

# **TREMEC<sup>®</sup>**

---

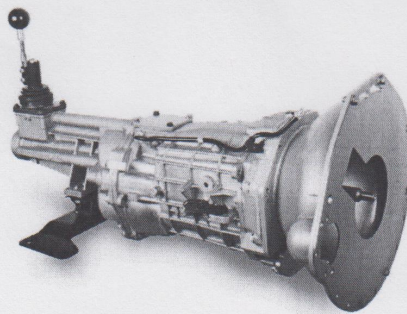
## **MAGNUM XL INSTALLATION & SPECIFICATION NOTES**

---

2005-CURRENT FORD MUSTANG GT/GT500

P/N TUKT12019 & TUKT12021

(Review carefully prior to installation and/or use!)



GEARED FOR THE FUTURE

# **TREMEC**

Congratulations on the purchase of your new Magnum XL 6-speed. You are now in possession of the industry's most advanced manual transmission for "S197" platform 2005-up Ford Mustangs. We are confident that this transmission will provide you reliable service for years of spirited driving and improve the performance of your vehicle substantially. Please spend a few moments to read the following notes and instructions thoroughly prior to installation and/or first time use in order to get the most from your new investment.

The system is intended specifically for use in vehicles with stock engine placement, and stock or near stock ride height. Vehicle modifications such as extensively modified ride height, modified suspension pick-up points, firmer than stock suspension bushings and/or drivetrain mounts, altered engine position and/or engines built outside OEM tolerances may affect installation and performance of the unit. For assistance troubleshooting, please contact your sales agent, or contact TREMEC customer service at 800-401-9866 or via email at [customer.service@tremec.com](mailto:customer.service@tremec.com).

## **Your TREMEC box should contain the following:**

- 1- Magnum XL manual transmission with billet short-throw shifter and shift handle isolator attached.
- 1- Shifter handle with Mustang-specific shift boot grommet.
- 1- Black TREMEC 6-Speed shift knob.
- 1- SFI approved steel bellhousing and enclosure plate.
- 1- Transmission swap steel crossmember.
- 1- Rubber transmission-to-crossmember mount.
- 1- Hardware kit (Hardware for multiple model years included, be sure to use correct hardware).

## **Additional parts required for installation** *(sold separately through TREMEC Elite Distributors):*

- 1- Single piece driveshaft with 31-spline slip yoke and Mustang-specific rear flange.  
**NOTE:** GT & GT500 models use different driveshafts!
- 1- 26-spline clutch disc and/or complete clutch kit (age & wear dependant).
- 1- Electronic speedometer adaptor. See distributor for details.  
**NOTE:** 2011-up GT models only!

## **General Specifications:**

- All Magnum & Magnum XL series transmissions are rated for 700 lb-ft of continuous torque. However this rating may be affected by conditions other than engine output, such as use, gross vehicle weight, clutch selection, tire selection, etc. For specifics or help please refer to sales agent or contact TREMEC customer service at 800-401-9866 or via email at [customer.service@tremec.com](mailto:customer.service@tremec.com).
- Your Magnum XL transmission requires approximately 8 pints of Dexron III type ATF.  
**NOTE:** The use of fluids other than specified may void factory warranty.

## **Break In Procedure:**

- Magnum & Magnum XL transmissions use a sophisticated synchronizer system. For optimal performance and product longevity, it is important to properly "break in" the unit prior to

## **TREMEC**

attempting any high-rpm shifts.

- Break-in schedule should last no less than 500 miles, and include frequent upshifts and downshifts through all forward gears in order to properly "seat" mechanical surfaces.  
**NOTE:** Performing shifts at Wide Open Throttle (WOT) or without appropriate use of the clutch may damage unit regardless of mileage, torque levels, and break-in procedure.

### **Warranty:**

- Magnum & Magnum XL transmissions are guaranteed to be free of manufacturer defects and feature a 180-day unlimited mileage warranty.  
**NOTE:** Abuse or misuse of the product, as well as, damage resulting from improper installation, secondary damage, collision or use of fluid other than specified may void this warranty.

### **Installation Instructions:**

Recommended for qualified professionals. Always use appropriate safety equipment, including eye protection. For assistance finding an installation facility, contact your sales agent, or contact TREMEC customer service at 800-401-9866 or via email at [customer.service@tremec.com](mailto:customer.service@tremec.com). The following procedure was performed on a 2011 Mustang GT, but is comparable to most installations.

