

## TRAACA Tech Day: Front Axle Bearing Replacement By Craig Brown

March 9, 2013 at Bill O'Rourke's Garage

Club members met at 0900 at Bill O'Rourke's garage for the second tech day event of this year. It gave us a sense of accomplishment and pride to see Paul driving his 1963 Comet with new rear axle bearings from the previous tech day.

Beginning with the mandatory safety briefing, Bill O. went over valuable tips such as the proper way to move a four-thousand pound car, and more importantly, how to stop a four-thousand pound car that is being moved. The critical point stressed was to keep all legs within the vehicle with the doors shut as the car is pushed out of the garage. Car doors contacting the garage will smash the legs and not only cause pain, but will also trap the operator inside the vehicle. Other valuable safety tips included:

1. Always purchase push bars for use with table saws in pairs. This allows the operator to keep BOTH hands out of the saw blade.
2. Nail guns should always be pointed directly at the wood and never through or between the digits on the hand. If this procedure is not followed, the board will travel with the operator if the nail has gone through the thumb first. This is unsightly, messy and will prevent the operator from changing shirts before going to the hospital.
3. When walking with a chain saw and blipping the trigger in a manly fashion, move the saw to the side while stepping over logs to prevent the chain from slicing the leg open.

After the safety briefing, Bill O. confessed that all seven of his vehicles were either not running or suffering from at least one symptom that resulted in unreliable operation. With the first club cruise of the year the following weekend, the group took on the challenge to get at least one of the vehicles running in time for Bill to lead the tour.



The first project on the list was to investigate the whine and moan coming from Bill O.'s 1959 Chevrolet Bel Air. A front axle bearing was the suspected culprit, but hand spinning the wheel did not elicit the sound experienced while driving. It was clear that disassembly and inspection was the only way to know for sure.

Bill O. got to work on removing the wheel and front brake drum with assistance from this author. The outer bearing race was removed and the hub containing the bearings. Bill Brundyge inspected spindle and it was deemed to be in fine shape.



The inner bearing race felt rough to the finger test, but once it was cleaned of grease the reason for the noise was clear. The race had deep galling.



As the bearings were lifted out of the hub for inspection, the Model A owners began to get excited. The 1959 Chevy had been riding around on round ball bearings just like the Fords from the 1930s! No fancy taper roller thrust bearings needed here—if it was good enough for granddad, it's good enough for us. The outer bearings and races were in very good condition, the inner bearings had taken all the wear-and-tear.



We were able to read a clear part number off the inner bearing race and Bill O. began making his parts needed list. A trip to NAPA would be required to order the correct parts. The crew celebrated the accurate diagnosis and verification of that diagnosis with coffee and donuts.

Bill O. next described the problem with his 1964 Corvair. The car would not start by cranking with the ignition key, but could be push started and would run once cranked. The club members familiar with English cars didn't understand why this was a problem.



A jumper wire, or 'hot wire' as known by the former juvenile delinquents in the group, was attached from the battery to the hot side of the coil. This allowed the Corvair to start and run just fine. Something was happening in the wiring, connectors or ignition switch to starve the ignition circuit of vital electrons.

The next step was to bring out the test light and start probing. The light glowed, but not always brightly. A volt-ohm meter was fetched to get more scientific readings. The 12 volts at the battery was down to 4.62 volts by the time it reached the ignition coil. This Corvair has no ballast resistor, so that was eliminated as one of the usual suspects. Where were those missing electrons?



The distributor cap was removed and the points checked out. A dwell meter was hooked up and the dwell checked out with the hot wire in place to allow the engine to start. The battery was then charged to full capacity just to make sure it was up to the task. The Corvair still would not crank without the hot wire in place.

The group was getting restless and some members had to leave to fulfill other obligations. Bill B. and Ed Shuler would not give up. They traced every wire in the engine compartment, cleaned contacts and measured voltage drops. The black connector to the ignition switch was checked and it was fine. Someone pointed to the large clear connector (see in picture below) in the wiring harness and suggested disconnecting it and checking for corrosion. Once the connector was unplugged and re-seated, the Corvair would crank on its own and the voltage at the ignition coil rose to 10 volts (from a previous 4.62 volts).



Bill O. promised to pick up some contact cleaner at NAPA and do a proper cleaning of the connector. We are confident this will result in a proper 12 volts making it to the coil and the Corvair should be back to consistent cranking.

The lesson learned is don't forget to check the connectors for both corrosion and proper contact when tracing an electrical circuit. Check for voltage drop across the connector in case it is a poor, but not completely broken connection. This can save a lot of time when chasing electrical problems. A corroded or poor connector can have a drastic effect on the current available in the circuit.

The crew declared victory with two cars done by noon. We didn't have an excuse to bother Neal at his machine shop or go on hunter-gatherer missions to find food. There was nothing left to do but disperse and begin doing our weekend chores.