0.0901 in.)        |
|                                                    | B | 2.35 mm (0.0925 in.)        |
|                                                    | C | 2.41 mm (0.0948 in.)        |
|                                                    | D | 2.47 mm (0.0972 in.)        |
|                                                    | E | 2.53 mm (0.0996 in.)        |
|                                                    | F | 2.59 mm (0.1019 in.)        |

**SS**

|                                                                    |           |                                            |
|--------------------------------------------------------------------|-----------|--------------------------------------------|
| Output shaft assembly                                              |           |                                            |
| 1st gear thrust clearance                                          | STD       | 0.10 to 0.40 mm (0.0039 to 0.0157 in.)     |
| 2nd gear thrust clearance                                          | STD       | 0.10 to 0.45 mm (0.0039 to 0.0177 in.)     |
| 1st gear radial clearance                                          | KOYO made | 0.015 to 0.058 mm (0.0006 to 0.0023 in.)   |
|                                                                    | NSK made  | 0.015 to 0.056 mm (0.0006 to 0.0022 in.)   |
| 2nd gear radial clearance                                          | KOYO made | 0.015 to 0.058 mm (0.0006 to 0.0023 in.)   |
|                                                                    | NSK made  | 0.015 to 0.056 mm (0.0006 to 0.0022 in.)   |
| Output shaft maximum run out                                       |           | 0.015 mm (0.0006 in.)                      |
| Output shaft outer diameter                                        | Part A    | 31.985 mm (1.2592 in.)                     |
|                                                                    | Part B    | 37.985 mm (1.4955 in.)                     |
|                                                                    | Part C    | 32.985 mm (1.2986 in.)                     |
| 2nd gear inside diameter                                           | New       | 38.015 to 38.031 mm (1.4967 to 1.4972 in.) |
|                                                                    | Max       | 38.031 mm (1.4972 in.)                     |
| 1st gear inside diameter                                           | New       | 44.015 to 44.031 mm (1.7329 to 1.7335 in.) |
|                                                                    | Max       | 44.031 mm (1.7335 in.)                     |
| 1st gear thrust washer thickness                                   | New       | 5.975 to 6.025 mm (0.2352 to 0.2372 in.)   |
|                                                                    | Min       | 5.975 mm (0.2352 in.)                      |
| No. 2 synchronizer ring set back and 2nd gear spline end clearance |           | 0.75 to 1.65 mm (0.0295 to 0.065 in.)      |
| No. 1 synchronizer ring set back and 2nd gear spline end clearance |           | 0.75 to 1.65 mm (0.0295 to 0.065 in.)      |
| Reverse gear glove and reverse gear shift fork claw clearance      |           | 0.15 to 0.35 mm (0.0059 to 0.014 in.)      |
| No. 1 clutch hub shaft snap ring clearance                         |           | 0.1 mm (0.039 in.) or less                 |
| No. 1 clutch hub shaft snap ring thickness                         | A         | 2.50 mm (0.0984 in.)                       |
|                                                                    | B         | 2.56 mm (0.1008 in.)                       |
|                                                                    | C         | 2.62 mm (0.1031 in.)                       |
|                                                                    | D         | 2.68 mm (0.1055 in.)                       |
|                                                                    | E         | 2.74 mm (0.1079 in.)                       |
|                                                                    | F         | 2.80 mm (0.1102 in.)                       |

**SS-28****SERVICE SPECIFICATIONS – C50 MANUAL TRANSMISSION**

|                                                                      |  |                                        |
|----------------------------------------------------------------------|--|----------------------------------------|
| Shift & Select lever shaft assembly                                  |  |                                        |
| Control shaft cover oil seal drive in depth                          |  | 0.2 to 1.2 mm (0.079 to 0.0472 in.)    |
| Shift lever slotted pin (for select inner lever) drive in depth      |  | 3.0 to 4.0 mm (0.1181 to 0.1575 in.)   |
| Shift lever slotted pin (for No. 1 shift lever inner) drive in depth |  | -0.5 to 0.5 mm (-0.0197 to 0.0197 in.) |
| Shift lever slotted pin (for No. 2 shift lever inner) drive in depth |  | -0.5 to 0.5 mm (-0.0197 to 0.0197 in.) |

**SS**

|                                                      |     |                                        |
|------------------------------------------------------|-----|----------------------------------------|
| Differential case assembly                           |     |                                        |
| Front differential side gear backlash                |     | 0.05 to 0.20 mm (0.0020 to 0.0079 in.) |
| Front differential pinion thrust washer              | Min | 0.94 mm (0.03701 in.)                  |
| No. 1 front differential pinion shaft outer diameter | Min | 16.982 mm (0.6685 in.)                 |

