ModTiger Engineering llc

TECHNICAL TIPS

ON THE SUNBEAM TIGER

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This Tip is the Procedure for installing the ModTiger T5 Transmision in a Sunbeam Tiger

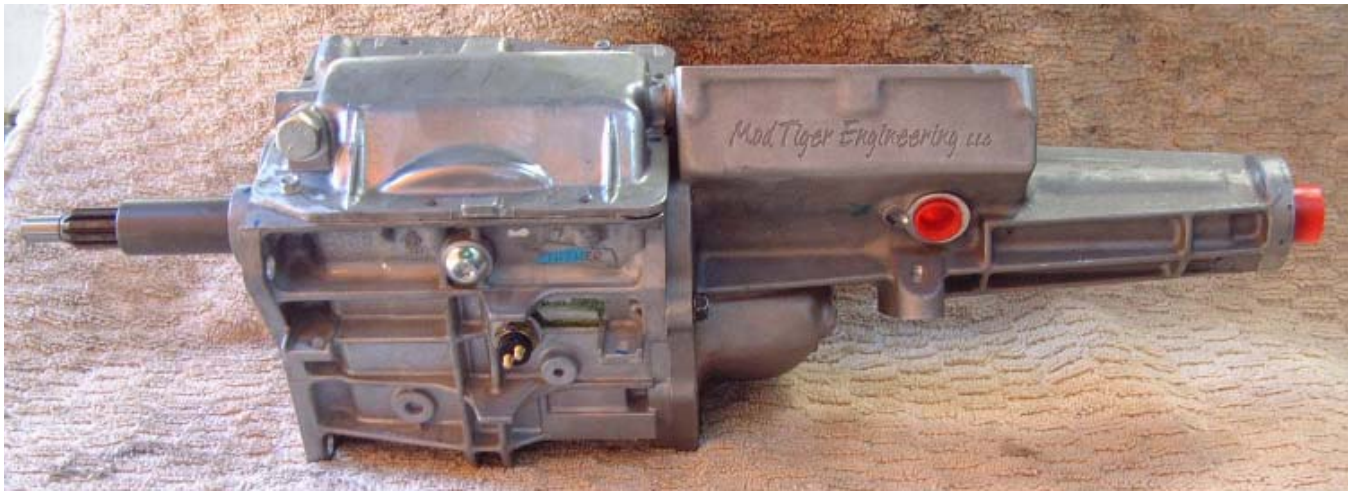

Fig 1 *The assembled MTE T5 Transmission*

These instructions will outline the basic steps required to install the completed MTE T5 Transmission into a Sunbeam Tiger. I'm making the assumption that you have done this several times with the OEM Top Loader and only need the guidance to alter your normal procedures as they are affected by the T5. We advocate and use the engine out- and-in the bottom technique, but that is not really a point of discussion in this procedure.

We begin this at the point where the engine is out of the car and ready to accept the special pieces that make up this kit. The first objective is to install the MTE adapter to the bellhousing and make sure that the assembly is within acceptable tolerances. The adapters are either for 5 bolt or 6 bolt configurations. The difference is primarily the diameter of the centering hole for the transmission front bearing retainer. The early 5 bolt bellhousings having the narrow bolt pattern and the later having the wider pattern or possibly both. If your bellhousing has both patterns, it will likely have the larger bore size on the retainer.

The 5 bolt adapter uses two 7/16 flat head socket screws to connect it to the bellhousing. The 6 bolt adapter only requires one. Install the flathead and hex bolts, preferably with Blue Loctite, and tighten them down.

The 5 bolt adapter also requires that the top left bolt be tightened so that the flat of the hex fits next to the Shift Rod bushing on the top of the transmission (Figure 2). It doesn't touch, but it's very close. I don't use a lock washer here either. The 6 bolt adapter does not have this close proximity situation.

