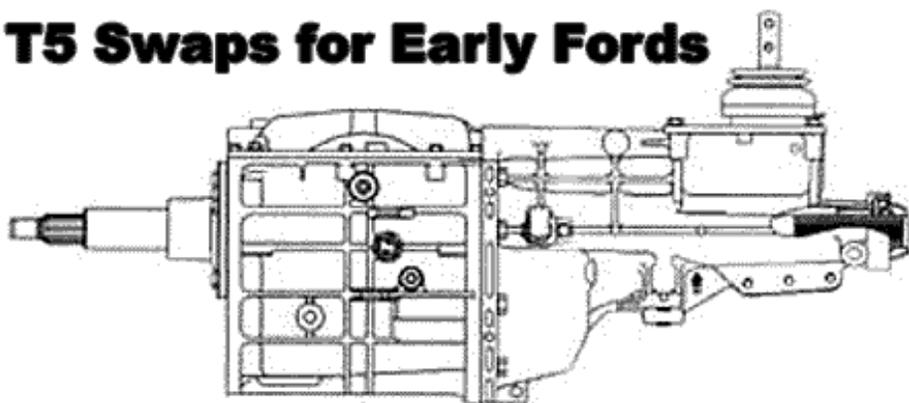




Tech Department

T5 Swaps for Early Fords



Overdrive transmissions are a great thing. They enable you to significantly improve the gearing and acceleration of your car, while maintaining gas mileage and highway cruisability. Unfortunately overdrives, manual or automatic, weren't offered in Ford vehicles until the late 70's. But that doesn't mean you have to be stuck with the non-overdrive C4's, C6's, and manual 4 speeds of the 60's. Swapping in a late-model overdrive transmission, namely the T5 manual and the AOD automatic, is a straightforward swap for 289, 302, 351 equipped cars. In fact on most early Fords, the swap is so easy it makes you wonder if Ford was thinking ahead. In this article we'll go over what it takes to swap in a T5 transmission into an early Ford. In future articles we're go over an AOD swap for early Fords, and also an AOD to T5 swap for late-model Mustangs.

Swapping into early Mustangs, Falcons, Mavericks, and Pintos is easy because the hole in the transmission tunnel for the shifter is in about the same spot on all the cars. The swap is also easy for Fox body cars such as the Granada.

For other Fords, namely the full-sized cars, the swap is a bit more difficult because the engine is placed farther forward in relation to the driver. Ford used modified shifters and/or longer tail housings to set the shifter back for the original transmissions in these cars. Unfortunately there is no such modification we know of for T5's.



Slight clearancing of the shifter opening in early may be required. We had to do it on our '67 Mustang, but in a '65 the T5 lined up perfectly.

If your car is currently equipped with a non-overdrive manual transmission (Ford 3spd, 4spd, or Toploader) the swap is as simple as a clutch job, you can use your existing clutch and flywheel, but you'll need a crossmember and possibly a slip yoke and driveshaft as mentioned below. For cars with automatics you'll need to first install a clutch pedal and round up the clutch activation parts (either manual clutch linkage or a cable operated clutch.)

We've seen the T5 in several Falcons and Comets originally equipped with column shifters. The owner had to punch a hole in the transmission tunnel and fabricate a longer shifter and/or replace the bench seats with bucket seats. Most Ford cars sold

Related Articles

[Late Model AOD to T5 Swap](#)

[Lakewood Scattersheild Installation](#)

[B&M Ripper Shifter and T5 Upgrades](#)

[The Manual-Trans Manual](#)

[T5 Identification Chart](#)

[Early Mustang Cable Clutch Conversion](#)

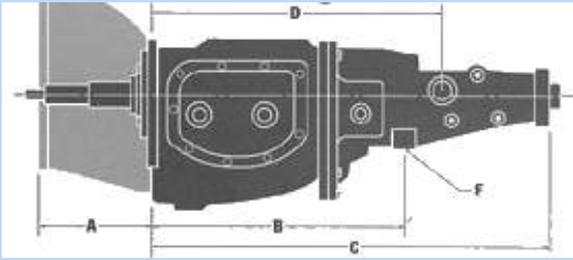
[Pro-Ripper Shifter Review](#)

Buying a Used T5

with automatic transmissions have factory stamped holes in the firewall for the clutch pushrod or cable. Usually a hard tap from a mallet will knock the stamp out.

For Bronco and Ranger owners, jamesduff.com sells adapters to bolt the T5 to 2.9L and 4.0L engines.

Toploader and T5 dimensions



Transmission	A	B	C	D	F
Ford Toploader (small block)	6.375	13.25	25.375	n/a	5.5
Ford T5	6.9	14.5	24.7	15.4	5.5
Overall length (A+C)	Toploader: 31.75 in. T5: 31.6 in.				

Where to find a T5?

The T5 transmission is a manual five-speed transmission manufactured for Ford, by Borg Warner (now Tremec.) The T5 was offered in Mustangs, Thunderbirds, Capris, and possibly other Ford vehicles from 1983 all the way up to 1996, but you have to be careful -there are different specifications for 4-cylinder, 6-cylinder, and V8 cars. What you want is a T5 from a V8 car, ideally a Mustang. The 1983-1989 V8 T5's are rated at 265 lb.ft. of torque, while the 90-93 T5's are rated good to 300lb.ft. of torque (93 Mustang Cobra T5 is rated for 310 lb.ft.) The difference is in the internal components and also the gearing. See the chart below for gearing differences. The 1994-1995 T5's are not desirable because the input shaft length and thus bellhousing depth were changed to accomodate the new SN95 Mustang body style. If you do come across one of these dirt cheap the input shaft can be replaced with one from an earlier T5, but it'd have to be a really good deal (read free) to go through the trouble. Finally, we should mention that the T5 is also called the "World Class T5", but many people incorrectly believe the term World Class refers to a stronger type of T5. All Borg Warner T5's are considered "World Class", so don't rely on that term to indicate the type of T5 you have. The best bet is to find the T5 attached to the car, or with reliable evidence of the car it came out of. If that fails, look for the stamped aluminum tag hanging of one of the tail shaft bolts and use the [ID chart](#) to identify the model. Copy the numbers down and call D&D or Hanlon and beg them to tell you what year it's out of.

