

**DIAGNOSTIC DATA FORM**

The following chart is designed to assist the CAP station technician in the diagnosis and repair of failing CAP vehicles. Each vehicle and its emission failure(s) are unique and may require further tests than those listed below. Not all vehicles may require these tests. **Factory test procedures take precedence over any generic test. These tests are not in the order of importance.**

**CIRCLE YES (Y), NO (N) OR READING/EXPLANATION.**

CAP ID#	Year / Make / Model	Vehicle License #	Technician #	Date
			Work order #	

Are there any Factory Technical Service Bulletins (TSBs), recalls/warranties related to the emission failure? **Y / N**

**Confirm basic engine condition:**

Engine condition: Is there any knocking, **Y / N** head gasket leakage **Y / N** or any other degraded engine condition(s) **Y / N**

Is the engine smoking during the test or at any time? **Y / N**

(\*As needed\*) Relative compression, compression test, cylinder balance test, leak down test results (whichever test was appropriate)

#1 \_\_\_\_\_ #2 \_\_\_\_\_ #3 \_\_\_\_\_ #4 \_\_\_\_\_ #5 \_\_\_\_\_ #6 \_\_\_\_\_ #7 \_\_\_\_\_ #8 \_\_\_\_\_

Vacuum readings \_\_\_\_\_ Is the vacuum steady? **Y / N** Base/Advanced timing \_\_\_\_\_ Coolant Temp \_\_\_\_\_

Are there any Diagnostic Trouble Code(s) stored? **Y / N** Are they emission related? **Y / N** If yes, record the code(s)

Is the vehicle OBDI? **Y / N** If yes, did you clear the codes? **Y / N** Did they return? **Y / N**

Is the vehicle OBDII **Y / N** If yes, what is recorded in "Freeze Frame Data"? \_\_\_\_\_

Have all monitors run to completion? **Y / N** Has the monitor(s) for the repaired system(s) run to completion after repair? **Y / N**

If no, why? \_\_\_\_\_

**Ignition system:** overall condition, are there any misfires? **Y / N** HC failures? **Y / N** What is the specific component of the ignition system that needs to be replaced / repaired? \_\_\_\_\_

Is the fuel pressure within specs? **Y / N** Results? \_\_\_\_\_ Does the pressure hold after the pump stops? **Y / N**

**Air Injection System** (if applicable) Is the AIS functioning correctly? **Y / N** If no, why \_\_\_\_\_

**EGR system** (if applicable) Is system functioning correctly? **Y / N** Is valve getting vacuum? **Y / N**

Does engine stumble/die when valve is manually raised? **Y / N** Is EGR valve defective? **Y / N** Is system restricted? **Y / N** Is system plugged? **Y / N**

Other: \_\_\_\_\_

What is the amount of intake manifold vacuum drop when EGR is applied? \_\_\_\_\_

**As applicable:** Is the **Air Fuel Ratio Sensor** operating correctly? **Y / N** If no, what is wrong with the sensor? \_\_\_\_\_

**Oxygen Sensor:** Low Voltage: \_\_\_\_\_mv High Voltage: \_\_\_\_\_mv Rise time: \_\_\_\_\_ms

**NOTE: min/max/ measured while artificially manipulating air/fuel mixture full lean to full rich rise time is measured from 175mv to 800mv**

Average voltage: \_\_\_\_\_ Is O2 sensor functioning correctly? **Y / N** Is vehicle in fuel control? **Y / N** If no is O2 biased? Rich **Y / N** Lean **Y / N**

Will computer respond to an artificial O2 signal? **Y / N**,

If no, why? \_\_\_\_\_

**NOTE:** If O2 sensor wave form is erratic, (Signal Hash) this may indicate a misfire or other problem and must be corrected prior to Catalytic Converter replacement.

**Fuel Trim:**

What are fuel trim numbers under failing conditions? \_\_\_\_\_

Is the vehicle adding fuel or taking fuel away under failing conditions? \_\_\_\_\_

**Final Diagnosis / What component(s) or system(s) need to be repaired or replaced and why?** \_\_\_\_\_

**CATALYTIC CONVERTER DIAGNOSTIC ROUTINE**

**Factory diagnostic/testing procedures take precedence over generic tests.**

Cat tests are valid or useful to the extent the vehicle is in fuel control. CAT tests require certain conditions be created by upstream systems in order to be valid. Fuel control is not just a varying O2S and/or fuel metering device. Fuel control is defined as the vehicle's ability to control fuel in response to the O2S input signal keeping the air/fuel ratio at 14.7 to 1 (stoichiometric). CAT replacement is generally the last repair.

**Do not replace a CAT with other repairs associated with its efficiency.**

**DO NOT REPLACE A CAT ON A VEHICLE THAT IS NOT IN FUEL CONTROL.**

**RECORD ON THE WORK ORDER "THE VEHICLE IS IN FUEL CONTROL".**

O2 snap test	CO2 cranking test	Pre CAT / Post CAT (intrusive test)	Factory specific temperature test
O2% _____ %	HC: _____ ppm	Pre CAT: _____ Post CAT: _____	temp in _____ temp out _____
	CO2: _____	CAT efficiency: _____ %	

Two CAT tests are more conclusive than one. A generic temperature test alone is not acceptable. Temperature tests are best used to confirm another test. An intrusive test is an optional test to confirm the effectiveness of the reduction portion of the catalyst.