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## TECHNICAL DATA

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MEASUREMENTS			
Overall length	4,285 mm (169 in)	Apex seal	
Overall width		Length	
(Without side protector)	1,650 mm (65 in)	<b>12A Engine</b>	69.8 mm (2.7481 in)
(With side protector)	1,675 mm (66 in)	<b>13B Engine</b>	79.8 mm (3.1418 in)
Overall height	1,260 mm (50 in)	Width	3.0 mm (0.1181 in)
Distance between wheel center and fender line		Height	
Front	364 ± 20 mm (14.3 ± 0.8 in)	Standard	8.5 mm (0.3347 in)
Rear	358 ± 20 mm (14.0 ± 0.8 in)	Limit	7.0 mm (0.2756 in)
Wheel base	2,420 mm (95 in)	Clearance of apex seal and rotor groove (ΔG)	
Tread		Standard	0.05 ~ 0.09 mm (0.0020 ~ 0.0035 in)
Front	1,420 mm (56 in)	Limit	0.15 mm (0.0059 in)
Rear	1,400 mm (55 in)	Apex seal spring	
Minimum road clearance	160 mm (6 in)	Free height	
Minimum turning radius	4.8 m (15 ft 9 in)	Standard	6.9 mm (0.2717 in) or more
		<b>13B Engine</b>	5.7 mm (0.2244 in) or more
		Limit	
		<b>12A Engine</b>	5.5 mm (0.2165 in)
		<b>13B Engine</b>	3.8 mm (0.1496 in)
<b>1. ENGINE</b>		Side seal	
Displacement		Thickness	1.0 mm (0.0394 in)
<b>12A Engine</b>	573 CC (35.0 cu-in) X 2 rotors	Height	3.5 mm (0.1378 in)
<b>13B Engine</b>	654 CC (40.0 cu-in) X 2 rotors	Clearance of side seal and rotor groove (ΔW)	
Compression ratio	9.4 : 1	Standard	0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)
Compression pressure	600 kpa (85 lb/in <sup>2</sup> )	Limit	0.10 mm (0.0039 in)
Limit	at 250 rpm	Clearance of side seal and corner seal (ΔE)	
Max. permissible difference between chambers	150 kpa (21 lb/in <sup>2</sup> )	Standard	0.05 ~ 0.15 mm (0.0020 ~ 0.0059 in)
Port timing		Limit	0.40 mm (0.0157 in)
<b>12A Engine</b>		Side seal protrusion	More than 0.5 mm (0.0197 in)
Intake opens ATDC	32°	Oil seal	
Intake closes ABDC	40°	Height	5.6 mm (0.2205 in)
Exhaust opens BBDC	75°	Contact width of oil seal lip	Less than 0.5 mm (0.0197 in)
Exhaust closes ATDC	38°	Oil seal protrusion	More than 0.5 mm (0.0197 in)
<b>13B Engine</b>		Corner seal	
Intake opens ATDC	32°(Pr.) 32°(Sec.) 45° (Auxiliary)	Outer diameter	11.0 mm (0.4331 in)
Intake closes ABDC	40°(Pr.) 30°(Sec.) 70°	Height	7.0 mm (0.2756 in)
Exhaust opens BBDC	71°	Corner seal protrusion	More than 0.5 mm (0.0197 in)
Exhaust closes ATDC	48°	Main bearing clearance	
Side housings (Front, intermediate and rear housings)		Standard	0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)
Width standard		Wear limit	0.10 mm (0.0039 in)
Front	40 mm (1.5748 in)	Rotor bearing clearance	
Intermediate	50 mm (1.9685 in)	Standard	0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)
Rear	60 mm (2.3622 in)	Wear limit	0.10 mm (0.0039 in)
Limit of distortion	0.04 mm (0.0016 in)	Eccentric shaft	
Limit of wear		Eccentricity of rotor	15.0 mm (0.5906 in)
Sliding surface	0.10 mm (0.0039 in)	Journal	
Rotor housing		Main journal diameter	43 mm (1.6929 in)
Width		Rotor journal diameter	74 mm (2.9134 in)
<b>12A Engine</b>	70.0 mm (2.7559 in)	Max. permissible run-out	0.06 mm (0.0024 in)
<b>13B Engine</b>	80.0 mm (3.1497 in)	End play	
Max. permissible difference in width	0.06 mm (0.0024 in)	Standard	0.04 ~ 0.07 mm (0.0016 ~ 0.0028 in)
Rotor		Limit	0.09 mm (0.0035 in)
Width			
<b>12A Engine</b>	69.8 mm (2.7481 in)		
<b>13B Engine</b>	79.85 mm (3.1438 in)		
Clearance of side housing and rotor (ΔR)			
Standard			
<b>12A Engine</b>	0.12 ~ 0.19 mm (0.0047 ~ 0.0075 in)		
<b>13B Engine</b>	0.12 ~ 0.21 mm (0.0047 ~ 0.0083 in)		
Limit	0.10 mm (0.0039 in)		

