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**Kevin Wright**

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who, well, didn't do much this time, since Paul Lee provided the thing already scanned and compiled into a PDF! (Thanks!). Go visit his website: <http://www.iluvmyrx7.com/index.htm> Lots of RX-7 goodness there.

There are several ways to get around in the document. I have provided Bookmarks to all the sections, and thumbnails are also provided in the Thumbnails side bar.

I have also included a label for the spine of a binder, for those who wish to print out all the pages and keep a dead-tree edition handy.☺

The original document is © 1979 Toyo Kogyo Co., Ltd., and remains so. This version is provided as a service for owners of first generation Mazda RX-7s who are having a devil of a time locating the factory service manual for a reasonable price.

If you really want to send me money, email me and I'll tell you where to send it, but it's not necessary. Consider this payback for all the good advice and information gleaned from the various RX-7 email lists!

Subscribe to the Early Mazda Rotaries email list:

Send an email with "subscribe" (without the quotes) to [list-request@sa22c.org](mailto:list-request@sa22c.org)

See <http://www.dfw-rx7.com> for information on the DFW-RX7 email list.

09/16/03

# TECHNICAL DATA

LUBRICATING SYSTEM		ENGINE	
Oil pressure at 3,000 rpm of engine 4.2 - 5.1 kg/cm <sup>2</sup> (64 - 78 lb/in <sup>2</sup> )	Oil pressure at 2,000 rpm Wear limit 0.15 mm (0.0059 in) 0.03 - 0.13 mm (0.0012 - 0.0051 in)	More than 0.2 mm (0.0197 in) 0.40 mm (0.0157 in) (0.0030 - 0.0039 in)	Side seal protrusion Limit 0.05 mm (0.0019 in)
Chain and sprockets 15 mm (0.59 in)	Clearance between rotor lobes Standard 0.01 - 0.09 mm (0.0004 - 0.0035 in) Wear limit 0.15 mm (0.0059 in)	0.03 - 0.08 mm (0.0012 - 0.0031 in) 0.10 mm (0.0039 in)	Clearance of side seal and rotor groove (F) Limit Standard
Limit of chain slack Clearance Standard 0.20 - 0.25 mm (0.0079 - 0.0098 in)	Clearance of rotor and rotor groove (G) Limit Standard 0.03 - 0.09 mm (0.0010 - 0.0035 in)	0.03 - 0.09 mm (0.0010 - 0.0035 in) 0.15 mm (0.0059 in)	Clearance of side seal and rotor groove (W) Standard
Oil pump driven by Limit of chain slack Clearance Standard 0.20 - 0.25 mm (0.0079 - 0.0098 in)	Oil pump driven by Limit of chain slack Clearance Standard 0.20 - 0.25 mm (0.0079 - 0.0098 in)	0.03 - 0.09 mm (0.0010 - 0.0035 in) 0.15 mm (0.0059 in)	Apex seal spring Free height Standard 6.9 mm (0.2717 in) or more
Feeding capacity at 1,000 rpm of engine (2.5 l.p.s. quantity) (4 imp. quantity)	Feeding capacity at 1,000 rpm of engine (2.5 l.p.s. quantity) (4 imp. quantity)	0.03 - 0.09 mm (0.0010 - 0.0035 in) 0.15 mm (0.0059 in)	Free height Standard 6.9 mm (0.2717 in) or more
Oil pump Type Rotor 2.0 liter/min	Oil pump Type Rotor 2.0 liter/min	0.03 - 0.09 mm (0.0010 - 0.0035 in) 0.15 mm (0.0059 in)	Side seal Thickness Limit Standard 1.0 mm (0.0394 in)
Clearance of side seal and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)	Clearance of side seal and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)	0.03 - 0.08 mm (0.0012 - 0.0031 in) 0.10 mm (0.0039 in)	Clearance of side seal and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Clearance of rotor and rotor groove (C) Limit Standard 0.03 - 0.09 mm (0.0010 - 0.0035 in)	Clearance of rotor and rotor groove (C) Limit Standard 0.03 - 0.09 mm (0.0010 - 0.0035 in)	0.03 - 0.09 mm (0.0010 - 0.0035 in) 0.15 mm (0.0059 in)	Clearance of rotor and rotor groove (C) Limit Standard 0.03 - 0.09 mm (0.0010 - 0.0035 in)
Clearance of apex seal and side housing (D) Standard 0.13 - 0.19 mm (0.0051 - 0.0075 in)	Clearance of apex seal and side housing (D) Standard 0.13 - 0.19 mm (0.0051 - 0.0075 in)	0.13 - 0.19 mm (0.0051 - 0.0075 in) 0.10 mm (0.004 in)	Clearance of apex seal and side housing (D) Standard 0.13 - 0.19 mm (0.0051 - 0.0075 in)
Apex seal Length Width Height Limit Standard 8.2 mm (0.3247 in) 7.6 mm (0.2992 in)	Apex seal Length Width Height Limit Standard 8.2 mm (0.3247 in) 7.6 mm (0.2992 in)	8.2 mm (0.3247 in) 7.6 mm (0.2992 in) 0.06 mm (0.0024 in) 7.0 mm (2.7559 in) 0.10 mm (0.0039 in)	Apex seal Length Width Height Limit Standard 8.2 mm (0.3247 in) 7.6 mm (0.2992 in)
Clearance of side housing and rotor (B) Standard 0.13 - 0.18 mm (0.0047 - 0.0071 in)	Clearance of side housing and rotor (B) Standard 0.13 - 0.18 mm (0.0047 - 0.0071 in)	0.13 - 0.18 mm (0.0047 - 0.0071 in) 0.10 mm (0.004 in)	Clearance of side housing and rotor (B) Standard 0.13 - 0.18 mm (0.0047 - 0.0071 in)
Max. permissible run-out End play Standard 0.04 - 0.07 mm (0.0016 - 0.0028 in)	Max. permissible run-out End play Standard 0.04 - 0.07 mm (0.0016 - 0.0028 in)	0.06 mm (0.0024 in) 0.04 - 0.07 mm (0.0016 - 0.0028 in)	Max. permissible difference in width Rotor Width Clearance of side housing and rotor (B) Standard 0.13 - 0.18 mm (0.0047 - 0.0071 in)
Rotor journal diameter 74 mm (2.9134 in)	Rotor journal diameter 74 mm (2.9134 in)	7.0 mm (2.7559 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Main journal diameter 43 mm (1.6929 in)	Main journal diameter 43 mm (1.6929 in)	4.3 mm (1.6929 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Eccentric shaft eccentricity of rotor journal 12.0 mm (0.4724 in)	Eccentric shaft eccentricity of rotor journal 12.0 mm (0.4724 in)	12.0 mm (0.4724 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Wear limit Rotor bearing clearance Standard 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Wear limit Rotor bearing clearance Standard 0.04 - 0.08 mm (0.0016 - 0.0031 in)	0.04 - 0.08 mm (0.0016 - 0.0031 in) 0.10 mm (0.0039 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Outer diameter 11.0 mm (0.4331 in)	Outer diameter 11.0 mm (0.4331 in)	11.0 mm (0.4331 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Inner diameter 7.0 mm (0.2756 in)	Inner diameter 7.0 mm (0.2756 in)	7.0 mm (0.2756 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Height 11.0 mm (0.4331 in)	Height 11.0 mm (0.4331 in)	11.0 mm (0.4331 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Contact seal Outer diameter 11.0 mm (0.4331 in)	Contact seal Outer diameter 11.0 mm (0.4331 in)	11.0 mm (0.4331 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Oil seal protrusion More than 0.2 mm (0.0197 in)	Oil seal protrusion More than 0.2 mm (0.0197 in)	More than 0.2 mm (0.0197 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Contact width of oil seal Less than 0.2 mm (0.0197 in)	Contact width of oil seal Less than 0.2 mm (0.0197 in)	Less than 0.2 mm (0.0197 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)
Height 2.6 mm (0.1024 in)	Height 2.6 mm (0.1024 in)	2.6 mm (0.1024 in) 0.04 - 0.08 mm (0.0016 - 0.0031 in)	Max. permissible difference between shaft pulleys Rotor Width Clearance of side housing and rotor groove (E) Limit Standard 0.03 - 0.08 mm (0.0012 - 0.0031 in)

