

2005 Toyota RAV4

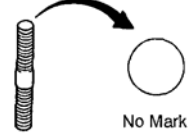
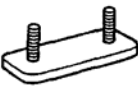
2005 GENERAL INFORMATION Service Specifications - RAV4

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STANDARD BOLT

HOW TO DETERMINE BOLT STRENGTH

Bolt Type				Class
Hexagon Head Bolt		Stud Bolt	Weld Bolt	
Normal Recess Bolt	Deep Recess Bolt			
 No Mark	 No Mark	 No Mark		4T
 No Mark	 No Mark			5T
 w/ Washer	 w/ Washer			6T
 No Mark	 No Mark			7T
 No Mark	 No Mark	 No Mark		8T
 No Mark	 No Mark			9T
 No Mark	 No Mark			10T
 No Mark	 No Mark			11T

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Fig. 1: Standard Bolt Specification Chart

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SPECIFIED TORQUE FOR STANDARD BOLTS

Class	Diameter mm	Pitch mm	Specified torque					
			Hexagon head bolt			Hexagon flange bolt		
			N·m	kgf·cm	ft·lbf	N·m	kgf·cm	ft·lbf
4T	6	1	5	55	48 in·lbf	6	60	52 in·lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	—	—	—
5T	6	1	6.5	65	56 in·lbf	7.5	75	65 in·lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	—	—	—
6T	6	1	8	80	69 in·lbf	9	90	78 in·lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	—	—	—
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	—	—	—
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

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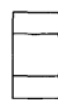
Fig. 2: Standard Bolt Specification Tightening Torque Chart

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HOW TO DETERMINE NUT STRENGTH

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Present Standard Hexagon Nut	Nut Type		Class
	Old Standard Hexagon Nut		
	Cold Forging Nut	Cutting Processed Nut	
 No Mark			4N
 No Mark (w/ Washer)	 No Mark (w/ Washer)	 No Mark	5N (4T)
  			6N
	 	 	7N (5T)
 			8N
 	 	 No Mark	10N (7T)
 			11N
 			12N

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Fig. 3: Standard Bolt Specification Chart

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut.

Example: Bolt = 4T

Nut = 4N or more

MAINTENANCE

SERVICE DATA

Axle and suspension	
Ball joint vertical play	Maximum 0 mm (0 in.)

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Fig. 4: Service Data Specification Chart (Body)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

BODY - TORQUE SPECIFICATIONS

Part tightened		N.m	kgf.cm	ft.lbf
Seat -to- Body		37	375	27
Front suspension crossmember -to- Body	Front side	113	1,150	82
	Rear side	157	1,600	115
Rear suspension member -to- Body		127	1,300	94

ENGINE MECHANICAL

SERVICE DATA

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Compression pressure	at 250rpm STD Minimum Difference of pressure between each cylinder	1,300 kPa (13.8 kgf/cm ² , 196 psi) 1.00 MPa (10 kgf/cm ² , 142 psi) 100 kPa (1.0 kgf/cm ² , 14 psi) or less
Valve clearance	at cold Intake Exhaust Valve lifter for repair part No. 06 08 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74	0.19 to 0.29 mm (0.008 to 0.011 in.) 0.30 to 0.40 mm (0.012 to 0.016 in.) 5.060 mm (0.1992 in.) 5.080 mm (0.2000 in.) 5.100 mm (0.2008 in.) 5.120 mm (0.2016 in.) 5.140 mm (0.2024 in.) 5.160 mm (0.2031 in.) 5.180 mm (0.2039 in.) 5.200 mm (0.2047 in.) 5.220 mm (0.2055 in.) 5.240 mm (0.2063 in.) 5.260 mm (0.2071 in.) 5.280 mm (0.2079 in.) 5.300 mm (0.2087 in.) 5.320 mm (0.2094 in.) 5.340 mm (0.2102 in.) 5.360 mm (0.2110 in.) 5.380 mm (0.2118 in.) 5.400 mm (0.2126 in.) 5.420 mm (0.2134 in.) 5.440 mm (0.2142 in.) 5.460 mm (0.2150 in.) 5.480 mm (0.2157 in.) 5.500 mm (0.2165 in.) 5.520 mm (0.2173 in.) 5.540 mm (0.2181 in.) 5.560 mm (0.2189 in.) 5.580 mm (0.2197 in.) 5.600 mm (0.2205 in.) 5.620 mm (0.2213 in.) 5.640 mm (0.2220 in.) 5.660 mm (0.2228 in.) 5.680 mm (0.2236 in.) 5.700 mm (0.2244 in.) 5.720 mm (0.2252 in.) 5.740 mm (0.2260 in.)
Ignition timing	w/ Terminals TC and CG connected of DLC3 Further ignition timing	8 to 12° BTDC @ idle 5 to 15° BTDC @ idle
Idle speed	A/T M/T	610 to 710 rpm 610 to 710 rpm
Chain and timing sprocket	Chain length at 16 links Camshaft timing sprocket wear (w/ chain) Crankshaft timing sprocket wear (w/ chain)	Maximum Minimum Minimum
Chain tensioner slipper and vibration damper	Wear Maximum	122.6 mm (4.827 in.) 97.3 mm (3.831 in.) 51.6 mm (2.031 in.) 1.0 mm (0.039 in.)

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Fig. 5: Service Data (Engine Mechanical) (1 Of 4)
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Cylinder head	Warpage	Maximum	0.08 mm (0.0031 in.)
	Valve seat		
	Refacing angle		30°, 45°, 75°
	Contacting angle		45°
	Contacting width		1.0 to 1.4 mm (0.039 to 0.055 in.)
Cylinder head bolt length		STD	161.3 to 162.7 mm (6.350 to 6.405 in.)
		Maximum	164.2 mm (6.464 in.)
Valve guide busing	Inside diameter		5.510 to 5.530 mm (0.2169 to 0.2177 in.)
Valve	Valve overall length	STD Intake	101.71 mm (4.0043 in.)
		Exhaust	101.15 mm (3.9823 in.)
		Minimum Intake	101.21 mm (3.9846 in.)
		Exhaust	100.70 mm (3.9646 in.)
	Valve face angle		44.5°
	Stem diameter	Intake	5.470 to 5.485 mm (0.2154 to 0.2159 in.)
		Exhaust	5.465 to 5.480 mm (0.2152 to 0.2158 in.)
	Stem oil clearance	STD Intake	0.025 to 0.060 mm (0.0010 to 0.0024 in.)
		Exhaust	0.030 to 0.065 mm (0.0012 to 0.0026 in.)
		Maximum Intake	0.08 mm (0.0031 in.)
		Exhaust	0.10 mm (0.0039 in.)
	Margin thickness	STD	1.0 mm (0.039 in.)
		Minimum	0.5 mm (0.028 in.)
Valve spring	Deviation	Maximum	1.6 mm (0.063 in.)
	Angle (Reference)	Maximum	2°
	Free length		45.7 mm (1.799 in.)
	Installed tension at 34.0 mm (1.339 in.)		184.3 to 203.7 N (18.8 to 20.8 kgf, 41.4 to 45.9 lbf)
	Maximum working tension at 24.6 mm (0.969 in.)		344.8 to 381.2 N (35.2 to 38.9 kgf, 77.4 to 85.8 lbf)
Valve lifter	Lifter diameter		30.966 to 30.976 mm (1.2191 to 1.2195 in.)
	Lifter bore diameter		31.009 to 31.025 mm (1.2208 to 1.2215 in.)
	Oil clearance	STD	0.033 to 0.059 mm (0.0013 to 0.0023 in.)
		Maximum	0.079 mm (0.0031 in.)
Camshaft	Thrust clearance	STD Intake	0.040 to 0.095 mm (0.0016 to 0.0037 in.)
		Exhaust	0.080 to 0.135 mm (0.0032 to 0.0053 in.)
		Maximum Intake	0.110 mm (0.0043 in.)
		Exhaust	0.150 mm (0.0059 in.)
	Journal oil clearance	STD Intake No. 1 journal	0.007 to 0.038 mm (0.0003 to 0.0015 in.)
		Other journal	0.025 to 0.062 mm (0.0010 to 0.0024 in.)
		Exhaust No. 1 journal	0.040 to 0.079 mm (0.0015 to 0.0031 in.)
		Other journal	0.025 to 0.062 mm (0.0010 to 0.0024 in.)
		Maximum Intake No. 1 journal	0.07 mm (0.0028 in.)
		Except intake No. 1 journal	0.10 mm (0.0039 in.)
	Journal diameter	No. 1	35.971 to 35.985 mm (1.4162 to 1.4167 in.)
		Others	22.959 to 22.975 mm (0.9040 to 0.9045 in.)
	Circle runout	Maximum	0.03 mm (0.0012 in.)
	Cam lobe height	STD Intake	46.495 to 46.595 mm (1.8305 to 1.8345 in.)
		Exhaust	45.983 to 46.083 mm (1.8106 to 1.8143 in.)
		Minimum Intake	46.385 mm (1.8262 in.)
		Exhaust	45.873 mm (1.8060 in.)
	Camshaft bearing center wall thickness	Mark 1	2.000 to 2.004 mm (0.0787 to 0.0789 in.)
		2	2.005 to 2.008 mm (0.0789 to 0.0791 in.)
		3	2.009 to 2.012 mm (0.0791 to 0.0792 in.)
Exhaust manifold	Warpage	Maximum	0.7 mm (0.0027 in.)
Cylinder block	Cylinder head surface warpage	Maximum	0.08 mm (0.0031 in.)
	Cylinder bore diameter	STD	88.500 to 88.513 mm (3.4843 to 3.4847 in.)
		Maximum	88.633 mm (3.4894 in.)
	Crankshaft main bearing cap bolt at tension portion	STD	7.5 to 7.6 mm (0.2953 to 0.2992 in.)
		Minimum	7.2 mm (0.284 in.)

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Fig. 6: Service Data (Engine Mechanical) (2 Of 4)

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Piston and piston ring	Piston diameter		88.439 to 88.449 mm (3.4818 to 3.4822 in.)
	at 30.4 mm (1.1968 in.) from the piston head		
	Piston oil clearance	STD	0.051 to 0.074 mm (0.0020 to 0.0029 in.)
		Maximum	0.10 mm (0.0039 in.)
Piston ring groove clearance	No. 1		0.170 to 0.220 mm (0.0066 to 0.0086 in.)
	No. 2		0.170 to 0.210 mm (0.0066 to 0.0082 in.)
	Oil (Side rail)		0.210 to 0.290 mm (0.0082 to 0.0114 in.)
Piston ring and gap	STD No. 1		0.22 to 0.32 mm (0.0087 to 0.0126 in.)
	No. 2		0.50 to 0.60 mm (0.0197 to 0.0236 in.)
	Oil ring		0.10 to 0.35 mm (0.0039 to 0.0138 in.)
	Maximum No. 1		0.89 mm (0.0350 in.)
	No. 2		1.35 mm (0.0531 in.)
	Oil ring		0.73 mm (0.0287 in.)
Connecting rod	Thrust clearance	STD	0.160 to 0.362 mm (0.0063 to 0.0143 in.)
		Maximum	0.362 mm (0.0143 in.)
	Piston ring groove clearance	No. 1	0.170 to 0.220 mm (0.0066 to 0.0086 in.)
		No. 2	0.170 to 0.210 mm (0.0066 to 0.0082 in.)
		Oil (Side rail)	0.210 to 0.290 mm (0.0082 to 0.0114 in.)
	Connecting rod thickness		
	Connecting rod bearing center wall thickness (Reference)	Mark 1	1.485 to 1.488 mm (0.0585 to 0.0586 in.)
		2	1.489 to 1.491 mm (0.0586 to 0.0587 in.)
		3	1.492 to 1.494 mm (0.0587 to 0.0588 in.)
	Connecting rod oil clearance	STD	0.024 to 0.048 mm (0.0009 to 0.0019 in.)
		Maximum	0.08 mm (0.0031 in.)
	Rod out-of-alignment	Maximum per 100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Rod twist	Maximum per 100 mm (3.94 in.)	0.15 mm (0.0059 in.)
	Bushing inside diameter		22.005 to 22.014 mm (0.8663 to 0.8667 in.)
	Piston pin diameter		21.997 to 22.006 mm (0.8660 to 0.8664 in.)
	Bushing oil clearance	STD	0.005 to 0.011 mm (0.0002 to 0.0004 in.)
		Maximum	0.05 mm (0.0020 in.)
	Cylinder head journal bore diameter	Mark 1	40.000 to 40.008 mm (1.5748 to 1.5751 in.)
		2	40.009 to 40.017 mm (1.5752 to 1.5755 in.)
		3	40.018 to 40.025 mm (1.5755 to 1.5758 in.)
	Connecting rod bolt diameter at tension portion	STD	7.2 to 7.3 mm (0.283 to 0.287 in.)
		Minimum	7.0 mm (0.275 in.)

