



Diagnostic Trouble Code (DTC) P215A-64, Fault Code SPN 84 FMI 19

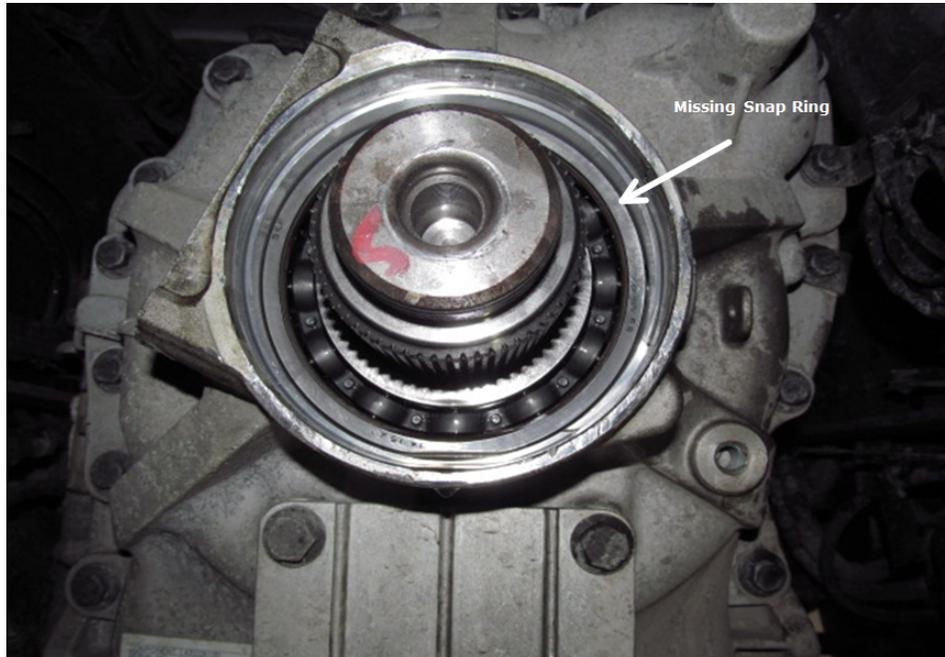


> Internal Content

This condition may be caused by a missing or dislodged output shaft bearing snap ring, which results in a damaged transmission speed sensor.

1. Follow instructions for removal and replacement of the output shaft seal, [4317-03-02-03 Seal, Output Shaft, Replacement](#).
2. Reposition the output shaft bearing forward in the auxiliary housing.
 - If the snap ring is still present but has come out of the groove:
 - Inspect for damage to the groove.
 - If no damage is found, re-install the snap ring and ensure it is fully seated in the groove.
 - If the snap ring is missing:
 - IMPACT shows 4 different thickness rings. Obtain all four thicknesses. The correct thickness snap ring is the one that provides the tightest fit for the bearing.

Part Number	Thickness (mm)
1652802	3.70
1652803	3.80
1652804	3.90
914556	4.00



You need to remove the companion flange and inspect for a missing or dislodged output shaft bearing snap ring. If the snap ring is missing there are 4 different thickness snap rings available. You will need to get them all and use trial and error method to find the one that fits the tightest while fully seated. If the snap ring is still there but has come out of the groove you will need to reposition the shaft/bearing forward in the transmission, inspect for damage to the groove, if ok, re-install the snap ring and insure it is fully seated in the groove.

Remove the companion flange and seal and inspect for the presence of the output shaft support bearing snap ring. Reposition the shaft/bearing forward in the trans. inspect the snap ring groove. If the snap ring is there but has come out of the groove, if it is not damaged it can be reinstalled. If it is not there IMPACT shows 4 different thickness rings you will need to get. The correct thickness snap ring is the one that provides the tightest fit for the bearing.

During replacement of the sensor for SPN 84 FMI 19, if the technician finds the sensor damaged in this manner (see below) the snap ring for the tail shaft bearing is missing or not seated. This repair can be done in the field.

