

## TECHNICAL DATA

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37UTDX-001

## C. ENGINE

Item		Engine model		13B (Turbo)	
Type				Rotary engine	
Displacement		cc {cu in}		654 × 2 {40.0 × 2}	
Number of rotors and arrangement				2 rotors, longitudinal	
Combustion chamber type				Bathtub	
Compression ratio				9.0: 1	
Port timing	Intake	Open	Primary	45° BTDC	
			Secondary	32° BTDC	
		Close	Primary	50° ABDC	
			Secondary	50° ABDC	
	Exhaust	Open		75° BBDC	
		Close		48° ATDC	
Compression pressure kPa {kgf/cm <sup>2</sup> , psi}-rpm		Minimum		686 {7.0, 100}-250	
		Maximum difference between chambers		147 {1.5, 21}-250	
Side housing (Front, intermediate and rear housing)		Distortion limit mm {in}		0.04 {0.002}	
		Side seal wear limit mm {in}		0.10 {0.004}	
		Side seal wear limit, overlapping oil seal wear mm {in}		0.01 {0.0004}	
		Side seal wear limit, outside oil seal wear mm {in}		0.10 {0.004}	
		Oil seal wear limit mm {in}		0.02 {0.0008}	
Rotor housing		Width mm {in}		80 {3.1}	
		Maximum width difference mm {in}		0.06 {0.0024}	
Rotor		Width (Apex) mm {in}		79.675 {3.1368}	
		Clearance of side housing to rotor mm {in}		Standard	0.12-0.21 {0.0047-0.0083}
				Min.	0.10 {0.0039}
		Diameter of corner seal groove mm {in}		11.000-11.018 {0.4331-0.4338}	
		Width of side seal groove mm {in}		0.714-0.739 {0.0281-0.0291}	
Width of apex seal groove mm {in}		1.995-2.012 {0.0785-0.0792}			
Apex seal and spring		Width mm {in}		2.0 {0.079}	
		Height (upper and lower) mm {in}		Standard	8.5 {0.33}
				Min.	7.5 {0.295}-Refer to ENGINE INSPECTION section
		Clearance of apex seal and rotor groove mm {in}		Standard	0.051-0.101 {0.002-0.004}
				Max.	0.15 {0.0059}
		Spring free height mm {in}		Long	Standard
Short	Min.			3.5 {0.138}	
Side seal and spring		Thickness mm {in}		0.661-0.686 {0.0260-0.0270}	
		Clearance of side seal to rotor groove mm {in}		Standard	0.028-0.078 {0.0011-0.0031}
				Max.	0.10 {0.0039}
		Height mm {in}		3.0 {0.118}	
		Protrusion min. mm {in}		0.50 {0.020}	
		Clearance of side seal to corner seal mm {in}		Standard	0.05-0.15 {0.0020-0.0059}
Max.	0.40 {0.016}				
Corner seal and spring		Outer diameter mm {in}		10.990-11.014 {0.4327-0.4336}	
		Height mm {in}		7.0 {0.276}	
		Protrusion min. mm {in}		0.50 {0.020}	
Rotor oil seal and spring		Height mm {in}		5.6-5.8 {0.220-0.228}	
		Oil seal lip width max. mm {in}		0.50 {0.020}	
		Protrusion min. mm {in}		0.50 {0.020}	
Main bearing		Inner diameter mm {in}		43.025-43.050 {1.6939-1.6949}	
Rotor bearing		Inner diameter mm {in}		74.025-74.050 {2.9144-2.9153}	

Item		Engine model	13B (Turbo)	
Eccentric shaft	Runout max.	mm {in}	0.06 {0.0027}	
	End play	mm {in}	Standard	0.040-0.070 {0.0016-0.0028}
			Limit	0.09 {0.0035}
	Main journal diameter	mm {in}	43 {0.37}	
	Clearance of main journal	mm {in}	Standard	0.08-0.11 {0.0031-0.0043}...outside 0.06-0.08 {0.0023-0.0031}...inside
			Limit	0.13 {0.0051}...outside 0.11 {0.0043}...inside
	Rotor journal diameter	mm {in}	74 {2.9}	
Clearance of rotor journal	mm {in}	Standard	0.060-0.080 {0.0023-0.0031}	
		Limit	0.10 {0.0039}	
Drive belt deflection at 98 N {10 kgf, 22 lbf} mm {in}	Alternator and Air pump	Used	7.0-7.5 {0.28-0.29}	
	P/S pump and A/C compressor	Used	4.5-5.0 {0.18-0.19}	