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Fig. 7: Service Data (Engine Mechanical) (3 Of 4)

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Crankshaft	Thrust clearance	STD	0.04 to 0.24 mm (0.0016 to 0.0094 in.)
	Thrust washer thickness		1.93 to 1.98 mm (0.0760 to 0.0780 in.)
	Main journal oil clearance	STD	0.017 to 0.040 mm (0.0007 to 0.0016 in.)
		Maximum	0.05 mm (0.0020 in.)
	Main journal diameter		54.988 to 55.000 mm (2.1649 – 2.1654 in.)
	Main bearing center wall thickness (Reference)	Mark 1	1.993 to 1.996 mm (0.0785 to 0.0786 in.)
		2	1.996 to 1.999 mm (0.0786 to 0.0787 in.)
		3	2.000 to 2.002 mm (0.0787 to 0.0788 in.)
		4	2.003 to 2.005 mm (0.0789 to 0.0789 in.)
	Crank pin diameter		47.990 to 48.000 mm (1.8894 to 1.8898 in.)
	Circle runout	Maximum	0.03 mm (0.0012 in.)
Balance shaft	Main journal taper and out-of-round	Maximum	0.003 mm (0.0001 in.)
	Crank pin taper and out-of-round	Maximum	0.003 mm (0.0001 in.)
	Thrust clearance	STD	0.050 to 0.090 mm (0.00197 to 0.00354 in.)
		Maximum	0.090 mm (0.00354 in.)
	Journal diameter		
	Oil clearance	STD	0.004 to 0.049 mm (0.00016 to 0.00192 in.)
	Housing journal bore diameter	Mark 1	26.000 to 26.006 mm (1.0236 to 1.0238 in.)
		Mark 2	26.006 to 26.012 mm (1.0239 to 1.0240 in.)
		Mark 3	26.012 to 26.018 mm (1.0241 to 1.0243 in.)
			22.985 to 23.000 mm (0.9049 to 0.9055 in.)
	Journal diameter		
	Bearing center wall thickness	Mark 1	1.486 to 1.489 mm (0.0585 to 0.0586 in.)
		Mark 2	1.490 to 1.492 mm (0.0586 to 0.0587 in.)
		Mark 3	1.493 to 1.495 mm (0.0587 to 0.0588 in.)

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Fig. 8: Service Data (Engine Mechanical) (4 Of 4)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

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Part tightened		N·m	kgf·cm	ft·lbf
Bearing cap x Cylinder head	No. 1	29.5	301	22
	No. 2	29.5	301	22
	No. 3	9.0	92	80 in.·lbf
Camshaft timing sprocket x Exhaust Camshaft		54	551	40
VVT timing sprocket x Intake camshaft		54	551	40
Chain vibration damper x Cylinder block		9.0	92	80 in.·lbf
Timing chain guide x No. 1 crankshaft bearing cap		9.0	92	80 in.·lbf
Chain tensioner slipper x Cylinder block		19	194	14
Timing chain cover (See page EM-20)	for bolt A	9.0	92	80 in.·lbf
	for bolt B	21	214	15
	for bolt C	43	439	32
	for bolt D	43	439	32
	for nut	9.0	92	80 in.·lbf
Stud bolt for drive belt tensioner x Cylinder block		9.5	97	84 in.·lbf
Drive belt tensioner x Engine		59.5	607	44
Crankshaft position sensor x Timing chain cover		9.0	92	80 in.·lbf
Oil pan x Crank case		9.0	92	80 in.·lbf
Crankshaft pulley x Crankshaft		180	1,836	132
Chain tensioner x Timing chain cover		9.0	92	80 in.·lbf
Cylinder head cover x Cylinder head		11	112	8
Ignition coil x Cylinder head cover		9.0	92	80 in.·lbf
Vane pump x Engine		30	306	22
	For use without SST	43	439	32
Generator x Engine	for bolt A	52	530	38
	for bolt B	21	214	15
Wire clip x Generator		7.7	78.5	68 in.·lbf
Generator wire x Generator		9.7	99	86 in.·lbf
RH engine mounting insulator x Body		52	530	38
RH engine mounting insulator x Timing chain cover		52	530	38
ABS actuator x Body		19	194	14
Camshaft position sensor x Cylinder head		9.0	92	80 in.·lbf
Cam timing oil control valve x Cylinder head		9.0	92	80 in.·lbf
ECT sensor x Cylinder head		20	204	15
Oil pressure switch x Cylinder head		13	133	10
Cylinder head x Cylinder block	1st	79	806	58
	2nd	Turn 90°	Turn 90°	Turn 90°
Intake manifold x Cylinder head		30	306	22
Upper heat insulator x Exhaust manifold		12	122	9
No. 2 lower heat insulator x Exhaust manifold		12	122	9
No. 1 lower heat insulator x Exhaust manifold		12	122	9
Exhaust manifold x Cylinder head		37	377	27
Exhaust manifold stay x Exhaust manifold		40	408	30
Exhaust manifold stay x Crank case		40	408	30
Exhaust manifold x Front exhaust pipe		43	439	32
Delivery pipe x Cylinder head		20	204	15

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Fig. 9: Engine Mechanical - Torque Specifications Chart (1 Of 3)
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Engine hanger x Cylinder head		38	388	28
Oil pan x Drain plug		24.5	250	18
A/C compressor x Engine		24.5	250	18
Drive plate x Crankshaft	A/T	98	1,000	72
Flywheel x Crankshaft	M/T	130	1,326	96
Clutch cover x Flywheel		19	194	14
Engine x Transaxle	for bolt A	46	470	34
	for bolt B	64	653	47
	Lower bolt	44	449	32
Drive plate x Torque converter		41	418	30
Center bearing bracket x Engine	2WD	34	347	25
Stiffener plate x Engine	4WD	34	347	25
Rear engine mounting bracket x Rear mounting insulator		88	898	65
Front engine mounting bracket x Front mounting insulator		56	571	41
LH engine mounting bracket x LH mounting insulator		56	571	41
Suspension crossmember and engine mounting member x Body	for bolt A	39	398	29
	for bolt B	113	1,152	83
	for bolt C	157	1,601	116
PS gear x Crossmember		137	1,397	101
Stabilizer bar link x Stabilizer bar		44	449	32
Front Exhaust pipe x Center exhaust pipe		49	500	36
Propeller Shaft x Body	4WD	37	377	27
Propeller Shaft x Differential carrier		74	755	55
Front drive shaft x Front axle hub		216	2,203	159
Ground cable x Transaxle		19	194	14
Shift control cable x Transaxle	A/T	15	153	11
Clutch release cylinder and tube x Transaxle	for bolt A	25	255	18
	for bolt B	12	122	9
	for bolt C	5.0	51	44 in.·lbf
Clutch Heat insulator x Transaxle	M/T	12	122	9
Starter cable x Starter		8.8	90	78 in.·lbf
Starter x Transaxle		37	377	27
Discharge tube x A/C compressor		9.8	100	87 in.·lbf
Liquid tube x A/C compressor		9.8	100	87 in.·lbf
Pressure feed tube x Vane pump		51.5	525	38
Crankshaft main bearing cap x Cylinder block	1st	20	204	15
	2nd	40	408	30
	3rd	Turn 90°	Turn 90°	Turn 90°
Balanceshaft housing x Stiffening crankcase assy	1st	22	224	16
	2nd	Turn 90°	Turn 90°	Turn 90°
Connecting rod cap x Connecting rod	1st	24.5	250	18
	2nd	Turn 90°	Turn 90°	Turn 90°
Crank case x Cylinder block		32.5	330	24
Oil filter union x Crank case		29.5	301	22
Oil pump x Crank case		19	194	14
Oil pump sprocket x Oil pump		29.5	301	22
Chain tensioner x No. 1 crankshaft bearing cap		12	122	9

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Fig. 10: Engine Mechanical - Torque Specifications Chart (2 Of 3)

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Water bypass pipe x Cylinder block	9.0	92	80 in. lbf
Oil dipstick guide x Water bypass pipe	9.0	92	80 in. lbf
Engine coolant drain union x Crank case	25	255	18
Water inlet x Cylinder block	9.0	92	80 in. lbf
Plug x Cylinder block	26	265	19
Water pump x Cylinder block	9.0	92	80
Tailpipe x Center exhaust pipe	49	500	36

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Fig. 11: Engine Mechanical - Torque Specifications Chart (3 Of 3)]

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EMISSION CONTROL

TORQUE SPECIFICATION

EMISSION CONTROL - TORQUE SPECIFICATIONS

Part tightened	N.m	kgf.cm	ft.lbf
PCV valve -to- Cylinder head cover	19	193	14
Charcoal canister protector -to- Body	5.0	50	44 in.lbf
No. 1 exhaust manifold heat insulator -to- Exhaust manifold	12	120	9
No. 2 exhaust manifold heat insulator -to- Exhaust manifold	12	120	9
No. 1 manifold converter heat insulator -to- Exhaust manifold	12	120	9
No. 2 manifold converter heat insulator -to- Exhaust manifold	12	120	9
A/F sensor -to- Exhaust manifold	44	450	33
Exhaust manifold -to- Cylinder head	37	377	27
Exhaust manifold stay -to- Exhaust manifold	44	450	33
Exhaust manifold stay -to- Cylinder block	44	450	33
Exhaust manifold -to- Front exhaust pipe	43	438	32
Front exhaust pipe -to- Center exhaust pipe	49	450	36
Heated Oxygen sensor -to- Center exhaust pipe	44	450	33
Center exhaust pipe -to- Tail exhaust pipe	49	450	36

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SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Fuel pressure regulator	Fuel pressure Engine stopped	304 to 343 kPa (3.1 to 3.5 kgf/cm ² , 44 to 50 psi) 147 kPa (1.5 kgf/cm ² , 21 psi) or more
Fuel pump	Resistance at 20°C (68°F)	0.2 to 3.0 Ω
Injector	Resistance Injection volume Difference between each cylinder Fuel leakage at 20°C (68°F)	11.6 to 12.4 Ω 76 to 92 cm ³ (4.6 to 5.6 cu in.) per 15 sec. 16 cm ³ (1.0 cu in.) or less 1 drop or less per 12 min.
MAF meter	Resistance at -20°C (-4°F) at 20°C (68°F) at 60°C (140°F)	13.6 to 18.4 kΩ 2.21 to 2.69 kΩ 0.49 to 0.67 kΩ
Throttle body	Resistance at 20°C (68°F)	0.3 to 100 kΩ
Camshaft timing OCV	Resistance at 20°C (68°F)	6.9 to 7.9 Ω
VSV for EVAP	Resistance at 20°C (68°F)	30 to 34 Ω
VSV for CCV	Resistance at 20°C (68°F)	25 to 30 Ω
VSV for pressure switching valve	Resistance at 20°C (68°F)	30 to 36 Ω
ECT sensor	Resistance at -20°C (-4°F) at 0°C (32°F) at 20°C (68°F) at 40°C (104°F) at 60°C (140°F) at 80°C (176°F)	10 to 20 kΩ 4 to 7 kΩ 2 to 3 kΩ 0.9 to 1.3 kΩ 0.4 to 0.7 kΩ 0.2 to 0.4 kΩ
Vapor pressure sensor	Power source voltage	4.5 to 5.5 V
A/F sensor	Heater coil resistance at 20°C (68°F) at 800°C (1,472°F)	0.8 to 1.4 Ω 1.8 to 3.2 Ω
Heated oxygen sensor	Heater coil resistance at 20°C (68°F) at 800°C (1,472°F)	11 to 16 Ω 23 to 32 Ω
Accelerator pedal position sensor	Resistance at 20°C (68°F)	2.25 to 4.75 kΩ
Fuel cut rpm	Fuel cutoff rpm Fuel injector restart rpm	1,050 to 1,150 rpm (M/T), 1,350 to 1,450 rpm (A/T) 850 to 950 rpm (M/T), 1,050 to 1,150 rpm (A/T)

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Fig. 12: Service Data Specification (SFI)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

