

A LOOK AT MALLORY'S UNILITE IGNITION

Truckin'

U.K. 50p



OCTOBER 1976
VOLUME 2, NO. 10

\$1.25

PDC



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TUFF TURBO 350
PAGE 32



10

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One tough Turbo-350

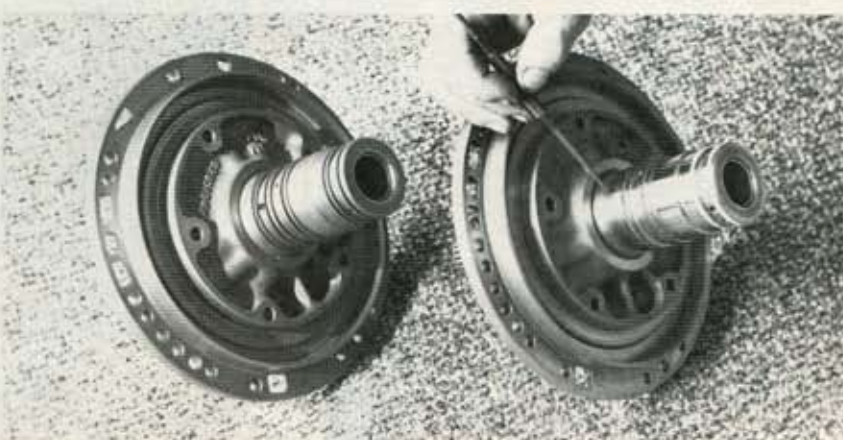


by Pat Ganahl

BULLDOG

It's no big secret that GM's Turbo 350 3-speed automatic isn't the toughest transmission on the market today. Definitely an "in-between" model on the scale of good, better, and best, it offers three forward speeds which is better than the two-speed Powerglide, but it just doesn't stand up to punishment like its bigger brother, the Turbo 400. And when we say *bigger* brother, we mean it. Swapping a 400 into the place originally occupied by a 350 is more than a simple task. Relocating the rear crossmember and shortening the driveshaft are two of the steps required.

But for the price you'd pay for a junkyard T-400 (they don't come cheap,



Jim found the main problem with the 350 to be poor support of the high gear/reverse clutch drum on the front pump shaft (left) causing it to wobble. Solution (above) is a complete new wide-bearing sleeve pressed over turned-down shaft.



believe me) and the time and cost of installing it, you now have a better solution: making a Bulldog out of the Turbo 350.

The name may sound slightly familiar, because this tough automatic is beginning to gain a deserved reputation. As far as we know, only one shop has spent the time to fully research the problems inherent to the stock T-350 and to find workable solutions to them. The place is called Advanced Racing Transmissions (1156 W. Holt Ave., Ontario, CA 91761), and it is owned and operated by Jim Galatioto. It's a small shop (Jim actually does most of the trans rebuilding himself), but it's also one of the cleanest, most well-organized establishments we have visited in a while — a point not to be taken lightly

when it comes to automatic transmission work. Through several years of studying dead 350's, Jim began to pinpoint their vulnerable areas, and — though it is one of the most thoroughly reworked custom transmissions available — he finally devised a package of improvements that would keep the Bulldog shifting gears long after its impressive 15-month/15,000-mile unconditional parts and labor guarantee wears off.

This automatic is so tough, in fact, that when Jim recently tore one down after it raced the entire Baja 1000, not one single part needed repairing or replacing. That's saying something. And it shouldn't take you long to figure out that any transmission that can survive that well through that kind of torture

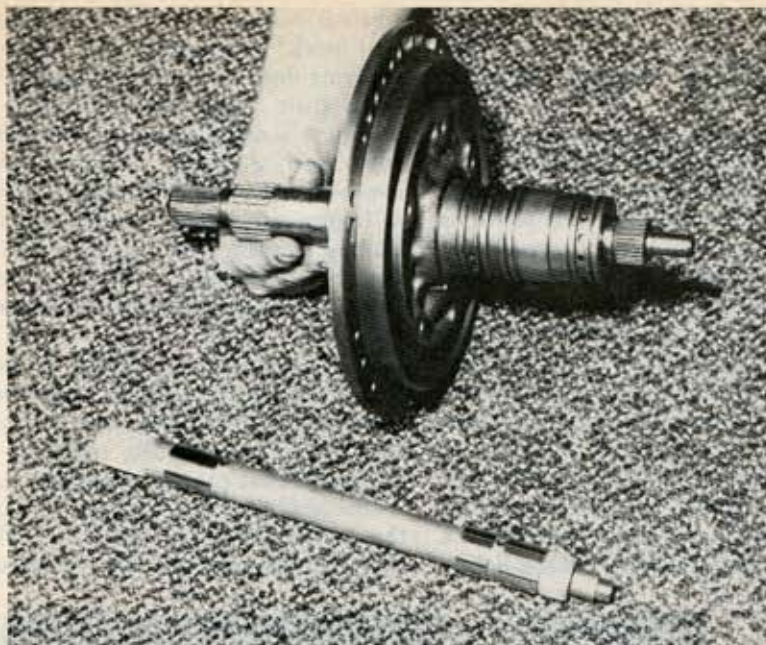
ABOVE—This is how Jim found most stock bearings in used 350 drums—chewed up. BELOW—He machines wider lands in the drum to accept his own special bushings, front and rear. Contrast between two is evident in photo below.