Alternator belt tension (slack) (Between alternator and eccentric shaft pulley) Belt deflection Air pump belt tension (slack) (Between air pump and water pump pulley) Belt deflection	15 ± 2 mm (0.5906 ± 0.0787 in)  12 ± 1 mm (0.4724 ± 0.0394 in)	Oil metering pump Feeding capacity of 2,000 rpm of engine  <b>12A Engine</b>  <b>13B Engine</b>	1.8 ~ 2.2 cc/6 min. (0.110 ~ 0.134 U.S. cu-in/6 min.)  0.8 ~ 1.2 cc/6 min. (0.049 ~ 0.073 U.S. cu-in/6 min.)
<b>TIGHTENING TORQUE</b>			
	<b>N-m</b>	<b>ft-lb</b>	
Oil pump sprocket	32 ~ 47	23 ~ 34	
Oil pan	8 ~ 11	6 ~ 8	
Inlet manifold	19 ~ 26	14 ~ 19	
Exhaust manifold	32 ~ 47	23 ~ 34	
Spark plugs	13 ~ 18	9 ~ 11	
Eccentric shaft pulley	100 ~ 120	72 ~ 87	
Temperature gauge unit	7 ~ 8	5 ~ 6	
Tension bolts	32 ~ 38	23 ~ 27	
Water temperature switch	35 ~ 45	25 ~ 33	
<b>2. LUBRICATING SYSTEM</b>			
Oil pump Type Feeding capacity at 1,000 rpm of engine  Oil pump driven by Limit of chain slack Outer rotor and body Clearance Standard  Wear limit Clearance between rotor lobes Standard  Wear limit Rotor end float Standard  Wear limit Oil pressure at 3,000 rpm of engine Oil pressure at idle speed of engine ("D" range for automatic) Pressure regulator valve (Rear housing) Operating pressure  Free length of spring Pressure control valve (Front cover) Operating pressure Free length of spring By-pass valve (Oil cooler) Opening pressure  Oil filter Type Relief valve opens at	Rotor 7.0 liters/min. (7.4 U.S. quarts/min., 6.2 Imp. quarts/min.)  Chain and sprocket 12 mm (0.4724 in)  0.20 ~ 0.25 mm (0.0079 ~ 0.0098 in)  0.30 mm (0.0118 in)  0.01 ~ 0.09 mm (0.0004 ~ 0.0035 in)  0.15 mm (0.0059 in)  0.03 ~ 0.13 mm (0.0012 ~ 0.0051 in)  0.15 mm (0.0059 in) 450 ~ 550 kpa (64.0 ~ 78.2 lb/in <sup>2</sup> ) 90 ~ 270 kpa (12.8 ~ 38.4 lb/in <sup>2</sup> )  500 kpa (71.1 lb/in <sup>2</sup> ) at 3,000 rpm of engine 46.4 mm (1.8268 in)  800 kpa (113.8 lb/in <sup>2</sup> ) 69.6 mm (2.7402 in)  300 kpa at 60°C (42.7 lb/in <sup>2</sup> at 140°F)  Full flow, cartridge 80 ~ 120 kpa (11.4 ~ 17.1 lb/in <sup>2</sup> )	Lubricant Classification Above -10°C (15°F) -25°C ~ 30°C (-13°F ~ 86°F) Above -25°C (-13°F) Below -20°C (-4°F) Below 0°C (32°F) Oil capacity Full capacity <b>12A Engine</b> <b>13B Engine</b> Oil pan capacity <b>12A Engine</b> <b>13B Engine</b>	A.P.I. Service SD, SE or SF SAE 20W-40 or 20W-50 SAE 10W-30  SAE 10W-40 or 10W-50 SAE 5W-20 SAE 5W-30  4.6 liters (4.9 U.S. quarts) 5.8 liters (6.1 U.S. quarts)  4.2 liters (4.4 U.S. quarts) 4.6 liters (4.9 U.S. quarts)
<b>TIGHTENING TORQUE</b>			
	<b>N-m</b>	<b>ft-lb</b>	
Oil pump sprocket	32 ~ 47	23 ~ 34	
Oil pan	8 ~ 11	6 ~ 8	
<b>3. COOLING SYSTEM</b>			
Water pump Type Feeding capacity at 6,500 rpm of engine  Pump driven by Pulley ratio of eccentric shaft and pump  Fan Fan diameter Number of fan blades Fan drive Standard revolution of fan  Thermostat Type Starts to open Fully opens at Lift  Radiator Type  Pressure cap opens at  Cooling capacity With heater  Without heater	Centrifugal impeller 150 ~ 160 liters/min (39.6 ~ 42.3 U.S. gal/min., 33.0 ~ 35.2 Imp. gal/min.) "V" belt 1 : 1.18  390 mm (15.3546 in) 8  Less than 900 rpm at 3400 rpm of engine  Wax pellet 82 ± 1.5°C (180 ± 2.7°F) 95°C (203°F) 8 ~ 10 mm (0.3150 ~ 0.3937 in)  Corrugated fin, with expansion tank 90 ~ 15 kpa (12.8 ± 2.0 lb/in <sup>2</sup> )  9.5 liters (10 U.S. quarts) (8.4 Imp. quarts) 8.5 liters (9.0 U.S. quarts) (7.5 Imp. quarts)		

