

This Field Service Bulletin replaces bulletin FSB 216-001 dated 8.2014.

Date 1.2015 Group **216** No. **001** Release **02** Page 1(20)

**Twin Mass Flywheel Conversion  
 Transmission Removed  
 VN, VT**

**FSB 216-001, Twin Mass Flywheel Conversion**

**Transmission Removed**

**(January 2015)**

This document provides the recommended procedure for converting the twin mass flywheel to a single mass flywheel.

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 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**

- Kit, Part Number 22318603

**Tools Required**

Premium Tech Tool version 2.03.60 or higher

Vocom Diagnostic Connector 88890304

Communication Interface 88890300

**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".

**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.

Service personnel: Please circulate, read and initial

Service Manager	Warranty Administrator	Workshop Foreman	Service Technicians						

## 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**

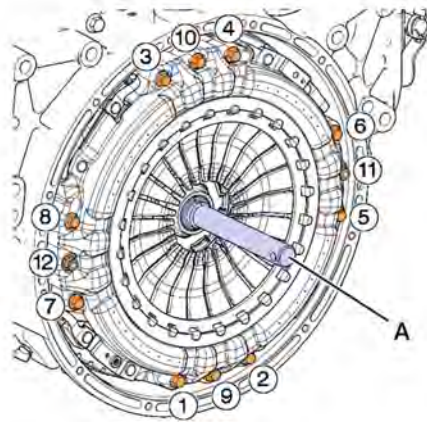
Do not attempt to repair or service a vehicle without the proper training, tools and service information. Failure to do so may result in component damage, serious injury or death.

1

### **CAUTION**

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

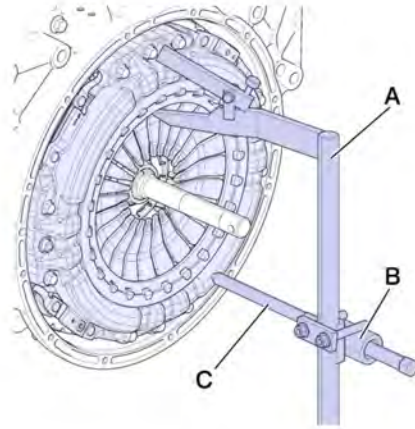
Position the clutch alignment tool (Tool Number 9990024). Remove the fasteners and nuts.



W4088519

A – Clutch Alignment Tool

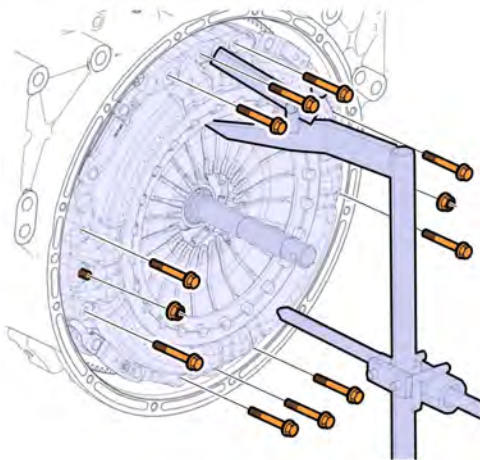
2 Install the pressure plate tools.



W4088520

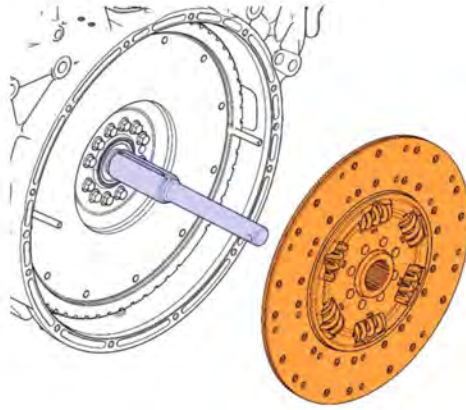
A – Fixture (Tool Number 9996857)  
B – Retainer (Tool Number 9996896)  
C – Support (Tool Number 9996996)