D. LUBRICATING SYSTEM

Item		Engine model	13B (Turbo)	
Lubrication system			Forced-fed	
Oil pump	Type		Trochoid	
	Lobe clearance of outer rotor to inner rotor	mm {in}	Standard	0.03-0.12 {0.0012-0.0047}
			Max.	0.15 {0.0059}
	Clearance of outer rotor to pump body	mm {in}	Standard	0.20-0.25 {0.0079-0.0098}
			Max.	0.30 {0.0118}
End float	mm {in}	Standard	0.03-0.125 {0.0012-0.0049}	
		Max.	0.15 {0.0059}	
Pressure control valve	Relief pressure	kPa {kgf/cm <sup>2</sup> , psi}	1,080 {11.0, 156}	
Oil cooler	Type		Air-cooled, with bypass valve	
	Relief temperature	°C {°F}	60-65 {140-149} or below	
	Relief pressure dif.	kPa {kgf/cm <sup>2</sup> , psi}	349 {3.56, 50} at 60°C {140°F}	
	Bypass valve protrusion	mm {in}	5 {0.2} or more	
Regulator valve	Relief pressure	kPa {kgf/cm <sup>2</sup> , psi}	490 {5.0, 71}	
Oil filter	Type		Full flow, paper element	
	Relief pressure dif.	kPa {kgf/cm <sup>2</sup> , psi}	98 {1.0, 14}	
Eccentric shaft bypass valve	Relief temperature	°C {°F}	60 {140} or below	
	Protrusion	mm {in}	6 {0.24} or more	
Engine oil	Capacity L {US qt, Imp qt}	Total (dry engine)	4.9 {5.2, 4.3} *5.4 {5.7, 4.8}	
		Oil pan	4.2 {4.4, 3.7}	
		Oil cooler	0.85 {0.90, 0.75}	
		Oil filter	0.19 {0.20, 0.17}	
	Classification		API Service SG Energy Conserving II (EClI)	
	Above -25°C {-10°F}		10W-30	
Below 0°C {32°F}		5W-30		

\* R1 model

TD

E. COOLING SYSTEM

Item		Engine model	13B (Turbo)			
Cooling method			Water-cooled, forced circulation			
Water pump	Type		Centrifugal			
	Pulley ratio (Speed)		1: 1.22			
Thermostat	Type		Wax, bottom bypass			
	Opening temperature	°C {°F}	80.5–83.5 {177–182}			
	Full-open temperature	°C {°F}	95 {203}			
	Full-open lift min.	mm {in}	8–10 {0.31–0.39}			
Radiator	Type		Corrugated fin			
Coolant filler cap	Relief pressure	kPa {kgf/cm <sup>2</sup> , psi}	115–145 {1.15–1.45, 16.4–20.6}			
Electric cooling fan	Type		Electrical			
	Capacity	W	160 × 2			
	Number of blades		No1: 5, No2: 4			
	Outer diameter	mm {in}	300 {11.8}			
Drive belt deflection at 98 N {10 kgf, 22 lbf}	mm {in}	Alternator and air pump	Used	7.0–7.5 {0.28–0.29}		
Coolant	Capacity	L {US qt, Imp qt}	8.8 {9.3, 7.7}			
Antifreeze solution	Protection		Mixture	Mixture percentage %	Specific gravity at 20°C {68°F}	
				Water		Antifreeze
	Above – 16°C {3°F}			65	35	1.054
	Above – 26°C {– 15°F}			55	45	1.066
	Above – 40°C {– 40°}			45	55	1.078

F. FUEL AND EMISSION CONTROL SYSTEMS

Item		Specification
Idle speed*	rpm	700–750
Ignition timing	Leading	ATDC 5°
	Trailing	ATDC 20°
<b>Air cleaner</b>		
Element type		Oil permeated
<b>Throttle body</b>		
Type		Horizontal draft (2 stage-3 barrel)
Throat diameter	Primary	mm {in} 45 {1.772}
	Secondary	mm {in} 50 {1.969} × 2
Dashpot touch angle		8
Water thermovalve Operation (full open) temperature	°C {°F}	55–65 {131–149} or more
<b>Intercooler</b>		
Type		Air cooled
Core size {w × h × t}	mm {in}	294 × 114 × 65 {11.575 × 4.4882 × 2.5591}
<b>Turbocharger</b>		
System type		Sequential twin turbocharged
Cooling method		Water + engine oil
Boost control actuator		Turbo precontrol + wastegate control
Boost control method		Solenoid valve (duty-controlled) × 2
<b>Fuel tank</b>		
Capacity	L {US gal, Imp gal}	76 {20.1, 16.7}
<b>Fuel filter</b>		
Type	Low-pressure	Nylon element
	High-pressure	Paper element
<b>Pressure regulator</b>		
Type		Diaphragm
Regulated pressure	kPa {kgf/cm <sup>2</sup> , psi}	250–260 {2.5–2.6, 35.6–37.0}

\* TEN terminal of diagnosis connector grounded

Item		Specification
<b>Fuel pump</b>		
Type		Impeller (In tank)
Output pressure	kPa {kgf/cm <sup>2</sup> , psi}	490-740 {5.0-7.5, 71.1-106.7}
<b>Injector</b>		
Type		Side-feeding
Injection volume	Primary	cm <sup>3</sup> {cc, cu in}/min 550 {550, 33.5}
	Secondary	cm <sup>3</sup> {cc, cu in}/min 850 {850, 51.8}
<b>Catalytic converter</b>		
Type	Pri-converter	Metal
	Main converter	Monolithic
<b>Air pump</b>		
Capacity	cm <sup>3</sup> {cc}/rev	375 {375}
Output	L/min	MT 140-200, AT 160-200
<b>Fuel</b>		
Specification		Unleaded premium (RON95 or higher)

