

SERVICE SPECIFICATIONS

	Page
MAINTENANCE.....	A-2
ENGINE MECHANICAL	A-3
EFI SYSTEM.....	A-5
FUEL SYSTEM.....	A-7
COOLING SYSTEM	A-7
LUBRICATION SYSTEM.....	A-7
IGNITION SYSTEM.....	A-8
STARTING SYSTEM	A-8
CHARGING SYSTEM	A-9
CLUTCH.....	A-9
MANUAL TRANSMISSION.....	A-10
AUTOMATIC TRANSMISSION.....	A-14
TRANSFER.....	A-19
PROPELLER SHAFT	A-20
FRONT AXLE AND SUSPENSION.....	A-21
REAR AXLE AND SUSPENSION.....	A-25
BRAKE SYSTEM.....	A-28
STEERING	A-30
WINCH.....	A-33
LUBRICANTS	A-34

MAINTENANCE

Engine

Drive belt tension		New belt	125 ± 25 lb		
		Used belt	80 ± 20 lb		
Coolant capacity w/heater or air conditioner			8.4 liters	8.9 US qts	7.4 Imp. qts
Engine oil capacity drain and refill with oil filter change			4.6 liters	4.9 US qts	4.0 Imp. qts
Spark plug	Type	ND	W16EXR-U		
		NGK	BPR5EY		
	Gap		0.8 mm	0.031 in.	
Firing order			1-3-4-2		
Valve clearance (hot)		Intake	0.20 mm	0.008 in.	
		Exhaust	0.30 mm	0.012 in.	
Idle speed		22R	700 rpm M/T	750 rpm A/T	
		22R-E	750 rpm		
Fast idle speed		22R	2600 rpm (EGR system OFF and choke opener OFF)		

Chassis

Front brake						
Pad thickness			Limit	1.0 mm		0.039 in.
Disc thickness	Limit	2WD	1/2 ton	21.0 mm		0.827 in.
		4WD	1 ton, C&C	24.0 mm		0.945 in.
			Limit	11.5 mm		0.453 in.
Disc runout			Limit	0.15 mm		0.0059 in.
Rear brake						
Lining thickness			Limit	1.0 mm		0.039 in.
Drum inner diameter			Limit	256.0 mm		10.079 in.
Front axle and suspension						
Ball joint vertical play			Limit	2.3 mm		0.091 in.
Wheel bearing friction preload (at starting)		2WD		0.6 – 1.8 kg	1.3 – 4.0 lb	5.9 – 17.7 N
		4WD		2.8 – 5.6 kg	6.2 – 12.3 lb	27 – 55 N
Steering wheel freeplay			Less than	30 mm		1.18 in.
Tightening torque						
Seat mounting bolts				375 kg-cm	27 ft-lb	37 N·m
Leaf spring U-bolt		2WD		1,000 kg-cm	72 ft-lb	98 N·m
		4WD		1,250 kg-cm	90 ft-lb	123 N·m
Strat bar bracket x frame				530 kg-cm	38 ft-lb	52 N·m

ENGINE MECHANICAL

Specifications

Compression pressure	STD Limit Differential of pressure between each cylinder	More than 12.0 kg/cm ² 10.0 kg/cm ² Less than 1.0 kg/cm ²	171 psi 142 psi 14 psi	1,177 kPa 981 kPa 98 kPa
Cylinder head	Head surface warpage Limit Valve seat Refacing angle IN EX Contacting angle Contacting width	0.15 mm 30°, 45°, 60° 30°, 45°, 65° 45° 1.2 – 1.6 mm	0.0059 in. 0.047 – 0.063 in.	
Valve guide bushing	Inner diameter Intake Exhaust Outer diameter STD O/S type 0.05 Protrusion from cylinder head Replacing temperature (cylinder head side)	8.01 – 8.03 mm 8.01 – 8.03 mm 13.040 – 13.051 mm 13.090 – 13.101 mm 19 mm Normal temperature	0.3154 – 0.3161 in. 0.3154 – 0.3161 in. 0.5134 – 0.5138 in. 0.5154 – 0.5158 in. 0.75 in.	
Valve	Valve overall length STD Intake Exhaust Valve face angle IN & EX Stem diameter STD Intake Exhaust Stem end refacing Limit IN & EX Stem oil clearance STD Intake Exhaust Limit Intake Exhaust Valve head edge thickness Limit	113.5 mm 112.4 mm 44.5° 7.970 – 7.985 mm 7.965 – 7.980 mm 0.5 mm 0.02 – 0.06 mm 0.03 – 0.07 mm 0.08 mm 0.10 mm 0.6 mm	4.468 in. 4.425 in. 0.3138 – 0.3144 in. 0.3136 – 0.3142 in. 0.020 in. 0.0008 – 0.0024 in. 0.0012 – 0.0028 in. 0.0031 in. 0.0039 in. 0.024 in.	
Valve spring	Free length Installed length Installed load STD Limit Squareness Limit	45.8 mm 40.5 mm 25.0 kg 22.5 kg 1.6 mm	1.803 in. 1.594 in. 55.1 lb 245 N 49.6 lb 221 N 0.063 in.	
Rocker arm and shaft	Rocker shaft diameter Shaft to arm oil clearance STD Limit	15.97 – 15.99 mm 0.01 – 0.05 mm 0.08 mm	0.6287 – 0.6295 in. 0.0004 – 0.0020 in. 0.0031 in.	
Intake and exhaust manifold	Manifold surface warpage Limit Intake Exhaust	0.20 mm 0.70 mm	0.0079 in. 0.0276 in.	
Chain and sprocket	Crankshaft sprocket wear Limit Camshaft sprocket wear Limit	59.4 mm 113.8 mm	2.339 in. 4.480 in.	
Tension and damper	Tensioner head thickness Limit Damper No. 1 wear Limit Damper No. 2 wear Limit	11.0 mm 0.5 mm 0.5 mm	0.433 in. 0.020 in. 0.020 in.	

Specifications (Cont'd)

Camshaft	Thrust clearance	STD	0.08 – 0.18 mm	0.0031 – 0.0071 in.	
		Limit	0.25 mm	0.0098 in.	
	Journal oil clearance	STD	0.01 – 0.05 mm	0.0004 – 0.0020 in.	
		Limit	0.1 mm	0.004 in.	
	Journal diameter	STD	32.98 – 33.00 mm	1.2984 – 1.2992 in.	
	Circle runout	Limit	0.2 mm	0.008 in.	
Cam height	Intake	42.63 – 42.72 mm	1.6783 – 1.6891 in.		
	Exhaust	42.69 – 42.78 mm	1.6807 – 1.6842 in.		
Cylinder block	Warpage	Limit	0.05 mm	0.0020 in.	
	Cylinder bore	STD	92.00 – 92.03 mm	3.6220 – 3.6232 in.	
	Cylinder bore wear	Limit	0.2 mm	0.008 in.	
	Difference of bore limit between cylinder		Less than 0.03 mm (0.0012 in.)		
	Taper and out-of-round	Limit	0.02 mm	0.0008 in.	
Piston and piston ring	Piston diameter	STD	91.938 – 91.968 mm	3.6196 – 3.6208 in.	
		O/S type 0.50	92.438 – 92.468 mm	3.6393 – 3.6405 in.	
		O/S type 1.00	92.938 – 92.968 mm	3.6590 – 3.6602 in.	
	Piston to cylinder clearance		0.03 – 0.05 mm	0.0012 – 0.0020 in.	
	Piston ring end gap	Standard	No. 1	0.24 – 0.39 mm	0.009 – 0.015 in.
			No. 2	0.18 – 0.42 mm	0.007 – 0.017 in.
			Oil	0.20 – 0.82 mm	0.008 – 0.032 in.
		Maximum	No. 1	0.99 mm	0.039 in.
			No. 2	1.02 mm	0.040 in.
			Oil	1.42 mm	0.056 in.
Ring to ring groove clearance	Limit	No. 1, No. 2	0.2 mm	0.008 in.	
Piston pin installing temperature			80°C	176°F	
Connecting rod and bearing	Thrust clearance	STD	0.16 – 0.26 mm	0.0063 – 0.0102 in.	
		Limit	0.30 mm	0.0118 in.	
	Bearing oil clearance	STD	0.025 – 0.055 mm	0.0010 – 0.0022 in.	
		Limit	0.10 mm	0.0039 in.	
	Pin to bushing oil clearance	STD	0.005 – 0.011 mm	0.0002 – 0.0004 in.	
		Limit	0.015 mm	0.0006 in.	
Rod bend	Limit	0.05 mm	0.0020 in.		
	Rod twist	Limit	0.15 mm	0.0059 in.	
Crankshaft	Thrust clearance	STD	0.02 – 0.22 mm	0.0008 – 0.0087 in.	
		Limit	0.30 mm	0.0118 in.	
	Thrust washer thickness	STD	2.00 mm	0.0787 in.	
		O/S type 0.125	2.06 mm	0.0811 in.	
		O/S type 0.25	2.13 mm	0.0839 in.	
	Main journal oil clearance	STD	0.025 – 0.055 mm	0.0010 – 0.0022 in.	
		Limit	0.08 mm	0.0031 in.	
	Main journal diameter	STD	59.984 – 60.000 mm	2.3616 – 2.3622 in.	
		Bearing U/S type 0.25	59.70 – 59.71 mm	2.3504 – 2.3508 in.	
		Bearing U/S type	0.25 mm	0.0098 in.	
	Crank pin oil clearance	STD	0.025 – 0.055 mm	0.0010 – 0.0022 in.	
		Limit	0.08 mm	0.031 in.	
	Crank pin diameter	STD	52.988 – 53.000 mm	2.0861 – 2.0866 in.	
		Bearing U/S type 0.25	52.70 – 52.71 mm	2.0748 – 2.0752 in.	
		Bearing U/S type	0.25 mm	0.0098 in.	
	Circle runout	Limit	0.1 mm	0.004 in.	
	Main journal taper and out-of-round	Limit	0.01 mm	0.0004 in.	
	Crank pin journal taper and out-of-round	Limit	0.01 mm	0.0004 in.	

