

Remove the jumper/shorting clip from its installed position. Retain the jumper/shorting clip.

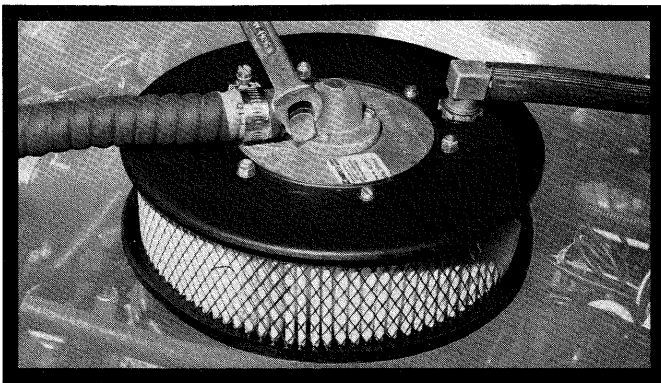
You will notice a change in engine operation, a change in the duty cycle reading on the FSA-1, and the transition of the oxygen sensor voltage lights on the FSA-1 and the ADP. **THIS IS NORMAL.**

Allow the engine to operate for a minimum of 5 seconds after the jumper/shorting clip has been removed.

NOTE: During this 60 second period, the ADP is reading the MAP sensor, to determine idle.

Turn the engine off, and check to see the key is in the **OFF** position.

NOTE: By removing the jumper/shorting clip and allowing the engine to idle, and then stopping the engine; this procedure presets the ADP to enter the fast learn mode.



Using a stop watch or other timing device; start the vehicle, and drive the vehicle on chassis dynamometer at as many different engine speeds, and loads as possible during the first 24 minutes of operation. Set wide open throttle adjustment to 50% duty cycle.

NOTE: The drive cycle should include; stop and go, long accelerations, decelerations, Wide Open Throttle, and steady speed cruise operations. With the exception of wide open throttle, attempt to hold the vehicle at a particular speed. At this time, load for a period of 20 to 30 seconds to allow the ADP to adapt to the operating point. During this operation, the oxygen sensor transitions on the FSA-1 will be slow. This operational speed will change as the ADP establishes each cell's operational value.



IMPORTANT:

If the vehicle is turned off, and power is removed from the ADP during the first 8 minutes of operation, the short term memory in the ADP is lost and will begin again when the vehicle is restarted.

If a cell is not filled during the drive cycle, the non-updated cell will be updated during normal driving.

 **RECONNECT ADP GRAY WIRE.
RESTORE AIR SYSTEM OPERATION.**

EMISSION DECAL

Fill out the emission decal as this is required by law. Your CARB, and COLORADO Department of Health decals are available from your IMPCO dealer. Be sure that this information is correct as it cannot be altered after the clear sheet is adhered to it.. Make 2 photo copies of this decal. One copy is for your records, and the other must be returned to IMPCO TECHNOLOGIES for warranty registration. Adhere this decal to the vehicle under the hood in a clearly visible location to be readily noticed by any service technician.
SEE PAGE 16 FOR MAILING INSTRUCTIONS.

Vehicle Type	VIN No.
Vehicle Year	Engine Displacement
Installer	Installation Date
System Model No.	Serial No.
	AFE CU MCV
System Pressure @ 70° F	Initial Timing
Cylinder Retest Date	Total Cylinder Water Volume CU-IN or Liters
C.A.R.B. approved executive order	
ADJUSTMENTS	
INITIAL SPARK ADVANCE: Set to vehicle factory specification	
IDLE SPEED: No adjustment. See factory recommendation	
MIXTURE ADJUSTMENTS: No adjustment	
EMISSION CONTROL DEVICES	

“TECH TIP’S” ON THE IMPCO ADAPTIVE DIGITAL PROCESSOR

The ADP is designed to be an independent fuel control processor. It is very important to check the OEM system first to confirm that the OEM system is operating properly before checking the IMPCO ADP alternate fuel system.

Required tool:

IMPCO FSA-1
Digital Volt-Ohm Meter
Tachometer
General shop tools

1.0 Normal duty cycle reading of the ADP should range from 30% to 70%. This range will vary as the vehicle changes engine speed and load. The oxygen sensor lights will be showing a lean reading during start up. When the engine and oxygen sensor are at operational temperatures. The oxygen sensor lights will be in a constant transition once the vehicle is in closed loop operation.

2.0 No reading on the oxygen sensor lights or duty cycle of the FSA-1 or LED's of the ADP:

2.1 No power to the ADP:

2.1.1 Inspect the brown and black ground wires for proper connection to an engine ground. If a faulty ground is suspected, move the wires to the negative side of the battery to confirm that a proper ground has been achieved.

2.1.2 Also use a continuity meter to confirm continuity between the wiring connector at the ADP and the engine ground of the brown and black wires. Ensure the use of properly sized wiring lugs to attach the brown and black grounding wires.

2.2 The red power wire should be attached to the fuel selection switch, on dual fuel installations.

2.2.1 Place the switch in the alternate fuel position, and the ignition key in the on position.

2.2.2 Check the switch with a continuity light for power to the alternate fuel terminal. If none is found troubleshoot the wiring harness and the connections to the fuel selection switch.

