

Repairing A “Non-Repairable” Door Closer, Version 1.0

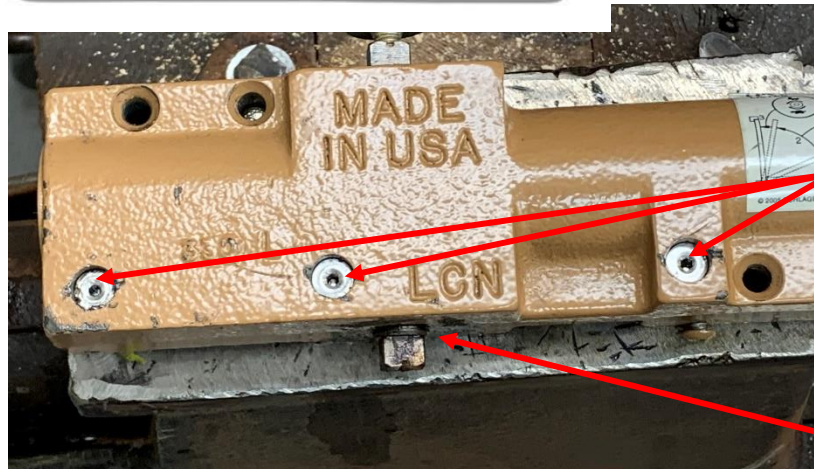
By **R. G. Sparber**

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The LCN 4031 commercial-grade door closer is an excellent machine. It better be since it costs almost \$400.

After over 20 years of constant use, it leaked out all of its oil. Is this end-of-life? Not in my book!



Most of the oil leaked from the three adjustment stems.

A small amount of oil leaked from around the pinion gear shaft.

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Each stem screws in or out to regulate oil flow. There is a hex recess in the center.

The manufacturer has staked the stems so the user cannot completely unscrew them, pouring oil onto their shoes.

Moving the staked metal away from each stem was possible using a thin drift. I extracted each stem using a box cutter under its lip while turning it with an Allen wrench.

Replacing the leaking O-rings² took a few seconds.



After re-installing each stem, I restaked it to prevent accidental removal.



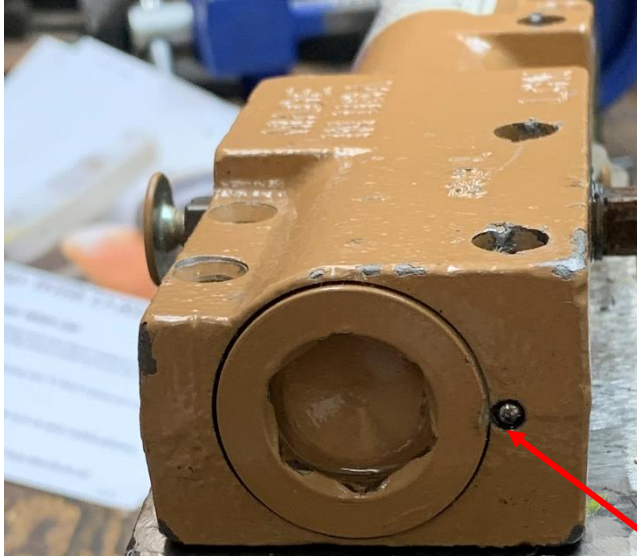
Next up was replacing the O-rings on the pinion gear shaft. Piece of cake – the hex nut is easy to reach.

Oh, was I wrong! It would not budge. I gave up on my wrench and went with a drift and large ball-peen hammer. Nope. Maybe it was a left-hand thread. Nope.

I concluded that the manufacturer won this round. I bet it was a close-fitting thread, and they used a thermal fit: By heating the body and cooling the threaded plug, the plug could be screwed into place. As the temperature equalized, the bore shrunk, and the plug expanded, permanently locking in the plug.

² Many years ago, I bought an O-ring kit from Harbor Freight, which has saved the day many times.

Heating the body might loosen the plug but given that there was still some flammable hydraulic fluid inside, this was not a good idea. Oh well, I'll have to live with this small leak.



In reading other documents on repairing these closers, I understood that oil is added from the end.

Piece of cake – the hex recess is easy to reach.

Oh, was I wrong! It would not budge. I learned my lesson, so I did not attempt to use my drift and hammer. But wait, I see a hole with something shiny in it?

Using a magnifier, I discovered it was a BB. It also lined up with the adjacent stem.

I eventually found that I could unstake and remove that stem and drive the BB into its bore, where I could retrieve it. Then I re-installed the stem and restaked it.

With this fill hole facing up, I slowly added hydraulic fluid. I'd read that door closer hydraulic fluid is needed, but I used jack hydraulic fluid from AutoZone. This may shorten the life of the closer, but what do I have to lose?

I added about ½ teaspoon of fluid through a tiny funnel while turning the pinion gear shaft. Air bubbles came out. Then I added more fluid. Eventually, oil sprayed out, which told me the air was gone. I then drove the BB into the hole to seal it.

Before re-installing the closer, I used WD-40 to soften the hydraulic fluid that had dripped from the closer onto the door. Then I used Simple Green to clean up the mess. I needed all surfaces to be oil-free to detect if my repair worked.

I welcome your comments and questions.

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