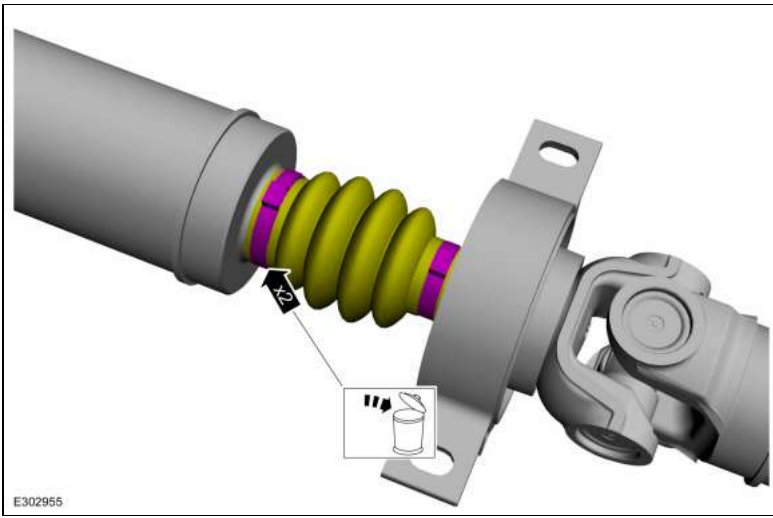


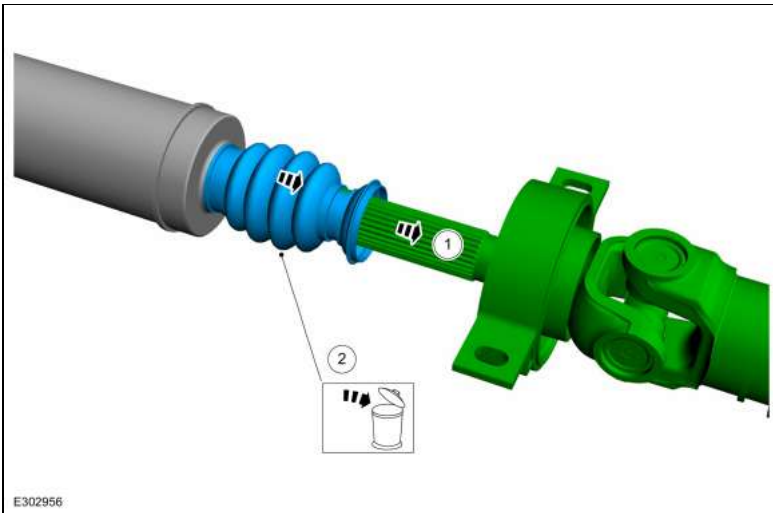
Alphabetical Index

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- A Clutch (Description and Operation, 307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R60)
- A Clutch (Diagnosis and Testing, 307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R60)
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- Accessory Drive (Diagnosis and Testing, 303-05 Accessory Drive - 3.3L Duratec-V6)
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- Air Conditioning (A/C) Clutch and Air Conditioning (A/C) Clutch Field Coil - Vehicles With: R134A Refrigerant/R1234YF Refrigerant (General Procedures, 412-00 Climate Control System - General Information)
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- Air Conditioning (A/C) Compressor - 3.3L Duratec-V6 â€“ Hybrid (BP) (Removal and Installation, 412-00 Climate Control System - General



- 4.
1. Disconnect the driveshaft spline yoke.
 2. Remove and discard the driveshaft slip yoke boot.



