Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002I9Y00IX
Title: SPECIFICATIONS: 2AZ-FE BATTERY / CHARGING: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Battery voltage	Standard voltage		12.5 to 12.9 V at 20°C (68°F)
Fuse	Standard resistance		Below 1 Ω
Charging circuit without load	Standard current		10 A or less
	Standard voltage		13.2 to 14.8 V
Charging circuit with load	Standard amperage		30 A or more
Generator brush holder assembly	Standard length		9.5 to 11.5 mm (0.374 to 0.453 in.)
	Minimum length		4.5 mm (0.177 in.)
Generator rotor assembly	Standard resistance	Between the slip rings	2.3 to 2.7 Ω at 20°C (68°F)
		Slip ring - Rotor core	1 MΩ or higher
	Standard diameter		14.2 to 14.4 mm (0.559 to 0.567 in.)
	Minimum diameter		14 mm (0.551 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002I9Z00IX
Title: SPECIFICATIONS: 2AZ-FE BATTERY / CHARGING: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Generator drive end frame x Bearing retainer plate		2.3	23	20 in.*lbf
Generator coil assembly x Generator drive end frame		5.8	59	51 in.*lbf
Cord clip x Generator coil assembly		4.6	47	41 in.*lbf
Generator brush holder assembly x Generator coil assembly		1.8	18	16 in.*lbf
Generator rear end cover x Generator coil assembly		4.6	47	41 in.*lbf
Generator clutch pulley x Generator rotor assembly	without SST	111	1127	82
	with SST	84	857	62
Generator assembly x Cylinder block	Bolt A	21	215	16
	Bolt B	52	530	38
Generator wire x Terminal B		9.8	100	87 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002N4M007X
Title: SPECIFICATIONS: 2AZ-FE COOLING: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Thermostat	Valve opening temperature	80 to 84°C (176 to 183°F)
	Valve lift	10 mm (0.39 in.) or more at 95°C (203°F)
Cooling fan motor		7.4 to 11.4A (at 12V) 20°C (68°F)
No. 2 cooling fan motor		4.7 to 8.7A (at 12V) 20°C (68°F)
No. 1 fan relay	3-5	10kΩ or higher
		Below 1Ω (when battery voltage is applied to terminals 1 and 2)
No. 2 fan relay	3 - 4	Below 1 Ω
		10 kΩ or higher (when battery voltage is applied to terminals 1 and 2)
	3 - 5	10 kΩ or higher
		Below 1 Ω (when battery voltage is applied to terminals 1 and 2)
No. 3 fan relay	3 - 5	10 kΩ or higher
		Below 1 Ω (when battery voltage is applied to terminals 1 and 2)
Radiator cap sub-assembly	Standard valve (for brand new cap)	74.0 to 103.0 kPa (0.75 to 1.05 kgf/cm^2, 10.7 to 15.0 psi)
	Minimum standard valve (for used cap)	59.0 kPa (0.60 kgf/cm^2, 8.6 psi)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002N4N007X
Title: SPECIFICATIONS: 2AZ-FE COOLING: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT*LBF
Cylinder block drain cock plug x Cylinder block	13	130	9
Water pump x Cylinder block	9.0	92	80 in.*lbf
Water pump pulley x Water pump	26	265	19
Water inlet x Cylinder block	9.0	92	80 in.*lbf
Cooling fan motor x Fan shroud	3.9	40	35 in.*lbf
No. 2 cooling fan motor x Fan shroud	3.9	40	35 in.*lbf
Fan x Cooling fan motor	6.3	64	56 in.*lbf
Oil cooler hose x Fan shroud (for Automatic transaxle)	5.5	56	49 in.*lbf
Fan shroud x Radiator assembly	7.0	71	62 in.*lbf
No. 2 fan shroud x Radiator assembly	7.0	71	62 in.*lbf
Upper radiator support sub-assembly x Body	5.5	56	49 in.*lbf
Hood lock support sub-assembly x Radiator support sub-assembly	7.0	71	62 in.*lbf
Upper radiator support x Upper radiator support sub-assembly	19	194	14

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K64001X
Title: SPECIFICATIONS: 2AZ-FE EMISSION CONTROL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Vacuum switching valve		
Resistance	1 - 2	23 to 26 Ω at 20°C (68°F)
	1 - Body ground	10 MΩ or higher
	2 - Body ground	10 MΩ or higher

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K65001X
Title: SPECIFICATIONS: 2AZ-FE EMISSION CONTROL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Ventilation valve sub-assembly x Cylinder head cover	19	194	14
Charcoal canister x Body	19	194	14
No. 1 fuel tank protector sub-assembly x Fuel tank	5.5	56	49 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000036OB00SX
Title: SPECIFICATIONS: 2AZ-FE ENGINE CONTROL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Spark plug		Standard resistance	10 MΩ or more
		Recommended spark plug	SK20R11 DENSO made
			IFR6A11 NGK made
		Electrode gap	1.0 to 1.1 mm (0.0394 to 0.0433 in.)
		Maximum electrode gap	1.3 mm (0.0512 in.) for used plug
Camshaft oil control valve		1 - 2	Resistance: 6.9 to 7.9 Ω at 20°C (68°F)
Throttle body		1 (M-) - 2 (M+)	Resistance: 0.3 to 100 Ω at 20°C (68°F)
Accelerator pedal	Accelerator position No. 1 standard voltage	Accelerator pedal is released	0.5 to 1.1 V
		Accelerator pedal is depressed	2.6 to 4.5 V
	Accelerator position No. 2 standard voltage	Accelerator pedal is released	1.2 to 2.0 V
		Accelerator pedal is depressed	3.4 to 5.0 V
Mass air flow meter		Engine not running 30 seconds after ignition switch is turned to ON	Less than 0.48 g/sec.
		1 (THA) - 2 (E2)	Resistance: 13.6 to 18.4 kΩ at -20°C (-4°F) 2.21 to 2.69 kΩ at 20°C (68°F) 0.493 to 0.667 kΩ at 60°C (140°F)
Camshaft position sensor		1 - 2	Resistance: 835 to 1400 Ω at -10 to 50°C (14 to 122°F) 1060 to 1645 Ω at 50 to 100°C (122 to 212°F)
Crankshaft position sensor		1 - 2	Resistance: 985 to 1600 Ω at -10 to 50°C

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		(14 to 122°F) 1265 to 1890 Ω at 50 to 100°C (122 to 212°F)
Engine coolant temperature sensor	1 - 2	Resistance: 2.32 to 2.59 kΩ at 20°C (68°F) 0.310 to 0.326 kΩ at 80°C (176°F)
Knock sensor	1 - 2	Resistance: 120 to 280 kΩ Always
Air fuel ratio sensor	(HT) - (+B)	Resistance: 1.8 to 3.4 Ω at 20°C (68°F)
	(HT) - (AF-)	Resistance: 10 kΩ or higher
Heated oxygen sensor	(HT) - (+B)	Resistance: 11 to 16 Ω at 20°C (68°F)
	(HT) - (E)	Resistance: 10 kΩ or higher
Integration relay (EFI MAIN RELAY)	1E-1 - 1B-4	Resistance: 10 kΩ or higher (Battery voltage is not applied between terminals 1B-3 and 1B-2)
		Resistance: Below 1 Ω (Battery voltage is applied between terminals 1B-3 and 1B-2)
Integration relay (IG2 RELAY)	1E-1 - 1A-4	Resistance: 10 kΩ or higher (Battery voltage is not applied between terminals 1A-2 and 1A-3)
		Resistance: Below 1 Ω (Battery voltage is applied between terminals 1A-2 and 1A-3)
Integration relay (HORN RELAY)	1E-1 - 1A-8	Resistance: 10 kΩ or higher (Battery voltage is not applied between terminals 1A-6 and 1A-7)

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		Resistance: Below 1 Ω (Battery voltage is applied between terminals 1A-6 and 1A-7)
Circuit opening relay	2A-8 - 2B-11	Resistance: 10 kΩ or higher (Battery voltage is not applied between terminals 2B-10 and 2B-9)
		Resistance: Below 1 Ω (Battery voltage is applied between terminals 2B-10 and 2B-9)



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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000036OC00SX
Title: SPECIFICATIONS: 2AZ-FE ENGINE CONTROL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Camshaft timing oil control valve assembly x Cylinder head sub-assembly		9.0	92	80 in.*lbf
Throttle body x Intake manifold		30	306	22
ECM x Body		8.0	82	71 in.*lbf
Accelerator pedal assembly x Body		5.5	56	49 in.*lbf
Mass air flow meter x Air cleaner cap		1.0	10	9 in.*lbf
Camshaft position sensor x Cylinder head sub-assembly		9.0	92	80 in.*lbf
Crankshaft position sensor x Timing chain cover		9.0	92	80 in.*lbf
Spark plug x Cylinder head sub-assembly		19	194	14
Ignition coil x Cylinder head cover sub-assembly		9.0	92	80 in.*lbf
Engine coolant temperature sensor x Cylinder head sub-assembly		20	204	14
Knock control sensor x Cylinder block		20	204	15
Air fuel ratio sensor x Exhaust manifold	Without SST	44	449	32
	With SST	40	408	30
Heated oxygen sensor x Front exhaust pipe assembly	Without SST	44	449	32
	With SST	40	408	30

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000028K700AX
Title: SPECIFICATIONS: 2AZ-FE ENGINE MECHANICAL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Engine	Ignition timing	Standard	When using Techstream	BTDC 5 to 15° at idle
			When not using Techstream	BTDC 8 to 12° at idle (Connect terminals 13 (TC) and 4 (CG))
				BTDC 5 to 15° at idle (Remove terminals 13 (TC) and 4 (CG))
	Engine idling speed	Standard		600 to 700 rpm
	Compression	Standard		1300 kPa (13.3 kgf/cm^2, 189 psi)
		Minimum		1000 kPa (10.0 kgf/cm^2, 145 psi)
		Difference between each cylinder		100 kPa (1.0 kgf/cm^2, 15 psi)
Camshaft	Valve clearance	Standard	Intake	0.19 to 0.29 mm (0.00748 to 0.0114 in.)
			Exhaust	0.38 to 0.48 mm (0.0150 to 0.189 in.)
	Thrust clearance	Standard	Intake	0.040 to 0.095 mm (0.00157 to 0.00374 in.)
			Exhaust	0.090 to 0.145 mm (0.00354 to 0.00570 in.)
		Maximum	Intake	0.110 mm (0.00433 in.)
			Exhaust	0.150 mm (0.00591 in.)
	Oil clearance	Standard	Camshaft No. 1 journal bearing mark 1	0.007 to 0.038 mm (0.000276 to 0.00150 in.)
			Camshaft No. 1 journal bearing	0.008 to 0.038 mm (0.000315 to 0.00150

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			mark 2	in.)
			Camshaft No. 1 journal bearing mark 3	0.008 to 0.038 mm (0.000315 to 0.00150 in.)
			Camshaft other journals	0.025 to 0.062 mm (0.000984 to 0.00244 in.)
			No. 2 camshaft No. 1 journal	0.040 to 0.072 mm (0.00157 to 0.00283 in.)
			No. 2 camshaft No. 1 journals	0.025 to 0.062 mm (0.000984 to 0.00244 in.)
		Maximum	Intake	0.070 mm (0.00276 in.)
			Exhaust	0.100 mm (0.00394 in.)
	Circle runout		Maximum	0.03 mm (0.00118 in.)
	Cam lobe height	Standard	Intake	47.306 to 47.406 mm (1.8654 to 1.8664 in.)
			Exhaust	46.063 to 46.163 mm (1.8135 to 1.8174 in.)
		Minimum	Intake	47.196 mm (1.8581 in.)
			Exhaust	45.953 mm (1.8092 in.)
	Journal diameter		Standard	No. 1: 35.971 to 35.985 mm (1.4162 to 1.4167 in.) Other: 22.959 to 22.975 mm (0.9039 to 0.9045 in.)
Cylinder head	Flatness	Standard	Cylinder block side	0.08 mm (0.00315 in.)
			Intake manifold side	0.08 mm (0.00315 in.)
			Exhaust manifold side	0.08 mm (0.00315 in.)
	Lifter bore diameter		Standard	31.009 to 31.025 mm (1.2208 to 1.2215 in.)
Cylinder head set bolt	Length		Standard	141.3 to 142.7 mm (5.563 to 5.618 in.)

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		Maximum	144.2 mm (5.677 in.)
Inner compression spring	Length	Standard	47.43 mm (1.867 in.)
	Deviation	Maximum	1.6 mm (0.0630 in.)
Intake valve	Overall length	Standard	101.71 mm (4.0043 in.)
		Minimum	101.21 mm (3.9846 in.)
	Valve stem diameter	Standard	5.470 to 5.485 mm (0.2154 to 0.2159 in.)
	Margin thickness	Standard	1.05 to 1.45 mm (0.0413 to 0.0571 in.)
		Minimum	0.50 mm (0.0197 in.)
Exhaust valve	Overall length	Standard	101.15 mm (3.9823 in.)
		Minimum	100.70 mm (3.9646 in.)
	Valve stem diameter	Standard	5.465 to 5.480 mm (0.2152 to 0.2157 in.)
	Margin thickness	Standard	1.20 to 1.60 mm (0.0472 to 0.0630 in.)
		Minimum	0.50 mm (0.0197 in.)
Intake valve guide bush	Inside diameter	Standard	5.510 to 5.530 mm (0.2169 to 0.2177 in.)
	Oil clearance	Standard	0.025 to 0.060 mm (0.000984 to 0.00236 in.)
		Maximum	0.090 mm (0.00354 in.)
Exhaust valve guide bush	Inside diameter	Standard	5.510 to 5.530 mm (0.2169 to 0.2177 in.)
	Oil clearance	Standard	0.030 to 0.065 mm (0.00118 to 0.00256 in.)
		Maximum	0.095 mm (0.00374 in.)
Valve lifter	Diameter	Standard	30.966 to 30.976 mm (1.2191 to 1.2195 in.)
	Oil clearance	Standard	0.033 to 0.059 mm (0.00130 to 0.00232 in.)

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		Maximum		0.079 mm (0.00311 in.)
Connecting rod	Thrust clearance	Standard		0.160 to 0.362 mm (0.00630 to 0.0143 in.)
		Maximum		0.362 mm (0.0143 in.)
	Oil clearance	Standard		0.024 to 0.048 mm (0.000945 to 0.00189 in.)
		Maximum		0.063 mm (0.00248 in.)
Cylinder block	Warpage	Maximum		0.05 mm (0.00197 in.)
	Cylinder bore diameter	Standard		88.500 to 88.513 mm (3.4843 to 3.4847 in.)
		Maximum		88.613 mm (3.4887 in.)
Piston	Diameter	Standard		88.469 to 88.479 mm (3.4830 to 3.4834 in.)
	Oil clearance	Standard		0.021 to 0.044 mm (0.000827 to 0.00173 in.)
		Maximum		0.10 mm (0.00394 in.)
	Ring groove clearance	Standard	No. 1	0.020 to 0.070 mm (0.000787 to 0.00276 in.)
			No. 2	0.020 to 0.060 mm (0.000787 to 0.00236 in.)
			Oil	0.020 to 0.070 mm (0.000787 to 0.00276 in.)
Piston ring	End gap	Standard	No. 1	0.24 to 0.31 mm (0.00945 to 0.0122 in.)
			No. 2	0.33 to 0.43 mm (0.0130 to 0.0169 in.)
			Oil	0.10 to 0.30 mm (0.00394 to 0.0118 in.)
		Maximum	No. 1	0.31 mm (0.0122 in.)
			No. 2	0.43 mm (0.0169 in.)

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		Oil	0.30 mm (0.0118 in.)
Piston pin	Oil clearance (Piston pin x Piston pin bore)	Standard	0.001 to 0.007 mm (0.0000394 to 0.000276 in.)
		Maximum	0.010 mm (0.000394 in.))
	Oil clearance (Piston pin x Connecting rod small end bore)	Standard	0.005 to 0.011 mm (0.000197 to 0.000433 in.)
		Maximum	0.011 mm (0.000433 in.)
Connecting rod bolt	Diameter	Standard	7.2 to 7.3 mm (0.283 to 0.287 in.)
		Minimum	7.0 mm (0.276 in.)
Connecting rod	Misalignment	Maximum	0.05 mm (0.00197 in.) per 100 mm (3.94 in.)
	Twist	Maximum	0.05 mm (0.00197 in.) per 100 mm (3.94 in.)
Crankshaft	Circle runout	Maximum	0.03 mm (0.00118 in.)
	Main journal diameter	Standard	54.988 to 55.000 mm (2.1649 to 2.1654 in.)
	Main journal for taper and distortion	Maximum	0.003 mm (0.000118 in.)
	Crank pin diameter	Standard	47.990 to 48.000 mm (1.8894 to 1.8898 in.)
	Crank pin for taper and distortion	Maximum	0.003 mm (0.000118 in.)
	Thrust clearance	Standard	0.04 to 0.24 mm (0.00157 to 0.00945 in.)
		Maximum	0.30 mm (0.0118 in.)
	Oil clearance	Standard	0.017 to 0.040 mm (0.000669 to 0.00157 in.)
		Maximum	0.060 mm (0.00236 in.)
Crankshaft bearing cap set bolt	Diameter	Standard	7.5 to 7.6 mm (0.295 to 0.299 in.)
		Minimum	7.5 mm (0.295 in.)

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Balanceshaft	Thrust clearance	Standard	0.05 to 0.09 mm (0.00197 to 0.00354 in.)
		Maximum	0.09 mm (0.00354 in.)
	Oil clearance	Standard	0.022 to 0.049 mm (0.000866 to 0.00193 in.)
		Maximum	0.049 mm (0.00193 in.)
Balanceshaft housing bolt	Length	Standard	58.3 to 59.7 mm (2.295 to 2.350 in.)
		Maximum	60.3 mm (2.374 in.)
Chain sub-assembly	Elongation	Maximum	114.5 mm (4.508 in.)
No. 2 chain sub-assembly	Elongation	Maximum	102.2 mm (4.024 in.)
Oil pump drive gear	Diameter (with chain)	Minimum	48.2 mm (1.898 in.)
Oil pump drive shaft gear	Diameter (with chain)	Minimum	48.2 mm (1.898 in.)
Camshaft timing gear assembly	Diameter (with chain)	Minimum	97.3 mm (3.831 in.)
Camshaft timing gear or sprocket	Diameter (with chain)	Minimum	97.3 mm (3.831 in.)
Crankshaft timing gear or sprocket	Diameter (with chain)	Minimum	51.6 mm (2.031 in.)
Chain tensioner slipper	Maximum	Wear	1.0 mm (0.0394 in.)
No. 1 chain vibration damper	Maximum	Wear	1.0 mm (0.0394 in.)
Chain tensioner plate	Maximum	Wear	0.5 mm (0.0197 in.)

