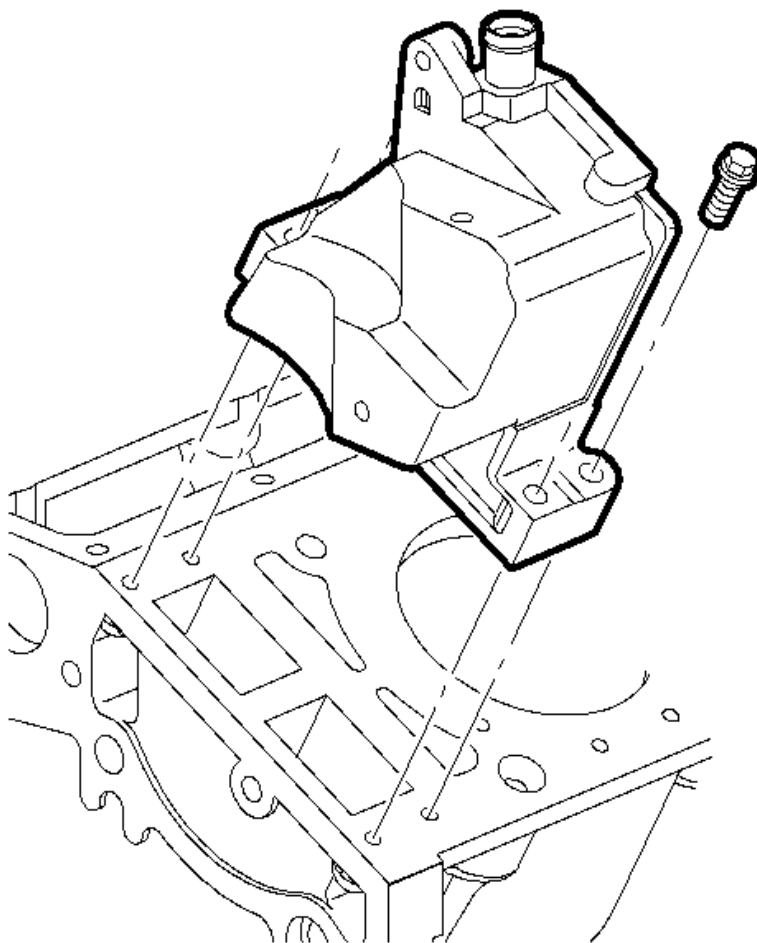
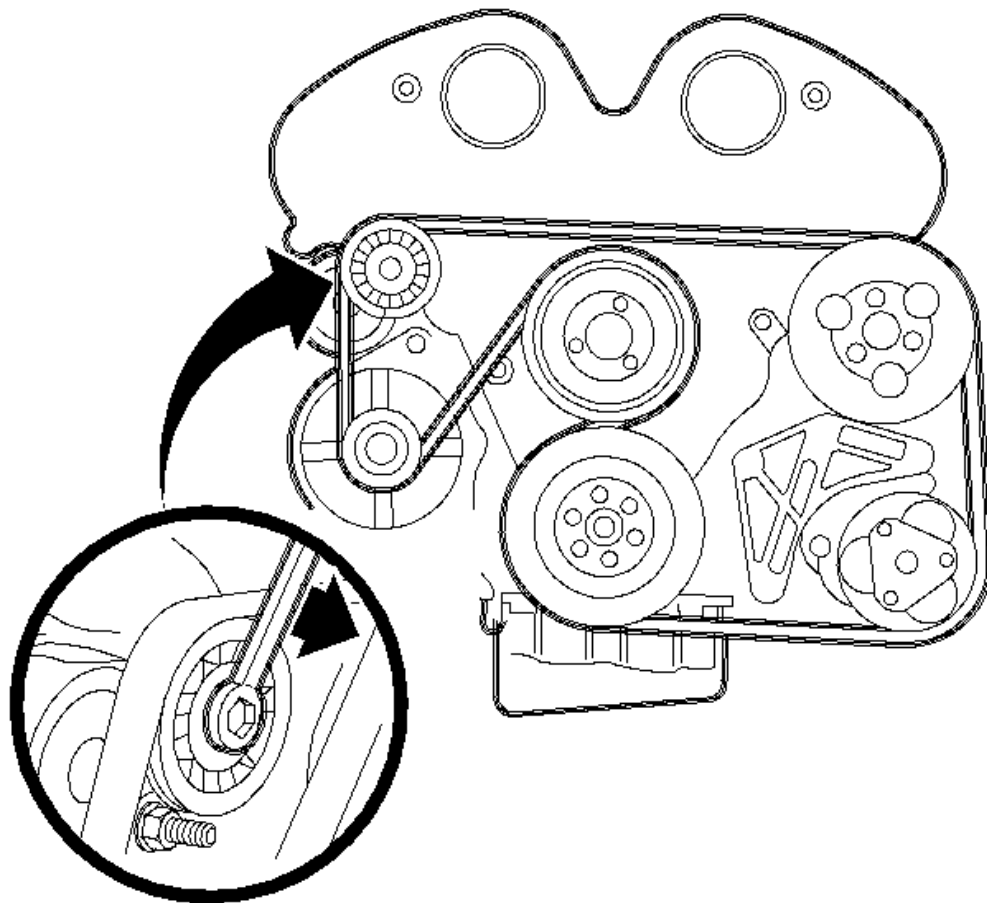


