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ROD ACTION

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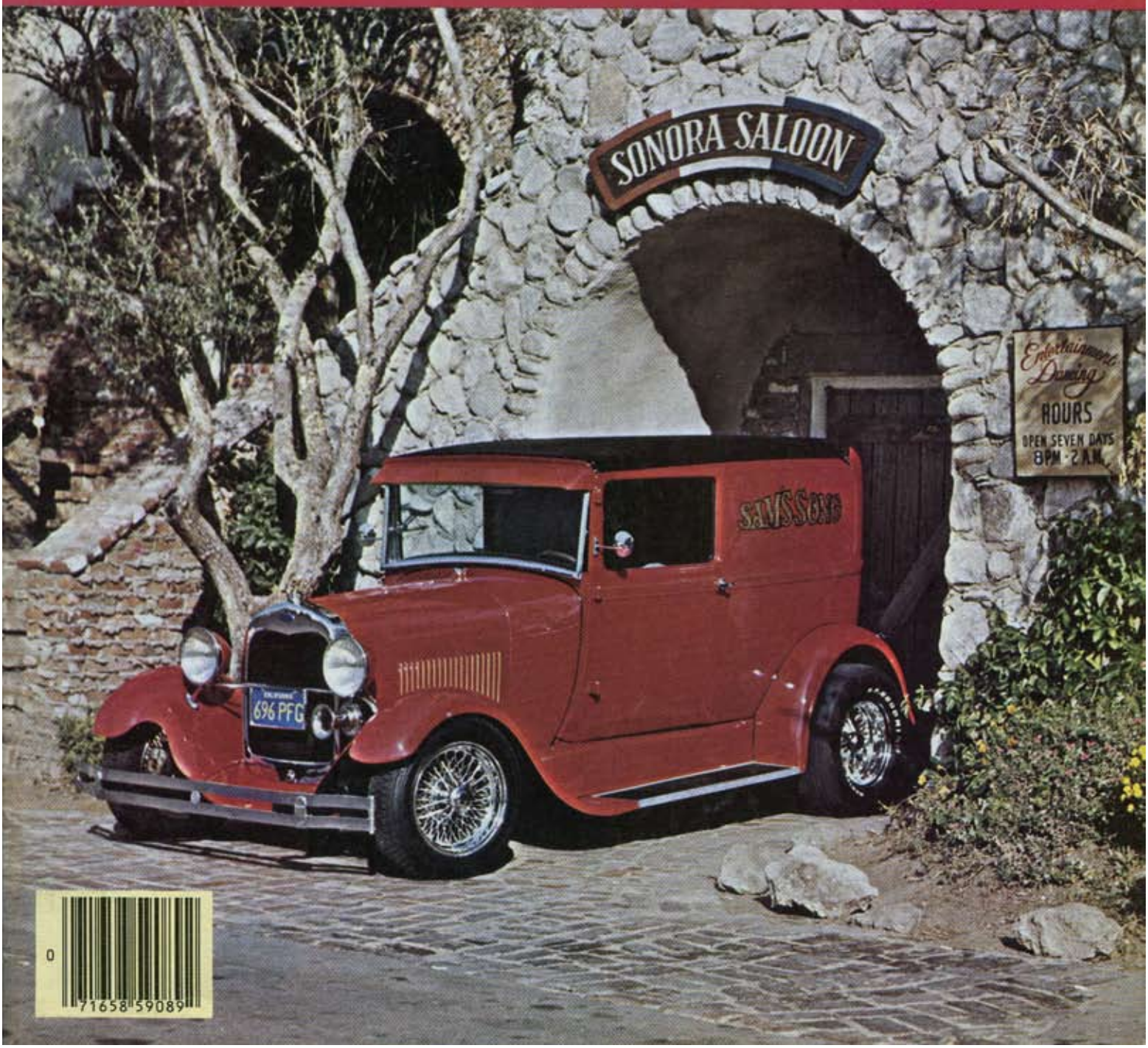
Rod ACTION

