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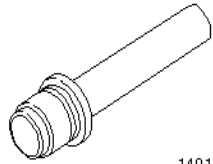
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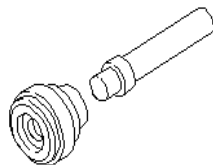
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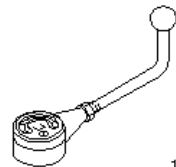
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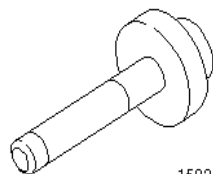
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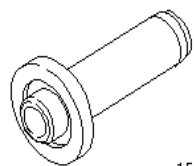
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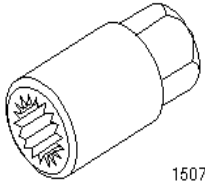
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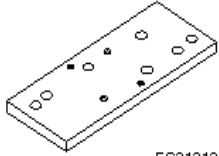
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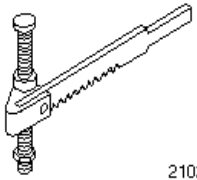
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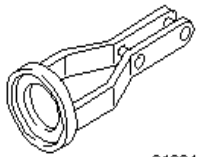
ES21212

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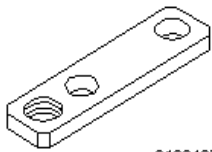
21024

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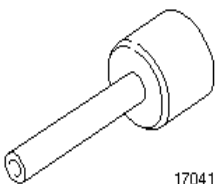
2102402

**Adapter for 303-060
303-060-02 (21-024-02)**



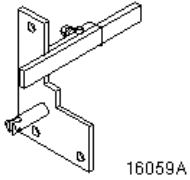
2102407

**Adapter for 303-060
303-060-07 (21-024-07)**



17041

**Installer, Input Shaft Oil Seal
307-210 (17-041)**



**Holding Fixture, Dial Indicator Gauge (Output Shaft End Play)
308-194B (16-059B)**

General Equipment

Press
Hot air gun
Dial indicator gauge
Magnetic stand for dial indicator gauge
Temperature reduction spray

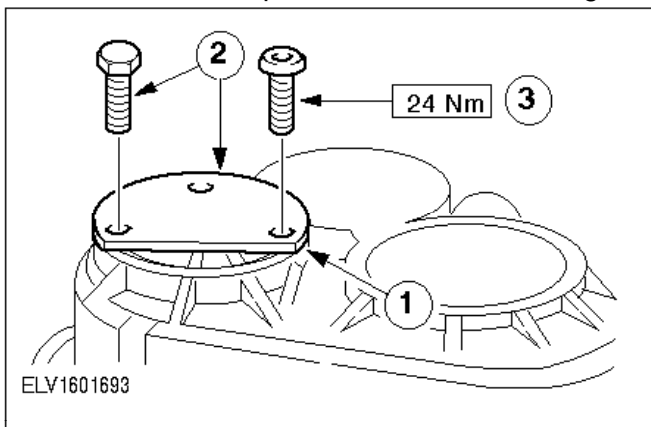
Materials

Manual transmission fluid	WSD-M2C200-C	
Sealer, transaxle housing	WSK-M2G348-A5	
Sealer, slave cylinder	ESKM-4G269-A	
High-temperature grease	ESDM-1C220-A	

Assembly

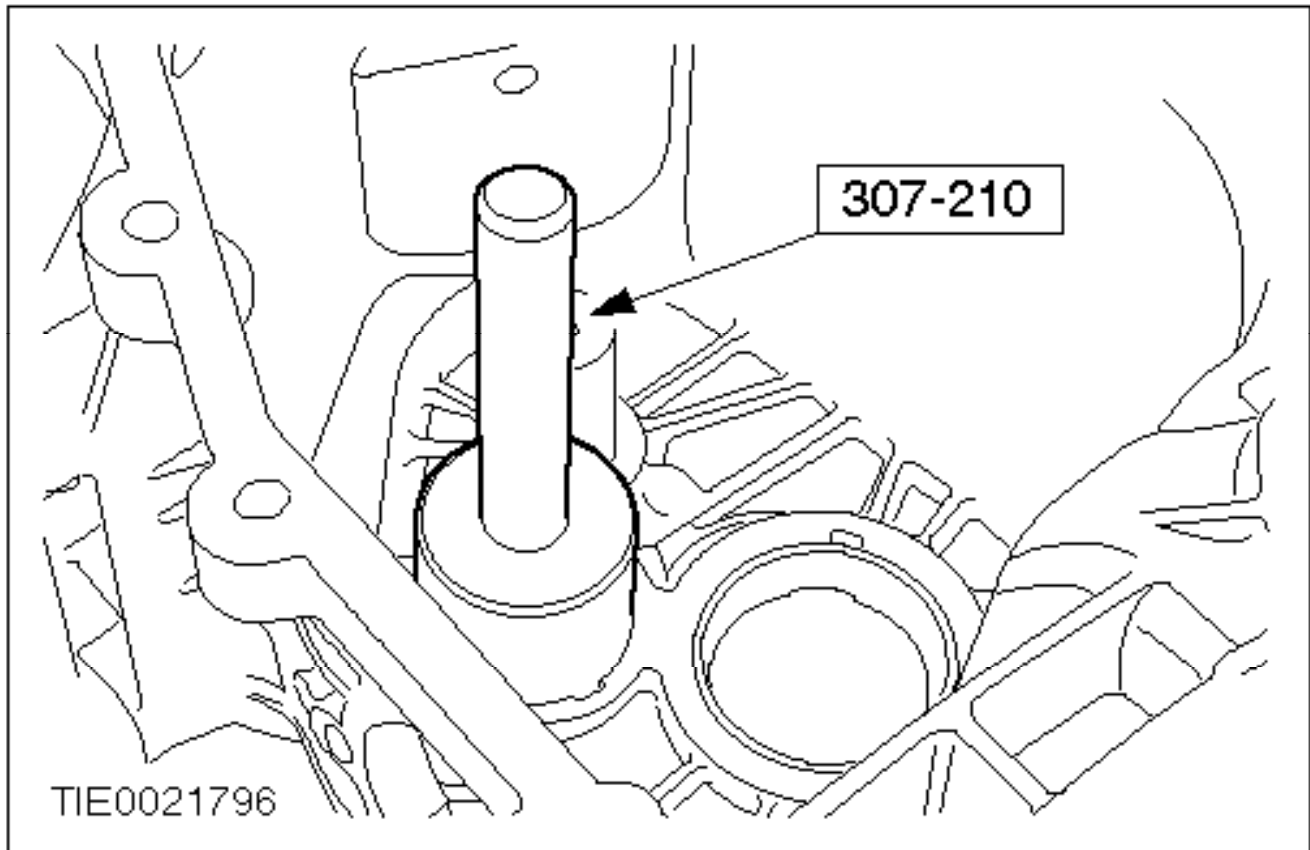
Note:

Clean and check all parts for wear and damage. Install new parts as necessary.



- 1. Install the reverse gear idler shaft.
- 1 Apply sealer to the mating surface of the reverse gear idler shaft.

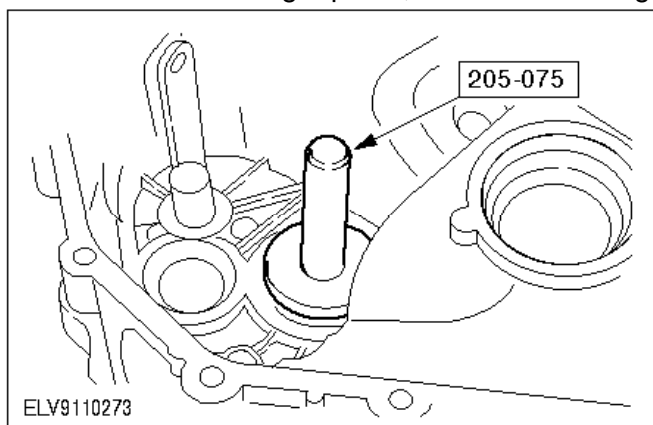
- 2 Install the reverse gear idler shaft, using a locating bolt.
- 3 Remove the location bolt and install the original bolts.




2.  **CAUTION:**
The press force must not exceed 15 kN.

Using the special tool, install the input shaft bearing cup into the transaxle housing.

- Using a hot air blower, heat the transaxle housing to approximately 80°C.
- Using temperature reduction spray, cool the bearing cups and install them.
- Using a press, install the bearing cup.

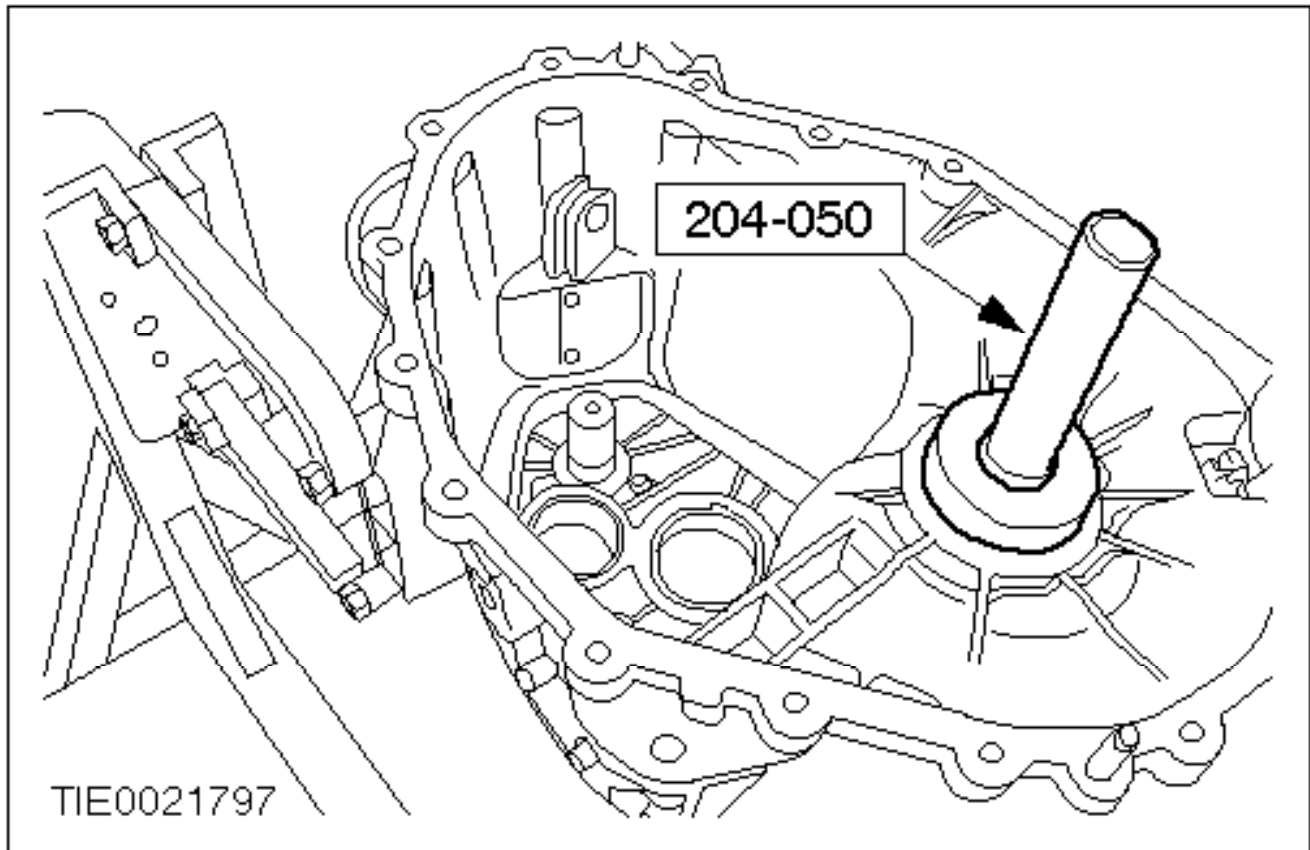


3.  **CAUTION:**
The press force must not exceed 15 kN.

Using the special tool, install the output shaft bearing cup into the transaxle housing.

- Using a hot air blower, heat the transaxle housing to approximately 80°C.
- Using temperature reduction spray, cool the bearing cups and install them.

