Volvo Chassis - Equipped With An I-Shift Automatic Manual Transmission (AMT) And D16 (16L) Engine - Technical Service Bulletin V-216-001 Twin Mass Flywheel Conversion

Internal Content

For more information refer to Technical Service Bulletin V-216-001,Twin Mass Flywheel Conversion. The bulletin can be found under the Service tab in IMPACT.

1. Navigate to the Service tab.

2. In the Info Type box, make sure Technical Service Bulletins is selected.

3. In the Additional search values box select Keyword

4. Enter 216-001 into the text entry box, press the Search button.

5. A link for the article will be shown in the results. Click on the title, then choose one of the options from the window that opens.

Tags

k59340581 us07 us10 us10+obd13 us14 us14+obd15 us14+obd16 us14 cng vnl vnx vt 16l engine amt-c amt-d amt-f with crawler gears amt-f without crawler gears

Related links and attachments

6-001 V

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Twin Mass Flywheel Conversion

V-216-001

Transmission Removed

(May 2018)

Valid for

Volvo trucks with a 16 Liter engine, iShift transmission, and equipped with a twin mass flywheel

Case description

Trucks equipped wtih a trwin mass flywheel will need to convert their trucks to a single mass flywheel. Follow the procedure in this document for instructions on how to perform the repair once the transmission has been removed.

Note: Information is subject to change without notice.
Illustrations are used for reference only and can differ slightly from the actual vehicle being serviced. However, key components addressed in this information are represented as accurately as possible.

Repair

To determine if the flywheel has already been changed from twin mass to single mass, use premium tech tool (PTT) to access the Sub dataset information under the TEST tab. Open the 1 - Service and Maintenance section and highlight 17034-3 Vehicle Information, Test and click START. Once the information from the ECU's has been read, open up MID 130 - Gearbox ECU and then open Dataset 2. Sub dataset part numbers 20800153, 20909532, 20923182, 21656431 or 21901348 indicate the vehicle still has the twin mass flywheel. All other part numbers means it has been modified to single mass flywheel.

Parts Required

- Refer to parts bulletin TPI 216-015, Twin Mass Flywheel Conversion for parts list.

Tools Required

Note: Using other interfaces may affect programming speed.

Note: Check Premium Tech Tool version by clicking on Help tab and then click on "About Tech Tool".

SL No	Part Number	Description	Quantity
1	2.04.45 or higher	Premium Tech Tool version	1
2	88890304	Vocom Diagnostic Connector	1
3	88890300	Communication	1

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		Interface	

Procedure

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.

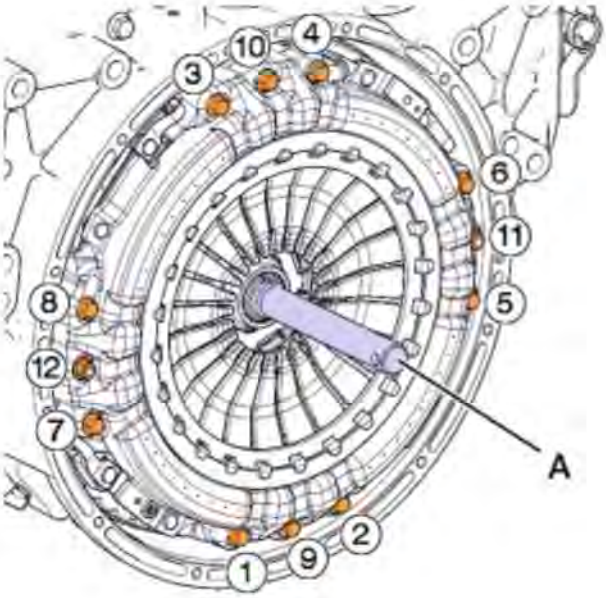
Danger

Do not attempt to repair or service a vehicle without the proper training, tools and service information. Failure to do so may result in component damage, serious injury or death.

1. **Caution**

To prevent distortion note the sequence of removal of all the fasteners and nuts.

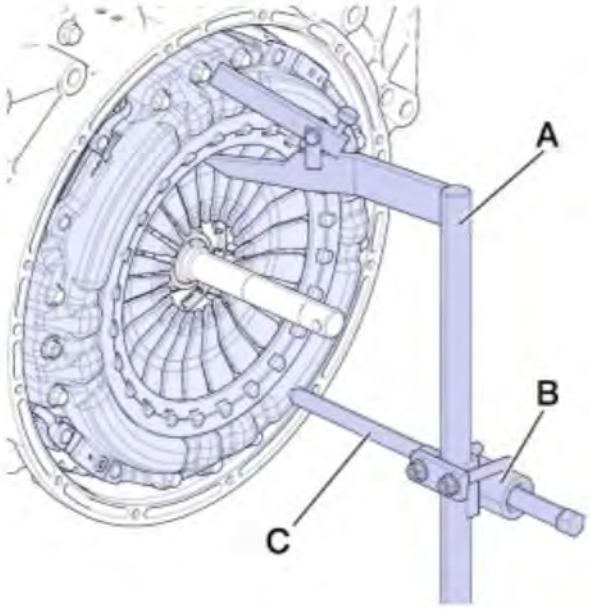
Position the clutch alignment tool (Tool Number 9990024). Remove the fasteners and nuts.



A – Clutch Alignment Tool

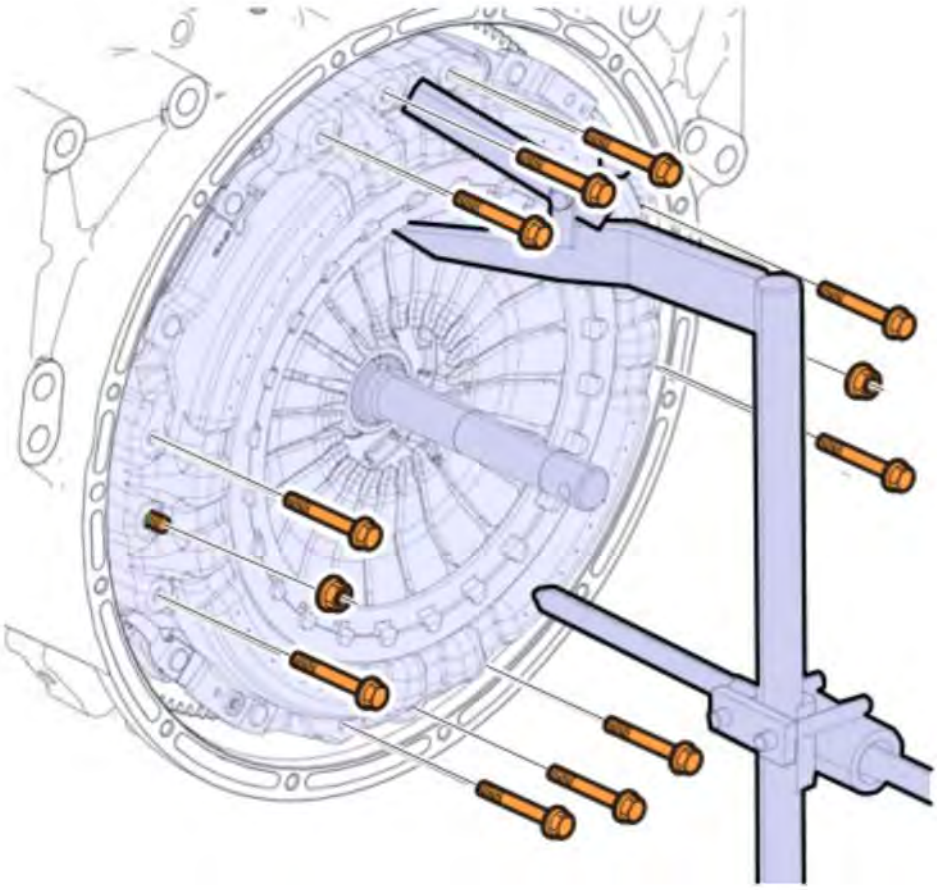
2. Install the pressure plate tools.

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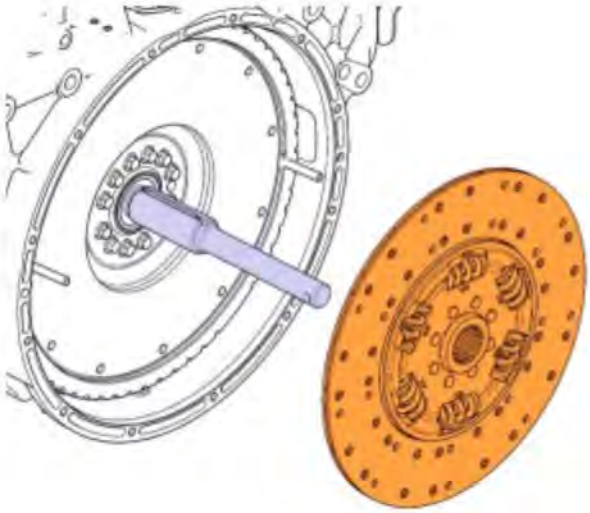
A – Fixture (Tool Number 9996857)
B – Retainer (Tool Number 9996896)
C – Support (Tool Number 9996996)