Tightening Torque

Tightening part		kg-cm	ft-lb	N-m
Cylinder head x Cylinder block		800	58	78
Manifold x Cylinder head	Intake	195	14	19
	Exhaust	450	33	44
Crankshaft bearing cap x Cylinder block		1,050	76	103
Connecting rod cap x Connecting rod		630	46	62
Crankshaft pulley x Crankshaft		1,600	116	157
Flywheel x Crankshaft		1,100	80	108
Camshaft bearing cap x Cylinder head		200	14	20
Camshaft timing sprocket x Camshaft		800	58	78
Oil pan x Cylinder block		60	52 in.-lb	5.9

EFI SYSTEM

Pressure regulator	Fuel pressure	at No vacuum	2.3 – 2.7 kg/cm ² 33 – 38 psi 226 – 265 kPa
Cold start injector	Resistance		2 – 4 Ω
	Leakage		Less than one drop of fuel per minute
Injector	Resistance		1.5 – 3.0 Ω
	Injection volume		40 – 50 cc/15 sec (2.4 – 3.1 cu in.)
	Difference between each injector		Less than 6 cc (0.37 cu in.)
	Leakage		Less than one drop of fuel per minute
Air flow meter	Resistance	$E_2 - V_s$	20 – 400 Ω (Measuring plate fully closed)
			20 – 1,000 Ω (Measuring plate fully open)
		$E_2 - V_c$	100 – 300 Ω
		$E_2 - V_B$	200 – 400 Ω
		$E_1 - F_c$	∞ (Measuring plate fully closed)
			0 (Measuring plate open)
		$E_2 - T_H A$	10 – 20 k Ω (–20°C, –4°F)
			4 – 7 k Ω (0°C, 32°F)
			2 – 3 k Ω (20°C, 68°F)
			0.9 – 1.3 k Ω (40°C, 104°F)
			0.4 – 0.7 k Ω (60°C, 140°F)
Auxiliary air valve	Resistance		39 – 59 Ω
	Temperature	w/ valve closed	About 120°C (248°F)
Throttle body	Throttle valve fully closed angle		6°
Throttle position sensor	Clearance between lever and stop screw		Resistance
	0 mm	0 in.	VTA – E_2 0.2 – 0.8 k Ω
	0.57 mm	0.0224 in.	IDL – E_2 0 – 100 Ω
	0.85 mm	0.0335 in.	IDL – E_2 Infinity
	Throttle valve fully opened position		VTA – E_2 3.3 – 10 k Ω
	—		Vcc – E_2 3 – 7 k Ω

EFI SYSTEM (Cont'd)

Main relay	Resistance	1 – 2 3 – 4	60 – 80 Ω ∞	
Circuit opening relay	Resistance	STA – E ₁ +B – Fc +B – Fp	17 – 25 Ω 88 – 132 Ω ∞	
Resistor	Resistance		2 – 3 Ω each	
Start injector time switch	Resistance	STA – STJ STA – Ground	20 – 40 Ω (below 30°C, 86°F) 40 – 60 Ω (above 40°C, 104°F) 20 – 80 Ω	
Temperature sensor	Resistance		10 – 20 kΩ (–20°C, –4°F) 4 – 7 kΩ (0°C, 32°F) 2 – 3 kΩ (20°C, 68°F) 0.9 – 1.3 kΩ (40°C, 104°F) 0.4 – 0.7 kΩ (60°C, 140°F) 0.2 – 0.4 kΩ (80°C, 176°F)	
ECU	NOTE: 1. Perform all voltage and resistance measurements with the ECU connected. 2. Verify that the battery voltage is 11V or above when the ignition switch is ON. 3. The testing probes must not make contact with the computer Ox and VF terminals.			
	+B – E ₁	10 – 14	Ignition switch ON	
	BATT – E ₁	10 – 14	—	
	IDL – E ₂	4 – 10	Throttle valve open	
	VTA – E ₂	0.1 – 1.0	Ignition switch ON	Throttle valve fully closed
		4 – 5		Throttle valve fully open
	Vcc – E ₂	4 – 6		—
	IGt – E ₁	0.7 – 1.0	Idling	
	STA – E ₁	6 – 12	Ignition switch ST position	
	No. 10 – E ₁ No. 20 – E ₁	9 – 14	Ignition switch ON	
	W – E ₁	8 – 14	No trouble (CHECK ENGINE light go off) and engine running	
	Vc – E ₂	4 – 9	Ignition switch ON	—
	Vs – E ₂	0.5 – 2.5		Measuring plate fully closed
		5 – 8		Measuring plate fully open
		2.5 – 5.5		Idling
	THA – E ₂	2 – 6	Ignition switch ON	Intake air temperature 20°C or 68°F
	THW – E ₂	0.5 – 2.5	Ignition switch ON	Coolant temperature 80°C or 176°F
	B/K – E ₂	8 – 14	Stop light switch ON	
	Resistance	E ₁ – E ₂	0 Ω	
		E ₁ – BODY	0 Ω	
		E ₁ – E ₀₁	0 Ω	
		E ₁ – E ₀₂	0 Ω	
	Fuel cut rpm	Cut M/T	2,130 rpm (Brake switch OFF)	
		A/T	2,200 rpm	
		Hysteresis	300 – 500 rpm (Brake switch ON)	
			230 – 430 rpm (Brake switch OFF)	

FUEL SYSTEM

Carburetor	Float level	Raised position (float top to air horn)	9.8 mm	0.386 in.
		Lowered position (float bottom to air horn)	48 mm	1.89 in.
	Float lip clearance (at float lowered)		1 mm	0.04 in.
	Throttle valve closed angle	Primary	9° from horizontal plane	
		Secondary	20° from horizontal plane	
	Throttle valve full open angle	Primary	90° from horizontal plane	
		Secondary	90° from horizontal plane	
	Secondary touch angle		59° from horizontal plane	
	Fast idle angle		23° from horizontal plane	
	Fast idle speed		2,600 rpm	
	Unloader angle		45° from horizontal plane	
	Choke breaker opening angle		42° from horizontal plane	
	Choke heater	Resistance	20 – 22 Ω at 20°C (68°F)	
	Idle-up angle		16.5° from horizontal plane	
	Dash pot touch angle		24.5° from horizontal plane	
	Dash pot setting speed		3,000 rpm	
	Idle speed	M/T	700 rpm	
		A/T	750 rpm	
	Idle mixture adjusting screw presetting		Screw out 3-1/2 turns	
	Idle mixture speed	M/T	740 rpm	
		A/T	790 rpm	

COOLING SYSTEM

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
Thermostat	Valve opening temperature				
	Starts to open at		88°C	190°F	
	Fully opens at		100°C	212°F	
	Valve opening travel		8 mm	0.31 in.	

