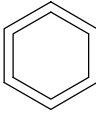
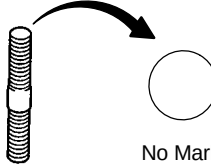
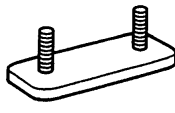
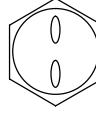
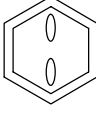
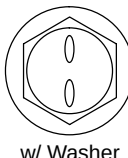
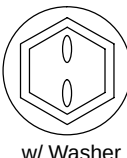
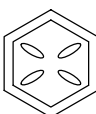
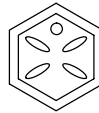
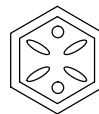


STANDARD BOLT

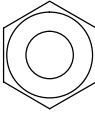
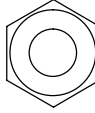
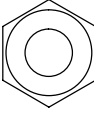
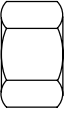
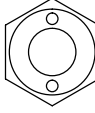
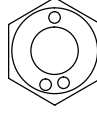
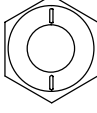
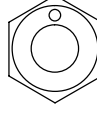
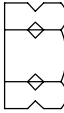
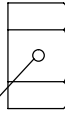
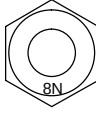
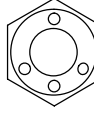
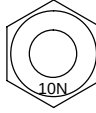
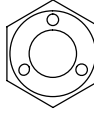
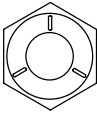
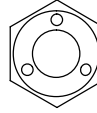
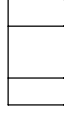
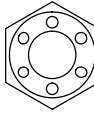
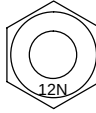
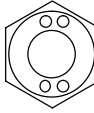
HOW TO DETERMINE BOLT STRENGTH

03130-02

Bolt Type				Class
Hexagon Head Bolt		Stud Bolt	Weld Bolt	
Normal Recess Bolt	Deep Recess Bolt			
4  No Mark	 No Mark	 No Mark		4T
5  				5T
6   w/ Washer	 w/ Washer			6T
7  	 			7T
8 		 		8T
9 				9T
10 	 			10T
11 	 			11T

B06431

HOW TO DETERMINE NUT STRENGTH

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

*: Nut with 1 or more marks on one side surface of the nut.

B06432

HINT:

Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut.

Example: Bolt = 4T

Nut = 4N or more

2005 SIENNA REPAIR MANUAL (RM1163U)

AUTOMATIC TRANSMISSION / TRANSAXLE

SERVICE DATA

0305K-12

U151E		
Line pressure (Wheel locked)	Engine idling D position R position AT stall (Throttle valve fully opened) D position R position	370 - 410 kPa (3.8 - 4.2 kgf-cm ² , 54 - 60 psi) 670 - 740 kPa (6.8 - 7.5 kgf-cm ² , 97 - 106 psi) 931 - 1,031 kPa (9.5 - 10.5 kgf-cm ² , 135 - 150 psi) 1,768 - 1,968 kPa (18.0 - 20 kgf-cm ² , 256 - 285 psi)
Engine stall revolution	D and R positions	2,100 ± 150 rpm
Time lag	N → D position N → R position	Less than 1.2 seconds Less than 1.5 seconds
Engine idle speed (A/C OFF)	N position	650 ± 50 rpm
Drive plate runout	Max.	0.20 mm (0.0079 in.)
Torque converter runout	Max.	0.30 mm (0.0118 in.)
Differential oil seal drive in depth	LH side RH side	0 ± 0.5 mm (0 ± 0.020 in.) 0 ± 0.5 mm (0 ± 0.020 in.)
U151E TIRE: 215/65R16		
Shift schedule		
D position (Throttle valve fully opened)	1 → 2 2 → 3 3 → 4 4 → 5 5 → 4 4 → 3 3 → 2 2 → 1	43 - 49 km/h (27 - 30 mph) 86 - 92 km/h (53 - 57 mph) 141 - 152 km/h (88 - 94 mph) 208 - 219 km/h (129 - 136 mph) 200 - 211 km/h (124 - 131 mph) 136 - 147 km/h (85 - 91 mph) 81 - 87 km/h (50 - 54 mph) 39 - 44 km/h (24 - 27 mph)
(Throttle valve fully closed)	4 → 5 5 → 4	52 - 57 km/h (32 - 35 mph) 38 - 43 km/h (24 - 27 mph)
3 position (Throttle valve fully opened)	1 → 2 2 → 3 4 → 3 3 → 2 2 → 1	43 - 49 km/h (27 - 30 mph) 86 - 92 km/h (53 - 57 mph) 141 - 152 km/h (88 - 94 mph) 91 - 97 km/h (57 - 60 mph) 39 - 44 km/h (24 - 27 mph)
2 position (Throttle valve fully opened)	1 → 2 3 → 2 2 → 1	43 - 49 km/h (27 - 30 mph) 91 - 97 km/h (57 - 60 mph) 39 - 44 km/h (24 - 27 mph)
L position (Throttle valve fully opened)	2 → 1	43 - 48 km/h (27 - 30 mph)
Lock-up point	Throttle valve opening 5 %	
D position		
5th gear	Lock-up ON Lock-up OFF	65 - 71 km/h (40 - 44 mph) 63 - 69 km/h (39 - 43 mph)
4th gear	Lock-up ON Lock-up OFF	104 - 110 km/h (65 - 68 mph) 100 - 106 km/h (62 - 66 mph)
3th gear	Lock-up ON Lock-up OFF	69 - 76 km/h (43 - 47 mph) 66 - 72 km/h (41 - 45 mph)
4 position		
4th gear	Lock-up ON Lock-up OFF	104 - 110 km/h (65 - 68 mph) 100 - 106 km/h (62 - 66 mph)
3th gear	Lock-up ON Lock-up OFF	69 - 76 km/h (43 - 47 mph) 66 - 72 km/h (41 - 45 mph)

U151E TIRE: 225/60R17		
Shift schedule		
D position		
(Throttle valve fully opened)	1 → 2	44 - 52 km/h (27 - 32 mph)
	2 → 3	89 - 97 km/h (55 - 60 mph)
	3 → 4	147 - 159 km/h (91 - 99 mph)
	4 → 5	216 - 230 km/h (134 - 143 mph)
	5 → 4	208 - 222 km/h (130 - 138 mph)
	4 → 3	142 - 154 km/h (88 - 96 mph)
	3 → 2	84 - 91 km/h (52 - 57 mph)
	2 → 1	40 - 46 km/h (25 - 29 mph)
(Throttle valve fully closed)	5 → 4	54 - 60 km/h (34 - 37 mph)
	4 → 3	39 - 45 km/h (24 - 28 mph)
3 position		
(Throttle valve fully opened)	1 → 2	44 - 52 km/h (27 - 32 mph)
	2 → 3	89 - 97 km/h (55 - 60 mph)
	4 → 3	147 - 159 km/h (91 - 99 mph)
	3 → 2	84 - 91 km/h (52 - 57 mph)
	2 → 1	40 - 46 km/h (25 - 29 mph)
2 position		
(Throttle valve fully opened)	1 → 2	44 - 52 km/h (27 - 32 mph)
	3 → 2	95 - 102 km/h (59 - 63 mph)
	2 → 1	40 - 46 km/h (25 - 29 mph)
L position		
(Throttle valve fully opened)	2 → 1	44 - 51 km/h (27 - 32 mph)
Lock-up point	Throttle valve opening 5 %	
D position		
5th gear	Lock-up ON	68 - 75 km/h (42 - 47 mph)
	Lock-up OFF	66 - 72 km/h (41 - 45 mph)
4th gear	Lock-up ON	108 - 116 km/h (67 - 72 mph)
	Lock-up OFF	104 - 111 km/h (65 - 69 mph)
3th gear	Lock-up ON	72 - 80 km/h (45 - 50 mph)
	Lock-up OFF	69 - 76 km/h (43 - 47 mph)
4 position		
4th gear	Lock-up ON	108 - 116 km/h (67 - 72 mph)
	Lock-up OFF	104 - 111 km/h (65 - 69 mph)
3th gear	Lock-up ON	72 - 80 km/h (45 - 50 mph)
	Lock-up OFF	69 - 76 km/h (43 - 47 mph)
U151F		
Line pressure (Wheel locked)		
	Engine idling	
	D position	370 - 410 kPa (3.8 - 4.2 kgf·cm ² , 54 - 60 psi)
	R position	670 - 740 kPa (6.8 - 7.5 kgf·cm ² , 97 - 106 psi)
	AT stall (Throttle valve fully opened)	
	D position	931 - 1,031 kPa (9.5 - 10.5 kgf·cm ² , 135 - 150 psi)
	R position	1,768 - 1,968 kPa (18.0 - 20 kgf·cm ² , 256 - 285 psi)
Engine stall revolution	D and R positions	2,550 ± 150 rpm
Time lag	N → D position	Less than 1.2 seconds
	N → R position	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N position	650 ± 50 rpm
Drive plate runout	Max.	0.20 mm (0.0079 in.)
Torque converter runout	Max.	0.30 mm (0.0118 in.)
Differential oil seal drive in depth	LH side	0 ± 0.5 mm (0 ± 0.020 in.)
	RH side	6.0 ± 0.236 mm (0 ± 0.020 in.)

SERVICE SPECIFICATIONS - AUTOMATIC TRANSMISSION / TRANSAXLE

Shift schedule		
D position		
(Throttle valve fully opened)	1 → 2	42 - 48 km/h (26 - 30 mph)
	2 → 3	84 - 91 km/h (52 - 57 mph)
	3 → 4	137 - 149 km/h (85 - 93 mph)
	4 → 5	202 - 215 km/h (126 - 134 mph)
	5 → 4	195 - 208 km/h (121 - 129 mph)
	4 → 3	132 - 144 km/h (82 - 89 mph)
	3 → 2	79 - 85 km/h (49 - 53 mph)
	2 → 1	38 - 43 km/h (24 - 27 mph)
(Throttle valve fully closed)	4 → 5	50 - 56 km/h (31 - 35 mph)
	5 → 4	37 - 42 km/h (23 - 26 mph)
3 position		
(Throttle valve fully opened)	1 → 2	42 - 48 km/h (26 - 30 mph)
	2 → 3	84 - 91 km/h (52 - 57 mph)
	4 → 3	137 - 149 km/h (85 - 93 mph)
	3 → 2	79 - 85 km/h (49 - 53 mph)
	2 → 1	38 - 43 km/h (24 - 27 mph)
2 position		
(Throttle valve fully opened)	1 → 2	42 - 48 km/h (26 - 30 mph)
	3 → 2	88 - 95 km/h (55 - 59 mph)
	2 → 1	38 - 43 km/h (24 - 27 mph)
L position		
(Throttle valve fully opened)	2 → 1	42 - 47 km/h (26 - 29 mph)
Lock-up point	Throttle valve opening 5 %	
D position		
5th gear	Lock-up ON	64 - 70 km/h (40 - 43 mph)
	Lock-up OFF	62 - 68 km/h (39 - 42 mph)
4th gear	Lock-up ON	101 - 108 km/h (63 - 67 mph)
	Lock-up OFF	97 - 104 km/h (60 - 65 mph)
3th gear	Lock-up ON	67 - 75 km/h (42 - 47 mph)
	Lock-up OFF	65 - 71 km/h (40 - 44 mph)
4 position		
4th gear	Lock-up ON	101 - 108 km/h (63 - 67 mph)
	Lock-up OFF	97 - 104 km/h (60 - 65 mph)
3th gear	Lock-up ON	67 - 75 km/h (42 - 47 mph)
	Lock-up OFF	65 - 71 km/h (40 - 44 mph)