3 Remove the pressure plate.



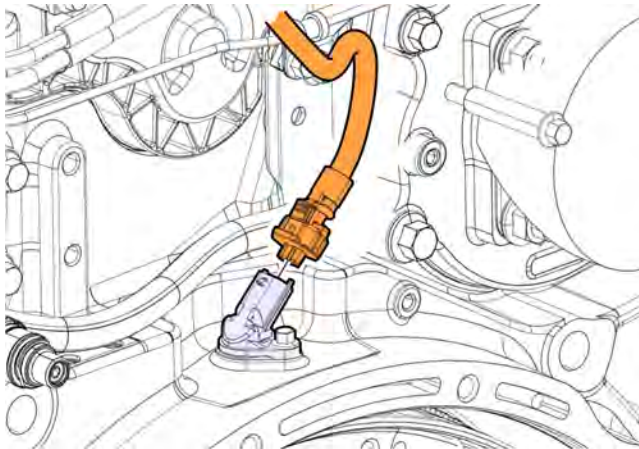
W4088523

4 Remove the clutch disc.



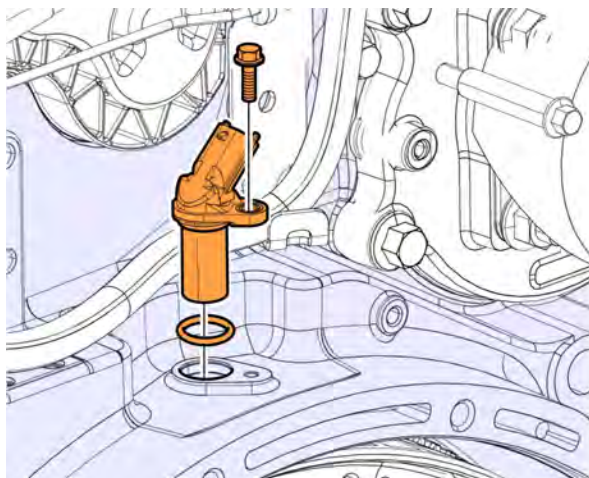
W4088524

5 Disconnect the engine speed sensor.



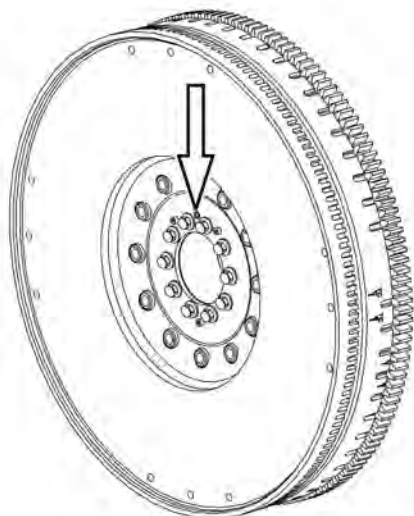
W4088525

6 Remove the engine speed sensor.



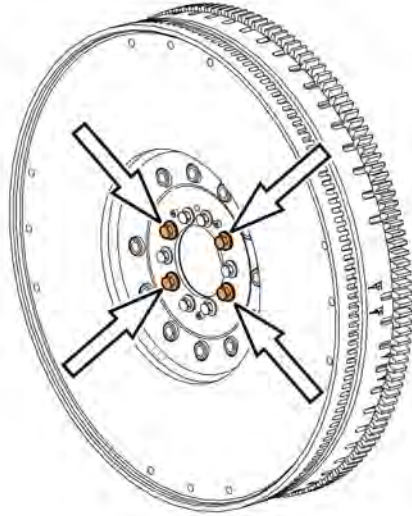
W4088527

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



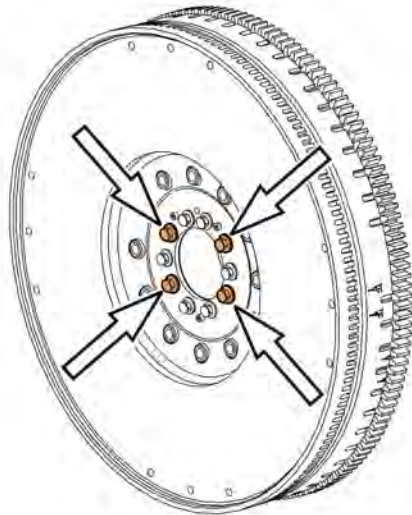
W2088706

8 Remove four bolts shown in illustration from flywheel.



W2088707

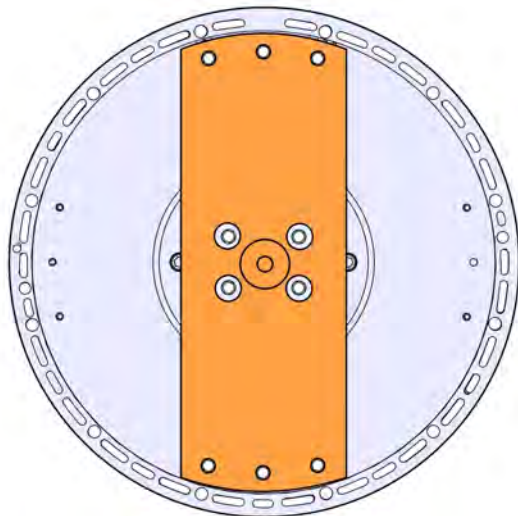
9 Install four special bolts from flywheel lifting kit (tool number J-49004) in flywheel.



W2088707

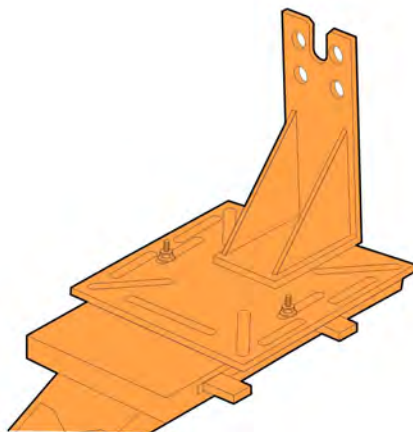
10 Remove all other bolts from flywheel.

