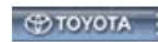


Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000002J4H01CX
Title: SERVICE SPECIFICATIONS: 2AR-FE CHARGING: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Battery	Standard specific gravity	1.25 to 1.29 at 20°C (68°F)
Charging circuit without load	Standard amperage	10 A or less
	Standard voltage	13.2 to 14.8 V (when engine speed at 2000 rpm)
Charging circuit with load	Standard amperage	30 A or higher
Generator brush holder	Standard exposed length	9.5 to 11.5 mm (0.374 to 0.453 in.)
	Minimum exposed length	4.5 mm (0.177 in.)
Generator rotor	Standard diameter	14.2 to 14.4 mm (0.559 to 0.567 in.)
	Minimum diameter	14.0 mm (0.551 in.)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000002J4I012X
Title: SERVICE SPECIFICATIONS: 2AR-FE CHARGING: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Retainer plate x Generator drive end frame	2.3	23	20 in.*lbf
Generator coil x Generator drive end frame	5.9	60	52 in.*lbf
Generator brush holder x Generator coil	1.8	18	16 in.*lbf
Generator rear end cover x Generator coil	4.6	47	41 in.*lbf
Generator pulley x Generator rotor	59 (80)	591 (816)	43 (59)
Generator x Cylinder head	52	530	38
Wire harness clamp bracket x Generator	10	102	7
Generator wire x Generator	9.8	100	87 in.*lbf
Wire harness clamp bracket x Timing chain cover	10	102	7

(): For use without SST



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003RUN00GX
Title: SERVICE SPECIFICATIONS: 2AR-FE COOLING: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Thermostat

CONDITION	SPECIFIED CONDITION
Standard valve opening temperature	80 to 84°C (176 to 183°F)
Standard valve lift	10 mm (0.39 in.) or more at 95°C (203°F)

Cooling fan motor

ITEM	CONDITION	SPECIFIED CONDITION
No. 1 cooling fan motor	20°C (68°F)	11.7 to 14.7 A
No. 2 cooling fan motor	20°C (68°F)	11.7 to 14.7 A

Radiator cap

ITEM	CONDITION	SPECIFIED CONDITION
Radiator reservoir cap	Standard value (for brand-new cap)	93 to 123 kPa (1.0 to 1.3 kgf/cm ² , 13.5 to 18 psi)
	Minimum standard value (after using cap)	79 kPa (0.8 kgf/cm ² , 11.4 psi)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003RU000HX
Title: SERVICE SPECIFICATIONS: 2AR-FE COOLING: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Water pump

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Water pump x Water inlet housing	21	214	15
V-ribbed belt tensioner x Water inlet housing	21	214	15
Radiator reservoir x Body	5.0	51	44 in.*lbf

Thermostat

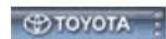
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Water inlet x Water inlet housing	10	102	7

Cooling fan motor

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Fan shroud x No. 1 cooling fan motor	3.9	40	35 in. *lbf
Fan shroud x No. 2 cooling fan motor	3.9	40	35 in. *lbf
Fan x No. 1 cooling fan motor	6.3	64	55 in. *lbf
Fan x No. 2 cooling fan motor	6.3	64	55 in. *lbf

Radiator

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 1 water by-pass pipe x Front bumper upper reinforcement	5.0	51	44 in. *lbf
Front bumper upper reinforcement x Upper radiator support bracket LH and RH	19	194	14
Front bumper upper reinforcement sub-assembly x Body	13	133	10
Front bumper center stay x Front bumper upper reinforcement	7.0	71	61 in. *lbf
Fan shroud with cooling fan x Radiator	11	107	8
No. 2 fan shroud x Radiator	11	107	8



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000027MB00PX
Title: SERVICE SPECIFICATIONS: 2AR-FE EMISSION CONTROL: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Purge VSV

TESTER CONNECTION	SPECIFIED CONDITION
1 - 2	23 to 26 Ω at 20°C (68°F)
1 - Body ground 2 - Body ground	10 MΩ or higher

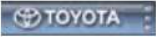


cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000027MC00PX
Title: SERVICE SPECIFICATIONS: 2AR-FE EMISSION CONTROL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Canister x Body	20	204	15
Ventilation valve sub-assembly x Ventilation case	27	275	20



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000024RU00UX
Title: SERVICE SPECIFICATIONS: 2AR-FE ENGINE CONTROL SYSTEM: SERVICE DATA (2011 RAV4)		

SERVICE DATA

CAMSHAFT TIMING OIL CONTROL VALVE

Standard resistance	1 - 2	20 °C (68°F)	6.9 to 7.9 Ω
---------------------	-------	--------------	--------------

THROTTLE BODY

Standard resistance	1(M-) - 2(M+)	20 °C (68°F)	0.3 to 100 Ω
---------------------	---------------	--------------	--------------

MASS AIR FLOW METER

Standard resistance	1(THA) - 2(E2)	-20 °C (-4°F)	13.6 to 18.4 kΩ
		20 °C (68°F)	2.21 to 2.69 kΩ
		60 °C (140°F)	0.49 to 0.67 kΩ

CRANKSHAFT POSITION SENSOR

Standard resistance	1 - 2	Approximately -10 to 50°C (14 to 122°F)	1630 to 2740 Ω
		Approximately 50 to 100°C (122 to 212°F)	2065 to 3225 Ω

ENGINE COOLANT TEMPERATURE SENSOR

Standard resistance	1 - 2	20 °C (68°F)	2.32 to 2.59 kΩ
		80 °C (176°F)	0.310 to 0.326 kΩ

KNOCK SENSOR

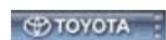
Standard resistance	1 - 2	20 °C (68°F)	120 to 280 kΩ
---------------------	-------	--------------	---------------

AIR FUEL RATIO SENSOR

Standard resistance	1(HA1A) - 2(+B)	20 °C (68°F)	1.8 to 3.4 Ω
---------------------	-----------------	--------------	--------------

HEATED OXYGEN SENSOR

Standard resistance	1(HT1B) - 2(+B)	20 °C (68°F)	11 to 16 Ω
---------------------	-----------------	--------------	------------



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000024RV000X
Title: SERVICE SPECIFICATIONS: 2AR-FE ENGINE CONTROL SYSTEM: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

CAMSHAFT TIMING OIL CONTROL VALVE

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Camshaft timing oil control valve (for Exhaust Side) x Cylinder head cover	10	102	7
Camshaft timing oil control valve (for Intake Side) x Cylinder head cover	10	102	7

THROTTLE BODY

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Throttle body x Intake manifold	10	102	7

ECM

PART TIGHTENED	N*M	KG*CM	FT.*LBF
ECM with bracket x Body	6.5	66	58 in.*lbf
Air cleaner case x Body	5.0	51	44 in.*lbf

ACCELERATOR PEDAL

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Accelerator pedal x Body	5.4	55	48 in.*lbf

CAMSHAFT POSITION SENSOR

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Camshaft position sensor x Cylinder head cover	10	102	7

CRANKSHAFT POSITION SENSOR

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Crankshaft position sensor x Timing chain cover	6.5	66	58 in.*lbf

ENGINE COOLANT TEMPERATURE SENSOR

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Engine coolant temperature sensor x Cylinder head	20	204	15

KNOCK SENSOR

SERVICE SPECIFICATIONS: 2AR-FE ENGINE CONTROL SYSTEM... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Knock sensor x Cylinder block	20	204	15

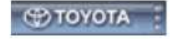
AIR FUEL RATIO SENSOR

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Air fuel ratio sensor (for Bank 1 Sensor 1)x Exhaust manifold	44 (40)	449 (408)	32 (30)

HEATED OXYGEN SENSOR

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Heated oxygen sensor (for Bank 1 Sensor 2)x Front exhaust pipe assembly	44 (40)	449 (408)	32 (30)

(): For use with SST



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003SIP00BX
Title: SERVICE SPECIFICATIONS: 2AR-FE ENGINE MECHANICAL: SERVICE DATA (2011 RAV4)		

SERVICE DATA

ENGINE

Ignition timing	with Terminals TC and CG connected of DLC3	8 to 12° BTDC @ idle
	without Terminals TC and CG connected of DLC3	5 to 15° BTDC @ idle
Idle speed		600 to 700 rpm (Transmission neutral position)
Compression	Standard	1450 kPa (14.7 kgf/cm ² , 210 psi) or higher
	Minimum	980 kPa (9.9 kgf/cm ² , 142 psi)
	Difference	200 kPa (2.0 kgf/cm ² , 29 psi) or less

CYLINDER HEAD

Warpage	Cylinder head lower side		0.05 mm (0.00197 in.)
	Intake manifold side		0.10 mm (0.0394 in.)
	Exhaust manifold side		0.10 mm (0.0394 in.)
Compression spring	Free length		50.0 mm (1.97 in.)
	Maximum deviation		1.0 mm (0.0394 in.)
	Maximum angle		2°
Intake valve	Valve stem diameter		5.470 mm to 5.485 mm (0.2151 to 0.2157 in.)
	Margin thickness	Standard	1.0 mm (0.0394 in.)
		Minimum	0.50 mm (0.0197 in.)
	Overall length	Standard	103.92 mm (4.09 in.)
		Minimum	103.42 mm (4.07 in.)
Exhaust valve	Valve stem diameter		5.465 mm to 5.480 mm (0.2153 to 0.2159 in.)
	Margin thickness	Standard	1.0 mm (0.0394 in.)
		Minimum	0.50 mm (0.0197 in.)
	Overall length	Standard	112.91 mm (4.44 in.)
		Minimum	112.41 mm (4.43 in.)
Valve guide bush	Bush inside diameter		5.510 to 5.530 mm (0.2169 to 0.2177 in.)
	Standard oil clearance	Intake	0.025 to 0.060 mm (0.00098 to 0.00236 in.)

	Maximum oil clearance	Exhaust	0.030 to 0.065 mm (0.00118 to 0.00256 in.)
		Intake	0.08 mm (0.00315 in.)
		Exhaust	0.10 mm (0.00394 in.)
	Bush bore diameter (Cylinder head side)		10.285 to 10.306 mm (0.405 to 0.406 in.)
	Bush bore diameter (Valve guide bush)	Standard	10.333 to 10.344 mm (0.4068 to 0.4072 in.)
		O/S 0.05	10.383 to 10.394 mm (0.4088 to 0.4092 in.)
	Bush length	Intake	41.3 to 41.7 mm (1.626 to 1.642 in.)
		Exhaust	46.8 to 47.2 mm (1.843 to 1.858 in.)
	Protrusion height	Intake	14.8 to 15.2 mm (0.582 to 0.598 in.)
		Exhaust	14.2 to 14.6 mm (0.559 to 0.575 in.)
Camshaft oil clearance	Standard oil clearance	Intake No. 1 journal	0.035 to 0.072 mm (0.00137 to 0.00283 in.)
		Exhaust No. 1 journal	0.049 to 0.086 mm (0.00193 to 0.00339 in.)
		Other journal	0.025 to 0.062 mm (0.00098 to 0.00244 in.)
	Maximum oil clearance	Intake No. 1 journal	0.085 mm (0.00335 in.)
		Exhaust No. 1 journal	0.095 mm (0.00374 in.)
		Other journal	0.085 mm (0.00335 in.)
Camshaft thrust clearance	Standard		0.060 to 0.155 mm (0.00236 to 0.00610 in.)
	Maximum		0.170 mm (0.00669 in.)
Spark plug tube	Standard protrusion height		112 mm (4.41 in.)
Cylinder head ring pin	Standard protrusion height		6.5 to 7.5 mm (0.256 to 0.295 in.)
Intake valve seat	Standard width	Inspection	1.1 and 1.5 mm (0.0433 and 0.0591 in.)
		Repair	1.0 to 1.4 mm (0.0394 to 0.0551 in.)
Exhaust valve seat	Standard width	Inspection	1.1 and 1.5 mm (0.0433 and 0.0591 in.)
		Repair	1.2 to 1.6 mm (0.0472 to 0.0630 in.)

CYLINDER BLOCK

Connecting rod thrust clearance	Standard	0.160 to 0.512 mm (0.00630 to 0.00202 in.)
	Maximum	0.512 mm (0.00202 in.)

Connecting rod oil clearance	Standard		0.030 to 0.063 mm (0.00118 to 0.00248 in.)
	Maximum		0.07 mm (0.00276 in.)
Crank pin	Standard diameter		51.492 to 51.500 mm (2.0272 to 2.0276 in.)
Connecting rod big end inside diameter	Mark 1		54.500 to 54.508 mm (2.1457 to 2.1460 in.)
	Mark 2		54.509 to 54.516 mm (2.1460 to 2.1463 in.)
	Mark 3		54.517 to 54.524 mm (2.1463 to 2.1466 in.)
Bearing center wall thickness	Mark 1		1.483 to 1.487 mm (0.0584 to 0.0585 in.)
	Mark 2		1.488 to 1.491 mm (0.0586 to 0.0587 in.)
	Mark 3		1.492 to 1.495 mm (0.0587 to 0.0589 in.)
Crankshaft thrust clearance	Standard		0.04 to 0.24 mm (0.00157 to 0.00945 in.)
	Maximum		0.30 mm (0.0118 in.)
Thrust washer	Standard thickness		1.93 to 1.98 mm (0.0760 to 0.0780 in.)
Cylinder block	Maximum warp		0.05 mm (0.00197 in.)
	Cylinder bore	Standard	90.000 to 90.013 mm (3.543 to 3.544 in.)
		Maximum	90.133 mm (3.549 in.)
Piston	Standard diameter		89.980 to 89.990 mm (3.5425 to 3.5429 in.)
	Oil clearance	Standard	0.010 to 0.033 mm (0.000394 to 0.00130 in.)
		Maximum	0.10 mm (0.00394 in.)
Piston ring	Ring groove clearance	No. 1 ring	0.020 to 0.070 mm (0.000787 to 0.00276 in.)
		No. 2 ring	0.020 to 0.060 mm (0.000787 to 0.00236 in.)
		Oil ring	0.020 to 0.070 mm (0.000787 to 0.00276 in.)
	Standard end gap	No. 1 ring	0.22 to 0.27 mm (0.00866 to 0.0106 in.)
		No. 2 ring	0.37 to 0.42 mm (0.0146 to 0.0165 in.)

