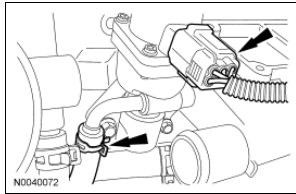
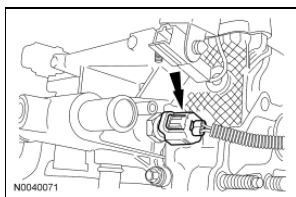


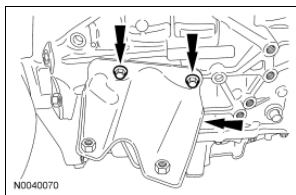
113. Connect the exhaust gas recirculation (EGR) coolant hose and electrical connector.



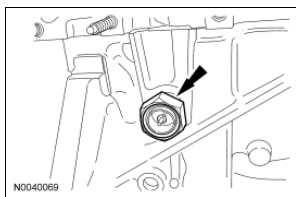
114. Connect the coolant temperature sender electrical connector.



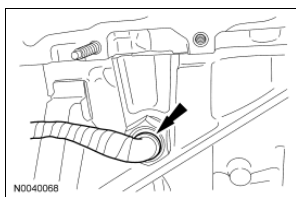
115. Install the catalytic converter bracket and the 2 bolts.  
• Tighten to 35 Nm (26 lb-ft).



116. If equipped, install the block heater.  
• Tighten to 40 Nm (30 lb-ft).



117. If equipped, connect the block heater electrical connector.



118. Install 7 new catalytic converter studs in the cylinder head.  
• Tighten to 17 Nm (13 lb-ft).

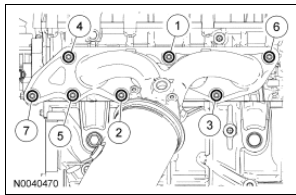
119. **NOTICE:** Failure to tighten the catalytic converter nuts to specification before installing the converter bracket bolts will cause the converter to develop an exhaust leak.

**NOTICE:** Failure to tighten the catalytic converter nuts to specification a second time will cause the converter to develop an exhaust leak.

**NOTE:** Make sure to tighten the nuts in the sequence in 2 stages.

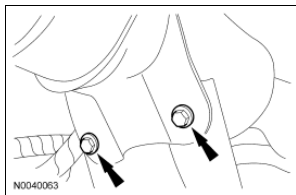
Install a new gasket, the catalytic converter and 7 new nuts. Tighten the nuts in 2 stages in the sequence shown.

- Stage 1: Tighten to 55 Nm (41 lb-ft).
- Stage 2: Tighten to 55 Nm (41 lb-ft).



120. Install the 2 catalytic converter bracket bolts.

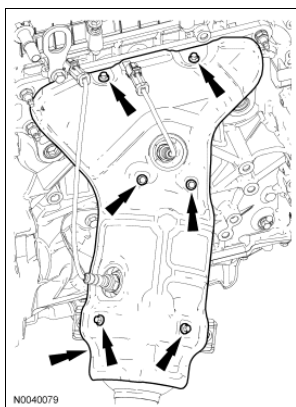
- Tighten to 20 Nm (15 lb-ft).



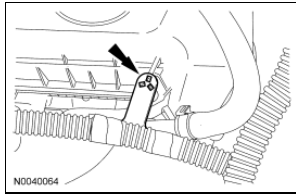
121. **NOTE:** Vehicles equipped with AIR did not require removal of the heat shield.

Install the heat shield and the 6 screws.

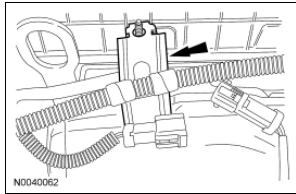
- Tighten to 10 Nm (89 lb-in).



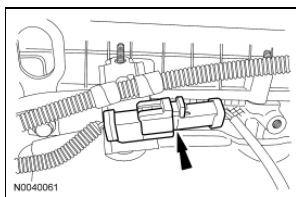
122. Attach the wiring harness retainer to the valve cover stud.



123. Attach the wiring harness bracket to the valve cover stud.

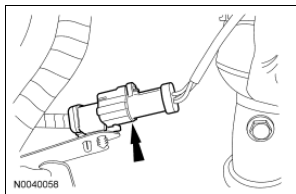


124. Connect the heated oxygen sensor (HO2S) electrical connector.



125. **NOTE:** Vehicles equipped with secondary air injection (AIR) have 2 catalyst monitor sensors.

