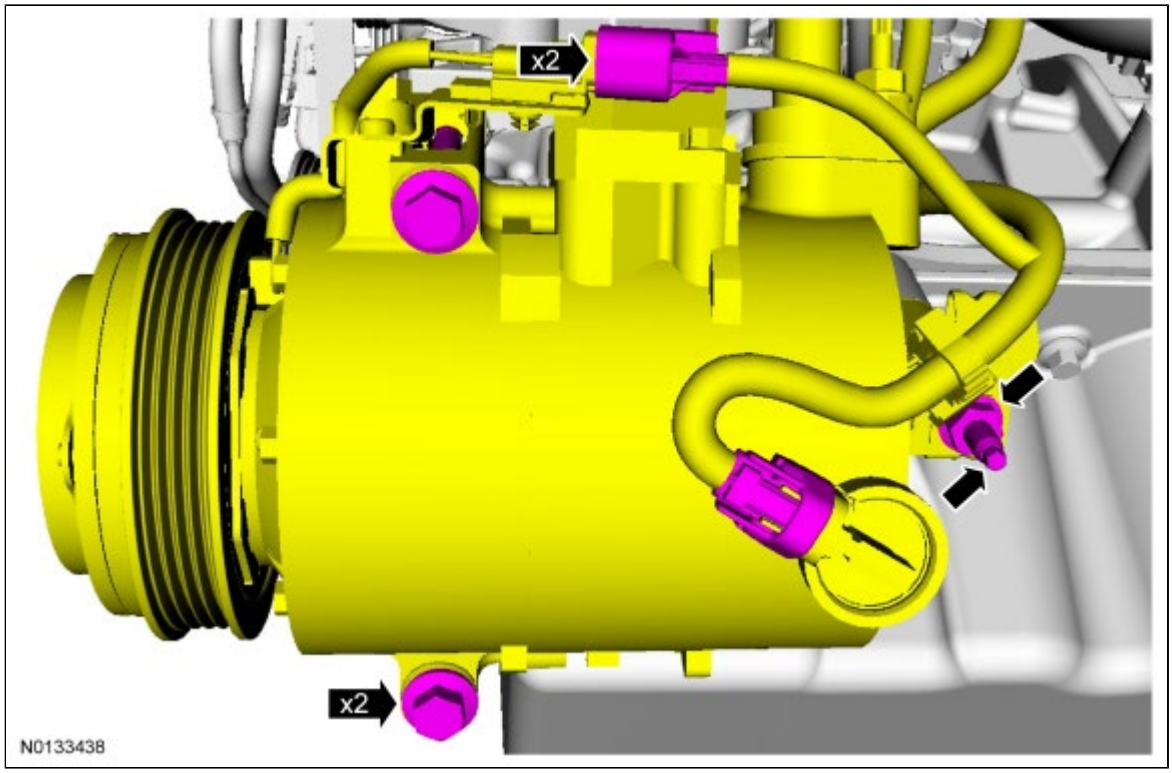
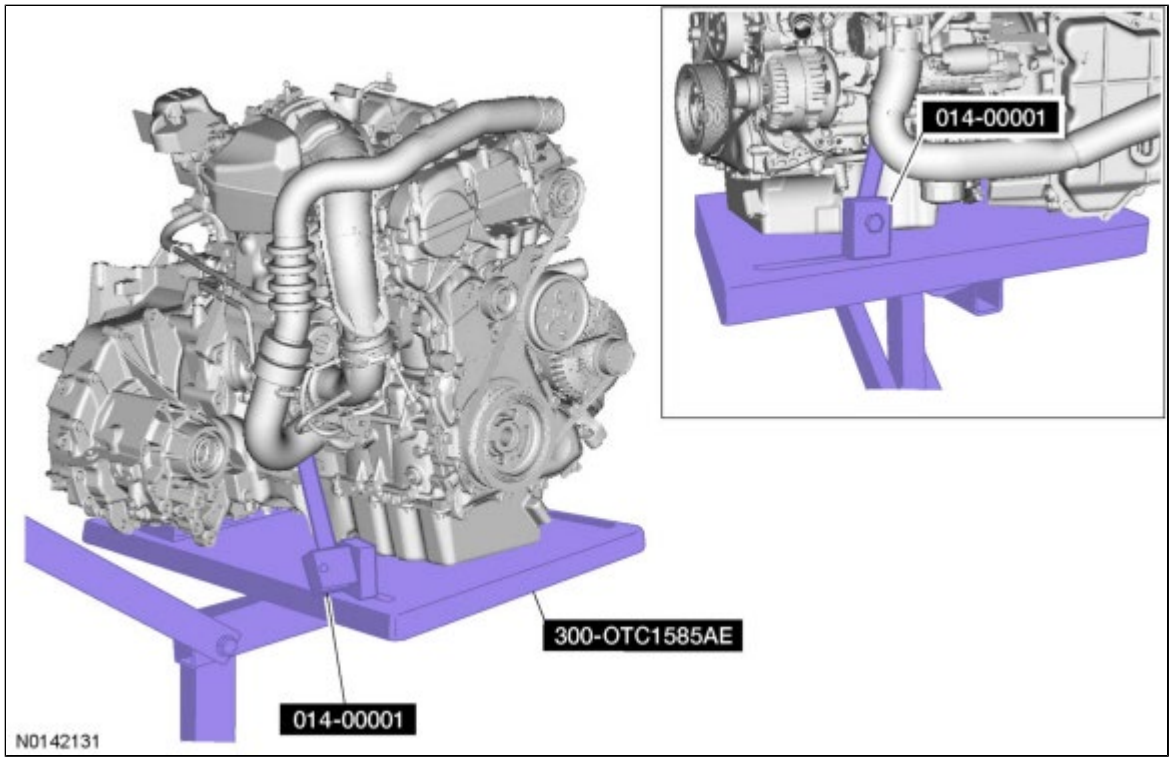
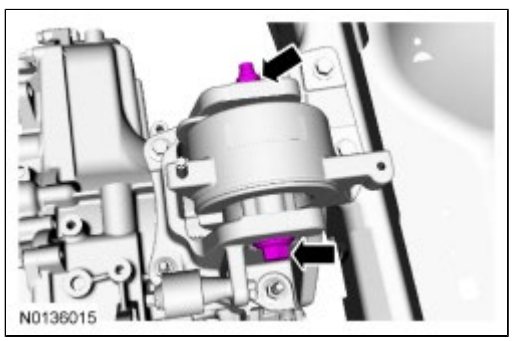