COOLING

SERVICE DATA

031EY-01

Thermostat		
Valve opening temperature		80 to 84°C (176 to 183°F)
Valve lift	at 95°C (205°F)	10 mm (0.394 in.) or more
Radiator cap sub-assy		
Standard opening pressure		83 to 113 kPa (0.85 to 1.15 kgf/cm ² , 12.1 to 16.4 psi)
Minimum opening pressure		69 kPa (0.7 kgf/cm ² , 10.0 psi)
Cooling fan		
Standard amperage	No.1	10.6 to 16.6A
	No.2	5.6 to 11.6 A
Cooling fan relay		
Specified condition	Between terminals 1 and 2	Continuity
	Between terminals 3 and 5	No continuity
		Continuity (Apply battery voltage terminals 1 and 2)

POWER STEERING

SERVICE DATA

0304W-02

POWER STEERING FLUID		
Fluid level rise	Maximum	5 mm (0.20 in.)
Fluid pressure at idle speed with valve closed		7,800 to 8,300 kPa (80 to 85 kgf/cm ² , 1,138 to 1,209 psi)
STEERING WHEEL		
Steering effort at idle speed	(Reference)	6.0 N·m (60 kgf·cm, 53 in.·lbf)
VANE PUMP ASSY		
Vane pump rotating torque		0.27 N·m (2.8 kgf·cm, 2.4 in.·lbf) or less
Vane pump shaft and vane pump housing oil clearance	STD Maximum	0.027 to 0.054 mm (0.00106 to 0.00213 in.) 0.07 mm (0.0028 in.)
Vane plate thickness	Minimum	1.397 - 1.403 mm (0.0550 - 0.05524 in.)
Clearance between the rotor groove and plate	Maximum	0.03 mm (0.0012 in.)
Spring free length	Minimum	32.24 mm (1.2693 in.)
RACK & PINION POWER STEERING GEAR ASSY		
Tie rod assy stad bolt torque	(Turning)	0.83 - 3.43 N·m (8.5 - 35.0 kgf·cm, 7.3 - 30.4 in.·lbf)
Steering rack runout	Maximum	0.3 mm (0.012 in.)
Total preload (Control valve rotating torque)	(Turning)	1.2 - 1.5 N·m (12.2 - 15.3 kgf·cm, 10.6 - 13.3 in.·lbf)
Rack boot clamp clearance		3.0 mm (0.118 in.) or less

LUBRICATION

SERVICE DATA

031EW-01

Oil pressure	at idle speed at 3,000 rpm	29 kPa (0.3 kgf/cm ² , 4.3 psi) or more 294 to 539 kPa (3.0 to 5.5 kgf-cm ² , 43 to 78 psi) or more
Oil pump assy		
Tip clearance	Standard Maximum	0.11 to 0.24 mm (0.0043 to 0.0094 in.) 0.35 mm (0.0138 in.)
Body clearance	Standard Maximum	0.125 to 0.162 mm (0.0050 to 0.0064 in.) 0.30 mm (0.0118 in.)
Side clearance	Standard Maximum	0.03 to 0.09 mm (0.0012 to 0.0035 in.) 0.15 mm (0.0059 in.)

FRONT SUSPENSION

030E9-04

SERVICE DATA

Front wheel alignment	Vehicle height		
	FF	Front: A - B	114 mm (4.48 in.)
		Rear: D - C	-18 mm (-0.7 in.)
	4WD	Front: A - B	116 mm (4.57 in.)
		Rear: D - C	-53.5 mm (-2.1 in.)
	Toe-in (total)		0° ± 12' (0° ± 0.2°) 0 ± 2 mm (0 ± 0.08 in.)
		Rack end length difference	1.5 mm (0.059 in.) or less
Wheel angle	FF	Inside wheel	42°45' ± 2° (42.75° ± 2°)
		Outside wheel: Reference	36°21' (36.35°)
	4WD	Inside wheel	42°42' ± 2° (42.70° ± 2°)
		Outside wheel: Reference	36°16' (36.27°)
Camber			-0°17' ± 45' (-0.28° ± 0.75°)
		Right-left error	30' (0.5°) or less
Caster	FF:		2°48' ± 45' (2.80° ± 0.75°)
	4WD:		2°40' ± 45' (2.67° ± 0.75°)
		Right-left error	30' (0.5°) or less
Steering axis inclination	FF:		10°25' ± 45' (10.42° ± 0.75°)
	4WD:		10°12' ± 45' (10.02° ± 0.75°)
		Right-left error	30' (0.5°) or less
Front suspension	Lower ball joint turning torque		0.98 - 3.43 N·m (10 - 35 kgf·cm, 8.7 - 30 in.·lbf)
	Stabilizer bar link ball joint turning torque		0.05 - 1.96 N·m (0.5 - 20 kgf·cm, 0.4 - 17.4 in.·lbf)

A: Ground clearance of front wheel center

B: Ground clearance of lower suspension arm No. 2 set bolt center

C: Ground clearance of rear axle carrier bush set bolt center

D: Ground clearance of rear wheel center

ENGINE CONTROL SYSTEM

SERVICE DATA

031DK-01

Throttle body	Standard throttle valve opening percentage	60 % or more
Accelerator pedal position sensor	Standard voltage	0.6 to 1.0 V
Intake air flow meter assy Resistance	4 (THA) - 5 (E2) at -20°C (-4°F) at 20°C (68°F) at 60°C (140°F)	13.6 to 18.4 kΩ 2.21 to 2.69 kΩ 0.493 to 0.667 kΩ
Camshaft timing oil control valve assy Resistance	as 20°C (68°F)	6.9 to 7.9 Ω
Accelerator pedal rod assy Resistance	3 (VPA2) - 5 (EP1) 6 (VPA1) - 2 (EP2) 4 (VCP1) - 5 (EP1) 1 (VCP2) - 2 (EP2)	5.0 kΩ or less 5.0 kΩ or less 2.25 to 4.75 kΩ 2.25 to 4.75 kΩ
Throttle body assy Resistance	2 (M+) - 1 (M-) at 20°C (68°F)	0.3 to 100 kΩ
E.F.I. engine coolant temperature sensor Resistance	Approx. 20°C (68°F) Approx. 80°C (176°F)	2.32 to 2.59 kΩ 0.310 to 0.326 kΩ
Knock sensor Resistance	at 20°C (68°F)	120 to 280 kΩ

TIRE & WHEEL

030E6-02

SERVICE DATA

Cold tire inflation pressure	Tire size: P215/65R16 96T	Front, Rear	240 kPa (2.4 kgf/cm ² , 35 psi)
	Tire size: P225/60R17 98T	Front, Rear	
Tire & Wheel	Tire runout		1.0 mm (0.039 in.) or less
	Imbalance after adjustment		8.0 g (0.018 lb) or less

DRIVE SHAFT / PROPELLER SHAFT / AXLE

031ER-01

SERVICE DATA

Propeller shaft runout	Max.	0.8 mm (0.031 in.)
Intermediate shaft runout	Max.	0.8 mm (0.031 in.)
Intermediate shaft front flange runout	Max.	0.1 mm (0.004 in.)
Intermediate shaft rear flange runout (horizontal direction)	Max.	0.1 mm (0.004 in.)
Intermediate shaft rear flange runout (vertical direction)	Max.	0.1 mm (0.004 in.)
Front axle hub bearing	Backlash	Maximum: 0.05 mm (0.0020 in.)
Front axle hub bearing	Deviation	Maximum: 0.05 mm (0.0020 in.)
Rear axle hub bearing	Backlash	Maximum: 0.05 mm (0.0020 in.)
Rear axle hub bearing	Deviation	Maximum: 0.07 mm (0.0027 in.)

HEATER AND AIR CONDITIONING

031FI-01

SERVICE DATA

Refrigerant charge volume	Standard:	780 ± 30 g (27.5 ± 1.06 oz.)
Magnetic clutch clearance		0.35 - 0.60 mm (0.013 - 0.023 in.)

BRAKE

SERVICE DATA

031F0-01

Brake pedal height (from dash panel)		150.3 - 160.3 mm (5.917 - 6.311 in.)
Brake Pedal free play		1 - 6 mm (0.04 - 0.24 in.)
Stop light switch clearance		0.5 - 2.5 mm (0.020 - 0.098 in.)
Pedal reserve distance from asphalt sheet at 490 N (50 kgf, 110 lbf)		More than 52 mm (2.0 in.)
Front disc brake pad thickness	Standard	12.0 mm (0.472 in.)
	Minimum	1.0 mm (0.039 in.)
Front brake disc thickness	Standard	28.0 mm (1.102 in.)
	Minimum	26.0 mm (1.024 in.)
Front disc runout	Maximum	0.05 mm (0.0020 in.)
Rear drum brake lining thickness	Standard	5.0 mm (0.197 in.)
	Minimum	1.0 mm (0.039 in.)
Rear drum	Standard	254.0 mm (10.00 in.)
	Maximum	256.0 mm (10.08 in.)
Rear shoe clearance		0.5 mm (0.020 in.)
Rear disc brake pad thickness	Standard	11.0 mm (0.433 in.)
	Minimum	1.0 mm (0.039 in.)
Rear disc thickness	Standard	12.0 mm (0.472 in.)
	Minimum	10.5 mm (0.413 in.)
Rear disc runout	Maximum	0.10 mm (0.0039 in.)

FUEL

SERVICE DATA

031DW-02

Fuel pressure		304 to 343 kPa (3.1 to 3.5 kgf/cm ² , 44 to 50 psi)
Fuel pressure		147 kPa (1.5 kgf/cm ² , 21 psi) or more
Fuel injector		
Resistance	at 20°C (68°F)	13.4 to 14.2Ω
Injection volume		60 to 73 cm ³ (3.7 to 4.5 cu in.) in 15 seconds
Difference between each cylinder		13 cm ³ (0.8 cu in.) or less
Fuel leakage		1 drop or less in 12 minutes
Fuel pump		
Resistance	at 20°C (68°F)	0.2 to 3.0 Ω

EMISSION CONTROL

SERVICE DATA

031DM-01

VSV for canister closed valve Resistance	at 20°C (68°F) at 100°C (212°F)	25 to 30 Ω 32 to 42 Ω
VSV for EVAP Resistance	at 20 °C (68 °F)	26 to 30 Ω
Air fuel ratio sensor Resistance	1 (TH) - 2 (+B) 1 (TH) - 2 (+B) 1 (HT) - 4 (E1)	0.8 - 1.4 Ω at 20 °C (68 °F) 1.8 - 3.2 Ω at 800 °C (1,472 °F) No continuity
Heated oxygen sensor (Bank 1 oxygen sensor No. 2) Resistance	1 (HT) - 2 (+B) 1 (HT) - 4 (E1)	11 to 16 Ω at 20 °C (68 °F) No continuity
Heated oxygen sensor (Bank 2 oxygen sensor No. 2) Resistance	1 (HT) - 2 (+B) 1 (HT) - 4 (E1)	11 to 16 Ω at 20 °C (68 °F) No continuity

INTAKE

031DO-01

SERVICE DATA

Intake air control valve No.3 (VSV) Resistance	at 20°C (68°F)	37 to 44 Ω
Vacuum switching valve assy No.1 Resistance	at 20°C (68°F)	33 to 39 Ω