TIGHTENING TORQUE			Air cleaner element Sub-zero starting assist fluid	Long life dry Anti-freeze 90% Water 10%
	N-m	ft-lb		
Temperature gauge unit	7 ~ 8	5 ~ 6	<b>13B Engine</b> Fuel tank capacity	63 liters (16.4 U.S. gal.) (13.9 Imp. gal.)
Water temperature switch	35 ~ 45	25 ~ 33		
Water pump	18 ~ 27	13 ~ 20		
<b>4. FUEL SYSTEM</b>			Fuel pump	Motor
<b>12A Engine</b>			Type	350 ~ 500 kpa
Fuel tank capacity	63 liters (16.4 U.S. gal.) (13.9 Imp. gal.)		Outlet pressure	(49.8 ~ 71.1 lb/in <sup>2</sup> )
Fuel pump			Feeding capacity	More than 1,700 cc/min. (1.80 U.S. quarts/min.) (1.50 Imp. quarts/min.)
Type	Motor		Fuel filter	Nylon 6 - 150 mesh
Outlet pressure	20 ~ 25 kpa (2.84 ~ 3.55 lb/in <sup>2</sup> )		Pressure regulator	Diaphragm
Feeding capacity	More than 1,400 cc/min. (1.48 U.S. quarts/min.) (1.23 Imp. quarts/min.)		Type	200 ~ 260 kpa
Fuel filter	Cartridge, paper element		Fuel pressure	(28.4 ~ 37.0 lb/in <sup>2</sup> )
Carburetor			Throttle chamber	Horizontal - draft
Type	Down draft, 2 stage 4 barrel		Type	(2 stage, 3 barrel)
Throat diameter			Throat diameter	
Primary	28 mm (1.10 in)		Primary	40 mm (1.6 in)
Secondary	34 mm (1.34 in)		Secondary	38 mm (1.4 in) X 2
Venturi diameter			Idling speed	800 rpm
Primary	20 X 13 X 6.5 mm (0.79 X 0.51 X 0.26 in)		Air cleaner element	Long life dry
Secondary	28 X 10 mm (1.10 X 0.39 in)		Sub-zero starting assist fluid	Anti-freeze 90% Water 10%
	Manual transmission	Automatic transmission	<b>TIGHTENING TORQUE</b>	
Main jet				
Primary	# 92	# 91		
Secondary	# 160	# 160		
Main air bleed				
Primary No.1	# 70	# 60	Intake manifold	19 ~ 26
No. 2	# 70	# 70	Exhaust manifold	14 ~ 19
Secondary	# 140	# 140		32 ~ 47
Slow jet			<b>5. ENGINE ELECTRICAL SYSTEM</b>	
Primary	# 46	# 46	Battery	
Secondary	# 110	# 110	Type	50 D20R
Slow air bleed			California	
Primary No. 1	# 70	# 70	Except for California	50D20R, 65D23R
No. 2	# 170	# 150	Manual transmission	65D23R
Secondary No. 1	# 160	# 160	Automatic transmission	55 amp, 65D23R
No. 2	# 60	# 60	Capacity (20 hours Rate)	50 amp, 50D20R
Richer jet	# 40	-	Voltage	12 Volt
Richer air bleed	# 130	-	Terminal ground	Negative
Vacuum jet			Specific gravity at 20°C (68°F)	50D20R, 65D23R
Primary	1.8 mm (0.0709 in)		Fully charged	1.280
Fast idle adjustment			Recharged at	1.220
(Clearance between primary throttle valve and bore when choke knob is fully pulled)	1.0 ~ 1.2 mm (0.039 ~ 0.047 in)		Distributor	
Float level	16.0 ± 0.5 mm (0.63 ± 0.020 in)		Air gap	0.5 ~ 0.9 mm (0.020 ~ 0.035 in)
(from surface of gasket)				
Float drop	51 ± 0.5 mm (2.0 ± 0.02 in)			
(from surface of gasket)				
Idling speed				
Manual transmission	750 rpm			
Automatic transmission	750 rpm			
("D" range)				

