

## Clutch Housing Front Cover Kit

### Special Instructions

None

### Special Tools

- ServiceRanger
- Transmission Assembly Lube (Lubegard® Assemblies Goo Firm Tack - Green #19250 or equivalent)

**NOTICE:** Only use the specified transmission assembly lube indicated above. Other types of

assembly lube or grease reduce O-ring effectiveness.

- Non-Chlorinated Brake Cleaner

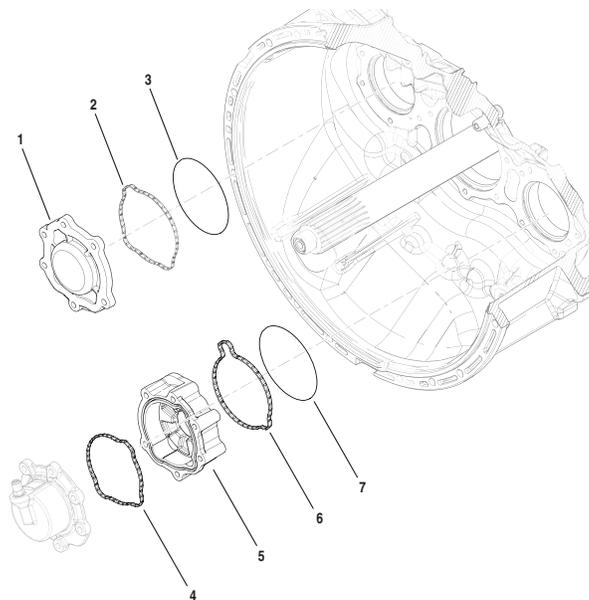


**DANGER:** Do not handle non-chlorinated brake cleaner until all manufacturer precautions have been read and understood. Failure to follow precautions will result in serious personal injury or death.



**CAUTION:** Avoid contact between non-chlorinated brake cleaner and the transmission plastic components, electrical wiring and connectors. Failure to avoid contact will result in transmission component damage.

### Component Identification



## K-4491

	Description	P/N	QTY
1	Upper Countershaft Cover	10004215	1
2, 4	Upper Countershaft Cover/Inertia Brake Housing (Front) Seal	10001048	2
3, 7	Upper Countershaft Cover/Inertia Brake Housing Countershaft Bearing O-ring	10004217	2
5	Inertia Brake Housing	10004216	1
6	Inertia Brake Housing (Rear) Seal	10001049	1

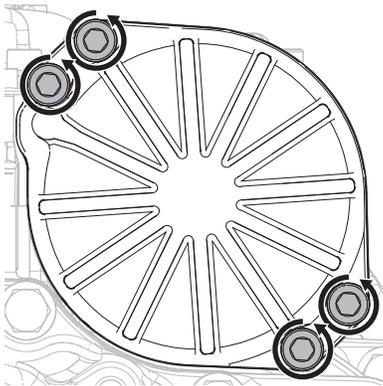
## Manually Vent Linear Clutch Actuator (LCA)

1. Key off.
2. Set vehicle parking brake and chock wheels.

**!** **WARNING:** Apply vehicle parking brake and follow vehicle manufacture parking instructions. Failure to follow these instructions could cause unintended vehicle movement and may result in major vehicle component damage, severe injury or death.

3. Loosen the 4 Linear Clutch Actuator (LCA) cap screws 1-2 turns each with a T45 Torx.

**Note:** Residual air pressure in the LCA cylinder exhausts between the LCA and Mechatronic Transmission Module (MTM) housing when the cap screws are loosened.



4. Tighten the 4 LCA to MTM T45 cap screws and torque to 23-27 Nm (17-21 lb-ft).

## Drain Oil

1. Locate the Oil Drain Plug on the back of the rear housing.
2. Place a suitable container under the Oil Drain Plug.

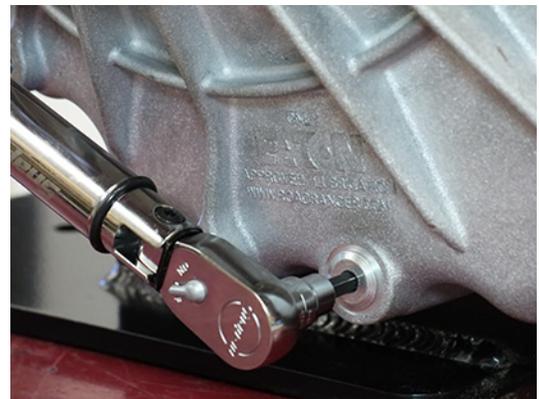
**Note:** If reusing oil, use a clean container free of contamination and debris.

