

## 20. SPECIFICATIONS

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## 20. SPECIFICATIONS

### 2T-C Engine Family

Vehicle Models:

COROLLA (TE) SERIES

#### Engine

Engine Model	2T-C
Displacement	96.9 cu.in.
Bore & Stroke	3.35 x 2.76 in.
Number of Cylinders	4
Type of Cylinder Head	OHV
Nominal Compression Ratio	9.0 ± 0.3
Max. Horsepower (SAE-NET)	75 HP/5,800 rpm, 73 HP/5,800 rpm (For California only)
Max. Torque (SAE-NET)	83 lb-ft/3,800 rpm
Recommended Fuel	{ w/o Catalyst w/ Catalyst
Anti-Knock Index (Research Octane Number)	Regular (Unleaded or Low-lead) Regular (Unleaded only) 86 (90)

#### Engine Tune-up Data

Basic Ignition Timing: With Single Point Dis.	{ Main Point Sub Point	10° BTC/850 rpm (M/T, A/T in "N" range)
With Dual Point Dis.		12° BTC/850 rpm (M/T, A/T in "N" range) 19° to 25° BTC (M/T, A/T in "N" range)
Idle Speed		850 ± 50 rpm (M/T, A/T in "N" range)
Fast Idle Speed		3000 ± 200 rpm, 2700 ± 200 rpm (For California only)
Throttle Positioner Setting Speed		1500 rpm ± 100 rpm (M/T), 1400 rpm ± 100 rpm (A/T)
Manifold Vacuum at Idle Speed		More than 15.7 inHg (400 mmHg)
Distributor Point Gap		0.016 to 0.020 in (0.4 to 0.5 mm)
Distributor Dwell Angle: With Single Point Dis.	{ Main Point Sub Point	52° (50° to 54°)
With Dual Point Dis.		57° — 52° (50° to 54°)
Spark Plug:	Heat Range	W16EP (ND), BP5ES-L (NGK)
"	Gap	0.03 in.
Unloader Angle		47°
Valve Clearance — Intake (Hot)		0.008 in.
— Exhaust		0.013 in.

Drive Belt Tension: Fan Pulley to Alternator Pulley Air Pump Pulley to Crank Pulley Crank Pulley to Cooler Compressor Pulley Air Pump Pulley to Cooler Compressor Pulley	0.31 to 0.47" at 22 lb 0.51 to 0.71" at 22 lb 0.43 to 0.55" at 22 lb (w/cooler) 0.39 to 0.55" at 22 lb (w/cooler)
Tightening Torque – Cylinder Head – Exhaust Manifold – Rocker Arm Support	52.1 to 63.7 ft-lb 7.2 to 11.6 ft-lb 52.1 to 63.7 ft-lb
Engine Oil Capacity	Total 4.6 US qts. (4.4 ℓ)
	Oil Pan 3.7 US qts. (3.5 ℓ)

Distributor Vacuum Advance Angle	Vacuum inHg (mmHg)	Dis. Advance Angle
		3.54 (90)
	4.72 (120)	3.0°
	9.06 (230)	7.0°

  

Distributor Governor Advance Angle	Dis. rpm	Dis. Advance Angle
		500
	1300	8.0°
	2800	13.0°
	3000	12.9°

Distributor Vacuum Advance Angle (for California only)	Vacuum inHg (mmHg)	Dis. Advance Angle
		3.54 (90)
	4.72 (120)	3.0°
	9.06 (230)	7.0°

  

Distributor Governor Advance Angle (for California only)	Dis. rpm	Dis. Advance Angle
		500
	1500	7.0°
	2700	13.0°
	3000	12.8°

**20R Engine Family**

Vehicle Models:

