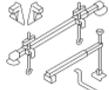
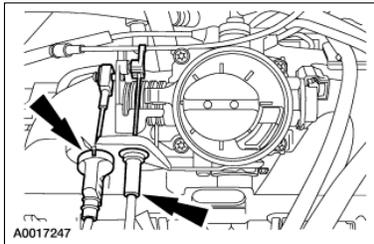


**Timing Belt****Special Tool(s)**

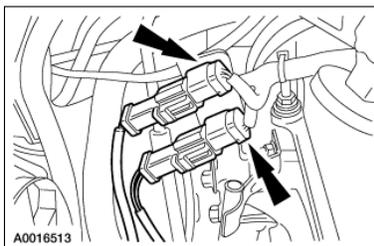
 ST1697-A	Crankshaft TDC Timing Peg 303-574 (T97P-6000-A)
 ST1903-A	Camshaft Alignment Timing Tool 303-465 (T94P-6256-CH)
 ST2425-A	3 Bar Engine Support Kit 303-F072

**Removal**

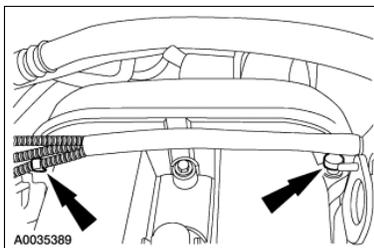
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to [Section 100-02](#).
2. Disconnect the battery ground cable. For additional information, refer to [Section 414-01](#).
3. Remove the air cleaner outlet pipe. For additional information, refer to [Section 303-12](#).
4. Remove the spark plugs. For additional information, refer to [Section 303-07A](#).
5. Disconnect the throttle cables.
  - If equipped, disconnect the speed control actuator cable.
  - Disconnect the accelerator cable.



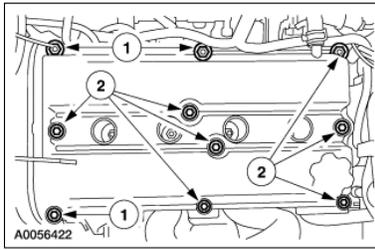
6. Disconnect the catalyst monitor and heated oxygen sensor electrical connectors. Detach the electrical connectors from the bracket.



7. Remove the wiring harness anchors from the valve cover studs and position the wiring harness aside.



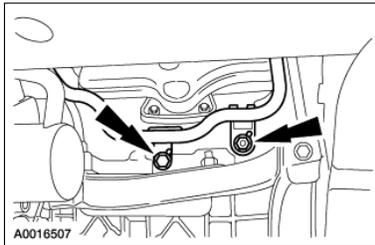
8. Remove the valve cover.
  1. Remove the studbolts.
  2. Remove the bolts.



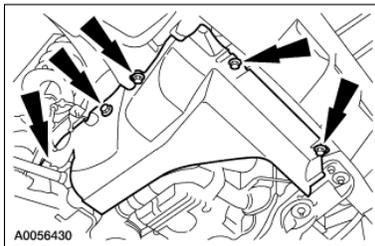
9. **⚠ CAUTION:** The valve cover sealing surfaces are soft materials. Do not use abrasive grinding discs to remove gasket material. Use only a plastic scraping tool. Do not scratch or gouge sealing surfaces or oil leaks can occur.

Clean and inspect the sealing surfaces of the valve cover and cylinder head. Both surfaces must be clean and flat.

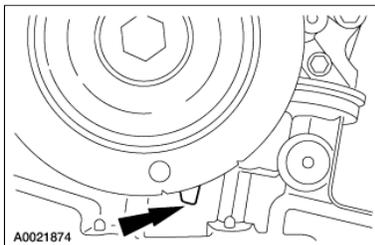
10. Remove the catalytic converter. For additional information, refer to [Section 309-00](#).
11. Remove the bolt and nut and position the coolant tube aside.



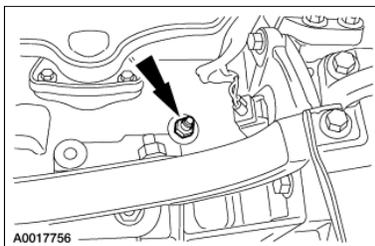
12. Remove the wheel and tire assembly. For additional information, refer to [Section 204-04](#).
13. Remove the RH lower splash shield.



