ADVANCE ADAPTERS
SINCE NINETEEN SEVENTY ONE

P.O. Box 247, 4320 Aerotech Center Way
Paso Robles, CA 93447
Telephone: (800) 350-2223 Fax: (805) 238-4201
 Page Rev. Date: 08-11-17

P/N: 50-9621

6L90 TO DANA 300 ADAPTER

KIT CONSISTS OF:

No.	Qty	Part No.	Description
1	1	51-9600	ADAPTER- ATLAS TO 6L80/6L90 (3.70" LONG)
2	1	52-0229	SHAFT- D300 INPUT 29T/NEW VENTURE
3	1	716058	CROSSMEMBER ADAPTER BLOCK FOR 51-9600 CASTING
4	1	716101	CHEVY TRANS RUBBER MT.
5	1	716308	SEALED BEARING 209RS
6	1	716517	GASKET- TRANSFER CASE
7	1	716749	SEAL FOR NEW VENTURE ADAPTERS
8	6	723723	H.H.C.S. 3/8 -16 X 1-1/2 gr. 5 zinc
9	2	724302	FLAT WASHER 7/16" SAE ZINC
10	2	724303	LOCK WASHER 7/16" STD PLTD
11	2	724308	H.H.C.S. 7/16"-14 X 1-3/4"
12	2	720044	H.H.C.S. 10mm X 1.5TH X 20mm (rev B on casting ID crossmember threads)

GM's new Hydra-Matic 6L90 transmissions are the first of a new family of modular six-speed rear-drive transmissions. The transmissions feature two overdrive gears and a wide gear ratio spread to improve performance and fuel economy when compared with conventional four- and five-speed automatic transmissions. With two overdrive gears, engine rpm is reduced by approximately 9 percent at 60 mph - a reduction to about 1,500 rpm. GM estimates the wide ratio spread can help cut 0-60 mph times by as much as 7 percent and enhance fuel economy by up to 4 percent.

Engineering the all-new Hydra-Matic six-speed transmission with a modular architecture enabled engineers and designers to design a transmission that is easily adapted to a wide range of vehicles. Equally important, the new six-speed automatic's modular design means any of the four primary variants can be manufactured in the same assembly plant.

The modular design of the transmission permits several versions of the transmission to be tailored with minimal changes to the precise performance requirements of different vehicles. As many as 47 percent of all components are common for all four transmission variants. In fact, the new transmission design is so flexible that different variants theoretically could run sequentially down the same assembly line. The new six-speed automatic's manufacturing plan dovetails completely with GM's Global Manufacturing System strategy to implement a common manufacturing process and procedure at every worldwide GM assembly plant.

Technically sophisticated clutch-to-clutch operation reduces complexity and packaging. It also enhances the performance feel of the transmission, as shifts feel more immediate and precise. It is a simple, less complex design that enables the six-speed transmission to be packaged in a size not much larger than a four-speed automatic.

Notes: GM's new Hydra-Matic 6L90 transmissions are the first of a new family of modular six-speed rear-drive transmissions. The transmissions feature two overdrive gears and a wide, 6.04:1 gear ratio spread to improve performance and fuel economy when compared with conventional four- and five-speed automatic transmissions. With two overdrive gears, engine rpm is reduced by approximately 9 percent at 60 mph - a reduction to about 1,500 rpm. Lower engine rpm can bolster fuel economy because less fuel is used. A lower-rpm cruising speed also enhances smoothness and reduces noise heard in the vehicle's cabin.

SPECIAL NOTE: The components packaged in this kit have been assembled and machined for specific type of conversions. Modifications to any of the components will void any possible warranty or return privileges. If you do not fully understand modifications or changes that will be required to complete your conversion, we strongly recommend that you contact our sales department for more information. This instruction sheet is only to be used for the assembly of Advance Adapter components. We recommend that a service manual pertaining to your vehicle be obtained for specific torque values, wiring diagrams and other related equipment. These manuals are normally available at automotive dealerships and parts stores.

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The gear ratio's are 1st - 4.03:1 / 2nd - 2.36:1 / 3rd - 1.53:1 / 4th - 1.15:1 / 5th .085:1 / 6th .67:1.