1. Disconnect negative battery cable on vehicle.
2. Remove factory shift knob and center console trim from inside vehicle.
3. Support vehicle on jack stands or hoist.  
**NOTE:** A "lift" or vehicle hoist is highly recommended for ease of installation.
4. Prior to removing any parts, driveline angles should be determined as a reference to ensure a successful conversion. The reference points should be able to be measured both before and after installation in order to determine that angles have not been compromised. Do not enter vehicle between obtain pre-and-post installation results. There should be little to no deviation between original and TREMEC setup.
5. Using a 15mm socket, loosen rear exhaust clamps just behind balancer tube on H-pipe.
6. Using a 15mm socket loosen forward exhaust clamps behind downstream/secondary oxygen sensors.
7. Remove H-pipe mid-assembly.
8. Using a 12mm swivel-head 12-point socket, loosen four driveshaft bolts at rear transmission flange.
9. Using a 10mm socket, loosen six driveshaft bolts at rear-end pinion flange.
10. Using a 13mm socket and extension, remove two bolts securing carrier bearing at middle of driveshaft.
11. **NOTE:** Use care to not let driveshaft fall, possibly causing injury or damage to the shaft.
12. Carefully remove driveshaft.
13. Using a 15mm socket, remove four nuts securing lower k-member cross brace located underneath the forward catalytic converters.
14. Using a 10mm socket, remove three bolts securing starter and remove starter from transmission. Use tie wrap to secure starter out of the way for remainder of conversion.

## **TREMEC**

**NOTE:** Top bolt will require an extension.

15. Using a 15mm socket, remove two nuts securing driver-side front catalytic converter primary pipe to driver side header flange. Disconnect oxygen sensor "quick disconnect" and remove catalytic converter.
16. Disconnect "quick connect" fitting from supply line running into hydraulic throw out/release bearing. Use plug or suitable clamping device to prevent draining of hydraulic supply line.
17. Using a 13mm socket, remove one bolt/pin securing external shifter linkage to shift rail protruding from rear of trans. Disconnect linkage.
18. Eight bolts secure the factory transmission to the rear of engine. Using a 13mm socket, remove lower four bolts from underneath vehicle. Two more at "mid" height position on each side of the bellhousing can also be removed from underneath through the use of a long extension (approximately 3 ft.) and 13mm impact swivel socket.  
**IMPORTANT:** COMPLETE THE NEXT STEPS BEFORE REMOVING THE LAST TWO BOLTS!
19. Support transmission with hydraulic floor or transmission jack.  
**NOTE:** Using a ratchet strap to secure transmission to jack will help prevent the transmission from falling off of jack platform, causing possible injury or damage to transmission.
20. Using an 18mm socket, remove four bolts securing transmission crossmember to vehicle chassis.
21. Using a 13mm socket and long extension (approximately 4 ft.), remove final top two transmission bellhousing bolts.
22. Make sure all plugs and wiring harnesses are disconnected from transmission and clear of path for removal. Users may completely remove harness by disconnecting it from two quick disconnect plugs for primary/upstream oxygen sensors.  
**NOTE:** Oxygen sensors pigtailed are side specific, so be sure to label them accordingly for re-installation later!
23. Carefully divorce transmission from rear of engine.  
**NOTE:** It may be necessary to use a large rubber mallet or pry bar at the front of the transmission to get started.
24. Remove transmission from vehicle.
25. With transmission removed, use a 13mm socket to remove six bolts securing clutch pressure plate to flywheel.
26. Remove pressure plate and clutch disc.  
**NOTE:** It may be necessary to use a screwdriver or pry bar to unseat the pressure plate from the dowel pins on flywheel.
27. Using a 19mm socket, remove eight bolts securing flywheel to engine crankshaft. Use care when removing flywheel as it is heavy.
28. Using a 10mm socket, remove two nuts securing factory remote shifter from vehicle transmission tunnel, and remove factory shifter.
29. Install TREMEC bellhousing enclosure plate onto engine dowel pins.
30. Install flywheel and replace eight 19 mm bolts. Torque to factory specifications. A fastener aid such as Loc-Tite is recommended to prevent flywheel bolts from backing out.
31. Using clutch alignment tool, install pressure plate and clutch disc assembly onto flywheel dowel pins. Using a 13mm socket, install six pressure plate bolts and torque to manufacturer's specifications. Again, Loc-Tite recommended to prevent fasteners for potentially coming loose.  
**NOTE:** Use extra care when aligning clutch disc to prevent disc from "falling". This will make installation of transmission significantly easier.

