



HUGHES PERFORMANCE TORQUE CONVERTER INSTALLATION INSTRUCTIONS 9/19/16

For over 45 years our goal has been to provide racers and enthusiasts with reliably engineered, U.S. manufactured, torque converters and drive train components for your high performance application. *Before you start your build, please take a few moments to review the important Product Safety Information and installation steps set out within this instruction manual.* If you still have questions; Hughes Performance® technical team is here to help:
(1-800-274-RACE).

Important Product Safety Information

Throughout these instructions important safety information is generally preceded by one of three signal words indicating the relative risk of injury. The signal words mean:

! WARNING a hazardous situation which if not avoided could result in death or serious injury. **You CAN be Killed or Seriously Injured if you do not follow instructions.**

! CAUTION a hazardous situation which if not avoided could result in minor or moderate injury. **You CAN be moderately INJURED and also may suffer property damage if you don't follow instructions.**

NOTICE careful attention is required to follow this installation instruction or operation but does generally not relate to personal injury. Damage to your product or other property may result if you do not follow instructions.

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! WARNING: Improper selection of Hughes Performance® products, failure to follow installation instructions and/or misuse increases the risk of injury or accident. For your safety and the safety of others:

- Assure the Hughes Performance® product selected is intended for your application with an additional safety margin above your expected horsepower, torque, and intended usage of product and vehicle.
- These instructions are not intended to address all risks related to modification of your vehicle or use. Remember: *you are the builder and chief safety engineer for your modified vehicle.* Consult and follow all OEM warnings and operating limitations.

(For Calif. Residents-Prop. 65):

! WARNING

This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.
(for more information on Prop. 65 see www.P65Warnings.ca.gov/product)

To reduce risks: work with gloves, safety glasses, wash hands before eating, and dispose of any fluids properly.

! WARNING: Before beginning the torque converter removal, make sure the vehicle is properly supported on safety stands (jack stands) or equivalent and is high enough to allow the transmission to be SAFELY removed. Follow transmission removal instruction for your specific vehicle.

- **! CAUTION** Do **NOT** cut the protective vinyl hub cover in order to remove it from the torque converter pump hub. You can easily damage the sealing surface of the pump hub if you cut the cover off. If you experience difficulty removing the protective cover then puncture the center of the cover with a screwdriver or similar object and gently pry the cover off.
- Before installing the torque converter into the transmission and reassembling your vehicle you must verify proper fitment of the converter to your flexplate and crankshaft. Verify that the torque converter pilot diameter matches the crankshaft pilot diameter. Verify that the torque converter bolt pattern matches the flexplate bolt pattern. Verify that the flexplate bolts do not interfere with the torque converter. Verify that the torque converter mounting pads sit flush against the flexplate.
- When installing 7/16" bolts to attach the torque converter to the flexplate we recommend that you first enlarge the torque converter bolt holes in the flexplate to an inside diameter of 29/64" (.453"). This will help ease the installation of 7/16" torque converter bolts by overcoming any tolerance stack-up between differing aftermarket components. **! WARNING:** Safety glasses must be worn while drilling.
- Torque converters that feature threaded mounting bosses instead of bolt holes should have the threads cleaned out with a thread chasing tap and cleaned of any residual paint.
- **NOTICE:** Torque converters that feature threaded mounting bosses instead of bolt holes **MUST** have the correct length bolts installed when attaching the torque converter to the flexplate. Installation of bolts that are too long will result in damage and may puncture the front cover of the torque converter.
- Torque converters that require a bolt and nut should have the bolt installed from the engine side of the flexplate and the nut installed from the converter side. Failure to install the bolts and nuts in this manner may result in interference of the bolts with the rear of the engine block.
- Prime the torque converter with approximately one quart of fluid before installing the converter into the transmission. We recommend Hughes Extreme Type F, Lucas Sure Shift or Lucas Marine ATF for use with our products. Certain fluids including many synthetics are not appropriate for use with our products. Contact Hughes Performance if you are unsure of your fluid selection.
- Verify that the crankshaft pilot is clean and free of any paint, rust, dirt, etc. Remove any paint from the pilot of the torque converter. Apply a light film of grease or anti-seize to the torque converter pilot before installing the torque converter and transmission assembly onto the engine.
- We recommend replacing the lip seal in the transmission front pump when installing a new torque converter with a previously used transmission. **! CAUTION** Extreme caution must be exercised when replacing the lip seal as you can easily damage the bushing in the front pump when using a prying tool to remove the old lip seal.
- Apply a light film of ATF (automatic transmission fluid) to the torque converter pump hub before installing the torque converter into the transmission.
- **NOTICE:** The torque converter must engage three separate transmission components during installation. The converter will engage the front pump gear set, the stator support (large spline), and the input shaft (small spline). As such, you will normally feel and/or hear three distinct "clicks" as the converter engages each transmission component. The converter **MUST** be fully seated into the front pump before installing the transmission onto the engine in order to prevent damage to the front pump gear set, torque converter pump hub, flexplate, and crankshaft thrust bearing.