**G. ENGINE ELECTRICAL SYSTEM**

Item		Transmission	MT	AT	
voltage		V	12, negative ground		
Battery	Type and capacity (20-hour rate)		55D23L (60Ah) 65D23L (55Ah)* <sup>1</sup>	55D23L (60Ah) 75D26L (65Ah)* <sup>1</sup>	
	Ignition system	Spark timing (test connector grounded)		Leading : ATDC 5° (BTDC - 5°) Trailing : ATDC 20° (BTDC - 20°) at idle (AT: P range)	
Spark advance		Electronic spark advance (ESA)			
Spark plug		Type	Leading	NGK : BUR7EQP* <sup>2</sup> , BUR6EQP, BUR7EQ, BUR6EQ	
			Trailing	NGK : BUR9EQP* <sup>2</sup> , BUR8EQP, BUR9EQ, BUR8EQ	
	Plug gap	mm {in}	1.1-1.7 {0.044-0.066}		
Alternator	Output		V-A 12-100		
	Regulated voltage		V 14.1-14.7 (With temperature gradient characteristics)		
	Brush length	Standard	mm {in} 21.5 {0.846}		
		Minimum	mm {in} 8.0 {0.315}		
Stator	Type		Direct	Reduction	
	Output		V-kW 12-1.2		
	Output (no load)	Voltage		V 11	
		Current		A Max 90	
		Speed		rpm Min 3000	
	Brush length	Standard	mm {in} 17.5 {0.689}		
Minimum		mm {in} 12 {0.47}			

\*<sup>1</sup> Cold area

\*<sup>2</sup> Standard plug

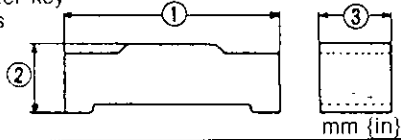
**H. CLUTCH**

Item	Transmission	R15M-D (R5M-D)
<b>Clutch control</b>		Hydraulic
<b>Clutch pedal</b>		
Type		Suspended
Pedal ratio		6.35
Full stroke	mm {in}	135 {5.32}
Height (with carpet)	mm {in}	165.5-177.0 {6.516-6.968}
Free play	mm {in}	0.6-3.2 {0.02-0.13}
Distance from carpet when clutch is fully disengaged	mm {in}	48 {1.9} min.

Item		Transmission	R15M-D (R5M-D)
<b>Flywheel</b>			
Runout limit		mm {in}	0.2 {0.008}
<b>Clutch disc</b>			
Type			Single dry-plate
Runout limit		mm {in}	0.6 {0.024}
Wear limit		mm {in}	0.3 {0.012} from rivet head
Outer diameter		mm {in}	236 {9.29}
Inner diameter		mm {in}	160 {6.30}
Facing thickness	mm {in}	Flywheel side	3.5 {0.14}
		Pressure plate side	3.5 {0.14}
<b>Clutch cover</b>			
Type			Diaphragm spring
Set load		N {kgf, lbf}	7.220 {736, 1619}
<b>Clutch master cylinder</b>	Inner diameter	mm {in}	15.87 {0.625}
<b>Clutch release cylinder</b>	Inner diameter	mm {in}	19.05 {0.750}
<b>Clutch fluid</b>			FMVSS116 DOT-3

**J. MANUAL TRANSMISSION (R15M-D)**

Item		Engine	13B
<b>Specifications</b>			
<b>Transmission type</b>			R15M-D (R5M-D)
<b>Transmission control</b>			Floor shift
Synchronization mechanism			Forward : Synchromesh Reverse : Synchromesh
Gear ratio	1st		3.483
	2nd		2.015
	3rd		1.391
	4th		1.000
	5th		0.719
	Reverse		3.288
Final gear ratio			4.100
Speedometer gear ratio (driven gear/drive gear)			0.304 (23/7)
Oil	Grade		API service GL-4 or GL-5
	Viscosity	All-season	SAE 75W-90
		Above 10°C {50°F}	SAE 80W-90
Capacity	L {US qt, Imp qt}	2.5 {2.6, 2.2}	
<b>Runout</b>			
Mainshaft		mm {in}	0.03 {0.0012}
<b>Clearance</b>			
Each gear inner diameter and mainshaft outer diameter		mm {in}	0.15 {0.006}
Each clutch hub sleeve groove and shift fork	mm {in}	Standard	0.2-0.3 {0.008-0.012}
		Maximum	0.5 {0.020}
Reverse idler gear and shaft	mm {in}	Standard	0.02-0.05 {0.0008-0.0020}
		Maximum	0.15 {0.006}
Synchronizer ring (all) and flank surface of gear	mm {in}	Standard	1.5 {0.059}
		Minimum	0.8 {0.031}
Control rod lever and shift rod gate		mm {in}	0.8 {0.031}
<b>Thrust plan</b>			
Synchronizer key and synchronizer ring (4th)	mm {in}	Standard	0.66-2.0 {0.026-0.079}
		Available thrust washer thicknesses	2.5, 3.0, 3.5 {0.098, 0.118, 0.138}

Item		Engine	13B
Thrust lock washer and C-washers (5th gear thrust play)	mm {in}	Standard	0.1-0.2 {0.004-0.008}
		Available thrust lock washer thick	6.2, 6.3, 6.4, 6.5, 6.6, 6.7 {0.244, 0.248, 0.252, 0.256, 0.260, 0.264}
C-washers and mainshaft groove	mm {in}	Standard	0-0.1 {0-0.004}
		Available C-washer thick-nesses	2.9, 3.0, 3.1, 3.2 {0.114, 0.118, 0.122, 0.126}
Clutch housing and main drive gear bearing	mm {in}	Standard	0-0.1 {0-0.004}
		Available adjust shim thick-nesses	0.3, 0.4, 0.5, 0.6, 0.7 {0.012, 0.016, 0.020, 0.024, 0.028}
Mainshaft front bearing	mm {in}	Standard	0-0.05 {0-0.002}
		Available adjust shim thick-nesses	0.1, 0.3 {0.004, 0.012}
Countershaft front bearing	mm {in}	Bearing height	0.9-1.0 {0.035-0.039}
		Available adjust shim thick-nesses	0.1, 0.3 {0.004, 0.012}
<b>Reference</b>			
Detent ball spring	Free length	mm {in}	22.5 {0.886}
5th/reverse retaining spring	Free length	mm {in}	73.00 {2.874}
Select lock spindle spring	Free length	mm {in}	43.25 {1.703}
Synchronizer key dimensions		1st and 2nd	① 18.00 {0.709}, ② 5.45 {0.215} ③ 6.00 {0.236}
		3rd, 4th 5th and Reverse	① 17.00 {0.669} ② 4.25 {0.167} ③ 5.00 {0.197}