- There are 4 different thickness snap rings:

 Live UI

- 1652802, THK 3.70

- 1652803, THK 3.80

- 1652804, THK 3.90

- 914556, THK 4.00

- Follow instructions for R&R the output shaft seal, 4349-03-02-03 Sealing Ring, Rear Output Shaft, Replacement.
- Reposition the tail shaft bearing forward in the auxiliary housing.
- To find the correct size snap ring start with the thickest and use the largest one that fully seats in the groove.
- Reassemble



 Tags

[k39135131](#)

[p215a-64](#)

[spn 84 fmi 19](#)

[p215a64](#)

Related links and attachments

[4317-03-02-03 Seal, Output Shaft, Replacement](#)

 **Feedback**

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to help improve the content of this article

43903-2 Seal, Output Shaft, Replacement

You must read and understand the precautions and guidelines in Service Information, Function Group 4, General Safety Practices, Transmission before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.



Do not attempt to repair or service this vehicle without having sufficient training, the correct service literature and the proper tools. Failure to follow this could make the vehicle unsafe and lead to serious personal injury or death.



Before working on a vehicle, set the parking brakes, place the transmission in neutral, and block the wheels. Failure to do so can result in unexpected vehicle movement and can cause serious personal injury or death.

Special tools: 9998570 , 9990084, 9992619, 9992653, 9992671, 9998597, 9996222, 88800174, 9996315, 9996901, 9996925

1

Secure the vehicle for service by parking it on a flat level surface, applying the parking brake, chocking the rear wheel, and placing the transmission in neutral.

2

Clean the transmission around the companion flange.

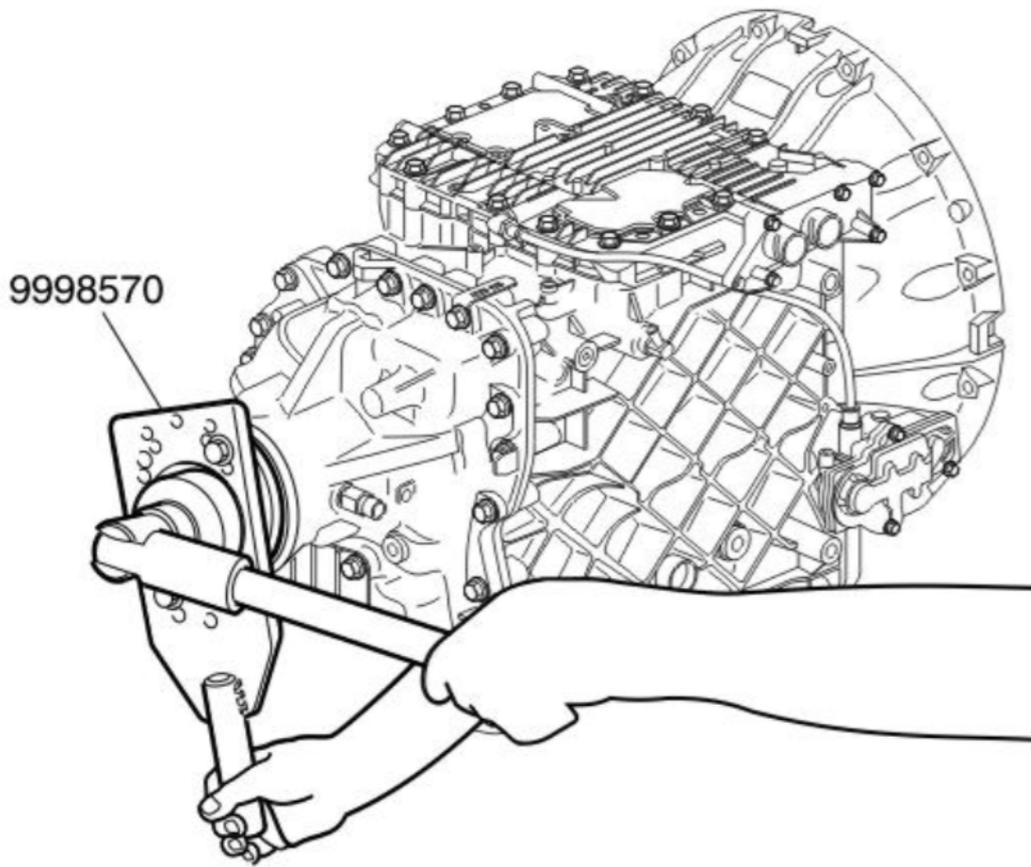
3

Remove the universal joint caps. Disconnect the front of the drive shaft from the yoke and position it aside.

4

Remove the universal joint yoke from the companion flange.

5



Remove the companion flange nut.