LUBRICATION SYSTEM

Oil pressure (normal operating temperature)					
at idle speed			More than 0.3 kg/cm ² (4.3 psi, 29 kPa)		
at 3,000 rpm			2.5–5.0 kg/cm ² (36–71 psi, 245–490 kPa)		
Oil pump	Body clearance	STD	0.09 – 0.15 mm	0.0035 – 0.0059 in.	
		Limit	0.2 mm	0.008 in.	
	Tip clearance				
		Drive gear to crescent	STD	0.15 – 0.21 mm	0.0059 – 0.0083 in.
		Limit	0.3 mm	0.012 in.	
	Drive gear to crescent	STD	0.22 – 0.25 mm	0.0087 – 0.0098 in.	
		Limit	0.3 mm	0.012 in.	
	Side clearance	STD	0.03 – 0.09 mm	0.0012 – 0.0035 in.	
		Limit	0.15 mm	0.0059 in.	
	Relief valve operating pressure		4.5 kg/cm ²	64 psi	441 kPa

IGNITION SYSTEM

Spark plug	Type		ND NGK		W16EXR-U BPR5EY			
	Gap		0.8 mm		0.031 in.			
Distributor (22R Engine)	Air gap		0.2 — 0.4 mm				0.008 — 0.016 in.	
	Distributor advance angle	Governor	Distributor rpm			Advance angle		
			600			Advance begins		
			873			1.8°		
			1,200			4.5°		
			2,400			13.0°		
		3,000			12.4°			
		Vacuum		Ex. Calif.		For Calif.		
				mmHg (in.Hg, kPa)	Advance angle	mmHg (in.Hg, kPa)	Advance angle	
	Main			80 (3.15, 10.7)	Advance begins	80 (3.15, 10.7)	Advance begins	
				132 (5.20, 17.6)	5.9°	212 (8.35, 28.3)	7.2°	
		190 (7.48, 25.3)	10.0°	330 (13.00, 44.0)	12.5°			
Sub	200 (7.87, 26.7)	Advance begins	200 (7.87, 26.7)	Advance begins				
	246 (9.69, 32.8)	3.2°	300 (11.81, 40.0)	6.0°				
	300 (11.81, 40.0)	6.0°						
High tension wire	Resistance			Limit			Less than 25 kΩ per cord	
Ignition coil	Primary coil resistance Secondary coil resistance Insulation resistance w/500V megohm meter			22R-E		22R		
				0.8 — 1.1 Ω		0.4 — 0.5 Ω		
				10.7 — 14.5 kΩ		8.5 — 11.5 kΩ		
				10 MΩ or more				

STARTING SYSTEM

Reduction type starter	Rated voltage and output power			12V, 1.0 kW	12V, 1.4 kW
	No-load characteristic		Ampere rpm	Less than 90A More than 3,000 rpm at 11.5V	Less than 90A More than 3,500 rpm at 11.5V
	Brush	Length	STD	13.0 mm 0.512 in.	15.0 mm 0.591 in.
			Limit	8.5 mm 0.335 in.	10.0 mm 0.394 in.
	Commutator	Outer diameter	STD	30 mm 1.18 in.	←
			Limit	29 mm 1.14 in.	←
		Mica depth	STD	0.5 — 0.8 mm 0.020 — 0.031 in.	←
			Limit	0.2 mm 0.008 in.	←
		Runout	Limit	0.05 mm 0.0020 in.	←
	Spring installed load		STD	1,785 — 2,415 g 3.9 — 5.3 lb 18 — 24 N	←
	A04978		Limit	1,200 g 2.6 lb 12 N	←

CHARGING SYSTEM

Battery specific gravity when fully charged at 20°C (68°F)		1.25 – 1.27	
Alternator	Rated output ampere		60 A
	Brush exposed length	STD	10.5 mm 0.413 in.
		Limit	4.5 mm 0.177 in.
	Rotor coil resistance		2.9 – 3.0 Ω
	Slip ring diameter	STD	14.4 mm 0.567 in.
		Limit	14.0 mm 0.551 in.
Alternator regulator	Regulator voltage	13.5 – 15.1 V (at 25°C)	

CLUTCH**Specifications**

Pedal height (from asphalt sheet)		144 mm	5.67 in.
Push rod play at pedal top		1.0 – 5.0 mm	0.039 – 0.197 in.
Pedal freeplay		5 – 15 mm	0.20 – 0.59 in.
Disc rivet head depth	Limit	0.3 mm	0.012 in.
Disc runout	Limit	0.8 mm	0.031 in.
Diaphragm spring tip alignment	Limit	0.5 mm	0.020 in.
Diaphragm spring finger wear	Limit Depth	0.6 mm	0.024 in.
	Width	5.0 mm	0.197 in.
Flywheel runout	Limit	0.2 mm	0.008 in.

Tightening Torque

Tightening part	kg-cm	ft-lb	N-m
Clutch cover x Flywheel	195	14	19
Strap x Clutch pressure plate	195	14	19
Master cylinder reservoir set bolt	250	18	25
Master cylinder set nut	250	18	25

A00989

MANUAL TRANSMISSION**Specifications (2WD AND 4WD)**

Manual transmission (W46, 55, 56)	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.	
	1st and 2nd gear inner diameter	Limit	49.15 mm	1.9350 in.	
	3rd gear inner diameter	Limit	38.15 mm	1.5020 in.	
	Counter 5th gear inner diameter	Limit	33.15 mm	1.2051 in.	
	Reverse idler gear inner diameter	Limit	20.2 mm	0.795 in.	
	Counter gear				
	Center bearing journal outer diameter	Limit	29.90 mm	1.1772 in.	
	5th gear journal outer diameter	Limit	26.85 mm	1.0571 in.	
	Reverse idler gear shaft outer diameter	Limit	19.9 mm	0.783 in.	
	Reverse shift arm shoe to idler gear groove clearance	Limit	0.9 mm	0.035 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.

A00990

Specifications (2WD and 4WD)(Cont'd)

Manual transmission (W46, 55, 56) (Cont'd)	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.
	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.
	Rear	15	2.10 – 2.15 mm	0.0827 – 0.0846 in.
		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.
	Reverse gear	14	2.68 – 2.73 mm	0.1055 – 0.1075 in.
		15	2.74 – 2.79 mm	0.1079 – 0.1098 in.
		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 (2WD and 4WD)(Cont'd)

Manual transmission (W46, 55, 56) (Cont'd)	Countershaft 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.
		7	2.35 – 2.40 mm	0.0925 – 0.0945 in.
	Rear	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.
		6	2.20 – 2.25 mm	0.0866 – 0.0886 in.
		7	2.26 – 2.31 mm	0.0890 – 0.0909 in.
	Clutch hub No. 3	Mark		
		2	2.06 – 2.11 mm	0.0811 – 0.0831 in.
		3	2.12 – 2.17 mm	0.0835 – 0.0854 in.
		4	2.18 – 2.23 mm	0.0858 – 0.0878 in.
		5	2.24 – 2.29 mm	0.0882 – 0.0902 in.

Tightening Torque (2WD AND 4WD)

Tightening part	kg-cm	ft-lb	N·m
Shift fork set bolt	125	19	12
Strait screw plug	250	18	25
Idler shaft stopper bolt	250	18	25
Reverse restrict pin	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	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

A00992

MANUAL TRANSMISSION

Specifications (4WD)

Manual transmission (G52)	Output shaft			
	2nd gear journal diameter	Limit	37.984 mm	1.4954 in.
	3rd gear journal diameter	Limit	34.984 mm	1.3773 in.
	Flange thickness	Limit	4.80 mm	0.1890 in.
	Runout	Limit	0.05 mm	0.0020 in.
	Inner race flange thickness	Limit	3.99 mm	0.1571 in.
	Inner race outer diameter	Limit	38.985 mm	1.5348 in.
	Gear thrust clearance			
	1st, 2nd and 3rd	STD	0.10 – 0.25 mm	0.0039 – 0.0098 in.
		Limit	0.25 mm	0.0098 in.
	Counter 5th	STD	0.10 – 0.30 mm	0.0039 – 0.0118 in.
		Limit	0.30 mm	0.0118 in.
	Gear oil clearance			
	1st and counter 5th	STD	0.009 – 0.032 mm	0.0004 – 0.0013 in.
		Limit	0.032 mm	0.0013 in.
	2nd and 3rd	STD	0.009 – 0.033 mm	0.0004 – 0.0013 in.
		Limit	0.033 mm	0.0013 in.
	Shift fork to hub sleeve clearance	Limit	1.0 mm	0.039 in.
	Synchronizer ring to gear clearance	STD	1.0 – 2.0 mm	0.039 – 0.079 in.
		Limit	0.8 mm	0.031 in.
	Input shaft snap ring thickness		Mark	
		0	2.05 – 2.10 mm	0.0807 – 0.0827 in.
		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.
		4	2.25 – 2.30 mm	0.0886 – 0.0906 in.
		5	2.30 – 2.35 mm	0.0906 – 0.0925 in.
	Output shaft snap ring thickness			
	Front	Mark		
		C-1	1.75 – 1.80 mm	0.0689 – 0.0709 in.
		D	1.80 – 1.85 mm	0.0709 – 0.0728 in.
		D-1	1.85 – 1.90 mm	0.0728 – 0.0748 in.
		E	1.90 – 1.95 mm	0.0748 – 0.0768 in.
		E-1	1.95 – 2.00 mm	0.0768 – 0.0787 in.
		F	2.00 – 2.05 mm	0.0787 – 0.0807 in.
		F-1	2.05 – 2.10 mm	0.0807 – 0.0827 in.