SFI - TORQUE SPECIFICATIONS

Part tightened	N.m	kgf.cm	ft.lbf
Fuel tank vent tube set plate -to- Fuel tank	3.4	35	30 in.lbf
Air cleaner inlet -to- Body	5.0	55	48 in.lbf
Air cleaner assembly -to- Air cleaner bracket	5.0	55	48 in.lbf
Air cleaner assembly -to- Cylinder head cover	5.0	55	48 in.lbf
Delivery pipe -to- Cylinder head	20	205	15
Fuel pressure pulsation damper -to- Delivery pipe	9	90	80 in.lbf
Fuel tank band -to- Body	40	410	29
Fuel tank protector -to- Fuel tank	5.5	56	49 in.lbf

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Fuel sender gauge -to- Fuel tank	1.5	15	13 in.lbf
Fuel pump and sender gauge assembly -to- Fuel tank	4.0	40	35 in.lbf
Throttle body -to- Intake manifold	30	305	22
Camshaft timing OCV -to- Cylinder head	9.0	90	80 in.lbf
VSV for CCV -to- Body	9.0	90	80 in.lbf
Charcoal caniter protector -to- Body	5.0	50	44 in.lbf
Engine coolant temperature sensor -to- Cylinder head	20	200	15
Intake manifold -to- Cylinder head	30	305	22
Knock sensor -to- Cylinder block	20	204	15
A/F sensor -to- Exhaust manifold	44	450	33
Heated Oxygen sensor -to- Exhaust manifold	44	450	33
Accelerator pedal assembly -to- Body	5.4	55	48 in.lbf
ECM bracket -to- Body	9.0	90	80 in.lbf

COOLING

SERVICE DATA

Thermostat	Valve opening temperature at 95°C (203°F)	80 to 84°C (176 to 183.2°F) 10.0 mm (0.393 in.) or more
Radiator Cap	Relief valve opening pressure STD Minimum	93 to 123 kPa (0.95 to 1.25 kgf/cm ² , 13.5 to 17.8 psi) 78 kPa (0.8 kgf/cm ² , 11.3 psi)
Electric cooling fan	Rotating amperage at 20°C (68°F)	4.9 to 8.5A

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Fig. 13: Service Data Specification (Cooling)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

COOLING - TORQUE SPECIFICATIONS

Part tightened	N.m	kgf.cm	ft.lbf
Drain plug -to- Engine	5.0	51	44 in.lbf
Water pump -to- Cylinder block	9.0	92	80 in.lbf
Water pump pulley -to- Water pump	26	265	19
Water inlet -to- Cylinder block	9.0	92	80 in.lbf
Generator -to- Cylinder block	52	530	38
Generator -to- Cylinder block	21	214	15
Wire clip -to- Generator	7.7	78.5	68 in.lbf
Generator wire -to- Generator	9.7	99	86 in.lbf
Hood lock -to- Upper radiator support	8.0	82	71 in.lbf
No. 1 cooling fan -to- Upper radiator support	5.0	51	44 in.lbf

No.2 cooling fan -to- Upper radiator support	5.0	51	44 in.lbf
Upper radiator support -to- Body	10	102	74
Nut -to- Radiator Lower tank	12	122	10
Oil cooler pipe -to- Radiator lower tank	14.7	150	11
Fan shroud -to- Cooling fan motor	4.0	41	35 in.lbf
Fan (No.1 cooling fan) -to- Cooling fan motor	6.0	61	55 in.lbf
Fan (No.2 cooling fan) -to- Cooling fan motor	4.0	41	35 in.lbf

LUBRICATION

SERVICE DATA

Oil pressure		at idle speed at 3,000 rpm	29 kPa (0.3 kgf/cm ² , 4.3 psi) or more 245 to 539 kPa (2.5 to 5.5 kgf/cm ² , 36 to 78 psi)
Oil pump	Tip clearance	STD	0.080 to 0.160 mm (0.0031 to 0.0063 in.)
		Maximum	0.35 mm (0.0138 in.)
	Side clearance	STD	0.030 to 0.085 mm (0.0012 to 0.0033 in.)
		Maximum	0.160 mm (0.0063 in.)
	Body clearance	STD	0.100 to 0.170 mm (0.0039 to 0.0670 in.)
		Maximum	0.325 mm (0.0128 in.)
Oil pump drive chain and oil pump sprockets	Chain length at 8 links	Maximum	52.4 mm (2.063 in.)
	Oil pump sprockets (w/ chain)	Maximum	48.2 mm (1.898 in.)
Oil pump drive chain tensioner plate	Wear	Maximum	0.5 mm (0.020 in.)

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Fig. 14: Service Data Specification (Lubrication)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened		N·m	kgf·cm	ft·lbf
Air cleaner assembly x Engine		5.0	51	44 in·lbf
Air cleaner bracket x Engine		5.0	51	44 in·lbf
Oil pressure switch x Cylinder head		13	133	10
PS vane pump x Engine		30 (43)	305 (439)	22 (32)
Generator x Engine	for bolt A	52	530	38
	for bolt B	21	214	15
Wire clip x Generator		7.7	79	68 in·lbf
Generator wire x Generator		9.7	99	86 in·lbf
RH engine mounting insulator x Body		52	530	38
RH engine mounting insulator x Timing chain cover		52	530	38
ABS actuator x Body		19	194	14
Exhaust manifold x Front exhaust pipe		43	440	32
Front Exhaust pipe x Center exhaust pipe		49	500	36
Timing chain cover (see page EM-20)	for bolt A	9.0	92	80 in·lbf
	for bolt B	21	214	15
	for bolt C	43	440	32
	for bolt D	43	440	32
	for nut	9.0	92	80 in·lbf
Timing chain tensioner x Timing chain cover		9.0	92	80 in·lbf
Drive belt tensioner x Engine		59.5	607	44
Crankshaft pulley x Crankshaft		180	1,836	132
Crankshaft position sensor x Timing chain cover		9.0	92	80 in·lbf
Cylinder head cover x Cylinder head		11	112	8
Ignition coil x Cylinder head cover		9.0	92	80 in·lbf
Chain tensioner slipper x Cylinder block		19	194	14
Chain vibration damper x Cylinder block		9.0	92	80 in·lbf
Oil pan x Crank case		9.0	92	80 in·lbf
Oil pump x Crank case		19	194	14
Chain tensioner plate x Cylinder block		12	122	9
Oil pump driveshaft sprocket x Oil pump		29.5	301	22
Plug x Oil pump body		49	500	36
Oil pump cover x Oil pump body		8.8	90	78 in·lbf
Oil pump strainer x Oil pump body cover		8.8	90	78 in·lbf

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Fig. 15: Lubrication - Torque Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

IGNITION

SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Spark plug	Recommended spark plug	DENSO made	SK20R11
		NGK made	IFR6A11
	Electrode gap	DENSO made	1.0 to 1.1 mm (0.039 to 0.043 in.)
		NGK made	1.0 to 1.1 mm (0.039 to 0.043 in.)
	Maximum electrode gap	DENSO made	1.3 mm (0.047 in.)
		NGK made	1.3 mm (0.047 in.)
Camshaft position sensor	Resistance	at cold	835 to 1,400 Ω
		at hot	1,060 to 1,645 Ω
Crankshaft position sensor	Resistance	at cold	965 to 1,600 Ω
		at hot	1,265 to 1,890 Ω

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Fig. 16: Service Data Specification (Ignition)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

IGNITION - TORQUE SPECIFICATIONS

Part tightened	N.m	kgf.cm	ft.lbf
Spark plug -to- Cylinder head	19	194	14
Ignition coil (w/ Igniter) -to- Cylinder head cover	9.0	92	80 in.lbf
Camshaft position sensor -to- Cylinder head	9.0	92	80 in.lbf
Crankshaft position sensor -to- Timing chain cover	9.0	92	80 in.lbf
Engine under cover -to- Body	5.0	51	44 in.lbf
Air cleaner bracket -to- Cylinder head cover	5.0	51	44 in.lbf

STARTING

SERVICE DATA

Starter	Rated voltage and output power		12 V 1.4 kW
	No-load characteristics	Current	90 A or less at 11.5 V
		rpm	3,000 rpm or more
	Brush length	STD	15.5 mm (0.610 in.)
		Minimum	10.0 mm (0.393 in.)
	Brush spring installed load	STD 1.4 kW	17.6 to 23.5 N (1.8 to 2.4 kgf, 3.9 to 5.3 lbf)
		Minimum 1.4 kW	11.8 N (1.2 kgf, 2.6 lbf)
	Commutator		
	Diameter	STD	30.0 mm (1.181 in.)
		Minimum	29.0 mm (1.142 in.)
	Undercut depth	STD	0.6 mm (0.024 in.)
		Minimum	0.2 mm (0.008 in.)
	Circle runout	Maximum	0.05 mm (0.0020 in.)
	Magnetic switch		
	Contact plate for wear	Maximum	0.9 mm (0.035 in.)

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Fig. 17: Service Data Specification (Starting)

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

STARTING - TORQUE SPECIFICATIONS

Part tightened	N.m	kgf.cm	ft.lbf
Starter wire -to- Starter	9.8	100	87 in.lbf
Starter housing -to- Magnetic switch	5.9	60	52 in.lbf
End cover -to- Field frame	1.5	15	13 in.lbf
Field frame -to- Armature assembly	5.9	60	52 in.lbf
Lead wire -to- Terminal C of starter	5.9	60	52 in.lbf
Terminal nut -to- Terminal C of starter	17	173	13
Terminal nut -to- Terminal 30 of starter	17	173	13
End cover -to- Magnetic switch housing	2.5	26	23 in.lbf
Starter -to- Transaxle	37	377	27

CHARGING

SERVICE DATA

Battery	Specific gravity	at 20°C (68°F)	1.25 to 1.29
	Voltage	at 20°C (68°F)	12.5 to 12.9 V
Generator	Rated output		12 V 90 A, 100 A
	Standard amperage	Idle to 2000 rpm	10 A or less
	Standard voltage	Idle to 2000 rpm	13.2 to 14.8 V
	Rotor coil resistance		
		at 20°C (68°F)	
		90 A	2.1 to 2.5 Ω
		100 A	2.3 to 2.7 Ω
	Slip ring diameter	STD	14.2 to 14.4 mm (0.559 to 0.567 in.)
		Minimum (12 V 90 A)	12.8 mm (0.504 in.)
		Minimum (12 V 100 A)	14.0 mm (0.551 in.)
Brush exposed length		STD	9.5 to 11.5 mm (0.374 to 0.453 in.)
		Minimum (12 V 90 A)	4.5 mm (0.177 in.)
		Minimum (12 V 100 A)	4.5 mm (0.177 in.)

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Fig. 18: Service Data Specification (Charging)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened		N·m	kgf·cm	ft·lbf
Bearing retainer x Drive end frame	12 V 90 A	3.0	31	27 in.-lbf
	12 V 100 A	2.3	23	20 in.-lbf
Rectifier end frame x Drive end frame (12 V 90 A)	for nut A	4.5	46	40 in.-lbf
	for nut B	5.4	55	48 in.-lbf
Rectifier end frame x Drive end frame	12 V 100 A	5.8	59	51 in.-lbf
Cord clip x Drive end frame	12 V 100 A	4.5	46	410 in.-lbf
Generator pulley x Rotor		111	1,132	82
Voltage regulator x Rectifier end frame	12 V 90 A	2.0	20	18 in.-lbf
Rear end cover x Rectifier holder	12 V 90 A	4.4	45	39 in.-lbf
Rear end cover x Drive end Frame (Stator)	12 V 100 A	4.6	47	41 in.-lbf
Brush holder x Drive end Frame (Stator)		1.8	18	16 in.-lbf
Plate terminal x Rectifier holder	12 V 90 A	3.9	40	35 in.-lbf
Terminal insulator x Rectifier holder	12 V 90 A	4.1	42	36 in.-lbf
Generator x Engine	for bolt A	52	530	38
	for bolt B	21	214	15
Generator wire x Generator		9.8	100	87 in.-lbf
Wire clip x Generator		7.7	79	68 in.-lbf
Generator wire x Generator		9.8	100	87 in.-lbf

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Fig. 19: Charging - Torque Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

CLUTCH

SERVICE DATA

Pedal height from asphalt sheet	LHD	169.0 – 179.0 mm (6.653 – 7.047 in.)
Pedal freeplay		5.0 – 15.0 mm (0.197 – 0.591 in.)
Push rod play at pedal top		1.0 – 5.0 mm (0.039 – 0.197 in.)
Clutch release point from pedal full stroke end position		25 mm (0.98 in.) or more
Clutch start switch ON-OFF stroke		8 ± 0.35 mm (0.31 ± 0.014 in.)
Slotted spring pin protrusion		1.5 – 2.5 mm (0.059 – 0.098 in.)
Disc rivet head depth	Min.	0.3 mm (0.012 in.)
Disc runout	Max.	0.8 mm (0.031 in.)
Flywheel runout	Max.	0.1 mm (0.004 in.)
Diaphragm spring finger wear	Max. depth	0.5 mm (0.020 in.)
Diaphragm spring finger wear	Max. width	6.0 mm (0.236 in.)
Diaphragm spring tip non-alignment	Max.	0.5 mm (0.020 in.)