3. Remove the pressure plate.

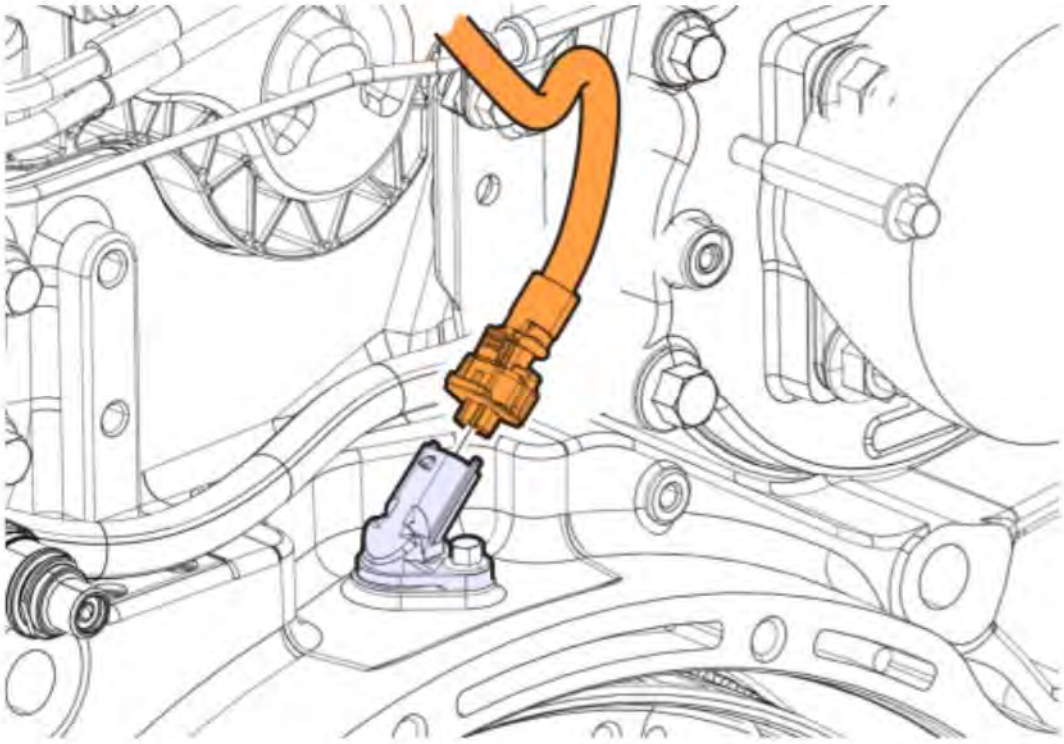


4. Remove the clutch disc.

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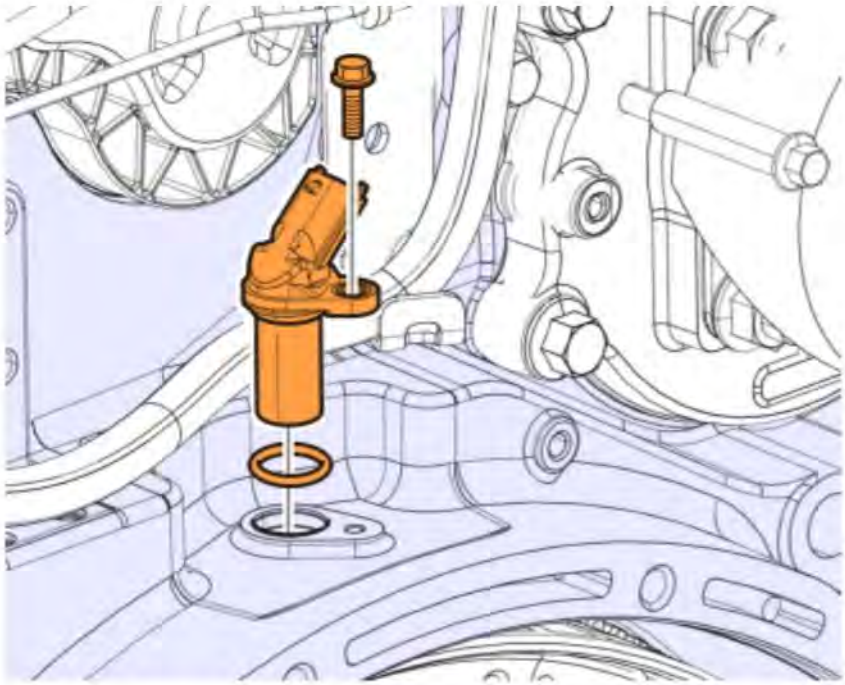


5. Disconnect the engine speed sensor.

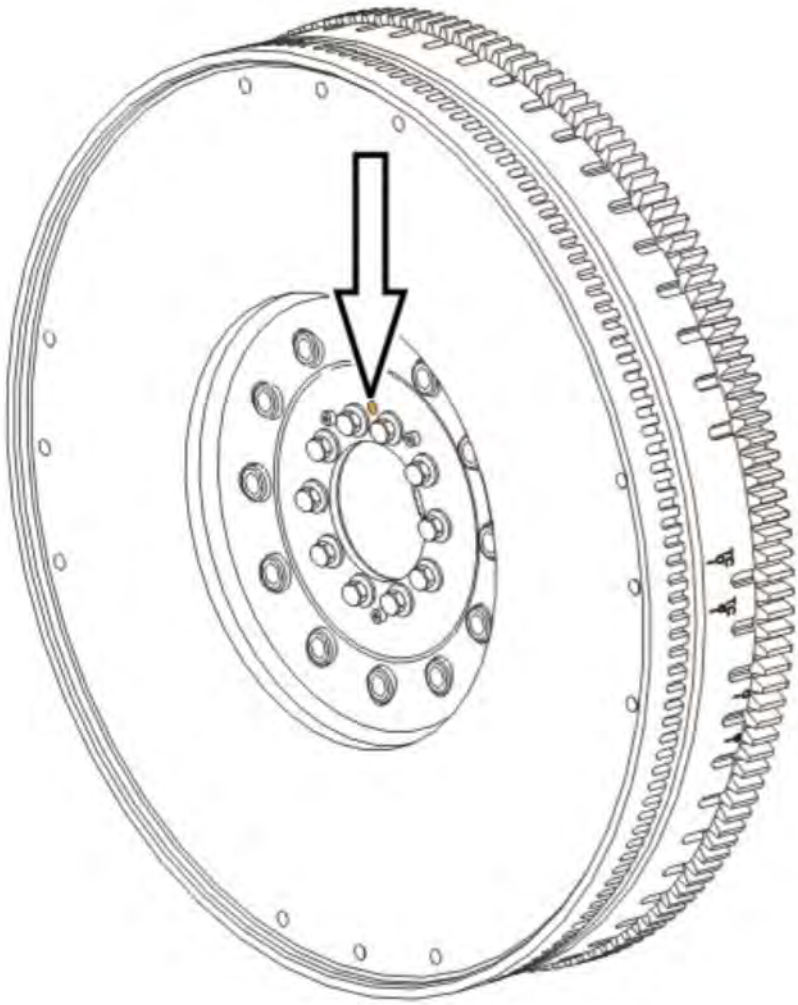


6. Remove the engine speed sensor.

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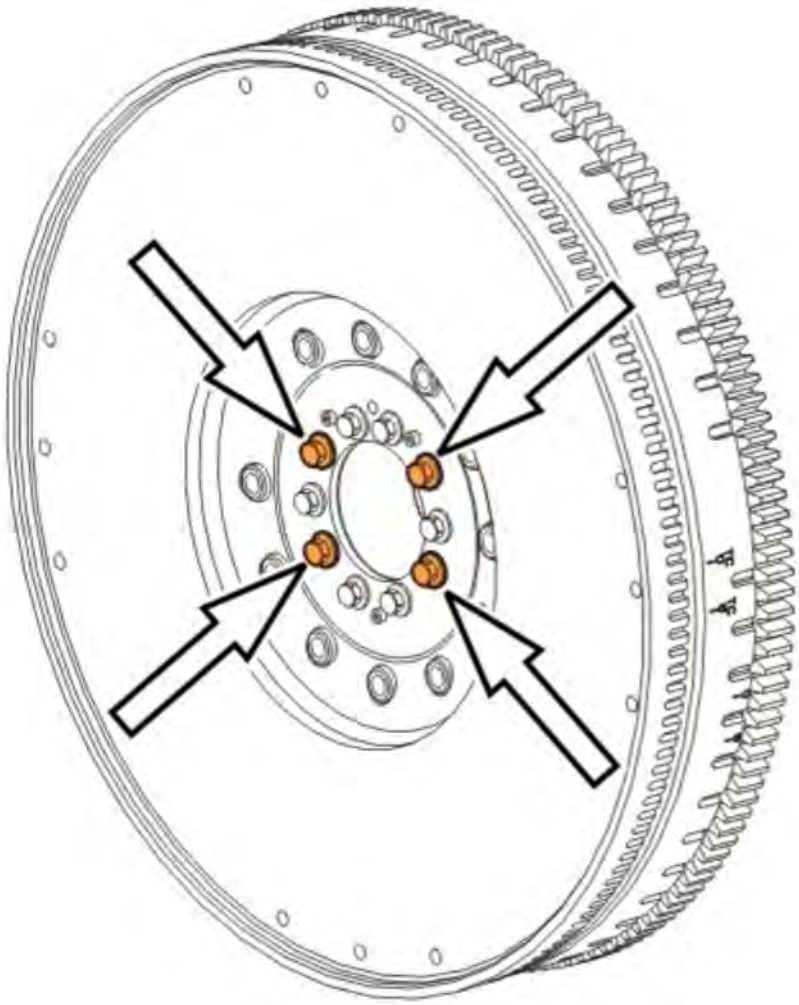