Piston pin	Maximum end gap	Oil ring	0.10 to 0.20 mm (0.00394 to 0.00787 in.)
		No. 1 ring	0.87 mm (0.0342 in.)
		No. 2 ring	1.02 mm (0.0402 in.)
		Oil ring	0.80 mm (0.0315 in.)
	Piston pin hole inside diameter	Mark A	22.001 to 22.004 mm (0.86618 to 0.86630 in.)
		Mark B	22.005 to 22.007 mm (0.86634 to 0.86642 in.)
		Mark C	22.008 to 22.010 mm (0.86645 to 0.86653 in.)
	Piston pin diameter	Mark A	21.997 to 22.000 mm (0.86602 to 0.86614 in.)
		Mark B	22.001 to 22.003 mm (0.86617 to 0.86626 in.)
		Mark C	22.004 to 22.006 mm (0.86630 to 0.86638 in.)
	Connecting rod small end bush inside diameter	Mark A	22.005 to 22.008 mm (0.86634 to 0.86645 in.)
		Mark B	22.009 to 22.011 mm (0.86649 to 0.86657 in.)
		Mark C	22.012 to 22.014 mm (0.86661 to 0.86669 in.)
	Oil clearance (Piston side)	Standard	0.001 to 0.007 mm (0.0000394 to 0.000276 in.)
		Maximum	0.013 mm (0.000512 in.)
	Oil clearance (Connecting rod side)	Standard	0.005 to 0.011 mm (0.000197 to 0.000433 in.)
		Maximum	0.017 mm (0.000669 in.)
Connecting rod	Maximum bend		0.05 mm (0.00197 in.) per 100 mm (3.94 in.)
	Maximum twist		0.15 mm (0.00591 in.) per 100 mm (3.94 in.)
Crankshaft	Maximum circle runout		0.003 mm (0.000118 in.)
	Standard main journal diameter		54.988 to 55.000 mm (2.1649 to 2.1654 in.)
	Maximum main journal taper and out-of-round		0.003 mm (0.000118 in.)
	Standard crank pin diameter		51.492 to 51.500 mm (2.027 to 2.028 in.)

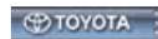
	Maximum crank pin taper and out-of-round		0.003 mm (0.000118 in.)
	Oil clearance	Standard	0.016 to 0.039 mm (0.000630 to 0.00154 in.)
		Maximum	0.05 mm (0.00197 in.)
Cylinder block journal inside diameter (A)	Mark 0		59.000 to 59.002 mm (2.32283 to 2.32291 in.)
	Mark 1		59.003 to 59.004 mm (2.32295 to 2.32299 in.)
	Mark 2		59.005 to 59.006 mm (2.32303 to 2.32307 in.)
	Mark 3		59.007 to 59.009 mm (2.32311 to 2.32318 in.)
	Mark 4		59.010 to 59.011 mm (2.32322 to 2.32326 in.)
	Mark 5		59.012 to 59.013 mm (2.32330 to 2.32334 in.)
	Mark 6		59.014 to 59.016 mm (2.32338 to 2.32346 in.)
Crankshaft main journal diameter (B)	Mark 0		54.999 to 55.000 mm (2.16531 to 2.16535 in.)
	Mark 1		54.997 to 54.998 mm (2.16523 to 2.16527 in.)
	Mark 2		54.995 to 54.996 mm (2.16515 to 2.16519 in.)
	Mark 3		54.993 to 54.994 mm (2.16507 to 2.16511 in.)
	Mark 4		54.991 to 54.992 mm (2.16500 to 2.16504 in.)
	Mark 5		54.988 to 54.990 mm (2.16488 to 2.16496 in.)
Bearing center wall thickness	Mark 1		1.991 to 1.994 mm (0.07839 to 0.07850 in.)
	Mark 2		1.995 to 1.997 mm (0.07854 to 0.07862 in.)
	Mark 3		1.998 to 2.000 mm (0.07866 to 0.07874 in.)
	Mark 4		2.001 to 2.003 mm (0.07878 to 0.07886 in.)
Crankshaft bearing cap bolt	Measuring point		58.5 mm (2.30 in.)
	Standard diameter		9.77 to 9.96 mm (0.385 to 0.392 in.)

	Minimum diameter		9.1 mm (0.358 in.)
Connecting rod bolt	Standard		8.5 to 8.6 mm (0.335 to 0.339 in.)
	Minimum		8.3 mm (0.327 in.)
Cylinder block ring pin	Protrusion height	Ring pin A	5.0 to 7.0 mm (0.197 to 0.276 in.)
		Ring pin B	4.0 to 7.0 mm (0.157 to 0.276 in.)
Cylinder block straight pin	Protrusion height	Straight pin A	11.0 to 13.0 mm (0.433 to 0.512 in.)
		Straight pin B	5.0 to 7.0 mm (0.197 to 0.276 in.)
Crankshaft bearing	Dimension A - B or B - A: 0 to 0.7 mm (0 to 0.0276 in.)		
Connecting rod bearing	Dimension A - B or B - A: 0 to 0.7 mm (0 to 0.0276 in.)		

ENGINE UNIT

Crankshaft backlash	Standard		0.005 to 0.020 mm (0.000197 to 0.000787 in.)
	Maximum		0.020 mm (0.000787 in.)
Camshaft	Maximum circle runout		0.03 mm (0.00118 in.)
	Journal diameter	No. 1 journal	34.449 to 34.465 mm (1.356 to 1.357 in.)
		Other journals	22.959 to 22.975 mm (0.904 to 0.905 in.)
Cam lobe height	Standard	Intake	44.163 to 44.305 mm (1.739 to 1.744 in.)
		Exhaust	44.144 to 44.286 mm (1.738 to 1.744 in.)
	Minimum	Intake	44.013 mm (1.733 in.)
		Exhaust	43.996 mm (1.732 in.)
Timing chain	Maximum chain elongation		137.7 mm (5.42 in.)
Crankshaft timing sprocket	Minimum sprocket diameter (with chain)		59.94 mm (2.36 in.)
Chain tensioner slipper	Maximum depth		1.0 mm (0.0394 in.)
No. 1 chain vibration damper	Maximum depth		1.0 mm (0.0394 in.)
Timing chain guide	Maximum depth		1.0 mm (0.0394 in.)
No. 1 balance shaft	Thrust clearance	Standard	0.05 to 0.09 mm (0.00197 to 0.00354 in.)
		Maximum	0.09 mm (0.00354 in.)

No. 2 balance shaft	Thrust clearance	Standard	0.05 to 0.09 mm (0.00197 to 0.00354 in.)
		Maximum	0.09 mm (0.00354 in.)
Balance shaft backlash	Standard		0.04 to 0.17 mm (0.00154 to 0.00669 in.)
	Maximum		0.17 mm (0.00669 in.)
Cylinder head bolt	Measuring point		106 mm (4.17 in.)
	Standard diameter		10.85 to 11.00 mm (0.427 to 0.433 in.)
	Minimum diameter		10.6 mm (0.417 in.)
Exhaust manifold converter	Maximum warpage		0.7 mm (0.0276 in.)
Stiffening crankcase ring pin	Protrusion height		4.3 to 5.3 mm (0.169 to 0.209 in.)
Camshaft bearing cap setting ring pin	Protrusion height		2.7 to 3.3 mm (0.106 to 0.130 in.)
Camshaft housing straight pin	Protrusion height		5.0 to 7.0 mm (0.197 to 0.276 in.)
No. 1 camshaft bearing	Dimension A - B or B - A: 0 to 0.7 mm (0 to 0.0276 in.)		
No. 2 camshaft bearing	Standard distance		1.15 to 1.85 mm (0.0453 to 0.0728 in.)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003SIQ00BX
Title: SERVICE SPECIFICATIONS: 2AR-FE ENGINE MECHANICAL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

ENGINE

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Spark plug x Cylinder head	25	254	18
Ignition coil x Cylinder head cover	10	102	7

DRIVE BELT

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Radiator reservoir x Body	5.0	51	44 in.*lbf

CAMSHAFT

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Camshaft bearing cap x Camshaft housing	16	163	12
Camshaft housing x Cylinder head	27	275	20
Camshaft timing gear x No. 1 camshaft	85	867	63
Camshaft timing exhaust gear x No. 2 camshaft	85	867	63
No. 1 chain vibration damper x Cylinder head, Cylinder block	21	214	15
Chain tensioner slipper x Cylinder head	21	214	15
No. 1 chain tensioner x Cylinder block	10	102	7
Timing chain guide x Camshaft housing	21	214	15

CYLINDER HEAD GASKET

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Cylinder head x Cylinder block	1st	36	367
	2nd	36	367
	3rd	Turn 90°	Turn 90°
	4th	Turn 90°	Turn 90°

CYLINDER HEAD

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Stud bolt x Cylinder head	9.5	97	84 in.*lbf

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 1 straight screw plug x Cylinder head	44	449	32
No. 2 straight screw plug x Cylinder head	78	795	58

CYLINDER BLOCK

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Stud bolt x Cylinder block	Stud bolt A	9.5	97	84 in.*lbf
	Stud bolt B	21	214	15
No. 2 oil nozzle x Cylinder block		10	102	7
No. 1 oil nozzle x Cylinder block		10	102	7
Crankshaft bearing cap x Cylinder block	1st	20	204	15
	2nd	40	408	30
	3rd	Turn 90°	Turn 90°	Turn 90°
Connecting rod cap x Connecting rod	1st	40	408	30
	2nd	Turn 90°	Turn 90°	Turn 90°

ENGINE REAR OIL SEAL

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Drive plate and ring gear x Crankshaft	98	999	72

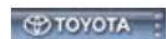
ENGINE ASSEMBLY

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
No. 1 and No. 2 engine hanger x Cylinder head		43	438	32
Engine mounting insulator LH x Body		95	969	70
Air cleaner bracket x Engine mounting insulator LH		13	133	10
Engine mounting spacer x Body		95	969	70
Engine mounting insulator RH x Engine mounting spacer, Body		95	969	70
Radiator reservoir bracket x Engine mounting insulator RH		5.0	51	44 in.*lbf
Rear engine mounting insulator x Front suspension crossmember		95	969	70
Rear engine mounting insulator x Rear engine mounting bracket		95	969	70
Engine mounting insulator LH x Engine mounting bracket LH		56	571	41
Engine mounting insulator RH x Engine mounting bracket RH	for bolt and nut A	95	969	70
	for nut B	52	530	38
Front suspension crossmember x Body	for bolt A	137	1397	101
	for bolt B	137	1397	101

PART TIGHTENED		N*M	KG*CM	FT.*LBF
	for bolt C	93	948	69
Front crossmember x Body, Front engine mounting insulator	for bolt A	96	979	71
	for bolt B	95	969	70
Front engine mounting insulator x Front engine mounting bracket		145	1479	107
Front suspension member reinforcement LH x Front suspension crossmember, Body		96	979	71
Front suspension member reinforcement RH x Front suspension crossmember, Body		96	979	71
Torque converter setting bolt x Torque convertor		41	418	30
Ground wire x Cylinder head cover		19	194	14
Engine wire x Engine junction block		13	130	9
Engine wire x Body		8.4	86	74 in.*lbf
Starter wire harness x Starter		9.8	100	87 in.*lbf

ENGINE UNIT

PART TIGHTENED		N*M	KG*CM	FT.*LBF
Stud bolt x Stiffening crankcase	for stud bolt A	5.0	51	44 in.*lbf
	for stud bolt B	9.5	97	84 in.*lbf
Engine balancer x Stiffening crankcase		24	245	18
Stiffening crankcase x Cylinder block	for bolt A	24	245	18
	except bolt A	43	438	32
No. 1 oil pan baffle plate x Stiffening crankcase		10	102	7
Oil strainer x Stiffening crankcase		10	102	7
Oil pan x Stiffening crankcase		10	102	7
Stud bolt x Camshaft housing		9.5	97	84 in.*lbf
Timing chain cover plate x Timing chain cover		10	102	7
Timing chain cover tight plug x Timing Chain cover		30	306	22
Crankshaft pulley x Crankshaft		260	2651	192
Water inlet housing x Cylinder block		43	438	32
No. 1 water by-pass pipe x Water inlet housing, Cylinder block		10	102	7
Separator case x Ventilation case		10	102	7
Ventilation case x Cylinder block		21	214	15
Engine cover joint x Cylinder head cover, Camshaft housing		10	102	7
No. 1 compressor mounting bracket x Cylinder block, Stiffening crankcase		21	214	15
Engine oil level dipstick guide x Water inlet housing		10	102	7

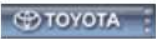


SERVICE SPECIFICATIONS: 2AR-FE EXHAUST: SERVICE DATA (... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000026W200KX
Title: SERVICE SPECIFICATIONS: 2AR-FE EXHAUST: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Compression spring (Front exhaust pipe assembly x Exhaust manifold)	Minimum length: 41.5 mm (1.63 in)
Compression spring (Center exhaust pipe assembly x Tailpipe assembly)	Minimum length: 38.5 mm (1.52 in.)

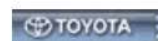


cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000026W300LX
Title: SERVICE SPECIFICATIONS: 2AR-FE EXHAUST: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

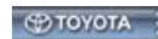
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Exhaust manifold converter x No. 1 manifold converter insulator	12	122	9
Exhaust manifold converter x Cylinder head	35	357	26
Exhaust manifold converter x No. 2 exhaust manifold heat insulator	12	122	9
Exhaust manifold converter x No. 1 exhaust manifold heat insulator	12	122	9
Exhaust manifold converter x No. 2 manifold stay	43	438	32
Exhaust manifold converter x Manifold stay	43	438	32
Front exhaust pipe assembly x Exhaust manifold	43	438	32
Center exhaust pipe assembly x Front exhaust pipe assembly	43	438	32
Tailpipe assembly x Center exhaust pipe assembly	43	438	32



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000026Q200HX
Title: SERVICE SPECIFICATIONS: 2AR-FE FUEL: SERVICE DATA (2011 RAV4)		

SERVICE DATA

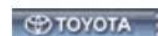
Fuel pressure			304 to 343 kPa (3.1 to 3.5 kgf/cm ² , 44 to 50 psi)	
Fuel injector	Standard resistance	20°C (68°F)	11.6 to 12.4 Ω	
	Standard injection volume		88 to 106 cc (5.4 to 6.5 cu in.) per 15 seconds	
	Standard difference between each injector		16 cc (1.0 cu in.) or less	
	Standard fuel drop		1 drop or less per 20 minutes	
Fuel pump	Standard resistance	20°C (68°F)	0.2 to 3.0 Ω	
Fuel sender gauge assembly	Standard resistance		Float level is F (upper)	13.5 to 16.5 Ω
			Float level is 1/2	200.2 to 224.8 Ω
			Float level is E (lower)	405.5 to 414.5 Ω



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000026Q300HX
Title: SERVICE SPECIFICATIONS: 2AR-FE FUEL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Fuel delivery pipe x Cylinder head	21	214	15
Wire harness x Intake manifold	10	102	7
Fuel delivery pipe x Fuel pressure pulsation damper	10	102	7
Fuel tank vent tube set plate x Fuel tank	4.0	41	35 in.*lbf
Fuel tank band x Body	40	408	30
Fuel tank filler pipe x Body	24	240	17
Filler pipe protector x Body	5.4	55	48 in.*lbf
Fuel sender gauge assembly x Fuel tank	1.5	15	13 in.*lbf



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000020JY00JX
Title: SERVICE SPECIFICATIONS: 2AR-FE IGNITION: SERVICE DATA (2011 RAV4)		