SS-30

SERVICE SPECIFICATIONS – DRIVE SHAFT

DRIVE SHAFT  
TORQUE SPECIFICATIONS

| Part Tightened                                                       | N*m | kgf*cm | ft.*lbf    |
|----------------------------------------------------------------------|-----|--------|------------|
| Front wheel set nut                                                  | 103 | 1,050  | 76         |
| Tie rod end sub-assembly x Steering knuckle                          | 49  | 500    | 36         |
| Suspension arm sub-assembly lower No.1 x Steering knuckle            | 98  | 1,000  | 72         |
| Stabilizer bar front x Suspension arm sub-assembly lower No.1        | 18  | 184    | 13         |
| Flexible hose and speed sensor front x Shock absorber assembly front | 29  | 300    | 22         |
| Speed sensor front x Steering knuckle                                | 8.0 | 82     | 71 in.*lbf |
| Front axle hub nut                                                   | 216 | 2,200  | 159        |

SS

AXLE

SERVICE DATA

|                                            |                               |
|--------------------------------------------|-------------------------------|
| Front axle hub bearing backlash            | Maximum: 0.05 mm (0.0020 in.) |
| Front axle hub sub-assembly deviation      | Maximum: 0.07 mm (0.0028 in.) |
| Rear axle hub & bearing assembly backlash  | Maximum: 0.05 mm (0.0020 in.) |
| Rear axle hub & bearing assembly deviation | Maximum: 0.07 mm (0.0028 in.) |

SS

## SS-32

## SERVICE SPECIFICATIONS – AXLE

## TORQUE SPECIFICATIONS

| Part Tightened                                                       | N*m | kgf*cm | ft.*lbf    |
|----------------------------------------------------------------------|-----|--------|------------|
| Front wheel set nut                                                  | 103 | 1,050  | 76         |
| Rear wheel set nut                                                   | 103 | 1,050  | 76         |
| Tie rod end sub-assembly x Steering knuckle                          | 49  | 500    | 36         |
| Suspension arm sub-assembly lower No.1 x Steering knuckle            | 98  | 1,000  | 72         |
| Stabilizer bar front x Suspension arm sub-assembly lower No.1        | 18  | 184    | 13         |
| Flexible hose and speed sensor front x Shock absorber assembly front | 29  | 300    | 22         |
| Speed sensor front x Steering knuckle                                | 8.0 | 82     | 71 in.*lbf |
| Front axle hub nut                                                   | 216 | 2,200  | 159        |
| Disc brake dust cover front x Steering knuckle                       | 8.3 | 85     | 73 in.*lbf |
| Front axle assembly x Front shock absorber assembly                  | 132 | 1,350  | 97         |
| Front disc brake cylinder assembly x Steering knuckle                | 88  | 900    | 65         |
| Rear axle hub and bearing assembly x Rear axle beam                  | 61  | 622    | 45         |

SS

## SS-32

## SERVICE SPECIFICATIONS – SUSPENSION

## SUSPENSION

## SERVICE DATA

## Front suspension

|                       |                                               |                          |                                                                                               |
|-----------------------|-----------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------|
| Front wheel alignment | Vehicle height                                | A - B:<br>D - C:         | 82 mm (3.22 in.)<br>12 mm (0.47 in.)                                                          |
|                       | Toe-in (total)<br>Rack end length difference  |                          | 0° $\pm$ 11' (0° $\pm$ 0.19°), 0 $\pm$ 2 mm (0 $\pm$ 0.08 in.)<br>1.5 mm (0.0059 in.) or less |
|                       | Wheel angle                                   | Inside wheel             | 33°42' (31°42' to 35°42')<br>33.70°(31.70°to 35.70°)                                          |
|                       |                                               | Outside wheel: Reference | 30°04'<br>30.07°                                                                              |
|                       | Camber<br>Right-left error                    |                          | -0°34' $\pm$ 45' (-0.57° $\pm$ 0.75°)<br>30' (0.5°) or less                                   |
|                       | Caster<br>Right-left error                    |                          | 1°45' $\pm$ 45' (1.75° $\pm$ 0.75°)<br>30' (0.5°) or less                                     |
|                       | Steering axis inclination<br>Right-left error |                          | 10°01' $\pm$ 45' (10.02° $\pm$ 0.75°)<br>30' (0.5°) or less                                   |
| Front suspension      | Lower ball joint turning torque               |                          | .5.0 N*m (51 kgf*cm, 44 in.*lbf) or less                                                      |

A:

Ground clearance of lower suspension arm front bolt center

B:

Ground clearance of front wheel center

C:

Ground clearance of axle beam set bolt center

D:

Ground clearance of rear wheel center

## Rear suspension

|                      |                            |                                                                            |
|----------------------|----------------------------|----------------------------------------------------------------------------|
| Rear wheel alignment | Toe-in (total)             | 0°20' $\pm$ 20' (0.33° $\pm$ 0.33°, 3.2 $\pm$ 3.0 mm, 0.13 $\pm$ 0.12 in.) |
|                      | Camber<br>Right-left error | -0°57' $\pm$ 25' (-0.95° $\pm$ 0.42°)<br>45' (0.75°) or less               |