11 Install lifting plate from flywheel lifting kit on flywheel.



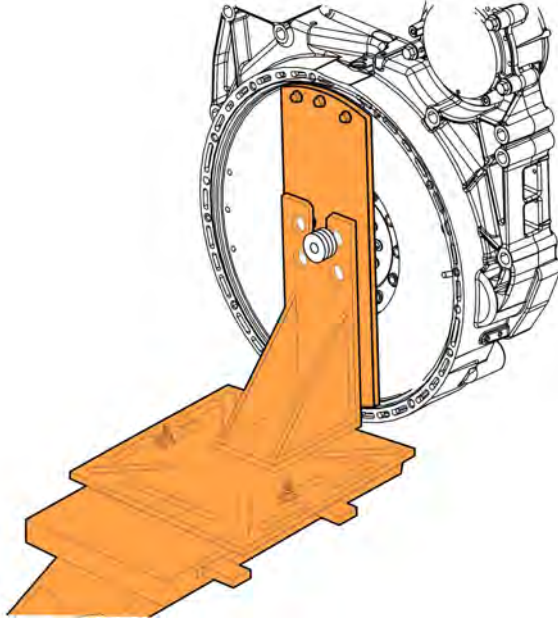
W2088708

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



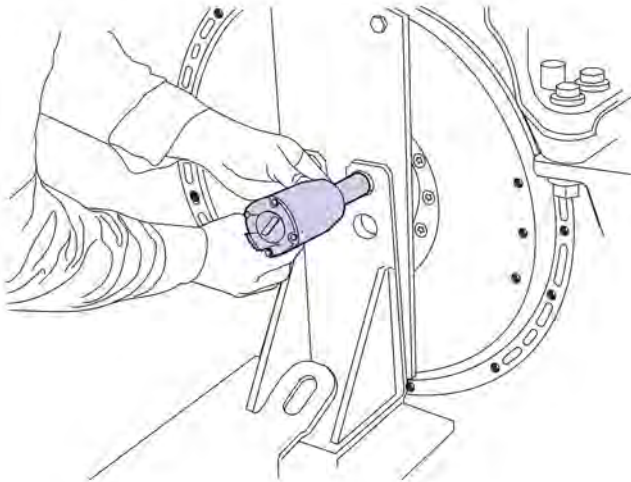
W2088709

13 Position jack adapter on flywheel lifting plate.



W2088710

14 Remove four special bolts from flywheel.



W2088711



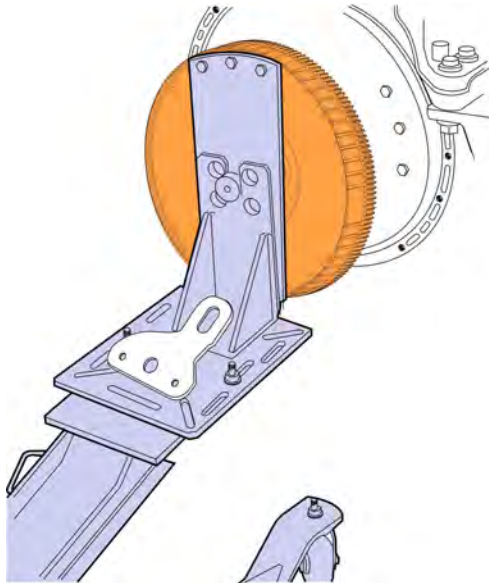
15



**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.

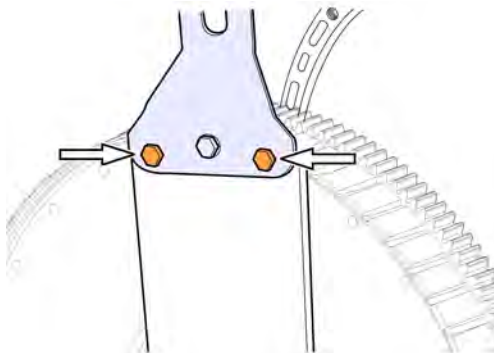
Remove flywheel from flywheel housing.



W2088712

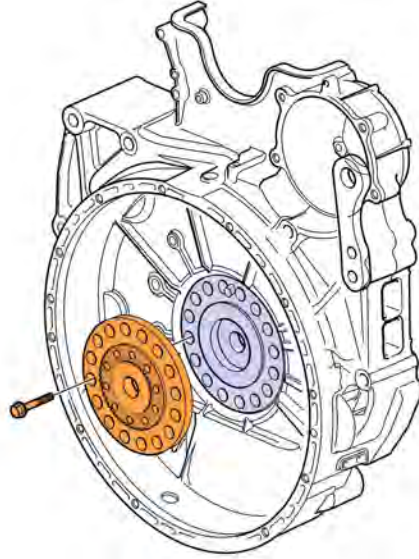