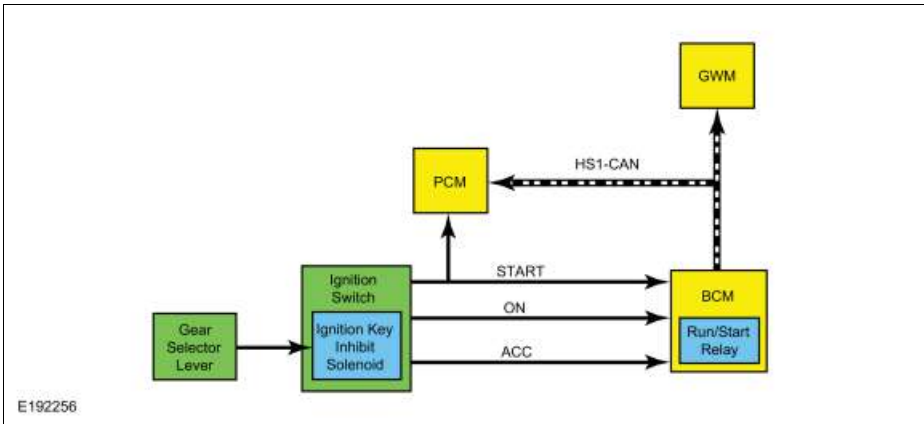
Installation

1. **NOTE:** *The boot groove should dry and free of grease / oils prior to install the boot.*
 - Clean the driveshaft splines.
 - Clean and degrease the boot groove and bearing journal on the spline yoke.

Steering Wheel and Column Electrical Components - System Operation and Component Description

System Operation

System Diagram - Conventional Ignition Switch



Item	Description
1	Ignition switch
2	START
3	ACC
4	ON
5	HS-CAN1
6	Gear selector lever
7	Ignition key inhibit solenoid
8	PCM
9	BCM
10	GWM
11	Run/Start relay

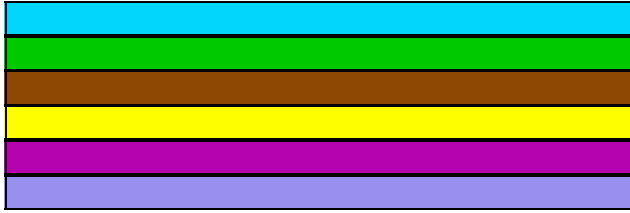
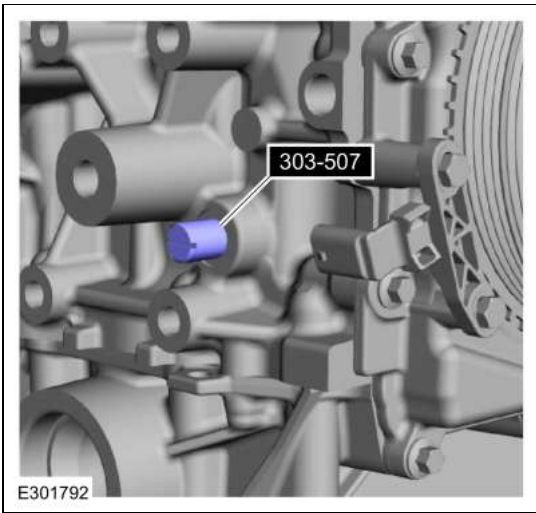
Network Message Chart - Conventional Ignition Switch

GWM Module Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Ignition status	BCM	Informs the GWM of the current ignition status; off, on, start, unknown or invalid.

PCM Module Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Ignition status	BCM	Informs the PCM of the current ignition status; off, on, start, unknown or invalid.



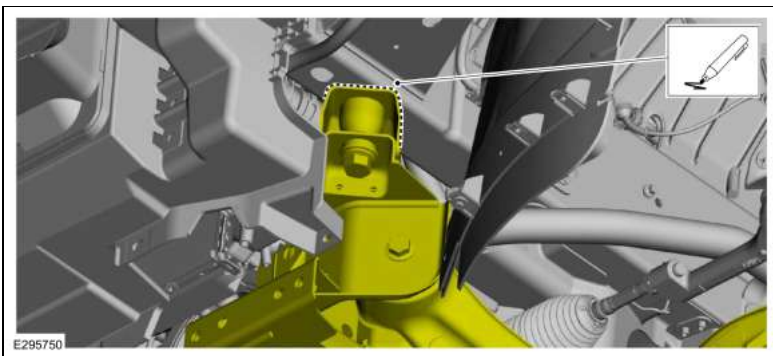
95. **NOTE:** *The special tool will contact the crankshaft and prevent it from turning past TDC. However, the crankshaft can still be rotated in the counterclockwise direction. The crankshaft must remain at the TDC position during the crankshaft pulley removal and installation.*

