

D - ADJUSTMENTS

Article Text

1995 Cadillac Concours
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ARTICLE BEGINNING

1995 ENGINE PERFORMANCE

General Motors Corp. On-Vehicle Adjustments

Cadillac; Concours, DeVille, Seville

ENGINE MECHANICAL

Before performing any on-vehicle adjustments to fuel or ignition systems, ensure engine mechanical condition is okay.

VALVE CLEARANCE

NOTE: All models use hydraulic lifters. Adjustments are not required.

IGNITION TIMING

NOTE: Procedures for timing adjustment are for engines equipped with HEI-EST distributors only. Other engines are equipped with C(3)I, DIS, IDI or Opti-Spark ignition system. Timing on these systems is not adjustable.

IGNITION TIMING

NOTE: 4.9L engine is equipped with a socket for a magnetic probe timing meter, located 9.5 degrees ATDC. DO NOT use this location for setting timing using a conventional timing light.

4.9L

1) Place transmission in Park. Ensure engine is at normal operating temperature. Turn A/C and all accessories off. Ensure system is not in diagnostic mode.

2) Jumper Data Link Connector (DLC) terminals "A" and "B". SET TIMING MODE will be displayed on Driver Information Center (DIC). Connect timing light to spark plug No. 1 wire. Check ignition timing, and adjust if necessary. See IGNITION TIMING SPECIFICATIONS table. Tighten distributor, and recheck timing. Remove jumper from DLC and reconnect spark plug No. 1 wire.

IGNITION TIMING SPECIFICATIONS TABLE

AA
Application Degrees BTDC @ RPM

4.9L 10 @ 800

AA

IDLE SPEED & MIXTURE

NOTE: Idle mixture is controlled by Powertrain Control Module (PCM). Adjustment is not possible.

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION before disconnecting battery.

IDLE SPEED

NOTE: Only 4.9L idle speed is adjustable. Refer to MINIMUM IDLE (4.9L) procedure below. On 4.6L, idle speed is controlled by PCM. Slight fluctuations in idle speed are considered normal. Adjustment is not required.

Minimum Idle (4.9L)

1) Warm engine to normal operating temperature. Turn ignition off. Disable alternator by grounding Green harness connector plug adjacent to alternator. Turn ignition on, with engine off. Enter diagnostics, and select Powertrain Control Module (PCM) override PS03, Idle Speed Control (ISC) motor. See G - TESTS W/CODES - 4.9L article in the ENGINE PERFORMANCE section.

2) Press COOLER button on Climate Control Panel (CCP). This action disengages A/C compressor and commands EGR off. CCP display will change from 50 to 00. ISC motor will slowly move to a fully retracted position (in about 20 seconds).

3) Ensure throttle lever rests on minimum idle speed screw. Check throttle lever for binding. Readjust or repair cables causing throttle to bind. With ISC motor fully retracted, plunger should not be touching throttle lever. Adjust plunger as necessary using pliers. With ISC plunger fully retracted, disconnect ISC motor harness.

4) If engine stalls at minimum air (ISC fully retracted), check throttle blades for deposits which might restrict airflow. Clean throttle bores. Clean behind and around throttle plates.

5) Check minimum idle speed displayed on Driver Information Center (DIC). Use average RPM reading to set minimum idle speed. See MINIMUM IDLE SPEED (4.9L) table. If minimum idle speed is not as specified, go to next step. If minimum idle speed is okay, reconnect ISC motor harness and disconnect ground wire at alternator. Check Throttle Position (TP) sensor adjustment. See THROTTLE POSITION SENSOR under THROTTLE POSITION (TP) SENSOR.

NOTE: If engine RPM is too high, check for vacuum leaks and **D - ADJUSTMENTS** Art

throttle body, intake manifold, vacuum fittings, etc. Repair vacuum leaks.

6) Adjust minimum idle screw using ISC Adjusting Wrench (J-38457) to obtain specified RPM. See MINIMUM IDLE SPEED (4.9L) table. If idle speed cannot be corrected, check that throttle lever is not held off of minimum idle speed screw due to binding or interference with ISC motor plunger. Also check for vacuum leaks at throttle body, intake manifold, vacuum fittings, etc.

