

C - SPECIFICATIONS

1996 Toyota Supra

1996 ENGINE PERFORMANCE
Toyota Service & Adjustment Specifications

Supra

INTRODUCTION

Use this article to quickly find specifications related to servicing and on-vehicle adjustments. This is a quick-reference article to use when you are familiar with an adjustment procedure and only need a specification.

CAPACITIES

FLUID CAPACITIES

Application	(1) Quantity
Crankcase (Includes Filter)	
Non-Turbo	5.5 Qts. (5.2L)
Turbo	5.3 Qts. (5.0L)
Cooling System (Includes Heater)	
Non-Turbo	
A/T	8.8 Qts. (8.3L)
M/T	7.7 Qts. (7.3L)
Turbo	
A/T	9.9 Qts. (9.4L)
M/T	10.0 Qts. (9.5L)
Manual Transmission	
Non-Turbo (2)	2.7 Qts. (2.6L)
Turbo (3)	1.9 Qts. (1.8L)
Automatic Transmission	
Non-Turbo (Dexron-II)	
Dry Refill	7.6 Qts. (7.2L)
Drain & Refill	1.7 Qts. (1.6L)
Turbo (Type "T-II" Fluid)	
Dry Refill	8.7 Qts. (8.2L)
Drain & Refill	2.0 Qts. (1.9L)
Differential (SAE 80W-90/API GL-5)	1.4 Qts. (1.3L)

- (1) - Approximate quantity listed.
(2) - Use SAE 75W-90/API GL-5 gear oil.
(3) - Use Toyota Gear Oil V160.

QUICK-SERVICE

SERVICE INTERVALS & SPECIFICATIONS

REPLACEMENT INTERVALS

Component	Months	Miles
Air Filter	24	30,000
Automatic Transmission Fluid (1)		
Normal Service	(2)	(2)
Severe Service	12	15,000
Camshaft Timing Belt (1)		

Normal Service	(2)	.....	(2)
Severe Service	48	.....	60,000
Coolant	24	.....	30,000
Manual Transmission Fluid (1)			
Normal Service	(2)	.....	(2)
Severe Service	24	.....	30,000
Oil & Filter (1)			
Non-Turbo			
Normal Service	6	.....	7500
Severe Service	4	.....	5000
Turbo			
Normal Service	6	.....	7500
Severe Service	(2)	.....	(3) 2500
Rear Differential Oil	24	.....	30,000
Spark Plugs	48	.....	60,000

- (1) - Different interval is required for normal service and severe service. Severe service is described as trailer towing, police, taxi, local delivery service or operating in dusty conditions.
- (2) - Service interval is not available from manufacturer.
- (3) - Manufacturer recommends changing oil filter every other oil change.

VALVE CLEARANCE ADJUSTMENT INTERVALS

Application	Months	Miles
Supra (1)	48	60,000

- (1) - Manufacturer recommends listening for valve noise from excessive valve clearance. Adjust valve clearance is valve noise exists.

BELT ADJUSTMENT

Tension In Lbs. (kg) Using Burroughs Tension Gauge

Application	New Belt	(1) Used Belt
Drive Belt	(2)	(2)

- (1) - Used belt is a belt in operation at least 5 minutes.
- (2) - Automatic belt tensioner is used. Adjustment is not required.

MECHANICAL CHECKS

ENGINE COMPRESSION

Check engine compression with engine at normal operating temperature at specified cranking speed, all spark plugs removed and throttle wide open.

COMPRESSION SPECIFICATIONS

Application	Specification
Compression Ratio	
Non-Turbo	10.0:1

Turbo	8.5:1
Compression Pressure	
Non-Turbo	185 psi (13.0 kg/cm ²)
Turbo	156 psi (10.9 kg/cm ²)
Minimum Compression Pressure	
Non-Turbo	156 psi (10.9 kg/cm ²)
Turbo	128 psi (9.0 kg/cm ²)
Maximum Variation Between Cylinders	14 psi (1.0 kg/cm ²)

VALVE CLEARANCE

VALVE CLEARANCE SPECIFICATIONS

Application	(1) In. (mm)
Intake .....	.006-.010 (.15-.25)
Exhaust .....	.010-.014 (.25-.35)

(1) - Adjust valve clearance with engine cold.

