



12-Bolt Hi5 Torque Converter

Serviceable Multi-disc 48RE Torque Converter

1071260	Hi5; High Stall
1071261	Hi5; High Stall for "Big Shaft"
1071262	Hi5; Enhanced Stall
1071269	Hi5; Rebuild Kit
1600176	Hi5 12-Bolt Flexplate


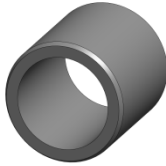

BD Engine Brake Inc.



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Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

Kit Contents

107125X	1600174	1600173-1
		
12-Bolt Torque Converter	Dowel Pin	Bellhousing Spacer Part 1
Qty: 1	Qty: 2	Qty: 1



1600173-2	B63	FT-0142777
		
Bellhousing Spacer Part 2	Flexplate Bolt	Bellhousing Bolt
Qty: 1	Qty: 12	Qty: 2

Rebuild Kit Contents

1701268	1701267	1600175
		
Internal Tooth Fiber	External Tooth Fiber	External Tooth Steel
Qty: 2	Qty: 1	Qty: 1

1601831	FT-0135916	B63
		
O-Ring	Screw	Flexplate Bolt
Qty: 1	Qty: 12	Qty: 12

Optional Components

1041212	1041210
	
12-Bolt Flexplate	Flexplate
Qty: 1	Qty: 1

Introduction

In high performance diesel racing applications, the stock locking torque converters (TC) often are the weak link between the engine and transmission. To increase torque holding capacity, torque converters often have multiple friction surfaces, and heavy duty components. In extreme cases, these can overheat and fail as well. When this happens, the torque converter is removed from the truck, and sent to a repair facility. This is costly and time consuming, when the typical failure is often overheated or worn clutch surfaces.

The 12-Bolt Hi5 Torque Converter was designed to overcome some of these challenges by increasing the friction surface count to five, adding six additional flexplate bolts (for a total of twelve), and by being serviceable at the racetrack, or back at the shop. The ability to service the TC allows clutches to be inspected, and replaced at regular intervals, without having to ship the TC away.

Torque Converter Service

The 12-Bolt Torque Converter will be fully assembled upon receipt. However, the intent of the converter is that it can be disassembled and serviced without cutting the weld. The following instructions outline how to service the torque converter clutch.

Clutch Service

Place torque converter upside down as shown, and remove the twelve (12) fasteners holding the cover plate.



Remove cover plate from the torque converter. This may require a rubber mallet to tap around the outside to break it free.



Note: Ensure the hub thrust bearing washers are not lost when the cover plate is removed.