K. AUTOMATIC TRANSMISSION

Item		Transmission	RB4A-EL	
Gear ratio		1st	3.027	
		2nd	1.619	
		3rd	1.000	
		O/D	0.694	
		Reverse	2.272	
Final gear ratio			3.909	
Automatic transmission fluid (ATF)	Type	Dexron®II or M-III		
	Capacity	L {US qt. Imp qt}	8.6 {9.1, 7.6}	
Torque converter	Stall torque ratio	2.200		
Number of drive plates / driven plates	Reverse clutch	2/2		
	High clutch	4/7		
	Forward clutch	6/6		
	Overrunning clutch	3/5		
	Low and reverse brake	7/7		
Band servo	mm {in}	Servo piston outer dia. / inner dia.	80.0/50.0 {3.15/1.97}	
		O/D servo piston outer dia.	72.0 {2.83}	
<b>Mechanical system test</b>				
Engine stall speed	rpm	D, S, L, R range	3,000–3,300	
Time lag	sec.	N → D range	Approx. below 1.0	
		N → R range	Approx. below 1.2	
Line pressure kPa {kgf/cm <sup>2</sup> , psi}	D range	Idle	500–520 {5.0–5.4, 72–76}	
		Stall	1,200–1,270 {12.2–13.0, 174–184}	
	S range	Idle	500–520 {5.0–5.4, 72–76}	
		Stall	1,200–1,270 {12.2–13.0, 174–184}	
	L range	Idle	500–520 {5.0–5.4, 72–76}	
		Stall	1,200–1,270 {12.2–13.0, 174–184}	
	R range	Idle	620–650 {6.3–6.7, 90–95}	
		Stall	1,510–1,570 {15.3–16.1, 218–228}	
<b>Shift point km/h {MPH}</b>				
POWER	D range	Fully open	D <sub>1</sub> → D <sub>2</sub>	50–56 {31–35}
			D <sub>2</sub> → D <sub>3</sub>	103–111 {64–69}
			D <sub>3</sub> → O/D	178–188 {111–117}
		Half throttle	D <sub>1</sub> → D <sub>2</sub>	35–41 {22–25}
			D <sub>2</sub> → D <sub>3</sub>	81–93 {50–58}
			D <sub>3</sub> → O/D	126–144 {78–99}
			Lockup ON (D <sub>3</sub> )	94–106 {58–66} (*81–93 {50–58})
			Lockup ON (O/D)	174–192 {108–119} (*126–144 {78–89})
			O/D → D <sub>3</sub>	39–45 {24–28}
		Fully closed	D <sub>3</sub> → D <sub>2</sub>	13–19 {8–12}
			D <sub>2</sub> → D <sub>1</sub>	5–11 {3–7}
			O/D → D <sub>3</sub>	142–152 {88–94}
		Kickdown (Fully open)	D <sub>3</sub> → D <sub>2</sub>	91–99 {57–62}
			D <sub>2</sub> → D <sub>1</sub>	38–44 {24–27}

**Caution**

- Lockup indicates complete lockup.
- \* mark indicates lockup points when the engine coolant temperature is above 115°C {239°F}.



Item		Transmission		RB4A-EL
NORMAL	D range (A/C ON)	Fully open	D <sub>1</sub> → D <sub>2</sub>	50-56 {31-35}
			D <sub>2</sub> → D <sub>3</sub>	103-111 {64-69}
			D <sub>3</sub> → O/D	178-188 {111-117}
		Half throttle	D <sub>1</sub> → D <sub>2</sub>	32-38 {20-24}
			D <sub>2</sub> → D <sub>3</sub>	80-92 {50-57}
			D <sub>3</sub> → O/D	126-144 {78-89}
			Lockup ON (D <sub>3</sub> )	94-106 {58-66} (* 80-92 {50-57})
		Fully closed	Lockup ON (O/D)	174-192 {108-119} (*126-144 {78-89})
			O/D → D <sub>3</sub>	39-45 {24-28}
			D <sub>3</sub> → D <sub>2</sub>	13-19 {8-12}
		Kickdown (Fully open)	D <sub>2</sub> → D <sub>1</sub>	5-11 {3-7}
			O/D → D <sub>3</sub>	142-152 {88-94}
	D <sub>3</sub> → D <sub>2</sub>		91-99 {57-62}	
	D range (A/C OFF)	Fully open	D <sub>2</sub> → D <sub>1</sub>	38-44 {24-27}
			D <sub>1</sub> → D <sub>2</sub>	50-56 {31-35}
			D <sub>2</sub> → D <sub>3</sub>	103-111 {64-69}
		Half throttle	D <sub>3</sub> → O/D	178-188 {111-117}
			D <sub>1</sub> → D <sub>2</sub>	32-38 {20-24}
			D <sub>2</sub> → D <sub>3</sub>	80-92 {50-57}
			D <sub>3</sub> → O/D	126-144 {78-89}
		Fully closed	Lockup ON (D <sub>3</sub> )	94-106 {58-66} (*80-92 {50-57})
			Lockup ON (O/D)	174-192 {108-119} (*126-144 {78-89})
			O/D → D <sub>3</sub>	35-41 {22-25}
		Kickdown (Fully open)	D <sub>3</sub> → D <sub>2</sub>	13-19 {8-12}
D <sub>2</sub> → D <sub>1</sub>			5-11 {3-7}	
O/D → D <sub>3</sub>	142-152 {88-94}			
HOLD	D range	-	D <sub>3</sub> → D <sub>2</sub>	91-99 {57-62}
			D <sub>2</sub> → D <sub>1</sub>	38-44 {24-27}
			O/D → D <sub>3</sub>	180-186 {112-116}
			Lockup ON (D <sub>3</sub> )	94-106 {58-66} (*39-51 {24-32})
NORMAL	S range	Fully open	S <sub>1</sub> → S <sub>2</sub>	50-56 {31-35}
			S <sub>2</sub> → S <sub>3</sub>	103-111 {64-69}
		Half throttle	S <sub>1</sub> → S <sub>2</sub>	35-41 {22-25}
			S <sub>2</sub> → S <sub>3</sub>	81-93 {50-58}
			Lockup ON (S <sub>3</sub> )	94-106 {58-66} (*81-93 {50-58})
		Fully closed	S <sub>3</sub> → S <sub>2</sub>	13-19 {8-12}
			S <sub>2</sub> → S <sub>1</sub>	5-11 {3-7}
		Kickdown (Fully open)	S <sub>3</sub> → S <sub>2</sub>	91-99 {57-62}
			S <sub>2</sub> → S <sub>1</sub>	38-44 {24-27}
		HOLD	-	-

