The Oakland V-Eight

by Tim Dye

Many of the car enthusiasts you meet at the average car show today have never heard of an Oakland. This is understandable since the car was last produced in 1931, many years before most of the people at the show were born. With that in mind it is also understandable that they know nothing of the unique motor powering the Oakland in its last two years of production, 1930 and '31. When describing our 1931 Oakland to car enthusiast, they think that it is pretty unique, upon mentioning the V8 they automatically assume you have a custom car, and are quite surprised when you tell them it is original equipment.

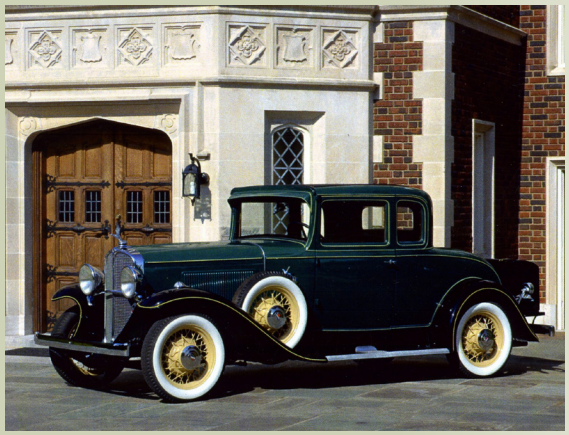
There had been V8s for years, but one of the most unique things about this one was the block being cast as one piece. That technology at the time was very new. For a long time I worked under the assumption that Oakland had the first such block, but then learned its GM sibling, the Viking, offered a similar engine one year earlier in 1929. Common knowledge about the Viking is even more obscure and unknown than that of the Oakland. There were only 7,224 total Vikings built. The first flathead V8 motor produced in great numbers was introduced by Ford in 1932, and was in use for years. Many of these cars survive today, so many in fact that a club exist just for them. Members of the Early Ford V8 club can be found at most of the open car shows I attend with the Oakland. It is these folks that are most taken aback by the Oakland V8. It is almost comical how long they will just stand and stare into the engine compartment, and are always amazed to learn that Oakland had a flathead V8 that pre-dates their Fords.

The Oakland V8 is a 251 cubic inch motor that develops 85 horsepower. In comparison, the Model "A" had around 40 horsepower, making the Oakland a very racy car in its day. There was one horse power for every 37lbs of weight. This gave it the best horsepower to weight ratio in its weight class. As a result few cars were as fast, and few, if any could pass it on a hill, a very important indicator at that time. How cars did on a hill was the standard of the day, similar to us comparing quarter mile times today.

In the 1930 Oakland shop manual, this new engine was described to mechanics as a

"When most Pontiac fans are asked what year of Pontiac first had a V8 motor, most will respond 1955"

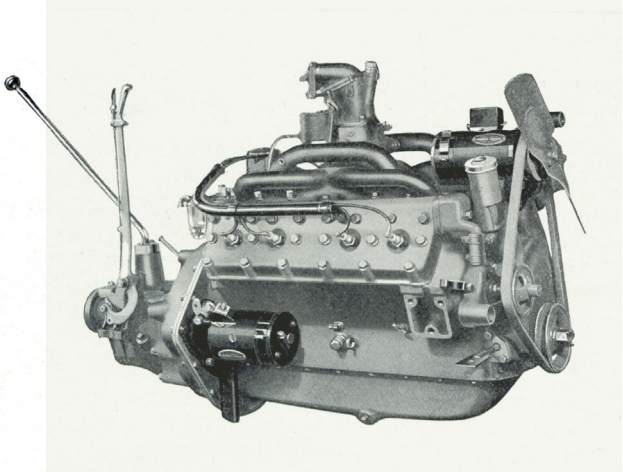
90 degree V8, being very much like two four-cylinder engines mounted at an angle of 90 degrees operating through one crankshaft. The crankshaft is a flat plane type which by nature creates vibration in the V8 engine. Because it was not easy at the time (and therefore not cheap) to mass produce a V8 crankshaft with throws at 90 degrees, the Oakland used a 180 degree crank design. To compensate for any vibration Oakland engineers designed front engine brackets that are mounted on two banks of laminated flat springs similar to leaf springs. The rear of the engine is mounted on two rubber supports fastened to the extensions of the transmission case. Between the rubber blocks at the rear of the engine and the leaf springs at the front, the engine is floating, preventing the vibration from being transmitted to the frame or body. In addition to that, engineering tests showed that movement at the front of the motor was always in a direction crosswise of the frame. To control excess movement Oakland engineers developed the synchronizer lever. The lever permits the engine to float within limits. Inside the motor the lever rides on a four lobe cam which allows .010" travel at the base of the engine. The other end is connected to the frame with a specially designed bracket. The engine mounts and synchronizer lever are an important part of the Oakland V8, as the car exhibits no vibration while in operation.



