

# Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

## 2003 FORD Expedition OEM Service and Repair Workshop Manual

[Go to manual page](#)

## Driveshaft Runout and Balancing

<b>205-01 Driveshaft</b>	<b>2022 F-150</b>
<b>General Procedures</b>	<b>Procedure revision date: 03/29/2022</b>

### Driveshaft Runout and Balancing

#### Inspection

##### NOTE

Driveline vibration exhibits a higher frequency and lower amplitude than high-speed shake. Driveline vibration is directly related to the speed of the vehicle and is noticed at various speeds. Driveline vibration can be perceived as a tremor in the floorpan or heard as a rumble, hum or boom.

##### NOTE

Refer to Specifications in this section for runout specifications.

##### 1. NOTE

Do not make any adjustments before carrying out a road test. Do not change the tire pressure or the vehicle load.

- Carry out a visual inspection of the vehicle. Operate the vehicle and verify the condition by reproducing it during the road test.
- The concern should be directly related to vehicle road speed, not affected by acceleration or deceleration or could be reduced by coasting in NEUTRAL.

2. Raise and support the vehicle.

center and rear of the driveshaft. Multiple piece driveshaft measure each section at the front, center and rear.

1. If the runout exceeds the maximum specification at the front or center, install a new driveshaft.

Refer to: [Specifications](#)(205-01 Driveshaft, Specifications).

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

2. If the front and center is within the maximum specification, but the rear runout is not, index-mark the rear runout high point and proceed to step 2.

Refer to: [Specifications](#)(205-01 Driveshaft, Specifications).

3. If the runout is within the maximum specification at all points, recheck for vibration at road test speed. If the vibration persists, balance the driveshaft. Refer to Driveshaft Balancing in this procedure.

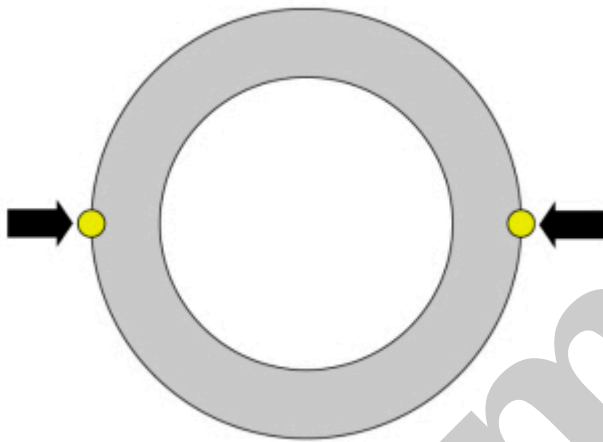
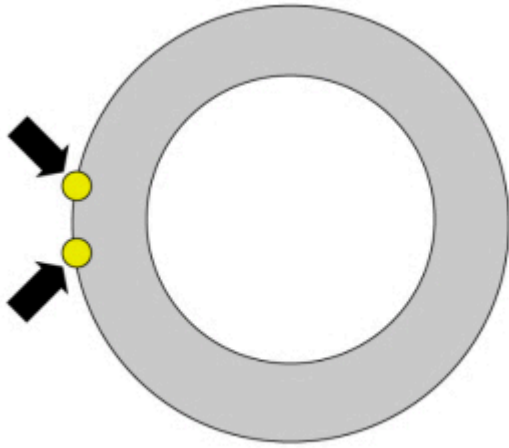
Refer to: [Specifications](#)(205-01 Driveshaft, Specifications).



[Click here to learn about symbols, color coding, and icons used in this manual.](#)

## 2. NOTE

Circular pinion flanges can be turned in 90 degree or one-fourth increments. Half-round pinion flanges are limited to 2 positions. CV joint pinion flanges that have 6 bolts, can be turned in 60 degree or one-sixth increments.



E156228

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

#### **Driveshaft Balancing-Using the VCMM (Vehicle Communication and Measurement Module) and VMS (Vehicle Measurement System)**

4. Special Tool(s): VCMM (Vehicle Communication and Measurement Module) and VMS (vehicle measurement system) . Working under the vehicle, install an accelerometer. The accelerometer can be attached and mounted near either the transmission or differential end of the driveshaft.