ENGINE		LUBRICATING SYSTEM	
Displacement	573 cc (35.0 cu-in) x 2 rotors	Oil seal	
Compression ratio	9.4 : 1	Height	5.6 mm (0.2205 in)
Compression pressure		Contact width of oil seal lip	Less than 0.5 mm (0.020 in)
Limit	6.0 kg/cm <sup>2</sup> (85 lb/in <sup>2</sup> ) at 250 rpm	Oil seal protrusion	More than 0.5 mm (0.020 in)
Max. permissible difference between chambers	1.5 kg/cm <sup>2</sup> (21 lb/in <sup>2</sup> )	Corner seal	
Port timing		Outer diameter	11.0 mm (0.4331 in)
Intake opens	32° ATDC	Height	7.0 mm (0.2756 in)
Intake closes	40° ABDC	Corner seal protrusion	More than 0.5 mm (0.020 in)
Exhaust opens	75° BBDC	Main bearing clearance	
Exhaust closes	38° ATDC	Standard	0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)
Side housings (Front, intermediate and rear housings)		Wear limit	0.10 mm (0.0039 in)
Width standard		Rotor bearing clearance	
Front	40 mm (1.575 in)	Standard	0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in)
Intermediate	50 mm (1.969 in)	Wear limit	0.10 mm (0.0039 in)
Rear	60 mm (2.362 in)	Eccentric shaft	
Limit of distortion	0.04 mm (0.0016 in)	Eccentricity of rotor journal	15.0 mm (0.5906 in)
Limit of wear		Main journal diameter	43 mm (1.6929 in)
Sliding surface	0.10 mm (0.0039 in)	Rotor journal diameter	74 mm (2.9134 in)
Rotor housing		Max. permissible run-out	0.06 mm (0.0024 in)
Width	70 mm (2.7559 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	69.85 mm (2.750 in)	Alternator belt tension (slack)	
Clearance of side housing and rotor (△R)		(Between alternator and eccentric shaft pulleys)	
Standard	0.12 ~ 0.18 mm (0.0047 ~ 0.0071 in)	Belt deflection	15 ± 2 mm (0.59 ± 0.08 in)
Limit	0.10 mm (0.004 in)	Air pump belt tension (slack)	
Apex seal		(Between air pump and water pump pullys)	
Length	69.85 mm (2.750 in)	Belt deflection	12 ± 1 mm (0.47 ± 0.04 in)
Width	3.0 mm (0.1181 in)		
Height			
Standard	8.5 mm (0.3347 in)		
Limit	7.0 mm (0.2756 in)		
Clearance of apex seal and side housing (△S)			
Standard	0.13 ~ 0.19 mm (0.0051 ~ 0.0075 in)		
Clearance of apex seal and rotor groove (△G)			
Standard	0.05 ~ 0.09 mm (0.0020 ~ 0.0035 in)		
Limit	0.15 mm (0.0059 in)		
Apex seal spring			
Free height			
Standard	6.9 mm (0.2717 in) or more		
Limit	5.5 mm (0.2165 in)		
Side seal			
Thickness	1.0 mm (0.0394 in)		
Height	3.5 mm (0.1378 in)		
Clearance of side seal and rotor groove (△W)			
Standard	0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)		
Limit	0.10 mm (0.0039 in)		
Clearance of side seal and corner seal (△E)			
Standard	0.05 ~ 0.15 mm (0.0020 ~ 0.0059 in)		
Limit	0.40 mm (0.0157 in)		
Side seal protrusion	More than 0.5 mm (0.0197 in)		