3. Remove the Oil Drain Plug with a 6 mm hex key and drain the oil.



4. Inspect Oil Drain Plug and O-ring for damage. If damaged, replace the Oil Drain Plug; O-ring is serviced with plug.
5. Install the Oil Drain Plug (6 mm) and torque to 24.5-29.5 Nm (18-22 lb-ft).

**NOTICE:** Do not over-torque drain plug or transmission damage may occur.



## Remove Transmission

1. Disconnect negative battery cable.
2. Refer to OEM guidelines for transmission removal.

## Remove Release Bearing and Clutch Release Yoke

1. Remove the Release Bearing by sliding the bearing off the Input Shaft Cover.



2. Pull to free the lower Clutch Release Yoke socket from the lower pivot on the clutch housing.



3. Pull to free the upper Clutch Release Yoke socket from the Linear Clutch Actuator (LCA) rod end.



## Remove Upper Countershaft Cover

1. Remove the 6 Upper Countershaft Cover 13 mm cap screws and remove cover. The original cover is not to be reused.



## Install Upper Countershaft Cover Countershaft Bearing O-ring

1. Clean any residual oil from the Upper Countershaft Bearing outer diameter using Non-Chlorinated Brake Cleaner.

2. Install the Upper Countershaft Cover Countershaft Bearing O-ring (10004217) onto the Upper Countershaft Bearing.

**Note:** O-ring may fall out of position after installation. Ensure to clean any residual oil from the bearing and roll the O-ring on to the bearing using the tips of your fingers pushing on the inner diameter of the O-ring. If necessary, apply a small amount of transmission assembly lube at the 3, 6, 9 and 12 o'clock positions to the outer diameter of the bearing.



## Install Upper Countershaft Cover

1. Clean the sealing surfaces on the clutch housing and the new Upper Countershaft Cover.

**Note:** The new Upper Countershaft Cover has a chamfer that is required for the bearing O-ring.



2. Install the new Upper Countershaft Cover O-ring (10001048) into the groove until fully seated.

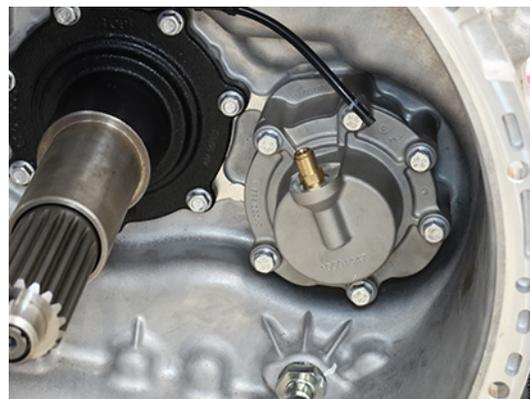


3. Install the new Upper Countershaft Cover and six 13 mm cap screws to the clutch housing and torque to 21-25 Nm (16-19 lb-ft) in a criss-cross pattern.



## Remove Lower Countershaft Cover and Inertia Brake

1. Depress and hold collar on air line fitting and disconnect the air line from the Inertia Brake Cover.



- Remove the 6 Inertia Brake Cover 13 mm cap screws.



- Remove the Inertia Brake Cover and Housing as an assembly. The original housing is not to be reused.



- Ensure the Inertia Brake Piston Pin and Return Spring remain in the Lower Countershaft.



## Disassemble Inertia Brake

- Remove the clutch pack from the Inertia Brake Housing.



- Remove the 2 wear guides from the Inertia Brake Housing.



## Assemble Inertia Brake

1. Clean sealing surfaces on the clutch housing and the new Inertia Brake Housing.

**Note:** The new Inertia Brake Housing has a chamfer on the Clutch Housing side that is required for the bearing o-ring.



2. Insert the O-ring into the groove on the rear of the Inertia Brake Housing until fully seated.



3. Insert the O-ring into the groove on the front of the Inertia Brake Housing until fully seated.



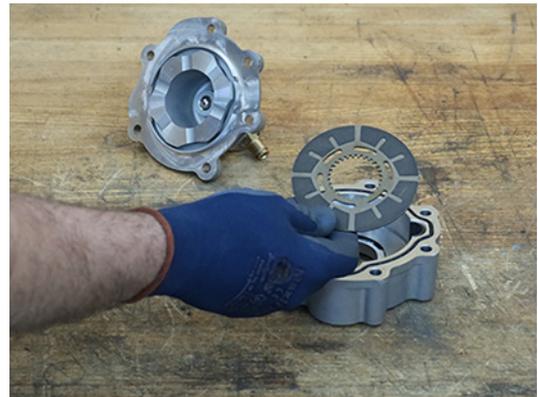
4. Install the 2 Wear Guides in the Inertia Brake Housing.