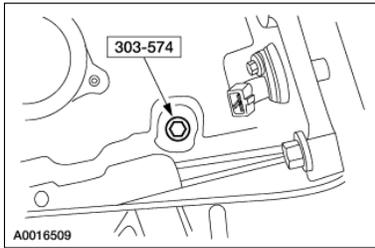
14. Rotate the crankshaft to just before top dead center (TDC) (No. 1 cylinder).



15. Remove the stud.

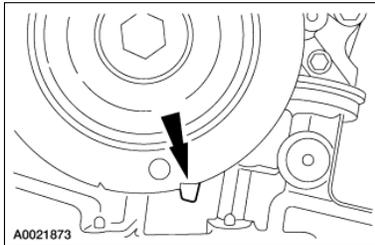


16. Install the special tool.

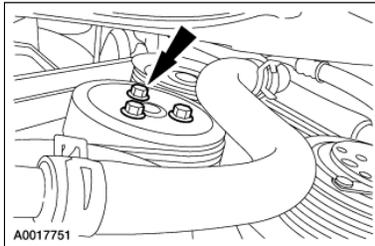


17. **NOTE:** Make sure the correct (second) notch in the pulley is indexed to the lower cylinder block.

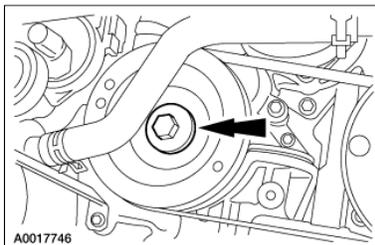
Rotate the crankshaft clockwise against the peg to bring it to TDC (No. 1 cylinder).



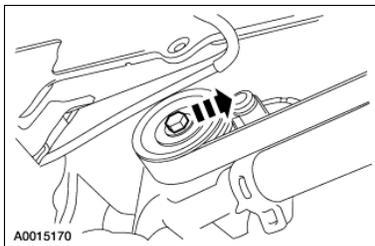
18. Loosen the coolant pump pulley bolts.



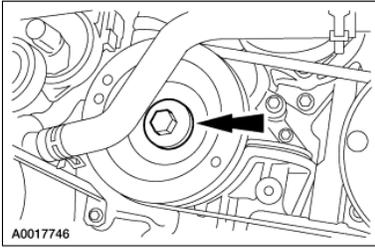
19. Loosen the crankshaft pulley bolt.



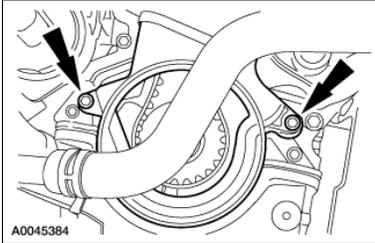
20. Rotate the tensioner and remove the accessory drive belt.



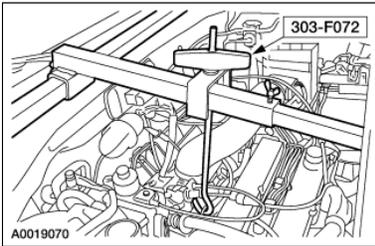
21. Remove the bolt and the crankshaft pulley.



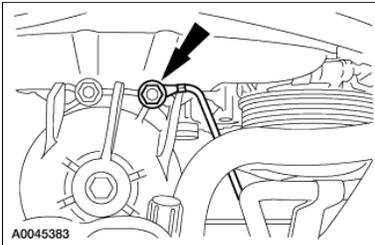
22. Remove the bolts and the lower timing belt cover.



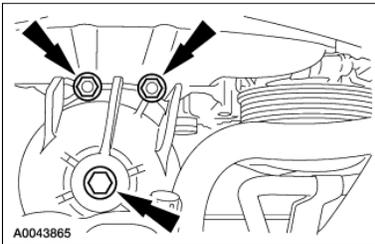
23. Install the special tool.



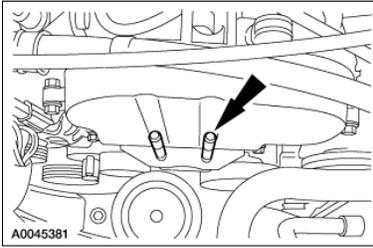
24. Detach the ground strap.