#### **5. NOTE**

- Clean an area of the driveshaft and install the reflective tape, then install the photo-tachometer sensor. The sensor should be placed at approximately a 20-degree angle from perpendicular to the surface of the reflective tape. Make sure the sensor does not get moved during the balance procedure.

8. Special Tool(s): VCMM (Vehicle Communication and Measurement Module) and VMS (vehicle measurement system) . Run a second test with the 12 mm (0.47 in) test weight set screw in the No. 1 hole, previously marked on the pinion flange.

9. Remove the test weight, then install the weight combination directed by the VCMM (Vehicle Communication and Measurement Module) and VMS (vehicle measurement system) .

### Vehicles without tapped pinion flanges

#### 10. NOTE

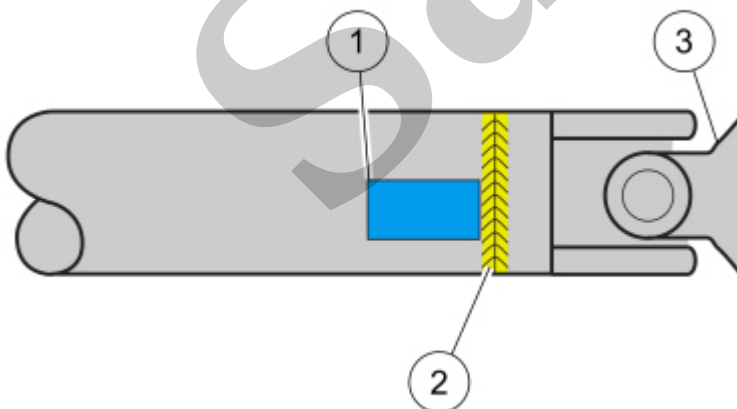
- Special Tool(s): VCMM (Vehicle Communication and Measurement Module) and VMS (vehicle measurement system) . Run a second test with a test weight. Using a metal band, secure the test weight to the end of the driveshaft. The weight should be placed at the end of the driveshaft tube, as close to the tube-to-yoke weld seam as possible. Mark the location of the test weight on the driveshaft, as shown in the figure below.

1. Test weight.

2. Tube-to-yoke weld seam.

3. Driveshaft pinion flange.

- Select the test weight based on driveshaft size. Larger driveshafts use 10 g (0.353 oz). Smaller driveshafts use 5 g (0.176 oz).

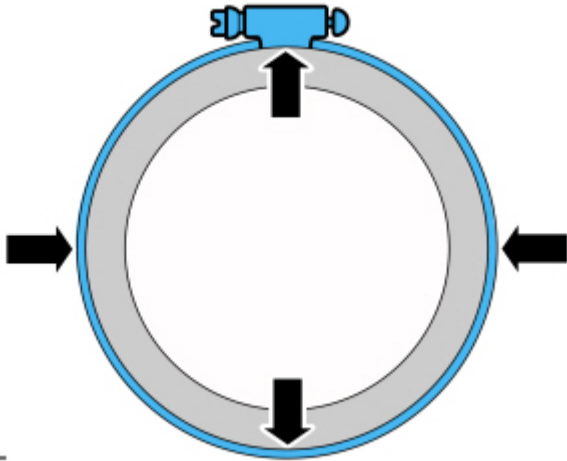


E156233

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

#### 11. NOTE

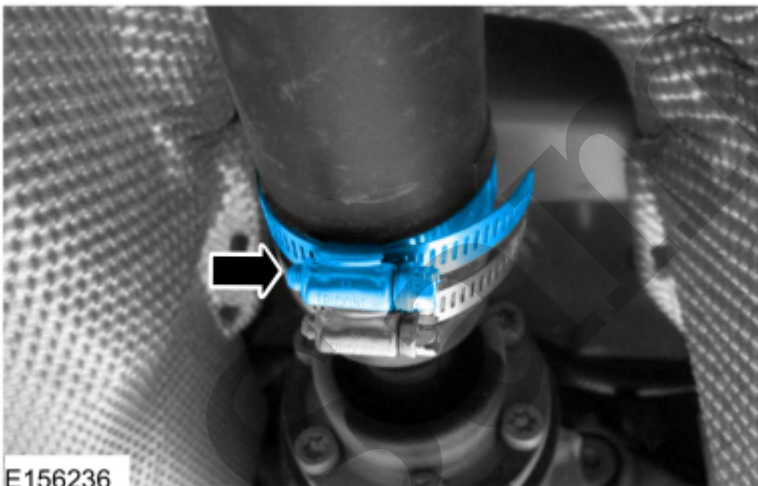
that shows minimum vibration. If 2 adjacent positions show equal improvement, position the clamp head between them.