7) Reconnect ISC motor harness and disconnect ground wire at alternator. Start engine, and check for proper idle operation. Check Throttle Position (TP) sensor adjustment. See THROTTLE POSITION SENSOR under THROTTLE POSITION (TP) SENSOR.

MINIMUM IDLE SPEED TABLE (4.9L)

AA

Application	Idle Speed (RPM)
Less Than 500 Miles	450-500
More Than 500 Miles	500-550

AA

IDLE MIXTURE

NOTE: Idle mixture is controlled by Powertrain Control Module (PCM). Adjustment is not required or possible.

THROTTLE POSITION (TP) SENSOR

THROTTLE POSITION SENSOR

NOTE: Only the 4.9L TP sensor is adjustable. 4.6L V8 engine TP sensors are not adjustable. For further testing procedures, refer to G - TESTS W/CODES - 4.9L or I - SYSTEM/COMPONENT TESTS - 4.9L article in the ENGINE PERFORMANCE section.

Adjustment (4.9L)

1) Warm engine to normal operating temperature. Turn ignition off. Disable alternator by grounding Green harness connector adjacent to alternator. Turn ignition on, with engine off. Enter diagnostics, and select Powertrain Control Module (PCM) override PS03, Idle Speed Control (ISC) motor. See G - TESTS W/CODES - 4.9L article in the ENGINE PERFORMANCE section.

2) Press COOLER button on Climate Control Panel (CCP). This action disengages A/C compressor and commands EGR off. CCP display will change from 50 to 00. ISC motor will slowly move to a fully retracted position (in about 20 seconds).

3) Ensure throttle lever rests on minimum idle speed screw. With ISC plunger fully retracted, disconnect ISC motor harness. While still in PCM override PS03, select PCM data PD01, TP sensor. Check throttle position displayed on PCM parameter PD01 in degrees. If display reads -0.50 to +0.50, TP sensor is properly adjusted. Reconnect ISC motor harness and disconnect ground wire at alternator.

4) If display reads -10.00 to -0.60 or +0.60 to +90.00, TP sensor requires adjustment. Turn ignition on, with engine off. Reenter diagnostics, and select Powertrain Control Module (PCM) override PS03, Idle Speed Control (ISC) motor. See G - TESTS W/CODES - 4.9L article in the ENGINE PERFORMANCE section.

5) Press COOLER button on Climate Control Panel (CCP) to retract ISC motor to minimum air setting. Loosen TP sensor screws enough to permit sensor rotation. Open throttle slightly and allow throttle lever to snap shut against minimum air screw.

6) Adjust TP sensor so parameter display is zero degrees. Tighten TP sensor mounting screws. Recheck parameter and ensure TP sensor parameter is -0.50 to +0.50. Reconnect ISC motor harness and disconnect ground wire at alternator. Perform TP sensor/idle learn procedure. See TP SENSOR/IDLE LEARN procedure.

TP Sensor/Idle Learn

1) Ensure outside air temperature is greater than 500F (100C) to allow operation of A/C compressor. Start engine and allow to idle until coolant temperature is 1760F (800C). Idle for an additional 5 minutes. With engine running, enter diagnostics. See appropriate G - TESTS W/CODES - 4.9L article in the ENGINE PERFORMANCE section.

2) Turn ignition off. Wait 20 seconds, then turn ignition on, with engine off. Re-enter diagnostics. Repeat step 2).

3) Turn ignition off. Wait 20 seconds, then start engine. Apply brakes and place transmission in Drive. Turn Climate Control Panel (CCP) to OFF position and allow engine to idle for one minute.

4) Turn CCP to AUTO position and ensure A/C compressor engages. Allow engine to idle for one minute. Place transmission in Park and turn ignition off.

TP SENSOR ADJUSTMENT VOLTAGE TABLE

AA

Application	(1) Volts
4.6L	(2) .50-5.00
4.9L50-5.00

(1) - Voltage range is from idle position to wide open throttle position.

(2) - TP sensor is not adjustable.

AA

END OF ARTICLE