7. Turn the engine until the small hole in the washer plate is at the 12 o'clock position.



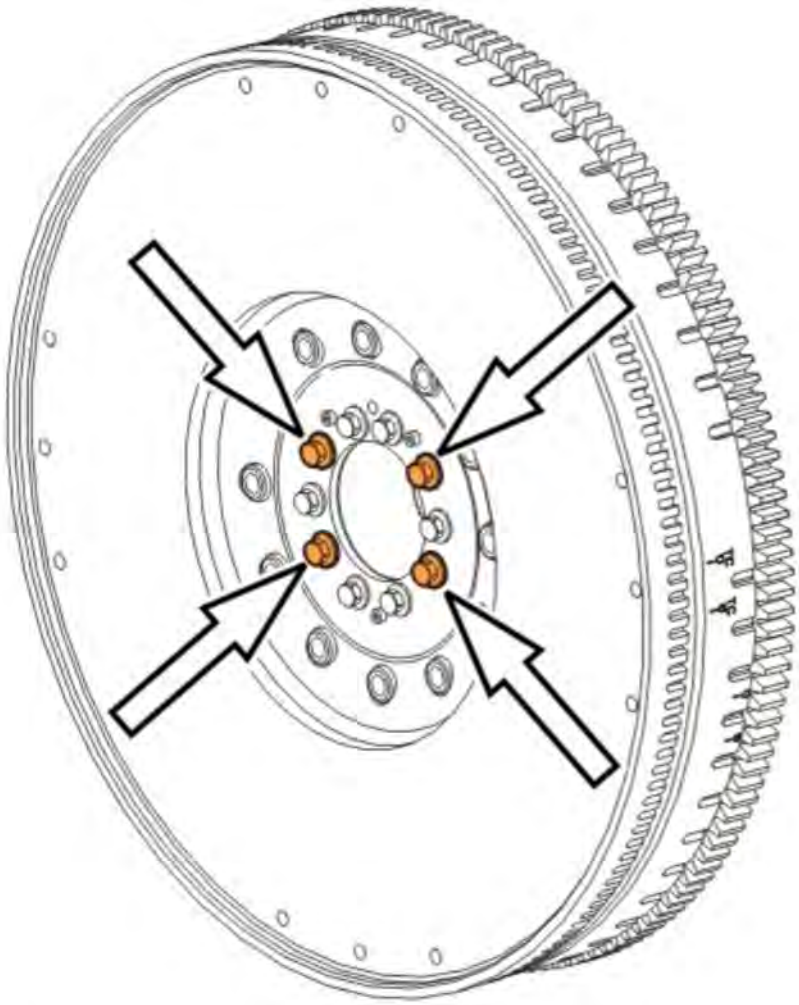
8. Remove four bolts shown in illustration from flywheel.

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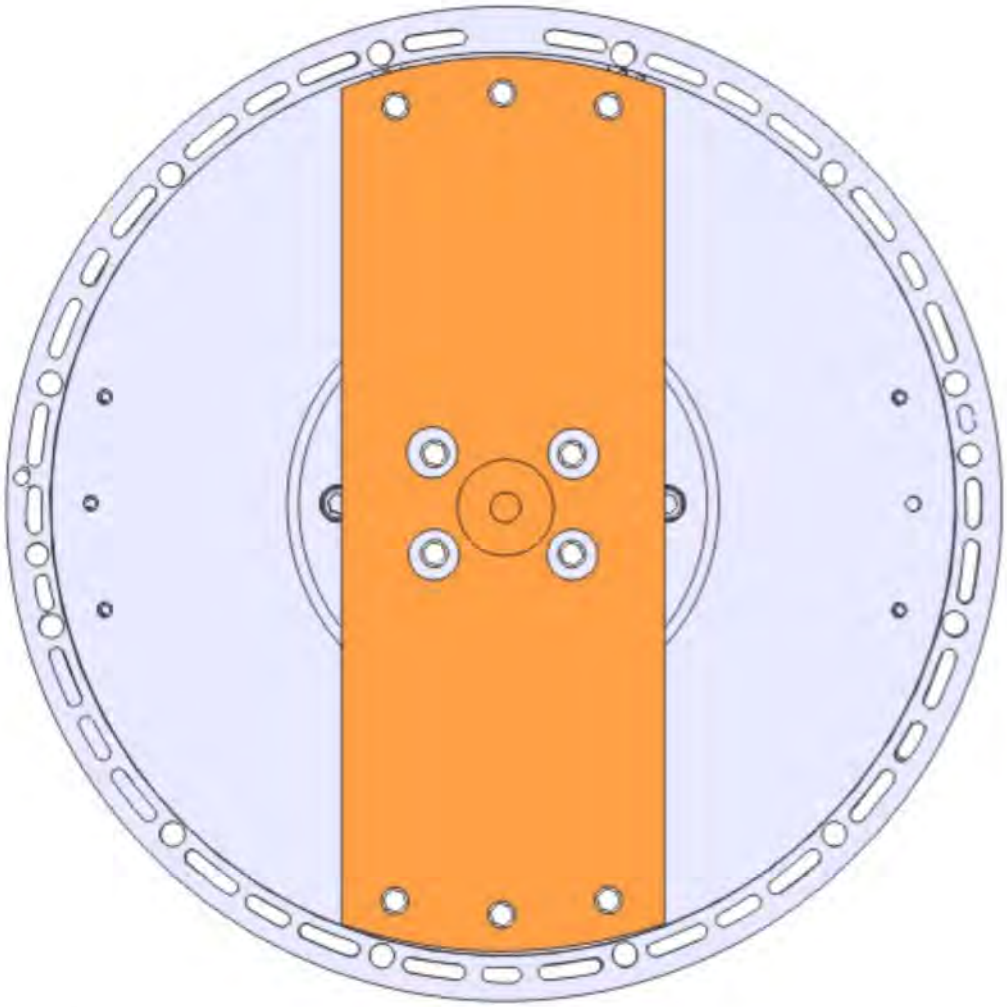
9. Install four special bolts from flywheel lifting kit (tool number J-49004) in flywheel.

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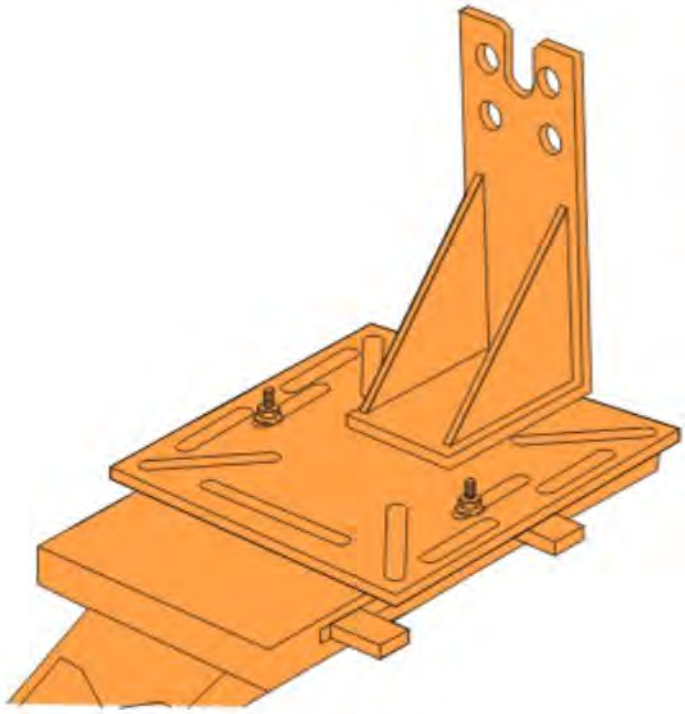
10. Remove all other bolts from flywheel.
11. Install lifting plate from flywheel lifting kit on flywheel.