2.2.3 Check the wiring connector to the ADP with a volt meter or continuity meter, for 12 volt power at the red wire connector.

2.2.4 Inspect the in-line 3 amp quick blow fuse.

NOTE: Perform the above test prior to starting this section.

3.0 Constant reading of 30 duty cycle on the FSA-1

3.1 Check the white wire in the ADP harness for proper connection.

3.1.1 Use a tachometer attached to the white wire to read engine RPM.

3.1.1.1 If no RPM is seen, the white wire is connected to the wrong side of the coil or an improper tachometer lead.

3.2 Check the wiring connections to the Fuel Control Valve (FCV).

3.2.1 With the key on:

3.2.1.1 Use a volt meter to check for 12 volt reading on the violet wire at the Fuel Control Valve (FCV).

3.2.1.2 If no voltage is found, check the wiring connector at the ADP.

3.2.1.3 Check the wiring route for cut or shorted wiring.

3.2.2 Check the yellow wire for 12 volts.

3.2.2.1 If no voltage is found, replace the FCV.

3.2.2.2 If voltage found, check the ground wires. (See 2.1.1)

4.0 After start up a 99 duty cycle reading is shown and the rich light is lit on the FSA-1.

NOTE: It is not possible to view this condition by viewing the LED's on the ADP.

4.1 With the key on the engine off:

4.1.1 Check the green wire in the ADP wiring harness with DVOM, if the voltage is above 2.0 volts, the green ADP wire has been attached to an OEM wire other than the oxygen sensor wire.

4.2 With the engine running:

4.2.1 Check the route of the green wire from the oxygen sensor wire to the ADP connector. It is possible that two wires have been crossed or connected together.

4.2.2 Check to see that no ignition wire is located next to the green ADP wire.

5.0 After start up a 00 duty cycle reading is shown and the lean light is lit on the FSA-1.

5.1 Check the intake system for vacuum leaks.

5.1.1 Check the air management system for constant air into the exhaust manifold.

5.1.1.1 If found, service the OEM air management system according to OEM service manuals and technic.

5.1.2 Check the IMPCO adapter for proper fit and tightness.

5.2 Check the green oxygen sensor wire for shorting to ground.

6.0 During normal driving one of the following occur:

6.1 Duty cycle remains at or near 50%, oxygen sensor voltage lights transition.

6.1.1 Check the gray wire connection, the wire maybe attached to the wrong control solenoid.

6.1.2 If using the VS-2A vacuum switch, check to see that the gray wire is connected to the yellow wire of the VS-2A.

6.1.3 Installation jumper is still installed in the initialization mode. Restart the intialization procedures in this manual.

6.2 Duty cycle varies between 30% and 70%, the oxygen sensor lights do not lite.

6.2.1 Check connections of the FSA-1.

6.3 Duty cycle remains very low (below 30%) or very high (above 70%) during a cruise mode.

6.3.1 The wide open throttle adjustment is not proper. Readjust the WOT adjustment to the middle of the WOT scale.

6.4 Duty cycle during WOT is at or near 00:

6.4.1 Check the intake system for vacuum leaks.

6.4.2 Check the exhaust system for leaks before the oxygen sensor.

NOTE: Preform the above checks before attempting the following.

6.4.3 WOT Adjustment is adjusted too lean, readjust the WOT 1 mark richer on the WOT scale.

6.4.4 Recheck WOT operation, and continue adjusting the mixture rich until a reading above 50% duty cycle is achieved.

RECOMMENDED SERVICE INTERVALS

CARBURETION SECTION	CONVERSION DATE	MILEAGE																					
		1K	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K	
Adjust idle mixture <small>Note 1</small>	X						X																X
Adjust wide open throttle mixture <small>Note 1</small>	X						X																X
Check air/gas valve diaphragm			X				X																X
Replace air/gas valve assy <small>Note 3</small>																							X
Check idle diaphragm CA425			X																				X
Replace CA425 idle diaphragm if needed																							X
Check for vacuum leaks on complete intake system including adapters			X																				X
Check gas orifice for wear																							X
Service open air cleaner:																							X
• Normal conditions							X																X
• Dirty conditions			X																				X
REGULATOR SECTION																							
Check FCV for proper OHM reading <small>Note 5</small>	X										X												X
Replace FCV																							X
Inspect secondary diaphragm <small>Note 4</small>			X								X												X
Test secondary pressures <small>Note 2</small>			X								X												X
Test primary pressures <small>Note 2</small>			X								X												X
Rebuild regulator																							X
LOCKOFF SECTION																							
Replace filter											X												X
GENERAL MAINTENANCE																							
Check all vacuum lines and fittings (Replace as needed)	X										X												X
Check all fuel fittings and hoses (Replace as needed)	X										X												X

NOTES:

1. See air fuel ratio adjustment procedures
2. See ITK-1 test procedures
3. Side draft CA425 - Inspect each 10,000 miles for wear.
4. If oil appears on diaphragm, disassemble and clean regulator of all oil and contaminants.
5. No less than 22 OHM