

Tech Talk: Fuel Pump Rebuild

By Mike McCagh

Most gas contains 10% ethanol that “imbibes” or softens various fuel pump diaphragms and valves. The AC 40083 fuel pump is common to 1963-65 327 special high performance engines. The pump has three sections:

- The TOP section contains the mount to the block as well as the pump’s cam mechanism and upper diaphragm.
- The MIDDLE section contains the inlet and outlet valves that provide the pump’s flow.
- The LOWER section contains the second diaphragm that seals the pump and allows expansion/compression needed for the valves to function.



AC 40083 pumps are assembled with slot-head screws and are easily rebuilt. The need to rebuild AC fuel pumps is becoming common. I buy the current replacement 40083 pump from NAPA type stores or online and use them as the source for the perishable items in original pumps. Whether or not these generic parts hold up better than the original parts is yet to be seen. I’m told that ethanol-resistant rebuild kits are available but since I had several NOS pumps on hand, I elected to use their guts for the rebuild of my original 40083 pumps. The trickiest reassembly task is attaching the diaphragm’s shaft to the lever in the pump’s upper third. Just remember to hold the upper section in its as-installed position, which allows for the lever to drop toward earth and lets you attach the diaphragm’s shaft to the lever.

The middle section holds the two valves (size of a quarter). The valves are pressed into sockets and then staked. I use a socket and hammer to remove the old valves and to insert the new valves (there are many types). Once you insert the new valves, verify that the valves are providing the correct inlet and outlet direction flow. Simply blow into each side of each valve to check that each valve is doing its job. On the check-side, the valve should be able to take the pressure exerted by your lungs. When you’re satisfied, you can then stake the pair of valves into the middle section body using a hammer and small chisel/punch or screwdriver. With staking, you are cutting into the side of the valve housing to produce a metal outcropping to hold the valve firmly in place.