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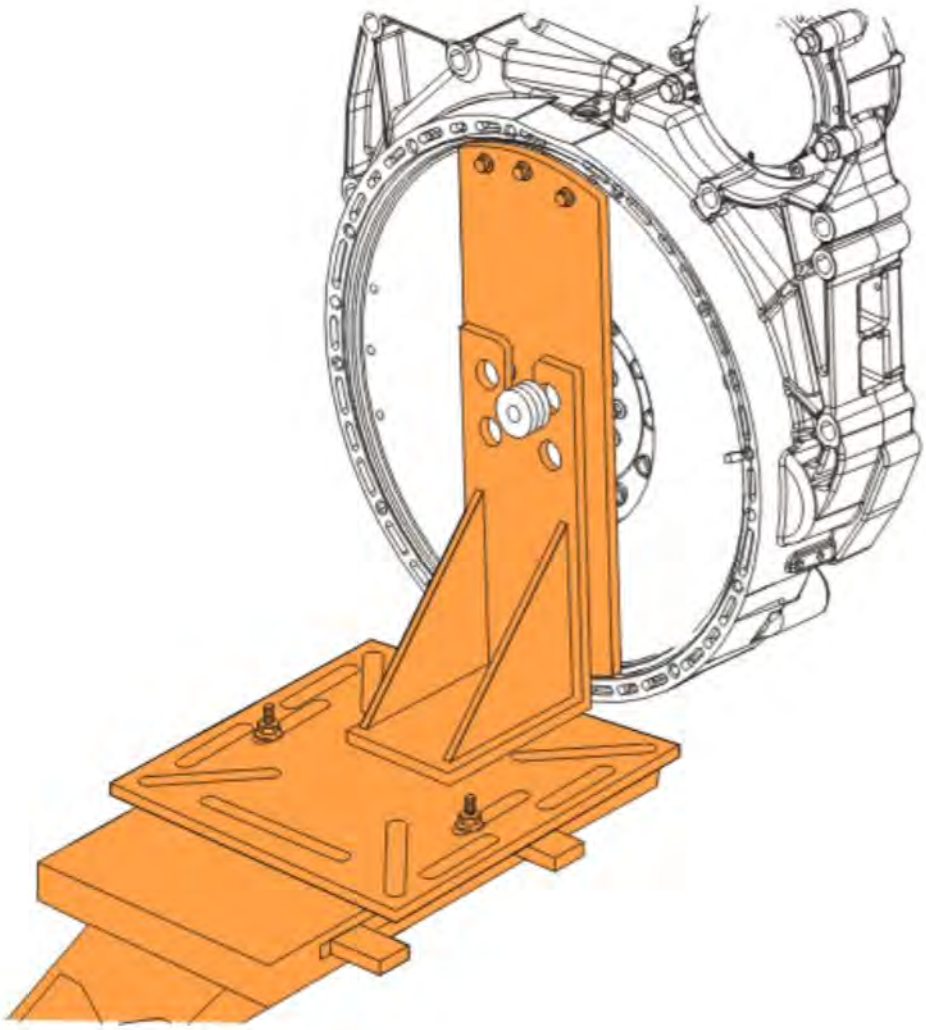
12. Install jack adapter from flywheel lifting kit on transmission jack.

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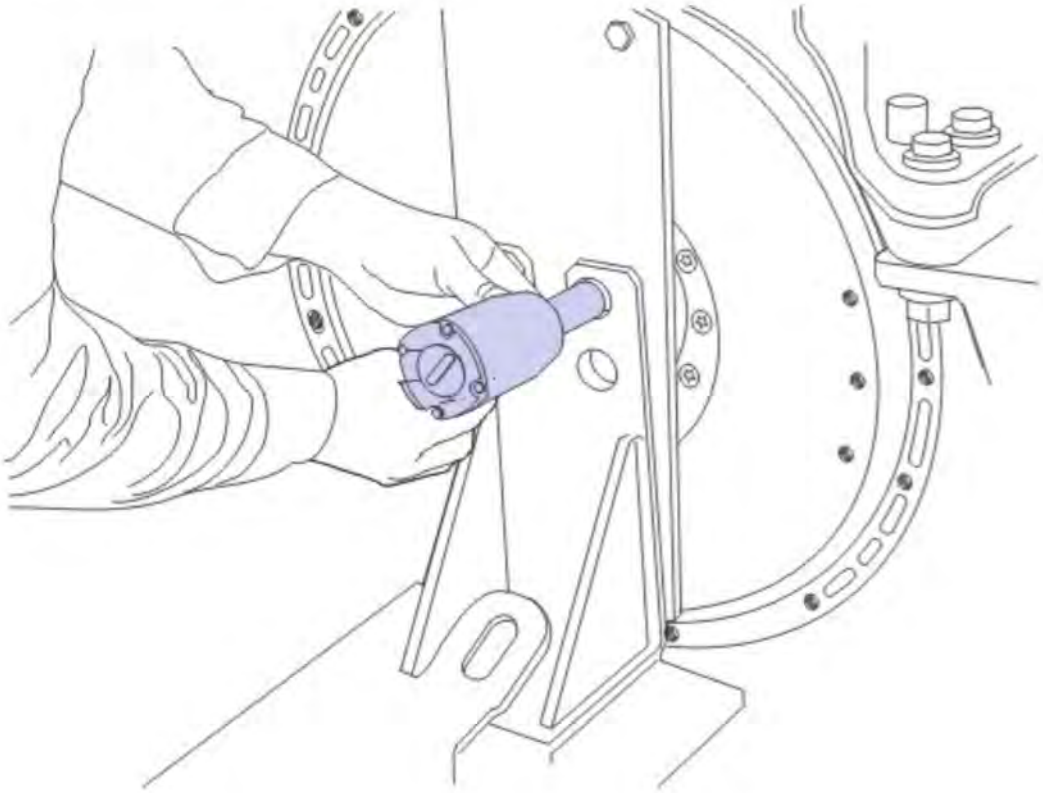


13. Position jack adapter on flywheel lifting plate.

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14. Remove four special bolts from flywheel.

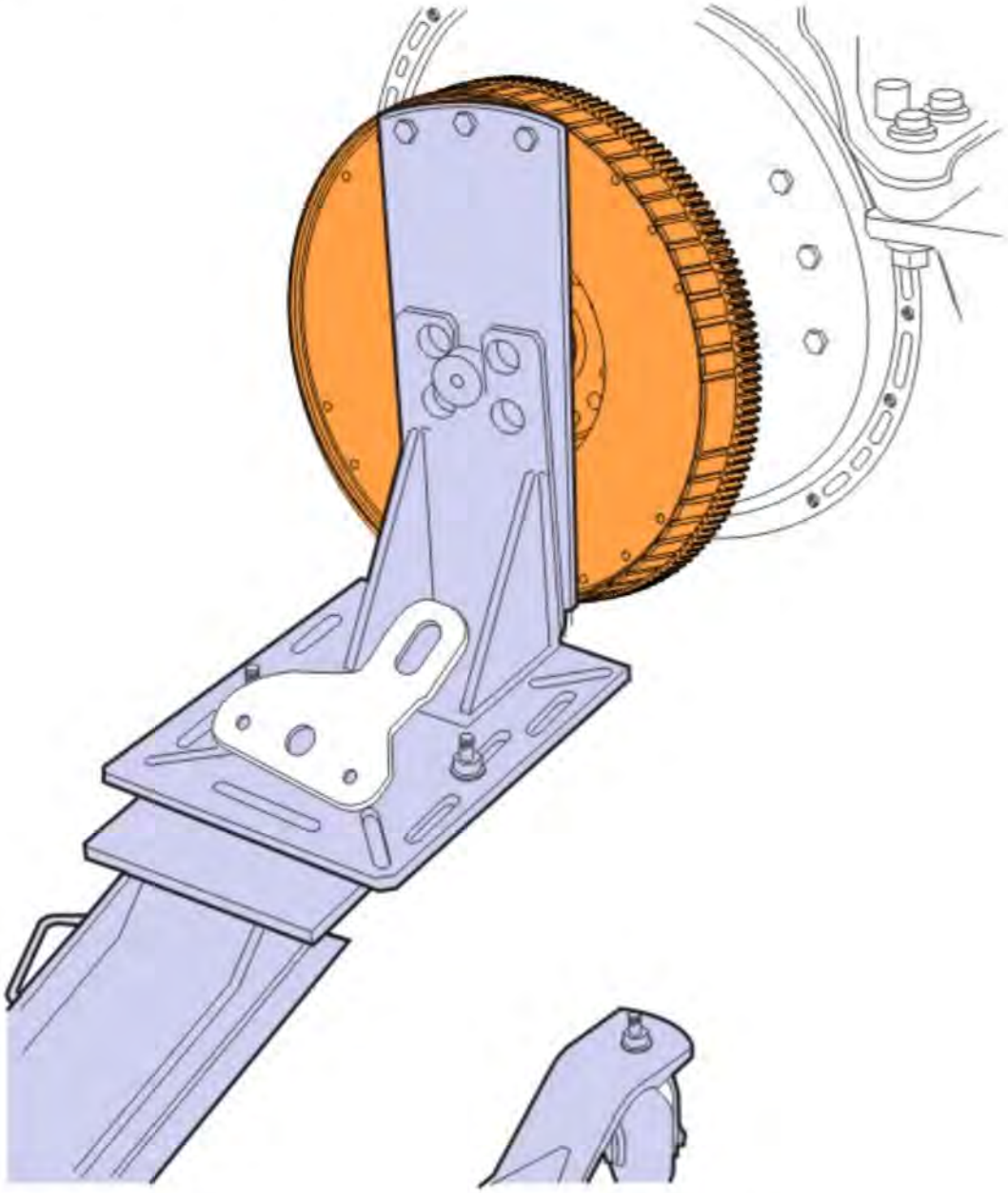


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15. **Warning**

The flywheel is heavy. Use a transmission jack and the flywheel lifting kit special tools to lift the flywheel off of the engine to avoid serious personal injury and damage to components.