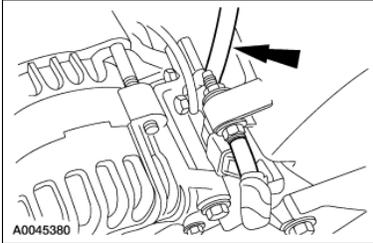
25. Remove the nuts, the bolt and the engine mount upper bracket.



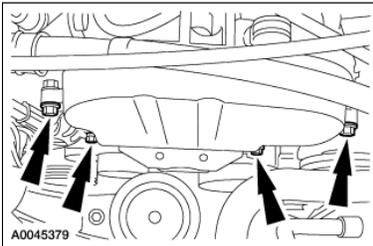
26. Remove the studs.



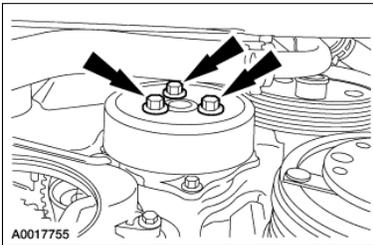
27. Detach the knock sensor electrical connector from the upper timing cover.



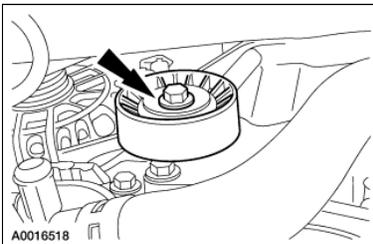
28. Remove the bolts and the upper timing cover.



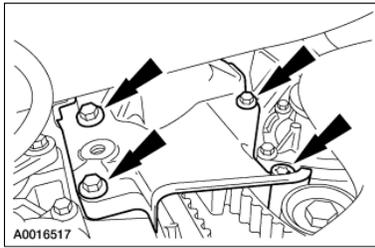
29. Remove the coolant pump pulley.



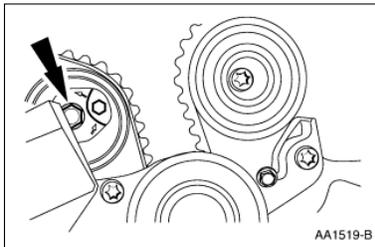
30. Remove the accessory drive belt idler pulley.



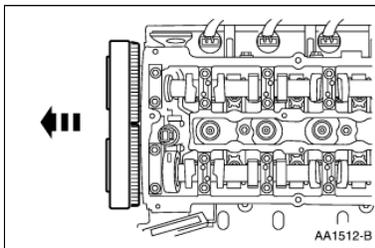
31. Remove the bolts and the engine mount lower bracket.



32. Relieve the tension on the timing belt tensioner pulley.
- Loosen the tensioner pulley bolt.
  - Release the tension on the timing belt by disconnecting the tensioner tab from the timing cover back plate.



33. Remove and discard the timing belt.
- Slide the timing belt off the camshaft sprockets and the crankshaft sprocket.



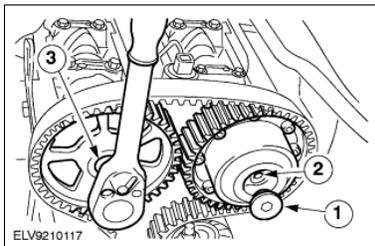
**Installation**

1. **CAUTION:** The camshaft must be held stationary at the hexagons with locking pliers. Do not use the alignment tool to hold the camshaft in position or damage to the camshaft may occur.

**NOTE:** To loosen the camshaft pulleys, hold the camshafts by the hexagon.

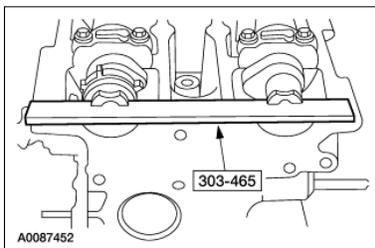
Loosen the camshaft pulleys.

1. Remove the blanking plug from the exhaust camshaft pulley.
2. Loosen the exhaust camshaft pulley bolt.
3. Loosen the intake camshaft pulley bolt.



2. **NOTE:** Rotate the camshafts clockwise as necessary.

Install the camshaft alignment timing tool on the back of the camshafts.



3. **NOTE:** Cylinder No. 1 is at top dead center (TDC) when the keyway is in the 12 o'clock position.