TRANSFER

SERVICE DATA

031DF-01

Driven pinion preload (For use with SST)	New bearing	1.1 - 1.6 N·m (11 - 16 kgf·cm, 9.7 - 14.2 in.-lbf)
	Used bearing	0.9 - 1.4 N·m (9 - 14 kgf·cm, 8.0 - 12.4 in.-lbf)
Total preload (For use with SST)	New bearing	1.30 - 1.98 N·m (13.3 - 20.2 kgf·cm, 11.5 - 17.5 in.-lbf)
	Used bearing	1.07 - 1.68 N·m (10.9 - 17.1 kgf·cm, 9.5 - 14.9 in.-lbf)
Ring gear	Backlash	0.10 - 0.15 mm (0.0039 - 0.0059 in.)
Ring gear runout	Maximum	0.1 mm (0.004 in.)
Ring gear mounting case	Maximum	0.03 mm (0.0012 in.)
Washer thickness LH side	Mark	
	AA	2.07 mm (0.0814 in.)
	AB	2.10 mm (0.0826 in.)
	AC	2.13 mm (0.0838 in.)
	BA	2.16 mm (0.0850 in.)
	BB	2.19 mm (0.0862 in.)
	BC	2.22 mm (0.0874 in.)
	CA	2.25 mm (0.0885 in.)
	CB	2.28 mm (0.0897 in.)
	CC	2.31 mm (0.0909 in.)
	DA	2.34 mm (0.0921 in.)
	DB	2.37 mm (0.0933 in.)
	DC	2.40 mm (0.0944 in.)
	EA	2.43 mm (0.0956 in.)
	EB	2.46 mm (0.0968 in.)
	EC	2.49 mm (0.0980 in.)
	FA	2.52 mm (0.0992 in.)
	FB	2.55 mm (0.1003 in.)
	FC	2.58 mm (0.1015 in.)
	GA	2.61 mm (0.1027 in.)
	GB	2.64 mm (0.1039 in.)
	GC	2.67 mm (0.1051 in.)
	HA	2.70 mm (0.1062 in.)
	HB	2.73 mm (0.1074 in.)
	HC	2.76 mm (0.1086 in.)
	JA	2.79 mm (0.1098 in.)
	JB	2.82 mm (0.1110 in.)
	JC	2.85 mm (0.1122 in.)
	KA	2.88 mm (0.1133 in.)
	KB	2.91 mm (0.1145 in.)
	KC	2.94 mm (0.1157 in.)
	LA	2.97 mm (0.1169 in.)
	LB	3.00 mm (0.1181 in.)

SERVICE SPECIFICATIONS - TRANSFER

Driven pinion bearing waasher thickness front side	Mark	
	AA	1.20 mm (0.0472 in.)
	AC	1.22 mm (0.0480 in.)
	BB	1.24 mm (0.0488 in.)
	CA	1.26 mm (0.0496 in.)
	CC	1.28 mm (0.0503 in.)
	DB	1.30 mm (0.0511 in.)
	EA	1.32 mm (0.0519 in.)
	EC	1.34 mm (0.0527 in.)
	FB	1.36 mm (0.0535 in.)
	GA	1.38 mm (0.0543 in.)
	GC	1.40 mm (0.0551 in.)
	HB	1.42 mm (0.0559 in.)
	JA	1.44 mm (0.0566 in.)
	JC	1.46 mm (0.0574 in.)
	KB	1.48 mm (0.0582 in.)
	LA	1.50 mm (0.0590 in.)
	LC	1.52 mm (0.0598 in.)
	MB	1.54 mm (0.0606 in.)
	NA	1.56 mm (0.0614 in.)
	NC	1.58 mm (0.0622 in.)
	PB	1.60 mm (0.0629 in.)
	QA	1.62 mm (0.0637 in.)
	QC	1.64 mm (0.0645 in.)
Washer thickness RH side	Mark	
	AA	1.47 mm (0.0578 in.)
	AB	1.50 mm (0.0590 in.)
	AC	1.53 mm (0.0602 in.)
	BA	1.56 mm (0.0614 in.)
	BB	1.59 mm (0.0625 in.)
	BC	1.62 mm (0.0637 in.)
	CA	1.65 mm (0.0649 in.)
	CB	1.68 mm (0.0661 in.)
	CC	1.71 mm (0.0673 in.)
	DA	1.74 mm (0.0685 in.)
	DB	1.77 mm (0.0696 in.)
	DC	1.80 mm (0.0708 in.)
	EA	1.83 mm (0.0720 in.)
	EB	1.86 mm (0.0732 in.)
	EC	1.89 mm (0.0744 in.)
	FA	1.92 mm (0.0755 in.)
	FB	1.95 mm (0.0767 in.)
	FC	1.98 mm (0.0779 in.)
	GA	2.01 mm (0.0790 in.)
	GB	2.04 mm (0.0803 in.)
	GC	2.07 mm (0.0814 in.)
	HA	2.10 mm (0.0826 in.)
	HB	2.13 mm (0.0838 in.)
	HC	2.16 mm (0.0850 in.)
	JA	2.19 mm (0.0862 in.)
	JB	2.22 mm (0.0874 in.)
	JC	2.25 mm (0.0885 in.)
	KA	2.28 mm (0.0897 in.)
	KB	2.31 mm (0.0909 in.)
	KC	2.34 mm (0.0921 in.)
	LA	2.37 mm (0.0933 in.)
	LB	2.40 mm (0.0944 in.)
	LC	2.43 mm (0.0956 in.)
	MA	2.46 mm (0.0968 in.)
	MB	2.49 mm (0.0980 in.)
	MC	2.52 mm (0.0992 in.)
	NA	2.55 mm (0.1003 in.)
	NB	2.58 mm (0.1015 in.)

031DQ-01

Compression spring Free length (Exhaust pipe assy front x Exhaust pipe assy center) (2WD) Minimum	38.86 mm (1.5299 in.)
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IGNITION

031DS-01

SERVICE DATA

Spark plug		
Recommended spark plug	DENSO made	SK20R11
	NGK made	IFR6A11
Electrode gap	Correct electrode gap for new spark plug	1.0 - 1.1 mm (0.039 - 0.043 in.)
	Maximum electrode gap for used spark plug	1.3 mm (0.051 in.)
VVT sensor		
Resistance	Cold	835 to 1,400 Ω
	Hot	1,060 - 1,645 Ω
Crankshaft position sensor		
Resistance	Cold	1,630 - 2,740 Ω
	Hot	2,065 - 3,225 Ω

DIFFERENTIAL

SERVICE DATA

031FB-01

Rear differential	Carrier oil seal drive in depth	2.0 ± 0.3 mm (0.079 ± 0.012 in.)
	Side gear shaft oil seal drive in depth	0 ± 0.5mm (0 ± 0.019 in.)
	Companion flange vertical runout	0.10 mm (0.0039 in.) or less
	Companion flange horizontal runout	0.10 mm (0.0039 in.) or less
	Ring gear runout	0.07 mm (0.0028 in.) or less
	Side gear backlash	0.05 - 0.20 mm (0.0020 - 0.0079 in.)
	Drive pinion to ring gear backlash	0.13 - 0.18 mm (0.0051 - 0.0071 in.)
	Drive pinion preload (at starting)	New bearing Reused bearing
		1.1 - 1.7 N·m (11 - 17 kgf·cm, 9.6 - 14.8 in.·lbf) 0.6 - 0.9 N·m (6 - 9 kgf·cm, 5.2 - 7.8 in.·lbf)
	Total preload (Drive pinion preload plus)	0.3 - 0.5 N·m (3 - 5 kgf·cm, 2.6 - 4.3 in.·lbf)
	Right and left side gear shafts standard distance	242 mm (9.528 in.)
	Side gear thrust washer thickness	mm (in.) 0.93 - 0.97 (0.0366 - 0.0382) 0.98 - 1.02 (0.0386 - 0.0402) 1.03 - 1.07 (0.0406 - 0.0421) 1.08 - 1.12 (0.0425 - 0.0441) 1.13 - 1.17 (0.0445 - 0.0461) 1.18 - 1.22 (0.0465 - 0.0480) 1.23 - 1.27 (0.0484 - 0.0500) 1.28 - 1.32 (0.0504 - 0.0520) 1.33 - 1.37 (0.0524 - 0.0539) 1.38 - 1.42 (0.0543 - 0.0559)
	Drive pinion plate washer thickness	mm (in.) 2.26 - 2.28 (0.0890 - 0.0898) 2.29 - 2.31 (0.0902 - 0.0909) 2.32 - 2.34 (0.0913 - 0.0921) 2.35 - 2.37 (0.0925 - 0.0933) 2.38 - 2.40 (0.0937 - 0.0945) 2.41 - 2.43 (0.0949 - 0.0957) 2.44 - 2.46 (0.0961 - 0.0969) 2.47 - 2.49 (0.0972 - 0.0980) 2.50 - 2.52 (0.0984 - 0.0992) 2.53 - 2.55 (0.0996 - 0.1004) 2.56 - 2.58 (0.1008 - 0.1016) 2.59 - 2.61 (0.1020 - 0.1028) 2.62 - 2.64 (0.1031 - 0.1039) 2.65 - 2.67 (0.1043 - 0.1051) 2.68 - 2.70 (0.1055 - 0.1063)

Rear differential	Side gear shaft plate washer thickness	mm (in.)	2.21 - 2.23 (0.0870 - 0.0878) 2.24 - 2.26 (0.0882 - 0.0890) 2.27 - 2.29 (0.0894 - 0.0902) 2.30 - 2.32 (0.0906 - 0.0913) 2.33 - 2.35 (0.0917 - 0.0925) 2.36 - 2.38 (0.0929 - 0.0937) 2.39 - 2.41 (0.0941 - 0.0949) 2.42 - 2.44 (0.0953 - 0.0961) 2.45 - 2.47 (0.0965 - 0.0972) 2.48 - 2.50 (0.0976 - 0.0984) 2.51 - 2.53 (0.0988 - 0.0996) 2.54 - 2.56 (0.1000 - 0.1008) 2.57 - 2.59 (0.1012 - 0.1020) 2.60 - 2.62 (0.1024 - 0.1031) 2.63 - 2.65 (0.1035 - 0.1043) 2.66 - 2.68 (0.1047 - 0.1055) 2.69 - 2.71 (0.1059 - 0.1067) 2.72 - 2.74 (0.1071 - 0.1079) 2.75 - 2.77 (0.1083 - 0.1091) 2.78 - 2.80 (0.1094 - 0.1102) 2.81 - 2.83 (0.1106 - 0.1114) 2.84 - 2.86 (0.1118 - 0.1126) 2.87 - 2.89 (0.1130 - 0.1138) 2.90 - 2.92 (0.1142 - 0.1150) 2.93 - 2.95 (0.1154 - 0.1161) 2.96 - 2.98 (0.1165 - 0.1173) 2.99 - 3.01 (0.1177 - 0.1185) 3.02 - 3.04 (0.1189 - 0.1197) 3.05 - 3.07 (0.1201 - 0.1209) 3.08 - 3.10 (0.1213 - 0.1220) 3.11 - 3.13 (0.1224 - 0.1232) 3.14 - 3.16 (0.1236 - 0.1244) 3.17 - 3.19 (0.1248 - 0.1256) 3.20 - 3.22 (0.1260 - 0.1268)
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STARTING & CHARGING

SERVICE DATA

031DU-01

Starter assy Specified current		90 A or less at 11.5 V
Starter relay Specified condition	1 - 2	Continuity
	3 - 5	No continuity Continuity(Applying battery voltage terminals 1 and 2)
Battery Except maintenance-free battery Voltage	Standard specific gravity at 20 °C (68 °F)	1.25 to 1.29 at 20 °C (68 °F) 12.6 to 12.8 V
Voltage regulator	Regulating voltage	13.2 to 14.8 V
	Standard amperage	10 A or less
Starter armature assy Circuit runout Depth	Maximum	0.05 mm (0.0020 in.)
	Standard	3.3 mm (0.1299 in.)
	Maximum	4.0 mm (0.1575 in.)
Starter commutator end frame assy Brush length	Standard	9.0 mm (0.354 in.)
	Minimum	4.0 mm (0.158 in.)
Generator brush holder assy Brush length	Standard	10.5 mm (0.413 in.)
	Minimum	4.5 mm (0.177 in.)
Generator rotor assy Open circuit	Resistance	2.3 to 2.7 Ω at 20°C (68°F) for 130A
		1.5 to 1.9 Ω at 20°C (68°F) for 130A
Slip ring diameter	Standard	14.2 to 14.4 mm (0.559 to 0.567 in.)
	Minimum	14.0 mm (0.551 in.)