## SERVICE SPECIFICATIONS – SUSPENSION

SS-33

## TORQUE SPECIFICATIONS

## Front suspension

| Part Tightened                                                |         | N*m | kgf*cm | in.*lbf    |
|---------------------------------------------------------------|---------|-----|--------|------------|
| Tie rod end lock nut                                          |         | 74  | 750    | 54         |
| Steering knuckle x Shock absorber                             |         | 132 | 1,350  | 97         |
| Front wheel hub nut                                           |         | 103 | 1,050  | 76         |
| Suspension support x Piston rod                               |         | 33  | 340    | 25         |
| Suspension support x Body                                     |         | 39  | 400    | 29         |
| Speed sensor wire harness bracket set bolt                    |         | 29  | 300    | 22         |
| Cowl top panel outer x Body                                   |         | 5.0 | 51     | 44 in.*lbf |
| Suspension crossmember x Body                                 | Bolt A: | 70  | 715    | 52         |
|                                                               | Bolt B: | 116 | 1,180  | 86         |
| Suspension crossmember x Transverse engine mounting insulator |         | 80  | 816    | 59         |
| Suspension crossmember x Pressure feed tube                   |         | 7.8 | 80     | 69 in.*lbf |
| Power steering link assembly x Suspension crossmember         |         | 74  | 755    | 55         |
| Stabilizer bolt set nut                                       |         | 18  | 180    | 13         |
| Steering knuckle x Lower ball joint                           |         | 98  | 1,000  | 72         |
| Lower suspension arm x Suspension crossmember                 | Bolt A: | 88  | 900    | 65         |
|                                                               | Bolt B: | 132 | 1,350  | 97         |
| Stabilizer bracket No. 1 x Suspension crossmember             |         | 37  | 375    | 27         |

## Rear suspension

| Part Tighten                                      | N*m | kgf*cm | ft.*lbf    |
|---------------------------------------------------|-----|--------|------------|
| Piston rod set nut                                | 25  | 255    | 18         |
| Shock absorber x Rear axle beam                   | 49  | 500    | 36         |
| Rear axle hub set bolt                            | 61  | 622    | 45         |
| Parking brake cable bracket set bolt              | 5.4 | 55     | 48 in.*lbf |
| Skid control sensor wire harness bracket set bolt | 8.0 | 82     | 71 in.*lbf |
| Rear axle beam x Body                             | 82  | 836    | 60         |
| Rear wheel hub nut                                | 103 | 1,050  | 76         |

SS

SS-34

SERVICE SPECIFICATIONS – TIRE AND WHEEL

TIRE AND WHEEL  
SERVICE DATA

|                              |                            |                 |                                            |
|------------------------------|----------------------------|-----------------|--------------------------------------------|
| Cold tire inflation pressure | 185/60R15 84T              | Front:<br>Rear: | 200 kPa (2.0 kgf/cm <sup>2</sup> , 29 psi) |
| Tire runout                  | 1.4 mm (0.055 in.) or less |                 |                                            |
| Imbalance after adjustment   | 8.0 g (0.018 lb) or less   |                 |                                            |

SS

## SERVICE SPECIFICATIONS – BRAKE CONTROL

SS-35

## BRAKE CONTROL

### TORQUE SPECIFICATIONS

**Brake actuator**

| Part Tightened                                     | N*m | kgf*cm | ft. *lbf    |
|----------------------------------------------------|-----|--------|-------------|
| Brake actuator assembly x Brake actuator bracket   | 5.4 | 55     | 48 in. *lbf |
| Brake actuator assembly with bracket x Body        | 19  | 194    | 14          |
| Brake actuator assembly x Brake tube (without SST) | 15  | 155    | 11          |
| Brake actuator assembly x Brake tube (with SST)    | 14  | 143    | 10          |

SS

**Front speed sensor**

| Part Tightened                                         | N*m | kgf*cm | ft. *lbf    |
|--------------------------------------------------------|-----|--------|-------------|
| Front speed sensor                                     | 8.0 | 82     | 71 in. *lbf |
| Front speed sensor wire harness clamp x Body           | 8.0 | 82     | 71 in. *lbf |
| Front speed sensor wire harness clamp x Shock absorber | 29  | 300    | 22          |
| Wheel nut                                              | 103 | 1,050  | 76          |

**Skid control sensor**

| Part Tightened                                                  | N*m | kgf*cm | ft. *lbf |
|-----------------------------------------------------------------|-----|--------|----------|
| Rear axle hub and bearing assembly (skid control sensor) x Body | 61  | 622    | 45       |
| Wheel nut                                                       | 103 | 1,050  | 76       |

**Yaw rate sensor**

| Part Tightened         | N*m | kgf*cm | ft. *lbf |
|------------------------|-----|--------|----------|
| Yaw rate sensor x Body | 14  | 143    | 10       |