TD

**Caution**

- Lockup indicates complete lockup.
- \* mark indicates lockup points when the engine coolant temperature is above 115°C {239°F}.

Item		Transmission		RB4A-EL
NORMAL	L range	Fully open	$L_1 \rightarrow L_2$	50-56 {31-35}
		Half throttle	$L_1 \rightarrow L_2$	35-41 {22-25}
		Fully closed	$L_2 \rightarrow L_1$	5-11 {3-7}
		Kickdown (Fully open)	$L_2 \rightarrow L_1$	38-44 {24-27}
HOLD	-	$L_2 \rightarrow L_1$	45-51 {28-32}	
<b>Control valve body</b>				
<b>(Upper control valve body)</b>				
Torque converter relief valve spring	mm {in}	Outer diameter		9.2 {0.362}
		Free length		38.3 {1.508}
Pressure regulator valve spring	mm {in}	Outer diameter		14.0 {0.551}
		Free length		29.0 {1.142}
Pressure modifier valve spring*	mm {in}	Outer diameter		(A) 6.8 {0.268} (B) 6.9 {0.272} (C) 6.9 {0.272}
		Free length		(A) 31.95 {1.258} (B) 32.6 {1.283} (C) 32.8 {1.291}
Accumulator control valve spring	mm {in}	Outer diameter		10.5 {0.413}
		Free length		17.0 {0.669}
Shuttle shift valve D spring	mm {in}	Outer diameter		6.0 {0.236}
		Free length		26.5 {1.043}
Shift valve B spring	mm {in}	Outer diameter		7.0 {0.276}
		Free length		25.0 {0.984}
4-2 sequence valve spring	mm {in}	Outer diameter		6.95 {0.274}
		Free length		29.1 {1.146}
Shift valve A spring	mm {in}	Outer diameter		7.0 {0.276}
		Free length		25.0 {0.984}
4-2 relay valve spring	mm {in}	Outer diameter		6.95 {0.274}
		Free length		29.1 {1.146}
Overrunning clutch control valve spring	mm {in}	Outer diameter		7.0 {0.276}
		Free length		23.6 {0.929}
Overrunning clutch reducing valve spring	mm {in}	Outer diameter		7.0 {0.276}
		Free length		32.5 {1.280}
Pilot valve spring	mm {in}	Outer diameter		9.1 {0.358}
		Free length		25.7 {1.012}
Lockup control valve spring	mm {in}	Outer diameter		4.7 {0.185}
		Free length		23.4 {0.921}
Lockup modifier valve spring	mm {in}	Outer diameter		4.2 {0.165}
		Free length		21.5 {0.846}
<b>(Lower control valve body)</b>				
Modifier accumulator valve spring	mm {in}	Outer diameter		9.8 {0.39}
		Free length		30.5 {1.20}
1st reducing valve spring	mm {in}	Outer diameter		6.8 {0.27}
		Free length		25.4 {1.00}
Servo charger valve spring	mm {in}	Outer diameter		6.5 {0.26}
		Free length		33.2 {1.31}

\*: Either A, B, or C type spring is installed at shipment. Only A type spring is available for replacement.