PARKING BRAKE

031CZ-01

SERVICE DATA

Parking brake pedal travel at 294 N (30 kgf, 66.0 lbf):	3 - 5 clicks
Rear brake disc inside diameter	Standard inside diameter: 190 mm (7.48 in.) Maximum inside diameter: 191 mm (7.52 in.)
Parking brake shoe lining thickness	Standard thickness: 2.5 mm (0.098 in.) Minimum thickness: 1.0 mm (0.039 in.)
Parking brake shoe clearance between rear shoe and lever	Less than 0.35 mm (0.0138 in.)

SLIDING ROOF/CONVERTIBLE

SERVICE DATA

031EU-01

Sliding roof	Difference in level between sliding roof weatherstrip and roof glass Difference:	0 ± 2.0 mm (0 ± 0.072 in.)
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STEERING COLUMN
SERVICE DATA

031D1-01

Steering wheel freeplay	Maximum	30 mm (1.18 in.)
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ENGINE MECHANICAL

SERVICE DATA

031F2-01

Battery specific gravity	at 20°C (68°F)	1.25 to 1.29
New drive belt deflection	Pressing force: 98 N (10 kgf, 22 lbf) For fan and generator For vane pump	9.1 to 10.5 mm (0.358 to 0.413 in.) 7.0 to 9.0 mm (0.276 to 0.354 in.)
Used drive belt deflection	Pressing force: 98 N (10 kgf, 22 lbf) For fan and generator For vane pump	11.0 to 13.5 mm (0.433 to 0.531 in.) 10.0 to 12.0 mm (0.394 to 0.472 in.)
New drive belt tension	For fan and generator For vane pump	617 to 853 N (63 to 87 kgf, 139 to 192 lbf) 647 to 843 N (66 to 86 kgf, 146 to 190 lbf)
Used drive belt tension	For fan and generator For vane pump	294 to 490 N (30 to 50 kgf, 66 to 110 lbf) 323 to 519 N (33 to 53 kgf, 73 to 117 lbf)
Ignition timing	Terminals TC and CG of DLC3 connected Terminals TC and CG of DLC3 disconnected	8 to 12° BTDC 7 to 24° BTDC
Idle speed		550 to 650 r/min
Compression	Compression pressure Minimum pressure Difference between each cylinder	1.5 MPa (15.3 kgf/cm ² , 218 psi) or more 1.0 MPa (10.2 kgf/cm ² , 145 psi) 100 kPa (1.0 kgf/cm ² , 15 psi) or less
Valve clearance at cold	Intake Exhaust	0.15 to 0.25 mm (0.006 to 0.010 in.) 0.25 to 0.35 mm (0.010 to 0.014 in.)
Camshaft circle runout	Maximum	0.06 mm (0.0024 in.)
Camshaft cam lobe height	Standard Intake Exhaust Minimum Intake Exhaust Camshaft Journal diameter	43.132 to 43.232 mm (1.6981 to 1.7020 in.) 43.010 to 43.110 mm (1.6933 to 1.6972 in.) 42.98 mm (1.6921 in.) 42.86 mm (1.6874 in.) 26.959 to 26.975 mm (1.0614 to 1.0620 in.)
12 pointed head cylinder head set bolt diameter at tension portion	Standard Minimum	8.95 to 9.05 mm (0.3524 to 0.3563 in.) 8.75 mm (0.3445 in.)
Cylinder head warpage	Maximum Cylinder block surface Intake manifold surface Exhaust manifold surface	0.05 mm (0.0020 in.) 0.10 mm (0.0039 in.) 0.10 mm (0.0039 in.)
Intake valve overall length	Standard Minimum	95.45 mm (3.7579 in.) 94.95 mm (3.7382 in.)
Intake valve stem diameter	Standard	5.470 to 5.485 mm (0.2154 to 0.2159 in.)
Intake valve margin thickness	Standard Minimum	1.0 mm (0.039 in.) 0.5 mm (0.020 in.)
Exhaust valve overall length	Standard Minimum	95.40 mm (3.7559 in.) 94.90 mm (3.7362 in.)
Exhaust valve stem diameter	Standard	5.465 to 5.480 mm (0.2152 to 0.2157 in.)
Exhaust valve margin thickness	Standard Minimum	1.0 mm (0.039 in.) 0.5 mm (0.020 in.)
Valve spring free length		45.50 mm (1.7913 in.)
Valve spring deviation	Maximum	2.0 mm (0.079 in.)
Valve spring installed tension at 33.8 mm (1.331 in.)		186 to 206 N (19.0 to 21.0 kgf, 41.9 to 46.3 lbf)

SERVICE SPECIFICATIONS - ENGINE MECHANICAL

Bushing inside diameter		5.510 to 5.530 mm (0.2169 to 0.2177 in.)
Valve guide bushing oil clearance	Standard Intake	0.025 to 0.060 mm (0.0010 to 0.0024 in.)
	Exhaust	0.030 to 0.065 mm (0.0012 to 0.0026 in.)
	Maximum Intake	0.08 mm (0.0031 in.)
Cylinder head valve guide bushing bore diameter	Exhaust	0.10 mm (0.0039 in.)
	STD	10.295 to 10.313 mm (0.4053 to 0.4060 in.)
	O/S 0.05	10.345 to 10.363 mm (0.4073 to 0.4080 in.)
Bushing diameter	STD	10.333 to 10.344 mm (0.4068 to 0.4072 in.)
	O/S 0.05	10.383 to 10.394 mm (0.4088 to 0.4092 in.)
Bushing length	Intake	34.5 mm (1.358 in.)
	Exhaust	40.5 mm (1.594 in.)
Bushing protrusion height	Intake	11.1 to 11.5 mm (0.437 to 0.453 in.)
	Exhaust	8.9 to 9.3 mm (0.350 to 0.366 in.)
Lifter diameter		30.966 to 30.976 mm (1.2191 to 1.2195 in.)
Lifter bore diameter		31.009 to 31.025 mm (1.2208 to 1.2215 in.)
Oil clearance	Standard	0.033 to 0.059 mm (0.0013 to 0.0023 in.)
	Maximum	0.07 mm (0.0028 in.)
Camshaft gear backlash	Standard	0.020 to 0.200 mm (0.0008 to 0.0079 in.)
Camshaft thrust clearance	Maximum	0.30 mm (0.0118 in.)
	Standard	0.040 to 0.090 mm (0.0016 to 0.0035 in.)
Camshaft oil clearance	Maximum	0.12 mm (0.0047 in.)
	Standard Intake #4, #5 journals	0.025 to 0.057 mm (0.0010 to 0.0022 in.)
	Other journals	0.025 to 0.062 mm (0.0010 to 0.0024 in.)
Connecting rod thrust clearance	Maximum	0.10 mm (0.0039 in.)
	Standard	0.15 to 0.30 mm (0.0059 to 0.0118 in.)
Connecting rod oil clearance	Maximum	0.35 mm (0.0138 in.)
	Standard	0.038 to 0.066 mm (0.0015 to 0.0026 in.)
Crankshaft thrust clearance	Maximum	0.08 mm (0.0031 in.)
	Standard	0.04 to 0.24 mm (0.0016 to 0.0094 in.)
Cylinder block warpage	Maximum	0.30 mm (0.0118 in.)
Cylinder bore diameter	Standard	0.05 mm (0.0020 in.)
	Maximum	92.000 to 92.012 mm (3.6220 to 3.6225 in.)
Piston diameter at 13.0 mm (0.512 in.) from piston bottom		92.080 mm (3.6252 in.)
Piston oil clearance	Standard	91.953 to 91.967 mm (3.6202 to 3.6207 in.)
	Maximum	0.033 to 0.059 mm (0.0013 to 0.0023 in.)
Connecting rod out-of alignment	Maximum per 100 mm (3.94 in.)	0.03 mm (0.0012 in.)
Connecting rod twist	Maximum per 100 mm (3.94 in.)	0.05 mm (0.0020 in.)
Connecting rod bushing inside diameter		0.15 mm (0.0059 in.)
Piston pin diameter		22.005 to 22.014 mm (0.8663 to 0.8667 in.)
Oil clearance	Standard	21.997 to 22.006 mm (0.8660 to 0.8664 in.)
	Maximum	0.005 to 0.011 mm (0.0002 to 0.0004 in.)
Piston ring groove clearance	No.1	0.05 mm (0.0020 in.)
	No.2	0.03 to 0.08 mm (0.0012 to 0.0031 in.)
	Oil	0.02 to 0.06 mm (0.0008 to 0.0024 in.)
Piston ring end gap	Oil	0.03 to 0.11 mm (0.0012 to 0.0043 in.)
	Standard No.1	0.30 to 0.40 mm (0.0118 to 0.0157 in.)
	No.2	0.50 to 0.60 mm (0.0197 to 0.0236 in.)
	Oil (Side rail)	0.15 to 0.40 mm (0.0059 to 0.0157 in.)
	Maximum No. 1	0.95 mm (0.0374 in.)
	No.2	1.05 mm (0.0413 in.)
Connecting rod bolt diameter	Oil (Side rail)	1.00 mm (0.0394 in.)
	Standard	7.2 to 7.3 mm (0.283 to 0.287 in.)
Crankshaft bearing cap set bolt diameter	Minimum	7.0 mm (0.276 in.)
	Standard	7.5 to 7.6 mm (0.295 to 0.299 in.)
	Minimum	7.2 mm (0.283 in.)

Crankshaft circle runout	Maximum	0.06 mm (0.0024 in.)
Main journal diameter		60.988 to 61.000 mm (2.4011 to 2.4016 in.)
Main journal taper and out-of-round	Maximum	0.02 mm (0.0008 in.)
Crank pin diameter		52.992 to 53.000 mm (2.0863 to 2.0866 in.)
Crank pin taper and out-of-round	Maximum	0.02 mm (0.0008 in.)
Crankshaft oil clearance	Standard No. 1 and No. 2 journals	0.014 to 0.031 mm (0.0006 to 0.0012 in.)
	No. 3 and No. 4 journals	0.028 to 0.041 mm (0.0011 to 0.0016 in.)
	Maximum No. 1 and No. 2 journals	0.05 mm (0.0020 in.)
	No. 3 and No. 4 journals	0.06 mm (0.0024 in.)

REAR SUSPENSION

031F9-01

SERVICE DATA

Rear wheel alignment	Toe-in (total)	2WD: 215/65R16	0°15' ± 17' (0.25° ± 0.28°, 2.7 ± 3.0 mm, 0.11 ± 0.12 in.)
		225/60R17	0°15' ± 17' (0.25° ± 0.28°, 2.8 ± 3.0 mm, 0.11 ± 0.12 in.)
		4WD: 225/60R17	0°07' ± 17' (0.12° ± 0.28°, 1.3 ± 3.0 mm, 0.05 ± 0.12 in.)
	Camber	2WD:	-1 °22' ± 30' (-1.37° ± 0.5°)
		Right-left error	30' (0.5°) or less
		4WD:	-1 °25' ± 30' (-1.42° ± 0.5°)
	Right-left error	30' (0.5°) or less	
Length of shock absorber			
		2WD:	234 mm (9.22 in.)
		4WD:	258 mm (10.16 in.)