While it is best to shoot for the 90-93 T5 due to its increase torque capacity, you shouldn't pass up a good 83-89 T5, especially if you're engine is not heavily modified. We've found that T5 strength and longevity is more a factor of its condition and mileage rather than it's torque rating. A used, high mileage, Cobra T5 will probably shift poorly and give out much sooner than a earlier T5 that came out of grandma's car. The T5 in Project 11.99 was bought from a wrecked 1990 Mustang 5.0 with 50,000 miles. We've had it in the car for nearly five years now, over 400 passes at the strip, and it shifts as crisp as it did on day one.

By the way, always take the bellhousing and block plate if they are available. The T5 swap can be done two ways, using a T5 bellhousing or using an early Ford manual bellhousing. It is much easier and cheaper to use the T5 bell, we'll explain why below.

What to pay?

Used T5's can be bought for as cheap as \$100 out of a wrecking yard, however we



Seek out a T5 from a V8 car, ideally a Mustang. The 1983-1989 V8 T5's are rated at 265 lb.ft. of torque, while the 90-93 T5's are rated good to 300lb.ft. Typically these can be had for \$200-600 used. A new T5 will run about \$1000.

[T5 Identification Chart](#)



The tailshaft bushing and seal should be replaced if you bought your T5 transmission used, or if you are installing a new slip yoke. For more info on how to do this, [check here](#).

Required Parts



Converting an early Ford from automatic to manual requires rounding up the original clutch activation parts. This can be tough, the best bet is to find a wrecked four-speed car and take everything. Shown here are parts from an early Mustang, including the z-bar

rarely ever see Mustang 5.0's in public wrecking yards, most of the cars go to specialty dismantlers. You're better off searching the classifieds and online Ford bulletin boards for guys parting out their Mustang, or perhaps upgrading to stronger transmission wanting to sell the T5 cheap. A fair price for a used, but not abused, less than 80K T5, is between \$300 and \$500. Any more than that and you should consider buying a rebuilt/refurbished T5 for around \$700 from places like D&D or Hanlon. If you want to be extra safe you can buy the T5 new. Both the above sources, as well as Ford Racing Parts and Summit Racing, sell brand new T5 "Z" spec transmissions. The Z spec. transmisison is rated for 330 lb.ft. and sells for around \$1300.

What parts are needed?

If your converting and automatic car to a manual or five speed, you'll need to round up the clutch pedal and associated parts. For early Fords this can be tough. Your best bet is to find a wrecked car which has the manual parts and take everything. Some of the smaller pieces, such as springs, bushings, z-bar and mounts are still sold through Ford or Mustang parts houses. For late model Fords using a cable operated clutch, all you need is the brake and clutch pedal assembly.

T5 Crossmember - Regardless of whether your early Ford came equipped with an automatic or manual, you will need a conversion crossmember because the mounting pad of the T5 (and AOD) hangs much lower than other Ford transmissions. Companies such as Modern Driveline (see contacts below) sells crossmembers for early Mustangs, and possible Falcons and Fairlanes. They cost about \$150. The other option, if you have access to a welder, is to make one yourself for considerably less money.

Slip Yoke and Driveshaft- The T5 requires a 28 spline slip yoke. The slip yoke from C4's, C6's will work since they are 28 spline. Most Toploaders slip yokes will work, however some came with a 25 spline output shaft so be sure to count. Fords originally with 3 and 4 speed manuals will require a slip yoke swap. Driveshaft length in early uni-body Fords will typically not require modification, however you should ensure there is 3/4" to 1.5" of space between the base of the slip yoke and the end of the tailshaft housing (not the seal!), when the car is on the ground. Distances greater than this will require a longer driveshaft, distances less than this will require shortening of your existing driveshaft.

Clutch and Flywheel - If your car is already a manual, simply use the existing clutch, flywheel, and throwout bearing. You should change the pilot bushing to the late model Mustang pilot bearing. Since you will need to remove the clutch and flywheel to install the T5 blockplate, you may as well take the opportunity to install a fresh clutch.

If your car was an automatic you will need to get a flywheel which matches the balance factor of your motor. All 289's use a 28 oz. balance factor. Early 302's up to late 1970's also used a 28 oz. factor, but after that point Ford switched to a 50 oz. balance factor. If you mix and match the flywheels (or harmonic balancers) your engine will vibrate itself to death! So be sure you only install the flywheel with the correct balance factor. A good machine shop can convert the more common late-model 50oz. flywheel to a 28oz. balance factor for around \$50. The 50oz. flywheels are also drilled for the larger 10.5" diaphragm clutch, which the 28oz. flywheels must use the early style 10" three-finger clutches.

Stock 28 oz. and 50 oz. flywheels have 157 tooth ring gears measuring 13.294" outer diameter. Some 351W engines, and after market flywheels, have a larger 164 tooth ring gear which has a 14.215" outer diameter and accepts an 11" clutch. The larger clutch may not clear the inside of the T5 bellhousing.

Starter - The starter from any '85-'92 Mustang 5.0, auto or manual, will work. The '93 and up Mustangs use a high-torque starter which saves weight and space, but costs about \$120 more than the standard type. The starters from early 289-302

(silver) and mounts, clutch pedal, along with associated pedal return springs and bushings.

If you cant obtain these parts for your early Ford you can convert to a [late-cable operated clutch](#) from Modern Driveline.