16 Remove two outer bolts from top of lifting plate. Position lifting eye from flywheel lifting kit on lifting plate. Install two outer bolts through lifting eye into flywheel.

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



W2088713

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



W2091428

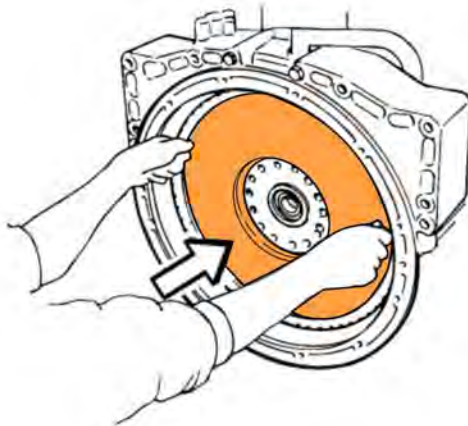
- 19 Clean the crankshaft flange.



W4088531

- 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.

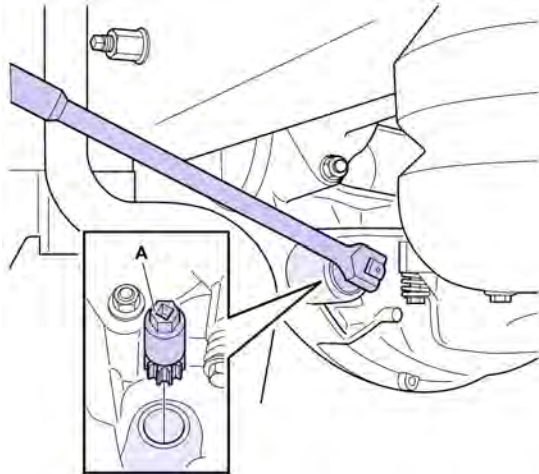
22 To align the flywheel to the crankshaft, lift on the flywheel with the aid of the 2 bolts (M10x100 mm). Screw in the mounting bolts.