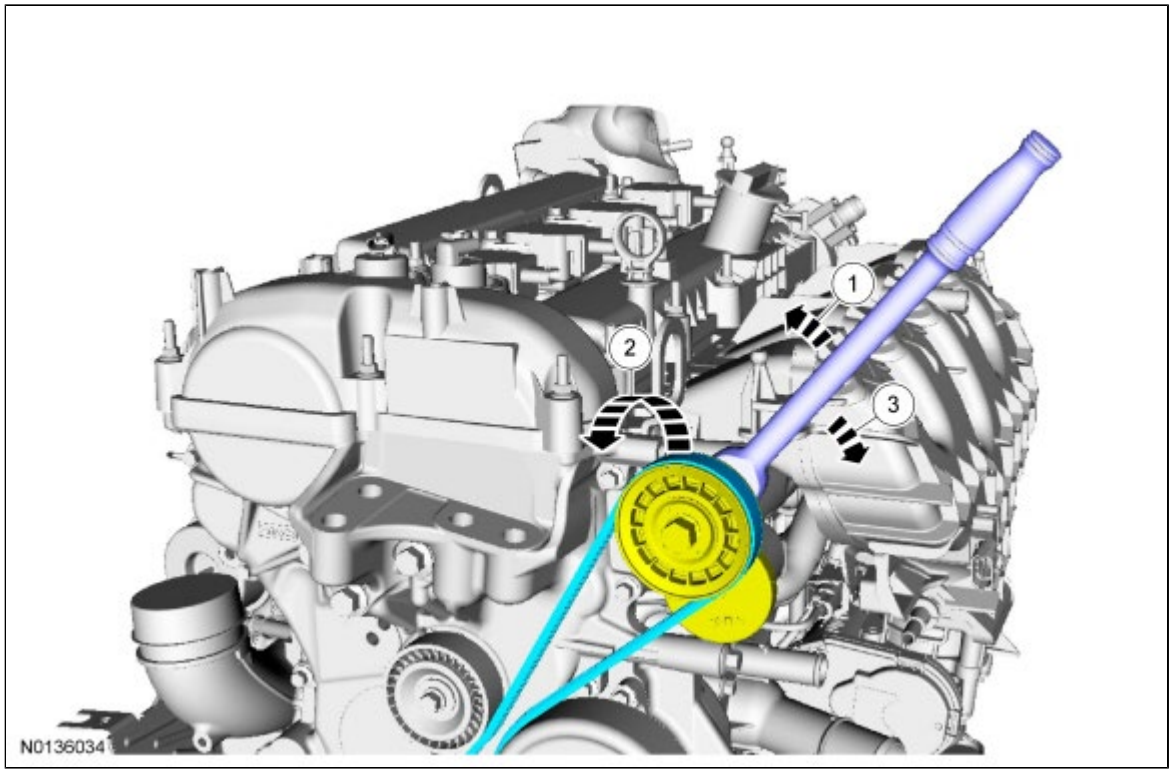
36. **NOTE:** Position a block of wood under the transaxle.

    Install the Powertrain Lift and Adjustable Grip Arms.

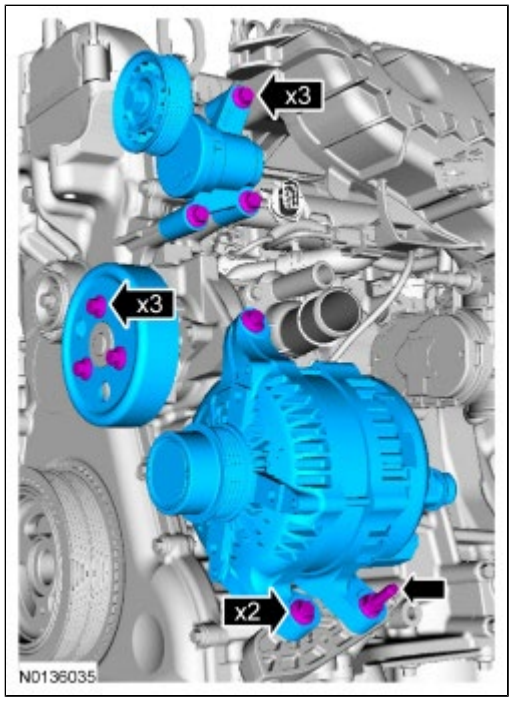


37. Remove the transaxle support insulator through bolt and nut.



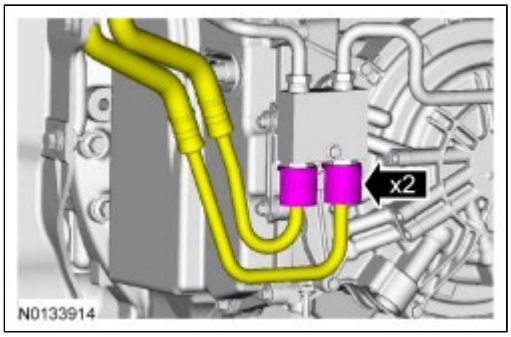


21. Remove the 3 bolts and the accessory drive belt tensioner.
    - Remove the 3 bolts and the coolant pump pulley.
    - Remove the stud bolt, the 2 bolts and the generator.