If you have a late 80's 5.0L block, you will need this piece from Windsor-Fox. It bolts to the bellhousing and provides a place for the stock "z bar" to mount. Early blocks had a threaded boss in the back of the block.



Be sure to use the flywheel which matches your engine balance factor. 289's and early 302's used the 28oz. balance factor, as seen by the smaller counter weight (left.) Late model flywheels used a 50oz. factor (right.)



Use the T5 block plate and the late-model 302 pilot bearing.

Fords with automatic transmissions also work, however starters from manual transmission cars of this era seem to have a slightly larger mounting lip and don't fit unless you mill or grind this surface down. Your best bet is to use it as a core at the parts store.

Neutral Saftey Switch- Automatics have a neutral safety switch, so that the car can only be started in park. For a manual you do not need this, and the switch must be by-passed or the motor will not start. On early Mustangs the four-plug harness sticks out of the firewall above the master cylinder. Two of the wires control the reverse lights, the other two control the neutral saftey switch. Splice two of these wires together and you've bypassed the neutral switch. Which two wires? You'll need to use a voltmeter or take a couple guesses to find out! On other cars you can check the wiring diagrams in a shop manual, or trace the wires from the original automatic shifter. The backup lights can be made to work by connecting the other two wires to the two leads on the T5 case.

Speedometer Cable and Gear - Your existing speedo cable will work, provided it is the right length. Ford suprisingly didn't change the design of these things from car to car. You may need to re-route the cable to get it to reach the entry hole at the rear of the T5 case. You will however need to put on a T5 speedo gear, available from your Ford dealer, in a variety of tooth counts to match your differential gear and tire combo. Swapping the new gear on simply requires removing the c-clip and pulling the old gear off and sliding the new one on.

Bellhousing Modification - The T5-to-bellhousing mounting pattern is different than that of other Ford manual transmissions. This means you need to use a T5 bellhousing, with a minor modification, or you need to buy a adapter plate that sandwiches between the older (Toploader) style bellhousing and the T5. The preferred method (cheaper, easier, stronger) is to simply get a T5 bellhousing. The adapter plates are machined out of aluminum and cost \$200 or more, and can result in an alignment problem. The T5 bellhousing however is about 1" deeper than the earlier Ford bellhousings (because the T5 had a 1" longer input shaft). Furthermore the T5 bellhousing is setup for a cable activated clutch fork. You can certainly keep it this way, but it will require modifying your clutch pedal to accept a [clutch cable](#).

We opted to stick with the early-style pushrod activated clutch fork, this requires making a minor modification to the T5 bellhousing. You will need a 2"x1"x1" aluminum or steel block and also the fulcrum (the piece the clutch fork pivots on) out of your early bellhousing. Sacramento Mustang, Mustangs Unlimited, and CJPony Parts sell the spacer block, fulcrum, and bolts as a kit for approximately \$40.



T5 Crossmembers



The [Modern Driveline](#) crossmember is a strong piece which follows the stock shape, making for better header and exhaust clearance.

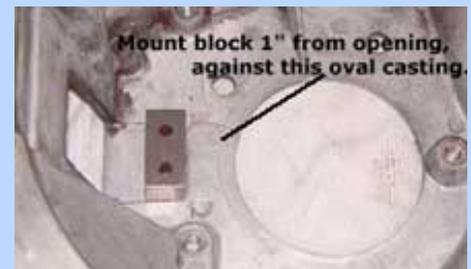


The California Pony Cars T5 crossmember serves its purpose, however the mount bracket welded to the main tube is a weakness. The member also offers less exhaust clearance.

Bellhousing Modification



Cable operated clutch fork (right) and converted fulcrum style clutch fork (left.)



For early Fords with manual clutches, you'll need to install or transfer the fulcrum style clutch fork from a four speed or toploader bellhousing. Due to the longer input shaft of the T5 you need the 1" spacer block under the fulcrum. Available from Windsor Fox, Mustangs Unlimited, and others.

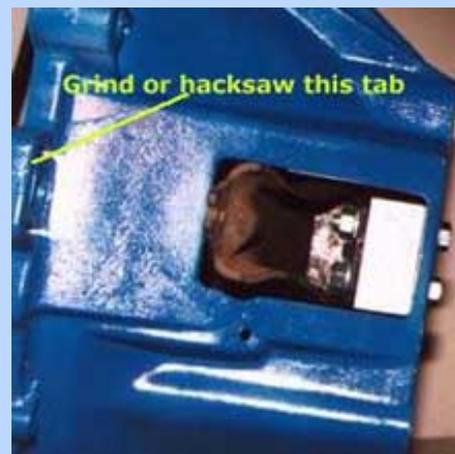
The hair clip shown at the top holds the fork on the fulcrum, don't leave it out!

To modify the T5 bellhousing, you need to first remove the cable activated clutchfork and fulcrum. Simply pull the clutch fork up and it will come off its clip. Then unbolt the pivot ball. The next step is to mount the mechanical style spacer and fulcrum. The fulcrum and spacer sit exactly 1" from the rectangular opening in the bellhousing. On the T5 bellhousings there is a little oval casting that sits between these two lines. The edge of the spacer basically needs to be mounted right up against this casting, but NOT on it. Mark two lines from each corner of the rectangular opening extending to the center hole where the transmission mounts. Both these lines should be parallel to each other, and exactly straight!

Now place the spacer in between the two lines. We've determined the spacer should be one inch from the edge of the rectangular opening, up against (but not on) the oval casting mark. Mark the holes and drill. If you want to double check our measurements before drilling, you can tape fulcrum and spacer in place and attach the clutch fork. Then mount the bellhousing on your T5 and check that the clutch fork can pivot without rubbing the input shaft or the rectangular opening. Mount the fulcrum on top of the spacer and bolt it in place. (Note, the spacer kit we obtained from CJ Pony parts came with counter sunk allen bolts. We didn't want to deal with drilling countersunk holes, so we simple replaced them with standard hex-head bolts.