**Steering sensor**

| Part Tightened                                  | N*m | kgf*cm | ft. *lbf    |
|-------------------------------------------------|-----|--------|-------------|
| Steering pad assembly x Steering wheel assembly | 8.8 | 90     | 78 in. *lbf |
| Steering wheel assembly x Steering column shaft | 50  | 510    | 37          |

## SS-36

## SERVICE SPECIFICATIONS – BRAKE

## BRAKE

### SERVICE DATA

|                                                                   |          |                                        |
|-------------------------------------------------------------------|----------|----------------------------------------|
| Brake pedal height from dash panel                                |          | 124.5 to 134.5 mm (4.902 to 5.293 in.) |
| Brake pedal free play                                             |          | 1.0 to 6.0 mm (0.04 to 0.24 in.)       |
| Stop light switch clearance                                       |          | 0.5 to 2.4 mm (0.020 to 0.094 in.)     |
| Pedal reserve distance from dash panel at 490 N (50 kgf, 110 lbf) | w/ VSC   | More than 55 mm (2.17 in.)             |
|                                                                   | w/o VSC  | More than 50 mm (1.97 in.)             |
| Brake booster push rod to piston clearance (w/ Tool)              |          | 0 mm (0 in.)                           |
| Front brake pad thickness                                         | Standard | 11.0 mm (0.433 in.)                    |
|                                                                   | Minimum  | 1.0 mm (0.039 in.)                     |
| Front brake disc thickness                                        | Standard | 22.0 mm (0.866 in.)                    |
|                                                                   | Minimum  | 20.0 mm (0.787 in.)                    |
| Front brake disc runout                                           | Maximum  | 0.05 mm (0.0020 in.)                   |
| Rear brake drum inside diameter                                   | Standard | 200.0 mm (7.874 in.)                   |
|                                                                   | Maximum  | 201.0 mm (7.913 in.)                   |
| Rear drum brake shoe lining thickness                             | Standard | 4.0 mm (0.157 in.)                     |
|                                                                   | Minimum  | 1.0 mm (0.039 in.)                     |
| Rear brake shoe lining to drum clearance                          |          | 0.6 mm (0.024 in.)                     |

SS

## SERVICE SPECIFICATIONS – BRAKE

SS-37

## TORQUE SPECIFICATIONS

## Brake pedal

| Part Tightened                                                    | N*m | kgf*cm | ft. *lbf |
|-------------------------------------------------------------------|-----|--------|----------|
| Brake pedal support sub-assembly x Brake booster                  | 13  | 127    | 9        |
| Brake pedal support sub-assembly x Instrument panel reinforcement | 21  | 214    | 15       |
| Brake pedal support sub-assembly x Brake pedal sub-assembly       | 37  | 375    | 27       |
| Stop light switch lock nut                                        | 26  | 265    | 19       |

## Brake master cylinder

| Part Tightened                                     | N*m         | kgf*cm | ft. *lbf |
|----------------------------------------------------|-------------|--------|----------|
| Brake master cylinder sub-assembly x Brake booster | 13          | 127    | 9        |
| Brake line union nut                               | without SST | 15     | 11       |
|                                                    | with SST    | 14     | 10       |

## Brake booster

| Part Tightened                              | N*m         | kgf*cm | ft. *lbf |
|---------------------------------------------|-------------|--------|----------|
| Brake booster assembly x Body               | 13          | 127    | 9        |
| Brake booster clevis lock nut               | 26          | 265    | 19       |
| Brake actuator assembly with bracket x Body | 19          | 194    | 14       |
| Brake line union nut                        | without SST | 15     | 11       |
|                                             | with SST    | 14     | 10       |

## Front brake

| Part Tightened                                                              | N*m | kgf*cm | ft. *lbf    |
|-----------------------------------------------------------------------------|-----|--------|-------------|
| Front disc brake cylinder mounting x Steering knuckle                       | 88  | 900    | 65          |
| Front disc brake cylinder sub-assembly x Front disc brake cylinder mounting | 34  | 347    | 25          |
| Front disc brake cylinder sub-assembly x Flexible hose                      | 30  | 310    | 22          |
| Bleeder plug                                                                | 8.3 | 85     | 73 in. *lbf |
| Wheel nut                                                                   | 103 | 1,050  | 76          |

## Rear brake

| Part Tightened                                     | N*m         | kgf*cm | ft. *lbf    |
|----------------------------------------------------|-------------|--------|-------------|
| Rear wheel brake cylinder assembly x Backing plate | 9.8         | 100    | 87 in. *lbf |
| Brake line union nut                               | without SST | 15     | 11          |
|                                                    | with SST    | 14     | 10          |
| Bleeder plug                                       | 8.3         | 85     | 73 in. *lbf |
| Wheel nut                                          | 103         | 1,050  | 76          |

