

SERVICE SPECIFICATIONS

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MAINTENANCE

Engine

Drive belt tension w/ Borroughs drive belt tension gauge No. BT-33-73F or Nippondenso BTG-20 (95506-00020)						
Alternator	New belt		175 ± 5 lb			
	Used belt		115 ± 20 lb			
PS pump	New belt		160 ± 20 lb			
	Used belt		100 ± 20 lb			
A/C compressor	New belt		160 ± 20 lb			
	Used belt		105 ± 10 lb			
Coolant capacity	7M-GE	M/T	8.1 liters	8.6 US qts	7.1 Imp. qts	
		A/T	8.0 liters	8.5 US qts	7.0 Imp. qts	
	7M-GTE	M/T	8.2 liters	8.7 US qts	7.2 Imp. qts	
		A/T	8.1 liters	8.5 US qts	7.1 Imp. qts	
Engine oil capacity	Drain and refill					
	w/ Oil filter change		4.4 liters	4.7 US qts	3.9 Imp. qts	
	w/o Oil filter change		4.1 liters	4.3 US qts	3.6 Imp. qts	
Spark plug	Type	7M-GE	ND	PQ16R		
			NGK	BCPR5EP11		
	7M-GTE	ND	PQ20R-P8			
		NGK	BCPR6EP-N8			
Gap	7M-GE		1.1 mm	0.043 in.		
	7M-GTE		0.8 mm	0.031 in.		
Firing order			1—5—3—6—2—4			
Valve clearance (cold)	Intake		0.15 — 0.25 mm	0.006 — 0.010 in.		
	Exhaust		0.20 — 0.30 mm	0.008 — 0.012 in.		

Chassis

Front and rear brake					
Pad thickness		Limit	1.0 mm	0.039 in.	
Disc thickness	Front	Limit	21.0 mm	0.827 in.	
	Rear	Limit	17.0 mm	0.669 in.	
Disc runout		Limit	0.13 mm	0.005 in.	
Parking brake					
Lining thickness		Limit	1.0 mm	0.039 in.	
Drum inner diameter		Limit	191.0 mm	7.52 in.	
Front axle and suspension					
Ball joint vertical play	Upper	Limit	0 mm	0 in.	
	Lower	Limit	0.3 mm	0.012 in.	
Steering wheel freeplay			30 mm (1.18 in.) or less		
Torque specifications					
Front seat mounting bolt			375 kg-cm	27 ft-lb	37 N·m
Front suspension member x Body			1,300 kg-cm	94 ft-lb	124 N·m
Rear suspension member x Body (Front & Rear)			1,840 kg-cm	133 ft-lb	180 N·m

ENGINE MECHANICAL**Specifications**

Idle speed				7M-GE	700 rpm		
				7M-GTE	650 rpm		
Intake manifold vacuum					400 mmHg (15.75 in.Hg, 53.3 kPa) or more		
Compression pressure		at 250 rpm	STD	7M-GE	11.0 kg/cm ²	156 psi	1,079 kPa
				7M-GTE	10.0 kg/cm ²	142 psi	981 kPa
				Limit	9.0 kg/cm ²	128 psi	883 kPa
Differential of pressure between each cylinder					1.0 kg/cm ² (14 psi, 98 kPa) or less		
Cylinder head	Warpage	Cylinder block side		Limit	0.10 mm		0.0039 in.
		Intake manifold side		Limit	0.10 mm		0.0039 in.
		Exhaust manifold side		Limit	0.10 mm		0.0039 in.
	Valve guide bore			STD	11.000 – 11.027 mm		0.4331 – 0.4341 in.
				O/S 0.05	11.050 – 11.077 mm		0.4350 – 0.4361 in.
	Valve seat	Refacing angle			30°, 45°, 60°		
		Contacting angle			45°		
		Contacting width			1.0 – 1.4 mm		0.039 – 0.055 in.
Valve guide bushing	Inside diameter			6.010 – 6.030 mm		0.2366 – 0.2374 in.	
	Outside diameter		STD	11.033 – 11.044 mm		0.4344 – 0.4348 in.	
			O/S 0.05	11.083 – 11.094 mm		0.4363 – 0.4368 in.	
	Replacing temperature (Cylinder head side)			90°C		194°F	
Valve	Valve overall length	STD		98.15 mm		3.8642 in.	
		Limit		97.75 mm		3.8484 in.	
	Valve face angle		44.5°				
	Stem diameter	Intake		5.970 – 5.985 mm		0.2350 – 0.2356 in.	
		Exhaust		5.965 – 5.980 mm		0.2348 – 0.2354 in.	
	Stem oil clearance	STD		Intake	0.025 – 0.060 mm		0.0010 – 0.0024 in.
				Exhaust	0.030 – 0.065 mm		0.0012 – 0.0026 in.
		Limit		Intake	0.08 mm		0.0031 in.
				Exhaust	0.10 mm		0.0039 in.
	Valve margin thickness	STD		1.3 mm		0.051 in.	
Limit		0.5 mm		0.020 in.			
Valve spring	Free length		41.64 mm		1.6394 in.		
	Installed length		35.0 mm		1.378 in.		
	Installed load	at 35 mm (1.378 in.)	STD	16.0 kg	35 lb	157 N	
	Squareness		Limit	1.5 mm		0.059 in.	
Valve lifter	Lifter diameter		STD	27.975 – 27.985 mm		1.1014 – 1.1018 in.	
	Oil clearance		STD	0.015 – 0.046 mm		0.0006 – 0.0018 in.	
			Limit	0.10 mm		0.0039 in.	

Specifications (Cont'd)

Intake, exhaust manifold and intake chamber	Manifold surface warpage				
	Intake	Limit		0.10 mm	0.0039 in.
	Exhaust	Limit	7M-GE	0.75 mm	0.0295 in.
			7M-GTE	0.50 mm	0.0197 in.
	Intake chamber	Limit		0.10 mm	0.0039 in.
Camshaft	Thrust clearance		STD	0.08 – 0.19 mm	0.0031 – 0.0075 in.
			Limit	0.30 mm	0.0118 in.
	Journal oil clearance	No. 1	STD	0.035 – 0.072 mm	0.0014 – 0.0028 in.
			Limit	0.13 mm	0.0051 in.
		No. 2 – No. 7	STD	0.025 – 0.093 mm	0.0010 – 0.0037 in.
			Limit	0.13 mm	0.0051 in.
	Journal diameter	No. 1	STD	26.949 – 26.965 mm	1.0610 – 1.0616 in.
		No. 2 – No. 7	STD	26.888 – 26.975 mm	1.0586 – 1.0620 in.
	Circle runout		Limit	0.03 mm	0.0012 in.
	Cam lobe height				
	Intake	STD	7M-GE	38.16 mm	1.5024 in.
			7M-GTE	38.35 mm	1.5098 in.
		Limit	7M-GE	37.85 mm	1.4902 in.
			7M-GTE	38.00 mm	1.4961 in.
	Exhaust	STD		38.35 mm	1.5098 in.
		Limit		38.00 mm	1.4961 in.
Idler pulley tension spring	Free length			69 mm	2.72 in.
Pump drive shaft	Thrust clearance		STD	0.06 – 0.13 mm	0.0024 – 0.0051 in.
			Limit	0.30 mm	0.0118 in.
	Oil clearance		STD	0.025 – 0.066 mm	0.0010 – 0.0026 in.
			Limit	0.08 mm	0.0031 in.
	Journal diameter		Front	40.959 – 40.975 mm	1.6126 – 1.6132 in.
			Rear	32.959 – 32.975 mm	1.2976 – 1.2982 in.
Cylinder block	Cylinder head surface warpage		Limit	0.05 mm	0.0020 in.
	Cylinder bore diameter	STD	Mark 0	82.990 – 83.000 mm	3.2673 – 3.2677 in.
			Mark 1	83.001 – 83.010 mm	3.2677 – 3.2681 in.
			Mark 2	83.011 – 83.020 mm	3.2681 – 3.2685 in.
			Mark 3	83.021 – 83.030 mm	3.2685 – 3.2689 in.
			Mark 4	83.031 – 83.040 mm	3.2689 – 3.2693 in.
		Limit	STD	83.24 mm	3.2772 in.
			O/S 0.50	83.74 mm	3.2968 in.
	Cylinder block main journal bore				
		STD	Mark 1	64.024 – 64.030 mm	2.5206 – 2.5209 in.
			Mark 2	64.031 – 64.036 mm	2.5209 – 2.5211 in.
			Mark 3	64.037 – 64.042 mm	2.5211 – 2.5213 in.
		U/S 0.25		64.022 – 64.046 mm	2.5205 – 2.5215 in.

Specifications (Cont'd)