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Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000028K800AX
Title: SPECIFICATIONS: 2AZ-FE ENGINE MECHANICAL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Camshaft timing gear assembly x Camshaft		54	551	40
Camshaft bearing cap x Cylinder head	No. 1	30	301	22
	Other	9.0	92	80 in.*lbf
No. 2 camshaft bearing cap x Cylinder head	No. 2	30	301	22
	Other	9.0	92	80 in.*lbf
Camshaft timing gear or sprocket x No. 2 camshaft		54	551	40
No. 1 chain tensioner assembly x Timing chain or belt cover sub-assembly		9.0	92	80 in.*lbf
Cylinder head cover sub-assembly x Cylinder head sub-assembly	Bolt A	11	112	8
	Bolt B	14	143	10
	Nut	11	112	8
Cylinder head sub-assembly x Cylinder block	1st	70	714	52
	2nd	Turn 90°	Turn 90°	Turn 90°
Ground cable x Cylinder head sub-assembly		8.4	86	74 in.*lbf
Chain tensioner plate x Cylinder block		12	122	9
Oil pump drive shaft sprocket x Oil pump		30	301	22
No. 1 chain vibration damper x Cylinder head sub-assembly		9.0	92	80 in.*lbf
No. 1 chain vibration damper x Cylinder block		9.0	92	80 in.*lbf
Chain tensioner slipper x Cylinder block		19	194	14
Timing chain guide x Cylinder block		9.0	92	80 in.*lbf
V-ribbed belt tensioner assembly x Timing chain or belt cover sub-assembly		60	607	44
Crankshaft pulley x Crankshaft		180	1835	133

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PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Oil pan sub-assembly x Stiffening crankcase assembly or Timing chain or belt cover sub-assembly		9.0	92	80 in.*lbf
Idler pulley sub-assembly x Cylinder block sub-assembly		50	510	37
Engine mounting insulator sub-assembly RH x Transverse engine engine mounting bracket	Bolt A	52	530	38
	Bolt B	95	969	70
	Nut A	95	969	70
	Nut B	52	530	38
Exhaust manifold converter sub-assembly x Cylinder head sub-assembly		37	377	27
Engine oil level dipstick guide x Cylinder block		9.0	92	80 in.*lbf
for Automatic Transaxle: Drive plate and ring gear sub-assembly x Crankshaft		98	999	72
for Manual Transaxle: Flywheel sub-assembly x Crankshaft		130	1326	96
No. 1 engine hanger x Cylinder head sub-assembly		38	387	28
No. 2 engine hanger x Cylinder head sub-assembly		38	387	28
Drive shaft bearing bracket x Cylinder block		64	653	47
Engine mounting insulator sub-assembly LH x Frame		52	530	38
Engine mounting insulator sub-assembly LH x Engine mounting bracket		56	571	41
Front engine mounting insulator sub-assembly x Front cross member sub-assembly	Through bolt	73	744	54
	Bolt	81	827	59
Rear engine mounting insulator sub-assembly x Rear engine mounting bracket		65	663	48
Transmission control cable assembly x Control shaft lever		12	122	9
for Manual Transaxle: Ground cable x Transaxle		13	130	10
for Automatic Transaxle: Ground cable x Transaxle		26	260	19
Engine wire harness x Engine room relay block		8.4	85	74 in.*lbf
Battery carrier x Frame		13	133	10
Battery clamp x Battery clamp bolt		3.5	36	31 in.*lbf

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PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Battery clamp x Body		6.5	66	58 in.*lbf
Air cleaner case x Engine mounting insulator sub-assembly LH		7.0	71	62 in.*lbf
Radiator reserve tank assembly x Body		7.0	71	62 in.*lbf
No. 1 engine cover sub-assembly x Cylinder head cover sub-assembly		9.0	92	80 in.*lbf
Balanceshaft housing x Stiffening crankcase assembly	1st	22	220	16
	2nd	Turn 90°	Turn 90°	Turn 90°
Stiffening crankcase assembly x Cylinder block		24	245	18
No. 1 taper head screw plug x Cylinder block		26	265	19
Oil control valve filter x Cylinder head sub-assembly		30	306	22
Inlet water housing drain cock assembly x Inlet water housing		25	255	18
Plug x Inlet water housing drain cock		13	130	10
Camshaft timing oil control valve assembly x Cylinder head sub-assembly		9.0	92	80 in.*lbf
Crankshaft position sensor x Timing chain or belt cover sub-assembly		9.0	92	80 in.*lbf
Oil pan drain plug x Oil pan sub-assembly		25	255	18
Camshaft position sensor x Cylinder head sub-assembly		9.0	92	80 in.*lbf
Oil filter union x Stiffening crankcase assembly		30	306	22
Ventilation valve sub-assembly x Cylinder head cover sub-assembly		19	194	14
Radio setting condenser x Cylinder head sub-assembly		10	102	7
No. 1 water by-pass pipe x Cylinder block		9.0	92	80 in.*lbf
Stud bolt x Cylinder head sub-assembly	Bolt A	5.0	51	44 in.*lbf
	Bolt B	5.0	51	44 in.*lbf
	Bolt C	9.5	97	84 in.*lbf
	Bolt D	9.5	97	84 in.*lbf
No. 1 straight head screw plug x Cylinder head sub-assembly		86	877	64

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PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Stud bolt x Cylinder block	Bolt A	22	220	16
	Bolt B	5.0	51	44 in.*lbf
	Bolt C	9.5	97	84 in.*lbf
	Bolt D	5.0	51	44 in.*lbf
No. 1 oil nozzle sub-assembly x Cylinder block		7.0	71	62 in.*lbf
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	25	250	18
	2nd	Turn 90°	Turn 90°	Turn 90°

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001SB900PX
Title: SPECIFICATIONS: 2AZ-FE FUEL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Fuel pressure	Standard fuel pressure	304 to 343 kPa (3.1 to 3.5 kgf/cm^2, 44.1 to 49.7 psi)
Fuel pressure : at fuel pressure remains for 5 minutes after engine has stopped	Standard fuel pressure	147 kPa (1.5 kgf/cm^2, 21 psi) or more
Fuel injector assembly	Standard resistance	11.6 to 12.4 Ω at 20°C (68°F)
	Injection volume	76 to 92 cc (4.6 to 5.6 cu in.) per 15 seconds
	Difference between each fuel injector	16 cc (1.0 cu in.) or less
	Standard leakage	1 drop or less every 12 minutes
Fuel pump	Standard resistance	0.2 to 3.0 Ω at 20°C (68°F)
Fuel Sender gauge assembly	Standard resistance	13.5 to 16.5 Ω (Float level F)
		13.5 to 414.5 Ω (Float level E to F)
		405.5 to 414.5 Ω (Float level E)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001SBA00PX
Title: SPECIFICATIONS: 2AZ-FE FUEL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Fuel delivery pipe sub-assembly x Cylinder head sub-assembly	20	205	15
Fuel delivery pipe sub-assembly x Fuel pressure pulsation damper	9.0	90	80 in.*lbf
Fuel tank band x Body	39	400	29
No. 1 fuel tank protector x Fuel tank band	5.5	56	49 in.*lbf
No. 1 fuel tank protector x Body	5.5	56	49 in.*lbf
Parking brake cable x Body	5.4	55	48 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K68001X
Title: SPECIFICATIONS: 2AZ-FE INTAKE / EXHAUST: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Compression spring	Front exhaust pipe assembly x Exhaust manifold converter sub-assembly.	Minimum length: 41.5 mm (1.63 in.)
	Front exhaust pipe assembly x Tail exhaust pipe assembly	Minimum length: 38.5 mm (1.52 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K69001X
Title: SPECIFICATIONS: 2AZ-FE INTAKE / EXHAUST: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front exhaust pipe assembly x Exhaust manifold converter sub-assembly	43	440	32
Front exhaust pipe assembly x Center exhaust pipe assembly	43	440	32
Center exhaust pipe assembly x Tail exhaust pipe assembly	43	440	32
Exhaust manifold converter sub-assembly x Cylinder head assembly	37	377	27
No. 1 exhaust manifold heat insulator x Exhaust manifold converter sub-assembly	12	122	9
No. 1 exhaust manifold converter insulator x Exhaust manifold converter sub-assembly	12	122	9
No. 2 exhaust manifold heat insulator x Exhaust manifold converter sub-assembly	12	122	9
Manifold stay x Exhaust manifold converter sub-assembly	44	449	33
Manifold stay x Cylinder block	44	449	33
No. 2 manifold stay x Exhaust manifold converter sub-assembly	44	449	33
No. 2 manifold stay x Cylinder block	44	449	33
Intake manifold x Cylinder head assembly	30	306	22

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000028KB00BX
Title: SPECIFICATIONS: 2AZ-FE LUBRICATION: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Oil pressure switch	Oil pressure	Standard	Idling	29 kPa (0.3 kgf/cm^2, 4.3 psi) or more
			3000 rpm	170 to 300 kPa (1.7 to 3.1 kgf/cm^2, 24 to 44 psi)
Oil pump rotor	Side clearance	Standard		0.030 to 0.085 mm (0.00118 to 0.00335 in.)
		Maximum		0.16 mm (0.00630 in.)
	Tip clearance	Standard		0.080 to 0160 mm (0.00315 to 0.00630 in.)
		Maximum		0.35 mm (0.0138 in.)
	Body clearance	Standard		0.100 to 0170 mm (0.00394 to 0.00669 in.)
		Maximum		0.325 mm (0.0128 in.)
Chain tensioner plate	Wear	Maximum		0.5 mm (0.0197 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002N2Y007X
Title: SPECIFICATIONS: 2AZ-FE LUBRICATION: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Oil filter x Stiffening crankcase		18	179	13
Oil drain plug x Oil pan		25	255	18
Oil pump cover x Oil pump		8.8	90	78 in.*lbf
Oil pump relief valve plug x Oil pump		49	500	36
Oil pump strainer x Oil pump		8.8	90	78 in.*lbf
Oil pump X Cylinder block		19	194	14
Oil pressure switch x Cylinder block		15	153	11
Timing chain cover x Cylinder block, Cylinder head	Bolt A	9.0	92	80 in.*lbf
	Bolt B	25	255	18
	Bolt C	55	561	41
	Nut	11	112	8
Stud bolt x Cylinder block		22	220	16

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000313400UX
Title: SPECIFICATIONS: 2AZ-FE STARTING: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Starter assembly	Standard current	Below 90 A at 11.5 V
Starter relay	Standard resistance 3 - 5	Below 1 Ω (battery voltage is applied to terminals 1 and 2)
		10 kΩ or higher (battery voltage is not applied to terminals 1 and 2)
Acc relay	Standard resistance 3 - 5	Below 1 Ω (battery voltage is applied to terminals 1 and 2)
		10 kΩ or higher (battery voltage is not applied to terminals 1 and 2)
Ignition switch	Standard resistance Between all terminals	10 kΩ or higher (LOCK)
	Standard resistance 2 - 3	Below 1 Ω (ACC)
	Standard resistance 2 - 3	Below 1 Ω (ON)
	Standard resistance 2 - 4	
	Standard resistance 6 - 7	
	Standard resistance 1 - 2	Below 1 Ω (START)
	Standard resistance 1 - 4	
	Standard resistance 6 - 7	
	Standard resistance 6 - 8	
Starter armature assembly resistance	Segment - Segment	Below 1 Ω
	Commutator - Armature coil	10 kΩ or higher
Starter armature assembly commutator diameter	Standard diameter	29.0 mm (1.14 in.)
	Minimum diameter	28.0 mm (1.10 in.)
Starter armature assembly	Standard runout	0.02 mm (0.000787 in.)

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commutator circle runout	Maximum runout	0.05 mm (0.00197 in.)
Starter armature assembly commutator undercut depth	Standard runout	0.7 mm (0.0276 in.)
	Maximum runout	0.2 mm (0.00787 in.)
Starter brush holder assembly Brush length	Standard length	14.4 mm (0.567in.)
	Minimum length	9.0 mm (0.354 in.)
Starter brush holder assembly resistance	Standard resistance Positive brush holder - Negative brush holder	10 kΩ or higher
	Standard resistance Positive brush holder - Positive brush holder Negative brush holder - Negative brush holder	Below 1 Ω
Stater magnetic switch assembly resistance	Terminal 50 - Terminal C	Below 1 Ω
	Terminal 50 - Switch body	Below 2 Ω

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003135O0UX
Title: SPECIFICATIONS: 2AZ-FE STARTING: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Stater assembly x Transaxle housing	37	377	27
Terminal 30 x Wire harness	9.8	100	87 in.*lbf
Terminal C x Lead wire	10	102	7.4
Commutator end frame x Starter brush holder assembly	1.5	15	13 in.*lbf
Commutator end frame x Starter housing	6.0	61	53 in.*lbf
Magnet starter switch assembly x Starter housing	7.5	77	66 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002I9Y00HX
Title: SPECIFICATIONS: 2ZR-FE BATTERY / CHARGING: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Battery voltage	Standard voltage		12.5 to 12.9 V at 20°C (68°F)
Fuse	Standard resistance		Below 1 Ω
Charging circuit without load	Standard current		10 A or less
	Standard voltage		13.2 to 14.8 V
Charging circuit with load	Standard amperage		30 A or more
Generator brush holder assembly	Standard length		9.5 to 11.5 mm (0.374 to 0.453 in.)
	Minimum length		4.5 mm (0.177 in.)
Generator rotor assembly	Standard resistance	Between the slip rings	2.3 to 2.7 Ω at 20°C (68°F)
		Slip ring - Rotor core	1 MΩ or higher
	Standard diameter		14.2 to 14.4 mm (0.559 to 0.567 in.)
	Minimum diameter		14 mm (0.551 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002I9Z00HX
Title: SPECIFICATIONS: 2ZR-FE BATTERY / CHARGING: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Generator drive end frame x Bearing retainer plate		2.3	23	20 in.*lbf
Generator coil assembly x Generator drive end frame		5.8	59	51 in.*lbf
Generator brush holder assembly x Generator coil assembly		1.8	18	16 in.*lbf
Generator rear end cover x Generator coil assembly		4.6	47	41 in.*lbf
Generator clutch pulley x Generator rotor assembly	without SST	111	1127	82
	with SST	84	857	62
Generator assembly x Cylinder block	Bolt A	52	530	38
	Bolt B	21	215	16
wire harness clamp bracket x Generator end frame assembly		8.4	86	74 in.*lbf
Generator wire x Terminal B		9.8	100	87 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000343300FX
Title: SPECIFICATIONS: 2ZR-FE COOLING: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Thermostat	Valve opening temperature	80 to 84°C (176 to 183°F)
	Valve lift	10 mm (0.39 in.) or more at 95°C (203°F)
Cooling fan motor		7.4 to 10.9A (at 12V) 20°C (68°F)
Cooling fan ECU		2.0 to 15.2A (at 12V) 20°C (68°F)
Cooling fan relay	3-5	10kΩ or higher
	3-5	Below 1Ω (when battery voltage is applied to terminals 1 and 2)
Radiator cap sub-assembly	Standard valve (for brand new cap)	74.0 to 103.0 kPa (0.75 to 1.05 kgf/cm^2, 10.7 to 14.9 psi)
	Minimum standard valve (for used cap)	59.0 kPa (0.6 kgf/cm^2, 8.6 psi)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000343400FX
Title: SPECIFICATIONS: 2ZR-FE COOLING: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT*LBF
Water pump assembly x Timing chain or belt cover sub-assembly	Bolt A	26	260	18
	Bolt B	24	245	18
Water inlet x Cylinder head sub-assembly		10	102	7
Cylinder block x Drain cock plug		13	130	9
Cooling fan motor x Fan		6.3	64	56 in.*lbf
Fan shroud x Radiator assembly		7.0	71	62 in.*lbf
No. 2 fan shroud x Radiator assembly		7.0	71	62 in.*lbf
Oil cooler hose x Fan shroud (for Automatic transaxle)		5.5	56	49 in.*lbf
Upper radiator support x Body		5.5	56	49 in.*lbf
Hood lock support sub-assembly x Upper radiator support sub-assembly		7.0	71	62 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K62001X
Title: SPECIFICATIONS: 2ZR-FE EMISSION CONTROL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Vacuum switching valve		
Resistance	1 - 2	23 to 26 Ω at 20°C (68°F)
	1 - Body ground	10 MΩ or higher
	2 - Body ground	10 MΩ or higher

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000036OB00RX
Title: SPECIFICATIONS: 2ZR-FE ENGINE CONTROL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Spark plug		Recommended spark plug	SC20HR11 DENSO made
		Standard Resistance	10 MΩ or more
		Electrode gap	1.0 to 1.1 mm (0.0394 to 0.0433 in.)
		Maximum electrode gap	1.3 mm (0.0512 in.) for used plug
Camshaft timing oil control valve		1 - 2	Resistance: 6.9 to 7.9 Ω at 20°C (68°F)
Throttle body		1 (M-) - 2 (M+)	Resistance: 0.3 to 100 Ω at 20°C (68°F)
Accelerator pedal	Accelerator position No. 1 standard voltage	Accelerator pedal is released	0.5 to 1.1 V
		Accelerator pedal is depressed	2.6 to 4.5 V
	Accelerator position No. 2 standard voltage	Accelerator pedal is released	1.2 to 2.0 V
		Accelerator pedal is depressed	3.4 to 5.0 V
Mass air flow meter		Engine not running 30 seconds after ignition switch is turned to ON	Less than 0.26 g/sec.
		1 (THA) - 2 (E2)	Resistance: 13.6 to 18.4 kΩ at -20°C (-4°F) 2.21 to 2.69 kΩ at 20°C (68°F) 0.49 to 0.67 kΩ at 60°C (140°F)
Crankshaft position sensor		1 - 2	Resistance: 1630 to 2740 Ω at -10 to 50°C (14 to 122°F) 2065 to 3225 Ω at 50 to 100°C (122 to 212°F)
Engine coolant temperature sensor		1 - 2	Resistance: 2.32 to 2.59 kΩ at 20°C (68°F) 0.310 to 0.326 kΩ at 80°C

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		(176°F)
Knock sensor	1 - 2	Resistance: 120 to 280 kΩ Always
Air fuel ratio sensor	(HT) - (+B)	Resistance: 1.8 to 3.4 Ω at 20°C (68°F)
	(HT) - (AF-)	Resistance: 10 kΩ or higher
Heated oxygen sensor	(HT) - (+B)	Resistance: 11 to 16 Ω at 20°C (68°F)
	(HT) - (E)	Resistance: 10 kΩ or higher
Integration relay (EFI MAIN RELAY)	1E-1 - 1B-4	Resistance: 10 kΩ or higher (Battery voltage is not applied between terminals 1B-3 and 1B-2)
		Resistance: Below 1 Ω (Battery voltage is applied between terminals 1B-3 and 1B-2)
Integration relay (IG2 RELAY)	1E-1 - 1A-4	Resistance: 10 kΩ or higher (Battery voltage is not applied between terminals 1A-2 and 1A-3)
		Resistance: Below 1 Ω (Battery voltage is applied between terminals 1A-2 and 1A-3)
Integration relay (HORN RELAY)	1E-1 - 1A-8	Resistance: 10 kΩ or higher (Battery voltage is not applied between terminals 1A-6 and 1A-7)
		Resistance: Below 1 Ω (Battery voltage is applied between terminals 1A-6 and 1A-7)

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Circuit opening relay	2A-8 - 2B-11	Resistance: 10 kΩ or higher (Battery voltage is not applied between terminals 2B-10 and 2B-9)
		Resistance: Below 1 Ω (Battery voltage is applied between terminals 2B-10 and 2B-9)



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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K63001X
Title: SPECIFICATIONS: 2ZR-FE EMISSION CONTROL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Ventilation valve sub-assembly x Cylinder Block	20	204	15
Duty vacuum switching valve x Bracket	3.4	35	30 in.*lbf
charcoal canister x Body	19	194	14

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002PM000SX
Title: SPECIFICATIONS: 2ZR-FE ENGINE MECHANICAL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

V belt deflection	New belt	7.0 to 8.2 mm (0.276 to 0.323 in.)
	Used belt	7.6 to 10.0 mm (0.299 to 0.394 in.)
V belt tension	New belt	700 to 800 N (71 to 82 kg, 157 to 180 lb)
	Used belt	550 to 750 N (56 to 77 kg, 124 to 169 lb)
Ignition timing	with Terminals TC and CG of DLC3 connected	8 to 12°BTDC at idle
Idle speed		600 to 700 rpm
Compression	Compression pressure	1373 kPa (14.0 kgf/cm^2, 199 psi)
	Minimum pressure	1079 kPa (11.0 kgf/cm^2, 157 psi)
	Difference between each cylinder	98 kPa (1.0 kgf/cm^2, 14 psi)
Oil pump drive sprocket	Minimum sprocket diameter (with chain)	48.2 mm (1.898 in.)
Oil pump drive shaft sprocket	Minimum sprocket diameter (with chain)	48.8 mm (1.921 in.)
Crankshaft timing sprocket	Minimum sprocket diameter (with chain)	51.1 mm (2.012 in.)
Chain tensioner slipper	Maximum wear	1.0 mm (0.039 in.)
Chain vibration damper	Maximum wear	1.0 mm (0.039 in.)
Chain tensioner plate	Maximum wear	1.0 mm (0.039 in.)
Cylinder head set bolt	Standard bolt length	146.8 to 148.2 mm (5.7795 to 5.8346 in.)
	Maximum bolt length	149.2 mm (5.874 in.)
Cylinder head set bolt	Standard outside diameter	9.77 to 9.96 mm (0.3846 to 0.3921 in.)
	Minimum outside diameter	9.4 mm (0.3701 in.)

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Ring pin (Cylinder head)	Protrusion	6.5 to 7.5 mm (0.26 to 0.30 in.)
Ring pin (Crankcase)	Protrusion	3 mm (0.12 in.)
No. 1 camshaft bearing	Dimension A-B	0.7 mm (0.0276 in.) or less
No. 2 camshaft bearing	Dimension A	1.05 to 1.75 mm (0.0413 to 0.0689 in.)
Camshaft housing	Seal diameter	3.5 to 4.0 mm (0.138 to 0.158 in.)
Chain sub-assembly	Maximum chain elongation	115.2 mm (4.535 in.)
No. 2 Chain sub-assembly	Maximum chain elongation	102.1 mm (4.019 in.)
Camshaft timing gear assembly	Minimum gear or sprocket diameter (with chain)	96.8 mm (3.811 in.)
Camshaft timing exhaust gear assembly	Minimum gear or sprocket diameter (with chain)	96.8 mm (3.811 in.)
Camshaft (Intake)		
Maximum circle runout		0.04 mm (0.0016 in.)
Standard cam lobe height		42.816 to 42.916 mm (1.6857 to 1.6896 in.)
Maximum cam lobe height		42.666 mm (1.6798 in.)
No. 1 journal diameter		34.449 to 34.465 mm (1.3563 to 1.3569 in.)
Other journal diameter		22.949 to 22.965 mm (0.9035 to 0.9041 in.)
Standard thrust clearance	Intake	0.06 to 0.155 mm (0.0024 to 0.0061 in.)
Maximum thrust clearance		0.17 mm (0.0067 in.)
Standard oil clearance	Camshaft No. 1 journal	0.03 to 0.063 mm (0.0012 to 0.0025 in.)
	Camshaft Other journals	0.035 to 0.072 mm (0.0014 to 0.0028 in.)
Maximum oil clearance camshaft No. 1 journal		0.085 mm (0.0033 in.)
Maximum oil clearance camshaft other journals		0.09 mm (0.0035 in.)
Camshaft No. 2 (Exhaust)		
Maximum circle runout		0.04 mm (0.0016 in.)
Standard cam lobe height		44.336 to 44.436 mm (1.7455 to 1.7494 in.)
Minimum cam lobe height		44.186 mm (1.7396 in.)