E156235

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

15. If the vibration persists, add a second clamp at the same position and recheck for vibration.



E156236

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

16. If no improvement is noted, rotate the clamps in opposite directions, equal distances from the best position determined in Step 14. Separate the clamp heads about 13 mm (1/2 in) and recheck for vibration at the road speed.



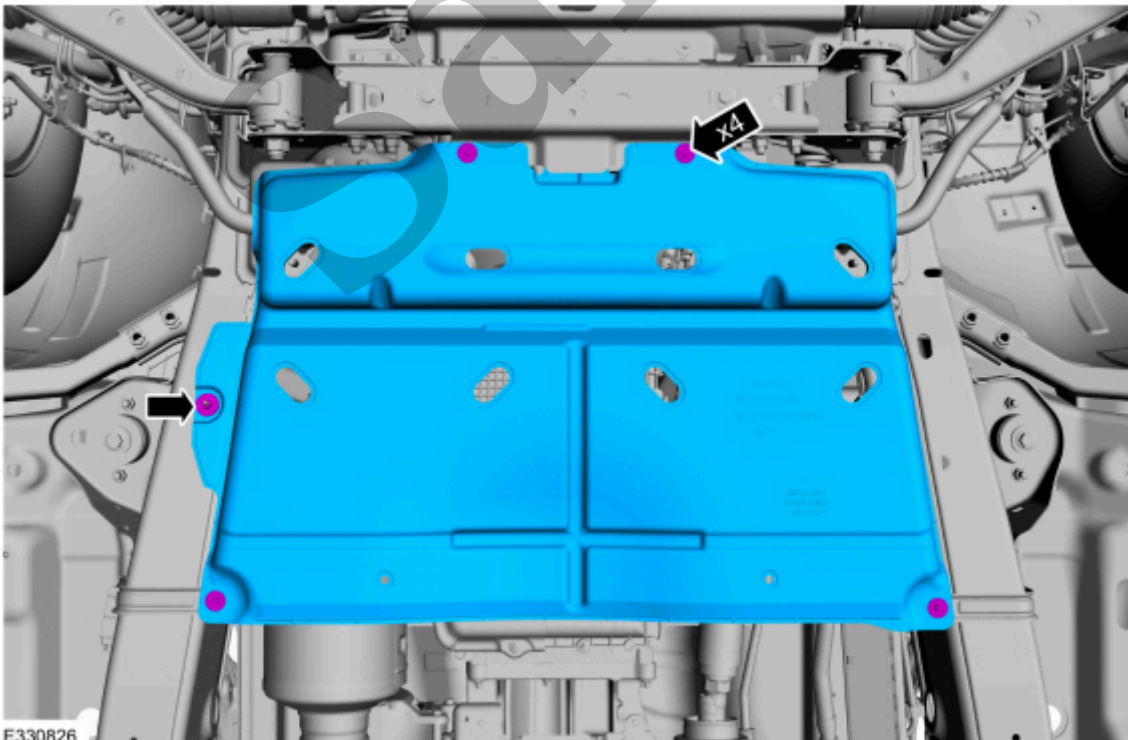
## Front Driveshaft

<b>205-01 Driveshaft</b>	<b>2022 F-150</b>
<b>Removal and Installation</b>	<b>Procedure revision date: 08/6/2021</b>