W2091562

23 Use a drift to align the bolt holes. Install all the flywheel fasteners.

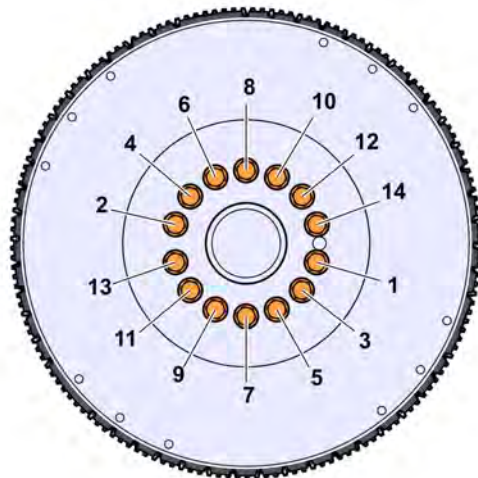
24 To hold the flywheel in position, install the rotation tool (Tool Number 88800014 or 88840317).



W4088532

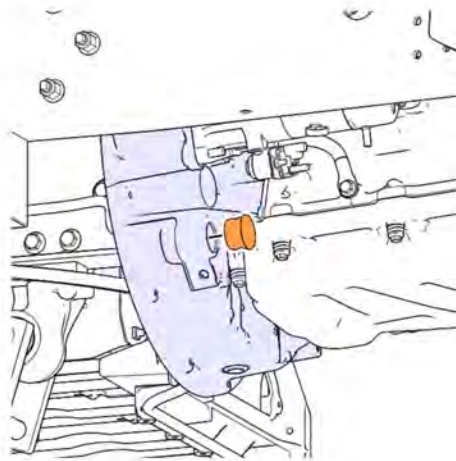
A – Rotation Tool

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



W4088533

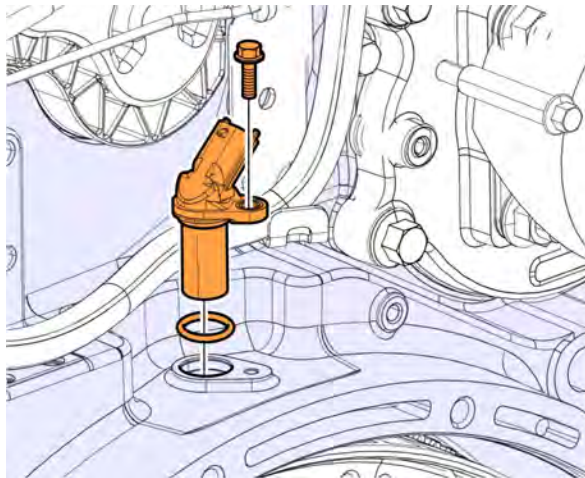
26 Remove the rotation tool. Install the plug.



W4088534

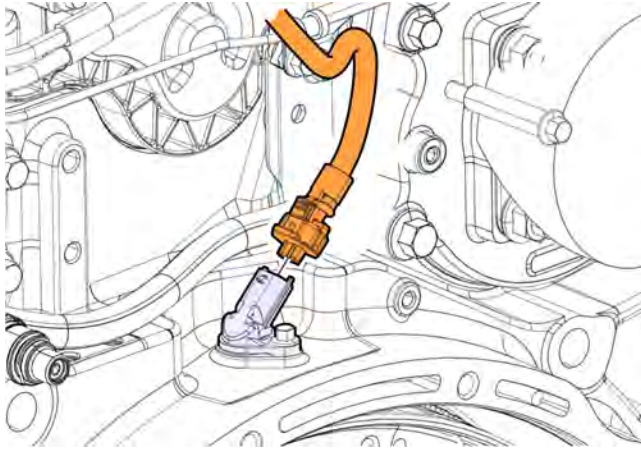
27 Install the engine speed sensor. Torque fastener to  $8 \pm 2$  Nm ( $6 \pm 1.5$  ft-lb).