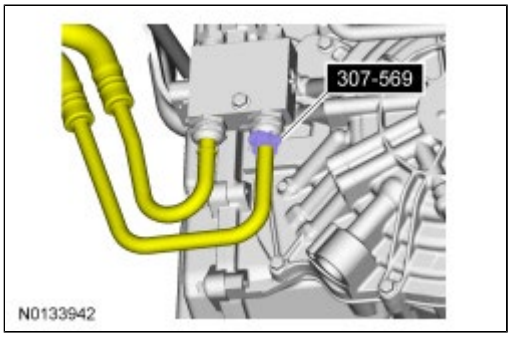


22. Remove the 3 bolts and the coolant pump.
    - Remove the bolt, the nut and the A/C compressor bracket.

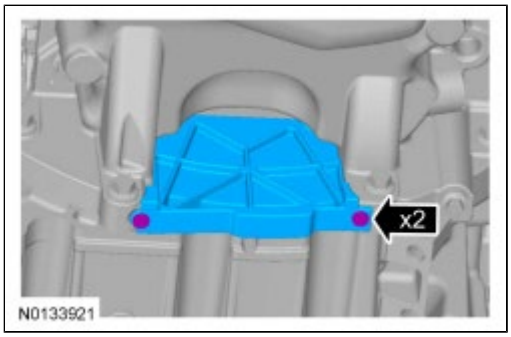
valve.



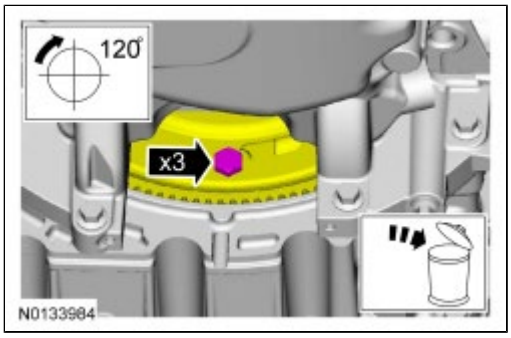
48. Using the Transmission Cooler Line Disconnect Tool, disconnect the transmission fluid cooler tubes from the transmission fluid cooler thermal bypass valve.



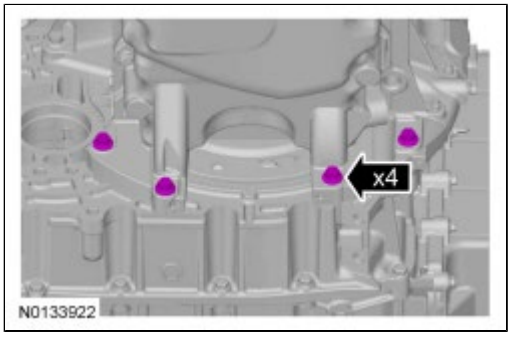
49. Remove the 2 fasteners and the inspection cover.

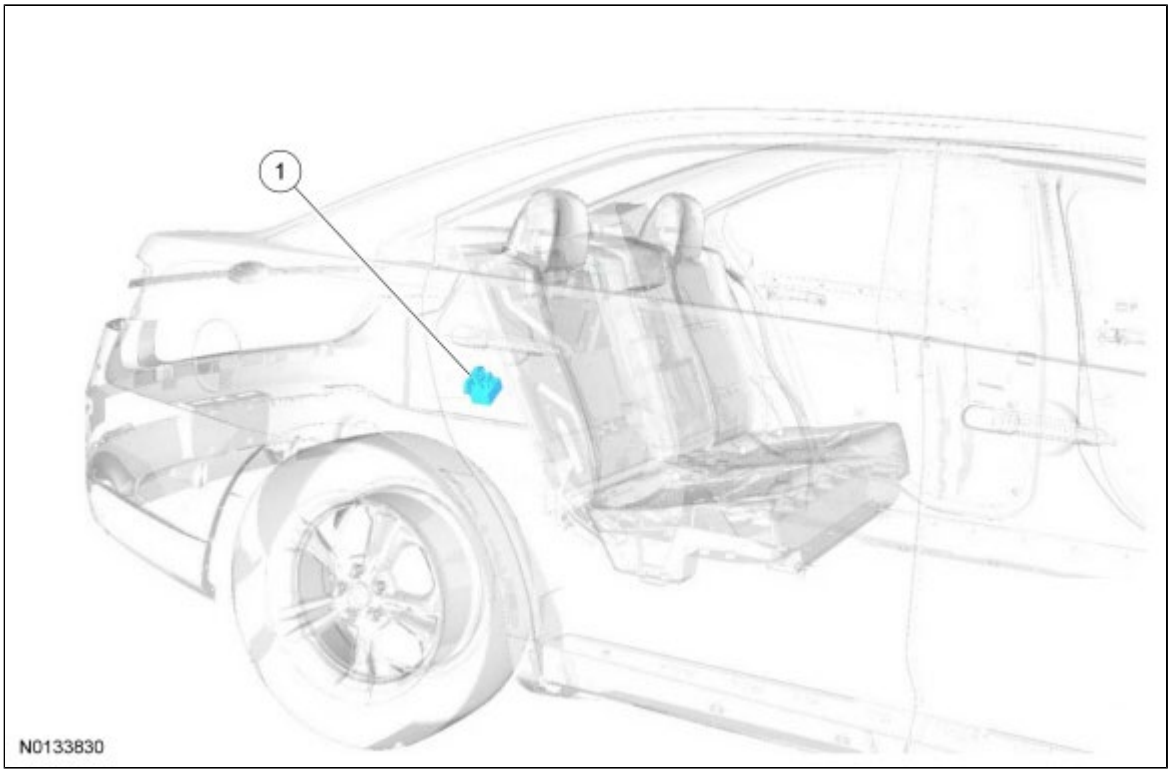


50. Remove and discard the 3 torque converter bolts.



51. Remove the 4 oil pan-to-transaxle bolts.





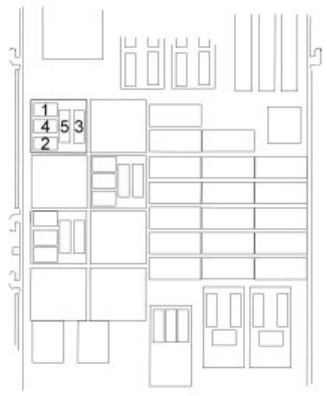
Item	Description	Comments
1	FPCM	-

System Operation

REFER to the PC/ED manual section 1 Description and Operation.