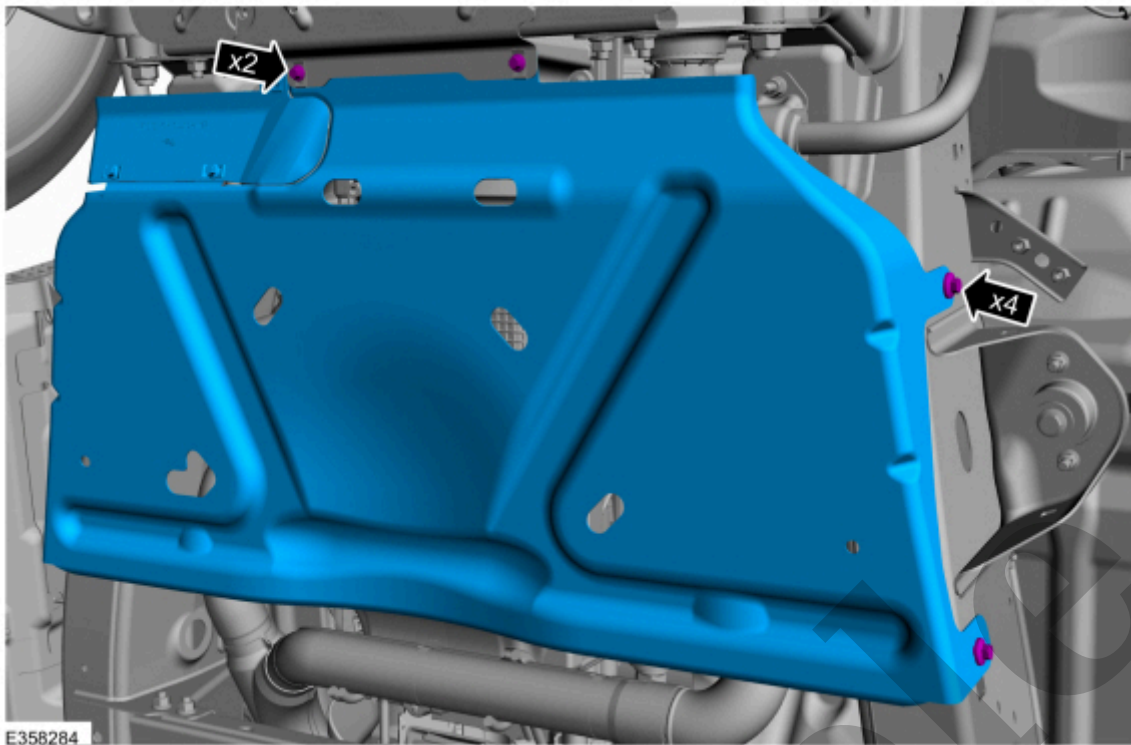
### Front Driveshaft

#### Removal

1. With the vehicle in NEUTRAL, position the vehicle on a hoist.  
Refer to: [Jacking and Lifting - Overview](#)(100-02 Jacking and Lifting, Description and Operation).
2. If equipped.  
Remove the nut, bolts and the transmission shield.