Note: Attach the counterhold tool and remove it after companion flange nut removal.

Special tools: [9998570](#)

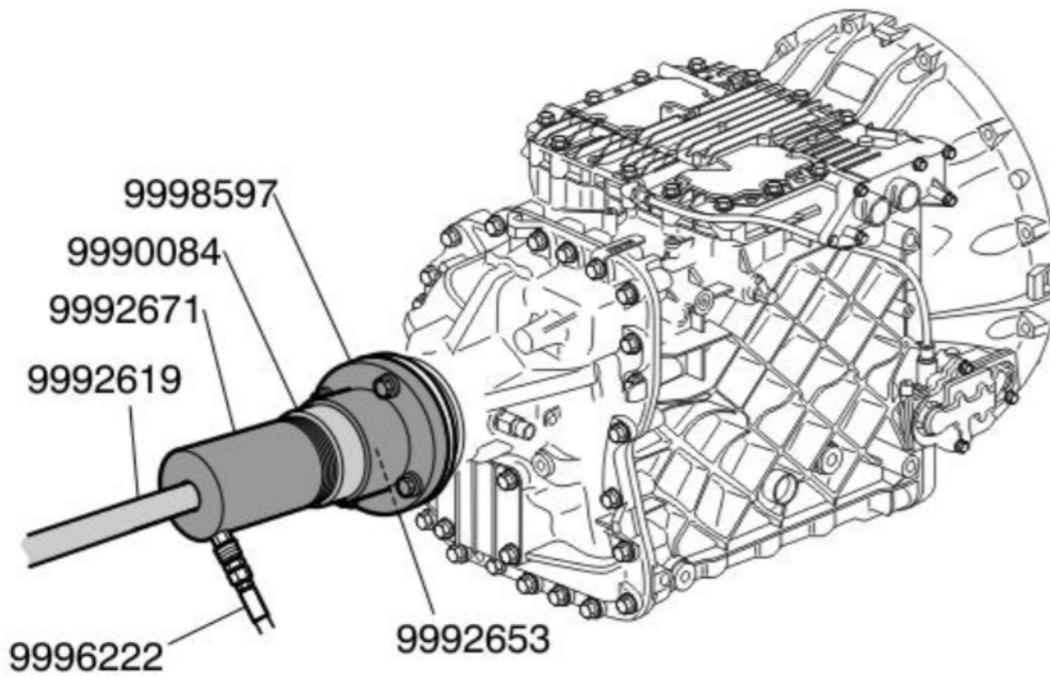
6

Assemble companion flange removal tools.

1. Attach tool 9998597 to the companion flange.
2. Assemble tools 9992619 and 9992653 together and thread tools 9992671 and 9990084 together.
3. Thread tool 9992619 all the way into tool 9992671.
4. Thread tool 9990084 into tool 9998597.
5. Adjust tool 9992619 inward until it touches the output shaft.

Special tools: [9990084](#), [9992619](#), [9992653](#), [9992671](#), [9998597](#)

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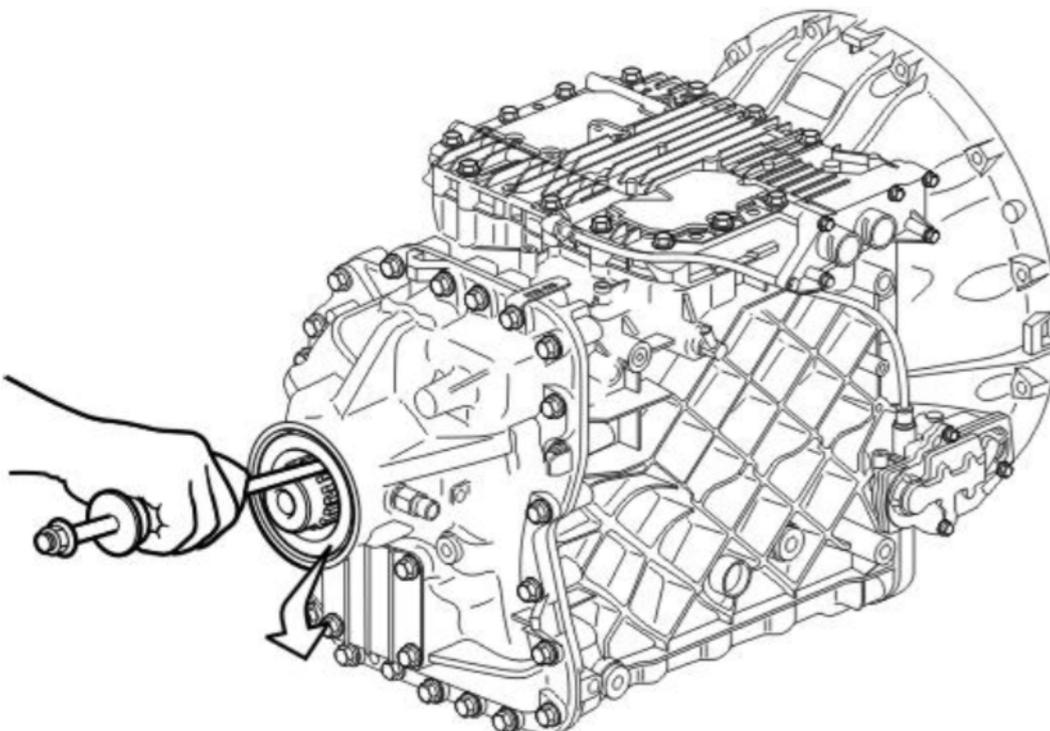