Component Description

REFER to the PC/ED manual section 1 Description and Operation.

- **Are the resistances less than 3 ohms?**

B21 CHECK THE START CIRCUIT FOR VOLTAGE AT THE PCM

- Ignition OFF.
- Disconnect: PCM C1381B (2.0L GTDI or 3.5L GTDI) .
- Disconnect: PCM C175B (3.5L Ti-VCT or 3.7L Ti-VCT) .
- Ignition ON.
- For 2.0L GTDI or 3.5L GTDI engine, while pressing the Start/stop switch, measure:

Positive Lead	Measurement / Action	Negative Lead
C1381B-47	V	Ground

- For 3.5L Ti-VCT or 3.7L Ti-VCT engine, measure:

Positive Lead	Measurement / Action	Negative Lead
C175B-16	V	Ground

- **Is the voltage greater than 11 volts?**

Yes
GO to B24 .

No
GO to B22 .

B22 CHECK THE ENGINE START STOP BUTTON CIRCUIT 1 (START_STOP_1) PID

- Using a scan tool, view the BCM PIDs .
- While pressing the Start/stop switch, monitor the BCM PID START_STOP_1.
- **Does the PID read correctly?**

Yes
REPAIR the circuit for an open.

No
DIAGNOSE the Start/stop switch. REFER to Section 211-05 .

B23 CHECK FOR CORRECT RFA MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect all RFA module connectors.
- Repair:
  - corrosion (install new connector or terminals - clean module pins)
  - damaged or bent pins - install new terminals/pins
  - pushed-out pins - install new pins as necessary
- Reconnect the RFA module connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.
- **Is the concern still present?**

Yes
CHECK OASIS for any applicable TSBs . If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no TSBs address this concern, INSTALL a new RFA module.

	2	On	On	On	On	Off	Off
	3	On	Off	Off	On	Off	Off
	4	On	On	Off	Off	Off	On/Off
	5	Off	Off	Off	Off	Off	On/Off
	6	Off	On	On	Off	Off	On/Off

[a] Turns on above 8 km/h (5 mph).

[b] Turns off above 8 km/h (5 mph).

NC = Normally closed

NH = Normally high

NL = Normally low

Pressure Chart

Gear	Line Pressure at Idle KPa (psi)		Line Pressure at WOT Stall KPa (psi)	
	Minimum	Maximum	Minimum	Maximum
P	344.7 kPa (50 psi)	448.2 kPa (65 psi)	—	—
R	551.6 kPa (80 psi)	689.5 kPa (100 psi)	1,689.2 kPa (245 psi)	2,068.4 kPa (300 psi)
N	344.7 kPa (50 psi)	448.2 kPa (65 psi)	—	—
D	482.6 kPa (70 psi)	620.5 kPa (90 psi)	1,689.2 kPa (245 psi)	2,068.4 kPa (300 psi)

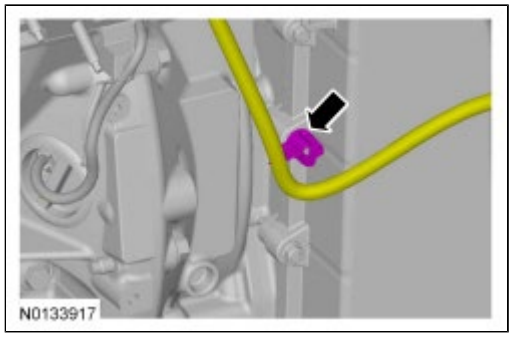
Clutch Application Chart

Gear	Forward (1, 2, 3, 4)	Direct (3, 5, R)	Intermediate (2, 6)	Low / Reverse (1, R)	Overdrive (4, 5, 6)	Low - OWC
Park				H		
Reverse		D		H		
Neutral				H		
1st Gear D	H			H		H
2nd Gear D	H		H			
3rd Gear D	H	D				
4th Gear D	H				D	
5th Gear D		D			D	
6th Gear D			H		D	
1st Gear Manual	H			H		
Planetary Component	Front Sun	Rear Sun	Rear Sun	Rear Carrier/Center Ring	Rear Carrier/Center Ring	Rear Carrier/Center Ring

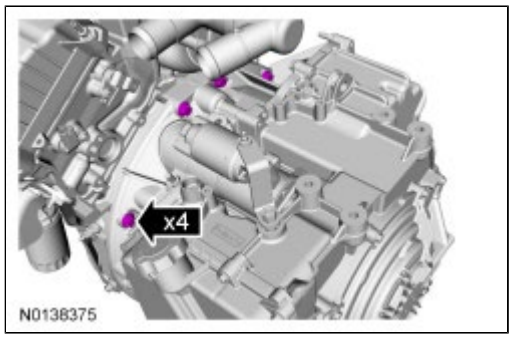
H = Holding

D = Driven

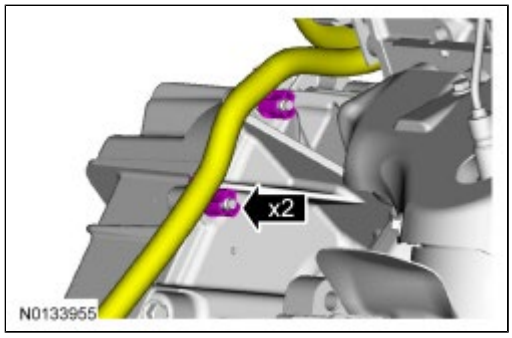
Stall Speed Chart



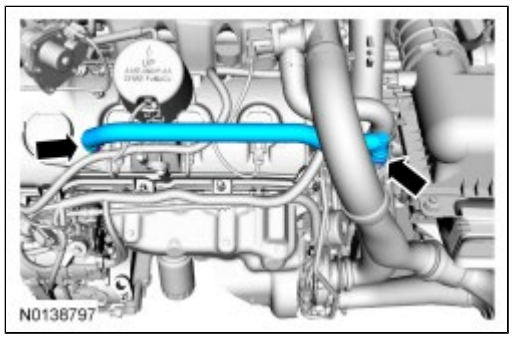
15.



