

K - SENSOR RANGE CHARTS

1993 Toyota Celica

1993 ENGINE PERFORMANCE
Toyota Sensor Operating Range Charts

Celica

INTRODUCTION

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

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

AIRFLOW METER

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

AIRFLOW METER RESISTANCE SPECIFICATIONS TABLE

Application & Terminals (1)		Ohms
Turbo		
E2-VC		200-400
E2-THA		
-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
E2-VS		
Measuring Plate Fully Closed		200-600
Measuring Plate Fully Opened		20-1200

(1) - For terminal identification and testing, see I - SYS /COMP TESTS article in the ENGINE PERFORMANCE section.

AIR TEMPERATURE SENSOR

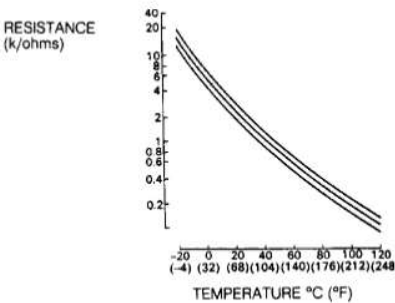
NOTE: Air temperature sensor may be referred to as intake air temperature sensor.

1.6L 4A-FE & 2.2L 5S-FE

Air temperature sensor is located in air intake, near air filter. Measure resistance between sensor terminals. For resistance specifications, see Fig. 1.

2.0L Turbo

Air temperature sensor is an integral part of airflow meter. Check resistance at terminals E2 and THA of airflow meter. See AIRFLOW METER RESISTANCE SPECIFICATIONS table.



CAMRY 2.2L, CELICA 1.6L 4A-FE & 2.2L 5S-FE,
PASEO & TERCEL 93R79583

Fig. 1: Checking Air Temperature Sensor (1.6L)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

COLD START INJECTOR TIME SWITCH

COLD START INJECTOR TIME SWITCH RESISTANCE SPECIFICATIONS TABLE

Application & Terminals (1)		Temperature °F (°C)	Ohms
Turbo			
STA-STJ		Less Than 50 (10)	30-50
		Greater Than 77 (25)	70-90
STA-Ground			30-90

(1) - For terminal identification and testing, see I - SYS/COMP TESTS article in the ENGINE PERFORMANCE section.

COOLANT TEMPERATURE SENSOR

NOTE: Coolant temperature sensor may also be referred to as Engine Coolant Temperature (ECT) sensor.

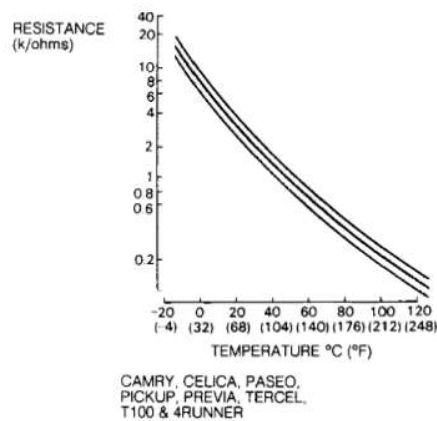
Measure coolant temperature sensor resistance between sensor terminals. For resistance specifications, see Fig. 2.

EGR GAS TEMPERATURE SENSOR

EGR GAS TEMPERATURE SENSOR SPECIFICATIONS TABLE (1)

Temperature - °F (°C)	k/Ohms
122 (50)	69-89
212 (100)	11-15
302 (150)	2-4

(1) - For terminal identification and testing, see I - SYS/COMP TESTS article in the ENGINE PERFORMANCE section.



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Fig. 2: Checking Coolant Temperature Sensor
Courtesy of Toyota Motor Sales, U.S.A., Inc.

MANIFOLD ABSOLUTE PRESSURE SENSOR

NOTE: See VACUUM SENSOR section in this article.

OXYGEN SENSOR HEATER

OXYGEN SENSOR HEATER RESISTANCE SPECIFICATIONS TABLE (1)

Application	Ohms
Celica	5.1-6.3 @ 68°F (20°C)

(1) - Measure resistance between sensor terminals +B and HT.
For terminal identification, see I - SYS/COMP TESTS
article in the ENGINE PERFORMANCE section.

THROTTLE POSITION SENSOR

NOTE: For terminal identification and testing procedures, see
I - SYS/COMP TESTS article in the ENGINE PERFORMANCE section.

TPS RESISTANCE SPECIFICATIONS TABLE

Application	Clearance In. (mm)	Terminal	Ohmmeter Reading
1.6L 4A-FE	.024 (.61)	IDL & E2	Continuity
		PSW-E2	No Continuity
	.031 (.79)	IDL-E2	No Continuity
		PSW-E2	No Continuity
	Fully Open	IDL-E2	No Continuity
2.0L Turbo (1) ...	0 (0)	PSW-E2	Continuity
		VTA & E2	470-6100
	.020 (.51)	IDL & E2	2300 Or Less
		IDL & E2	No Continuity
	Fully Open ...	VTA & E2	3100-12,100
2.2L 5S-FE (1)	0 (0)	VC & E2	3900-9000
		VTA & E2	200-5700
	.020 (.51)	IDL & E2	2300 Or Less
		IDL & E2	No Continuity
	Fully Open ...	VTA & E2	2000-10,200
		VC & E2	2500-5900

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

TURBOCHARGING PRESSURE SENSOR

TURBOCHARGING PRESSURE SENSOR OUTPUT VOLTAGE SPECIFICATIONS TABLE

Applied Vacuum In. Hg	Output Voltage Drop
3.94	.15-.35
7.87	.40-.60
11.81	.65-.85
15.75	.90-1.10
19.69	1.15-1.35

VACUUM SENSOR

NOTE: Vacuum sensor may also be referred to as Manifold Absolute Pressure (MAP) sensor. Vacuum sensor is used on 1.6L 4A-FE and 2.2L 5S-FE. For testing procedures, see I - SYS/COMP TESTS article in the ENGINE PERFORMANCE section.

VACUUM SENSOR SUPPLY VOLTAGE SPECIFICATIONS TABLE

Application	Voltage
1.6L 4A-FE & 2.2L 5S-FE	4.50-5.50

VACUUM SENSOR OUTPUT VOLTAGE DROP SPECIFICATIONS TABLE

Applied Vacuum In. Hg	Output Voltage Drop
3.94	.3-.5
7.87	.7-.9
11.81	1.1-1.3
15.75	1.5-1.7
19.69	1.9-2.1