IGNITION SYSTEM

IGNITION COIL

IGNITION COIL RESISTANCE - Ohms

Application	Primary	Secondary
Non-Turbo		
Cold (1) .....	.21-.33	6400-11,100
Hot (2) .....	.27-.39	8200-13,000
Turbo		
Cold (1) .....	.54-.84	(3)
Hot (2) .....	.68-.98	(3)

(1) - Cold is with temperature of 14-122°F (-10-50°C).

(2) - Hot is with temperature of 122-212°F (50-100°C).

(3) - Secondary ignition coil resistance cannot be measured.

DISTRIBUTOR SENSORS

DISTRIBUTOR PICK-UP COIL AIR GAP

Application	In. (mm)
Non-Turbo .....	.008-.020 (.20-.50)
Turbo	(1)

(1) - Distributor Less Ignition System (DIS) is used.

DISTRIBUTOR PICK-UP COIL RESISTANCE

Application	(1) Pick-Up Coil Terminals	Ohms
Non-Turbo		
Cold (3)	G1 & G-	125-200
Cold (3)	G2 & G-	125-200
Cold (3)	NE & G-	155-250

Hot (4)	G1 & G-	.....	160-235
Hot (4)	G2 & G-	.....	160-235
Hot (4)	NE & G-	.....	190-290
Turbo	(2)	.....	(2)

- (1) - For proper testing and terminal identification, see BASIC DIAGNOSTIC PROCEDURES article.
(2) - Distributorless Ignition System (DIS) is used.
(3) - Cold is with temperature of 14-122°F (-10-50°C).
(4) - Hot is with temperature of 122-212°F (50-100°C).

CAMSHAFT POSITION SENSOR RESISTANCE

Application		Ohms
Turbo		
Aisan Sensor		
Cold (1)		985-1600
Hot (2)		1265-1890
Nippondenso Sensor		
Cold (1)		835-1400
Hot (2)		1060-1645

- (1) - Cold is with temperature of 14-122°F (-10-50°C).
(2) - Hot is with temperature of 122-212°F (50-100°C).

CRANKSHAFT POSITION SENSOR RESISTANCE

Application		Ohms
Non-Turbo		
Cold (1)		1630-2740
Hot (2)		2065-3225
Turbo		
Cold (1)		835-1400
Hot (2)		1060-1645

- (1) - Cold is with temperature of 14-122°F (-10-50°C).
(2) - Hot is with temperature of 122-212°F (50-100°C).

HIGH TENSION WIRE RESISTANCE

HIGH TENSION WIRE RESISTANCE

Application	Maximum Ohms
Non-Turbo	25,000 Per Wire
Turbo	(1)

- (1) - Distributorless Ignition System (DIS) is used. No high tension wires are used.

SPARK PLUGS

SPARK PLUG TYPE

Application	NGK No.	Nippondenso No.
Non-Turbo	BKR5EP11	PK16R11

Turbo BKR6EP11 PK20R11

SPARK PLUG SPECIFICATIONS

Application	Gap In. (mm)	Torque Ft. Lbs. (N.m)
Supra .....	.043 (1.10)	13 (18)

FIRING ORDER

FIRING ORDER

Application	Firing Order
6-Cylinder (1)	1-5-3-6-2-4

(1) - Cylinder No. 1 is located at timing belt or timing chain end of engine. Cylinder No. 6 is located at flywheel end of engine.

