

## IDLE AND OR 2500 RPM CO HC CHECK

HINT: This check is used only to determine whether or not the idle CO/HC complies with regulations.

### 1. INITIAL CONDITIONS

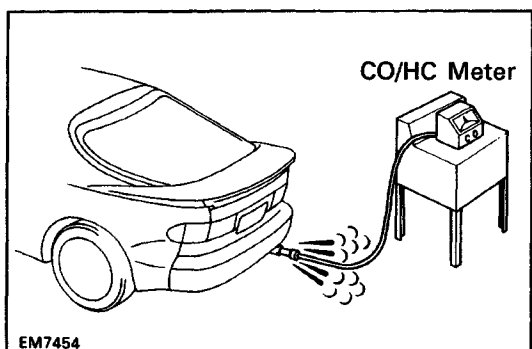
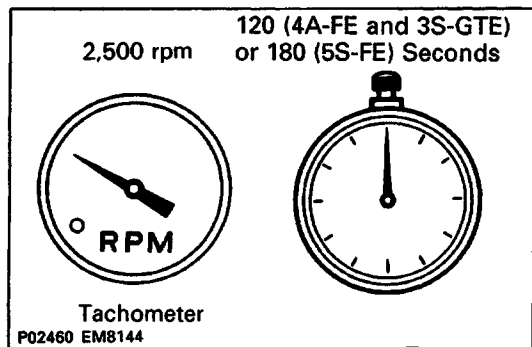
- (a) Engine at normal operating temperature
- (b) Air cleaner installed
- (c) All pipes and hoses of air induction system connected
- (d) All accessories switched OFF
- (e) All vacuum lines properly connected

HINT: All vacuum hoses for EGR systems, etc. should be properly connected.

- (f) EFI system wiring connectors fully plugged
- (g) Ignition timing set correctly
- (h) Transmission in neutral position
- (i) Tachometer and CO/HC meter calibrated by hand.

### 2. START ENGINE

### 3. RACE ENGINE AT 2,500 RPM FOR APPROX. 120 (4A-FE AND 3S-GTE) OR 180 (5S-FE) SECONDS



### 4. INSERT CO/HC METER TESTING PROBE INTO TAILPIPE AT LEAST 40 cm 0.3 ft) DURING IDLING

### 5. IMMEDIATELY CHECK CO/HC CONCENTRATION AT IDLE AND/OR 2,500 RPM

Complete the measuring within three minutes.

HINT: When performing the 2 mode (2,500 rpm and idle) test, follow the measurement order prescribed by the applicable local regulations.

(4A-FE and 3S-GTE)

If the CO/HC concentration at 2,500 rpm does not conform to regulations, try the following procedure.

Race the engine again at 2,500 rpm for approx. 1 minute and quickly repeat steps 4 and 5 above. This may correct the problem.

## Troubleshooting

If the CO/HC concentration does not comply with regulations, perform troubleshooting in the order given below.

(a) Check oxygen sensor operation.

(See page FI-237)

(b) See the table below for possible causes, and then inspect and correct the applicable causes if necessary.

CO	HC	Problems	Causes
Normal	High	Rough idle	1. Faulty ignitions: <ul style="list-style-type: none"> <li>• Incorrect timing</li> <li>• Fouled, shorted or improperly gapped plugs</li> <li>• Open or crossed high-tension cords</li> <li>• Cracked distributor cap</li> </ul> 2. Incorrect valve clearance 3. Leaky EGR valve 4. Leaky intake and exhaust valves 5. Leaky cylinder
Low	High	Rough idle (Fluctuating HC reading)	1. Vacuum leaks: <ul style="list-style-type: none"> <li>• PCV hoses</li> <li>• EGR valve</li> <li>• Intake manifold</li> <li>• T-VIS valve (3S-GTE)</li> </ul> Throttle body ISC valve (3S-GTE and 5S-FE) Brake booster line 2. Lean mixture causing misfire
High	High	Rough idle (Black smoke from exhaust)	1. Restricted air filter 2. Faulty EFI systems: <ul style="list-style-type: none"> <li>• Faulty pressure regulator</li> <li>• Clogged fuel return line</li> <li>• Defective water temp. sensor</li> <li>• Defective air temp. sensor</li> <li>• Faulty ECU</li> <li>• Faulty injectors</li> <li>• Faulty cold start injector (3S-GTE)</li> <li>• Faulty throttle position sensor</li> <li>• Vacuum sensor (4A-FE and 5S-FE)</li> <li>• Air flow meter (3S-GTE)</li> </ul>