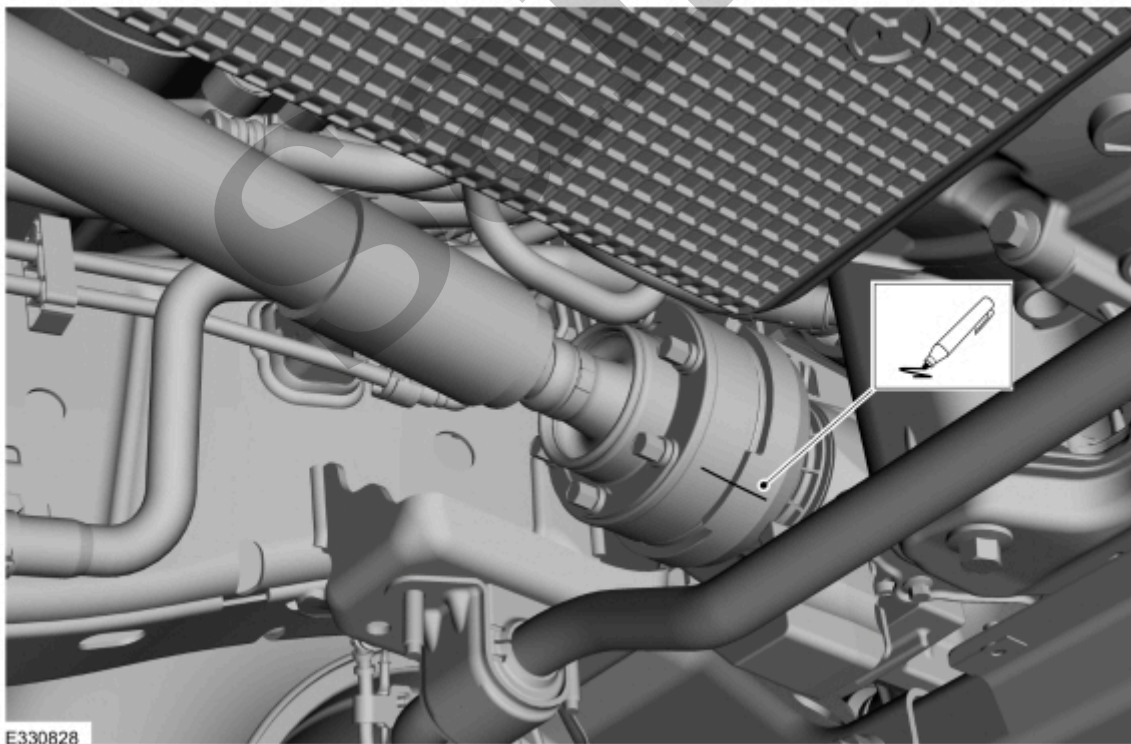
E330826



[Click here to learn about symbols, color coding, and icons used in this manual.](#)

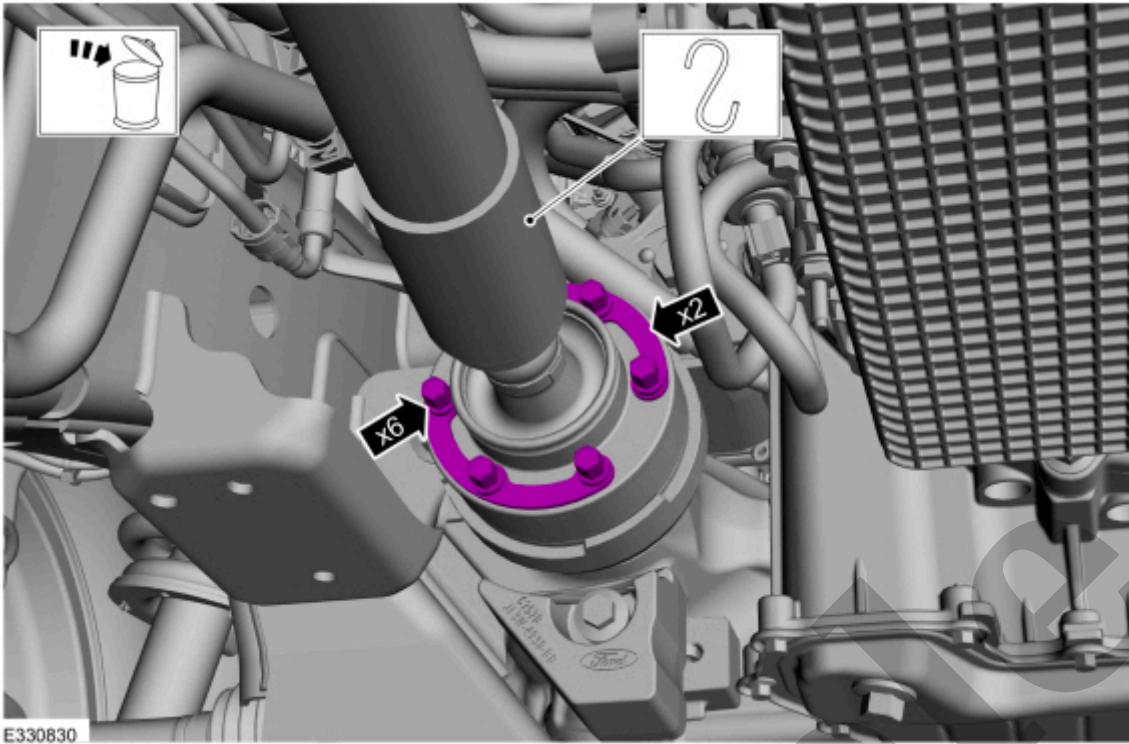
#### All vehicles

5. Index-mark the front driveshaft flange CV (constant velocity) joint to the pinion flange cup.



[Click here to learn about symbols, color coding, and icons used in this manual.](#)