Fig 2 *Turn the hex on the five bolt adapter as shown.*

Now that the adapter is in place, it's time to line everything up. Aligning the centerline of the crankshaft and the transmission will add life expectancy to the bearings and make it much more unlikely that the driveline will have any operational chatter. This is commonly referred to "dialing in", and we will not discuss how to do this in this procedure. This is the topic of another Tech tip.

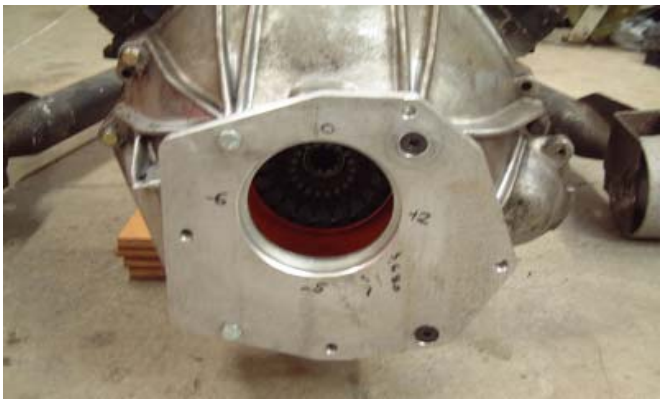

Fig 3 *A shot of the dial-in numbers obtained from this 5 bolt application*

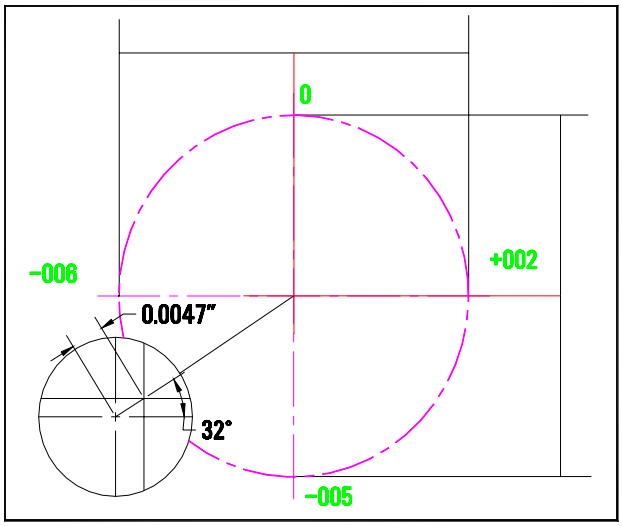

Fig 4 *This measured assembly center should be within .010 of true center to minimize any future problems. The quickest way to correct an out of spec. bellhousing is the use of offset alignment pins. The most common are available from Lakewood in .007, .014, and .021 offsets.*

With the adapter correctly placed, it's time to install the throwout bearing and fit the transmission. The T5 is lighter than the Top Loader so this task is a little easier. I like to use a floor jack to support the transmission at the proper elevation as the input shaft enters the clutch and finally the pilot bearing. Another trick is to use a longer 7/16 bolt with the head cut off to maintain alignment as assembly progresses. When it fits up to the adapter, it's time to install the connecting bolts. Note that the bolts only penetrate the 5/8 depth of the adapter. The correct length bolts have been supplied. Do not use longer bolts as they may bottom and tighten before the transmission pulls up.

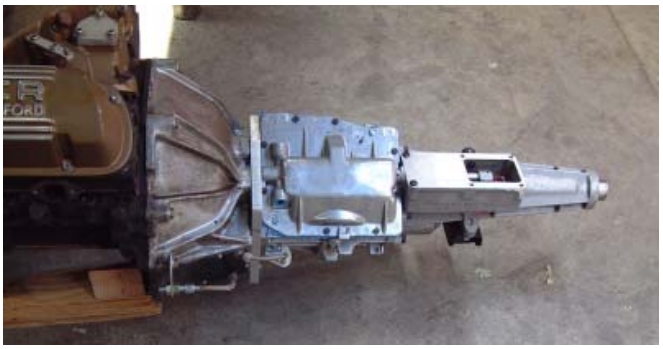

Fig 5 *Here's the assembly ready for installation. Note that the Shifter mechanism has been removed, but the cover plate remains in place. It won't go into place with the shifter installed.*

Next we turn our attention to the transmission tunnel. The following adjustment is the only modification required to fit the MTE Transmission into the Tiger, and it is not only very unobtrusive, it is reversable, should you so choose.