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Fig. 20: Service Data Specification (Clutch)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened	N·m	kgf·cm	ft·lbf
Master cylinder lock nut	12	120	9
Clutch line union	15	155	11
for use with SST	14	143	10
Master cylinder installation nut	12	120	9
Wiper arm installation bolt	20	204	15
Wiper motor and link assembly installation bolt	5.4	55	48 in·lbf
Release cylinder installation bolt	12	120	9
Release cylinder heat insulator	12	120	9
Bleeder plug	8.3	85	73 in·lbf
Flywheel set bolt (1AZ-FE)	130	1,326	96
Flywheel set bolt (1ZZ-FE)	1st 49 2nd Turn 90°	500 -	36 -
Clutch cover x Flywheel	19	195	14
Release fork support	47	479	35

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Fig. 21: Clutch - Torque Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

MANUAL TRANSAXLE

SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Input shaft		
3rd & 4th gear journal diameter	Min.	35.984 mm (1.4167 in.)
5th gear journal diameter	Min.	27.957 mm (1.1007 in.)
Runout	Max.	0.03 mm (0.0012 in.)
Output shaft		
1st gear journal diameter	Min.	37.610 mm (1.4807 in.)
2nd gear journal diameter	Min.	34.502 mm (1.3583 in.)
Runout	Max.	0.03 mm (0.0012 in.)
Gear thrust clearance		
1st	Max.	0.40 mm (0.0157 in.)
2nd & 3rd	Max.	0.35 mm (0.0138 in.)
4th	Max.	0.57 mm (0.0224 in.)
5th	Max.	0.65 mm (0.0256 in.)
Gear radial clearance		
1st, 2nd & 3rd	Max.	0.053 mm (0.0021 in.)
4th	Max.	0.051 mm (0.0020 in.)
5th	Max.	0.050 mm (0.0020 in.)
No. 1 and No. 3 shift fork to hub sleeve clearance	Max.	0.35 mm (0.014 in.)
No. 2 shift fork to hub sleeve clearance	Max.	0.69 mm (0.0272 in.)
Synchronizer ring to gear clearance		
1st, 2nd & 5th	Min.	0.7 mm (0.028 in.)
3rd	Min.	0.65 mm (0.0256 in.)
4th	Min.	0.75 mm (0.0295 in.)
Input shaft snap ring thickness	Mark	
No. 2 clutch hub	H	2.30 mm (0.0906 in.)
	J	2.35 mm (0.0925 in.)
	K	2.40 mm (0.0945 in.)
	L	2.45 mm (0.0965 in.)
	M	2.50 mm (0.0984 in.)
	N	2.55 mm (0.1004 in.)
	P	2.60 mm (0.1024 in.)
No. 3 clutch hub	a	1.75 mm (0.0689 in.)
	b	1.80 mm (0.0709 in.)
	c	1.85 mm (0.0729 in.)
	d	1.90 mm (0.0748 in.)
	e	1.95 mm (0.0768 in.)
	f	2.00 mm (0.0787 in.)
	g	2.05 mm (0.0807 in.)
	h	2.10 mm (0.0827 in.)
	j	2.15 mm (0.0847 in.)
Input shaft rear bearing	1	2.35 mm (0.0925 in.)
	2	2.40 mm (0.0945 in.)
	3	2.45 mm (0.0965 in.)
	4	2.50 mm (0.0984 in.)
	5	2.55 mm (0.1004 in.)
	6	2.60 mm (0.1024 in.)
	7	2.65 mm (0.1043 in.)
	8	2.70 mm (0.1063 in.)
Differential pinion to side gear backlash	STD	0.05 – 0.20 mm (0.0020 – 0.0079 in.)

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Fig. 22: Service Data Specification (Manual Transaxle) (1 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Output shaft rear bearing adjusting shim thickness	Mark	
	0	1.30 mm (0.0512 in.)
	1	1.35 mm (0.0531 in.)
	2	1.40 mm (0.0551 in.)
	3	1.45 mm (0.0571 in.)
	4	1.50 mm (0.0591 in.)
	5	1.55 mm (0.0610 in.)
	6	1.60 mm (0.0630 in.)
	7	1.65 mm (0.0650 in.)
	8	1.70 mm (0.0669 in.)
	9	1.75 mm (0.0689 in.)
	A	1.80 mm (0.0709 in.)
	B	1.85 mm (0.0728 in.)
	C	1.90 mm (0.0748 in.)
	D	1.95 mm (0.0768 in.)
	E	2.00 mm (0.0787 in.)
	F	2.05 mm (0.0807 in.)
	G	2.10 mm (0.0827 in.)
	H	2.15 mm (0.0846 in.)
	J	2.20 mm (0.0866 in.)
	K	2.25 mm (0.0886 in.)
	L	2.30 mm (0.0906 in.)
	M	2.35 mm (0.0925 in.)
	N	2.40 mm (0.0945 in.)
	P	2.45 mm (0.0965 in.)
	Q	2.50 mm (0.0984 in.)
Output shaft bearing preload (at starting)		
New bearing		0.8 – 1.6 N·m (8 – 16 kgf·cm, 6.9 – 13.9 in.-lbf)
Reused bearing		0.5 – 1.0 N·m (5 – 10 kgf·cm, 4.3 – 8.7 in.-lbf)
Oil pump clearance (4WD)		
Rotor body	STD	0.10 – 0.16 mm (0.0039 – 0.0063 in.)
Rotor tip	STD	0.08 – 0.15 mm (0.0031 – 0.0059 in.)
Rotor side	STD	0.03 – 0.08 mm (0.0012 – 0.0031 in.)
Differential side gear thrust washer thickness (2WD)		
		1.00 mm (0.0394 in.)
		1.10 mm (0.0433 in.)
		1.20 mm (0.0472 in.)
		1.30 mm (0.0512 in.)
No.1 differential case (4WD)		
Inner diameter	STD	104.000 – 104.035 mm (4.0945 – 4.0959 in.)
	Max.	104.060 mm (4.0969 in.)
No.2 differential case (4WD)		
Inner diameter	STD	97.000 – 97.035 mm (3.8189 – 3.8203 in.)
	Max.	97.060 mm (3.8213 in.)
Front differential case (4WD)		
Outer diameter (Part A)	STD	103.929 – 103.964 mm (4.0917 – 4.0931 in.)
	Min.	103.850 mm (4.0887 in.)
Outer diameter (Part B)	STD	96.929 – 96.964 mm (3.8161 – 3.8175 in.)
	Min.	96.850 mm (3.8130 in.)
Conical spring washer height (4WD)		
No.2 differential case side	STD	2.60 – 2.80 mm (0.102 – 0.110 in.)
	Min.	2.50 mm (0.098 in.)
No.1 differential case side	STD	1.55 – 1.75 mm (0.061 – 0.069 in.)
	Min.	1.60 mm (0.063 in.)

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Fig. 23: Service Data Specification (Manual Transaxle) (2 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Center differential side gear thrust washer thickness		
Differential side gear subassembly side (4WD)	MA	0.80 mm (0.0315 in.)
	MB	0.85 mm (0.0335 in.)
	MC	0.90 mm (0.0354 in.)
	MD	0.95 mm (0.0374 in.)
	ME	1.00 mm (0.0394 in.)
	MF	1.05 mm (0.0413 in.)
	MG	1.10 mm (0.0433 in.)
	MH	1.15 mm (0.0453 in.)
	MI	1.20 mm (0.0472 in.)
	MJ	1.25 mm (0.0492 in.)
	MK	1.30 mm (0.0512 in.)
	ML	1.35 mm (0.0531 in.)
	MN	1.40 mm (0.0551 in.)
Differential pinion to front side gear backlash (4WD)		
	STD	0.05 – 0.20 mm (0.0020 – 0.0079 in.)
Front differential side gear thrust washer thickness		
Front differential case side (4WD)	Mark	
	B	1.00 mm (0.0394 in.)
	C	1.05 mm (0.0413 in.)
	D	1.10 mm (0.0433 in.)
	E	1.15 mm (0.0453 in.)
	F	1.20 mm (0.0472 in.)
	G	1.25 mm (0.0492 in.)
Front differential side gear thrust washer thickness		
No.2 differential case side (4WD)	Mark	
	A	0.95 mm (0.0374 in.)
	B	1.00 mm (0.0394 in.)
	C	1.05 mm (0.0413 in.)
	D	1.10 mm (0.0433 in.)
	E	1.15 mm (0.0453 in.)
	F	1.20 mm (0.0472 in.)
	G	1.25 mm (0.0492 in.)
	H	1.30 mm (0.0512 in.)
	J	1.35 mm (0.0531 in.)
	K	1.40 mm (0.0551 in.)
Center differential side gear thrust clearance (4WD)		
	STD	0.16 – 0.25 mm (0.006 – 0.010 in.)
Center differential side gear thrust washer thickness		
Front differential case side (4WD)	0	0.80 mm (0.0315 in.)
	1	0.85 mm (0.0335 in.)
	2	0.90 mm (0.0354 in.)
	3	0.95 mm (0.0374 in.)
	4	1.00 mm (0.0394 in.)
	5	1.05 mm (0.0413 in.)
	6	1.10 mm (0.0433 in.)
	7	1.15 mm (0.0453 in.)
	8	1.20 mm (0.0472 in.)
	9	1.25 mm (0.0492 in.)
	A	1.30 mm (0.0512 in.)
	B	1.35 mm (0.0531 in.)
	C	1.40 mm (0.0551 in.)

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Fig. 24: Service Data Specification (Manual Transaxle) (3 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Differential side bearing adjusting shim thickness	Mark	
	0	2.00 mm (0.0787 in.)
	1	2.05 mm (0.0807 in.)
	2	2.10 mm (0.0827 in.)
	3	2.15 mm (0.0846 in.)
	4	2.20 mm (0.0866 in.)
	5	2.25 mm (0.0886 in.)
	6	2.30 mm (0.0906 in.)
	7	2.35 mm (0.0925 in.)
	8	2.40 mm (0.0945 in.)
	9	2.45 mm (0.0965 in.)
	A	2.50 mm (0.0984 in.)
	B	2.55 mm (0.1004 in.)
	C	2.60 mm (0.1024 in.)
	D	2.65 mm (0.1043 in.)
	E	2.70 mm (0.1063 in.)
	F	2.75 mm (0.1083 in.)
	G	2.80 mm (0.1102 in.)
	H	2.85 mm (0.1122 in.)
Transmission case side oil seal drive in depth	2WD	3.5 ± 0.5 mm (0.138 ± 0.020 in.)
	4WD	0 ± 0.5 mm (0 ± 0.020 in.)
Transaxle case side drive in depth	2WD	0 ± 0.5 mm (0 ± 0.020 in.)
	4WD	6.9 ± 0.5 mm (0.272 ± 0.020 in.)
Differential case side bearing preload (at starting)		
New bearing (Output shaft preload plus)		$0.8 - 1.6$ N·m (8 - 16.3 kgf·cm, 7.1 - 14.2 in.-lbf)
Reused bearing (Output shaft preload plus)		$0.5 - 1.0$ N·m (5.1 - 10.2 kgf·cm, 4.4 - 8.6 in.-lbf)
Transfer		
Drive pinion preload (at starting) (For use with SST)		$0.9 - 1.3$ N·m (9 - 13 kgf·cm, 7.8 - 11.3 in.-lbf)
Drive pinion total preload (at starting) (For use with SST)		$1.0 - 1.6$ N·m (10 - 16 kgf·cm, 8.9 - 13.8 in.-lbf)
Ring gear backlash		$0.10 - 0.15$ mm (0.0039 - 0.0059 in.)
Ring gear runout		0.1 mm (0.004 in.)
Center differential control coupling runout		0.07 mm (0.0028 in.)
Drive pinion preload (at starting) (For use with SST)		
New bearing		$0.9 - 1.4$ N·m (9 - 14 kgf·cm, 7.8 - 12.4 in.-lbf)
Reused bearing		$0.8 - 1.1$ N·m (8 - 11 kgf·cm, 7.0 - 9.7 in.-lbf)

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Fig. 25: Service Data Specification (Manual Transaxle) (4 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Backlash adjust washer thickness	Mark	
	AA	2.07 mm (0.0815 in.)
	AB	2.10 mm (0.0827 in.)
	AC	2.13 mm (0.0839 in.)
	BA	2.16 mm (0.0850 in.)
	BB	2.19 mm (0.0862 in.)
	BC	2.22 mm (0.0874 in.)
	CA	2.25 mm (0.0886 in.)
	CB	2.28 mm (0.0898 in.)
	CC	2.31 mm (0.0909 in.)
	DA	2.34 mm (0.0921 in.)
	DB	2.37 mm (0.0933 in.)
	DC	2.40 mm (0.0945 in.)
	EA	2.43 mm (0.0957 in.)
	EB	2.46 mm (0.0969 in.)
	EC	2.49 mm (0.0980 in.)
	FA	2.52 mm (0.0992 in.)
	FB	2.55 mm (0.1004 in.)
	FC	2.58 mm (0.1016 in.)
	GA	2.61 mm (0.1028 in.)
	GB	2.64 mm (0.1039 in.)
	GC	2.67 mm (0.1051 in.)
	HA	2.70 mm (0.1063 in.)
	HB	2.73 mm (0.1075 in.)
	HC	2.76 mm (0.1087 in.)
	JA	2.79 mm (0.1098 in.)
	JB	2.82 mm (0.1110 in.)
	JC	2.85 mm (0.1122 in.)
	KA	2.88 mm (0.1134 in.)
	KB	2.91 mm (0.1146 in.)
	KC	2.94 mm (0.1157 in.)
	LA	2.97 mm (0.1169 in.)
	LB	3.00 mm (0.1181 in.)