# TECHNICAL DATA

# TD

Item	Transmission	RB4A-EL	
<b>Accumulator</b>			
N-D accumulator piston spring	mm {in}	Outer diameter	18.0 {0.71}
		Free length	43.0 {1.69}
1-2 accumulator piston spring	mm {in}	Outer diameter	29.3 {1.16}
		Free length	45.0 {1.77}
2-3 accumulator piston spring	mm {in}	Outer diameter	19.5 {0.768}
		Free length	66.0 {2.60}
3-4 / N-R accumulator piston spring	mm {in}	Outer diameter	18.0 {0.709}
		Free length	43.0 {1.69}
<b>Oil pump</b>			
Cam ring clearance	mm {in}	Standard	0.010–0.024 {0.0004–0.0009}
		Maximum	0.030 {0.0012}
Rotor, vanes, and control piston clearance	mm {in}	Standard	0.030–0.044 {0.0012–0.0017}
		Maximum	0.050 {0.0020}
Seal ring clearance	mm {in}	Standard	0.10–0.25 {0.004–0.010}
		Maximum	0.25 {0.010}
Cam ring spring	mm {in}	Outer diameter	13.7 {0.539}
		Free length	39.8 {1.567}
<b>Reverse clutch</b>			
Clutch clearance	mm {in}	With new drive / driven plates	0.50–0.80 {0.020–0.031}
		With reusing drive / driven plates	0.50–1.20 {0.020–0.047}
Retaining plate size	mm {in}	4.6 {0.181}, 4.8 {0.189}, 5.0 {0.197}, 5.2 {0.205}, 5.4 {0.213}, 5.6 {0.220}, 5.8 {0.228}	
Return spring	mm {in}	Outer diameter	11.6 {0.457}
		Free length	19.69 {0.775}
<b>High clutch</b>			
Clutch clearance	mm {in}	With new drive / driven plates	1.8–2.2 {0.071–0.087}
		With reusing drive / driven plates	1.8–3.0 {0.071–0.118}
Retaining plate size	mm {in}	3.4 {0.134}, 3.6 {0.142}, 3.8 {0.150}, 4.0 {0.157}, 4.2 {0.165}	
Return spring	mm {in}	Outer diameter	11.6 {0.457}
		Free length	22.3 {0.878}
<b>Band servo</b>			
Return spring A	mm {in}	Outer diameter	40.3 {1.59}
		Free length	53.8 {2.12}
Return spring B	mm {in}	Outer diameter	34.3 {1.35}
		Free length	45.6 {1.80}
Return spring C	mm {in}	Outer diameter	27.6 {1.09}
		Free length	29.7 {1.17}

Item		Transmission	RB4A-EL
<b>Forward clutch</b>			
Clutch clearance	mm {in}	With new drive / driven plates	0.45–0.85 {0.018–0.033}
		With reusing drive / driven plates	0.45–1.85 {0.018–0.073}
Retaining plate size	mm {in}		8.0 {0.315}, 8.2 {0.323}, 8.4 {0.331}, 8.6 {0.339}, 8.8 {0.346}, 9.0 {0.354}, 9.2 {0.362}
Return spring	mm {in}	Outer diameter	9.7 {0.38}
		Free length	35.8 {1.41}
<b>Overrunning clutch</b>			
Clutch clearance	mm {in}	With new drive / driven plates	1.0–1.4 {0.039–0.055}
		With reusing drive / driven plates	1.0–2.0 {0.039–0.079}
Retaining plate size	mm {in}		4.0 {0.157}, 4.2 {0.165}, 4.4 {0.173}, 4.6 {0.181}, 4.8 {0.189}, 5.0 {0.197}, 5.2 {0.205}
<b>Low and reverse brake</b>			
Brake clearance	mm {in}	With new drive / driven plates	0.8–1.2 {0.031–0.047}
		With reusing drive / driven plates	0.8–2.6 {0.031–0.102}
Retaining plate size	mm {in}		6.2 {0.244}, 6.4 {0.252}, 6.6 {0.260}, 6.8 {0.268}, 7.0 {0.276}, 7.2 {0.283}, 7.4 {0.291}, 7.6 {0.299}, 7.8 {0.307}, 8.0 {0.315}
Return spring	mm {in}	Outer diameter	11.6 {0.457}
		Free length	22.3 {0.878}
<b>Low one-way clutch inner race</b>			
Seal ring clearance	mm {in}	Standard	0.10–0.25 {0.004–0.010}
		Maximum	0.25 {0.010}
<b>Total end play</b>			
Standard end play	mm {in}		0.25–0.55 {0.010–0.022}
Bearing race size	mm {in}		0.8 {0.031}, 1.0 {0.039}, 1.2 {0.047}, 1.4 {0.055}, 1.6 {0.063}, 1.8 {0.071}, 2.0 {0.079}
<b>Reverse clutch end play</b>			
Standard end play	mm {in}		0.55–0.90 {0.022–0.035}
Thrust washer size	mm {in}		0.7 {0.028}, 0.9 {0.035}, 1.1 {0.043}, 1.3 {0.051}, 1.5 {0.059}, 1.7 {0.067}, 1.9 {0.075}
<b>Torque converter distance (A)</b>			
Torque converter distance (A)	mm {in}		29.0 {1.14} min.

**L. PROPELLER SHAFT**

Item	Transmission model	R15M-D (R5M-D)
Length	mm {in}	863 {33.98}
Outer diameter	mm {in}	75 {3.0}
Max. permissible runout	mm {in}	0.4 {0.02}

**M. FRONT AND REAR AXLES**

Item		Specifications
<b>Drive shaft</b>		
Type	Wheel side	BJ (bell joint)
	Differential side	TJ (Tripod joint)
Outer diameter of large boot end mm {in}	Wheel side	105.3 {4.146}
	Differential side	100.5 {3.957}
Grease amount g {oz}	Wheel side	100-120 {3.53-4.23}
	Differential side	170-190 {6.01-6.70}
Shaft length*	mm {in}	791.2-801.2 {31.15-31.54}
<b>Front axle</b>		
Bearing play axil direction	mm {in}	0.05 {0.002} max.
<b>Rear axle</b>		
Bearing play axil direction	mm {in}	0.05 {0.002} max.
<b>Differential</b>		
Backlash (Ring gear and drive pinion)	mm {in}	0.09-0.11 {0.0035-0.0043}
Drive pinion preload (without oil seal)	N·m {kgf·cm, in·lbf}	1.3-1.7 {13-18, 12-15}
Differential oil	Grade	API Service GL-4 or 5
	Viscosity	Above -18°C {0°F} : SAE 90 Below -18°C {0°F} : SAE 80
	Capacity L {US qt, Imp qt}	1.30 {1.38, 1.14}

\* Before measuring the drive shaft length, lift the boot to equalize the pressure within it.