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

TORQUE SPECIFICATION

Part Tightened		N·m	kgf·cm	ft·lbf
Park/neutral position switch	Nut	6.9	70	61 in.·lbf
	Bolt	5.4	55	48 in.·lbf
Control shaft lever x Control shaft		13	130	9
Shift control cable x Control shaft lever		13	130	9
Transaxle housing x Engine block	A bolt	64	653	47
	B bolt	46	470	34
	C bolt	37	377	27
Torque converter clutch x Drive plate		48	489	35
Flywheel housing under cover x Automatic transaxle		7.8	80	69 in.·lbf
Engine mounting bracket FR x Transaxle		64	653	47
Oil filler tube x Transaxle		5.5	56	49 in.·lbf
Control cable bracket No.1 x Transaxle		12	122	9
Control cable bracket No.2 x Transaxle		12	122	9
Oil cooler tube clamp x Control cable bracket		5.5	56	49 in.·lbf
Oil cooler inlet tube x Transaxle		27	275	20
Oil cooler outlet tube x Transaxle		27	275	20
Starter x Transaxle		37	377	27
Starter wire x Starter		9.8	100	87 in.·lbf
Wire harness x Transaxle		13	133	10
Wire harness clamp x Transaxle		8.4	86	74 in.·lbf
Speed sensor (NC) x Transaxle		11	115	8
Speed sensor (NT) x Transaxle		11	112	8
Air cleaner x Air cleaner hose		5.0	51	44 in.·lbf
Drain plug x Oil pan		49	500	36
Transmission wire x Transaxle		5.4	55	48 in.·lbf
ATF temperature sensor x Valve body		6.6	67	58 in.·lbf
Oil pan x Transaxle		7.8	80	69 in.·lbf
Solenoid valve x Valve body	A B bolt	11	110	8
	C D bolt	6.6	67	58 in.·lbf
Valve body x Transaxle		11	110	8
Oil strainer x Valve body		11	110	8
Floor shift assy x Body		21	214	15
Control cable x Body		12	122	9
Transfer x Transaxle (U151F)		69	700	51
Transfer x Transfer stiffener plate RH (U151F)		34	350	25
Engine mount bracket RR x Transfer stiffener plate RH		34	350	25

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
VANE PUMP ASSY			
Pump bracket front x Housing front	44	449	32
Housing rear x Housing front	24	245	18
Pump bracket rear x Housing rear	44	449	32
Pressure port union	83	846	61
Suction port union set bolt	13	133	10
Pump assy set bolt	44	449	32
Pressure feed tube assy set union bolt	52	525	38
Oil pressure switch	21	214	15
RACK & PINION POWER STEERING GEAR ASSY			
Control valve housing set bolt	18	184	13
Control valve shaft lock nut	25	250	18
Rack housing cap	59	597	43
Rack guide spring cap lock nut	48 (68.5)	489 (699)	35 (51)
Rack x Rack end sub-assy	58.5 (83.5)	597 (851)	43 (62)
Tie rod assy lock nut	74	755	55
Turn pressure tube union nut	11.5 (12.5)	117 (127)	8 (9)
Return tube No.2	22.5 (24.5)	229 (250)	17 (18)
Steering gear assy set bolt	70	714	52
Pressure feed tube assy union nut	22.5 (24.5)	229 (250)	17 (18)
Pressure feed tube clamp set bolt	9.8	100	87 in.·lbf
Pressure feed tube clamp set nut	9.8	100	87 in.·lbf
Stabilizer bracket No.1 x Suspension crossmember	17	173	12
Intermediate shaft assy x Steering gear assy	36	367	27

(): For use without SST

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Tie rod end lock nut	74	755	55
Steering knuckle x Shock absorber	210	2,140	155
Hub nut	103	1,050	76
Suspension support x Body	80	816	59
Suspension support x Piston rod	49	500	36
Speed sensor wire harness bracket set bolt	19	189	14
Lower suspension arm set bolt	Front side:	200	2,040
	Rear side:	206	2,100
Transverse engine engine mounting insulator set nut	87	887	64
Front axle assy x Lower ball joint assy	123	1,250	91
Stabilizer bar bracket x Suspension member	17	173	12
Stabilizer bar link set nut	74	755	55
Cowl top panel sub-assy outer front set bolt	7.5	76	66 in.·lbf
Cowl top to cowl brace inner No.1 set bolt	7.5	76	66 in.·lbf

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Intermediate shaft x Center support bearing assy No. 1			
1st	181	1,850	134
Loosen nut			
2nd	69	700	51
Intermediate shaft x Center support bearing assy No. 2			
1st	181	1,850	134
Loosen nut			
2nd	69	700	51
Propeller shaft x Intermediate shaft	74	750	54
Rear propeller shaft x Rear differential	74	750	54
Intermediate shaft rear flange x Rear propeller shaft cross groove joint	29	296	21
Center support bearing assy No. 1 x Body	37	375	27
Center support bearing assy No. 2 x Body	37	375	27
Front wheel set nut	103	1,050	76
Lower ball joint x Lower suspension arm	127	1,300	94
Tie rod end x Steering knuckle	49	500	36
Axle hub x Front drive shaft	294	3,000	217
Front disc brake caliper assy x Steering knuckle	107	1,090	79
Front drive shaft center bearing set bolt 2WD	32	330	24
Front speed sensor set bolt	8.0	82	71 in.·lbf
Flexible hose and speed sensor wire harness x Shock absorber	19	194	14
Rear wheel set nut	103	1,050	76
Speed sensor x Rear axle carrier 4WD	8.0	82	71
Axle hub x Rear drive shaft 4WD	216	2,200	159
Rear drive shaft x Side gear shaft 4WD	56	571	41
Rear axle carrier sub-assy x Rear disk brake caliper	88	900	65
Front stabilizer Link assy x Shock absorber	74	755	55
Shock absorber x Front axle carrier	210	2,141	155
Front axle carrier x Lower ball joint	123	1,254	91
Rear axle carrier sub-assy x Rear axle hub & bearing	56	571	41
Transfer extension housing x Transfer dynamic damper	26	260	19
Disk brake dust cover front x Steering knuckle	8.3	85	74 in.·lbf

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf	
Wheel nut	103	1,050	76	
Brake line union nut	15	155	11	
Brake booster clevis lock nut	26	260	20	
Brake pedal support assy x Body	16	160	12	
Brake pedal bracket No.3 x brake pedal support reinforcement	19	194	14	
Brake pedal x brake pedal support assy	34	350	25	
Brake booster assy x Body	16	160	12	
Brake master cylinder (3rd chamber) bleeder plug	11	112	8	
Brake master cylinder sub-assy x master cylinder (3rd chamber)	25	255	18	
Brake tube clamp x body	5.4	55	48 in.·lbf	
Front disc brake bleeder plug	8.3	85	74 in.·lbf	
Front brake cylinder mounting x Steering knuckle	107	1,090	79	
Front disc brake cylinder x Front disc brake cylinder mounting	34	350	25	
Front disc brake caliper x Flexible hose	29	296	21	
Rear disc brake bleeder plug	8.3	85	74 in.·lbf	
Rear disc brake cylinder mounting x Steering knuckle	88	900	65	
Rear disc brake cylinder x Rear disc brake cylinder mounting	34	35	25	
Rear disc brake caliper x Flexible hose	23	235	17	
Rear drum brake bleeder plug	11	112	8	
Rear wheel cylinder assyl x Baking plate	10	102	7	
Brake actuator x Brake actuator bracket 	w/ ABS:	5.4	55	48 in.·lbf
	w/ VSC:	5.4	55	48 in.·lbf
Brake actuator bracket x Body	20	199	14	
Front speed sensor wire harness clamp x shock absorber	19	192	14	
Front speed sensor x Steering knuckle	8.0	82	71 in.·lbf	
Rear speed sensor wire harness clamp x Body	8.0	82	71 in.·lbf	
Rear speed sensor wire harness clamp x Rear axle	8.0	82	71 in.·lbf	
Yawrate sensor bracket x Body	13	136	10	

SUPPLEMENTAL RESTRAINT SYSTEM

TORQUE SPECIFICATION

0312A-04

Part Tightened	N·m	kgf·cm	ft·lbf
Horn button assy x Steering wheel assy	8.8	90	78 in·lbf
Steering wheel assy x Steering column assy	50	510	37
Instr pnl pass l/door airbag assy x Instrument panel reinforcement	20	200	14
Curtain shield airbag assy x Body	9.8	100	87 in·lbf
Airbag sensor assy center x Body	17.5	178	13
Airbag sensor front x Body	12.5	127	9
Side airbag sensor assy x Body	17.5	178	13
Airbag sensor rear x Body	17.5	178	13
Seat position airbag sensor x Front LH seat assy	8.0	82	71 in·lbf

TORQUE SPECIFICATION

Part Tightened		N·m	kgf·cm	ft·lbf
Lock nut (For use with SST)	STD	277	2,820	204
	Max.	378	3,855	279
Ring gear mount set bolt		78	790	57
Case x Retainer		28	286	21
Case x Extension housing		26	260	19
Case x Setting stud bolt		39	400	29
Case cover x Breather oil deflector		6.5	66	57 in·lbf
Case x Cover		20	200	14
Transaxle x Transfer		69	700	51
No, 1 plug x Case		49	500	36
No, 2 plug x Case		49	500	36
Drain plug x Case		49	500	36
Extension housing x Dynamic damper		26	260	19

ENGINE HOOD/DOOR

TORQUE SPECIFICATION

031F4-01

Part Tightened	N-m	kgf-cm	ft-lbf
HOOD			
Hood x Hood hinge	13	133	10
Hood x Hood lock	8.0	82	71 in.-lbf
Hood hinge x Body	5.5	56	49 in.-lbf
FRONT DOOR			
Door check x Body	26	265	19
Door check x Door panel	8.0	82	71 in.-lbf
Door frame sub-assy rear lower x Door panel	8.0	82	71 in.-lbf
Door glass x Front door regulator sub-assy	5.4	55	48 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 cover x Door panel	7.0	71	62 in.-lbf
Door outside handle frame x Door panel	7.0	71	62 in.-lbf
Door wire x Door panel	8.0	82	71 in.-lbf
Outer 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
SLIDE DOOR			
Door lock striker plate assy x Body	5.5	56	49 in.-lbf
Door outside handle frame x Door panel	7.0	71	62 in.-lbf
Door outside handle cover x Door panel	7.0	71	62 in.-lbf
Rear door inside handle sub-assy x Door lock remote control base plate	7.0	71	62 in.-lbf
Rear door lock actuator x Door lock remote control base plate	5.5	58	49 in.-lbf
Rear door lock assy x Door panel	5.0	51	44 in.-lbf
Rear door window frame sub-assy rear lower x Door panel	7.0	71	62 in.-lbf
Rear door window regulator sub-assy x Door lock remote control base plate	7.0	71	62 in.-lbf
Rear slide rail sub-assy LH x Body	19.5	200	14
Power window regulator motor assy x Door lock remote control base plate	5.5	58	49 in.-lbf
Slide door attachment control x Door panel	8.0	82	71 in.-lbf
Slide door bracket center No. 2 x Body	8.0	82	71 in.-lbf
Slide door down female stopper x Body	5.5	56	49 in.-lbf
Slide door down stopper male x Door panel	5.5	56	49 in.-lbf
Slide door full open stop lock assy x Door panel	8.0	82	71 in.-lbf
Slide door hinge assy center x Door panel	31	316	23
Slide door lock assy front x Door panel	5.0	51	44 in.-lbf
Slide door lock remote control sub-assy x Door lock remote control base plate	5.5	56	49 in.-lbf
Slide door open stop x Body panel	7.0	71	62 in.-lbf
Slide door rail sub-assy center LH x Body	26	265	19
Slide door rail sub-assy upper LH x Body	10	102	7.0
Slide door roller assy lower x Door panel	31	316	23
Slide door roller assy upper x Door panel	13	133	10
Slide door window frame sub-assy x Door panel	7.0	71	62 in.-lbf
Slide door window assy x Rear door window regulator sub-assy	8.0	82	71 in.-lbf
POWER SLIDE DOOR			
Door lock striker plate assy x Body	5.5	56	49 in.-lbf