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Fig. 26: Service Data Specification (Manual Transaxle) (5 Of 7)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Tooth contact adjust washer thickness	Mark	
	AA	1.20 mm (0.0472 in.)
	AB	1.21 mm (0.0476 in.)
	AC	1.22 mm (0.0480 in.)
	BA	1.23 mm (0.0484 in.)
	BB	1.24 mm (0.0488 in.)
	BC	1.25 mm (0.0492 in.)
	CA	1.26 mm (0.0496 in.)
	CB	1.27 mm (0.0500 in.)
	CC	1.28 mm (0.0504 in.)
	DA	1.29 mm (0.0508 in.)
	DB	1.30 mm (0.0512 in.)
	DC	1.31 mm (0.0516 in.)
	EA	1.32 mm (0.0520 in.)
	EB	1.33 mm (0.0524 in.)
	EC	1.34 mm (0.0528 in.)
	FA	1.35 mm (0.0531 in.)
	FB	1.36 mm (0.0535 in.)
	FC	1.37 mm (0.0539 in.)
	GA	1.38 mm (0.0543 in.)
	GB	1.39 mm (0.0547 in.)
	GC	1.40 mm (0.0551 in.)
	HA	1.41 mm (0.0555 in.)
	HB	1.42 mm (0.0559 in.)
	HC	1.43 mm (0.0563 in.)
	JA	1.44 mm (0.0567 in.)
	JB	1.45 mm (0.0571 in.)
	JC	1.46 mm (0.0575 in.)
	KA	1.47 mm (0.0579 in.)
	KB	1.48 mm (0.0583 in.)
	KC	1.49 mm (0.0587 in.)
	LA	1.50 mm (0.0591 in.)
	LB	1.51 mm (0.0594 in.)
	LC	1.52 mm (0.0598 in.)
	MA	1.53 mm (0.0602 in.)
	MB	1.54 mm (0.0606 in.)
	MC	1.55 mm (0.0610 in.)
	NA	1.56 mm (0.0614 in.)
	NB	1.57 mm (0.0618 in.)
	NC	1.58 mm (0.0622 in.)
	PA	1.59 mm (0.0626 in.)
	PB	1.60 mm (0.0630 in.)
	PC	1.61 mm (0.0634 in.)
	QA	1.62 mm (0.0638 in.)
	QB	1.63 mm (0.0642 in.)
	QC	1.64 mm (0.0646 in.)
	RA	1.65 mm (0.0650 in.)
Drive pinion total preload (at starting) (For use with SST)		
(Drive pinion preload plus)		
New bearing		0.2 – 0.4 N·m (2 – 4 kgf·cm, 1.7 – 3.5 in.·lbf)
Reused bearing		0.1 – 0.3 N·m (1 – 3 kgf·cm, 0.9 – 2.6 in.·lbf)

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Fig. 27: Service Data Specification (Manual Transaxle) (6 Of 7)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Preload adjust washer thickness	Mark	
	AA	1.47 mm (0.0579 in.)
	AB	1.50 mm (0.0591 in.)
	AC	1.53 mm (0.0602 in.)
	BA	1.56 mm (0.0614 in.)
	BB	1.59 mm (0.0626 in.)
	BC	1.62 mm (0.0638 in.)
	CA	1.65 mm (0.0650 in.)
	CB	1.68 mm (0.0661 in.)
	CC	1.71 mm (0.0673 in.)
	DA	1.74 mm (0.0685 in.)
	DB	1.77 mm (0.0697 in.)
	DC	1.80 mm (0.0709 in.)
	EA	1.83 mm (0.0720 in.)
	EB	1.86 mm (0.0732 in.)
	EC	1.89 mm (0.0744 in.)
	FA	1.92 mm (0.0756 in.)
	FB	1.95 mm (0.0768 in.)
	FC	1.98 mm (0.0780 in.)
	GA	2.01 mm (0.0791 in.)
	GB	2.04 mm (0.0803 in.)
	GC	2.07 mm (0.0815 in.)
	HA	2.10 mm (0.0827 in.)
	HB	2.13 mm (0.0839 in.)
	HC	2.16 mm (0.0850 in.)
	JA	2.19 mm (0.0862 in.)
	JB	2.22 mm (0.0874 in.)
	JC	2.25 mm (0.0886 in.)
	KA	2.28 mm (0.0898 in.)
	KB	2.31 mm (0.0909 in.)
	KC	2.34 mm (0.0921 in.)
	LA	2.37 mm (0.0933 in.)
	LB	2.40 mm (0.0945 in.)
	LC	2.43 mm (0.0957 in.)
	MA	2.46 mm (0.0969 in.)
	MB	2.49 mm (0.0980 in.)
	MC	2.52 mm (0.0992 in.)
	NA	2.55 mm (0.1004 in.)
	NB	2.58 mm (0.1016 in.)
Bearing retainer RH oil seal drive in depth	Inner side	1.5 – 2.5 mm (0.059 – 0.098 in.)
	Outer side	0.7 – 1.3 mm (0.028 – 0.071 in.)
Transfer case oil seal drive in depth		8.7 – 9.3 mm (0.343 – 0.366 in.)
Extension housing oil seal drive in depth		1.1 – 1.9 mm (0.043 – 0.075 in.)

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Fig. 28: Service Data Specification (Manual Transaxle) (7 Of 7)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened		N·m	kgf·cm	ft·lbf
Filler and drain plugs		39	400	29
Hood x Body		13	133	9.6
Lower suspension arm x Lower ball joint		128	1,310	94
Starter x Transaxle		37	378	28
Clutch release cylinder x Transaxle		12	120	9
Clutch release cylinder x Release cylinder heat insulator		12	120	9
Clutch line set bolt	Bolt A	25	255	18
	Bolt B	12	120	9
	Bolt C	5	51	44 in.-lbf
Pressure feed tube set bolt		51.5	525	38
Discharge tube set bolt		9.8	100	87 in.-lbf
Liquid tube set bolt		9.8	100	87 in.-lbf
No. 2 engine hangers set bolt		38	387	28
Right engine mounting insulator	Bolt and 2 nuts	52	530	38
Left engine mounting insulator	Through bolt and nut	56	571	41
Front exhaust pipe	Exhaust manifold side	43	439	32
	Center pipe side	49	500	36
Stabilizer bar link x Stabilizer bar		44	450	32
Front suspension crossmember assembly x PS gear assembly		137	1,397	101
Front suspension crossmember assembly x Body		113	1,150	82
Lower suspension arm bracket x Body		157	1,600	115
Engine rear mounting insulator through bolt		88	898	65
Engine front mounting insulator through bolt		56	571	41
Center member x Body		39	400	28
RH front drive shaft set bolt		64	650	47
Axle hub x Drive shaft		216	2,200	150
Center support bearing x Body (4WD)		37	375	27
Propeller shaft assembly x Rear differential (4WD)		74	750	54
Transaxle with engine x Transfer stiffener plate (4WD)		34	347	25
Transmission case protector x Transaxle (4WD)		18	180	13
Transaxle x Engine	Bolt A	64	650	47
	Bolt B	46	470	34
	Bolt C	44	440	32
Transaxle x Transfer assembly (4WD)	2 bolt and 5 nuts (17 mm)	78.4	800	58
	nut (14 mm)	29.4	300	22
Back-up light switch		40	410	30
Vehicle speed sensor installation bolt		17	175	13
Control cable bracket x Transaxle case		17	175	13
Clutch tube bracket x Transaxle case		17	175	13
Selecting bellcrank assembly set bolt		20	200	14
Control shift lever set nut		6.4	65	57 in.-lbf
Lock ball assembly		29	300	22
Shift and select lever shaft assembly x Transmission case		20	200	14
Transmission case cover x Transmission case		29	300	22
Breather plug		49	500	36

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Fig. 29: Manual Transaxle - Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Output shaft lock nut	123	1,250	90
Shift fork and shift head set bolt	24	240	17
Rear bearing retainer x Transmission case	42	430	31
Straight screw plug	25	250	18
Reverse idler gear shaft lock bolt	29	300	22
Transmission case x Transaxle case	29	300	21
Transaxle case side	30	306	22
Transmission case side			
Reverse shift arm bracket assembly x Transaxle case	17	175	13
No. 1 and No. 2 oil receiver pipes x Transmission case	17	175	13
Transaxle case receiver x Transaxle case	7.0	71	62 in. lbf
Straight screw plug (Reverse restrict pin)	13	130	9
Transmission oil pump case x Oil pump cover	10	105	8
Differential case x Ring gear	(4WD) 124	1,260	91
(2WD)	106	1,080	78
Shift lever assembly x Body	12	120	9
Shift cable grommet retainer x Body	5.0	51	44 in. lbf
Transfer			
Drain and filler plug	49	500	36
Drive pinion lock nut	349	3,560	257
Use with SST	308	3,142	227
Center differential control coupling x Ring gear	77.5	791	57
Bearing retainer RH x Transfer case	28	286	21
Extension housing x Transfer case	25.5	260	19
Stud bolt x Transfer case	39.2	400	29
Oil deflector x Case cover No. 1	6.5	66	58 in. lbf
Case cover No. 1 x Transfer case	19.6	200	14

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Fig. 30: Manual Transaxle - Torque Specifications (2 Of 2)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

AUTOMATIC TRANSAXLE (U140F)

SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Shift lock control unit assembly voltage		
5 - 1 (IG - E)	Ignition switch ON	10 - 14 V
3 - 1 (STP - E)	Depressing brake pedal	10 - 14 V
Key inter lock solenoid resistance	STD	12.5 - 16.5 Ω
Line pressure (Wheel locked)		
	Engine idling	
	D range	370 - 450 kPa (3.8 - 4.6 kgf/cm ² , 54 - 65 psi)
	R range	640 - 800 kPa (6.5 - 8.2 kgf/cm ² , 93 - 116 psi)
	AT stall (Throttle valve fully opened)	
	D range	900 - 1,100 kPa (9.2 - 11.2 kgf/cm ² , 131 - 160 psi)
	R range	1,730 - 2,030 kPa (17.6 - 20.7 kgf/cm ² , 251 - 294 psi)
Engine stall revolution	D and R range	2,320 $\pm$ 150 rpm
Time lag	N $\rightarrow$ D range	Less than 1.2 seconds
	N $\rightarrow$ R range	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N range	700 $\pm$ 50 rpm
Extension housing oil seal drive in depth		1.5 $\pm$ 0.4 mm (0.059 $\pm$ 0.016 in.)
Differential oil seal drive in depth	LH side	0 $\pm$ 0.5 mm (0 $\pm$ 0.020 in.)
	RH side	1.0 $\pm$ 0.5 mm (0.039 $\pm$ 0.020 in.)
Drive plate runout	Max.	0.20 $\pm$ 0.25 mm (0.0079 $\pm$ 0.0098 in.)
Torque converter runout	Max.	0.30 $\pm$ 0.15 mm (0.0118 $\pm$ 0.0059 in.)
Torque converter installation distance		More than 12.95 mm (0.5098 in.)
Shift schedule		
D range (Throttle valve fully opened)	1 $\rightarrow$ 2	53 - 62 km/h (33 - 39 mph)
	2 $\rightarrow$ 3	99 - 109 km/h (62 - 68 mph)
	3 $\rightarrow$ 4	151 - 167 km/h (94 - 104 mph)
	4 $\rightarrow$ 3	143 - 159 km/h (89 - 99 mph)
	3 $\rightarrow$ 2	92 - 101 km/h (57 - 63 mph)
	2 $\rightarrow$ 1	43 - 50 km/h (27 - 31 mph)
	3 $\rightarrow$ 4	39 - 46 km/h (24 - 29 mph)
	4 $\rightarrow$ 3	15 - 21 km/h (9 - 13 mph)
(Throttle valve fully closed)		
2 range (Throttle valve fully opened)	1 $\rightarrow$ 2	53 - 62 km/h (33 - 39 mph)
	3 $\rightarrow$ 2	99 - 109 km/h (62 - 68 mph)
	2 $\rightarrow$ 1	43 - 50 km/h (27 - 31 mph)
L range (Throttle valve fully opened)		
3 $\rightarrow$ 2		99 - 109 km/h (62 - 68 mph)
	2 $\rightarrow$ 1	47 - 54 km/h (29 - 34 mph)
Lock-up point	Throttle valve opening 5 %	
3rd gear	Lock-up ON	151 - 167 km/h (94 - 104 mph)
	Lock-up OFF	143 - 159 km/h (89 - 99 mph)
O/D gear	Lock-up ON	51 - 59 km/h (32 - 37 mph)
	Lock-up OFF	49 - 57 km/h (30 - 35 mph)

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Fig. 31: Service Data Specification (Automatic Transaxle (U140F))

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened		N·m	kgf·cm	ft·lbf
Vehicle speed sensor x Transaxle case		5.5	56	49 in. lbf
Input turbine speed sensor x Transaxle case		11.3	115	8
Counter gear speed sensor x Transaxle case		11.3	115	8
ATF Temperature sensor x Valve body		6.6	67	58 in. lbf
Oil pan x Transaxle case		7.6	80	67 in. lbf
Drain plug		47	480	35
Solenoid wire x Transaxle		5.4	55	48 in. lbf
Park/neutral position switch x Transaxle	Bolt	5.4	55	48 in. lbf
	Nut	6.9	70	61 in. lbf
Control shaft lever x Shift control shaft		12.7	130	9
Shift control cable x Control shaft lever		15	150	11
Solenoid valve x Valve body (See page AX-9)	Bolt A	6.6	67	58 in. lbf
	Bolt B	10.8	110	8
Valve body x Transaxle case		10.8	110	8
Oil strainer x Valve body		11	110	8
Transmission oil cooler x Bracket		18	184	13
Floor shift assembly x Floor		12	122	9
Starter x Torque converter housing		37	380	27
Starter wire x Starter		13	130	10
Stiffener plate x Engine, Transaxle		34	347	25
Torque converter x Drive plate		41	420	30
Transaxle x Engine (See page AX-27)	Upper side			
	Bolt A	64	653	47
	Bolt B	46	469	34
	Lower side	44	449	32
Drive plate x Engine		98	1,000	72

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Fig. 32: Automatic Transaxle (U140F) - Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

AUTOMATIC TRANSAXLE (U241E)

SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Shift lock control unit assembly voltage		
5 - 1 (IG - E)	Ignition switch ON	10 - 14 V
3 - 1 (STP - E)	Depressing brake pedal	10 - 14 V
Key inter lock solenoid resistance	STD	12.5 - 16.5 Ω
Line pressure (Wheel locked)		
	Engine idling	
	D range	370 - 450 kPa (3.8 - 4.6 kgf/cm ² , 54 - 65 psi)
	R range	640 - 800 kPa (6.5 - 8.2 kgf/cm ² , 93 - 116 psi)
	AT stall (Throttle valve fully opened)	
	D range	900 - 1,100 kPa (9.2 - 11.2 kgf/cm ² , 131 - 160 psi)
	R range	1,730 - 2,030 kPa (17.6 - 20.7 kgf/cm ² , 251 - 294 psi)
Engine stall revolution	D and R range	2,320 $\pm$ 150 rpm
Time lag	N $\rightarrow$ D range	Less than 1.2 seconds
	N $\rightarrow$ R range	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N range	700 $\pm$ 50 rpm
Differential oil seal drive in depth	LH side	0 $\pm$ 0.5 mm (0 $\pm$ 0.020 in.)
	RH side	0 $\pm$ 0.5 mm (0 $\pm$ 0.020 in.)
Drive plate runout	Max.	0.20 $\pm$ 0.25 mm (0.0079 $\pm$ 0.0098 in.)
Torque converter runout	Max.	0.30 $\pm$ 0.15 mm (0.0118 $\pm$ 0.0059 in.)
Torque converter installation distance		More than 12.95 mm (0.5098 in.)
Shift schedule		
D range (Throttle valve fully opened)	1 $\rightarrow$ 2	56 - 65 km/h (35 - 40 mph)
	2 $\rightarrow$ 3	105 - 115 km/h (65 - 71 mph)
	3 $\rightarrow$ 4	159 - 176 km/h (99 - 109 mph)
	4 $\rightarrow$ 3	151 - 168 km/h (94 - 104 mph)
	3 $\rightarrow$ 2	97 - 106 km/h (60 - 66 mph)
	2 $\rightarrow$ 1	45 - 52 km/h (28 - 32 mph)
	3 $\rightarrow$ 4	41 - 48 km/h (25 - 30 mph)
	4 $\rightarrow$ 3	16 - 22 km/h (10 - 14 mph)
(Throttle valve fully closed)		
2 range (Throttle valve fully opened)	1 $\rightarrow$ 2	56 - 65 km/h (35 - 40 mph)
	3 $\rightarrow$ 2	105 - 115 km/h (65 - 71 mph)
	2 $\rightarrow$ 1	45 - 52 km/h (28 - 32 mph)
L range (Throttle valve fully opened)	3 $\rightarrow$ 2	105 - 115 km/h (65 - 71 mph)
	2 $\rightarrow$ 1	49 - 57 km/h (30 - 35 mph)
Lock-up point		
3rd gear	Throttle valve opening 5 %	
	Lock-up ON	159 - 177 km/h (99 - 110 mph)
	Lock-up OFF	151 - 168 km/h (94 - 104 mph)
O/D gear	Lock-up ON	54 - 62 km/h (34 - 39 mph)
	Lock-up OFF	52 - 60 km/h (32 - 37 mph)

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Fig. 33: Service Data Specification (Automatic Transaxle (U241E))
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened		N·m	kgf·cm	ft·lbf
Vehicle speed sensor x Transaxle case		5.5	56	49 in.·lbf
Input turbine speed sensor x Transaxle case		11.3	115	8
Counter gear speed sensor x Transaxle case		11.3	115	8
ATF Temperature sensor x Valve body		6.6	67	58 in.·lbf
Oil pan x Transaxle case		7.6	80	67 in.·lbf
Drain plug		47	480	35
Solenoid wire x Transaxle		5.4	55	48 in.·lbf
Park/neutral position switch x Transaxle	Bolt	5.4	55	48 in.·lbf
	Nut	6.9	70	61 in.·lbf
Control shaft lever x Shift control shaft		12.7	130	9
Shift control cable x Control shaft lever		15	150	11
Solenoid valve x Valve body (See page AX-8)	Bolt A	6.6	67	58 in.·lbf
	Bolt B	10.8	110	8
Valve body x Transaxle case		10.8	110	8
Oil strainer x Valve body		11	110	8
Transmission oil cooler x Bracket		18	184	13
Floor shift assembly x Floor		12	122	9
Hood		13	130	9
Starter x Torque converter housing		37	380	27
Starter wire x Starter		13	130	10
Ground cable x transaxle		19	195	14
Transaxle x Engine mounting		56	571	41
Differential drain plug		54	550	40
Power steering gear mounting bolt		137	1,400	101
Stabilizer bar link x Stabilizer bar		44	450	32
Front suspension crossmember mounting bolt and nut (See page AX-27)	Bolt A	39	400	28
	Bolt B	80	820	59
	Bolt C	113	1,150	80
	Bolt D	115	1,170	85
	Bolt E	157	1,600	115
	Nut	115	1,170	85
Torque converter x Drive plate		41	420	30
Transaxle x Engine (See page AX-27)	Upper side	64	653	47
	Front and rear side	46	469	34
	Lower side	44	449	32
Drive plate x Engine		98	1,000	72

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Fig. 34: Automatic Transaxle (U241E) - Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

PROPELLER SHAFT

SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Propeller shaft runout	Maximum	0.8 mm (0.031 in.)
Intermediate shaft runout	Maximum	0.8 mm (0.031 in.)
Intermediate shaft universal joint flange horizontal runout	Maximum	0.1 mm (0.004 in.)
Intermediate shaft universal joint flange vertical runout	Maximum	0.1 mm (0.004 in.)

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Fig. 35: Service Data Specification (Propeller Shaft)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

Part tightened	N·m	kgf·cm	ft·lbf
Universal joint flange x Center support bearing	See page PR-5		
Propeller shaft x Rear differential	74	750	54
Universal joint flange x Cross groove joint	27	275	20
Center support bearing x Body	37	375	27

G02641681

Fig. 36: Propeller Shaft - Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SUSPENSION AND AXLE

SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Tire and wheel	Cold tire inflation pressure	200 kPa (2.0 kgf-cm, 29 psi)
Wheel balance	Imbalance after adjustment	8.0 g (0.018 lb) or less
Front wheel alignment	Front vehicle height 2WD 4WD Tire size: 215/70R16 Tire size: 235/60R16	225 mm (8.86 in.) 235 mm (9.25 in.) 228 mm (8.98 in.)
	Rear vehicle height 2WD 4WD Tire size: 215/70R16 Tire size: 235/60R16	357 mm (14.06 in.) 366 mm (14.41 in.) 359 mm (14.13 in.)
	Camber 2WD 4WD Left - right error	-0°25' ± 45' (-0.42° ± 0.75°) -0°20' ± 45' (-0.33° ± 0.75°) 45' (0.75°) or less
	Caster 2WD 4WD Left - right error	2°00' ± 45' (2.00° ± 0.75°) 1°55' ± 45' (1.92° ± 0.75°) 45' (0.75°) or less
	Steering axis inclination 2WD 4WD Left - right error	11°00' ± 45' (11.00° ± 0.75°) 10°45' ± 45' (10.75° ± 0.75°) 45' (0.75°) or less
	Toe-in (total) 2WD 4WD Tire size: 215/70R16 Tire size: 235/60R16 Tie rod end length difference	0°00' ± 10' (0° ± 0.16°, 0 ± 2 mm, 0 ± 0.08 in.) 0°05' ± 10' (0.08° ± 0.16°, 1 ± 2 mm, 0.04 ± 0.08 in.) 0°05' ± 10' (0.08° ± 0.17°, 1 ± 2 mm, 0.04 ± 0.08 in.) 1.5 mm (0.059 in.) or less
	Wheel angle Inside Outside (Reference) 2WD 4WD	35° ± 2° 30° 31°
	Camber 2WD 4WD Tire size: 215/70R16 Tire size: 235/70R16 Left - right error	-1°15' ± 45' (-1.25° ± 0.75°) -0°55' ± 45' (-0.92° ± 0.75°) -0°50' ± 45' (-0.83° ± 0.75°) 45' (0.75°) or less
	Toe-in (total) 2WD 4WD Tire size: 215/70R16 Tire size: 235/60R16 Lower suspension arm length difference	0°19' ± 10' (0.32° ± 0.16°, 4 ± 2 mm, 0.16 ± 0.08 in.) 0°14' ± 10' (0.24° ± 0.16°, 3 ± 2 mm, 0.12 ± 0.08 in.) 0°15' ± 10' (0.25° ± 0.17°, 3 ± 2 mm, 0.12 ± 0.08 in.) 1.0 mm (0.040 in.) or less
	Bearing backlash	0.05 mm (0.0020 in.)
Front axle	Axle hub deviation	0.07 mm (0.0028 in.)
Front axle drive shaft	Standard length 2WD 4WD RH LH RH LH	858.5 ± 5.0 mm (33.80 ± 0.197 in.) 585.4 ± 5.0 mm (23.00 ± 0.197 in.) 920.5 ± 5.0 mm (36.24 ± 0.197 in.) 520.5 ± 5.0 mm (20.47 ± 0.197 in.)
Front lower ball joint	Ball joint turning torque	1.0 - 4.9 N·m (10 - 50 kgf-cm, 9 - 43 in.-lbf)