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No. 1 journal diameter		34.449 to 34.465 mm (1.3563 to 1.3569 in.)
Other journal diameter		22.949 to 22.965 mm (0.9035 to 0.9041 in.)
Standard thrust clearance	Exhaust	0.06 to 0.155 mm (0.0024 to 0.0061 in.)
Maximum thrust clearance		0.17 mm (0.0067 in.)
Standard oil clearance	Camshaft No. 1 journal	0.03 to 0.079 mm (0.0012 to 0.0031 in.)
	Camshaft Other journals	0.035 to 0.072 mm (0.0014 to 0.0028 in.)
Maximum oil clearance camshaft No. 1 journal		0.085 mm (0.0033 in.)
Maximum oil clearance camshaft other journals		0.09 mm (0.0035 in.)
Exhaust manifold	Maximum warpage	0.70 mm (0.028 in.)
Cylinder head		
Maximum warpage	Cylinder block side	0.05 mm (0.0020 in.)
	Intake manifold side	0.10 mm (0.0039 in.)
	Exhaust manifold side	0.10 mm (0.0039 in.)
Compression spring	Free length	53.36 mm (2.1008 in.)
	Maximum deviation	1.0 mm (0.0394 in.)
Intake valve	Standard overall length	109.34 mm (4.3047 in.)
	Minimum overall length	108.84 mm (4.2850 in.)
	Valve stem diameter	5.470 to 5.485 mm (0.2154 to 0.2159 in.)
	Standard margin thickness	1.0 mm (0.0394 in.)
	Minimum margin thickness	0.50 mm (0.0197 in.)
	Valve seat width	1.0 to 1.4 mm (0.039 to 0.055 in.)
Exhaust valve	Standard overall length	108.25 mm (4.2618 in.)
	Minimum overall length	107.75 mm (4.2421 in.)
	Valve stem diameter	5.465 to 5.480 mm (0.2152 to 0.2157 in.)
	Standard margin thickness	1.01 mm (0.0398 in.)
	Minimum margin thickness	0.50 mm (0.0197 in.)
	Valve seat width	1.0 to 1.4 mm (0.039 to 0.55 in)

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Intake valve guide bush	Bush inside diameter	5.510 to 5.530 mm (0.2169 to 0.2177 in.)
	Standard bush oil clearance	0.025 to 0.060 mm (0.0010 to 0.0024 in.)
	Maximum bush oil clearance	0.080 mm (0.0031 in.)
Bush bore diameter	Use STD	10.285 to 10.306 mm (0.4049 to 0.4057 in.)
	Use O/S 0.05	10.335 to 10.356 mm (0.4069 to 0.4077 in.)
Protrusion height (bush)		9.9 to 10.3 mm (0.3898 to 0.4055 in.)
Standard oil clearance		0.025 to 0.060 mm (0.0010 to 0.0024 in.)
Exhaust valve guide bush	Bush inside diameter	5.510 to 5.530 mm (0.2169 to 0.2177 in.)
	Standard oil clearance	0.030 to 0.065 mm (0.0012 to 0.0026 in.)
	Maximum oil clearance	0.085 mm (0.0033 in.)
Bush bore diameter	Use STD	10.285 to 10.306 mm (0.4049 to 0.4057 in.)
	Use O/S 0.05	10.335 to 10.356 mm (0.4069 to 0.4077 in.)
Protrusion height		11.15 to 11.55 mm (0.4390 to 0.4547 in.)
Standard oil clearance		0.030 to 0.065 mm (0.0012 to 0.0026 in.)
Protrusion height (ring pin)		6.5 to 7.5 mm (0.26 to 0.30 in.)
Valve seat width		1.0 to 1.4 mm (0.039 to 0.055 in.)
Connecting rod		
Standard oil clearance		0.03 to 0.062 mm (0.0012 to 0.0024 in.)
Maximum oil clearance		0.07 mm (0.0028 in.)
Standard oil clearance		0.016 to 0.039 mm (0.0006 to 0.0015 in.)
Maximum oil clearance		0.05 mm (0.0020 in.)
Connecting rod bearing thickness	Mark 1	1.489 to 1.493 mm (0.0586 to 0.0588 in.)

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	Mark 2		1.494 to 1.497 mm (0.0588 to 0.0589 in.)
	Mark 3		1.498 to 1.501 mm (0.0590 to 0.0591 in.)
Connecting rod small end bore diameter			20.012 to 20.021 mm (0.7879 to 0.7882 in.)
Connecting rod small end bore diameter (Reference)	Mark A		20.012 to 20.015 mm (0.7879 to 0.7880 in.)
	Mark B		20.016 to 20.018 mm (0.7880 to 0.7881 in.)
	Mark C		20.019 to 20.021 mm (0.7881 to 0.7882 in.)
Connecting rod large end bore diameter (Resistance)	Mark 1		47.000 to 47.008 mm (1.8504 to 1.8507 in.)
	Mark 2		47.009 to 47.016 mm (1.8507 to 1.8510 in.)
	Mark 3		47.017 to 47.024 mm (1.8510 to 1.8513 in.)
Crankshaft pin diameter	Mark 1		43.992 to 44.000 mm (1.7320 to 1.7323 in.)
	Mark 2		43.992 to 44.000 mm (1.7320 to 1.7323 in.)
	Mark 3		43.992 to 44.000 mm (1.7320 to 1.7323 in.)
Standard oil clearance			0.005 to 0.011 mm (0.0002 to 0.0004 in.)
Maximum oil clearance			0.014 mm (0.0006 in.)
Maximum rod out-of alignment per 100 mm (3.94 in.)			0.05 mm (0.0020 in.)
Maximum rod twist per 100 mm (3.94 in.)			0.15 mm (0.0059 in.)
Cylinder block	Maximum warpage		0.05 mm (0.0020 in.)
	Standard cylinder bore diameter		80.500 to 80.513 mm (3.1693 to 3.1698 in.)
	Maximum cylinder bore diameter		80.633 mm (3.1745 in.)
	Protrusion height (ring pin)		7.5 to 8.5 mm (0.295 to 0.335 in.)
	Protrusion height (straight pin)	Pin A	18.5 to 19.5 mm (0.729 to 0.768 in.)

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		Pin B	5.0 to 7.0 mm (0.197 to 0.276 in.)
		Pin C	11 to 13 mm (0.433 to 0.512 in.)
		Pin D	5.0 to 7.0 mm (0.197 to 0.276 in.)
		Pin E	5.0 to 6.0 mm (0.197 to 0.236 in.)
No. 1 ventilation case	Seal packing		2.0 mm (0.0787 in.)
Piston			
Standard piston diameter			80.461 to 80.471 mm (3.1677 to 3.1681 in.)
Standard piston oil clearance			0.029 to 0.052 mm (0.0011 to 0.0020 in.)
Maximum piston oil clearance			0.09 mm (0.0035 in.)
Piston pin bore diameter			20.006 to 20.015 mm (0.7876 to 0.7880 in.)
Piston pin bore diameter (Reference)	Mark A		20.006 to 20.009 mm (0.7876 to 0.7878 in.)
	Mark B		20.010 to 20.012 mm (0.7878 to 0.7879 in.)
	Mark C		20.013 to 20.015 mm (0.7879 to 0.7880 in.)
Piston ring			
Ring groove clearance	No. 1 Ring		0.020 to 0.070 mm (0.0008 to 0.0028 in.)
	No. 2 Ring		0.020 to 0.060 mm (0.0008 to 0.0024 in.)
	Oil Ring		0.020 to 0.065 mm (0.0008 to 0.0026 in.)
Standard end gap	No. 1 Ring		0.2 to 0.3 mm (0.0079 to 0.0118 in.)
	No. 2 Ring		0.3 to 0.5 mm (0.0118 to 0.0197 in.)
	Oil Ring		0.1 to 0.4 mm (0.0039 to 0.0157 in.)
Maximum end gap	No. 1 Ring		0.5 mm (0.0197 in.)
	No. 2 Ring		0.7 mm (0.0276 in.)
	Oil Ring		0.7 mm (0.0276 in.)

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Piston pin		
Piston pin diameter		20.004 to 20.013 mm (0.7876 to 0.7879 in.)
Piston pin diameter (Resistance)	Mark A	20.004 to 20.007 mm (0.7876 to 0.7877 in.)
	Mark B	20.008 to 20.010 mm (0.7877 to 0.7878 in.)
	Mark C	20.011 to 20.013 mm (0.7878 to 0.7879 in.)
Standard oil clearance		-0.001 to 0.005 mm (-0.00004 to 0.0002 in.)
Maximum oil clearance		0.010 mm (0.0004 in.)
Connecting rod bolt	Standard diameter	6.6 to 6.7 mm (0.2598 to 0.2638 in.)
	Minimum diameter	6.4 mm (0.252 in.)
Crankshaft		
Standard thrust clearance		0.04 to 0.14 mm (0.0016 to 0.0055 in.)
Maximum thrust clearance		0.18 mm (0.0071 in.)
Thrust washer thickness		2.43 to 2.48 mm (0.0957 to 0.0976 in.)
Cylinder block main journal bore diameter (Reference)	Mark 0	52.000 to 52.003 mm (2.0472 to 2.0474 in.)
	Mark 1	52.003 to 52.005 mm (2.0474 to 2.0474 in.)
	Mark 2	52.005 to 52.007 mm (2.0474 to 2.0475 in.)
	Mark 3	52.007 to 52.010 mm (2.0475 to 2.0476 in.)
	Mark 4	52.010 to 52.012 mm (2.0476 to 2.0477 in.)
	Mark 5	52.012 to 52.014 mm (2.0477 to 2.0478 in.)
	Mark 6	52.014 to 52.016 mm (2.0478 to 2.0479 in.)
Main journal diameter		47.988 to 48.000 mm (1.8893 to 1.8898 in.)
Maximum taper and distortion		0.004 mm (0.0002 in.)

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Main journal diameter (Reference)	Mark 0	47.999 to 48.000 mm (1.8897 to 1.8898 in.)
	Mark 1	47.997 to 47.998 mm (1.8896 to 1.8897 in.)
	Mark 2	47.995 to 47.996 mm (1.8896 to 1.8896 in.)
	Mark 3	47.993 to 47.994 mm (1.8895 to 1.8895 in.)
	Mark 4	47.991 to 47.992 mm (1.8894 to 1.8894 in.)
	Mark 5	47.988 to 47.990 mm (1.8893 to 1.8894 in.)
Crankshaft journal diameter (Reference)	Mark 0	47.999 to 48.000 mm (1.8897 to 1.8898 in.)
	Mark 1	47.997 to 47.998 mm (1.8896 to 1.8897 in.)
	Mark 2	47.995 to 47.996 mm (1.8896 to 1.8896 in.)
	Mark 3	47.993 to 47.994 mm (1.8895 to 1.8895 in.)
	Mark 4	47.991 to 47.992 mm (1.8894 to 1.8894 in.)
	Mark 5	47.988 to 47.990 mm (1.8893 to 1.8894 in.)
Standard main bearing center wall thickness (Reference)	Mark 1	1.994 to 1.997 mm (0.0785 to 0.0786 in.)
	Mark 2	1.998 to 2.000 mm (0.0787 to 0.0787 in.)
	Mark 3	2.001 to 2.003 mm (0.0788 to 0.0789 in.)
	Mark 4	2.004 to 2.006 mm (0.0789 to 0.0790 in.)
Maximum circle runout		0.03 mm (0.0012 in.)
Standard oil clearance		0.016 to 0.039 mm (0.0006 to 0.0015 in.)
Maximum oil clearance		0.050 mm (0.0020 in.)
Crank pin diameter		43.992 to 44.000 mm (1.7320 to 1.7323 in.)
Maximum taper and distortion		0.004 mm (0.0002 in.)

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Crankshaft bearing cap set bolt	Standard diameter	84.3 to 85.7 mm (3.3189 to 3.3740 in.)
	Minimum diameter	86.7 mm (3.4134 in.)
Crankshaft bearing	Dimension A	0.5 to 1.0 mm (0.020 to 0.039 in.)
	Dimension A-B	0.5 mm (0.0197 in.) or less



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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000036OC00RX
Title: SPECIFICATIONS: 2ZR-FE ENGINE CONTROL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Camshaft timing oil control valve assembly x Cylinder head cover sub-assembly		10	102	7
Throttle body x Intake manifold		10	102	7
ECM x Bracket		8.8	90	78 in.*lbf
ECM x Body		8.0	82	71 in.*lbf
Accelerator pedal assembly x Body		5.5	56	49 in.*lbf
Mass air flow meter x Air cleaner cap		1.0	10	9 in.*lbf
No. 1 crank position sensor x Cylinder head cover sub-assembly		10	102	7
Crankshaft position sensor x Timing chain cover		10	102	7
Spark plug x Cylinder head sub-assembly		20	204	15
Ignition coil assembly x Cylinder head cover sub-assembly		10	102	7
Engine coolant temperature sensor x Cylinder head sub-assembly		20	200	14
Knock sensor x Cylinder block		20	204	15
Air fuel ratio sensor x Exhaust manifold	Without SST	44	449	32
	With SST	40	408	30
Heated oxygen sensor x Front exhaust pipe assembly	Without SST	44	449	32
	With SST	40	408	30

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002PM100SX
Title: SPECIFICATIONS: 2ZR-FE ENGINE MECHANICAL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Engine mounting bracket RH x Timing chain cover		51	520	37
Engine mounting bracket RH x Engine mounting insulator RH	Nut A	95	969	70
	Nut B	52	530	38
	Bolt	95	969	70
Engine mounting insulator RH x Body		52	530	38
Engine mounting insulator LH x Engine mounting bracket LH		56	571	41
Engine mounting insulator LH x Body		52	530	38
Front engine mounting bracket x Front engine mounting insulator		73	744	54
Front engine mounting insulator x Front crossmember	for TMMT made	81	826	60
	for TMC made	52	520	38
Rear engine mounting bracket x Rear engine mounting insulator	for TMMT made	65	663	50
	for TMC made	87	887	64
Rear engine mounting insulator x Front suspension crossmember sub-assembly		52	530	38
Engine hanger x Cylinder head		43	439	32
Knock control sensor x Cylinder block		20	204	15
Engine oil pressure switch assembly x Cylinder head		15	153	11
Engine coolant temperature x Cylinder head		20	204	15
No. 1 Water by-pass pipe x Cylinder block		21	214	16
Exhaust manifold x Cylinder head		21	214	16
Exhaust manifold stay x Exhaust manifold		43	439	32
Exhaust manifold stay x Cylinder block		43	439	32
Air tube x Cylinder head cover		10	102	7
No. 1 exhaust manifold heat insulator X Exhaust manifold		12	122	9
Oil level dipstick guide x Cylinder block		21	214	16
Intake manifold x Cylinder head		28	286	21

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PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Drive plate and ring gear x Crankshaft		88	897	65
Drive plate and ring gear x Torque converter		28	286	21
Flywheel sub-assembly x Crankshaft	1st	49	500	36
	2nd	Turn 90°	Turn 90°	Turn 90°
Clutch release cylinder assembly x Transaxle	Bolt A,B	12	122	9
	Bolt C	8.0	82	71 in.*lbf
Battery carrier x Body		13	130	9
Radiator pipe x Battery carrier		8.8	90	78 in.*lbf
Battery clamp x Body	Bolt	17	170	12
	Nut	3.5	36	31 in.*lbf
Battery terminal		5.4	55	48 in.*lbf
Air cleaner case x Body		7.0	71	62 in.*lbf
Stiffening crankcase assembly x Cylinder block		21	214	16
No. 1 oil nozzle sub-assembly x Cylinder block		10	102	7
No. 1 ventilation case x Cylinder block		10	102	7
Cylinder block water drain cock x Stiffening crankcase assembly		20 13	204 130	15 9
Cylinder head x Cylinder block	1st	49	500	36
	2nd	Turn 90°	Turn 90°	Turn 90°
	3nd	Turn 45°	Turn 45°	Turn 45°
Camshaft timing gear assembly x Camshaft		54	551	40
Camshaft timing exhaust gear x Camshaft	With SST	39	397	29
	Without SST	54	551	40
Camshaft bearing cap x Cylinder head		27	275	20
Camshaft bearing cap x Camshaft housing		16	163	12
Camshaft housing x Cylinder head		27	275	20
Oil pump assembly x Stiffening crankcase assembly		21	214	16

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PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Chain tensioner plate x Stiffening crankcase assembly		10	102	7
Oil pump drive shaft gear x Oil pump		28	286	21
No. 2 chain vibration damper x Cylinder head	With SST	5.5	56	48 in.*lbf
	Without SST	10	102	7
No. 1 chain vibration damper x Cylinder block		21	214	16
No. 2 Oil pan sub-assembly x Stiffening crankcase assembly		10	102	7
Oil pan drain plug x Oil pan		37	377	27
Water pump x Timing chain cover		24	241	17
Water inlet housing x Timing chain cover		21	214	16
Water inlet x Water inlet housing		10	102	7
Oil filter bracket x Timing chain cover		26	260	19
Camshaft oil control valve x Cylinder head cover		10	102	7
Timing chain cover x Cylinder block, Cylinder head	Bolt A	26	260	19
	Bolt B	51	520	38
	Bolt C	51	520	38
	Bolt D	10	102	7
	Bolt E	26	260	19
Crankshaft position sensor x Timing chain cover		10	102	7 ft.*lbf
Crankshaft pulley x Crankshaft		190	1940	140
No. 1 chain tensioner assembly x Timing chain cover		10	102	7 ft.*lbf
No. 1 generator bracket x Cylinder block		21	214	16
Fan belt adjusting bar x Cylinder head		19	190	14
Fan belt adjusting bar x Generator assembly		19	190	14
Camshaft position sensor x Cylinder head cover		10	102	7
Radio setting condenser x Cylinder head		10	102	7
Cylinder head cover x Cylinder head		10	102	7
Ignition coil assembly x Cylinder head		10	102	7
Spark plug x Cylinder head		20	204	15
No. 2 straight screw plug x Cylinder head		44	449	33
Ventilation valve x Cylinder block		20	204	15
Stud bolt x Cylinder head	Bolt A	9.5	97	84 in.*lbf

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PART TIGHTENED		N*M	KGF*CM	FT.*LBF
	Bolt B	9.5	97	84 in.*lbf
Stud bolt x Crankcase		5.0	51	44 in.*lbf
Stud bolt x No. 1 ventilation case		10	102	7
Crankshaft bearing cap x Cylinder block	1st	40	408	30
	2nd	Turn 90°	Turn 90°	Turn 90°
Wire harness bracket x Cylinder head		52	530	38
Radiator reserve tank x Body		7.0	71	62 in.*lbf
Connecting rod cap x Connecting rod	1st	20	204	15
	2nd	Turn 90°	Turn 90°	Turn 90°

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001SB900OX
Title: SPECIFICATIONS: 2ZR-FE FUEL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Fuel pressure	Standard fuel pressure	304 to 343 kPa (3.1 to 3.5 kgf/cm^2, 44.1 to 49.7 psi)
Fuel pressure : at fuel pressure remains for 5 minutes after engine has stopped	Standard fuel pressure	147 kPa (1.5 kgf/cm^2, 21 psi) or more
Fuel injector assembly	Standard resistance	11.6 to 12.4 Ω at 20°C (68°F)
	Injection volume	60 to 73 cc (3.7 to 4.5 cu in.) per 15 seconds
	Difference between each fuel injector	13 cc (0.8 cu in.) or less
	Standard leakage	1 drop or less every 12 minutes
Fuel pump	Standard resistance	0.2 to 3.0 Ω at 20°C (68°F)
Fuel Sender gauge assembly	Standard resistance	13.5 to 16.5 Ω (Float level F)
		13.5 to 414.5 Ω (Float level E to F)
		405.5 to 414.5 Ω (Float level E)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001SBA00OX
Title: SPECIFICATIONS: 2ZR-FE FUEL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Fuel delivery pipe sub-assembly x Cylinder head sub-assembly	21	214	15
Fuel delivery pipe sub-assembly x Cylinder head sub-assembly	21	214	15
Fuel tank band x Body	39	400	29
Parking brake cable assembly x Body	5.4	55	48 in.*lbf
No. 1 fuel tank protector x Fuel tank band	5.5	56	49 in.*lbf
No. 1 fuel tank protector x Body	5.5	56	49 in.*lbf
Wire harness bracket x Intake manifold	5.0	51	44 in.*lbf
Wire harness bracket x Cylinder head sub-assembly	13	133	10

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K66001X
Title: SPECIFICATIONS: 2ZR-FE INTAKE / EXHAUST: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Compression spring	Front exhaust pipe assembly x Exhaust manifold converter sub-assembly.	Minimum length: 41.5 mm (1.63 in.)
	Front exhaust pipe assembly x Tail exhaust pipe assembly	Minimum length: 38.5 mm (1.52 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K67001X
Title: SPECIFICATIONS: 2ZR-FE INTAKE / EXHAUST: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front exhaust pipe assembly x Exhaust manifold	43	440	32
Front exhaust pipe assembly x Tail exhaust pipe assembly	43	440	32
Exhaust manifold x Cylinder head assembly	21	214	16
No. 1 exhaust manifold heat insulator x Exhaust manifold	12	122	9
No. 2 exhaust manifold heat insulator x Exhaust manifold	12	122	9
Manifold stay x Cylinder block assembly	43	439	32
Manifold stay x Exhaust manifold assembly	43	439	32
Intake manifold x Cylinder head assembly	28	286	21
Bracket x Cylinder head assembly	10	102	8