BUILDING A BULLDOG 350 TURBO

PROGRESS REPORTS: '29 HIGHBOY AND UN-TRIK TUB

BUILDING A BLOWN FLATHEAD

GARAGE CARS: CALIFORNIA, UTAH, COLORADO, IDAHO



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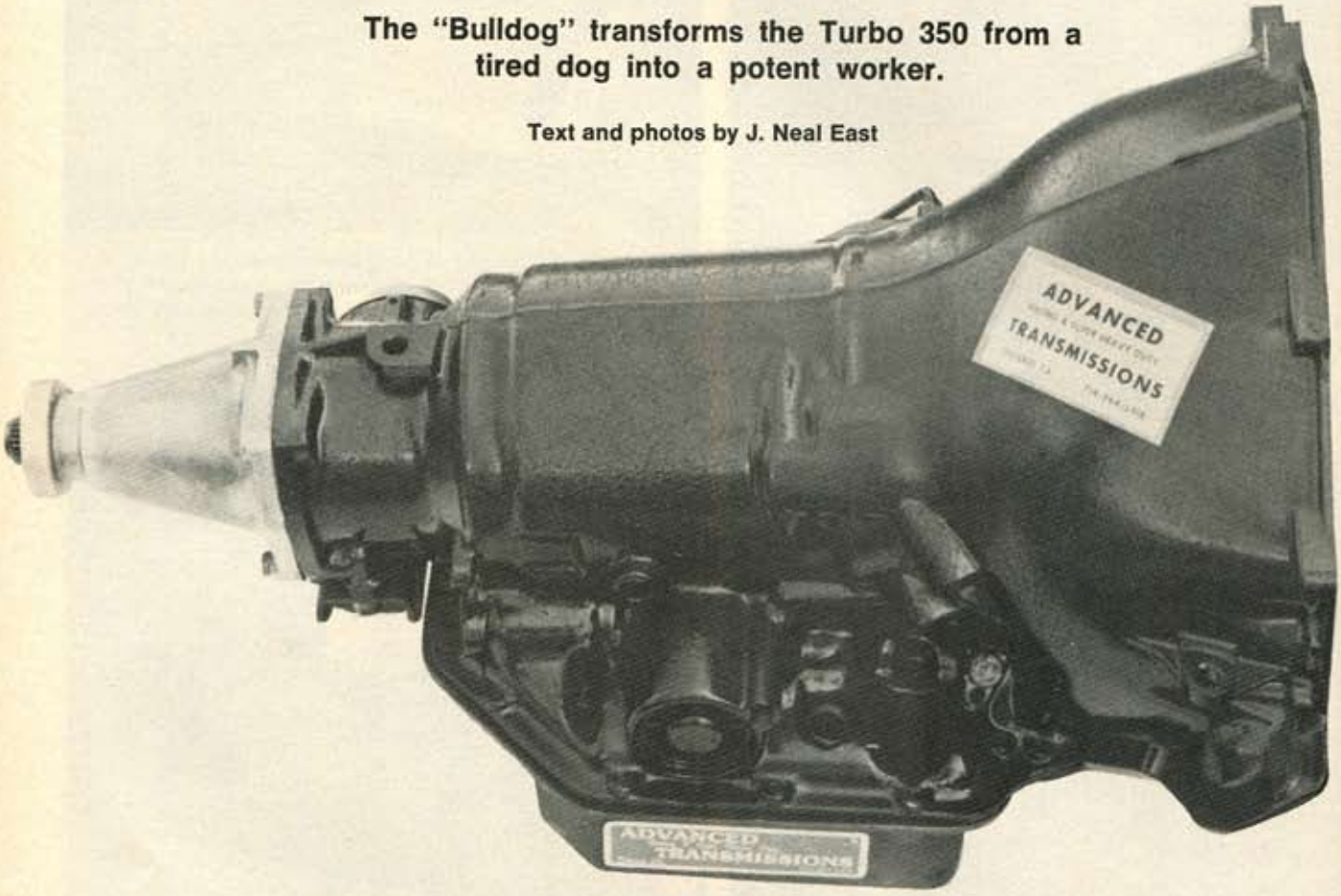
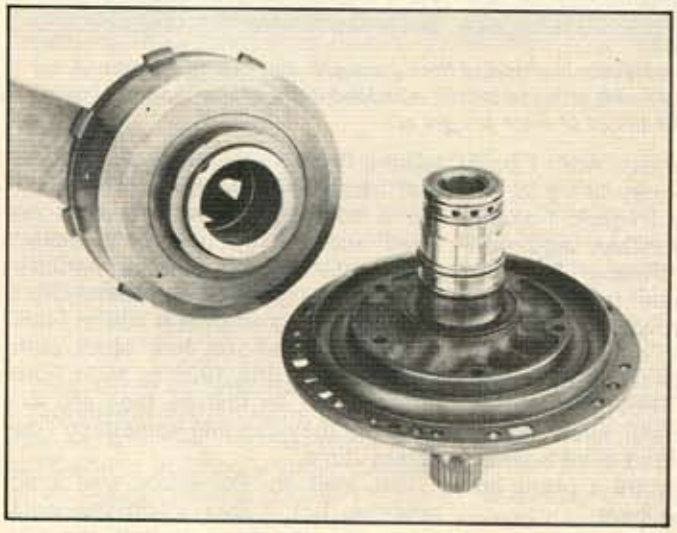
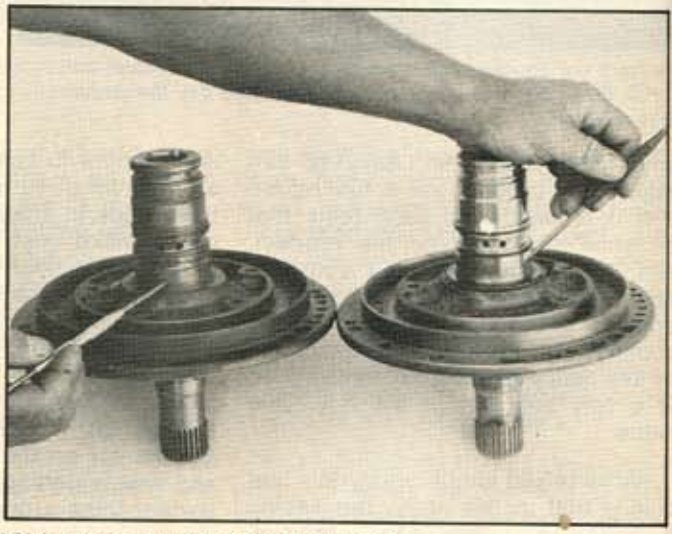
TOTALLY TRICKED-UP TRANNY