<p>Oil pressure at idle speed of engine 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) Starts to close Fully closes Opening pressure</p> <p>Oil filter Type Relief valve opens at</p> <p>Oil metering pump Feeding capacity of 2,000 rpm of engine</p> <p>Lubricant Classification -10°C ~ 40°C (15°F ~ 100°F) -10°C ~ 50°C (15°F ~ 120°F) -18°C ~ 30°C (0°F ~ 85°F) -18°C ~ 40°C (0°F ~ 100°F) -18°C ~ 50°C (0°F ~ 120°F) Below -18°C (0°F)</p> <p>Oil capacity Full capacity Oil pan capacity</p>	<p>0.9 ~ 2.7 kg/cm<sup>2</sup> (13 ~ 38 lb/in<sup>2</sup>)</p> <p>5.0 kg/cm<sup>2</sup> (71.1 lb/in<sup>2</sup>) at 3,000 rpm of engine</p> <p>46.4 mm (1.8267 in)</p> <p>11.0 kg/cm<sup>2</sup> (156 lb/in<sup>2</sup>)</p> <p>73.0 mm (2.874 in)</p> <p>50 ~ 55°C (122 ~ 131°F) 60 ~ 65°C (140 ~ 149°F)</p> <p>3.56 kg/cm<sup>2</sup> at 60°C (50.6 lb/in<sup>2</sup> at 140°F)</p> <p>Full flow, cartridge</p> <p>0.8 ~ 1.2 kg/cm<sup>2</sup> (11 ~ 17 lb/in<sup>2</sup>)</p> <p>2.0 ~ 2.5 cc/6 min. (0.068 ~ 0.085 U.S. oz/6 min.)</p> <p>A.P.I. Service SD or SE SAE 20W-40</p> <p>SAE 20W-50</p> <p>SAE 10W-30</p> <p>SAE 10W-40</p> <p>SAE 10W-50</p> <p>SAE 5W-20 or 5W-30</p> <p>5.2 liters (5.5 U.S. quarts) (4.6 Imp. quarts)</p> <p>4.2 liters (4.4 U.S. quarts) (3.7 Imp. quarts)</p>	<p>Radiator Type Pressure cap opens at Cooling capacity With heater Without heater</p>	<p>Corrugated fin, with expansion tank 0.9 ± 0.15 kg/cm<sup>2</sup> (13.0 ± 2 lb/in<sup>2</sup>)</p> <p>9.5 liters (10 U.S. quarts) (8.4 Imp. quarts)</p> <p>8.5 liters (9.0 U.S. quarts) (7.5 Imp. quarts)</p>																																																																																
<b>FUEL SYSTEM</b>																																																																																			
		<p>Fuel tank capacity Fuel pump Type Fuel pressure Feeding capacity</p> <p>Fuel filter Carburetor Type Throat diameter Primary Secondary Venturi diameter Primary Secondary</p>	<p>55 liters (14.5 U.S. gal) (12.1 Imp. gal)</p> <p>Electrical, plunger 0.26 ~ 0.33 kg/cm<sup>2</sup> (3.70 ~ 4.70 lb/in<sup>2</sup>) More than 1,100 cc/min. (1.16 U.S. quarts/min.) (0.97 Imp. quart/min.)</p> <p>Cartridge, paper element</p> <p>Down draft, 2 stage 4 barrel</p> <p>28 mm (1.10 in) 34 mm (1.34 in)</p> <p>20 X 13 X 6.5 mm (0.79 X 0.51 X 0.26 in) 28 X 10 mm (1.10 X 0.39 in)</p>																																																																																
		<table border="1"> <tr> <th></th> <th>Manual transmission</th> <th>Automatic transmission</th> </tr> </table>		Manual transmission	Automatic transmission																																																																														
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		<p>Main jet Primary Secondary</p> <p>Main air bleed Primary Secondary</p> <p>Slow jet Primary Secondary</p> <p>Slow air bleed Primary No. 1 No. 2 Secondary No. 1 No. 2</p> <p>Richer jet Richer air bleed</p> <p>Power jet</p>	<table border="1"> <tr> <td></td> <td>Calif.</td> <td>Except Calif.</td> <td></td> </tr> <tr> <td>Primary</td> <td>#94</td> <td>#93</td> <td>#95</td> </tr> <tr> <td>Secondary</td> <td>#93</td> <td>#160</td> <td>#93</td> </tr> <tr> <td>Primary</td> <td>#160</td> <td></td> <td>#160</td> </tr> <tr> <td>Secondary</td> <td>#90</td> <td></td> <td>#90</td> </tr> <tr> <td>U.S.A.</td> <td>#160</td> <td></td> <td>#160</td> </tr> <tr> <td>Canada</td> <td>#140</td> <td></td> <td>#140</td> </tr> <tr> <td>Primary</td> <td>#46</td> <td></td> <td>#46</td> </tr> <tr> <td>Except for Calif., Canada</td> <td>#48</td> <td></td> <td>#46</td> </tr> <tr> <td>Secondary</td> <td>#80</td> <td></td> <td>#80</td> </tr> <tr> <td>Except for Calif.</td> <td>#100</td> <td></td> <td>#100</td> </tr> <tr> <td>Canada</td> <td>#120</td> <td></td> <td>#120</td> </tr> <tr> <td>Primary No. 1</td> <td>#70</td> <td></td> <td>#70</td> </tr> <tr> <td>No. 2</td> <td>#150</td> <td></td> <td>#150</td> </tr> <tr> <td>Secondary No. 1</td> <td>#160</td> <td></td> <td>#160</td> </tr> <tr> <td>No. 2</td> <td>#60</td> <td></td> <td>#60</td> </tr> <tr> <td>Richer jet</td> <td>#40</td> <td></td> <td>—</td> </tr> <tr> <td>Richer air bleed</td> <td>#140</td> <td></td> <td>—</td> </tr> <tr> <td>California</td> <td>#45</td> <td></td> <td>#45</td> </tr> <tr> <td>Except for California</td> <td>#50</td> <td></td> <td>#50</td> </tr> </table>		Calif.	Except Calif.		Primary	#94	#93	#95	Secondary	#93	#160	#93	Primary	#160		#160	Secondary	#90		#90	U.S.A.	#160		#160	Canada	#140		#140	Primary	#46		#46	Except for Calif., Canada	#48		#46	Secondary	#80		#80	Except for Calif.	#100		#100	Canada	#120		#120	Primary No. 1	#70		#70	No. 2	#150		#150	Secondary No. 1	#160		#160	No. 2	#60		#60	Richer jet	#40		—	Richer air bleed	#140		—	California	#45		#45	Except for California	#50		#50
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<b>COOLING SYSTEM</b>																																																																																			
<p>Water pump Type Feeding capacity at 6,500 rpm of engine Pump driven by Pulley ratio of eccentric shaft and pump</p> <p>Fan Fan diameter Number of fan blades</p> <p>Fan drive Standard revolution of fan</p> <p>Thermostat Type Starts to open Fully opens at Lift</p>	<p>Centrifugal impeller 150 ~ 160 liters/min. (39.6 ~ 42.3 U.S. gal/min.) (33.0 ~ 35.2 Imp. gal/min.)</p> <p>"V" belt 1 : 1.18</p> <p>410 mm (16.1 in)</p> <p>7</p> <p>1,400 ± 200 rpm at 4,200 rpm of engine</p> <p>Wax pellet 82 ± 1.5°C (180 ± 2.7°F) 95°C (203°F)</p> <p>8 ~ 10 mm (0.3 ~ 0.4 in)</p>																																																																																		

