

Transmission

Special Tool(s) / General Equipment

 E139373	100-002 (TOOL-4201-C) Holding Fixture with Dial Indicator Gauge
 E232132	205-126 (T78P-4851-A) Holding Fixture, Drive Pinion Flange
 307-003	307-003 (T57L-500-B) Holding Fixture, Transmission
Hydraulic Press	

Materials

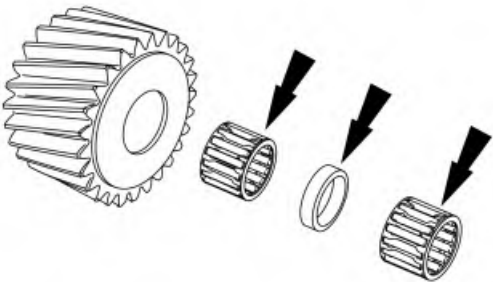
Name	Specification
Motorcraft® Threadlock and Sealer TA-25-B	-
Motorcraft® High Performance Engine RTV Silicone TA-357	WSE-M4G323-A6
Motorcraft® MERCON® V Automatic Transmission and Power Steering Fluid XT-5-QMC	WSS-M2C919-E MERCON® V

NOTICE: Apply threadlock to all bolt threads during assembly.

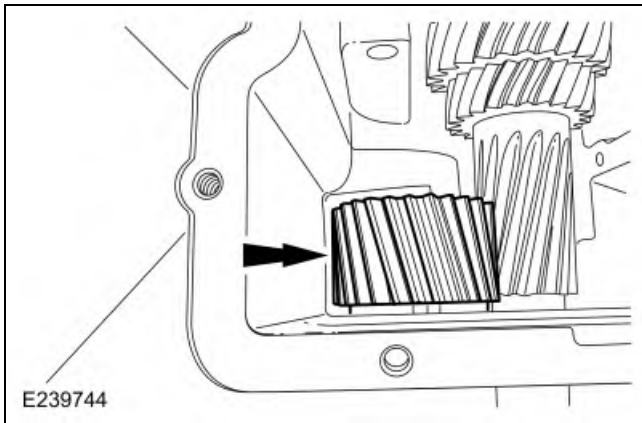
1. NOTICE: Lubricate all components with the recommended transmission fluid before assembling.

Material: Motorcraft® MERCON® V Automatic Transmission and Power Steering Fluid / XT-5-QMC (WSS-M2C919-E) (MERCON® V)

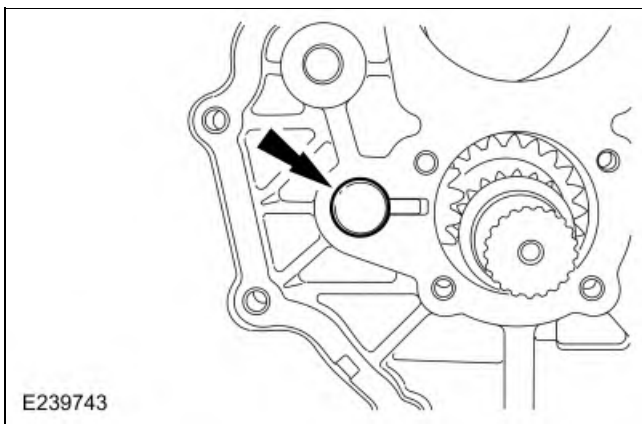
2. Install the countershaft assembly in the transmission case.
3. Install the reverse idler bearings and spacer into the reverse idler gear.