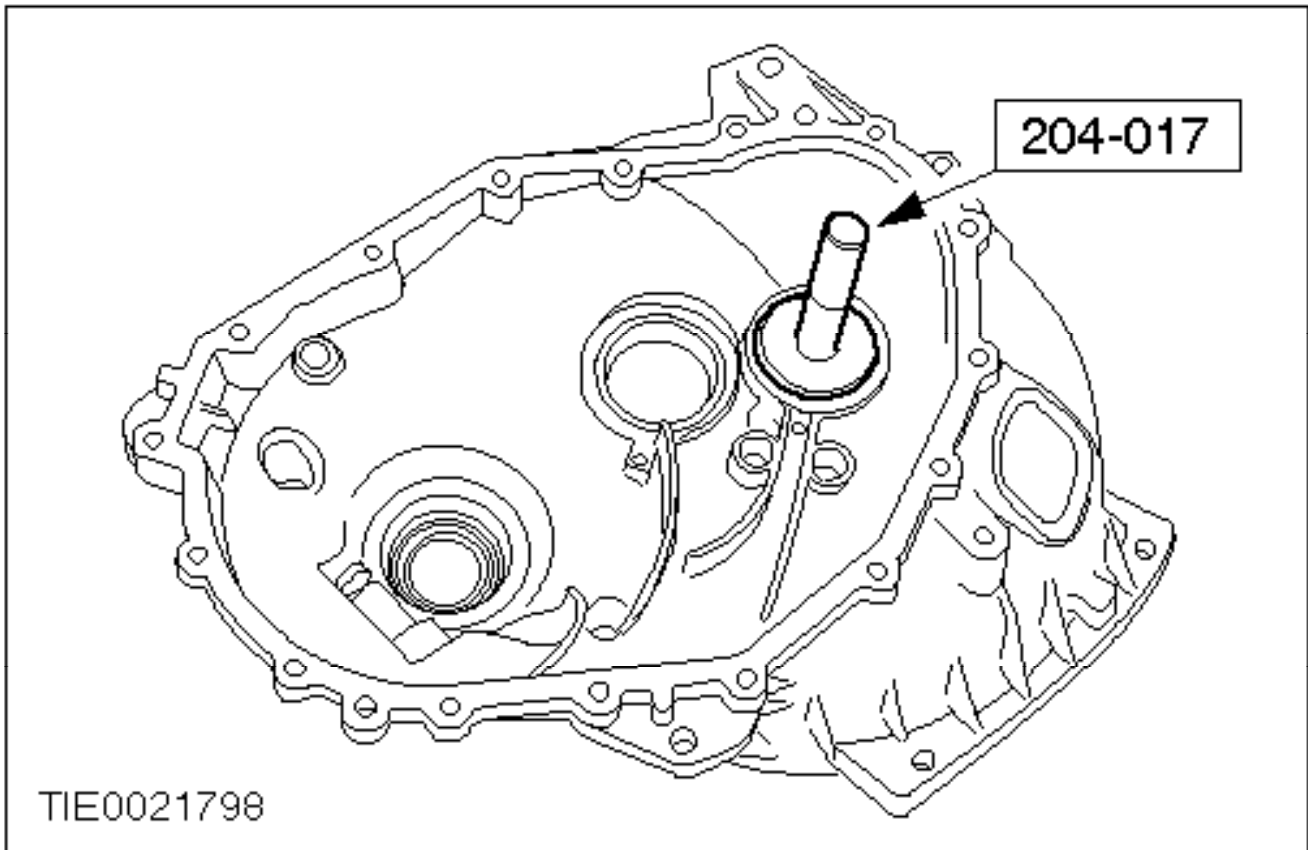
- Using a press, install the bearing cup.




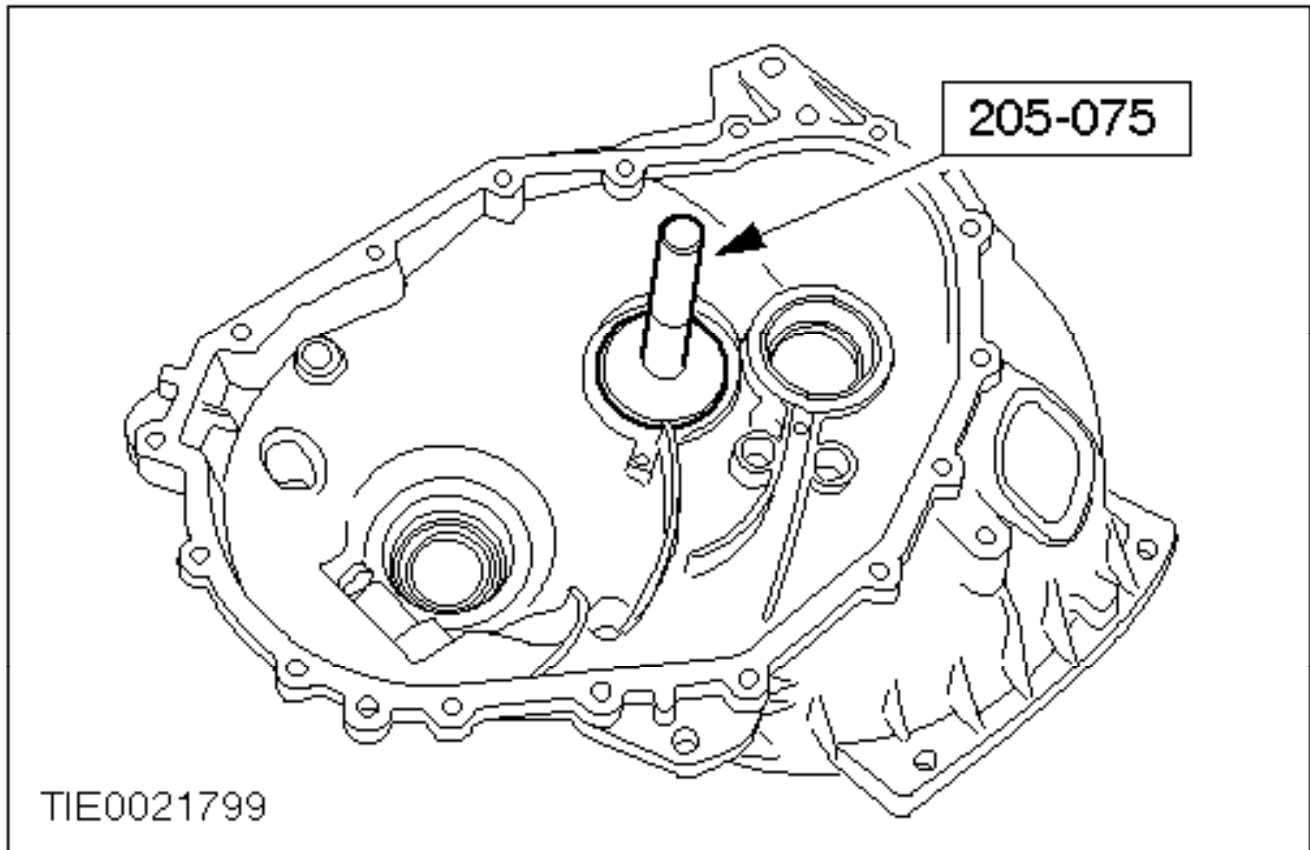
4.  **CAUTION:**
The press force must not exceed 15 kN.


Using the special tool, install the differential bearing cup into the transaxle housing.

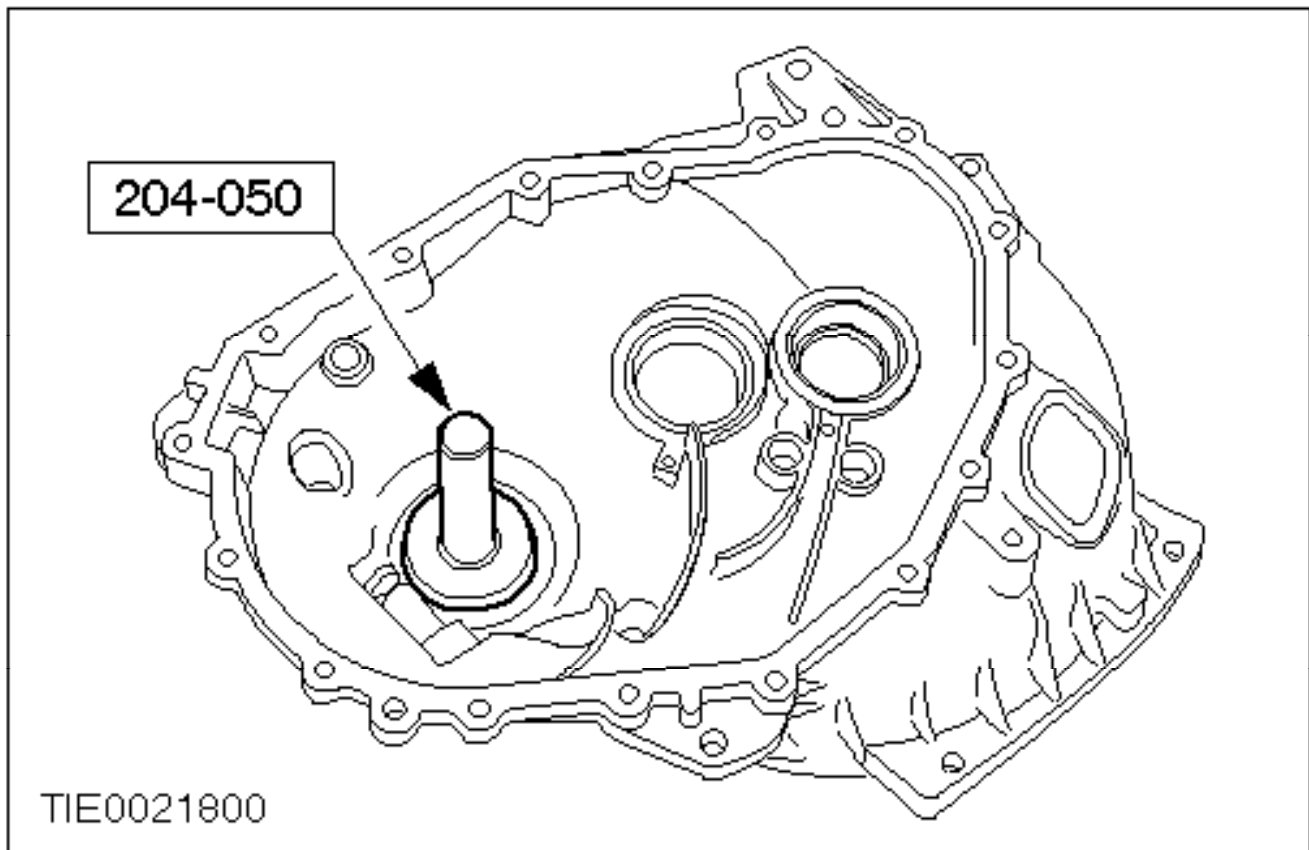
- Using a hot air blower, heat the transaxle housing to approximately 80°C.
- Using temperature reduction spray, cool the bearing cups and install them.
- Using a press, install the bearing cup.



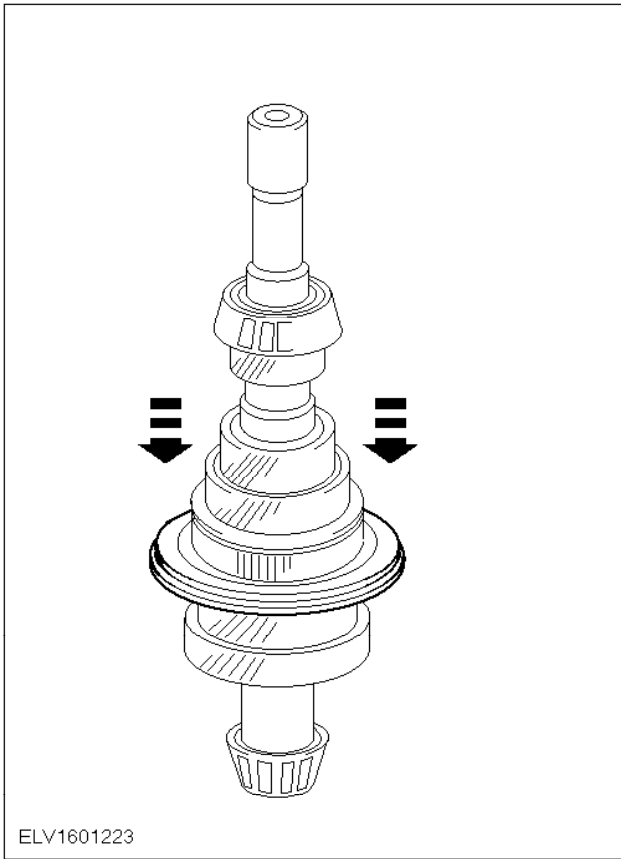
5.  **CAUTION:**
The press force must not exceed 15 kN.
- Using the special tool, install the input shaft bearing cup into the clutch housing.
- Install a 1.00 mm measuring shim.
 - Using a hot air blower, heat the transaxle housing to approximately 80°C.
 - Using temperature reduction spray, cool the bearing cups and install them.
 - Using a press, install the bearing cup.



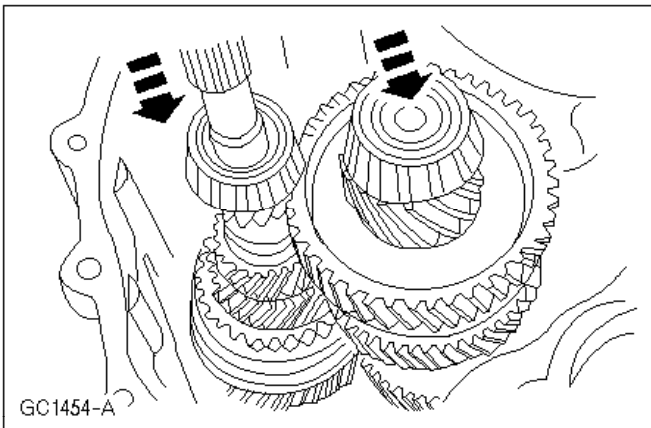
6.  **CAUTION:**
The press force must not exceed 15 kN.
- Using the special tool, install the output shaft bearing cup into the clutch housing.
- Install a 1.00 mm measuring shim.
 - Using a hot air blower, heat the transaxle housing to approximately 80°C.
 - Using temperature reduction spray, cool the bearing cups and install them.
 - Using a press, install the bearing cup.