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Fig. 37: Service Data Specification (Suspension And Axle) (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Front stabilizer bar	Stabilizer bar link turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.·lbf)
Rear axle	Bearing backlash		0.05 mm (0.0020 in.)
	Axle hub deviation		0.07 mm (0.0028 in.)
Rear drive shaft	Standard length	RH	611.9 ± 5 mm (26.059 ± 0.197 in.)
		LH	564.4 ± 5 mm (22.240 ± 0.197 in.)
Rear differential	Drive pinion oil seal drive in depth		2.0 mm (0.079 in.)
	Side gear shaft oil seal drive in depth		0 mm (0 in.)
	Companion flange vertical runout		0.10 mm (0.0039 in.) or less
	Companion flange lateral runout		0.10 mm (0.0039 in.) or less
	Ring gear runout		0.07 mm (0.0028 in.) or less
	Side gear backlash		0.05 – 0.20 mm (0.0020 – 0.0079 in.)
	Drive pinion to ring gear backlash		0.13 – 0.18 mm (0.0051 – 0.0071 in.)
	Drive pinion preload (at start)	New bearing	1.1 – 1.7 N·m (10 – 17 kgf·cm, 9.5 – 14.7 in.·lbf)
		Reused bearing	0.6 – 0.9 N·m (6 – 9 kgf·cm, 5.2 – 7.8 in.·lbf)
	Total preload (add drive pinion preload)		0.3 – 0.5 N·m (3 – 5 kgf·cm, 2.6 – 4.3 in.·lbf)
Rear differential	Side gear thrust washer thickness	mm (in.)	0.93 – 0.97 (0.0366 – 0.0382)
			0.98 – 1.02 (0.0386 – 0.0402)
			1.03 – 1.07 (0.0406 – 0.0421)
			1.08 – 1.12 (0.0425 – 0.0441)
			1.13 – 1.17 (0.0445 – 0.0461)
			1.18 – 1.22 (0.0465 – 0.0480)
			1.23 – 1.27 (0.0484 – 0.0500)
			1.28 – 1.32 (0.0503 – 0.0520)
			1.33 – 1.37 (0.0523 – 0.0539)
			1.38 – 1.42 (0.0543 – 0.0559)

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Fig. 38: Service Data Specification (Suspension And Axle) (2 Of 3)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Rear differential	Side bearing plate washer thickness	mm (in.)	2.21 – 2.23 (0.0870 – 0.0878)
			2.24 – 2.26 (0.0882 – 0.0890)
			2.27 – 2.29 (0.0894 – 0.0902)
			2.30 – 2.32 (0.0906 – 0.0913)
			2.33 – 2.35 (0.0917 – 0.0925)
			2.36 – 2.38 (0.0929 – 0.0937)
			2.39 – 2.41 (0.0941 – 0.0949)
			2.42 – 2.44 (0.0953 – 0.0961)
			2.45 – 2.47 (0.0965 – 0.0972)
			2.48 – 2.50 (0.0976 – 0.0984)
			2.51 – 2.53 (0.0988 – 0.0996)
			2.54 – 2.56 (0.1000 – 0.1008)
			2.57 – 2.59 (0.1012 – 0.1020)
			2.60 – 2.62 (0.1024 – 0.1031)
			2.63 – 2.65 (0.1035 – 0.1043)
			2.66 – 2.68 (0.1047 – 0.1055)
			2.69 – 2.71 (0.1059 – 0.1067)
			2.72 – 2.74 (0.1071 – 0.1079)
			2.75 – 2.77 (0.1083 – 0.1091)
			2.78 – 2.80 (0.1094 – 0.1102)
			2.81 – 2.83 (0.1106 – 0.1114)
			2.84 – 2.86 (0.1118 – 0.1126)
			2.87 – 2.89 (0.1130 – 0.1138)
			2.90 – 2.92 (0.1142 – 0.1150)
			2.93 – 2.95 (0.1154 – 0.1161)
			2.96 – 2.98 (0.1165 – 0.1173)
			2.99 – 3.01 (0.1177 – 0.1185)
			3.02 – 3.04 (0.1189 – 0.1197)
			3.05 – 3.07 (0.1201 – 0.1209)
			3.08 – 3.10 (0.1213 – 0.1220)
			3.11 – 3.13 (0.1224 – 0.1232)
			3.14 – 3.16 (0.1236 – 0.1244)
			3.17 – 3.19 (0.1248 – 0.1256)
			3.20 – 3.22 (0.1260 – 0.1268)
Rear differential	Drive pinion plate washer thickness	mm (in.)	2.26 – 2.28 (0.0890 – 0.0898)
			2.29 – 2.31 (0.0902 – 0.0909)
			2.32 – 2.34 (0.0913 – 0.0921)
			2.35 – 2.37 (0.0925 – 0.0933)
			2.38 – 2.40 (0.0937 – 0.0945)
			2.41 – 2.43 (0.0949 – 0.0957)
			2.44 – 2.46 (0.0961 – 0.0969)
			2.47 – 2.49 (0.0972 – 0.0980)
			2.50 – 2.52 (0.0984 – 0.0992)
			2.53 – 2.55 (0.0996 – 0.1004)
			2.56 – 2.58 (0.1008 – 0.1016)
			2.59 – 2.61 (0.1020 – 0.1028)
			2.62 – 2.64 (0.1031 – 0.1039)
			2.65 – 2.67 (0.1043 – 0.1051)
			2.68 – 2.70 (0.1055 – 0.1063)
Rear stabilizer bar	Stabilizer bar link turning torque		0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbft)

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Fig. 39: Service Data Specification (Suspension And Axle) (3 Of 3)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened	N-m	kgf·cm	ft-lbf
Front suspension and axle			
Wheel hub nut	103	1,050	76
Tie rod end lock nut	56	570	41
ABS speed sensor x Steering knuckle	8.0	82	71 in.-lbf
ABS speed sensor wire clamp x Steering knuckle	5.0	51	44 in.-lbf
Dust cover x Steering knuckle	8.0	85	71 in.-lbf
Steering knuckle x Shock absorber	143	1,460	105
Steering knuckle x Brake caliper	107	1,090	79
Steering knuckle x Tie rod end	49	500	36
Tie rod end x Steering knuckle	49	500	36
Drive shaft lock nut	216	2,200	159
Lower ball joint x Steering knuckle	133	1,360	98
Lower ball joint x Lower suspension arm	128	1,310	94
Center bearing bracket x Drive shaft RH (2WD)	64	650	47
Suspension support x Body	80	820	59
Suspension support x Piston rod	47	475	34
Stabilizer bar link x Shock absorber	44	450	32
Flexible hose x Shock absorber	18.5	190	14
PS gear assembly x Suspension member	131	1,400	101
Lower suspension arm x Suspension member	137	1,400	101
Suspension member x Body	Front side	113	1,150
	Rear side	157	1,600
Suspension member x Suspension center member	72	730	53
Stabilizer bar x Stabilizer bar link	44	450	32
Stabilizer bar bracket x Suspension member	29	300	22
Rear suspension and axle			
Drive shaft x Rear differential (4WD)	56	570	41
Drive shaft x Axle hub	216	2,200	159
Axle hub x No. 1 rear suspension arm	50	510	37
Brake caliper x No. 1 rear suspension arm (rear disc brake)	107	1,090	79
ABS speed sensor x No. 1 Rear suspension arm	8.0	82	71 in.-lbf
Rear differential drain plug	49	500	36
Rear differential filler plug	49	500	36
Companion flange x Propeller shaft	74	750	54
Differential rear mount cushion x Body	65	660	48
Differential x Differential rear mount cushion	137	1,400	101
Differential x Rear suspension member	117	1,190	86
Differential case x Ring gear	97	985	71
Breather plug x Differential carrier cover	21	210	15
Differential carrier x Differential case cover	47	475	34
Oil deflector x Differential case cover	7.3	75	62 in.-lbf
Differential carrier x Bearing cap	78	800	58
Companion flange x Drive pinion	108 - 235	1,100 - 2,400	80 - 173
Shock absorber x No. 1 Rear suspension arm	37	380	27
Shock absorber x Body	14.5	150	11
Upper suspension arm x No. 1 rear suspension arm, Rear suspension arm	113	1,150	83
Lower suspension arm x No. 1 rear suspension arm, Rear suspension arm	113	1,150	83
No. 1 rear suspension arm x Body	132	1,350	98
Spring bumper x Body	13	130	9
Pivot pin x No. 1 rear suspension arm	30	310	22
Rear stabilizer bar link x Lower suspension arm	44	450	32
No. 1 rear suspension arm x Brake line bracket	19	190	14
No. 1 rear suspension arm x Brake line	19	190	14
No. 1 rear suspension arm x Parking brake cable clamp	19	190	14
Rear stabilizer bar link x Rear stabilizer bar	44	450	32
Rear stabilizer bar bracket x Body	19	190	14
Fuel tank band x Body	40	410	30

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Fig. 40: Suspension And Axle - Torque Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BRAKE

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

SERVICE DATA

Brake pedal height (from asphalt sheet)		170.0 – 180.0 mm (6.693 – 7.087 in.)
Brake pedal freeplay		1 – 6 mm (0.04 – 0.24 in.)
Stop light switch clearance		0.5 – 2.4 mm (0.020 – 0.094 in.)
Brake pedal reserve distance (from asphalt sheet) at 490 N (50 kgf, 110.2 lbf)		More than 118 mm (4.65 in.)
Parking brake lever travel at 196N (20 Kgf, 44 lbf)		6 – 8 clicks
Brake booster push rod to piston clearance (w/ SST)		0 mm (0 in.)
Front brake pad thickness	STD Minimum	12.0 mm (0.472 in.) 1.0 mm (0.039 in.)
Front brake disc thickness	STD Minimum	25.0 mm (0.984 in.) 23.0 mm (0.906 in.)
Front brake disc runout	Maximum	0.05 mm (0.0020 in.)
w/ Rear drum brake		
Rear brake shoe lining thickness	STD Minimum	5.0 mm (0.197 in.) 1.0 mm (0.039 in.)
Rear brake drum inside diameter	STD Maximum	228.6 mm (9.000 in.) 230.6 mm (9.079 in.)
Rear brake shoe to drum clearance		0.6 mm (0.024 in.)
w/ Rear disc brake		
Rear brake pad thickness	STD Minimum	10.0 mm (0.394 in.) 1.0 mm (0.039 in.)
Rear brake disc thickness	STD Minimum	9.0 mm (0.354 in.) 8.0 mm (0.317 in.)
Rear brake disc runout	Maximum	1.0 mm (0.0039 in.)
Parking brake shoe lining thickness	STD Minimum	2.5 mm (0.098 in.) 1.0 mm (0.039 in.)