Piston and piston ring	Piston diameter					
	7M-GE	STD	Mark 0	82.900 — 82.910 mm	3.2638 — 3.2642 in.	
			Mark 1	82.911 — 82.920 mm	3.2642 — 3.2646 in.	
			Mark 2	82.921 — 82.930 mm	3.2646 — 3.2650 in.	
			Mark 3	82.931 — 82.940 mm	3.2650 — 3.2653 in.	
			Mark 4	82.941 — 82.950 mm	3.2654 — 3.2657 in.	
		O/S 0.50		83.40 — 83.45 mm	3.2835 — 3.2854 in.	
			7M-GTE	Mark 0	82.910 — 82.920 mm	3.2642 — 3.2646 in.
				Mark 1	82.921 — 82.930 mm	3.2646 — 3.2650 in.
				Mark 2	82.931 — 82.940 mm	3.2650 — 3.2653 in.
				Mark 3	82.941 — 82.950 mm	3.2654 — 3.2657 in.
	Mark 4	82.951 — 82.960 mm		3.2658 — 3.2661 in.		
	O/S 0.50		83.41 — 83.46 mm	3.2839 — 3.2858 in.		
		Piston oil clearance				
	7M-GE		STD	0.08 — 0.10 mm	0.0031 — 0.0039 in.	
			Limit	0.13 mm	0.0051 in.	
	7M-GTE		STD	0.07 — 0.09 mm	0.0028 — 0.0035 in.	
			Limit	0.13 mm	0.0051 in.	
	Piston ring end gap	No. 1	7M-GE	STD	0.23 — 0.38 mm	0.0091 — 0.0150 in.
				Limit	0.68 mm	0.0268 in.
			7M-GTE	STD	0.29 — 0.44 mm	0.0114 — 0.0173 in.
				Limit	0.74 mm	0.0291 in.
		No. 2		STD	0.25 — 0.53 mm	0.0098 — 0.0209 in.
				Limit	1.13 mm	0.0445 in.
		Oil	7M-GE	STD	0.10 — 0.40 mm	0.0039 — 0.0157 in.
				Limit	1.00 mm	0.0394 in.
			7M-GTE	STD	0.10 — 0.44 mm	0.0039 — 0.0173 in.
				Limit	1.04 mm	0.0409 in.
	Ring groove clearance	No. 1	Limit	0.03 — 0.07 mm	0.0012 — 0.0028 in.	
		No. 2	Limit	0.02 — 0.06 mm	0.0008 — 0.0024 in.	
	Piston pin installing temperature			60°C	140°F	
	Connecting rod and bearing	Thrust clearance		STD	0.160 — 0.296 mm	0.0063 — 0.0117 in.
		Limit	0.3 mm	0.012 in.		
Big end inner diameter		STD	Mark 1	55.015 — 55.025 mm	2.1659 — 2.1663 in.	
			Mark 2	55.026 — 55.035 mm	2.1664 — 2.1667 in.	
			Mark 3	55.036 — 55.045 mm	2.1668 — 2.1671 in.	
			U/S 0.25		55.015 — 55.045 mm	2.1659 — 2.1671 in.
			Connecting rod bearing center wall thickness			
STD		Mark 1	1.490 — 1.495 mm	0.0587 — 0.0589 in.		
		Mark 2	1.496 — 1.500 mm	0.0589 — 0.0591 in.		
		Mark 3	1.501 — 1.505 mm	0.0591 — 0.0593 in.		
		Mark 4	1.506 — 1.510 mm	0.0593 — 0.0594 in.		
		Mark 5	1.511 — 1.515 mm	0.0595 — 0.0596 in.		
U/S 0.25			1.622 — 1.632 mm	0.0639 — 0.0643 in.		
Bearing oil clearance			STD	0.021 — 0.053 mm	0.0008 — 0.0021 in.	
			Limit	0.07 mm	0.0028 in.	
Pin oil clearance			STD	0.005 — 0.011 mm	0.0002 — 0.0004 in.	
			Limit	0.02 mm	0.0008 in.	

Specifications (Cont'd)

Connecting rod and bearing (cont'd)	Piston pin diameter			21.996 – 22.009 mm	0.8660 – 0.8665 in.
	Rod bend	Limit	per 100 mm (3.94 in.)	0.05 mm	0.0020 in.
	Rod twist	Limit	per 100 mm (3.94 in.)	0.15 mm	0.0059 in.
Crankshaft and bearing	Thrust clearance	STD		0.05 – 0.25 mm	0.0020 – 0.0098 in.
		Limit		0.30 mm	0.0118 in.
	Thrust washer thickness	STD		2.925 – 2.975 mm	0.1152 – 0.1171 in.
		O/S 0.125		2.988 – 3.038 mm	0.1176 – 0.1196 in.
	Main journal oil clearance	STD		0.030 – 0.048 mm	0.0012 – 0.0019 in.
		Limit		0.07 mm	0.0028 in.
	Main journal diameter	STD	Mark 0	60.007 – 60.012 mm	2.3625 – 2.3627 in.
			Mark 1	60.001 – 60.006 mm	2.3622 – 2.3624 in.
			Mark 2	59.994 – 60.000 mm	2.3620 – 2.3622 in.
		U/S 0.25		59.730 – 59.740 mm	2.3516 – 2.3520 in.
	Main bearing center wall thickness	STD	Mark 1	1.988 – 1.991 mm	0.0783 – 0.0784 in.
			Mark 2	1.992 – 1.994 mm	0.0784 – 0.0785 in.
			Mark 3	1.995 – 1.996 mm	0.0785 – 0.0786 in.
			Mark 4	1.998 – 2.000 mm	0.0787 – 0.0787 in.
			Mark 5	2.001 – 2.003 mm	0.0788 – 0.0789 in.
	Crank pin diameter	U/S 0.25		2.123 – 2.133 mm	0.0836 – 0.0840 in.
			Mark 0	51.993 – 52.000 mm	2.0470 – 2.0472 in.
			Mark 1	51.985 – 51.992 mm	2.0466 – 2.0469 in.
			Mark 2	51.976 – 51.984 mm	2.0463 – 2.0466 in.
		U/S 0.25		51.725 – 51.735 mm	2.0364 – 2.0368 in.
	Circle runout	Limit		0.06 mm	0.0024 in.
	Main journal taper and out-of-round	Limit		0.02 mm	0.0008 in.
	Check pin journal taper and out-of-round				
		Limit		0.02 mm	0.0008 in.
Flywheel	Runout	Limit		0.1 mm	0.004 in.

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Camshaft timing pulley x Camshaft	500	36	49
Oil pump drive pulley x Oil pump drive shaft	220	16	22
Crankshaft x Crank pulley	2,700	195	265
Crankshaft x Flywheel	750	54	74
Crankshaft x Drive plate	750	54	74
Air intake chamber x Intake manifold	180	13	18
Air intake chamber x Air intake connector (7M-GE)	180	13	18
Throttle body x Air intake connector	130	9	13
Cylinder head x No. 1 and No. 2 cylinder head covers	25	22 in.-lb	2.5
Cylinder head x No. 3 cylinder head cover	180	13	18
Cylinder head x Cylinder block	800	58	78

Torque Specifications (Cont'd)

Part tightened	kg-cm	ft-lb	N·m
Cylinder head x Spark plug	180	13	18
Cylinder head x No. 2 engine hanger	400	29	39
Cylinder head x Heater union	600	43	59
Cylinder head x EGR cooler	140	10	14
Cylinder head x Camshaft bearing cap	200	14	20
Cylinder head x intake manifold	180	13	18
Cylinder head x Exhaust manifold	400	29	39
Cylinder head x Distributor (7M-GE)	140	10	14
Cylinder head x Cam position sensor (7M-GTE)	140	10	14
Connecting rod cap x Connecting rod	650	47	64
Cylinder block x Main bearing cap	1,040	75	102
Cylinder block x Timing belt case x Idler pulley	500	36	49
Cylinder block x Timing belt case 12 mm	195	14	19
Cylinder block x Timing belt case 14 mm	400	29	39
Cylinder block x Oil pump drive shaft thrust plate	130	9	13
Oil nozzle x Cylinder block	250	18	25

TURBOCHARGER SYSTEM**Specifications**

Turbocharger	Turbocharging pressure	STD	M/T	0.39 – 0.53 kg/cm ² (5.5 – 7.5 psi, 38 – 52 kPa)
			A/T	0.34 – 0.42 kg/cm ² (4.8 – 6.0 psi, 33 – 41 kPa)
	Turbine shaft axial play	STD		0.13 mm (0.0051 in.) or less
	Turbine shaft radial play	STD		0.18 mm (0.0071 in.) or less

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Turbocharger x Turbin outlet elbow	440	32	43
Oil pipe x Turbocharger	130	9	13
Water pipe x Turbocharger	75	65 in.-lb	7.4
Oil pipe x Cylinder block (Bolt)	350	25	34
Oil pipe x Cylinder block (Nut)	130	9	13
Turbocharger stay x Turbocharger	810	59	79
Turbocharger stay x Engine mounting bracket	590	43	58
Turbocharger x Exhaust manifold	450	33	44

EFI SYSTEM

Specifications

Fuel pressure regulator	Fuel pressure	7M-GTE	at No vacuum	2.7 – 3.1 kg/cm ² (38 – 44 psi, 265 – 304 kPa)
		7M-GTE	at No vacuum	2.3 – 2.8 kg/cm ² (33 – 40 psi, 226 – 275 kPa)
Cold start injector	Resistance			2 – 4 Ω
	Fuel leakage			One drop or less of fuel per minute
Injector	Resistance	7M-GE		Approx. 13.8 Ω
		7M-GTE		2.0 – 3.8 Ω
	Injection volume	7M-GE		69 – 85 cc (4.2 – 5.2 cu in.)/15 sec.
		7M-GTE		101 – 114 cc (6.2 – 7.0 cu in.)/15 sec.
	Difference volume between each injector			9 cc (0.31 cu in.) or less
	Fuel leakage			One drop or less of fuel per minute
Air flow meter	Resistance			
	7M-GE	E2 – VS		200 – 600 Ω (Measuring plate fully closed)
				20 – 1,200 Ω (Measuring plate fully open)
		E2 – VC		200 – 400 Ω
		E1 – FC		Infinity (Measuring plate fully closed)
				Zero (Others)
		E2 – THA	at –20°C (–4°F)	10 – 20 k Ω
			at 0°C (32°F)	4 – 7 k Ω
			at 20°C (68°F)	2 – 3 k Ω
			at 40°C (104°F)	0.9 – 1.3 k Ω
			at 60°C (140°F)	0.4 – 0.7 k Ω
	7M-GTE	E2 – THA	at –20°C (–4°F)	10 – 20 k Ω
			at 0°C (32°F)	4 – 7 k Ω
			at 20°C (68°F)	2 – 3 k Ω
			at 40°C (104°F)	0.9 – 1.3 k Ω
			at 60°C (140°F)	0.4 – 0.7 k Ω
Throttle position sensor	Clearance between stop screw and lever		Between terminals	Resistance
	7M-GE	7M-GTE		
	0 mm (0 in.)	0 mm (0 in.)	VTA – E2	0.2 – 1.2 k Ω
	0.40 mm (0.0157 in.)	0.50 mm (0.0197 in.)	IDL – E2	2.3 k Ω or less
	0.75 mm (0.0295 in.)	0.90 mm (0.0354 in.)	IDL – E2	Infinity
	Throttle valve fully opened position		VTA – E2	3.5 – 10.3 k Ω
	—		VC – E2	4.25 – 8.25 k Ω

Specifications (Cont'd)