Pull off the companion flange.

Note: Attach tool 9996222 to provide hydraulic pressure.

Special tools: [9990084](#), [9992619](#), [9992653](#), [9992671](#), [9996222](#), [9998597](#)

8



Using a suitable extracting tool, remove the output shaft seal.

9

Clean the seal mating surface in the transmission tail housing.

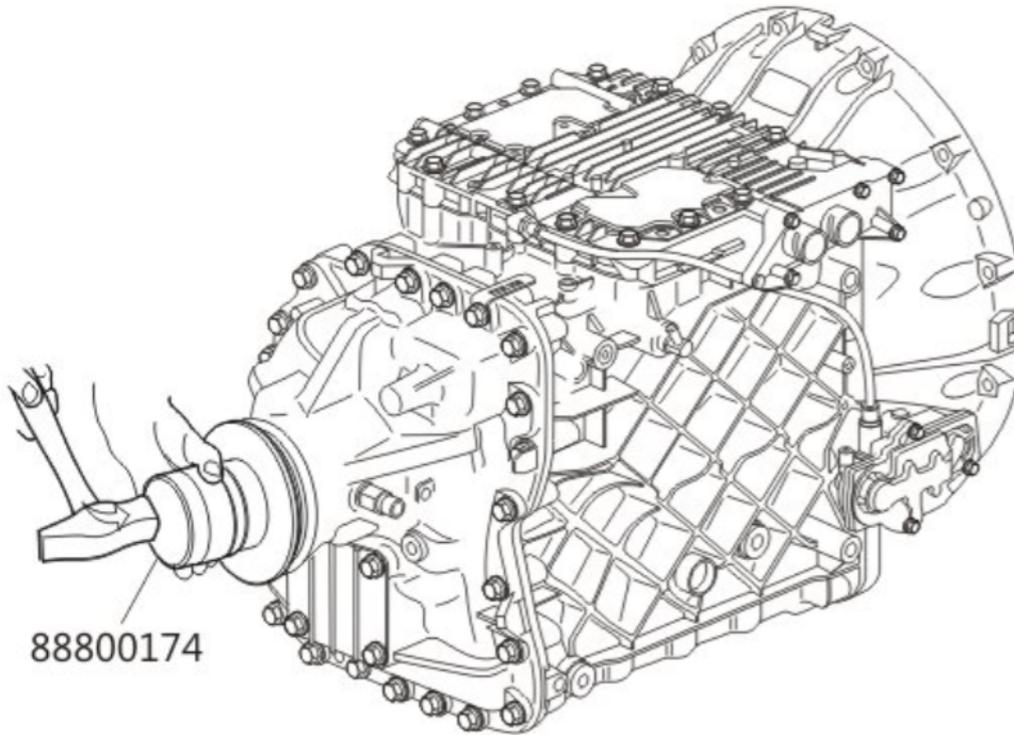
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Lubricate the new seal lip with grease.