SS

**SS-38**

**SERVICE SPECIFICATIONS – PARKING BRAKE**

**PARKING BRAKE  
SERVICE DATA**

|                                                      |               |
|------------------------------------------------------|---------------|
| Parking brake lever travel at 196 N (20 kgf, 44 lbf) | 6 to 9 clicks |
|------------------------------------------------------|---------------|

**SS**

SERVICE SPECIFICATIONS – PARKING BRAKE

SS-39

TORQUE SPECIFICATIONS

| Part Tightened                                     | N*m | kgf*cm | ft. *lbf    |
|----------------------------------------------------|-----|--------|-------------|
| Parking brake lever sub-assembly x Body            | 13  | 127    | 9           |
| Parking brake pull rod lock nut                    | 5.4 | 55     | 48 in. *lbf |
| Front floor heat insulator No. 2 x Body            | 5.5 | 55     | 48 in. *lbf |
| Floor panel brace front x Body                     | 20  | 204    | 18          |
| Parking brake cable assembly No. 3 x Body          | 5.4 | 55     | 48 in. *lbf |
| Parking brake cable assembly No. 3 x Backing plate | 7.8 | 80     | 69 in. *lbf |
| Wheel nut                                          | 103 | 1,050  | 76          |

SS

STEERING COLUMN  
SERVICE DATA

|                         |         |                 |
|-------------------------|---------|-----------------|
| Steering wheel freeplay | Maximum | 30 mm (1.18 in) |
|-------------------------|---------|-----------------|

SS

SS-40

SERVICE SPECIFICATIONS – STEERING COLUMN

TORQUE SPECIFICATIONS

| Part tightened                             | N*m | kgf*cm | ft.*lbf    |
|--------------------------------------------|-----|--------|------------|
| Tie rod x Rack end                         | 74  | 755    | 55         |
| Steering column assembly set bolt          | 21  | 210    | 15         |
| Intermediate shaft assembly x Main shaft   | 28  | 286    | 21         |
| Intermediate shaft assembly x Sliding yoke | 28  | 286    | 21         |
| Steering wheel set nut                     | 50  | 510    | 37         |
| Steering wheel pad set screw (Torx screw)  | 8.8 | 90     | 78 in.*lbf |

SS

## SS-40

## SERVICE SPECIFICATIONS – POWER STEERING

## POWER STEERING

### SERVICE DATA

|                                                     |             |                                                    |
|-----------------------------------------------------|-------------|----------------------------------------------------|
| POWER STEERING SYSTEM                               |             |                                                    |
| fluid level rise                                    | Maximum     | 5 mm (0.20 in)                                     |
| Fluid pressure at idle speed with valve closed      |             | 5,900 kPa (60 kgf/cm <sup>2</sup> , 852 psi)       |
| Steering effort at idle speed (Reference)           | (Reference) | 6 N*m (60 kgf*cm, 53 in.*lbf)                      |
| VANE PUMP ASSEMBLY (From April, 2004)               |             |                                                    |
| Vane pump shaft and vane pump housing oil clearance | Maximum     | 0.07 mm (0.0028 in)                                |
| Clearance between the rotor groove and plate        | Minimum     | 1.404 to 1.411 mm(0.05531 to 0.05555 in.)          |
| Spring free length                                  | Maximum     | 0.03 mm (0.0012 in.)                               |
| Vane pump rotating torque                           | Minimum     | 29.2 mm (1.150 in.)                                |
| Vane pump rotating torque                           |             | 0.27 N*m (2.8 kgf*cm, 2.4 in.*lbf)                 |
| POWER STEERING LINK ASSEMBLY (From April, 2004)     |             |                                                    |
| Power steering rack runout                          | Maximum     | 0.1 mm (0.004 in.)                                 |
| Tie rod rotating torque                             | (Turning)   | 0.8-34.7 kgf*cm, 7.1 - 30.1 in.*lbf                |
| Total preload (Control valve rotating torque)       | (Turning)   | 1.2 - 1.5 N*m (12 - 15 kgf*cm, 10.6 - 13.3in.*lbf) |