ISC valve	Resistance	B1 – S1 or S3 B2 – S2 or S4	10 – 30 Ω 10 – 30 Ω
Solenoid resistor (7M-GTE)	Resistance	No. 10 +B – γ No. 30	3 Ω each
Cold start injector time switch	Resistance	STA – STJ below 15°C (59°F) above 30°C (86°F) STA – Ground	25 – 45 Ω 65 – 85 Ω 25 – 85 Ω
Water temp. sensor	Resistance	at –20°C (–4°F) at 0°C (32°F) at 20°C (68°F) at 40°C (104°F) at 60°C (140°F) at 80°C (176°F)	10 – 20 k Ω 4 – 7 k Ω 2 – 3 k Ω 0.9 – 1.3 k Ω 0.4 – 0.7 k Ω 0.2 – 0.4 k Ω
Fuel control VSV (7M-GTE)	Resistance		30 – 50 Ω
Fuel pump resistor	Resistance		Approx. 0.7 Ω
Oxygen sensor	Heater resistance	7M-GTE	3.0 – 3.6 Ω
Sub-oxygen sensor [7M-GE (Calif. only)]	Heater resistance	at 20°C (68°F)	5.1 – 6.3 Ω
EGR gas temp. sensor (Calif. only)	Resistance	at 50°C (122°F) at 100°C (212°F) at 150°C (302°F)	69.40 – 88.50 k Ω 11.89 – 14.37 k Ω 2.79 – 3.59 k Ω
ECU	HINT:		
	<ul style="list-style-type: none"> Perform all voltage and resistance measurements with the computer connected. Verify that the battery voltage is 11 V or above when the ignition switch is ON. 		
	Voltage		
	Terminals	Condition	STD Voltage (V)
	BATT – E1	–	10 – 14
	IG SW – E1	Ignition SW ON	10 – 14
	M-REL – E1	Ignition SW ON	10 – 14
	+B(+B1) – E1	Ignition SW ON	10 – 14
	IDL – E2 (7M-GE)	Ignition SW ON	Throttle valve open
	IDL – E2 (7M-GTE)	Ignition SW ON	Throttle valve open
			10 – 14
			4 – 6

Specifications (Cont'd)

ECU (cont'd)	Terminals	Condition		STD Voltage (V)
	VC – E2	Ignition SW ON	—	4 – 6
	VTA – E2	Ignition SW ON	Throttle valve fully closed	0.1 – 1.0
			Throttle valve fully open	3.2 – 4.2
	*1 VS – E2	Ignition SW ON	Measuring plate fully closed	3.7 – 4.3
			Measuring plate fully open	0.2 – 0.5
		Idling		2.3 – 2.8
		3,000 rpm		1.0 – 2.0
	*2 KS – Body ground	Ignition SW ON		4 – 6
		Cranking or running		2 – 4
	*2 VC – Body ground	Ignition SW ON		4 – 6
	No. 10 No. 20 – E01 No. 30 – E02	Ignition SW ON		10 – 14
	THA – E2	Ignition SW ON	Intake air temperature 20°C (68°F)	1 – 3
	THW – E2	Ignition SW ON	Coolant temperature 80°C (176°F)	0.1 – 1.0
	STA – E1	Cranking		6 – 14
	IGT – E1	Ignition SW ON		0.7 – 1.0
	*2 IGDA IGDB – E1	Idling		1 – 3
	ISC1 ISC2 – E1 ISC4	Ignition SW ON		9 – 14
	W – E1	No trouble ("CHECK ENGINE" warning light off) and engine running		8 – 14
	A/C – E1	Ignition SW ON	Air conditioning ON	10 – 14
	TE1 – E1	Ignition SW ON	Check connector TE1 – E1 not connect	4 – 6
			Check connector TE1 – E1 connect	0
	NSW(A/T) – E1	Ignition SW ON	Shift position P or N range	0
			Ex. P or N range	10 – 14
	N/C(M/T) – E1	Ignition SW ON	Clutch pedal not depressed	0
			Clutch pedal depressed	10 – 14

Specifications (Cont'd)

ECU (cont'd)	Terminal	Condition		STD Voltage (V)
	* ³ DFG — E1	Ignition SW ON	Defogger SW OFF	10 — 14
			Defogger SW ON	0
	* ³ LP — E1	Headlight SW OFF		10 — 14
		Headlight SW ON		0
	Resistance			
	Terminals	Condition		Resistance (Ω)
	IDL — E2	Throttle valve fully open		Infinity
		Throttle valve fully closed		2,300 or less
	VTA — E2	Throttle valve fully open		3,500 — 10,300
		Throttle valve fully closed		200 — 1,200
	VC — E2	—		4,250 — 8,250
	VS — E2	Measuring plate fully closed		200 — 600
		Measuring plate fully open		20 — 1,200
	THA — E2	Intake air temperature 20°C (68°F)		2,000 — 3,000
	THW — E2	Coolant temperature 80°C (176°F)		200 — 400
	G1,G2 — G⊖	—		140 — 180
	NE — G⊖ (7M-GTE)	—		140 — 180
	NE — G⊖ (7M-GE)	—		180 — 220
ISC1,ISC2 ISC3,ISC4 — +B	—		10 — 30	
Fuel cut rpm	w/ Vehicle speed 0 km/h and coolant temp. 80°C (176°F)			
	7M-GE	Fuel cut rpm	1,800 rpm	
		Fuel return rpm	1,200 rpm	
	7M-GTE	Fuel cut rpm	1,600 rpm	
		Fuel return rpm	1,200 rpm	

*¹ 7M-GE only*² 7M-GTE only*³ ex. 7M-GTE A/T

Torque Specifications

Part tightened		kg-cm	ft-lb	N·m
Fuel line	Union bolt type	300	22	29
	Flare nut type	310	22	30
Fuel pump x Fuel tank		35	30 in.-lb	3.4
Cold start injector x Air intake chamber		55	48 in.-lb	5.4
Cold start injector tube x Cold start injector		180	13	18
Cold start injector tube x Delivery pipe		300	22	29
Fuel pressure regulator x Delivery pipe		250	18	25
No. 2 fuel pipe x Delivery pipe		250	18	25
Delivery pipe x Cylinder head		180	13	18
No. 1 fuel pipe x Delivery pipe		400	29	39
No. 1 fuel pipe x Fuel pipe support		300	22	29
Air intake connector x Air intake chamber (7M-GE)		180	13	18
Fuel sender gauge x Fuel tank		25	22 in.-lb	2.5
Fuel tank bracket x Body		185	15	20
Fuel tank band bracket x Body		380	27	37
Fuel tank band x Body		220	16	22
Fuel tank drain plug		125	9	12
Throttle body x Air intake chamber		130	9	13
ISC valve x Air intake chamber		130	9	13

COOLING SYSTEM**Specifications**

Engine coolant capacity		See page A-2	
Thermostat	Valve opening temperature	86 – 90°C 187 – 194°F	
	Valve lift at 100°C (212°F)	8 mm (0.31 in.) or more	
Radiator	Relief valve opening pressure	STD	0.75 – 1.05 kg/cm ² (10.7 – 14.9 psi, 74 – 103 kPa)
		Limit	0.6 kg/cm ² 8.5 psi 59 kPa

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Drain plug	350	25	34
Water outlet x Water outlet housing	80	69 in.-lb	7.8
Water pump x Cylinder block	10 mm	90	78 in.-lb
	12 mm	195	14
			20

LUBRICATION SYSTEM**Specifications**

Engine oil capacity		See page A-35	
Oil pressure	at Idle speed	0.3 kg/cm ² (4.3 psi, 29 kPa) or more	
	at 3,000 rpm	2.5 – 5.0 kg/cm ² 36 – 71 psi 245–490 kPa	
Oil pump	Body clearance	STD	0.105 – 0.175 mm 0.0041 – 0.0069 in.
		Limit	0.2 mm 0.008 in.
	Side clearance	STD	0.03 – 0.09 mm 0.0012 – 0.0035 in.
		Limit	0.15 mm 0.0059 in.
	Gear backlash	STD	0.5 – 0.6 mm 0.020 – 0.024 in.
		Limit	0.9 mm 0.035 in.
	Relief valve operating pressure		4.4 – 5.0 kg/cm ² 63 – 71 psi 431–490 kPa

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Engine oil drain plug	350	25	34
Oil pump cover x Oil pump body	75	65 in.-lb	7.4
Relief valve x Oil pump cover	375	27	37
Oil pump x Cylinder block	220	16	22
Oil pump strainer x Oil pump body	130	9	13
Oil pump outlet pipe x Oil pump	350	25	34
Oil pump outlet pipe x Union	350	25	34
Oil pan x Cylinder block	130	9	13
Oil pressure regulator plug	375	27	37
Oil filter bracket x Cylinder block	500	36	49

IGNITION SYSTEM

Ignition timing	T/M in N range			10° BTDC @ Idle [Check connector terminals T _{E1} and E ₁ connect]	
Spark plug	Type	7M-GE	ND	PQ16R	
			NGK	BCPR5EP11	
	Gap	7M-GTE	ND	PQ20R-P8	
			NGK	BCPR6EP-N8	
		7M-GE	STD	1.1 mm	0.043 in.
			Limit	1.3 mm	0.051 in.
		7M-GTE	STD	0.8 mm	0.031 in.
			Limit	1.0 mm	0.039 in.
High-tension cord	Resistance	Limit	25 kΩ per cord		
Ignition coil	Primary coil resistance	7M-GE	0.24 – 0.30 Ω		
		7M-GTE	0.3 – 0.5 Ω		
	Secondary coil resistance (7M-GE only)		9.2 – 12.4 kΩ		
Distributor (7M-GE) or cam position sensor (7M-GTE)	Air gap				
	G1, G2 and NE pickups	7M-GE	0.2 mm (0.008 in.) or more		
		7M-GTE	0.2 – 0.4 mm	0.008 – 0.016 in.	
	Pickup coil resistance				
	G1 and G2 pickups		140 – 180 Ω		
	NE pickup	7M-GE	180 – 220 Ω		
		7M-GTE	140 – 180 Ω		

STARTING SYSTEM

Starter	Rated voltage and output power			12 V 1.4 kW		
	No-load characteristic		Current	90A or less at 11.5 V		
			rpm	3,500 rpm or more		
	Brush length	STD		15.5 mm	0.610 in.	
			Limit	10.0 mm	0.394 in.	
	Commutator	Outer diameter	STD	30 mm	1.18 in.	
			Limit	29 mm	1.14 in.	
		Undercut depth	STD	0.6 mm	0.024 in.	
			Limit	0.2 mm	0.008 in.	
		Circle runout	Limit	0.05 mm	0.0020 in.	
	Spring installed load		STD	1.79 – 2.41 kg (3.9 – 5.3 lb, 18 – 24 N)		
			Limit	1.2 kg	2.6 lb	12 N