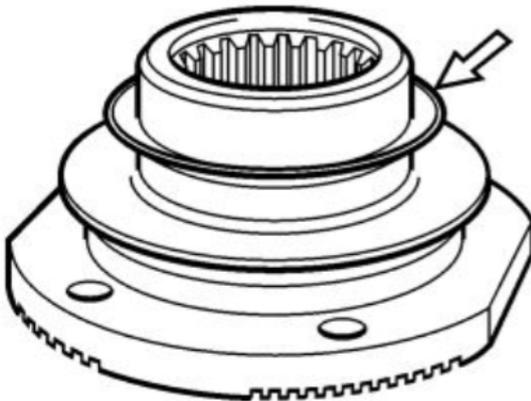
11



Install the output shaft seal.

Special tools: [88800174](#)

12

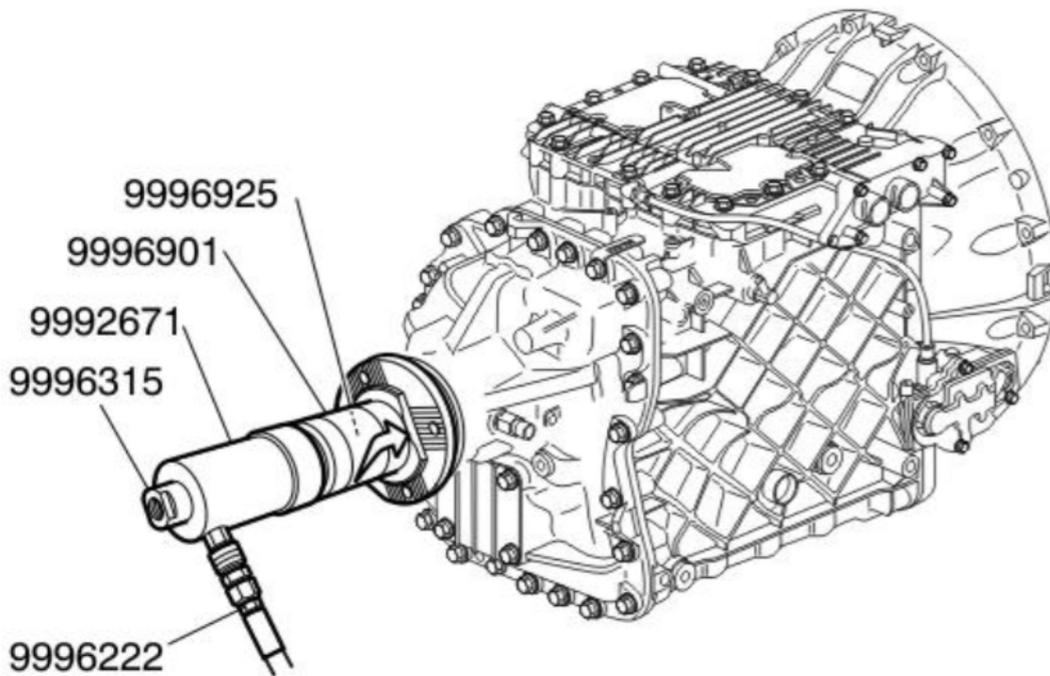


Replace the V-ring on the companion flange.

Note: The V-ring should lie against the stop on the companion flange.

Note: Inspect the companion flange mating surfaces to ensure that there is no visible damage.

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⚠ Caution

Under no circumstance should the companion flange be heated up, or hit with a hammer. Install using only the approved special tools. Installing it by any other means, may lead to component damage.

⚠ Caution

The companion flange must be completely installed before installing or tightening the retaining nut. Failure to press it on completely, may result in damage to the output shaft bearing or the range oil pipe.

Assemble the installation tools and press the companion flange on the output shaft.