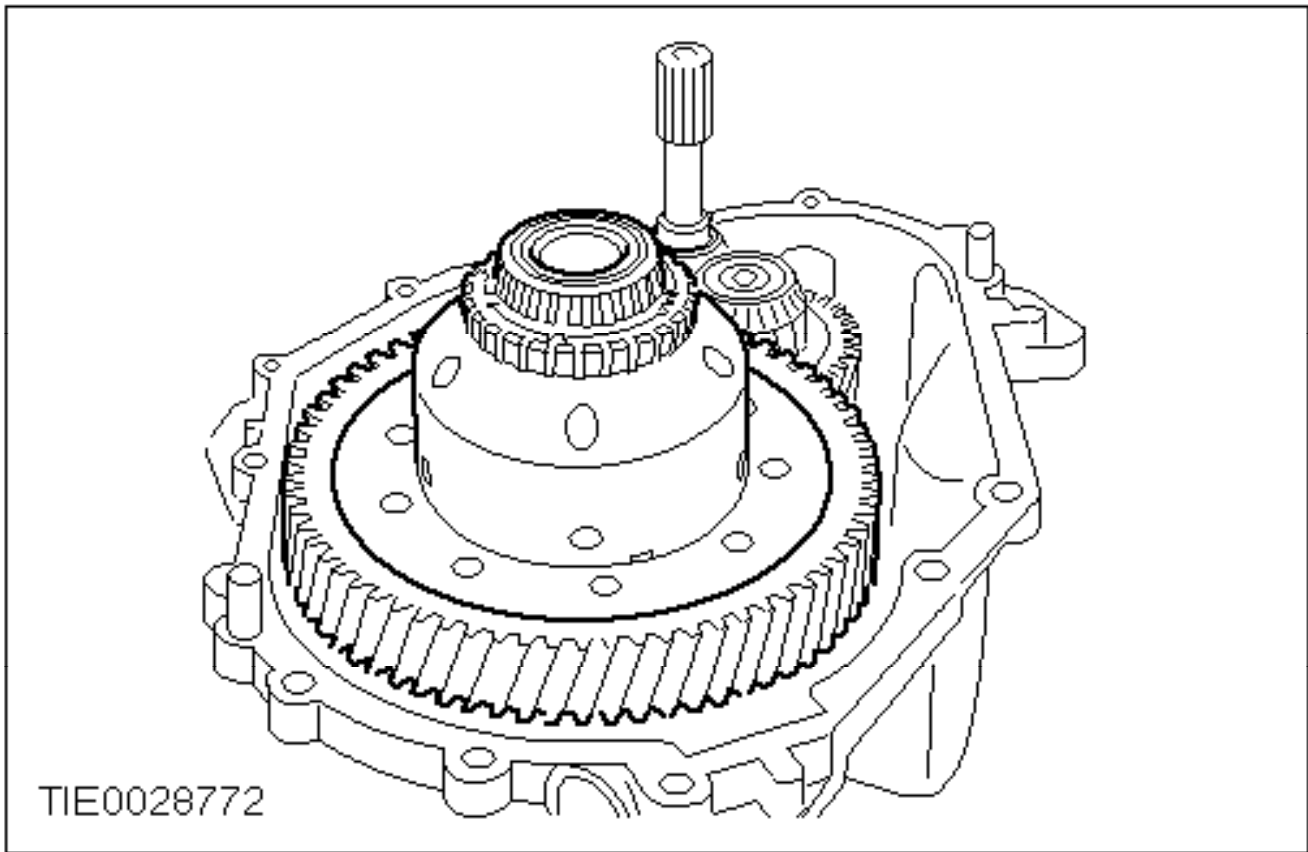
7. **⚠ CAUTION:**
The press force must not exceed 15 kN.
- Using the special tool, install the differential bearing cup into the clutch housing.
- Install a 1.10 mm measuring shim.
 - Using a hot air blower, heat the transaxle housing to approximately 80°C.
 - Using temperature reduction spray, cool the bearing cups and install them.
 - Using a press, install the bearing cup.
8. **Note:**
When installing new roller bearings, do not oil the roller bearings before installation.
- When installing the original roller bearings check all parts carefully and lubricate them with clean transmission fluid.



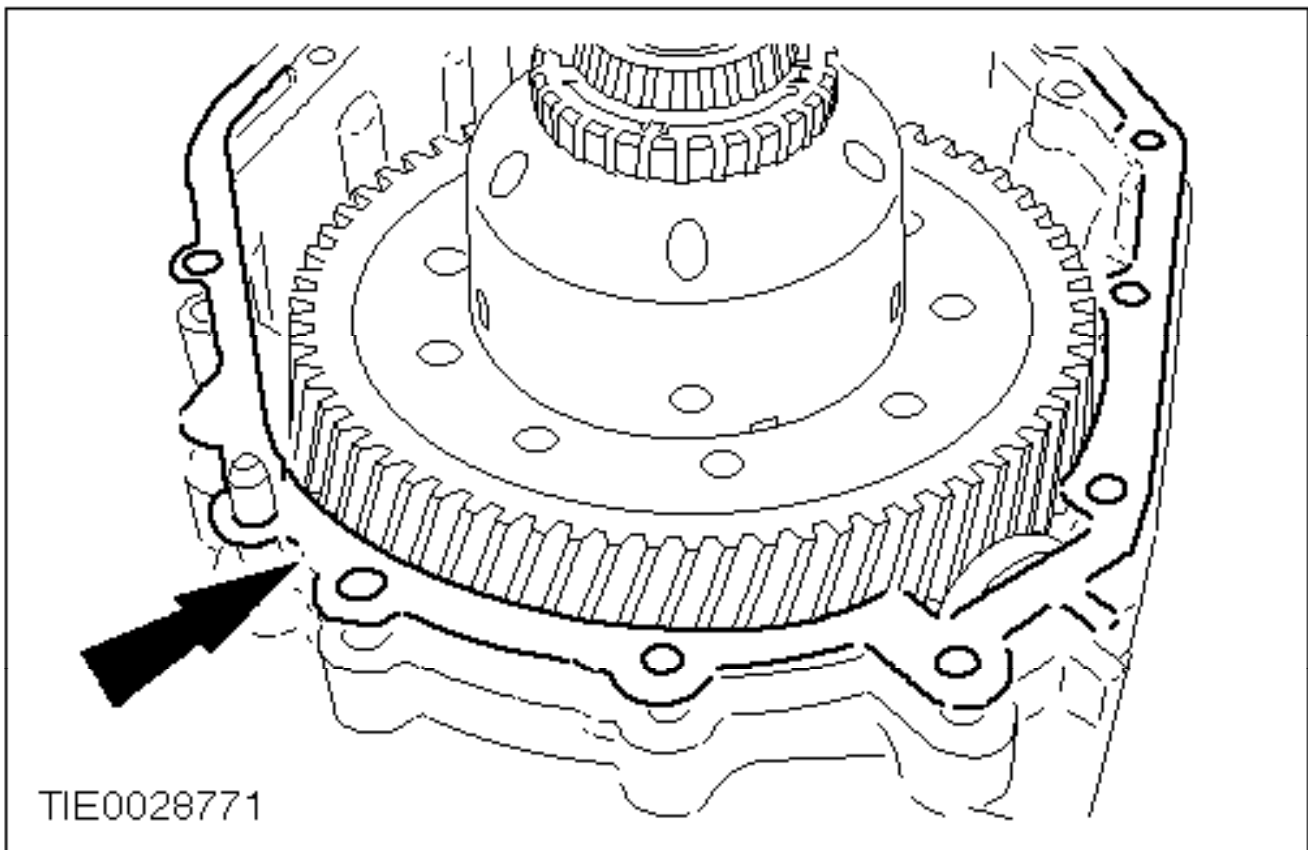
9. Engage fourth gear.



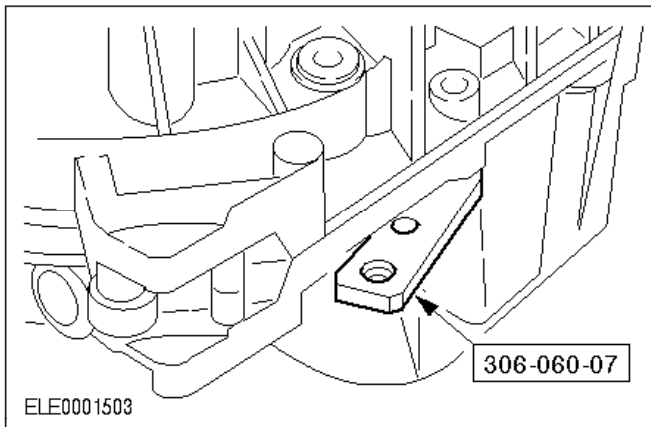
10. Install the input shaft and output shaft.



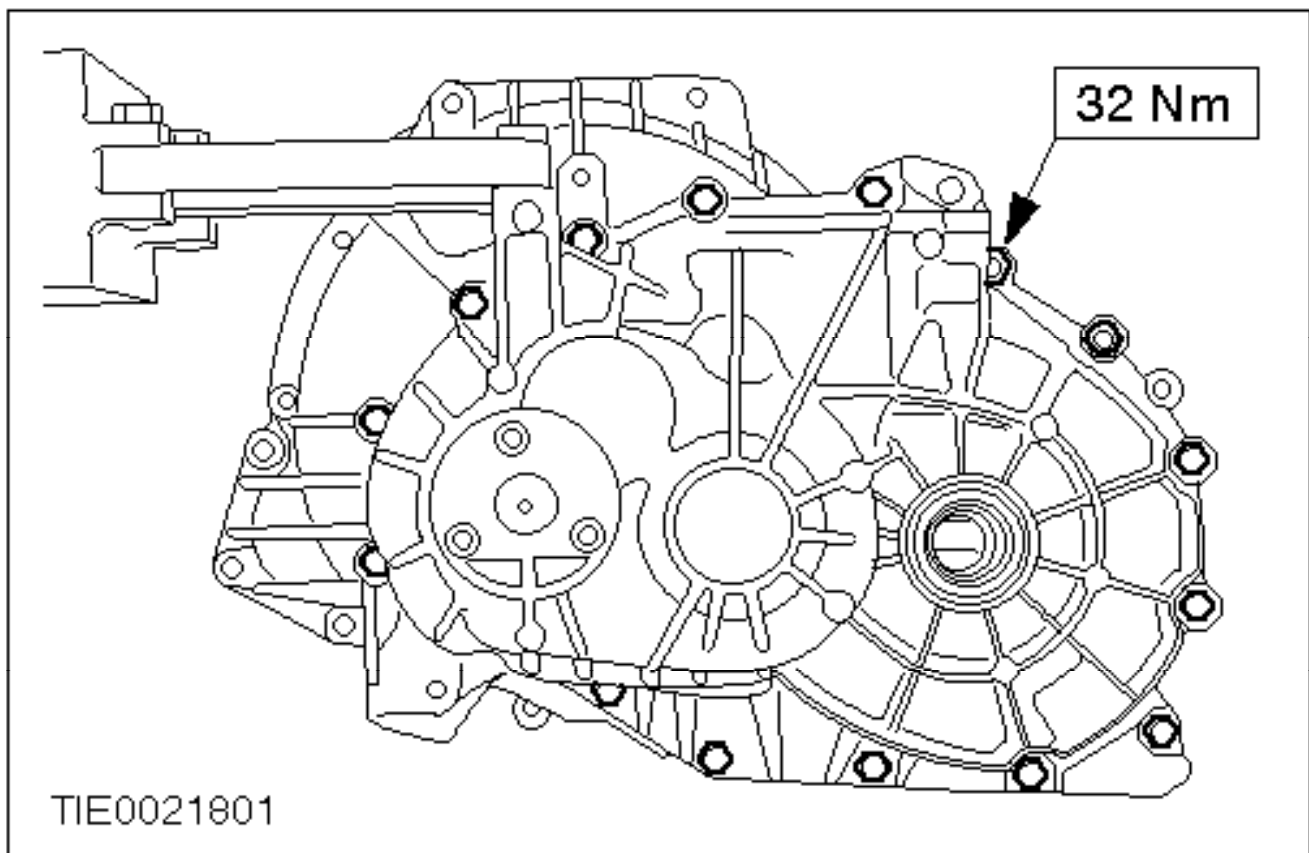
- 11. Install the differential.



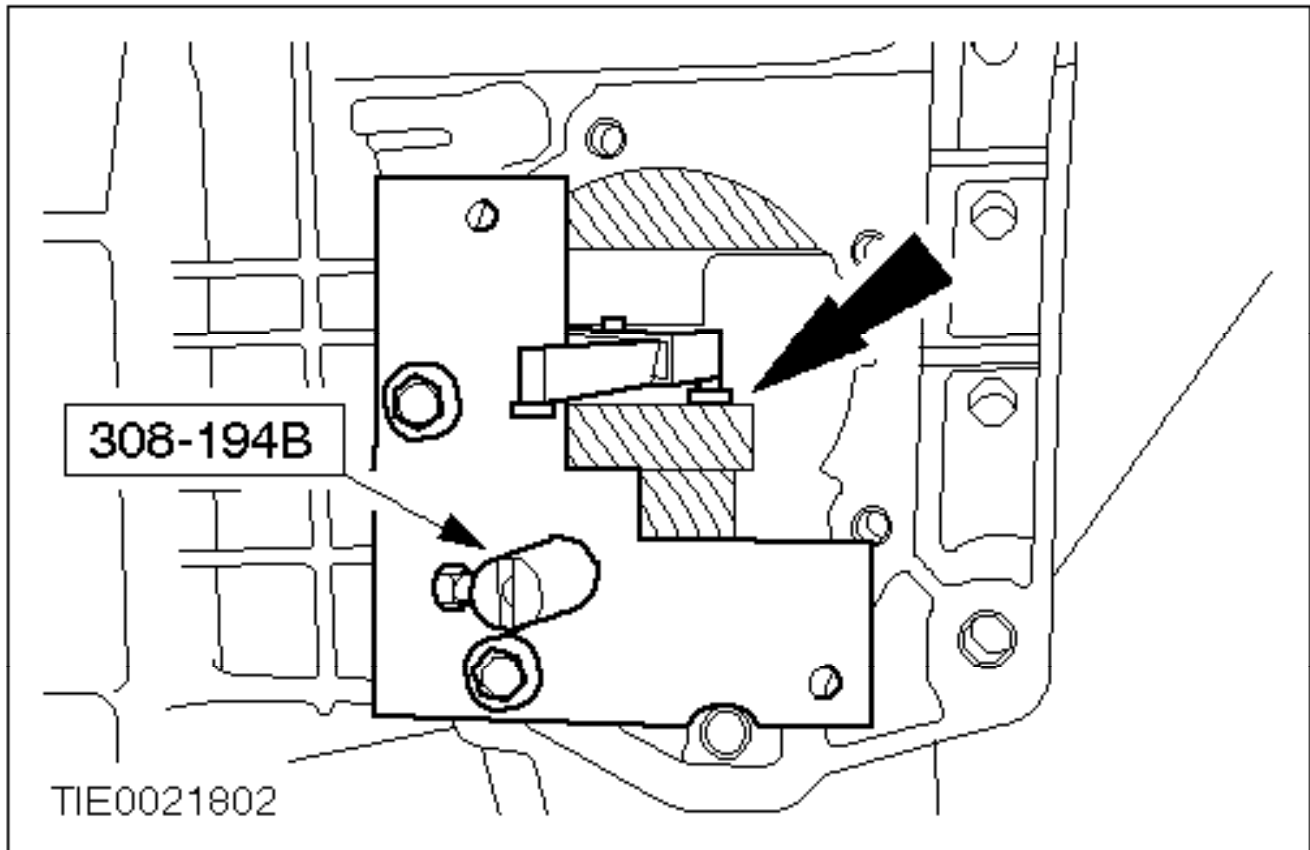
- 12. Install the transaxle housing gasket.



