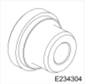
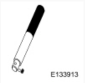
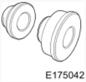
303-01C Engine - 5.0L Ti-VCT V8 (308kW/418PS) *2015 Mustang*
Removal and Installation ***Procedure revision date: 04/9/2015***

Valve Cover LH

Special Tool(s) / General Equipment

	205-142 (T80T-4000-J) Installer, Differential Bearing Cone
	205-153 (T80T-4000-W) Handle
	303-1247 VCT Spark Plug Tube Seal Remover and Installer TKIT-2006UF-FLM TKIT-2006UF-ROW
Plastic Scraper	

Materials

Name	Specification
Motorcraft® Silicone Gasket Remover ZC-30-A	-
Motorcraft® Metal Surface Prep Wipes ZC-31-B	-
Motorcraft® Silicone Gasket and Sealant TA-30	WSE-M4G323-A4
Motorcraft® Metal Brake Parts Cleaner PM-4-A, PM-4-B	-

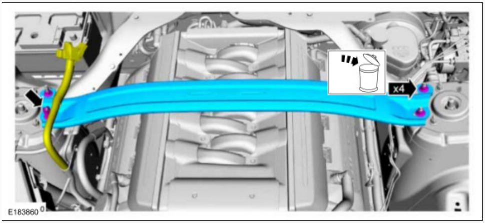
Removal

NOTICE: During engine repair procedures, cleanliness is extremely important. Any foreign material, including any material created while cleaning gasket surfaces, that enters the oil passages, coolant passages or the oil pan, can cause engine failure.

1. Release the fuel system pressure.
   Refer to: Fuel System Pressure Release (310-00C Fuel System - General Information - 5.0L Ti-VCT V8 (308kW/418PS), General Procedures).

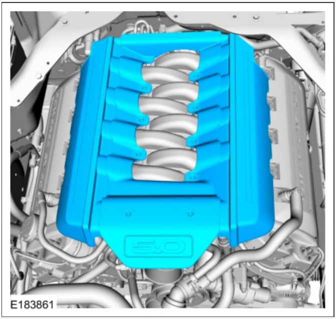
2. Disconnect the battery ground and positive cables.
   Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).

3.
   - If equipped with a strut tower cross brace, detach the wiring harness retainer.
   - Remove the nuts and the strut tower cross brace.



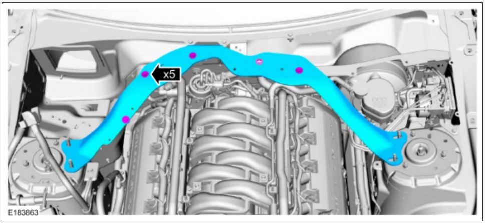
4. **NOTE:** *The engine appearance cover rubber grommets may remain on the cover. If so, remove the grommets from the cover and install them on the intake manifold before installing the cover.*

   Remove the engine appearance cover.

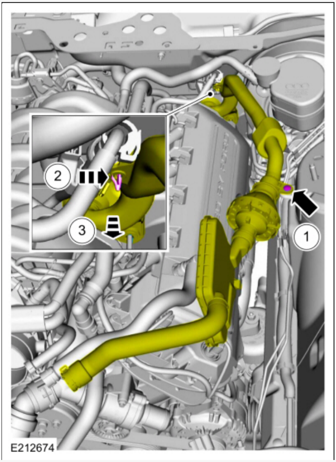


5. Remove the following items:
   1. Refer to: **Air Cleaner Outlet Pipe** (303-12C Intake Air Distribution and Filtering - 5.0L Ti-VCT V8 (308kW/418PS), Removal and Installation).
   2. Refer to: **Air Cleaner** (303-12C Intake Air Distribution and Filtering - 5.0L Ti-VCT V8 (308kW/418PS), Removal and Installation).
   3. Refer to: **Cowl Panel Grille** (501-02 Front End Body Panels, Removal and Installation).

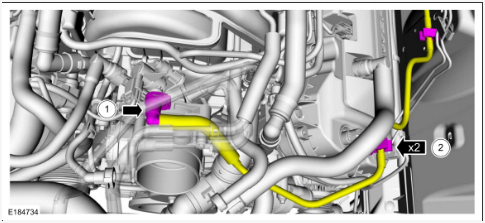
6. Remove the fasteners and the cowl extension.



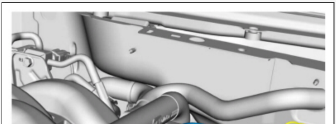
7.
   1. Remove the pin-type retainer.
   2. Depress the retainer.
   3. Position the sound enhancement pipe aside.