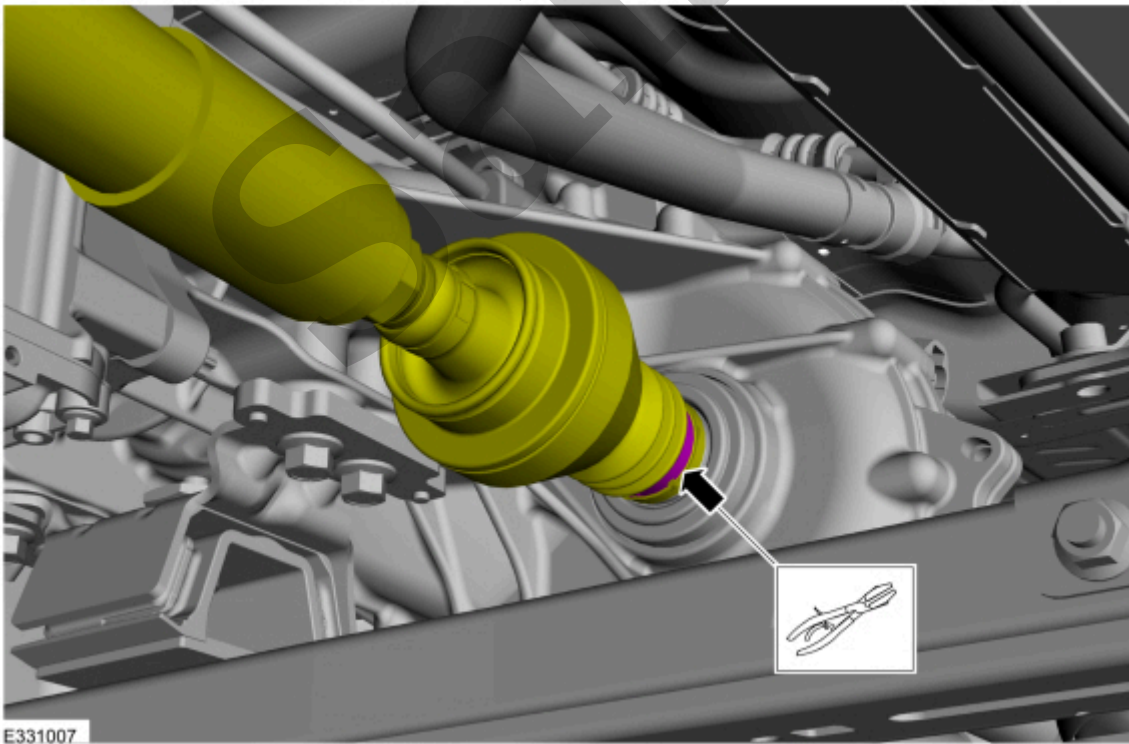




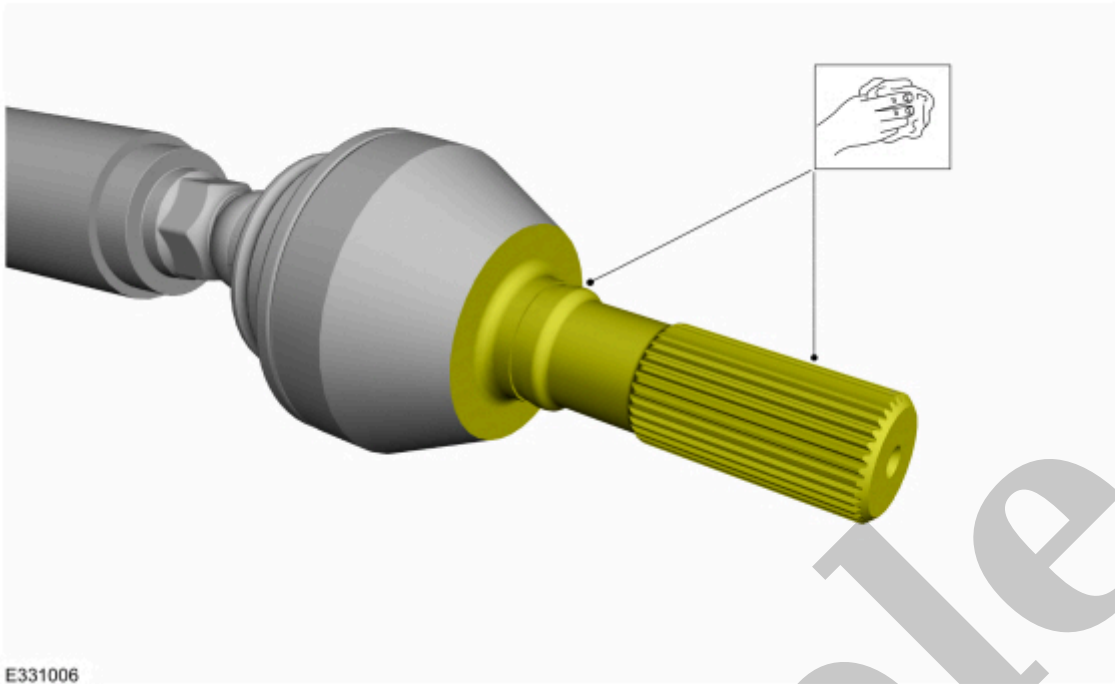
[Click here to learn about symbols, color coding, and icons used in this manual.](#)