5. Install the inertia brake clutch pack in the order shown below:

- 1 Steel Disc,
- 1 Friction Disc,
- 2 Steel Discs,
- 1 Friction Disc,
- 2 Steel Discs,
- 1 Friction Disc, and
- 1 Steel Disc.

**Note:** Steel Discs align with Wear Guides. Friction Discs spline to the lower countershaft.



6. Place Inertia Brake Cover and Piston on the Housing. Align the bolt holes.

## Install Inertia Brake Housing Countershaft Bearing O-ring

1. Clean any residual oil from the Lower Countershaft Bearing outer diameter using Non-Chlorinated Brake Cleaner.
2. Install the Inertia Brake Housing Countershaft Bearing O-ring (10004217) onto the Lower Countershaft Bearing.

**Note:** O-ring may fall out of position after installation. Ensure to clean any residual oil from the bearing and roll the O-ring on to the bearing using the tips of your fingers pushing on the inner diameter of the O-ring. If necessary, apply a small amount of transmission assembly lube at the 3, 6, 9 and 12 o'clock positions to the outer diameter of the bearing.



## Install Inertia Brake Cover and Housing

1. Install the Inertia Brake Cover and the new Housing as an assembly over the Lower Countershaft, rotate the assembly to align the Friction Discs to the Lower Countershaft splines and seat the assembly to the clutch housing.