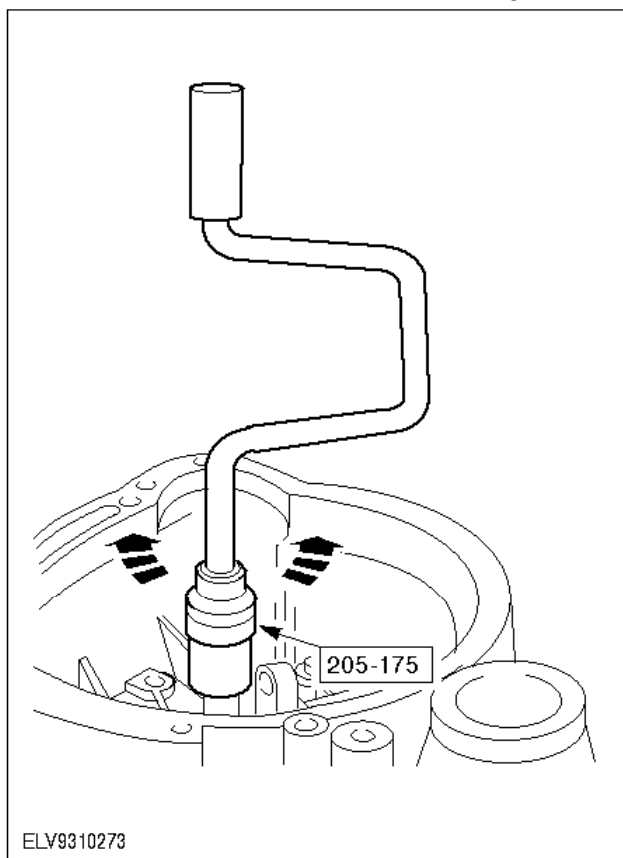
13. **Note:**
Make sure that the transaxle mating surfaces are clean.
Install the transaxle housing.
- Install the special tool.



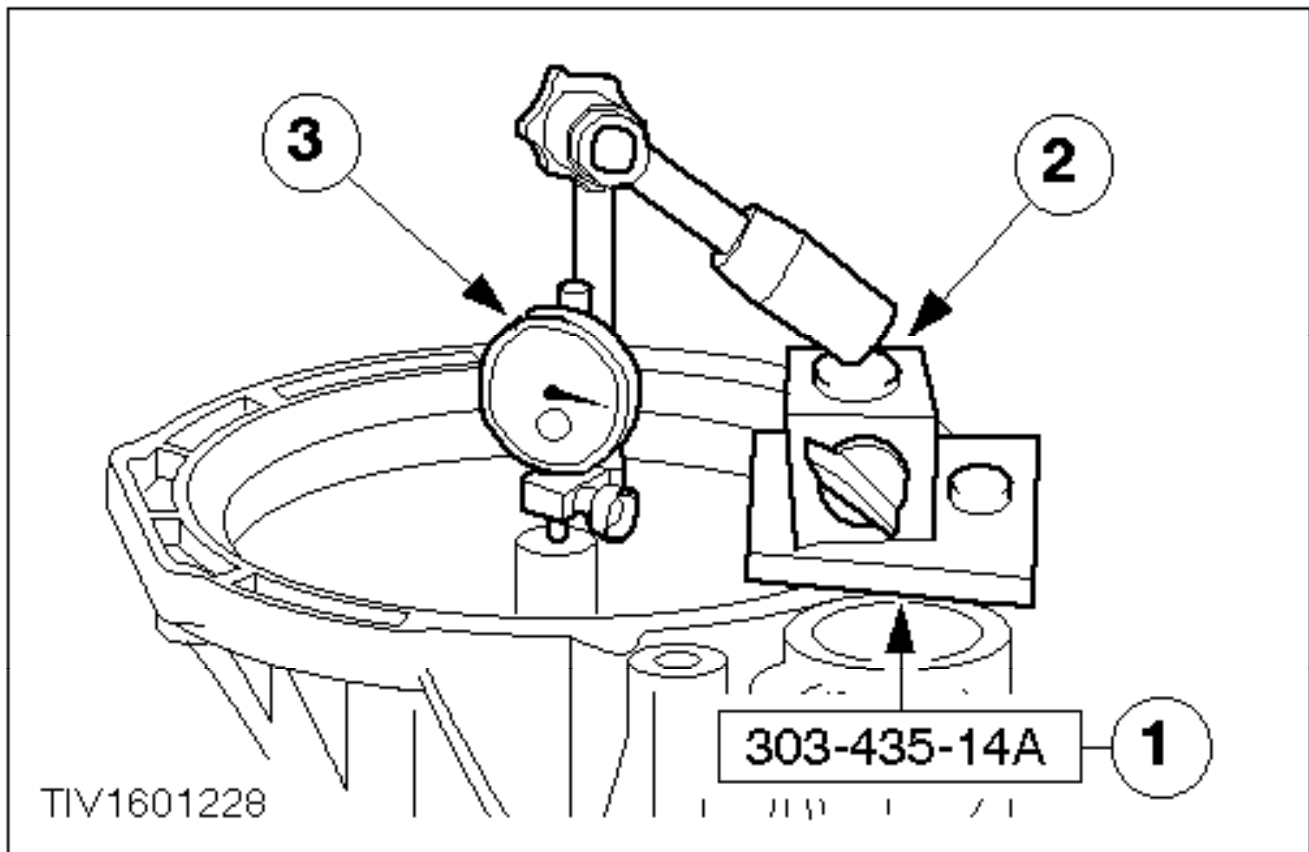
14. Install the transaxle housing retaining bolts.



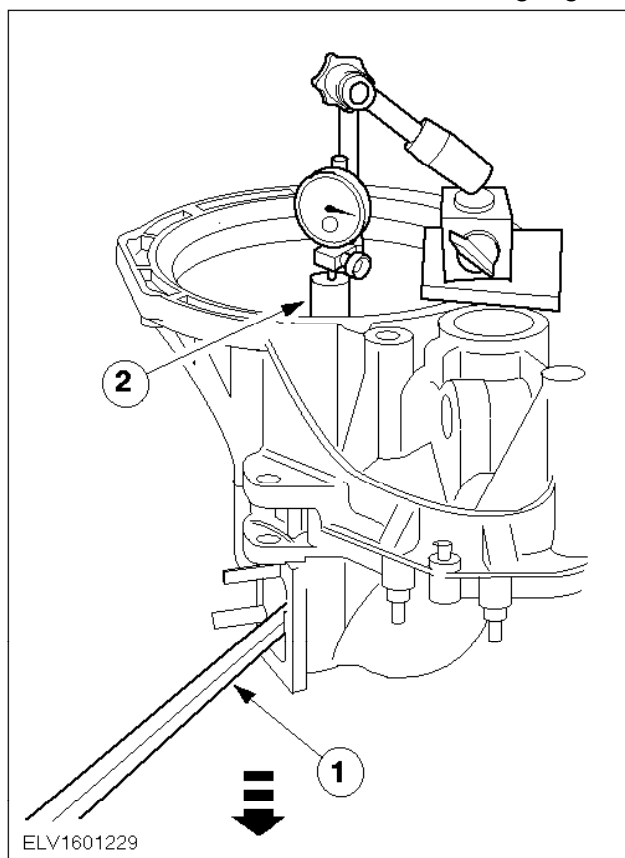
- 15. Install the special tool.
 - Position the measuring bar on the fourth gear wheel.



- 16. Using the special tool align the input shaft for measuring.
 - Turn the input shaft to and fro approximately 20 times to settle the bearings.



17. Install the dial indicator gauge.
- 1 Attach the special tool to the transaxle.
 - 2 Attach the magnetic stand for the dial indicator gauge.
 - 3 Zero the dial indicator gauge.

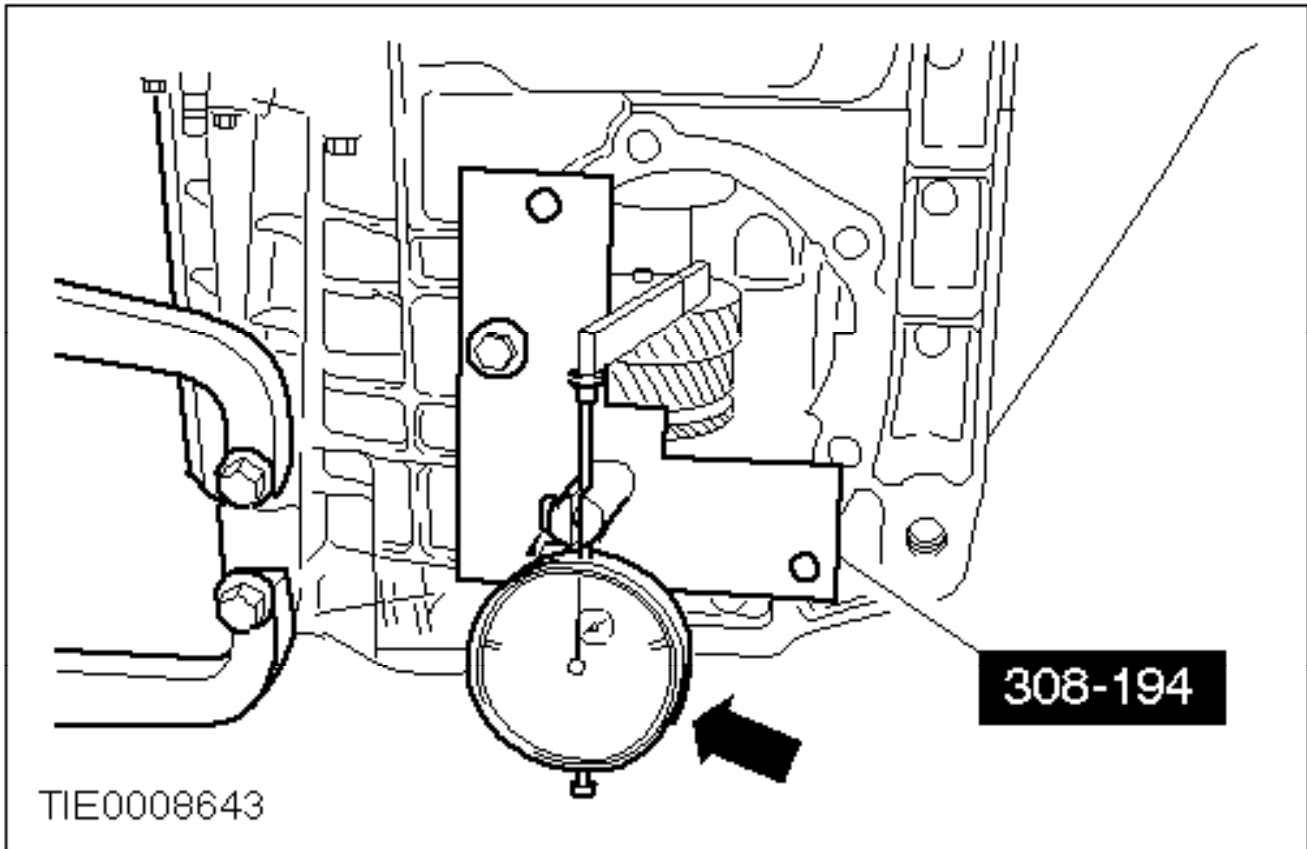


18. **Note:**
Carry out the preparations and the measurement three times and calculate the average value

of the measurements.

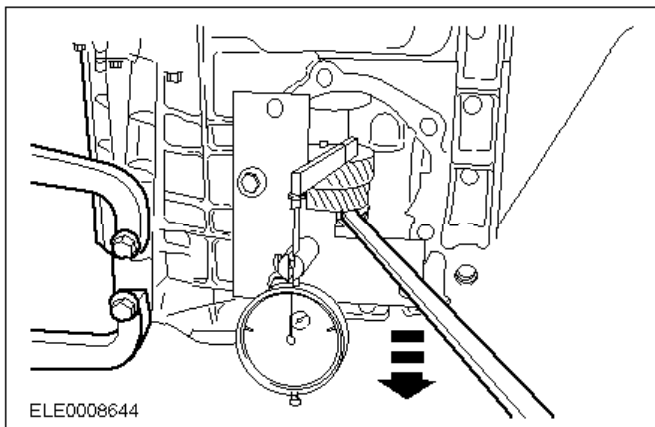
Measure the input shaft end float.

- 1 Using a suitable lever, lift the input shaft.
 - 2 Note the resulting measurement (e.g. 0.22 mm).
- Example: $0.22 \text{ mm} + 0.23 \text{ mm} + 0.21 \text{ mm}$ divided by three = 0.22 mm.