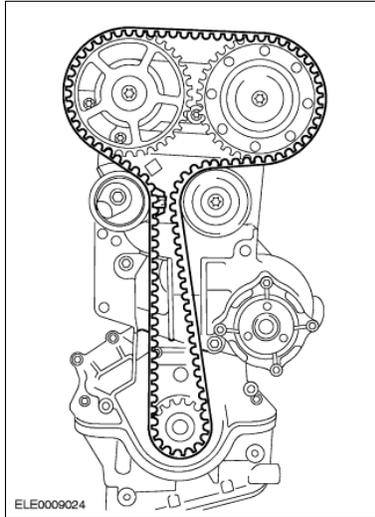
Confirm the crankshaft position is at TDC (No. 1 cylinder) by rotating it clockwise against the alignment peg.

4. **CAUTION:** Do not rotate the crankshaft; as necessary check that it is still resting against the timing pin.

**NOTE:** The lug of the belt tensioner should not be hooked in the sheet metal cover during timing belt installation.

Position a new timing belt in place.

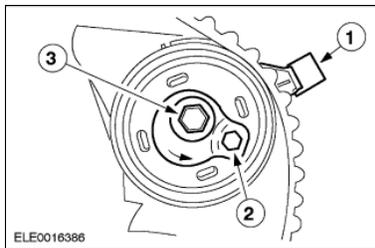
- Starting from the crankshaft timing belt pulley and working counterclockwise, position the timing belt in place while keeping it under tension.



5. **NOTE:** Incorrect timing belt tension will cause incorrect valve timing.

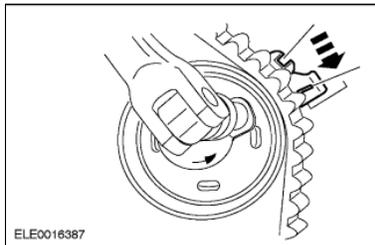
Pre-tension the timing belt.

- Rotate the tensioner locating tab counterclockwise and insert the locating tab into the slot in the rear timing cover.
- Position the hex key slot in the tensioner adjusting washer to the 4 o'clock position.
- Tighten the attaching bolt enough to seat the tensioner firmly against the rear timing cover, but still allow the tensioner adjusting washer to be rotated using a 6 mm hex key.

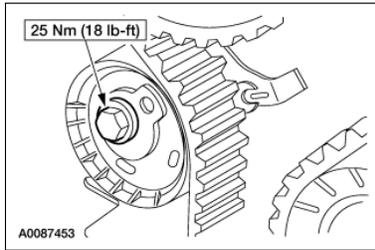


6. **CAUTION:** Tension the timing belt, working counterclockwise.

Using the hex key, rotate the adjusting washer counterclockwise until the notch in the pointer is centered over the index line on the locating tab (the pointer will move clockwise during adjustment).

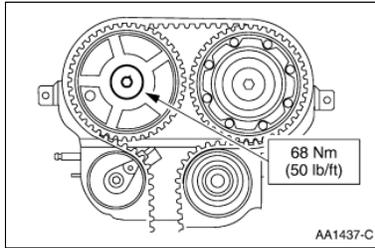


7. While holding the adjusting washer in position, tighten the bolt.



8. **CAUTION:** The camshaft must be held stationary at the hexagons with locking pliers. Do not use the alignment tool to hold the camshaft in position or damage to the camshaft may occur.

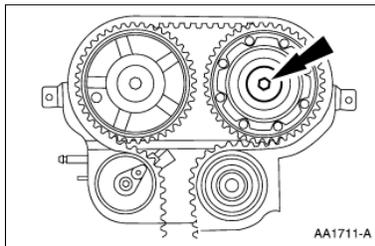
Tighten the bolt on the intake camshaft sprocket.



9. **CAUTION:** The camshaft must be held stationary at the hexagons with locking pliers. Do not use the alignment tool to hold the camshaft in position or damage to the camshaft may occur.

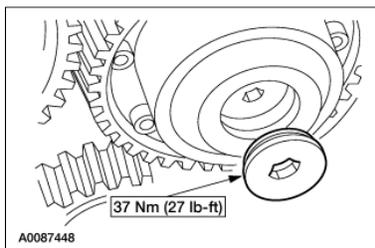
Tighten the bolt on the exhaust camshaft sprocket in three stages.

- Stage 1: Tighten the bolt to 50 Nm (36 lb-ft).
- Stage 2: Remove the TDC peg and the camshaft alignment timing tool.
- Stage 3: Tighten the bolt to 115-125 Nm (85-92 lb-ft).