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000343500EX
Title: SPECIFICATIONS: 2ZR-FE LUBRICATION: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Oil pump assembly		
Tip clearance	Standard	0.08 to 0.0160 mm (0.0031 to 0.0063 in.)
	Maximum	0.35 mm (0.0138 in.)
Side clearance	Standard	0.003 to 0.08 mm (0.0011 to 0.0031 in.)
	Maximum	0.16 mm (0.0063 in.)
Body clearance	Standard	0.12 to 0.19 mm (0.0047 to 0.0075 in.)
	Maximum	0.325 mm (0.0128 in.)
Oil pressure	at idle	25 kPa (0.3 kgf/cm^2, 3.6 psi) or more
	at 3,000 rpm	150 to 400 kPa (1.5 to 4.1 kgf/cm^2, 22 to 58 psi)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000343600EX
Title: SPECIFICATIONS: 2ZR-FE LUBRICATION: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Oil pressure switch x Cylinder block		15	153	11
No. 2 oil pan sub-assembly x Cylinder block		10	102	7
Oil filter cap assembly x Oil filter bracket		25	255	18
Oil pan drain plug x Oil pan sub-assembly		37	377	27
Oil pump relief valve plug x Oil pump body		49	500	36
Oil pump cover x Oil pump body		8.8	90	78in.*lbf
Oil pump assembly x Cylinder block sub-assembly		21	214	16
Chain tensioner plate x Engine		10	102	7
Oil pump drive shaft gear x Engine		28	286	21
Water pump x Cylinder block sub-assembly		21	214	16
Timing chain cover sub-assembly x Cylinder block sub-assembly	A, E	26	260	19
	B, C	51	520	37
	D	10	102	7
No. 2 chain vibration damper		10	102	7

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000313400TX
Title: SPECIFICATIONS: 2ZR-FE STARTING: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Starter assembly	Standard current	Below 90 A at 11.5 V
Starter relay	Standard resistance 3 - 5	Below 1 Ω (battery voltage is applied to terminals 1 and 2)
		10 kΩ or higher (battery voltage is not applied to terminals 1 and 2)
Acc relay	Standard resistance 3 - 5	Below 1 Ω (battery voltage is applied to terminals 1 and 2)
		10 kΩ or higher (battery voltage is not applied to terminals 1 and 2)
Acc cut relay	Standard resistance 3 - 4	Below 1 Ω (battery voltage is applied to terminals 1 and 2)
		10 kΩ or higher (battery voltage is not applied to terminals 1 and 2)
	Standard resistance 3 - 5	Below 1 Ω (battery voltage is applied to terminals 1 and 2)
		10 kΩ or higher (battery voltage is not applied to terminals 1 and 2)
Engine switch	Standard resistance 7 - 5	Below 1 Ω (Pushed)
	Standard resistance 2 - 5	
	Standard resistance 7 - 5	10 kΩ or higher (Not pushed)
	Standard resistance 2 - 5	
Ignition switch	Standard resistance Between all terminals	10 kΩ or higher (LOCK)
	Standard resistance 2 - 3	Below 1 Ω (ACC)
	Standard resistance 2 - 3	Below 1 Ω (ON)
	Standard resistance 2 - 4	

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	Standard resistance 6 - 7	
	Standard resistance 1 - 2	Below 1 Ω (START)
	Standard resistance 1 - 4	
	Standard resistance 6 - 7	
	Standard resistance 6 - 8	
Starter armature assembly resistance	Segment - Segment	Below 1 Ω
	Commutator - Armature coil	10 kΩ or higher
Starter armature assembly commutator diameter	Standard diameter	29 mm (1.14 in.)
	Minimum diameter	28 mm (1.10 in.)
Starter armature assembly commutator circle runout	Standard runout	0.02 mm (0.000787 in.)
	Maximum runout	0.05 mm (0.00197 in.)
Starter armature assembly commutator undercut depth	Standard runout	0.7 mm (0.0276 in.)
	Maximum runout	0.2 mm (0.00787 in.)
Starter brush holder assembly Brush length	Standard length	14.4 mm (0.567in.)
	Minimum length	9.0 mm (0.354 in.)
Starter brush holder assembly resistance	Standard resistance Positive brush holder - Negative brush holder	10 kΩ or higher
	Standard resistance Positive brush holder - Positive brush holder Negative brush holder - Negative brush holder	Below 1 Ω
Stater magnetic switch assembly resistance	Terminal 50 - Terminal C	Below 1 Ω
	Terminal 50 - Switch body	Below 2 Ω

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000312N00WX
Title: SPECIFICATIONS: ALIGNMENT / HANDLING DIAGNOSIS: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Vehicle Height (Unloaded Vehicle)

-	ENGINE	FRONT C - A	REAR D - B
for TMC Made	2ZR-FE	92 mm (3.62 in.)	45 mm (1.77 in.)
except TMC Made	2ZR-FE	92 mm (3.62 in.) 80 mm (3.15 in.)*	45 mm (1.77 in.) 32 mm (1.26 in.)*
	2AZ-FE	96 mm (3.78 in.) 81 mm (3.19 in.)*	51 mm (2.01 in.) 36 mm (1.42 in.)*

* For vehicle height for Mexico, add 15 mm (0.591 in.).

Measuring points:

A: No. 1 lower suspension arm bushing set bolt ground clearance

B: Rear axle beam set bolt ground clearance

C: Front wheel center ground clearance

D: Rear wheel center ground clearance

Wheel Angle (Unloaded Vehicle)

-	-	ENGINE	TIRE SIZE	INSIDE WHEEL	OUTSIDE WHEEL REFERENCE
Front	for TMC Made	2ZR-FE	195/65R15	38°13' +/- 2° (38.22° +/- 2°)	32°50' (32.83°)
			205/55R16		
	except TMC Made	2ZR-FE	195/65R15	38°13' +/- 2° (38.22° +/- 2°)	32°50' (32.83°)
			205/55R16	38°13' +/- 2° (38.22° +/- 2°) 38°31' +/- 2° (38.52° +/- 2°)*	32°50' (32.83°) 33°04' (33.07°)*
		2AZ-FE	205/55R16*	37°19' +/- 2° (37.32° +/- 2°)*	32°18' (32.30°)*
			215/45R17	36°59' +/- 2° (36.98° +/- 2°)	32°01' (32.02°)

* For vehicle height for Mexico, add 15 mm (0.591 in.).

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Camber (Unloaded Vehicle)

-	-	ENGINE	TIRE SIZE	GRADE	CAMBER INCLINATION	RIGHT-LEFT DIFFERENCE
Front	for TMC Made	2ZR-FE	195/65R15	-	-0°35' +/- 45' (-0.58° +/- 0.75°)	45' (0.75°) or less
			205/55R16			
	except TMC Made	2ZR-FE	195/65R15	-	- 0°34' +/- 45' (- 0.57° +/- 0.75°)	
			205/55R16	-	- 0°35' +/- 45' (- 0.58° +/- 0.75°) - 0°26' +/- 45' (- 0.43° +/- 0.75°)*	
		2AZ-FE	205/55R16*	-	- 0°27' +/- 45' (- 0.45° +/- 0.75°)*	
			215/45R17	-	- 0°37' +/- 45' (- 0.62° +/- 0.75°)	
Rear	for TMC Made	-	-	except XRS	-1°28' +/- 30' (-1.47° +/- 0.50°)	30' (0.50°) or less
	except TMC Made	-	-	except XRS	-1°27' +/- 30' (-1.45° +/- 0.50°)	
		-	-	for XRS	-1°28' +/- 30' (-1.47° +/- 0.50°)	

* For vehicle height for Mexico, add 15 mm (0.591 in.).

Caster (Unloaded Vehicle)

-	-	ENGINE	TIRE SIZE	CASTER INCLINATION	RIGHT-LEFT DIFFERENCE
Front	for TMC Made	2ZR-FE	195/65R15	2°50' +/- 45' (2.83° +/- 0.75°)	45' (0.75°) or less
			205/55R16	2°51' +/- 45' (2.85° +/- 0.75°)	
	except TMC Made	2ZR-FE	195/65R15	2°50' +/- 45' (2.83° +/- 0.75°)	
			205/55R16	2°50' +/- 45' (2.83° +/- 0.75°) 2°41' +/- 45' (2.68° +/- 0.75°)*	
		2AZ-FE	205/55R16*	2°45' +/- 45' (2.75° +/- 0.75°)*	

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-	-	ENGINE	TIRE SIZE	CASTER INCLINATION	RIGHT-LEFT DIFFERENCE
			215/45R17	2°55' +/- 45' (2.92° +/- 0.75°)	

* For vehicle height for Mexico, add 15 mm (0.591 in.).

Steering Axis Inclination (Unloaded Vehicle)

-	-	ENGINE	TIRE SIZE	STEERING AXIS INCLINATION
Front	for TMC Made	2ZR-FE	195/65R15	12°32' (12.53°)
			205/55R16	
	except TMC Made	2ZR-FE	195/65R15	12°32' (12.53°) 12°13' (12.22°)*
			205/55R16	
		2AZ-FE	205/55R16*	12°16' (12.27°)*
			215/45R17	12°37' (12.62°)

* For vehicle height for Mexico, add 15 mm (0.591 in.).

Toe-in

-	-	GRADE	SPECIFIED CONDITION	RIGHT-LEFT DIFFERENCE
Front	-	-	C + D: 0°00' +/- 0°12' (0° +/- 0.2°)	-
	-	-	B - A: 0 +/- 2.0 mm (0 +/- 0.0787 in.)	-
Rear	for TMC Made	except XRS	C + D: 0°16' +/- 15' (0.27° +/- 0.25°)	45' (0.75°) or less
			B - A: 2.8 +/- 2.7 mm (0.110 +/- 0.106 in.)	-
	except TMC Made	except XRS	C + D: 0°16' +/- 15' (0.27° +/- 0.25°) C + D: 0°16' +/- 15' (0.27° +/- 0.25°)*	45' (0.75°) or less
			B - A: 2.8 +/- 2.7 mm (0.110 +/- 0.106 in.) B - A: 2.0 +/- 2.8 mm (0.0787 +/- 0.110 in.)*	-
		for XRS	C + D: 0°16' +/- 15' (0.27° +/- 0.25°) C + D: 0°16' +/- 15' (0.27° +/- 0.25°)*	45' (0.75°) or less
			B - A: 3.1 +/- 2.6 mm (0.122 +/- 0.102 in.) B - A: 2.2 +/- 2.8 mm (0.0866 +/-	-

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-	-	GRADE	SPECIFIED CONDITION	RIGHT-LEFT DIFFERENCE
			0.110 in.)*	

* For vehicle height for Mexico, add 15 mm (0.591 in.).

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000313500TX
Title: SPECIFICATIONS: 2ZR-FE STARTING: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Stater assembly x Transaxle housing	37	377	27
Terminal 30 x Wire harness	9.8	100	87 in.*lbf
Terminal C x Lead wire	10	102	7.4
Commutator end frame x Starter brush holder assembly	1.5	15	13 in.*lbf
Commutator end frame x Starter housing	6.0	61	53 in.*lbf
Magnet starter switch assembly x Starter housing	7.5	77	66 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000312O00ZX
Title: SPECIFICATIONS: ALIGNMENT / HANDLING DIAGNOSIS: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front shock absorber with coil spring x Steering knuckle	240	2448	176
Front flexible hose x Steering knuckle	29	296	21
Tie rod end lock nut	74	755	55

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000030U600IX
Title: SPECIFICATIONS: AUDIO / VIDEO: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
RADIO ANTENNA (for Satellite Radio)			
Satellite radio antenna assembly x Body	4.5	46	40 in.*lbf
RADIO ANTENNA CORD			
No. 2 antenna cord sub-assembly x Body	8.4	86	74 in.*lbf
STEERING PAD SWITCH			
Steering pad switch LH x Steering wheel assembly	2.4	24	21 in.*lbf
Steering pad switch assembly x Steering wheel assembly	2.4	24	21 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K4K002X
Title: SPECIFICATIONS: AXLE AND DIFFERENTIAL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Axle

Front axle hub bearing looseness	Maximum looseness: 0.05 mm (0.00196 in.)
Front axle hub runout	Maximum runout: 0.03 mm (0.00118 in.)
Rear axle hub bearing looseness (for Rear drum brake)	Maximum looseness: 0.05 mm (0.00196 in.)
Rear axle hub runout (for Rear drum brake)	Maximum runout: 0.06 mm (0.00236 in.)
Rear axle hub bearing looseness (for Rear disc brake)	Maximum looseness: 0.05 mm (0.00196 in.)
Rear axle hub runout (for Rear disc brake)	Maximum runout: 0.06 mm (0.00236 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K4L002X
Title: SPECIFICATIONS: AXLE AND DIFFERENTIAL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

Axle

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front wheel	103	1050	76
Rear wheel	103	1050	76
Steering knuckle x Front disc brake dust cover	8.3	85	73 in.*lbf
Steering knuckle x Front disc brake caliper assembly	107	1089	79
Steering knuckle x Front shock absorber	240	2448	176
Front drive shaft assembly x Front axle hub nut	216	2203	158
Rear disc brake dust cover sub-assembly x Rear disc brake caliper assembly	63	642	46
Rear axle beam assembly x Rear axle hub and bearing assembly	100	1020	74

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003EFG008X
Title: SPECIFICATIONS: BRAKE (FRONT): SERVICE DATA (2010 Corolla)		

SERVICE DATA

Front brake pad lining thickness	Standard	12.0 mm (0.472 in.)
	Minimum	1.0 mm (0.0394 in.)
Front brake disc thickness	Standard	22.0 mm (0.866 in.)
	Minimum	19.0 mm (0.748 in.)
Front brake disc runout	Maximum	0.05 mm (0.00197 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003EFH008X
Title: SPECIFICATIONS: BRAKE (FRONT): TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PARTS TIGHTENED	N*M	KGF*CM	FT.*LBF
Front wheel	103	1050	76
Front disc brake cylinder assembly x Front disc brake cylinder mounting	34	347	25
Front disc brake cylinder mounting x Steering knuckle	107	1089	79
Front disc brake bleeder plug	8.3	85	73 in.*lbf
Front flexible hose x Front disc brake cylinder assembly	29	296	21
Front flexible hose x Absorber bracket	29	296	21
Brake line x Front flexible hose	14 (15)	143 (155)	10 (11)

(): For use without a union nut wrench

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003ED300FX
Title: SPECIFICATIONS: BRAKE (REAR): SERVICE DATA (2010 Corolla)		

SERVICE DATA

for Disc Type

Rear disc brake pad lining thickness	Standard	9.5 mm (0.374 in.)
	Minimum	1.0 mm (0.0394 in.)
Rear brake disc thickness	Standard	9.0 mm (0.354 in.)
	Minimum	7.5 mm (0.295 in.)
Rear brake disc runout	Maximum	0.15 mm (0.00591 in.)

for Drum Type

Brake drum inside diameter	Standard	228.6 mm (9.00 in.)
	Maximum	229.6 mm (9.04 in.)
Rear brake shoe lining thickness	Standard	5.0 mm (0.197 in.)
	Minimum	1.0 mm (0.0394 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003ED400GX
Title: SPECIFICATIONS: BRAKE (REAR): TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

for Disc Type

PARTS TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear wheel	103	1050	76
Rear brake flexible hose x Rear disc brake cylinder assembly	29	296	21
Rear disc brake cylinder assembly x Rear disc brake cylinder mounting	35	357	26
Rear disc brake cylinder mounting x Backing plate	63	642	46
No. 3 parking brake cable assembly x Rear axle beam	6.0	61	53 in.*lbf
Rear disc brake bleeder plug	10	102	7
Rear flexible hose x Rear axle beam	29	296	21
Rear flexible hose x Brake line	14 (15)	143 (155)	10 (11)

for Drum Type

PARTS TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear wheel	103	1050	76
Rear wheel brake cylinder assembly x Backing plate	9.8	100	87 in.*lbf
Rear drum brake bleeder plug	8.5	87	75 in.*lbf
Rear wheel brake cylinder assembly x Brake line	14 (15)	143 (155)	10 (11)
Rear flexible hose x Brake line	14 (15)	143 (155)	10 (11)

(): For use without a union nut wrench

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K1Z002X
Title: SPECIFICATIONS: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: SERVICE DATA (2010 Corolla)		

SERVICE DATA

VSC off switch.	3 - 6	Released	10 kΩ or higher
	3 - 6	Pushed in	Below 25 Ω
	4 - 5	Battery's positive (+) lead connected to terminal 5 and negative (-) lead to terminal 4	LED illuminates

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K20002X
Title: SPECIFICATIONS: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED			N*M	KGF*CM	FT.*LBF
Brake actuator x Brake actuator bracket			5.4	55	48 in.*lbf
Brake actuator bracket x Body			19	194	14
Brake actuator x Brake line	w/o VSC		14 (15)	143 (155)	10 (11)
	w/ VSC	Flare nut (10 mm)	14 (15)	143 (155)	10 (11)
		Flare nut (12 mm)	18 (20)	178 (200)	13 (14)
Front speed sensor x Knuckle			8.5	87	76 in.*lbf
Front speed sensor x Body			8.0	82	71 in.*lbf
Front speed sensor with brake flexible hose x Absorber			29	296	21
Windshield washer jar assembly x Body			5.5	56	49 in.*lbf
Radiator reserve tank assembly x Body			7.0	71	62 in.*lbf
Yaw rate and acceleration sensor x Body			20	204	15

( ) For use without union nut wrench

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Z3V00BX
Title: SPECIFICATIONS: BRAKE SYSTEM (OTHER): SERVICE DATA (2010 Corolla)		

SERVICE DATA

Brake pedal height from dash panel		141.4 to 151.4 mm (5.57 to 5.96 in.)
Brake pedal free play		1.0 to 6.0 mm (0.0394 to 0.236 in.)
Brake pedal reserve distance from dash panel at 294 N (30 kgf, 66 lbf)	w/ ABS	81 mm (3.19 in.)
	w/ VSC	87 mm (3.43 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000029K5012X
Title: SPECIFICATIONS: C59 MANUAL TRANSMISSION / TRANSAXLE: SERVICE DATA (2010 Corolla)		

SERVICE DATA

5th gear thrust clearance	Standard Maximum	0.10 to 0.55 mm (0.00394 to 0.0217 in.) 0.55 mm (0.0217 in.)
5th gear radial clearance	NSK made Standard Maximum JTEKT made Standard Maximum	0.015 to 0.056 mm (0.000591 to 0.00220 in.) 0.056 mm (0.00220 in.) 0.015 to 0.058 mm (0.000591 to 0.00228 in.) 0.058 mm (0.00228 in.)
No. 3 synchronizer ring back and 5th gear spline end clearance	Standard	0.75 to 1.65 mm (0.0295 to 0.0649 in.)
	Minimum	0.75 mm (0.0295 in.)
No. 3 transmission hub sleeve and No. 3 gear shift fork clearance	Standard	0.3 to 0.5 mm (0.0118 to 0.0197 in.)
5th gear inner diameter	Standard Maximum	29.915 to 29.931 mm (1.1778 to 1.1783 in.) 29.931 mm (1.1783 in.)
Reverse idler gear inner diameter	Standard Maximum	18.040 to 18.058 mm (0.7102 to 0.7109 in.) 18.058 mm (0.7109 in.)
Reverse idler gear outer diameter	Standard Minimum	17.966 to 17.984 mm (0.7073 to 0.7080 in.) 17.966 mm (0.7073 in.)
Front transaxle case oil seal drive in depth	-	15.6 mm to 16.0 mm (0.6141 to 0.6299 in.)
Input shaft front bearing drive in depth	-	0 to 0.3 mm (0 to 0.0118 in.)
Shift and select lever shaft slide ball bearing drive in depth	-	0 to 0.5 mm (0 to 0.0197 in.)
Shift and select lever shaft oil seal drive in depth	-	9.7 to 10.3 mm (0.382 to 0.406 in.)
Front differential case tapered roller bearing preload	New bearing Used bearing	0.8 to 1.5 N*m (8 to 16 kgf*cm, 7 to 13 in.*lbf) 0.5 to 0.9 N*m (5 to 10 kgf*cm, 5 to 8 in.*lbf)

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Front differential case shim thickness	AA BB CC DD EE FF GG HH JJ KK LL MM NN PP QQ RR SS TT UU	2.10 mm (0.0827 in.) 2.15 mm (0.0846 in.) 2.20 mm (0.0866 in.) 2.25 mm (0.0886 in.) 2.30 mm (0.0906 in.) 2.35 mm (0.0925 in.) 2.40 mm (0.0945 in.) 2.45 mm (0.0965 in.) 2.50 mm (0.0984 in.) 2.55 mm (0.1004 in.) 2.60 mm (0.1024 in.) 2.65 mm (0.1043 in.) 2.70 mm (0.1063 in.) 2.75 mm (0.1083 in.) 2.80 mm (0.1102 in.) 2.85 mm (0.1122 in.) 2.90 mm (0.1142 in.) 2.95 mm (0.1161 in.) 3.00 mm (0.1181 in.)
Transmission case oil seal drive in depth	-	9.6 to 10.2 mm (0.378 to 0.402 in.)
Transaxle case oil seal drive in depth	-	1.6 to 2.2 mm (0.0630 to 0.0866 in.)
Reverse restrict pin slotted pin drive in depth	-	15.5 to 16.5 mm (0.6102 to 0.6496 in.)
No. 3 transmission clutch hub snap ring thickness	A B C D E F G	2.25 mm (0.0886 in.) 2.31 mm (0.0909 in.) 2.37 mm (0.0933 in.) 2.43 mm (0.0957 in.) 2.49 mm (0.0980 in.) 2.55 mm (0.1004 in.) 2.61 mm (0.1028 in.)
Control shaft cover oil seal drive in depth	-	0.2 to 1.2 mm (0.00787 to 0.0472 in.)
4th gear thrust clearance	Standard Maximum	0.10 to 0.55 mm (0.00394 to 0.0217 in.) 0.55 mm (0.0217 in.)
3rd gear thrust clearance	Standard Maximum	0.10 to 0.35 mm (0.00394 to 0.0138 in.) 0.35 mm (0.0138 in.)
4th gear radial clearance	Standard Maximum	0.009 to 0.050 mm (0.000354 to 0.00197 in.) 0.050 mm (0.00197 in.)