Vacuum jet Primary	1.8 mm (0.0709 in)	1.8 mm (0.0709 in)	Trailing	Starts: 0° at -200 mm-Hg Maximum: 15° at -400 mm-Hg
Secondary	1.0 mm (0.0394 in)	1.0 mm (0.0394 in)		
Fast idle adjustment (Clearance between primary throttle valve and bore when choke knob is fully pulled)	U.S.A. 1.30 ~ 1.50 mm (0.051 ~ 0.059 in) Canada 0.90 ~ 1.10 mm (0.035 ~ 0.043 in)		Condenser capacity	0.24 ~ 0.30 MF
Float level (from surface of gasket)	16.0 ± 0.5 mm (0.63 ± 0.020 in)		Firing order	1-2
Float drop (from surface of gasket)	51 ± 0.5 mm (2.0 ± 0.02 in)		Ignition timing	0 ± 1° ATDC 20 ± 2° ATDC
Idle speed			Leading	
Manual transmission	750 ± 25 rpm		Trailing	
Automatic transmission ("D" range)	750 ± 25 rpm		Timing mark location	Eccentric shaft pulley
CO. concentration at idle	Less than 0.1%		Spark plug	NGK: BR7ET, BR8ET, BR9ET
Sub-zero starting assist fluid	Anti-freeze 90% Water 10%		Type	NIPPON DENSO: W22EBR W25EBR W27EBR
<b>ELECTRICAL SYSTEM</b>			Initial gap	1.05 ± 0.05 mm (0.041 ± 0.002 in)
Battery			Alternator	
Type			Ground	Negative
California	G60-5, Y60-5, N50-S, K60-5		Rated output	12V 55A
Except for California			Number of poles	12
Manual transmission	G60-5, Y60-5, N50-S, K60-5		Load test	
Automatic transmission	NS70S		Voltage	13.5V
Canada	NS70S		Current	39amp.
Capacity (20hour rate)	55 amp. NS70S 45 amp. G60-5, Y60-5, N50-S, K60-5		Revolution	Less than 2,500 rpm
Voltage	12 Volt		Number of brushes	2
Terminal ground	Negative		Brush length	18 mm (0.71 in)
Specific gravity at 20°C (68°F)	G60-5, Y60-5, NS70S N50-S, K60-5		Wear limit	8 mm (0.31 in)
Fully charged	1.260		Brush spring pressure	315 ~ 426 gr (11 ~ 15 oz)
Recharged at	1.200		Pulley ratio of eccentric shaft and alternator	1 : 1.82
Distributor			Ignition coil (Leading)	
Air gap	0.2 ~ 0.6 mm (0.008 ~ 0.024 in)		Type	LB-84 or FTC-3
Centrifugal advance			Primary resistance	0.9 ± 0.09 Ω at 20°C (68°F)
Leading	Starts: 0° at 500 rpm Maximum: 10° at 1,500 rpm		Ignition coil (Trailing)	
Trailing	Starts: 0° at 500 rpm Maximum: 10° at 1,500 rpm		Type	LB-84 or FTC-3
Vacuum advance			Primary resistance	0.9 ± 0.09 Ω at 20°C (68°F)
Leading	Starts: 0° at -100 mm-Hg Maximum: 7.5° at -400 mm-Hg			
			Starting motor	
			Capacity	Manual transmission: 1.2KW Automatic transmission: 2.0KW
			Lock test	
			Voltage	5.0 volt
			Current	Less than 600 amp.
			Torque	Less than 1,050 amp. 0.96 m-kg (15.9 ft-lb)
			Free running test	
			Voltage	11.5 volt
			Current	Less than 50 amp.
			Speed	More than 5,600 rpm
			Number of brushes	4
			Brush length	18.5 mm (0.73 in)
			Wear limit	11.5 mm (0.45 in)