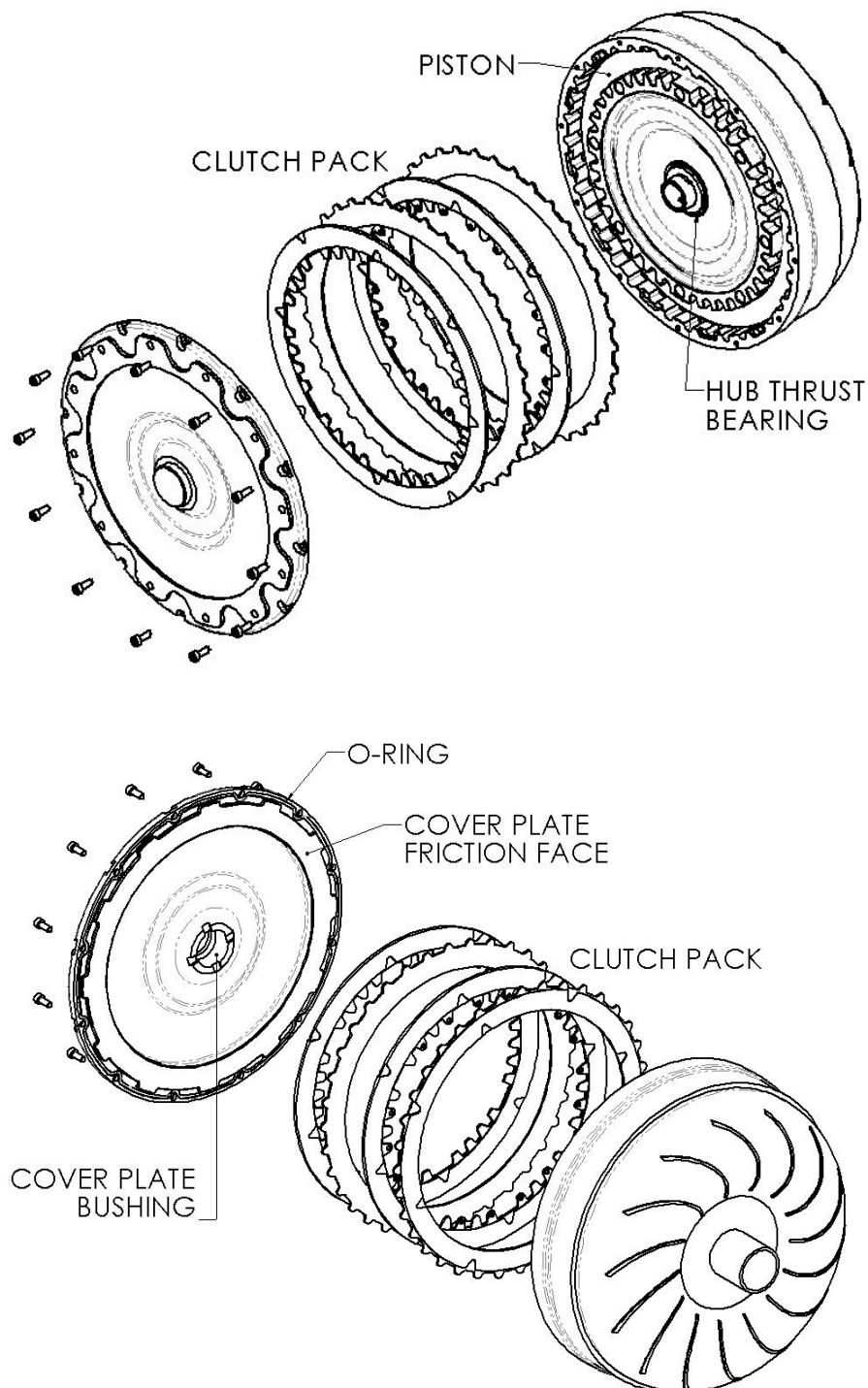
Remove torque converter clutch pack assembly. This is done with a pair of picks, or small flat head screwdrivers.

Note the order of the steels and fibers as you remove them.



Inspect the following for excessive wear or damage:

- Torque Converter Piston
- Hub Thrust Bearing
- Cover plate O-Ring
- Cover Plate Friction Face
- Clutch Pack
- Cover Plate Bushing



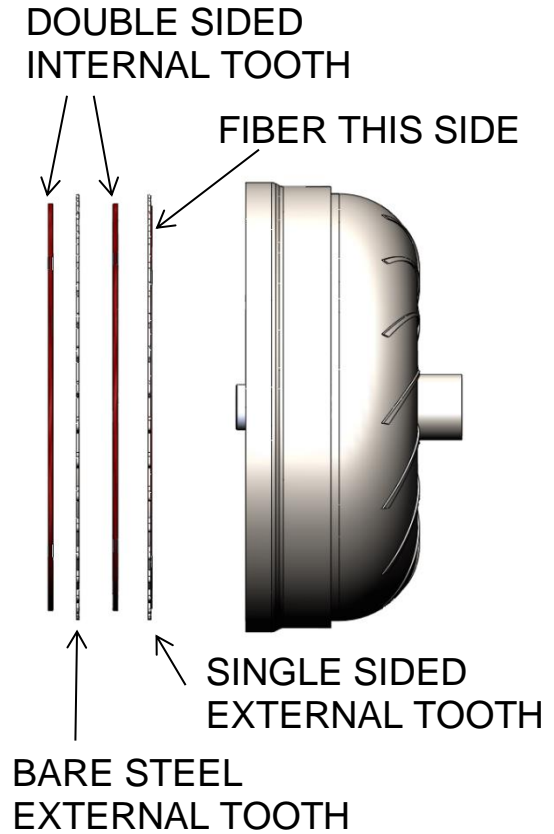
Inspect the clutches for wear, warping, or heat damage.

If clutches are damaged or worn-out, replace with new ones.