2. While holding the Inertia Brake Housing to the clutch housing, remove the Inertia Brake Cover.

**NOTICE:** Ensure the Friction Discs are splined to the lower countershaft and Wear Guides are fully seated.



3. If removed, install the Return Spring into the Lower Countershaft.



6. Install the six 13 mm cap screws and torque to 21-25 Nm (16-19 lb-ft) in a criss-cross pattern.



4. If removed, install the Piston Pin into the Lower Countershaft.



7. Insert air line in push-to-connect fitting on the Inertia Brake Cover.



5. Install the Inertia Brake Cover onto the housing.

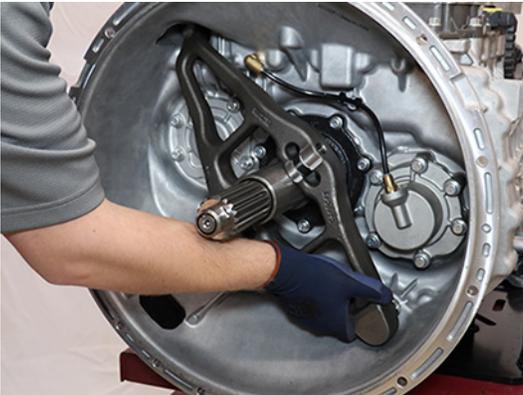


## Install Release Bearing and Clutch Release Yoke

1. Install the upper Release Yoke socket over the rod end of the Linear Clutch Actuator (LCA) and press until attached.



2. Install the lower Release Yoke socket over the lower pivot on the clutch housing and press until attached.



3. Slide the Release Bearing over the input shaft and into the Release Yoke.



4. Push the upper end of the Release Yoke back until it locks to reset the LCA.

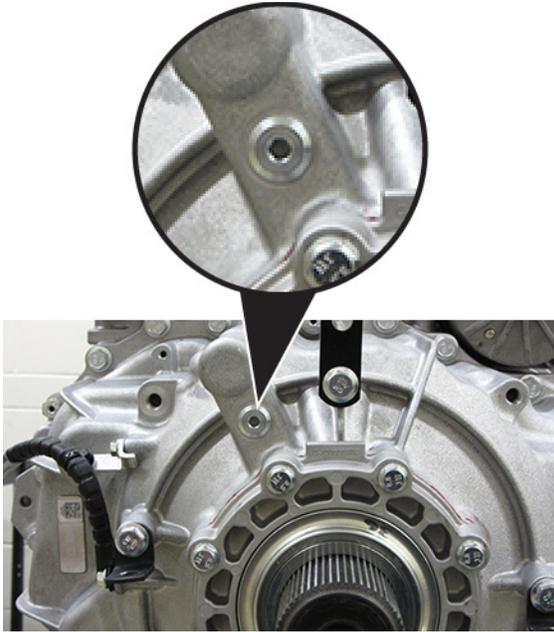


## Install Transmission

1. Refer to OEM guidelines for transmission installation.

## Fill Oil

1. Remove the Oil Fill Plug with a 6 mm hex key.

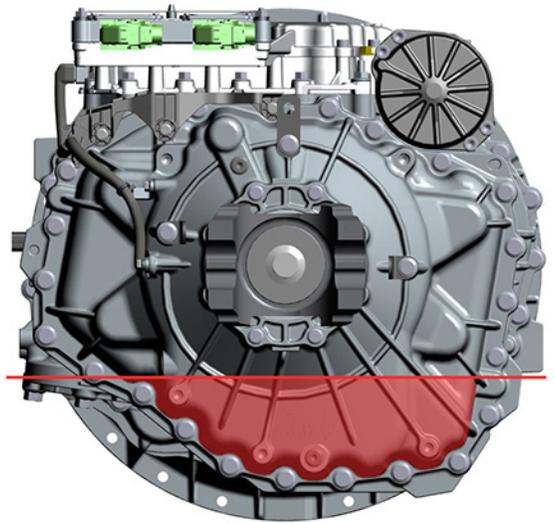
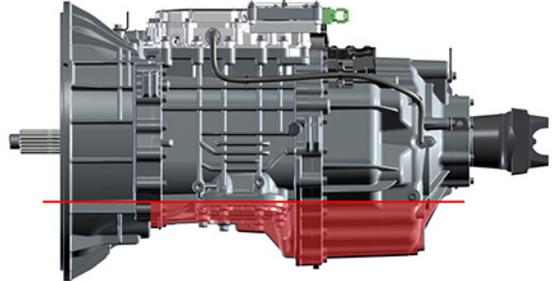


2. Place a suitable container under the Oil Check Plug and remove the Oil Check Plug with a 6 mm hex key.



3. Fill the transmission with PS-386 lube until a small amount of oil runs out of the Oil Check Plug hole.

**Note:** Fill capacity is approximately 7.5-8.5 liters (16-18 pints) depending on the transmission angle.



4. Inspect Oil Check Plug and O-ring for damage. If damaged, replace the Oil Check Plug; O-ring is serviced with plug.

5. Install the Oil Check Plug (6 mm) and torque to 24.5-29.5 Nm (18-22 lb-ft).

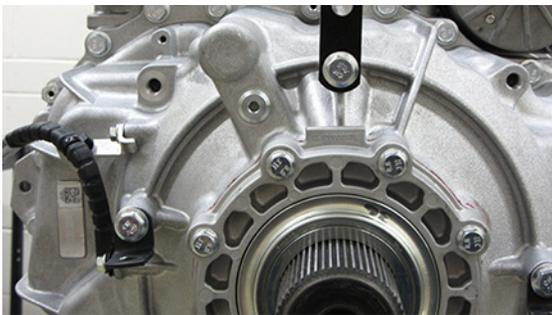
**NOTICE:** Do not over-torque the Oil Fill Plug or transmission damage may occur.



6. Inspect Oil Fill Plug and O-ring for damage. If damaged, replace the Oil Fill Plug; O-ring is serviced with plug.
7. Install the Oil Fill Plug (6 mm) and torque to 24.5-29.5 Nm (18-22 lb-ft).

**NOTICE:** Do not over-torque the Oil Fill Plug or transmission damage may occur.

**NOTICE:** If PTO-equipped, start the engine and run for 1 to 2 minutes to fill the PTO with oil, key off and repeat the Oil Fill Procedure.



8. Connect negative battery cable.

### Perform Transmission Service Routines

1. Key on with engine running.
2. Allow air pressure to build to governor cut-off.
3. Connect ServiceRanger.
4. Go To "Service Routines".

5. Select "Start" Clutch Calibration and follow on-screen prompts.
6. Key off and wait 1 minute.
7. After waiting 1 minute, key on with engine off.
8. Connect ServiceRanger.
9. Go To "Fault Codes".
  - If an Active fault code sets, refer to Endurant Troubleshooting Guide TRTS0950.
  - If NO Active fault codes set, select "Clear Eaton Faults" and follow on-screen prompts.
10. Disconnect ServiceRanger.
11. Key off.