NOTE: *The engine front cover is removed from graphic for clarity.*

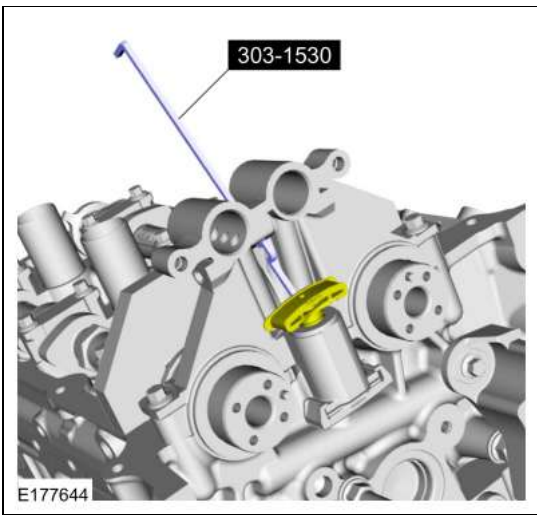
Rotate the crankshaft clockwise until it contacts the special tool.
Use Special Service Tool: 303-507 Timing Peg, Crankshaft TDC.



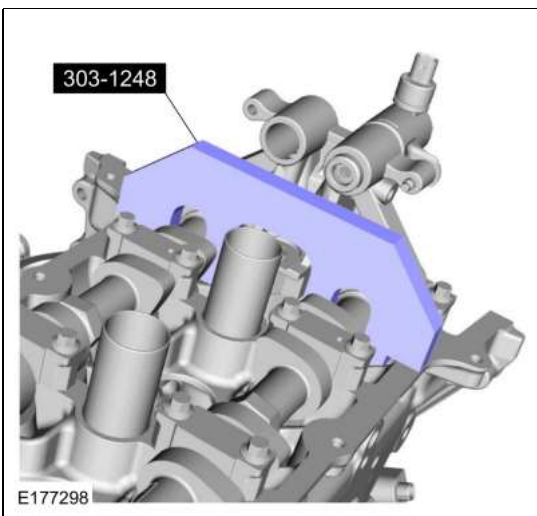
27. Mark the front subframe location.



28. Mark the rear subframe location.



6. Remove Special Service Tool: 303-1248 Camshaft holding tools.



7. **NOTE:** Cylinder head camshaft bearing caps are numbered to verify that they are assembled in their original positions.

NOTE: Mark the exhaust and intake camshafts for installation into their original locations.

Remove the bolts, camshaft caps and the camshafts.

- Carry out the Inspection and Verification procedure in this section.

Are any concerns present?

Yes	REPAIR as needed.
No	GO to B2

B2 CHECK FOR PCM (POWERTRAIN CONTROL MODULE) DTCS

- Ignition ON.
- Using a scan tool, perform PCM self-test.

Is DTC P0217 and/or P1299 present?

Yes	GO to B4
No	Actual engine overheating has not been verified. CHECK the engine coolant temperature gauge operation. REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing). If any other PCM DTCs are retrieved, REFER to: Electronic Engine Controls (303-14C Electronic Engine Controls - 3.3L Duratec-V6/3.3L Duratec-V6 Hybrid (BP), Diagnosis and Testing).

B3 CHECK FOR ACTIVE GRILL SHUDDER DTCS

- Review the PCM DTCs.

Are any active grill shudder DTCs present?

Yes	REFER to: Active Grille Shutter (501-02 Front End Body Panels, Diagnosis and Testing).
No	GO to B4

B4 CHECK FOR AN AIRFLOW OBSTRUCTION AND MISSING AIR DEFLECTORS

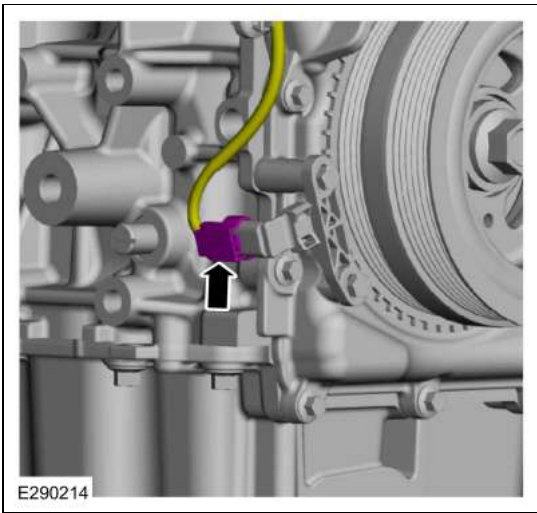
NOTE: Verify no vehicle front end damage is present.

- Check the radiator or A/C condenser for an external obstruction such as leaves or cardboard and verify all air deflectors are present.