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



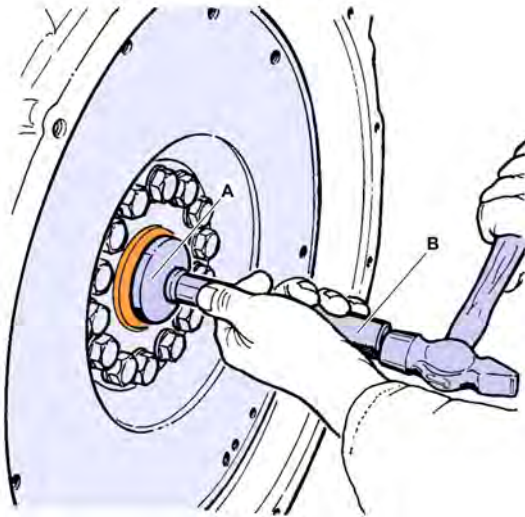
W4088527

28 Reconnect the engine speed sensor.



W4088525

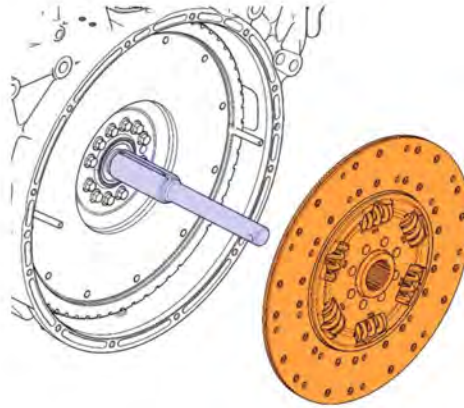
29 Install special tools (Tool Numbers 9991801 [B] and 9992564 [A]). Install the pilot bearing into the flywheel.



W4088535

A – Mandrel  
B – Handle

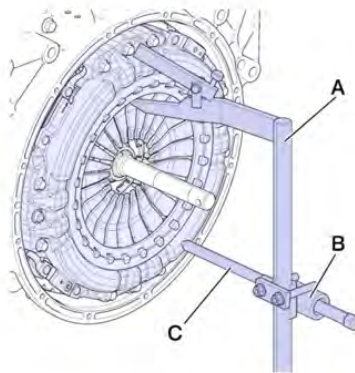
30 Install the new clutch disc.



W4088524

31 Install new pressure plate.

**Note:** Install the clutch disc and pressure plate together.



W4088520

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

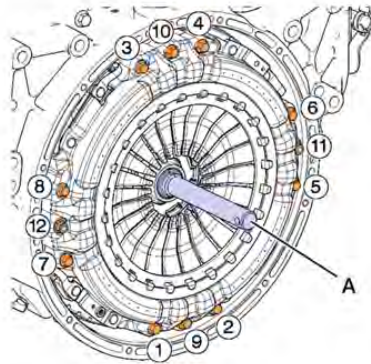
32



**CAUTION**

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

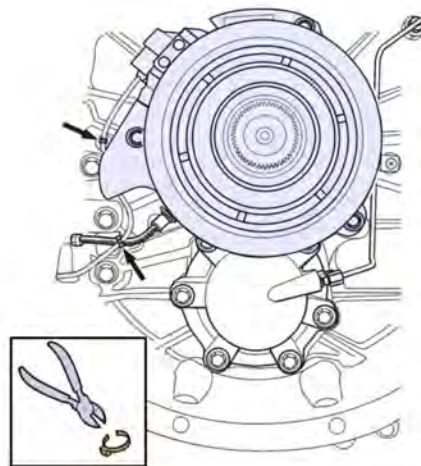
Torque pressure plate fasteners in sequence to  $53 \pm 5$  Nm ( $39 \pm 4$  ft-lb).



W4088519

A – Clutch Alignment Tool

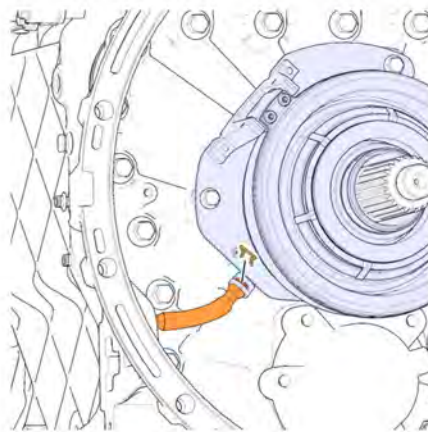
33 Remove the clutch release bearing hose zip ties.