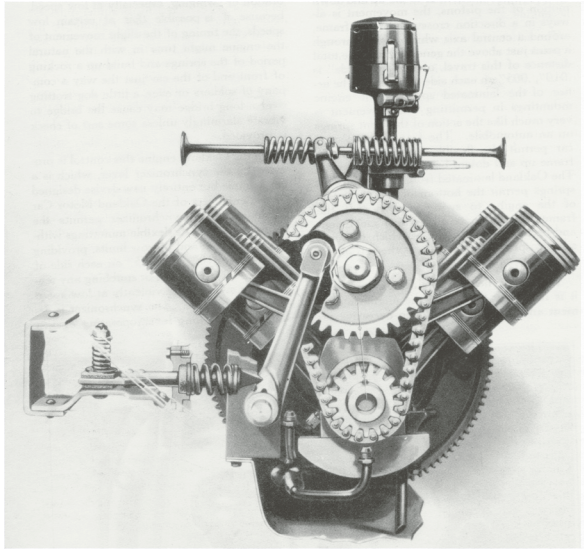
1931 Oakland Sport Coupe equipped with the Oakland V-Eight

The Oakland V8 crank, cam and valve rocker shaft are all in a vertical row. The valve stems all lie in a horizontal plane across the top of the engine. The rocker arms are of the roller type and it is here that full-time Oakland mechanic Wayne Koffel notes that one of two problem areas in the design of this engine is located. The pins that hold the rollers on the rocker arms would cease up due to poor oil flow. Once this happened the rollers would "flat spot" and it was like metal rubbing against metal, wearing the cam shaft down. Metal shavings would then get in the oil system causing other problems. Design changes took place in 1931 to help increase oil flow to the rockers and cam. The other problem area is with the water flow. Wayne notes that sludge and debris builds up at the lower rear area of the motor and eventually will block the flow of water to the two rear cylinders, causing them to run hotter than the others. In extreme cases he has seen the top of the pistons flake off from the heat.

Wayne advises changing the oil often,



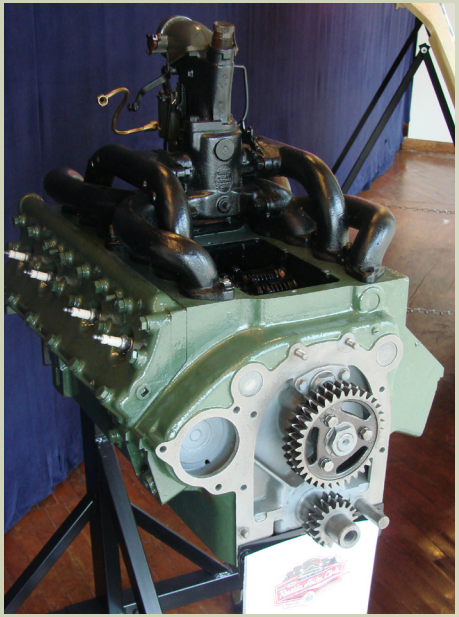
Unique is a word you often find yourself using when describing this engine. The exhaust manifolds are on top and the exhaust exits through the motor and out the opposite side.



This illustration clearly shows the synchronizer lever unique to this motor. You can also clearly see the horizontal valves.

keeping it clean is important, as there is no oil filter. The Oakland V8 owners manual recommends straight 30 weight oil. Also keeping the water system clean, changing the fluid regularly is important for the longevity of the motor.