Spark Plug	Recommended spark plug	DENSO made: SK16HR11
	Standard electrode gap	1.0 to 1.1 mm (0.039 to 0.043 in.) for new spark plug
	Maximum electrode gap	1.3 mm (0.051 in.) for used spark plug



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000020JZ00JX
Title: SERVICE SPECIFICATIONS: 2AR-FE IGNITION: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Spark plug x Cylinder head sub-assembly	25	254	18
Ignition coil assembly x Cylinder head cover	10	102	7



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003SJK00DX
Title: SERVICE SPECIFICATIONS: 2AR-FE INTAKE: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Vacuum switching valve assembly (for ACIS)

TESTER CONNECTION	SPECIFIED CONDITION
1 - 2	37 to 44 Ω at 20°C (68°F)
1 - Body ground 2 - Body ground	1 MΩ or higher



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003SJL00DX
Title: SERVICE SPECIFICATIONS: 2AR-FE INTAKE: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Wiring harness clamp bracket x Intake manifold	10	102	7
Intake manifold x Cylinder head	21	214	15
Vacuum switching valve assembly (for ACIS) x Intake manifold	9.0	92	80 in.*lbf
Hose to hose tube x Body	5.4	55	48 in.*lbf
Cowl top outer panel x Body	7.0	71	62 in.*lbf
Intake air control valve actuator (for TCV) x Intake manifold	6.0	61	53 in.*lbf



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003RUL00BX
Title: SERVICE SPECIFICATIONS: 2AR-FE LUBRICATION: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Oil pressure

CONDITION	SPECIFIED CONDITION
Idle	30 kPa (0.3 kgf/cm ² , 4.4 psi) or more
4000 rpm	260 kPa (2.7 kgf/cm ² , 38 psi) or more

Oil pressure switch

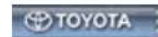
TESTER CONDITION	CONDITION	SPECIFIED CONDITION
1 - Body ground	Engine stopped	Below 1 Ω
	Engine idling	10 k Ω or higher



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003RUM00BX
Title: SERVICE SPECIFICATIONS: 2AR-FE LUBRICATION: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Oil pressure switch x Cylinder head		15	153	11
Oil filter cap x Stiffening crankcase		25	255	18
Oil filter drain plug x Oil filter cap		13	127	9
Oil pan drain plug x Oil pan		40	408	30
Timing chain cover x Cylinder block, Cylinder head, Cam housing, Stiffening crankcase	Bolt A	21	214	15
	Bolt B	55	561	41
	Bolt C	21	214	15
	Nut	21	214	15
Engine mounting bracket RH x Timing chain cover	Bolt 1, 2, 3	55	561	41
	Bolt 4	21	214	15
Cylinder head cover x Cam housing		12	122	9



SERVICE SPECIFICATIONS: 2AR-FE STARTING: SERVICE DATA ... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000198700IX
Title: SERVICE SPECIFICATIONS: 2AR-FE STARTING: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Starter assembly		No-load characteristics current	90 A or less at 11.5 V
Starter armature assembly		Standard commutator length	3.1 to 3.8 mm (0.122 to 0.150 in.)
Commutator end frame assembly	Brush	Standard length	4.0 to 9.0 mm (0.158 to 0.359 in.)
Snap ring		Maximum length	5.0 mm (0.197 in.)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000198800FX
Title: SERVICE SPECIFICATIONS: 2AR-FE STARTING: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Commutator end frame x Starter drive housing		6.0	61	53 in.*lbf
Magnet starter switch x Repair service starter kit		7.5	76	66 in.*lbf
Terminal C x Starter assembly		10	102	7
Starter assembly x Cylinder Block		37	377	27
Terminal 30 x Starter assembly		9.8	100	87 in.*lbf
Battery bracket reinforcement x Body		20	204	15
Front battery bracket x Battery bracket reinforcement	for bolt (A)	20	204	15
	for bolt (B)	19	196	14
Battery clamp x Body	for bolt	17	168	12
	for nut	4.9	50	43 in.*lbf



SERVICE SPECIFICATIONS: AIR CONDITIONING: SERVICE DATA... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028CW007X
Title: SERVICE SPECIFICATIONS: AIR CONDITIONING: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Refrigerant charge volume	for 2AR-FE	Standard: 450 +- 30 g (15.9 +- 1.1 oz.)
	for 2GR-FE	Standard: 490 +- 30 g (17.3 +- 1.1 oz.)



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028CX007X
Title: SERVICE SPECIFICATIONS: AIR CONDITIONING: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

REFRIGERANT LINE

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Discharge hose sub-assembly x Cooler compressor assembly	9.8	100	7
Suction hose sub-assembly x Cooler compressor assembly	9.8	100	7
Discharge hose sub-assembly x Cooler condenser assembly	9.8	100	7
Suction hose sub-assembly x Cooler condenser assembly	9.8	100	7
Suction tube sub-assembly x Suction hose sub-assembly	9.8	100	7
Plate x Body	9.8	100	7

AIR CONDITIONING UNIT

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Instrument panel reinforcement assembly x Body	20	204	15
No. 2 instrument panel brace sub-assembly x Instrument panel reinforcement	9.8	100	7
No. 2 instrument panel brace sub-assembly x Body	9.8	100	7
Air conditioning unit assembly x Instrument panel reinforcement	9.8	100	7
Air conditioning unit assembly x Body	9.8	100	7
Cooler expansion valve x No. 1 cooler evaporator sub-assembly	3.5	35	30 in.*lbf

COMPRESSOR AND PULLEY (for 2AR-FE)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Radiator reservoir assembly x Vehicle body	5.0	51	44 in.*lbf
Front suspension member reinforcement x Vehicle body	96	979	71
No. 1 cooler refrigerant suction hose x Cooler compressor assembly	9.8	100	7
No. 1 cooler refrigerant discharge hose x Cooler compressor assembly	9.8	100	7
Cooler compressor assembly x Engine	25	255	18

COMPRESSOR AND PULLEY (for 2GR-FE)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Radiator reservoir assembly x Vehicle body	5.0	51	44 in.*lbf
Front suspension member reinforcement x Vehicle body	96	979	71

SERVICE SPECIFICATIONS: AIR CONDITIONING: TORQUE SPEC... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 1 cooler refrigerant suction hose x Cooler compressor assembly	9.8	100	7
No. 1 cooler refrigerant discharge hose x Cooler compressor assembly	9.8	100	7
Cooler compressor assembly x Engine	25	255	18
Magnet clutch assembly x Cooler compressor assembly	18	183	13

CONDENSER

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 1 cooler refrigerant discharge hose x Cooler condenser assembly	9.8	100	7
Cooler refrigerant liquid pipe x Cooler condenser assembly	9.8	100	7
Cap x Cooler condenser assembly	5.4	55	48 in.*lbf
No. 2 fan shroud x Cooler condenser	10.5	107	8
Upper radiator support bracket x Upper radiator support	45	459	33



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003FFR00DX
Title: SERVICE SPECIFICATIONS: AUDIO / VISUAL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Radio Receiver

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Radio receiver assembly with bracket x Instrument panel	for bolt	12.8	130	9

Stereo Component Amplifier

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Stereo component amplifier assembly with bracket x Body		7.4	75	65 in.*lbf

Amplifier Antenna

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Amplifier Antenna x Body		4.6	46	40 in.*lbf

Noise Filter

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Noise Filter x Engine		7.0	71	61 in.*lbf



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028MG006X
Title: SERVICE SPECIFICATIONS: AXLE: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Axle

Front axle hub backlash	Maximum: 0.05 mm (0.0020 in.)
Front axle hub deviation	Maximum: 0.05 mm (0.0020 in.)
Rear axle hub backlash	Maximum: 0.05 mm (0.0020 in.)
Rear axle hub deviation	Maximum for 2WD: 0.08 mm (0.0031 in.) Maximum for 4WD: 0.06 mm (0.0024 in.)



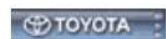
cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028MH006X
Title: SERVICE SPECIFICATIONS: AXLE: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Axle

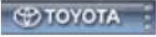
PART TIGHTENED		N*M	KG*CM	FT.*LBF
Front wheel		103	1050	76
Rear wheel		103	1050	76
Steering knuckle x Lower ball joint		133	1356	98
Steering knuckle x Suspension Lower No. 1 arm		92	938	68
Steering knuckle x Front axle hub		96	976	71
Steering knuckle x Front disc brake cylinder		107	1089	79
Steering knuckle x Front speed sensor bolt		8.5	87	75 in.*lbf
Front drive shaft x Front axle hub nut	φ26	216	2,203	159
	φ30	292	2,978	215
Front shock absorber x Steering knuckle		240	2447	177
Rear drive shaft x Rear axle shaft nut	4WD	216	2203	159
Rear shock absorber x Rear Axle carrier		80	816	59
Rear axle carrier x Rear disc brake cylinder		88	897	65
Rear axle carrier x Rear axle hub and bearing		90	918	66
Rear suspension member x Rear No. 1 suspension arm		120	1224	89
Rear axle carrier x Rear No. 1 suspension arm		100	1020	74
Rear axle carrier x Skid control sensor wire: for 2WD	Bolt	8.5	87	75
	Nut	5.0	51	44
Rear axle carrier x Rear speed sensor: for 4WD		8.5	87	75



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000260N00DX
Title: SERVICE SPECIFICATIONS: BRAKE CONTROL: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Brake pedal load sensing switch INFO	Resistance 1 - 2	Brake pedal depressed	Approx. 1 kΩ
		Brake pedal released	Approx. 213 Ω
Downhill assist control switch INFO	Resistance 1 - 4	Switch pushed in	Bellow 25 Ω
		Not pushed	10 kΩ or higher
VSC OFF switch INFO	Resistance 6 - 9	Switch pushed in	Bellow 1 Ω
		Not pushed	10 kΩ or higher



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000260000DX
Title: SERVICE SPECIFICATIONS: BRAKE CONTROL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Brake Actuator

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Brake actuator x Brake actuator bracket	5.4	55	48 in.*lbf
Brake actuator with bracket x Body	19	194	14
Brake actuator x Brake tube (without union nut wrench)	15	155	11
Brake actuator x Brake tube (with union nut wrench)	14	145	10

Front Speed Sensor

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front speed sensor body x Knuckle	8.5	87	75 in.*lbf
Front speed sensor clamp/Flexible hose clamp x Flexible hose bracket	19	189	14
Front speed sensor clamp x Side member	8.5	87	75 in.*lbf

Rear Speed Sensor (for 2WD)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear speed sensor clamp bolt	8.5	87	75 in.*lbf
Rear speed sensor clamp nut	5.0	51	44 in.*lbf

Rear Speed Sensor (for 4WD)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear speed sensor body x Carrier	8.5	87	75 in.*lbf
Rear speed sensor clamp bolt	8.5	87	75 in.*lbf
Rear speed sensor clamp nut	5.0	51	44 in.*lbf

Yaw Rate Sensor

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Yaw rate sensor assembly x Body	15	148	11
Yaw rate sensor bracket x Body	15	148	11



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000260P00LX
Title: SERVICE SPECIFICATIONS: BRAKE: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Stop Light Switch

Stop light switch INFO	Resistance 1 - 2	Switch pin released	Below 1 Ω
	Resistance 1 - 2	Switch pin pushed in	10 k Ω or higher

Brake Pedal Load Sensing Switch

Brake pedal load sensing switch INFO	Resistance 1 - 2	Brake pedal depressed	Approx. 1 k Ω
	Resistance 1 - 2	Brake pedal released	Approx. 213 Ω

Brake Pedal

Brake pedal height from dash panel INFO	184.2 to 194.2 mm (7.252 to 7.646 in.)
Stop light switch clearance INFO	1.5 to 2.5 mm (0.0591 to 0.0984 in.)
Brake pedal free play INFO	1.0 to 6.0 mm (0.0394 to 0.236 in.)
Brake pedal reserve distance from dash panel INFO	See the table below.

Brake Pedal Reserve Distance from Dash Panel

ENGINE	SPECIFIED CONDITION
2AR-FE (w/o 3rd seat)	More than 95 mm (3.74 in.)
2AR-FE (w/ 3rd seat)	More than 120 mm (4.72 in.)
2GR-FE (w/o 3rd seat)	More than 120 mm (4.72 in.)
2GR-FE (w/ 3rd seat)	More than 120 mm (4.72 in.)

Brake Fluid Level Warning Switch

Brake fluid level warning switch INFO	Resistance 1 - 2	Float up (Switch OFF)	10 k Ω or higher
	Resistance 1 - 2	Float down (Switch ON)	Below 1 Ω

Brake Booster

Booster push rod and pin head (SST) clearance	-0.21 to 0 mm (-0.00827 to 0 in.)
---	-----------------------------------

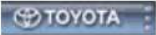
INFO	
------	--

Front Brake

Pad lining thickness INFO		Standard	12.0 mm (0.472 in.)
		Minimum	1.0 mm (0.0394 in.)
Disc thickness INFO	10.83 inch disc	Standard	25.0 mm (0.984 in.)
		Minimum	22.0 mm (0.866 in.)
	11.70 inch disc	Standard	28.0 mm (1.102 in.)
		Minimum	25.0 mm (0.984 in.)
Disc runout INFO		Maximum	0.05 mm (0.00197 in.)