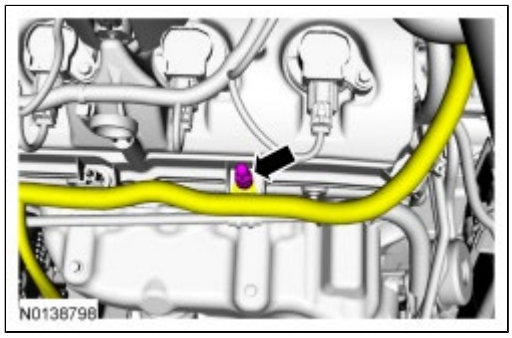
16.



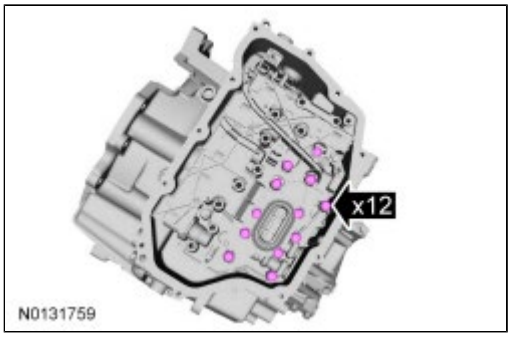
17. Remove the crankcase vent tube. Refer to Section 310-00 .



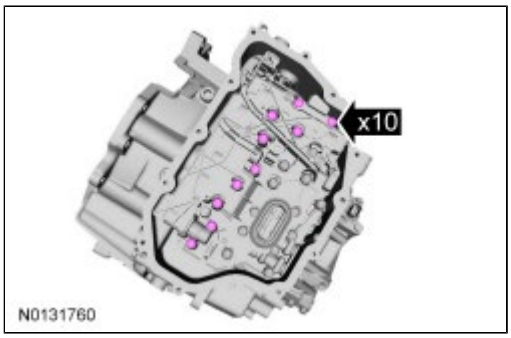
18.



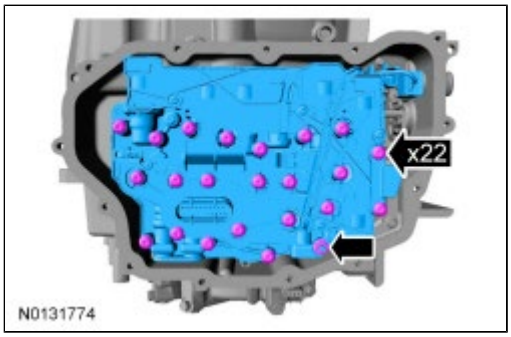
19.



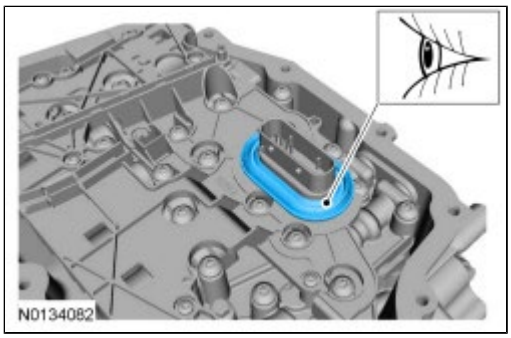
7. Long bolts hand-tight.



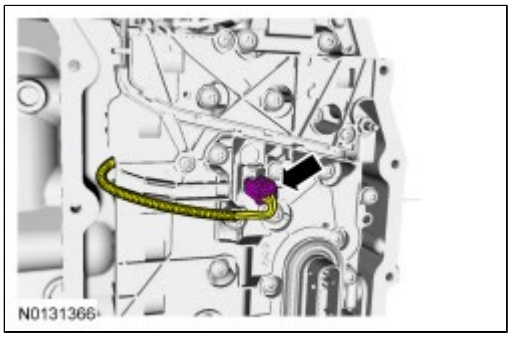
8. Tighten in a crisscross pattern.
    - Tighten to 10 Nm (89 lb-in).



9. **NOTE:** Be sure the main control-to-cover seal is installed with the holes facing up.



10.



11.

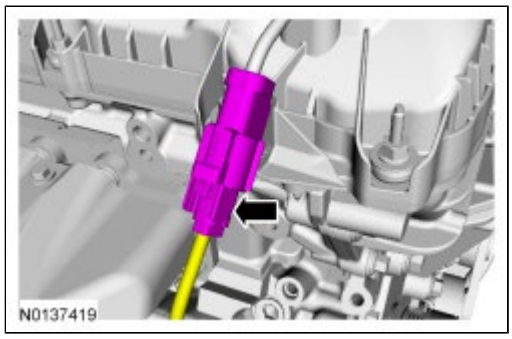
Catalytic Converter — RH Manifold, 3.7L Ti-VCT

Removal

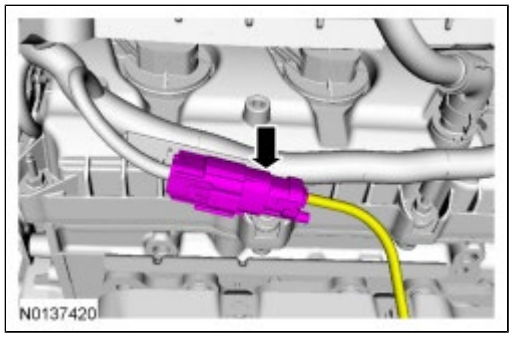
All vehicles

NOTE: Always install new fasteners and gaskets. Clean flange faces prior to new gasket installation to make sure of correct sealing.