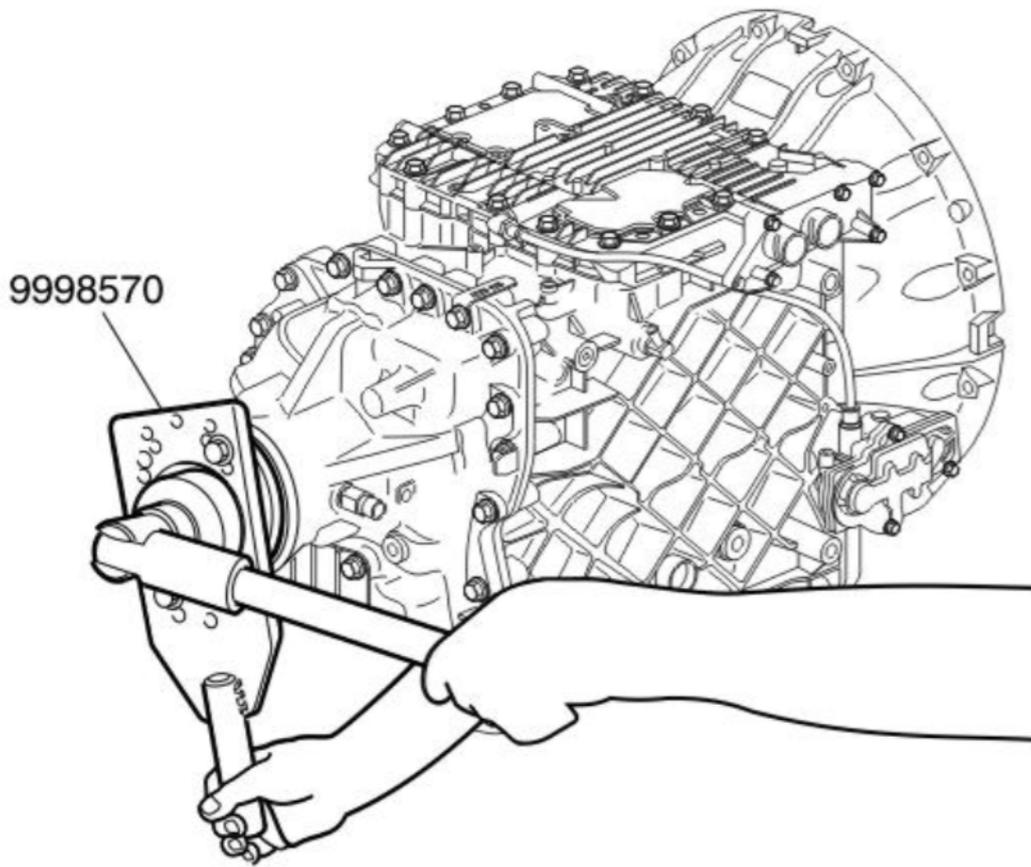
1. Position the companion flange on the output shaft.
2. Thread tool 9996925 into the end of the output shaft.
3. Place tools 9996901 over 9996315 and thread tool 9996315 into 9996925 until it bottoms.
4. Slide tool 9992671 onto tool 9996315 and install the mounting nut on the end of the assemble.

Special tools: [9992671](#), [9996222](#), [9996315](#), [9996901](#), [9996925](#)

14

Install a new O-ring for the companion flange nut.

15



Install and torque the companion flange nut.

Note: Attach the counterhold tool and remove it after companion flange nut is installed and torqued.

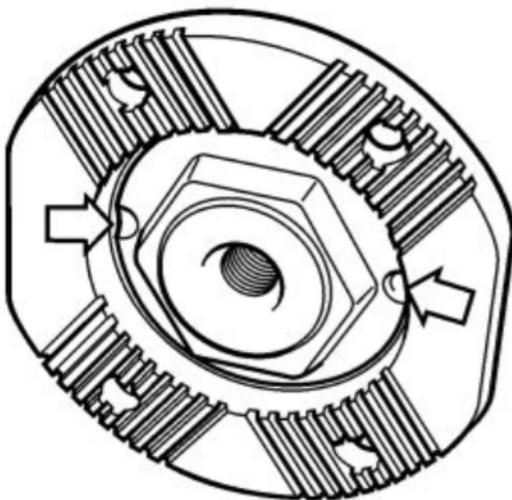
Note: An assistant may be necessary to install and torque the companion flange nut.

Special tools: [9998570](#)

Specifications:

550 ± 50 Nm (406 ± 37 ft-lb)

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Lock the companion flange nut in place. Using a punch,peen the nut in both recesses on the companion flange.

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Note: The punch must have a rounded tip and should be pushed in right to the bottom. Check that no cracks have occurred.

17

Install the universal joint yoke on the companion flange and torque the mounting bolts.

Specifications:

190±15 Nm (140±11 ft-lb)

18

Position the drive shaft back into its yoke. Install the universal joint caps and torque the mounting bolts.

Specifications:

166±10 Nm (122±7 ft-lb)