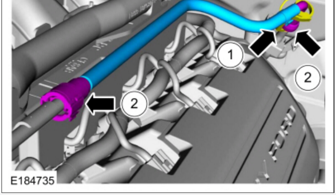


8.
   1. Disconnect the EVAP tube quick release coupling.
      Refer to: [Quick Release Coupling](#) (310-00C Fuel System - General Information - 5.0L Ti-VCT V8 (308kW/418PS), General Procedures).
   2. Detach the EVAP tube from the retainers.



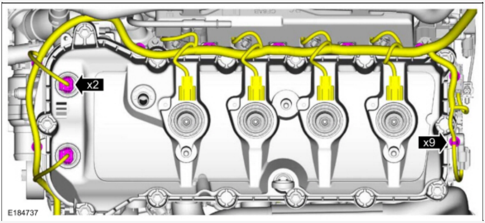
9.
   1. Position the safety clip aside.
   2. Disconnect the quick release couplings and remove the fuel tube.
      Refer to: [Quick Release Coupling](#) (310-00C Fuel System - General Information - 5.0L Ti-VCT V8 (308kW/418PS), General Procedures).



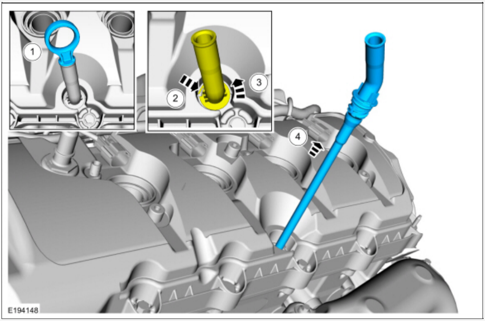


10. Remove the LH ignition coils.
    Refer to: **Ignition Coil-On-Plug** (303-07C Engine Ignition - 5.0L Ti-VCT V8 (308kW/418PS), Removal and Installation).

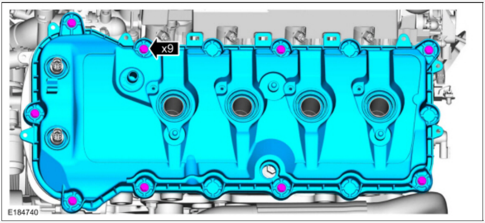
11.
    - Disconnect the VCT variable force solenoid electrical connectors.
    - Detach the wiring harness retainers.



12.
    1. Remove the oil level indicator.
    2. Depress the tab.
    3. Rotate the oil level indicator tube counterclockwise.
    4. Pull the oil level indicator tube from the engine.

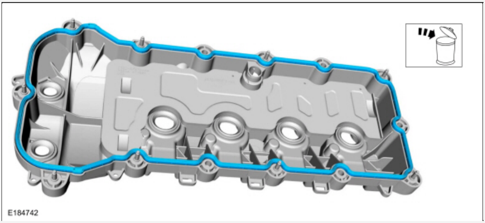


13. Loosen the bolts and remove the valve cover.

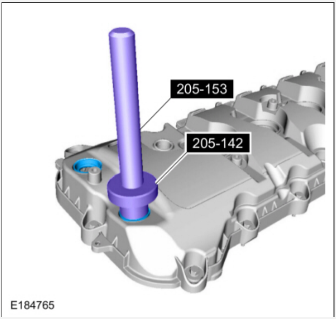


14. **NOTE:** *Clean the valve cover gasket groove with soap and water or a suitable solvent.*

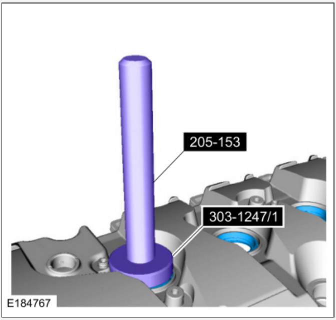
    Remove and discard the gasket.



15. Inspect the VCT variable force solenoid seals. Remove and discard any damaged seals using the special tools.
    Use Special Service Tool: 205-153 (T80T-4000-W) Handle. , 205-142 (T80T-4000-J) Installer, Differential Bearing Cone.

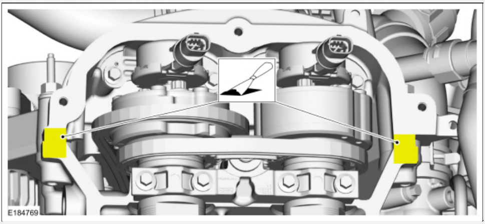


16. Inspect the spark plug seals. Remove and discard any damaged seals using the special tools.
    Use Special Service Tool: 205-153 (T80T-4000-W) Handle. , 303-1247 VCT Spark Plug Tube Seal Remover and Installer.