Centrifugal advance <b>12A Engine</b> Leading	Starts: 0° at 500 rpm	Load test Voltage Current <b>12A Engine</b> <b>13B Engine</b> Revolution Number of brushes Brush length Wear limit Brush spring pressure Pulley ratio of eccentric shaft and alternator Ignition coil (Leading) Type Primary resistance Ignition coil (Trailing) Type Primary resistance	13.5V	
	Maximum: 12.5° at 2,063 rpm		More 26 amp. More 21 amp. Less than 1300 rpm	
Trailing	Starts: 0° at 500 rpm	2	8 mm (0.650 in)	
	Maximum: 12.5° at 2,063 rpm		8 mm (0.315 in)	
<b>13B Engine</b> Leading	Starts: 0° at 500 rpm	0.3 ~ 0.44 kg (10.6 ~ 15.5 oz)	1 : 2.08	
	Maximum: 13.75° at 2,000 rpm		LB-84 or FTC-3 0.9 ± 0.09 Ω at 20°C (68°F)	
Trailing	Starts: 0° at 500 rpm	LB-84 or FTC-3 0.9 ± 0.09 Ω at 20°C (68°F)		
	Maximum: 13.75° at 2,000 rpm			
Vacuum advance <b>12A Engine</b> Leading	Starts: 0° at 100 mm-Hg (3.9 in-Hg)	Starting motor Capacity Lock test Voltage Current Torque Free running test Voltage Current Speed Number of brushes Brush length Wear limit Standard spring tension Control switch Voltage required to close solenoid contacts Undercutting mica Clearance between armature shaft and bush Armature shaft end play Clearance between pinion and stop collar	Manual transmission	Automatic transmission
	Maximum: 4.5° at -190 mm-Hg (7.5 in-Hg)		1.2 KW	2.0 KW
Trailing	Start: 0° at -100 mm-Hg (3.9 in-Hg)	5.0 volt Less than 420 amp. 9.6 N-m (6.9 ft-lb)	5.0 volt	4.0 volt
	Maximum: 15° at -400 mm-Hg (15.7 in-Hg)		Less than 420 amp. 9.6 N-m (6.9 ft-lb)	Less than 1,100 amp. 31 N-m (22.4 ft-lb)
<b>13B Engine</b> Leading	Starts: 0° at -100 mm-Hg (3.9 in-Hg)	11.5 volt Less than 60 amp. More than 6,500 rpm	11.5 volt	11.5 volt
	Maximum: 5° at -250 mm-Hg (9.8 in-Hg)		Less than 60 amp. More than 6,500 rpm	Less than 100 amp. More than 3,500 rpm
Trailing	Start: 0° at -100 mm-Hg (3.9 in-Hg)	4	4	4
	Maximum: 12.5° -350 mm-Hg (13.8 in-Hg)		17 mm (0.67 in)	17 mm (0.67 in)
Condenser capacity	0.24 ~ 0.30 μF	11.5 mm (0.45 in)	1.4 ~ 2.6 kg (49 ~ 92 oz)	1.4 ~ 2.6 kg (49 ~ 92 oz)
			1.4 ~ 2.6 kg (49 ~ 92 oz)	1.4 ~ 2.6 kg (49 ~ 92 oz)
Ignition timing Leading <b>12A Engine</b> <b>13B Engine</b>	0° ATDC	8 volt	Solenoid	Solenoid
	5° ATDC		Less than 8 volt	Less than 8 volt
Trailing	20° ATDC	0.5 ~ 0.8 mm (0.020 ~ 0.031 in)	0.5 ~ 0.8 mm (0.020 ~ 0.031 in)	0.5 ~ 0.8 mm (0.020 ~ 0.031 in)
	Eccentric shaft pulley		Less than 0.2 mm (0.008 in)	—
Timing mark location	NGK: BR7EQ14, BR8EQ14 BR9EQ14	0.1 ~ 0.5 mm (0.004 ~ 0.02 in)	0.1 ~ 0.5 mm (0.004 ~ 0.02 in)	0.1 ~ 0.5 mm (0.004 ~ 0.02 in)
	NIPPON DENSO W22EDR14 W25EDR14 W27EDR14		0.5 ~ 2.0 mm (0.020 ~ 0.079 in)	0.5 ~ 2.0 mm (0.020 ~ 0.079 in)
Spark plug Type	1.4 ± 0.05 mm (0.055 ± 0.002 in)	0.020 ~ 0.079 in)	0.020 ~ 0.079 in)	0.020 ~ 0.079 in)
Alternator Ground	Negative	12V 50A 12V 55A		
Rated output <b>12A Engine</b> <b>13B Engine</b>	12V 50A			
	12V 55A			

6. CLUTCH		Clearance between shift rod gate and control lever Wear limit		0.8 mm (0.0315 in)	
Clutch pedal Free play (at pedal pad)	0.6 ~ 3.1 mm (0.0236 ~ 0.1220 in)	Synchronizer ring Clearance between synchronizer ring and side of gear when fitted	Standard	1.5 mm (0.0591 in)	
Engagement height (from floor)	More than 75 mm (2.9528 in)	Wear limit		0.8 mm (0.0315 in)	
Master cylinder Bore	15.87 mm (0.6248 in)	Lubricant	Above -18°C (0°F)	A.P.I. Service GL-4 or GL-5 SAE90	
Clearance between piston and bore		Below -18°C (0°F)		A.P.I. Service GL-4 or GL-5 SAE80W	
Standard	0.032 ~ 0.102 mm (0.0013 ~ 0.0040 in)	<b>TIGHTENING TORQUE</b>			
Limit	0.15 mm (0.0059 in)				
Release cylinder Bore	19.05 mm (0.7500 in)		<b>N-m</b>	<b>ft-lb</b>	
Clearance between piston and bore		Plug for interlock pin hole	10 ~ 15	7 ~ 11	
Standard	0.040 ~ 0.125 mm (0.0016 ~ 0.0049 in)	Control lever to control rod end	8 ~ 12	6 ~ 9	
Limit	0.15 mm (0.0059 in)	Shift fork set bolts	12 ~ 16	9 ~ 12	
Clutch disc Thickness limit	7.0 mm (0.2756 in)	Shift rod end	8 ~ 12	6 ~ 9	
Rivet depth limit	0.3 mm (0.0118 in)	Main shaft lock nut	130 ~ 210	94 ~ 152	
Lateral run-out limit	1.0 mm (0.0394 in)	Top switch	25 ~ 35	18 ~ 25	
Diaphragm Finger out of alignment		Overdrive switch	25 ~ 35	18 ~ 25	
Limit	1.0 mm (0.0394 in)	Back-up light switch	25 ~ 25	18 ~ 25	
Finger groove wear depth		Speedometer driven gear	8 ~ 11	6 ~ 8	
Limit	1.0 mm (0.0394 in)	Bearing cover			
<b>TIGHTENING TORQUE</b>		6T bolts	16 ~ 23	12 ~ 17	
		8T bolts	18 ~ 27	13 ~ 20	
		<b>7B. AUTOMATIC TRANSMISSION</b>			
		Gear ratio			
		Low	2.458		
		Second	1.458		
		Third	1.000		
		OD (Fourth)	0.720		
		Reverse	2.181		
		Fluid type	M2C33F (Type F)		
		Fluid capacity	7.5 liters (7.9 U.S. quarts) (6.6 Imp. quarts)		
		Drive plate run-out			
		Limit	0.5 mm (0.0197 in)		
		Oil pump			
		Side play of inner gear and outer gear			
		Limit	0.08 mm (0.0031 in)		
		Clearance between outer gear and crescent			
		Limit	0.25 mm (0.0098 in)		
		Clearance between outer gear and housing			
		Limit	0.25 mm (0.0098 in)		
		Side clearance between oil seal ring and groove on oil pump cover	0.4 ~ 0.16 mm (0.0016 ~ 0.0063 in)		
		Direct clutch			
		Thickness of drive plate			
		Limit	1.6 ~ 1.8 mm (0.0630 ~ 0.0709 in)		
		Total clearance measured between retaining plate and snap ring			
		End play	0.5 ~ 0.8 mm (0.0197 ~ 0.0315 in)		
		OD gear train			
		End play	0.25 ~ 0.50 mm (0.0098 ~ 0.0197 in)		
<b>7A. MANUAL TRANSMISSION</b>					
Gear ratio		12A Engine	13B Engine		
First		3.622	←		
Second		2.186	←		
Third		1.419	←		
Fourth		1.000	←		
Reverse		3.493	←		
Fifth		0.807	0.758		
Oil capacity		2.0 liters (2.1 U.S. quarts) (1.8 Imp. quarts)			
Main shaft					
Max. permissible run-out	0.03 mm (0.0012 in)				
Clearance between main shaft and gear (or bush)					
Wear limit	0.15 mm (0.0059 in)				
Reverse idle gear					
Clearance between reverse idle gear bush and shaft					
Wear limit	0.15 mm (0.0059 in)				
Shift fork and rod					
Clearance between shift fork and clutch sleeve					
Wear limit	0.5 mm (0.0197 in)				

