

# 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	6.25 {0.246}
			Min.	3.5 {0.138}
		Short	Standard	3.3 {0.130}
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 (ECII)	
	Above - 25°C {- 10°F}		10W-30	
	Below 0°C {32°F}		5W-30	

\* R1 model

**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}
	Above – 16°C {3°F}		Water	Antifreeze	1.054
	Above – 26°C {– 15°F}		65	35	1.066
	Above – 40°C {– 40°F}		55	45	1.078
			45	55	

**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 thermostatic valve 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>	
	Spark timing (test connector grounded)		Leading : ATDC 5° (BTDC - 5°) Trailing : ATDC 20° (BTDC - 20°) at idle (AT: P range)			
Ignition system	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}
Stater	Type		Direct		Reduction	
	Output		V-kW		12-1.2	12-2.0
	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}	11 {0.43}	

\*<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.

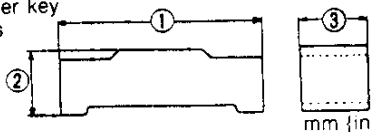
Item		Transmission	R15M-D (R5M-D)
<b>Flywheel</b>			
Runout limit		mm {in}	0.2 {0.008}
<b>Clutch disc</b>			
Type		Single dry-plate	
Runout limit		mm {in}	0.6 {0.024}
Wear limit		mm {in}	0.3 {0.012} from rivet head
Outer diameter		mm {in}	236 {9.29}
Inner diameter		mm {in}	160 {6.30}
Facing thickness	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}

# TECHNICAL DATA

# TD

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})
		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 <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}
		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}
	D range (A/C OFF)	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}
			O/D → D <sub>3</sub>	50-56 {31-35}
		Half throttle	D <sub>2</sub> → D <sub>3</sub>	103-111 {64-69}
			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}
		Fully closed	D <sub>3</sub> → O/D	126-144 {78-89}
			Lockup ON (D <sub>3</sub> )	94-106 {58-66} (*80-92 {50-57})
		Kickdown (Fully open)	Lockup ON (O/D)	174-192 {108-119} (*126-144 {78-89})
			O/D → D <sub>3</sub>	35-41 {22-25}
			D <sub>3</sub> → D <sub>2</sub>	13-19 {8-12}
HOLD	D range	-	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 <sub>2</sub> → D <sub>1</sub>	38-44 {24-27}
			O/D → D <sub>3</sub>	180-186 {112-116}
			D <sub>3</sub> → D <sub>2</sub>	7-13 {4-8}
NORMAL	S range	Fully open	D <sub>2</sub> → D <sub>3</sub>	15-25 {9-16}
			Lockup ON (D <sub>3</sub> )	94-106 {58-66} (*39-51 {24-32})
			S <sub>1</sub> → S <sub>2</sub>	50-56 {31-35}
		Half throttle	S <sub>2</sub> → S <sub>3</sub>	103-111 {64-69}
			S <sub>1</sub> → S <sub>2</sub>	35-41 {22-25}
		Fully closed	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})	
	S <sub>3</sub> → S <sub>2</sub>		13-19 {8-12}	
	Kickdown (Fully open)	S <sub>2</sub> → S <sub>1</sub>	5-11 {3-7}	
		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	-	S <sub>3</sub> → S <sub>2</sub>	112-118 {70-73}

**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}