SERVICE SPECIFICATIONS - ENGINE HOOD/DOOR

Part Tightened	N·m	kgf·cm	ft·lbf
Door outside handle frame x Door panel	7.0	71	62 in.·lbf
Door outside handle cover x Door panel	7.0	71	62 in.·lbf
Power slide door control motor and clutch x Door panel	8.0	82	71 in.·lbf
Power window regulator motor assy x Door lock remote control base plate	5.5	58	49 in.·lbf
Rear door inside sub-assy x Door lock remote control base plate	7.0	71	62 in.·lbf
Rear slide rail sub-assy LH x Body	19.5	200	14
Rear door lock actuator x Door lock remote control base plate	5.5	56	49 in.·lbf
Rear door lock assy x Door panel	5.0	51	44 in.·lbf
Rear door window frame sub-assy rear lower x Door panel	7.0	71	62 in.·lbf
Rear door window regulator sub-assy x Door lock remote control base plate	7.0	71	62 in.·lbf
Slide door attachment control x Door panel	8.0	82	71 in.·lbf
Slide door bracket center No.1 x Body	8.0	82	71 in.·lbf
Slide door bracket center No. 2 x Body	8.0	82	71 in.·lbf
Slide door down female stopper x Body	5.5	56	49 in.·lbf
Slide door down stopper male x Door panel	5.5	58	49 in.·lbf
Slide door full open stop lock assy x Door panel	8.0	82	71 in.·lbf
Slide door hinge assy center x Door panel	31	316	23
Slide door lock assy front x Door panel	5.0	51	44 in.·lbf
Slide door lock release motor x Door panel	5.5	58	49 in.·lbf
Slide door lock remote control sub-assy x Door lock remote control base plate	5.5	58	49 in.·lbf
Slide door roller assy upper x Door panel	13	130	10
Slide door rail sub-assy center LH x Body	26	265	19
Slide door rail sub-assy upper LH x Body	10	102	7.0
Slide door roller assy lower x Door panel	31	316	23
Slide door roller assy upper x Door panel	13	133	10
Slide door window assy x Rear door window regulator sub-assy	8.0	82	71 in.·lbf
Slide door window frame sub-assy x Door panel	7.0	71	62 in.·lbf
SLIDE DOOR SYSTEM			
Slide door half open stopper control assy x Body	7.0	71	62 in.·lbf
Slide door half open stopper control cable x Body panel	7.0	71	62 in.·lbf
Slide door half open stopper sub-assy x Body Panel	7.0	71	62 in.·lbf
Slide door open striker x Body	7.0	71	62 in.·lbf
BACK DOOR			
Back door base stopper bracket x Body	7.0	71	62 in.·lbf
Back door hinge assy x Body	19.5	200	14
Back door hinge assy x Door panel	19.5	200	14
Back door lock assy x Door panel	12.5	128	9.0
Back door pull strap sub-assy x Door panel	5.0	51	44 in.·lbf
Back door stay sub-assy x Body	19.5	200	14
Back door stay sub-assy x Door panel	22	224	16
Back door stopper lower x Door panel	7.0	71	62 in.·lbf
POWER BACK DOOR			
Back door base stopper bracket x Body	7.0	71	62 in.·lbf
Back door hinge assy x Body	19.5	200	14
Back door hinge assy x Door panel	19.5	200	14
Back door lock assy x Door panel	12.5	128	9.0
Back door pull strap sub-assy x Door panel	5.0	51	44 in.·lbf
Back door stay bracket upper x Door panel	12.5	128	9.0
Back door stay sub-assy x Body	19.5	200	14
Back door stay sub-assy x Door panel	22	224	18

Part Tightened	N·m	kgf·cm	ft·lbf
Back door stopper lower x Door panel	7.0	71	62 in·lbf
Power back door drive unit x Body panel	12.5	128	9.0

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Drain plug	49	500	36
Filler plug	49	500	36
Breather plug	21	210	15
Companion flange x Drive pinion	See page 29-10		
Companion flange x Propeller shaft	74	755	55
Rear drive shaft x Side gear shaft	56	571	41
Rear differential support No.1 set bolt	95	969	70
Differential case x Ring gear	97	985	71
Differential carrier x Side bearing cap	79	800	58
Differential carrier x Differential carrier cover	47	475	34
Oil deflector set bolt	7.4	75	65 in.·lbf
Differential carrier assy rear x body	106	1,081	78
Rear differential dynamic damper x rear differential support No.1	20	204	15
Rear differential support No.1 x differential carrier assy rear	85	867	63
Differential support assy rear x differential carrier assy rear	100	1,020	74

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Wheel nut	103	1,050	76
Parking brake cable lock nut	5.4	55	48 in·lbf
Parking brake control pedal set bolt	39	398	29
Parking brake control pedal set nut	39	398	29
Parking brake cable assy No.1 clump bolt x Body	5.6	57	50 in·lbf
Parking brake cable assy No.1 x Body	8	82	71 in·lbf
Parking brake cable No.2 x Backing plate	8	82	71 in·lbf
Parking brake cable No.2 x Body	8	82	71 in·lbf
Parking brake cable No.2 x Cable retainer	5.4	55	48 in·lbf
Parking brake cable No.3 x Backing plate	8	82	71 in·lbf
Parking brake cable No.3 x Body	8	82	71 in·lbf
Parking brake cable No.3 x Cable retainer	5.4	55	48 in·lbf

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Steering column assembly set bolt	25	255	18
Steering Intermediate shaft Assy x Steering column assembly	36	370	27
Steering Intermediate shaft Assy x Steering gear assy	36	370	27
Steering wheel set nut	50	510	37
Steering wheel pad set screw (Torx® screw)	8.8	90	78 in.·lbf
Steering column hole cover sub-assy No.1 x Body	5	51	44 in.·lbf
Tie rod end lock nut	74	755	55

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Hub nut	103	1,050	76
Rear axle beam x Rear brake tube No. 2	15	153	11
Rear axle beam x Rear brake tube No. 1	15	153	11
Rear axle beam x Parking brake cable assy No. 3	8.0	82	71 in.·lbf
Rear axle beam x Parking brake cable assy No. 2	8.0	82	71 in.·lbf
Rear axle beam x Skid control sensor wire	8.0	82	71 in.·lbf
Rear axle beam x Shock absorber assy rear Lower side	115	1,173	85
Body x Shock absorber assy rear Upper side	30	310	22
Body x Rear axle beam	135	1,377	100
Rear axle beam x Rear disc brake caliper assy	88	897	65
Rear axle hub & bearing assy x Rear axle bearing retainer	56	571	41
Rear axle shaft nut x Rear drive shaft assy	216	2,263	159
Rear drive shaft assy x Differential carrier assy	56	571	41
Body x Differential carrier assy rear	95	969	70
Propeller w/center bearing shaft assy x Differential carrier assy rear	74	755	55
Exhaust pipe assy tail set bolt	43	438	32
Fuel tank filler hose cover set bolt	5.0	51	44
Rear floor No.2 crossmember brace set bolt	28	286	21

WIPER & WASHER

TORQUE SPECIFICATION

031D3-01

Part Tightened	N-m	kgf-cm	ft-lbf
Wiper motor x Wiper link	7.5	76	66 in.-lbf
Wiper link x Body	5.5	56	49 in.-lbf
Wiper arm x Wiper link	20	204	14.8
Rear wiper motor x Body	5.5	56	49 in.-lbf
Rear wiper motor x Rear wiper arm	5.5	56	49 in.-lbf

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Throttle body assy x Intake air connector	11	112	8
Air cleaner cap sub-assy x Air cleaner case sub-assy	5.0	51	44 in.·lbf
V-bank cover sub-assy x Cylinder head cover sub-assy LH	7.9	81	70 in.·lbf
Knock sensor x Cylinder block sub-assy	20	199	14
Water outlet x Cylinder head sub-assy	15	153	11
Water outlet x Cylinder head LH	15	153	11
Engine mounting stay RH x Water outlet	23	235	17
Engine mounting stay RH x Engine mounting bracket CTR	23	235	17
Intake manifold x Cylinder head sub-assy	15	153	11
Intake manifold x Cylinder head LH	15	153	11
Ground cable x Intake manifold	8.4	86	74 in.·lbf
ECM bracket No. 2 x ECM	3.0	31	27 in.·lbf
ECM bracket x ECM	3.0	31	27 in.·lbf
ECM x Instrument panel reinforcement	13	133	10
ECM x Blower assy	13	133	10
Accelerator pedal rod assy x Body	7.5	76	66 in.·lbf

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Starter assy x Transaxle housing	37	380	26
Starter wire x Starter assy	9.8	100	7
Air cleaner inlet No. 1 x Body	5.0	51	44 in.·lbf
Air cleaner bracket x Body	7.8	80	69 in.·lbf
Air cleaner case sub-assy x Air cleaner bracket	5.0	51	44 in.·lbf
Air cleaner case sub-assy x Body	5.0	51	44 in.·lbf
Air cleaner cap sub-assy x Air cleaner case sub-assy	5.0	51	44 in.·lbf
Air cleaner inlet No. 2 x Body	5.0	51	44 in.·lbf
Battery clamp sub-assy x Body	5.5	56	49 in.·lbf
Battery clamp sub-assy x Battery clamp bolt	5.5	56	49 in.·lbf
Terminal x Battery	3.5	36	31 in.·lbf
Starter yoke assy x Repair service starter kit	6.0	61	53 in.·lbf
Repair service starter kit x Repair service starter kit	7.5	76	66 in.·lbf
Lead wire x Repair service starter kit	6.5	66	58 in.·lbf
Generator assy x Generator bracket No. 1	58	592	43
Generator assy x Generator belt adjusting bar	18	184	13
Generator wire x Generator assy	9.8	100	7
Retainer plate x Drive end frame assy generator	2.6	27	23 in.·lbf
Generator rectifier end frame x Drive end frame assy generator	5.8	59	51 in.·lbf
Generator brush holder assy x Generator rectifier end frame	1.8	18	16 in.·lbf
Generator rear end cover x Generator rectifier end frame	4.6	47	41 in.·lbf

AUDIO & VISUAL SYSTEM

TORQUE SPECIFICATION

031FF-01

Part Tightened	N-m	kgf-cm	ft-lbf
VOLTAGE INVERTER ASSY			
Voltage inverter assy x Body	5.4	55	47 in.-lbf

INSTRUMENT PANEL/METER

TORQUE SPECIFICATION

031FD-01

Part Tightened	N·m	kgf·cm	ft·lbf
Instrument panel Reinforcement × Passenger Air bag	20	204	14
Shift Lever assy × Body	21	214	12.6

CRUISE CONTROL

TORQUE SPECIFICATION

031FE-01

Part Tightened	N·m	kgf·cm	ft·lbf
Distance Control ECU × Body	5	51	44 in·lbf
Laser Radar Sensor × Body	50	510	37