A00993

Specifications (4WD) (Cont'd)

Manual transmission (G52) (Cont'd)	Rear	Mark		
		A	2.67 – 2.72 mm	0.1051 – 0.1071 in.
		B	2.73 – 2.78 mm	0.1075 – 0.1094 in.
		C	2.79 – 2.84 mm	0.1098 – 0.1118 in.
		D	2.85 – 2.90 mm	0.1122 – 0.1142 in.
		E	2.91 – 2.96 mm	0.1146 – 0.1165 in.
		F	2.97 – 3.02 mm	0.1169 – 0.1189 in.
		G	3.03 – 3.08 mm	0.1193 – 0.1213 in.
		H	3.09 – 3.14 mm	0.1217 – 0.1236 in.
		J	3.15 – 3.20 mm	0.1240 – 0.1260 in.
		K	3.21 – 3.26 mm	0.1264 – 0.1283 in.
		L	3.27 – 3.32 mm	0.1287 – 0.1307 in.
	Counter gear snap ring (Front Bearing)	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.

Tightening Torque (4WD)

Tightening part	kg-cm	ft-lb	N-m
Straight screw plug	190	14	19
Transfer adapter x Transmission case	380	27	37
Restrict pin	280	20	27
Shift lever retainer x Extension housing	185	13	18
Front bearing retainer x Transmission case	170	12	17
Rear bearing retainer x Intermediate plate	185	13	18
Reverse shift arm bracket	185	13	18
Counter gear rear lock nut	1,200	87	118
Reverse idler gear shaft stopper bolt	175	13	17
Clutch housing x Transmission case	380	27	37
Shift lever housing bolt	390	28	38

A00994

Specifications

Governor pressure (Vehicle speed reference)				kg/cm ²	psi	kPa	
Output shaft rpm	22R	22R-E	22R-E (C & C)				
1,000 (32 km/h, 20 mph)	(33 km/h, 21 mph)	(29 km/h, 18mph)		0.9 – 1.5	13 – 21	88 – 147	
1,800 (58 km/h, 36 mph)	(59 km/h, 37 mph)	(52 km/h, 32 mph)		1.6 – 2.2	23 – 31	157 – 216	
3,500 (114 km/h, 71 mph)	(115 km/h, 71 mph)	(100 km/h, 62 mph)		4.1 – 5.3	58 – 75	402 – 520	
Line pressure (22R Engine)							
Idling		"D" range		3.5 – 4.4	50 – 63	343 – 431	
		"R" range		5.0 – 6.4	71 – 91	490 – 628	
Stall		"D" range		9.6 – 11.0	137 – 156	941 – 1,079	
		"R" range		13.7 – 17.0	195 – 242	1,344 – 1,667	
Line pressure (22R-E Engine)							
Idling		"D" range		4.6 – 5.4	65 – 77	451 – 530	
		"R" range		7.0 – 8.2	100 – 117	686 – 804	
Stall		"D" range		10.1 – 11.9	144 – 169	990 – 1,167	
		"R" range		15.0 – 19.0	213 – 270	1,471 – 1,863	
Engine stall revolution		22R Engine	1,850 ± 150 rpm				
		22R-E Engine	1,900 ± 150 rpm				
Engine idle speed (A/C OFF)				"N" range	"D" range		
				750 rpm	700 rpm		
Time lag		"N" range → "D" range		Less than 1.2 seconds			
		"N" range → "R" range		Less than 1.5 seconds			
Throttle cable adjustment		Throttle valve fully opened					
Between boot end face and inner cable stopper				0 – 1 mm	0 – 0.04 in.		
Torque converter runout		Limit		0.30 mm	0.0118 in.		
Drive plate runout		Limit		0.20 mm	0.0079 in.		
Shift point schedule (22R Engine) km/h (mph)	"D" range (throttle valve fully open)						"L" range
	1 → 2	2 → 3	3 → OD	OD → 3	3 → 2	2 → 1	2 → 1
	56 – 73 (35 – 45)	105 – 124 (65 – 77)	No shift *1	*2	96 – 114 (60 – 71)	39 – 54 (24 – 34)	45 – 62 (28 – 39)
	*1 3 → OD shift up point with closed throttle valve is 36 – 49 km/h (22 – 30 mph).						
*2 OD → 3 down-shift is possible up to maximum speed.							
Shift point schedule (22R-E Engine) (Ex. C & C) km/h (mph)	"D" range (throttle valve fully open)						"L" range
	1 → 2	2 → 3	3 → OD	OD → 3	3 → 2	2 → 1	2 → 1
	59 – 76 (37 – 47)	110 – 127 (68 – 79)	No shift *1	*2	100 – 117 (62 – 73)	41 – 56 (25 – 35)	47 – 64 (29 – 40)
	*1 3 → OD shift up point with closed throttle valve is at 39 – 54 km/h (24 – 34 mph).						
*2 OD → 3 down-shift is possible up to maximum speed.							

Specifications (Cont'd)

Shift point schedule (22R-E Engine) C & C km/h (mph)	"D" range (throttle valve fully open)						"L" range	
	1 → 2	2 → 3	3 → OD	OD → 3	3 → 2	2 → 1	2 → 1	
	51 – 66 (32 – 41)	95 – 111 (59 – 69)	No shift *1	*2	86 – 102 (53 – 63)	35 – 48 (22 – 30)	41 – 56 (25 – 35)	
	*1 3 → OD shift up point with closed throttle valve is at 34 – 47 km/h (21 – 29 mph). *2 OD → 3 down-shift is possible up to maximum speed.							
Valve body spring mm (in.)	Spring		Free length		Coil outer diameter		No. coils	Wire diameter
	Lower valve body							
	Primary regulator valve (22R)		73.32 (2.8866)		16.72 (0.6583)		15	1.59 (0.0626)
	Primary regulator valve (22R-E)		61.20 (2.4094)		17.20 (0.6772)		13	1.80 (0.0709)
	1-2 shift valve		34.62 (1.3630)		7.56 (0.2976)		13	0.56 (0.0220)
	3-4 shift valve		33.65 (1.3248)		10.60 (0.4173)		14.5	1.10 (0.0433)
	Oil cooler by-pass valve		33.32 (1.3118)		13.82 (0.5441)		7	1.32 (0.0520)
	Pressure relief valve ball		32.14 (1.2654)		13.14 (0.5173)		9	2.03 (0.0799)
	Damping check ball		20.00 (0.7874)		4.95 (0.1949)		15	0.38 (0.0150)
	Upper rear valve body							
	Low coast modulator valve		42.35 (1.6673)		9.24 (0.3638)		15	0.84 (0.0331)
	Sequence valve		37.55 (1.4783)		9.17 (0.3610)		14.5	1.17 (0.0461)
	Governor modulator valve		36.07 (1.4201)		9.09 (0.3579)		12	0.71 (0.0280)
	2-3 shift timing valve		35.10 (1.3819)		8.96 (0.3528)		12.5	0.76 (0.0299)
	Detent regulator valve		29.93 (1.1783)		8.85 (0.3484)		13.5	0.90 (0.0354)
	Intermediate modulator valve		27.26 (1.0732)		9.04 (0.3559)		9.5	1.10 (0.0433)
	Upper front valve body							
	Secondary regulator valve		71.27 (2.8059)		17.43 (0.6862)		15	1.93 (0.0760)
	Down shift plug		39.71 (1.5634)		10.89 (0.4287)		11.5	1.19 (0.0469)
	Throttle valve		21.94 (0.8638)		8.58 (0.3378)		8	0.71 (0.0280)
Clutch and brake return spring (C ₀ , C ₁ , C ₂)	Free length				15.10 mm		0.5945 in.	
	Coil outer diameter				8.0 mm		0.315 in.	
	No. of coils				5.5			
Clutch and brake return spring (B ₀ , B ₁ , B ₂ , B ₃)	Free length				16.12 mm		0.6346 in.	
	Coil outer diameter				8.0 mm		0.315 in.	
	No. of coils				6			
Oil pump	Side clearance		STD	0.02 – 0.05 mm		0.0008 – 0.0020 in.		
			Limit	0.1 mm		0.004 in.		
	Body clearance		STD	0.07 – 0.15 mm		0.0028 – 0.0059 in.		
			Limit	0.3 mm		0.012 in.		
	Tip clearance	Driven gear	STD	0.11 – 0.14 mm		0.0043 – 0.0055 in.		
			Limit	0.3 mm		0.012 in.		