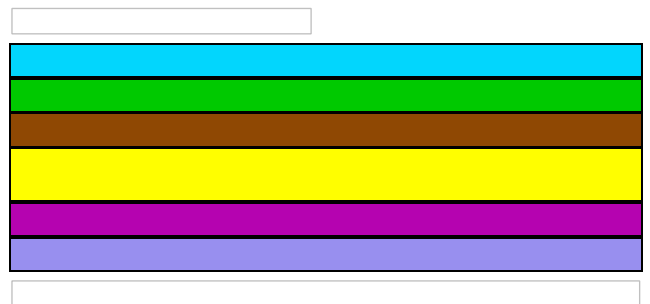
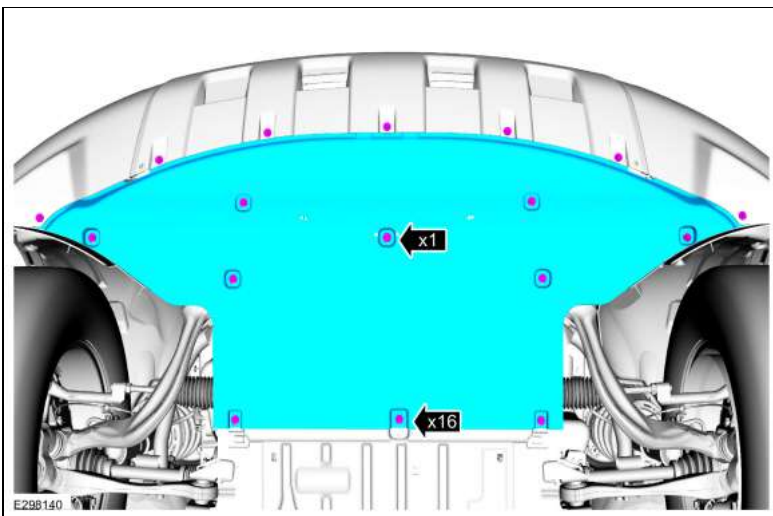
Is an airflow obstruction present or air deflectors missing?

Yes	REPAIR as necessary.
No	GO to B5

B5 CHECK THE ENGINE COOLANT LEVEL AND PRESSURE TEST THE COOLING SYSTEM



7. Install the accessory drive belt.
Refer to: Air Conditioning (A/C) Compressor Belt (303-05A Accessory Drive - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
8. Install the underbody shield.



9. Use the Powertrain Control Module (PCM) Misfire Monitor Profile Correction routine in the diagnostic scan tool.

HL3P-7B421-FA	0.110 in (2.8 mm)
---------------	-------------------

E Clutch Selective Pressure Plate Chart

Part Number	Pressure Plate Thickness
HL3P-7B066-AB	0.083 â€“0.087 in (2.1 â€“2.2 mm)
HL3P-7B066-BB	0.091 â€“0.094 in (2.3 â€“2.4 mm)
HL3P-7B066-CB	0.098 â€“0.102 in (2.5 â€“2.6 mm)
HL3P-7B066-DB	0.106 â€“0.110 in (2.7 â€“2.8 mm)
HL3P-7B066-EB ^a	0.114 â€“0.118 in (2.9 â€“3 mm)
HL3P-7B066-FB	0.122 â€“0.126 in (3.1 â€“3.2 mm)
HL3P-7B066-GB	0.130 â€“0.134 in (3.3 â€“3.4 mm)
HL3P-7B066-HB	0.138 â€“0.142 in (3.5 â€“3.6 mm)

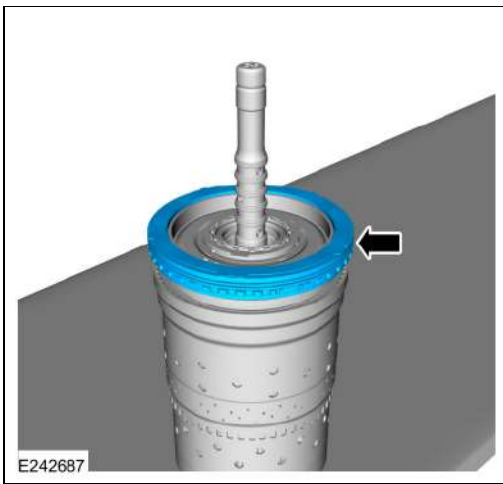
- Also used for the E clutch apply plate