19. Align the output shaft for measuring.

- Turn the output shaft 20 times to settle the bearings (via input shaft, refer to previous steps).
- Install and zero the dial indicator gauge.

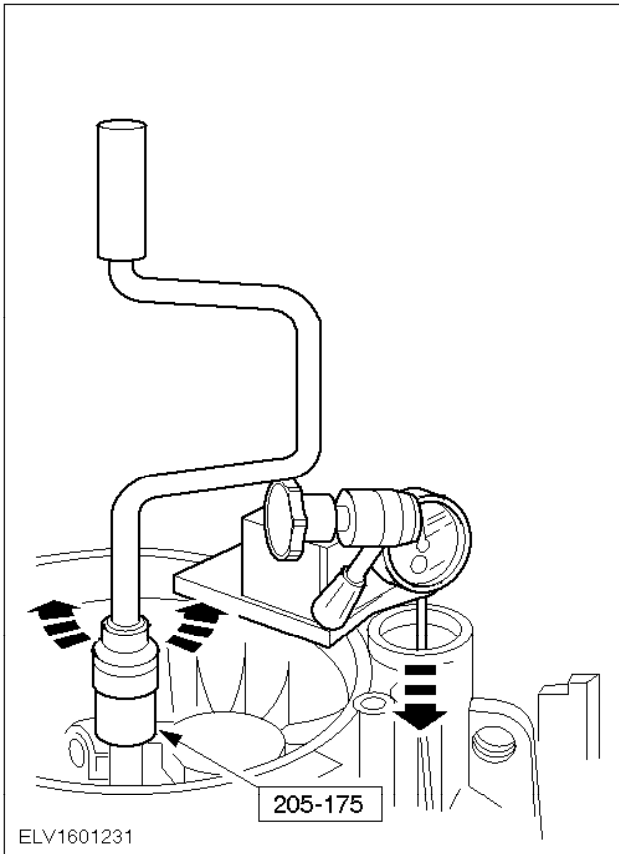


20. **Note:** Carry out this step and following step three times and calculate the average measurement.

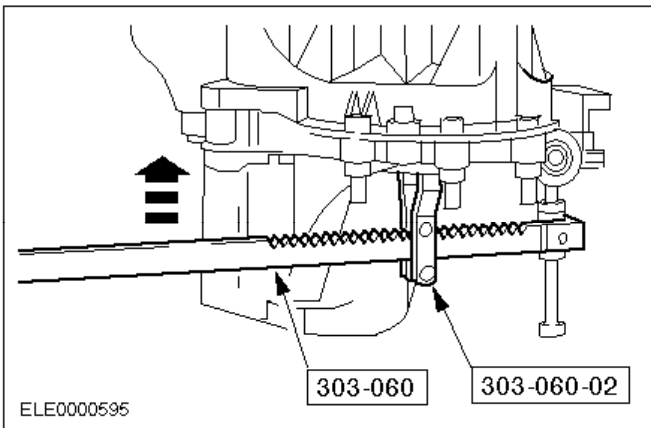
Using the special tool, measure the output shaft end float.

- Lift the output shaft with a suitable lever and note the resulting measurement, e.g. 0.32 mm.

- Example: $0.32 \text{ mm} + 0.34 \text{ mm} + 0.33 \text{ mm}$ divided by three = 0.33 mm .



21. Using the special tool, align the differential for measuring.
- Turn the output shaft 20 times and at the same time press down the differential.
 - Zero the dial indicator gauge.



22. **Note:**
Carry out this step and the following step three times and calculate the average measurement.

Using the special tool, measure the differential end float.

- Using the special tools, lift the differential and note the resulting measurement, e.g. 0.34 mm .
 - Example: $0.34 \text{ mm} + 0.36 \text{ mm} + 0.38 \text{ mm}$ divided by three = 0.36 mm .
23. Calculate the required input shaft shim thickness.
- Required shim thickness 1.00 mm .
 - Measured input shaft end float 0.22 mm .

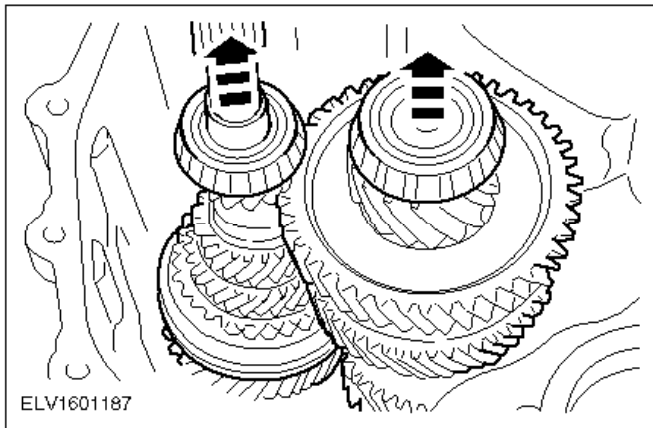
- Preload figure for end float -0.05 mm.
- Required shim: $0.22 \text{ mm} - 0.05 \text{ mm} + 1.00 \text{ mm} = 1.17 \text{ mm}$.

24. Calculate the required output shaft shim thickness.

- Required shim 1.00 mm.
- Calculated output shaft end float 0.33 mm.
- Preload figure 0.13 mm.
- Required shim: $1.00 \text{ mm} + 0.33 \text{ mm} + 0.13 \text{ mm} = 1.46 \text{ mm}$.

25. Calculate the required differential shim thickness.

- Required shim thickness 1.10 mm.
- Calculated differential end float 0.36 mm.
- Preload figure 0.33 mm.
- Required shim: $1.10 \text{ mm} + 0.36 \text{ mm} + 0.33 \text{ mm} = 1.79 \text{ mm}$.

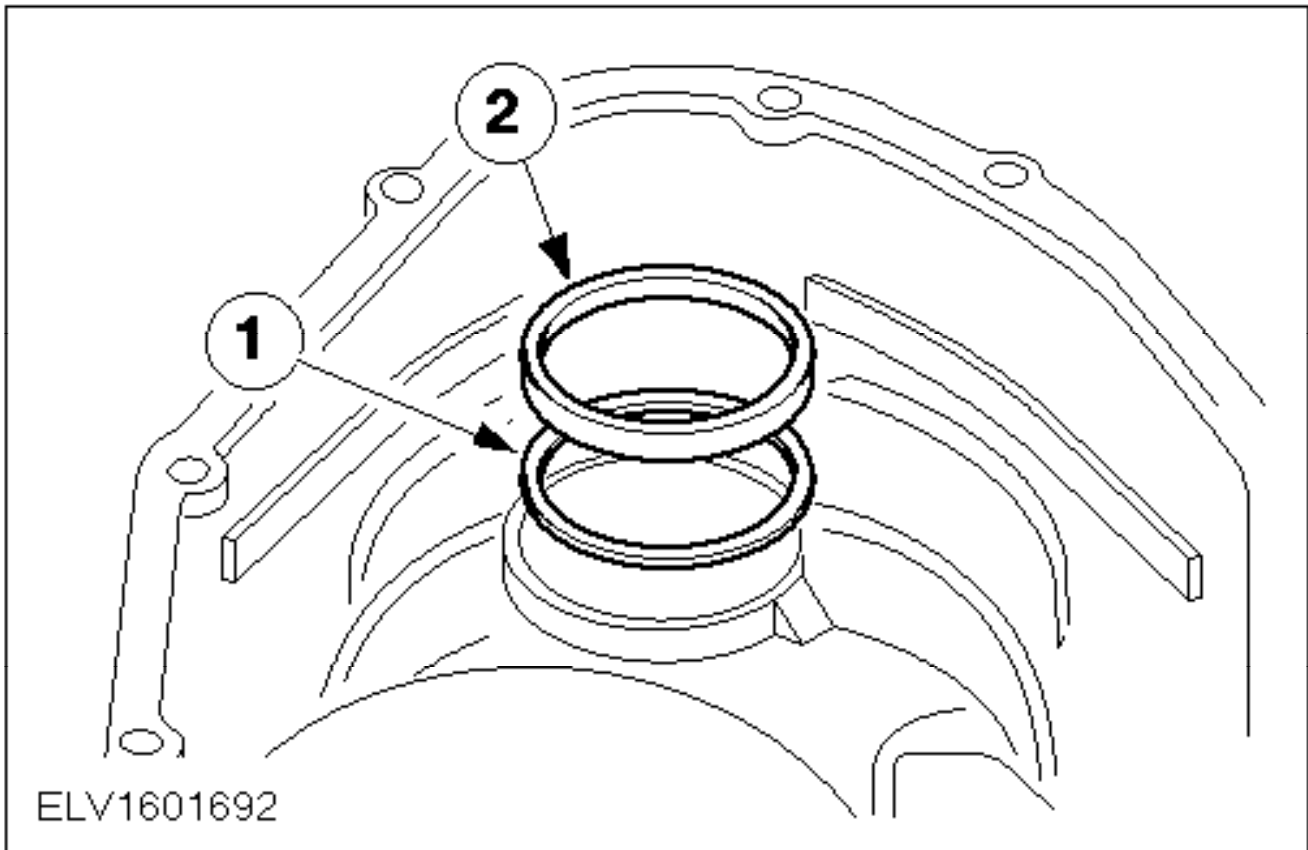


⬅ 26. Remove the input shaft, the output shaft and the differential.

- Discard the transaxle housing gasket.

27. Remove the bearing cups, refer to previous steps.

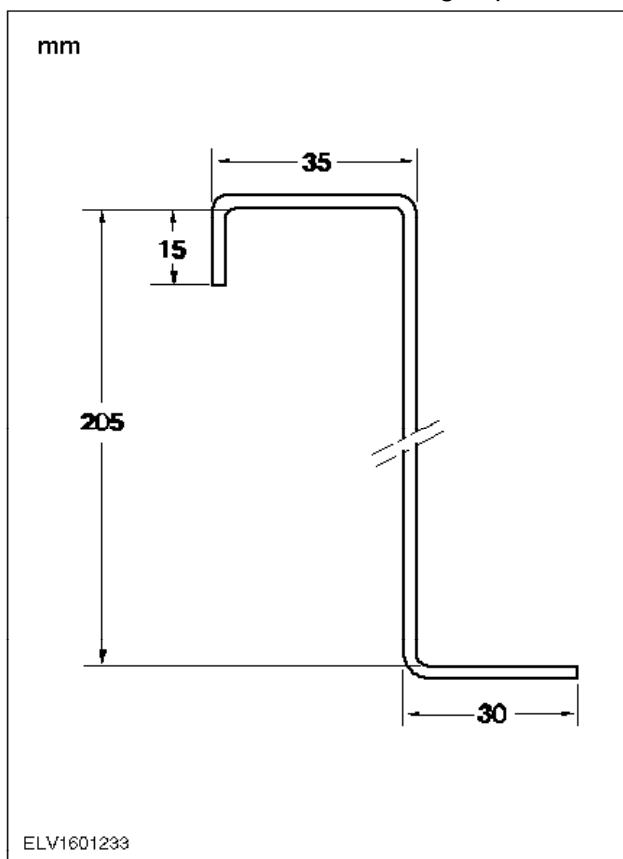
- Remove the input shaft bearing cup.
- Remove the output shaft bearing cup.
- Remove the differential bearing cup.



28. Install the shims and bearing cups, refer to previous steps.

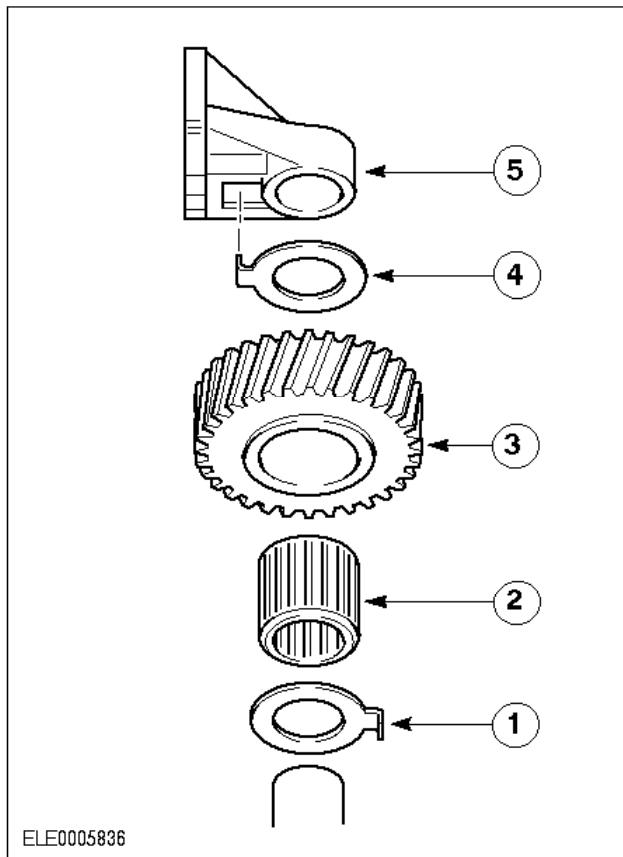
1 Install the required shims.

2 Install the bearing cups.



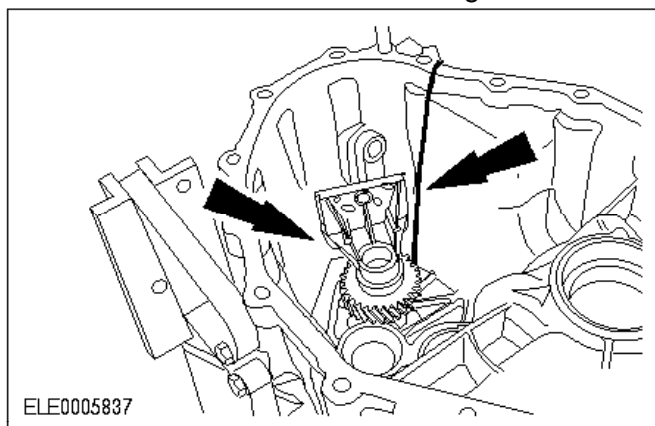
29. Fabricate an installation hook for reverse gear idler.

