

**Fuel Pump 101: Rebuilding an NOS Pump** *Brian McIntyre #25387*

When I bought my 1965 Corvette (350 HP L79 engine), the installed fuel pump was stamped 4657 AX and did not have **AC** cast into the top of the upper casting or into the center of the bottom section. This number is correct for a 1965 base or 300 HP car, but the lack of the AC in the castings and the AX in the stamped identification number told me it was not typical factory production (flat wrong) for my car. For an L79, the correct fuel pump is AC 40083.



With this knowledge in hand, I set off to secure an AC 40083 fuel pump which would meet the guidelines in the 6th edition of the *NCRS Technical Importation Manual and Judging Guide* (p.135). For the purpose of this discussion, I will paraphrase the description: The top section has a dark gray appearance with the **AC** logo embossed onto the top center and two gussets where the cylindrical portion joins the main body. (Figure 1)

Note the configuration of the upper casting where the pivot pin passes through the casting. The reinforcement is stepped with the first step coming almost up to the bottom of the pivot pin. Also note the vent hole. There is a second vent hole on the other side of the tower.



40083 is stamped into the flange that bolts to the block



The pump is constructed of three pieces. The upper and center section are joined by a series of cadmium dichromate slotted Fillister head screws around the perimeter of the pump. The center section has two half-round ears on opposite sides. The full height of the body and the outlets are 180 degrees apart.

The *first version* (for which I have no photo) of the 40083 pump utilizes a cast bottom with **AC** embossed in the center.



A *second version* of the 40083 pump employs a stamped steel bottom plated in cadmium dichromate and secured with four cadmium dichromate slotted Fillister head screws with a tiny S head mark. The two versions may have been installed concurrently through 1965 with the latter version continuing into 1966 production.

With this information in hand, I began my search. I can best describe these pumps as a challenge to find. A number of folks said they had one but were unwilling to part with it. As I write this article, an eBay search on “40083 fuel pump” returned 99 hits. None of these pumps meet the above criteria. At one point I did secure through an ad in *The Driveline* a pump which met the criteria, but it required significant work. A whole other story.

In the end, after several months, I did find a new still-in-the-box AC 40083 fuel pump on eBay which met the NCRS criteria. It was not inexpensive, but I can say I wanted it \$10 more than someone else.

Once the new pump was in hand, I decided to rebuild it since the rubber diaphragm was at least 52 years old and we now have ethanol in our gas. The rebuild kit, Figure 5, replaces the upper and lower diaphragms, springs, seal, pivot pin and check valves.





Disassembly required removal of the pivot pin which was crimped. I cut the crimp away with a Dremel tool and drove it out of the casting with a punch.



In the center section, there are two check valves for the inlet and outlet of the pump chamber.



Using an appropriately-sized socket, which avoided damaging the check valve, and a hammer, these check valves were tapped out of the casting from one side and the new ones tapped back in from the other side.



The check valves were then staked with a chisel (Figure A). Installation of the new pump diaphragm on to the pivot arm was a challenge. The general arrangement is shown in Figure B.

The pivot arm has to pass through the casting to engage the shaft of the diaphragm. This is difficult because one cannot see inside the casting to make the connection happen. Patience is required as well as an understanding of how the end of the pivot arm is shaped.

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I noted two subtle differences in the rebuild kit and the original. The first was the finish of the lower diaphragm. The original had yellow lines on one side while the replacement was solid black. I only note this because the yellow stripes were visible from the underside of the pump. I have no idea if this is typical of factory production.



The second difference was the presence of a tab on the upper diaphragm. (*right side at the 12 o'clock position*). This tab is readily visible from the top of the engine compartment. A very astute judge might comment on either of these differences.

As a point of reference, in judging the fuel pump is worth 15 originality points and 10 condition points. I hope this article provides the reader with the knowledge of what an AC 40083 fuel pump looks like as well as the general steps required to rebuild a mechanical fuel pump.