CHARGING SYSTEM

Drive belt tension			See page A-2	
Battery specific gravity When fully charged at 20°C (68°F)			1.25 – 1.27	
Alternator	Rated output ampere	7M-GE	12 V	70 A
		7M-GTE	12 V	80 A
	Rotor coil resistance		2.8 – 3.0 Ω	
	Slip ring diameter	STD	14.2 – 14.4 mm	0.559 – 0.567 in.
		Limit	12.8 mm	0.504 in.
	Bush exposed length	STD	10.5 mm	0.413 in.
		Limit	1.5 mm	0.059 in.
Alternator regulator (IC)	Regulator voltage	at 25°C (77°F)	14.0 – 15.0 V	
		at 115°C (239°F)	13.5 – 14.3 V	

CLUTCH

Specifications

Pedal height (from asphalt sheet)		157 – 167 mm	6.18 – 6.57 in.
Push rod play at pedal top		1 – 5 mm	0.04 – 0.20 in.
Pedal freeplay		5 – 15 mm	0.20 – 0.59 in.
Clutch release point (from pedal stroke end position to release point)		25 mm (0.98 in.) or more	
Disc rivet head depth	Limit	0.3 mm	0.012 in.
Disc runout	Limit	0.8 mm	0.031 in.
Diaphragm spring out-of-alignment	Limit	0.5 mm	0.020 in.
Diaphragm spring finger wear	Depth	Limit	0.6 mm
	Width	Limit	5.0 mm
Flywheel runout		Limit	0.2 mm
			0.008 in.

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Clutch cover x Flywheel	195	14	19
Reservoir tank set bolt	250	18	25
Clutch line tube union	155	11	15
Flexible hose x Release cylinder (7M-GE)	235	17	23
Bleeder plug	110	8	11
Flywheel set bolt	750	54	74
Release cylinder x Clutch housing	120	9	12

MANUAL TRANSMISSION (W58)**Specifications**

Output shaft				
2nd gear journal diameter	Limit	42.85 mm	1.6870 in.	
3rd gear journal diameter	Limit	37.80 mm	1.4882 in.	
Flange thickness	Limit	5.60 mm	0.2205 in.	
Runout	Limit	0.06 mm	0.0024 in.	
1st gear inner race flange thickness	Limit	4.70 mm	0.1850 in.	
1st gear inner race outer diameter	Limit	42.85 mm	1.6870 in.	
Counter gear				
Center bearing journal outer diameter	Limit	29.90 mm	1.1772 in.	
Counter 5th gear journal outer diameter	Limit	26.85 mm	1.0571 in.	
Gear thrust clearance				
1st, 2nd & 3rd	STD	0.10 – 0.25 mm	0.0039 – 0.0098 in.	
	Limit	0.30 mm	0.0118 in.	
Counter 5th	STD	0.10 – 0.41 mm	0.0039 – 0.0161 in.	
	Limit	0.46 mm	0.0181 in.	
Gear oil clearance	1st & 2nd	STD	0.009 – 0.060 mm	0.0004 – 0.0024 in.
		Limit	0.15 mm	0.0059 in.
	3rd	STD	0.060 – 0.103 mm	0.0024 – 0.0041 in.
		Limit	0.20 mm	0.0079 in.
	Counter 5th	STD	0.009 – 0.062 mm	0.0004 – 0.0024 in.
		Limit	0.15 mm	0.0059 in.
Shift fork to hub sleeve clearance	Limit	1.0 mm	0.039 in.	
Synchronizer ring to gear clearance	STD	0.7 – 1.7 mm	0.028 – 0.067 in.	
	Limit	0.5 mm	0.020 in.	
Input shaft snap ring thickness		Mark		
		1	2.05 – 2.10 mm	0.0807 – 0.0827 in.
		2	2.10 – 2.15 mm	0.0827 – 0.0846 in.
		3	2.15 – 2.20 mm	0.0846 – 0.0866 in.
		4	2.20 – 2.25 mm	0.0866 – 0.0886 in.
		5	2.25 – 2.30 mm	0.0886 – 0.0906 in.
		11	2.30 – 2.35 mm	0.0906 – 0.0925 in.
		12	2.35 – 2.40 mm	0.0925 – 0.0945 in.

Specifications (Cont'd)

Output shaft snap ring thickness			
Front	Mark		
	D	1.80 — 1.85 mm	0.0709 — 0.0728 in.
	11	1.86 — 1.91 mm	0.0732 — 0.0752 in.
	12	1.92 — 1.97 mm	0.0756 — 0.0776 in.
	13	1.98 — 2.03 mm	0.0780 — 0.0799 in.
	14	2.04 — 2.09 mm	0.0803 — 0.0823 in.
	15	2.10 — 2.15 mm	0.0827 — 0.0846 in.
Rear	Mark		
	8	2.31 — 2.36 mm	0.0909 — 0.0929 in.
	9	2.37 — 2.42 mm	0.0933 — 0.0953 in.
	10	2.43 — 2.48 mm	0.0957 — 0.0976 in.
	11	2.49 — 2.54 mm	0.0980 — 0.1000 in.
	12	2.55 — 2.60 mm	0.1004 — 0.1024 in.
	13	2.61 — 2.66 mm	0.1028 — 0.1047 in.
	14	2.68 — 2.73 mm	0.1055 — 0.1075 in.
	15	2.74 — 2.79 mm	0.1079 — 0.1098 in.
Reverse gear	Mark		
	5	2.25 — 2.30 mm	0.0886 — 0.0906 in.
	11	2.30 — 2.35 mm	0.0906 — 0.0925 in.
	12	2.35 — 2.40 mm	0.0925 — 0.0945 in.
	13	2.40 — 2.45 mm	0.0945 — 0.0965 in.
	14	2.45 — 2.50 mm	0.0965 — 0.0984 in.
	15	2.50 — 2.55 mm	0.0984 — 0.1004 in.
	16	2.55 — 2.60 mm	0.1004 — 0.1024 in.
	17	2.61 — 2.66 mm	0.1028 — 0.1047 in.
	18	2.67 — 2.72 mm	0.1051 — 0.1071 in.
	19	2.73 — 2.78 mm	0.1075 — 0.1094 in.
	20	2.79 — 2.84 mm	0.1098 — 0.1118 in.
	21	2.85 — 2.90 mm	0.1122 — 0.1142 in.
	22	2.91 — 2.96 mm	0.1146 — 0.1165 in.
	23	2.97 — 3.02 mm	0.1169 — 0.1189 in.

Specifications (Cont'd)

Counter gear snap ring thickness			
Front	Mark		
	1	2.05 – 2.10 mm	0.0807 – 0.0827 in.
	2	2.10 – 2.15 mm	0.0827 – 0.0846 in.
	3	2.15 – 2.20 mm	0.0846 – 0.0866 in.
	4	2.20 – 2.25 mm	0.0866 – 0.0886 in.
	5	2.25 – 2.30 mm	0.0886 – 0.0906 in.
	6	2.30 – 2.35 mm	0.0906 – 0.0925 in.
Rear	7	2.35 – 2.40 mm	0.0925 – 0.0945 in.
	Mark		
	1	1.90 – 1.95 mm	0.0748 – 0.0768 in.
	2	1.96 – 2.01 mm	0.0772 – 0.0791 in.
	3	2.02 – 2.07 mm	0.0795 – 0.0815 in.
	4	2.08 – 2.13 mm	0.0819 – 0.0839 in.
	5	2.14 – 2.19 mm	0.0843 – 0.0862 in.
No. 3 clutch hub	6	2.20 – 2.25 mm	0.0866 – 0.0886 in.
	7	2.26 – 2.31 mm	0.0890 – 0.0909 in.
	Mark		
	2	2.06 – 2.11 mm	0.0811 – 0.0831 in.
	3	2.12 – 2.17 mm	0.0835 – 0.0854 in.
Oil seal drive in depth	4	2.18 – 2.23 mm	0.0858 – 0.0878 in.
	5	2.24 – 2.29 mm	0.0882 – 0.0902 in.
	Front bearing retainer	11.4 – 12.0 mm	0.449 – 0.472 in.
	Speedometer driven gear	25 mm	0.98 in.

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Shift fork set bolt	125	9	12
Straight screw plug	250	18	25
Reverse idler gear shaft stopper bolt	250	18	25
Front bearing retainer set bolt	250	18	25
Extension housing x Intermediate plate	375	27	37
Restrict pin	410	30	40
Shift lever housing x Shift and select lever shaft	400	29	39
Shift lever retainer x Extension housing	185	13	18
Drain and filler plugs	410	30	40
Back-up light switch	410	30	40
Clutch housing x Transmission case	375	27	37
Center bearing retainer x Intermediate plate	130	9	13
Clutch housing x Engine	400	29	39
Engine rear mounting bolt	250	18	25
Stiffener plate bolt	380	27	37

MANUAL TRANSMISSION (R154)**Specifications**

Output shaft						
1st gear journal diameter	Limit	38.860 mm	1.5299 in.			
2nd gear journal diameter	Limit	46.860 mm	1.8499 in.			
3rd gear journal diameter	Limit	37.860 mm	1.4905 in.			
Flange thickness	Limit	4.70 mm	0.1850 in.			
Runout	Limit	0.06 mm	0.0024 in.			
Counter gear						
Roller bearing journal diameter	Limit	27.860 mm	1.0968 in.			
Gear thrust clearance						
1st	STD	0.10 – 0.45 mm	0.0039 – 0.0177 in.			
	Limit	0.50 mm	0.0197 in.			
2nd & 3rd	STD	0.10 – 0.25 mm	0.0039 – 0.0098 in.			
	Limit	0.30 mm	0.0118 in.			
Counter 5th	STD	0.10 – 0.35 mm	0.0039 – 0.0138 in.			
	Limit	0.40 mm	0.0157 in.			
Gear oil clearance	1st	STD	0.020 – 0.073 mm	0.0008 – 0.0029 in.		
		Limit	0.16 mm	0.0063 in.		
	2nd, 3rd & Counter 5th	STD	0.015 – 0.068 mm	0.0006 – 0.0027 in.		
		Limit	0.16 mm	0.0063 in.		
		Shift fork to hub sleeve clearance		Limit	1.0 mm	0.039 in.
		Synchronizer ring to gear clearance		STD	0.8 – 1.6 mm	0.031 – 0.063 in.
		Limit	0.6 mm	0.024 in.		
Input shaft snap ring thickness		Mark				
		A	2.10 – 2.15 mm	0.0827 – 0.0846 in.		
		B	2.15 – 2.20 mm	0.0846 – 0.0866 in.		
		C	2.20 – 2.25 mm	0.0866 – 0.0886 in.		
		D	2.25 – 2.30 mm	0.0886 – 0.0906 in.		
		E	2.30 – 2.35 mm	0.0906 – 0.0925 in.		
		F	2.35 – 2.40 mm	0.0925 – 0.0945 in.		
		G	2.40 – 2.45 mm	0.0945 – 0.0965 in.		
Counter gear snap ring (Front bearing)		Mark				
		A	2.00 – 2.05 mm	0.0787 – 0.0807 in.		
		B	2.05 – 2.10 mm	0.0807 – 0.0827 in.		
		C	2.10 – 2.15 mm	0.0827 – 0.0846 in.		
		D	2.15 – 2.20 mm	0.0846 – 0.0866 in.		
		E	2.20 – 2.25 mm	0.0866 – 0.0886 in.		

