

OLD CAR GARAGE

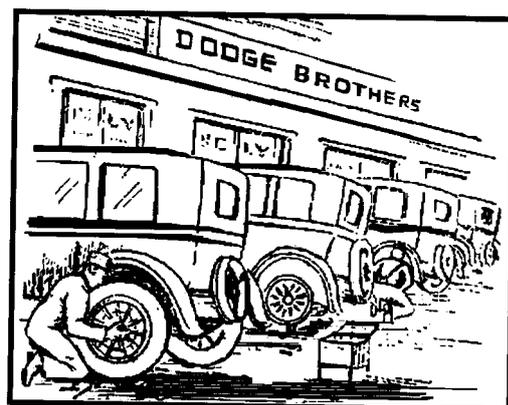
Vacuum timing DB-4 engines

Roy Brister gave a demonstration on timing 4 cylinder engines at the Traverse City meet. I took notes and wrote up the following. This method really works.

Frank Van Hulle

Timing the 4 Cylinder Dodge Engine with a Vacuum Gauge If your 4 cylinder, Dodge Brothers engine isn't timed properly it may overheat and or have insufficient power on steep grades. If it starts easily with the spark lever in the "up" or advance position, it's probably not timed properly. Timing can be a problem on engines prior to A-193533, because there are no timing marks on the flywheel or associated hole in the fly wheel housing to work with. The following method of timing the early engines using a vacuum gauge was shown to Roy Brister by Emil Gehrke and demonstrated at the 2006, Dodge Brothers Meet in Michigan. The vacuum-gauge technique works fine if your engine is in good condition and the spark control linkage from the steering wheel lever to the distributor is connected and working properly ..

1. Disconnect the vacuum line that runs from the carburettor to the vacuum tank at the carburettor and move it to the side.
2. Connect a vacuum gauge to the fitting on the carburettor.
3. Place the spark control lever in the "retard" or down position and start the engine. Note the vacuum gauge reading with the car running at idle speed. You may have to vary the idle speed a bit until the vacuum gauge settles on a reading. If the reading fluctuates' just pick the mid point reading. Jot it down on a piece of paper. A properly running Dodge, 4 cylinder engine in excellent condition will draw about 18-20 pounds of vacuum on your gauge.
4. Turn off the engine. Remove the distributor cap. Remove the rotor. Loosen the set screw (breaker cam lock nut) that controls the breaker cam movement. Replace the rotor and move the cam about 1/16th inch in either direction. Reassemble the distributor and restart the engine. Note and jot down the new vacuum gauge reading. If it increased, repeat the procedure and move it another 16th of an inch in the same direction. If it decreased move it 1/8th inch in the opposite direction.
5. Repeat this procedure until you have found the point at which your engine is running at maximum vacuum, with the spark lever in the retard position and the engine running at idle speed. (There should be enough gas in the vacuum tank to operate the engine while making these adjustments. If you run out of gas, reconnect the vacuum tube, restart the car and let the vacuum tank refill. Reconnect the vacuum gauge and continue where you left off.)
6. Once the maximum vacuum position has been determined, move the breaker cam back so that the vacuum reading will be slightly under the maximum reading. For instance if your maximum vacuum



reading was 18 pounds, move the cam back so that it will run at about 16-18 pounds of vacuum in the retard, idle mode.

7. Reconnect the vacuum line tube to the vacuum tank and test drive your car after you have moved the spark lever to the "up" or advance position. If you have it timed perfectly and the engine is cold, it will "buck" a bit and or start with difficulty when the timing advance lever is in the "up" position. It should now run cooler and have more power, especially on steep grades.

If the vacuum gauge fluctuates wildly and never seems to settle on one reading (no matter what you do); the problem may not be with timing, but valves, rings or something else.

Vacuum-tank pressure

Here we have it from the authority. Speaking at the January 1928 meeting of SAE in Detroit, F. G. Whittington of the Stewart-Warner Speedometer Co., and maker of the Stewart vacuum tank used in many early cars, reports that the vacuum tank produces about 1/2 lb/ sq. in. pressure to the carburettor.

This is vital to those who try to replace their vacuum tank with an electric fuel pump.

Further, he states that an important characteristic of a fuel feed system is non-interference with carburettor functions. He expressed the view that any fuel-pump feed would interfere with mixture proportioning. While speaking of mechanical pumps, his point would apply to electric pumps as well.

These remarks were published in February 4, 1928, *Automotive Industries*, Page 167.

This is a good time to remind you that the fuel is *gravity fed* from the vacuum tank to the carburettor on these cars. Keep this in mind when considering modifications in your fuel system, in placement of in-line fuel filters, and in running the copper tubing to the carburettor.