Specifications (Cont'd)

Clutch and brake piston stroke	Front clutch (C ₁)		STD	1.32 – 2.66 mm	0.0520 – 0.1047 in.	
	Rear clutch (C ₂)		STD	0.91 – 1.99 mm	0.0358 – 0.0783 in.	
	OD clutch (C ₀)		STD	1.47 – 2.28 mm	0.0579 – 0.0898 in.	
	No. 1 brake (B ₁)		STD	0.58 – 1.30 mm	0.0228 – 0.0512 in.	
	No. 2 brake (B ₂)		STD	1.01 – 2.25 mm	0.0398 – 0.0886 in.	
Brake clearance	No. 3 brake (B ₃)		STD	0.61 – 2.64 mm	0.0240 – 0.1039 in.	
	OD brake (B ₀)		STD	0.65 – 2.21 mm	0.0256 – 0.0870 in.	
Accumulator piston mm (in.)			Length	Outer diameter		
	B ₂	Front	48.5 (1.909)		34.8 (1.370)	
	C ₂	Center	45.0 (1.772)		31.8 (1.252)	
	C ₁	Rear	49.5 (1.949)		31.8 (1.252)	
Accumulator piston spring mm (in.)	<div></div>	Engine	Free length	Coil outer diameter	No. coils	Wire diameter
		B ₂ Front	22R	66.50 (2.6180)	17.91 (0.7051)	13.5
		22R-E	66.68 (2.6252)	16.36 (0.6441)	14.5	2.60 (0.1024)
	C ₂ Center	All	55.18 (2.1724)	15.87 (0.6248)	8.5	2.00 (0.0787)
	C ₁ Rear	22R	68.56 (2.6992)	17.53 (0.6902)	15.5	2.03 (0.0800)
		22R-E	64.80 (2.5512)	17.20 (0.6772)	13	2.00 (0.0787)
Bushing bore mm (in.)	Bushing name		Length	Finished bore		Bore limit
	Stator support	Front	9.70 (0.3819)	21.501 – 21.527 (0.8465 – 0.8475)		21.577 (0.8495)
		Rear	17.45 (0.6870)	21.501 – 21.527 (0.8465 – 0.8475)		21.577 (0.8495)
	Oil pump body		13.46 (0.5299)	38.113 – 38.138 (1.5005 – 1.5015)		38.188 (1.5035)
	OD sun gear Front & Rear		9.70 (0.3819)	23.062 – 23.088 (0.9080 – 0.9090)		23.138 (0.9109)
	OD input shaft		9.00 (0.3543)	11.200 – 11.221 (0.4409 – 0.4418)		11.271 (0.4437)
	Sun gear Front & Rear		13.50 (0.5315)	21.501 – 21.527 (0.8465 – 0.8475)		21.577 (0.8495)
	Center support		60.07 (2.3650)	36.386 – 36.411 (1.4325 – 1.4335)		36.461 (1.4355)
	Transmission case		13.46 (0.5299)	38.113 – 38.138 (1.5005 – 1.5015)		38.188 (1.5035)
	Output shaft		9.70 (0.3819)	18.001 – 18.026 (0.7087 – 0.7096)		18.076 (0.7117)
	Extension housing		29.75 (1.1713)	38.000 – 38.025 (1.4961 – 1.4970)		38.075 (1.4990)

Tightening Torque

Tightening part		kg-cm	ft-lb	N-m
Engine x Transmission		650	47	64
Transmission housing x Converter housing	17 mm	580	42	57
	14 mm	345	25	34
Extension housing		345	25	34
Drive plate		850	61	83
Torque converter		185	13	18
Oil pump		215	16	21
Center support		260	19	25
Upper valve body x Lower valve body		55	48 in.-lb	5.4
Valve body		100	7	10
Oil strainer		55	48 in.-lb	5.4
Oil pan		45	39 in.-lb	4.4
Cooler pipe union nut		350	25	34
Testing plug		75	65 in.-lb	7.4
Parking lock pawl bracket		75	65 in.-lb	7.4
Drain plug		205	15	20
Governor body		40	35 in.-lb	3.9

TRANSFER**Specifications**

Output shaft bearing thrust clearance		Less than 0.1 mm (0.004 in.)	
Output shaft snap ring thickness	Mark		
	0	2.40 – 2.45 mm	0.0945 – 0.0965 in.
	1	2.45 – 2.50 mm	0.0965 – 0.0984 in.
	2	2.50 – 2.55 mm	0.0984 – 0.1004 in.
	3	2.55 – 2.60 mm	0.1004 – 0.1024 in.
	4	2.60 – 2.65 mm	0.1024 – 0.1043 in.
	5	2.65 – 2.70 mm	0.1043 – 0.1063 in.
Output shaft runout	Limit	0.03 mm	0.0012 in.
Low gear to output shaft oil clearance	STD	0.010 – 0.055 mm	0.0004 – 0.0022 in.
	Limit	0.075 mm	0.0030 in.
Low gear thrust clearance	STD	0.10 – 0.25 mm	0.0039 – 0.0098 in.
	Limit	0.30 mm	0.0118 in.
Transfer drive gear to output shaft oil clearance	STD	0.009 – 0.051 mm	0.0004 – 0.0020 in.
	Limit	0.071 mm	0.0028 in.
Transfer drive gear thrust clearance	STD	0.09 – 0.27 mm	0.0035 – 0.0106 in.
	Limit	0.32 mm	0.0126 in.
Input shaft bearing thrust clearance		Less than 0.15 mm (0.0059 in.)	
Input shaft snap ring thickness	Mark		
	1	2.05 – 2.10 mm	0.0807 – 0.0827 in.
	3	2.15 – 2.20 mm	0.0846 – 0.0866 in.
	5	2.25 – 2.30 mm	0.0886 – 0.0906 in.
Counter shaft bearing thrust clearance		Less than 0.15 mm (0.0059 in.)	
Counter shaft snap ring thickness	Mark		
	1	2.10 – 2.15 mm	0.0827 – 0.0846 in.
	3	2.20 – 2.25 mm	0.0866 – 0.0886 in.
Idler gear shaft bearing thrust clearance		Less than 0.15 mm (0.0059 in.)	
Idler gear shaft snap ring thickness	Mark		
	A	1.50 – 1.55 mm	0.0591 – 0.0610 in.
	B	1.60 – 1.65 mm	0.0630 – 0.0650 in.
Shift fork to hub sleeve clearance	Limit	1.0 mm	0.039 in.

A00995

Tightening Torque

Tightening part	kg-cm	ft-lb	N-m
Adapter x Reduction case	400	29	39
Reduction case x Front case x Rear case	400	29	39
Rear case x Extension housing	400	29	39
Front case x Rear case	400	29	39
Reduction case x Front case	400	29	39
Reduction case x Transfer cover	90	78 in.-lb	6.5
Reduction case x Shift lever retainer	130	9	13
Output shaft x Companion flange	1,250	90	123
Front drive gear bearing retainer x Front case	185	13	18
Front case x Bearing retainer	185	13	18

PROPELLER SHAFT

Specifications

Spider axial play			Less than 0.05 mm (0.0020 in.)	
Spider bearing selection				
	Mark			
Bearing cup outer diameter	None	Ex. RN50L-KRA	29.008 — 29.021 mm	1.1420 — 1.1426 in.
		RN50L-KRA	26.015 — 26.028 mm	1.0242 — 1.0247 in.
Bearing hole inner diameter	None	Ex. RN50L-KRA	29.000 — 29.021 mm	1.1417 — 1.1426 in.
		RN50L-KRA	26.000 — 26.021 mm	1.0236 — 1.0244 in.
Bearing cup outer diameter	Red	Ex. RN50L-KRA	29.028 — 29.041 mm	1.1428 — 1.1433 in.
		RN50L-KRA	26.036 — 26.049 mm	1.0250 — 1.0255 in.
Bearing hole inner diameter	Drill	Ex. RN50L-KRA	29.021 — 29.042 mm	1.1426 — 1.1434 in.
		RN50L-KRA	26.021 — 26.042 mm	1.0244 — 1.0253 in.
Snap ring thickness	None	Ex. RN50L-KRA	1.475 — 1.525 mm	0.0581 — 0.0600 in.
		RN50L-KRA	2.375 — 2.425 mm	0.0935 — 0.0955 in.
	Brown	Ex. RN50L-KRA	1.525 — 1.575 mm	0.0600 — 0.0620 in.
		RN50L-KRA	2.425 — 2.475 mm	0.0955 — 0.0974 in.
	Blue	Ex. RN50L-KRA	1.575 — 1.625 mm	0.0620 — 0.0640 in.
		RN50L-KRA	2.475 — 2.525 mm	0.0974 — 0.0994 in.
Runout	Limit		0.8 mm	0.031 in.