Specifications (Cont'd)

Output shaft snap ring thickness			
No. 2 clutch hub	Mark		
	A	1.80 – 1.85 mm	0.0709 – 0.0728 in.
	B	1.85 – 1.90 mm	0.0728 – 0.0748 in.
	C	1.90 – 1.95 mm	0.0748 – 0.0768 in.
	D	1.95 – 2.00 mm	0.0768 – 0.0787 in.
	E	2.00 – 2.05 mm	0.0787 – 0.0807 in.
	F	2.05 – 2.10 mm	0.0807 – 0.0827 in.
	G	2.10 – 2.15 mm	0.0827 – 0.0846 in.
No. 1 clutch hub	Mark		
	A	2.30 – 2.35 mm	0.0906 – 0.0925 in.
	B	2.35 – 2.40 mm	0.0925 – 0.0945 in.
	C	2.40 – 2.45 mm	0.0945 – 0.0965 in.
	D	2.45 – 2.50 mm	0.0965 – 0.0984 in.
	E	2.50 – 2.55 mm	0.0984 – 0.1004 in.
	F	2.55 – 2.60 mm	0.1004 – 0.1024 in.
	G	2.60 – 2.65 mm	0.1024 – 0.1043 in.
Rear	Mark		
	A	2.65 – 2.70 mm	0.1043 – 0.1063 in.
	B	2.70 – 2.75 mm	0.1063 – 0.1083 in.
	C	2.75 – 2.80 mm	0.1083 – 0.1102 in.
	D	2.80 – 2.85 mm	0.1102 – 0.1122 in.
	E	2.85 – 2.90 mm	0.1122 – 0.1142 in.
	F	2.90 – 2.95 mm	0.1142 – 0.1161 in.
	G	2.95 – 3.00 mm	0.1161 – 0.1181 in.
	H	3.00 – 3.05 mm	0.1181 – 0.1201 in.
	J	3.05 – 3.10 mm	0.1201 – 0.1220 in.
	K	3.10 – 3.15 mm	0.1220 – 0.1240 in.
	L	3.15 – 3.20 mm	0.1240 – 0.1260 in.
	M	3.20 – 3.25 mm	0.1260 – 0.1280 in.
	N	3.25 – 3.30 mm	0.1280 – 0.1299 in.
	P	3.30 – 3.35 mm	0.1299 – 0.1319 in.
	Q	3.35 – 3.40 mm	0.1319 – 0.1339 in.
	R	3.40 – 3.45 mm	0.1339 – 0.1358 in.
	S	3.45 – 3.50 mm	0.1358 – 0.1378 in.
Oil seal drive in depth	Front bearing retainer	11.2 – 12.2 mm	0.441 – 0.480 in.
	Speedometer driven gear	25 mm	0.98 in.

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Reverse shift arm bracket	185	13	18
Rear bearing retainer x Intermediate plate	185	13	18
Counter gear rear lock nut	1,300	94	127
Shift fork x Shift fork shaft	200	14	20
Straight screw plug	190	14	19
Front bearing retainer x Transmission case	170	12	17
Transmission case x Extension housing	380	27	37
Shift lever housing bolt	390	28	38
Clutch housing x Transmission case	370	27	36
Oil receiver x Extension housing	115	8	11
Back-up light switch	380	27	37
Restrict pin	380	27	37
Shift lever retainer x Extension housing	160	12	16
Clutch housing x Engine	400	29	39
Clutch cover x Flywheel	195	14	19
Clutch housing cover bolt	120	9	12
Engine rear mounting bolt	250	18	25
Stiffener plate bolt	380	27	37

AUTOMATIC TRANSMISSION (A340E)

Specifications

Line pressure (wheel locked)			
7M-GE			
Engine idling		D range	3.5 — 4.3 kg/cm ² 50 — 61 psi 343 — 422 kPa
		R range	4.9 — 6.1 kg/cm ² 70 — 87 psi 481 — 598 kPa
At stall		D range	8.8 — 11.5 kg/cm ² 125 — 164 psi 863 — 1,128 kPa
(Throttle valve fully opened)		R range	12.2 — 15.9 kg/cm ² 174 — 226 psi 1,196 — 1,559 kPa
7M-GTE			
Engine idling		D range	4.1 — 4.9 kg/cm ² 58 — 70 psi 402 — 481 kPa
		R range	5.0 — 6.2 kg/cm ² 71 — 88 psi 490 — 608 kPa
At stall		D range	12.3 — 15.0 kg/cm ² 175 — 213 psi 1,206 — 1,471 kPa
(Throttle valve fully opened)		R range	15.1 — 18.8 kg/cm ² 215 — 267 psi 1,481 — 1,844 kPa
Engine stall revolution		7M-GE	2,200 ± 150 rpm
		7M-GTE	2,500 ± 150 rpm
Time lag	N range	→ D range	Less than 1.2 seconds
	N range	→ R range	Less than 1.5 seconds
Engine idling speed (A/C OFF)		N range	7M-GE 700 rpm
			7M-GTE 650 rpm
Throttle cable adjustment			
Throttle valve fully opened			Between boot end face and inner cable stopper
			0 — 1 mm 0 — 0.04 in.
Torque converter installing			
Drive plate runout		Limit	0.20 mm 0.0079 in.
Torque converter sleeve runout		Limit	0.30 mm 0.0118 in.

Specifications (Cont'd)

Shift point (7M-GE) km/h (mph)			Throttle valve fully open [] Fully closed							
			1 → 2	2 → 3	3 → O/D	[3→O/D]	[O/D→3]	O/D → 3	3 → 2	2 → 1
	D range	NORM	44–48 (27–30)	92–99 (57–62)	146–155 (91–96)	34–38 (21–24)	25–29 (16–18)	141–150 (88–93)	85–93 (53–58)	39–43 (24–27)
		PWR	47–51 (30–33)	101–107 (63–68)	161–168 (103–108)	41–45 (25–28)	25–29 (16–18)	155–163 (99–103)	94–100 (60–64)	42–46 (26–29)
	2 range	NORM	44–48 (27–30)	106–114 (66–71)	—	—	—	—	93–101 (58–63)	39–43 (24–27)
		PWR	—	—	—	—	—	—	—	—
	L range	NORM	—	—	—	—	—	—	—	—
		PWR	—	—	—	—	—	—	—	46–50 (29–31)
Lock-up point (7M-GE) km/h (mph)			Throttle valve opening 5%							
			Lock-up ON				Lock-up OFF			
			2nd	* 3rd	O/D		2nd	* 3rd	O/D	
	D range	NORM	—	73–78 (45–48)	58–62 (36–39)		—	68–72 (42–45)	55–58 (34–36)	
		PWR	—	73–78 (45–48)	63–66 (39–41)		—	68–72 (42–45)	57–61 (35–38)	
	* O/D switch OFF									
Shift point (7M-GTE) km/h (mph)			Throttle valve fully open [] Fully closed							
			1 → 2	2 → 3	3 → O/D	[3→O/D]	[O/D→3]	O/D → 3	3 → 2	2 → 1
	D range	NORM	40–44 (25–27)	94–99 (58–62)	149–159 (93–99)	38–41 (24–25)	28–32 (17–20)	143–153 (89–95)	86–94 (53–58)	34–39 (21–24)
		PWR	47–51 (30–32)	102–111 (63–69)	173–183 (108–114)	45–50 (28–31)	28–32 (17–20)	166–177 (103–110)	95–103 (59–64)	41–45 (25–28)
	2 range	NORM	40–44 (25–27)	110–118 (68–73)	—	—	—	—	102–111 (63–69)	34–39 (21–24)
		PWR	—	—	—	—	—	—	—	—
	L range	NORM	—	—	—	—	—	—	—	51–56 (32–35)
		PWR	—	—	—	—	—	—	—	—
Lock-up point (7M-GTE) km/h (mph)			Throttle valve opening 5%							
			Lock-up ON				Lock-up OFF			
			2nd	*3rd	O/D		2nd	*3rd	O/D	
	D range	NORM	—	80–85 (50–53)	60–65 (37–40)		—	74–79 (46–49)	57–62 (35–39)	
		PWR	—	80–85 (50–53)	69–73 (43–45)		—	74–79 (46–49)	63–67 (39–42)	
	* O/D switch OFF									
Oil pump	Body clearance		STD		0.07 – 0.15 mm		0.0028 – 0.0059 in.			
			Limit		0.3 mm		0.012 in.			
	Tip clearance		STD		0.11 – 0.14 mm		0.0043 – 0.0055 in.			
			Limit		0.3 mm		0.012 in.			
	Side clearance		STD		0.02 – 0.05 mm		0.0008 – 0.0020 in.			
			Limit		0.1 mm		0.004 in.			