10. **NOTE:** Install a new oil plug seal.

Screw in the new oil plug on the variable camshaft timing assembly.

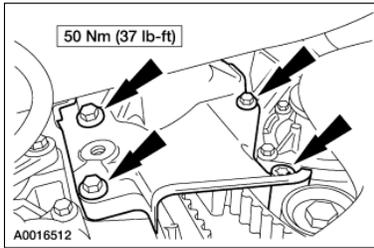


11. **NOTE:** Turn the engine two turns in the normal direction of rotation by the crankshaft.

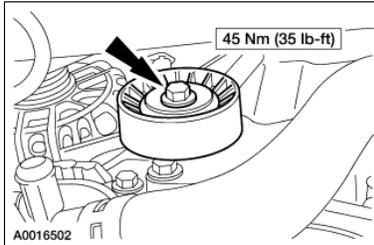
Check the valve timing by inserting the special tools and correct the alignment as necessary.

- Screw in special tool 303-574 and make sure that the crankshaft is resting against the special tool.
- Insert special tool 303-465 into the camshafts. If necessary loosen the timing pulleys and correct the camshaft alignment.
- Remove the special tools.

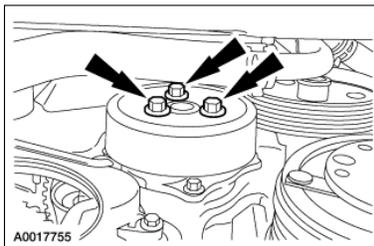
12. Install the front engine mount lower bracket.



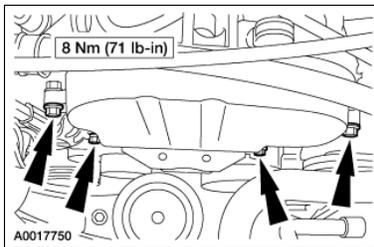
13. Install the accessory drive belt idler pulley.



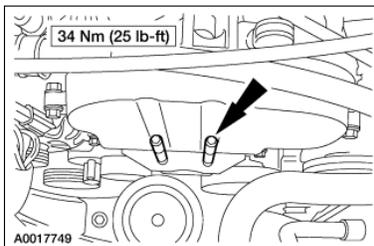
14. Install the coolant pump pulley.
- Hand-tighten the bolts.



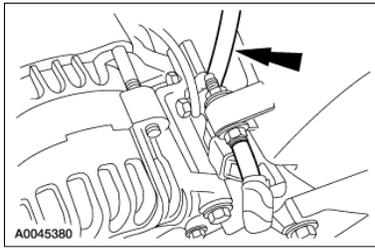
15. Position the upper timing belt cover and install the bolts.



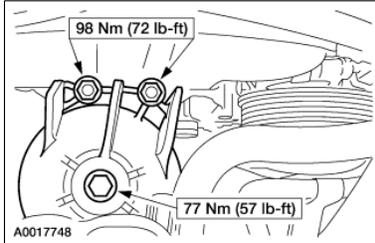
16. Install the studs.



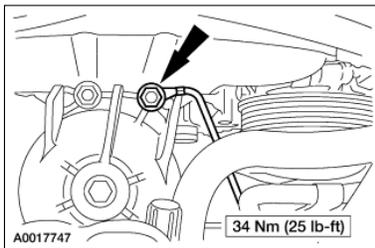
17. Connect the knock sensor electrical connector to the upper timing belt cover.



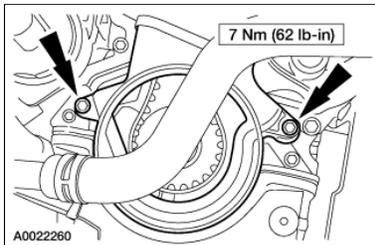
18. Install the engine mount upper bracket, the nuts and the bolt.



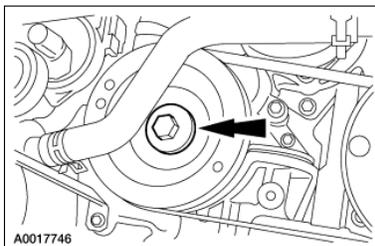
19. Attach the ground strap and install the nut.