8. Remove the front driveshaft slip yoke boot clamp at transfer case end.

Use the General Equipment: Crimping Tool



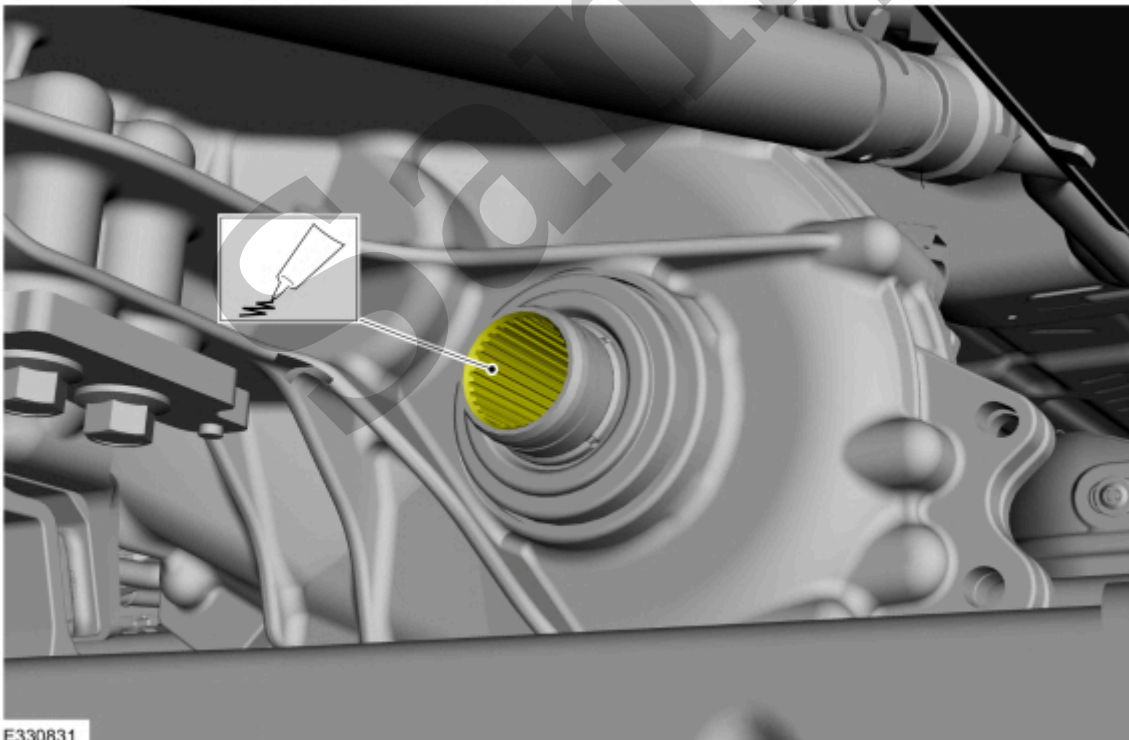
[Click here to learn about symbols, color coding, and icons used in this manual.](#)



E331006

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

3. Lubricate the transfer case plug-on yoke splines with grease.



E330831

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

4. Insert the front driveshaft into the transfer case plug-on yoke and secure the boot clamp.