Specifications (Cont'd)

Bushing bore	Oil pump body	Limit	38.19 mm	1.5035 in.
	Stator shaft (FR)	Limit	21.58 mm	0.8496 in.
	(RR)	Limit	27.08 mm	1.0661 in.
	O/D direct clutch drum	Limit	27.11 mm	1.0673 in.
	O/D planetary gear	Limit	11.27 mm	0.4437 in.
	Direct clutch drum	Limit	53.99 mm	2.1256 in.
	Forward clutch drum	Limit	24.08 mm	0.9480 in.
	Front planetary ring gear	Limit	24.08 mm	0.9480 in.
	Planetary sun gear	Limit	27.08 mm	1.0661 in.
	Transmission case	Limit	38.19 mm	1.5035 in.
	Extension housing	Limit	40.09 mm	1.5783 in.
Flange thickness	O/D direct clutch (C ₀)	No. 21	3.1 mm	0.122 in.
		No. 20	3.2 mm	0.126 in.
		No. 19	3.3 mm	0.130 in.
		No. 18	3.4 mm	0.134 in.
		No. 17	3.5 mm	0.138 in.
		No. 16	3.6 mm	0.142 in.
	Direct clutch (C ₂)	No. 33	3.0 mm	0.118 in.
		No. 32	3.1 mm	0.122 in.
		No. 31	3.2 mm	0.126 in.
		No. 30	3.3 mm	0.130 in.
		No. 29	3.4 mm	0.134 in.
		No. 28	3.5 mm	0.138 in.
		No. 27	3.6 mm	0.142 in.
		No. 34	3.7 mm	0.146 in.
	O/D brake (B ₀)	No. 26	3.3 mm	0.130 in.
		No. 25	3.5 mm	0.138 in.
		No. 12	3.6 mm	0.142 in.
		No. 24	3.7 mm	0.146 in.
		No. 11	3.8 mm	0.150 in.
		No. 23	3.9 mm	0.154 in.
		None	4.0 mm	0.157 in.
	First and Reverse Brake (B ₃)	No. 50	5.0 mm	0.197 in.
		No. 51	4.8 mm	0.189 in.
		No. 52	4.6 mm	0.181 in.
		No. 53	4.4 mm	0.173 in.
		No. 54	4.2 mm	0.165 in.
		No. 55	4.0 mm	0.157 in.
Clutch piston stroke	O/D direct clutch (C ₀)		1.85 – 2.15 mm	0.0738 – 0.0846 in.
	Direct clutch (C ₂)		1.37 – 1.60 mm	0.0539 – 0.0630 in.
	Forward clutch (C ₁)	7M-GE	3.42 – 3.93 mm	0.1346 – 0.1547 in.
		7M-GTE	3.73 – 4.59 mm	0.1469 – 0.1807 in.
Brake piston stroke	O/D brake (B ₀)	7M-GE	1.40 – 1.70 mm	0.0551 – 0.0669 in.
		7M-GTE	1.75 – 2.05 mm	0.0689 – 0.0807 in.
	Second coast brake (B ₁)		1.5 – 3.0 mm	0.059 – 0.118 in.
Brake pack clearance	Second brake (B ₂)		0.62 – 1.98 mm	0.0244 – 0.0780 in.
	First and reverse brake (B ₃)	7M-GE	0.60 – 1.12 mm	0.0236 – 0.0441 in.
		7M-GTE	0.70 – 1.22 mm	0.0276 – 0.0480 in.

Specifications (Cont'd)

Valve body spring			Free length mm (in.)	Coil outer diameter mm (in.)	Total No. of coils	Color	
	(Upper valve body)						
	Down-shift plug		27.3 (1.075)	8.7 (0.343)	12.5	Yellow	
	Throttle valve		20.6 (0.811)	9.2 (0.362)	9.5	Blue	
			or 23.3 (0.917)	9.2 (0.362)	9.5	White	
	3—4 shift valve		30.8 (1.213)	9.7 (0.382)	10.5	Purple	
	Second coast modulator valve						
	7M-GE		25.3 (0.996)	8.6 (0.339)	11.5	Orange	
	7M-GTE		29.6 (1.165)	8.3 (0.327)	12.5	Red	
	Lock-up relay valve		21.4 (0.843)	5.5 (0.217)	17.5	Light Gray	
	Secondary regulator valve		30.9 (1.217)	11.2 (0.441)	10.5	Blue	
	Cut-back valve		21.8 (0.858)	6.0 (0.236)	13.5	None	
	2—3 shift valve		30.8 (1.213)	9.7 (0.382)	10.5	Purple	
	Low coast modulator valve		27.8 (1.094)	8.3 (0.327)	10.5	Pink	
	(Lower valve body)						
	Check valve		20.2 (0.795)	12.1 (0.476)	6.5	None	
	Pressure relief valve		11.2 (0.441)	6.4 (0.252)	7.5	None	
	1—2 shift valve		30.8 (1.213)	9.7 (0.382)	10.5	Purple	
	Primary regulator valve		66.7 (2.626)	18.6 (0.732)	12.5	None	
	Accumulator control valve						
	7M-GE		36.1 (1.421)	8.9 (0.350)	14.0	White	
	7M-GTE		34.6 (1.362)	8.8 (0.346)	18.0	Yellow	
Output shaft thrust play			0.27 — 0.86 mm		0.0106 — 0.0339 in.		
Second coast brake piston rod length			71.4 mm		2.811 in.		
			72.9 mm		2.870 in.		
Accumulator piston spring			Free length mm (in.)	Coil outer diameter mm (in.)	Color		
	B ₂	Upper	7M-GE	73.4 (2.890)	19.9 (0.783)	Red	
			7M-GTE	72.6 (2.858)	19.9 (0.783)	Light Gray	
	C ₂	Upper	Inner	42.1 (1.657)	14.7 (0.579)	Pink	
			Outer	7M-GE	64.0 (2.520)	20.2 (0.795)	Green
				7M-GTE	70.3 (2.768)	20.2 (0.795)	Pink
	B ₀	Upper		62.0 (2.441)	16.0 (0.630)	Green	
	C ₀	Outer		74.6 (2.937)	20.9 (0.823)	Orange	
Inner			46.0 (1.811)	14.0 (0.551)	Yellow		
Planetary pinion gear thrust clearance	O/D planetary gear		STD	0.20 — 0.60 mm		0.0079 — 0.0236 in.	
			Max.	1.00 mm		0.0394 in.	
	Front planetary gear		STD	0.20 — 0.60 mm		0.0079 — 0.0236 in.	
			Max.	1.00 mm		0.0394 in.	
	Rear planetary gear		STD	0.20 — 0.60 mm		0.0079 — 0.0236 in.	
			Max.	1.00 mm		0.0394 in.	

Torque Specifications

Part tightened		kg-cm	ft-lb	N-m
Engine x Transmission		650	47	64
Transmission housing x Transmission case	10 mm	345	25	34
	12 mm	580	42	57
Extension housing x Transmission case		370	27	36
Parking lock pawl bracket		75	65 in.-lb	7.4
O/D support x Transmission case		260	19	25
Oil pump x Transmission case		220	16	22
Oil pump body x Stator shaft		100	7	10
Valve body x Transmission case		100	7	10
Oil strainer		100	7	10
Oil pan		75	65 in.-lb	7.4
Speed sensor		160	12	16
Speedometer driven gear lock plate		160	12	16
Union		300	22	29
Cooler pipe union nut		350	25	34
Drive plate x Crankshaft		750	54	74
Torque converter x Drive plate		420	30	41
Neutral start switch	Bolt	130	9	13
	Nut	70	61 in.-lb	6.9
Control shaft lever		160	12	16

PROPELLER SHAFT

Specifications

Bearing axial play			0.05 mm	0.0020 in.
Runout			0.8 mm	0.031 in.
Snap ring thickness	Mark or color	Limit		
		1	2.10 – 2.15 mm	0.0827 – 0.0846 in.
		2	2.15 – 2.20 mm	0.0846 – 0.0866 in.
		3	2.20 – 2.25 mm	0.0866 – 0.0886 in.
		Brown	2.25 – 2.30 mm	0.0886 – 0.0906 in.
		Blue	2.30 – 2.35 mm	0.0906 – 0.0925 in.
		6	2.35 – 2.40 mm	0.0925 – 0.0945 in.
		7	2.40 – 2.45 mm	0.0945 – 0.0965 in.
		8	2.45 – 2.50 mm	0.0965 – 0.0984 in.

Torque Specifications

Part tightened			kg-cm	ft-lb	N·m
Propeller shaft x Differential			750	54	74
Intermediate shaft x Propeller shaft			750	54	74
Center support bearing x Body			500	36	49
Intermediate shaft x Center bearing x Joint flange	1st	2nd	1,850	134	181
			Loosen nut		
			700	51	69

FRONT AXLE AND SUSPENSION

Specifications

Cold tire inflation pressure	Tire size		Inflation pressure			kg/cm ² (psi, kPa)	
			Front		Rear		
	225/50 VR 16		2.2 (32, 220)		2.2 (32, 220)		
Front wheel alignment	Toe-in		Inspection STD		0 ± 2 mm (0 ± 0.08 in.)		
			Adjustment STD		0 ± 1 mm (0 ± 0.04 in.)		
	Camber		Inspection STD		−0°10' ± 45'		
			Adjustment STD		−0°10' ± 30'		
			Left-right error		30'		
	Steering axis inclination		Inspection STD		10°55' ± 45'		
			Left-right error		30'		
	Caster		Inspection STD		7°40' ± 45'		
			Adjustment STD		7°40' ± 30'		
			Left-right error		30'		
Side slip			Less than 3.0 mm/m (0.118 in./3.3 ft)				
Wheel angle	Max.	Inside wheel		34°30' +1°30' −2°00'			
		Outside wheel		31°45'			
	at 20° (Outside wheel)		21°00' (Inside wheel)				
Wheel lateral runout			Limit	1.2 mm	0.047 in.		
Tie rod end left-right error			Limit	1.5 mm	0.059 in.		
Hub bearing axial direction play			Limit	0.05 mm	0.0020 in.		
Shock absorber control rod starting torque			Limit	200 g-cm	0.17 in.-lb	0.02 N·m	
Ball joint rotation condition	Upper ball joint		10 — 35 kg-cm	8.7 — 30.0 in.-lb	1.0 — 3.4 N·m		
	Lower ball joint		0 — 5 kg-cm	0 — 4.3 in.-lb	0 — 0.5 N·m		
Ball joint rotation condition	Upper ball joint		0 mm	0 in.			
	Lower ball joint		0.3 mm	0.012 in.			