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Charcoal canister assy x Body	29	296	21
Charcoal canister protector x Body	5.0	51	44 in·lbf
Charcoal canister protector x Charcoal canister assy	5.0	51	44 in·lbf

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Sliding roof glass assembly × Drive cable	4.0	41	35 in·lbf
Sliding roof housing sub-assy × Body	5.5	56	49 in·lbf
Sliding roof housing sub-assy × Sliding roof drive gear	5.4	55	48 in·lbf

EXTERIOR/INTERIOR TRIM

TORQUE SPECIFICATION

031FH-01

Part Tightened	N·m	kgf·cm	ft·lbf
FRONT BUMPER COVER			
Front bumper reinforcement x Body	50	510	37
Front bumper side support x Body	7.0	70	62 in·lbf
Front bumper cover x Body	7.0	70	62 in·lbf
REAR BUMPER COVER			
Rear bumper cover x Body	8.0	82	70 in·lbf
Rear bumper side support x Body	3.0	31	27 in·lbf
Rear bumper side retainer x Body	7.0	70	62 in·lbf
Rear bumper reinforcement No. 1 x Body	50	510	37

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Exhaust pipe assy front x Exhaust manifold sub-assy RH (2WD)	62	632	46
Exhaust pipe assy front x Exhaust manifold converter sub-assy No. 2	62	632	46
Exhaust pipe assy center x Exhaust pipe assy front	43	438	32
Exhaust pipe assy center x Exhaust manifold converter sub-assy (4WD)	62	632	46
Exhaust pipe assy tail x Exhaust pipe assy center	43	438	32
Heated oxygen sensor x Exhaust pipe assy front	44	450	33
Heated oxygen sensor x Exhaust pipe assy center (4WD)	44	450	33

TORQUE SPECIFICATION

Part Tightened		N·m	kgf·cm	ft·lbf
Vane pump Assy x Pump bracket		44	449	32
Vane pump Assy x Adjust strut		44	449	32
Generator bracket No. 2 x Generator Assy		58	591	43
Fan belt adjusting slider x Generator Assy		18	184	13
Front wheel		103	1,050	76
Cylinder head cover x Cylinder head		8.0	80	71 in.·lbf
Engine wire harness x Cylinder head cover		8.4	85	74 in.·lbf
Engine wire harness protector x Cylinder head cover		8.4	85	74 in.·lbf
Ignition coil Assy x Cylinder head cover		8.0	80	71 in.·lbf
Intake air surge tank x Intake manifold		28	286	21
Surge tank stay No. 2 x Intake air control valve Assy		20	199	14
Surge tank stay No. 2 x Cylinder head		20	199	14
Surge tank stay No. 1 x Intake air surge tank		20	199	14
Surge tank stay No. 1 x Cylinder head		20	199	14
Engine hanger No. 1 x Intake air surge tank		20	199	14
Engine hanger No. 1 x Cylinder head		20	199	14
PS pressure tube x Engine hanger No. 1		7.8	80	69 in.·lbf
Emission control valve set x Emission control valve bracket		8.0	82	71 in.·lbf
V-bank cover x Cylinder head cover		7.9	81	70 in.·lbf
Engine hanger No. 2 x Cylinder head		20	199	14
Engine oil pressure switch Assy x Cylinder block		15	153	11
Generator bracket No. 1 x Cylinder block		58	591	43
Pump bracket x Cylinder head		32	326	24
Engine mounting bracket RH x Cylinder block		54	551	40
Manifold stay No. 2 x Cylinder block		49	500	36
Drive shaft bearing bracket (2WD) x Cylinder block		64	650	47
Engine mounting bracket RR (4WD) x Cylinder block		64	653	47
Engine mounting insulator RH x Engine mounting bracket RH		95	969	70
Engine mounting insulator LH x Automatic transaxle Assy		95	969	70
Engine mounting insulator FR x Engine mounting bracket FR		87	887	64
Engine mounting insulator RR (4WD) x Engine mounting bracket RR		75	765	55
Rack & pinion power steering gear Assy (4WD) x Front frame Assy		70	714	52
Stabilizer bar front (4WD) x Front frame Assy		17	173	13
Adjust strut x Engine mounting bracket RH		44	449	32
Frame side rail plate sub-assembly x Front frame Assy (See page 14-33)	Bolt A	85	867	63
	Bolt B	32	329	24
	Nut	32	329	24
Front suspension member brace rear x Front frame Assy (See page 14-33)	Bolt C	85	867	63
	Bolt D	32	329	24
	Nut	32	329	24
Camshaft sub-gear x Main gear		5.4	55	48 in.·lbf
Engine rear oil seal retainer x Cylinder block		8.0	82	71 in.·lbf
Oil pump Assy x Cylinder block (See page 14-44)	Bolt A	8.0	82	71 in.·lbf
	Bolt B	20	199	14
	Bolt C	43	439	32
Crankshaft position sensor x Oil pump Assy		8.0	80	71 in.·lbf
Oil pan baffle plate x Oil pan sub-Assy		8.0	82	71 in.·lbf
Oil pan sub-Assy x Cylinder block (See page 14-44)	10 mm head	8.0	82	71 in.·lbf
	12 mm head	20	199	14

Part Tightened	N·m	kgf·cm	ft·lbf	
Oil strainer sub-assy x Oil pan sub-assy	8.0	82	71 in·lbf	
Oil pan sub-assy No. 2 x Oil pan sub-assy	8.0	82	71 in·lbf	
Oil pan drain plug x Oil pan sub-assy No. 2	45	459	33	
Water inlet housing x Cylinder block	8.0	82	71 in·lbf	
Cylinder head x Cylinder block	12 pointed head 1st	54	550	40
	2nd	Turn 90°	Turn 90°	Turn 90°
	Recessed head	19	189	14
Oil control valve filter x Cylinder head	45	459	33	
Cylinder head cover rear x Cylinder head	10	102	7	
Camshaft timing gear assy (VVT-i) x Camshaft	150	1,530	111	
Camshaft bearing cap x Cylinder head	16	163	12	
Timing belt plate x Oil pump assy	8.0	82	71 in·lbf	
Water pump assy x Cylinder block	8.0	82	71 in·lbf	
Oil level gage guide x Cylinder block	8.0	82	71 in·lbf	
Oil filter union x Cylinder block	30	306	22	
Timing belt idler bracket x Cylinder block	28	286	21	
Timing belt No. 3 cover x Cylinder head	8.5	87	76 in·lbf	
Camshaft timing pulley x Camshaft	125	1,275	92	
Timing belt idler sub-assy No. 2 x Timing belt idler bracket	43	438	32	
Timing belt idler sub-assy No. 1 x Cylinder block	34	347	25	
Chain tensioner assy No. 1 x Oil pump assy	27	280	20	
Engine mounting bracket RH x Cylinder block	28	286	21	
Timing belt No. 2 cover x Timing belt No. 3 cover	8.5	87	75 in·lbf	
Timing belt No. 1 cover x Oil pump assy	8.5	87	75 in·lbf	
Crankshaft pulley x Crankshaft	220	2,250	162	
VVT sensor x Cylinder head	8.0	82	71 in·lbf	
Camshaft timing oil control valve assy x Cylinder head	8.0	82	71 in·lbf	
Spark plug x Cylinder head	25	250	18	
Generator bracket No. 2 x Engine mounting bracket RH	28	286	21	
Engine mounting stay No. 2 RH x Engine mounting bracket RH	64	653	47	
Engine moving control rod (See page 14-84)	12 mm head	23	235	17
	14 mm head	64	653	47
Exhaust manifold sub-assy RH (2WD) x Cylinder head	49	500	36	
Exhaust manifold converter sub-assy (4WD) x Cylinder head	49	500	36	
Manifold stay x Exhaust manifold sub-assy RH (2WD)	34	347	25	
Manifold stay x Exhaust manifold converter sub-assy (4WD)	34	347	25	
Manifold stay x Automatic transaxle assy	34	347	25	
Exhaust manifold heat insulator No. 1 x Exhaust manifold sub-assy RH (2WD)	8.5	87	75 in·lbf	
Exhaust manifold heat insulator No. 1 x Exhaust manifold converter sub-assy (4WD)	8.5	87	75 in·lbf	
Water outlet x Cylinder head	15	153	11	
Intake manifold x Cylinder head	15	153	11	
Ground cable x Intake manifold	8.4	86	74 in·lbf	
Wire harness clamp bracket x Cylinder head	5.4	55	48 in·lbf	
Ground cable x Cylinder head	5.4	55	48 in·lbf	
Exhaust manifold converter sub-assy No. 2 x Cylinder head	49	500	36	
Exhaust manifold heat insulator No. 2 x Exhaust manifold converter sub-assy No. 2	8.5	87	75 in·lbf	
Manifold converter insulator No. 3 x Exhaust manifold converter sub-assy No. 2	8.5	87	75 in·lbf	
Exhaust pipe assy FR x Exhaust manifold converter sub-assy No. 2	62	632	46	

SERVICE SPECIFICATIONS - ENGINE MECHANICAL

Part Tightened	N·m	kgf·cm	ft·lbf
Drive plate & ring gear sub-assy	83	846	61
W/head straight screw plug No. 1 x Cylinder head	44	449	32
W/head straight screw plug No. 2 x Cylinder head	44	449	32
Connecting rod cap x Connecting rod	25	250	18
	Turn 90°	Turn 90°	Turn 90°
Main bearing cap x Cylinder block	22	224	16
12 pointed head 1st	Turn 90°	Turn 90°	Turn 90°
2nd	27	275	20
6 pointed head			
Cylinder block w/head straight screw No. 1 plug x Cylinder block	30	306	22
Cylinder block w/head straight screw No. 2 plug x Cylinder block	30	306	22
Cylinder block w/head straight screw No. 3 plug x Cylinder block	50	510	37
Water seal plate x Cylinder block	18	184	13
Cylinder block water drain cock sub-assy x Cylinder block	39	398	29

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
Fuel delivery pipe sub-assy x Intake manifold	10	102	7
Fuel delivery pipe No. 2 x Intake manifold	10	102	7
Fuel pipe No. 2 union bolt x Fuel delivery pipe No. 2	33	331	24
Fuel pressure pulsation damper assy x Fuel delivery pipe sub-assy	33	331	24
Fuel pipe sub-assy No. 1 x Intake manifold	20	199	14
Intake air surge tank x Intake manifold	28	286	21
Surge tank stay No. 2 x Intake air connector assy	20	199	14
Surge tank stay No. 2 x Cylinder head sub-assy	20	199	14
Surge tank stay No. 1 x Intake air surge tank	20	199	14
Surge tank stay No. 1 x Cylinder head sub-assy	20	199	14
Engine hunger No. 1 x Intake air surge tank	20	199	14
Engine hunger No. 1 x Cylinder head sub-assy	20	199	14
Pressure feed tube assy x Engine hunger No. 1	7.8	80	69 in.·lbf
Emission control valve set x Emission control valve bracket	8.0	82	71 in.·lbf
Cowl top panel sub-assy outer front x Body	7.5	76	66 in.·lbf
Cowl top to cowl brace inner No. 1 x Cowl top panel sub-assy outer front	7.5	76	66 in.·lbf
Cowl top to cowl brace inner No. 1 x Body	7.5	76	66 in.·lbf
Fuel tank band x Body	33	336	24
Fuel tank band No. 2 x Body	33	336	24
Fuel tank band No. 3 x Body	33	336	24
Fuel tank filler hose cover x Body	5.0	51	44 in.·lbf

