

K - SENSOR RANGE CHARTS

1998 Toyota Supra

1998 ENGINE PERFORMANCE
Toyota - Sensor Operating Range Charts

Avalon, Camry, Celica, Corolla, Land Cruiser, LX470, RAV4,
Sienna, Supra, Tacoma, Tercel, T100, 4Runner

INTRODUCTION

* PLEASE READ FIRST *

Sensor operating range information can help determine if a sensor is out of calibration. An out-of-calibration sensor may not set a diagnostic trouble code, but it may cause driveability problems.

NOTE: Unless stated otherwise in test procedure, perform all voltage tests using a Digital Volt-Ohmmeter (DVOM) with a minimum 10-megohm input impedance.

ACCELERATOR PEDAL POSITION SENSOR

Land Cruiser, LX470 & Supra Non-Turbo

For accelerator pedal position sensor testing, see THROTTLE BODY under IDLE CONTROL SYSTEM in appropriate I - SYSTEM/COMPONENT TESTS article.

AIR/FUEL SENSOR

Avalon Calif. Emission Vehicles, Camry 2.2L 4-Cyl. Calif. Emission Vehicles, Camry 3.0L V6 Calif. Emission Vehicles With A/T & RAV4 Calif. Emission Vehicles

For Air/Fuel (A/F) sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

AIRFLOW METER

NOTE: Airflow meter may be referred to as Mass Airflow (MAF) meter.

Avalon, Camry 3.0L V6, Land Cruiser, LX470, Sienna, Supra, Tacoma, T100 & 4Runner

For airflow meter terminal identification and testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

AIRFLOW METER RESISTANCE SPECIFICATIONS TABLE

Temperature	Ohms
Avalon, Camry 3.0L V6 & Sienna	
-4°F (-20°C)	14,600-17,800
68°F (20°C)	2210-2690
140°F (60°C)	290-350
Land Cruiser & LX470	
-4°F (-20°C)	12,500-16,900
68°F (20°C)	2190-2670
140°F (60°C)	500-680
Supra	
Non-Turbo	
-4°F (-20°C)	13,600-18,400
68°F (20°C)	2210-2690
140°F (60°C)	493-667

Turbo		
-4°F (-20°C)	.....	10,000-20,000
32°F (0°C)	.....	4000-7000
68°F (20°C)	.....	2000-3000
104°F (40°C)	.....	900-1300
140°F (60°C)	.....	400-700
Tacoma, T100 & 4Runner		
-4°F (-20°C)	.....	10,000-20,000
32°F (0°C)	.....	4000-7000
68°F (20°C)	.....	2000-3000
104°F (40°C)	.....	900-1300
140°F (60°C)	.....	400-700
176°F (80°C)	.....	200-400

CAMSHAFT POSITION SENSOR

Avalon, Camry, Corolla, Land Cruiser, LX470, RAV4, Sienna,
Supra, Tacoma, Tercel, T100 & 4Runner

For camshaft position sensor testing, see appropriate F -
BASIC TESTING article.

CAMSHAFT POSITION SENSOR RESISTANCE TABLE

Application	Ohms
4-Cylinder	
Camry, Corolla, RAV4, Tacoma,	
Cold (1)	835-1400
Hot (2)	1060-1645
Tercel	
Cold (1)	985-1600
Hot (2)	1265-1890
T100 & 4Runner	
Cold (1)	835-1400
Hot (2)	1060-1645
6-Cylinder	
Supra	
Non-Turbo & Turbo	
Cold (1)	835-1400
Hot (2)	1060-1645
V6	
Avalon, Camry & Sienna	
Denso Sensor (3)	
Cold (1)	835-1400
Hot (2)	1060-1645
Wabash Sensor (3)	
Cold (1)	1690-2560
Hot (2)	2145-3010
Tacoma, T100 & 4Runner	
Cold (1)	835-1400
Hot (2)	1060-1645
V8	
Land Cruiser & LX470	
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).

(3) - This is the manufacturer of camshaft position sensor.

CRANKSHAFT POSITION SENSOR

For crankshaft position sensor testing, see appropriate F - BASIC TESTING article.