Brush spring pressure	1.4 ~ 1.8 kg (49 ~ 63 oz)	1.4 ~ 1.8 kg (49 ~ 63 oz)	Oil capacity	1.7 liters (1.8 U.S. quarts) 1.5 Imp quarts
Control switch	Solenoid	Solenoid	Main shaft	
Voltage required to close solenoid contacts	Less than 8 volt	Less than 8 volt	Max. permissible run-out	0.03 mm (0.0012 in)
Undercutting mica	0.5 ~ 0.8mm (0.020 ~ 0.031 in)	0.5 ~ 0.8mm (0.020 ~ 0.031 in)	Clearance between main shaft and gear (or bush)	
Clearance between armature shaft and bush	Less than 0.2 mm (0.008 in)	Less than 0.2 mm (0.008 in)	Wear limit	0.15 mm (0.006 in)
Armature shaft end play	0.1 ~ 0.4mm (0.004 ~ 0.016 in)	0.1 ~ 0.4mm (0.004 ~ 0.016 in)	Reverse idle gear	
Clearance between pinion and stop collar	0.5 ~ 2.0mm (0.020 ~ 0.079 in)	0.5 ~ 2.0mm (0.020 ~ 0.079 in)	Clearance between reverse idle gear bush and shaft	
<b>CLUTCH</b>			Wear limit	0.15 mm (0.006 in)
Clutch pedal			Shift fork and rod	
Free play (at pedal pad)	0.6 ~ 3.1 mm (0.024 ~ 0.122 in)		Clearance between shift fork and clutch sleeve	
Engagement height (from floor)	More than 75 mm (2.95 in)		Wear limit	0.5 mm (0.020 in)
Master cylinder			Clearance between shift rod gate and control lever	
Bore	15.87 mm (0.625 in)		Wear limit	0.8 mm (0.031 in)
Clearance between piston and bore			Synchronizer ring	
Standard	0.032 ~ 0.102 mm (0.0013 ~ 0.0040 in)		Clearance between synchronizer ring and side of gear when fitted	
Limit	0.15 mm (0.006 in)		Standard	1.5 mm (0.059 in)
Release cylinder			Wear limit	0.8 mm (0.031 in)
Bore	19.05 mm (0.750 in)		Lubricant	
Clearance between piston and bore			Above -18°C (0°F)	A.P.I. Service GL-4 or GL-5 SAE90
Standard	0.040 ~ 0.125 mm (0.0016 ~ 0.0049 in)		Below -18°C (0°F)	A.P.I. Service GL-4 or GL-5 SAE80
Limit	0.15 mm (0.006 in)		<b>AUTOMATIC TRANSMISSION</b>	
Clutch disc			Gear ratio	
Thickness limit	7.0 mm (0.276 in)		Low	2.458
Rivet depth limit	0.3 mm (0.012 in)		Second	1.458
Lateral run-out limit	1.0 mm (0.039 in)		Top	1.000
Diaphragm			Reverse	2.181
Finger out of alignment			Fluid type	M2C33F (Type F)
Limit	1.0 mm (0.039 in)		Fluid capacity	6.2 liters (6.6 U.S. quarts) 5.5 Imp. quarts
Finger groove wear depth			Drive plate run-out	
Limit	1.0 mm (0.039 in)		Limit	0.5 mm (0.020 in)
<b>MANUAL TRANSMISSION</b>			Oil pump	
Gear ratio	4-Speed	5-Speed	Side play of inner gear and outer gear	
First	3.674	3.674	Limit	0.08 mm (0.003 in)
Second	2.217	2.217	Clearance between outer gear and crescent	
Third	1.432	1.432	Limit	0.25 mm (0.010 in)
Fourth	1.000	1.000	Clearance between outer gear and housing	
Reverse	3.542	3.542	Limit	0.25 mm (0.010 in)
Fifth		0.825	Side clearance between oil seal ring and groove on oil pump cover	0.04 ~ 0.16 mm (0.002 ~ 0.006 in)
			Front clutch	
			Thickness of drive plate	
			Limit	1.4 mm (0.055 in)
			Total clearance measured between retaining plate and snap ring	1.6 ~ 1.8 mm (0.063 ~ 0.071 in)
			End play of front clutch drum	0.5 ~ 0.8 mm (0.020 ~ 0.031 in)