E239745

4. Install the reverse idler gear.

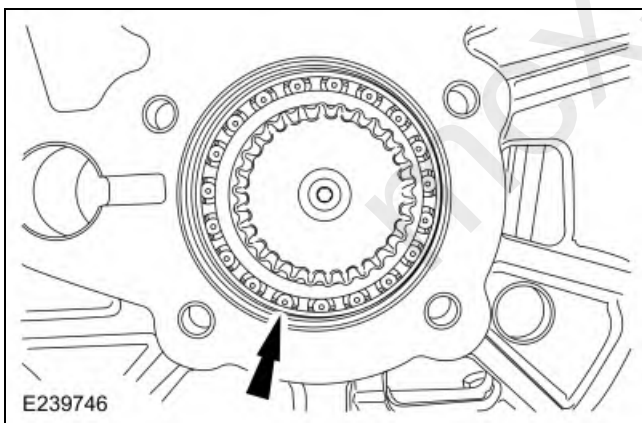


5. Install the reverse idler shaft.

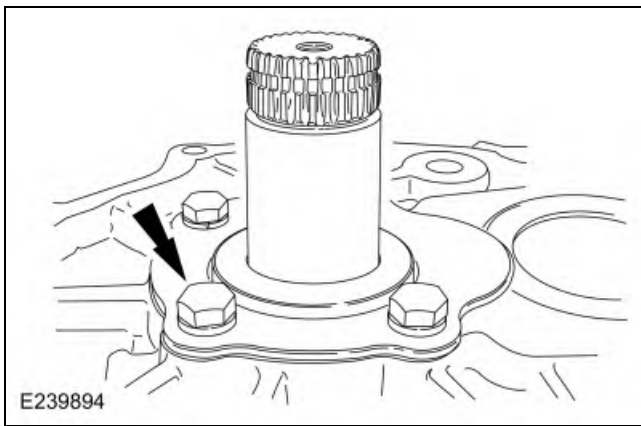


6. **NOTE:** Install bearings and cups in matched sets only.

Install the new countershaft rear bearing and cup.



7. Install the rear bearing retainer and the bolts.
Torque: 27 lb.ft (37 Nm)

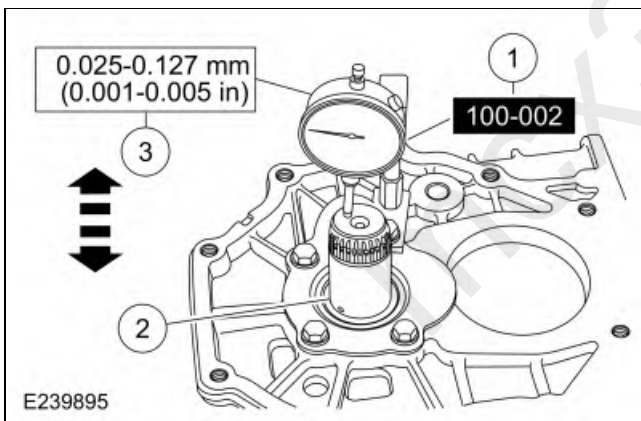


8.

Using the special tool, measure the countershaft end play.

1. Place the transmission in a vertical position and install the special tool.
2. Push upward on the countershaft.
3. Record the reading.

Use Special Service Tool: 100-002 (TOOL-4201-C) Holding Fixture with Dial Indicator Gauge.

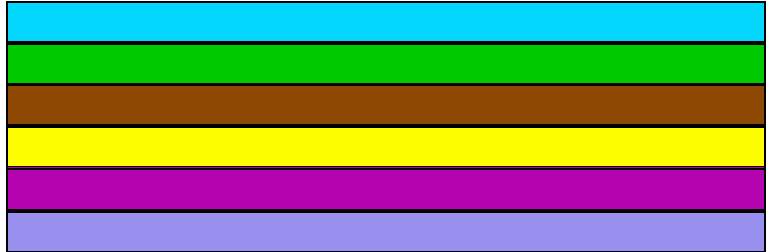
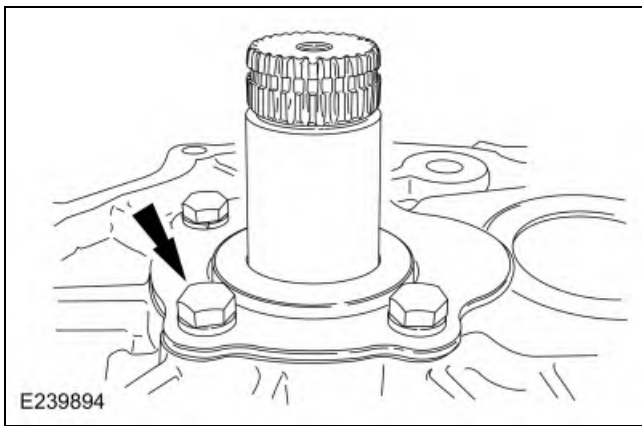


9. **NOTICE:** Although zero end play is the ideal, end play up to 0.12 mm (0.004 in) is an acceptable tolerance. Do not overload the bearings with a shim that is too thick as damage may occur.