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Fig. 41: Service Data Specification (Brake)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

BRAKE - TORQUE SPECIFICATIONS

Part tightened	N.m	kgf.cm	ft.lbf
Hub nut	103	1,050	76
Brake pedal -to- Pedal bracket	39	398	29
Brake booster clevis lock nut	26	260	20
Parking brake lever adjusting lock nut	5.4	55	48 in.lbf
Master cylinder -to- Brake booster	13	130	9
Brake line union bolt	15	155	11
Piston stopper bolt -to- Master cylinder body	10	100	7
Reservoir -to- Master cylinder body	1.8	18	16 in.lbf
Brake booster -to- Pedal bracket	13	130	9
Front brake caliper installation bolt	26	270	20
Flexible hose -to- Front brake caliper	30	310	22

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Bleeder plug -to- Front brake caliper	8.0	82	70 in.lbf
Torque plate -to- Steering knuckle	106	1,090	78
Wheel cylinder installation bolt	10	100	7
Bleeder plug -to- Wheel cylinder	8.3	85	74 in.lbf
PS fluid reservoir with bracket -to- Body	8.0	82	70 in.lbf
ABS actuator -to- Bracket	5.4	55	48 in.lbf
ABS actuator assembly -to- Body	19	195	14
ABS & VSC actuator -to- Bracket	5.4	55	48 in.lbf
ABS & VSC actuator assembly -to- Body	15	155	11
Front speed sensor installation bolt	8.0	82	71 in.lbf
Front speed sensor harness -to- Steering knuckle	5.0	52	41 in.lbf
Front speed sensor harness -to- Front shock absorber	18.5	189	14
Front speed sensor harness -to- Body	5.0	52	41 in.lbf
Rear speed sensor installation bolt	8.0	82	71 in.lbf
Rear speed sensor harness -to- Suspension arm	19	194	14
Rear speed sensor harness -to- Body	5.0	52	41 in.lbf
Deceleration sensor -to- Bracket	5.0	52	41 in.lbf
Yaw rate sensor -to- Bracket	5.0	52	41 in.lbf

STEERING

SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

POWER STEERING FLUID		
Fluid level rise	Maximum	5 mm (0.20 in.)
Fluid pressure at idle speed with valve closed	Minimum	7,400 kPa (75 kgf/cm ² , 1,067 psi)
STEERING WHEEL		
Steering wheel free play	Maximum	30 mm (1.18 in.)
Steering effort at idle speed	Reference	5.9 N·m (60 kgf·cm, 52 in.-lbf)
POWER STEERING VANE PUMP		
Vane pump rotating torque		0.27 N·m (2.8 kgf·cm, 2.4 in.-lbf) or less
Vane pump shaft and front housing bushing oil clearance	STD	0.021 – 0.043 mm (0.0008 – 0.0017 in.)
	Maximum	0.07 mm (0.0028 in.)
Vane plate height	Minimum	7.6 mm (0.299 in.)
Vane plate thickness	Minimum	1.405 mm (0.0553 in.)
Vane plate length	Minimum	11.993 mm (0.4722 in.)
Vane plate and vane pump rotor groove clearance	Maximum	0.025 mm (0.0010 in.)
Vane plate length	pump rotor and cam ring mark	
	0	12.001 – 12.003 mm (0.47248 – 0.47256 in.)
	1	11.999 – 12.001 mm (0.47240 – 0.47248 in.)
	2	11.997 – 11.999 mm (0.47232 – 0.47240 in.)
	3	11.995 – 11.997 mm (0.47224 – 0.47232 in.)
	4	11.993 – 11.995 mm (0.47216 – 0.47224 in.)
Spring free length	Minimum	36.9 mm (1.453 in.)
POWER STEERING GEAR		
Steering rack runout	Maximum	0.15 mm (0.006 in.)
Total preload	Turning	1.0 – 1.6 N·m (10 – 17 kgf·cm, 9 – 15 in.-lbf)

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Fig. 42: Service Data Specification (Steering)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened	N·m	kgf·cm	ft·lbf
TILT STEERING COLUMN			
Adjusting nut	See page SR-20		
No. 2 intermediate shaft assembly x Main shaft assembly	36	360	26
Column assembly set bolt	21	210	15
No. 2 intermediate shaft assembly x Steering intermediate extension	36	360	26
Steering wheel set nut	50	500	35
Steering wheel pad set screw (Torx® screw)	8.8	90	78 in.-lbf
POWER STEERING VANE PUMP			
Front housing x Rear housing	22	220	16
Oil pressure switch	21	210	15
Pressure port union	69	700	51
Suction port union set bolt	12	120	9
PS vane pump assembly x Engine	30 (43)	305 (440)	22 (32)
Pressure feed tube x PS vane pump assembly	51.5	525	38
POWER STEERING GEAR			
Control valve self-locking nut	12	125	9
Rack housing cap x Rack housing	69	700	51
Rack guide spring cap lock nut x Rack housing	32 (44)	330 (450)	24 (32)
Rack end x Steering rack	60 (83)	615 (850)	44 (61)
No. 1 rack housing bracket x Rack housing	61	615	44
Tie rod end lock nut	74	750	54
Turn pressure tube x PS gear assembly	27 (29.5)	270 (300)	20 (22)
Pressure feed tube x PS gear assembly	40 (44)	410 (450)	29 (32)
Return tube x PS gear assembly	40 (44)	410 (450)	29 (32)
Steering intermediate extension x Control valve assembly	35	360	26
PS gear assembly x Front suspension crossmember	137	1,400	101
Pressure feed tube clamp mounting bolt	12.5	130	9
Return tube clamp mounting bolt	12.5	130	9
Stabilizer bar x Front suspension crossmember	29	300	22

(): For use without SST

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Fig. 43: Steering - Torque Specifications

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SUPPLEMENTAL RESTRAINT SYSTEM

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened	N·m	kgf·cm	ft·lbf
Steering wheel set nut	50	500	35
Steering wheel pad	8.8	90	78 in·lbf
Front passenger airbag assembly x Instrument panel reinforcement	20	205	15
Side airbag assembly x Seatback frame	44	440	32
Curtain shield airbag assembly x Body	9.8	100	86 in·lbf
Airbag sensor assembly Body	15	155	11
Front seat outer belt retractor x Body Upper side	7.4	75	65 in·lbf
Front seat outer belt retractor x Body Lower side	42	430	31
Side and curtain shield airbag sensor assembly x Body	20	205	15
Rear seat outer belt retractor x Body Upper side	7.4	75	65 in·lbf
Rear seat outer belt retractor x Body Lower side	42	430	31
Rear seat outer belt x Body Floor side	42	430	31
Rear seat outer belt x Body Shoulder side	42	430	31
Curtain shield airbag sensor assembly	20	205	15
Front seat assembly	42	430	36
Front airbag sensor	8.0	80	69 in·lbf

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Fig. 44: Supplemental Restraint System - Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BODY ELECTRICAL

SERVICE DATA

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Combination meter (Speedometer)	USA: mph (on vehicle)	Standard indication at 20 mph at 40 mph at 60 mph at 80 mph at 100 mph at 120 mph	Allowable range 18 – 24 mph 38 – 44 mph 58 – 66 mph 78 – 88 mph 98 – 110 mph 118 – 132 mph
	CANADA: km/h (on vehicle)	Standard indication at 20 km/h at 40 km/h at 60 km/h at 80 km/h at 100 km/h at 120 km/h at 140 km/h at 160 km/h	Allowable range 17 – 24 km/h 38 – 46 km/h 57.5 – 67 km/h 77 – 88 km/h 96 – 109 km/h 115 – 130 km/h 134 – 151.5 km/h 153 – 173 km/h
Combination meter (Tachometer)	RPM	Standard indication (DC 13.5 V, 25°C (77°F)) ((): Reference) at 700 rpm (at 1,000 rpm) (at 2,000 rpm) at 3,000 rpm (at 4,000 rpm) at 5,000 rpm (at 6,000 rpm) at 7,000 rpm	Allowable range ((): Reference) 630 – 770 rpm (900 – 1,000 rpm) (1,850 – 2,150 rpm) 2,800 – 3,200 rpm (3,800 – 4,200 rpm) 4,800 – 5,200 rpm (5,800 – 6,200 rpm) 6,800 – 7,200 rpm
Main fuel sender gauge	Resistance	Float position at approx. 70.0 mm (2.76 in.) at approx. 167.6 mm (6.60 in.)	Approx. 2 Ω Approx. 54 Ω
Sub fuel sender gauge	Resistance	Float position at approx. 52.1 mm (2.05 in.) at approx. 177.0 mm (6.97 in.)	Approx. 2 Ω Approx. 53 Ω
Clock		at per day	± 1.5 seconds

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Fig. 45: Service Data Specification (Body Electrical)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BODY

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

Part tightened	N·m	kgf·cm	ft·lbf
FRONT BUMPER			
Reinforcement x Body	19	185	14
HOOD			
Hood hinge x Hood	13	130	10
Hood lock x Body	8.0	80	70 in·lbf
FRONT DOOR			
Door hinge x Door panel	26	265	19
Door hinge x Body	26	265	19
Door glass x Window regulator	5.0	50	43 in·lbf
Window regulator x Door panel	8.5	85	75 in·lbf
Door lock x Door panel	5.0	50	43 in·lbf
Door outside handle frame x Door outside handle	2.5	25	22 in·lbf
REAR DOOR			
Door hinge x Door panel	26	265	19
Door hinge x Body	26	265	19
Door glass x Window regulator	5.0	50	43 in·lbf
Window regulator x Door panel	8.5	85	75 in·lbf
Door lock x Door panel	5.0	50	43 in·lbf
Door outside handle frame x Door outside handle	2.5	25	22 in·lbf
BACK DOOR			
Door hinge x Door panel	36	360	26
Door hinge x Body	26	265	19
back spare tire bracket x Door panel	28	285	21
Door lock x Door panel	5.0	50	43 in·lbf
Rear spiler x Door panel	Nut 5.0	50	43 in·lbf
	Bolt 7.5	75	66 in·lbf
FRONT WIPER AND WASHER			
Wiper arm x Wiper motor link	25	255	18
Wiper motor x Wiper motor link	7.0	70	62 in·lbf
REAR WIPER AND WASHER			
Wiper motor x Wiper motor link	5.5	55	49 in·lbf
Wiper arm x Wiper motor	5.5	55	49 in·lbf
SLIDING ROOF			
Drive gear x Body	5.5	55	49 in·lbf
Bracket x Body	5.5	55	49 in·lbf
Sliding roof glass x Sliding roof housing	4.0	40	35 in·lbf
INSTRUMENT PANEL			
Front passenger airbag assembly x Instrument panel	20	200	15
Steering wheel set nut	50	500	35
FRONT SEAT			
Reclining adjuster x Seatback frame	44	440	32
Seat position airbag sensor x Seat adjuster assy	8.0	82	71 in·lbf

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Fig. 46: Body - Torque Specifications (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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Seat position airbag sensor x Seat adjuster assy	8.0	82	71 in.-lbf	
REAR SEAT				
Reclining adjuster x seatback frame	44	440	32	
Reclining adjuster x seat cushion frame	44	440	32	
Seat cushion frame x track	44	440	32	
SEAT BELT				
Front seat belt :				
Adjustable anchor x Body	43	440	32	
Front seat outer belt shoulder anchor bolt x Body	43	440	32	
Front seat outer belt floor anchor bolt x Body	43	440	32	
Front seat inner belt x Front seat	42	430	31	
w/ Pretensioner:				
Retractor x Body	Upper bolt	8.5	85	75 in.-lbf
	Lower bolt	43	440	32
Rear seat belt :				
Rear seat outer belt shoulder anchor bolt x Body	43	440	32	
Rear seat outer belt floor anchor bolt x Body	43	440	32	
Rear seat outer belt retractor x Body	43	440	32	
Rear seat inner belt x Rear seat	43	440	32	
Rear seat center belt x Rear seat	43	440	32	
Outside center belt x Body	43	440	32	

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Fig. 47: Body - Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

AIR CONDITIONING

SERVICE DATA

Refrigerant	Charge volume	500 ± 50 g (17.64 ± 1.76 oz.)
Idle-up speed	at magnetic clutch is not engaged	700 ± 20 rpm
	at magnetic clutch is engaged	750 ± 20 rpm
Thermistor	Resistance at 25°C (77°F)	1,500 Ω
Compressor	Resistance (1 - 2) at 20°C (68°F)	165 - 205 Ω
Magnetic clutch	Crearance	0.45 + 0.15 mm (0.018 + 0.006 in.)
		0.45 - 0.10 mm (0.018 - 0.004 in.)
	Adjust shim thickness	0.1 mm (0.004 in.)
		0.3 mm (0.012 in.)
		0.5 mm (0.020 in.)
Condenser fan	Amperage at 20°C (68°F)	9.2 - 11.0 A

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Fig. 48: Service Data Specification (Air Conditioning)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE SPECIFICATION

2005 Toyota RAV4

2005 GENERAL INFORMATION Service Specifications - RAV4

AIR CONDITIONING - TORQUE SPECIFICATIONS

Part tightened	N.m	kgf.cm	ft.lbf
Condenser -to- Discharge tube	5.4	55	48 in.lbf
Condenser -to- Liquid tube	5.4	55	48 in.lbf
Compressor -to- Discharge hose	9.8	100	87 in.lbf
Compressor -to- Suction hose	9.8	100	87 in.lbf
Expansion valve -to- Evaporator	3.5	36	31 in.lbf
Steering wheel -to- Steering column	50	500	35
Compressor -to- Engine	24.5	250	18
Pressure plate -to- Compressor	18	184	13
Condenser -to- Body	7.35	75	65 in.lbf
Condenser -to- Cap	12.3	125	9
Pressure switch -to- Liquid tube	9.8	100	87 in.lbf