If you mounted the spacer in the correct spot, the hex heads will not interfere with the transmission case. Finally, you will need to hack off the tab on the bellhousing directly in line with the clutch fork opening. This tab is used to mount the clutch cable, and will interfere with the lower pushrod for the manual clutch. You only need to hack or grind off 1/2" or so off the edge, this way you still have the mount in case you ever want to convert to a cable operated clutch.

Contacts
Modern Driveline
www.moderndriveline.com
408-265-0741



Modifying the T5 bellhousing for the early style clutch fork requires this 1" thick spacer block under the fulcrum to make up for the longer input shaft (hence deeper bellhousing.)

Looking Stock



You can maintain the stock look by modifying the early shifter. We hacked off the 3spd/4spd lower bracket and welded on a metal tab. Drill two 3/8" holes to match the T5 shifter nub. Slip the stock boot over it and no one can tell from the inside that you've got an extra gear!



Late Model Mustang AOD to T5 Conversion

by Chirag Asaravala and Jim Langley

Automatics are boring. Let's face it, stabbing the clutch and shifting the gears is the essence of performance driving. Automatic transmissions certainly have their benefits, and we enjoyed ours thoroughly, and were impressed with how it responded to minor modifications such as a shift kit and higher stall converter. However, as we had always planned from the moment we bought the '88 LX, the time has come for the AOD to be replaced with a T5 manual.

We performed the swap for several reasons including the fun factor. We wanted a performance gain, not only from better gearing in the T5, but also due to the less parasitic loss, not to mention the weight loss. An AOD is roughly 40lbs heavier than the T5. Furthermore we hope the T5 will result in better fuel economy, due to the lower overdrive rpms as a result of the lower gear ratio and by eliminating the slippage of the non-lockup converter.

Performing a T5 swap in a late-model Mustang is very easy. In order to reduce assembly line costs, Ford setup the FOX platform to accept either the AOD or the T5 with minimal parts differences or chassis modifications. The starter, driveshaft, crossmember, transmission mount and speedo-cable are all interchangeable.

Other than acquiring the T5 itself, the pedal assembly, the clutch parts, and the console plate and boot, there is not much else that is needed, other than a spare weekend to perform the job. It is important to mention that T5 cars used a different EEC-IV processor than AOD cars. It is not necessary to change to a manual processor. In fact, it is recommended that you don't because the manual processor requires a wiring harness that is not found in the automatic cars. Without this harness the manual computer cannot complete the self-tests, meaning you can't "pull" diagnostic trouble codes. If you simply leave the automatic processor in place, the self-tests and codes will function properly.

The actual swap is fairly simple to perform, and will take anywhere from 10-16 hours, depending on your experience and how many friends show up to give you a hand. We actually installed the pedal assembly months before we installed the T5, just to get a head start. Believe it or not, the pedal assembly is probably the most difficult part of the entire swap! It took about three hours to complete, including rerouting the speedo cable, which on automatic cars is routed through the clutch cable hole. The rest of the swap consists of removing the AOD and associated parts, and then essentially performing a clutch job and installing the T5.



Before



After!



Selecting the proper clutch is a key ingredient of the T5 swap. You don't want to skimp here, otherwise you'll be doing the work all over again. We talked to the clutch experts at [SPEC \(Star Performance Engineered Clutches\)](#), and they recommended their Stage 1 clutch, PN:SF481. Their stage 1 clutch will hold 300 horsepower with no problems, yet allow for chatterless engagement and low rpm driveability. At about \$159, including throwout bearing and alignment tool, the price is right too.

SPEC also makes four higher stages of clutches, for road racing to high-horsepower drag racing. They'll also make you a custom clutch if you have specific needs.



Finding all the parts is not all that tough either. We got lucky and found someone parting out a low-mileage 1992 Mustang in the local classified. We struck a deal on all the T5 parts, including the transmission for \$500. Perhaps the most sought-after parts are the console cover, rubber insulator, and leather boot. We were fortunate that the donor car had these intact and in great shape. When taking the pedal assembly, be sure to get all the switches mounted on it. Take every little piece of hardware you can, since many of the small parts are Ford pieces that are not sold anymore, or are very expensive.

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BIG BANG!

This is why you need a blowproof belhousing!

Text and Photography by Chirag Asaravala
Near death experience by Jim Langley

Installing a blowproof steel bellhousing is a pain in the ass, but probably nowhere near as hard as walking without any feet. A while back we had the pleasure of learning first hand the dangers of a clutch explosion. FORDMUSCLE staffer Jim Langley and I were out at Sacramento Raceway early last year - Jim was in his '65 coupe and I was in Project 11.99. We had the opportunity to race each other, so naturally we decided to go all out. At the time the project car was running high 12's and Jim's coupe was in the 13's. I remember getting past the 1/8th mile point when a flicker of light caught my attention. I looked in the rear view mirror and saw sparks and smoke under Jim's car. I lifted and coasted off the track and waited for Jim. As his car made it to the return road I notice smoke pouring out from under the hood. Jim's first comment as he got out of the car was "I think I threw a rod." We popped the hood, and tried to find the engine damage in the smoke filled darkness. Like staring at one of those 3D dinosaur posters, it wasn't clear to me at first what had broke, but then it suddenly came into view...the bellhousing was gone! I remember saying "dude, look behind the engine, you can see the input shaft!" It was then that we realized the clutch pressure plate had failed and exploded.

The next day in the light we were able to see the extent of the damage (see side bar). Fortunately Jim wasn't physically injured, but as the pictures show the resulting damage was enough to put the car out of commission for quite a while.