- Diameter of the wire: 3 mm.



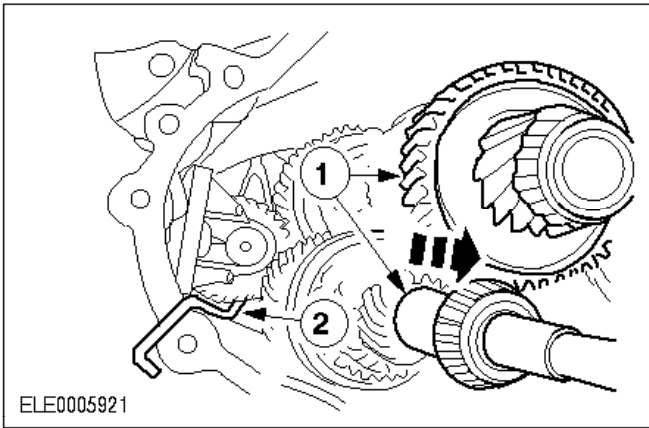
30. Reverse gear idler (installation sequence).

- 1 Install the lower thrust washer.
- 2 Install the needle roller bearing.
- 3 Install the reverse gear idler (small collar facing downwards).
- 4 Install the upper thrust washer.
- 5 Install the reverse gear idler shaft mounting bracket.



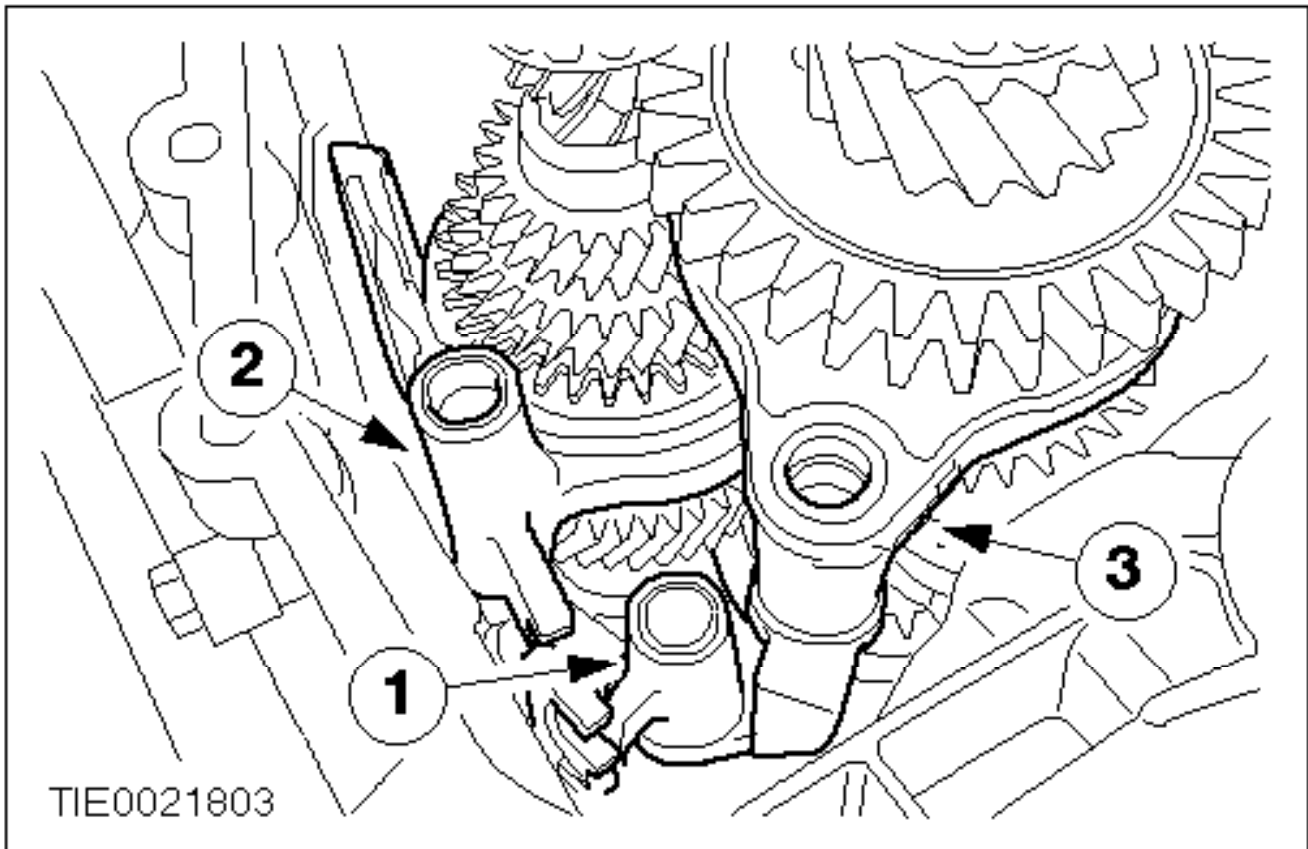
31. **Note:**
Install the reverse gear idler with the small collar facing downwards.

Insert the installation hook, install the reverse gear idler and mounting bracket.



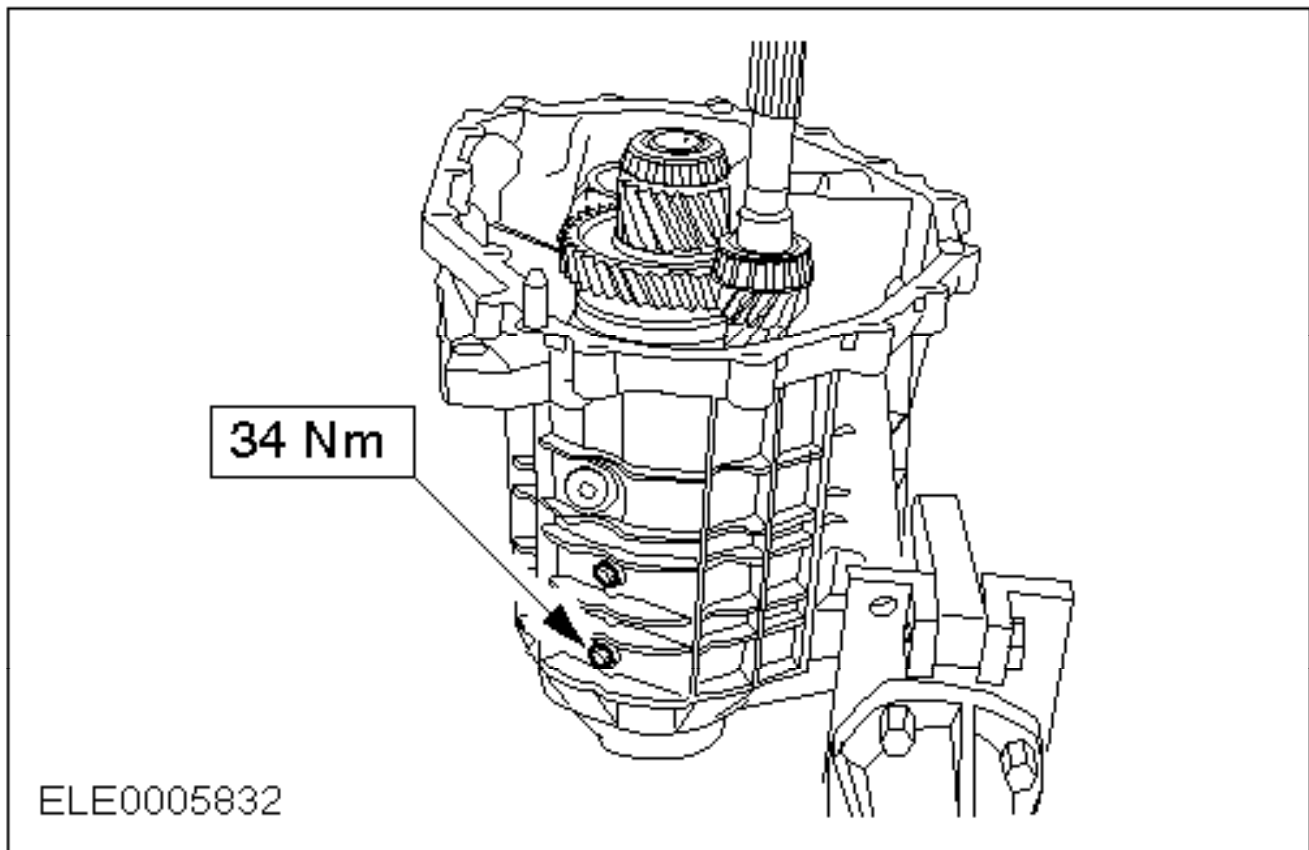
- 32. **Note:**
Lubricate the roller bearing.
Install the input shaft and output shaft.

- 1 Install the input shaft and output shaft together and move them to one side.
- 2 Remove the installation hook.



- 33. **Note:**
Make sure that the input shaft is in neutral position.
Install the selector forks.

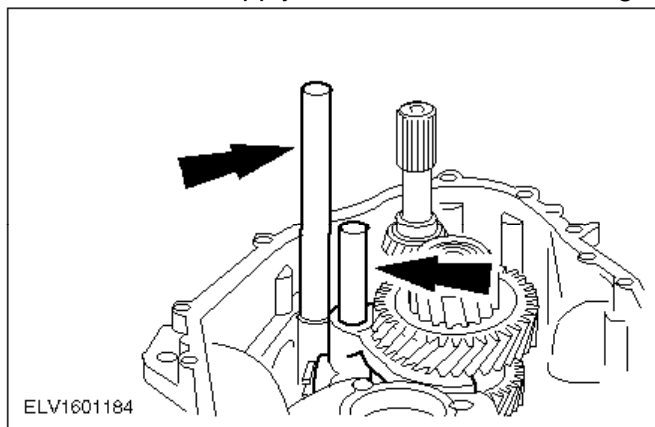
- 1 Install the first and second gear selector fork.
- 2 Install the third and fourth gear selector fork.
- 3 Install the fifth and reverse gear selector fork.



34. **Note:**
If the holes for the reverse gear idler shaft mounting retaining bolts do not line up exactly, check the installation position of the reverse gear idler shaft thrust washers.

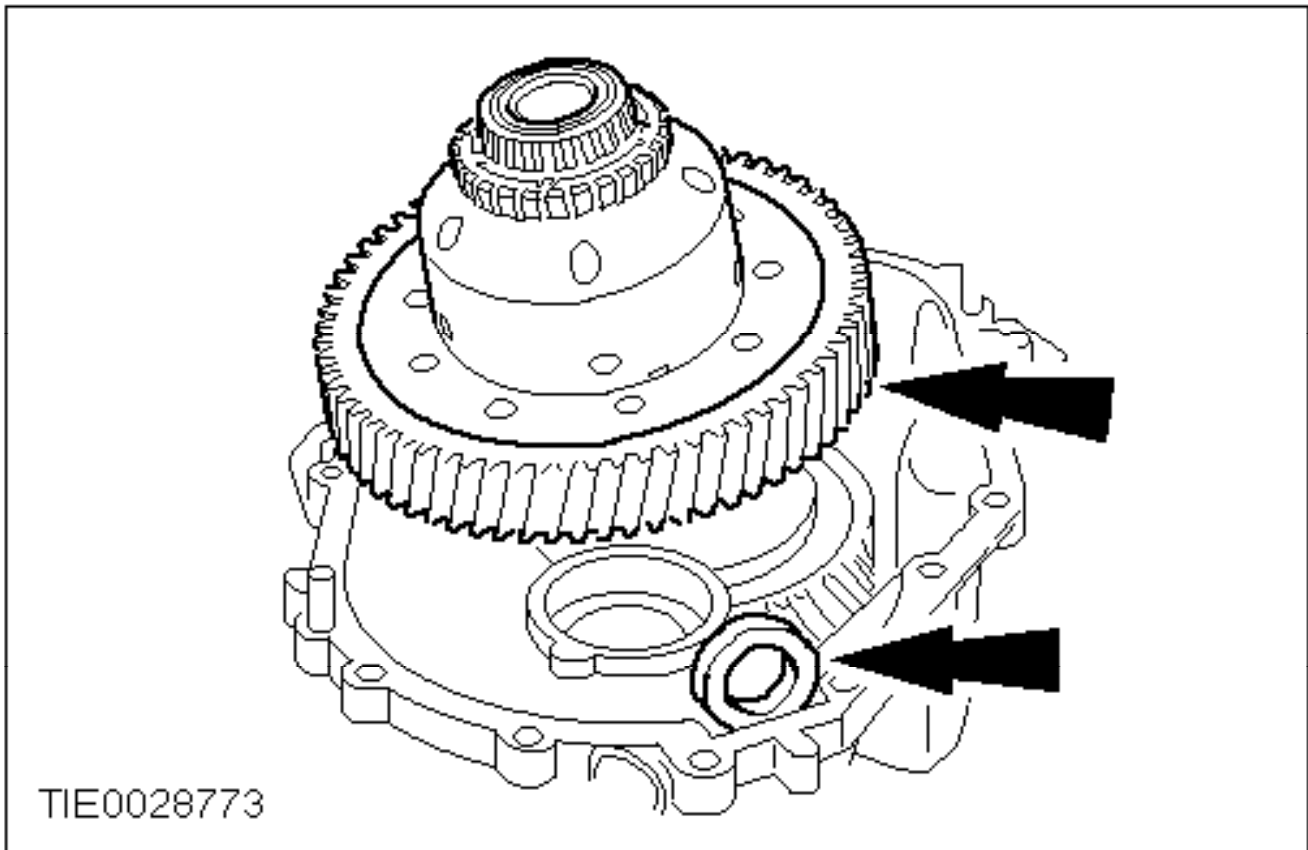
Install the reverse gear idler shaft retaining bolts.