Rear Brake

Pad lining thickness INFO	Standard	10.5 mm (0.413 in.)
	Minimum	1.0 mm (0.0394 in.)
Disc thickness INFO	Standard	12.0 mm (0.472 in.)
	Minimum	10.5 mm (0.413 in.)
Disc runout INFO	Maximum	0.15 mm (0.00591 in.)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000260Q00KX
Title: SERVICE SPECIFICATIONS: BRAKE: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Brake Pedal

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Brake pedal support x Body	13	130	9
Brake pedal support x Instrument panel reinforcement	24	241	17
Stop light switch	1.5 or less	15 or less	13 in.*lbf or less

Brake Master Cylinder

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Brake master cylinder x Brake booster	13	127	9
Brake master cylinder x Brake tube	15	155	11

Brake Booster

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Brake booster x Brake pedal support	13	130	9
Push rod clevis lock nut	26	265	19
Cowl body mounting reinforcement LH x Body	50	510	37
Cowl top panel outer sub-assembly x body	7.5	76	66 in.*lbf

Front Brake

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Bleeder plug	8.3	85	73 in.*lbf
Cylinder mounting x Knuckle	107	1089	79
Cylinder x Cylinder mounting	34	350	25
Flexible hose x Cylinder	29	300	22

Front Brake Flexible Hose

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Flexible hose x Brake cylinder	29	300	22
Flexible hose clamp bolt	19	189	14
Flexible hose x Brake tube	15	155	11

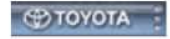
Rear Brake

SERVICE SPECIFICATIONS: BRAKE: TORQUE SPECIFICATIONS ... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Bleeder plug	8.3	85	73 in.*lbf
Cylinder mounting x Carrier	88	897	65
Cylinder x Cylinder mounting	27	270	20
Flexible hose x Cylinder	39	400	29

Rear Brake Flexible Hose

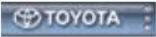
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Flexible hose x Brake cylinder	39	400	29
Flexible hose x Brake tube	15	155	11



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000282Y006X
Title: SERVICE SPECIFICATIONS: CRUISE CONTROL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Cruise control main switch assembly x Steering wheel assembly	1.7 to 3.0	17.34 to 30.60	15.04 to 26.55 in.*lbf



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028ME006X
Title: SERVICE SPECIFICATIONS: DIFFERENTIAL: SERVICE DATA (2011 RAV4)		

SERVICE DATA

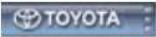
Differential

Rear differential carrier oil seal drive in depth	7.0 +-0.5 mm (0.28 +-0.02 in.)
Rear differential side gear shaft oil seal drive in depth	7.2 +-0.5 mm (0.28 +-0.02 in.)
Differential ring gear backlash	0.09 to 0.16 mm (0.0034 to 0.0063 in.)
Companion flange runout	Maximum vertical runout: 0.06 mm (0.0023 in.) Maximum lateral runout: 0.07 mm (0.0028 in.)
Drive pinion preload (start torque)	New bearing: 1.31 to 2.18 N*m (13 to 22 kgf*cm, 12 to 19 in.*lbf) Reused bearing: 0.24 to 0.37 N*m (2 to 4 kgf*cm, 2 to 3 in.*lbf)
Total preload (Drive pinion preload plus)	New bearing: 1.18 to 1.90 N*m (12 to 19 kgf*cm, 10 to 17 in.*lbf) Reused bearing: 0.99 to 1.63 N*m (10 to 17 kgf*cm, 9 to 14 in.*lbf)
Side gear shaft plate washer thickness mm (in.)	1.59 to 1.61 (0.0625 to 0.0633) 1.62 to 1.64 (0.0637 to 0.0649) 1.65 to 1.67 (0.0650 to 0.0657) 1.68 to 1.70 (0.0661 to 0.0669) 1.71 to 1.73 (0.0673 to 0.0681) 1.74 to 1.76 (0.0685 to 0.0693) 1.77 to 1.79 (0.0697 to 0.0705) 1.80 to 1.82 (0.0709 to 0.0717) 1.83 to 1.85 (0.0720 to 0.0728) 1.86 to 1.88 (0.0732 to 0.0740) 1.89 to 1.91 (0.0744 to 0.0752) 1.92 to 1.94 (0.0756 to 0.0764) 1.95 to 1.97 (0.0768 to 0.0776) 1.98 to 2.00 (0.0780 to 0.0787) 2.02 to 2.04 (0.0795 to 0.0803) 2.04 to 2.06 (0.0803 to 0.0811) 2.07 to 2.09 (0.0815 to 0.0823) 2.10 to 2.12 (0.0827 to 0.0835) 2.13 to 2.15 (0.0839 to 0.0846) 2.16 to 2.18 (0.0850 to 0.0858) 2.19 to 2.21 (0.0862 to 0.0870) 2.22 to 2.24 (0.0874 to 0.0882) 2.25 to 2.27 (0.0886 to 0.0894) 2.28 to 2.30 (0.0898 to 0.0906)

	2.31 to 2.33 (0.0909 to 0.0917) 2.34 to 2.36 (0.0921 to 0.0929) 2.37 to 2.39 (0.0930 to 0.0941) 2.40 to 2.42 (0.0945 to 0.0953) 2.43 to 2.45 (0.0957 to 0.0965) 2.46 to 2.48 (0.0969 to 0.0976) 2.49 to 2.51 (0.0980 to 0.0988) 2.52 to 2.54 (0.0992 to 0.1000) 2.55 to 2.57 (0.1004 to 0.1012) 2.58 to 2.60 (0.1016 to 0.1024) 2.61 to 2.63 (0.1028 to 0.1035) 2.64 to 2.66 (0.1039 to 0.1047)
Rear differential drive pinion washer thickness mm (in.)	1.695 to 1.705 (0.0667 to 0.0671) 1.705 to 1.715 (0.0671 to 0.0675) 1.715 to 1.725 (0.0675 to 0.0679) 1.725 to 1.735 (0.0679 to 0.0683) 1.735 to 1.745 (0.0683 to 0.0687) 1.745 to 1.755 (0.0687 to 0.0690) 1.755 to 1.765 (0.0690 to 0.0695) 1.765 to 1.775 (0.0695 to 0.0699) 1.775 to 1.785 (0.0699 to 0.0703) 1.785 to 1.795 (0.0703 to 0.0707) 1.795 to 1.805 (0.0707 to 0.0711) 1.805 to 1.815 (0.0711 to 0.0715) 1.815 to 1.825 (0.0715 to 0.0719) 1.825 to 1.835 (0.0719 to 0.0720) 1.835 to 1.845 (0.0720 to 0.0726) 1.845 to 1.855 (0.0726 to 0.0730) 1.855 to 1.865 (0.0730 to 0.0734) 1.865 to 1.875 (0.0734 to 0.0738) 1.875 to 1.885 (0.0738 to 0.0742) 1.885 to 1.895 (0.0742 to 0.0746) 1.895 to 1.905 (0.0746 to 0.0750) 1.905 to 1.915 (0.0750 to 0.0754) 1.915 to 1.925 (0.0754 to 0.0758) 1.925 to 1.935 (0.0758 to 0.0762) 1.935 to 1.945 (0.0762 to 0.0766) 1.945 to 1.955 (0.0766 to 0.0770) 1.955 to 1.965 (0.0770 to 0.0774) 1.965 to 1.975 (0.0774 to 0.0778) 1.975 to 1.985 (0.0778 to 0.0781) 1.985 to 1.995 (0.0781 to 0.0785) 1.995 to 2.005 (0.0785 to 0.0789) 2.005 to 2.015 (0.0789 to 0.0793) 2.015 to 2.025 (0.0793 to 0.0797) 2.025 to 2.035 (0.0797 to 0.0801) 2.035 to 2.045 (0.0801 to 0.0805)

	2.045 to 2.055 (0.0805 to 0.0809) 2.055 to 2.065 (0.0809 to 0.0813) 2.065 to 2.075 (0.0813 to 0.0817) 2.075 to 2.085 (0.0817 to 0.0821) 2.085 to 2.095 (0.0821 to 0.0825) 2.095 to 2.105 (0.0825 to 0.0829) 2.105 to 2.115 (0.0829 to 0.0833) 2.115 to 2.125 (0.0833 to 0.0837) 2.125 to 2.135 (0.0837 to 0.0841) 2.135 to 2.145 (0.0841 to 0.0844) 2.145 to 2.155 (0.0844 to 0.0848) 2.155 to 2.165 (0.0848 to 0.0852) 2.165 to 2.175 (0.0852 to 0.0856) 2.175 to 2.185 (0.0856 to 0.0860) 2.185 to 2.195 (0.0860 to 0.0864) 2.195 to 2.205 (0.0864 to 0.0868)
Difference of dimension A and B mm (in.): Transmission coupling shim thickness mm (in.)	3.96 to 4.01 (0.148 to 0.154): 1.98 to 2.02 (0.078 to 0.080) 4.26 to 4.31 (0.161 to 0.168): 2.28 to 2.32 (0.090 to 0.091) 4.56 to 4.61 (0.174 to 0.181): 2.58 to 2.62 (0.102 to 0.103) 3.81 to 3.86 (0.141 to 0.148): 1.83 to 1.87 (0.072 to 0.074) 4.11 to 4.16 (0.154 to 0.161): 2.13 to 2.17 (0.084 to 0.085) 4.41 to 4.46 (0.168 to 0.174): 2.43 to 2.47 (0.096 to 0.097) 3.71 to 3.76 (0.146 to 0.148): 1.73 to 1.77 (0.068 to 0.70) 3.76 to 3.81 (0.148 to 0.150): 1.78 to 1.82 (0.070 to 0.072) 3.86 to 3.91 (0.151 to 0.154): 1.88 to 1.92 (0.074 to 0.076) 3.91 to 3.96 (0.154 to 0.156): 1.93 to 1.97 (0.076 to 0.078) 4.01 to 4.06 (0.158 to 0.160): 2.03 to 2.07 (0.080 to 0.081) 4.06 to 4.11 (0.160 to 0.162): 2.08 to 2.12 (0.082 to 0.083) 4.16 to 4.21 (0.164 to 0.166): 2.18 to 2.22 (0.086 to 0.087) 4.21 to 4.26 (0.166 to 0.168): 2.23 to 2.27 (0.088 to 0.089) 4.31 to 4.36 (0.170 to 0.172): 2.33 to 2.37 (0.092 to 0.093) 4.36 to 4.41 (0.172 to 0.174): 2.38 to 2.42 (0.094 to 0.095)

	4.46 to 4.51 (0.176 to 0.178): 2.48 to 2.52 (0.098 to 0.099)
	4.51 to 4.56 (0.178 to 0.180): 2.53 to 2.57 (0.100 to 0.101)
	4.61 to 4.66 (0.181 to 0.183): 2.63 to 2.67 (0.104 to 0.105)
	4.66 to 4.71 (0.183 to 0.185): 2.68 to 2.72 (0.106 to 0.107)



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028MF006X
Title: SERVICE SPECIFICATIONS: DIFFERENTIAL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Differential

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear differential No. 2 support x Rear suspension member	86	877	63
Rear differential support x Rear suspension member	140	1,428	103
Rear differential No. 2 support x Rear differential Rear differential No. 1 support x Rear differential	55	561	41
Rear differential support x Rear differential	98	999	72
Drain plug x Differential carrier Filler plug x Differential carrier	39	398	29
Electromagnetic coupling x Stud bolt	8.0	82	71 in.*lbf
Electromagnetic coupling x Differential carrier	19.6	200	14
Yoke x Differential carrier	5.0	51	44 in.*lbf
Drive pinion nut x Differential drive pinion	245 or less	2,498 or less	181 or less
Differential side bearing retainer x Differential carrier	34.3	350	25
Differential carrier x Differential breather plug oil deflector	5.0	51	44 in.*lbf
Differential ring gear x Differential case	90	918	66

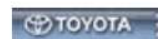


Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028MC00IX
Title: SERVICE SPECIFICATIONS: DRIVE SHAFT: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Drive shaft

Front drive shaft standard length for 2WD	2AR-FE	LH	585.2 mm (23.039 in.)
		RH	902.0 mm (35.512 in.)
	2GR-FE	LH	570.9 mm (22.476 in.)
		RH	914.4 mm (36.000 in.)
Front drive shaft standard length for 4WD	2AR-FE	LH	572.5 mm (22.539 in.)
		RH	918.0 mm (36.142 in.)
	2GR-FE	LH	570.9 mm (22.476 in.)
		RH	922.4 mm (36.315 in.)
Rear drive shaft standard length			733.8 mm (28.890 in.)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028MD00IX
Title: SERVICE SPECIFICATIONS: DRIVE SHAFT: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Drive shaft

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Front wheel		103	1050	76
Rear wheel				
front suspension lower arm x Lower ball joint		92	938	68
Front axle hub nut	φ 26	216	2203	159
	φ 30	292	2978	215
Drive shaft bearing case bolt	2WD	64	650	47
Drive shaft bearing bracket x Drive shaft	4WD	32	330	24



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028H300PX
Title: SERVICE SPECIFICATIONS: ENGINE HOOD / DOOR: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

HOOD

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Hood x Hood hinge	13	133	10
Hood x Hood auxiliary catch hook	8.0	82	71 in.*lbf
Hood hinge x Body	13	133	10
Hood lock striker x body	8.0	82	71 in.*lbf
Hood lock x Body	8.0	82	71 in.*lbf

FRONT DOOR

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front door check assembly x Body	30	306	22
Front door check assembly x Door panel	5.5	56	49 in.*lbf
Front door rear lower frame sub-assembly x Door panel	8.0	82	71 in.*lbf
Front door glass sub-assembly x Front door window regulator sub-assembly	8.0	82	71 in.*lbf
Power window regulator motor assembly x Front door window regulator sub-assembly	5.4	55	49 in.*lbf
Front door window regulator sub-assembly x Door panel	8.0	82	71 in.*lbf
Door upper hinge x Body	26	265	19
Door upper hinge x Door panel	26	265	19
Door lower hinge x Body	26	265	19
Door lower hinge x Door panel	26	265	19
Front door lock assembly x Door panel	5.0	51	44 in.*lbf
Door lock striker x Body	23	235	17
Door lock cylinder x Door panel	4.0	41	35 in.*lbf
Front door outside handle cover x Door panel	4.0	41	35 in.*lbf
Front door outside handle frame sub-assembly x Door panel	4.0	41	35 in.*lbf

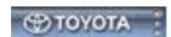
REAR DOOR

PART TIGHTENED	N*M	KGF*CM	KGF*CM
Rear door check assembly x Body	30	306	22
Rear door check assembly x Door panel	5.5	56	49 in.*lbf

PART TIGHTENED	N*M	KGF*CM	KGF*CM
Protector x Rear door out side handle frame sub-assembly	2.0	20	18 in.*lbf
Rear door window division bar sub-assembly x Door panel	8.0	82	71 in.*lbf
Door upper hinge x Body	26	265	19
Door upper hinge x Door panel	26	265	19
Door lower hinge x Body	26	265	19
Door lower hinge x Door panel	26	265	19
Rear door lock assembly x Door panel	5.0	51	44 in.*lbf
Door lock striker x Body	23	235	14
Rear door outside handle cover x Door panel	4.0	41	35 in.*lbf
Door outside handle frame x Door panel	4.0	41	35 in.*lbf
Power window regulator motor assembly x Rear door window regulator sub-assembly	5.4	55	48 in.*lbf
Rear door window regulator sub-assembly x Door panel	8.0	82	71 in.*lbf

BACK DOOR

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Back door upper hinge x Door panel	36	367	27
Back door upper hinge x Body	26	265	19
Back door lower hinge x Door panel	36	367	27
Back door lower hinge x Body	26	265	19
Back door check assembly x Back door panel	5.5	56	49 in.*lbf
Back door check assembly x Body panel	30	306	22
Back door lock assembly x Back door panel	5.0	51	44 in.*lbf
Spare wheel carrier bracket x Door panel	20	204	15
Door lock striker x Body	23	235	14
Back door outside handle cover x Back door panel	4.0	41	35 in.*lbf
Back door outside handle frame sub-assembly x Back door panel	4.0	41	35 in.*lbf



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000029O800HX
Title: SERVICE SPECIFICATIONS: EXTERIOR: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Front Bumper:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
FRONT BUMPER CENTER STAY X FRONT BUMPER REINFORCEMENT	7.0	71	62 IN.*LBF
Front bumper reinforcement x Body	70	714	52
Front bumper upper reinforcement x Body	13	133	10
Low pitched horn x Front bumper upper reinforcement sub-assembly	19.5	199	14
High pitched horn x Front bumper upper reinforcement sub-assembly	19.5	199	14