The NHRA requires a blowproof bellhousing be installed in all cars running 11.99 or faster. Yet Jim's coupe was only running in the 13's when the clutch failed, proving that any car with a clutch is subject to this sort of disaster. He had launched the car at around 5000 rpm on McCreary tires. Like most clutch failures, his pressure plate gave out on the 2-3 shift, not at the launch like you'd expect. What caused it? Ultimately the answer is heat. Pressure plates, clutch disks, and flywheels generate huge amounts of heat, which overtime fatigues the metal and causes stress cracks. A 5000 rpm launch on a slipping, stock clutch was probably the fuse.

The majority of stock bellhousings are aluminum and offer absolutely no containment in the event of a clutch failure. In fact the stock T5 bellhousing fragmented into so many pieces, we were lucky the transmission didn't drop right out!

Needless to say the experience made it very clear to both of us that we needed blowproof bellhousings. NHRA rules require an SFI approved bellhousing. We looked into two brands of bellhousings (McLeod and Lakewood) and found that only the Lakewood is SFI approved -making the choice



Send in the bomb squad: The entire aftermath of this clutch explosion can't even be seen in this photo. Shrapnel poked a hole in the hood, pinched a header collector in half, ripped the accelerator pedal right off the firewall, destroyed the shock tower brace, severed the main engine harness, and knocked out a freeze plug in the back of the block. It's amazing the driver wasn't injured.

[Clutch explosion picture gallery!](#)



very easy.

One look at the Lakewood bellhousing and it's clear that it is built to handle an explosion. Hydro-pressed out of heavy-gauge steel it weighs 40 lbs. or so, and is significantly larger than a stock bellhousing. In addition the block plate is also made from steel, rather than aluminum, and is bolted to the bellhousing with grade 8 fasteners.

[NEXT PAGE: INSTALLATION>](#)

You must be a [subscriber](#) to continue.

Lakewood's steel bellhousings are designed to contain a severe clutch explosion. In fact the SFI 6.1 ([Sema Foundation, inc.](#)) test to ensure containment is to cut apart a flywheel spinning at high rpm until it shatters. If the bellhousing can contain the pieces, it achieves the SFI certification sticker (below.) Currently only Lakewood bellhousings are SFI certified.



The SFI certification is only good for two years. Technically this means you need to replace the bellhousing every two years. This baffles us since this isn't a component that wears out. Furthermore we've never heard of a tech official checking the date on the tag.

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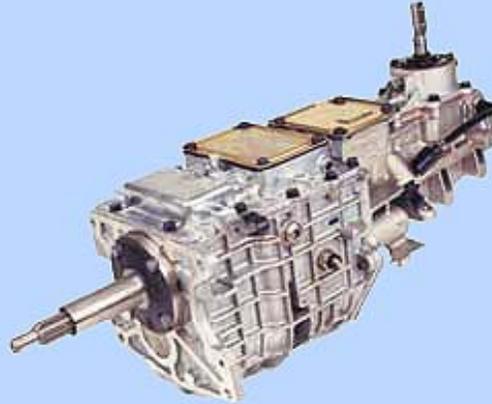


Technical Department

The Manual Transmission Manual

We get a lot of emails from readers who want to know what all the different Ford overdrive manual transmissions are, and what is the best for their car and engine. So we decided to give you this quick reference manual to the four most popular overdrive transmissions for early or late model Fords.

You can see the critical specs and dimensions on the transmission, and get an idea of the power they can handle. All of the transmission data listed are for the Ford versions of these transmissions, but keep in mind Tremec supplied variations of the same transmission for use in many other brands of vehicles. So if you come across a T5 out of a GM car, it will not be the same dimensions as listed here. We are strictly listing Ford applications only.



If you have questions on installation, whether it will fit a certain application, bellhousing and clutch requirements, we suggest you contact Fortes Parts listed in the contact section at the end of this page.

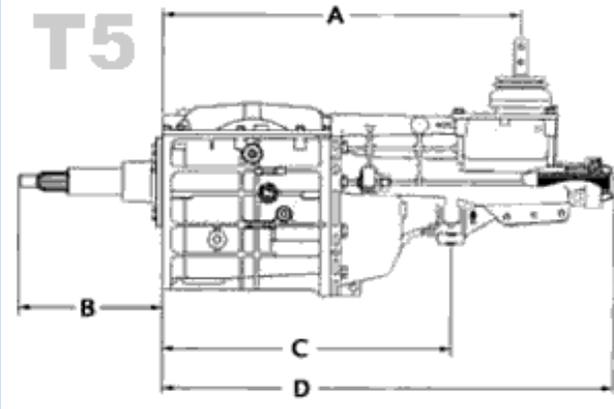
As an added bonus we've also got the rebuild manuals, in downloadable form, for those of you who have busted up a tranny and want to rebuild it! **F/M**

Related Articles:

- [Early Mustang T5 Conversion](#)
- [Late Model Mustang AOD to T5 Conversion](#)
- [Lakewood Scattersheild Installation](#)

Tremec T5 (5 speed)

V8 T5's can handle roughly 300 lb.ft. Good for small block Fords, less than 351 cid displacement, street driven.



Dimensions

A=19.5"
 B=7.2"
 C=14.5"
 D=24.7"

Weight

75lbs

[T5 Rebuild Manual - PDF 4.11MB](#)

To save the manual on your hard drive, right click mouse and select "save target as", then choose the directory to save to.

