

## ANOTHER 'WORKSHOP' AT MURRAY'S GARAGE

# The DeSoto Guys Are At It Again!

By Bill Wurzell, Editor

Members of the DeSoto Owners Club of Maryland, Inc., sponsored another 'workshop' at Murray Cole's garage in Millersville recently with an open invitation to all. Murray is a member of Chesapeake Region as are other CR members that belong to the DeSoto Club, including, Jim Turner, Club President; Willis Terrett, Bob Lenio, and yours truly. Also present, John Clulow, Eastern Region Director of the National Airflow Club and a member of the DeSoto Club, Chesapeake Region, members, John Shenton, Jr., and his son John III, attending.

The reason for the workshop was to get to the bottom of a shifting problem that has plagued the DeSoto club's Activity Director, Bob Baer's 1948 DeSoto DeLuxe two-door sedan since he has owned the car.

The car is supposed to operate as a semiautomatic 'Tip-Toe' shift in a power range and driving range (four forward gears), but that has never worked. More recently, Bob lost 2nd and 4th gears. What makes this issue so intriguing is the transmission itself. Chrysler Corporation didn't market any vehicles with a fully 'automatic transmission' until 1954, long after other makes had automatic transmissions for years. Oldsmobile was the first with Hydra-Matic in 1940!

Chrysler, trying to match Olds, introduced 'Fluid Drive' in 1940. Until 1954, Chrysler vehicles used a semiautomatic transmission beginning in 1941 in Chryslers called 'Vacamatic,' in DeSotos called 'Simplimatic' and designated as the 'M4' transmission, it worked off of the vehicle's vacuum system and later an electric solenoid/governor controlled hydraulic system. After WWII, the transmission was changed to 'M6' and worked off of a fluid coupling between the motor and transmission. It was called 'Presto-Matic' or 'Fluid-Matic' in Chrysler cars and 'Tip-toe shift in DeSotos, and in 1949, 'Gyro-Matic' in Dodge.

All of the above is part of the mystery of this transmission, simply because each division gave it a different name, but they all worked the same way. The M6 transmission allowed the driver to 'pop' the clutch without stalling due to the fluid coupling, the clutch was only used to change gear ranges.

### Underdrive?

In the M5/M6 versions there are two ranges, a *power range (low range)* and a *driving range (high range)*. There are two 'underdrive' gears in each range. When starting out the driver depresses the clutch and places the gear shift where second gear would be on a standard shift, such as a 1950 Plymouth. (Plymouth never had semi-automatic transmission until Hy-Drive in late 1953.) Once in the power range, let out the clutch and proceed to about SIX mph and lift foot off the gas pedal and the transmission will 'upshift' into SECOND gear; accelerate to about 10-12 mph and depress the clutch and move the gear shift to High Range and the transmission will be in fourth or final drive, 1-1.

Now, to complicate matters, it is really not necessary to always start in the power range. A driver can start the car, depress the clutch, place the gear shift in the driving range, proceed forward to about 15 mph, let off of the accelerator and the car will



Bob Baer's 1948 DeSoto DeLuxe two-door sedan on the lift in Murray Cole's private garage.



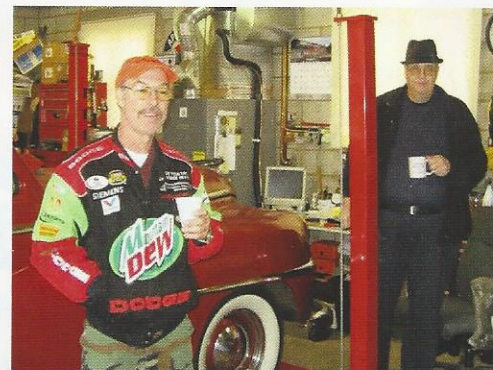
In the picture above, the lower 'fibrous' gear is badly 'chewed' up and is causing 'zero' hydraulic pressure to make shifts properly. The blue hose is attached to a gauge to test pressure during shifts. Murray Cole 'jabbed up' a unique connector to fit the port on the transmission for the hose.

shift into fourth and final gear 1:1. Bob Baer's transmission was malfunctioning, no 2nd and 4th gears (Low-High, and High-High, as Chrysler called it).

This probably sounds more complicated than an automatic transmission, but it really is simple. The transmission itself is about the same size as a three-speed manual transmission and about one-third the size of an early automatic tranny. The M5/M6 uses simple low-voltage electricity and low pressure hydraulics to accomplish the shifting of the underdrive gears. Willis Terrett knew very little about the M6 or 'Tip-Toe shift' until he acquired his 1949 DeSoto Custom sedan about three years ago. He has since become an expert on the unit. Of course it helps if you're an electrical engineer.



Under the car, from left, Willis, Jim, Bob



John Shenton III, and garage owner Murray Cole, enjoy a coffee break during the workshop.

The transmission in Bob's '48 came from a Dodge, but he had a spare DeSoto unit that was brought to the workshop and placed on a bench as a reference. These units are similar to those found in John Shenton's Jr's. 1949 Chrysler Windsor and Willis' 1949 DeSoto Custom.

At one point, we were going to remove the transmission in Bob's car and install the DeSoto transmission; a lot of work. Before doing that, we went through Chrysler's 'Tech Talk' service. We tested the solenoid and governor; both okay. Next, we inspected the piston that shifts the gears in the tranny through an inspection port to see if it was moving; it was not! On to pressure test the oil pump used to move the piston as 40 psi is required. Murray fabricated a fitting and a small hose and gauge was attached to the test hole in the tranny casing. The pump output pressure read zero! The pump cover was removed and a small gear set was visible.

One of the gears was a fibrous gear and it was completely shot. Most of the teeth were missing. This is the oil pump drive gear. We hand-rotated the oil pump shaft and oil gurgled, we suspected the oil pump was okay. Bob removed the same gear from the spare transmission on the bench that was in perfect condition, put it into the gearset in the DeSoto; repeated the fluid pressure test and bam! Fifty psi on the gauge!

Everything was buttoned up, the car let down from the lift and Baer, Lenio, Turner and myself went for a test drive; the DeSoto now shifted perfectly mechanically. That was a wrap for Sunday.

Bob Baer returned to the garage Monday morning and he and Willis worked on the car and reinstalled the wiring to find out that the new kickdown relay Bob bought that is SUPPOSED to be correct for the car, is not. It had one normally open and one normally closed contact set. The drawings and operations require them to be the same, both normally open. Willis revised the wiring to make the wrong relay work and the car, for the first time since Bob has owned it, finally tip-toe shifts instead of tip-towing it in 3rd gear. Bob has two junkyard-scavenged relays that are super rusty; he is going to see if they have the correct set of contacts and if so, will clean them up and rewire to original specs.

In the meantime, Bob's 1948 DeSoto DeLuxe M6 transmission is performing correctly.