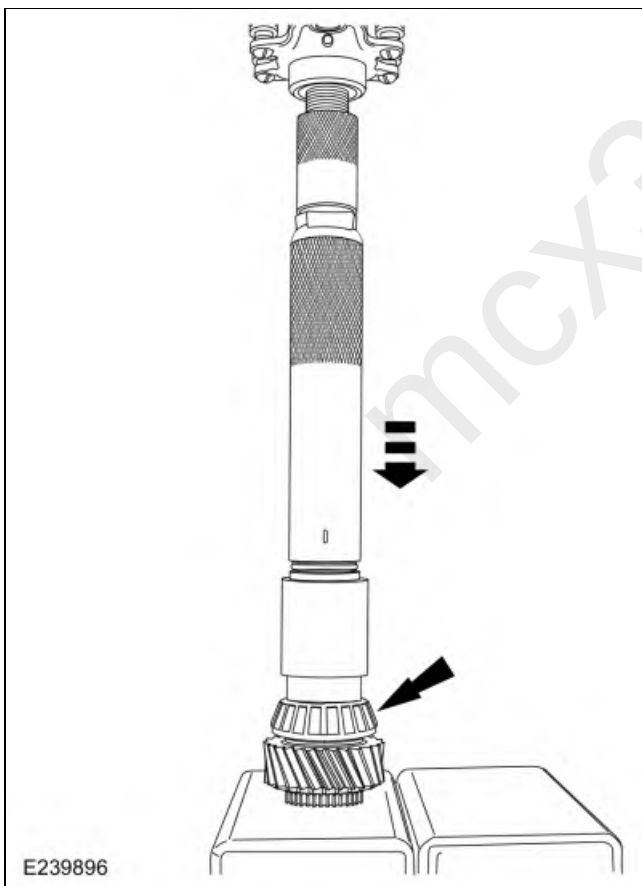
If necessary, add a shim(s) behind the rear bearing retainer to adjust end play.

10. **NOTE:** This step is necessary to gain clearance when installing the mainshaft.

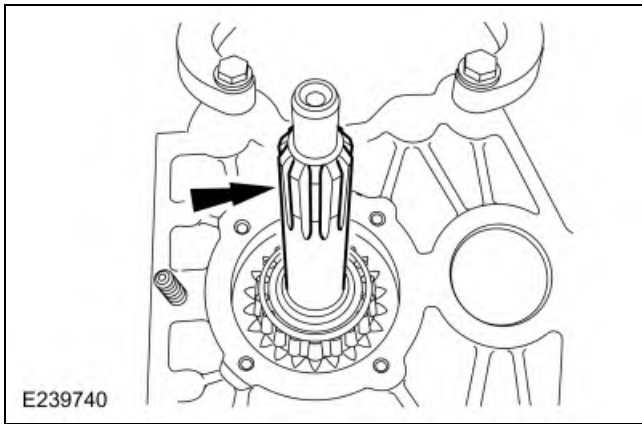
Remove the rear bearing retainer bolts, retainer and cup.



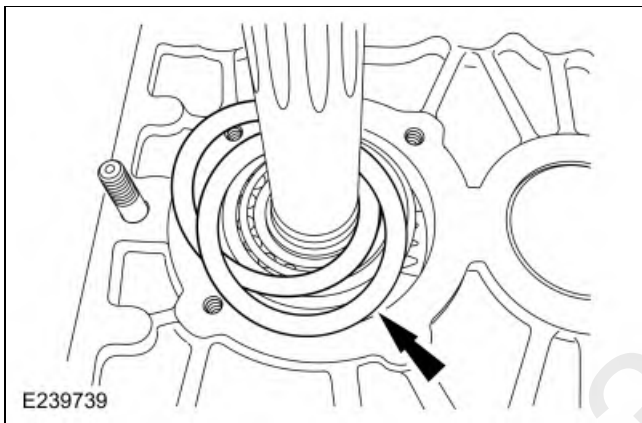
11. Using a rope wrapped around the front of the mainshaft, position the rear of the mainshaft through the transmission case and lower the front of the mainshaft down into the transmission main case.
12. Using a suitable tool and a hydraulic press, install the input shaft bearing.
Use the General Equipment: Hydraulic Press