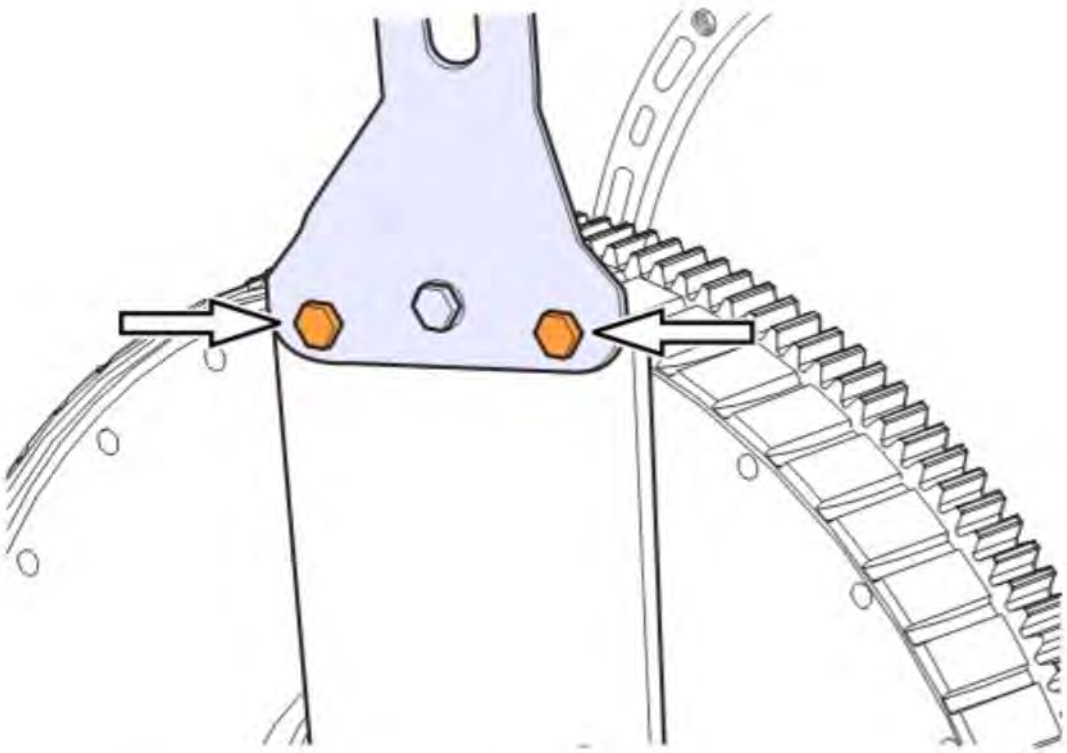
Remove flywheel from flywheel housing.



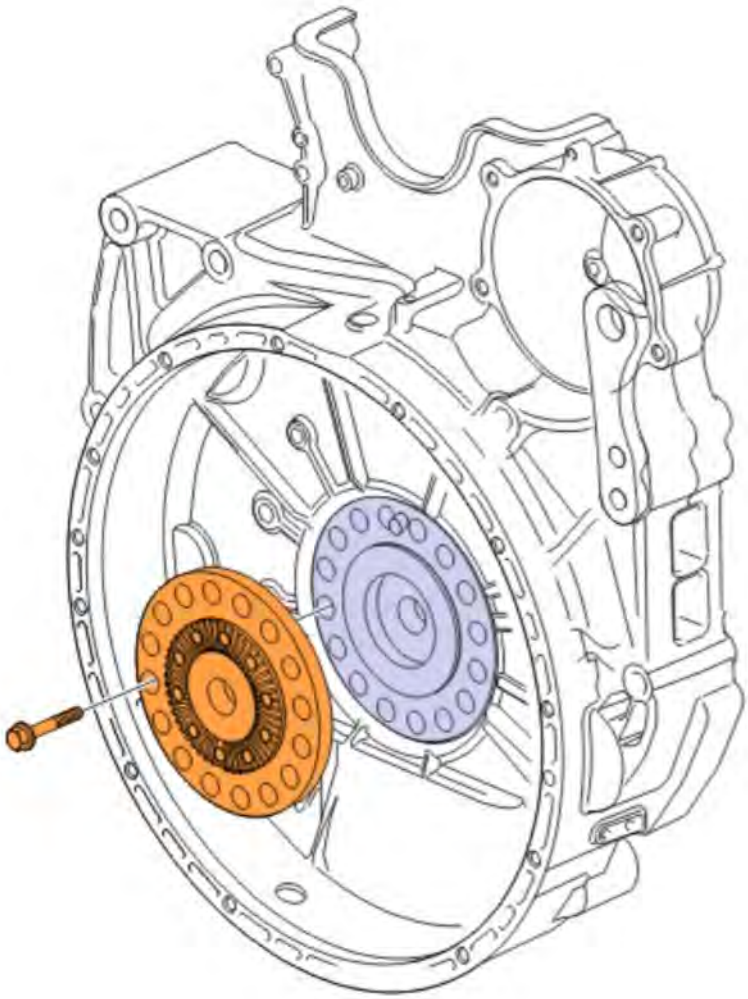
16. Remove two outer bolts from top of lifting plate. Position lifting eye from flywheel lifting kit on lifting plate. Install two outer bolts through lifting eye into flywheel.

    Note: Attach the lifting eye with the eye above the center of the flywheel.

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17. Position lifting chain and attach hook to lifting eye.
18. Remove the flange and discard.



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19. Clean the crankshaft flange.



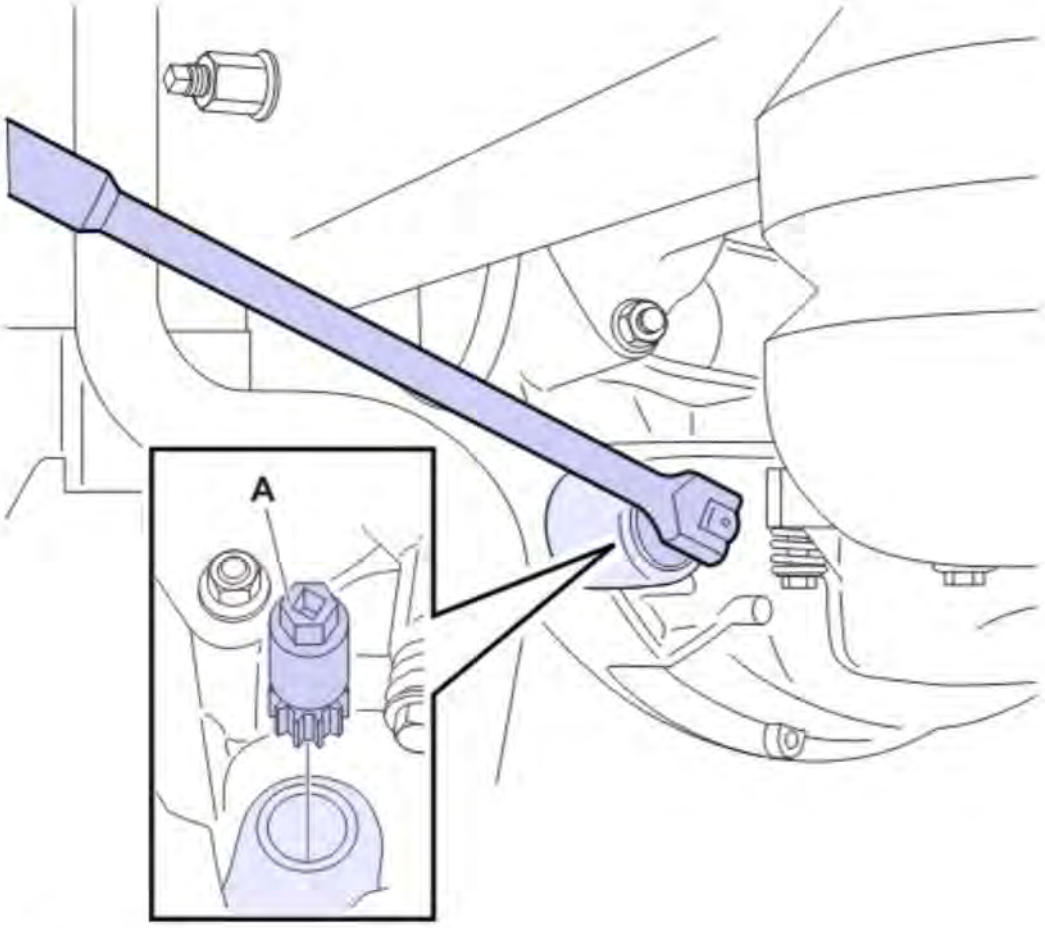
20. Check the crankshaft seal for damage, corrosion or excessive wear. Replace if required.
21. Ensure that the flywheel guide pin is correctly inserted in the crankshaft.
22. To align the flywheel to the crankshaft, lift on the flywheel with the aid of the 2 bolts (M10x100 mm). Screw in the mounting bolts.

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23. Use a drift to align the bolt holes. Install all the flywheel fasteners.
24. To hold the flywheel in position, install the rotation tool (Tool Number 88800014 or 88840317).