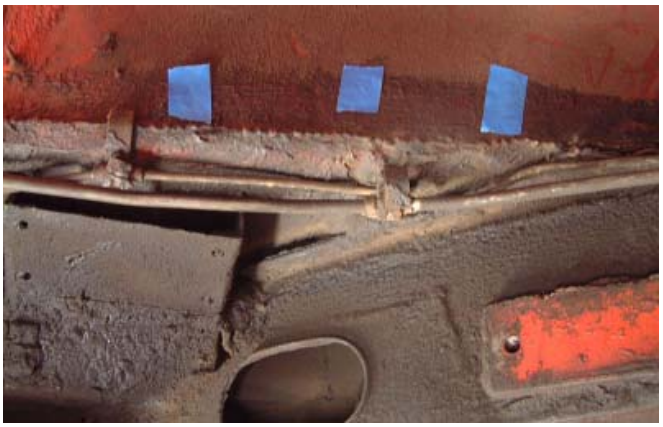

Fig 6 *Here's a before shot from below of the transmission tunnel on the right side. Take note of the OEM sheetmetal tubing clips as they provide your best location guidance. Start by removing the fuel line and bending it towards the outside. Bend the clip in the same direction.*

I use a 2 lb hammer to move the metal most efficiently. Starting at the front of the tunnel, drive the side of the tunnel towards the outside. The floor, the joint between the floor and the tunnel and the side of the tunnel will be moved as shown. The movement peaks at about 5/8 deep about 8 inches from the front, and tapers from that point to the front and rear. The dent is no more than 2" above the floor.

Fig 7 *Here's the after shot. Bend the sheetmetal clamp over the fuel line.*

Fig 8 *Another chassis, same alteration. This dent is the area where the bolt was removed from the side if the T5 transmission. If you made this dent another inch deep, the transmission would fit without removing the bolt.*

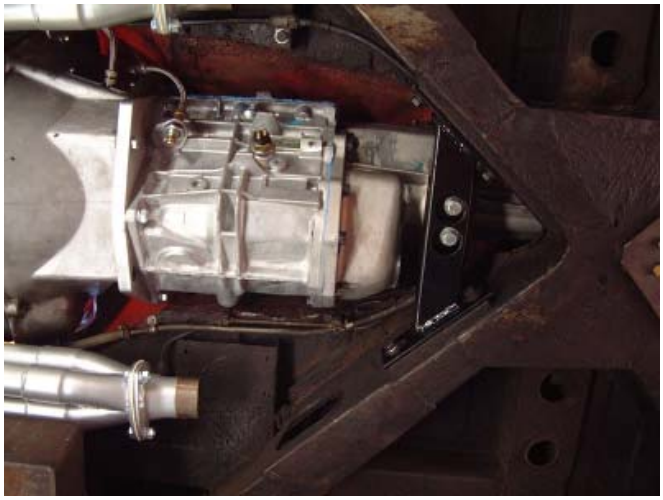

Fig 9 *When it all goes together, it looks like this. The Rear Mount shown here was an earier design version. It significatly easier to get to the rear bolts with the new mount design. At the top of this shot you can also see the new routing of the speedometer cable in this area. It will no longer go through the frame, but will run inside the frame rail. It will need a new support to keep it off the exhaust system.*

Fig 10 *Here's the funnel I use to add the required Lubricant* ***BEFORE*** *installing the shifter mechanism.*

When you have "adjusted" the side of the transmission tunnel as shown in the pictures, you're ready to reinstall the engine transmission assembly. I'm assuming you've done this before and the T5 transmission requires no special considerations other than having plugs in the openings so that the ATF doesn't run out.