Rear Bumper:

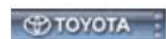
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear bumper reinforcement x Body	37	377	27

Rear Spoiler:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear spoiler x Body	7.5	76	66 in.*lbf

Roof Rack:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Roof rack bar x Roof rack bar joint	1.96 to 2.94	20 to 30	17 to 26 in.*lbf
Roof rack leg x Body	38	387	28
Roof rack x Roof rack leg	2.8 to 5.0	29 to 51	25 to 43 in.*lbf



SERVICE SPECIFICATIONS: GF1A TRANSFER: SERVICE DATA (2... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028HZ007X
Title: SERVICE SPECIFICATIONS: GF1A TRANSFER: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Transfer case oil seal drive in depth for LH side		0 to 0.5 mm (0 to 0.020 in.)
Transfer case oil seal drive in depth for RH side		0 to 0.5 mm (0 to 0.020 in.)
Transfer assembly		
Output rear shaft preload	Standard preload (turning)	0.77 to 2.13 N*m (7.9 to 21.7 kgf*cm, 6.82 to 18.85 in.*lbf)
Ring gear backlash	Standard backlash	0.10 to 0.20 mm (0.0039 to 0.0079 in.)
Driven pinion preload	Standard preload (turning)	0.29 to 1.49 N*m (3.0 to 15.2 kgf*cm, 2.57 to 13.19 in.*lbf)
Washer thickness LH side	A0	1.97 mm (0.0776 in.)
	A1	1.99 mm (0.0783 in.)
	A2	2.01 mm (0.0791 in.)
	A3	2.03 mm (0.0799 in.)
	A4	2.05 mm (0.0807 in.)
	A5	2.07 mm (0.0815 in.)
	A6	2.09 mm (0.0823 in.)
	A7	2.11 mm (0.0831 in.)
	A8	2.13 mm (0.0839 in.)
	A9	2.15 mm (0.0846 in.)
	B0	2.17 mm (0.0854 in.)
	B1	2.19 mm (0.0862 in.)
	B2	2.21 mm (0.087 in.)
	B3	2.23 mm (0.0878 in.)
	B4	2.25 mm (0.0886 in.)
	B5	2.27 mm (0.0894 in.)
	B6	2.29 mm (0.0902 in.)
	B7	2.31 mm (0.0909 in.)
	B8	2.33 mm (0.0917 in.)
	B9	2.35 mm (0.0925 in.)
	C0	2.37 mm (0.0933 in.)
	C1	2.39 mm (0.0941 in.)
	C2	2.41 mm (0.0949 in.)

SERVICE SPECIFICATIONS: GF1A TRANSFER: SERVICE DATA (2... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

	C3	2.43 mm (0.0957 in.)
	C4	2.45 mm (0.0965 in.)
	C5	2.47 mm (0.0972 in.)
	C6	2.49 mm (0.098 in.)
	C7	2.51 mm (0.0988 in.)
	C8	2.53 mm (0.0996 in.)
	C9	2.55 mm (0.1004 in.)
	D0	2.57 mm (0.1012 in.)
	D1	2.59 mm (0.102 in.)
	D2	2.61 mm (0.1028 in.)
	D3	2.63 mm (0.1035 in.)
	D4	2.65 mm (0.1043 in.)
	D5	2.67 mm (0.1051 in.)
	D6	2.39 mm (0.0941 in.)
	D7	2.71 mm (0.1067 in.)
	D8	2.73 mm (0.1075 in.)
	D9	2.75 mm (0.1083 in.)
Driven pinion bearing washer thickness front side	A0	1.18 mm (0.0465 in.)
	A1	1.20 mm (0.0472 in.)
	A2	1.22 mm (0.048 in.)
	A3	1.24 mm (0.0488 in.)
	A4	1.26 mm (0.0496 in.)
	A5	1.28 mm (0.0504 in.)
	A6	1.30 mm (0.0512 in.)
	A7	1.32 mm (0.052 in.)
	A8	1.34 mm (0.0528 in.)
	A9	1.36 mm (0.535 in.)
	B0	1.38 mm (0.0543 in.)
	B1	1.40 mm (0.0551 in.)
	B2	1.42 mm (0.0559 in.)
	B3	1.44 mm (0.0567 in.)
	B4	1.46 mm (0.0575 in.)
	B5	1.48 mm (0.0583 in.)
	B6	1.50 mm (0.0591 in.)
	B7	1.52 mm (0.0598 in.)

SERVICE SPECIFICATIONS: GF1A TRANSFER: SERVICE DATA (2... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

	B8	1.54 mm (0.0606 in.)
	B9	1.56 mm (0.0614 in.)
	C0	1.58 mm (0.0622 in.)
	C1	1.60 mm (0.063 in.)
	C2	1.62 mm (0.0638 in.)
	C3	1.64 mm (0.0646 in.)
	C4	1.66 mm (0.0654 in.)
	C5	1.68 mm (0.0661 in.)
	C6	1.70 mm (0.067 in.)
	C7	1.72 mm (0.0677 in.)
	C8	1.74 mm (0.0685 in.)
	C9	1.76 mm (0.0693 in.)
	D0	1.78 mm (0.0701 in.)
	D1	1.80 mm (0.0709 in.)
	D2	1.82 mm (0.0717 in.)
	D3	1.84 mm (0.0724 in.)
	D4	1.86 mm (0.0732 in.)
	D5	1.88 mm (0.074 in.)
	D6	1.90 mm (0.0748 in.)
	D7	1.92 mm (0.0756 in.)
	D8	1.94 mm (0.0764 in.)
	D9	1.96 mm (0.0772 in.)
	E0	1.98 mm (0.0781 in.)
	E1	2.00 mm (0.0787 in.)
	E2	2.02 mm (0.0795 in.)
Washer thickness RH side	01	1.02 mm (0.0402 in.)
	02	1.04 mm (0.0409 in.)
	03	1.06 mm (0.0417 in.)
	04	1.08 mm (0.0425 in.)
	05	1.10 mm (0.0433 in.)
	06	1.12 mm (0.0441 in.)
	07	1.14 mm (0.0449 in.)
	08	1.16 mm (0.0457 in.)
	09	1.18 mm (0.0465 in.)
	10	1.20 mm (0.0472 in.)

SERVICE SPECIFICATIONS: GF1A TRANSFER: SERVICE DATA (2... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

11	1.22 mm (0.0480 in.)
12	1.24 mm (0.0488 in.)
13	1.26 mm (0.0496 in.)
14	1.28 mm (0.0504 in.)
15	1.30 mm (0.0512 in.)
16	1.32 mm (0.0520 in.)
17	1.34 mm (0.0528 in.)
18	1.36 mm (0.0535 in.)
19	1.38 mm (0.0543 in.)
20	1.40 mm (0.0551 in.)
21	1.42 mm (0.0559 in.)
22	1.44 mm (0.0567 in.)
23	1.46 mm (0.0575 in.)
24	1.48 mm (0.0583 in.)
25	1.50 mm (0.0591 in.)
26	1.52 mm (0.0598 in.)
27	1.54 mm (0.0606 in.)
28	1.56 mm (0.0614 in.)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028I0007X
Title: SERVICE SPECIFICATIONS: GF1A TRANSFER: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Breather oil deflector x transfer case	6.5	66	58
Output shaft x Transfer gear nut	360	3700	266
Driven pinion front bearing x Transfer case	38	390	28
No. 1 transfer case cover x transfer case	47	480	35
Transfer drain plug x transfer case	49	500	36
Transfer drain plug x transfer case	49	500	36
Transfer & Transaxle setting stud bolt x transfer case	39	400	29
Transfer assembly x transaxle	69	700	51
4WD Control ECU x Body	4.5	46	40



SERVICE SPECIFICATIONS: HORN: TORQUE SPECIFICATIONS (... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000285C000X
Title: SERVICE SPECIFICATIONS: HORN: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

LOW PITCHED HORN:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Low pitched horn x Body	19.5	199	14

HIGH PITCHED HORN:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
High pitched horn x Body	19.5	199	14



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000047DP001X
Title: SERVICE SPECIFICATIONS: INSTRUMENT PANEL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

UPPER INSTRUMENT PANEL

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Steering wheel pad assembly x Steering wheel assembly	8.8	90	78 in.*lbf
Steering wheel assembly x Steering shaft	50	510	37
Upper instrument panel sub-assembly x instrument panel reinforcement	20	204	15

LOWER INSTRUMENT PANEL

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Power steering ECU assembly x Body	8.5	87	75 in.*lbf



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000002X3S008X
Title: SERVICE SPECIFICATIONS: INTERIOR: TORQUE SPECIFICATIONS (2011 RAV4)		

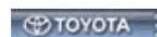
TORQUE SPECIFICATIONS

ROOF HEADLINING

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front seat outer belt assembly LH x Body	42	428	31
Front seat outer belt assembly RH x Body	42	428	31
Rear No. 1 seat belt assembly outer LH x Body	42	428	31
Rear No. 1 seat belt assembly outer RH x Body	42	428	31
Tether anchor bracket sub-assembly x body (w/o Rear No. 2 Seat:)	42	428	31
Rear No. 2 seat belt assembly outer LH x Body (w/ Rear No. 2 Seat:)	42	428	31
Rear No. 2 seat belt assembly outer RH x Body (w/ Rear No. 2 Seat:)	42	428	31

FUEL LID LOCK CONTROL

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front seat assembly LH x Body (for Power Seat Type:)	37	377	27
Front seat assembly LH x Body (for Manual Seat Type:)	37	377	27
Rear No. 1 seat assembly LH x Body	42	428	31
Rear No. 1 seat assembly RH x Body	42	428	31
Front seat outer belt assembly LH x Body	42	428	31
Front seat outer belt assembly RH x Body	42	428	31
Rear No. 1 seat belt assembly outer LH x Body	42	428	31
Rear No. 1 seat belt assembly outer RH x Body	42	428	31
Tether anchor bracket sub-assembly x body (w/o Rear No. 2 Seat:)	42	428	31
Rear No. 2 seat belt assembly outer LH x Body (w/ Rear No. 2 Seat:)	42	428	31
Rear No. 2 seat belt assembly outer RH x Body (w/ Rear No. 2 Seat:)	42	428	31
Fuel lid lock open lever x Body	8.0	82	71 in.*lbf

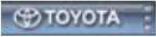


SERVICE SPECIFICATIONS: LIGHTING: TORQUE SPECIFICATIO...<https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000002X1I00IX
Title: SERVICE SPECIFICATIONS: LIGHTING: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
HEADLIGHT ASSEMBLY			
Headlight assembly x Body	5.4	55	48 in.*lbf



cardiagn.com

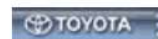
SERVICE SPECIFICATIONS: MIRROR: TORQUE SPECIFICATIONS... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000285B019X
Title: SERVICE SPECIFICATIONS: MIRROR: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

MIRROR:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Inner rear view mirror assembly (w/o EC Mirror, for TMMC made) x Windshieled glass assembly	1.8	18	16 in.*lbf
Inner rear view mirror assembly (w/ EC Mirror) x Windshieled glass assembly	1.5	15	13 in.*lbf
Outer rear view mirror assembly x Door panel	9.0	92	80 in.*lbf

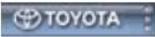


Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003FFS00HX
Title: SERVICE SPECIFICATIONS: NAVIGATION: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Navigation Receiver Assembly

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Navigation receiver assembly with bracket x Instrument panel	for bolt	12.8	130	9



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000002YYD01SX
Title: SERVICE SPECIFICATIONS: OTHER SYSTEM: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Voltage inverter assembly x Body	8.4	85	74 in.*lbf



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000003SDP002X
Title: SERVICE SPECIFICATIONS: PARK ASSIST / MONITORING: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

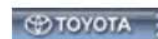
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Television camera assembly x Lower back door outside garnish sub-assembly LH (w/ Tire Carrier)	5.5	56	49 in.*lbf



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000260R00CX
Title: SERVICE SPECIFICATIONS: PARKING BRAKE: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Parking brake lever travel INFO	Pull the lever upward with a force of approximately 200 N (20 kgf, 44 lbf) and count the number of clicks.		6 to 8 clicks (without rear brake dragging)
Parking brake switch INFO	Resistance 1 - Body ground	Parking brake switch ON (Switch pin released)	Below 1 Ω
	Resistance 1 - Body ground	Parking brake switch OFF (Switch pin pushed in))	10 k Ω or higher
Brake disc inside diameter INFO	Standard		173 mm (6.81 in.)
	Maximum		174 mm (6.85 in.)
Parking brake shoe lining thickness INFO	Standard		3.5 mm (0.138 in.)
	Minimum		1.0 mm (0.0394 in.)
Parking brake shoe clearance adjustment INFO	Standard shoe adjuster return notch		8 notches



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000260S00CX
Title: SERVICE SPECIFICATIONS: PARKING BRAKE: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

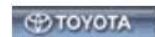
Parking Brake Lever

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Parking brake switch mounting screw	0.88	9.0	7.8 in.*lbf
Parking brake lever x Body	15	148	11
No. 1 parking brake cable lock nut	6.0	61	53 in.*lbf

Parking Brake Cable

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Parking brake cable x Backing plate	8.0	82	71 in.*lbf
Parking brake cable clamp bolt	6.0	61	53 in.*lbf

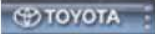
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear disc brake cylinder assembly bolt	88	897	65



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028OZ00EX
Title: SERVICE SPECIFICATIONS: POWER STEERING: SERVICE DATA (2011 RAV4)		

SERVICE DATA

STEERING WHEEL		
Steering wheel free play	Maximum	30 mm (1.18 in.)
STEERING GEAR ASSEMBLY		
Tie rod assembly stud bolt torque	Turning	0.98 to 3.92 N*m (10.0 to 39.9 kgf*cm, 9 to 34 in.*lbf)
Total preload	Turning	0.7 to 1.3 N*m (7.1 to 13.2 kgf*cm, 6 to 11 in.*lbf)

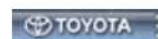


cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028P000FX
Title: SERVICE SPECIFICATIONS: POWER STEERING: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N* M	KGF* CM	FT.* LBF
Steering sliding yoke sub-assembly x Steering intermediate shaft assembly No, 2	35	360	26
Steering intermediate shaft assembly No, 2 x Power steering gear	35	360	26
Power steering gear x Front suspension crossmember sub-assembly	138	1407	102
Tie rod end sub-assembly lock nut	88	897	65
Power steering ECU x Instrument panel reinforcement assembly	8.5	87	75 in.*lbf



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000285A00BX
Title: SERVICE SPECIFICATIONS: SEAT BELT: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