CELICA (RA) SERIES, CORONA (RT) SERIES, HI-LUX (RN) SERIES

**Engine**

Engine Model	20R
Displacement	133.6 cu. in.
Bore & Stroke	3.48 x 3.50 in.
Number of Cylinders	4
Type of Cylinder Head	OHC
Nominal Compression Ratio	8.4 ± 0.2
Max. Horsepower (SAE-NET)	96 HP/4,800 rpm, 90 HP/4,800 rpm (for California only)
Max. Torque (SAE-NET)	120 lb-ft/2,800 rpm
Recommended Fuel	{ w/o Catalyst Regular (Unleaded or Low-lead) { w/ Catalyst Regular (Unleaded only)
Anti-Knock Index (Research Octane Number)	86 (90)

**Engine Tune-up Data**

Basic Ignition Timing	8° BTC/850 rpm (M/T, A/T in "N" range)
Idle Speed	850 ± 50 rpm (M/T, A/T in "N" range)
Fast Idle Speed	2400 ± 200 rpm (w/o EGR)
Throttle Positioner Setting Speed	1400 ± 100 rpm (M/T), 1050 ± 100 rpm (A/T)
Manifold Vacuum at Idle Speed	More than 16.9 inHg (400 mmHg)
Distributor Point Gap	0.016 to 0.020 in (0.4 to 0.5 mm)
Distributor Dwell Angle	52° (50° to 54°)
Spark Plug: Heat Range	W16EP (ND), BP5ES-L (NGK)
"    Gap	0.03 in.
Unloader Angle	50°
Valve Clearance — Intake	0.008 in.
(Hot) — Exhaust	0.012 in.

Drive Belt Tension:		
Fan Pulley to Alternator Pulley		0.31 to 0.51" at 22 lb
Air Pump Pulley to Crank Pulley		0.31 to 0.51" at 22 lb (w/o cooler)
Crank Pulley to Cooler Compressor Pulley		0.43 to 0.51" at 22 lb (w/ cooler)
Tightening Torque – Cylinder Head		52.1 to 63.7 ft-lb
– Exhaust Manifold		28.9 to 36.2 ft-lb
– Rocker Arm Support		52.1 to 63.7 ft-lb
Engine Oil Capacity:	RT	Total 5.3 US qts. (5.0 ℓ)
		Oil Pan 4.4 US qts. (4.2 ℓ)
	RA, RN	Total 4.8 US qts. (4.5 ℓ)
		Oil Pan 3.9 US qts. (3.7 ℓ)

Distributor Vacuum Advance Angle	Vacuum inHg (mmHg)	Dis. Advance Angle
	3.15 (80)	Advance begins
	5.12 (130)	6.0°
	9.45 (240)	10.0°
Distributor Governor Advance Angle	Dis. rpm	Dis. Advance Angle
	500	Advance begins
	1000	5.5°
	2500	15.5°
	3000	15.2°

**4M Engine Family**

Vehicle Models:

MARK II (MX) SERIES

**Engine**

Engine Model	4M
Displacement	156.4 cu. in.
Bore & Stroke	3.15 x 3.35 in.
Number of Cylinders	6
Type of Cylinder Head	OHC
Nominal Compression Ratio	8.5 ± 0.2
Max. Horsepower (SAE-NET)	108 HP/5,000 rpm
Max. Torque (SAE-NET)	130 lb-ft/2,800 rpm
Recommended Fuel	Regular (Unleaded only)
Anti-Knock Index (Research Octane Number)	86 (90)

**Engine Tune-up Data**

Basic Ignition Timing — M/T	10° BTC/800 rpm, 5° BTC/800 rpm (for California only)
“ — A/T	10° BTC/750 rpm, 5° BTC/750 rpm (for California only)
Idle Speed	800 ± 50 rpm (M/T), 750 ± 50 rpm (A/T)
Fast Idle Speed	2600 ± 200 rpm, 2400 ± 200 (for California only)
Throttle Positioner Setting Speed	1300 ± 100 rpm (M/T), 1200 ± 100 rpm (A/T)
Manifold Vacuum at Idle Speed	{ more than 16.3 inHg (415 mmHg) (M/T) more than 13.8 inHg (350 mmHg) (A/T)
Distributor Point Gap	0.016 to 0.020 in (0.4 to 0.5 mm)
Distributor Dwell Angle	41° (38° to 44°)
Spark Plug: Heat Range	W16EP (ND), BP5ES-L (NGK)
“ Gap	0.03 in.
Unloader Angle	40°
Valve Clearance — Intake	0.007 in.
(Hot) — Exhaust	0.010 in.