## **TREMEC**

32. Place TREMEC bellhousing on engine dowel pins. Using a 5/16" hex driver, install eight Allen head bolts. Torque to 31-40 lb-ft.  
**NOTE:** If engine "short block" is no longer factory, dial indicating the bellhousing to ensure proper tolerances should be performed. Input shaft pilot must within .005" runout with engine crankshaft centerline as measured from the pilot bearing. Rebuilt or remanufactured engines that are not properly line bored often suffer pattern distortion. If runout is excessive, offset dowel pins must be used to correct (not included in kit). Failure to adhere to specified runout tolerance may result in excessive noise, vibrations, increased shift effort, and/or premature failure of transmission.
33. Install seven closure plate bolts, using a 15mm wrench, torque to 45 lb-ft.
34. Remove hydraulic release bearing from factory transmission and reinstall on Magnum XL.  
**NOTE:** DO NOT depress bearing while out of vehicle. Doing so will evacuate fluid and introduce air into system. 2005-2012 Mustang GT & 2007-2009 GT500 use identical bearing which is ideal for Magnum XL installation. 2010-up GT500 uses unique "short" bearing that will spacer (not included). All bearing may require shimming to achieve proper position in relation to clutch pressure plate. Refer to clutch manufacturer for proper procedure and position.
35. Remove clutch alignment tool and install transmission  
**IMPORTANT:** As with transmission removal, the aid of a floor jack or transmission jack is strongly recommended. The use of a ratchet strap to secure transmission to jack platform is also recommended. Installation should be completed by two people in order to steady and properly align transmission. Never use transmission-to-bellhousing bolts to draw in transmission! This may permanently damage the clutch disc, causing poor function and possible transmission damage. Additionally, if wiring harness was removed during Step 21, this is a good point to consider how you wish to re-route the harness (over or under top of transmission, etc).
36. Install eight transmission-to-bellhousing bolts and using a 5/16" hex driver, torque to 31-40 lb-ft.
37. Continue to support transmission with transmission jack and install transmission mount using two 19mm bolts. Torque to 31-40 lb-ft.
38. Install crossmember with four 20mm bolts. Torque to manufacturer specification.
39. With transmission mount studs settled into the crossmember and crossmember secured to the vehicle chassis, remove jack.
40. Install two 19mm nuts on bottom of transmission mount. Torque to 25-35 lb-ft.
41. Reinstall starter, torque bolts to manufacturer specification.
42. Using care not to rupture or tear the rear output seal of the transmission. Install new 1-piece driveshaft and secure to rear pinion. Torque bolts to manufacturer specification.
43. Reconnect hydraulic feed line for hydraulic release bearing and remove clamp or plug if previously installed on line.
44. Reinstall exhaust.
45. Reinstall all sensor plugs and pigtails.
46. Using previous reference points, again take driveline angle measurements to satisfactory installation.
47. Lower vehicle.

## **TREMEC**

48. Check fluid in master cylinder reservoir near firewall on driver side to ensure appropriate fill level. Add manufacturer's recommended fluid as necessary.
49. Ensure proper function of clutch release bearing by entering vehicle and depressing pedal repeatedly. If pedal action feels soft or inconsistent, continue to pump. A vacuum pump such as a "Mighty Vac" or similar tool may be required to properly evacuate air from system at a master cylinder reservoir.
50. Install shift handle, knob and factory shift boot using provided hardware. Re-install center console trim.
51. Reconnect battery.
52. Place transmission in neutral position and start as desired. Use caution when putting into gear for first time. Potential presence of air in clutch release system may not allow clutch to disengage, causing unintended movement of vehicle.

### **ADDITIONAL NOTES:**

- All Magnum & Magnum XL transmissions are equipped with a Reverse Inhibitor Solenoid located at the left rear of the transmission. This solenoid is intended to keep users from accidentally engaging reverse when traveling forward. The solenoid can be hooked up or left disconnected. If not utilized the solenoid will increase the difficulty of shifting into reverse by adding spring pressure. To release this pressure, a 12-volt signal must be applied, allowing for easy engagement. TREMEC recommends the use of a "momentary switch" mounted in the vehicle cabin to disengage the solenoid as desired. DO NOT remove the solenoid under any circumstances. Magnum & Magnum XL transmissions also feature high-capacity "double-cone" synchronizers for reverse gear, meaning that without the reverse inhibitor in place to prevent unintended engagement, shifting into a reverse at vehicle speeds as great as 60 mph is possible!
- 2011-up Mustang GT's equipped with factory Getrag MT82 manual transmissions will require a digital speedometer adapter/recalibration apparatus to correct the speedometer (not included in kit). Many aftermarket solutions are available and are easy to install. For details please consult your sales agent or contact TREMEC customer service at 800-401-9866 or via email at [customer.service@tremec.com](mailto:customer.service@tremec.com).
- Fluid fill of Magnum XL can be achieved several different ways. By filling prior to installation (often messy), by using a hand pump to push fluid up into transmission fill plug underneath the vehicle, or by removing the shifter and pouring in fluid from inside the vehicle. If you require assistance consult your sales agent or contact TREMEC customer service at 800-401-9866 or via email at [customer.service@tremec.com](mailto:customer.service@tremec.com).