F Clutch Selective Snap Ring Chart

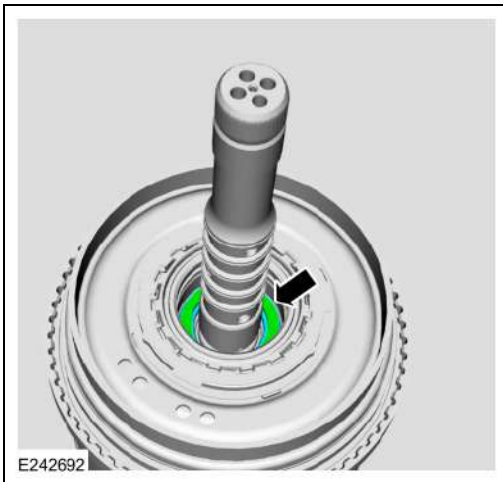
Part Number	Snap Ring Thickness
HL3P-7P174-AA	0.059 in (1.5 mm)
HL3P-7P174-BA	0.067 in (1.7 mm)
HL3P-7P174-CA	0.075 in (1.9 mm)
HL3P-7P174-DA	0.083 in (2.1 mm)
HL3P-7P174-EA	0.091 in (2.3 mm)
HL3P-7P174-FA	0.098 in (2.5 mm)

Selective Fit Shim Chart RWD Vehicles

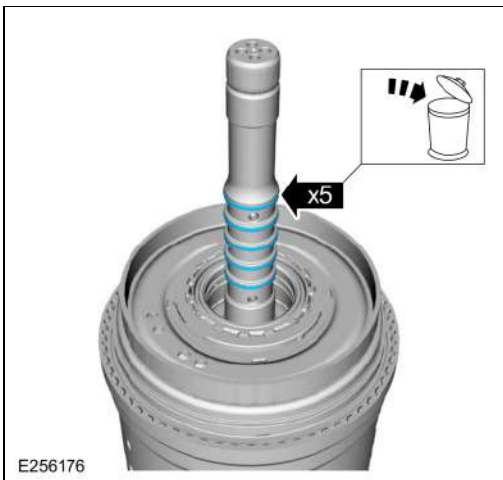
Selective Fit Shim Part Number	Selective Fit Shim Thickness
7A527	0.120 â€“0.124 in (3.05 â€“3.15 mm)
7A527	0.126 â€“0.130 in (3.2 â€“3.3 mm)
7A527	0.132 â€“0.136 in (3.35 â€“3.45 mm)
7A527	0.138 â€“0.142 in (3.5 â€“3.6 mm)
7A527	0.144 â€“0.148 in (3.65 â€“3.75 mm)
7A527	0.150 â€“0.154 in (3.8 â€“3.9 mm)
7A527	0.156 â€“0.159 in (3.95 â€“4.05 mm)
7A527	0.161 â€“0.165 in (4.1 â€“4.2 mm)
7A527	0.167 â€“0.171 in (4.25 â€“4.35 mm)