SS

## SERVICE SPECIFICATIONS – POWER STEERING

SS-41

## TORQUE SPECIFICATIONS

| Part tightened                                                           | N*m       | kgf*cm    | ft.*lbf    |
|--------------------------------------------------------------------------|-----------|-----------|------------|
| VANE PUMP ASSEMBLY                                                       |           |           |            |
| Vane pump housing rear x Vane pump housing front                         | 22        | 224       | 16         |
| Power steering oil pressure sensor                                       | 21        | 214       | 15         |
| Pressure port union                                                      | 69        | 704       | 51         |
| Pump bracket front x Vane pump bracket rear                              | 44        | 449       | 32         |
| Oil reservoir set bolt                                                   | 9.0       | 92        | 80 in.*lbf |
| Vane pump assembly set bolt                                              | 44        | 449       | 32         |
| Vane pump housing rear x Power steering pump heat insulator              | 44        | 449       | 32         |
| Pressure feed tube assembly x Vane pump assembly                         | 44.1 (41) | 450 (414) | 33 (30)    |
| POWER STEERING LINK ASSEMBLY                                             |           |           |            |
| Control vane housing x Rack housing                                      | 21        | 214       | 15         |
| Rack guide spring cap lock nut                                           | 28 (39)   | 286 (398) | 21 (29)    |
| Power steering rack x Steering rack end sub-assembly                     | 60 (83.4) | 614 (850) | 44 (61)    |
| Tie rod end sub-assembly lock nut                                        | 74        | 750       | 54         |
| Steering right and left turn pressure tubes                              | 12 (13)   | 118 (133) | 9 (10)     |
| Power steering link assembly set bolt                                    | 74        | 749       | 54         |
| Steering intermediate shaft set bolt                                     | 28        | 290       | 21         |
| Power steering rack housing heat insulator set bolt                      | (a):      | 18        | 178        |
|                                                                          | (b):      | 35        | 360        |
| Front suspension crossmember sub-assembly set bolt                       | A:        | 116       | 1,183      |
|                                                                          | B:        | 70        | 714        |
| Engine mounting insulator RR x Front suspension crossmember sub-assembly | 72        | 734       | 53         |
| Front suspension member reinforcement LH and RH set bolt                 | 47        | 479       | 35         |
| Pressure feed tube assembly x Power steering link assembly               | 27 (25)   | 273 (255) | 20 (18)    |
| Pressure feed assembly clamp set bolt                                    | 7.8       | 80        | 69 in.*lbf |
| Steering sliding yoke sub-assembly x Steering intermediate shaft         | 28        | 290       | 21         |

SS

SS-42

SERVICE SPECIFICATIONS – AIR CONDITIONING

AIR CONDITIONING  
SERVICE DATA

|                           |          |                             |
|---------------------------|----------|-----------------------------|
| Refrigerant charge volume | Standard | 460 +-30 g (16.2 +-1.1 oz.) |
|---------------------------|----------|-----------------------------|

SS

**SERVICE SPECIFICATIONS – AIR CONDITIONING****SS-43****TORQUE SPECIFICATIONS**

| <b>Part tightened</b>                                                     | <b>N*m</b> | <b>kgf*cm</b> | <b>ft.*lbf</b> |
|---------------------------------------------------------------------------|------------|---------------|----------------|
| Suction hose sub-assembly x Body                                          | 9.8        | 100           | 7              |
| Suction hose sub-assembly x Condenser with receiver assembly              | 5.4        | 55            | 47 in.*lbf     |
| Suction hose sub-assembly x Compressor with pulley assembly               | 9.8        | 100           | 7              |
| Liquid tube sub-assembly x Condenser with receiver assembly               | 5.4        | 55            | 47 in.*lbf     |
| No. 1 cooler refrigerant discharge hose x Compressor with pulley assembly | 9.8        | 100           | 7              |
| Air conditioning tube assembly x Body                                     | 5.4        | 55            | 47 in.*lbf     |
| No. 1 condenser bracket collar x Condenser with receiver assembly         | 3.9        | 40            | 35 in.*lbf     |
| Condenser with receiver assembly x Body                                   | 9.8        | 100           | 7              |

**SS**

**SERVICE SPECIFICATIONS – SUPPLEMENTAL RESTRAINT SYSTEM****SS-43****SUPPLEMENTAL RESTRAINT  
SYSTEM****TORQUE SPECIFICATIONS**

| <b>Part tightened</b>                                   | <b>N*m</b> | <b>kgf*cm</b> | <b>ft.*lbf</b> |
|---------------------------------------------------------|------------|---------------|----------------|
| Steering pad assembly x Steering wheel assembly         | 8.8        | 90            | 78 in.*lbf     |
| Steering wheel assembly x Steering column assembly      | 50         | 510           | 37             |
| Front passenger airbag x Instrument panel reinforcement | 20         | 200           | 14             |
| Center airbag sensor assembly x Body                    | 20         | 200           | 14             |
| Front airbag sensor x Body                              | 17.5       | 178           | 13             |
| Seat position airbag sensor x Front seat                | 8.0        | 82            | 71 in.*lbf     |

**SS**

SS-44

## SERVICE SPECIFICATIONS – SEAT BELT

## SEAT BELT

## TORQUE SPECIFICATIONS

## FRONT SEAT BELT

| Part Tightened                                                     | N <sup>•</sup> m | kgf <sup>•</sup> cm | ft. <sup>•</sup> lbf |
|--------------------------------------------------------------------|------------------|---------------------|----------------------|
| Front seat inner belt assembly<br>x Front seat                     | 42               | 428                 | 31                   |
| Front seat outer belt assembly<br>(Upper part of retractor) x Body | 5.0              | 51                  | 44                   |
| Front seat outer belt assembly<br>(Lower part of retractor) x Body | 42               | 428                 | 31                   |
| Front seat outer belt assembly<br>(shoulder anchor) x Body         | 42               | 428                 | 31                   |
| Front seat outer belt assembly<br>(floor anchor) x Body            | 42               | 428                 | 31                   |
| Front shoulder belt anchor<br>adjuster assembly x Body             | 42               | 428                 | 31                   |