Install the clutches in the order shown.

Note: Order of clutches is critical to torque converter function.



Reinstall the cover plate onto the torque converter.

Apply blue loctite and torque fasteners to **10 ft-lbs** in a criss-cross pattern.



Complete a final visual inspection of the torque converter, and reinstall onto transmission.

Stator Service & Change

The following outlines the service and replacement of the torque converter stator. By changing the stator, stall speed of the torque converter can be adjusted.



Internal clearance in the torque converter is critical. Incorrect installation of a stator could cause damage to the torque converter! The following should be done by an experienced torque converter repair technician.

Disassemble the torque converter, as seen in the above ***Clutch Service*** section.



Remove the piston and turbine assembly from the torque converter.



The stator assembly will now be exposed for removal.

Note the orientation of the stator at this time. The stator's sprag should turn freely counter-clockwise when viewed as shown.



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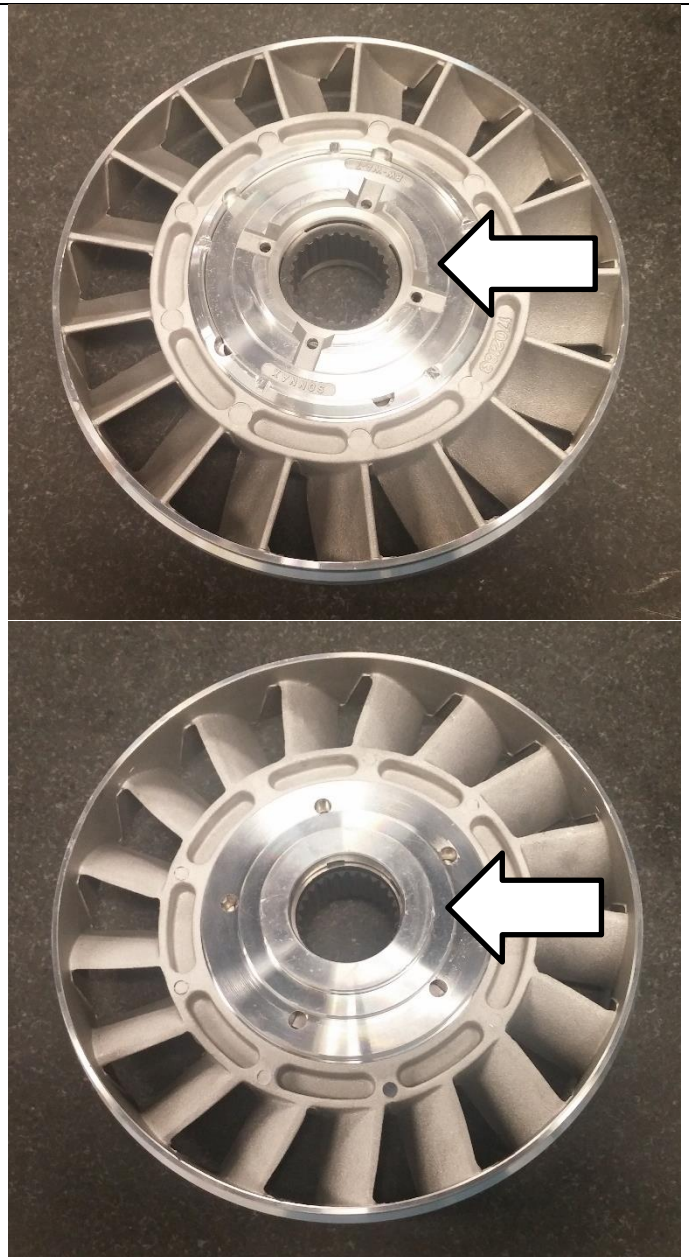
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Check the stator and bearings for wear or damage. Ensure the sprag only turns freely in one direction (counter-clockwise when viewed as shown, from the turbine side of the stator).



If stator is found to be ok, skip to reassembly of the converter. If replacing the stator with a different unit, continue with the steps below.

Measure the thickness of the stator that was removed from the converter. The critical measurement is the thickness between the two bearing mounting surfaces, as shown.



The easiest way to measure the thickness is to lay the stator on some blocks and use a height gauge.