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3rd gear radial clearance	NSK made Standard Maximum JTEKT made Standard Maximum	0.015 to 0.056 mm (0.000591 to 0.00220 in.) 0.056 mm (0.00220 in.) 0.015 to 0.058 mm (0.000591 to 0.00228 in.) 0.058 mm (0.00228 in.)
Input shaft runout	Maximum	0.015 mm (0.000591 in.)
Input shaft outer diameter	Standard Part A Part B Part C Part D Minimum Part A Part B Part C Part D	24.885 to 24.900 mm (0.9797 to 0.9803 in.) 28.991 to 29.006 mm (1.1414 to 1.1420 in.) 30.985 to 31.000 mm (1.2198 to 1.2204 in.) 24.985 to 25.000 mm (0.9836 to 0.9842 in.) 24.885 mm (0.9797 in.) 28.991 mm (1.1414 in.) 30.985 mm (1.2198 in.) 24.985 mm (0.9836 in.)
4th gear inside diameter	Standard Maximum	34.015 to 34.031 mm (1.3391 to 1.3398 in.) 34.031 mm (1.3398 in.)
3rd gear inside diameter	Standard Maximum	36.015 to 36.031 mm (1.4179 to 1.4185 in.) 36.031 mm (1.4185 in.)
3rd gear synchronizer ring back and 3rd gear spline end clearance	Standard Minimum	0.75 to 1.65 mm (0.0295 to 0.0649 in.) 0.75 mm (0.0295 in.)
4th gear synchronizer ring back and 4th gear spline end clearance	Standard Minimum	0.65 to 1.75 mm (0.0256 to 0.0689 in.) 065 mm (0.0256 in.)
No. 2 gear shift fork claw and glove of the No. 2 transmission hub sleeve clearance	-	0.15 to 0.35 mm (0.00591 to 0.0137 in.)
No. 2 transmission clutch hub snap ring clearance	-	0.1 mm (0.00394 in.) or less
No. 2 transmission clutch hub snap ring thickness	0 1 2 3 4 5	2.30 mm (0.0906 in.) 2.36 mm (0.0929 in.) 2.42 mm (0.0953 in.) 2.48 mm (0.0976 in.) 2.54 mm (0.1000 in.) 2.60 mm (0.1024 in.)
Input shaft rear bearing shaft snap ring clearance	-	0.1 mm (0.00394 in.) or less

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Input shaft rear bearing shaft snap ring thickness	A B C D E F	2.29 mm (0.0901 in.) 2.35 mm (0.0925 in.) 2.41 mm (0.0948 in.) 2.47 mm (0.0972 in.) 2.53 mm (0.0996 in.) 2.59 mm (0.1019 in.)
1st gear thrust clearance	Standard Maximum	0.10 to 0.40 mm (0.00394 to 0.0157 in.) 0.40 mm (0.0157 in.)
2nd gear thrust clearance	Standard Maximum	0.10 to 0.55 mm (0.00394 to 0.0217 in.) 0.55 mm (0.0217 in.)
1st gear radial clearance	NSK made Standard Maximum JTEKT made Standard Maximum	0.015 to 0.056 mm (0.000591 to 0.00220 in.) 0.056 mm (0.00220 in.) 0.015 to 0.058 mm (0.000591 to 0.00228 in.) 0.058 mm (0.00228 in.)
2nd gear radial clearance	NSK made Standard Maximum JTEKT made Standard Maximum	0.015 to 0.056 mm (0.000591 to 0.00220 in.) 0.056 mm (0.00220 in.) 0.015 to 0.058 mm (0.000591 to 0.00228 in.) 0.058 mm (0.00228 in.)
Output shaft runout	Maximum	0.015 mm (0.000591 in.)
Output shaft outer diameter	Part A Part B Part C	31.985 to 32.000 mm (1.2592 to 1.2598 in.) 37.985 to 38.000 mm (1.4955 to 1.4961 in.) 32.985 to 33.000 mm (1.2986 to 1.2992 in.)
2nd gear inside diameter	Standard Maximum	38.015 to 38.031 mm (1.4967 to 1.4972 in.) 38.031 mm (1.4972 in.)
1st gear inside diameter	Standard Maximum	44.015 to 44.031 mm (1.7328 to 1.7335 in.) 44.031 mm (1.7335 in.)
1st gear thrust washer thickness	Standard Minimum	5.975 to 6.025 mm (0.2352 to 0.2372 in.) 5.975 mm (0.2352 in.)
No. 2 synchronizer ring set back and 2nd gear spline end clearance	Standard Minimum	0.60 to 1.40 mm (0.0236 to 0.0551 in.) 0.60 mm (0.0236 in.)

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No. 1 synchronizer ring set back and 1st gear spline end clearance	Standard Minimum	0.60 to 1.40 mm (0.0236 to 0.0551 in.) 0.60 mm (0.0236 in.)
Reverse gear glove and reverse gear shift fork claw clearance	-	0.15 to 0.35 mm (0.00591 to 0.0138 in.)
No. 1 clutch hub shaft snap ring clearance	-	0.1 mm (0.0394 in.) or less
No. 1 clutch hub shaft snap ring thickness	A B C D E F	2.50 mm (0.0984 in.) 2.56 mm (0.1008 in.) 2.62 mm (0.1031 in.) 2.68 mm (0.1055 in.) 2.74 mm (0.1079 in.) 2.80 mm (0.1102 in.)
Shift lever slotted pin (for select inner lever) drive in depth	-	3.0 to 4.0 mm (0.1181 to 01575 in.)
Shift lever slotted pin (for shift lever inner No. 1) drive in depth	-	-0.5 to 0.5 mm (-0.197 to 0.0197 in.)
Shift lever slotted pin (for shift lever inner No. 2) drive in depth	-	1.0 to 2.0 mm (0.0394 to 0.0787 in.)
Front differential pinion thrust washer	Minimum	0.92 mm (0.0362 in.)
Front No. 1 differential pinion shaft outer diameter	Minimum	16.982 mm (0.6685 in.)
Front differential side gear backlash	Standard backlash	0.05 to 0.20 mm (0.00197 to 0.00787 in.)
Front differential side gear thrust washer thickness	41361-22140	0.95 mm (0.0374 in.)
	41361-22020	1.00 mm (0.0394 in.)
	41361-22150	1.05 mm (0.0413 in.)
	41361-22030	1.10 mm (0.0433in.)
	41361-22160	1.15 mm (0.0452in.)
	41361-22040	1.20 mm (0.0472 in.)
Back-up light switch	Push Release	Below 1 Ω 10 kΩ or higher

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Z3W00CX
Title: SPECIFICATIONS: BRAKE SYSTEM (OTHER): TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PARTS TIGHTENED		N*M	KGF*CM	FT.*LBF
Brake pedal support x Instrument panel reinforcement		24	245	18
Brake pedal support x Brake booster assembly		13	132	10
Brake pedal sub-assembly x Brake pedal support		37	377	27
Cowl top panel outer x Body		8.8	90	78 in.*lbf
Brake tube union nut (from brake master cylinder sub-assembly to brake actuator assembly	w/o VSC	14 (15)	143 (155)	10 (11)
	w/ VSC	18 (20)	178 (200)	13 (14)
Brake tube union nut		14 (15)	143 (155)	10 (11)
Brake master cylinder sub-assembly x Brake booster assembly		13	132	10
Brake master cylinder push rod clevis lock nut		26	265	19
Front brake bleeder plug		8.3	85	73 in.*lbf
Rear brake bleeder plug	for Drum Type	8.5	87	75 in.*lbf
	for Disc Type	10	102	7

(): For use without a union nut wrench

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000029K6019X
Title: SPECIFICATIONS: C59 MANUAL TRANSMISSION / TRANSAXLE: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Filler plug x Manual transmission case	39	400	29
Drain plug x Manual transmission case	39	400	29
Shift lever assembly x Body	12	122	9
front No. 1 floor insulator x Body	5.5	56	49 in.*lbf
Transmission control cable x Body	5.0	51	44 in.*lbf
Rear engine mounting bracket x Manual transaxle assembly	45	459	33
Front engine mounting bracket x Manual transaxle assembly	64	653	47
Engine mounting bracket LH x Manual transaxle assembly	52	531	38
Control cable bracket x Manual transaxle assembly	25	250	18
Manual transaxle assembly x Engine	33	337	24
Bearing lock plate x Front transaxle case	11	115	8
No.1 oil receiver pipe x Transmission case	17	175	13
No.2 oil receiver pipe x Transmission case	17	175	13
Reverse restrict pin plug x transmission case	13	130	9
Manual transaxle case receiver x Transaxle case	11	115	8
No. 1 gear shift fork x No. 1 gear shift fork shaft	16	160	12
No. 2 gear shift fork x No. 2 gear shift fork shaft	16	160	12
No. 1 gear shift head x No. 2 gear shift fork shaft	16	160	12
Reverse shift arm bracket x Transaxle case	17	175	13
Transmission case x Transaxle case	29	300	22
Reverse idler gear shaft bolt x Transmission case	29	300	22
No. 2 lock ball assembly x Transmission case	29	300	22
Shift detent ball plug x Transmission case	22	224	16
Shift detent ball plug x Transaxle case	22	224	16
rear bearing retainer x Transmission case	27	280	20
No. 3 gear shift fork x No. 3 gear shift fork shaft	16	160	12
Transmission output shaft rear set nut x Output shaft	118	1200	87

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PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Transmission case cover x Transmission case	21	214	15
Control shaft cover x Transmission case	20	200	14
Shift gate pin x Transmission case	11	112	8
No. 1 lock ball assembly x Transmission case	29	300	22
Shift lever damper x Shift and select lever shaft assembly	12	120	9
Floor shift control shift lever x Shift and select lever shaft assembly	12	120	9
Selecting bell crank assembly x Transmission case for bolt	25	250	18
Selecting bell crank assembly x Transmission case for nut	12	120	9
Floor shift control shaft assembly x Selecting bellcrank support	12	122	9
No. 2 selecting bellcrank plate washer x Selecting bellcrank	12	122	9
Back-up light switch x Transmission case	40	410	30
Speedometer driven hole cover x Transaxle case	11	115	8
Front differential ring gear x Front differential case	77	785	57

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000030XQ00KX
Title: SPECIFICATIONS: CLUTCH: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Pedal height from dash panel	2AZ-FE 2ZR-FE	166.4 to 176.4 mm (6.551 to 6.945 in.) 157.7 to 167.7 mm (6.209 to 6.602 in.)
Pedal free play	-	5.0 to 15.0 mm (0.197 to 0.591 in.)
Push rod play at pedal top	-	1.0 to 5.0 mm (0.0394 to 0.197 in.)
Clutch release point from pedal full stroke end position	-	25 mm (0.984 in.) or more
Clutch disc rivet depth	Minimum	0.3 mm (0.0118 in.)
Clutch disc runout	Maximum	0.8 mm (0.0315 in.)
Diaphragm spring fingerwear	Maximum depth Maximum width	0.5 mm (0.0197 in.) 6.0 mm (0.236 in.)
Flywheel runout	Maximum	0.1 mm (0.00394 in.)
Diaphragm spring tip non-alignment	Maximum	0.9 mm (0.0354 in.)
Clutch pedal switch resistance	ON (pushed in) OFF (released)	Blow 1Ω 10 kΩ or higher

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000030XR00KX
Title: SPECIFICATIONS: CLUTCH: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	L	N*M	KGF*CM	FT.*LBF
Clutch pedal stopper bolt x Lock nut		25	250	18
Clutch master cylinder push rod clevis lock nut		12	120	9
Clutch pedal sub-assembly x Clutch pedal support		37	375	27
Clutch pedal switch assembly x Clutch pedal support		16	160	12
Clutch switch assembly x Clutch pedal support		16	160	12
Clutch pedal support x Body		24	241	17
Clutch master cylinder x Clutch pedal support		13	130	9
Clutch line x Clutch master cylinder		14 (15)	143 (155)	10 (11)
Clutch line clamp x Clutch release cylinder (for C59)		12	120	9
Clutch tube bracket x Manual transaxle (for C59)		12	122	9
Clutch line bracket x Manual transaxle (for C59)		8.0	82	71 in.*lbf
Release cylinder bleeder plug x Clutch release cylinder		8.4	86	74 in.*lbf
Clutch release cylinder x Manual transaxle case		12	120	9
Clutch line x Clutch release cylinder		14 (15)	143 (155)	10 (11)
Clutch cover assembly x Flywheel sub-assembly		19	195	14
Release fork support x Manual transaxle (for C59)		37	375	27
Release fork support x Manual transaxle (for E351)		47	480	35
Clutch accumulator bracket x Clutch accumulator (for E351)		12	120	9
Clutch accumulator bracket x Starter assembly (for E351)		37	377	27
Clutch tube bracket x Manual transaxle case (for E351)		8.0	80	69 in.*lbf
Clutch accumulator assembly x Clutch line		14 (15)	143 (155)	10 (11)
Release cylinder heat insulator x Release cylinder assembly (for E351)		12	120	9

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PART TIGHTENED	L	N*M	KGF*CM	FT.*LBF
Clutch accumulator assembly x Release cylinder assembly (for E351)		12	120	9

(): For use without union nut wrench



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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002G3B009X
Title: SPECIFICATIONS: CRUISE CONTROL: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Clutch switch x Clutch Pedal	16	160	12

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000312400GX
Title: SPECIFICATIONS: DOOR / HATCH: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
HOOD			
Hood hinge x Hood panel	13	133	10
Hood lock x Body (Centering bolt)	7.5	77	66 in.*lbf
Hood lock x Body (Standard bolt)	8.0	82	71 in.*lbf
FRONT DOOR			
Door check x Body	30	306	22
Door check x Door panel	5.5	56	49 in.*lbf
Door hinge x Body	26	265	19
Door hinge x Door panel (Unpainted door hinge installation surface)	26	265	19
Door hinge x Door panel (Painted door hinge installation surface)	34	347	25
Door lock x Door panel	5.0	51	44 in.*lbf
Door lock striker x Body	23	235	17
Power window regulator motor x Window regulator	5.4	55	48 in.*lbf
Window regulator x Door panel	8.0	82	71 in.*lbf
Door glass x Window regulator	8.0	82	71 in.*lbf
Outer rear view mirror x Door panel	9.0	92	80 in.*lbf
Door outside handle frame x Door panel	4.0	41	35 in.*lbf
Door rear lower frame x Door panel	6.2	63	55 in.*lbf
Front door No. 2 stiffener cushion x Door panel	6.2	63	55 in.*lbf
REAR DOOR			
Door check x Body	30	306	22
Door check x Door panel	5.5	56	49 in.*lbf
Door hinge x Body	26	265	19
Door hinge x Door panel (Unpainted door hinge installation surface)	26	265	19
Door hinge x Door panel (Painted door hinge installation surface)	29	296	21
Door lock x Door panel	5.0	51	44 in.*lbf
Door lock striker x Body	23	235	17

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PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Power window regulator motor x Window regulator	5.4	55	48 in.*lbf
Window regulator x Door panel	8.0	82	71 in.*lbf
Door outside handle frame x Door panel	4.0	41	35 in.*lbf
Window division bar x Door panel	6.2	63	55 in.*lbf
Separator door No. 2 stiffener cushion x Door panel	6.2	63	55 in.*lbf
LUGGAGE DOOR			
Luggage door hinge x Door panel	7.5	77	66 in.*lbf
Luggage lock striker x Body	5.5	56	49 in.*lbf
Luggage lock x Door panel	5.5	56	49 in.*lbf
Luggage door lock open lever x Body	5.5	56	49 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002EQY00AX
Title: SPECIFICATIONS: E351 MANUAL TRANSMISSION / TRANSAXLE: SERVICE DATA (2010 Corolla)		

SERVICE DATA

MANUAL TRANSAXLE ASSEMBLY:

Transmission case oil seal driven in depth	3.0 to 4.0 mm (0.118 to 0.158 in.)
Transaxle case oil seal drive in depth	-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)

MANUAL TRANSAXLE UNIT:

5th gear thrust clearance	Standard clearance	0.10 to 0.57 mm (0.00394 to 0.0224 in.)
5th gear radial clearance	Standard clearance	0.009 to 0.050 mm (0.000354 to 0.00197 in.)
Reverse idler gear sub-assembly inside diameter	Standard inside diameter	20.056 to 20.074 mm (0.7896 to 0.7903 in.)
	Maximum inside diameter	20.074 (0.7903 in.)
Reverse idler gear shaft outer diameter	Standard outer diameter	19.984 to 20.000 mm (0.7868 to 0.7874 in.)
	Minimum outer diameter	19.984 mm (0.7868 in.)
No. 3 transmission hub sleeve groove - thickness of the claw part on No. 3 gear shift fork	Standard clearance	0.15 to 0.35 mm (0.00591 to 0.0138 in.)
5th gear inside diameter	Standard inside diameter	34.981 to 34.997 mm (1.3772 to 1.3778 in.)
	Maximum inside diameter	34.997 mm (1.3778 in.)
Output shaft rear bearing clearance		3.8 to 4.4 mm (0.150 to 0.173 in.)
Output shaft bearing preload	New bearing	0.8 to 1.6 N*m (8.16 to 16.32 kgf*cm, 7.1 to 14.2 in.*lbf)
	Used bearing	0.5 to 1.0 N*m (5.10 to 10.20 kgf*cm, 4.4 to 8.9 in.*lbf)
Output shaft rear bearing shim thickness	0	1.30 mm (0.0512 in.)
	1	1.35 mm (0.0531 in.)

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	2	1.40 mm (0.0551 in.)
	3	1.45 mm (0.0571 in.)
	4	1.50 mm (0.0591 in.)
	5	1.55 mm (0.0610 in.)
	6	1.60 mm (0.0630 in.)
	7	1.65 mm (0.0650 in.)
	8	1.70 mm (0.0669 in.)
	9	1.75 mm (0.0689 in.)
	A	1.80 mm (0.0709 in.)
	B	1.85 mm (0.0728 in.)
	C	1.90 mm (0.0748 in.)
	D	1.95 mm (0.0768 in.)
	E	2.00 mm (0.0787 in.)
	F	2.05 mm (0.0807 in.)
	G	2.10 mm (0.0827 in.)
	H	2.15 mm (0.0846 in.)
	J	2.20 mm (0.0866 in.)
	K	2.25 mm (0.0886 in.)
	L	2.30 mm (0.0906 in.)
	M	2.35 mm (0.0925 in.)
	N	2.40 mm (0.0945 in.)
	P	2.45 mm (0.0965 in.)
	Q	2.50 mm (0.0984 in.)
Front differential case tapered roller bearing preload	New bearing	0.8 to 1.6 N*m (8.16 to 16.32 kgf*cm, 7.1 to 14.2 in.*lbf)
	Used bearing	0.5 to 1.0 N*m (5.10 to 10.20 kgf*cm, 4.4 to 8.9 in.*lbf)
Front differential case shim rear thickness	0	2.00 mm (0.0787 in.)
	1	2.05 mm (0.0807 in.)
	2	2.10 mm (0.0827 in.)
	3	2.15 mm (0.0846 in.)
	4	2.20 mm (0.0866 in.)
	5	2.25 mm (0.0886 in.)
	6	2.30 mm (0.0906 in.)

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	7	2.35 mm (0.0925 in.)
	8	2.40 mm (0.0945 in.)
	9	2.45 mm (0.0965 in.)
	A	2.50 mm (0.0984 in.)
	B	2.55 mm (0.1004 in.)
	C	2.60 mm (0.1024 in.)
	D	2.65 mm (0.1043 in.)
	E	2.70 mm (0.1063 in.)
	F	2.75 mm (0.1083 in.)
	G	2.80 mm (0.1102 in.)
	H	2.85 mm (0.1122 in.)
Front transaxle case cover oil seal clearance		1.0 to 2.0 mm (0.0394 to 0.0.787 in.)
Input shaft front bearing clearance		4.28 to 4.60 mm (0.169 to 0.181 in.)
Reverse restrict pin clearance		12.5 to 13.5 mm (0.492 to 0.531 in.)
No. 3 transmission clutch hub snap ring clearance		0.1 mm or less (0.00391 in. or less)
No. 3 transmission clutch hub snap ring thickness	a	1.75 to 1.80 mm (0.0689 to 0.0709 in.)
	b	1.80 to 1.85 mm (0.0709 to 0.0728 in.)
	c	1.85 to 1.90 mm (0.0728 to 0.0748 in.)
	d	1.90 to 1.95 mm (0.0748 to 0.0768 in.)
	e	1.95 to 2.00 mm (0.0768 to 0.0787 in.)
	f	2.00 to 2.05 mm 0.0787 to 0.0807 in.)
	g	2.05 to 2.10 mm (0.0807 to 0.0827 in.)
	h	2.10 to 2.15 mm (0.0827 to 0.0846 in.)
	j	2.15 to 2.20 mm (0.0846 to 0.0866 in.)