ABOVE—The Bulldog bushings are also made of a tougher grade of metal than the originals. Jim states that the latest stock Turbos are now even using Teflon instead of metal for bushings.

Jim also believes in providing as much increase in oil flow as possible for lubrication as well as cooling. He turns a groove in the clutch drum and drills four small holes in its circumference to help cool the one band in the trans.





BELOW—In older 350's, the input shaft is supported by a small babbitt bushing (lower), and in newer ones GM has switched to teflon. Jim substitutes a tough, grooved oil-lite bushing (top) and drills a large oil hole.



BELOW—In stock 350's the sprag race has been known to crack. Jim uses a special heat-treated sprag (shown at center, left), and latest units will use new B-W 36-element sprag. Retainer ring is slotted for extra oiling.



LEFT—Another weak spot in the 350 is the support for the input shaft, upon which rides the pump shaft and clutch drum assembly. Besides adding beefier bushings, Jim also machines the shaft (below) for extra oiling. Plenty of lathe time goes into a Bulldog!



will haul your van, pickup, 4 x 4, or whatever around town, to the river, over the mountains, etc., and not come back limping. Not to mention the fact that when it shifts it doesn't waste any time (or gas). Of course, Jim doesn't build the same type of Bulldog for a motorhome that he would for a Baja four-by. He'll make the transmission as "competition" or as tame as you want it; but in all cases, the basic beefing and rebuilding of the internal load-carrying components is the same.

Jim found that the biggest problem in the 350 — apart from generally insufficient bearing surfaces and lubrication — was the fit of the high gear/reverse clutch drum on the front pump shaft. In most 350's the bearings wear, the drum begins to wobble on the shaft, and then you've got a mess. To keep things where they belong, Jim installs substantially larger and tougher bushings on both sides of the drum, and he also machines a complete new bearing surface for the front pump shaft, which is pressed into place over the turned-down stock shaft. This combined operation gives 65%



ABOVE—It takes about one second to see how much more efficient a roller bearing is than a babbitt thrust washer. Large groove must be turned in front planetary housing to allow substitution. RIGHT—The components which take the most direct abuse in any automatic are the clutches and bands. The Bulldog, of course, uses the toughest materials available.



ABOVE—Big advantage of T-350 is that it's the same size as the 2-speed Powerglide. However, units with longer tailshafts are available. Cores, like these, aren't expensive. RIGHT—Jim recommends a rod-linkage shifter, like the Mustang. BELOW—And when it comes to truckin' with a Bulldog 350, Jim knows how well they work — his four-by-Chevy has one.



better support to the drum, eliminating wobble and substantially increasing the life of the transmission. When Jim's done with all the changes, what you have is a Turbo 350 that not only performs much more responsively, and operates more efficiently, but which isn't going to wear out for a long, long time. It costs a small chunk to have built, but we think the money would be well spent in the long run.

Another unusual feature of the Bulldog automatic is its versatility. Jim actually custom tailors each transmission for the specific vehicle in which it will be installed. Along with an order he asks for the weight, gear ratio, horsepower, cam specs, tire size, and intended use of the vehicle. The transmission comes in three basic varieties: the Super Heavy Duty Automatic for RV's, motor homes, 4x4's, etc., the Street and Strip "automanual," and the Racing Automatic. He also offers four variations in valve bodies which can give regular automatic shifting, automatic/manual, manual only, and a specially reworked valve body to allow a reversed pattern manual shift (PRN 123) for racing which eliminates the possibility of hitting neutral instead of third. Add to this a choice of converters: street/strip, competition, stock, and a special "low stall" unit for big blocks, and you begin to see the variations possible. The photos will point out some of the highlights of a Bulldog rebuild, but for more particulars we suggest you write for a catalog or give Jim a call. The number is (714) 984-3418.