13. Install the input shaft.



14. Install the bearing cup and shim(s) onto the input shaft.

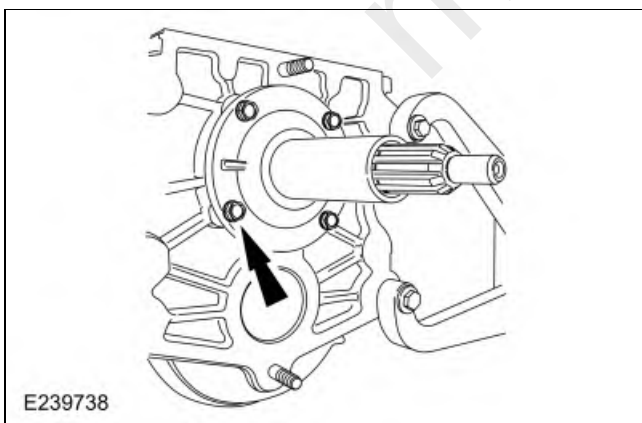


15. Apply a 3.2 mm (1/8 in) bead of sealant to the sealing surface of the front bearing retainer. Install the front bearing retainer and the bolts. Refer to: RTV Sealing Surface Cleaning and Preparation (303-00 Engine System - General Information, General Procedures).

Material: Motorcraft® Threadlock and Sealer / TA-25-B

Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)

Torque: 168 lb.in (19 Nm)



16. Apply threadlock and sealer to rear bearing retainer bolts. Install the cup, rear bearing retainer and the rear bearing retainer bolts.

Material: Motorcraft® Threadlock and Sealer / TA-25-B

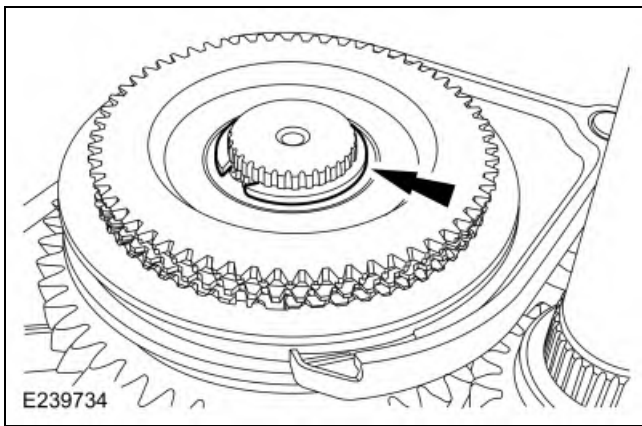
Torque: 27 lb.ft (37 Nm)



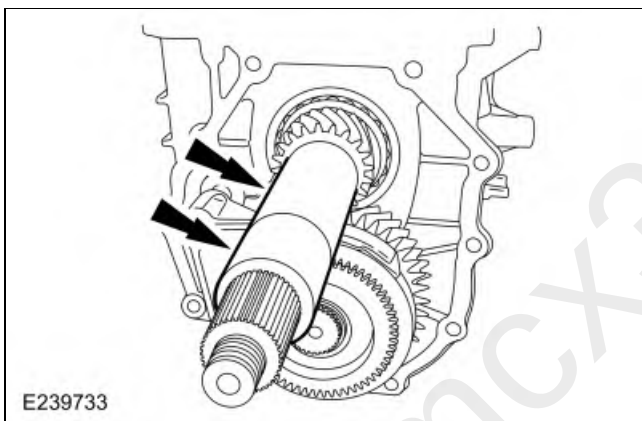
A horizontal bar chart with six bars of equal length, each representing a different color. The colors, from top to bottom, are cyan, green, brown, yellow, magenta, and light blue. Each bar is labeled with a percentage value to its right. The bars are all the same length, indicating that each color was chosen by the same percentage of respondents.