Tightening Torque

Tightening part	kg-cm	ft-lb	N-m
Intermediate shaft x Propeller shaft	750	54	74
Propeller shaft x Differential (2WD)	750	54	74
Propeller shaft x Transfer (4WD)	750	54	74
Propeller shaft x Differential (4WD)	750	54	74
Intermediate shaft x Center bearing x Joint flange			
1st	1,850	134	181
A00996	Loosen nut		
	700	51	69

FRONT AXLE AND SUSPENSION**Specifications (2WD)**

Cold tire inflation pressure	Tire size		kg/cm ² (psi, kPa)	
	205/70 SR 14	Front	2.0 (28, 196)	
		Rear	2.25 (32, 221)	
	7.00—14—6PR	Front	1.7 (24, 167)	
		Rear	2.5 (36, 245)	
	P195/75 R 14	Front	2.0 (28, 196)	
		Rear	2.45 (35, 240)	
	185R14 LT8PR	Front	1.8 (26, 177)	
		Rear	4.5 (64, 441)	
Do not drive over 120 km/h (75 mph) with cargo above 400 kg (882 lb).				
Vehicle height	Body type and Suspension type	Tire size	Vehicle height mm (in.)	
			Front	Rear
	STD Short	7.00—14—6PR	270 (10.63)	299 (11.77)
	STD Long	7.00—14—6PR	275 (10.83)	290 (11.42)
	Long Soft ride suspension	P195/75R14	260 (10.24)	277 (10.91)
	Extra cab Soft ride suspension	↑	250 (9.84)	275 (10.83)
	Extra cab STD suspension	↑	↑	273 (10.75)
	1 ton	185R14-LT8PR	262 (10.31)	295 (11.61)
	C & C	185R14-LT8PR	259 (10.20)	242 (9.53)
	SR-5 Short	P195/75 R 14	249 (9.80)	277 (10.91)
		205/70 SR 14	255 (10.04)	280 (11.02)
	SR-5 Long	P195/75 R 14	253 (9.96)	275 (10.83)
		205/70 SR 14	259 (10.20)	278 (10.94)
	Extra cab SR-5 Long	P195/75 R 14	250 (9.84)	274 (10.79)
		205/70 SR 14	256 (10.08)	278 (10.94)

Specifications (2WD) (Cont'd)

Front wheel alignment		Inspection STD		Adjustment STD	
	Toe-in				
	1/2 ton Short	Bias tire	$4 \pm 4 \text{ mm } (0.16 \pm 0.16 \text{ in.})$	$4 \pm 1 \text{ mm } (0.16 \pm 0.04 \text{ in.})$	
		Radial tire	$1 \pm 4 \text{ mm } (0.04 \pm 0.16 \text{ in.})$	$1 \pm 1 \text{ mm } (0.04 \pm 0.04 \text{ in.})$	
	1 ton, C & C	Radial tire	$4 \pm 4 \text{ mm } (0.16 \pm 0.16 \text{ in.})$	$4 \pm 1 \text{ mm } (0.16 \pm 0.04 \text{ in.})$	
	1/2 ton Long	Bias tire	$6 \pm 4 \text{ mm } (0.24 \pm 0.16 \text{ in.})$	$6 \pm 1 \text{ mm } (0.24 \pm 0.04 \text{ in.})$	
		Radial tire	$3 \pm 4 \text{ mm } (0.12 \pm 0.16 \text{ in.})$	$3 \pm 1 \text{ mm } (0.12 \pm 0.04 \text{ in.})$	
	Camber		$0^\circ 30' \pm 45'$	$0^\circ 30' \pm 30'$	
	Left-right error		30'	30'	
	Steering axis inclination		10°		
	Caster				
	1/2 ton Short		$0^\circ 40' \pm 45'$	$0^\circ 40' \pm 30'$	
	1/2 ton Long		$1^\circ 10' \pm 45'$	$1^\circ 10' \pm 30'$	
	1 ton		$0^\circ 35' \pm 45'$	$0^\circ 35' \pm 30'$	
	C & C		$0^\circ 05' \pm 45'$	$0^\circ 05' \pm 30'$	
	Left-right error		30'	30'	
	Slide slip		Less than 3.0 mm/m (0.118 in./3.3 ft)		
	Wheel angle	Inside wheel	$34^\circ +1^\circ$ -2°		
		Outside wheel	30°		
	At 20° wheel angle		$22^\circ 15'$		
Disc wheel lateral runout		Limit	1.0 mm	0.039 in.	
Wheel bearing preload (rotating load at hub bolt)		Frictional force of oil seal plus	0.6 — 1.8 kg	1.3 — 4.0 lb	5.9 — 17.7 N
Hub axial play		Limit	0.05 mm	0.0020 in.	
Ball joint vertical play		Limit	2.3 mm	0.091 in.	
Ball joint rotation condition		Lower ball joint	25 — 50 kg-cm	(22 — 43 in.-lb, 2.5 — 4.9 N·m)	
		Upper ball joint	20 — 40 kg-cm	(18 — 34 in.-lb, 2.0 — 3.9 N·m)	

FRONT AXLE AND SUSPENSION

Specifications (4WD)

Cold tire inflation pressure	Tire Size	Inflation pressure kg/cm ² (psi, kPa)	
		Front	Rear
	P225/75R15	1.8 (26, 177)	2.0 (28, 196)
Front wheel alignment		Inspection STD	Adjustment STD
	Toe-in	1 ± 4 mm (0.04 ± 0.16 in.)	1 ± 1 mm (0.04 ± 0.04 in.)
	Camber	1° ± 45'	
	Steering axis inclination	9°30' ± 45'	
	Caster	TRUCK 2°15' ± 1° 4-RUNNER 3°00' ± 1°	
	Side slip	Less than 3.0 mm/m (0.118 in./3.3 ft)	
	Wheel angle	Inside wheel 30°30' ^{+1°} / _{-2°} Max. Outside wheel 29°	
	At 20° wheel angle	Inside wheel 20°30' Outside wheel 20°	
Disc wheel lateral runout		Limit	1.0 mm 0.039 in.
Wheel bearing preload		Frictional force of oil seal plus	2.8 – 5.6 kg 6.2 – 12.3 lb 27 – 55 N
Steering knuckle bearing preload		(rotating load at knuckle arm end, before install dust seal)	3.0 – 6.0 kg 6.6 – 13.2 lb 29 – 59 N
Steering knuckle preload adjusting shim thickness			0.1 mm 0.004 in.
			0.2 mm 0.008 in.
			0.5 mm 0.020 in.
			1.0 mm 0.039 in.

Tightening Torque (2WD)

Tightening part	kg-cm	ft-lb	N-m
Steering knuckle x Upper ball joint	1,100	80	108
Steering knuckle x Lower ball joint	1,450	105	142
Steering knuckle x Knuckle arm x Dust cover	1,100	80	108
Upper ball joint x Upper arm	270	20	26
Lower ball joint x Lower arm	700	51	69
Shock absorber x Lower arm	185	13	18
Shock absorber x Upper bracket lock nut	250	18	25
Lower arm x Frame	2,750	199	270
Lower arm x Torque arm	500	36	49
Upper arm x Frame	1,000	72	98
Upper arm shaft x Upper arm	1,280	93	126
Strut bar x Lower arm	970	70	95
Strut bar x Strut bar bracket (Front nut)	1,250	90	123
Stabilizer bar bracket x Body	130	9	13
Stabilizer x Lower arm	130	9	13
Wheel hub nut	1,050	76	103
Disc brake cylinder x Torque plate	900	65	88
Torque plate x Steering knuckle	1,100	80	108
Tie rod clamp bolt	260	19	25

Tightening Torque (4WD)

Tightening part	kg-cm	ft-lb	N-m
Tie rod clamp bolt	375	27	37
Free wheeling hub body x Axle hub	315	23	31
Brake assembly x Adjusting nut	70	61 in.-lb	6.9
Inner hub x Axle shaft	185	13	18
Steering knuckle arm x Housing	975	71	96
Bearing cap x Housing	975	71	96
Knuckle spindle x Housing	530	38	52
Torque plate x Steering knuckle	1,100	80	108
Disc brake cylinder x Steering knuckle	900	65	88
Spring U bolt x Axle housing	1,250	90	123
Front spring bracket x Hanger pin	930	67	91
Rear spring shackle x Leaf spring	930	67	91
Front shock absorber x Axle housing	970	70	95
Front shock absorber x Frame	260	19	25
Torque rod x Axle housing	1,450	105	142
Torque rod x Frame	1,450	105	142
Stabilizer bar x Axle housing	260	19	25
Stabilizer x Frame	130	9	13
Wheel nut	1,050	76	103

REAR AXLE AND SUSPENSION

Specifications

7.5 in. Differential 2WD 1/2 ton	Drive pinion bearing preload	at Starting	
	New bearing		12 — 19 kg-cm 10.4 — 16.5 in.-lb 1.2 — 1.9 N-m
	Reused bearing		6 — 10 kg-cm 5.2 — 8.7 in.-lb 0.6 — 1.0 N-m
	Total preload	at Starting	Add drive pinion bearing preload
	New and reused bearing		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	0.07 mm 0.0028 in.
	Companion flange runout	Limit	
		Radial	0.10 mm 0.0039 in.
		Lateral	0.10 mm 0.0039 in.
	Ring gear installing temperature		90 — 110°C 194 — 230°F
	Side gear thrust washer thickness		1.0 mm 0.039 in.
			1.1 mm 0.043 in.
			1.2 mm 0.047 in.
			1.3 mm 0.051 in.
	Drive pinion adjusting plate washer thickness		2.24 mm 0.0882 in.
			2.27 mm 0.0894 in.
			2.30 mm 0.0906 in.
			2.33 mm 0.0917 in.
			2.36 mm 0.0929 in.
			2.39 mm 0.0941 in.
			2.42 mm 0.0953 in.
			2.45 mm 0.0965 in.
			2.48 mm 0.0976 in.
			2.51 mm 0.0988 in.
			2.54 mm 0.1000 in.
			2.57 mm 0.1012 in.
			2.60 mm 0.1024 in.
			2.63 mm 0.1035 in.
			2.66 mm 0.1047 in.
			2.69 mm 0.1059 in.
			2.72 mm 0.1071 in.

