**Meets ASE Task:** (A8-B-5) P-1 Inspect and test computerized engine control system sensors, powertrain/engine control module (PCM/ECM), actuators, and circuits using a graphing multimeter (GMM), digital storage oscilloscope (DSO), and/or scan tool; determine needed action.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_

Time on Task:\_\_\_\_\_\_\_\_\_\_\_\_\_

Make/Model/Year:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

VIN:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Evaluation (Enter number from 4, 3, 2, 1) :\_\_\_\_\_\_\_\_\_

**Scan Tool Diagnosis**

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(Not all this data will be available on all vehicles or scan tools - if not available, put NA.)

**1.** DTCs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pending DTC:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** Engine coolant temperature (ECT): cold \_\_\_\_\_ warm \_\_\_\_\_\_\_

**3.** Intake air temperature (IAT): cold \_\_\_\_\_ warm \_\_\_\_\_\_\_\_

**4.** Upstream O2S1: lowest voltage observed \_\_\_\_\_ highest voltage observed \_\_\_\_\_

**5.** Upstream O2S2: lowest voltage observed \_\_\_\_\_ highest voltage observed \_\_\_\_\_

**6.** Downstream O2S: lowest voltage observed \_\_\_\_\_ highest voltage observed \_\_\_\_\_

**7.** O2 cross counts: @ idle\_\_\_\_ @ 2,000 RPM\_\_\_\_

**8.** Injector pulse width: @ idle (park)\_\_\_\_\_ @ idle (drive)\_\_\_\_\_

@ 2,000 RPM (park)\_\_\_\_\_ @ 3,000 RPM (park)\_\_\_\_\_

**9.** Spark advance: @ idle (park)\_\_\_\_\_ @ idle (drive)\_\_\_\_\_

@ 2,000 RPM (park)\_\_\_\_\_ @ 3,000 RPM (park)\_\_\_\_\_

**10.** Short term fuel trim (integrator): @ idle (park)\_\_\_\_\_

@ idle (drive)\_\_\_\_\_ @ 2,000 RPM (park)\_\_\_\_\_

**11.** Long term fuel trim (block learn): @ idle (park)\_\_\_\_\_ @ idle (drive)\_\_\_\_\_

**12.** MAP: @ idle (park)\_\_\_\_\_ @ idle (drive)\_\_\_\_\_

**13.** MAF (grams/sec): @ idle (park)\_\_\_\_\_ @ idle (drive)\_\_\_\_\_

@ 2,000 RPM (park)\_\_\_\_\_ @ key on (engine off)\_\_\_\_\_

**14.** IAC counts (if equipped): @ idle (park)\_\_\_\_\_ @ idle (drive)\_\_\_\_\_

**15.** Electronic throttle (if equipped), percent: @ idle (park)\_\_\_\_\_% @ idle (drive)\_\_\_\_\_%

**16.** Throttle position (TP) sensor: @ idle\_\_\_\_ @ W.O.T. engine off, ignition "on"\_\_\_\_\_

**17.** Battery voltage:\_\_\_\_\_\_\_\_\_\_

**18**. All monitors run and passed? OK NOT OK

**19.** Troubles with the vehicle? (if any)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_