

TRAACA Tech Day: Rear Axle Bearing Replacement By Craig Brown

January 19, 2013 at Bill O'Rourke's Garage

About fifteen club members met at 0900 at Bill O'Rourke's garage and steadied themselves with donuts and coffee for a day of wrenching on Paul O'Neil's 1963 Comet convertible. Noise from the rear axle indicated the axle bearings needed to be replaced.



After a briefing from Bill on what to expect, Paul got to work with assistance from Bobby. This 7 ¼ inch axle design uses a bearing retainer plate that is bolted to the axle housing. The bearings are press fitted to the axle shaft, so there is no 'C-clip' at the end of differential end of the shaft and no need to remove the differential cover. Paul removed the bolts retaining the bearings and axles through the access hole conveniently located in the axle hub. Both axles were out within the first twenty minutes!

Ed pulled a handy seal extractor tool from his bag of tricks and both oil seals were out of the axle tubes in a few more minutes.



With both axles removed, there was time for more coffee and a quick pose for the camera. The crew now put their collective experience together to determine how to remove the old bearings from the axle shafts.

Lesson 1: Determine if any special tools will be required to do a job. Find out if anyone can bring those tools or has access to those tools.



Someone suggested that Neal's machine shop would have the right tool for removing the pressed on bearings and would have an arbor press for putting new bearings on. The axles went into the back of a truck and others piled into cars for the road trip to Quincy. Some members, over-stimulated from coffee, donuts, and the newly acquired knowledge of how to pull axles skipped the trip to Quincy and rushed home to begin pulling axles out of their own vehicles. There is a rumor one member even pulled the axles out of his wife's car for no apparent reason and that she was not impressed with this newly acquired skill.

Neal graciously met the remnants of tech day at his shop and skillfully cut off the old axle bearings and threw them in the trash. Chevrolet fans will appreciate the cylinder heads in the foreground of the picture. The Comet axle is in the vise in the background.



Now all we needed was Neil's skill with the arbor press to install the new bearings on the axle shafts and we could head back to Havana to re-assemble! The crew was drunk with success! Neil picked one of the new bearings out of the box and asked, "Did anyone proof these bearings?" No one knew what to say—the bearing was bought from a reputable parts house, it was shiny and it rolled freely. Neil demonstrated the problem by placing the bearing on the end of the axle shaft and we all watched as it free fell all the way to the hub with a sickening 'clink.' The bearing inner diameter was too big and there was no way it was going to stay attached to the axle shaft.

Lesson 2: Always test fit any part, even if it is brand new. Compare it to the old part and compare old and new part numbers, dimensions, etc.

Jack bravely dove into the trash bin to retrieve the old bearings. The original part number was still visible and Bobby was quickly on the phone calling the parts store to see if the proper bearings could be located. The group gathered around Bobby, anxious for a positive word. The sad news that the bearings were not available and would have to be ordered cast a long shadow over the group's morning success.

Lesson 3: Don't dispose of old parts until the job is complete. The old part may be needed when returning a new part that does not fit to determine the correct part. Also,

Jack is handy to have around because his arms can just reach the bottom of a trash bin without actually having to climb inside.

Neil, sensing the disappointment in the group, knew what would cheer them up. “Come in here, I have something to show you,” Neil encouraged them to follow him into another room off the shop. Inside was a CNC Bridgeport Milling machine!



The milling machine was powered up and its features were discussed and demonstrated. Even the software used to control the intricate movements of the cutting tools was revealed. The mood of the group immediately improved. Neil described the machine setup and steps used to complete a project. Recently completed oil pump gears cut from brass round stock were shown.



With everyone feeling better after the milling machine demonstration and realizing that the morning had been a success (half the job was now complete), it was time to split up and get a few more things done. The Axles and original bearings were taken to the parts house by one group to order the appropriate replacements. Another group went back to Bill's garage to see if there were any donuts left while a third group jumped in Ed's 1965 Rambler to search for lunch. It is not often one is lucky enough to get a ride in a one-owner car that has been lovingly cared for over forty-eight years and 259,000 miles. Cruising the back roads between Quincy and Havana on a cool and bright day in a strong running car from the 60's was just one more high point in a great Saturday. We even made a stop at Don's shop to admire some of his recent projects and pick up some fasteners for some of our own projects.

Back at Bill's garage the die-hards were still at it into the afternoon. Everything was cleaned up and put away. The consensus was that the day had been a success. Paul's Comet is half way to having new rear axle bearings. We all learned some lessons, were able to disassemble an early 1960's Ford axle, saw a milling machine demonstration, got to ride around in a vintage car and shared a great day with fellow club members. I wonder if we can get a ride in the Comet when it gets put back on the road?