CRANKSHAFT POSITION SENSOR RESISTANCE TABLE

Application	Ohms
4-Cylinder	
Camry & Celica	
Cold (1)	985-1600
Hot (2)	1265-1890
Corolla	
Cold (1)	1630-2740
Hot (2)	2065-3225
RAV4	
Cold (1)	985-1600
Hot (2)	1265-1890
Tacoma	
Cold (1)	1630-2740
Hot (2)	2065-3225
Tercel	
Cold (1)	985-1600
Hot (2)	1265-1890
T100 & 4Runner	
Cold (1)	1630-2740
Hot (2)	2065-3225
6-Cylinder	
Supra	
Non-Turbo & Turbo	
Cold (1)	1630-2740
Hot (2)	2065-3225
V6	
Avalon, Camry, Sienna, Tacoma T100 & 4Runner	
Cold (1)	1630-2740
Hot (2)	2065-3225
V8	
Land Cruiser & LX470	
Cold (1)	1630-2740
Hot (2)	2065-3225

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

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

EGR GAS TEMPERATURE SENSOR

Avalon, Camry 3.0L V6, Supra Turbo, Tacoma 2.4L 4-Cyl & 2.7L 4-Cyl., Tacoma 3.4L V6 2WD All Models & 4WD Regular Cab, T100 2.7L 4-Cyl., T100 3.4L V6 2WD 1/2 Ton & 4Runner 2.7L 4-Cyl.

For EGR gas temperature sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

EGR GAS TEMPERATURE SENSOR SPECIFICATIONS TABLE

Temperature °F (°C)	Ohms
4-Cylinder	
Tacoma, T100 & 4Runner	
122 (50)	64,000-97,000
212 (100)	11,000-16,000
302 (150)	2000-4000
6-Cylinder	

Supra		
Turbo		
122 (50)	.....	64,000-97,000
212 (100)	.....	11,000-16,000
302 (150)	.....	2000-4000
V6		
Avalon, Camry, Tacoma 2WD All Models & 4WD		
Regular Cab, & T100 2WD 1/2 Ton		
122 (50)	.....	64,000-97,000
212 (100)	.....	11,000-16,000
302 (150)	.....	2000-4000

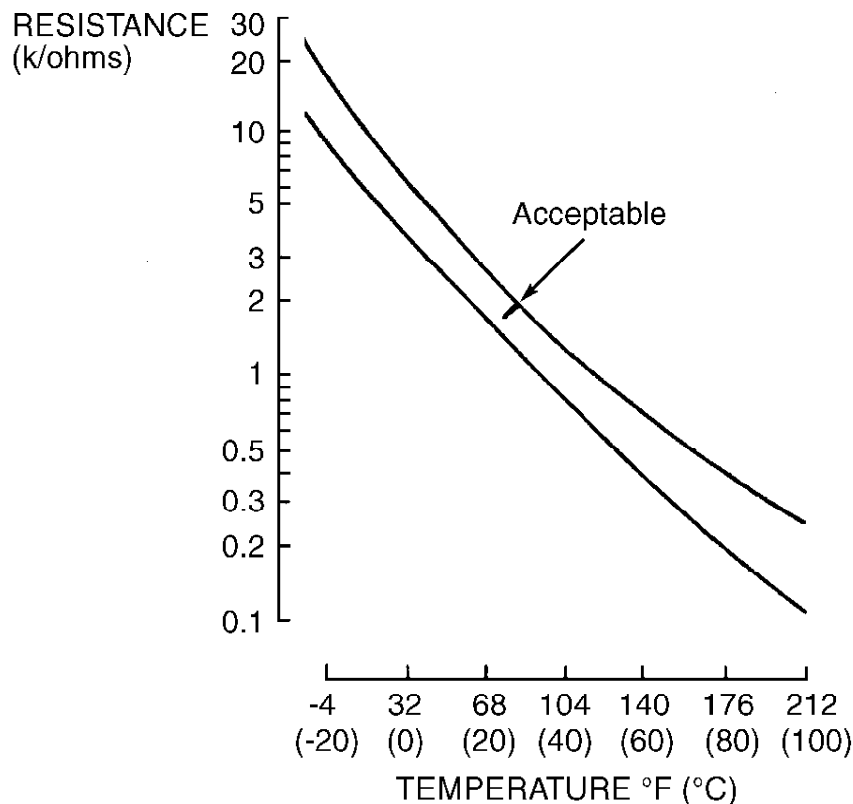
EGR POSITION SENSOR

Avalon & Camry 3.0L V6

For testing of EGR position sensor, see appropriate I - SYSTEM/COMPONENT TESTS article.

ENGINE COOLANT TEMPERATURE (ECT) SENSOR

For engine coolant temperature sensor location, see appropriate I - SYSTEM/COMPONENT TESTS article. Using ohmmeter, check resistance between electrical terminals on engine coolant temperature sensor. Ensure resistance is within specification in relation to specified temperature. See Fig. 1.



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Fig. 1: ECT Sensor & IAT Sensor Resistance Chart
Courtesy of Toyota Motor Sales, U.S.A., Inc.