W4088540

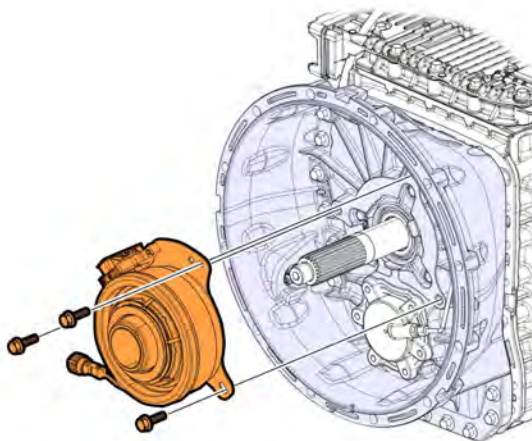


34 Remove the clutch release bearing hose.



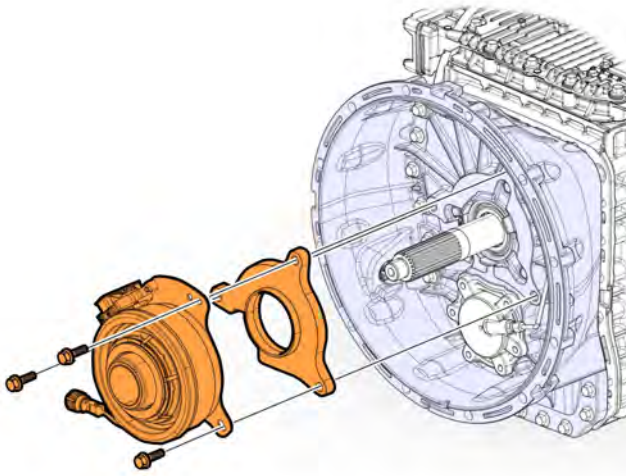
W4088541

35 Remove the clutch cylinder.



W4088542

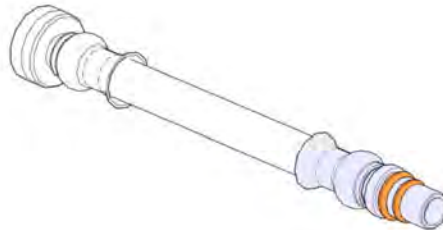
36 Install the spacer disc.



W4088543

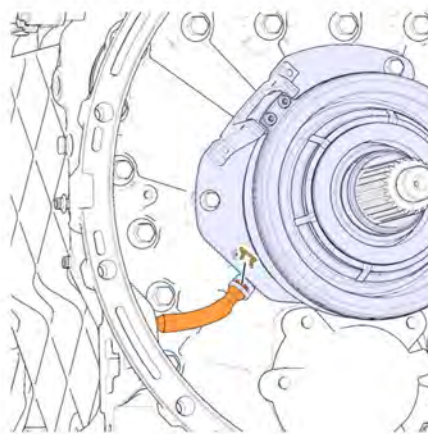
37 Install the new clutch cylinder with the longer mounting fasteners included in the kit.  
Torque fasteners to  $45 \pm 5$  Nm ( $33 \pm 4$  ft-lb).

38 Check the clutch release bearing hose O-rings for damage. Replace the O-rings (part number 22485772), if necessary.



W4088544

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



W4088541

40 Install the transmission. Refer to Function Group 43.

41 Connect all previously removed cables to the negative (ground) battery terminals. Tighten fasteners to  $20 \pm 2$  Nm ( $15 \pm 1.5$  ft-lb).

42 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

43 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.

44 When programing is complete, select Calibrate from the Main Menu. Select 4320-07-03-01 Gearbox, clutch, engagement point.

45 When Calibration is complete, clear any diagnostic trouble codes (DTC) and Finish Work.

**Reimbursement**

<b>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.</b>	Reimbursement UCHP	Reimbursement eWarranty
<b>Claim Type (used only when uploading from the Dealer Bus. Sys.)</b>	W	W
<b>Labor Code</b>		
Primary Labor Code	2160-03-09-01 — 1.7 hrs.	21618-2-00 — 1.7 hrs.
<b>Causal Part</b>	21905650	21905650

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