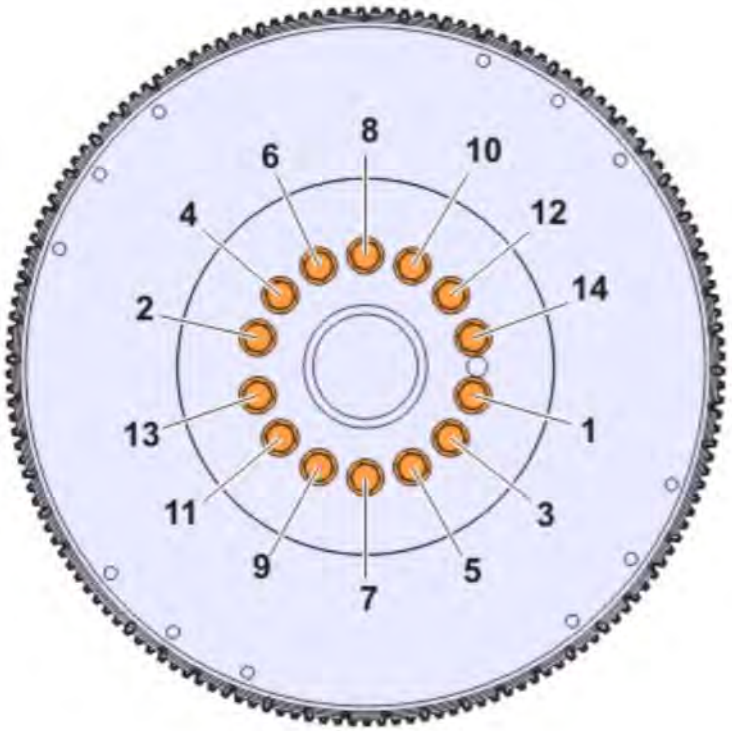
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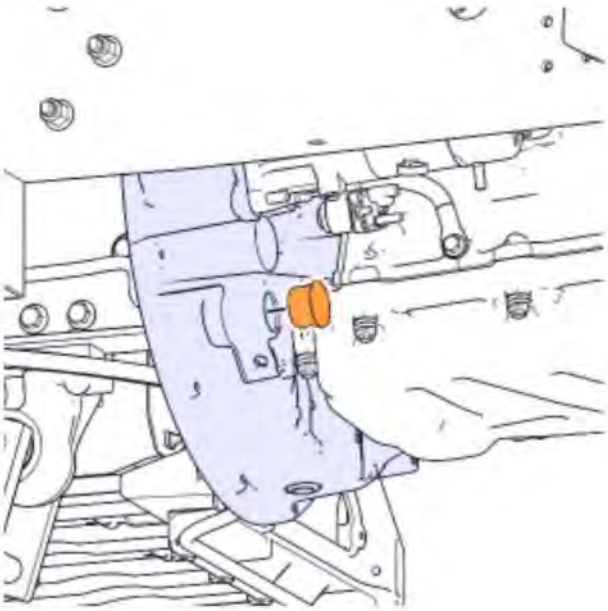
A – Rotation Tool

25. Torque the flywheel fasteners in sequence. Torque fasteners to 60 ± 5 Nm (44 ± 4 ft-lb). Torque each fastener in sequence an additional 120 ± 10 degrees.

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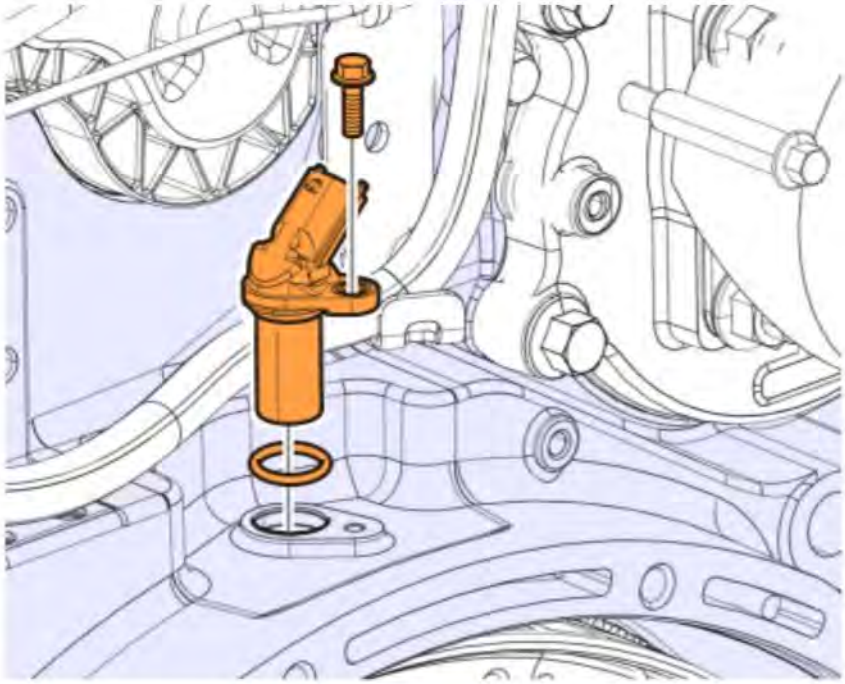
26. Remove the rotation tool. Install the plug.



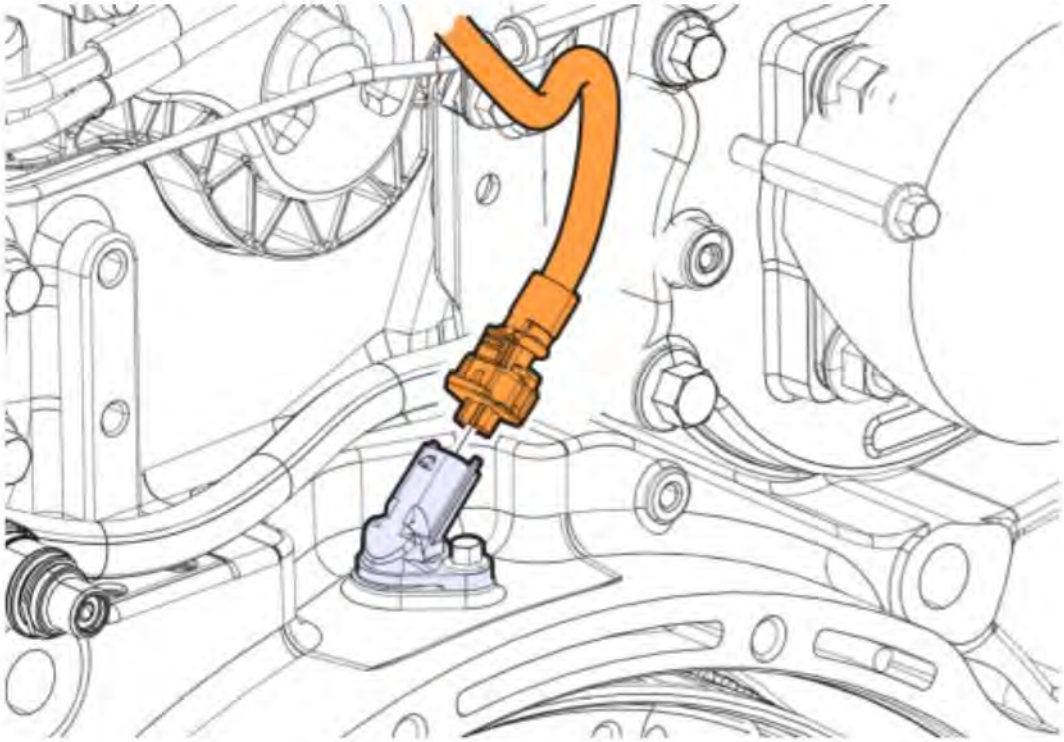
27. Install the engine speed sensor. Torque fastener to 8 ± 2 Nm (6 ± 1.5 ft-lb).

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Note: Install a new O-ring when reinstalling the engine speed sensor