17. **NOTICE: Do not use metal scrapers, wire brushes, power abrasive discs or other abrasive means to clean the sealing surfaces. These tools cause scratches and gouges which make leak paths. Use a plastic scraping tool to remove all traces of old sealant.**

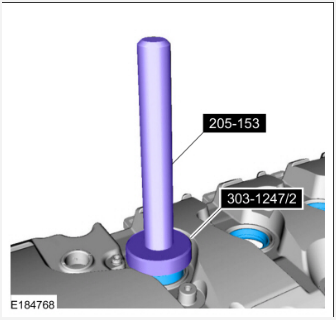
    Clean the valve cover mating surface of the cylinder head and engine front cover.
    Refer to: RTV Sealing Surface Cleaning and Preparation (303-00 Engine System - General Information, General Procedures).
    Use the General Equipment: Plastic Scraper
    Material: Motorcraft® Silicone Gasket Remover / ZC-30-A
    Material: Motorcraft® Metal Surface Prep Wipes / ZC-31-B
    Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B



Installation

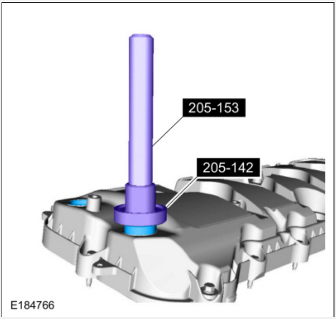
1. **NOTE:** *Installation of new seals is only required if damaged seals were removed.*

   Using the special tools, install new spark plug tube seals.
   Use Special Service Tool: 205-153 (T80T-4000-W) Handle. , 303-1247 VCT Spark Plug Tube Seal Remover and Installer.

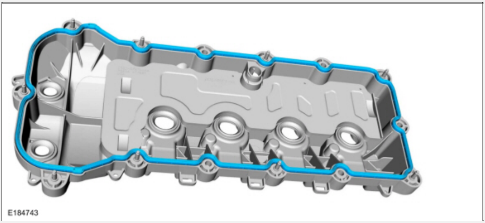


2. **NOTE:** *Installation of new seals is only required if damaged seals were removed.*

   Using the special tools, install new VCT variable force solenoid seals.
   Use Special Service Tool: **205-153 (T80T-4000-W) Handle**. , **205-142 (T80T-4000-J) Installer, Differential Bearing Cone**.

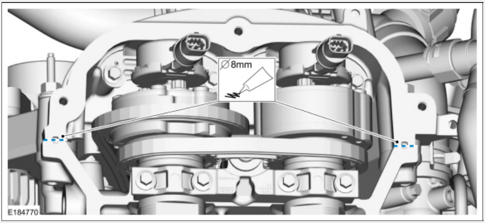


3. Install a new gasket.

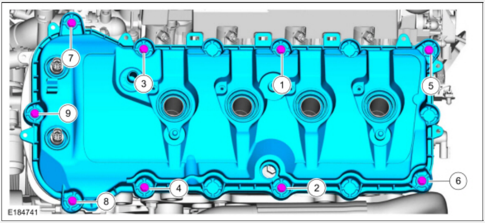


4. **NOTICE: If the valve cover is not installed and the fasteners tightened within 5 minutes, the sealant must be removed and the sealing area cleaned.**

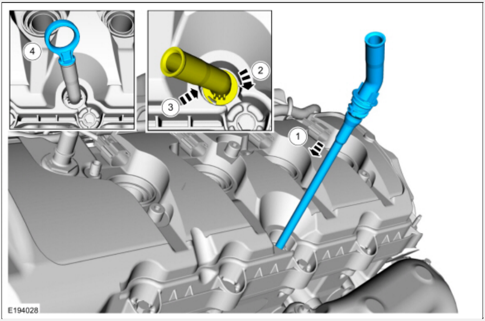
   Apply an 8 mm (0.31 in) bead of silicone gasket and sealant to the engine front cover-to-cylinder head joints.
   Material: Motorcraft® Silicone Gasket and Sealant / TA-30 (WSE-M4G323-A4)



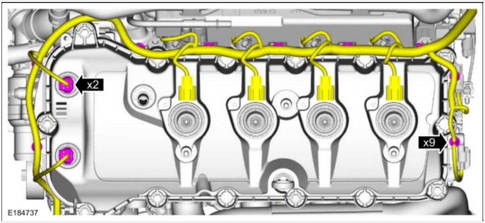
5. Install the valve cover and tighten the bolts.
   Torque: 89 lb.in (10 Nm)



6.
    1. Push the oil level indicator tube into the engine.
    2. Rotate the oil level indicator tube clockwise.
    3. Verify the tab is locked in place.
    4. Install the oil level indicator.