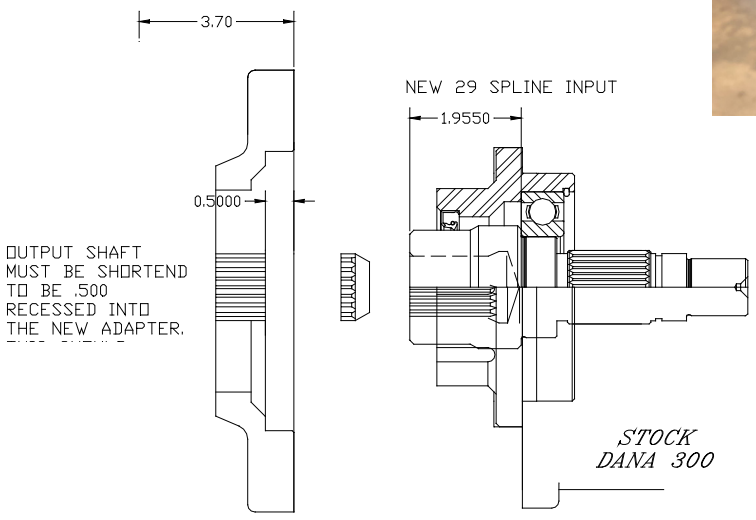
The 6L90 uses a 29 spline output shaft in the 4WD model transmissions. Transmission length 24.6"
Please verify your spline information before starting any project.

Stock 4WD output shaft with 1.62" of spline. This spline should be recessed from the casting face .500" once the casting is installed.

Installation Notes: ***The new casting is designed to use the factory bolts to fasten the adapter to the transmission. We have included two sets of transfer case holes, however with the Dana 300 only one set will allow clearance for the shifter and front drive shaft.***

Note: 6L90 4WD transmission output shafts. We have seen two different lengths of outputs. One is simular to the 6L80 4WD and the other is longer. The longer shaft is approxamately 5" +/- stickout. Trimming this shaft will not allow enough splines to fit the transfer case. A 3/4" spacer will be needed and you will still need to modify the shaft length.
long shaft is GM 24264191
shorter shaft is GM 24285487

The cut shaft below shows the short splines left on the long version 6L90 output shaft.



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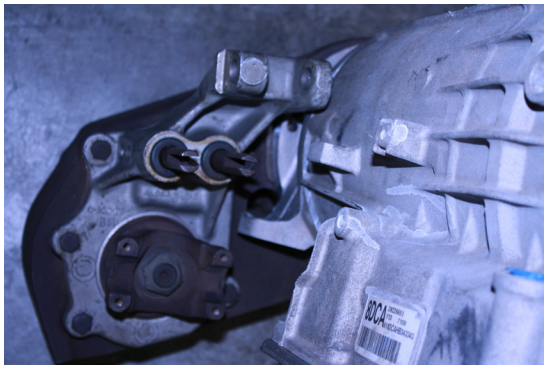
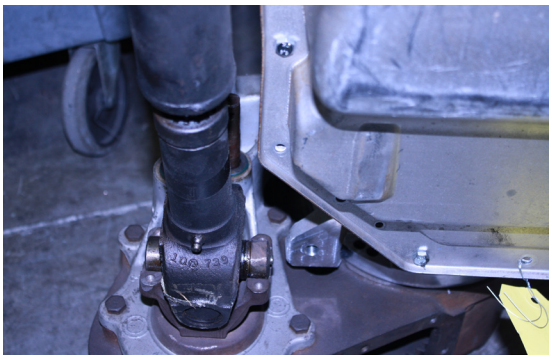
1. Starting at the Dana 300 transfer case, remove the 6 socket head bolts from the aluminum index hub on the front side the transfer case.
2. Using the two slots on the side of this retainer, you will need to pry the retainer out of the transfer case. This retainer assembly does pilot into the rear output shaft of this transfer case, if the retainer assembly seams tight to remove try spinning the rear output shaft.
3. Once the retainer is removed you will need a pair of snap ring pliers to remove the snap ring that retains the drive gear to the input shaft. Remove the snap ring and the drive gear from the input shaft. The aluminum retainer should now have the bearing, input shaft, seal and a snap ring holding the bearing into the retainer. This snap ring must also be removed to allow the bearing and input shaft to be pressed out of the index housing.
4. The seal will also require to be pressed out of the index retainer. The retainer should now be empty.
5. Install the new bearing onto the new input shaft, install both components into the stock retainer and install the stock snap ring.
6. Install the input drive gear onto the input shaft and retain it with the stock snap ring. Make sure the gear is installed so that the cogged side of the gear is facing away from the bearing.
7. Install the new seal provided in the kit. The open side towards the transmission.
8. Apply Loctite 515 or equivalent sealant to the retainer surface and install into the Dana 300 transfer case. Make sure the pocket bearing is installed in the Dana 300 output shaft.
9. Bolt retainer to transfer case using the stock bolts. Torque to 10 ft./lbs.
10. Install the adapter to the transmission using the factory bolts and use the new 3/8-16 bolts to bolt the casting to the Dana 300. The casting has two possible rotations, please verify that the transfer case linkage has clearance on the case and the front drive shaft has clearance.
11. We have included a new rubber transmission mount and a 1" spacer for the mount to the casting.





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