FRONT SEAT BELT:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front seat inner belt assembly x Front seat	42	428	31
Front shoulder belt anchor adjuster assembly x Body	42	428	31
Front seat outer belt assembly (Upper part of retractor) x Body	8.5	87	75 in.*lbf
Front seat outer belt assembly (shoulder anchor) x Body	42	428	31
Front seat outer belt assembly (floor anchor) x Body	42	428	31

REAR SEAT BELT:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear NO. 2 Seat Inner Belt Assembly x Seat	42	428	31
Rear Seat Inner Belt Assembly RH (for 60/40 split Seat Type RH Side) x Seat	42	428	31
Rear Seat Inner Belt Assembly LH (for 60/40 split Seat Type LH Side) x Seat	42	428	31
Rear Seat Lap Type Belt Assembly Center LH x Seat	42	428	31
Rear Seat Lap Type Belt Assembly Center RH (w/o Rear No. 2 Seat) x Seat	42	428	31
Rear Seat Lap Type Belt Assembly Center RH (w/ Rear No. 2 Seat) x Seat	42	428	31
Rear NO. 1 seat outer belt assembly (Upper part of retractor) x Body	8.5	87	75 in.*lbf
Rear NO. 1 seat outer belt assembly (Lower part of retractor) x Body	42	428	31
Rear NO. 1 seat outer belt assembly (shoulder anchor) x Body	42	428	31
Rear NO. 1 seat outer belt assembly (floor anchor) x Body	42	428	31
Rear NO. 2 seat outer belt assembly (Upper part of retractor) (w/ Rear No. 2 Seat) x Body	8.5	87	75 in.*lbf
Rear NO. 2 seat outer belt assembly (Lower part of retractor) (w/ Rear No. 2 Seat) x Body	42	428	31
Rear NO. 2 seat outer belt assembly (shoulder anchor) (w/ Rear No. 2 Seat) x Body	42	428	31
Rear NO. 2 seat outer belt assembly (floor anchor) (w/ Rear No. 2 Seat) x Body	42	428	31
Rear center seat outer belt assembly x Body	42	428	31
Child restraint seat tether anchor bracket x Body	42	428	31



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000287L00FX
Title: SERVICE SPECIFICATIONS: SEAT: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Front Seat Assembly (for Manual Seat):

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Seat position airbag sensor x Front seat frame (w/ adjuster	8.0	82	71 in.*lbf
Seatback cover bracket x Front seat frame (w/ adjuster) (w/ Front seat side airbag)	5.5	56	49 in.*lbf
Front seat inner belt assembly x Front seat frame (w/ adjuster	42	428	31
Inner seat track bracket x Front seat frame (w/ adjuster	29	296	21
Front inner seat track assembly x Front seat frame	25	255	18
Front outer seat track assembly x Front seat frame	25	255	18
Lower active headrest unit x Front seat frame (w/ adjuster)	5.0	51	44 in.*lbf
Upper active headrest unit x Front seat frame (w/ adjuster)	14	143	10
Front seat assembly x Body	37	377	27

Front Seat Assembly (for Power Seat):

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Seat position airbag sensor x Front seat frame (w/ adjuster	8.0	82	71 in.*lbf
Seatback cover bracket x Front seat frame (w/ adjuster) (w/ Front seat side airbag)	5.5	56	49 in.*lbf
Front seat inner belt assembly x Front seat frame (w/ adjuster	42	428	31
Lower active headrest unit x Front seat frame (w/ adjuster)	5.0	51	44 in.*lbf
Upper active headrest unit x Front seat frame (w/ adjuster)	14	143	10
Front seat assembly x Body	37	377	27

Rear No. 1 Seat Assembly (for LH Side):

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Reclining remote control lever x Body	18	184	13
Lap type belt center RH x Body	42	428	31
Inner belt x Reclining adjuster	42	428	31
Rear seat cushion frame x Seatback frame	21	214	15
Rear seat cushion frame x Reclining adjuster	21	214	15
Center armrest x Seatback frame	16	163	12
Rear No. 1 seat armrest x Seatback frame	15	153	11

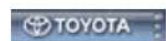
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Seatback frame x Reclining adjuster	42	428	31
Lap type belt center LH x Seatback frame	42	428	31
Rear No. 1 seat x Body	42	428	31

Rear No. 1 Seat Assembly (for RH Side):

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Reclining remote control lever x Body	18	184	13
Inner belt x Reclining adjuster	42	428	31
Rear seat cushion frame x Seatback frame	21	214	15
Rear seat cushion frame x Reclining adjuster	21	214	15
Seatback frame x Reclining adjuster	42	428	31
Rear No. 1 seat x Body	42	428	31

Rear No. 2 Seat Assembly:

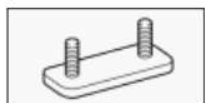
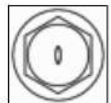
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear No. 2 seat link x Body	18	184	13
Rear No. 2 seat x Rear No. 2 seat link	18	184	13
Rear seat cushion wire x Rear No. 2 seat link	18	184	13
Rear seat cushion wire x Rear No. 2 seat cushion spring	18	184	13
Inner belt x Rear No. 2 seat cushion spring	42	428	31
Rear No. 2 seatback frame x Rear No. 2 seat cushion spring	42	428	31

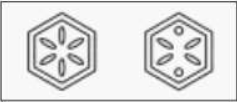


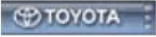
Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000118V08EX
Title: SERVICE SPECIFICATIONS: STANDARD BOLT: HOW TO DETERMINE BOLT STRENGTH (2011 RAV4)		

HOW TO DETERMINE BOLT STRENGTH

Bolt Type

HEXAGON HEAD BOLT		STUD BOLT	WELD BOLT	CLASS
NORMAL RECESS BOLT	DEEP RECESS BOLT			
  No Mark	 No Mark	 • No Mark		4T
 		-	-	5T
  w/ Washer	 w/ Washer		-	6T
 		-	-	7T
		 	-	8T
		-	-	9T
		-	-	10T
		-	-	11T

HEXAGON HEAD BOLT		STUD BOLT	WELD BOLT	CLASS
NORMAL RECESS BOLT	DEEP RECESS BOLT			
				

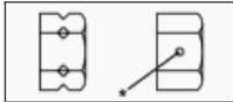
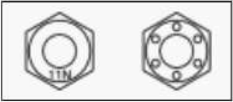


cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000118X08EX
Title: SERVICE SPECIFICATIONS: STANDARD BOLT: HOW TO DETERMINE NUT STRENGTH (2011 RAV4)		

HOW TO DETERMINE NUT STRENGTH

Nut Type

PRESENT STANDARD HEXAGON NUT	OLD STANDARD HEXAGON NUT		CLASS
	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

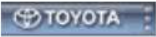
PRESENT STANDARD HEXAGON NUT	OLD STANDARD HEXAGON NUT		CLASS
	COLD FORGING NUT	CUTTING PROCESSED NUT	
 			

HINT:

- *: Nut with 1 or more marks on one side surface of the nut.
- Use a nut with the same nut strength classification number (or more) as the bolt strength classification number when tightening parts with a bolt and nut.

Example:

- Bolt = 4T
- Nut = 4N or more



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000118W08EX
Title: SERVICE SPECIFICATIONS: STANDARD BOLT: SPECIFIED TORQUE FOR STANDARD BOLTS (2011 RAV4)		

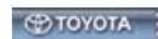
SPECIFIED TORQUE FOR STANDARD BOLTS

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	1150	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	1050	76
	16	1.5	140	1400	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	1100	80	125	1250	90
	16	1.5	170	1750	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	1050	76
	14	1.5	145	1500	108	165	1700	123
	16	1.5	230	2300	166	-	-	-
8T	8	1.25	29	300	22	33	330	24
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1100	80	120	1250	90

SERVICE SPECIFICATIONS: STANDARD BOLT: SPECIFIED TOR...

<https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

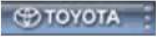
CLASS	DIAMETER (MM)	PITCH (MM)	SPECIFIED TORQUE					
			HEXAGON HEAD BOLT			HEXAGON FLANGE BOLT		
			N*M	KGF*CM	FT.*LBF	N*M	KGF*CM	FT.*LBF
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1300	94	140	1450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1450	105	155	1600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1600	116	175	1800	130



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028OX00EX
Title: SERVICE SPECIFICATIONS: STEERING COLUMN: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Steering wheel free play	Maximum	30 mm (1.18 in.)
--------------------------	---------	------------------



cardiagn.com

SERVICE SPECIFICATIONS: STEERING COLUMN: TORQUE SPEC... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000280Y00EX
Title: SERVICE SPECIFICATIONS: STEERING COLUMN: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Steering wheel assembly x Steering column assembly	50	510	37
Steering sliding yoke sub-assembly x Steering gear assembly	35	360	26
Steering intermediate shaft assembly No. 2 x Steering column assembly	35	360	26
Steering column x Instrument panel reinforcement assembly	25	255	18



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000029RH00FX
Title: SERVICE SPECIFICATIONS: SUPPLEMENTAL RESTRAINT SYSTEM: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Steering pad assembly x Steering wheel assembly	8.8	90	78 in.*lbf
Steering wheel assembly x Steering column assembly	50	510	37
Front passenger airbag x Instrument panel reinforcement	20	203	14
Curtain shield airbag assembly x Body	14	143	10
Seat side airbag assembly x Front seat frame assembly with adjuster (for Manual Seat)	5.5	56	49 in.*lbf
Seat side airbag assembly x Front seat frame assembly with adjuster (for Power Seat Type LH Side)	5.5	56	49 in.*lbf
Center airbag sensor assembly x Body	17.5	179	13
Seat side airbag assembly x Front seat frame assembly with adjuster (for Manual Seat)	5.5	56	49 in.*lbf
Seat side airbag assembly x Front seat frame assembly with adjuster (for Power Seat Type LH Side)	5.5	56	49 in.*lbf
Front airbag sensor x Body	9.0	92	80 in.*lbf
Side airbag sensor x Body	9.0	92	80 in.*lbf
Rear airbag sensor x Body	9.0	92	80 in.*lbf



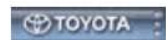
Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028IE006X
Title: SERVICE SPECIFICATIONS: SUSPENSION: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Front wheel alignment	Vehicle height		C-A: D-B:
	Tire size	215/70R16	89 mm (3.50 in.) 57 mm (2.24 in.)
		225/65R17	97 mm (3.82 in.)
		235/55R18	65 mm (2.56 in.)
		225/65R17*	97 mm (3.82 in.) 54 mm (2.13 in.)
	Toe-in (total)	A + B: C - D:	0°05' +-10' (0.08°+-0.16°) 1.0 +-2.0 mm (0.04 +-0.08 in.)
	Wheel angle	Tire size: 215/70R16	Inside wheel: 38°55' (36°55' to 40°55') 38.9°(36.9° to 40.9°) Outside wheel: Reference 32°20' 32.3°
		Tire size: 225/65R17 (2GR-FE) 235/55R18 (2GR-FE)	Inside wheel: 35°50' (33°55' to 37°55') 35.8°(33.8° to 37.9°) Outside wheel: Reference 30°29' 30.5°
		Tire size: 225/65R17 (2AR-FE) 235/55R18 (2AR-FE)	Inside wheel: 38°44' (36°44' to 40°44') 38.7°(36.7° to 40.7°) Outside wheel: Reference 32°13' 32.2°
	Camber	Tire size: 215/70R16	-0°08' +-45' (-0.13°+-0.75°)
		Tire size: 225/65R17 235/55R18	-0°11' +-45' (-0.18°+-0.75°)
	Caster	Tire size: 215/70R16	5°43' +-45' (5.72°+-0.75°)

		Tire size: 225/65R17 235/55R18	5°50' +-45' (5.83°+-0.75°)
		Tire size: 225/65R17*	5°37' +-45' (5.62°+-0.75°)
	Steering axis inclination	Tire size: 215/70R16	11°16' +-30' (11.27°+-0.50°)
		Tire size: 225/65R17 235/55R18	11°26' +-30' (11.43°+-0.50°)
Rear wheel alignment	Toe-in (total)	A + B: C - D:	0°11' +-10' (0.18° +-0.17°) 2.3 +-1 mm (0.09 +-0.04 in.)
	Camber Right-left error	Tire size: 215/70R16	-0°55' +-45' (-0.92 +-0.75°) 45' (0.75°) or less
		Tire size: 225/65R17 235/55R18	-1°04' +-45' (-1.07 +-0.75°) 45' (0.75°) or less
		Tire size: 225/65R17*	-0°52' +-45' (-0.87 +-0.75°) 45' (0.75°) or less
Front suspension	Lower ball joint turning torque		0.98 to 3.43 N*m (10 to 35 kgf*cm, 9 to 30 in.*lbf) or less
	Stabilizer link turning torque		0.05 to 1.96 N*m, (0.5 to 20 kgf*cm, 0.4 to 17 in.*lbf) or less
Rear suspension	No. 1 suspension arm turning torque		3.4 N*m (35 kgf*cm, 30 in.*lbf)
	Stabilizer link turning torque		0.05 to 1.96 N*m, (0.5 to 20 kgf*cm, 0.4 to 17 in.*lbf) or less

*: w/ 3rd seat.



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028IF006X
Title: SERVICE SPECIFICATIONS: SUSPENSION: TORQUE SPECIFICATIONS (2011 RAV4)		

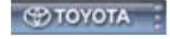
TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Front shock absorber nut x Piston rod	47	479	35
Front shock absorber with coil spring x Body	50	510	37
Front shock absorber x Stabilizer link	74	755	55
Front shock absorber x Steering knuckle	240	2,447	177
Front shock absorber x Front speed sensor wire	18.5	189	14
Hood bolt	13	133	10
Tie rod end x Steering knuckle	49	500	36
Front suspension crossmember x Lower No. 1 arm	233	2,376	172
Front suspension crossmember x Body	137	1,397	11
Front suspension member brace rear (front side) x Body	137	1,397	101
Front suspension member brace rear (rear side) x Body	93	948	69
Front suspension lower No. 1 arm x Lower ball joint	92	938	68
Rear engine mounting insulator x Front suspension crossmember	95	969	70
Steering knuckle x Lower ball joint	133	1,356	98
Front axle hub nut	216	2,203	159
Front brake cylinder x steering knuckle	98	999	72
Front suspension crossmember x Front suspension member brace front	87	887	64
No. 2 parking brake cable x Trailing arm	6.0	61	53 in.*lbf
Skid control sensor wire (for nut)	5.0	51	44
Skid control sensor wire (for bolt)	8.5	87	75 in.*lbf
Rear speed sensor x Rear axle carrier	8.5	87	75 in.*lbf
Rear suspension No. 2 arm x Rear stabilizer link	30	306	22
Rear stabilizer bar x Rear stabilizer link	74	755	55
Rear suspension member x Rear suspension No. 2 arm	90	918	66
Rear axle carrier x Rear suspension No. 2 arm	90	918	66
Rear shock absorber x Rear suspension member	80	816	59
Bracket x Rear axle carrier	80	816	59
Rear upper control arm x Rear suspension member	90	918	66
Rear upper control arm x Rear axle carrier	90	918	66

SERVICE SPECIFICATIONS: SUSPENSION: TORQUE SPECIFICA...