Gear Ratios

1	2	3	4	5	Reverse
3.35 or 2.95	1.94	1.34	1.00	0.63	2.76

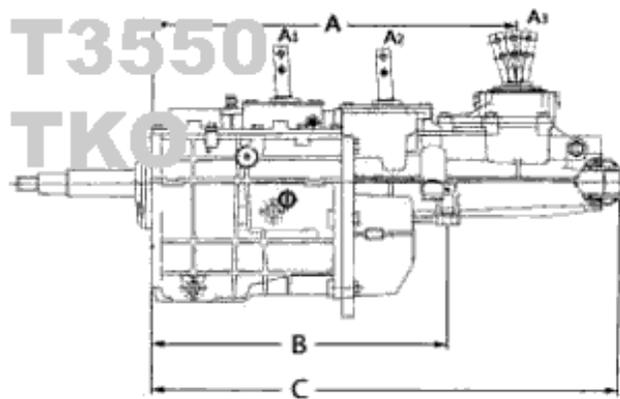
Tremec T3550/TKO (5speed)

3550 is capable of handling 425 lb.ft. of torque, good for small block Fords with power adders or launching on slicks at high rpm, or



TKO is upgraded to handle 525 lb. ft. of torque. Good for 400+ cid motors, strokers, etc.

Note the three shift lever mounting options.



Dimensions

A=19.5"
 B=15.8"
 C=24.1"

Weight

100lbs

[T3550/TKO Rebuild Manual - PDF 2.67MB](#)

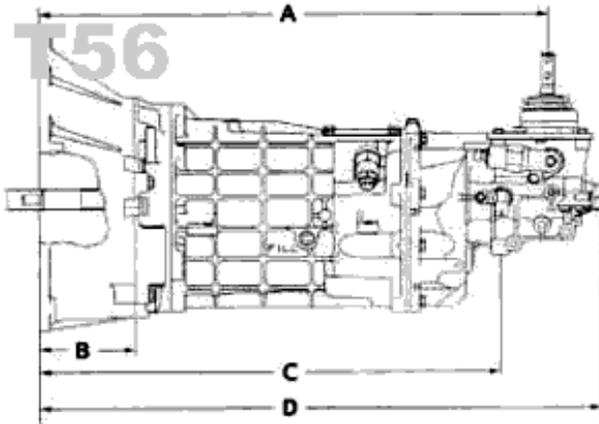
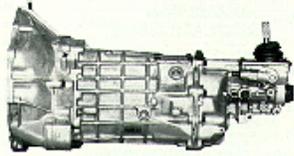
To save the manual on your hard drive, right click mouse and select "save target as", then choose the directory to save to.

Gear Ratios

1	2	3	4	5	Reverse
3.27	1.98	1.34	1.00	0.68 or 0.83	3.00

Tremec T56 (6 Speed)

T56 can handle up to 400 lb.ft. Dual overdrive makes it a great high transmission for high performance street vehicles. Bellhousing is integral.



Dimensions

- A=26.4"
- B=5.3"
- C=26.4"
- D=33.1"

Weight

115-130lbs

[Download T56 Rebuild Manual - PDF 2.24MB](#)

To save the manual on your hard drive, right click mouse and select "save target as", then choose the directory to save to.

Gear Ratios

1	2	3	4	5	6	Reverse
2.66	1.78	1.30	1.00	0.74 or 0.80	0.50 or 0.62	3.00

Sources:

[TTC Automotive](#)

Phone: (800) 401-9866

[Fortes Parts](#)

(781) 273-9900



T5 Identification Chart



B/W Id	Source	Application	Torque Max (lb/ft)	Gear Ratios	Speedo Drive Gear	Input Shaft length	Input Shaft Pilot Dia (in)	Notes
1352-	Year	Model	Engine	1st 2nd 3rd 4th 5th R				
114	Factory	85-86 T-Bird	2.3 T	235	4.03 2.37 1.49 1.00 0.81 3.76 6	7.41	0.59	
115	Motorsport	79-83 Mustang	5.0	305	2.95 1.94 1.34 1.00 0.63 2.76 6	7.18	0.668	a
116	Factory	85-86 SVO	2.3 T	250	3.50 2.14 1.39 1.00 0.78 3.39 6	7.41	0.59	
126	Factory	85 Mustang	5.0	265	3.35 1.93 1.29 1.00 0.68 3.15 7	7.18	0.668	
141	Factory	86 Mustang	5.0	265	3.35 1.93 1.29 1.00 0.68 3.15 7	7.18	0.668	
154	Factory	87 Mustang	2.3	240	3.97 2.34 1.46 1.00 0.85 3.70 7	7.41	0.59	
155	Factory	87 T-Bird	2.3 T	240	3.97 2.34 1.46 1.00 0.79 3.70 6	7.41	0.59	
162	Factory	87-88 Mustang	2.3	240	3.97 2.34 1.46 1.00 0.79 3.70 7	7.41	0.59	
165	Factory	86 Mustang	5.0	265	3.35 1.93 1.29 1.00 0.68 3.15 7	7.18	0.668	
169	Factory	86.5-89 Mustang	5.0	265	3.35 1.93 1.29 1.00 0.68 3.15 7	7.18	0.668	
194	Factory	89-90 Mustang	2.3	240	3.97 2.34 1.46 1.00 0.79 3.70 7	7.41	0.59	
199	Factory	90-91 Mustang	5.0	300	3.35 1.99 1.33 1.00 0.68 3.15 8	7.18	0.668	b
200	Motorsport	79-93 Mustang	5.0	305	2.95 1.94 1.34 1.00 0.63 2.76 7	7.18	0.668	a
202	Aftermarket	79-93 Mustang	5.0	305	2.95 1.94 1.34 1.00 0.80 2.76 7	7.18	0.668	c
204	Service	85-89 Mustang	5.0	300	3.35 1.99 1.33 1.00 0.68 3.15 7	7.18	0.668	
207	Factory	91 Mustang	2.3	240	3.97 2.34 1.46 1.00 0.79 3.70 7	7.41	0.59	
208	Factory	92-93 Mustang	5.0	300	3.35 1.99 1.33 1.00 0.68 3.15 8	7.18	0.668	d
209	Factory	92-93 Mustang	2.3	240	3.97 2.34 1.46 1.00 0.79 3.70 7	7.41	0.59	
218	Factory	93 Mustang Cobra		310	3.35 1.99 1.33 1.00 0.68 3.15 8	7.18	0.668	e
219	Factory	94 Mustang	5.0	300	3.35 1.99 1.33 1.00 0.68 3.15 8	7.85	0.668	
220	Factory	94 Mustang	3.8	265	3.35 1.93 1.29 1.00 0.73 3.15 7	7.85	0.668	
225	Aftermarket	79-93 Mustang	5.0	325	2.95 1.94 1.34 1.00 0.80 2.76 7	7.18	0.668	b,c,d
227	Motorsport	79-93 Mustang	5.0	325	2.95 1.94 1.34 1.00 0.63 2.76 7	7.18	0.668	b,c,d,f
236	Factory	94 1/2 Mustang	3.8	265	3.35 1.93 1.29 1.00 0.73 3.15 7	7.85	0.668	
238	Factory	94-97 Mustang	3.8	265	3.35 1.93 1.29 1.00 0.73 3.15 8	7.85	0.668	
239	Aftermarket	93 Mustang Cobra		310	3.35 1.99 1.33 1.00 0.68 3.15 8	7.18	0.68	c,e
242	Factory	94-95 Mustang Cobra 5.0		310	3.35 1.99 1.33 1.00 0.68 3.15 8	7.85	0.668	e
246	Factory	94-95 Mustang	5.0	300	3.35 1.99 1.33 1.00 0.68 3.15 8	7.85	0.668	
249	Motorsport	79-93 Mustang	5.0	33 0	2.95 1.94 1.34 1.00 0.63 2.76 7	7.18	0.668	e,g
251	Aftermarket	79-93 Mustang	5.0	33 0	2.95 1.94 1.34 1.00 0.63 2.76 7	7.18	0.668	c,e
253	Aftermarket	94-95 Mustang Cobra 5.0		31 0	3.35 1.99 1.33 1.00 0.68 3.15 8	7.85	0.668	c,e