Front clutch Total clearance measured between retaining plate and snap ring End play of front clutch drum	1.6 ~ 1.8 mm (0.0630 ~ 0.0709 in) 0.5 ~ 0.8 mm (0.0197 ~ 0.0315 in)
Rear clutch Total clearance measured between retaining plate and snap ring	0.8 ~ 1.5 mm (0.0315 ~ 0.0591 in)
Low and reverse brake Total clearance measured between retaining plate and snap ring	0.8 ~ 1.05 mm (0.0315 ~ 0.413 in)
Gear assembly Total end play	0.25 ~ 0.50 mm (0.0098 ~ 0.0197 in)
Planetary gear side play Limit	0.8 mm (0.0315 in)
Engine stall speed	2,400 ~ 2,650 rpm

Valve body spring	Wire diameter	Free length
Pressure regulator valve	11.7 ± 0.2 mm (0.4606 ± 0.0079 in)	43.0 ± 1.0 mm (1.6929 ± 0.0394 in)
1st-2nd shift valve	6.6 ± 0.2 mm (0.2598 ± 0.0079 in)	32.0 ± 1.0 mm (1.2599 ± 0.0394 in)
2nd-3rd shift valve	6.9 ± 0.2 mm (0.2717 ± 0.0079 in)	41.0 ± 1.0 mm (1.6142 ± 0.0394 in)
3rd-4th shift valve	7.3 ± 0.2 mm (0.2874 ± 0.0079 in)	25.8 mm (1.0158 in)
Throttle back-up valve	7.3 ± 0.2 mm (0.2874 ± 0.0079 in)	31.8 mm (1.2520 in)
Solenoid down shift valve	5.55 ± 0.2 mm (0.2185 ± 0.0079 in)	22.0 ± 1.0 mm (0.8662 ± 0.0394 in)
2nd lock valve	5.55 ± 0.2 mm (0.2185 ± 0.0079 in)	33.5 ± 1.0 mm (1.3189 ± 0.0394 in)
Throttle relief valve	6.5 ± 0.2 mm (0.2559 ± 0.0079 in)	26.8 ± 1.0 mm (1.0551 ± 0.0394 in)
Orifice check valve	5.0 ± 0.2 mm (0.1969 ± 0.0079 in)	15.5 ± 2.0 mm (0.6102 ± 0.0079 in)

Shift speed		
Throttle condition (Manifold vacuum)	mph	
Kick-down (0 ~ 100 mm-Hg) (0 ~ 3.94 in-Hg)	D1 → D2	34 ~ 41
	D2 → D3	63 ~ 70
	D3 → D2	58 ~ 65
	D2 → D1	29 ~ 36
Half throttle (200 ± 10 mm-Hg) (7.87 ± 0.39 in-Hg)	D1 → D2	7 ~ 11
	D2 → D3	19 ~ 22
	D3 → D4	59 ~ 70
Fully closed throttle	D3 → D1	7 ~ 11
Manual 1	I2 → I1	27 ~ 34
Lock up on	D4	42 ~ 48