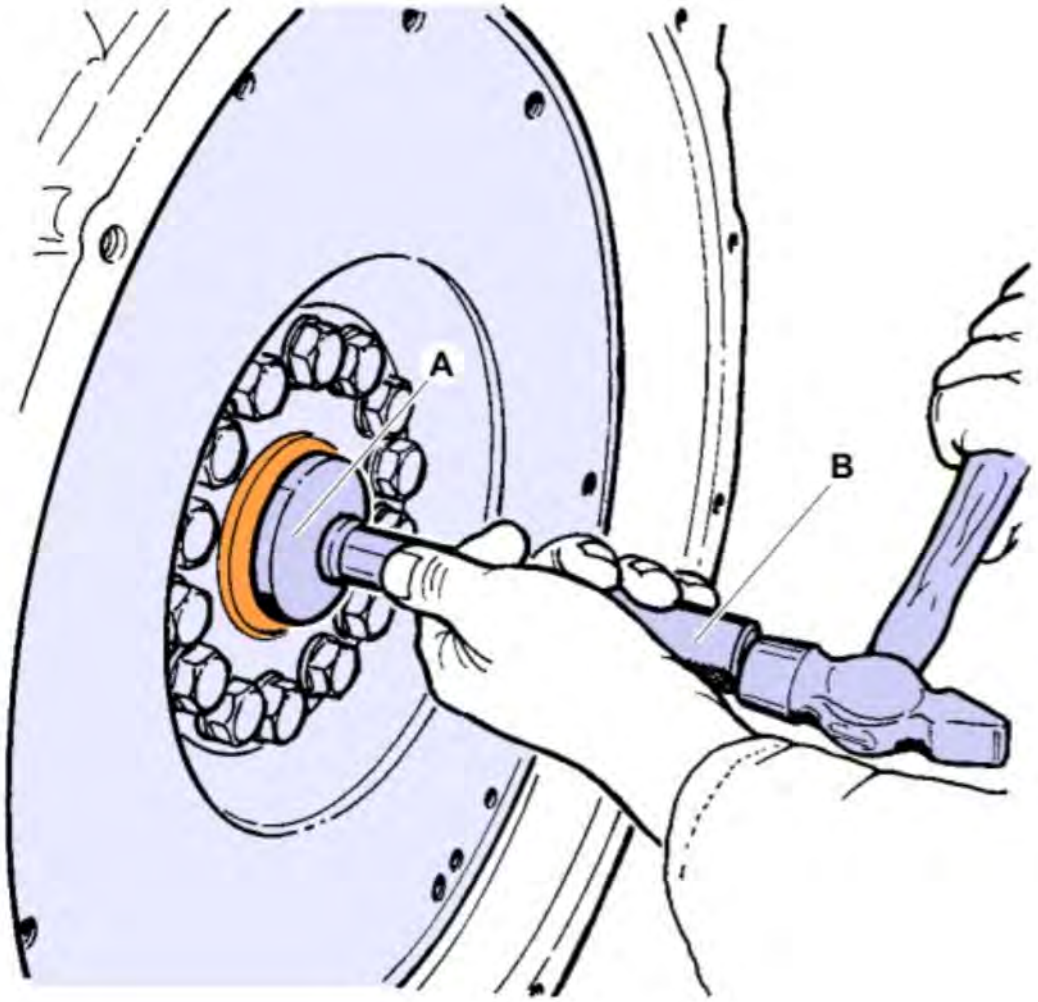


28. Reconnect the engine speed sensor.



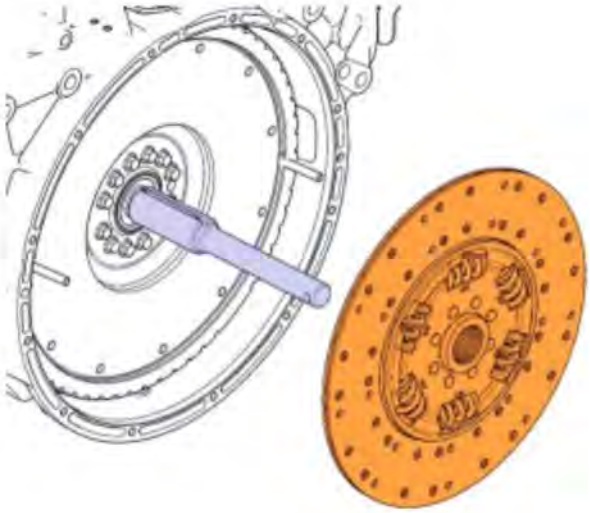
29. Install special tools (Tool Numbers 9991801 [B] and 9992564 [A]). Install the pilot bearing into the flywheel.

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A – Mandrel
B – Handle

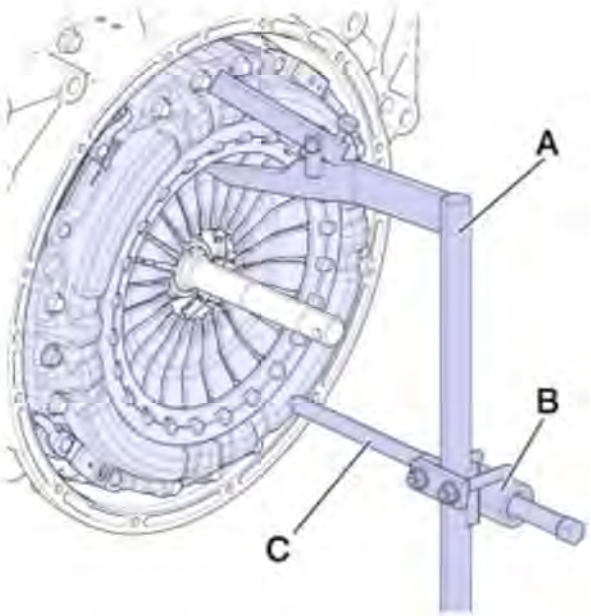
30. Install the new clutch disc.



31. Install new pressure plate.

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Note: Install the clutch disc and pressure plate together.



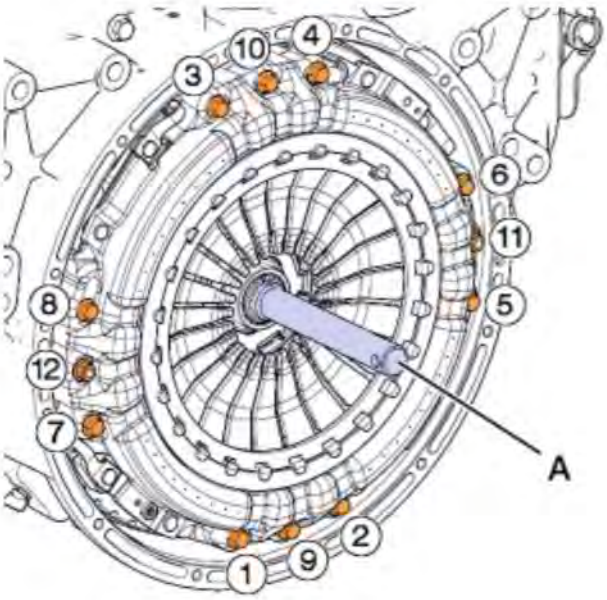
A – Fixture (Tool Number 9996857)
B – Retainer (Tool Number 9996896)
C – Support (Tool Number 9996996)

32. ⚠ Caution

If the pressure plate fasteners are torqued out of sequence distortion damage can occur.

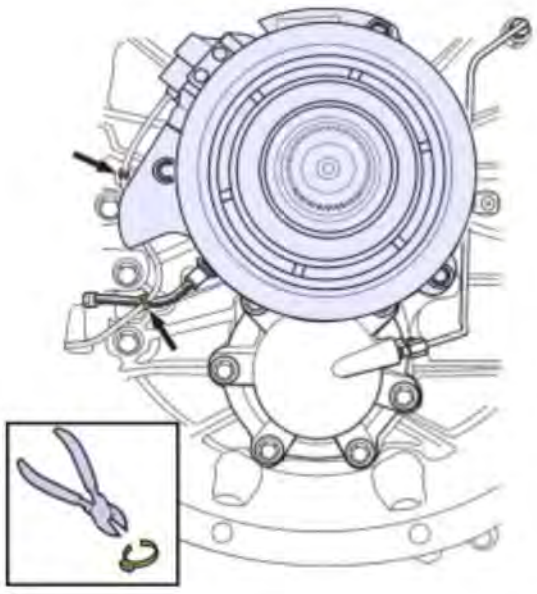
Torque pressure plate fasteners in sequence to 53 ± 5 Nm (39 ± 4 ft-lb).

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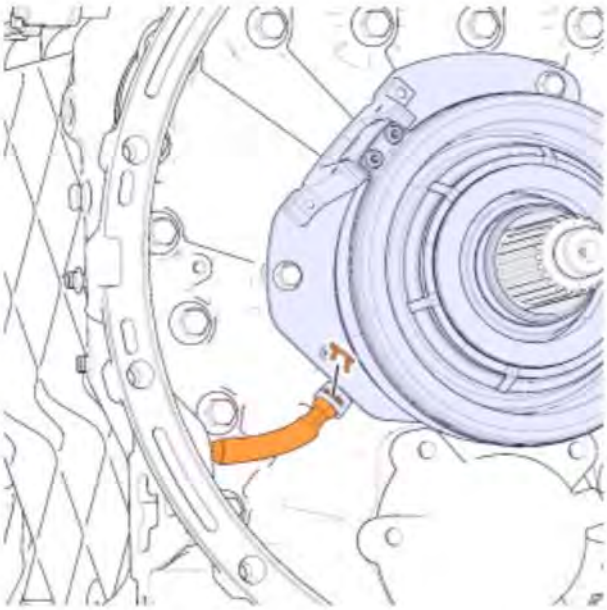
A – Clutch Alignment Tool