Specifications (Cont'd)

8.0 in. Differential 1 ton, C & C and 4WD	Drive pinion bearing preload at Starting		
	New bearing		19 — 26 kg-cm 16.5 — 22.6 in.-lb 1.9 — 2.5 N·m
	Reused bearing		9 — 13 kg-cm 7.8 — 11.3 in.-lb 0.9 — 1.3 N·m
	Total preload at Starting		Add drive pinion bearing preload
	New and reused bearing		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	0.10 mm 0.0039 in.
	Companion flange runout	Limit	
		Radial	0.10 mm 0.0039 in.
		Lateral	0.10 mm 0.0039 in.
	Ring gear installing temperature		90 — 110°C 194 — 230°F
	Side gear thrust washer thickness		1.6 mm 0.063 in.
			1.7 mm 0.067 in.
			1.8 mm 0.071 in.
	Drive pinion adjusting plate washer thickness		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.
			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.

Tightening Torque

Differential	Tightening part		kg-cm	ft-lb	N·m
	Propeller shaft x Companion flange		750	54	74
	Drive pinion x Companion flange	7.5 in.	1,100 – 2,400	80 – 173	108 – 235
		8 in.	2,000 – 3,500	145 – 253	196 – 343
	Ring gear x Differential case		985	71	97
	Bearing cap x Differential carrier		800	58	78
	Differential carrier x Axle housing		260	19	25
Rear axle and suspension	Rear axle housing x Bearing retainer		700	51	69
	Spring center bolt		450	33	44
	Spring U bolt x Axle housing	2WD	1,000	72	98
		4WD	1,250	90	123
	Front spring bracket x Hanger pin		930	67	91
	Rear spring shackle x Leaf spring		930	67	91
	Rear shock absorber x U-bolt seat	2WD	260	19	25
		4WD	650	47	64
	Rear shock absorber x Body	2WD	260	19	25
		4WD	650	47	64

BRAKE SYSTEM**Specifications**

Brake	Pedal height (from asphalt sheet)		144 — 149 mm	5.67 — 5.87 in.
	Pedal freeplay		3 — 6 mm	0.12 — 0.24 in.
	Pedal reserve distance (from asphalt sheet)	at 50 kg (110 lb)		
		2WD 1/2 ton	More than 65 mm (2.56 in.)	
		1 ton, C & C	More than 55 mm (2.17 in.)	
		4WD	More than 60 mm (2.36 in.)	
Brake booster	Booster push rod to piston clearance			
	at Idling vacuum		0.1 — 0.5 mm	0.004 — 0.020 in.
	at No vacuum		0.60 — 0.65 mm	0.024 — 0.026 in.
	w/SST		0 mm	0 in.
Front brake (PD60 Type disc) (2WD)	Disc thickness	STD	25.0 mm	0.984 in.
		Limit	24.0 mm	0.945 in.
	Disc runout	Limit	0.15 mm	0.0059 in.
	Pad thickness	STD	10.0 mm	0.394 in.
		Limit	1.0 mm	0.039 in.
Front brake (FS-17 Type disc) (2WD)	Disc thickness	STD	22.0 mm	0.866 in.
		Limit	21.0 mm	0.827 in.
	Disc runout	Limit	0.15 mm	0.0059 in.
	Pad thickness	STD	10.0 mm	0.394 in.
		Limit	1.0 mm	0.039 in.
Front brake (S-12+8 Type disc) (4WD)	Disc thickness	STD	12.5 mm	0.492 in.
		Limit	11.5 mm	0.453 in.
	Disc runout	Limit	0.15 mm	0.0059 in.
	Pad thickness	STD	9.7 mm	0.382 in.
		Limit	1.0 mm	0.039 in.
Rear brake (Drum)	Drum inner diameter	STD	254.0 mm	10.000 in.
		Limit	256.0 mm	10.079 in.
	Lining thickness	STD	5.0 mm	0.197 in.
		Limit	1.0 mm	0.039 in.
Parking brake	Lever travel at 20 kg (44 lb)	2WD	10 — 16 clicks	
		4WD	7 — 15 clicks	

Tightening Torque

Tightening part		kg-cm	ft-lb	N-m
Brake booster clevis lock nut		260	19	25
Brake booster x Pedal bracket		130	9	13
Master cylinder x Brake booster		130	9	13
Master cylinder fluid outlet plug	16 mm	450	33	44
	18 mm	685	50	67
Piston stopper bolt x Master cylinder		100	7	10
Brake tube union nut x Master cylinder		155	11	15
Disc brake cylinder x Torque plate	(2WD) FS17	900	65	88
	PD60	400	29	39
Torque plate x Steering knuckle	(2WD)	1,100	80	108
Disc Brake cylinder x Steering knuckle	(4WD)	900	65	88
Brake tube union nut		155	11	15
Bleeder plug		110	8	11
Front disc x Front axle hub	(2WD)	650	47	64
	(4WD)	475	34	47
Flexible hose bracket x Disc brake cylinder	(2WD)	185	13	18
Drum brake backing plate x Rear axle housing		700	51	69
Rear brake wheel cylinder x Backing plate (Leading-trailing type — 2WD 1/2 ton)		100	7	10
Rear brake wheel cylinder x Backing plate (Duo-servo type — 4WD, 2WD 1 ton)		145	10	14
Rear brake bleeder plug		110	8	11
Brake tube x Wheel cylinder		155	11	15
Bellcrank bracket x Backing plate		130	9	13
LSP & BV (LSPV) bracket x Frame		195	14	19
LSP & BV (LSPV) x LSP & BV (LSPV) bracket		130	9	13
LSP & BV (LSPV) spring x LSP & BV (LSPV) bracket		185	13	18
LSP & BV (LSPV) spring x Shackle		185	13	18
LSP & BV (LSPV) shackle lock nut		250	18	25
LSP & BV (LSPV) shackle x Shackle bracket		130	9	13
LSP & BV (LSPV) shackle bracket x Rear axle housing		195	14	19

STEERING**Specifications**

Steering	Steering wheel freeplay		Less than 30 mm (1.18 in.)
	Joint radial play		Less than 0.06 mm (0.0024 in.)
	Bearing block width	Punch mark	
		Yes	15.97 – 16.00 mm 0.6287 – 0.6299 in.
		No	16.00 – 16.03 mm 0.6299 – 0.6311 in.
	Spider axial play		Less than 0.05 mm (0.0020 in.)
	Hole snap ring thickness	Color	
Steering gear housing (2WD)		None	1.175 – 1.225 mm 0.0463 – 0.0482 in.
		Brown	1.225 – 1.275 mm 0.0482 – 0.0502 in.
		Blue	1.275 – 1.325 mm 0.0502 – 0.0522 in.
	Gear housing oil level		18 – 28 mm (0.71 – 1.10 in.) from top
	Sector shaft thrust clearance		Less than 0.05 mm (0.0020 in.)
	Thrust washer thickness		2.00 mm 0.0787 in.
			2.04 mm 0.0803 in.
			2.08 mm 0.0819 in.
			2.12 mm 0.0835 in.
			2.16 mm 0.0850 in.
			2.20 mm 0.0866 in.
	Worm bearing preload	at Starting	3.0 – 5.0 kg-cm
			2.6 – 4.3 in.-lb 0.3 – 0.5 N·m
Steering gear housing (4WD)	Total preload	at Starting	8.0 – 10.5 kg-cm
			6.9 – 9.1 in.-lb 0.8 – 1.0 N·m
	Gear housing oil level		12 – 17 mm (0.47 – 0.67 in.) from top
	Sector shaft thrust clearance		Less than 0.05 mm (0.0020 in.)
	Thrust washer thickness		2.00 mm 0.0787 in.
			2.05 mm 0.0807 in.
			2.10 mm 0.0827 in.
			2.15 mm 0.0846 in.
			2.20 mm 0.0866 in.
	Sector shaft outer diameter	Limit	31.95 mm 1.2579 in.
	Sector shaft oil clearance	Limit	0.10 mm 0.0039 in.
	End cover shim thickness		0.05 mm 0.0020 in.
			0.06 mm 0.0024 in.
			0.07 mm 0.0028 in.
			0.08 mm 0.0031 in.
			0.09 mm 0.0035 in.
			0.10 mm 0.0039 in.
			0.20 mm 0.0079 in.
			0.50 mm 0.0197 in.
	Worm bearing preload	at Starting	3.5 – 6.5 kg-cm
			3.0 – 5.6 in.-lb 0.3 – 0.6 N·m
	Total preload	at Starting	8.0 – 11.0 kg-cm
			6.9 – 9.5 in.-lb 0.8 – 1.1 N·m

Specifications (Cont'd)