- **! CAUTION NEVER** install the torque converter onto the flexplate first and then attempt to install the transmission onto the torque converter. Failure to follow this step could result in transmission, torque converter & flexplate damage.
- Once you have the transmission installed onto the engine you must verify that the torque converter remained fully seated into the front pump during the transmission installation. You should observe 1/8" (.125") to 3/16" (.187") of air gap between the torque converter mounting pads and flexplate before sliding the converter forward to attach it to the flexplate. If you have 1/8" – 3/16" air gap then you may proceed with sliding the torque converter forward and attaching it to the flexplate. If you have less than 1/8" air gap then you may not have the torque converter fully seated into the front pump. This will require disassembly and verification of proper torque converter installation. If you have more than 3/16" air gap then you may install high quality flat washers between the mounting pads and flexplate to shim the converter to the correct air gap dimension of 1/8" – 3/16". **NEVER** shim the converter to eliminate all air gap. Running the torque converter in a fully shimmed condition **WILL** result in damage to the front pump gear set, front pump stator body, torque converter pump hub, and may even cause damage to the internal torque converter components as well as the crankshaft thrust bearing.
- **! CAUTION** Exercise extreme caution when shimming a torque converter and be sure that you do not pull the converter pilot too far out of the crankshaft. If the converter pilot does not have sufficient engagement in the crankshaft then the converter may not locate properly in the crankshaft. This may lead to a vibration and will eventually cause damage to the flexplate, torque converter pump hub, front pump bushing, front pump gear set, and front pump housing.
- We recommend installing torque converter bolts with a small amount of thread locking compound applied to the bolt threads. Be sure to torque all fasteners to the proper specifications. Refer to the chart for proper torque specifications:

USS/SAE GRADE 5			USS/SAE GRADE 8		
DIAMETER & THREADS PER INCH	TORQUE DRY FT./LBS.	TORQUE LUBRICATED FT./LBS.	DIAMETER & THREADS PER INCH	TORQUE DRY FT./LBS.	TORQUE LUBRICATED FT./LBS.
3/8"-16	30	23	3/8"-16	45	35
3/8"-24	35	25	3/8"-24	50	40
7/16"-14	50	35	7/16"-14	70	50
7/16"-20	55	40	7/16"-20	80	60
*NOTE: WHEN USING A PREMIUM STEEL ALLOY AFTERMARKET FASTENER SUCH AS THOSE OFFERED BY ARP, A-1 TECHNOLOGIES, ETC., PLEASE BE SURE TO FOLLOW MANUFACTURERS RECOMMENDATIONS FOR PROPER TORQUE SPECIFICATIONS AND PROCEDURES!					

- **Failure to follow these instructions will void any warranty expressed or implied.**
- If you have any questions regarding your Hughes Performance torque converter, please contact Hughes Performance at 602-257-9591. You may also fax us at 602-340-8429, or contact us online at www.hughesperformance.com

THANK YOU FOR YOUR PURCHASE OF A HUGHES PERFORMANCE TORQUE CONVERTER! WE APPRECIATE YOUR SUPPORT OF OUR PRODUCTS!