Input Shaft = 1-1/16 inch/10 spline
 Output Shaft = 28 Splines

- Notes:
 a) Motorsport M-7003-A
 b) Improved Steel Alloy
 c) Aftermarket
 d) Carbon fiber 3/4 blocker rings
 e) Cobra tapered roller pocket bearing
 f) Motorsport M-7003-X
 g) Motorsport M-7003-Z



Cable Guy!

Cable Clutch Kit for Early Mustangs and Falcons



Modern Driveline Clutch Cable Conversion Kit

Swapping a T5 overdrive manual transmission into an early Mustang or Falcon (or their Mercury cousins) has never been more popular. We first [did this swap](#) in our '67 Mustang several years ago, but since then countless others have also made the conversion to the modern day five speed for the sake of better fuel economy and faster acceleration.

For many of you the swap was a no brainer -your car was already a manual and you simply purchased the necessary conversion parts, the T5, and bolted it up. Your mechanical clutch linkage worked just fine, though not nearly as smooth as the cable or hydraulic mechanisms typically found in a late model, T5 equipped, Mustang or Thunderbird.

For some of us the conversion was a little more challenging due to the fact our cars were originally equipped with an automatic transmission. Hence we had to source the rare, and expensive, clutch pedal and associated linkage. Many of us ended up modifying parts from other model years, or scrapping the swap all together. Undoubtedly there are a good number of people still on the sidelines waiting to get into the T5 game, but are unable to due to the growing scarcity of mechanical linkage components for their vehicles.

Regardless of which group you are in you can now bring your early Ford another step closer to the ease, practicality, and fun of an overdrive five speed. Modern Driveline has spent the last several years perfecting a clutch cable conversion kit for '65-'68 Mustangs and Cougars and '60-'65 Falcons and Comets. The kit replaces all the original mechanical linkage between the pedal and the bellhousing. The only stock piece required is a clutch pedal.



The kit is designed for strength as well as ease of installation. The 1/8" thick steel support plate mounts between the firewall and master cylinder. It not only locates the cable but strengthens the firewall by distributing the brake and clutch pedal loads.



The cable attaches to the clutch pedal using a clevis/pedal bracket. The bracket mounts to the pedal with no modifications, and positions the cable at the highest point above the pedal pivot in order to maximize leverage and minimize pedal effort.



The cable is not an off-the-shelf stock piece as found in some conversion kits, it is a custom spec'd piece with a duel-lined inner cable and an integrated firewall tension adjuster.

The cable conversion kit is designed to work with any of the late model transmissions using a cable actuated bellhousing (i.e. T5, T56, TKO) In theory the cable kit could work with any manual transmission, however because the early Toploader and Borg Warners use a "push" style clutch fork, the bellhousings have no provision for mounting the cable actuated fork.

There is no comparison between the pedal effort of an early mechanical clutch and that of the cable clutch mechanism found in newer cars. Cable clutches offer a huge reduction in friction and force required to depress the clutch. Furthermore they are much easier to setup and adjust than their mechanical counterparts. Combined with a late-model diaphragm clutch the pedal effort of a cable is nearly half that of a long style pressure plate and "z" bar linkage.

The beauty of a cable is that it takes up very little space, and offer plenty of room for larger engine swaps, custom headers, or other atypical modifications that cause grief with the stock clutch linkage.

We've been considering a cable or hydraulic clutch conversion for quite some time. In the past couple years a handful of small vendors have developed kits, and we have taken them into consideration. Many of the kits required welding on the clutch pedal or firewall. Some kits used an OE cable, while others had one custom made. The bottom line was the kits never seemed to be well thought out and designed. We've seen many of the early designs lead to cracked or warped firewalls due to lack of load distribution. We've also heard reports of poor clutch release due to improper leverage.