Color	Percentage
Cyan	16.67%
Green	16.67%
Brown	16.67%
Yellow	16.67%
Magenta	16.67%
Light Blue	16.67%

19. Install the new snap ring on the 5th gear clutch cone.

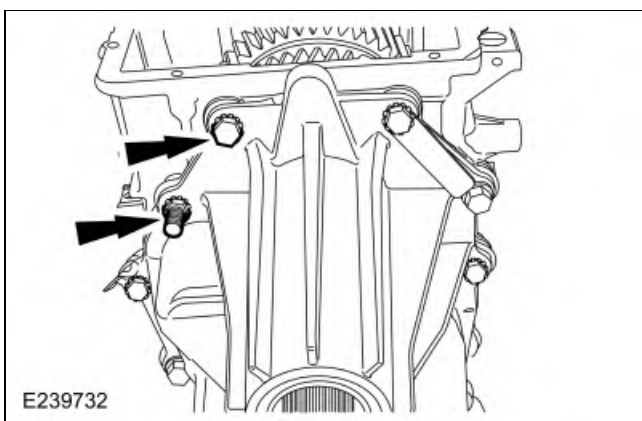


20. Install the front and rear yoke spacers with the ball bearing between the spacers.



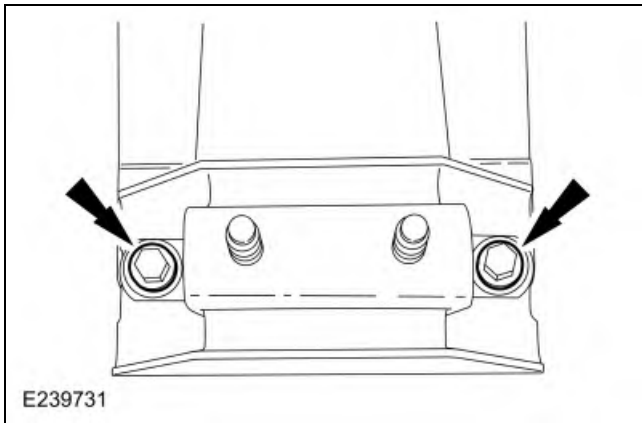
21. Apply a 3.2 mm (1/8 in) bead of sealant to the sealing surface on the rear of the transmission main case and install the extension housing.
Refer to: RTV Sealing Surface Cleaning and Preparation (303-00 Engine System - General Information, General Procedures).
Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)

22. Apply threadlock and sealer and install the extension housing-to-transmission main case bolts and stud.
Material: Motorcraft® Threadlock and Sealer / TA-25-B
Torque: 46 lb.ft (62 Nm)

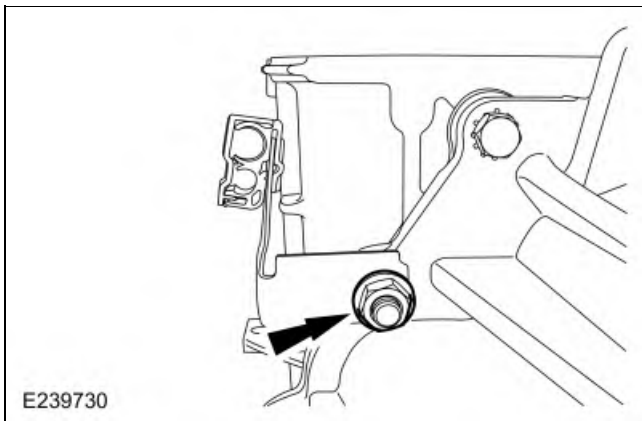


23. Install the transmission mount and new bolts.

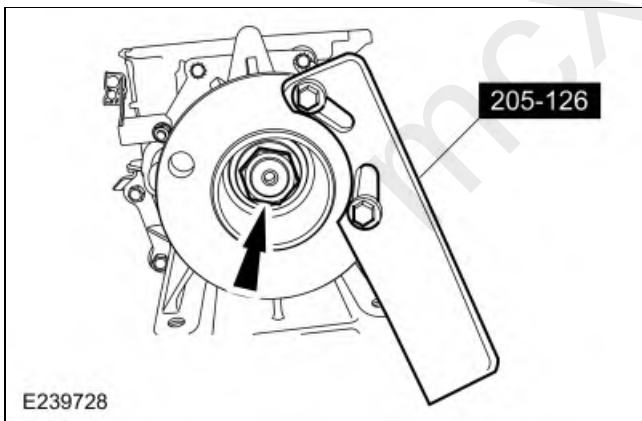
Torque: 46 lb.ft (62 Nm)