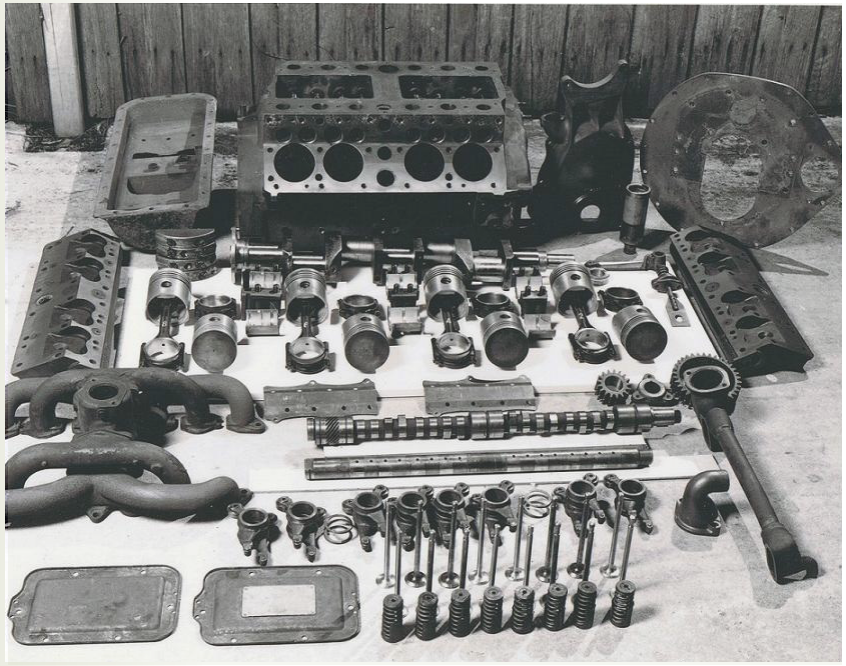
For those of us who are used to looking at more modern engines, the Oakland V8 is strange looking in that the intake and exhaust manifolds are located on top of the block, above the valve tappet covers. The exhaust gases from the right bank pass through the pre-heater under the intake/carburetor, joining gases from the left bank in exiting the block through a large cast-in passage through the water jacket between the two center cylinders on the left bank. The carburetor is a single throat downdraft.



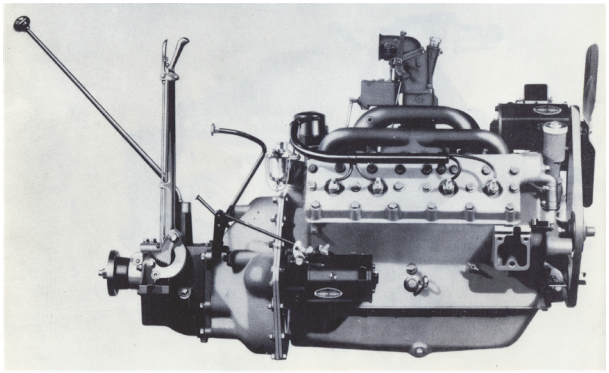
1932 Pontiac V-Eight on display at the Pontiac-Oakland Museum & Resource Center.

Besides increased performance, there were other advantages to the V8 type configuration versus the in-line 8 that were considered by Oakland designers and engineers. Length wise it took up less space which allowed for a shorter hood, shorter wheelbase, and the toe board area could be moved forward giving the driver more leg room. Also the motor sat lower in the chassis for a lower center of gravity.

The Oakland was discontinued after the 1931 models, only 13,408 were produced that year. This brings up a great bit of Pontiac trivia. When most Pontiac fans are asked what year of Pontiac first had a V8 motor, most will respond 1955, but 1932 is the correct answer. Some 1932 Pontiacs were equipped with the V8, referred to as leftover engines. The most noticeable change was that the synchronizer lever was moved from the right side of the motor on the Oakland cars, to the left side on the Pontiacs. There is a hole in the block where the pivot pin for the synchronizer lever is pressed in. On the 1930 blocks there was a machined flat surface where a hole was drilled only on the right side of the block. The 1931 blocks have a machined flat surface on both sides of the block in this area. This made it possible to drill the hole for the pin on either side of the block. A new timing cover had to be cast with the hole for the



This photo shows a 1930 Oakland V8 completely torn down. Photo courtesy of Hugh Venables.