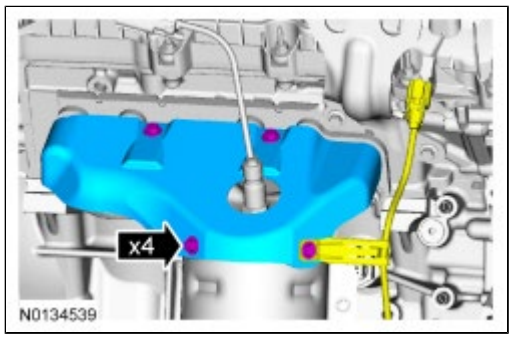
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to Section 100-02 .
2. Disconnect the RH Catalyst Monitor Sensor (CMS) electrical connector.



3. Disconnect the RH Heated Oxygen Sensor (HO2S) electrical connector.



4. Remove the 4 bolts and the RH catalytic converter heat shield.



5. Remove the exhaust Y-pipe. For additional information, refer to Exhaust Y-Pipe — 3.7L Ti-VCT in this section.
6. Remove the 4 bolts and position aside the Electronic Power Assist Steering (EPAS) shield.

Key-In-Ignition Warning Chime

The key-in-ignition warning chime warns that the key is still in the ignition lock cylinder when the driver door is ajar (without IA) or that the ignition is in the accessory state (with IA). The IPC receives the key-in-ignition warning chime command from the BCM . The key-in-ignition warning chime sounds when the driver door is ajar, the key is in the ignition lock cylinder and in the off/lock or accessory position (without IA) or when the ignition is in the accessory state (with IA).

The chime sounds a repetitive 1 second chime tone for as long as the key is in the lock cylinder with the ignition off (except IA) or the ignition in accessory mode (with IA) with the door ajar. The chime shuts off when battery saver has expired (approximately 30 minutes).

Memory-Stored Feedback Chime

The memory-stored feedback chime informs the driver their preferences have been successfully programmed through the memory set procedure. The IPC receives the memory feedback request from the BCM . The BCM receives the memory feedback request from the DSM .

The chime sounds for 0.1 second when the IPC receives a successful memory state change message.

Message Center Warning Chime

The message center warning chime feature draws the driver's attention to the message center display to view a new warning message. The IPC provides a single 1.6 second tone whenever a new warning message is displayed in the message center. If multiple warning messages are present, the IPC sounds a chime for each of the warning messages that are present as they cycle through the message center display.

Parking Brake Warning Chime

The parking brake warning chime warns that the parking brake is engaged when the vehicle is in motion. The parking brake warning chime sounds if the ignition is in ON, the parking brake is engaged, and the vehicle speed is greater than 5 kmh (3 mph). The parking brake warning chime stops sounding and resets if the parking brake is released, the ignition is on, if the vehicle speed is less than 5 kmh (3 mph), or after 90 seconds from the time the chime is activated. The IPC receives the park brake chime request from the BCM . The chime sounds a repetitive 1 second chime tone for as long as the parking brake is applied and the IPC receives the park brake chime request.

Perimeter Alarm Warning Chime

The perimeter alarm warning chime alerts the driver the perimeter alarm is armed when the driver door is unlocked with a key. The warning chime is only functional when a key is used to unlock the driver door. If the key fob or keypad (if equipped) is used to unlock the door, the perimeter alarm is disarmed and the warning chime does not sound. The warning chime sounds for 12 seconds when the driver door is opened and turns off when the perimeter alarm is disarmed (either by using the key fob, keypad or turning the key to the ON position). The chime sounds 2 chime tones for the first 6 seconds followed by 3 chime tones for the next 4 seconds and finally 4 chime tones for the last 3 seconds. After the 12 second warning chime duration, the warning chime stops sounding and the perimeter alarm activates, sounding the horn and flashing the turn signal lamps. The IPC receives the perimeter alarm chime request from the BCM .

Safety Belt Warning Chime

The safety belt warning chime warns that the safety belt is not fastened. The safety belt warning chime sounds repetitive 1.6 second tones for 6 seconds when the driver safety belt is not fastened and the ignition is transitioned from OFF or accessory to ON or START. The safety belt warning chime stops sounding when the safety belt is fastened, when the ignition is transitioned from ON or START to OFF or accessory, or when the chime has sounded for approximately 6 seconds. The IPC receives the safety belt warning chime request from the RCM .

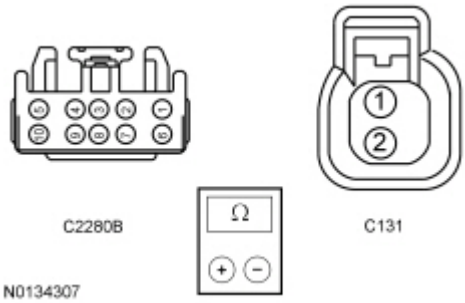
Service AdvanceTrac® Warning Chime

The service AdvanceTrac® warning chime warns that the ABS module has detected a fault condition in the stability-traction control system. The ABS module provides the AdvanceTrac® warning chime request to the IPC .

If a fault condition exists in the stability-traction control system, the ABS module sends the IPC the AdvanceTrac® warning chime request to display SERVICE ADVANCETRAC in the message center and sound the chime. The chime sounds three repetitive 1.0 second chime tones 8 seconds after the IPC has stabilized in its normal operational mode, a fault condition has been detected by the ABS and a chime request has been received by the IPC .