**N. STEERING SYSTEM**

Item		Specifications
<b>Steering wheel</b>		
Outer diameter	mm {in}	380 {15.0}
Free play	mm {in}	0-30 {0-1.18}
Wheel effort	N {kgf, lbf}	30-38 {3.0-3.9, 6.6-8.5}
Lock-to-lock	turns	2.9
<b>Steering shaft</b>		
Shaft type		Collapsible
Joint type		2-cross joint
<b>Power steering system</b>		
Gear type		Rack and pinion
Gear ratio		∞ (infinite)
Rack stroke	mm {in}	160 {6.30}
Power steering fluid		ATF DEXRON®II or M-III
Fluid capacity	L {US qt, Imp qt}	0.96 {1.01, 0.84}
Fluid pressure	kPa {kgf/cm <sup>2</sup> , psi}	7620-8350 {77.7-85.2, 1110-1210}

## P. BRAKING SYSTEM

Item		Specifications		
<b>Brake pedal</b>				
Type		Suspended		
Height (with carpet)	mm {in}	164.5–176.0 {6.48–6.92}		
Free play	mm {in}	3–8 {0.12–0.31}		
Reserve travel (When depressed at 590 N {60 kgf, 132 lbf}) (without carpet)	mm {in}	100 {3.94} min.		
<b>Master cylinder</b>				
Type		Tandem (with level sensor) Portless & recessed type		
Push rod-to-piston clearance	mm {in}	Power brake unit at 66.7 kPa {500 mmHg, 19.7 inHg} 0.1–0.4 {0.004–0.015}		
<b>Front brake</b>				
Type		Ventilated disc		
Disc pad thickness	Standard	mm {in}	Outer 10.3 {0.41}	
		mm {in}	Inner 9.3 {0.37}	
	Limit	mm {in}	1.0 {0.04}	
Disc plate	Runout limit		mm {in}	0.1 {0.004}
	Thickness	Standard	mm {in}	22.0 {0.87}
		Limit	mm {in}	20.0 {0.79}
<b>Rear brake</b>				
Type		Ventilated disc		
Disc pad thickness	Standard	mm {in}	8.0 {0.31}	
	Limit	mm {in}	1.0 {0.04}	
Disc plate	Runout limit		mm {in}	0.1 {0.004}
	Thickness	Standard	mm {in}	20.0 {0.79}
		Limit	mm {in}	18.0 {0.71}
<b>Power brake unit</b>				
Type		Tandem diaphragm		
Fluid pressure when pedal depressed at 200 N {20 kgf, 44 lbf} kPa {kgf/cm <sup>2</sup> }	Power brake unit at 0 kPa {0 mmHg, 0 inHg}		590 {6} min.	
	Power brake unit at 66.7 kPa {500 mmHg, 19.7 inHg}		7750 {79} min.	
<b>Rear wheel hydraulic control system</b>				
Type		Proportioning bypass valve		
Switching point	kPa {kgf/cm <sup>2</sup> , psi}	3900 {40.0, 570}		
<b>Parking brake</b>				
Type		Mechanical, two-rear-wheel control		
Operation system		Hand lever type		
Parking lever stroke (When pulled at 200 N {20 kgf, 44 lbf})	notches	7–10		
<b>Brake fluid</b>				
Type		FMVSS 116 DOT-3		
<b>Anti-lock brake system (ABS)</b>				
Type		4-sensor, 3-channel system		
Resistance between terminals of wheel speed sensor	k $\Omega$	0.8–1.2		

**Q, WHEELS AND TIRES**

Item		Specifications	
<b>Standard tire</b>			
Tires	Size	P225/50R16 91V P225/50 ZR 16	
	Air pressure	kPa {kgf/cm <sup>2</sup> , psi} 220 {2.2, 32}	
	Remaining tread	Ordinary tires	mm {in} 1.6 {0.063} min.
		Snow tires	% 50 min.
Wheels	Size	16 × 8JJ	
	Material	Aluminum alloy	
	Offset	mm {in} 50.0 {1.97}	
	Pitch circle diameter	mm {in} 114.3 {4.50}	
<b>Temporary spare tire</b>			
Tires	Size	T135/70D16	
	Air pressure	kPa {kgf/cm <sup>2</sup> , psi} 415 {4.2, 60}	
Wheels	Size	16 × 4T	
	Material	Aluminum alloy	
	Offset	mm {in} 40.0 {1.57}	
	Pitch circle diameter	mm {in} 114.3 {4.50}	
<b>Wheel and tire</b>			
Runout limit	mm {in}	Horizontal	2.0 {0.08}
		Vertical	1.5 {0.06}
Maximum unbalance (at rim edge)		g {oz}	8 {0.28}