## REAR SEAT BELT

| Part Tightened                                                    | N <sup>•</sup> m | kgf <sup>•</sup> cm | ft. <sup>•</sup> lbf |
|-------------------------------------------------------------------|------------------|---------------------|----------------------|
| Child restraint seat tether<br>anchor bracket x Body 42 428<br>31 | 42               | 428                 | 31                   |
| Rear seat inner with center belt<br>assembly RH x Body            | 42               | 428                 | 31                   |
| Rear seat inner with center belt<br>assembly LH x Body            | 42               | 428                 | 31                   |
| Rear seat outer belt assembly<br>center (floor anchor) x Body     | 42               | 428                 | 31                   |
| Rear seat outer belt assembly<br>(retractor) x Body               | 42               | 428                 | 31                   |
| Rear seat outer belt assembly<br>(shoulder anchor) x Body         | 42               | 428                 | 31                   |
| Rear seat outer belt assembly<br>(floor anchor) x Body 42 428 31  | 42               | 428                 | 31                   |

WIPER AND WASHER  
TORQUE SPECIFICATIONS

| Part Tightened                                                               | N*m | kgf*cm | ft*lbf     |
|------------------------------------------------------------------------------|-----|--------|------------|
| Windshield wiper link assembly x<br>Windshield wiper motor assembly          | 5.4 | 55     | 47 in. lbf |
| Windshield wiper motor and link<br>assembly x Body                           | 5.4 | 55     | 47 in. lbf |
| Front wiper arm and blade<br>assembly LH x Windshield wiper<br>link assembly | 20  | 205    | 15         |
| Front wiper arm and blade<br>assembly RH x Windshield wiper<br>link assembly | 20  | 205    | 15         |
| Rear wiper motor assembly x<br>Body                                          | 5.4 | 55     | 47 in. lbf |
| Rear wiper arm and blade x Rear<br>wiper motor assembly                      | 5.4 | 55     | 47 in. lbf |

SS

**HORN**  
**TORQUE SPECIFICATIONS**

**HORN**

| Part Tightened           | N <sup>•</sup> m | kgf <sup>•</sup> cm | ft. <sup>•</sup> lbf |
|--------------------------|------------------|---------------------|----------------------|
| Low pitched horn x Body  | 19.5             | 199                 | 14                   |
| High pitched horn x Body | 19.5             | 199                 | 14                   |

SS

WINDSHIELD / WINDOWGLASS  
TORQUE SPECIFICATIONS

MIRROR

| Part Tightened   | N*m | kgf*cm | ft.*lbf |
|------------------|-----|--------|---------|
| Wiper arm x Body | 20  | 204    | 15      |

SS

SS-48

SERVICE SPECIFICATIONS – MIRROR

MIRROR  
TORQUE SPECIFICATIONS

MIRROR

| Part Tightened                                  | N <sup>•</sup> m | kgf <sup>•</sup> cm | ft. <sup>•</sup> lbf |
|-------------------------------------------------|------------------|---------------------|----------------------|
| Outer rear view mirror<br>assembly x Door panel | 8.0              | 82                  | 71                   |

SS

INSTRUMENT PANEL  
TORQUE SPECIFICATIONS

| Part tightened                                             | N*m | kgf*cm | ft.*lbf |
|------------------------------------------------------------|-----|--------|---------|
| Front passenger airbag x<br>Instrument panel reinforcement | 20  | 20     | 14      |

SS

## SS-50

## SERVICE SPECIFICATIONS – SEAT

## SEAT

## TORQUE SPECIFICATIONS

(2005/07-2005/12)

## FRONT SEAT

| Part Tightened                 | N <sup>m</sup> | kgf <sup>cm</sup> | ft. <sup>lbf</sup> |
|--------------------------------|----------------|-------------------|--------------------|
| Inner belt x Seat adjuster     | 41             | 418               | 30                 |
| Front seatback x Seat adjuster | 43             | 440               | 32                 |
| Front seat x Body              | 37             | 375               | 27                 |

## REAR SEAT

| Part Tightened                                             | N <sup>m</sup> | kgf <sup>cm</sup> | ft. <sup>lbf</sup> |
|------------------------------------------------------------|----------------|-------------------|--------------------|
| Rear seatback hinge x Rear seatback                        | 37             | 377               | 27                 |
| Rear seatback hinge x Body                                 | 42             | 428               | 31                 |
| Child restraint seat anchor bracket x Rear seatback        | 37             | 377               | 27                 |
| Child restraint seat anchor bracket x Body                 | 42             | 428               | 31                 |
| Rear seatback lock striker x Body                          | 21             | 214               | 15                 |
| Rear seat belt assembly outer center x Rear seatback frame | 42             | 428               | 31                 |