70. Using a magnet, remove the selective shim and the (T3) thrust bearing.
Use the General Equipment: Magnet

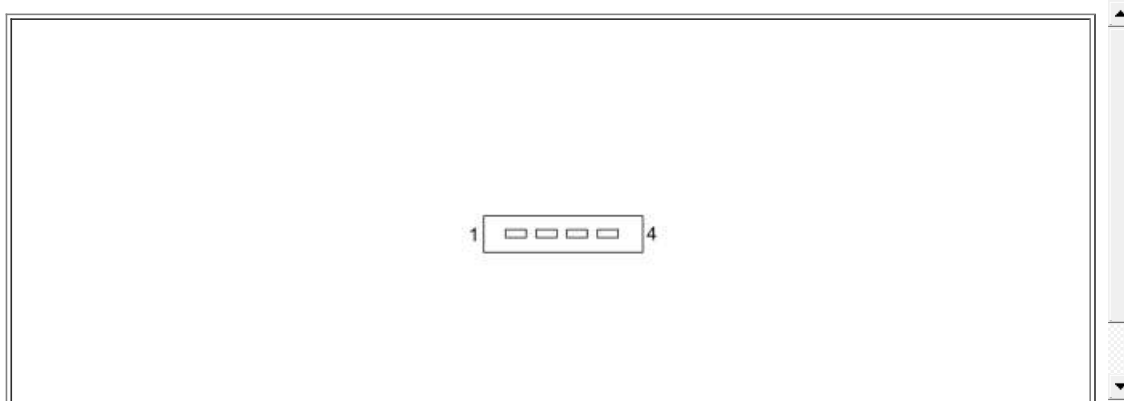


71. Remove and discard the input shaft front Teflon® seals.



72. Remove one side of the No. 1 planetary carrier snap ring.

- Remove the driver air bag module.
REFER to: Driver Airbag (501-20B Supplemental Restraint System, Removal and Installation).
- Disconnect Downshift Paddle Shifter [C2429](#) .
- Measure:



Positive Lead	Measurement / Action	Negative Lead
Upper clockspring, Paddle Switch Component side resistance pin 2.	Ω	Upper clockspring, Paddle Switch Component side resistance pin 3.

Is the resistance less than 1.5 ohms with upshift switch pressed and greater than 10,000 ohms when released?

Yes	GO to L9
No	INSTALL a new downshift paddle switch. REFER to: Downshift Paddle Switch (307-05C Automatic Transmission External Controls - 10-Speed Automatic Transmission â€™ 10R80 MHT, Removal and Installation).

L8 CHECK THE DOWNSHIFT SIGNAL CIRCUIT FOR VOLTAGE

Desiccant Bag - 3.3L Duratec-V6

Special Tool(s) / General Equipment

Long Nose Pliers

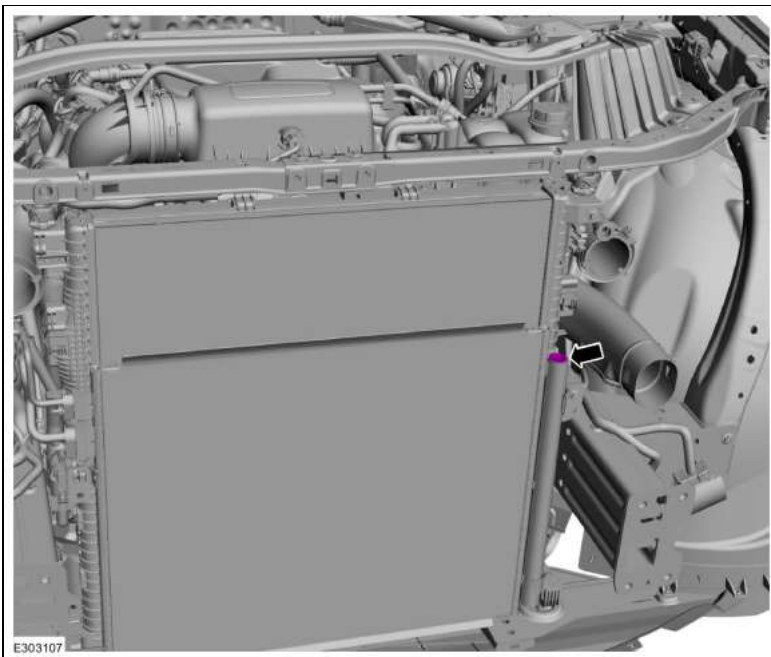
Removal

NOTICE: During the removal of components, cap, tape or otherwise appropriately protect all openings to prevent the ingress of dirt or other contamination. Remove protective materials prior to installation.

NOTE: Installation of a new desiccant bag is not required when repairing the A/C system, except when there is physical evidence of contamination from a failed A/C compressor or damage to the receiver/drier desiccant bag. It is not necessary to add additional dye to the refrigerant system, the new receiver/drier desiccant bag comes with a new dye pellet. Damage to the receiver/drier desiccant bag includes physical damage to the receiver/drier desiccant bag or moisture contamination. Moisture contamination results only from a complete loss of refrigerant and equalization of the refrigerant system pressure with atmospheric pressure for a period longer than one hour. If even a slight amount of positive refrigerant pressure is present in the system before repairs are carried out, the receiver/drier desiccant bag should not be replaced.