INPUT SHAFT ASSEMBLY:

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4th gear thrust clearance	Standard clearance	0.10 to 0.57 mm (0.00394 to 0.0224 in.)
3rd gear thrust clearance	Standard clearance	0.10 to 0.35 mm (0.00394 to 0.0138 in.)
4th gear radial clearance	KOYO made	0.009 to 0.053 mm (0.000354 to 0.00209 in.)
	NSK made	0.009 to 0.051 mm (0.000354 to 0.00201 in.)
3rd gear radial clearance	KOYO made	0.009 to 0.053 mm (0.000354 to 0.00209 in.)
	NSK made	0.009 to 0.051 mm (0.000354 to 0.00201 in.)
Input shaft run out	Maximum run out	0.03 mm (0.00118 in.)
Input shaft standard outer diameter	A	35.984 to 36.000 mm (1.4167 to 1.4173 in.)
	B	35.984 to 36.000 mm (1.4167 to 1.4173 in.)
	C	27.957 to 27.972 mm (1.1007 to 1.1013 in.)
Input shaft minimum outer diameter	A	35.984 mm (1.4167 in.)
	B	35.984 mm (1.4167 in.)
	C	27.957 mm (1.1007 in.)
4th gear inside diameter	Standard inside diameter	42.009 to 42.025 mm (1.6539 to 1.6545 in.)
	Maximum inside diameter	42.025 mm (1.6545 in.)
3rd gear inside diameter	Standard inside diameter	43.009 to 43.025 mm (1.6933 to 1.6939 in.)
	Maximum inside diameter	43.025 mm (1.6939 in.)
Between the 4th gear spline end and synchronizer outer ring back clearance		0.75 to 1.65 mm (0.0295 to 0.0650 in.)
Between the 3rd gear spline end and synchronizer outer ring back clearance		0.65 to 1.75 mm (0.0256 to 0.0689 in.)
No. 2 transmission hub sleeve groove - thickness of the claw part on No.1 gear shift fork	Standard clearance	0.11 to 0.69 mm (0.00433 to 0.0272 in.)
No. 2 transmission clutch hub snap ring clearance	Standard clearance	0.1 mm or less (0.00394 in. or less)

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No. 2 transmission clutch hub snap ring thickness	H	2.30 to 2.35 mm (0.0906 to 0.0925 in.)
	J	2.35 to 2.40 mm (0.0925 to 0.0945 in.)
	K	2.40 to 2.45 mm (0.0945 to 0.0965 in.)
	L	2.45 to 2.50 mm (0.0965 to 0.0984 in.)
	M	2.50 to 2.55 mm (0.0984 to 0.1004 in.)
	N	2.55 to 2.60 mm (0.1004 to 0.1024 in.)
	P	2.60 to 2.65 mm (0.1024 to 0.1043 in.)
Input shaft rear radial ball bearing snap ring clearance	Standard clearance	0.1 mm or less (0.00394 in. or less)
Input shaft rear radial ball bearing snap ring thickness	1	2.35 to 2.40 mm (0.0925 to 0.0945 in.)
	2	2.40 to 2.45 mm (0.0945 to 0.0965 in.)
	3	2.45 to 2.50 mm (0.0965 to 0.0984 in.)
	4	2.50 to 2.55 mm (0.0984 to 0.1004 in.)
	5	2.55 to 2.60 mm (0.1004 to 0.1024 in.)
	6	2.60 to 2.65 mm (0.1024 to 0.1043 in.)
	7	2.65 to 2.70 mm (0.1043 to 0.1063 in.)
	8	2.70 to 2.75 mm (0.1063 to 0.1083 in.)

OUTPUT SHAFT ASSEMBLY:

1st gear thrust clearance	Standard clearance	0.25 to 0.40 mm (0.00984 to 0.0157 in.)
2nd gear thrust clearance	Standard clearance	0.10 to 0.35 mm (0.00394 to 0.0138 in.)
1st gear radial clearance	KOYO made	0.009 to 0.053 mm (0.000354 to 0.00209 in.)

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	NSK made	0.009 to 0.051mm (0.000354 to 0.00201 in.)
2nd gear radial clearance	KOYO made	0.009 to 0.053 mm (0.000354 to 0.00209 in.)
	NSK made	0.009 to 0.051mm (0.000354 to 0.00201 in.)
Output shaft run out	Maximum run out	0.03 mm (0.00118 in.)
Output shaft standard outer diameter	A	37.610 to 37.626 mm (1.4807 to 1.4813 in.)
	B	34.502 to 34.512 mm (1.3583 to 1.3587 in.)
Output shaft minimum outer diameter	A	37.610 mm (1.4807 in.)
	B	34.502 mm (1.3583 in.)
2nd gear inside diameter	Standard inside diameter	50.009 to 50.025 mm (1.9689 to 1.9695 in.)
	Maximum inside diameter	50.025 mm (1.9695 in.)
1st gear inside diameter	Standard inside diameter	51.009 to 51.025 mm (2.0082 to 2.0089 in.)
	Maximum inside diameter	51.025 mm (2.0089 in.)
Between the 2nd gear while and No. 2 synchronizer ring back clearance		0.70 to 1.45 mm (0.0276 to 0.0571 in.)
Between the 1st gear while and No. 1 synchronizer ring set back clearance		0.70 to 1.45 mm (0.0276 to 0.0571 in.)
Reverse gear groove - thickness of the claw part on No .1 gear shift fork clearance	Standard clearance	0.15 to 0.35 mm (0.00591 to 0.0138 in.)

SHIFT AND SELECT LEVER SHAFT ASSEMBLY:

Control shaft cover oil seal drive in depth	28.0 to 29.0 mm (1.10 to 1.14 in.)
Shift lever slotted pin clearance to the No. 1 shift lever inner assembly	-0.4 to 0.5 mm (-0.0157 to 0.0197 in.)
Shift lever slotted pin clearance to the No. 2 shift lever inner	0.7 to 1.7 mm (0.0276 to 0.0669 in.)

DIFFERENTIAL CASE ASSEMBLY:

Front differential pinion thrust washer thickness	Minimum thickness	0.9 mm (0.0354 in.)

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Front differential No. 1 pinion shaft thickness	Minimum diameter	17.975 mm (0.70768 in.)
Front differential side gear backlash	Standard backlash	0.05 to 0.20 mm (0.00197 to 0.00787 in.)
Front differential side gear thrust washer thickness	1	1.00 mm (0.0394 in.)
	2	1.10 mm (0.0433 in.)
	3	1.20 mm (0.0472 in.)
	4	1.30 mm (0.0512 in.)



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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000313B00PX
Title: SPECIFICATIONS: DOOR LOCK: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

FRONT DOOR LOCK

PART TIGHTENED	N*M	KGF*CM	FT*LBF
Front door lock assembly x Door panel	5.0	51	44 in.*lbf

REAR DOOR LOCK

PART TIGHTENED	N*M	KGF*CM	FT*LBF
Rear door lock assembly x Door panel	5.0	51	44 in.*lbf

LUGGAGE COMPARTMENT DOOR LOCK

PART TIGHTENED	N*M	KGF*CM	FT*LBF
Luggage compartment door lock assembly x Door panel	5.5	56	49 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K6R001X
Title: SPECIFICATIONS: DRIVE SHAFT / PROPELLER SHAFT: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

for 2AZ-FE

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front drive shaft assembly RH x Bearing bracket	32	330	24
Manual transmission case protector set bolts (for manual transaxle)	18	184	13
Front axle shaft nuts	216	2203	160
Front wheel set nuts	103	1050	76

for 2ZR-FE

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front axle shaft nuts	216	2203	160
Front wheel set nuts	103	1050	76

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002EQZ00AX
Title: SPECIFICATIONS: E351 MANUAL TRANSMISSION / TRANSAXLE: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Shift lever assembly x Body		12	122	9
Front No. 1 floor heat insulator x Body		5.5	56	49 in.*lbf
Transmission control cable assembly x Body		5.0	51	44 in.*lbf
Wire harness clamp bracket x Manual transaxle		13	130	9
Wire harness clamp bracket x Manual transaxle		26	260	19
Rear engine mounting bracket x Manual transaxle		45	459	33
Front engine mounting bracket x Manual transaxle		64	653	47
Engine mounting bracket LH x Manual transaxle		52	530	38
Manual transmission case protector x Manual transaxle		18	183	13
Manual transaxle x Engine	Bolt A	64	652	47
	Bolt B	64	652	47
	Bolt C	46	469	34
	Bolt D	46	469	34
Manual transaxle x Engine		44	448	32
Manual transaxle case receiver x Manual transaxle case		7.0	71	62 in.*lbf
No. 1 gear shift head x No. 2 gear shift fork shaft		24	245	18
No. 1 gear shift fork x No. 1 gear shift fork shaft		24	245	18
Reverse shift arm bracket x Manual transaxle case		17	173	13
No. 1 oil receiver pipe x Transmission case		17	173	13
No. 2 oil receiver pipe x Transmission case		17	173	13
transmission oil baffle x Manual transmission case		17	173	13
Reverse restrict pin plug x Transmission case		13	133	9.6
Transmission case x Manual transaxle case		29	296	21
Reverse idler gear shaft bolt x Transmission case		30	306	22
Rear bearing retainer x Transmission case		43	438	32
No. 3 gear shift fork x No. 1 gear shift fork shaft		24	245	18
Manual transmission output rear set nut x Output shaft		123	1254	90

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PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Drain plug x Transmission case	49	500	36
Filler plug x Transmission case	49	500	36
Control shift cover x Manual transaxle	20	204	15
Back up light switch assembly x Manual transaxle	40	408	30
Shift gate pin x Manual transaxle	29	296	21
No. 1 lock ball assembly x Manual transaxle	29	296	21
No. 2 clutch tube bracket x Manual transaxle	15	153	11
Control shift lever x Shift and select lever shaft	12	120	9
Selecting bellcrank assembly x Manual transaxle	20	204	15
Speedometer driven gear sub-assembly x Manual transaxle	5.5	56	48 in.*lbf
Control cable bracket x Manual transaxle	17	173	12
Selecting bellcrank support sub-assembly x No. 2 selecting bellcrank	12	122	9
Front differential ring gear x Front differential case	106	1080	78



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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000031300DX
Title: SPECIFICATIONS: EXTERIOR PANELS / TRIM: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

FRONT BUMPER

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front bumper reinforcement sub-assembly x Body	36	367	27

REAR BUMPER

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear bumper arm LH x Body	36	367	27
Rear bumper arm RH x Body	36	367	27
No. 1 Rear bumper reinforcement x Body	36	367	27

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003GGD003X
Title: SPECIFICATIONS: FRONT SUSPENSION: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Turning torque:

TURNING TORQUE	
Front lower ball joint turning torque	1.0 to 3.4 N*m (10 to 35 kgf*cm, 9 to 30 in.*lbf) (for 2AZ-FE) 1.0 to 4.9 N*m (10 to 50 kgf*cm, 9 to 43 in.*lbf) (for 2ZR-FE)
Front stabilizer link ball joint turning torque	0.1 to 2.0N*m (1 to 20 kgf*cm, 1 to 17 in.*lbf)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003GGE003X
Title: SPECIFICATIONS: FRONT SUSPENSION: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Tower bar bracket sub-assembly LH x Suspension tower damper assembly	52	530	38
Tower bar bracket sub-assembly LH x Body	50	510	37
(for TMC Made) Front shock absorber with coil spring x Body	39	398	29
(except TMC Made) Front shock absorber with coil spring x Body	50	510	37
Front shock absorber with coil spring x Steering knuckle	240	2447	177
Front shock absorber nut x Piston rod	47	479	35
Front flexible hose x Front shock absorber	29	296	21
Front speed sensor wire x Front shock absorber	29	296	21
Front shock absorber with coil spring x Front stabilizer link	74	755	55
(for TMC Made) Front suspension crossmember x Rear engine mounting insulator	Bolt : 52 Nut : 52	Bolt : 530 Nut : 530	Bolt : 38 Nut : 38
(except TMC Made) Front suspension crossmember x Rear engine mounting insulator	Bolt (front side) :87 Bolt : 52 Nut : 52	Bolt (front side) :887 Bolt : 530 Nut : 530	Bolt (front side) :64 Bolt : 38 Nut : 38
Front suspension crossmember (Front side) x Body	113	1152	83
Front suspension crossmember (Rear side) x Body	157	1600	116
(for TMC Made) Center engine mounting member sub-assembly x Body	39	398	29
(except TMC Made) Center engine mounting member sub-assembly x Body	60	612	44
(for TMC Made) Center engine mounting member sub-assembly x Front engine mounting insulator	52	530	38

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PART TIGHTENED	N*M	KGF*CM	FT.*LBF
(except TMC Made) Center engine mounting member sub-assembly x Front engine mounting insulator	81	827	60
Front stabilizer link x Front stabilizer bar	74	755	55
(for TMC Made) No. 1 front stabilizer bracket x Front suspension member	19	194	14
(except TMC Made) No. 1 front stabilizer bracket x Front suspension member	24	245	18
Front lower suspension arm x Front suspension crossmember	Bolt type (1): 137 Bolt type (2): 145	Bolt type (1): 1397 Bolt type (2): 1479	Bolt type (1): 101 Bolt type (2): 107
Front lower ball joint x Steering knuckle (2ZR-FE)	103	1050	76
Front lower ball joint x Steering knuckle (2AZ-FE)	123	1254	91

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000314W00IX
Title: SPECIFICATIONS: HEATING / AIR CONDITIONING: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Refrigerant charge volume (Standard:)	410 to 470g (14.5 to 16.6 oz.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000314X00JX
Title: SPECIFICATIONS: HEATING / AIR CONDITIONING: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
AIR CONDITIONING UNIT			
Air conditioning unit assembly x Body	9.8	100	87 in.*lbf
Air conditioning unit assembly x Instrument panel reinforcement assembly	9.8	100	87 in.*lbf
Instrument panel reinforcement assembly x No. 1 instrument panel brace sub-assembly (Screw)	9.8	100	87 in.*lbf
Instrument panel reinforcement assembly x No. 2 instrument panel brace sub-assembly (Screw)	9.8	100	87 in.*lbf
No. 1 cooler evaporator sub-assembly x Cooler expansion valve	3.5	36	31 in.*lbf
Suction pipe sub-assembly x Air conditioning tube assembly	9.8	100	87 in.*lbf
No. 1 air duct sub-assembly x Body	9.8	100	87 in.*lbf
Instrument panel reinforcement assembly x Pedal	24	245	18
Instrument panel reinforcement assembly x Earth wire	8.4	86	74 in.*lbf
COMPRESSOR (for 2AZ-FE)			
Compressor assembly with pulley x Engine	25	255	18
Compressor assembly with pulley (stud bolt) x Engine	9.8	100	87 in.*lbf
Discharge hose sub-assembly x Compressor assembly with pulley	9.8	100	87 in.*lbf
Suction hose sub-assembly x Compressor assembly with pulley	9.8	100	87 in.*lbf
COMPRESSOR (for 2ZR-FE)			
Compressor assembly with pulley x Engine	25	255	18
Compressor assembly with pulley (stud bolt) x Engine	9.8	100	87 in.*lbf

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PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Discharge hose sub-assembly x Compressor assembly with pulley	9.8	100	87 in.*lbf
Suction hose sub-assembly x Compressor assembly with pulley	9.8	100	87 in.*lbf
CONDENSER			
Discharge hose sub-assembly x Condenser assembly with receiver	5.4	55	48 in.*lbf
Air conditioning tube assembly x Condenser assembly with receiver	5.4	55	48 in.*lbf
Cap x Condenser assembly with receiver	2.9	30	26 in.*lbf
AIR CONDITIONING PRESSURE SENSOR			
Air conditioning pressure sensor x Air conditioning tube assembly	11	112	8

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002PNH013X
Title: SPECIFICATIONS: HORN: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Low pitched horn assembly x Body	20	204	15

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000030QU00JX
Title: SPECIFICATIONS: INTERIOR PANELS / TRIM: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

UPPER INSTRUMENT PANEL

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Instrument panel reinforcement x Passenger airbag	20	204	15

ROOF HEADLINING

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Amplifier antenna assembly x body	8.4	86	74 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K15001X
Title: SPECIFICATIONS: LIGHTING (EXT): TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
HEADLIGHT ASSEMBLY			
Headlight assembly x Body	5.4	55	48 in.*lbf
REAR COMBINATION LIGHT ASSEMBLY			
Rear combination light assembly x Body	5.4	55	48 in.*lbf
REAR LIGHT ASSEMBLY			
Rear light assembly x Body	5.4	55	48 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K16001X
Title: SPECIFICATIONS: LIGHTING (INT): TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
FRONT DOOR COURTESY SWITCH			
Front door courtesy switch assembly x Body	8.0	82	71 in.*lbf
REAR DOOR COURTESY SWITCH			
Rear door courtesy switch assembly x Body	8.0	82	71 in.*lbf
BACK DOOR COURTESY SWITCH			
Back door lock assembly x Back door	5.5	56	49 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002JIX00PX
Title: SPECIFICATIONS: MIRROR (EXT): TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Outer rear view mirror assembly x Door panel	9.0	92	80 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002JIX00OX
Title: SPECIFICATIONS: MIRROR (INT): TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

w/ EC Mirror:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Inner rear view mirror x Windshield glass	1.5	15	13 in.*lbf

w/o EC Mirror:

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
for TMMC, NUMMI Made			
Inner rear view mirror x Windshield glass	1.5	15	13 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003JJ6002X
Title: SPECIFICATIONS: PARKING BRAKE: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Parking brake lever travel	6 to 9 notches at 200 N (20 kgf, 45.0 lbf)
Rear disc brake cylinder operation lever and stopper clearance	0.5 mm (0.0197 in.) or less

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003JJ7002X
Title: SPECIFICATIONS: PARKING BRAKE: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PARKING BRAKE LEVER

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Parking brake switch assembly set screw	0.9	9	8 in.*lbf
No. 1 parking brake cable assembly lock nut	6.0	61	53 in.*lbf
Parking brake lever assembly set bolts	15	148	11
No. 3 belt anchor reinforcement sub-assembly set bolts	27	275	19
No. 2 belt anchor reinforcement sub-assembly set bolts	27	275	19

PARKING BRAKE CABLE (for Rear Disc Brake)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 3 parking brake cable assembly set bolts	6.0	61	53 in.*lbf
No. 2 front floor heat insulator set nuts	5.5	56	49 in.*lbf
No. 1 front floor heat insulator set nuts	5.5	56	49 in.*lbf

PARKING BRAKE CABLE (for Rear Drum Brake)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 3 parking brake cable assembly set bolts	6.0	61	53 in.*lbf
No. 3 parking brake cable assembly x Backing plate	8.0	82	71 in.*lbf
No. 2 front floor heat insulator set nuts	5.5	56	49 in.*lbf
No. 1 front floor heat insulator set nuts	5.5	56	49 in.*lbf

PARKING BRAKE SWITCH

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Parking brake switch assembly set screw	0.9	9	8 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K6E001X
Title: SPECIFICATIONS: POWER ASSIST SYSTEMS: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Steering effort (Reference)	5.5 N*m (56 kgf*cm, 49 in.*lbf) or less

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K6D001X
Title: SPECIFICATIONS: POWER ASSIST SYSTEMS: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Steering wheel set nut	50	510	37
Power steering ECU assembly set bolt	8.0	82	71 in.*lbf
Power steering ECU assembly set nuts	8.0	82	71 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003120010X
Title: SPECIFICATIONS: REAR SUSPENSION: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Rear shock absorber with coil spring x Rear axle beam		80	816	59
Rear shock absorber with coil spring x Body		80	816	59
Rear support to rear shock absorber nut x Piston rod		39	398	29
No. 3 parking brake cable x Rear axle beam		6.0	61	53 in.*lbf
No. 2 parking brake cable x Rear axle beam		6.0	61	53 in.*lbf
Rear speed sensor wire x Rear axle beam		8.0	82	71 in.*lbf
Rear flexible hose x Rear brake tube	for Rear Drum Brake	14 (15)	143 (155)	10 (11)
Rear brake tube x Rear wheel cylinder		14 (15)	143 (155)	10 (11)
Rear flexible hose x Rear axle beam	for Rear Disc Brake	29	296	21
Rear axle beam x Body		85	867	63
Rear axle beam x Rear stabilizer bar		250	2549	184

(): For use without a union nut wrench

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Z9300TX
Title: SPECIFICATIONS: SEAT: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

FRONT SEAT ASSEMBLY (for Manual Seat)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front seat assembly x Body	37	377	27
Front seatback cover x Front seat frame assembly with adjuster	5.5	56	49 in.*lbf
Active headrest upper unit x Front seat frame assembly with adjuster	14	143	10
Active headrest lower unit x Front seat frame assembly with adjuster	5.0	51	44 in.*lbf

FRONT SEAT ASSEMBLY (for Power Seat)

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Front seat assembly x Body	37	377	27
Front seatback cover x Front seat frame assembly with adjuster	5.5	56	49 in.*lbf
Active headrest upper unit x Front seat frame assembly with adjuster	14	143	10
Active headrest lower unit x Front seat frame assembly with adjuster	5.0	51	44 in.*lbf

REAR SEAT ASSEMBLY

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Rear seatback assembly LH x Body	18	184	13
Rear seatback assembly RH x Body	18	184	13
Rear seat center armrest assembly x Rear seatback frame sub-assembly RH	4.5	46	40 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000030RS00JX
Title: SPECIFICATIONS: SEAT BELT: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
FRONT SEAT INNER BELT ASSEMBLY			
Front seat inner belt assembly x Front seat assembly	41	420	30
FRONT SEAT OUTER BELT ASSEMBLY			
Front seat outer belt assembly (Floor anchor) x Body	41	420	30
Front seat outer belt assembly (Shoulder anchor) x Front shoulder belt anchor adjuster assembly	41	420	30
Front shoulder belt anchor adjuster assembly x Body	41	420	30
Front seat outer belt assembly (for Upper bolt) x Body	5.0	51	44 in.*lbf
Front seat outer belt assembly (for Lower bolt) x Body	41	420	30
REAR SEAT INNER BELT ASSEMBLY			
Rear seat inner with center belt assembly LH x Body	41	420	30
Rear seat inner with center belt assembly RH (Floor anchor) x Body	41	420	30
Rear seat inner with center belt assembly RH x Body	41	420	30
REAR SEAT OUTER BELT ASSEMBLY			
Rear seat outer belt assembly (Floor anchor) x Body	41	420	30
Rear seat outer belt assembly x Body	41	420	30
CHILD RESTRAINT SEAT TETHER ANCHOR			
Child restraint seat tether anchor x Body	41	420	30
CHILD RESTRAINT SEAT ANCHOR BRACKET			
Child restraint seat anchor bracket x Body	31	316	23

