Edelbrock 1409 PCV drilling and tapping
July 26 2012 at 12:52 AM  Paul

DISCLAIMER:

Unfortunately a disclaimer of this nature is necessary due to the fact that we are dealing with a fuel delivery source and this information is sent out over the internet with little or no control. For these same reasons I will not be a part to any recommendations to modify a fuel pump (or in this instance, any recommendations to modify a carb), I hope everyone can understand the need for the following disclaimer because it is there for a reason, and that is to provide notice this is a potentially dangerous or costly thing to do, and if you elect to do so you proceed at your own risk.

The following photos and text documentation is provided in the best of faith and to provide information to my fellow boating enthusiasts. This procedure may not be in conformance with USCG laws or safety regulations, so this information is NOT a recommendation or suggestion, it is only a documentation regarding what I did with my carb for my own personal use. Since there is NO assurance the actual carb body I drilled into is the same as the one someone else may have, and no assurance the manufacturer did not change the internal or external casting, neither I, the Chris-Craft Commander Forum, Inc., nor anyone directly or indirectly associated with this forum shall assume any liability for carb damage, any consequential damage and/or claim in the event someone takes this information and elects to proceed on their own by drilling into a carb.

Since I have a couple 1409 Edelbrock carbs and may be going for more in the future, I decided I would drill and tap one for a proper PCV installation just to see how it was done, and to also document it so other people here on THE FORUM could use it as a reference. Photo below is compliments of TS Clymer, showing the standard method of hooking from the valve cover mounted PCV valve with a copper tube to the carb.
If the PCV system is not working on these motors you will get a real stench on board, and the fumes will build up inside the sump, making acid and potentially being explosive in the event there is a fuel leak.
The standard Carter AFB carb as provided on the 427 engines has a fitting tapped into the aft side of the carb which is intended to hook up to the PCV system. The photo above shows the fitting as installed in a Carter AFB marine 625 cfm carb.

The Edelbrock #1409 marine 600 cfm carb is a clone of the original AFB and although not identical, it is nearly identical but with some improvements. The carb is not drilled for the PCV system so we have to do that ourselves if we are going to hook things up properly and control fumes, odor and run the system as intended by Chris Craft.

The 1409 has a nice dimple on the front where you can drill. I called Edelbrock and the tech guy was rather set in reciting the company position like a recording machine, saying they tested the carb without the PCV system and it was therefore only certified with the EPA yadda yadda, and he did not want to hear anything about the merits of controlling the odor and fumes that come from a crankcase. He was of absolutely no assistance in helping, yet Edelbrock cast in a dimple where we are given the big hint and a wink to drill for the PCV system.

So I decided to remove the old fitting from the old Carter and drill a new hole so the original fitting could be reinstalled. Here are the drill and the tap that I used to do this.
First thing I did was to tape up all the openings in the 1409 that might get bits of metal from drilling and tapping, then I went right to the drill press and gently started drilling deeper and deeper into the carb body until the hole penetrated into the chamber Edelbrock has also left us for this very operation.
Once the hole was opened up and viewed from the underside of the carb and from the backside, I used some WD40 which serves as a very nice cutting oil for aluminum and ran the tap inside gently screwing it in, and backing it out, then in a little deeper, until the new threads were cut nicely.
The new fitting was tested for a fit, the tap was run again just to remove any additional loose material, a vacuum hose was hooked up from a shop vac to get any filings, and in went the fitting just like the original AFB.
The 1409 was put back on the intake manifold and is now ready to receive the original PCV system hook up.
In the thread that follows we'll take a look at the underside and note why we did not elect to drill the spacer or use a tap somewhere in the intake manifold (that would potentially cause a lean condition in one cylinder).

First of all the 1409 Edelbrock is the ONLY marine Edelbrock any of us need to be discussing, because it is rated at 600 cfm and this will work on the 427 and the small block motors too. The 600 is actually more carb than the 427 needs when running at the rated 4000 max rpm. Going to a bigger alternative like the 1410 which is a 750 cfm carb would be just adding more unnecessary carb and the vacuum signal would be much worse.