**Governor pressure**

Driving speed	Governor pressure	
	Kpa	lb/in <sup>2</sup>
20	80 ~ 140	11 ~ 17
35	150 ~ 230	20 ~ 28.4
55	320 ~ 410	46 ~ 58

**Line pressure**

Manual range	Engine idling condition		Engine stall condition	
	Kpa	lb/in <sup>2</sup>	Kpa	lb/in <sup>2</sup>
R	400 ~ 700	57 ~ 100	1600 ~ 1900	228 ~ 270
D	300 ~ 400	43 ~ 57	900 ~ 1100	128 ~ 156
2	800 ~ 1200	114 ~ 171	800 ~ 1200	114 ~ 171
1	300 ~ 400	43 ~ 57	900 ~ 1100	128 ~ 156

**TIGHTENING TORQUE**

	N-m	ft-lb
Drive plate to converter weight	83 ~ 95	60 ~ 69
Drive plate to torque converter	35 ~ 50	25 ~ 36
Converter housing to engine	32 ~ 47	23 ~ 34
Converter housing to transmission case	45 ~ 55	33 ~ 40
Extension housing to transmission case	20 ~ 25	14 ~ 18
Oil pan	6 ~ 8	4.3 ~ 5.8
Piston stem (when adjusting band brake)	12 ~ 15	9 ~ 11
Piston stem lock nut	15 ~ 40	11 ~ 29
Servo piston retainer	7 ~ 9	5 ~ 7
One-way clutch inner race	13 ~ 18	9 ~ 13
Control valve body to transmission case	5.5 ~ 7.5	4.0 ~ 5.4
Lower valve body to upper valve body	2.5 ~ 3.5	1.8 ~ 2.5
Side plate to control valve body	2.5 ~ 3.5	1.8 ~ 2.5
Reamer bolt of control valve body	5 ~ 7	3.6 ~ 5.1
Oil strainer	3 ~ 4	2.2 ~ 2.9
Governor valve body to oil distributor	5 ~ 7	3.6 ~ 5.1
Oil pump cover	6 ~ 9	4.3 ~ 6.5
Drum support	6 ~ 9	4.3 ~ 6.5
Inhibitor switch	5 ~ 7	3.6 ~ 5.1
Manual shaft lock nut	30 ~ 40	22 ~ 29
Oil cooler pipe set bolt	24 ~ 36	17 ~ 26
Oil pressure test plug	5 ~ 10	3.6 ~ 7.2
Actuator for parking rod to extension housing	8 ~ 11	5.8 ~ 8.0



8. PROPELLER SHAFT					
Max. permissible runout	0.4 mm (0.016 in)			Backlash between rack and sector gear	Adjust to 0 mm
Max. permissible unbalance at 4,000 rpm				Worm bearing preload	
At front	15 cm-gr (0.21 in-oz)			Without sector shaft and column bush	0.2 ~ 0.5 N-m (1.7 ~ 4.3 in-lb)
At rear	15 cm-gr (0.21 in-oz)			With sector shaft and column bush	0.6 ~ 1.2 N-m (5.2 ~ 10.4 in-lb)
Universal joint				Clearance between sector shaft and housing bush	
Journal swinging torque	0.3 ~ 0.8 N-m (2.6 ~ 6.9 in-lb)			Wear limit	0.1 mm (0.004 in)
				End clearance of adjusting screw and sector shaft	0 ~ 0.1 mm (0 ~ 0.004 in)
TIGHTENING TORQUE					
		N-m	ft-lb	Lubricant	A.P.I. Service GL-4 SAE90
Yoke to rear axle companion flange		35 ~ 38	25 ~ 27	Oil capacity	290 cc (0.31 U.S. quarts) (0.26 Imp. quarts)
9. REAR AXLE					
Reduction ratio				Max. Wheel angle on full lock	
12A engine powered vehicle	3.909			Wheel on inside of curve	39°40' ± 2°
13B engine powered vehicle	4.076			Wheel on outside of curve	32°14' ± 2°
Backlash of ring gear and pinion	0.09 ~ 0.11 mm (0.0035 ~ 0.0043 in)			Idler arm revolving torque	2 ~ 6 kg/135 mm (4.4 ~ 13.2 lb/5.315 in)
Pinion bearing preload (Without pinion oil seal)	0.9 ~ 1.4 N-m (7.8 ~ 12.2 in-lb)			Kuckle arm ball stud revolving torque	More than 0.4 kg (14 oz)
Differential side bearing preload (Without pinion)	0.6 ~ 2.1 N-m (5.2 ~ 18.2 in-lb)			Steering geometry	
Backlash of side gear and pinion gear	0 ~ 0.1 mm (0 ~ 0.0039 in)			King-pin inclination	
Rear wheel bearing end play	0 ~ 0.1 mm (0 ~ 0.0039 in)			13 inch tire vehicles	10°44'
Lubricant				14 inch tire vehicles	11°20'
Standard diff.	A.P.I. Service GL-5 SAE90			Camber	
Above -18°C (0°F)	A.P.I. Service GL-5 SAE80W			13 inch tire vehicles	1°00' ± 30'
Below -18°C (0°F)	A.P.I. Service GL-5 SAE90			14 inch tire vehicles	0°35' ± 30'
Limited slip diff.	A.P.I. Service GL-5 SAE90 (Special Lubricant For Limited Slip Differentials)			Max. permissible difference in camber between sides	±30'
Oil capacity				Camber offset	38 mm (1.50 in)
Standard diff.	1.2 liters (1.3 U.S. quarts) (1.1 Imp. quarts)			Caster	Right-hand side 4°10' ± 30'
Limited slip diff.	1.6 liters (1.7 U.S. quarts) (1.4 Imp. quarts)			Max. permissible difference in caster between sides	Left-hand side 3°40' ± 30'
"L" (Case spread)	185.428 ~ 185.500 mm (7.3004 ~ 7.3033 in)			Caster trail	±30'
				Toe-in	20 mm (0.79 in) (0 ~ 6 mm (0 ~ 0.24 in))
TIGHTENING TORQUE					
		N-m	ft-lb	10B. POWER STEERING	
Ring gear		70 ~ 85	51 ~ 61	Type	Integral ball nut
Differential side bearing caps		38 ~ 53	27 ~ 38	Reduction ratio	15.83 : 1
Companion flange to pinion		13 ~ 18	94 ~ 130	Free play of steering wheel (Turning direction)	
				Standard	5 ~ 20 mm (0.2 ~ 0.8 in)
				Limit	40 mm (1.57 in)
10A. MANUAL STEERING					
Reduction ratio	17.0 ~ 20.0 : 1			Backlash between rack and sector gear	
Free play of steering wheel (Turning direction)				Clearance between gear housing and ball nut	
Standard	5 ~ 20 mm (0.2 ~ 0.8 in)			Limit	0.15 mm (0.0059 in)
Limit	40 mm (1.57 in)			Clearance between gear housing and sector shaft	
				Limit	0.10 mm (0.0039 in)
				Worm bearing preload	
				Before adjusting backlash	0.4 ~ 0.7 N-m (3.5 ~ 6.1 in-lb)
				After adjusting backlash	0.5 ~ 0.9 N-m (4.3 ~ 7.8 in-lb)
				Max. wheel angle on full lock	
				Wheel on inside of curve	39°14' ± 2°
				Wheel on outside of curve	32°14' ± 2°
				Oil	ATF Type F (M2C33-F)