<https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear suspension No. 1 arm x Rear axle carrier	100	1,020	74
Rear suspension No. 1 arm x Rear suspension member	120	1224	89
Rear stabilizer bracket x Rear suspension member	60	612	44
Rear trailing arm x Body (front side)	150	1,530	111
Rear trailing arm x Body (Rear side)	200	2,039	148



SERVICE SPECIFICATIONS: TIRE AND WHEEL: SERVICE DATA (... <https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000029RM00FX
Title: SERVICE SPECIFICATIONS: TIRE AND WHEEL: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Cold tire inflation pressure	Tire size: 215/70R16 99H	Front, Rear	220kPa (2.2 kgf/cm ² , 32 psi)
	Tire size: 225/65R17 101H	Front, Rear	220kPa (2.2 kgf/cm ² , 32 psi)
	Tire size: 235/55R18 99H	Front, Rear	220kPa (2.2 kgf/cm ² , 32 psi)

Tire runout	1.0 mm (0.039 in.) or less
Imbalance after adjustment	8.0 g (0.018 lb) or less

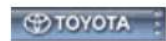


cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000029RN00FX
Title: SERVICE SPECIFICATIONS: TIRE AND WHEEL: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT*LBF
Tire pressure warning antenna and receiver set bolt	7.5	76	66 in.*lbf
Tire pressure warning valve sub-assembly set nut	4.0	41	35 in.*lbf
Tire pressure warning ECU set bolt	4.5	46	40 in.*lbf



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000002796007X
Title: SERVICE SPECIFICATIONS: U140F AUTOMATIC TRANSAXLE: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Automatic Transaxle Assembly

Line pressure (Wheel locked) AT stall (Throttle valve fully opened)	D position	931 to 1031 kPa (9.1 to 10.5 kgf/cm ² , 129 to 149 psi)
	R position	1768 to 1968 kPa (18.0 to 20.0 kgf/cm ² , 284 to 256 psi)
Engine stall revolution	D positions	2140 to 2740 rpm
Time lag	N → D position	Less than 1.2 seconds
	N → R position	Less than 1.2 seconds
Engine idle speed (A/C OFF)	N position	600 to 700 rpm
Drive plate runout	Maximum.	0.30 mm (0.0118 in.)
Differential oil seal drive in depth	LH	-0.5 to 0.2 mm (-0.0196 to 0.00787 in.)
	RH (Inside)	27.5 to 28.5 mm (1.08 to 1.12 in.)
	RH (Outside)	5.5 to 6.5 mm (0.217 to 0.256 in.)
Shift point		
D position (Throttle valve fully opened)	1 → 2	63 to 73 km/h (39 to 45 mph)
	2 → 3	119 to 130 km/h (74 to 81 mph)
	3 → 4	182 to 201 km/h (113 to 125 mph)
	4 → 3	173 to 192 km/h (108 to 119 mph)
	3 → 2	105 to 116 km/h (65 to 72 mph)
	2 → 1	52 to 60 km/h (32 to 37 mph)
D position (Throttle valve fully closed)	3 → 4	45 to 53 km/h (28 to 33 mph)
	4 → 3	19 to 25 km/h (12 to 16 mph)
2 position (Throttle valve fully opened)	1 → 2	63 to 73 km/h (39 to 45 mph)
	3 → 2	117 to 129 km/h (73 to 80 mph)
	2 → 1	52 to 60 km/h (32 to 37 mph)
L position (Throttle valve fully opened)	3 → 2	117 to 129 km/h (73 to 80 mph)
	2 → 1	58 to 67 km/h (36 to 42 mph)
Lock-up point		
D position (Throttle valve opening 5 %)	Lock-up ON 4 → 4L	63 to 72 km/h (39 to 45 mph)
	Lock-up OFF 4L → 4	57 to 66 km/h (35 to 41 mph)

Input shaft		
End play	0.262 to 1.249 mm (0.0103 to 0.0492 in.)	
Multiple disc clutch clutch hub		
Inside diameter	STD	23.025 to 23.045 mm (0.9065 to 0.9073 in.)
	Max.	23.09 mm (0.9091 in.)
Underdrive brake		
Return spring free length	14.04 mm (0.5528 in.)	
Pack clearance	1.59 to 2.20 mm (0.0626 to 0.0866 in.)	
Flange thickness	Mark 1	3.0 mm (0.118 in.)
	Mark 2	3.2 mm (0.126 in.)
	Mark 3	3.4 mm (0.134 in.)
2nd brake		
Pack clearance	0.50 to 0.91 mm (0.0197 to 0.0358 in.)	
Return spring free length	16.61 mm (0.6539 in.)	
Flange thickness	Mark 1	3.0 mm (0.118 in.)
	Mark 2	3.1 mm (0.122 in.)
	Mark 3	3.2 mm (0.126 in.)
	Mark 4	3.3 mm (0.130 in.)
	Mark 5	3.4 mm (0.134 in.)
	Mark 6	3.5 mm (0.138 in.)
	Mark 7	3.6 mm (0.142 in.)
1st and reverse brake		
Pack clearance	0.745 to 1.21 mm (0.0293 to 0.0476 in.)	
Return spring free length	15.51 mm (0.6106 in.)	
Flange thickness	Mark 1	1.8 mm (0.071 in.)
	Mark 2	1.9 mm (0.075 in.)
	Mark 3	2.0 mm (0.079 in.)
	Mark 4	2.1 mm (0.083 in.)
	Mark 5	2.2 mm (0.087 in.)
	Mark 6	2.3 mm (0.091 in.)
	Mark 7	2.4 mm (0.094 in.)
	Mark 8	2.5 mm (0.098 in.)

Oil Pump

Body clearance	STD	0.10 to 0.17 mm (0.0039 to 0.0067 in.)
----------------	-----	--

Tip clearance	Max.	0.17 mm (0.0067 in.)
	STD	0.07 to 0.15 mm (0.0028 to 0.0059 in.)
	Max.	0.15 mm (0.0059 in.)
Side clearance	STD	0.02 to 0.05 mm (0.0008 to 0.0020 in.)
	Max.	0.05 mm (0.0020 in.)
Drive gear thickness	Mark 1	10.690 to 10.699 mm (0.4209 to 0.4212 in.)
	Mark 2	10.700 to 10.709 mm (0.4213 to 0.4216 in.)
	Mark 3	10.710 to 10.720 mm (0.4217 to 0.4220 in.)
	Mark 4	10.721 to 10.730 mm (0.4221 to 0.4224 in.)
	Mark 5	10.731 to 10.740 mm (0.4225 to 0.4228 in.)
Driven gear thickness	Mark 1	10.690 to 10.699 mm (0.4209 to 0.4212 in.)
	Mark 2	10.700 to 10.709 mm (0.4213 to 0.4216 in.)
	Mark 3	10.710 to 10.720 mm (0.4217 to 0.4220 in.)
	Mark 4	10.721 to 10.730 mm (0.4221 to 0.4224 in.)
	Mark 5	10.731 to 10.740 mm (0.4225 to 0.4228 in.)
Pump body bushing inside diameter	STD	38.113 to 38.138 mm (1.50050 to 1.50149 in.)
	Max.	38.138 mm (1.50149 in.)
Oil seal in depth	STD	0 +- 0.5 mm (0 +- 0.020 in.)
Stator shaft bushing inside diameter	STD	21.500 to 21.526 mm (0.84646 to 0.84748 in.)
	Max	21.526 mm (0.84748 in.)

Second Brake Piston

Piston return spring free length	16.61 mm (0.6539 in.)
----------------------------------	-----------------------

Forward Clutch

Pack clearance		1.74 to 2.08 mm (0.0685 to 0.0819 in.)
Piston return spring free length		28.23 mm (1.1102 in.)
Flange thickness	No. 1	3.00 mm (0.1181 in.)
	No. 2	3.15 mm (0.1240 in.)
	No. 3	3.30 mm (0.1299 in.)
	No. 4	3.45 mm (0.1358 in.)
	No. 5	3.60 mm (0.1417 in.)

Direct Clutch

Pack clearance	0.515 to 0.825 mm (0.0203 to 0.0324 in.)
----------------	--

Piston return spring free length		22.58 mm (0.8898 in.)
Flange thickness (Direct clutch)	Mark 1	3.0 mm (0.118 in.)
	Mark 2	3.1 mm (0.122 in.)
	Mark 3	3.2 mm (0.126 in.)
	Mark 4	3.3 mm (0.130 in.)
	Mark 5	3.4 mm (0.134 in.)
	Mark 6	3.5 mm (0.138 in.)

Underdrive Planetary Gear

Turning torque (at 60 rpm)	1.50 to 2.58 N*m (15 to 26 kgf*cm, 13 to 23 in.*lbf)
----------------------------	--

Underdrive Clutch

Pack clearance		1.51 to 1.90 mm (0.0594 to 0.0748 in.)
Piston return spring free length		17.14 mm (0.6752 in.)
Flange thickness (Underdrive clutch)	Mark 1	3.0 mm (0.118 in.)
	Mark 2	3.2 mm (0.126 in.)
	Mark 3	3.4 mm (0.134 in.)
U/D clutch drum bushing inside diameter	STD	37.06 to 37.08 mm (1.4591 to 1.4598 in.)
	Max.	37.13 mm (1.4618 in.)

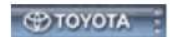
Differential

Side gear backlash		0.05 to 0.20 mm (0.0020 to 0.0070 in.)
Thrust washer thickness		1.625 mm (0.0640 in.)
		1.725 mm (0.0679 in.)
		1.825 mm (0.0719 in.)
Preload (turning torque at 60 rpm))	New bearing	0.20 to 0.69 N*m (2.0 to 7.0 kgf*cm, 1.8 to 6.1 in.*lbf)
	Using bearing	0.10 to 0.35 N*m (1.0 to 3.6 kgf*cm, 0.9 to 3.1 in.*lbf)
Shim thickness	Mark 0	2.00 mm (0.0787 in.)
	Mark 1	2.05 mm (0.0807 in.)
	Mark 2	2.10 mm (0.0827 in.)
	Mark 3	2.15 mm (0.0846 in.)
	Mark 4	2.20 mm (0.0866 in.)
	Mark 5	2.25 mm (0.0886 in.)
	Mark 6	2.30 mm (0.0906 in.)
	Mark 7	2.35 mm (0.0925 in.)

SERVICE SPECIFICATIONS: U140F AUTOMATIC TRANSAXLE: ...

<https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Mark 8	2.40 mm (0.0945 in.)
Mark 9	2.45 mm (0.0965 in.)
Mark A	2.50 mm (0.0984 in.)
Mark B	2.55 mm (0.1004 in.)
Mark C	2.60 mm (0.1024 in.)
Mark D	2.65 mm (0.1043 in.)
Mark E	2.70 mm (0.1063 in.)
Mark F	2.75 mm (0.1083 in.)
Mark G	2.80 mm (0.1102 in.)
Mark H	2.85 mm (0.1122 in.)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000279700AX
Title: SERVICE SPECIFICATIONS: U140F AUTOMATIC TRANSAXLE: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

Automatic Transaxle Assembly

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Park/neutral position switch	Nut	6.9	70	61 in.*lbf
	Bolt	5.4	55	48 in.*lbf
Control shaft lever x Control shaft		13	133	9
Shift control cable x Control shaft lever		15	153	11
Transaxle housing x Engine block	A bolt	64	653	47
	B bolt	46	470	34
	Lower side bolt	37	377	27
Torque converter clutch x Drive plate		41	418	30
Engine mounting bracket FR x Transaxle		64	653	47
Oil filler tube x Transaxle		5.5	56	49 in.*lbf
Control cable bracket No.1 x Transaxle		12	122	9
Oil cooler tube clamp x Control cable bracket		5.4	55	48 in.*lbf
Oil cooler inlet tube x Transaxle		34	347	25
Oil cooler outlet tube x Transaxle		34	347	25
Starter x Transaxle		37	377	27
Wire harness x Transaxle		13	133	10
Speed sensor (NC) x Transaxle		11	115	8
Speed sensor (NT) x Transaxle		11	112	8
Air cleaner x No. 1 air cleaner inlet		5.0	51	44 in.*lbf
Drain plug x Oil pan		47	479	35
Transmission wire x Transaxle		5.4	55	48 in.*lbf
ATF temperature sensor x Valve body		6.6	67	58 in.*lbf
Oil pan x Transaxle		7.6	77	67 in.*lbf
Solenoid valve x Valve body	Bolt A	6.6	67	58 in.*lbf
	Bolt B	11	110	8
Valve body x Transaxle		10.8	110	8
Oil strainer x Valve body		11	110	8
Floor shift assembly x Body		12	120	9

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Control cable x Body	5.0	51	44 in.*lbf
Transfer x Transaxle	69	704	51
Engine mount bracket RR x Transfer stiffener, plate RH	45	459	34

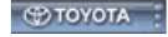
Automatic Transaxle Unit

PART TIGHTENED	N*M	KG*CM	FT.*LBF
Differential gear lube apply tube x Transaxle housing	9.8	100	7
Front planetary gear lock nut	268	2,732	198
Brake apply tube clamp x Transaxle case	5.4	55	48 in.*lbf
Transaxle case No. 1 plug x Transaxle rear cover	7.4	75	65 in.*lbf
Transaxle rear cover plate x transaxle rear cover sub-assembly	7.5	76	66 in.*lbf
Transaxle rear cover x Transaxle case	Bolt A	18.6	190
	Other bolt	24.5	250
Pawl shaft clamp x Transaxle case	9.8	100	7
Oil pump assembly x Transaxle case	22	226	16
Transaxle housing x Transaxle case	Bolt A	22.1	225
	Bolt B, C	29.4	300
Transaxle case No. 1 plug x Transaxle housing	7.4	75	65 in.*lbf
Parking lock pawl bracket x Transaxle case	20	205	15
Detent spring x Transaxle case	Bolt A	20	205
	Bolt B	12	120
Solenoid wire retaining bolt x Transaxle housing	5.4	55	48 in.*lbf
Transmission valve body x Transaxle case	11	110	8
ATF temperature sensor clamp x Valve body	6.6	67	58 in.*lbf
Valve body oil strainer x Transmission valve	11	110	8
Automatic transaxle oil pan sub-assembly x Transaxle case	7.8	80	69 in.*lbf
Speed sensor x Transaxle case	11.3	115	8
Transmission revolution sensor x Transaxle case	11.3	115	8
Oil cooler tube union x Transaxle case	27	276	20
Oil cooler tube union x Transaxle case	27	280	20
Speedometer driven hole cover sub-assembly x Transaxle case	7.0	70	61
Oil pump body x Stator shaft assembly	9.8	100	7
Under drive planetary gear x Lock nut	280	2,855	207
Line pressure control solenoid assembly x Transmission valve body assembly	11	110	8

SERVICE SPECIFICATIONS: U140F AUTOMATIC TRANSAXLE: ...