HEATED OXYGEN SENSOR

For heated oxygen sensor application and sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

INTAKE AIR TEMPERATURE (IAT) SENSOR

Camry 2.2L 4-Cyl., Celica, Corolla, RAV4 & Tercel

For intake air temperature sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article. Ensure resistance is within specification in relation to specified temperature. See Fig. 1.

KNOCK SENSOR

For knock sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR

Camry 2.2L 4-Cyl., Celica, Corolla, RAV4 & Tercel

For MAP sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

SUB-THROTTLE POSITION SENSOR

Supra Turbo

For terminal identification and testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

SUB-THROTTLE SENSOR RESISTANCE SPECIFICATIONS TABLE

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	2000-10,800
		VC & E2	3500-6500

THROTTLE POSITION (TP) SENSOR

For terminal identification and testing procedures, see appropriate I - SYSTEM/COMPONENT TESTS article.

AVALON TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
3.0L (1) ...	Fully Closed ..	VTA & E2	200-6300
	Fully Open	VTA & E2	2000-10,200
		VC & E2	2500-5900

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

CAMRY TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
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2.2L 4-Cyl.					
(1)	Fully Closed ..	VTA & E2	200-5700
		Fully Open	VTA & E2	2000-10,200
			VC & E2	2500-5900
3.0L V6					
(1)	.....	Fully Closed ..	VTA & E2	.....	200-6300
		Fully Open	VTA & E2	....	2000-10,200
			VC & E2	.....	2500-5900

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

CELICA TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
2.2L (1)	... Fully Closed ..	VTA & E2	..... 200-5700
	Fully Open	VTA & E2	.... 2000-10,200
		VC & E2	..... 2500-5900

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

COROLLA TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
1.8L	..... Fully Closed ..	VTA & E2	..... 200-5700
	Fully Open	VTA & E2	.... 2000-10,200
		VC & E2	..... 2500-5900

LAND CRUISER & LX470 TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Terminals	Ohmmeter Reading
4.7L	..... VC & E2	..... (1) 1250-2350

(1) - Resistance at 68°F (20°C).

RAV4 TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
2.0L (1)	... Fully Closed ..	VTA & E2	..... 200-5700
	Fully Open	VTA & E2	.... 2000-10,200
		VC & E2	..... 2500-5900

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

SIENNA TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
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3.0L (1)	...	Fully Closed	..	VTA & E2	200-6300
		Fully Open	VTA & E2	2000-10,200
				VC & E2	2500-5900

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

SUPRA NON-TURBO TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Terminals	Ohmmeter Reading
3.0L	VC & E2	(1) 1200-3200

(1) - Resistance at 68°F (20°C).

SUPRA TURBO MAIN TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
3.0L (1)	...	Fully Closed	..
	.027 (.69)	....	IDL & E2
	.032 (.81)	....	IDL & E2
	Fully Open	....	VTA & E2
			VC & E2

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

TACOMA TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
2.4L 4-Cyl. & 2.7L 4-Cyl. (1)	...	Fully Closed	..
	Fully Open	....	VTA & E2
			VC & E2
3.4L V6 (1)	...	Fully Closed	..
	Fully Open	....	VTA & E2
			VC & E2

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

TERCEL TP SENSOR RESISTANCE SPECIFICATIONS

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
1.5L (1)	...	Fully Closed	..
	Fully Open	....	VTA & E2
			VC & E2

(1) - On A/T models, disconnect throttle cable from linkage before checking TP sensor.

T100 TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
2.7L 4-Cyl. & 3.4L V6 (1) ...	Fully Closed ..	VTA & E2	200-5700
	Fully Open	VTA & E2	2000-10,200
		VC & E2	2500-5900

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

4RUNNER TP SENSOR RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminals	Ohmmeter Reading
2.7L 4-Cyl. (1)	Fully Closed ..	VTA & E2	200-5700
	Fully Open	VTA & E2	2000-10,200
		VC & E2	2500-5900
3.4L V6 (1)	Fully Closed ..	VTA & E2	280-6400
	Fully Open	VTA & E2	2000-11,600
		VC & E2	2700-7700

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

TURBO PRESSURE SENSOR

Supra Turbo

For turbo pressure sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

VAPOR PRESSURE SENSOR

Avalon, Camry, Celica Calif. Emission Vehicles, Corolla, Land Cruiser, RAV4, Sienna, Supra Non-Turbo, Tacoma, Tercel, T100 & 4Runner

For vapor pressure sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article.

VEHICLE SPEED SENSOR

For vehicle speed sensor testing, see appropriate I - SYSTEM/COMPONENT TESTS article.