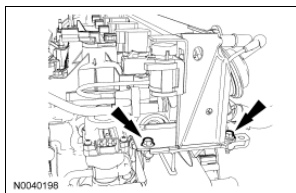
Connect the catalyst monitor sensor electrical connector(s).



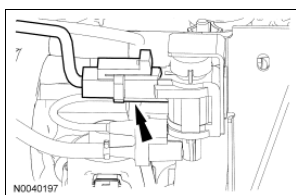
### Vehicles with secondary air injection (AIR)

126. Position the AIR valve, hoses and pump assembly onto the engine and install the 2 bolts.

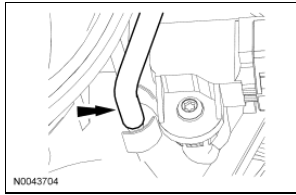
- Tighten to 10 Nm (89 lb-in).



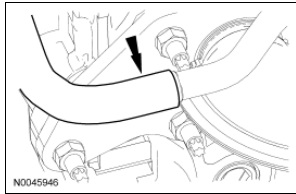
127. Connect the AIR valve electrical connector.



128. Connect the AIR valve vacuum supply tube to the intake manifold.



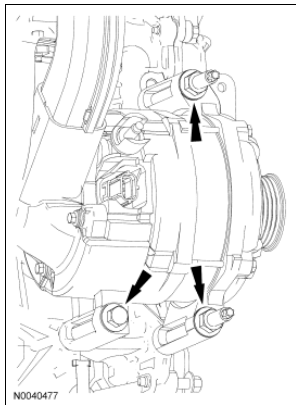
129. Connect the AIR hose to the catalytic converter.



### All vehicles

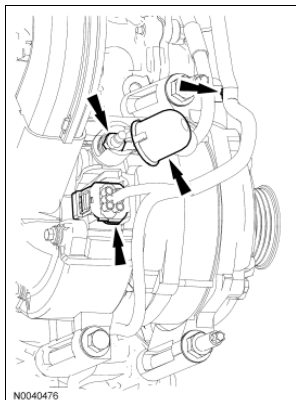
130. Install the generator, bolt and 2 stud bolts.

- Tighten to 47 Nm (35 lb-ft).



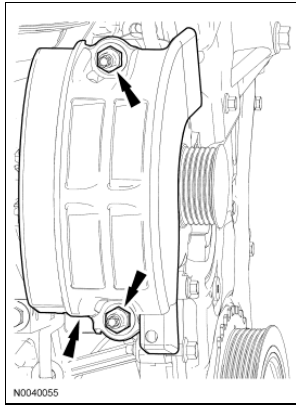
131. Connect the pin-type retainer, generator electrical connections and install the nut.

- Tighten to 6 Nm (53 lb-in).
- Install the rubber boot.

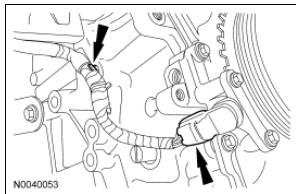


132. Install the generator splash shield and the 2 nuts.

- Tighten to 25 Nm (18 lb-ft).

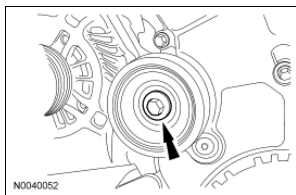


133. Connect the CKP sensor electrical connector and harness pin-type retainer.



134. Install the accessory drive belt idler pulley.

- Tighten to 25 Nm (18 lb-ft).

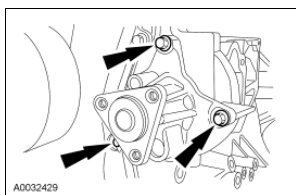


135. **NOTE:** Clean the coolant pump mating surface with metal surface cleaner.

**NOTE:** Lubricate the new coolant pump O-ring with clean engine coolant.

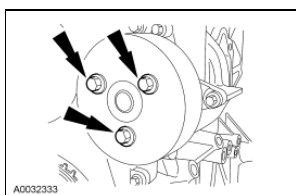
Install the new O-ring, coolant pump and the 3 bolts.

- Tighten to 10 Nm (89 lb-in).



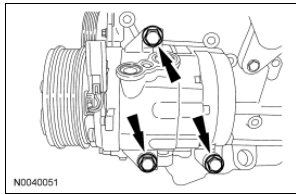
136. Install the coolant pump pulley and the 3 bolts.