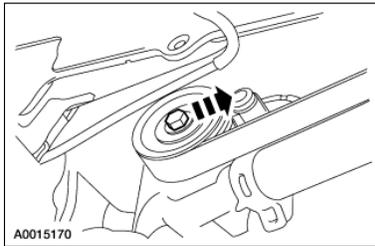
20. Position the lower timing belt cover and install the bolts.



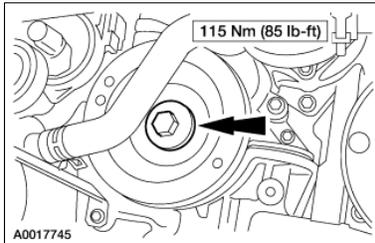
21. Position the crankshaft pulley and install the bolt.
- Hand-tighten the bolt.



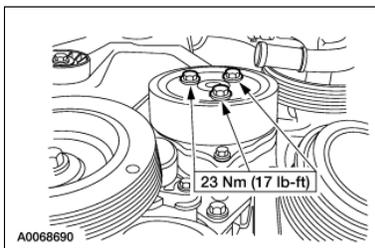
22. Rotate the tensioner and install the accessory drive belt.



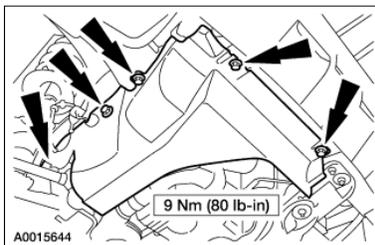
23. Tighten the crankshaft pulley bolt.



24. Tighten the coolant pump pulley bolts.

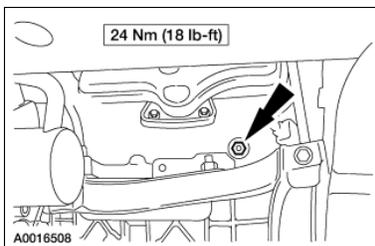


25. Position the RH lower splash shield and install the bolts.

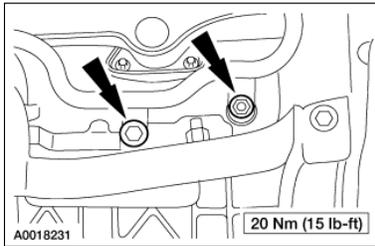


26. Install the wheel and tire assembly. For additional information, refer to [Section 204-04](#).

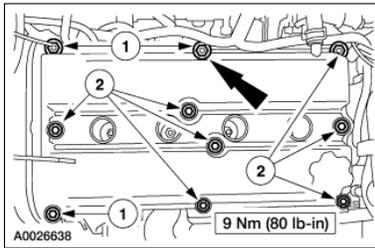
27. Install the stud.



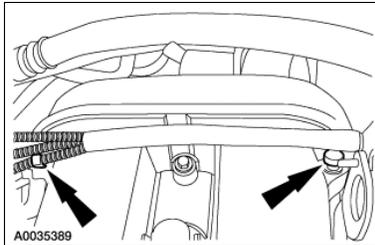
28. Install the coolant tube.



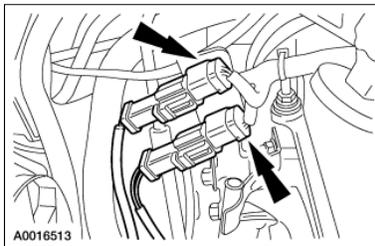
29. Install the catalytic converter. For additional information, refer to [Section 309-00](#).
30. Inspect the valve cover gasket. Install a new gasket, if necessary.
31. Position the valve cover.
1. Install the studbolts.
  2. Install the bolts.



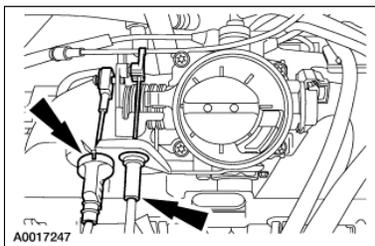
32. Connect the wiring harness anchors to the valve cover studs.



33. Attach the catalyst monitor and heated oxygen sensor electrical connectors to the bracket. Connect the electrical connectors.



34. Connect the throttle cables.
- Connect the accelerator cable.
  - If equipped, connect the speed control actuator cable.



35. Install the spark plugs. For additional information, refer to [Section 303-07A](#).
36. Install the air cleaner outlet pipe. For additional information, refer to [Section 303-12](#).
37. Connect the battery ground cable. For additional information, refer to [Section 414-01](#).