Power steering	Drive belt tension [w/ Nippondenso BTG-20 (95506-00020) or Borroughs drive belt tension gauge No. BT-33-73F]		New belt	125 ± 25 lb	
			Used belt	80 ± 20 lb	
	Maximum rise of oil level			5 mm	0.20 in.
	Oil pressure				
	(at Idle speed)		2WD	More than 75 kg/cm ² (1,067 psi, 7,355 kPa)	
			4WD	More than 65 kg/cm ² (924 psi, 6,374 kPa)	
	Steering effort		at steering wheel	Less than 4 kg (8.8 lb, 39 N)	
	Vane plate	Height	Limit	7.8 mm	0.307 in.
		Thickness	Limit	1.7 mm	0.067 in.
		Length	Limit	14.97 mm	0.5894 in.
	Vane plate to rotor groove clearance				
			Limit	0.06 mm	0.0024 in.
	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.
	Shaft to bushing clearance	STD		0.01 – 0.03 mm	0.0004 – 0.0012 in.
		Limit		0.07 mm	0.0028 in.
	Flow control spring length	STD		50.0 mm	1.969 in.
		Limit		47.0 mm	1.850 in.
	Pump rotating torque			Less than 2.8 kg-cm (2.4 in.-lb, 0.3 N-m)	
	Cross shaft adjusting screw end play			0.03 – 0.05 mm	0.0012 – 0.0020 in.
	Ball clearance	STD		0.02 – 0.06 mm	0.0008 – 0.0024 in.
Limit			0.15 mm	0.0059 in.	
Worm bearing preload	at Starting		4.0 – 6.5 kg-cm		
			3.5 – 5.6 in.-lb	0.4 – 0.6 N-m	
Total preload	at Starting		Add worm bearing preload		
			2.0 – 3.0 kg-cm		
			1.7 – 2.6 in.-lb	0.2 – 0.3 N-m	

Tilt steering	Collar No. 1 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.
	Collar No. 2 outer diameter		17.982 – 18.000 mm	0.7080 – 0.7087 in.
			18.000 – 18.018 mm	0.7087 – 0.7094 in.
	Tilt steering support shim thickness		0.2 mm	0.008 in.
			0.5 mm	0.020 in.
			0.8 mm	0.031 in.
			1.4 mm	0.055 in.
			1.8 mm	0.071 in.

Tightening Torque

Steering	Tightening part	kg-cm	ft-lb	N-m
	Steering wheel x Steering main shaft	350	25	34
	Column tube x Instrument panel	260	19	25
	Flexible coupling x Steering main shaft	260	19	25
	Flexible coupling x Steering intermediate shaft	260	19	25
	Flexible coupling x Worm shaft (2WD)	260	19	25
	(4WD)	375	27	37
	Steering main shaft x Steering intermediate shaft	375	27	37
	Column tube x Upper bracket	55	48 in.-lb	5.4
	Column tube x Column tube bracket	195	14	19
Tilt steering	Tilt steering pawl set bolt	185	13	18
	Tilt lever retainer	185	13	18
	Castle nut (Support x Column bracket)	225	16	22
	Upper bracket x Tile steering support	80	69 in.-lb	7.8
	Column bracket x Column tube	185	13	18
	Main shaft x Intermediate shaft	260	19	25
Steering gear housing (2WD)	Worm bearing adjusting screw lock nut	1,500	108	147
	End cover x Gear housing	185	13	18
	Sector shaft adjusting screw lock nut	250	18	25
	Gear housing x Body	660	48	65
Steering gear housing (4WD)	End cover x Gear housing	400	29	39
	Sector shaft adjusting screw lock nut	425	31	42
	Gear housing x Body	575	42	56
Power steering	Pressure port union x Rear housing	700	51	69
	Front housing x Rear housing	470	34	46
	Union x Rear housing	130	9	13
	Vane pump x Bracket	400	29	39
	Pressure tube x Vane pump	450	33	44
	Pump pulley x Rotor shaft	440	32	43
	Worm adjusting screw lock nut	500	36	49
	Gear housing x Valve housing	470	34	46
	End cover x Gear housing	470	34	46
	Cross shaft adjusting screw lock nut	470	34	46
	Pressure and return line x Valve housing	450	33	44
Steering linkage (2WD)	Pitman arm x Gear housing	1,250	90	123
	Pitman arm x Relay rod	920	67	90
	Tie rod clamp bolt	260	19	25
	Tie rod x Relay rod	920	67	90
	Tie rod x Knuckle arm	920	67	90
	Relay rod x Idler arm	600	43	59
	Knuckle arm x Steering knuckle	1,100	80	108
	Steering damper x Body	130	9	13
	Steering damper x Tie rod	600	43	59
	Idler arm x Body	660	48	65
	Idler arm x Idler arm bracket	800	58	78
Steering linkage (4WD)	Pitman arm x Gear housing	1,750	127	172
	Tie rod x Knuckle arm	930	67	91
	Tie rod x Steering damper	600	43	59
	Tie rod clamp bolt	375	27	37
	Steering damper x Front axle housing	130	9	13

WINCH

Specifications

Winch	Clutch outer race bushing bore		STD	12.00 mm	(0.4724 in.)
			Limit	12.15 mm	(0.4783 in.)
	Gear case bushing bore		STD	12.00 mm	(0.4724 in.)
			Limit	12.15 mm	(0.4783 in.)
	Thrust bushing thickness				
	No. 1	STD	2.0 mm	(0.079 in.)	
		Limit	1.7 mm	(0.067 in.)	
	No. 2	STD	1.0 mm	(0.039 in.)	
		Limit	0.8 mm	(0.031 in.)	
	Drum bushing bore				
	A	STD	83.00 mm	(3.2677 in.)	
		Limit	83.08 mm	(3.2709 in.)	
	B	STD	80.00 mm	(3.1496 in.)	
		Limit	80.08 mm	(3.1527 in.)	
	Thrust bushing thickness				
		STD	1.5 mm	(0.059 in.)	
		Limit	1.0 mm	(0.039 in.)	
	Thrust washer thickness				
		STD	2.0 mm	(0.079 in.)	
		Limit	1.6 mm	(0.063 in.)	
Motor	Brush	Length	STD	16.0 mm	(0.630 in.)
			Limit	10.5 mm	(0.413 in.)
	Spring installed load		STD	1.6 kg	(3.5 lb)
			Limit	1.0 kg	(2.2 lb)
	Commutator				
	Outer diameter	STD	28.0 mm	(1.102 in.)	
		Limit	27.0 mm	(1.063 in.)	
	Undercut depth	STD	0.5 – 0.8 mm	(0.020 – 0.032 in.)	
		Limit	0.2 mm	(0.008 in.)	
	Circle runout				
		Limit	0.4 mm	(0.157 in.)	

Tightening Torque

Tightening part	kg-cm	ft-lb	N-m
Ring gear x Gear case	195	14	19
Drum plate x Gear case	195	14	19
Commutator end frame x Gear case	195	14	19
Bracket x Gear case	930	67	91
Bracket x Drum plate x Wire guide	190	14	19
Filler and Drain plug	175	13	17

LUBRICANTS

Item	Capacity			Classification
	Liters	US qts	Imp. qts	
Engine oil Drain and refill w/o Oil filter change w/ Oil filter change Dry fill	 4.0 4.6 4.8	 4.2 4.9 5.1	 3.5 4.0 4.2	API grade SF or SF/CC multigrade, fuel efficient and recommended viscosity oil
Manual transmission oil (2WD) W46, W55, W56 (4WD) W56 G52	 2.4 3.0 3.9	 2.5 3.2 4.1	 2.1 2.6 3.4	API GL-4 or GL-5 SAE 75W-90
A/T fluid Dry fill Drain and refill	 6.5 2.4	 6.9 2.5	 5.7 2.1	ATF DEXRON II
Transfer oil	1.6	1.7	1.4	API GL-4 or GL-5, SAE 75W-90
Differential oil (2WD) 1/2 ton 1 ton and C & C (4WD) Front Rear	 1.7 1.8 2.3 2.2	 1.8 1.9 2.4 2.3	 1.5 1.6 2.0 1.9	API GL-5 hypoid gear oil Above -18°C (0°F) SAE 90 Below -18°C (0°F) SAE 80W-90 or 80W
Steering gear box oil (2WD) (4WD)	380 – 400 cc 23.2 – 24.4 cu in. 580 cc 35.4 cu in.			API GL-4, SAE 90
Power steering fluid Pump Total	300 cc 18.3 cu in. 850 cc 51.9 cu in.			ATF DEXRON or DEXRON II
Winch gear oil	200 cc	12.2 cu in.		ATF DEXRON II
Ball joint grease (2WD)	—			Molybdenum disulphide lithium base, NLGI No. 1 or No. 2
Chassis grease (4WD) Propeller shaft (Except double cardan joint) Double cardan joint Drag link ends	 —			Lithium base, NLGI No. 2 Molybdenum disulphide lithium base, NLGI No. 2 Lithium base, NLGI No. 1
Wheel bearing grease	—			Lithium base multipurpose, NLGI No. 2
Steering knuckle and front axle shaft grease (4WD)	—			Molybdenum disulphide lithium base, NLGI No. 2
Brake fluid	—			SAE J1703, DOT 3