Turn Signal On Chime

The IPC provides a repetitive tick-tock along with visual RH/LH turn indicator to inform the driver the turn signal or hazard lamp

 • **Is the resistance less than 3 ohms?**	
A11 CHECK FOR CORRECT BCM OPERATION • Disconnect and inspect all BCM connectors. • Repair: ▪ corrosion (install new connector or terminals – clean module pins) ▪ damaged or bent pins – install new terminals/pins ▪ pushed-out pins – install new pins as necessary • Reconnect the BCM connectors. Make sure they seat and latch correctly. • Operate the system and determine if the concern is still present. • **Is the concern still present?**	**Yes** CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new BCM. REFER to Section 419-10. **No** The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.
A12 CHECK FOR CORRECT SCCM OPERATION • Disconnect and inspect all SCCM connectors. • Repair: ▪ corrosion (install new connector or terminals – clean module pins) ▪ damaged or bent pins – install new terminals/pins ▪ pushed-out pins – install new pins as necessary • Reconnect the SCCM connectors. Make sure they seat and latch correctly. • Operate the system and determine if the concern is still present. • **Is the concern still present?**	**Yes** CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new SCCM. REFER to Section 211-05. **No** The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

Pinpoint Test B: The Horn Is Always On

Diagnostic Overview

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. Refer to Diagnostic Methods in Section 100-00 for information about these practices.

Refer to Wiring Diagrams Cell 44, Horn/Cigar Lighter for schematic and connector information.

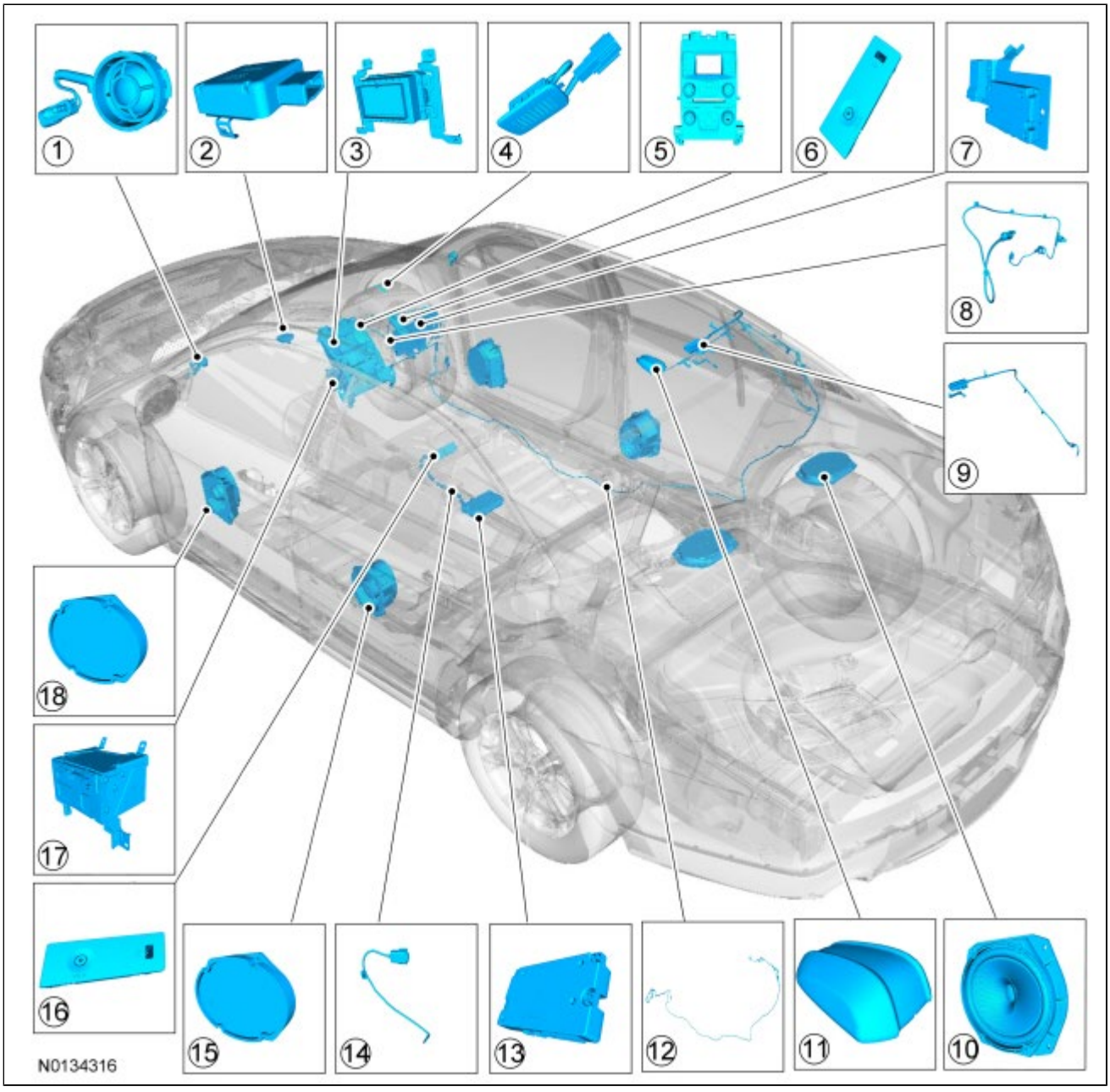
Normal Operation and Fault Conditions

REFER to Horn.

