Good Carbs Show

In August we had the opportunity to attend the MCA International No Borders car show in Canada. It was a really well put together show and Ford of Canada's facility was wonderful. We got the warmest welcome and experienced the delightful hospitality of the locals. While we were there, we were able to walk up and down the aisles of show cars and discovered a multitude of problems and irregularities that have been consistent issues for as long as we have been around. During my "famous" technical seminars I make house calls to different vehicles in order to diagnose and solve people's drivability and performance issues. Here are some of the most common troubles I found:

LATE IGNITION TIMING

Ignition timing is the biggest problem in the classic car industry—meaning the use of timing lights. The real culprit is not the timing light, but the movement of harmonic balancers. By using a timing light you really have no clue where your timing is set. You CAN NOT use a timing light and expect consistent good results. I noticed that about half of the cars at the show either have retarded timing or have the distributor installed in the wrong tooth, unless of course they have one of our carburetors and have watched the installation DVD that is included.

Truthfully, there is ONLY one way to set your timing. Simply rotate the distributor until the engine idles the fastest. It is that simple. We encourage the use of a vacuum gauge. A standard performance engine will pull 20-20.25 inches of vacuum at 700 rpm in park or neutral. High performance engines such as 428CJ, Boss 302 and Boss 351 will read 18-18.5 inches at 800 rpm. The next step is to go drive the car. If it pings (with premium fuel) on hard acceleration, back the timing off just a tiny bit. If you need to retard the timing more than 1/8-inch counter clockwise of the vacuum advance unit on a front mounted Ford V8, then you have a distributor curve problem. That means that you need to have the distributor re-curved by an expert who knows what they are doing. With the initial timing set for maximum rpm and vacuum, your engine will deliver the best performance, horsepower, fuel economy and drivability.

DISTRIBUTOR IN THE WRONG TOOTH

The second most common problem we find is distributors being installed in the wrong tooth. Now, we all know how to install a distributor right? Well, you get the harmonic balancer/engine to Top Dead Center (TDC). Then you drop the distributor in and when it's all the way engaged, the #1 rotor will be pointing at #1 position on the distributor cap. This all gets back to the same problem with the use of timing lights and the movement of the harmonic balancer. Harmonic balancers move over time and even when you think you are at TDC, you are not. This is how the distributor gets installed a tooth off. This should give you an indication of how far these harmonic balancers actually move over time. I can tell you that about 40 percent of the show cars we see have the distributor installed incorrectly. This is a horrendous problem, but fortunately your car really doesn't care what tooth the distributor is in (unless you have original factory air conditioning with the factory air compressor). If your distributor is installed correctly, and your harmonic balancer is correct, your vacuum advance unit will point at your left pocket or 7 o'clock (standing at the radiator). If your distributor is installed one tooth off one direction and you rotate your distributor to where the engine idles the fastest (as described above) the vacuum advance unit will hit the thermostat housing. If that is the case, you are at least one tooth off and your timing is likely still 10 degrees late. This is because you are unable to advance the timing past where the vacuum advance unit hits the thermostat housing. If you are installed one tooth off the other direction, instead of pointing at 7 o'clock, your vacuum advance unit will point at 5:30 or if you are two teeth off it will point at 4 o'clock.

DISTRIBUTOR VACUUM HOSES HOOKED UP WRONG

Since 1957 there is no Ford Motor Company engine that is supposed to have vacuum to the distributor at idle. Actually, there was one in 1979, the 400 ci 2V. At idle the throttle plates of the carburetor are below the hole in the side of the bore and there is no vacuum to the distributor. As the throttle plates open, the hole gets uncovered and vacuum is gradually increased to the distributor the further the throttle plates are opened. This by definition is what we call "ported vacuum". I can't tell you how many cars we see, especially with aftermarket carburetors that have full time intake manifold vacuum to the distributor. There is no chance that the car will ever perform properly in this configuration. If you have vacuum to the distributor at idle and the vacuum hose is hooked up to the ported vacuum on the carburetor, one of two things is present. Your ignition timing is either late or you have a race cam installed in the engine.

INCORRECT DUAL DIAPHRAGM DISTRIBUTOR VACUUM HOOK UP

Beginning in 1968, Ford Motor Company used a dual diaphragm distributor. What does that mean? Well, very simply, there are two vacuum ports on the distributor. The one farthest from the distributor cap is the outboard connection. That is the connection for advancing the timing. The second connection is called inboard connection, obviously closer to the distributor cap that the other. This is the retard mode of the vacuum advance on the distributor. We see cars all the time with dual diaphragm distributors that have the hoses hooked up improperly or have the inboard connection capped off. For the distributor to function properly, the outboard connection must be connected to ported vacuum coming off the carburetor. Remembering that there is NO VACUUM TO THE DISTRIBUTOR AT IDLE. The inboard port must be hooked up to full-time intake manifold vacuum. If this is not done, there is no chance that the calibration of the distributor will remotely allow the engine to run the way

it was designed or as well as it is capable of running. What complicates the hook up of the dual diaphragm distributors is that Ford also used a thermal vacuum switch (TVS). What this device does is swap vacuum sources from ported vacuum to full-time intake manifold vacuum. There are a number of ways the TVS can be hooked up, but the bottom line is that the TVS can be bypassed for functionality and the car will run just fine without it. There is no one set scheme as to how to hook up the TVS. Some have two ports, others have three ports and we have the vacuum diagrams, by engine application, if you are really interested.

AFTERMARKET CARBURETORS

You cannot imagine that at Pony Carburetors, where we deal in exact carburetor restorations, we find the use of aftermarket carburetors distasteful. Our non-approval of these items is based on several facts. They are all GENERICALLY calibrated; most are based on a Chevy 350 because there are so many of those running around. Parts are not parts. If the carburetor has not been calibrated for your engine and for what you are asking it to do, you have just assured that you will be driving a "grocery getter." By that, I mean that it will get you to the store and back, but it will NEVER perform to its full potential. Another reason we do not like aftermarket carburetors is that like many other non-factory original parts, it is not adding to the value or correctness of the vehicle. You can spend $300-$500 on an aftermarket carb to make your vehicle less correct (and run worse) or you can spend the same amount and get the correct carburetor that IS calibrated for your exact vehicle, adding to its value. At Pony Carburetors, we are such purists about our classic vehicles. I had a 1968 Mustang convertible that was Lime Gold. I didn't particularly care for that color, but my philosophy is that even if the original color isn't your favorite, live with it. We feel this way about every part on these classics (except the stuff you can't see, like cam shafts, rocker arms, etc.) Some of the internal engine parts are actually better than the original. This is not the case with aftermarket carburetors. The original carb is ALWAYS better than an aftermarket. We have people call us from time to time to ask if we work on aftermarket Holley or Edelbrock carburetors. The truth is that we don't work on very many at all because we charge more to fix them than they cost brand new.

Back when we were kids, the popular thing to do to was to take the original Autolite carburetor off and install a BRAND NEW Holley carburetor. Once you got done putting it all back together and you took her out for a test drive (maybe a quarter mile), your "Seat O' Pants" meter said that your car ran faster. The fact of the matter is that if you actually timed your test run vs. the original Autolite you would have found that the Autolite significantly outperformed the Holley. Imagine that!

In closing, we would like to thank the friendly folks of the Golden Horseshoe Mustang Association who put on a great show in Oakville, Ontario, Canada, with a special thanks to Dave and Kathy Wilson who graciously opened their home to us during our stay.

Happy Driving,
Jon

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