Another illustration showing a side view of the 1930-31 Oakland V-Eight.

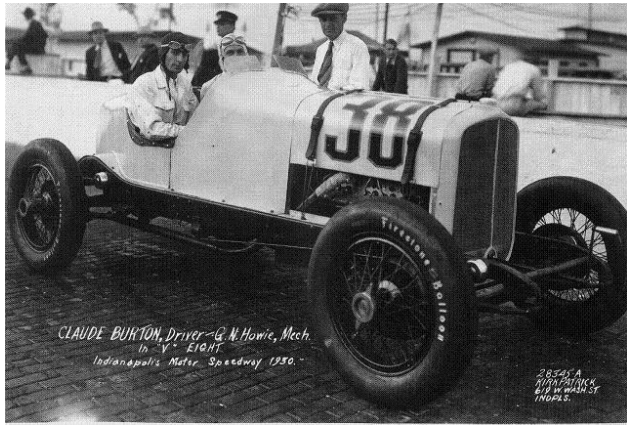
lever on the left side, but we still don't know why the synchronizer lever was moved to the left side on the Pontiacs.

Oakland enthusiasts and historians don't always agree, or really know why the motor was discontinued. Some say that the straight 8 and straight 6 motors were less expensive to produce. Others say that maintenance costs were high, possibly due to the oil flow problems Wayne noted. Either way, it was deep in the great depression, and no doubt money was at the root of the decision to discontinue the V8.

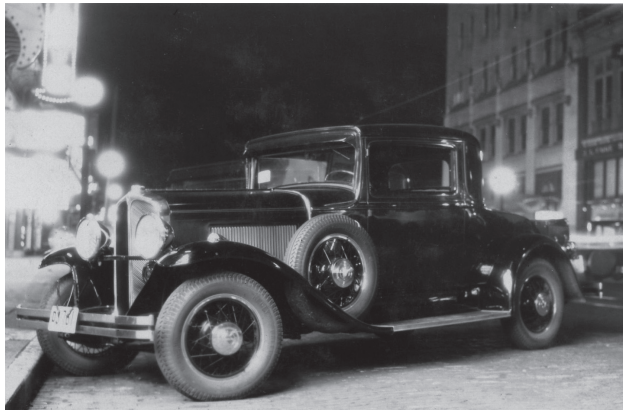
I don't consider myself an expert when it comes to the finer points of various internal combustion engine types and their many nuances when compared to each other, but I have been involved in some conversations with gear-heads that really know their stuff. I can't with a clear conscience write a story about the Oakland V8 without mentioning Hugh Venables of Melbourne, Australia. Hugh is an Oakland V8 gear-head of the highest degree, a fan who has studied the engine for 35 years. While at a display of Oaklands in Dearborn, Michigan, Hugh and I were standing at the front of my Oakland discussing various things when a stranger approached and struck up a conversation. We did not get his name, but he had an engineering background and was quite knowledgeable about the finer points of the Oakland V8. An in-depth conversation ensued between Hugh and this man. I was soon lost in the highly technical banter, and could not stay as I had some duties elsewhere on the grounds. I came back some time later and they were still at it, the conversation had to go on well over an hour. I had always considered the Oakland V8 an interesting and unique engine, but it was not until then that I realized how historically important the engine was. It was not lost on me that here were two men from different parts of the world discussing in detail an engine made in Pontiac, Michigan almost 80 years earlier. It was then I got out my camera and took a picture of them talking, I think they were both having the time of their life.

Here driver Hugh Venables and passenger John Felder are navigating a turn in John's 1930 Oakland Roadster at the Targa Tasmania race. Photo courtesy of Hugh Venables.

Another reason I mention Hugh is that he and fellow Oakland enthusiast John Felder race a 1930 Oakland Roadster with a Stewart body that John owns. It is equipped with an Oakland V-8 and John has ran the car over 50,000 miles since he has



This is Claude Burton behind the wheel of the 1930 Oakland V8 he piloted to 11th place in the 1930 Indianapolis 500.