Possible Sources

Information and Entertainment System

Component Location



Item	Description	Comments
1	Speaker - A-pillar	-
2	Global Positioning System Module (GPSM)	-
3	Front Control/Display Interface Module (FCDIM)	-
4	Microphone	-
5	Front Controls Interface Module (FCIM)	-
6	Universal Serial Bus (USB) port	Police package

correctly. • Operate the system and determine if the concern is still present. • **Is the concern still present?**	
AG6 CHECK FOR CORRECT APIM OPERATION • Ignition OFF. • Disconnect and inspect the APIM connector. • Repair: ▪ corrosion (install new connector or terminals – clean module pins) ▪ damaged pins - install new terminals/pins ▪ pushed-out pins - install new pins as necessary • Reconnect the APIM connector. Make sure it seats and latches correctly. • Wait 2 minutes for the APIM to re-initialize. • Operate the system and determine if the concern is still present. • **Is the concern still present?**	**Yes** CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, For diagnosing and testing please refer to the on-line Workshop Manual. If you do not have an on-line subscription, go to www.motorcraftservice.com. **No** The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.
AG7 CHECK FOR CORRECT GPSM OPERATION • Ignition OFF. • Disconnect and inspect the GPSM connector. • Repair: ▪ corrosion (install new connector or terminals – clean module pins) ▪ damaged pins - install new terminals/pins ▪ pushed-out pins - install new pins as necessary • Reconnect the GPSM connector. Make sure it seats and latches correctly. • Operate the system and determine if the	**Yes** CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new GPSM . REFER to Global Positioning System Module (GPSM) . **No** The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

• Disconnect all the BCM connectors.
• Repair:
  ▪ corrosion (replace connector or terminals — clean module pins)
  ▪ damaged or bent pins — replace terminals/pins
  ▪ pushed-out pins — replace pins as necessary
• Connect all the BCM connectors and make sure they are seated correctly.
• Operate the system and verify the concern is still present.
• **Is the concern still present?**
	Yes
	CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new BCM. REFER to Section 419-10.
	
	No
	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

AC27 CHECK THE C-CM FOR CORRECT OPERATION
• Disconnect the C-CM connector.
• Repair:
  ▪ corrosion (replace connector or terminals — clean module pins)
  ▪ damaged or bent pins — replace terminals/pins
  ▪ pushed-out pins — replace pins as necessary
• Connect the C-CM connector and make sure it seats correctly.
• Operate the system and verify the concern is still present.
• **Is the concern still present?**
	Yes
	CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new C-CM. REFER to Section 419-03B.
	
	No
	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

AC28 CHECK THE HUD MODULE FOR CORRECT OPERATION
• Disconnect the HUD module connector.
• Repair:
  ▪ corrosion (replace connector or terminals — clean module pins)
  ▪ damaged or bent pins — replace terminals/pins
  ▪ pushed-out pins — replace pins as necessary
• Connect the HUD module connector and make sure it seats correctly.
• Operate the system and verify the concern is still present.
• **Is the concern still present?**
	Yes
	CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new HUD module. REFER to Section 419-03C.
	
	No
	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

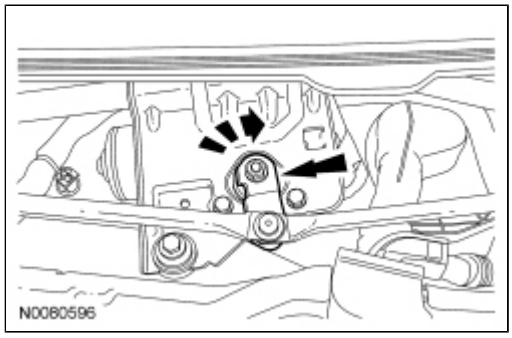
AC29 CHECK THE IPC FOR CORRECT OPERATION
• Disconnect the IPC connector.
• Repair:
  ▪ corrosion (replace connector or terminals — clean module pins)
  ▪ damaged or bent pins — replace terminals/pins
  ▪ pushed-out pins — replace pins as necessary
• Connect the IPC connector and make sure it seats correctly.
• Operate the system and verify the concern is still present.
• **Is the concern still present?**
	Yes
	CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new IPC. REFER to Section 413-01.
	
	No
	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

Wiper Mounting Arm and Pivot Shaft

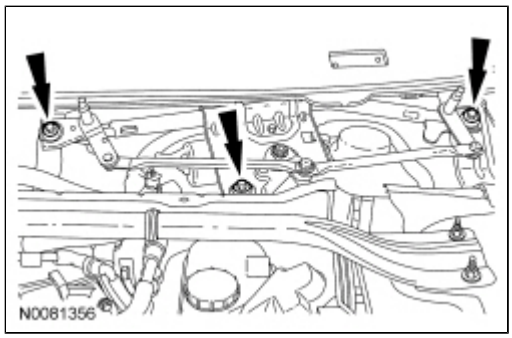
Removal

1. Remove the cowl panel grille. For additional information, refer to Section 501-02 .
2. ***NOTICE:*** **Do not remove the wiper motor linkage arm from the wiper motor assembly. If the arm is removed, the wiper arms may not park in the correct location and damage may occur.**

   Turn and position the wiper mounting arm and wiper pivot shaft assembly as shown.



3. Remove the 3 wiper mounting arm and wiper pivot shaft assembly bolts.



4. Disconnect the electrical connector.
   - Detach the wire harness pin-type retainer.
5. Remove the wiper mounting arm and wiper pivot shaft assembly from the vehicle.

Installation

1. ***NOTICE:*** **Do not remove the wiper motor linkage arm from the wiper motor assembly. If the arm is removed, the wiper arms may not park in the correct location and damage may occur.**

   If installing a new wiper mounting arm and wiper pivot shaft assembly or a new wiper motor, position the wiper motor linkage arm and wiper pivot shaft assembly to match the position of the old wiper motor linkage arm and wiper pivot shaft assembly.
2. Position the wiper mounting arm and wiper pivot shaft assembly onto the vehicle.
3. Connect the electrical connector.
   - Attach the wire harness pin-type retainer.
4. Install the 3 wiper mounting arm and wiper pivot shaft assembly bolts.
   - Tighten to 8 Nm (71 lb-in).