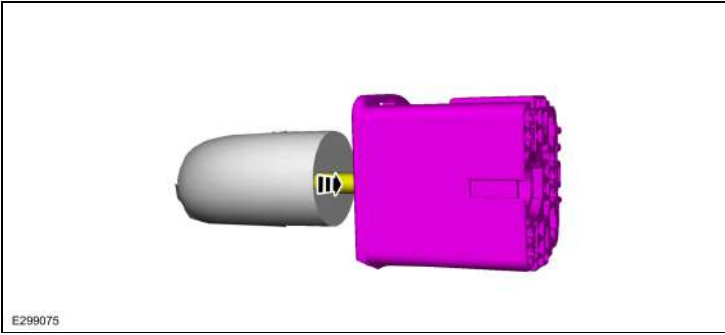
NOTE: Removal steps in this procedure may contain installation details.

1. Recover the refrigerant. Refer to the appropriate Recovery procedure in Group 412.
2. Remove the radiator grille opening panel.
Refer to: Radiator Grille Opening Panel (501-02 Front End Body Panels, Removal and Installation).
3. Remove the receiver/drier cap.



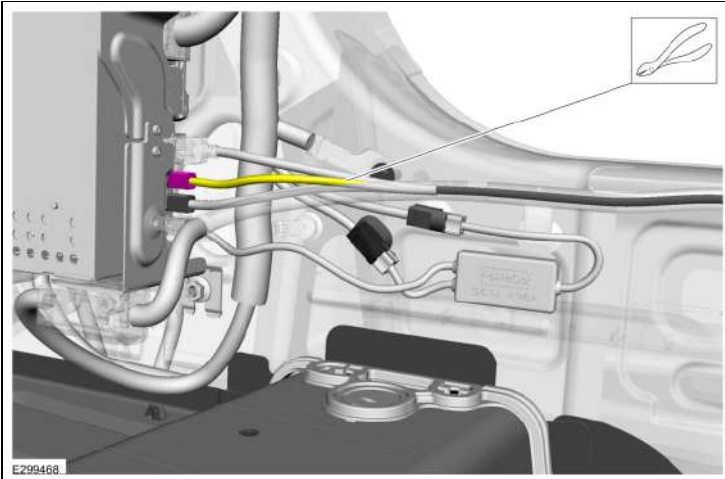
4. Remove the receiver/drier plug and the desiccant bag.
Use the General Equipment: Long Nose Pliers