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Hub nut	1,050	76	103
Tie rod end clamp bolt	195	14	19
Front and rear adjusting cam bolt	2,450	177	240
Axle hub lock nut	2,030	147	199
Lower ball joint x Steering knuckle	1,270	92	125
Tie rod end x Steering knuckle	500	36	49
Steering knuckle x Upper suspension arm	1,050	76	103
Lower ball joint x Lower suspension arm	1,300	94	127
Brake hose bracket x Steering knuckle	195	14	19
Disc brake caliper x Steering knuckle	1,065	77	104
Speed sensor set bolt	195	14	19
Front shock absorber x Body	360	26	35
Front shock absorber x Lower suspension arm	1,460	106	143
Upper suspension arm mounting nut	1,670	121	164
Piston rod lock nut	300	22	29
Stabilizer link x Lower suspension arm	650	47	64
Stabilizer link x Stabilizer bar	650	47	64
Stabilizer bar bracket x Body	180	13	18

REAR AXLE AND SUSPENSION

Specifications

Rear wheel alignment			Inspection STD	Adjustment STD
Camber	Left-right error		$-45' \pm 45'$	$-45' \pm 30'$
			30'	30'
Toe-in			4 ± 2 mm (0.16 ± 0.08 in.)	4 ± 1 mm (0.16 ± 0.04 in.)
Rear axle hub	Bearing axial direction play	Limit	0.05 mm	0.0020 in.
	Axle shaft flange runout	Limit	0.05 mm	0.0020 in.
Drive shaft	Drive shaft length		551.8 — 554.8 mm	21.724 — 21.824 in.
Differential	Drive pinion bearing preload	at Starting	10 — 16 kg-cm (8.7 — 13.9 in.-lb, 1.0 — 1.6 N·m)	
		New bearing		
		Reused bearing	5 — 8 kg-cm (4.3 — 6.9 in.-lb, 0.5 — 0.8 N·m)	
	Total preload	at Starting	Add drive pinion bearing preload 4 — 6 kg-cm (3.5 — 5.2 in.-lb, 0.4 — 0.6 N·m)	
	Drive pinion to ring gear backlash		0.13 — 0.18 mm	0.0051 — 0.0071 in.
	Pinion gear to side gear backlash		0.05 — 0.20 mm	0.0020 — 0.0079 in.
	Ring gear runout	Limit	0.1 mm	0.004 in.
	Companion flange runout	Limit	0.1 mm	0.004 in.
		Lateral runout	0.1 mm	0.004 in.
		Radial runout	0.1 mm	0.004 in.
			0.1 mm	0.004 in.
	Ring gear installing temperature		90 — 110°C	194 — 230°F
	Drive pinion oil seal drive in depth		1.5 mm	0.059 in.
	Side gear oil seal drive in depth		Flash the carrier end surface	
	Side gear shaft runout	Max. limit	0.2 mm	0.008 in.
	Side gear thrust washer thickness (Conventional 2 pinion type)		1.58 — 1.62 mm	0.0622 — 0.0638 in.
			1.68 — 1.72 mm	0.0661 — 0.0677 in.
			1.78 — 1.82 mm	0.0701 — 0.0717 in.
	(Conventional 4 pinion type)		0.9 mm	0.035 in.
			1.0 mm	0.039 in.
			1.1 mm	0.043 in.
	(LSD)		1.2 mm	0.047 in.
			1.3 mm	0.051 in.
			0.15 mm	0.0059 in.
	Drive pinion adjusting plate washer thickness		0.20 mm	0.0079 in.
			0.25 mm	0.0098 in.
			0.30 mm	0.0118 in.
			0.35 mm	0.0138 in.
			1.70 mm	0.0669 in.
			1.73 mm	0.0681 in.
			1.76 mm	0.0693 in.
			1.79 mm	0.0705 in.
			1.82 mm	0.0717 in.
			1.85 mm	0.0728 in.
			1.88 mm	0.0740 in.

Specifications (Cont'd)

Differential (cont'd)	Drive pinion adjusting plate washer thickness (cont'd)	1.91 mm	0.0752 in.
		1.94 mm	0.0764 in.
		1.97 mm	0.0776 in.
		2.00 mm	0.0787 in.
		2.03 mm	0.0799 in.
		2.06 mm	0.0811 in.
		2.09 mm	0.0823 in.
		2.12 mm	0.0835 in.
		2.15 mm	0.0846 in.
		2.18 mm	0.0858 in.
		2.21 mm	0.0870 in.
		2.24 mm	0.0882 in.
		2.27 mm	0.0894 in.
		2.30 mm	0.0906 in.
		2.33 mm	0.0917 in.
	Side bearing adjusting plate thickness	2.57 – 2.59 mm	0.1012 – 0.1020 in.
		2.60 – 2.62 mm	0.1024 – 0.1031 in.
		2.63 – 2.65 mm	0.1035 – 0.1043 in.
		2.66 – 2.68 mm	0.1047 – 0.1055 in.
		2.69 – 2.71 mm	0.1059 – 0.1067 in.
		2.72 – 2.74 mm	0.1071 – 0.1079 in.
		2.75 – 2.77 mm	0.1083 – 0.1091 in.
		2.78 – 2.80 mm	0.1094 – 0.1102 in.
		2.81 – 2.83 mm	0.1106 – 0.1114 in.
		2.84 – 2.86 mm	0.1118 – 0.1126 in.
		2.87 – 2.89 mm	0.1130 – 0.1138 in.
		2.90 – 2.92 mm	0.1142 – 0.1150 in.
		2.93 – 2.95 mm	0.1154 – 0.1161 in.
		2.96 – 2.98 mm	0.1165 – 0.1173 in.
		2.99 – 3.01 mm	0.1177 – 0.1185 in.
		3.02 – 3.04 mm	0.1189 – 0.1197 in.
		3.05 – 3.07 mm	0.1201 – 0.1209 in.
		3.08 – 3.10 mm	0.1213 – 0.1220 in.
		3.11 – 3.13 mm	0.1224 – 0.1232 in.
		3.14 – 3.16 mm	0.1236 – 0.1244 in.
		3.17 – 3.19 mm	0.1248 – 0.1256 in.
		3.20 – 3.22 mm	0.1260 – 0.1268 in.
		3.23 – 3.25 mm	0.1272 – 0.1280 in.
		3.26 – 3.28 mm	0.1283 – 0.1291 in.
		3.29 – 3.31 mm	0.1295 – 0.1303 in.
		3.32 – 3.34 mm	0.1307 – 0.1315 in.
		3.35 – 3.37 mm	0.1319 – 0.1327 in.
		3.38 – 3.40 mm	0.1331 – 0.1339 in.
		3.41 – 3.43 mm	0.1343 – 0.1350 in.
		3.44 – 3.46 mm	0.1354 – 0.1362 in.
		3.47 – 3.49 mm	0.1366 – 0.1374 in.

Specifications (Cont'd)

Rear suspension	No. 1 lower suspension arm ball joint turning torque	8.5–35.0 kg-cm	7–30 in.-lb	0.8–3.4 N-m
	Upper arm ball joint turning torque	10–35 kg-cm	9–30 in.-lb	1.0–3.4 N-m

Torque Specifications

Axle hub and rear suspension	Part tightened	kg-cm	ft-lb	N-m
	Axle carrier x Drive shaft	2,800	203	275
	Axle carrier x Shock absorber	1,400	101	137
	Axle carrier x Upper arm	1,100	80	108
	Axle carrier x No. 1 suspension arm	600	43	59
	Axle carrier x No. 2 suspension arm	1,670	121	164
	Axle carrier x Strut rod	1,670	121	164
	Axle carrier x Backing plate	260	19	25
	Nut	600	43	59
	Axle carrier x Torque plate	475	34	47
	Body x Suspension support	145	10	14
	Shock absorber x Suspension support	280	20	27
	Body x Upper arm	1,670	121	164
	Body x No. 1 suspension arm	1,880	136	184
	Body x No. 2 suspension arm	1,880	136	184
	Body x Strut rod	1,670	121	164
	Body x Stabilizer bar bracket	290	21	28
	Stabilizer bar x Link	360	26	35
Drive shaft and differential	Drive shaft x Differential	700	51	69
	Body x Differential	800	58	78
	Stud bolts	930	67	91
	Nuts	930	67	91
	Rear bolts	1,690	122	166
	Front bolts	475	34	47
	Carrier x Carrier cover	500	36	49
	Carrier x Drain plug	500	36	49
	Carrier x Filler plug	800	58	78
	Carrier x Side bearing cap	985	71	97
	Ring gear x Differential case	See page RA-39		
	Drive pinion x Companion flange	480	35	47
	Differential case (LH x RH)	750	54	74
Companion flange x Propeller shaft				

BRAKE SYSTEM**Specifications**

Brake pedal	Pedal height (from asphalt sheet)		151.5 – 161.5 mm	5.96 – 6.36 in.
	Pedal freeplay		3 – 6 mm	0.12 – 0.24 in.
	Pedal reserve distance at 50 kg (110.2 lb, 490 N)		More than 80 mm (3.15 in.)	
Brake booster	Booster push rod to piston clearance w/SST		0 mm	0 in.
Front brake	Pad thickness	STD	10.0 mm	0.394 in.
		Limit	1.0 mm	0.039 in.
	Disc thickness	STD	22.0 mm	0.866 in.
		Limit	21.0 mm	0.827 in.
Rear brake	Pad thickness	STD	10.0 mm	0.394 in.
		Limit	1.0 mm	0.039 in.
	Disc thickness	STD	18.0 mm	0.709 in.
		Limit	17.0 mm	0.669 in.
Parking brake	Disc runout	Limit	0.13 mm	0.0051 in.
	Lining thickness	STD	2.5 mm	0.098 in.
		Limit	1.0 mm	0.039 in.
	Rear drum inner diameter	STD	190 mm	7.48 in.
		Limit	191 mm	7.51 in.
	Lever travel at 20 kg (44.1 lb, 196 N)		5 – 8 clicks	
	Clearance between rear shoe and lever		0 – 0.35 mm	0 – 0.0138 in.
	Parking brake shoe lever shim thickness		0.3 mm	0.012 in.
			0.6 mm	0.024 in.
			0.9 mm	0.035 in.