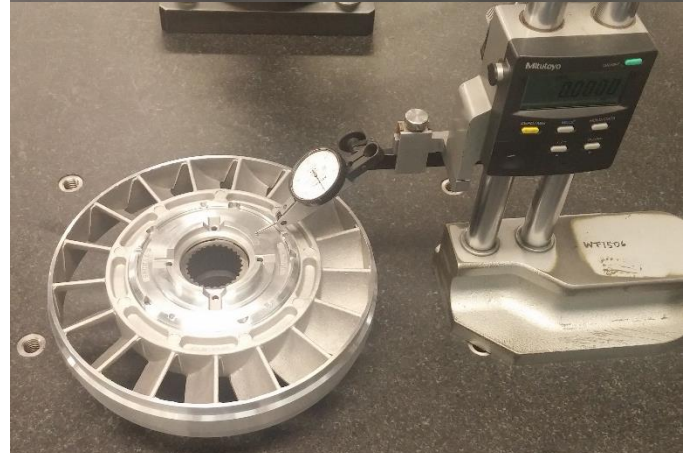
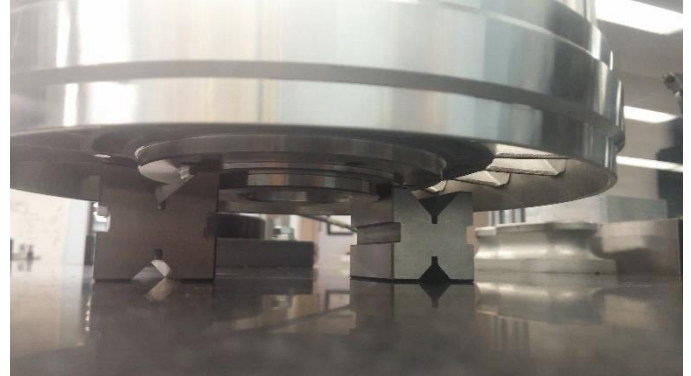
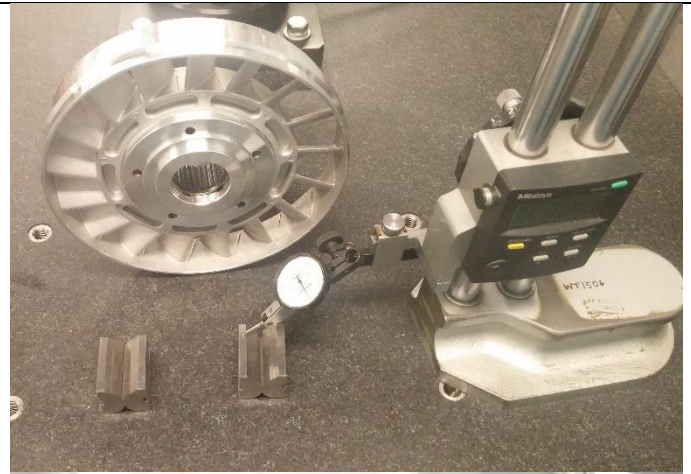
Set the blocks, and zero the height gauge on the top of the blocks.

Lay the stator on the blocks, ensuring the blocks are seated on the bearing mounting surface as shown.

Using the height gauge, measure the upper bearing mounting surface, and record the value below.

This will provide you with the baseline measurement.

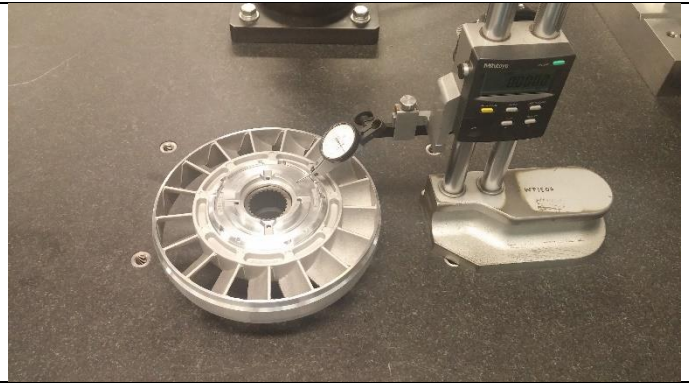
Measurement #1: _____



Repeat the above measurement process with the new stator to be installed in the torque converter.

