

PERA's Core Corner

(as seen in [Engine Builder Magazine](#), [Babcox Publication](#))

So What Planet DID Those 'Jeeps' Come From, Anyway?

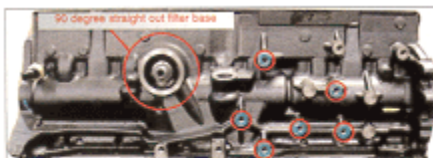
by Roy Berndt

As I began writing this month's column, some cartoon characters came to my mind. In the fear of dating myself, some of you may remember the old "Popeye" cartoons from back when life was simple and casting numbers were positive identifiers. In those Popeye cartoons there were some odd shaped characters that were not of this world (frankly, I'm not at all sure where they did come from) that were called "jeeps." All they could say was the word "jeep," and they just walked around saying "jeep" with various amounts of emphasis in an attempt to point out what they needed or wanted, making motions toward whatever it was. Somehow Olive Oyl always knew what they were saying, but I think that is a whole other story...

While researching information on the 4.0L Jeep engine (see where this is going?), I thought about those strange characters. Though you might not think this engine could possibly have any real surprises, when trying to unravel the Jeep block proliferation beginning in 1996, you need to be prepared to interpret some difficult messages.

Let's dive into the deep end of the pool with reckless abandon and see if we sink or swim. 1996 was a relatively uneventful year for the 4.0L engine block but there were some subtle changes that are worth taking note of. One, the block and cylinder head mating deck surfaces now incorporated a solid dowel pin on each end of the length. This design feature was intended to facilitate perfect and repeatable alignment of the two components. That is a good thing, although the block actually had bosses cast to house these pins, so attempting to drill an older block will not work.

The other thing that happened was that longer main bearing cap bolts were used on the bottom so that a stud girdle could be bolted on, improving rigidity and NVH (noise, vibration, harshness). That is the configuration through 1998 in the Cherokee and Wrangler and through 1997 for the Grand Cherokee. These blocks carry the casting numbers 53010341, 53010449 and 53020569.

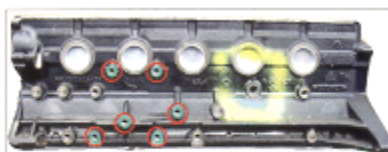


This view shows the right side of the block showing both the metric bolts and the oil filter base at 90 degrees pointing straight out.

Okay, who's asking about the 1998 Grand Cherokee? This is where the odd-shaped characters from the unknown world show up.

According to DaimlerChrysler, there were only 3,000 of these engines produced; our research indicates a slightly different story. We believe that the entire 1998 Grand Cherokee production run used this oddball block casting and that 3,000 plain Cherokees had it as well, so take heed to the differences and you should be fine no matter what.

This block also has the dowel pins and the stud girdle that the earlier Cherokee/Wrangler engine had. The oil filter mounting face, however, was placed at 90 degrees perpendicular to the pan rail, facing directly straight out instead of a slight angle facing downward. Casting numbers are 53020514 and 53020515.

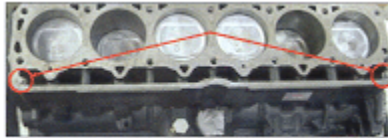


This is the left side of the 1999-2004 model Grand Cherokee and 2000-2005 Wrangler showing the metric bolt bosses.

The 1999-2001 Cherokee and 1999 Wrangler got a new block casting 53010449AA and guess what? The filter mounting face is now pointing downward again, just as it always did. Again, there are dowel pin holes in the deck and it uses a stud girdle. It is the first year of production of the new thrust plate design camshaft and associated machining of the block for the retaining bolts, which is what makes it unique.

The 1999-2004 model Grand Cherokee and 2000-2005 Wrangler have used what looks to be a clean sheet-design block. The front has a long ear on the lower left side that replaces a bolt-on mount. There are all kinds of different mounting bolt bosses on each side of the block, some metric, some not (see illustrations), and the filter mount is once again 90 degrees to the pan rail.

How do we know that this is the plan through 2005? It was information provided by DaimlerChrysler's Kenosha plant, which is already into 2004 production. 2005 is the slated demise of U.S. production of this engine, although it may continue for a few years beyond in world sales.



This is a view showing the dowel pin locations in the 1996 Jeep 4.0L.

Which reminds me – does anyone know what world Popeye's "jeeps" did come from?

Special thanks to Doug Anderson at Grooms Engines and Bruce Chapman at Ontario Reman for their support and insights.

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