

V16 Restore – Pulleys and Pumps

Chapter 4 – Discovering How Many Miles

This is the fourth of many articles covering my experience restoring a 1940 V16 Town Car. For an introduction, start with the first chapter.

The odometer reads something short of 70,000 miles. Inspection of the pedals and door driver's side door handle shows abundant wear. Certainly not a new car, but nothing deserving what we found when we get into the engine. Know that the engine serial number matches the chassis number.

The cylinders were excessively oversized and needed to be sleeved, valve seats needed replacing and the valves had been excessively resurfaced to the point of needing new valves. In a future chapter I will give pictures of the new valves along with fitting and testing.

When looking for a new engine, Chris Cummings gave me a link to find the engine. That started a dialog on the car's history. We knew it was recently owned by Clive Cussler with a previous owner being Norman Kanth of Davenport, Iowa. Chris then uncovers notes mentioning how a previous owner was Adlai Stevenson who was Governor of Illinois, Democratic Presidential candidate running against Dwight D Eisenhower and U.S. Ambassador to the UN during the Cuban missile crisis. With that fact now on the table we find a 1952 Time Magazine article noting "Always a frugal man . . . uses a black 1940 Cadillac sedan which has travelled over 300,000 miles"

Looking at the car, there is no way it has 300,000 miles. Yet a number like 150,000 is reasonable. The Time article was positioning a wealthy man to be a Democratic presidential candidate who would benefit by taking on the appearance of an average man.

This chapter is all about engine disassembly, inspection and discovery. At first glance, due to engine block repairs, the engine needed replacement. That was Chapter 2. This chapter is about discoveries as the parts were cleaned. First comes pulleys and then the pumps. Omitted is the oil pump. Upon disassembly of the original and well-worn engine, we were delighted to discover a new oil pump. If you need to rebuild an oil pump, see Chapter 3 to find Facebook documentation from Tony Smith.

Pulleys

The top row is the old set and the bottom row are the replacement pulleys. The new pulleys are available from Cadillac Parts Ltd in New Jersey. Website is <http://www.cadillacpartsltd.com/>

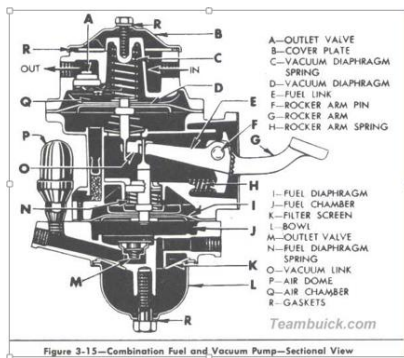
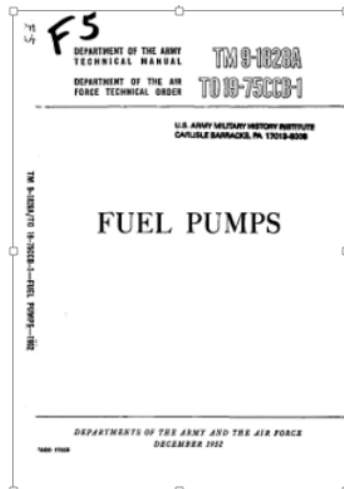
When we saw the repaired damage along with new pulleys being available, we ordered the set. It was our expectation that the undamaged pulleys were likely suffering from metal fatigue.



Vacuum Pump

The vacuum pump keeps the windshield wipers operating uninterrupted during acceleration. It is simple and has internals similar to those of a fuel pump. The one from my engine was found to be empty and needed those internal parts. Not having a pump to copy, we found a U.S. Army repair manual covering fuel pumps which included some vacuum pumps. This illustrations and instructions were helpful.

See <https://archive.org/details/TM9-1828A>



Next step was to find a 1940 Buick fuel pump. Here is the WWII NOS pump, purchased on eBay for \$40.



Inside the pump, find the needed diaphragm parts. The fuel pump operates the vacuum pump with a pull. The Cadillac needs a push rod from the tappet to the diaphragm. The long $\frac{1}{4}$ hardened bolt will be cut to length.



The new needed valves, diaphragm and springs came from a Buick repair kit:



We considered replacing the vacuum operated windshield wiper with an electric unit. Find the 12 volt replacement motor at:

<https://newportwipers.com/product/1940-cadillac-series-60-61-72-75-90/#wiper-motor>

Fuel Pumps

The car was already fitted with an electric fuel pump and operated both the two mechanical pumps along with the electric unit. Documented in Chapter 1 it was discovered that one carburetor was failing causing the engine to run on one of the two engines. We attribute failure of that carburetor to excessive fuel pressure, so we added a pressure regulator to the fuel line. Next we discovered worn out distributor drive gears. Note that the distributor drive gears operate a cam that operates the fuel pumps. The load of the cam running the heavy fuel pump levers are thought to be causing distributor drive gear wear. So we will eliminate the necessary internal fuel pump parts to keep the original appearance and save wear on the new distributor drive gears.

Not available were the needed new distributor drive gears. So we discovered a shop advertising gears made to order.

See: <https://gearsmade.com/>

I give an excellent reference for Al Meekins. In short order he made the gears, knew the problems and offered solutions. All of that and easy to do business with.

Pictures of worn gears (I don't currently have pictures of the new gears):



The pair of worn gears in their housings. The housings were worn and out of round. Al Meekins knew this without having the gears. He made the replacement gears with enlarged shafts and bored out the housings to match.



Water Pumps

When new parts are available the restoration shop prefers using those. Cadillac Parts Ltd (mentioned above in this chapter) advertises new pumps at \$850 each. So I called and ordered a pair. Mike Gadaletto advises me these pumps are being built and would be available in a few months. After many months, the pumps remain elusive. Mike's suppliers are failing him. So looking at the current pumps, they are marginally rebuildable.

The castings are fragile, note around the snap ring the broken casting:



As of this date, no resolution on the water pumps. Status as of the time of this writing, Cadillac Parts Ltd is waiting for the foundry to cast replacement housings. The first set received, upon machining they crumbled. We either will rebuild the old ones or dynamometer testing will wait for the new ones.