<https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 1 clutch control solenoid assembly x Transmission valve body assembly	11	110	8
Automatic transmission 3 way solenoid assembly x Transmission valve body assembly	11	110	8
No. 2 clutch control solenoid assembly x Transmission valve body assembly	11	110	8
No. 2 transmission 3 way solenoid assembly x Transmission valve body assembly	11	110	8
Front differential case x Front differential ring gear	95.1	970	70



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000279800FX
Title: SERVICE SPECIFICATIONS: U241E AUTOMATIC TRANSAXLE: SERVICE DATA (2011 RAV4)		

SERVICE DATA

Automatic Transaxle Assembly

Line pressure (Wheel locked) AT stall (Throttle valve fully opened)	D position	931 to 1031 kPa (9.1 to 10.5 kgf/cm ² , 129 to 149 psi)
	R position	1768 to 1968 kPa (18.0 to 20.0 kgf/cm ² , 284 to 256 psi)
Engine stall revolution	D positions	2140 to 2740 rpm
Time lag	N → D position	Less than 1.2 seconds
	N → R position	Less than 1.2 seconds
Engine idle speed (A/C OFF)	N position	600 to 700 rpm
Drive plate runout	Maximum.	0.30 mm (0.0118 in.)
Differential oil seal drive in depth	LH side	0 +/-0.5 mm (0 +/-0.020 in.)
	RH side	6.0 +/-0.5 mm (0.236 +/-0.020 in.)
Shift point		
D position (Throttle valve fully opened)	1 → 2	65 to 75 km/h (40 to 47 mph)
	2 → 3	122 to 134 km/h (76 to 83 mph)
	3 → 4	187 to 207 km/h (116 to 128 mph)
	4 → 3	173 to 197 km/h (111 to 122 mph)
	3 → 2	108 to 119 km/h (67 to 74 mph)
	2 → 1	53 to 62 km/h (33 to 39 mph)
D position (Throttle valve fully closed)	3 → 4	46 to 54 km/h (29 to 34 mph)
	4 → 3	19 to 26 km/h (12 to 16 mph)
2 position (Throttle valve fully opened)	1 → 2	65 to 75 km/h (40 to 47 mph)
	3 → 2	121 to 132 km/h (75 to 82 mph)
	2 → 1	53 to 62 km/h (33 to 39 mph)
L position (Throttle valve fully opened)	3 → 2	121 to 132 km/h (75 to 82 mph)
	2 → 1	60 to 69 km/h (37 to 43 mph)
Lock-up point		
D position (Throttle valve opening 5 %)	Lock-up ON 4 → 4L	65 to 74 km/h (40 to 46 mph)
	Lock-up OFF 4L → 4	59 to 68 km/h (37 to 42 mph)
Input shaft		

End play	0.26 to 1.25 mm (0.0103 to 0.0492 in.)	
Multiple disc clutch clutch hub		
Inside diameter	STD	23.025 to 23.045 mm (0.9065 to 0.9073 in.)
	Max.	23.09 mm (0.9091 in.)
Underdrive brake		
Return spring free length	14.04 mm (0.5528 in.)	
Pack clearance	1.81 to 2.20 mm (0.0713 to 0.0866 in.)	
Flange thickness	Mark 1	3.0 mm (0.118 in.)
	Mark 2	3.2 mm (0.126 in.)
	Mark 3	3.4 mm (0.134 in.)
2nd brake		
Pack clearance	0.62 to 0.91 mm (0.0244 to 0.0358 in.)	
Return spring free length	16.61 mm (0.6539 in.)	
Flange thickness	Mark 1	3.0 mm (0.118 in.)
	Mark 2	3.1 mm (0.122 in.)
	Mark 3	3.2 mm (0.126 in.)
	Mark 4	3.3 mm (0.130 in.)
	Mark 5	3.4 mm (0.134 in.)
	Mark 6	3.5 mm (0.138 in.)
	Mark 7	3.6 mm (0.142 in.)
1st and reverse brake		
Pack clearance	1.02 to 1.21 mm (0.0402 to 0.0476 in.)	
Return spring free length	15.51 mm (0.6106 in.)	
Flange thickness	Mark 1	1.8 mm (0.071 in.)
	Mark 2	1.9 mm (0.075 in.)
	Mark 3	2.0 mm (0.079 in.)
	Mark 4	2.1 mm (0.083 in.)
	Mark 5	2.2 mm (0.087 in.)
	Mark 6	2.3 mm (0.091 in.)
	Mark 7	2.4 mm (0.094 in.)
	Mark 8	2.5 mm (0.098 in.)

Oil Pump

Body clearance	STD	0.10 to 0.17 mm (0.0039 to 0.0067 in.)
	Max.	0.17 mm (0.0067 in.)

Tip clearance	STD	0.07 to 0.15 mm (0.0028 to 0.0059 in.)
	Max.	0.15 mm (0.0059 in.)
Side clearance	STD	0.02 to 0.05 mm (0.0008 to 0.0020 in.)
	Max.	0.05 mm (0.0020 in.)
Drive gear thickness	Mark 1	10.690 to 10.699 mm (0.4209 to 0.4212 in.)
	Mark 2	10.700 to 10.709 mm (0.4213 to 0.4216 in.)
	Mark 3	10.710 to 10.720 mm (0.4217 to 0.4220 in.)
	Mark 4	10.721 to 10.730 mm (0.4221 to 0.4224 in.)
	Mark 5	10.731 to 10.740 mm (0.4225 to 0.4228 in.)
Driven gear thickness	Mark 1	10.690 to 10.699 mm (0.4209 to 0.4212 in.)
	Mark 2	10.700 to 10.709 mm (0.4213 to 0.4216 in.)
	Mark 3	10.710 to 10.720 mm (0.4217 to 0.4220 in.)
	Mark 4	10.721 to 10.730 mm (0.4221 to 0.4224 in.)
	Mark 5	10.731 to 10.740 mm (0.4225 to 0.4228 in.)
Pump body bushing inside diameter	STD	38.113 to 38.138 mm (1.50050 to 1.50149 in.)
	Max.	38.138 mm (1.50149 in.)
Oil seal in depth	STD	0 +- 0.5 mm (0 +- 0.020 in.)
Stator shaft bushing inside diameter	STD	21.500 to 21.526 mm (0.84646 to 0.84748 in.)
	Max	21.526 mm (0.84748 in.)

Second Brake Piston

Piston return spring free length	16.61 mm (0.6539 in.)
----------------------------------	-----------------------

Forward Clutch

Pack clearance		1.74 to 2.08 mm (0.0685 to 0.0819 in.)
Piston return spring free length		28.23 mm (1.1102 in.)
Flange thickness	No. 1	3.00 mm (0.1181 in.)
	No. 2	3.15 mm (0.1240 in.)
	No. 3	3.30 mm (0.1299 in.)
	No. 4	3.45 mm (0.1358 in.)
	No. 5	3.60 mm (0.1417 in.)

Direct Clutch

Pack clearance	0.605 to 0.825 mm (0.0238 to 0.0325 in.)
Piston return spring free length	22.58 mm (0.8890 in.)

Flange thickness (Direct clutch)	Mark 1	3.0 mm (0.118 in.)
	Mark 2	3.1 mm (0.122 in.)
	Mark 3	3.2 mm (0.126 in.)
	Mark 4	3.3 mm (0.130 in.)
	Mark 5	3.4 mm (0.134 in.)
	Mark 6	3.5 mm (0.138 in.)

Underdrive Planetary Gear

Turning torque (at 60 rpm)	0.23 to 5.01 N*m (2 to 51 kgf*cm, 2.0 to 44.3 in.*lbf)
----------------------------	--

Underdrive Clutch

Pack clearance		1.51 to 1.90 mm (0.0594 to 0.0748 in.)
Piston return spring free length		17.14 mm (0.6752 in.)
Flange thickness (Underdrive clutch)	Mark 1	3.0 mm (0.118 in.)
	Mark 2	3.2 mm (0.126 in.)
	Mark 3	3.4 mm (0.134 in.)
U/D clutch drum bushing inside diameter	STD	32.56 to 32.58 mm (1.2818 to 1.2826 in.)
	Max.	32.63 mm (1.2846 in.)

Differential

Side gear backlash		0.05 to 0.20 mm (0.0020 to 0.0070 in.)
Thrust washer thickness		1.0 mm (0.0394 in.)
		1.2 mm (0.0472 in.)
		1.1 mm (0.0433 in.)
		1.3 mm (0.0512 in.)
Preload (turning torque at 60 rpm))	New bearing	0.20 to 0.69 N*m (2.0 to 7.0 kgf*cm, 1.8 to 6.1 in.*lbf)
	Using bearing	0.10 to 0.35 N*m (1.0 to 3.6 kgf*cm, 0.9 to 3.1 in.*lbf)
Shim thickness	Mark 0	1.90 mm (0.074 in.)
	Mark 1	1.95 mm (0.077 in.)
	Mark 2	2.00 mm (0.079 in.)
	Mark 3	2.05 mm (0.081 in.)
	Mark 4	2.10 mm (0.083 in.)
	Mark 5	2.15 mm (0.085 in.)
	Mark 6	2.20 mm (0.087 in.)
	Mark 7	2.25 mm (0.089 in.)

SERVICE SPECIFICATIONS: U241E AUTOMATIC TRANSAXLE: ...

<https://techinfo.toyota.com/t3Portal/document/rm/RM16B0U/xhtml/RM...>

Mark 8	2.30 mm (0.091 in.)
Mark 9	2.35 mm (0.093 in.)
Mark A	2.40 mm (0.094 in.)
Mark B	2.45 mm (0.096 in.)
Mark C	2.50 mm (0.098 in.)
Mark D	2.55 mm (0.100 in.)
Mark E	2.60 mm (0.102 in.)
Mark F	2.65 mm (0.104 in.)
Mark G	2.70 mm (0.106 in.)
Mark H	2.75 mm (0.108 in.)
Mark J	2.80 mm (0.110 in.)



Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000279900GX
Title: SERVICE SPECIFICATIONS: U241E AUTOMATIC TRANSAXLE: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

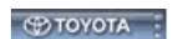
Automatic Transaxle Assembly

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Park/neutral position switch	Nut	6.9	70	61 in.*lbf
	Bolt	5.4	55	48 in.*lbf
Control shaft lever x Control shaft		13	133	16
Shift control cable x Control shaft lever		15	153	11
Transaxle housing x Engine block	A bolt	64	653	47
	B bolt	46	470	34
	Lower side bolt	37	377	27
Torque converter clutch x Drive plate		41	418	30
Engine mounting bracket FR x Transaxle		64	653	47
Oil filler tube x Transaxle		5.5	56	49 in.*lbf
Starter x Transaxle		37	377	27
Speed sensor (NC) x Transaxle		11	115	8
Speed sensor (NT) x Transaxle		11	112	8
Drain plug x Oil pan		47	479	35
Transmission wire x Transaxle		5.4	55	48 in.*lbf
ATF temperature sensor x Valve body		6.6	67	58 in.*lbf
Oil pan x Transaxle		7.6	77	67 in.*lbf
Solenoid valve x Valve body	Bolt A	6.6	67	58 in.*lbf
	Bolt B	11	110	8
Valve body x Transaxle		11	112	8
Oil strainer x Valve body		11	112	8
Floor shift assembly x Body		12	120	9
Engine mount bracket RR x Transfer stiffener, plate RH		45	459	34

Automatic Transaxle Unit

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Differential gear lube apply tube x Transaxle housing	9.8	100	7
Front planetary gear lock nut	268	2732	198

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Brake apply tube clamp x Transaxle case		5.4	55	48 in.*lbf
Transaxle case No. 1 plug x Transaxle rear cover		7.4	75	65 in.*lbf
Transaxle rear cover plate x transaxle rear cover sub-assembly		7.5	76	66 in.*lbf
Transaxle rear cover x Transaxle case	Bolt A	18.6	190	14
	Other bolt	24.5	250	18
Pawl shaft clamp x Transaxle case		9.8	100	7
Oil pump assembly x Transaxle case		22	226	16
Transaxle housing x Transaxle case	Bolt A	22.1	225	16.3
	Bolt B, C	29.4	300	21.7
Transaxle case No. 1 plug x Transaxle housing		7.4	75	65 in.*lbf
Parking lock pawl bracket x Transaxle case		20	205	15
Detent spring x Transaxle case	Bolt A	20	205	15
	Bolt B	12	120	9
Solenoid wire retaining bolt x Transaxle housing		5.4	55	48 in.*lbf
Transmission valve body x Transaxle case		11	110	8
ATF temperature sensor clamp x Valve body		6.6	67	58 in.*lbf
Valve body oil strainer x Transmission valve		11	110	8
Automatic transaxle oil pan sub-assembly x Transaxle case		7.8	80	69 in.*lbf
Speed sensor x Transaxle case		11.3	115	8
Transmission revolution sensor x Transaxle case		11.3	115	8
Oil cooler tube union x Transaxle case		27	276	20
Oil cooler tube union x Transaxle case		27	280	20
Speedometer driven hole cover sub-assembly x Transaxle case		7.0	70	61
Oil pump body x Stator shaft assembly		9.8	100	7
Under drive planetary gear x Lock nut		280	2855	207
Line pressure control solenoid assembly x Transmission valve body assembly		11	110	8
No. 1 clutch control solenoid assembly x Transmission valve body assembly		11	110	8
Automatic transmission 3 way solenoid assembly x Transmission valve body assembly		11	110	8
No. 2 clutch control solenoid assembly x Transmission valve body assembly		11	110	8
No. 2 transmission 3 way solenoid assembly x Transmission valve body assembly		11	110	8
Front differential case x Front differential ring gear		95.1	970	70

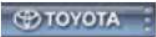


Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM00000285D00IX
Title: SERVICE SPECIFICATIONS: WINDSHIELD / WINDOWGLASS: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

WINDSHIELD/WINDOWGLASS:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Wiper arm x Body	26	265	19
Rear wiper arm x Body	5.5	56	49 in.*lbf



cardiagn.com

Last Modified: 9-7-2011	6.4 F	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM0000028IQ00LX
Title: SERVICE SPECIFICATIONS: WIPER AND WASHER: TORQUE SPECIFICATIONS (2011 RAV4)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT* LBF
Wiper motor x Wiper link	5.4	55	48 in* lbf
Wiper link x Body	5.5	56	49 in* lbf
Wiper arm x Wiper link	26	265	19
Rear wiper motor x Body	5.5	56	49 in* lbf
Rear wiper motor x Rare wiper arm	5.5	56	49 in* lbf
Windshield washer jar assembly x Body	5.0	51	44 in* lbf