The "Bulldog" transforms the Turbo 350 from a tired dog into a potent worker.

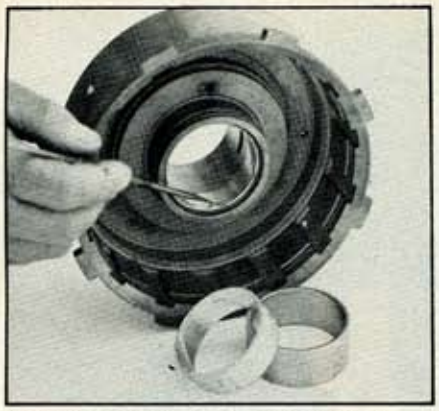
Text and photos by J. Neal East



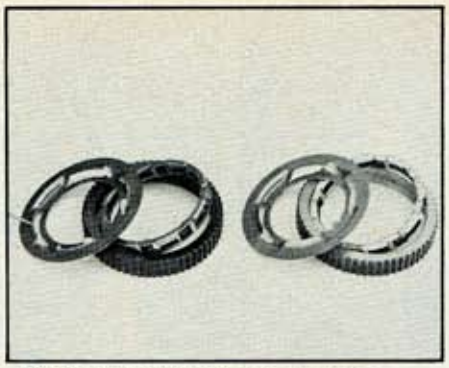




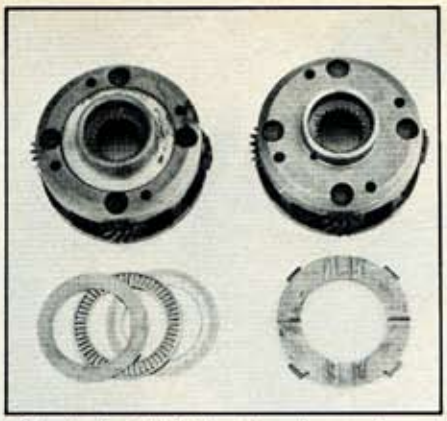
One of the weakest spots in the Turbo 350 is where the high gear clutch drum rides on the front pump reaction shaft. In the Bulldog version, the forward sealing ring (pointer, left) is eliminated and a third bearing surface (pointer, right) is provided, eliminating wobble.