<b>Rear clutch</b> Thickness of drive plate Limit Total clearance measured between retaining plate and snap ring <b>Low and reverse brake</b> Thickness of friction plate Limit Total clearance measured between retaining plate and snap ring <b>Gear assembly</b> Total end play  Planetary gear side play Limit <b>Engine stall speed</b> In break-in period After break-in period		1.4 mm (0.055 in) 0.8 ~ 1.5 mm (0.031 ~ 0.059 in)  1.8 mm (0.071 in) 0.8 ~ 1.05 mm (0.031 ~ 0.041 in)  0.25 ~ 0.50 mm (0.010 ~ 0.020 in)  0.8 mm (0.031 in)  2,250 ~ 2,500 rpm 2,300 ~ 2,550 rpm		<b>Governor pressure</b> <table border="1"> <thead> <tr> <th rowspan="2">Driving speed</th> <th rowspan="2">Output shaft speed</th> <th colspan="2">Governor pressure</th> </tr> <tr> <th>kg/cm<sup>2</sup></th> <th>lb/in<sup>2</sup></th> </tr> </thead> <tbody> <tr> <td>20</td> <td>1,070 ~ 1,170</td> <td>0.8 ~ 1.3</td> <td>11 ~ 18</td> </tr> <tr> <td>35</td> <td>1,900 ~ 2,030</td> <td>1.6 ~ 2.3</td> <td>23 ~ 33</td> </tr> <tr> <td>55</td> <td>3,000 ~ 3,170</td> <td>3.1 ~ 4.2</td> <td>44 ~ 60</td> </tr> </tbody> </table>				Driving speed	Output shaft speed	Governor pressure		kg/cm <sup>2</sup>	lb/in <sup>2</sup>	20	1,070 ~ 1,170	0.8 ~ 1.3	11 ~ 18	35	1,900 ~ 2,030	1.6 ~ 2.3	23 ~ 33	55	3,000 ~ 3,170	3.1 ~ 4.2	44 ~ 60															
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STEERING		FRONT DISC BRAKE	
Reduction ratio	17.0 ~ 20.0 : 1	Thickness of brake disc	18 mm (0.7087 in)
Free play of steering wheel (Turning direction)		Standard	17 mm (0.6693 in)
Limit	40 mm (1.57 in)	Limit	0.1 mm (0.0039 in)
Backlash between rack and sector gear	Adjust to 0 mm	Max. allowable lateral run-out of brake disc	
Worm bearing preload		Thickness of lining	14 mm (0.5512 in)
Without sector shaft and column bush	2 ~ 5 cm-kg (1.7 ~ 4.3 in-lb)	Standard	6 mm (0.236 in)
With sector shaft and column bush	6 ~ 12 cm-kg (5.2 ~ 10.4 in-lb)	Wear limit	50.80 mm (2.0 in)
Clearance between sector shaft and housing bush		Wheel cylinder bore	
Wear limit	0.1 mm (0.004 in)	Rear drum brake	
End clearance of adjusting screw and sector shaft	0 ~ 0.1 mm (0 ~ 0.004 in)	Drum diameter	200 mm (7.8741 in)
Lubricant	A.P.I. Service GL-4 SAE 90	Standard	201 mm (7.9135 in)
Oil capacity	290 cc (0.31 U.S. quarts) (0.26 Imp. quarts)	Limit	
Max. Wheel angle on full lock		Thickness of lining	4.0 mm (0.1575 in)
Wheel on inside of curve	39°40' ± 2°	Standard	1.0 mm (0.039 in)
Wheel on outside of curve	32°14' ± 2°	Wear limit	19.05 mm (0.750 in)
Idle arm revolving torque	2 ~ 6 kg/135 mm (4.4 ~ 13.2 lb/5.315 in)	Wheel cylinder bore	
Knuckle arm ball stud revolving torque	5 ~ 12 cm-kg (4.3 ~ 10.4 in-lb)	Clearance between piston and bore	
Steering geometry		Standard	0.040 ~ 0.125 mm (0.0016 ~ 0.0049 in)
King pin inclination	10°44'	Limit	0.15 mm (0.006 in)
Camber	1° 10' ± 30'	Remaining pressure	0.5 ~ 1.0 kg/cm <sup>2</sup> (7.1 ~ 14.2 lb/in <sup>2</sup> )
Max. permissible differ- ence in camber between sides	± 30'	Clearance between drum and lining	0.1 ~ 0.15 mm (0.004 ~ 0.006 in)
Camber offset	38 mm (1.50 in)	Parking brake	
Caster	Right-hand side 4° 30' ± 30' Left-hand side 4° 00' ± 30' ± 40'	Drum diameter	200 mm (7.8741 in)
Max. permissible differ- ence in caster between sides		Standard	201 mm (7.9135 in)
Caster trail	20 mm (0.79 in)	Limit	
Toe-in	0 ~ 6 mm (0 ~ 0.24 in)	Thickness of lining	4.0 mm (0.1575 in)
		Standard	1.0 mm (0.039 in)
		Limit	3 ~ 7 notches at 10kg (22lb)
		Lever travel	
BRAKES		WHEELS AND TIRES	
Brake pedal free travel		Wheel disc	
Before power brake piston operates	7 ~ 9 mm (0.28 ~ 0.35 in)	Front	5-J x 13WDC 5½-JJ x 13WDC (Aluminum)
Brake pedal height (from floor)	190 <sup>+5</sup> <sub>-0</sub> mm (7.48 <sup>+0.20</sup> <sub>-0</sub> in)	Rear	5-J x 13WDC 5½-JJ x 13WDC (Aluminum)
Master cylinder		Run-out limit	
Bore	20.64 mm (0.813 in)	Radial	1.0 mm (0.04 in) 0.5 mm (0.020 in) Aluminum
Clearance between piston and bore		Lateral	1.0 mm (0.04 in) 0.5 mm (0.020 in) Aluminum
Standard	0.040 ~ 0.125 mm (0.0016 ~ 0.0049 in)	Tire	
Wear limit	0.15 mm (0.006 in)	Front	185/70 HR 13 165 HR 13
Power brake unit		Rear	185/70 HR 13 165 HR 13
Clearance between piston and push rod	0.1 ~ 0.5 mm (0.004 ~ 0.020 in)	Inflation pressure	
		Front	1.8 kg/cm <sup>2</sup> (26 psi)
		Rear	1.8 kg/cm <sup>2</sup> (26 psi)
		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 bolt)	0.45 ~ 0.65 kg (0.99 ~ 1.43 lb)