## SERVICE SPECIFICATIONS – SEAT

SS-51

**TORQUE SPECIFICATIONS**

(2005/12- )

**FRONT SEAT**

| Part Tightened             | N*m | kgf*cm | ft.*lbf |
|----------------------------|-----|--------|---------|
| Inner belt x Seat adjuster | 41  | 418    | 30      |
| Front seat x Body          | 37  | 375    | 27      |

**REAR SEAT**

| Part Tightened                                             | N*m | kgf*cm | ft.*lbf |
|------------------------------------------------------------|-----|--------|---------|
| Rear seatback hinge x Rear seatback                        | 37  | 377    | 27      |
| Rear seatback hinge x Body                                 | 42  | 428    | 31      |
| Child restraint seat anchor bracket x Rear seatback        | 37  | 377    | 27      |
| Child restraint seat anchor bracket x Body                 | 42  | 428    | 31      |
| Rear seatback lock striker x Body                          | 21  | 214    | 15      |
| Rear seat belt assembly outer center x Rear seatback frame | 42  | 428    | 31      |

**SS**

## SERVICE SPECIFICATIONS – ENGINE HOOD / DOOR

SS-51

## ENGINE HOOD / DOOR

### TORQUE SPECIFICATIONS

| Part Tightened                                     | N*m  | kgf*cm | in.*lbf    |
|----------------------------------------------------|------|--------|------------|
| HOOD                                               |      |        |            |
| Hood x Hood hinge                                  | 11.5 | 117    | 8.5        |
| Hood x Hood lock                                   | 7.0  | 72     | 62 in.*lbf |
| FRONT DOOR                                         |      |        |            |
| Door check x Body                                  | 30   | 306    | 22         |
| Door check x Door panel                            | 5.5  | 56     | 49 in.*lbf |
| Door frame sub-assembly rear lower x Door panel    | 6.2  | 63     | 55 in.*lbf |
| Door glass x Front door regulator sub-assembly     | 8.0  | 82     | 72 in.*lbf |
| Door hinge x Body                                  | 26   | 265    | 19         |
| Door hinge x Door panel                            | 26   | 265    | 19         |
| Door lock x Door panel                             | 5.0  | 51     | 44 in.*lbf |
| Door lock striker x Body                           | 23   | 235    | 17         |
| Door outside handle x Door panel                   | 5.5  | 56     | 49 in.*lbf |
| Outer rear view mirror x Door panel                | 8.0  | 82     | 71 in.*lbf |
| Power window regulator motor x Window regulator    | 5.4  | 55     | 48 in.*lbf |
| Window regulator x Door panel                      | 8.0  | 82     | 71 in.*lbf |
| REAR DOOR                                          |      |        |            |
| Door check x Body                                  | 30   | 306    | 22         |
| Door check x Door panel                            | 5.5  | 56     | 49 in.*lbf |
| Door window division bar sub-assembly x Door panel | 5.0  | 51     | 44 in.*lbf |
| Door glass x Front door regulator sub-assembly     | 8.0  | 82     | 72 in.*lbf |
| Door hinge x Body                                  | 26   | 265    | 19         |
| Door hinge x Door panel                            | 26   | 265    | 19         |
| Door lock x Door panel                             | 5.0  | 51     | 44 in.*lbf |
| Door lock striker x Body                           | 23   | 235    | 17         |
| Door outside handle x Door panel                   | 5.0  | 51     | 44 in.*lbf |
| Door outside panel hole seal x Door panel          | 5.0  | 51     | 44 in.*lbf |
| Power window regulator motor x Window regulator    | 5.4  | 55     | 48 in.*lbf |
| Window regulator motor x Door panel                | 8.0  | 82     | 71 in.*lbf |
| BACK DOOR                                          |      |        |            |
| Back door hinge assembly x Body                    | 26   | 265    | 19         |
| Back door hinge assembly x Door panel              | 19.0 | 194    | 14         |
| Back door lock assembly x Door panel               | 7.0  | 71     | 62 in.*lbf |
| Back door stay sub-assembly x Body                 | 8.0  | 82     | 71 in.*lbf |
| Back door stay sub-assembly x Door panel           | 8.0  | 82     | 71 in.*lbf |
| Back door stopper lower x Door panel               | 12.5 | 112    | 9          |

SS

SS-52

SERVICE SPECIFICATIONS – ENGINE HOOD / DOOR

| Part Tightened                    | N*m  | kgf*cm | in.*lbf    |
|-----------------------------------|------|--------|------------|
| Back door striker assembly x Body | 11.5 | 117    | 8          |
| Rear wiper arm x Wiper motor      | 5.5  | 56     | 49 in.*lbf |

SS