TIGHTENING TORQUE			Standard	0,040 ~ 0.125 mm (0.0016 ~ 0.0049 in)
	N-m	ft-lb	Limit	0.15 mm (0.006 in)
	Steering wheel nut	40 ~ 50	29 ~ 36	Remaining pressure
Steering gear housing to frame	44 ~ 55	32 ~ 40	Clearance between drum and lining	0.1 ~ 0.15 mm (0.004 ~ 0.006 in)
Pitman arm to sector shaft	150 ~ 180	108 ~ 130	Parking brake Lever travel	6 ~ 8 notches at 10 kg (22 lb)
Idler arm bracket to frame	44 ~ 55	32 ~ 40	<b>TIGHTENING TORQUE</b>	
Idler arm to center link	25 ~ 35	18 ~ 25		
Pitman arm to center link	30 ~ 45	22 ~ 33		
Tie-rod to center link	30 ~ 45	22 ~ 33		
Tie-rod to knuckle arm	30 ~ 45	22 ~ 33		
Tie-rod lock nut	70 ~ 80	51 ~ 58		
Steering gear box end cover lock nut	230 ~ 260	166 ~ 188		
<b>11. BRAKING SYSTEM</b>				
Brake pedal free travel				
Before power brake piston operates	7 ~ 9 mm (0.28 ~ 0.35 in)			
Brake pedal height (from floor)	190 ~ 195 mm (7.48 ~ 7.68 in)			
Master cylinder				
Bore	20.64 mm (0.813 in)			
Clearance between piston and bore				
Standard	0.040 ~ 0.125 mm (0.0016 ~ 0.0049 in)			
Wear limit	0.15 mm (0.006 in)			
Power brake unit				
Clearance between piston and push rod	0.1 ~ 0.5 mm (0.004 ~ 0.020 in)			
Front disc brake				
Thickness of brake disc				
Standard	18 mm (0.7087 in)			
Limit	17 mm (0.6693 in)			
Max. allowable lateral run-out of brake disc	0.1 mm (0.0039 in)			
Thickness of lining				
Standard	9 mm (0.3543 in)			
Thickness limit	1 mm (0.039 in)			
Caliper cylinder bore	50.80 mm (2.0 in)			
Rear disc brake				
Thickness of brake disc				
Standard	10 mm (0.3937 in)...Solid 22 mm (0.866 in) ...Ventilated 9 mm (0.3543 in)...Solid 20 mm (0.787 in) ...Ventilated			
Limit	10 mm (0.3937 in) 9 mm (0.3543 in)			
Max. allowable lateral run-out of brake disc	10 mm (0.3937 in)			
Thickness of lining				
Standard	0.1 mm (0.0039 in)			
Thickness limit				
Caliper cylinder bore	6 mm (0.2362 in)			
Rear drum brake				
Drum diameter	34.93 mm (1.3752 in)			
Standard				
Limit				
Thickness of lining	200 mm (7.8741 in)			
Standard	201 mm (7.9135 in)			
Thickness limit				
Wheel cylinder bore	4.0 mm (0.1575 in)			
Clearance between piston and bore	1.0 mm (0.039 in) 19.05 mm (0.750 in)			
<b>12. WHEELS AND TIRES</b>				
Wheel disc				
Front	5-J x 13 WDC 5½-JJ x 13 WDC (Aluminum)			
Rear	5-J x 13 WDC 5½-JJ x 13 WDC (Aluminum)			
Front	5½-JJ x 14 WDC			
Rear	5½JJ x 14 WDC			
Temporary spare tire	4-T x 15			
Run-out limit				
Radial	1.0 mm (0.04 in) 0.5 mm (0.020 in) Aluminum			
Lateral	1.0 mm (0.04 in) 0.5 mm (0.020 in) Aluminum			
Tire				
Front	185/70 HR 13 165HR 13 205/60 VR 14 185/70 HR 13 165HR 13 205/60 VR 14 T135/70 D 15			
Rear				
Temporary spare tire				
Inflation pressure				
Front	190 kpa (27 psi) 200 kpa (28 psi)... 14 in only			
Rear	190 kpa (27 psi) 200 kpa (28 psi)... 14 in only 420 kpa (60 psi)			
Temporary spare tire				
Run-out limit (with wheel disc)				
Radial	2.5 mm (0.098 in)			
Lateral	3.0 mm (0.118 in)			
Front wheel bearing preload (at wheel set t .lit)	0.45 ~ 0.65 kg (0.99 ~ 1.43 lb)			
<b>TIGHTENING TORQUE</b>				
	N-m	ft-lb		
Wheel bolts	90 ~ 120	65 ~ 87		