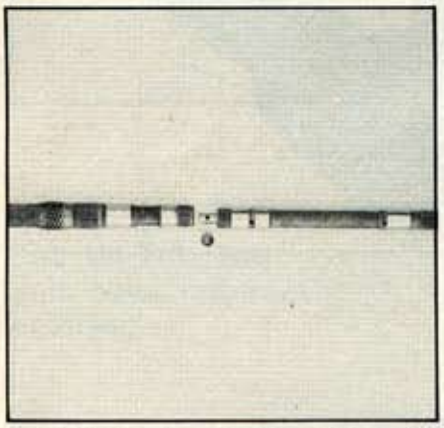
Bearing area is enlarged inside drum and new bearing is added. Top quality bushing materials are used throughout.

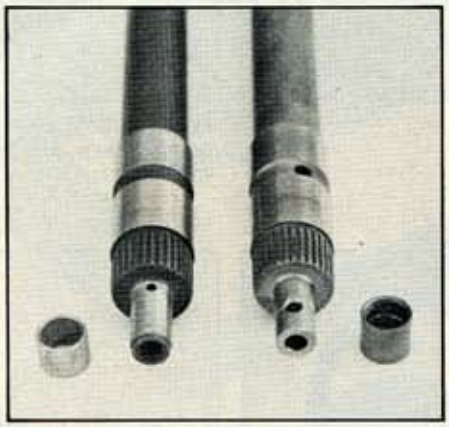


The second gear sprag is made of a brittle material which disintegrates under hard use. Replacement is a heat-treated item. Oil slots in retainer ring (pointer) are enlarged and oil flow is re-directed.



The stock babbit thrust washer on the front planetary assembly is just one of five which are replaced with roller bearings in the Bulldog transmission, eliminating heat and wear problems.





Turbo 350 input and output shafts are joined with a small babbit or Teflon bushing. Stock bushing (left) is replaced by Oil-lite bushing and oil hole is relocated and enlarged.

When a street rodder decides to use a small-block Chevy engine for his rod, he can select a 283, a 327, a 350 or even a 400 and be pretty sure he'll have a satisfactory powerplant. When it comes to choosing an automatic transmission to go behind that engine, however, his selection has to be based on what sort of problem he is willing to live with. He can use a Powerglide, which is ideal in size and weight but is definitely not a performance box, having only two speeds and poor efficiency. Or, he can try a Turbo 350, which is still just fine on size and weight plus it has three speeds. The catch here is that inherent poor design makes the life expectancy very short. The third choice is the Turbo 400, which is an excellent transmission but its size and weight create numerous problems for use in many early model street rods.

So what's a rodder to do? Transmission choice based on "the lesser of the evils" is not much fun. The Turbo 350 would be such a neat choice, if only something could be done with its innards to make it live. Well, good news, troops, something has been done.

That "something" is not just a minor modification of a couple of parts and a re-programed valve body. It is a total go-through of every weak link (of which there are many) with the result being such a bulletproof piece of equipment that the builder guarantees it for 15 months or 15,000 miles!