8. Install the cable end into the harness connector.

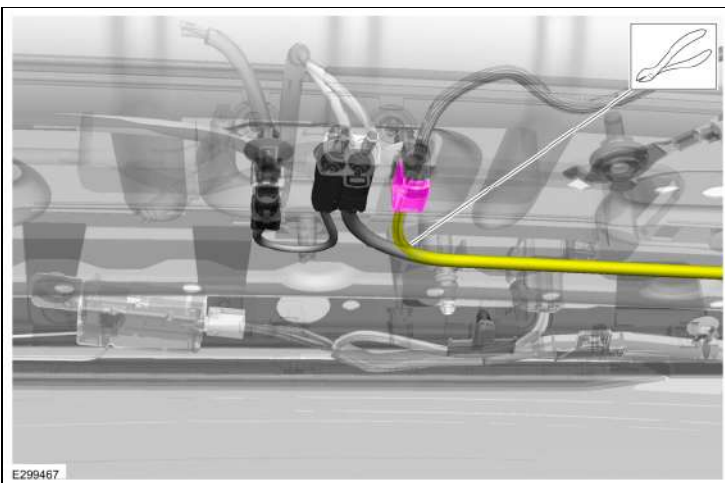


FM2 Diversity antenna lower cable

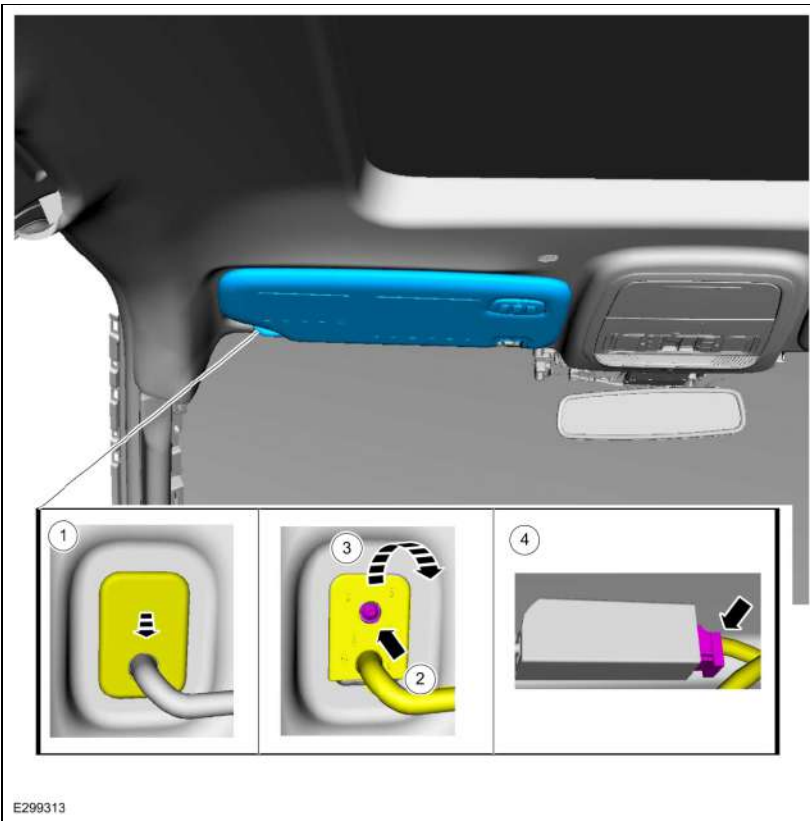
9. Cut off the lower cable connector.



10. Cut off the FM2 diversity antenna cable roof connector.



11. Install the new coaxial cable.
- Route the new audio unit antenna cable following the routing shown.
 - Secure the new audio unit antenna cable, as necessary, to prevent NVH concerns.

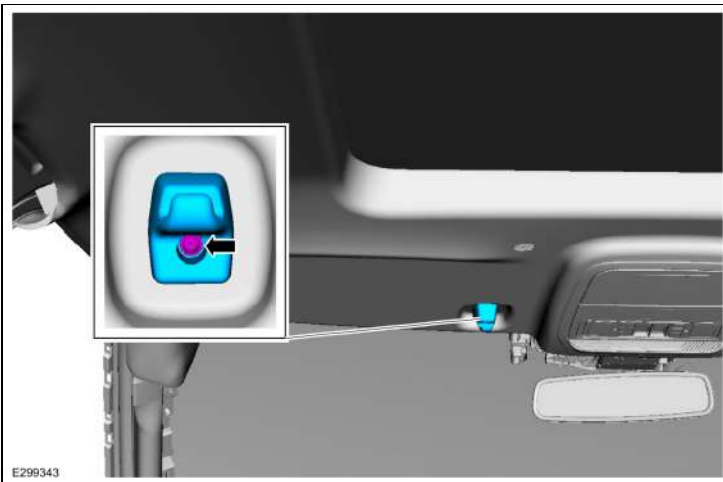


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8. **NOTE:** LH (left hand) shown, RH (right hand) similar.

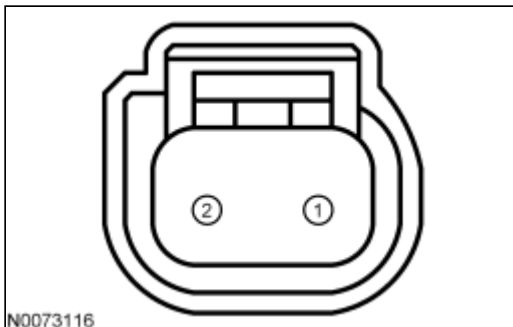
On both sides.
Remove the screw and the sun visor clip.



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9. On RH side.
Remove the front assist handle.
1. Position the front assist handle down.
 2. Remove the front assist handle retainers.
Use the General Equipment: Pick Hook



Vehicle	Connector	Pin	Circuit
Continental, Flex GTDI 3.5L, Ford GT, Fusion, MKZ	A	3 2 1	VBPWR SIGRTN CMP21
E-Series	B	3 2 1	VBPWR SIGRTN CMP21
F-150 5.0L, F-Series Super Duty	A	1 2 3	VREF SIGRTN CMP21
Flex TiVCT 3.5L	C	1 2	SIGRTN CMP21
Mustang 5.0L	B	1 2 3	VREF SIGRTN CMP21
All other vehicles	A	3 2 1	VREF SIGRTN CMP21

Camshaft Position Bank 2 Sensor 2 (CMP22) Sensor Connector

A