Home photos of Oaklands and Pontiacs are one of my favorite things to collect. This night photo of a 1930 Oakland coupe is scarce, most car pictures are taken during the daytime. Information accompanying this photo indicated that the car belonged to L. Roy Smith, manager of the Palace Theatre in Hunington, West Virginia.

owned it. Annually John enters it in a race called the Targa Tasmania, as well as other races. Hugh notes that they have had the car as fast as 90 MPH, and often sustain a speed of 80 MPH in certain races. But this is not the first racing Oakland V8, there was one entered in the 1930 Indianapolis 500. It was built by Ira Vail and raced by Claude Burton. It qualified at 95.087 MPH starting in the 16th position. He finished 11th completing 196 laps, running at the end (only 14 of the 38 cars entered were running at the end), averaging 86 MPH.

The Oakland V8 was just a brief but interesting part of Oakland/Pontiac history, but a part well worth documenting and preserving.

Myth-Busting the Oakland V-Eight

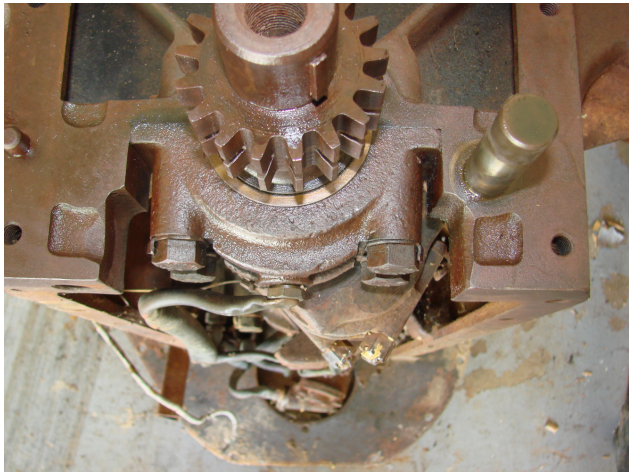
This portion of the story on the Oakland/Pontiac V-Eight produced from 1930-32 is a follow-up to the story above. That original story sparked some controversy which led us to learn more about the engine which I have reported below.

Original sources such as an Oakland foundry employee or Oakland dealership mechanic are no longer available to us, so we are left to our own devices - - a little bit of trial and error, so to speak, as we relearn what was, at one time, common knowledge. For instance, there was no mention of the synchronizer lever relocation in the 1932 update to the Oakland shop manual. There may have been an engineering memo that made its way to the service managers at the dealers explaining it.

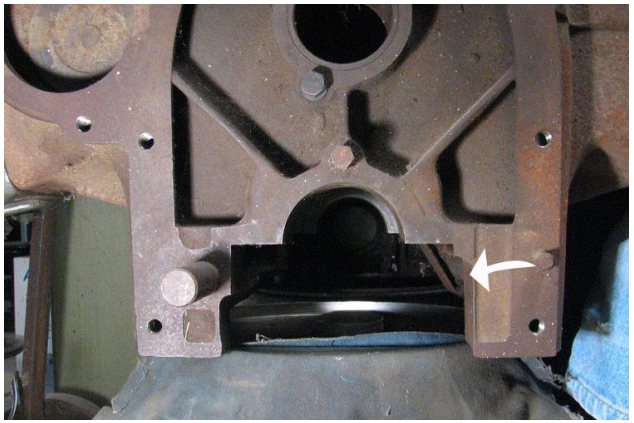
In retrospect, my original story above may have just been the first step in this learning process, and even though there were errors in my story, it started a dialogue that will lead to even more information coming to the forefront, which is a good thing. What we learned changes a notion collectors have held to be true for many years: that the 1932 V-8 motors installed in Pontiacs that year are left-over motors from the 1930/31 Oakland.

We may never find out why the synchronizer lever was moved from one side of the motor on the Oaklands, to the other side on the Pontiacs, but it is on this change that the controversy was centered. Was the block recast to make that change? Or, was it done using the original casting from the Oakland, with just different machining methods employed? As the emails and phone calls flew back and forth after the original story came out, at some point it was decided that the only way to settle this was to find a 1932 Pontiac V-8 block and compare it to an Oakland block. This would not be an easy task as there are not very many of these motors floating around. We knew where several cars equipped with the motor are, but that would do us no good. We had to be able to tear it apart.

