Rebuilding the Ford 4.6L SOHC Engine

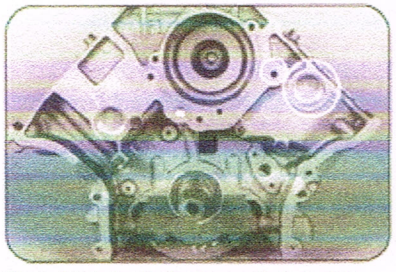
by Doug Anderson

The 4.6L Romeo SOHC was introduced in 1991 as the first born in an all new family of engines for Ford. It had a rigid, deep-skirted blo with cross-bolted mains, long rods that gave it a favorable rod length-to-stroke ratio, a lightweight crank and pistons, and SOHC alumi heads that incorporated all the latest engineering theory with ports and chambers that were designed to make more power with fewer emissions.

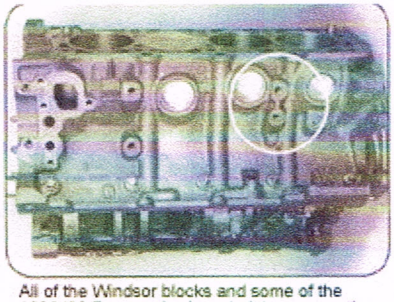
The 4.6L was lower, shorter and lighter than the 302, but the base engine made more power than the 302, got better fuel economy and passed all the emission tests without a thermactor pump. Ford called it its "modular" engine because it was part of a whole new famil engines that were intended to have a common architecture "so they could share similar production tooling and have many interchange parts."

The V6 that was originally intended to be part of the modular program never did get built, but there are several engines in the V8 family including one 4.6L DOHC and two SOHC motors, along with the 5.4L V8 and the 6.8L V10 that are all part of this "modular" family.

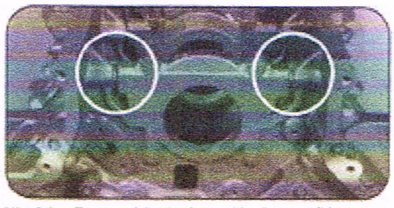
Although the idea of a standardized, modular engine looked good on paper, it hasn't worked out quite as well in the real world, becau there have been many changes that have created lots of variations over the last 10 years.



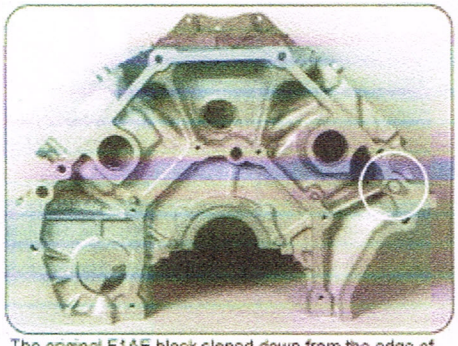
The bolt hole for the front cover that was right beside the water pump was moved up about .250", and the freeze plug on the driver's side was moved up closer to the deck on the Romeo blocks in 1996.



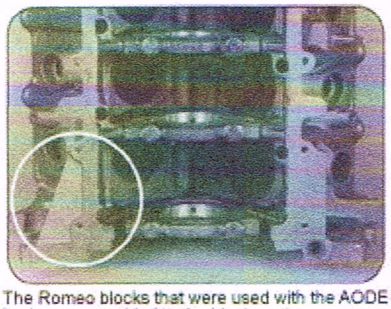
All of the Windsor blocks and some of the 1996-'98 Romeos had two bolt bosses on the driver's side. The second one was added to accommodate the extended housing that was used when the oil cooler was bolted directly onto the engine. Be sure that you use a Romeo block with both holes if the truck has an oil cooler.



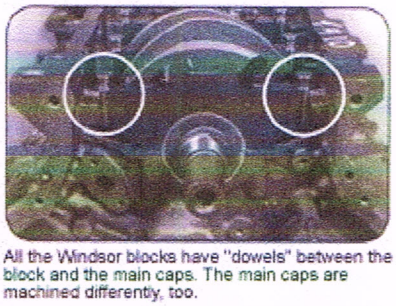
All of the Romeo blocks have "jackscrew" between the block and the main caps.



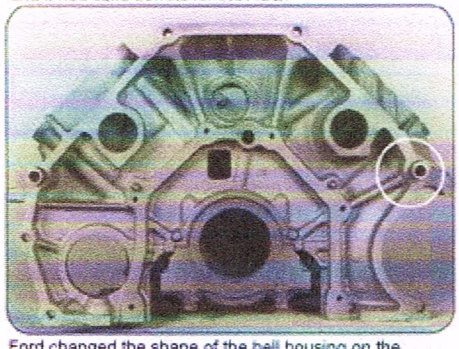
The original F1AE block sloped down from the edge of the deck to the edge of the seal retainer on the right side and it had solid dowels for the AOD.



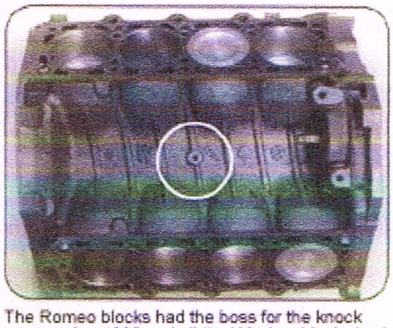
The Romeo blocks that were used with the AODE had a gusset added to the block on the passenge side between the bell housing and the pan rail. You can tell this is an early (pre-1996) block because the rear main isn't crossbolted.



All the Windsor blocks have "dowels" between the block and the main caps. The main caps are machined differently, too.



Ford changed the shape of the bell housing on the passenger side and switched to hollow dowels when the AODE was introduced in mid 1992.



The Romeo blocks had the boss for the knock sensor after 1996 and all the Windsor blocks had it from day one.

The 4.6L engines built in the Windsor plant are completely different than the ones built in the Romeo plant, and there are significant