Pontiac Engine Front Seal Upgrade

By Bill Hanlon

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The front oil seal of the Pontiac 347 V8 that came from the factory in my daily driver ’57 GMC truck has leaked since I bought the truck in 1990. I replaced the seal 2 years ago when I changed the timing chain and sprockets, but the replacement began leaking almost immediately. According to the Pontiac Chassis Parts Catalog dated 10/1/1966 this seal is the same part number (492085) on all Pontiac engines from 1933 through 1962. Not exactly up-to-date technology.

I had heard of people machining the timing cover to accept a later model seal. My truck is a daily driver and I didn’t want to have it off the road for a long time while I had the machine work done, so last year I bought a ’58 timing cover on eBay for $10 + $20 for shipping. The ‘55 through ’58 Pontiac (and GMC) V8s use the same timing cover, part number 518033, casting number 518034. The ’59 cover (part number 532443, casting number 532444) is almost identical to the ’55-’58 cover. It is missing the threaded area at the top driver’s side where the power steering pump bracket mounts on the earlier covers because the power steering pump was moved outboard of the driver’s side head in ’59.

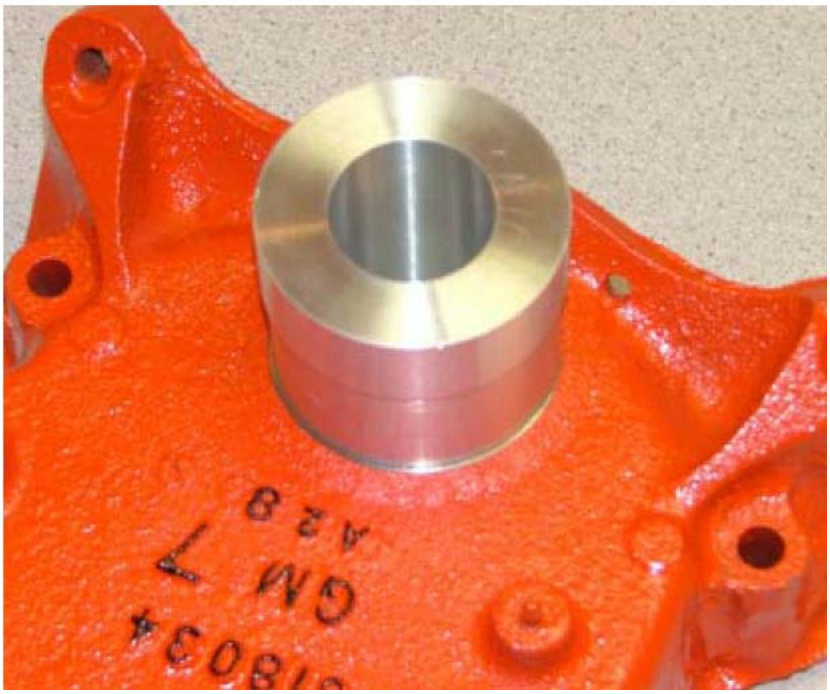
My FLAPS (Friendly Local Auto Parts Store) said that the part number for the ’63-’66 timing cover seal was National 332062 (GM 544452). Bought the seal, a Fel-Pro OS11489C oil pan gasket set (you only need the curved front gasket piece for this job) and a timing cover to block gasket (Fel-Pro TCS12681-1 or NAPA T27806). I went to Federal Mogul/National Seal’s web site at http://www.21cgt.com/FMWebCatalog/default.htm and entered 332062 into the part number field and clicked “find”. Up popped the complete specs for the seal.

I took the specs, a seal and my ’58 timing cover to a machinist friend. He bored all the way through the cover at 2.518"

and also cut the opening from the outside another 0.100" larger (2.618") just down to the point that he was touching metal all the way around the opening.

The one problem I had been warned of by those that had made this modification before me was that the bolt holes in the timing cover have quite a bit of slop and that it would be almost impossible (or just dumb luck, something I usually only have the “bad” variety of) to get the cover properly aligned so the seal was dead center over the crankshaft. I resolved this problem

by having the machinist make me an alignment tool.



I had him cut the "alignment tool" ID to 1.377", 0.002" larger than the crankshaft snout so it would slip onto the shaft. I also had him cut a keyway through the ID, larger than the key actually used in the crankshaft. (Didn't do this until AFTER the pictures were taken.) The OD on the small end of the tool is cut to 2.516", 0.002" smaller than the bore through the timing cover, making it a slip fit into the cover. The OD on the large end of the tool is 2.600".

I removed the belts (yes beltS. A guy has to have A/C in Houston.), fan, water pump, radiator, crank snout bolt, harmonic balancer and fuel pump. In my GMC there is just enough room to remove the 4 bolts that attach the front lip of the oil pan to the timing cover without jacking up the engine. I don't know if there is in a Pontiac. Took the 6 bolts out of the timing cover and removed the old timing cover and then slid the old seal assembly off the crankshaft. Forgot to drain the block (the GMC has drain cocks on both sides) so when I popped the timing cover loose a couple of cups of coolant drained into the oil pan. Oh, well, it was time to change the oil anyway. Stuffed some rags into the front of the pan to catch debris and the spent a while removing old gasket material from and cleaning the block and front lip of the oil pan.

I striped the cork seal, the metal part that the cork sits in and the spring that pushes it towards the inside surface of the timing cover. All I had left was the piece with the keyway cut in it. I slipped it back onto the crank. It is only 0.060" thick, and I doubt it needs to be there to keep everything aligned properly, but I didn't want to take a chance.

After installing the new timing cover to block gasket onto the modified timing cover, I slid the small end (2.516”) of the tool into the cover and then slipped the tool over the end of the crankshaft to align the timing cover. Tightened the cover down and removed the tool. The cover hole is now centered (give or take 0.004”) over the crankshaft snout.

To install the seal I placed the seal over the crank snout with the internal lip pointing towards the engine and then turned the tool around, big end (2.600") towards the timing cover. This bigger diameter won't fit into the newly bored out opening, but instead will "bottom out" on the face of the cover that I had the machinist cut at 2.618". This prevents the possibility of driving the seal too deep (or even all the way through) the hole. A few taps with a mallet and the seal was home.

I cleaned up the hub of my harmonic balancer with some emery cloth, put some lube onto the seal and the balancer and pushed the balancer home. Don’t forget to torque the crank bolt to 160 ft/lbs. Reassemble the rest in reverse order.

Two months of everyday driving and not a drip yet.

My installation tool is about 4.5" long. If I had it to do again, I'd make it about 3" long, giving me more room to swing the mallet when seating the seal.

My '57 “Pontiac” is actually a GMC truck, factory equipped with 347" Pontiac V8 and Hydra-Matic. GMC painted the engine red, not that really ugly early Pontiac green, so no comments about the color please.

Added Dec 2006

Another mod I would make while doing this job is to cut off the tab in the circle below. Why you ask? Because if you ever decide to mount a belt driven accessory (like an A/C compressor) on the passenger's side of the engine outside of the head and below the valve cover you will find that the belt will be pushed forward about 1/8" by this tab if the belt is coming off the rearmost crankshaft pulley.