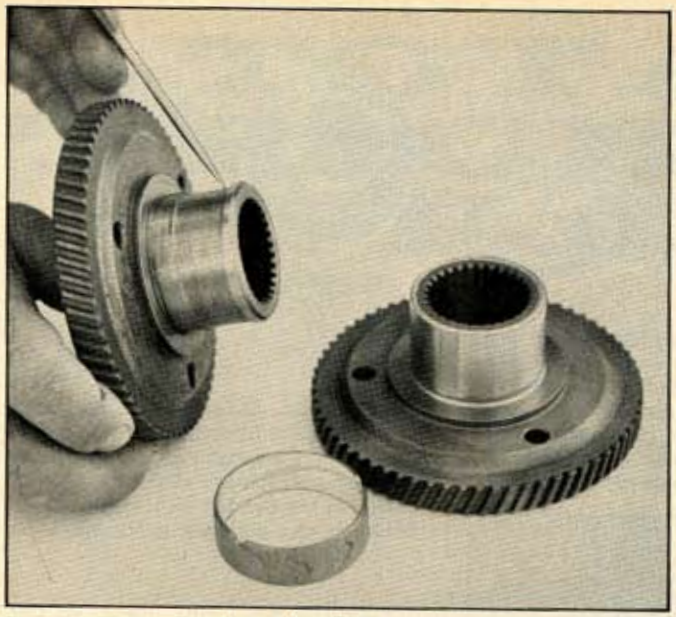
Speaking of the builder, his name is Jim Galatioto and his business is named Advanced Transmissions, located at 1156 W. Holt Blvd., Ontario, CA 91761. Jim is one of those guys who just won't quit on a problem, even after all the experts have said "it can't be done." Jim spent literally days studying the remains of expired Turbo 350s, determining just what the problems are. Once he had a pretty good idea about that, he spent a great deal more time deciding what could be done to cure the problems. Even he was beginning to wonder if the patient could be saved, but he kept at it until the answers came. He now builds a Turbo 350 so tough he has named it the "Bulldog."

When we say Jim "builds" the Bulldog, we mean just that. This is not a kit you can install yourself. It is a custom-built transmission and Jim requires such information as car weight, gear ratio, engine horsepower, tire size and expected use of the vehicle so that the trans can be tailored to the car. Obviously, the price has to reflect the amount of work which is represented in the product, but the end result is absolutely worth the expenditure.

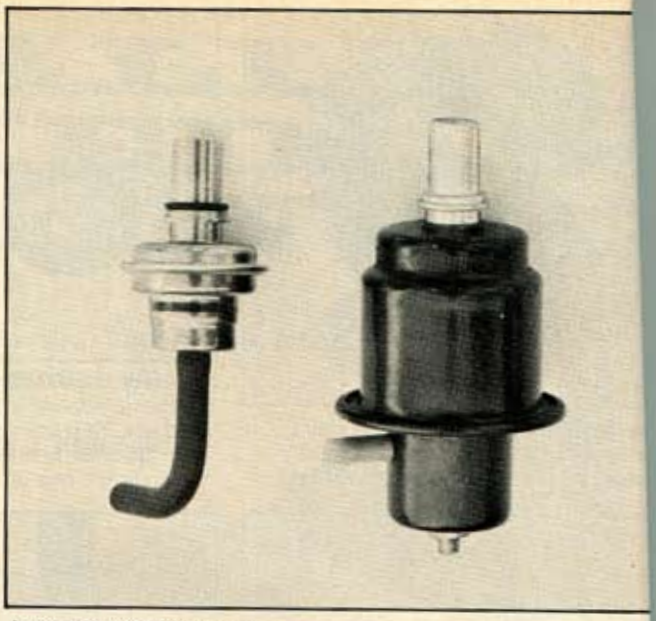
Well, down to the nitty-gritty. Just what are the problems and the trick solutions? Probably the worst problem in the stock Turbo 350 is the lack of sufficient bearing support for the high gear clutch drum. As the bearings wear, the drum begins to wobble on the front pump reaction shaft. The wobble rapidly increases the wear, which in turn increases the wobble. The wobble also wears out the sealing rings on the shaft, which allows the fluid to get out of areas it should not. This situation leads to destruction of the transmission. The cure involves turning down the shaft and pressing on an all-new sleeve which has been machined for wider bearings, plus an additional bearing. This solution totally eliminates the drum wobble. At the same time, extra oiling orifices are added to improve lubrication to the intermediate overrun band. Bushings of higher quality than original are also used.

Another problem area is the second gear sprag. The stock material is very brittle and will shatter under increased performance situations. Jim replaces the stock pieces with heat-treated items, eliminating the problem. At the same time, oil slots in the outer retainer ring of the sprag assembly are modified for increased oil flow.