Drive Belt Tension: Fan Pulley to Alternator Pulley Air Pump Pulley to Vane Pump Pulley Air Pump Pulley to Crank Pulley	0.31 to 0.47" at 22 lb 0.31 to 0.41" at 22 lb (w/ Power Steering) 0.71 to 0.85" at 22 lb (w/o Power Steering)
Tightening Torque – Cylinder Head  – Exhaust Manifold – Rocker Arm Support	10.8 to 20.3 ft-lb ( 8 mm bolt) 54.2 to 61.5 ft-lb (10 mm bolt)  12.3 to 16.6 ft-lb 22.4 to 32.5 ft-lb
Engine Oil Capacity	Total            5.9 US qts. (5.6 ℓ)
	Oil Pan            5.1 US qts. (4.8 ℓ)

Distributor Vacuum Advance Angle	Vacuum inHg (mmHg)	Dis. Advance Angle
	3.94 (100)	Advance begins
	5.51 (140)	2.9°
	7.09 (180)	5.3°
	8.27 (210)	7.0°
Distributor Governor Advance Angle	Dis. rpm	Dis. Advance Angle
	500	Advance begins
	800	4.0°
	1500	10.0°
	3000	9.1°
Distributor Vacuum Retard Angle (Only for California)	Vacuum inHg (mmHg)	Dis. Retard Angle
	2.36 (60)	Retard begins
	4.72 (120)	2.5°

**2F Engine Family**

Vehicle Models:

LAND CRUISER (FJ) SERIES

**Engine**

Engine Model	2F
Displacement	257.9 cu.in.
Bore & Stroke	3.70 x 4.00 in.
Number of Cylinders	6
Type of Cylinder Head	OHV
Nominal Compression Ratio	7.8 ± 0.2
Max. Horsepower (SAE-NET)	125 HP/3,600 rpm
Max. Torque (SAE-NET)	200 lb-ft/1,800 rpm
Recommended Fuel	Regular (Unleaded or Low-lead)
Anti-Knock Index (Research Octane Number)	86 (90)

**Engine Tune-up Data**

Basic Ignition Timing	7° BTC/650 rpm (T/M in "N" range)
Idle Speed	650 ± 50 rpm (T/M in "N" range)
Fast Idle Speed	1800 ± 200 rpm
Throttle Positioner Setting Speed	1200 ± 100 rpm
Manifold Vacuum at Idle Speed	more than 16.5 inHg (420 mmHg)
Distributor Point Gap	0.016 to 0.020 in (0.4 to 0.5 mm)
Distributor Dwell Angle	41° (38° to 44°)
Spark Plug: Heat Range	W14EX (ND), BP5EZ (NGK)
"    Gap	0.037 in.
Valve Clearance — Intake	0.008 in.
(Hot) — Exhaust	0.014 in.

Drive Belt Tension: Fan Pulley to Alternator Pulley Air Pump Pulley to Fan Pulley	0.51 to 0.59" at 22 lb 0.28 to 0.39" at 22 lb
Tightening Torque – Cylinder Head – Exhaust Manifold – Rocker Arm Support	83.2 to 97.6 ft-lb 28.2 to 36.9 ft-lb 14.5 to 21.7 ft-lb ( 8mm bolt) 21.7 to 32.6 ft-lb (10mm bolt)
Engine Oil Capacity	Total        8.5 US qts. (8.0 ℓ)
	Oil Pan        7.4 US qts. (7.0 ℓ)

Distributor Vacuum Retard Angle	Vacuum inHg (mmHg)	Dis. Retard begins
	3.15 (80) 4.72 (120)	Retard begins 4.0°
Distributor Governor Advance Angle	Dis. rpm	Dis. Advance Angle
	490	Advance begins
	900	7.0°
	1800	15.0°
	3000	14.3°

