

How To Clutchify The Turbo

Come with us and Fairbanks Racing Automatics and learn to give your left foot something to do.

WITH THE ADVENT of newer and better tire compounds each year, terminal speeds and et's will undoubtedly become increasingly higher and lower respectively. Car and engine builders are now freer to extract as much horsepower as possible from their machines because of availability of tires capable of harnessing it.

Now, we all know that there must be an intermediary separating the two. In most cases it's known as the transmission. Sometimes, a combination of pressure plate and series of clutch discs and floater plates are incorporated into a direct drive unit—found in most high horsepower dragsters, altered and a few funny cars. Since the majority of racers use some type of transmission that changes gears, this is our main concern.

Let us take into consideration the high horsepower car that's fairly light in weight. We mean upper class gassers, MP cars, match race Super Stockers (gaining more and more popularity) and some Comp and Super eliminator cars. Most all of these types would benefit from the higher rpm take-off that a manual transmission could afford them. The problem here is that tremendous horsepower and the shock loadings it produces would make short work of the gearbox and remainder of the drivetrain in time. Not to mention the everpresent possibility of a missed shift at high revs. Until recently, drivers and engine builders had to live with this or their torquefites, hydros and turbos with an inadequate stall speed and power-killing converters.

Enter the "Turbo-Clutch-O-Matic" by

Fairbanks Racing Automatics in Stamford, Conn. These people have experimented with and discovered that the Turbo-hydro is the most reliable and fastest shifting automatic available because it doesn't require a band to be released before the next set of clutches can apply themselves. This more positive method of gear changing can save from one to three tenths of a second. Think about it. Then think about this: why not combine the best features of both worlds? Mount a standard-type clutch to be used for off the line work (that is, rev as many R's as needed and let fly with the clutch—no worries about maximum stall speed that isn't adequate) and use it for that sole purpose. Once the vehicle has been engaged in low gear, the remaining two shifts can be made automatically (by using your shifting hand only) and held in gear for as long as necessary.

The unit that Fairbanks has perfected their clutch for is the GM Turbo-Hydratic. It's designed to fit them all and is available for swaps with all GM, Ford and MoPar engines. And, it bolts to any standard bell housings. The process that will be unfolded for you is the basic one used to prepare the transmission for installation in any of the above cars. One stipulation is that any clutch may be used (except a diaphragm type) in conjunction with a Chrysler disc.

One more consolation: this system works equally as well on a stock Turbo-hydro or a beefed-up manually shifted unit and can be used on the street as well as the track. Pay attention and maybe you'll stop shifting (around). ■

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ABOVE—Cut bell housing on Turbo case with shaft and pump seal covered so no filings get into the transmission.



ABOVE—Pull front pump out with slide hammers. If there is a wire attached to the pump, cut it (variable pitch units only). Tape the wire and tuck it to one side so it won't hit or rub on moving parts.



ABOVE—Pull out the input shaft and forward clutch drum, but leave the direct clutch drum. Remove thrust washer from the former. BELOW—Brass or wooden drift is used to knock out input shaft from the forward clutch drum.



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Fairbanks provides all the good parts plus the right instructions for this race-oriented modification.



ABOVE—Install the Turbo Clutch input shaft into the forward clutch drum. Put Loctite on the splines into the drum, but only on those that are close together, not where the two splines have been cut away. These splines have been cut away for oil lube. Input shaft is then hammered into clutch drum taking care not to damage any part of it.



TOP—Separate the halves of the front pump. ABOVE—Cut off the stator support with a hack saw as close to the pump body as possible.



ABOVE—Using a flat file, file the stator support down, level with the pump body, being careful not to mar or damage the pump body.



Use the kit layout supplied for your front pump, lining it up so that the channels correspond. Drill a 5/32" hole into the front clutch passage of the pump 3/8" deep. Drill exactly where the layout is marked.

BELOW—Drill one or two holes, depending on which layout you have, using a 17/64" drill, to depth of 5/8". Tap with a 5/16" 24 thread tap and install the plug or plugs provided in the kit.



ABOVE—Remove small pump gear and grind off .030" from the inside of each pump lug so that the pump drive sleeve will go into the gear.



ABOVE—Place the kit-supplied teflon washer on the pump body using vaseline to keep it in place. Replace pump halves, don't tighten.



ABOVE—Place pump in transmission UPSIDE DOWN without the rubber "O" ring on the pump. The turbo pump is a sandwich type and must line up perfectly. Pump is placed in upside down so that the transmission case will center it correctly. Tighten the bolts and remove the pump from the transmission case. Then install thrust washer on forward clutch hub and install forward clutch drum and input shaft.

BELOW—Place the new pump-to-case gasket into the case. All holes must line up perfectly or it's improperly installed. Install new pump "O" ring.



ABOVE—Using two of the long kit bolts, line the pump and pump bolt holes up properly. With the hand, push the pump down in the case. With a plastic hammer, finish the job. Remove the two long bolts when the pump is all the way down. Make sure that the input shaft can be rotated or the pump will have to be pulled and the clutches indexed properly.



ABOVE—Install the front pump drive sleeve into the pump being careful not to damage the oil seal on the input shaft splines. Line up the drive sleeve so that the lugs on the front pump gear line up and go into the cut out slots of the drive sleeve. Drive sleeve bearing and oil seal have already been installed into the drive sleeve at the factory.



ABOVE—Place the adapter to the cover gasket over the front pump taking care to make certain all the holes line up.



ABOVE—Place front pump adapter cover over the front pump making sure all the holes line up, using all the bolts and washers. Leave the bolts loose for the time being.



ABOVE—Install adapter bearing on the drive sleeve and into the cover. Tap the bearing into the cover with a plastic hammer until it is approximately flush with the cover.

BELOW—Now you can tighten the bolts in the adapter to 18 ft. lbs. of torque.



ABOVE—Place spider drive on the pump sleeve drive and rotate the sleeve. The drive should turn fairly freely. Then remove the spider drive.



ABOVE—Place the snap ring in the throw out bearing collar and then install the collar on the adapter, lining up all the bolt holes.



ABOVE—Place spider drive on pump sleeve with the flat side of the spider facing the end of the input shaft. Install snap clip on drive sleeve. **BELOW**—Drill bellhousing and adapter being careful not to hit any of the bolts holding the adapter to the transmission. Each trans dictates different drilling procedures.