33. Remove the clutch release bearing hose zip ties.

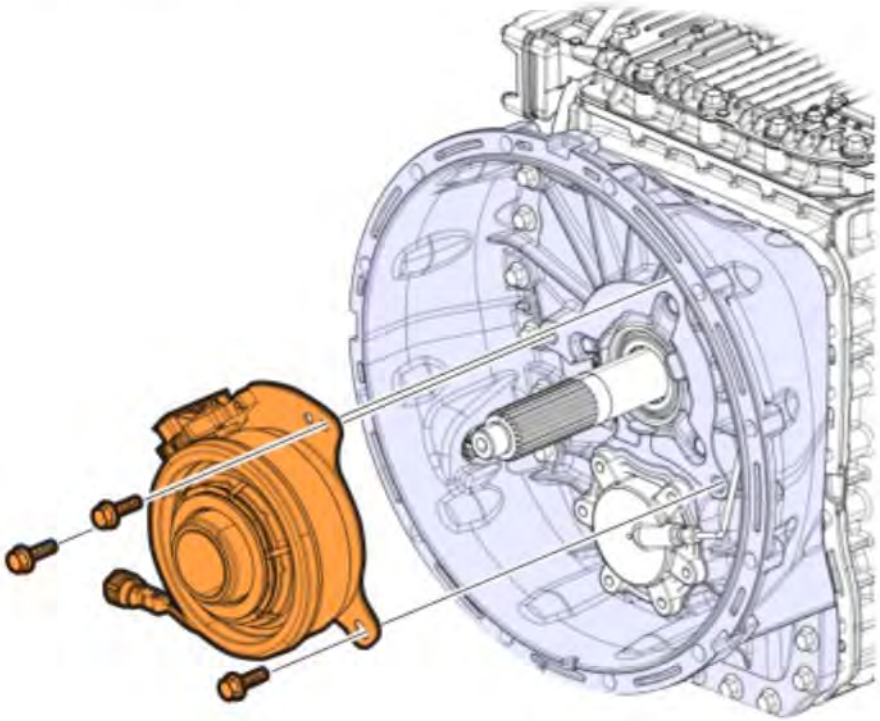


34. Remove the clutch release bearing hose.

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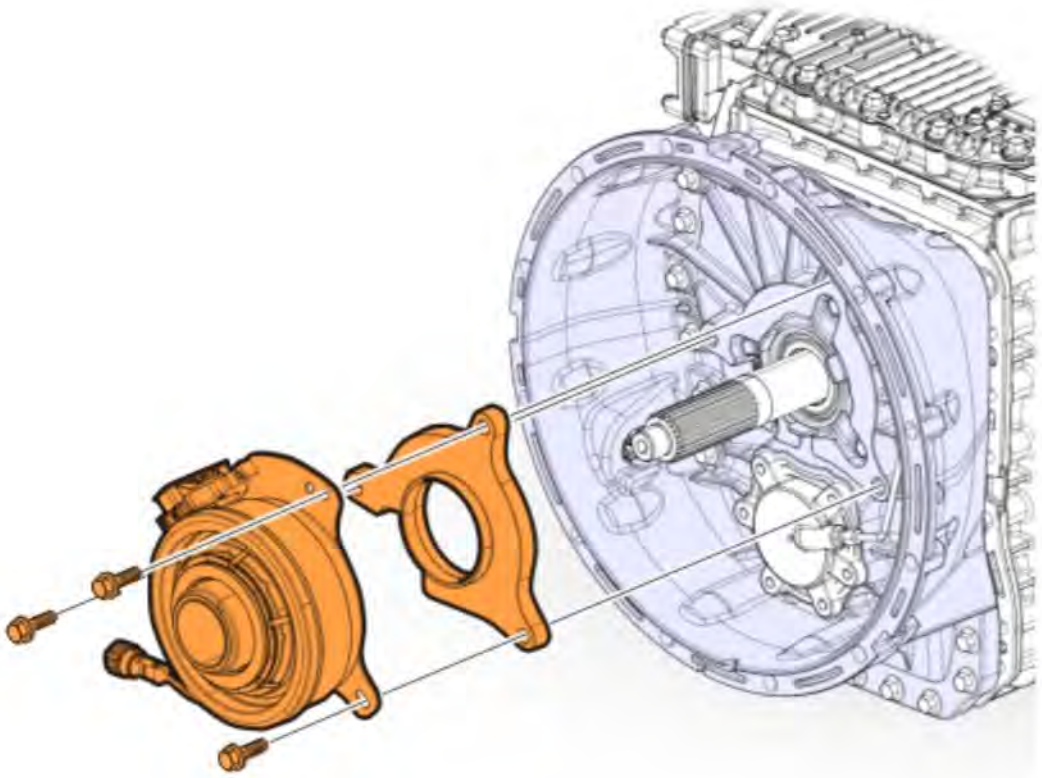


35. Remove the clutch cylinder.

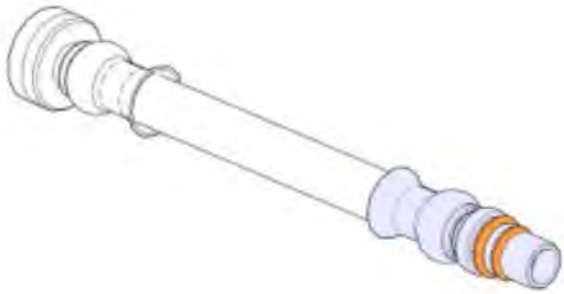


36. Install the spacer disc.

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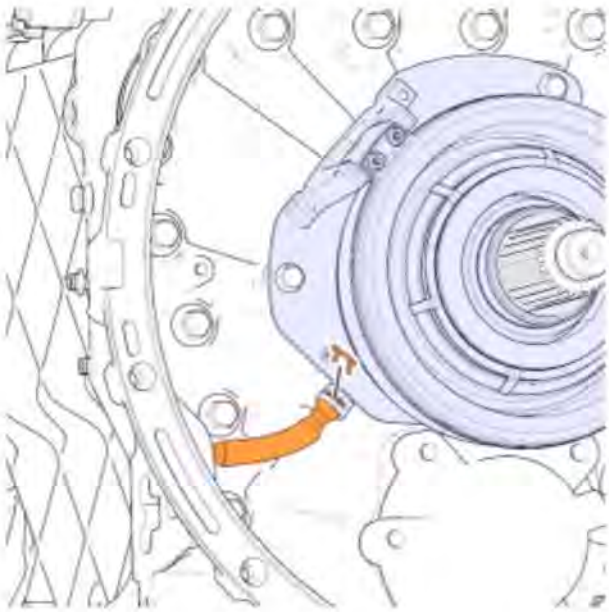


37. Install the new clutch cylinder with the longer mounting fasteners included in the kit. Torque fasteners to 45 ± 5 Nm (33 ± 4 ft-lb).
38. Check the clutch release bearing hose O-rings for damage. Replace the O-rings (part number 22485772), if necessary.



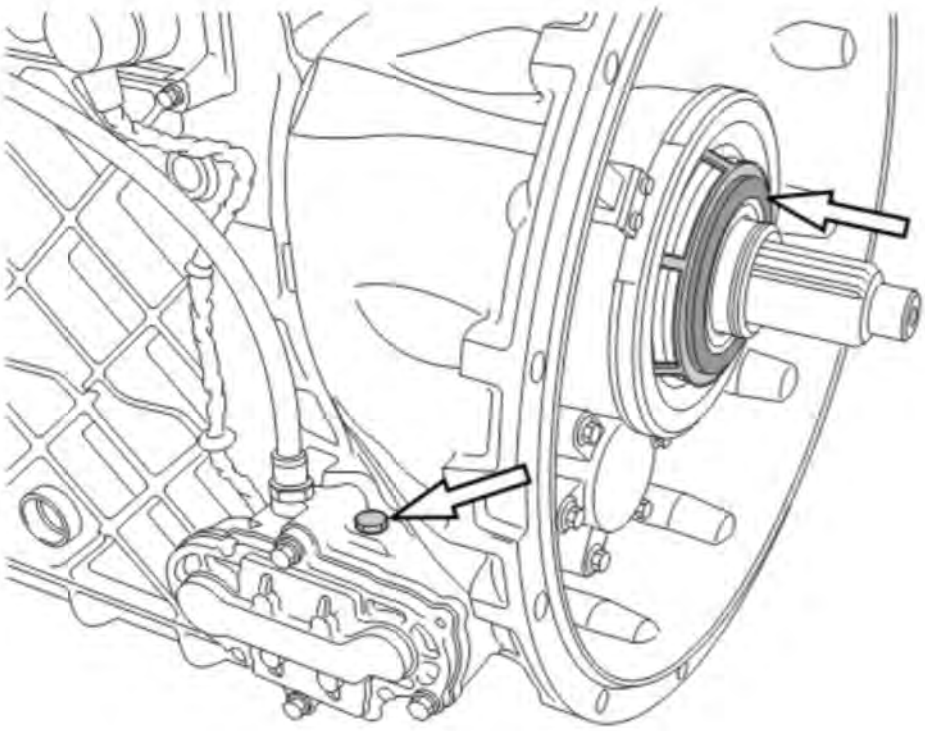
39. Install the clutch release bearing hose. Install cable ties to secure the hose into position.

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40. To aid transmission installation, remove the service plug on the clutch control valve assembly. Clean around the plug prior to removal to prevent debris from entering the valve. Place a clean shop rag over the open port to prevent debris from entering the valve during installation. Once the installation is complete replace the plug and torque to 7 ± 2 Nm (5 ± 1 ft-lb).

    Note: Failure to perform this step will hamper installation. The transmission will be installed under clutch cylinder spring pressure and will fail to freely slide forward into place against the engine mating surface.



41. Install the transmission. Refer to Function Group 43.

42. Connect all previously removed cables to the negative (ground) battery terminals. Tighten fasteners to 20 ± 2

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Nm (15 ± 1.5 ft-lb).

43. Using Premium Tech Tool run conversion kit(s) as listed below::

    Note: Once the hardware conversion has been completed, run Conversion Kit 85142350 only for US07 and EM-USA10 vehicles. For EOBD-2013 and EM-USA14 vehicles, run Conversion Kit 1 and Conversion Kit 2 in order.

Vehicle	Conversion Kit 1	Conversion Kit 2
VN, VT, US07, ATO3112C, ATO3112D	Not Applicable	85142350
VN, EM-USA10	Not Applicable	85142350
VN, EOBD-2013	85142351	85142352
VN, EM-USA14	85142351	85142352

44. Use PTT to program the transmission electronic control unit (TECU). From the Main Menu select Program and then Program Electronic Control Unit 1700-08-03-39. Then click Start. Select Transmission ECU (TECU). Select Program to update the TECU with the latest software.
45. When programing is complete, select Calibrate from the Main Menu. Select 4320-07-03-01 Gearbox, clutch, engagement point.
46. When Calibration is complete, clear any diagnostic trouble codes (DTC) and Finish Work.

Warranty information

Reimbursement

This repair may be eligible for reimbursement if a product failure was experienced within time and mileage limits of the applicable Warranty coverage. Reimbursement is obtained via the normal claim handling process.	Reimbursement UCHP	Reimbursement eWarranty
Claim Type (used only when uploading from the Dealer Bus. Sys.)	W	W
Labor Code		
Primary Labor Code	2160-03-09-01 — 1.7 hrs.	21618–2–00 — 1.7 hrs.
Causal Part	21905650	21905650

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Technical Service

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