

LAKOW DIAGNOSTICS

TECHNICAL TIP 13 TESTING FOR LOW-FLOW INJECTORS

Dirty and low-flow injector nozzles cause many driveability problems like rough idle, cylinder(s), misfire(s) and poor performance. A very common problem is a low flow condition caused by dirt accumulation in the injector inlet screen and injector poppet valves that stick closed. These conditions can be observed on a secondary ignition pattern during a snap throttle test.

When the throttle is opened rapidly, a momentary lean air/fuel mixture is present in the combustion chamber. You should expect to see all cylinders show signs of the lean mixture by observing an increase in voltage at the end of the spark line, this is normal. When the end of the spark line rises to over half the voltage as the spark line, that cylinder or cylinders is probably too lean.

The examples below are from a GM Vortec that had a P0302 fault code and obvious low performance from cylinder #2 as shown in Figure 1. The snap throttle test in (Figure 2) shows that cylinder #2 probably has a lean condition. Notice the voltage increase at the end of the firing line (arrow). Injector #2 was stuck closed. Increasing the fuel pressure, externally, while being activated with a scan tool opened it.

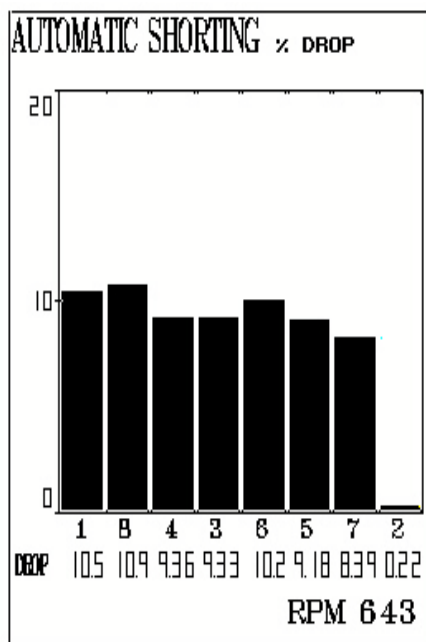


Figure 1

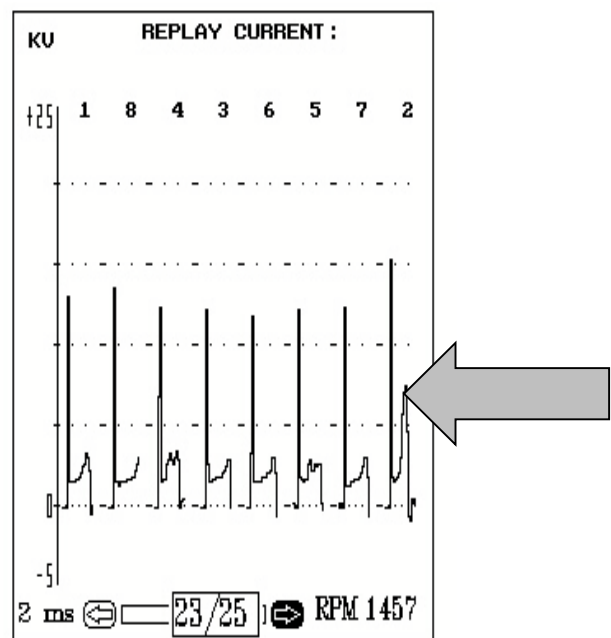


Figure 2

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More tips can be found in Bill's latest book:

AES# 02-Lakow

Lab & Ignition Scope Diagnostics

Usually ships within 1 Day

Price: \$29.00

Good and bad signals illustrated and explained by Bill Lakow.

Click here more information on this book: <http://www.aeswave.com/products/Product.asp?i=340>

Overview

140-pages of good and bad signals captured with the Interro Systems PDA. Put together by Bill Lakow.

The collection of good and bad signal examples has been arranged to help you recognize good signals as well as faulty signals. These signals are real world examples taken from a variety of cars and trucks.

The Interro Systems PDA (Personal Diagnostic Assistant) is the DSO used to acquire all of the signals in this book. The testing procedures are geared to the Interro product, however, the signal waveforms can be used as a reference for any type of DSO.

Your lab scope is your window that provides a view of circuit activity. Only a lab scope can display the quality, quantity, and characteristic shapes of signals.

Click here more information on this book:
<http://www.aeswave.com/products/Product.asp?i=340>

Who is Bill Lakow

I have over thirty-three years experience in the automotive repair industry. I am a CMAT, L1 and have been ASE certified since 1974. I am a California Certified Journeyman Auto Mechanic 1973. I spent many years as a technician in import dealerships; as a service instructor for a Euro manufacturer; as a sales and training representative for diagnostic equipment; as a shop owner; and as a mobil diagnostic technician. I own and use a variety of diagnostic tools including SimuTech and hand held scopes and scan tools. The waveforms in my book are all captured with the Interro PDA. It is the first tool that I choose for diagnostic testing because it is portable, easy to use, and it records and saves data that can be replayed and uploaded to a PC or sent directly to a printer.