- Apply sealer to the bolts and tighten them.

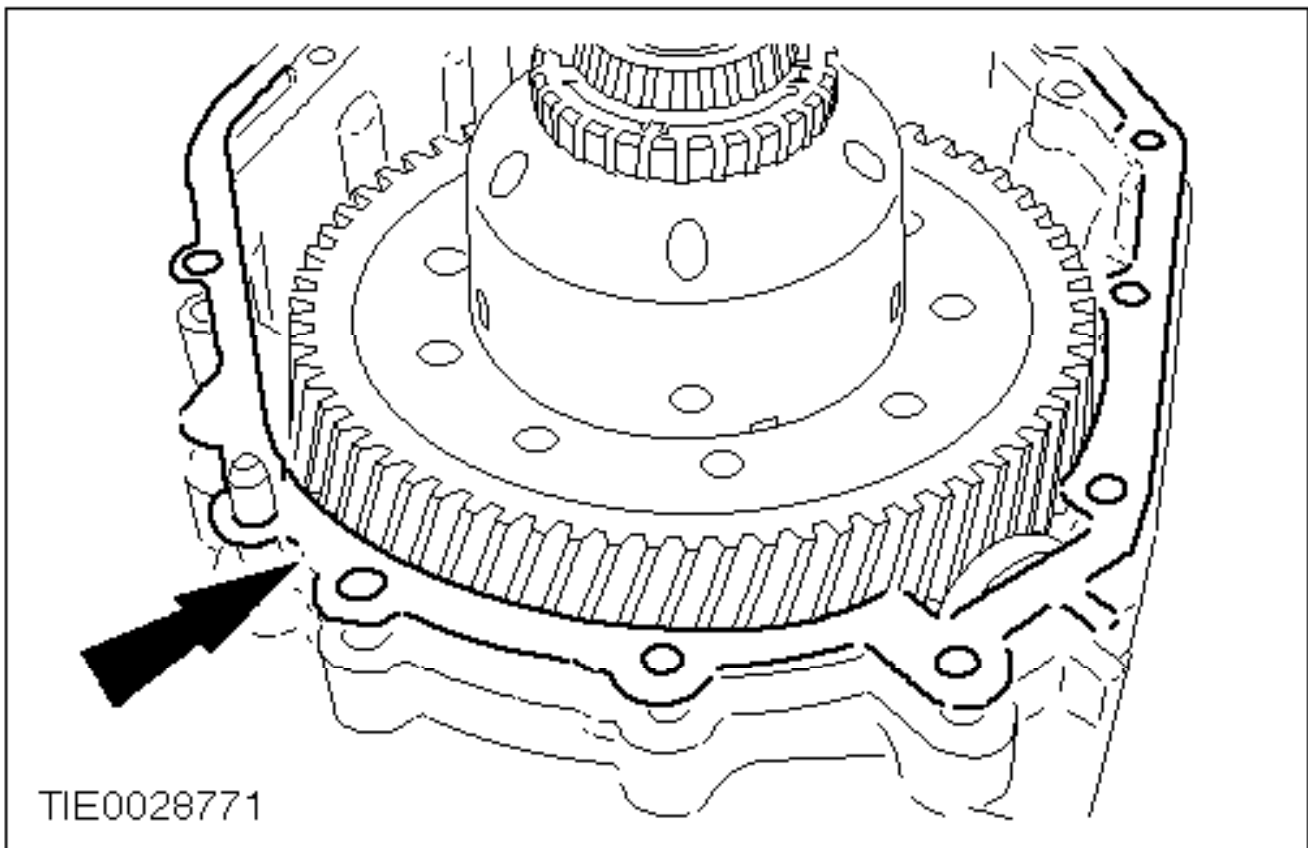


35. **Note:**
Make sure that the selector rods are the same height.

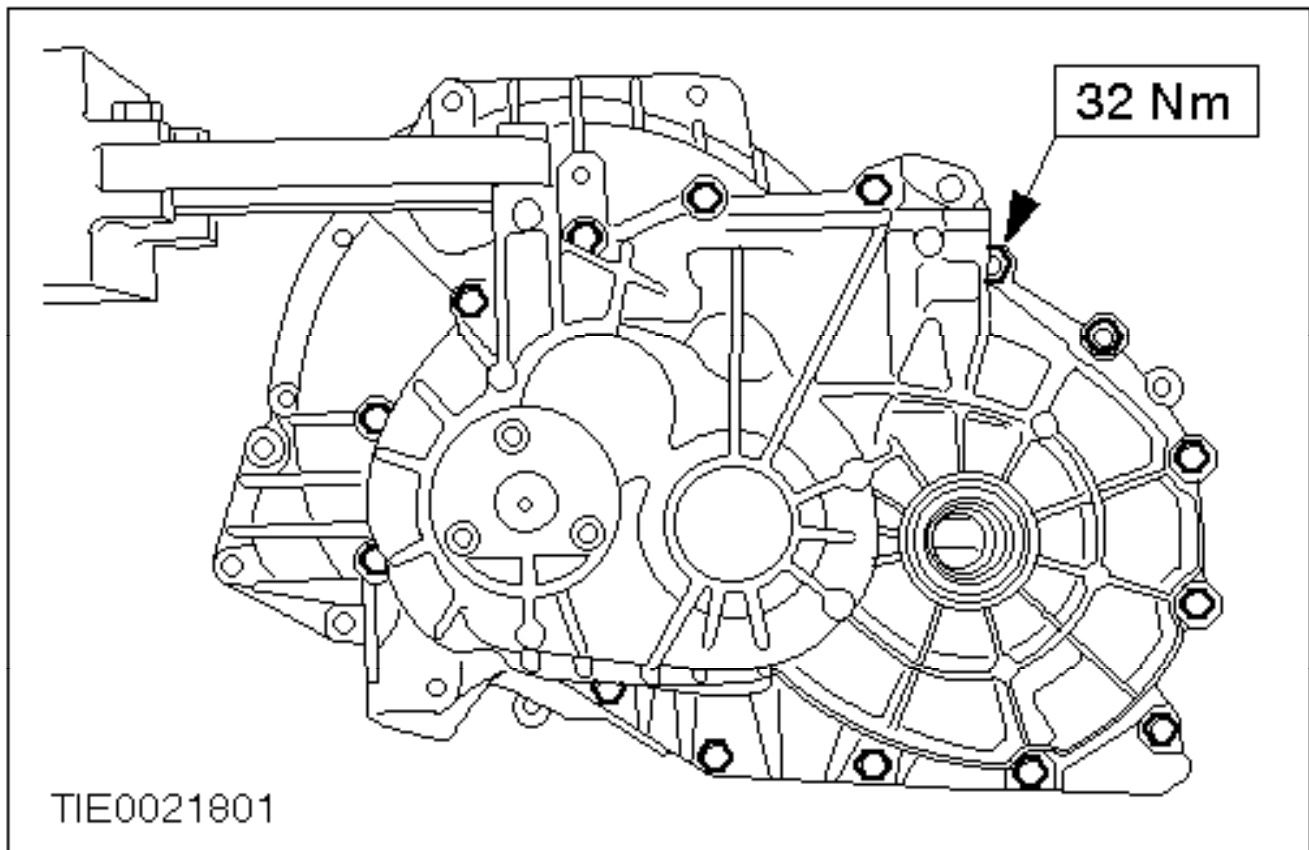
Install the selector rods.



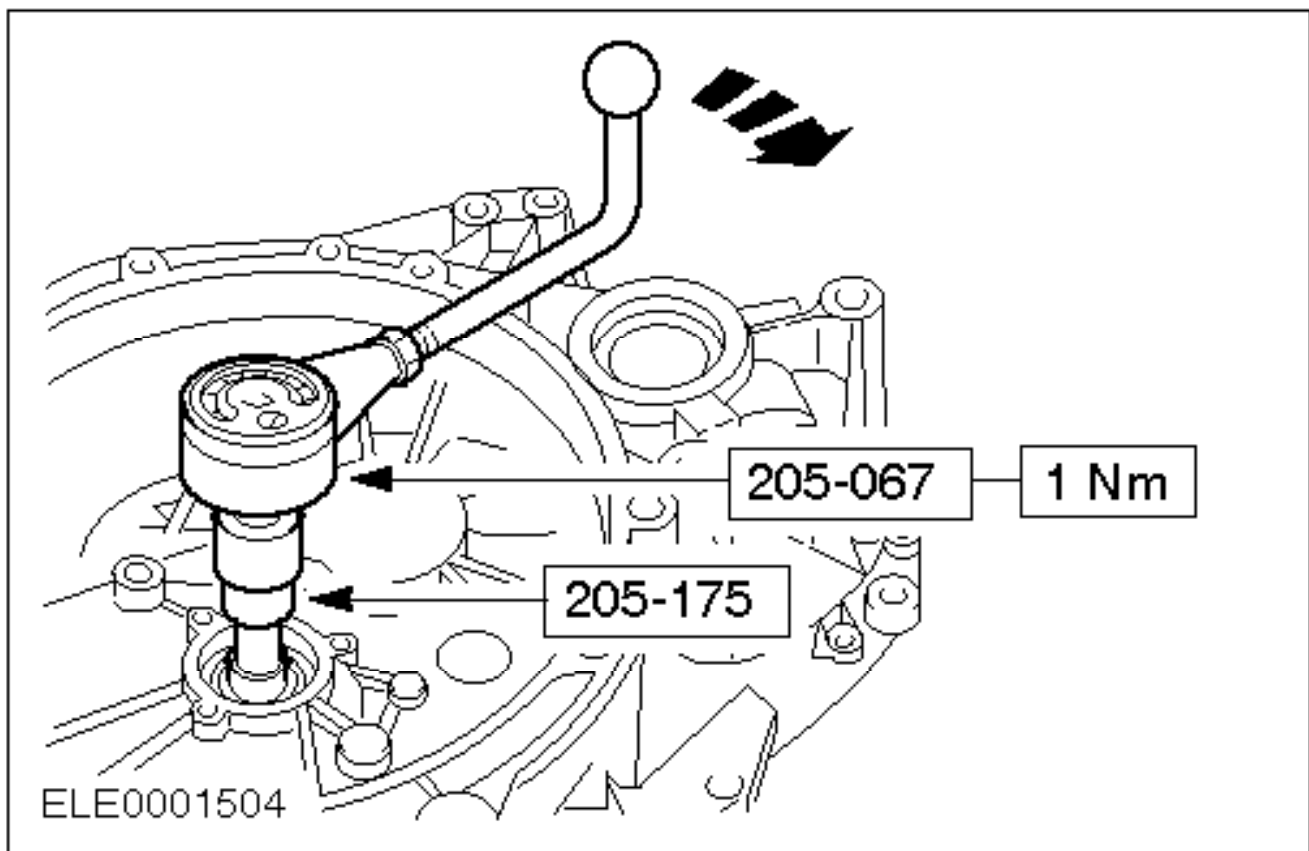
- 36. Install the differential assembly.
 - Install the magnetic disc.



- 37. **Note:**
Install a new transaxle housing gasket.
Install the transaxle housing gasket.

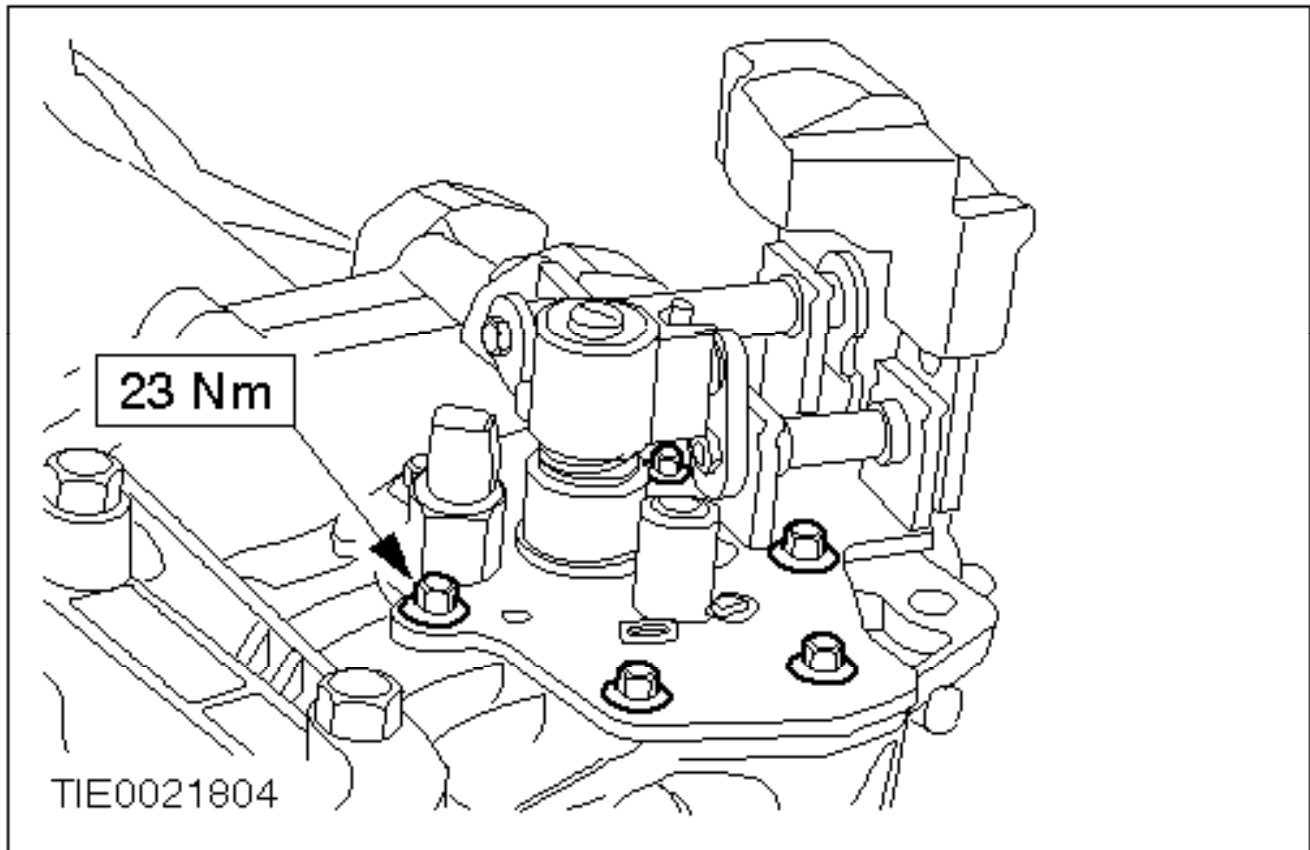


38. **Note:**
The transmission housing must not be turned before tighten the bolts.
Install the transaxle clutch housing and tighten the transaxle retaining bolts.