- Tighten to 20 Nm (15 lb-ft).



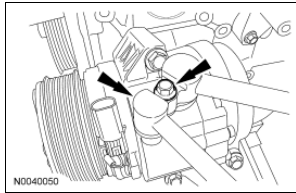
137. Install the A/C compressor and the 3 bolts.

- Tighten to 25 Nm (18 lb-ft).

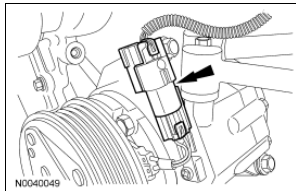


138. Install the A/C manifold and the bolt.

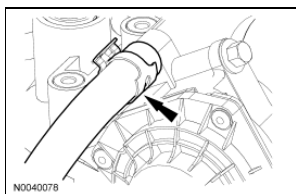
- Tighten to 25 Nm (18 lb-ft).



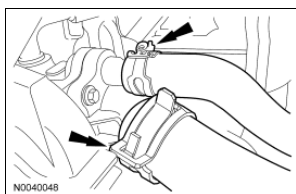
139. Connect the A/C compressor electrical connector.



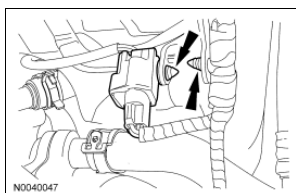
140. Position the coolant hose on the engine and connect the coolant hose to the throttle body.



141. Connect the lower radiator and heater hoses to the thermostat housing.

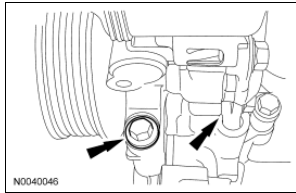


142. Connect the KS electrical connector and the 2 harness pin-type retainers.

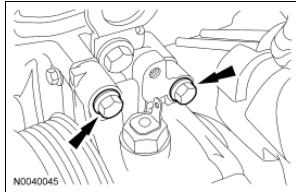


143. Install the power steering pump and the lower bolt.

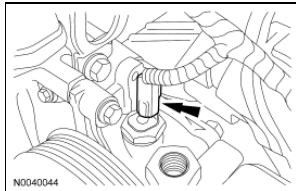
- Finger tighten the bolt.



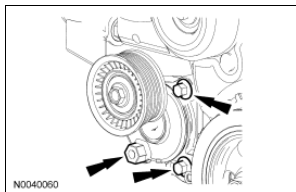
144. Install the 2 upper power steering pump bolts.
- Tighten all 3 power steering bolts to 25 Nm (18 lb-ft).



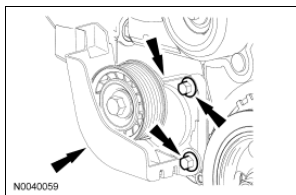
145. Connect the power steering pressure (PSP) switch electrical connector.



146. On late build engines, install the accessory drive belt tensioner and the 2 bolts.
- Tighten to 25 Nm (18 lb-ft).



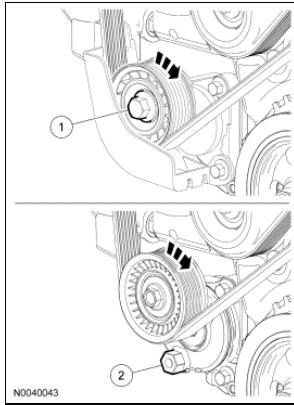
147. On early build vehicles, install the shield, pin-type retainer, tensioner and the 2 bolts.
- Tighten to 25 Nm (18 lb-ft).



148. Position the accessory drive belt onto the tensioner and all of the accessory drive pulleys except the coolant pump pulley.

149. Rotate the accessory drive belt tensioner clockwise and install the accessory drive belt onto the coolant pump pulley.

1. On early build engines, use the pulley bolt to rotate the tensioner.
2. On late build engines, use the hex feature to rotate the tensioner.

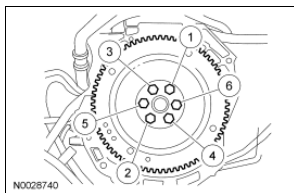


150. Using the Heavy Duty Floor Crane and Spreader Bar, remove the engine from the engine stand.

### Vehicles with automatic transaxle

151. Install the flexplate and the 6 bolts. Tighten the 6 bolts in the sequence shown in 3 stages:

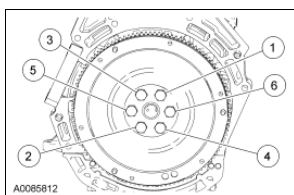
- Stage 1: Tighten to 50 Nm (37 lb-ft).
- Stage 2: Tighten to 80 Nm (59 lb-ft).
- Stage 3: Tighten to 112 Nm (83 lb-ft).