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000030QV00OX
Title: SPECIFICATIONS: SLIDING ROOF / CONVERTIBLE: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

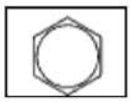
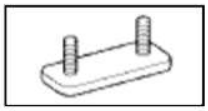
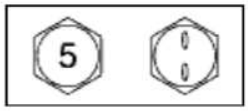
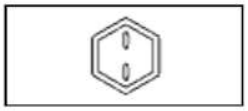
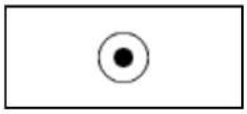
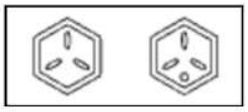
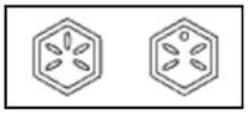
PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Sliding roof glass sub-assembly x Sliding roof housing sub-assembly	4.0	41	35 in.*lbf
Sliding roof housing sub-assembly (Bolt) x Body	5.5	56	49 in.*lbf
Sliding roof housing sub-assembly (Nut) x Body	5.5	56	49 in.*lbf
Sliding roof drive gear sub-assembly x Sliding roof housing sub-assembly	5.4	55	48 in.*lbf

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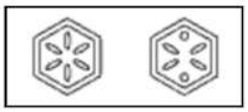
Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000118V06CX
Title: SPECIFICATIONS: STANDARD BOLT: HOW TO DETERMINE BOLT STRENGTH (2010 Corolla)		

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

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HEXAGON HEAD BOLT		STUD BOLT	WELD BOLT	CLASS
NORMAL RECESS BOLT	DEEP RECESS BOLT			
				11T

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000118W06CX
Title: SPECIFICATIONS: STANDARD BOLT: SPECIFIED TORQUE FOR STANDARD BOLTS (2010 Corolla)		

SPECIFIED TORQUE FOR STANDARD BOLTS

CLASS	DIAMETER (MM)	PITCH (MM)	SPECIFIED TORQUE					
			HEXAGON HEAD BOLT			HEXAGON FLANGE BOLT		
			N*M	KGF*CM	FT.*LBF	N*M	KGF*CM	FT.*LBF
4T	6	1	5	55	48 in.*lbf	6	60	52 in.*lbf
	8	1.25	12.5	130	9	14	145	10
	10	1.25	26	260	19	29	290	21
	12	1.25	47	480	35	53	540	39
	14	1.5	74	760	55	84	850	61
	16	1.5	115	1,150	83	-	-	-
5T	6	1	6.5	65	56 in.*lbf	7.5	75	65 in.*lbf
	8	1.25	15.5	160	12	17.5	175	13
	10	1.25	32	330	24	36	360	26
	12	1.25	59	600	43	65	670	48
	14	1.5	91	930	67	100	1,050	76
	16	1.5	140	1,400	101	-	-	-
6T	6	1	8	80	69 in.*lbf	9	90	78 in.*lbf
	8	1.25	19	195	14	21	210	15
	10	1.25	39	400	29	44	440	32
	12	1.25	71	730	53	80	810	59
	14	1.5	110	1,100	80	125	1,250	90
	16	1.5	170	1,750	127	-	-	-
7T	6	1	10.5	110	8	12	120	9
	8	1.25	25	260	19	28	290	21
	10	1.25	52	530	38	58	590	43
	12	1.25	95	970	70	105	1,050	76
	14	1.5	145	1,500	108	165	1,700	123
	16	1.5	230	2,300	166	-	-	-
8T	8	1.25	29	300	22	33	330	24

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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
	10	1.25	61	620	45	68	690	50
	12	1.25	110	1,100	80	120	1,250	90
9T	8	1.25	34	340	25	37	380	27
	10	1.25	70	710	51	78	790	57
	12	1.25	125	1,300	94	140	1,450	105
10T	8	1.25	38	390	28	42	430	31
	10	1.25	78	800	58	88	890	64
	12	1.25	140	1,450	105	155	1,600	116
11T	8	1.25	42	430	31	47	480	35
	10	1.25	87	890	64	97	990	72
	12	1.25	155	1,600	116	175	1,800	130

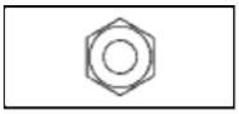
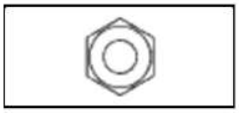
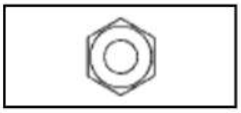
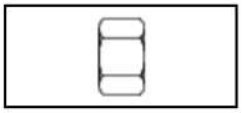
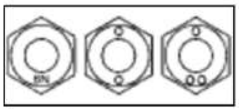
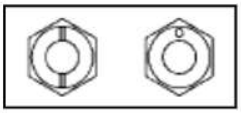
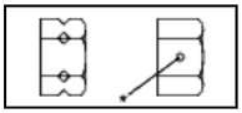
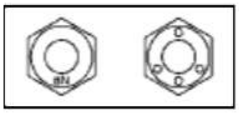
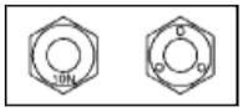
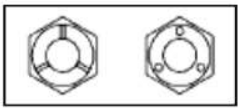
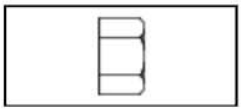


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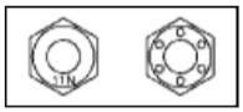
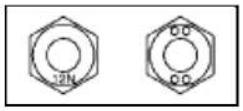
Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000118X06CX
Title: SPECIFICATIONS: STANDARD BOLT: HOW TO DETERMINE NUT STRENGTH (2010 Corolla)		

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

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PRESENT STANDARD HEXAGON NUT	OLD STANDARD HEXAGON NUT		CLASS
	COLD FORGING NUT	CUTTING PROCESSED NUT	
			
	-	-	12N

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

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003JJ4001X
Title: SPECIFICATIONS: STEERING COLUMN: SERVICE DATA (2010 Corolla)		

SERVICE DATA

STEERING SYSTEM

Maximum steering wheel free play	30 mm (1.18 in.)

STEERING COLUMN ASSEMBLY

Steering column assembly preload	0.8 to 1.2 N*m (8 to 12 kgf*cm, 7 to 10 in.*lbf)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003JJ5001X
Title: SPECIFICATIONS: STEERING COLUMN: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
No. 2 steering intermediate shaft assembly x Steering column assembly	35	360	26
Steering post assembly set bolt	25	255	18
Steering post assembly set nuts	25	255	18
No. 2 steering intermediate shaft assembly x Steering intermediate shaft assembly	35	360	26
Steering wheel set nut	50	510	37

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K6B001X
Title: SPECIFICATIONS: STEERING GEAR / LINKAGE: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Tie rod end sub-assembly ball joint turning torque	0.3 to 2.0 N*m (3 to 20 kgf*cm, 3 to 17 in.*lbf)
Power steering gear assembly total preload (turning) (for 2AZ-FE)	0.7 to 1.1N*m (8 to 11 kgf*cm, 7 to 9 in.*lbf)
Power steering gear assembly total preload (turning) (for 2ZR-FE)	0.5 to 0.9 N*m (6 to 9 kgf*cm, 5 to 7 in.*lbf)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003K6C001X
Title: SPECIFICATIONS: STEERING GEAR / LINKAGE: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Steering link assembly set bolts	58	591	43
Steering intermediate shaft x Steering link assembly	35	357	26
Tie rod end sub-assembly x Steering knuckle	49	500	36
Tie rod end sub-assembly lock nuts	74	755	54
Front wheel set nuts	103	1050	75

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003KA9001X
Title: SPECIFICATIONS: SUPPLEMENTAL RESTRAINT SYSTEMS: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Steering pad x Steering wheel assembly	8.8	90	78 in.*lbf
Curtain shield airbag assembly x Body	9.8	100	87 in.*lbf
Center airbag sensor assembly x Body	11 (18)	112 (184)	8 (13)
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
Seat position sensor x front seat	8.0	82	71 in.*lbf
Occupant classification ECU x front seat	3.0	31	27 in.*lbf

( ) For use without SST

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000032JG00QX
Title: SPECIFICATIONS: U250E AUTOMATIC TRANSMISSION / TRANSAXLE: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Line Pressure (Wheel Locked)		
Engine idling	D position	372 to 412 kPa (3.8 to 4.2 kgf/cm^2, 54 to 60 psi)
	R position	672 to 742 kPa (6.9 to 7.6 kgf/cm^2, 97 to 108 psi)
AT stall (Throttle valve fully open)	D position	931 to 1031 kPa (9.5 to 11.0 kgf/cm^2, 135 to 150 psi)
	R position	1768 to 1968 kPa (18.0 to 20.0 kgf/cm^2, 256 to 285 psi)
Engine stall revolution	D position	2310 +/- 150 rpm
Time lag	N → D position	Less than 1.2 seconds
	N → R position	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N position	approx. 700 rpm
Drive plate runout	Maximum	0.30 mm (0.0118 in.)
Shift Schedule (Normal)		
Throttle valve fully open	1 → 2	45 to 51 km/h (28 to 32 mph)
	2 → 3	89 to 94 km/h (55 to 58 mph)
	3 → 4	140 to 149 km/h (87 to 93 mph)
	4 → 5	201 to 210 km/h (125 to 130 mph)
	5 → 4	194 to 203 km/h (121 to 126 mph)
	4 → 3	132 to 141 km/h (82 to 88 mph)
	3 → 2	81 to 86 km/h (50 to 53 mph)
	2 → 1	32 to 37 km/h (20 to 23 mph)
Throttle valve fully closed	4 → 5	59 to 64 km/h (37 to 40 mph)
	5 → 4	35 to 40 km/h (22 to 25 mph)
Shift Schedule (Cold)		
Throttle valve fully open	1 → 2	30 to 35 km/h (19 to 22 mph)
	2 → 3	55 to 60 km/h (34 to 37 mph)
	3 → 4	78 to 83 km/h (48 to 52 mph)

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	4 → 3	71 to 76 km/h (44 to 47 mph)
	3 → 2	48 to 53 km/h (30 to 33 mph)
	2 → 1	25 to 29 km/h (16 to 18 mph)
Shift Schedule (Failure)		
Throttle valve fully open	1 → 3	26 to 31 km/h (16 to 19 mph)
	3 → 4	78 to 83 km/h (48 to 52 mph)
	4 → 3	71 to 76 km/h (44 to 47 mph)
	3 → 1	22 to 27 km/h (14 to 17 mph)
Manual down shift speed	→ 3	136 to 145 km/h (85 to 90 mph)
	→ 2	86 to 91 km/h (53 to 57 mph)
	→ 1	38 to 43 km/h (24 to 27 mph)
Lock-up Point (Throttle Valve Opening 5%)		
D position		
5th gear	Lock-up ON	70 to 75 km/h (43 to 47 mph)
	Lock-up OFF	64 to 68 km/h (40 to 42 mph)
4th gear	Lock-up ON	56 to 61 km/h (35 to 38 mph)
	Lock-up OFF	54 to 59 km/h (34 to 37 mph)
Flex Lock-up Point (Throttle Valve Opening 5%)		
D position		
5th gear	Lock-up ON	65 to 70 km/h (40 to 43 mph)
	Lock-up OFF	59 to 64 km/h (37 to 40 mph)
4th gear	Lock-up ON	41 to 46 km/h (25 to 29 mph)
	Lock-up OFF	32 to 36 km/h (20 to 22 mph)

Standard Resistance		
Item	Condition (Tester Connection)	Specified Condition
Speed sensor NT	20°C (68°F) (1 - 2)	560 to 680 Ω
Speed sensor NC	20°C (68°F) (1 - 2)	560 to 680 Ω
Transmission wire	10°C (50°F) (1 (THO) - 7 (E2))	5 to 8 kΩ

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	25°C (77°F) (1 (THO) - 7 (E2))	2.5 to 4.5 kΩ
	110°C (230°F) (1 (THO) - 7 (E2))	0.22 to 0.28 kΩ
Shift solenoid valve SL3	20°C (68°F) (1 - 2)	5.0 to 5.6 Ω
Shift solenoid valve SLT	20°C (68°F) (1 - 2)	5.0 to 5.6 Ω
Shift solenoid valve S4	20°C (68°F) (Solenoid connector S4 - Solenoid body S4)	11 to 15 Ω
Shift solenoid valve SR	20°C (68°F) (Solenoid connector SR - Solenoid body SR)	11 to 15 Ω
Shift solenoid valve DSL	20°C (68°F) (Solenoid connector DSL - Solenoid body DSL)	11 to 13 Ω
Shift solenoid valve SL2	20°C (68°F) (1 - 2)	5.0 to 5.6 Ω
Shift solenoid valve SL1	20°C (68°F) (1 - 2)	5.0 to 5.6 Ω
Park/neutral position switch	P position (2 - 6 and 4 - 5)	Below 1 Ω
	Except P position (2 - 6 and 4 - 5)	10 kΩ or higher
	R position (2 - 1)	Below 1 Ω
	Except R position (2 - 1)	10 kΩ or higher
	N position (2 - 9 and 4 - 5)	Below 1 Ω
	Except N position (2 - 9 and 4 - 5)	10 kΩ or higher
	D position and S position (2 - 7)	Below 1 Ω
	Except D position and S position (2 - 7)	10 kΩ or higher

Oil pump		
Body clearance	STD	0.10 to 0.17 mm (0.00394 to 0.00669 in.)

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	Maximum	0.17 mm (0.0067 in.)
Tip clearance	STD	0.07 to 0.15 mm (0.00276 to 0.00591 in.)
	Maximum	0.15 mm (0.00591 in.)
Side clearance	STD	0.02 to 0.05 mm (0.000787 to 0.00197 in.)
	Maximum	0.05 mm (0.00197 in.)
Drive gear thickness	Mark A	11.690 to 11.699 mm (0.4602 to 0.4606 in.)
	Mark B	11.700 to 11.709 mm (0.4606 to 0.4610 in.)
	Mark C	11.710 to 11.720 mm (0.4610 to 0.4614 in.)
	Mark D	11.721 to 11.730 mm (0.4615 to 0.4618 in.)
	Mark E	11.731 to 11.740 mm (0.4619 to 0.4622 in.)
Driven gear thickness	Mark A	11.690 to 11.699 mm (0.4602 to 0.4606 in.)
	Mark B	11.700 to 11.709 mm (0.4606 to 0.4610 in.)
	Mark C	11.710 to 11.720 mm (0.4610 to 0.4614 in.)
	Mark D	11.721 to 11.730 mm (0.4615 to 0.4618 in.)
	Mark E	11.731 to 11.740 mm (0.4619 to 0.4622 in.)
Pump body bushing inside diameter	STD	38.113 to 38.138 mm (1.50051 to 1.50149 in.)
	Maximum	38.188 mm (1.50346 in.)
Stator shaft bushing inside diameter	STD	21.500 to 21.526 mm (0.84646 to 0.84748 in.)
	Maximum	21.57 mm (0.8492 in.)
Multiple disc clutch hub		
Inside diameter	STD	23.025 to 23.046 mm (0.9065 to 0.9073 in.)
	Maximum	23.09 mm (0.9091 in.)
Overdrive direct clutch drum sub-assembly		

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Inside diameter	STD	23.025 to 23.046 mm (0.9065 to 0.9073 in.)
	Maximum	23.09 mm (0.9091 in.)
Forward clutch		
Pack clearance		1.00 to 1.25 mm (0.0394 to 0.0492 in.)
Return spring free length		26.74 mm (1.0528 in.)
Flange thickness	Mark 0	2.85 mm (0.1122 in.)
	Mark 1	3.00 mm (0.1181 in.)
	Mark 2	3.15 mm (0.1240 in.)
	Mark 3	3.30 mm (0.1299 in.)
	Mark 4	3.45 mm (0.1358 in.)
	Mark 5	3.60 mm (0.1417 in.)
	Mark 6	3.75 mm (0.1476 in.)
Direct clutch		
Pack clearance		1.05 to 1.47 mm (0.04134 to 0.05787 in.)
Flange thickness	Mark 0	2.9 mm (0.114 in.)
	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.)
Overdrive clutch		
Pack clearance		0.61 to 0.83 mm (0.02402 to 0.03268 in.)
Return spring free length		25.91 mm (1.0201 in.)
Flange thickness	Mark 0	2.5 mm (0.0984 in.)
	Mark 1	2.6 mm (0.102 in.)
	Mark 2	2.7 mm (0.106 in.)
	Mark 3	2.8 mm (0.110 in.)
	Mark 4	2.9 mm (0.114 in.)
	Mark 5	3.0 mm (0.118 in.)

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	Mark 6	3.1 mm (0.122 in.)
2nd brake		
Pack clearance		0.53 to 0.91 mm (0.0209 to 0.0358 in.)
Flange thickness	Mark 0	2.9 mm (0.114 in.)
	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.)
	Mark 8	3.7 mm (0.146 in.)
2nd brake piston		
Return spring free length		16.61 mm (0.6539 in.)
Inside diameter		More than 167 mm (6.57 in.)
Underdrive clutch		
Pack clearance		1.51 to 1.71 mm (0.0594 to 0.0673 in.)
Underdrive 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.)
Return spring free length		17.14 mm (0.6748 in.)
Underdrive brake		
Pack clearance		1.81 to 2.20 mm (0.0713 to 0.0866 in.)
Return spring free length		13.24 mm (0.5213 in.)
Flange thickness	Mark Y	2.8 mm (0.110 in.)
	Mark A	3.0 mm (0.118 in.)
	Mark B	3.2 mm (0.126 in.)
	Mark C	3.4 mm (0.134 in.)
	Mark D	3.6 mm (0.142 in.)
1st and reverse brake		
Pack clearance		0.745 to 1.21 mm (0.0293 to 0.0476 in.)

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Return spring free length		17.63 mm (0.6941 in.)
Flange thickness	Mark 1	1.8 mm (0.0708 in.)
	Mark 2	1.9 mm (0.0748 in.)
	Mark 3	2.0 mm (0.0787 in.)
	Mark 4	2.1 mm (0.0827 in.)
	Mark 5	2.2 mm (0.0866 in.)
	Mark 6	2.3 mm (0.0906 in.)
	Mark 7	2.4 mm (0.0945 in.)
	Mark 8	2.5 mm (0.0984 in.)
Underdrive planetary gear		
Preload (at 60 rpm)		0.28 to 0.89 N*m (2.9 to 9.1 kgf*cm, 2.5 to 7.9 in.*lbf)
Front planetary gear		
Turning torque (at 60 rpm)		0.19 to 0.4 N*m (1.9 to 4.1 kgf*cm, 1.7 to 3.5 in.*lbf)
Input shaft		
End play		0.262 to 1.249 mm (0.0103 to 0.0492 in.)
Direct clutch to transaxle rear cover		
End play		0.199 to 0.970 mm (0.00783 to 0.0382 in.)
Underdrive planetary gear assembly to Underdrive cylindrical roller bearing		
End play		0.198 to 0.693 mm (0.00779 to 0.02728 in.)
Race thickness	Less than 7.339 mm (0.2894 in.)	3.5 mm (0.138 in.)
	7.339 mm (0.2894 in.) or more	3.8 mm (0.154 in.)
Transaxle rear cover		
Bearing press fit depth		20.55 to 21.25 mm (0.8091 to 0.8366 in.)
Transmission valve body		
Valve body installation bolt length	A	25 mm (0.984 in.)
	B	57 mm (2.244 in.)
	C	41 mm (1.614 in.)
Manual valve lever shaft oil seal		

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Oil seal drive in depth		-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)
Front differential		
Backlash		0.05 to 0.20 mm (0.00197 to 0.00787 in.)
Thrust washer thickness	Mark 1	1.000 mm (0.0394 in.)
	Mark 2	1.100 mm (0.0433 in.)
	Mark 3	1.200 mm (0.0472 in.)
	Mark 4	1.300 mm (0.0512 in.)
Preload (at 60 rpm)	New bearing	0.20 to 1.0 N*m (2.0 to 10.2 kgf*cm, 1.8 to 8.9 in.*lbf)
	Used bearing	0.10 to 0.50 N*m (1.0 to 5.1 kgf*cm, 0.9 to 4.4 in.*lbf)
Flange thickness	Mark 0	1.90 mm (0.0748 in.)
	Mark 1	1.95 mm (0.0768 in.)
	Mark 2	2.00 mm (0.0787 in.)
	Mark 3	2.05 mm (0.0807 in.)
	Mark 4	2.10 mm (0.0827 in.)
	Mark 5	2.15 mm (0.0846 in.)
	Mark 6	2.20 mm (0.0866 in.)
	Mark 7	2.25 mm (0.0886 in.)
	Mark 8	2.30 mm (0.0906 in.)
	Mark 9	2.35 mm (0.0925 in.)
	Mark A	2.40 mm (0.0945 in.)
	Mark B	2.45 mm (0.0965 in.)
	Mark C	2.50 mm (0.0984 in.)
	Mark D	2.55 mm (0.1004 in.)
	Mark E	2.60 mm (0.1024 in.)
	Mark F	2.65 mm (0.1043 in.)
	Mark G	2.70 mm (0.1063 in.)
	Mark H	2.75 mm (0.1083 in.)
	Mark J	2.80 mm (0.1102 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000312400FX
Title: SPECIFICATIONS: THEFT DETERRENT / KEYLESS ENTRY: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
GLASS BREAKAGE SENSOR ECU			
Glass breakage sensor ECU x Body	8.0	82	71 in.*lbf
ENGINE HOOD COURTESY SWITCH			
Hood lock assembly x Body (Centering bolt)	7.5	77	66 in.*lbf
Hood lock assembly x Body (Standard bolt)	8.0	82	71 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003JJ2002X
Title: SPECIFICATIONS: TIRE PRESSURE MONITORING: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