Here is why I taped up the openings in the carb before drilling and tapping. This is debris that came out the existing hole-to-nowhere Edelbrock installed in this carb for this very purpose of fitting up to a PCV system. A soon as the tape was opened up I held everything near a shop vac tube and made sure no debris got anywhere it should not go. It is interesting that Edelbrock would provide a dimple and actually drill the hole on the bottom of the carb like they did, obviously being helpful to anyone who needed to drill and tap like I did this evening, but when it comes time to talk about it on the phone they clam up and won't even acknowledge what the dimple is for. It is pretty obvious, however, looking at the casting what is really going on.
Here is a closer look at the hole on the bottom of the carb that Edelbrock has provided. Note the channels on each side of the flat bottom leading to this hole, this allows the hole to feel the needed suction when everything is faced up to a gasket that covers the hole, because those side channels make the connection.
Here you see how the gasket covers the hole, but the side channels will still remain open. It is all set up and ready to go, all I had to do was drill one hole.

I could have drilled the phenolic spacer or the wedge (I am using both on this installation for now) but I decided to drill the carb and to replicate the original system. After all I had an old carb and it gave me assurance that I was drilling at the right location, and I also got to reuse the old fitting too. Here is a look at my spacer and wedge. No need to drill these since drilling the carb was so easy.
In the end look at the two images below, the old and the new, both with the proper PCV system installed and ready to go.
Hope this helps take the mystery out of tapping the 1409.

One more comment: most places that specialize in screws, bolts, and fasteners in general will have the ability to check the threads on a fitting and provide the exact diameter of drill bit needed, and provide the exact tap to do the thread tapping. Here in Nashville I went to Capitol City Bolt & Screw, and it was $10 for the drill bit and $10 for the tap, both of which are still like new and I will be able to use them many more times. Aluminum is soft, all I needed to cut it is a squirt of WD40. I could have done this by hand but chose to use a drill press.

Carb underbody comparison, stock Carter versus new Edelbrock 1409
July 26 2012, 3:00 PM

I wanted to add the underside photo documentation of the Carter AFB to this thread to make it complete, for anyone later on who may be doing research on this same topic.
You can see from this photo how the fumes from the PCV system discolored the two butterflys next to the PCV discharge port on the stock Carter AFB.
While very similar in some areas and identical in others, the new Weber built Edelbrock 1409 functions just like the stock Carter AFB. The casting on the new carb is cleaned up a bit but is essentially the same internally. Note the same port from the PCV system on the old carb and the new one too.

This design assures the air mix from the PCV system is distributed evenly by the carb, and I think this is a superior way to do it versus finding a plug on the intake manifold that would have a vacuum and using it (which would potentially lean out one or two cylinders).
Carb Spacer..................................don't use an open chamber spacer
February 7 2014, 6:15 PM

Guys........for you 427 guys who only run 4,000 rpm, PLEASE don't use a 1” open spacer, it will hurt your
performance.

if you must use a spacer, and there are some valid reasons for doing so, please use a 4-HOLE phenolic.

In the lower rpm ranges the 4-hole builds torque.

In the higher rpm range, the open spacer builds horsepower (however..........drumroll please........few of
us will be reaching that rpm in any of the stock boat motors we feature around here, except perhaps the
hi-po no warranty versions).

Regards,

Paul

Drilling and tapping
August 28 2014, 10:10 AM

I did my tapping by holding a standard Carter AFB in one hand and looking at the #1409 in the other
hand, and followed the pathway EXACTLY by using the standard AFB as the road map.

Therefore, my tapping was into the exact same location as the original AFB and it works beautifully that
way. I would be very reluctant to drill anywhere else. It was crazy enough doing the first drilling, but
now that it has been proven to be successful, I can share it with others like I have done. You can also use
a spacer to gain access for the PCV system and I thought about it but decided to just go with the drilling.
Regards,

Paul