13. SUSPENSION			15. BODY ELECTRICAL SYSTEM		
Front coil spring	2.16 ± 0.15 kg/mm		Item	Specification (W)	
Spring constant					
Free length			Headlights		
Standard	Left	334.5 mm (13.17 in)	Halogen headlights	50/60 50, 40/55 (Normal)	
	Right	32.5 mm (12.80 in)	Rear side marker lights	3.8	
Front shock absorber			Turn-signal lights	27	
Fluid capacity	225 <sup>+5</sup> / <sub>-0</sub> cc (0.23 <sup>+0.05</sup> / <sub>-0</sub> U.S. quarts)		Front parking lights	8	
Rear coil spring			Rear turn signal lights	27	
Spring constant	1.8 ± 0.13 kg/mm		Tail lights	8	
Free length			Stop lights	27	
Standard	323.5 mm (12.74 in)		Back-up lights	27	
<b>TIGHTENING TORQUE</b>			License plate lights	6	
	N-m	ft-lb	Interior lights	10	
Suspension arm to cross member	40 ~ 55	29 ~ 40	Map lights	6	
Knuckle arm to shock absorber	64 ~ 95	46 ~ 69	Luggage compartment lights	5	
Suspension arm ball joint to knuckle arm	60 ~ 80	43 ~ 58	Indicator and warning lights		
Front shock absorber			Turn signals	3.4	
Piston rod to mounting block	65 ~ 82	47 ~ 59	High beam	3.4	
Seal cap nut	50 ~ 60	36 ~ 43	Oil pressure	1.4	
Tension rod to lower suspension arm	55 ~ 69	40 ~ 50	Alternator	1.4	
Tension rod to bracket	110 ~ 150	80 ~ 108	Stop lights	1.4	
Tension rod bracket to frame	76 ~ 107	55 ~ 77	Brake	1.4	
Stabilizer bar to suspension lower arm	12 ~ 18	9 ~ 13	Parking brake	1.4	
Front stabilizer support plate	38 ~ 47	27 ~ 34	Fuel	3.4	
Shock absorber to axle housing	65 ~ 82	47 ~ 59	Hazard	3.4	
Upper link to axle housing	77 ~ 105	56 ~ 78	Washer level	1.4	
Upper link to frame	77 ~ 105	56 ~ 78	Seat belt	1.4	
Lower link to axle housing	77 ~ 105	56 ~ 78	Illumination lights		
Lower link to frame	77 ~ 105	56 ~ 78	Automatic selector lever	3.4	
Shock absorber upper	13 ~ 25	9 ~ 18	Heater	3.4	
Watt link bracket	77 ~ 105	56 ~ 78	Meter	3.4 & 1.4	
Watt link to axle housing	65 ~ 82	47 ~ 59	Cigarette lighter	3.4	
Watt link to bracket	65 ~ 82	47 ~ 59	Radio	3.4	
Rear stabilizer support plate	32 ~ 47	23 ~ 34	Rear window defroster	1.4	
Stabilizer lock nut	10 ~ 16	7 ~ 12	<b>TIGHTENING TORQUE</b>		
				N-m	ft-lb
			Unless otherwise specified		
			6T		
			6 mm bolt/nut	7 ~ 10	5 ~ 7
			8 mm bolt/nut	16 ~ 23	12 ~ 17
			10 mm bolt/nut	32 ~ 47	23 ~ 34
			12 mm bolt/nut	56 ~ 82	41 ~ 59
			14 mm bolt/nut	77 ~ 105	56 ~ 78
			8T		
			6 mm bolt/nut	8 ~ 12	6 ~ 9
			8 mm bolt/nut	18 ~ 17	13 ~ 20
			10 mm bolt/nut	37 ~ 55	27 ~ 40
			12 mm bolt/nut	64 ~ 95	46 ~ 69
			14 mm bolt/nut	104 ~ 140	75 ~ 101