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### **Exhaust Backpressure Testing**

Diagnosing excessive backpressure, the result of a restricted exhaust system, is easily performed with common hand tools and a fuel pump pressure gauge. A restricted exhaust system may cause performance problems or even serious engine damage.

Depending on the engine application there are two convenient places to tap into the exhaust system. If the engine is equipped with a thermactor pump that introduces fresh air into the exhaust manifold through multiple pipes, connect the fuel pump pressure gauge to the point where these pipes join (Figure 1). Be sure to remove any check valve that may be present. Alternately, remove the oxygen sensor and using the proper fitting connect the pressure gauge (Figure 2).

Some AERA members have found that a small hole drilled into the header pipe can also be used for testing. Later the hole can be plugged with a rivet. Start the engine and permit it to reach normal operating temperature if possible. At idle there should be no more than 1.25 psi of exhaust backpressure. Accelerate the engine to 2,000 rpm and observe the pressure gauge. The reading should not exceed 3 psi.

A restricted exhaust system is present if the readings exceed the recommended values at either speed. Inspect the entire exhaust system for a collapsed pipe, internal muffler failure or heat distress. If no obvious reason for the excessive backpressure can be found, it is most likely created by a restricted catalytic converter. Replace the converter.

The AERA Technical Committee