The Modern Driveline kit is by far the best designed kit we've looked at. While it may require a little more time to install, the kit makes no compromises. The cable passes through a steel bracket which not only distributes the load of the cable, but strengthens the inherently weak firewall area behind the master cylinder. There is no welding or modification necessary other than drilling a hole - making the entire project easily reversible if ever needed. Follow along as we install the cable conversion kit into our '67 Mustang. [Continue](#) (Requires [Subscription](#))



Stock cables, such as this 5.0L unit, use inferior nylon ends and a bare cable which eventually binds and corrodes. The lined cable included in the Modern Driveline kit offers a smooth and virtually frictionless pedal effort.



PRO RIPPER



At last count there were nearly a dozen types of aftermarket shifters for the T5 and T45 transmissions. Among the companies with a product to offer was B&M, with their Ripper shifter. We installed their [original Ripper](#) a couple years back, in our Project '67 Mustang. That shifter still serves us without a glitch and has taken some serious abuse at the track, including repeated powershifting and being slammed into gear after gear by a 200+ lb. guy who doesn't care whether he breaks it or the car, since he's not the owner! (We're referring to our resident hot-shoe, Victor Silva.)

So when it came time to find a shifter for the T5 in our '88 Mustang LX it was a no brainer which shifter to go with. That is until B&M threw a fork in the road. Apparently the shifter gurus felt the original Ripper design could be improved upon. A few CAD drawings later they came up with the Pro Ripper, a stronger and beefier shifter that looks like it could serve in a Brinks armored carrier - that is, if they used T5's.

Seriously though, in the sea of T5 shifters, it's a toss up with which one to go with. If its any consolation, you know you've got a solid, no B.S., product when Ford SVT chooses to use it on the venerable Cobra R's.

We decided to give the Pro Ripper a shot and install it in the '88, even though that car won't see nearly the abuse required to really challenge this caliber of shifter. Actually the T5 in the '88 is showing signs of impending failure. Third gear whines like an underpaid FM editor, first and second are hard to get into, and reverse has a mind of its own. We're hoping the shifter will make things a little better in the short

term.



B&M Pro Ripper for Mustang T5 and T45 transmissions.
Part No. 45070

Features include billet aluminum and steel construction; a aerospace polymer bearing; adjustable neutral position tension; shift stops and three piece stick.

Installation - B&M Pro Ripper Shifter



1 Installation is about an hour long task. With the knob, leather boot and cover plate removed, we used a 1/2" socket to remove the stick from the shifter. Notice we'd been using an aftermarket stick with our stock shifter in attempts to shorten the throw.



2 Getting the dust boot off is one of the frustrating parts of the otherwise simple installation. The two screws at the back can be reached with a 1/4" drive ratchet and 11/32" socket on an extension. However the two front screws are hidden under the console, and will require patient removal, half-turn at a time, with a open end wrench.



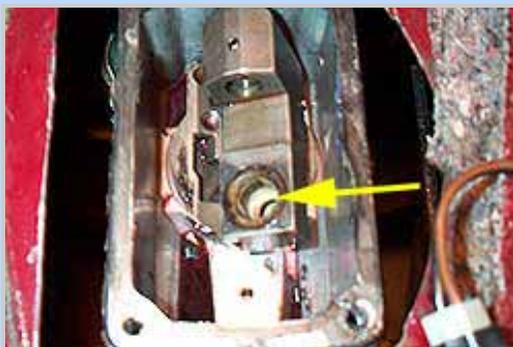
3 With the dust boot removed and the swearing out of the way, we're ready to remove the shifter itself. Once again a sockets make easy work of the rear two bolts, but the front two require a wrench.



4 Note that our '88 was originally an AOD car which we [converted to T5](#) (hence the green shifter light and carved up transmission tunnel.)



5 With the four bolts removed, a little prying is all it takes to break the silicone bead holding the stock shifter to the T5.



6 Clean up the old silicone, and make sure none of it falls into the T5 (it'll clog up the fluid passages.)

Note also the plastic shifter cup (arrow). Make sure it's in place, and if it's broken make a trip to a Ford dealer to pick up a new one.



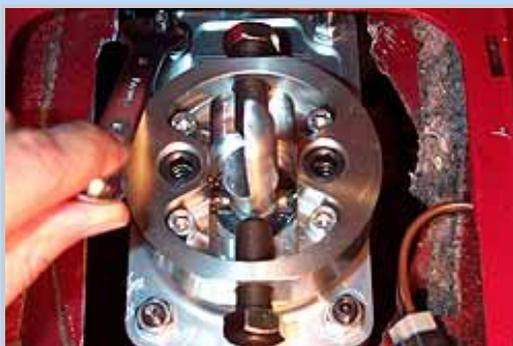
7 One of the upgraded features of the Pro Ripper is that it mounts using these studs, rather than the stock bolts. Studs are a little stronger than bolts, and it makes for easier installation of the new shifter.



8 Another feature of the Pro Ripper is the ability to change the stiffness of the neutral position. If you prefer more side-to-side resistance remove the allen plugs and swap out to the stiffer springs (included.) We left ours alone.



9 Apply a thin bead of silicone between the bolt holes as shown. By the way, regular indoor-outdoor clear silicone works fine for everything on a car or engine, and costs a fraction of the RTV stuff.



10 With the new shifter positioned over the studs, the nuts and washers are secured evenly.



11 The Pro Rippers two-piece stick offers a variety of mounting positions to suit your driving posture and vehicle configuration. We simply bolted the stick to the lower two mounting holes on the shifter to obtain about a 30% shorter throw than stock.



12 The final step is to set the shifter stops. The shift forks in a T5 and T45 are weak and can bend if the shifter is slammed hard into gear. The stops prevent such over extension. Simply put the shifter in gear then turn in the large stop screw until it just makes contact with the shifter. Back it off 1/2 turn and lock it into place. Repeat for the other stop.



13 The leather boot and trim cover are put back in place. It's a shame we have to hide the shiny billet steel, but its a major relief knowing we can shift without the fear of missing a gear or breaking a shift fork.

Sources:

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