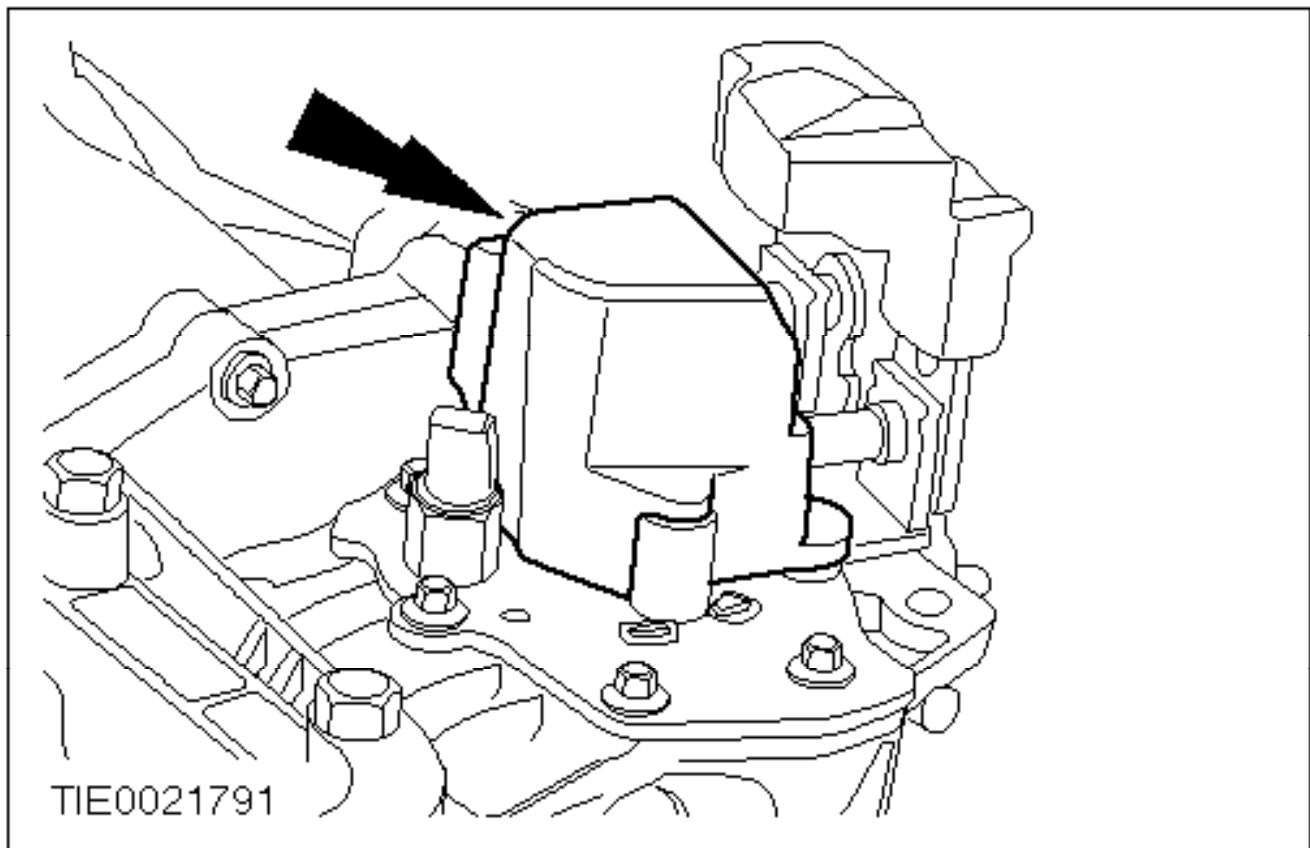


39. Using the special tools, measure the turning torque.
- Engage fourth gear.
 - Measure the turning torque.

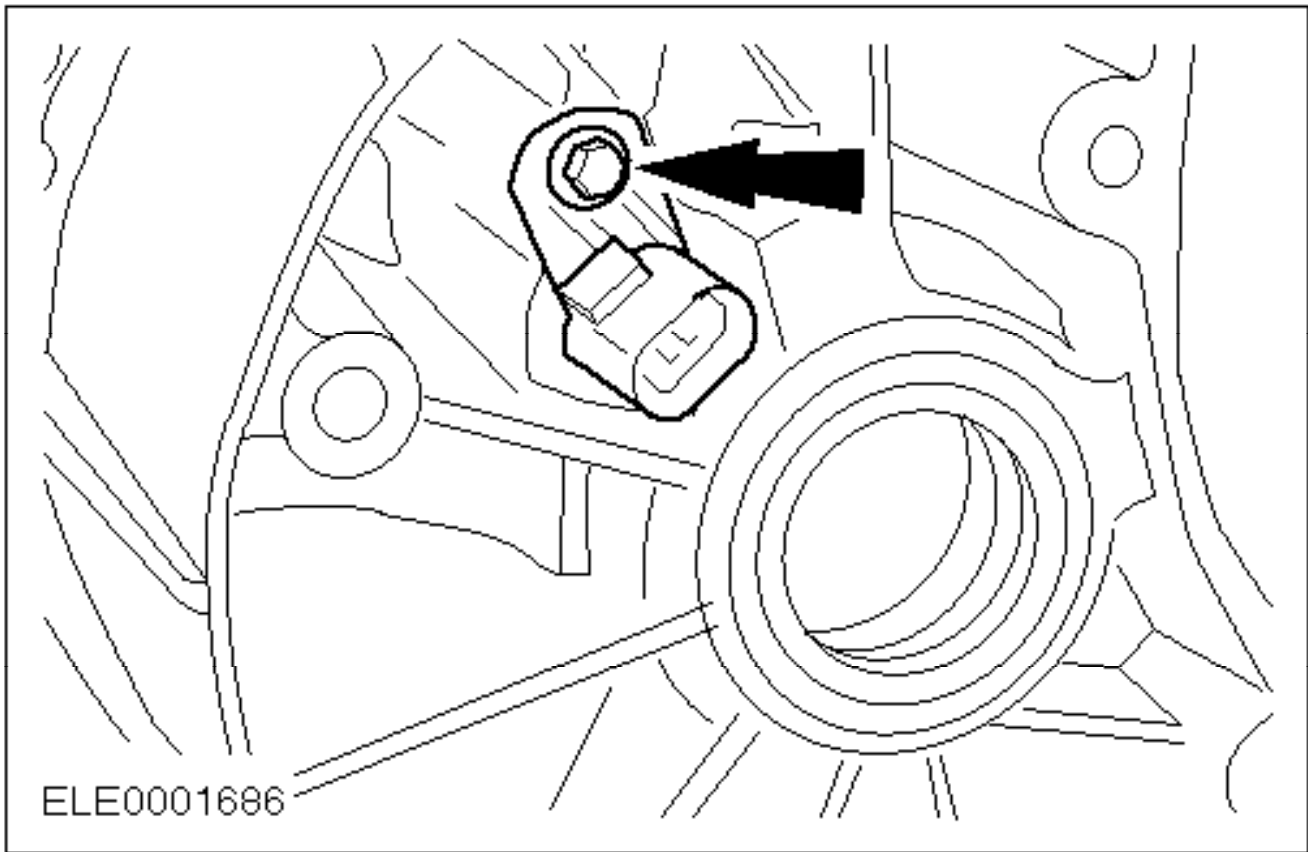
- If the turning torque is too high, all the measurements (to establish the required shim thickness) must be repeated.



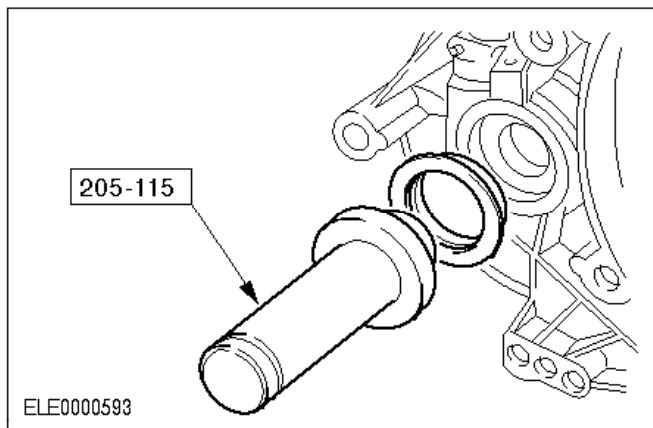
- 40. **Note:**
Make sure that the selector mechanism is in neutral.
Install the selector mechanism.



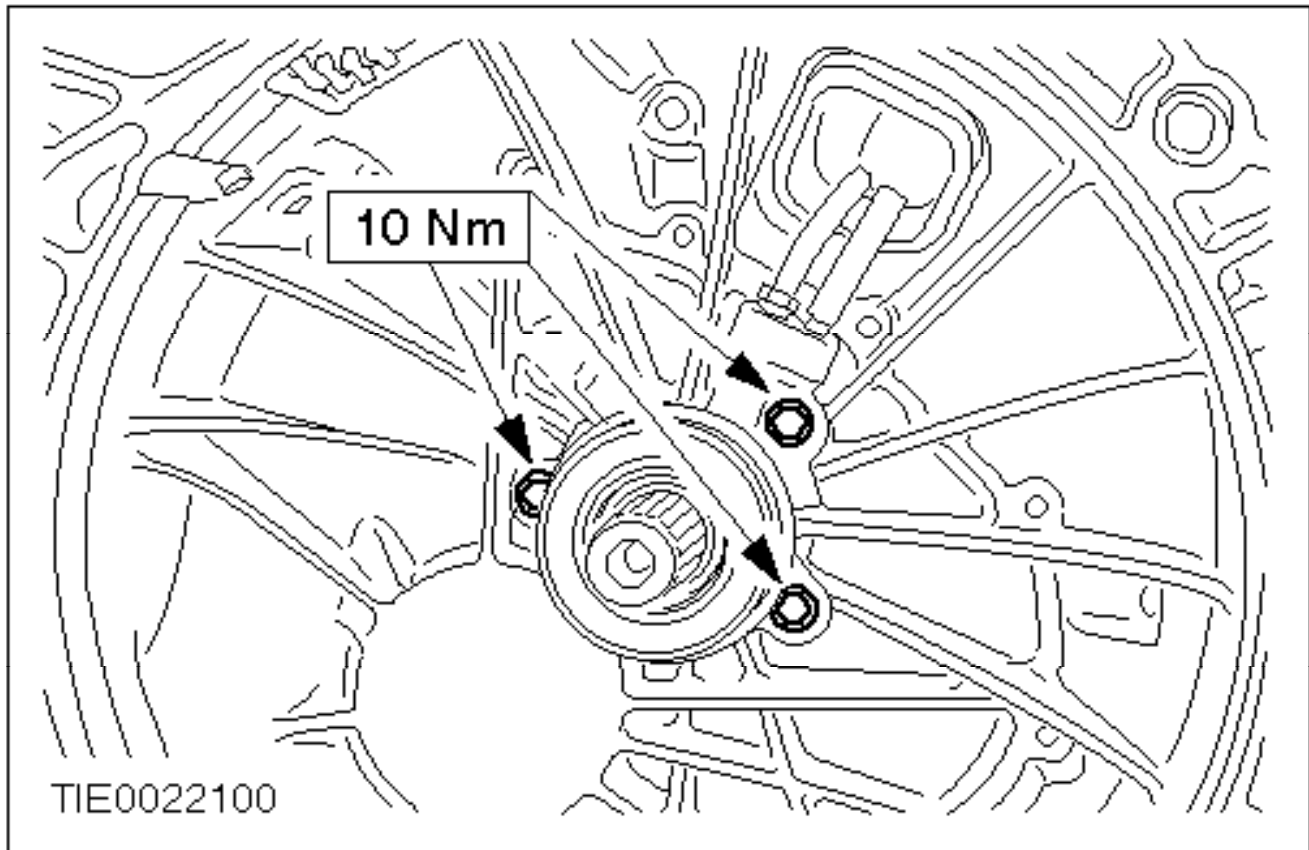
- 41. Install the selector mechanism cover.



42. Install the vehicle speed sensor (VSS).



43. Using the special tool, install the halfshaft oil seals.



44. **CAUTION:**
If brake fluid is spilt on the paintwork, the affected area must be immediately washed down with cold water.

CAUTION:
Using suitable adhesive tape, cover the input shaft splines to prevent damage to the input shaft oil seal.

Install the clutch slave cylinder assembly.

- Apply sealer to the mating faces of the clutch slave cylinder assembly and the transaxle housing.
 - Attach the boot.
45. Remove the adhesive tape from the input shaft splines.
46. Coat the input shaft splines with a thin layer of high-temperature grease.
-