TORQUE SPECIFICATION

Part Tightened		N·m	kgf·cm	ft·lbf
Drain cock plug x Cylinder block water drain cock body		13	130	9
Water pump assy x Cylinder block		8.0	82	71 in·lbf
Timing belt Idler sub-assy No. 1 x Cylinder block		34	347	25
Water inlet x Water inlet housing		8.0	82	71 in·lbf
Water inlet x Cylinder head		20	199	14
Radiator support sub-assy lower x No. 2 radiator assy (See page 16-18)	Bolt A	5.0	51	44 in·lbf
	Bolt B	3.9	40	35 in·lbf
Radiator support sub-assy upper x No. 2 radiator assy (See page 16-18)	Bolt A	5.0	51	44 in·lbf
	Bolt B	3.9	40	35 in·lbf

TORQUE SPECIFICATION

Part Tightened	N·m	kgf·cm	ft·lbf
VVT sensor x Cylinder head sub-assy	8.0	80	71 in·lbf
VVT sensor x Cylinder head LH	8.0	80	71 in·lbf
Crankshaft position sensor x Oil pump assy	8.0	80	71 in·lbf
Spark plug x Cylinder head	25	250	18
Ignition coil (with igniter) x Cylinder head cover	8.0	82	71 in·lbf

TORQUE SPECIFICATION

Part Tightened		N·m	kgf·cm	ft·lbf
Oil pressure switch x Cylinder block sub-assy		15	153	11
Oil pump assy x Cylinder block (See page 17-11)	Bolt A	8.0	82	71 in.·lbf
	Bolt B	20	199	14
	Bolt C	43	439	32
Crankshaft position sensor x Oil pump assy		8.0	80	71 in.·lbf
Oil pan sub-assy x Cylinder block (See page 17-11)	10 mm head	8.0	82	71 in.·lbf
	12 mm head	20	199	14
	14 mm head	37	379	27
Oil strainer sub-assy x Oil pan sub-assy		8.0	82	71 in.·lbf
Oil pan sub-assy No. 2 x Oil pan sub-assy		8.0	82	71 in.·lbf
Engine mounting bracket RH x Cylinder block		54	551	40
Engine mounting bracket RH x PS pump bracket		44	449	32
Engine mounting insulator RH x Engine mounting bracket RH		95	969	70
Engine mounting insulator RH x Front frame assy		87	887	64
Engine mounting insulator FR x Engine mounting bracket FR		87	887	64
Engine mounting insulator FR x Front frame assy		52	530	38
Engine mounting insulator RR (4WD) x Front frame assy		52	530	38
Compressor mounting bracket No. 1 x Cylinder block		25	250	18
Compressor and magnetic clutch x Compressor mounting bracket No. 1		25	250	18
Generator belt adjusting bar x Cylinder block (See page 17-11)	Nut A	43	438	32
	Bolt B	18	184	13
	Bolt C	8.4	85	74 in.·lbf
Oil pump rotor set x Oil pump assembly		10	105	8
Oil pan drain plug x Oil pan sub-assy No. 2		45	459	33

SEAT BELT

TORQUE SPECIFICATION

031F5-01

Part Tightened	N·m	kgf·cm	ft·lbf
FRONT SEAT BELT			
Front seat outer belt assy RH (Upper bolt) x Body	42	430	31
Front seat outer belt assy RH (Lower bolt) x Body	42	430	31
Front seat inner belt assy RH x Front seat	42	430	31
Front shoulder belt anchor adjuster assy x Body	42	430	31
Front seat outer belt floor anchor x Body	42	430	31
Front seat outer belt shoulder anchor x Body	42	430	31
REAR SEAT BELT			
Rear seat 3 point type belt assy outer (Upper bolt) x Body	8.5	87	75 in.·lbf
Rear seat 3 point type belt assy outer (Lower bolt) x Body	42	430	31
Rear seat 3 point type belt assy outer floor anchor x Body	42	420	31
Rear seat 3 point type belt assy outer shoulder anchor x Body	42	430	31
Rear seat 3 point type belt assy inner x Rear seat assy	42	430	31
Rear seat lap type belt assy center x Rear seat assy	42	430	31
Rear seat 3 point type belt assy inner x Rear seat assy	42	430	31
No. 2 seat belt assy outer RH (Upper bolt) x Body	8.5	87	75 in.·lbf
No. 2 seat belt assy outer RH (Lower bolt) x Body	42	430	31
No. 2 seat belt assy outer floor anchor x Body	42	420	31
No. 2 seat belt assy outer shoulder anchor x Body	42	430	31
Rear No. 2 seat lap belt assy center w/inner LH x Rear seat assy	42	430	31
No. 2 seat belt assy 3 point type x Body	42	430	31

TORQUE SPECIFICATION

031DP-01

Part Tightened	N·m	kgf·cm	ft·lbf
Intake air control valve No. 2 x Intake air surge tank	10	102	7

TORQUE SPECIFICATION

Part Tightened		N·m	kgf·cm	ft·lbf
V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1				
Generator installation bolt	Bolt A	17.5	178	12
Generator installation bolt	Bolt C	58	591	43
AIR CONDITIONER RADIATOR ASSY				
Air conditioning tube assy x Cooler evaporator sub-assy No. 1		3.5	35	30 in·lbf
Air conditioner unit assy x Body		9.8	100	87 in·lbf
Wiring harness x Instrument panel reinforcement		7.3	74	65 in·lbf
Steering column assy x Instrument panel reinforcement		26	265	19
BLOWER ASSY				
Blower assy x Instrument panel reinforcement		9.8	100	87 in·lbf
COOLER COMPRESSOR ASSY				
Magnet clutch hub x Cooler compressor assy		18	183	13
Compressor and magnetic clutch x Engine		24	245	18
Discharge hose sub-assy x Compressor and magnetic clutch		5.4	55	48 in·lbf
Suction hose sub-assy x Compressor and magnetic clutch		5.4	55	48 in·lbf
COOLER CONDENSER CORE				
Cap x Cooler condenser core		2.9	29	25 in·lbf
Radiator support sub-assy upper RH x Cooler condenser core	(Bolt A)	5.0	51	44 in·lbf
Radiator support sub-assy upper RH x Cooler condenser core	(Bolt B)	7.0	71	62 in·lbf
Radiator support sub-assy upper RH x Cooler condenser core	(Bolt C)	3.9	40	35 in·lbf
Radiator support sub-assy upper LH x Cooler condenser core	(Bolt A)	5.0	51	44 in·lbf
Radiator support sub-assy upper LH x Cooler condenser core	(Bolt B)	7.0	71	62 in·lbf
Radiator support sub-assy upper LH x Cooler condenser core	(Bolt C)	3.9	40	35 in·lbf
Cooler refrigerant liquid pipe A x Cooler condenser core		5.4	55	48 in·lbf
Discharge hose sub-assy x Cooler condenser core		5.4	55	48 in·lbf
AIR CONDITIONING BLOWER ASSY				
Air conditioning tube assy x Evaporator sub-assy (rear)		5.4	55	47 in·lbf
Air conditioning blower assy x Body		5.4	55	48 in·lbf
C pipe cooler refrigerant liquid x Cooling (rear) unit assy		9.8	100	87 in·lbf

WINDSHIELD/WINDOWGLASS/MIRROR

TORQUE SPECIFICATION

031FG-01

Part Tightened	N-m	kgf-cm	ft-lbf
SIDE WINDOW ASSY REAR LH			
Side window assy rear x Body	5.5	56	49 in.-lbf
OUTER REAR VIEW MIRROR ASSY LH			
Outer rear view mirror assy x Front door	8.0	82	71 in.-lbf

SEAT

TORQUE SPECIFICATION

031F8-03

Part Tightened	N-m	kgf-cm	ft-lbf
FRONT SEAT (POWER SEAT TYPE) (From September, 2004)			
Seatback cover bracket x Front seat frame assy (w/ Side airbag)	5.5	56	48 in.-lbf
Front seat inner LH armrest assy x Front seat frame assy	20	200	14
Front seat inner belt assy LH x Front seat frame assy	41	418	30
Front seat side table x Front seat frame assy (w/ Table)	13	133	10
Seat position airbag sensor x Front seat frame assy	8.0	82	71 in.-lbf
Seat assy x Body	37	375	27
FRONT SEAT (MANUAL SEAT TYPE) (From September, 2004)			
Seatback cover bracket x Front seat frame assy (w/ Side airbag)	5.5	56	48 in.-lbf
Front seat inner LH armrest assy x Front seat frame assy	20	200	14
Front seat inner belt assy LH x Front seat frame assy	41	418	30
Front seat side table x Front seat frame assy (w/ Table)	13	133	10
Seat position airbag sensor x Front seat frame assy	8.0	82	71 in.-lbf
Seat assy x Body	37	375	27
FRONT SEAT (FOLD FLAT TYPE) (From September, 2004)			
Seatback cover bracket x Front seat frame assy (w/ Side airbag)	5.5	56	48 in.-lbf
Front seat inner RH armrest assy x Front seat frame assy	20	200	14
Front seat inner belt assy RH x Front seat frame assy	42	428	31
Front seatback lock assy x Front seatback spring assy	43	439	32
Front seatback lock assy x Front seat cushion frame assy	43	439	32
Seat assy x Body	37	375	27
REAR NO. 1 SEAT (RH and LH)			
Seat cushion frame x Seat adjuster assembly outer	M8 bolt	20.6	15
	M10 bolt	41	30
Seatback adjuster assembly x Seat cushion frame	7-Passenger RH	55	41
	except 7-Passenger	43.1	32
Seat belt assembly outer x Seatback frame	retractor	42	31
	reclining sensor	4	35 in.-lbf
Seat adjuster assembly inner x Seat cushion frame		43.1	32
Seatback frame x Seat adjuster assembly inner		43.1	32
Seatback frame x Seat adjuster assembly outer	7-Passenger RH	55	41
	others	43.1	32
Armrest assembly x Seatback frame		37	27
Seat 3 point type belt assembly inner x Seat cushion frame		42	31
Seat belt assembly outer x Body		42	31
REAR NO. 1 SEAT (CTR)			
Seat cushion frame x Seat adjuster assembly		20.6	15
Seat reclining adjuster assembly LH x Seat cushion frame		43.1	32
Seat reclining adjuster assembly RH x Seat cushion frame		55	41
Seat belt assembly outer x Seatback frame	retractor	42	31
	reclining sensor	4	35 in.-lbf
Seatback frame x Seat reclining adjuster assembly LH		43.1	32
Seatback frame x Seat reclining adjuster assembly RH		55	41
Seat lap type belt assembly center x Seat cushion frame		42	31
Seat belt assembly outer x Body		42	31
REAR NO. 2 SEAT			
Seat stay x Seat cushion frame		5.5	49 in.-lbf
Locus cable x Seat cushion frame		5.5	49 in.-lbf
Seat belt assembly inner x Seat cushion frame		42	31

SERVICE SPECIFICATIONS - SEAT

Part Tightened	N·m	kgf·cm	ft·lbf
Reclining adjuster release handle x Seatback frame	5.5	56	49 in·lbf
Reclining release handle x Seatback frame	5.5	56	49 in·lbf
Lock release strap assembly x Seatback frame	5.5	56	49 in·lbf
Seat lap belt assembly center x Seat cushion frame	42	428	31
Seatback frame x Seat cushion frame	44	449	32
Locus cable x Seat leg	29	296	21
Seat assembly x Seat leg	29	296	21

COMMUNICATION SYSTEM

TORQUE SPECIFICATION

031F6-01

Part Tightened	N-m	kgf-cm	ft-lbf
HIGH PITCHED HORN ASSY			
High pitched horn assy x Body	20	199	15
LOW PITCHED HORN ASSY			
Low pitched horn assy x Body	20	199	15