**R. SUSPENSION**

Item		Specifications		
<b>Front suspension</b>				
Suspension type		Double-wishbone		
Coil spring	Identification mark color		Blue	
	Wire diameter	mm {in}	12.4 {0.49}	
	Coil center diameter	mm {in}	104.9 {4.130}	
	Free length	mm {in}	272.9 {10.74}	
	Active coil number		4.27	
Shock absorber type		Cylindrical, double-acting, low-pressure gas charged		
Stabilizer	Type		Torsion bar, hollow type	
	Diameter	mm {in}	28.6 {1.13}	
Front wheel alignment (Unladen*1)	Total toe-in		mm {in} 1 ± 3 {0.04 ± 0.11}	
	Toe-in (per side)		degree 0°03' ± 08'	
	Maximum steering angle	degree	Inner	36° ± 2°
			Outer	32° ± 2°
	Camber angle*2		degree 0°06' ± 45'	
	Caster angle*2		degree 6°05' ± 1°	
Kingpin angle		degree 13° 55'		
<b>Rear suspension</b>				
Suspension type		Double-wishbone		
Coil spring	Identification mark color		White	
	Wire diameter	mm {in}	12.2 {0.48}	
	Coil center diameter	mm {in}	114.7 {4.516}	
	Free length	mm {in}	299.0 {11.77}	
	Active coil number		4.21	
Shock absorber type		Cylindrical, double-acting, low-pressure gas charged		

Item		Specifications
Stabilizer	Type	Torsion bar, hollow type
	Diameter	mm {in} 17.3 {0.68}
Rear wheel alignment (Unladen* <sup>1</sup> )	Total toe-in	mm {in} 2 ± 3 {0.08 ± 0.11}
	Toe-in (per side)	degree 0° 05' ± 08'
	Camber angle* <sup>2</sup>	degree -1° 13' ± 45'
	Thrust angle	degree 0° ± 06'

\*<sup>1</sup> Fuel tank full; radiator coolant and engine oil at specified levels ; spare tire, jack, and tools in designated positions.

\*<sup>2</sup> Difference between left and right must not exceed 1°.

**T. BODY ELECTRICAL SYSTEM**

Item	Specification (W) (BULB TRADE NO.)	
Front exterior lights	Headlight (Halogen)	60/55 (HB <sub>2</sub> )
	Parking light	5
	Front turn signal	27 {3497}
	Front fog light	35
	Daytime running light (For Canada)	27 {3496}
	Front side marker light	4.9 {168}
Rear exterior lights	Back-up light	27 {1156}
	License plate light	5
	Stop / Tail light	27/8 {1157}
	High-mount stoplight	18.4 {921}
	Rear turn signal light	27 {1156}
	Rear side marker light	3.8 {194}

Item	Specification (W) and Bulb trade number	
Interior lights	Interior lamp	5
	Glove box lamp	3.4
	Cargo compartment lamp	8
Warning lights	Seat belt Anti-lock Alternator Brake	1.4
	Engine oil level Fuel level Coolant level	3
	Air-bag system	2
	Shift up	2
Indicator	High beam Turn signal Security lamp Check Rear window defroster Cruise Hold	1.4



Item		Specification (W) and Bulb trade number
Illumination lights	Instrument cluster Head light cleaner switch Front fog light switch Heater unit Cigarette lighter Ash tray	3.4
	Retractable headlight switch Automatic selector Rear window defroster switch Cruise control main switch Door key Ignition key	1.4

**U. HEATING AND AIR CONDITIONING SYSTEMS**

Item		Specifications
Refrigerant amount		600 g {21.2 oz}
Compressor oil amount cm <sup>3</sup> {cu in}	Nippondenso compressor	100-140 {3.7-8.5}
Refrigerant normal pressure at 25°C {77°F}		Low pressure: 147-294 {1.5-3.0 21-43} High pressure: 1,275-1,472 {13.0-15.0, 185-213}

**STANDARD BOLT AND NUT TIGHTENING TORQUE**

Diameter mm {in}	Pitch mm {in}	4T			6T			8T		
		N·m	kgf·m	ft·lbf	N·m	kgf·m	ft·lbf	N·m	kgf·m	ft·lbf
6 {0.236}	1 {0.039}	4.2-6.2	0.43-0.63	3.1-4.6	6.9-9.8	0.7-1.0	5.0-7.2	7.8-11.8	0.8-1.2	5.8-8.8
8 {0.315}	1.25 {0.049}	9.8-14.7	1.0-1.5	7.2-10.8	16-23	1.6-2.3	12-17	18-26	1.8-2.7	13-20
10 {0.394}	1.25 {0.049}	20-28	2.0-2.9	14-21	31-46	3.2-4.1	23-34	36-54	3.7-5.5	27-40
12 {0.472}	1.5 {0.059}	34-50	3.5-5.1	25-37	55-80	5.6-8.2	41-59	63-93	6.4-9.5	46-69
14 {0.551}	1.5 {0.059}	-	-	-	75-103	7.7-10.5	56-76	102-137	10-14	75-101
16 {0.630}	1.5 {0.059}	-	-	-	116-157	12-16	85-116	156-211	16-22	115-156
18 {0.709}	1.5 {0.059}	-	-	-	167-225	17-23	123-166	221-299	23-31	163-221
20 {0.787}	1.5 {0.059}	-	-	-	231-314	24-32	171-231	308-417	31-43	227-307
22 {0.866}	1.5 {0.059}	-	-	-	314-423	32-43	231-312	417-564	43-58	307-416
24 {0.945}	1.5 {0.059}	-	-	-	475-546	41-56	298-403	536-726	55-74	396-536