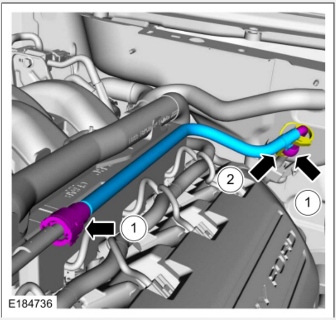


7.
    - Attach the wiring harness retainers.
    - Connect the VCT variable force solenoid electrical connectors.

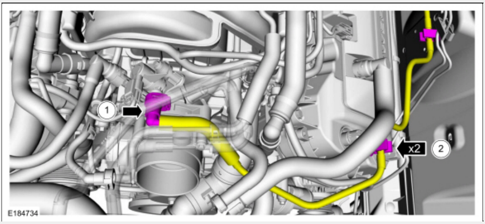


8. Install the LH ignition coils.
   Refer to: **Ignition Coil-On-Plug** (303-07C Engine Ignition - 5.0L Ti-VCT V8 (308kW/418PS), Removal and Installation).

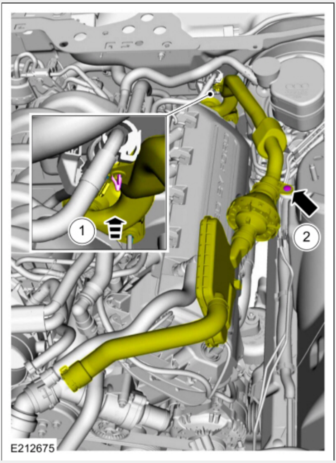
9.
    1. Position the fuel tube and connect the quick release couplings.
       Refer to: **Quick Release Coupling** (310-00C Fuel System - General Information - 5.0L Ti-VCT V8 (308kW/418PS), General Procedures).
    2. Install the safety clip.



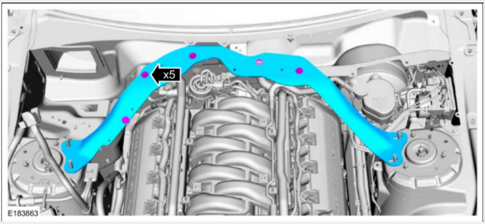
10.
1. Connect the EVAP tube coupling.
   Refer to: **Quick Release Coupling** (310-00C Fuel System - General Information - 5.0L Ti-VCT V8 (308kW/418PS), General Procedures).
2. Attach the EVAP tube to the retainers.



11.
1. Position the sound enhancement pipe onto the retainer.
2. Install the pin-type retainer.



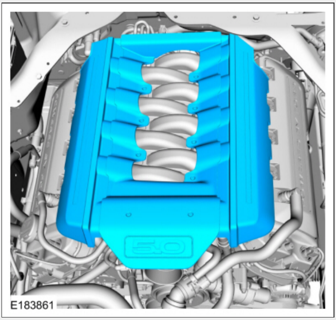
12. Install the cowl extension and fasteners.
    Torque: 26 lb.ft (35 Nm)



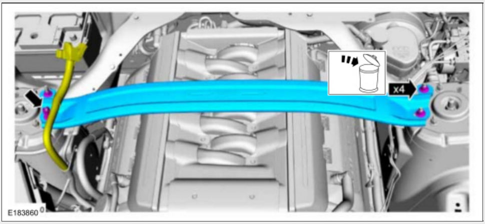
13. Install the following items:
    1. Refer to: **Cowl Panel Grille** (501-02 Front End Body Panels, Removal and Installation).
    2. Refer to: **Air Cleaner** (303-12C Intake Air Distribution and Filtering - 5.0L Ti-VCT V8 (308kW/418PS), Removal and Installation).
    3. Refer to: **Air Cleaner Outlet Pipe** (303-12C Intake Air Distribution and Filtering - 5.0L Ti-VCT V8 (308kW/418PS), Removal and Installation).

14. **NOTE:** *The engine appearance cover rubber grommets may remain on the cover. If so, remove the grommets from the cover and install them on the intake manifold before installing the cover.*

    Install the engine appearance cover.



15.
    - If equipped, install the strut tower cross brace and nuts.
      Torque: 41 lb.ft (55 Nm)
    - Attach the wiring harness retainer.



16. Connect the battery ground and positive cables.
    Refer to: **Battery Disconnect and Connect** (414-01 Battery, Mounting and Cables, General Procedures).