TIRE PRESSURE WARNING RECEIVER

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Tire pressure warning receiver set bolt	7.5	76	66 in.*lbf

TIRE PRESSURE WARNING VALVE AND TRANSMITTER

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Tire pressure warning valve and transmitter set nut	4.0	41	35 in.*lbf
Front wheel set nuts	103	1050	76
Rear wheel set nuts	103	1050	76

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000032JH00OX
Title: SPECIFICATIONS: U250E AUTOMATIC TRANSMISSION / TRANSAXLE: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Speed sensor NC x Automatic transaxle		8.8	90	78 in.*lbf
Speed sensor NT x Automatic transaxle		11	115	8
Drain plug x Oil pan		49	500	36
Transmission wire x Transaxle housing		5.4	55	48 in.*lbf
ATF temperature sensor x Valve body		6.6	67	58 in.*lbf
Oil pan x Automatic transaxle		7.8	80	69 in.*lbf
Valve body x Automatic transaxle		11	110	8
Oil strainer x Valve body		11	110	8
Shift solenoid valve SL1 x Transmission valve body assembly		6.6	67	58 in.*lbf
Shift solenoid valve SL2 x Transmission valve body assembly		11	112	8
Shift solenoid valve DSL x Transmission valve body assembly		11	112	8
Shift solenoid valve SR and S4 x Transmission valve body assembly		11	112	8
Shift solenoid valve SL3 and SLT x Transmission valve body assembly		6.6	67	58 in.*lbf
Park/neutral position switch	Bolt	5.4	55	48 in.*lbf
	Nut	6.9	70	61 in.*lbf
Control shaft lever x Control shaft		13	130	9
Shift control cable x Control shaft lever		12	122	9
Shift lever assembly x Body		12	122	9
Transmission control cable assembly x Body		5.0	51	44 in.*lbf
Transmission control cable bracket x Body		5.0	51	44 in.*lbf
Front No. 1 floor heat insulator x Body		5.5	56	49 in.*lbf
Wire harness clamp bracket x Automatic transaxle		11	112	8
Upper transaxle case cover x Automatic transaxle		12	122	9
Speedometer driven hole cover x Automatic transaxle		5.5	56	49 in.*lbf
Oil cooler tube x Automatic transaxle		12	122	9

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PART TIGHTENED		N*M	KGF*CM	FT.*LBF
Transmission oil filler tube sub-assembly x Automatic transaxle		5.5	56	49 in.*lbf
No. 1 transmission control cable bracket x Automatic transaxle		12	122	9
Engine mounting bracket LH x Automatic transaxle		52	530	38
Rear engine mounting bracket x Automatic transaxle		45	459	33
Front engine mounting bracket x Automatic transaxle		64	652	47
Transaxle housing x Engine	Bolt A	64	652	47
	Bolt B	46	469	34
	Bolt C	46	469	34
	Bolt D	44	448	32
Transmission control cable support x Automatic transaxle		12	122	9
Torque converter clutch x Drive plate		41	418	30
Front planetary gear lock nut		185 to 350	1886 to 3569	136 to 258
Brake apply tube clamp x Transaxle case		5.4	55	48 in.*lbf
No. 1 Transaxle case plug x Transaxle rear cover		7.4	75	65 in.*lbf
No. 1 Transaxle case plug x Transaxle case		7.4	75	65 in.*lbf
Transaxle rear cover x Transaxle case	Bolt A	19	190	14
	Other bolt	25	250	18
Pawl shaft clamp x Transaxle case		9.8	100	87 in.*lbf
Oil pump assembly x Transaxle case		22	225	16
Transaxle housing x Transaxle case	Bolt A	29	296	21
	Bolt B	29	296	21
	Bolt C	22	225	16
	Bolt D	10	102	7
	Bolt E	33	336	24
	Bolt F	25	255	18
Parking lock pawl bracket x Transaxle case		20	205	15
Manual detent spring x Transaxle case	Bolt A	20	205	15
	Bolt B	12	120	9
Oil cooler tube union (Outlet oil cooler union) x Transaxle case		27	275	20
Oil cooler tube elbow (Inlet oil cooler elbow) x Transaxle case		27	275	20
Oil pump body x Stator shaft assembly		9.8	100	87 in.*lbf

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PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Differential gear lube apply tube and No. 1 transaxle apply tube clamp x Transaxle housing	9.8	100	87 in.*lbf
Front differential case x Front differential ring gear	95	970	70
Front planetary gear nut	280	2855	207

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000032JG00PX
Title: SPECIFICATIONS: U341E AUTOMATIC TRANSMISSION / TRANSAXLE: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Line Pressure (Wheel Locked)		
Engine idling	D position	372 to 412 kPa (3.8 to 4.2 kgf/cm^2, 54 to 60 psi)
	R position	553 to 623 kPa (5.6 to 6.4 kgf/cm^2, 80 to 90 psi)
AT stall (Throttle valve fully open)	D position	1120 to 1230 kPa (11.0 to 13.0 kgf/cm^2, 162 to 178 psi)
	R position	1660 to 1870 kPa (17.0 to 19.0 kgf/cm^2, 241 to 271 psi)
Engine stall revolution	D position	2410 +/- 300 rpm
Time lag	N → D position	Less than 1.2 seconds
	N → R position	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N position	approx. 700 rpm
Shift Schedule (Normal)		
D position		
Throttle valve fully open	1 → 2	53 to 60 km/h (33 to 37 mph)
	2 → 3	102 to 112 km/h (63 to 70 mph)
	3 → 4	162 to 173 km/h (101 to 108 mph)
	4 → 3	156 to 167 km/h (97 to 104 mph)
	3 → 2	96 to 105 km/h (60 to 65 mph)
	2 → 1	43 to 48 km/h (27 to 30 mph)
Throttle valve fully closed	3 → 4	36 to 41 km/h (22 to 25 mph)
	4 → 3	32 to 36 km/h (20 to 22 mph)
2 position		
Throttle valve fully open	1 → 2	53 to 60 km/h (33 to 37 mph)
	3 → 2	95 to 104 km/h (59 to 65 mph)
	2 → 1	43 to 48 km/h (27 to 30 mph)
L position		
Throttle valve fully open	3 → 2	95 to 104 km/h (59 to 65 mph)

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	2 → 1	46 to 51 km/h (29 to 32 mph)
Lock-up Point (Throttle Valve Opening 5%)		
D position		
4th gear	Lock-up ON	53 to 59 km/h (33 to 37 mph)
	Lock-up OFF	51 to 57 km/h (32 to 35 mph)
3rd gear	Lock-up ON	72 to 78 km/h (45 to 48 mph)
	Lock-up OFF	64 to 69 km/h (40 to 43 mph)
Flex Lock-up Point (Throttle Valve Opening 5%)		
D position		
4th gear	Lock-up ON	48 to 54 km/h (30 to 34 mph)
	Lock-up OFF	47 to 52 km/h (29 to 32 mph)
3rd gear	Lock-up ON	31 to 36 km/h (19 to 22 mph)
	Lock-up OFF	30 to 34 km/h (19 to 21 mph)

Standard Resistance		
Item	Condition (Tester Connection)	Specified Condition
Speed sensor	20°C (68°F) (1 - 2)	560 to 680 Ω
Transmission wire	10°C (50°F) (1 (THO) - 6 (E2))	5 to 8 kΩ
	25°C (77°F) (1 (THO) - 6 (E2))	2.5 to 4.5 kΩ
	110°C (230°F) (1 (THO) - 6 (E2))	0.22 to 0.28 kΩ
Shift solenoid valve S1	15 to 25°C (59 to 77°F) (Solenoid connector S1 - Solenoid body S1)	11 to 15 Ω
Shift solenoid valve S2	15 to 25°C (59 to 77°F) (Solenoid connector S2 - Solenoid body S2)	11 to 15 Ω
Shift solenoid valve ST	15 to 25°C (59 to 77°F) (Solenoid connector ST - Solenoid body ST)	11 to 15 Ω
Shift solenoid valve SLT	20°C (68°F) (1 -2)	5.0 to 5.6 Ω
Shift solenoid valve SLU	20°C (68°F) (1 -2)	5.0 to 5.6 Ω

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Park/neutral position switch	P position (2 - 6 and 4 - 5)	Below 1 Ω
	Except P position (2 - 6 and 4 - 5)	10 kΩ or higher
	R position (2 - 1)	Below 1 Ω
	Except R position (2 - 1)	10 kΩ or higher
	N position (2 - 9 and 4 - 5)	Below 1 Ω
	Except N position (2 - 9 and 4 - 5)	10 kΩ or higher
	D position and 3 position (2 - 7)	Below 1 Ω
	Except D position and 3 position (2 - 7)	10 kΩ or higher
	2 position (2 - 3)	Below 1 Ω
	Except 2 position (2 - 3)	10 kΩ or higher
	L position (2 - 8)	Below 1 Ω
	Except L position (2 - 8)	10 kΩ or higher

No. 1 transaxle case oil seal	Drive in depth	-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)
No. 2 transaxle case oil seal	Drive in depth	2.2 to 3.2 mm (0.0866 to 0.126 in.)
Drive plate runout	Maximum	0.30 mm (0.0118 in.)
Input shaft end play	Standard	0.38 to 1.29 mm (0.0149 to 0.0507 in.)
Intermediate shaft clearance	Standard	0.21 to 0.96 mm (0.00826 to 0.0377 in.)
Rear clutch drum thrust needle roller bearing	Brown	0.785 mm (0.0309 in.)
	Black	1.1 mm (0.0433 in.)
1st and reverse brake return spring free length	Standard	13.96 mm (0.549 in.)
Differential case tapered roller bearing preload	New bearing	0.98 to 1.57 N*m (10.0 to 16.0 kgf*cm, 8.7 to 13.9 in.*lbf)

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	Used bearing	0.49 to 0.78 N*m (5.0 to 8.0 kgf*cm, 4.3 to 6.9 in.*lbf)
Transaxle case side adjusting shim	Mark 01	1.90 mm (0.0748 in.)
	Mark 02	1.95 mm (0.0768 in.)
	Mark 03	2.00 mm (0.0787 in.)
	Mark 04	2.05 mm (0.0807 in.)
	Mark 05	2.10 mm (0.0827 in.)
	Mark 06	2.15 mm (0.0846 in.)
	Mark 07	2.20 mm (0.0866 in.)
	Mark 08	2.25 mm (0.0885 in.)
	Mark 09	2.30 mm (0.0906 in.)
	Mark 10	2.35 mm (0.0925 in.)
	Mark 11	2.40 mm (0.0945 in.)
	Mark 12	2.45 mm (0.0965 in.)
	Mark 13	2.50 mm (0.0984 in.)
	Mark 14	2.55 mm (0.1004 in.)
	Mark 15	2.60 mm (0.1024 in.)
	Mark 16	2.65 mm (0.1043 in.)
	Mark 17	2.70 mm (0.1063 in.)
	Mark 18	2.75 mm (0.1083 in.)
	Mark 19	2.80 mm (0.1102 in.)
Manual valve lever shaft oil seal	Drive in depth	-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)
Differential drive pinion plug clearance	Standard	2.5 to 3.5 mm (0.0984 to 0.137 in.)
1st and reverse brake pack clearance	Standard	0.81 to 1.20 mm (0.0318 to 0.0472 in.)
1st and reverse brake flange thickness	Mark -	3.4 mm (0.134 in.)
	Mark 1	3.6 mm (0.142 in.)
	Mark 2	3.8 mm (0.150 in.)
	Mark 3	4.0 mm (0.157 in.)
2nd brake pack clearance	Standard	0.85 to 1.24 mm (0.0334 to 0.0488 in.)
2nd brake flange thickness	Mark -	3.0 mm (0.118 in.)
	Mark 1	3.2 mm (0.126 in.)
	Mark 2	3.4 mm (0.134 in.)

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	Mark 3	3.6 mm (0.142 in.)
2nd coast and overdrive brake pack clearance	Standard	2.10 to 2.49 mm (0.0826 to 0.0980 in.)
2nd coast and overdrive brake flange thickness	Mark 4	4.0 mm (0.1575 in.)
	Mark 5	4.2 mm (0.1654 in.)
	Mark 6	4.4 mm (0.1732 in.)
	Mark 7	4.6 mm (0.1811 in.)
C-2 accumulator spring	Free length	66.20 to 67.60 mm (2.606 to 2.661 in.)
	Outer diameter	17.20 mm (0.677 in.)
C-3 accumulator spring	Free length	87.30 mm (3.437 in.)
	Outer diameter	18.70 mm (0.736 in.)
B-2 accumulator spring	Free length	66.90 mm (2.633 in.)
	Outer diameter	15.50 mm (0.610 in.)
Stator shaft inside diameter	Standard	21.50 to 21.52 mm (0.846 to 0.847 in.)
	Maximum	21.52 mm (0.847 in.)
Oil pump gear clearance (Driven gear to drive gear clearance)	Standard	0.07 to 0.15 mm (0.00275 to 0.00590 in.)
	Maximum	0.15 mm (0.00590 in.)
Oil pump gear clearance (Driven gear to oil pump body clearance)	Standard	0.10 to 0.15 mm (0.00393 to 0.00590 in.)
	Maximum	0.15 mm (0.00590 in.)
Oil pump clearance (Side clearance)	Standard	0.02 to 0.05 mm (0.000787 to 0.00196 in.)
	Maximum	0.05 mm (0.00196 in.)
Drive gear thickness	No. 1	9.440 to 9.449 mm (0.3717 to 0.3720 in.)
	No. 2	9.450 to 9.459 mm (0.3720 to 0.3724 in.)
	No. 3	9.460 to 9.470 mm (0.3724 to 0.3728 in.)
	No. 4	9.471 to 9.480 mm (0.3729 to 0.3732 in.)
	No. 5	9.481 to 9.490 mm (0.3733 to 0.3736 in.)
Driven gear thickness	No. 1	9.440 to 9.449 mm (0.3717 to 0.3720 in.)
	No. 2	9.450 to 9.459 mm (0.3720 to 0.3724 in.)
	No. 3	9.460 to 9.470 mm (0.3724 to 0.3728 in.)
	No. 4	9.471 to 9.480 mm (0.3729 to 0.3732 in.)
	No. 5	9.481 to 9.490 mm (0.3733 to 0.3736 in.)

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Front oil pump body inside diameter	Standard	38.12 to 38.13 mm (1.500 to 1.501 in.)
	Maximum	38.13 mm (1.501 in.)
Front oil pump oil seal	Drive in depth	-0.15 to 0.15 mm (-0.00590 to 0.00590 in.)
Forward clutch return spring free length	Standard	21.69 mm (0.853 in.)
Forward clutch pack clearance	Standard	1.41 to 1.80 mm (0.0555 to 0.0708 in.)
Forward clutch flange thickness	Mark -	3.0 mm (0.118 in.)
	Mark 1	3.2 mm (0.126 in.)
	Mark 2	3.4 mm (0.134 in.)
	Mark 3	3.6 mm (0.142 in.)
2nd brake piston return spring free length	Standard	14.65 mm (0.576 in.)
Direct clutch return spring free length	Standard	31.7 mm (1.248 in.)
Reverse clutch pack clearance	Standard	0.62 to 1.16 mm (0.0244 to 0.0456 in.)
Reverse clutch flange thickness	Mark -	3.0 mm (0.118 in.)
	Mark 1	3.2 mm (0.126 in.)
	Mark 2	3.4 mm (0.134 in.)
	Mark 3	3.6 mm (0.142 in.)
Direct clutch pack clearance	Standard	0.62 to 1.02 mm (0.0244 to 0.0402 in.)
Direct clutch flange thickness	Mark -	3.0 mm (0.118 in.)
	Mark 1	3.2 mm (0.126 in.)
	Mark 2	3.4 mm (0.134 in.)
	Mark 3	3.6 mm (0.142 in.)
Overdrive brake return spring free length	Standard	17.88 mm (0.703 in.)
Transaxle rear cover needle roller bearing depth	Standard	25.1 mm (0.988 in.)
Differential side gear backlash	Standard	0.05 to 0.20 mm (0.00196 to 0.00787 in.)
Thrust washer thickness		0.95 mm (0.0374 in.)
		1.00 mm (0.0394 in.)
		1.05 mm (0.0413 in.)
		1.10 mm (0.0433 in.)
		1.15 mm (0.0453 in.)
		1.20 mm (0.0472 in.)

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000032JH00NX
Title: SPECIFICATIONS: U341E AUTOMATIC TRANSMISSION / TRANSAXLE: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Speed sensor x Automatic transaxle	5.4	55	48 in.*lbf
Transmission wire x Automatic transaxle case	5.4	55	48 in.*lbf
Transmission valve body assembly x Automatic transaxle	11	112	8
Manual detent spring sub-assembly x Transmission valve body assembly	11	112	8
ATF temperature sensor lock plate x Transmission valve body assembly	11	112	8
Valve body oil strainer sub-assembly x Transmission valve body assembly	11	112	8
Automatic transaxle oil pan sub-assembly x Automatic transaxle case	7.8	80	69 in.*lbf
Park/neutral position switch assembly x Automatic transaxle	5.4	55	48 in.*lbf
Lock plate x Park/neutral position switch assembly	6.9	70	61 in.*lbf
Control shaft lever x Park/neutral position switch assembly	13	133	10
Transmission control cable assembly x Control shaft lever	12	122	9
Drain plug x Automatic transaxle oil pan sub-assembly	49	500	36
Shift solenoid valve x Valve body	11	112	8
Shift lever assembly x Body	12	122	9
Transmission control cable assembly x Body	5.0	51	44 in.*lbf
Transmission control cable bracket x Body	5.0	51	44 in.*lbf
Front No. 1 floor heat insulator x Body	5.5	56	49 in.*lbf
Speedometer driven hole cover sub-assembly x Automatic transaxle	5.5	56	49 in.*lbf
Transmission oil filler tube sub-assembly x Automatic transaxle	12	122	9
Oil cooler tube x Transmission oil filler tube sub-assembly	12	122	9

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PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Engine mounting bracket LH x Automatic transaxle	52	530	38
Front engine mounting bracket x Automatic transaxle	64	653	47
for TMC made: (Silver colored bolt) Rear engine mounting bracket x Automatic transaxle	45	459	33
for TMC made: (Black colored bolt) Rear engine mounting bracket x Automatic transaxle	64	653	47
except TMC made: Rear engine mounting bracket x Automatic transaxle	45	459	33
Automatic transaxle assembly x Engine	30	301	22
No. 1 transmission control cable bracket x Automatic transaxle	12	122	9
Transmission control cable support x Automatic transaxle	12	122	9
Torque converter set bolt x Drive plate	28	286	21
Oil cooler tube union x Automatic transaxle	27	275	20
Transaxle housing x Transaxle case Bolt A	29	296	21
Transaxle housing x Transaxle case Bolt B	22	224	16
Bearing lock plate x Transaxle housing	11	112	8
Parking lock pawl bracket x Transaxle case	20	204	15
Planetary gear assembly x Counter drive gear nut	280	2855	207
Rear transaxle cover assembly x Transaxle case	25	255	18
Oil pump assembly x Transaxle housing	22	224	16
No. 1 transaxle case plug x Automatic transaxle	7.4	76	66 in.*lbf
Stator shaft assembly x Front oil pump body	9.8	100	87 in.*lbf
Rear transaxle cover plug x Rear transaxle cover	7.4	76	66 in.*lbf
Differential case x Front differential ring gear	88	898	65

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002E8X00QX
Title: SPECIFICATIONS: WINDOW / GLASS: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
Amplifier antenna assembly x Body	8.4	86	74 in.*lbf

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003138000X
Title: SPECIFICATIONS: WIPER / WASHER: TORQUE SPECIFICATIONS (2010 Corolla)		

TORQUE SPECIFICATIONS

PART TIGHTENED	N*M	KGF*CM	FT.*LBF
FRONT WIPER MOTOR			
Front wiper arm and blade assembly LH x Windshield wiper motor and link assembly	26	265	19
Front wiper arm and blade assembly RH x Windshield wiper motor and link assembly	26	265	19
Windshield wiper motor and link assembly x Body	5.5	56	49 in.*lbf
Windshield wiper link assembly x Windshield wiper motor assembly	5.4	55	48 in.*lbf
Windshield wiper motor assembly x Crank arm assembly	17	173	13

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Last Modified: 3-10-2010	6.4 F	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003JJ3001X
Title: SPECIFICATIONS: TIRE / WHEEL: SERVICE DATA (2010 Corolla)		

SERVICE DATA

Cold Tire Inflation Pressure

TIRE SIZE	FRONT KPA (KGF/CM^2, PSI)	REAR KPA (KGF/CM^2, PSI)
P195/65R15 89S	210 (2.1, 30)	210 (2.1, 30)
P205/55R16 89H P215/45R17 87W 205/55R16 91V	220 (2.2, 32)	220 (2.2, 32)

Maximum tire runout	1.4 mm (0.0551 in.)
Maximum wheel imbalance	8.0 g (0.0176 lb)

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