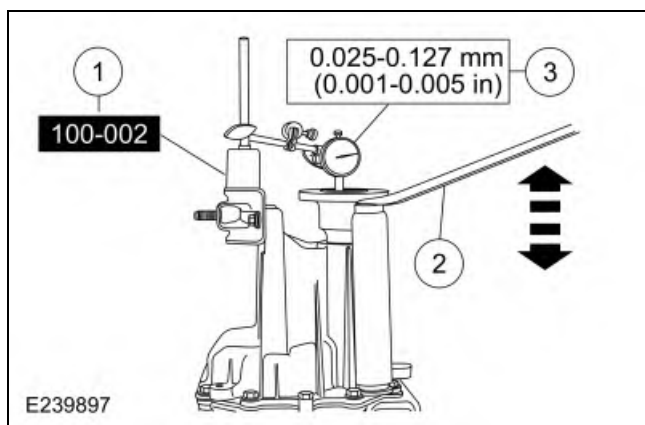
24. Install the fuel tube support bracket and the bracket nut.
Torque: 46 lb.ft (62 Nm)



25. Using the special tool, install the transmission flange washer and nut.
Use Special Service Tool: 205-126 (T78P-4851-A) Holding Fixture, Drive Pinion Flange.
Torque: 118 lb.ft (160 Nm)



26. Using the special tool, measure the mainshaft end play.
1. Place the transmission in a vertical position and install the special tool.
 2. Push upward on the mainshaft.
 3. Record the reading.
- Use Special Service Tool: 100-002 (TOOL-4201-C) Holding Fixture with Dial Indicator Gauge.



27. **NOTICE:** Although zero end play is the ideal, end play up to 0.12 mm (0.004 in) is an acceptable tolerance. Do not overload the bearings with a shim that is too thick as damage may occur.

If necessary, add a shim(s) behind the front bearing retainer to adjust end play.

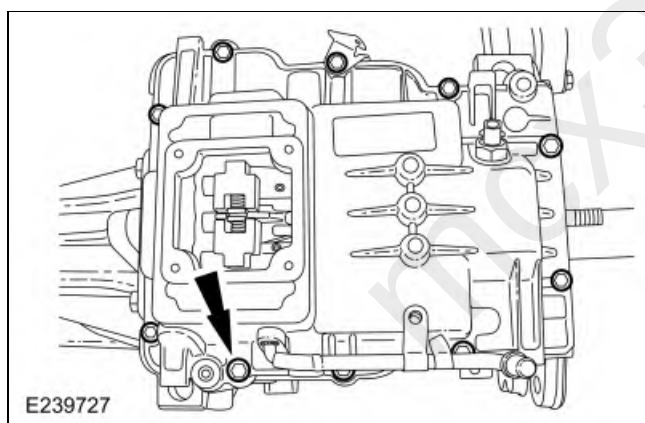
28. Apply a 3.2 mm (1/8 in) bead of sealant to the sealing surface of the shift control housing. Apply threadlock and sealer and install the shift control housing and the 10 bolts.

Refer to: RTV Sealing Surface Cleaning and Preparation (303-00 Engine System - General Information, General Procedures).

Material: Motorcraft® Threadlock and Sealer / TA-25-B

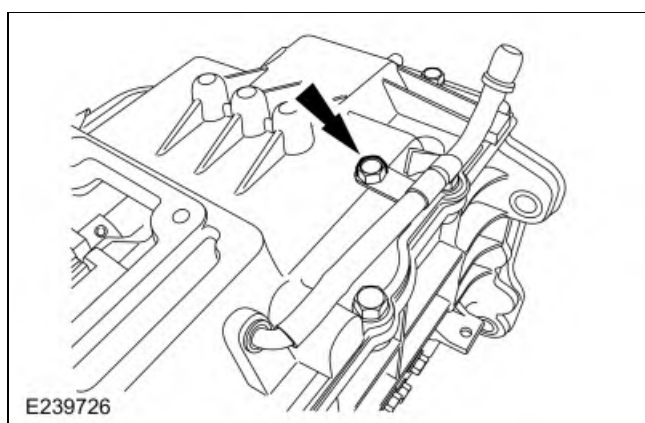
Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)