Record this measurement

Measurement #2: _____



Enter the values in the formula below:

(Measurement #1) – (Measurement #2) = (Difference Between Stators)
_____ - _____ = _____

If the result **Difference Between Stators** is between -0.003” and 0.003” (+/- 0.003” when compared to the original stator) the new stator is a direct replacement, and can be installed into the torque converter.

If the result **Difference Between Stators** is outside of the above bounds (too thick or too thin), the stator will need to be modified before install.

- If the stator is too thick, it will need to be machined down
- If the stator is too thin, shims will need to be used to increase thickness

Once the stator is ready for Assembly, insert the stator and bearings into the impeller as shown. Ensure the stator is placed with the stator cap upwards as shown. In this position the sprag should freely rotate in the counter-clockwise direction.



Assemble the turbine and piston into the impeller and install the clutch pack as outlined in the **Clutch Service** section of this manual.



Reinstall the cover plate onto the torque converter.

Apply blue loctite and torque fasteners to **10 ft-lbs** in a criss-cross pattern.



Once fully assembled, the end play of the torque converter should be verified, to ensure the stator spacing is correct. This can be done by lifting the turbine using an end play tool, and measuring the play with a dial indicator **or** by using an end play gauge stand.

The measured end play should be 0.012" to 0.023".



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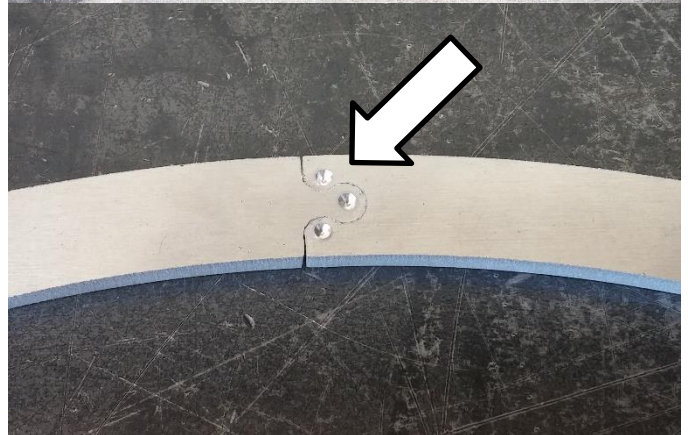
Installation

To begin installation of the 12-bolt torque converter, the existing transmission, torque converter and flex plate need to be removed from the truck.

The following instructions outline the specific details regarding installation of the 12-Bolt Torque Converter, and do not cover transmission removal or installation.

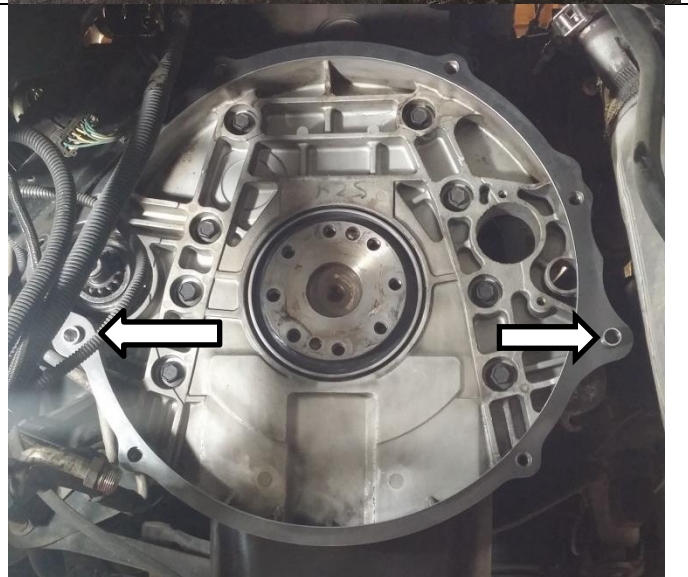
Assemble the two halves for the bell housing spacer as shown. The "puzzle pieces" will only fit one way.

To aid in assembly use a center punch to swage the two parts together as shown.



Remove the factory dowel pins and install the supplied longer pins.

Install Bellhousing Spacer onto the dowel pins, against the engine as shown.