SUSPENSION		TIGHTENING TORQUE		
Front coil spring			<b>m-kg</b>	<b>ft-lb</b>
Spring constant	2.16 ± 0.15 kg/mm			
Free length				
Standard	334.5 mm (13.17 in)			
Left				
Right	325 mm (12.80 in)			
Front shock absorber				
Fluid capacity	225 $\begin{smallmatrix} +5 \\ -0 \end{smallmatrix}$ cc (0.23 $\begin{smallmatrix} +0.05 \\ -0 \end{smallmatrix}$ U.S. quarts)			
Rear coil spring				
Spring constant	1.8 ± 0.13 kg/mm			
Free length				
Standard	323.5 mm (12.74 in)			
DIMENSION		TIGHTENING TORQUE		
Overall length	4,285 mm (169 in)			
Overall width				
(Without side protector)	1,650 mm (65 in)			
(With side protector)	1,675 mm (66 in)			
Overall height	1,260 mm (50 in)			
Distance between wheel center and fender line				
Front	364 ± 20 mm (14.3 ± 0.8 in)			
Rear	358 ± 20 mm (14.0 ± 0.8 in)			
Wheel base	2,420 mm (95 in)			
Tread				
Front	1,420 mm (56 in)			
Rear	1,400 mm (55 in)			
Minimum road clearance	160 mm (6 in)			
Minimum turning radius	4.8 m (15ft 9 in)			
Seating capacity	2			
TIGHTENING TORQUE		TIGHTENING TORQUE		
		<b>m-kg</b>	<b>ft-lb</b>	
<b>Engine</b>				
Oil pump sprocket	3.0 ~ 3.5	22 ~ 25		
Oil pan	0.8 ~ 1.1	6 ~ 8		
Inlet manifold	1.9 ~ 2.6	14 ~ 19		
Thermal reactor	4.5 ~ 5.5	33 ~ 40		
Spark plugs	1.3 ~ 1.8	9 ~ 13		
Eccentric shaft pulley	10 ~ 12	72 ~ 87		
Temperature gauge unit	0.7 ~ 0.8	5 ~ 6		
Tension bolts	3.2 ~ 3.8	23 ~ 27		
Water temperature switch	1.0 ~ 1.8	7 ~ 13		
<b>Clutch</b>				
Flywheel	40.0 ~ 50.0	289 ~ 362		
Clutch cover	1.8 ~ 2.7	13 ~ 20		
<b>Transmission</b>				
Plug for interlock pin hole	1.0 ~ 1.5	7 ~ 11		
Control lever to control rod end	0.8 ~ 1.2	6 ~ 9		
Shift fork set bolts	1.2 ~ 1.6	9 ~ 12		
Shift rod end		0.8 ~ 1.2	6 ~ 9	
Main shaft lock nut		13.0 ~ 21.0	94 ~ 152	
Top switch		2.5 ~ 3.5	18 ~ 25	
Overdrive switch		2.5 ~ 3.5	18 ~ 25	
Back-up light switch		2.5 ~ 3.5	18 ~ 25	
Speedometer driven gear		0.8 ~ 1.1	6 ~ 8	
<b>Automatic transmission</b>				
Drive plate to converter weight		4.2 ~ 6.3	30 ~ 46	
Drive plate to torque converter		3.5 ~ 5.0	25 ~ 36	
Converter housing to engine		3.2 ~ 4.7	23 ~ 34	
Converter housing to transmission case		4.5 ~ 5.5	33 ~ 40	
Extension housing to transmission case		2.0 ~ 2.5	14 ~ 18	
Oil pan		0.5 ~ 0.7	3.6 ~ 5.1	
Piston stem (when adjusting band brake)		1.2 ~ 1.5	9 ~ 11	
Piston stem lock nut		1.5 ~ 4.0	11 ~ 29	
Servo piston retainer		1.0 ~ 1.5	7 ~ 11	
Servo cover		0.5 ~ 0.7	3.6 ~ 5.1	
One-way clutch inner race		1.3 ~ 1.8	9 ~ 13	
Control valve body to transmission case		0.55 ~ 0.75	4.0 ~ 5.4	
Lower valve body to upper valve body		0.25 ~ 0.35	1.8 ~ 2.5	
Side plate to control valve body		0.25 ~ 0.35	1.8 ~ 2.5	
Reamer bolt of control valve body		0.5 ~ 0.7	3.6 ~ 5.1	
Oil strainer		0.3 ~ 0.4	2.2 ~ 2.9	
Governor valve body to oil distributor		0.5 ~ 0.7	3.6 ~ 5.1	
Oil pump cover		0.6 ~ 0.8	4.3 ~ 5.8	
Inhibitor switch		0.5 ~ 0.7	3.6 ~ 5.1	
Manual shaft lock nut		3.0 ~ 4.0	22 ~ 29	
Oil cooler pipe set bolt		1.6 ~ 2.4	12 ~ 17	
Oil pressure test plug		0.5 ~ 1.0	3.6 ~ 7.2	
Actuator for parking rod to extension housing		0.8 ~ 1.1	5.8 ~ 8.0	
<b>Propeller shaft</b>				
Yoke to rear axle companion flange		3.5 ~ 3.8	25 ~ 27	
<b>Rear axle</b>				
Ring gear		7.0 ~ 8.5	51 ~ 61	
Differential side bearing caps		3.8 ~ 5.3	27 ~ 38	
Companion flange to pinion		13 ~ 18	94 ~ 130	
<b>Steering</b>				
Steering wheel nut		3.0 ~ 4.0	22 ~ 29	
Steering gear housing to frame		4.4 ~ 5.5	32 ~ 40	
Pitman arm to sector shaft		15 ~ 18	108 ~ 130	
Idler arm bracket to frame		4.4 ~ 5.5	32 ~ 40	
Idler arm to center link		2.5 ~ 3.5	18 ~ 25	
Pitman arm to center link		3.0 ~ 4.5	22 ~ 33	
Tie rod to center link		3.0 ~ 4.5	22 ~ 33	