Torque: 20 lb.ft (27 Nm)



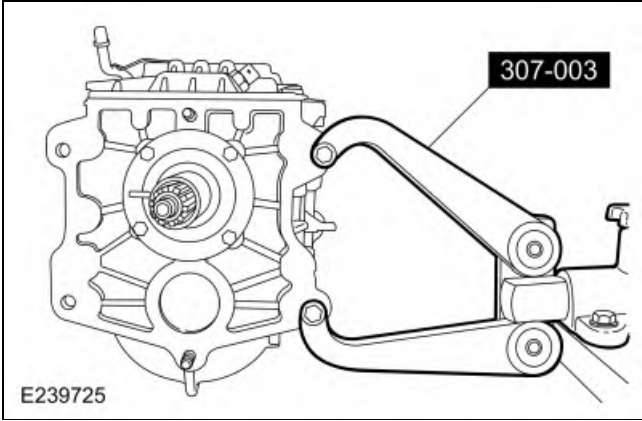
29. Install the vent hose support bracket bolt.

Torque: 142 lb.in (16 Nm)

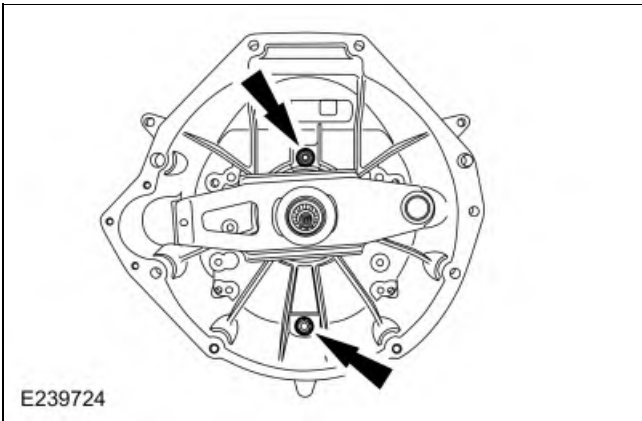


30. Remove the transmission from the special tool and place on the bench.

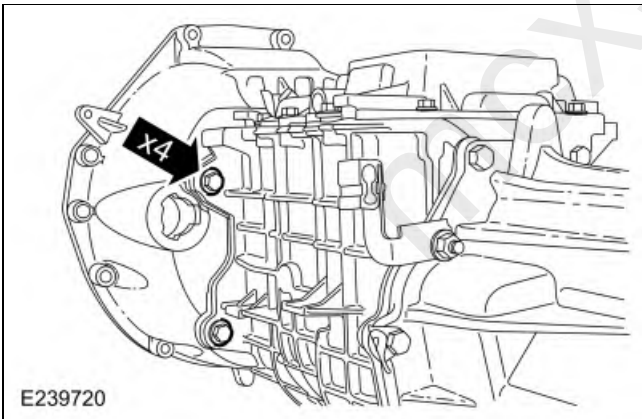
Use Special Service Tool: 307-003 (T57L-500-B) Holding Fixture, Transmission.



31. Install the clutch housing and the clutch housing-to-transmission case nuts.
Torque: 46 lb.ft (62 Nm)



32. Install the clutch housing-to-transmission case rear bolts.
Torque: 46 lb.ft (62 Nm)

A horizontal bar chart consisting of six equally long bars stacked vertically. The bars are colored cyan, green, brown, yellow, purple, and light blue from top to bottom. Each bar has a thin black outline. The chart is set against a white background with a faint, large, light gray watermark in the center that reads '© 2019'.

A horizontal bar chart showing the distribution of colors in a 100-item sample. The bars are colored cyan, green, brown, yellow, magenta, and light blue. The cyan bar is the longest, followed by green, brown, yellow, magenta, and light blue.

Color	Count
Cyan	20
Green	15
Brown	12
Yellow	10
Magenta	8
Light Blue	5