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Install the supplied 12-Bolt flexplate.
Ensure the factory washer is installed
as shown.
Torque flexplate-to-crankshaft bolts to
100 ft-lbs in a criss-cross pattern.



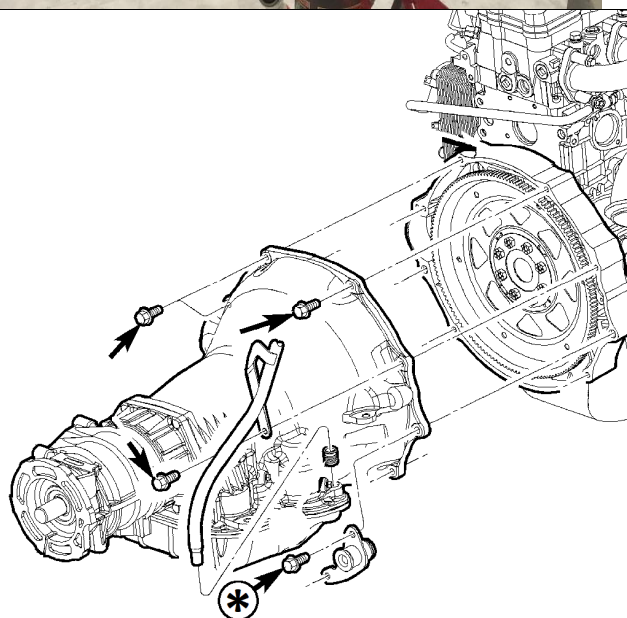
Install the 12-Bolt Torque Converter
into the transmission.

Note: Partially fill the torque converter
with ATF, to aid in filling the
transmission later.



Install the transmission back into the
truck.

Replace the factory bolts in the dowel
location only (2x) with the supplied
longer 3/8" x 2-1/4" long flange bolts.



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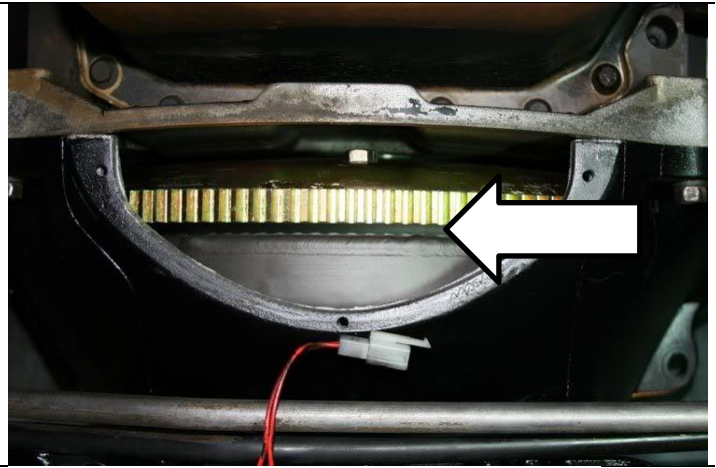
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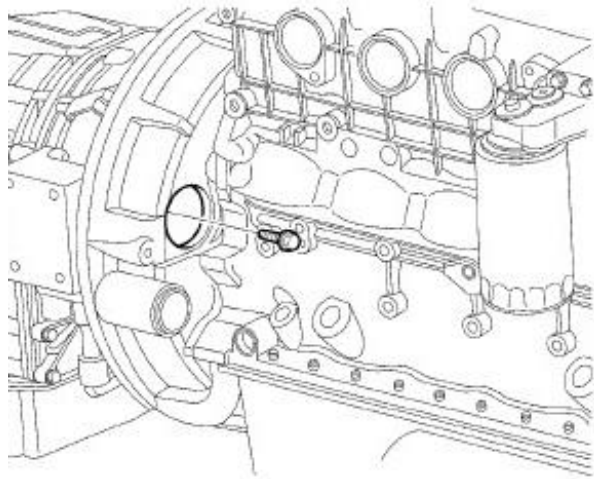
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With the transmission into place, ensure there is clearance between the Torque Converter and Flexplate before fastening.

Note: Approx 3/16"-1/4" of play should exist. (See arrow)



Install, and torque the supplied flexplate-to-torque converter bolts to **33 ft-lbs.**



Finish installing transmission, and other items as seen in factory service manual.