IGNITION TIMING

IGNITION TIMING (Degrees BTDC @ Idle) (1)

Application	(2) Base Timing	(3) ECM Controlled Timing
Non-Turbo	8-12	7-19
Turbo	8-12	10-20

- (1) - Check with engine at normal operating temperature, transmission in Neutral, parking brake applied, A/C and all accessories off.
- (2) - With Jumper Wire (SST 09843-18020) installed between terminals TE1 and E1 on data link connector No. 1.
- (3) - With jumper wire removed from data link connector No. 1.
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FUEL SYSTEM

FUEL PUMP

NOTE: Fuel pump performance measures fuel pressure, not regulated fuel pressure.

FUEL PUMP PERFORMANCE

Application	Pressure psi (kg/cm ²)
Non-Turbo	(1) 38-44 (2.7-3.1)
Turbo	(2) 33-40 (2.3-2.8)

- (1) - Check fuel pressure with engine off and using scan tester connected to data link connector No. 3 with ignition on to activate fuel pump or by connecting battery voltage to terminals on electric fuel pump.
- (2) - Check fuel pressure with Jumper Wire (SST 09843-18020)

installed between terminals +B and FP on data link connector No. 1, ignition on and engine off.

REGULATED FUEL PRESSURE

Application	At Idle W/Vacuum psi (kg/cm ²)	At Idle W/O Vacuum psi (kg/cm ²)
Non-Turbo	28-34 (2.0-2.4)	38-44 (2.7-3.1)
Turbo	24-31 (1.7-2.2)	33-40 (2.3-2.8)

FUEL PUMP RESISTANCE - Ohms @ 68°F (20°C)

Application	Ohms
Non-Turbo .....	.2-3.0
Turbo .....	.1-3.0

FUEL INJECTOR RESISTANCE

FUEL INJECTOR RESISTANCE - Ohms @ 68°F (20°C)

Application	Ohms
Non-Turbo	13.4-14.2
Turbo	1.95

IDLE SPEED

IDLE SPEED SPECIFICATIONS (1)

Application	RPM
Non-Turbo	650-750
Turbo	600-700

(1) - Check with engine at normal operating temperature, transmission in Neutral, parking brake applied, ignition timing properly set and with A/C and all accessories off.

DASHPOT SPECIFICATIONS

DASHPOT SPECIFICATIONS

Application	RPM
Non-Turbo	
With A/T	1400-2200
With M/T	2200-3000
Turbo	1900-2700

THROTTLE OPENER

THROTTLE OPENER SPECIFICATIONS (1)

Application	RPM
Non-Turbo	1100-1900
Turbo	1300-1700

(1) - Check with engine at normal operating temperature and with electric cooling fan turned off (if equipped).

FUEL CUT

FUEL CUT SPECIFICATIONS (1)

Application	Fuel Return RPM
Supra	1400

(1) - Check with engine at normal operating temperature and A/C off.

THROTTLE POSITION (TP) SENSOR

MAIN THROTTLE POSITION SENSOR RESISTANCE SPECIFICATIONS

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
Non-Turbo (1)	0 (0)	VTA & E2	340-6300
	.016 (.40)	IDL & E2	500 Or Less
	.024 (.60)	IDL & E2 ...	No Continuity
	Fully Open	VTA & E2	2400-11,200
Turbo (1)	0 (0)	VC & E2	3100-7200
		VTA & E2	340-6300
	.021 (.54)	IDL & E2	500 Or Less
	.028 (.70)	IDL & E2 ...	No Continuity
	Fully Open	VTA & E2	2400-11,200
		VC & E2	3100-7200

(1) - Apply vacuum to throttle opener before checking TP sensor.

SUB-THROTTLE POSITION SENSOR RESISTANCE SPECIFICATIONS

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
Turbo	0 (0)	VTA & E2	300-6300
	.016 (.40)	IDL & E2	500 Or Less
	.019 (.48)	IDL & E2 ...	No Continuity
	Fully Open	VTA & E2	200-10,800
		VC & E2	3500-6500