John Felder of Austrailia, whose 1930 Roadster I featured in the original story, came



Here is the front view of the 1932 Pontiac V-8 block. Note the shape of the block near the main bearing cap is different than the 1930/31 Oakland motors.



The arrow shows how the 1930/31 Oakland block is shaped differently in this area than the 1932 Pontiac block.

through when he remembered hearing about just such a motor located in a back yard in Montana. Through the generosity of Hugh Venables, the owner was contacted and the 1932 V-8 motor purchased and shipped to my home in Oklahoma (I have since moved to Illinois). It is fairly complete including all the manifolds, carburetor, distributor, starter, and water pump. One head and one valve cover are missing as is the timing cover, but this is ok as the motor will be cleaned up and put on display. The bell housing and transmission are also present.

Here is the drivers side on the Pontiac block where the shaft is installed. You can see how different this is from the Oakland block.

After I tore the engine down enough I could see a difference in the block's shape near the area where the front main cap is located. But this shape could have been achieved by grinding or machining the material away. The real difference was inside the front wall of the block. On the 1932 Pontiac block there is a rounded area of extra thickness on both sides of the block. One side was where the Oakland blocks would have been drilled out for the rod holding the synchronizer lever. (Of course it is not drilled on this block.) The other side of this block also has the extra thickness and is drilled. On the Oakland blocks this extra thickness of material only exist on the one side; the other side is much thinner. The only way to achieve this difference would have been to modify the castings to create new blocks for the 1932 Pontiacs thereby disproving the use of leftover blocks.

The numbers on this particular block indicate that this was an early block, the 100th one made for 1932. It is interesting to note that many of the pieces such as the crank and the block itself have an Oakland shield cast into them. This image may have fueled the myth about leftovers, but remember that it was the Oakland Motor Car Company building Pontiacs, so that logo, though perhaps unusual was still appropriate on Pontiacs though the 1932 model year.

Myth busted!

The 1932 Pontiac engine mentioned in the above story has been restored for display by the Rustic Auto Club of Pontiac, Illinois and is now on display at the Pontiac-Oakland Museum & Resource Center in Pontiac, Illinois.

This is what the 1932 Pontiac block looks like on the passenger side. This would have been drilled out on an Oakland 1930/31 block.

Here is what the drivers side on the Oakland block looks like. No allowance is made for the shaft to be located here.

The V-Eight Hood Ornaments

The 1930 Oaklands had no mascot of any kind on the radiator cap, just a plain cap. The illustrations of the cars in the 1931 Oakland brochure did not show an ornament either, but production cars had one. The ornament depicts an eagle with both wings completely together in a vertical position to form one wing.

It was designed by William Schnell who was a designer and engineer at the Ternstedt Manufacturing Co. of Detroit, Michigan. Schnell was head of the Art & Color department there from 1924 through 1935 and received patents for over 30 car mascots. These include the first Pontiac Indian mascots and the Oakland eagle beginning with the 1927 version.

The 1931 Oakland mascot patent was applied for on June 19, 1930 and a patent was issued November 18, 1930. The 1932 Pontiacs equipped with the V8 had a very similar mascot with only minor changes. This would be the first Pontiac hood ornament that did not depict a likeness of Chief Pontiac. The most noticeable difference was at the feet of the eagle. The Oakland version had grooves or a series of ridges where the Pontiac version actually had feet and talons. Other differences become apparent when you set them side by side. The Oakland mascot measures approximately 8" high with a 3 1/4" inch base while the Pontiac version is approximately 7 1/4" tall with a 3" base. There is some speculation that the smaller ornament may have been used on some Oaklands late in 1931, they are interchangeable on the cars.

If you see this eagle mascot you know the car is equipped with the V-Eight. This is the later version, but it's hard to tell the difference at a distance. Either version is scarce, a reproduction of the early version is available.

Schnell was a prolific designer holding patents for other automotive trim pieces such as dome lights and door handles. He went on to start his own company, the Michigan Die Casting Company, also located in Detroit.

This shows the base of the early Oakland version, this is where to spot the difference in the two mascots.

Here is the later version, there is detailed feet and talons on the eagle. It is somewhat smaller, but that is hard to see unless you have an example of both to compare.