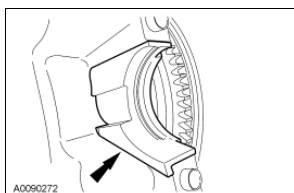
### Vehicles with manual transaxle

152. Install the flywheel and the 6 bolts. Tighten the 6 bolts in the sequence shown in 3 stages:

- Stage 1: Tighten to 50 Nm (37 lb-ft).
- Stage 2: Tighten to 80 Nm (59 lb-ft).
- Stage 3: Tighten to 112 Nm (83 lb-ft).

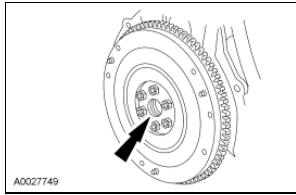


153. Install the starter motor isolator.

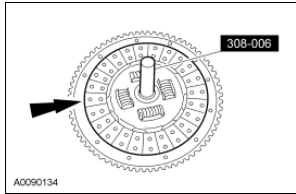


154. Lubricate the transaxle input shaft pilot bearing with front axle grease.





155. Using the special tool, position the clutch disc on the flywheel.







156. **NOTE:** If reusing the clutch pressure plate and flywheel, align the marks made during removal.

Position the clutch pressure plate and install the 6 bolts.

- Tighten to 29 Nm (21 lb-ft) in a star pattern sequence.
-

**Engine — Automatic Transaxle**

## Special Tool(s)

 ST1341-A	Heavy Duty Floor Crane 014-00071 or equivalent
 ST1293-A	Powertrain Lift 014-00765 or equivalent
 ST1602-A	Spreader Bar 303-D089 (D93P-6001-A3) or equivalent
 ST2743A	Universal Adapter Brackets 014-0001 or equivalent

## Material

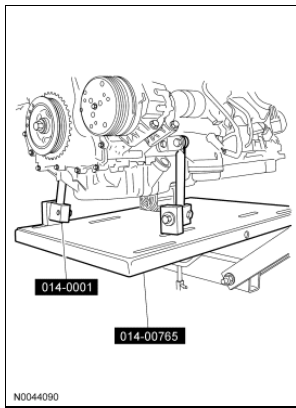
Item	Specification
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil XO-5W20-QSP (US); Motorcraft® SAE 5W-20 Super Premium Motor Oil CXO-5W20-LSP12 (Canada); or equivalent	WSS-M2C930-A

**⚠ WARNING: Do not smoke, carry lighted tobacco or have an open flame of any type when working on or near any fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.**

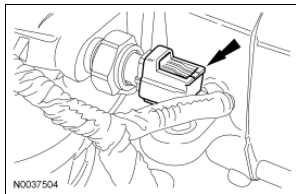
**All vehicles**

- Using the Heavy Duty Floor Crane and Spreader Bar, position the engine and transaxle together. Install the engine-to-transaxle bolts.
  - Tighten to 48 Nm (35 lb-ft).
- Using the Heavy Duty Floor Crane and Spreader Bar, position the engine and transaxle onto the Powertrain Lift table.
- NOTE:** Position a suitable block of wood under the transaxle.

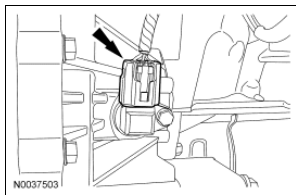
Install the Powertrain Lift and Universal Adapter Brackets onto the engine.



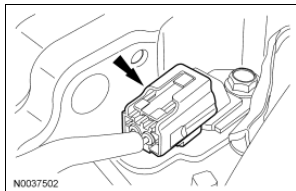
4. Connect the transaxle pressure switch electrical connector.



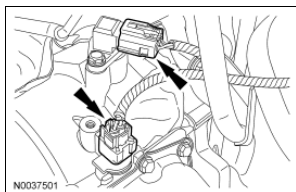
5. Connect the Output Shaft Speed (OSS) sensor electrical connector.



6. Connect the Turbine Shaft Speed (TSS) sensor electrical connector.



7. Connect the transaxle control electrical connectors.



8. Connect the Transmission Range (TR) sensor and primary control solenoid electrical connectors.