TIGHTENING TORQUE					
	m-kg	ft-lb		m-kg	ft-lb
Tie rod to knuckle arm	3.0 ~ 4.5	22 ~ 33	Front stabilizer support plate	3.8 ~ 4.7	27 ~ 34
Tie rod lock nut	7.0 ~ 8.0	51 ~ 58	Shock absorber to axle housing	6.5 ~ 8.2	47 ~ 59
Steering gear box end cover lock nut	23 ~ 26	166 ~ 188	Upper link to axle housing	7.7 ~ 10.5	56 ~ 76
<b>Brake</b>			Upper link to frame	7.7 ~ 10.5	56 ~ 76
Master cylinder union bolt	1 ~ 1.6	7 ~ 12	Lower link to axle housing	7.7 ~ 10.5	56 ~ 76
Master cylinder outlet plug	6 ~ 7	43 ~ 50	Lower link to frame	7.7 ~ 10.5	56 ~ 76
Brake tube union nut	1.3 ~ 2.2	9 ~ 16	Shock absorber upper	1.3 ~ 2.5	9 ~ 18
Flexible hose union	2.2 ~ 2.7	16 ~ 20	Watt link bracket	7.7 ~ 10.5	56 ~ 76
Wheel cylinder union bolt	0.7 ~ 1.0	5 ~ 7	Watt link to axle housing	6.5 ~ 8.2	47 ~ 59
<b>Wheels</b>			Watt link to bracket	6.5 ~ 8.2	47 ~ 59
Wheel bolts	9 ~ 11	65 ~ 80	Rear stabilizer support plate	3.2 ~ 4.7	23 ~ 34
<b>Suspension</b>			Stabilizer lock nut	1.0 ~ 1.6	7 ~ 12
Suspension arm to cross member	4.0 ~ 5.5	29 ~ 40	<b>Unless otherwise specified</b>		
Knuckle arm to shock absorber	6.4 ~ 9.5	46 ~ 69	<b>6T</b>		
Suspension arm ball joint to knuckle arm	6 ~ 8	43 ~ 58	6 mm bolt/nut	0.7 ~ 1.0	5 ~ 7
Front shock absorber			8 mm bolt/nut	1.6 ~ 2.3	12 ~ 17
Piston rod to mounting block	6.5 ~ 8.2	47 ~ 59	10 mm bolt/nut	3.2 ~ 4.7	23 ~ 34
Seal cap nut	5.0 ~ 6.0	36 ~ 43	12 mm bolt/nut	5.6 ~ 8.2	41 ~ 59
Tension rod to lower suspension arm	5.5 ~ 6.9	40 ~ 50	14 mm bolt/nut	7.7 ~ 10.5	56 ~ 76
Tension rod to bracket	11 ~ 15	80 ~ 108	<b>8T</b>		
Tension rod bracket to frame	7.6 ~ 9.5	55 ~ 69	6 mm bolt/nut	0.8 ~ 1.2	6 ~ 9
Stabilizer bar to suspension lower arm	2.4 ~ 3.5	17 ~ 25	8 mm bolt/nut	1.8 ~ 2.7	13 ~ 20
			10 mm bolt/nut	3.7 ~ 5.5	27 ~ 40
			12 mm bolt/nut	6.4 ~ 9.5	46 ~ 69
			14 mm bolt/nut	10.4 ~ 14.0	75 ~ 101