Torque Specifications

Part tightened		kg-cm	ft-lb	N-m
Bleeder plug		85	74 in.-lb	8
Master cylinder x Piston stopper bolt		100	7	10
Master cylinder x Reservoir		17.5	15.2 in.-lb	1.7
Master cylinder x Brake booster		130	9	13
Brake tube union nut		155	11	15
Brake booster clevis lock nut		260	19	25
Brake booster x Pedal bracket		130	9	13
Front disc brake cylinder x Torque plate		370	27	36
Front disc brake hose bracket		195	14	19
Front disc brake torque plate x Steering knuckle		1,065	77	104
Front disc brake cylinder x Flexible hose		310	22	30
Front disc brake dust cover x Steering knuckle		195	14	19
Rear disc brake cylinder x Torque plate		200	14	20
Rear disc brake torque plate x Rear axle carrier		475	34	47
Rear disc brake cylinder x Flexible hose		235	17	23
Rear disc brake backing plate x Rear axle carrier	Nut	600	43	59
	Bolt	260	19	25

Torque Specifications (Cont'd)

Part tightened	kg-cm	ft-lb	N·m
Parking brake shoe guide plate set bolt	185	13	18
Brake actuator x Actuator bracket	55	48 in.-lb	5.4
Front speed sensor installation bolt	195	14	19
Rear speed sensor installation bolt A340E, R154	160	12	16
W58	290	21	28

STEERING**Specifications**

Steering	Steering wheel freeplay	30 mm (1.18 in.) or less
Tilt and telescopic steering	No. 1 collar outer diameter	17.989 – 17.996 mm 0.7082 – 0.7085 in.
		17.996 – 18.003 mm 0.7085 – 0.7088 in.
		18.003 – 18.010 mm 0.7088 – 0.7091 in.
		18.010 – 18.017 mm 0.7091 – 0.7093 in.
		18.017 – 18.024 mm 0.7093 – 0.7096 in.
	No. 2 collar outer diameter	17.989 – 17.996 mm 0.7082 – 0.7085 in.
		17.996 – 18.003 mm 0.7085 – 0.7088 in.
		18.003 – 18.010 mm 0.7088 – 0.7091 in.
		18.010 – 18.017 mm 0.7091 – 0.7093 in.
		18.017 – 18.024 mm 0.7093 – 0.7096 in.
	Support shim thickness Mark	
		None 0.197 – 0.203 mm 0.0078 – 0.0080 in.
		5 0.495 – 0.505 mm 0.0195 – 0.0199 in.
		8 0.795 – 0.805 mm 0.0313 – 0.0317 in.
		14 1.395 – 1.405 mm 0.0549 – 0.0533 in.
		18 1.795 – 1.805 mm 0.0707 – 0.0711 in.
Power steering	Drive belt tension	New belt 160 ± 20 lb Used belt 100 ± 20 lb
	Maximum rise of oil level	Below 5 mm (0.20 in.)
	Oil pressure at Idle speed	75 – 80 kg/cm ² (1,067 – 1,138 psi, 7,355 – 7,845 kPa)
	Steering effort	
	USA	w/o PPS 4.7 kg (10.36 lb, 46 N) or less w/ PPS 2.7 kg (5.95 lb, 26 N) or less
	CANADA	w/o PPS 70 kg-cm (61 in.-lb, 6.9 N·m) or less w/ PPS 40 kg-cm (34 in.-lb, 3.9 N·m) or less
	Rotor shaft bushing oil clearance	STD 0.01 – 0.03 mm 0.0004 – 0.0012 in. Maximum 0.07 mm 0.0028 in.
	Vane plate to rotor groove clearance	0.03 mm 0.0012 in.
	Vane plate Minimum height	8.1 mm 0.319 in.
	Minimum thickness	1.797 mm 0.0707 in.
	Minimum length	14.988 mm 0.5901 in.

Specifications (Cont'd)

Power steering (cont'd)	Vane plate length	Rotor and cam ring mark		
		None	14.996 – 14.998 mm	0.5904 – 0.5905 in.
		1	14.994 – 14.996 mm	0.5903 – 0.5904 in.
		2	14.992 – 14.994 mm	0.5902 – 0.5903 in.
		3	14.990 – 14.992 mm	0.59016 – 0.59024 in.
		4	14.988 – 14.990 mm	0.5901 – 0.5902 in.
	Flow control valve spring length	STD	39 mm	1.54 in.
		Minimum	37 mm	1.46 in.
	Pump rotating torque		2.8 kg-cm (2.4 in.-lb, 0.3 N·m) or less	
	Steering rack runout	Maximum	0.3 mm	0.012 in.
Bearing preload (w/o PPS)			4.5 – 6.5 kg-cm (3.9 – 5.6 in.-lb, 0.4 – 0.6 N·m)	
Total preload			9 – 12 kg-cm (7.8 – 10.4 in.-lb, 0.9 – 1.2 N·m)	

Torque Specifications

Tilt steering and telescopic steering	Part tightened		kg-cm	ft-lb	N·m
Tilt steering and telescopic steering	Support stopper bolt		110	8	11
	Tilt lever retainer		195	14	19
	Tilt lever retainer x Breakaway bracket (USA)		80	69 in.-lb	7.8
	No. 1 tilt sub lever bolt		80	69 in.-lb	7.8
	Column tube x Breakaway bracket		195	14	19
	Retainer Bracket x Column tube		280	20	27
	Main shaft x Intermediate shaft		260	19	25
	Column tube stopper bolt		80	69 in.-lb	7.8
	Telescopic lever x Telescopic lever bolt		145	10	14
	Breakaway bracket x Body		260	19	25
	Intermediate shaft x Universal joint		330	24	32
	Universal joint x Control valve shaft		330	24	32
	Steering wheel x Main shaft		350	25	34
	Column hole cover x Hole cover plate		130	9	13
	Column hole cover x Body		55	48 in.-lb	5.4
	Steering wheel pad (USA)		75	65 in.-lb	7.4
Power steering	Pressure port union x Pump housing		700	51	69
	Suction port union x Pump housing		130	9	13
	Air control valve x Pump housing		370	27	36
	PS pump pulley x Rotor shaft		440	32	43
	Front housing x Rear housing		470	34	46
	Drive belt adjust stay bolt	12 mm bolt	185	13	18
		14 mm bolt	420	30	41
	PS pump x Pressure tube		500	36	49
	PS pump x Bracket		590	43	58
	PS pump x Adjust bracket		375	27	37
	Reservoir tank installation bolt (7M-GTE)				
		Nut	190	14	19
		Bolt	130	9	13
	Adjusting strut (7M-GTE)	Nut	190	14	19
		Bolt	400	29	39

Torque Specifications (Cont'd)

Power steering (cont'd)	Part tightened	kg-cm	ft-lb	N·m
	Pressure control valve x			
	Control valve housing (w/ PPS)	185	13	18
	Control valve housing x Rack housing			
	w/o PPS	315	23	31
	w/ PPS	185	13	18
	Control valve self-locking nut (w/ PPS)	600	43	59
	Rack housing cap (w/ PPS)	700	51	69
	Bearing guide lock nut (w/o PPS)	570	41	56
	Rack guide spring cap lock nut	570	41	56
	Rack x Rack end	940	68	92
	Turn pressure tube x Gear housing			
	Valve housing (w/o PPS)	200	14	20
	(w/ PPS)	350	25	34
	Rack housing	240	17	24
	Gear housing x Body	770	56	76
	Gear housing x Return line w/o PPS	450	33	44
	w/ PPS	525	38	51
	Gear housing x Pressure line w/o PPS	500	36	49
	w/ PPS	525	38	51
	Tie rod end x Steering knuckle	500	36	49
	Control valve shaft x Universal joint	330	24	32
	Tie rod end clamp bolt	195	14	19

SRS AIRBAG

Specifications

Front airbag sensor resistance	Terminal	
	\ominus S - \ominus A	755 - 885 Ω
	\oplus S - \ominus S	∞
	\oplus S - \oplus A	Less than 1 Ω

Torque Specifications

Part tightened	kg-cm	ft-lb	N·m
Steering wheel	350	25	34
Steering wheel pad	75	65 in.-lb	7.4
Front airbag sensor	260	19	25
Center airbag sensor assembly	130	9	13

BODY**Torque Specifications**

Part tightened	kg-cm	ft-lb	N·m
SEAT			
Front Seat			
Seat back x Seat adjuster	185	13	18
Seat cushion x Seat adjuster	185	13	18
Seat adjuster x Body	375	27	37
Rear Seat			
Seat back lock x Seat back	175	13	17
Seat back lock striker x Body	175	13	17
Seat center hinge x Seat back	80	69 in.-lb	7.8
Seat center hinge x Body	80	69 in.-lb	7.8
Seat back hinge x Seat back	240	17	24
Seat back hinge x Body	80	69 in.-lb	7.8
SEAT BELT			
Front Seat Belt			
ELR x Body	440	32	43
Outer belt shoulder anchor x Body	440	32	43
Outer belt lower anchor x Body	440	32	43
Inner belt x Bracket	440	32	43
Bracket x Seat cushion	195	14	19
Anchor plate x Body	440	32	43
Rear Seat Belt			
ELR x Body	440	32	43
Outer belt shoulder anchor x Body	440	32	43
Outer belt lower anchor x Body	440	32	43
Inner belt x Body	440	32	43

LUBRICANT

Item		Capacity			Classification	
		Liters	US qts	Imp. qts		
Engine oil (7M-GE) Dry fill Drain and refill w/ Oil filter change w/o Oil filter change (7M-GTE) Dry fill Drain and refill w/ Oil filter change w/o Oil filter change		4.9 4.4 4.1 5.1 4.4 4.1	5.2 4.7 4.3 5.4 4.7 4.3	4.3 3.9 3.6 4.5 3.9 3.6	API grade SF or SF/CC, multigrade viscosity oil	
Manual transmission oil	W58	2.4	2.5	2.1		
	R154	3.0	3.2	2.6		
Automatic transmission fluid Dry fill Drain and refill		7.2 1.6	7.6 1.7	6.3 1.4		ATF DEXRON® II
Differential oil		1.3	1.4	1.1		API GL-5 hypoid gear oil w/LSD Use LSD oil only Above –18°C (0°F) SAE 90 Below –18°C (0°F) SAE 80W-90 or 80W
Power steering fluid Total		1,000 cc 61.0 cu in.				ATF DEXRON® II
Brake fluid		—				SAE J1703 or FMVSS No. 116, DOT3
Antifreeze		—				Anti-rust type ethylene-glycol base coolant