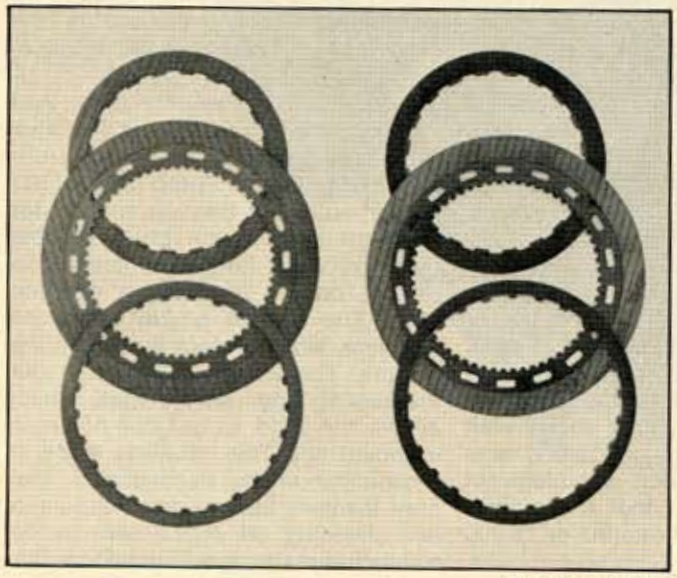
Any source of heat build-up in an automatic transmission is a potential problem. In stock form, the Turbo 350 has a number of thrust washers where heat can be created. Jim's Bulldog has a total of five different

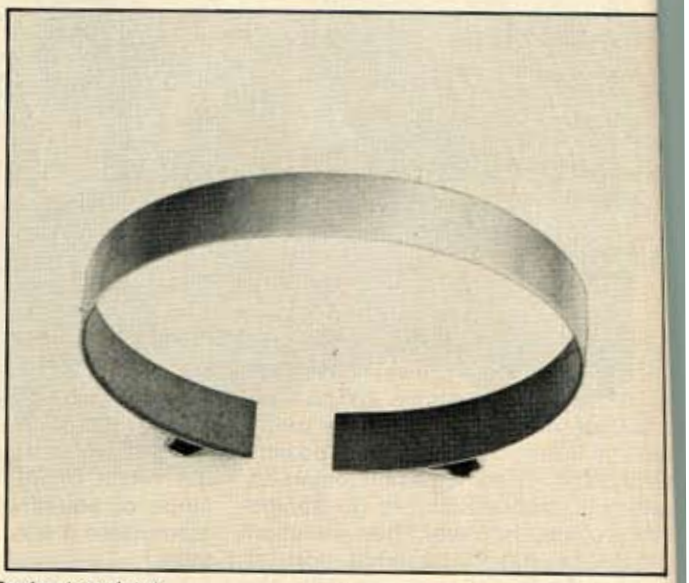


Output shaft retainer has a bushing surface which is subject to considerable wear. New retainer (right) has hard-chromed surface which eliminates problem.



In applications where space may be a problem, new, smaller, fully adjustable vacuum modulator is used.





Premium quality Raybestos clutch linings and intermediate overrun band lining replace inferior original materials.

areas where thrust washers have been replaced with very high quality roller bearings, once again eliminating a source of trouble.

The point at which the input and output shafts join is supported by a small babbit bushing in the stock 350 (some late-model boxes even use just a Teflon bushing). When this bushing wears, it can allow the major assemblies of the trans to wobble, knocking out the rest of the bushings and destroying the transmission. Jim relocates the oil hole to the center of the bushing, enlarges the hole, adds an oil groove, then uses an Oil-lite bushing which simply does not wear out.

The output shaft retainer has a bearing surface on it which also tends to wear. Jim replaces the retainer with one which has had the bearing surface hard-chromed, eliminating the wear.

The clutch bands themselves are subjected to considerable heat and wear, and you would think that the best lining available would be used. Not so, at least in stock form. The Bulldog receives all new clutches with premium lining material which far outlasts the original. The same is true for the intermediate overrun band.

As we said in the beginning, the Bulldog Turbo 350 is a completely redone transmission, with all weak areas and potential trouble spots receiving attention. The result is a trans which can be used in all-out off-road, drag racing competition and on the street. With a variety of modified valve bodies, the box can be made to shift manually, automatic/manual, or automatic. Three different versions are designed to be used for drag racing, street performance and recreation vehicle/off-road applications.

While the Turbo 350 has sort of been Jim's "baby," he does do other types of automatics as well. Just about any factory trans can be improved, so give Jim a call at (714) 984-3418 or write for his catalog and get the information you need for your particular requirements. ■