Locate the engine and install the motor mounts first. Let the tailhousing rest on the frame. You will need all the space you can get to install the shifter. I normally leave the 4 bolts in the cover plate during placement this allows me to raise the transmission up against the top of the tunnel and press in a little clearance. The installation of the modified T56 shifter is really the trickiest part of the installation. After adding the balance of the 2.5 quarts of lubricant (Mercon V ATF recommended), retrieve the four attachment bolts from the tailhousing. Remove the rubber boot from the shifter for now as it restricts already limited access to the bolts. You will need a 1/4' drive 1/2 hex universal socket, or something very similiar, to install the shifter bolts. The bolt and lock washer must be retained by the socket or they will fall out as you try to place them. I normally use a rubber band for this retention but you may have another favorite method (figure 12).

Fig 11. *Here's the Modified T56 shifter ready to drop through the stock shifter hole into the tailhousing. A blob of grease lubricates the ball where it slips into the nylon bushing.*

Don't forget to drop the nylon bushing back into the Shift Block before you continue assembly. The shifter fits in a back to front motion at the center diameter of the sheetmetal hole. It's a good idea to practice this insertion a few times before you apply all the messy RTV Sealant. It will also allow you to place the internal linkage in the optimum position for assembly. Now, with the shifter well set with RTV, your ready to drop it through the round shifter hole. It helps to pre-install the T-bar shift handle as it gives you more to hold on to. Slide it down and forward until it engages and you can lower the stamping all the way down.

Fig 12 *Here's my trick for holding the screw and lock washer in the socket while you position it, screw down, through the RTV into the shifter and tailhousing.*

Fig 13 *If things are a little tight down here, you can "adjust" the sheet metal around the edge of the hole*

I'd take a quick look to see if you need to cleanup and RTV that was inadvertantly transfered to upholstry or rugs. Then its time to place the 4 bolts and tighten them down. Start all 4 before you tighten any all the way down. I like to smooth out the RTV at the front of the shifter, but the rest should take care of itself. Then you can dab a little grease on the internals and reinstall the short rubber boot on the shifter.

At this point we're ready to raise the back of the transmission up and install the rubber isolator and the rear mount. You will note that there is a slight offset in the mount. don't work about it, thats just the way it came out when things got centered. It obviously ony fits one way. Toss in the new longer driveshaft and the bolts or U-bolts. This is a good place to use blue Loctite as the flange joint has a history of loosening up.

The OEM speedometer cable end fits directly into the hole in the Tailhousing case. Make sure the O-ring is still in good condition. It's located above the level of the ATF so leakage is not normally a problem. Route the cable high inside the frame rail and provide supports so that it won't get burned on the exhaust and or headers. I normally allow it to loop farther forward and come in behind the brake clutch cylinders. You could also shorten this cable if you want. I have used cables as short as 63" (11" shorter than OEM).

It's time to remove the shift knob and rubber boot. A strap wrench is usually the best tool for getting the knob loose. Be gentile with the Rubber boot as you work it over the T-Bar. The older ones are getting brittle, replacements can be ordered from either Sunbeam Specialties or from TigerEngineering.net. Slip the new shift rod into the boot and use the two metric screws to mount it to the shifter stub. Re-attach the chrome trim ring with the four sheet metal screws, you may need to use an ice pick or similiar tool to help you locate the screw holes in the top of the transmission tunnel.

A 5 speed shift knob is not supplied in the kit. Knobs with the 5 speed shift pattern are available from www.scottdrake.net (part no. C5ZZ-7213-T5). You'll also note that the T-bar is fixed in place, it is to prevent the t-bar from rattling.

Re-install the front crossmember, bleed the clutch, brakes, fill up the coolant and your ready to get back on the road with the joy of 5th gear just an easy shift away.

There are alternatives available in shifters. Any of the would require minor cutting in the area of the shifter hole as they all rise much higher from the transmission. They could be added at original installation or later without removing the transmission.

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