**Crankcase Vent Housing Removal**

**Fig. 324: Removing & Installing Engine Vent Housing**  
Courtesy of GENERAL MOTORS CORP.

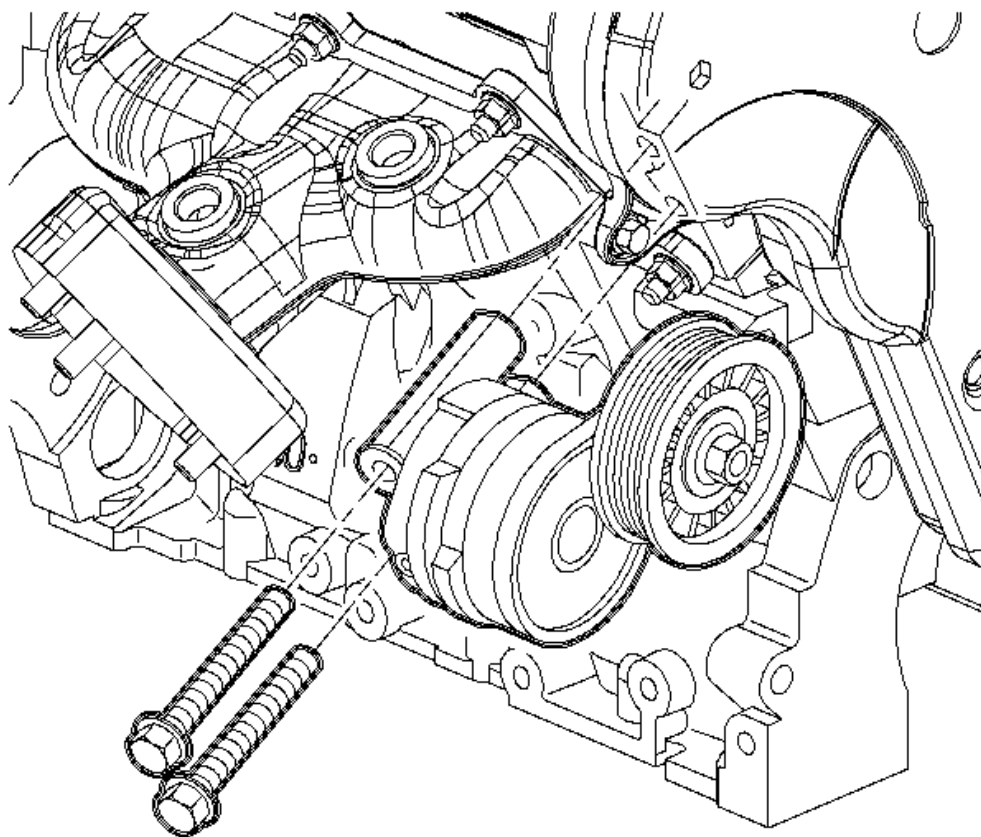
1. Remove the hoses from the chamber.
2. Remove the chamber bolts.
3. Remove the chamber.
4. Remove the gasket material.

**Drive Belt Tensioner Removal**



**Fig. 325: Using 15 mm Wrench To Rotate Tensioner Pulley**  
Courtesy of GENERAL MOTORS CORP.

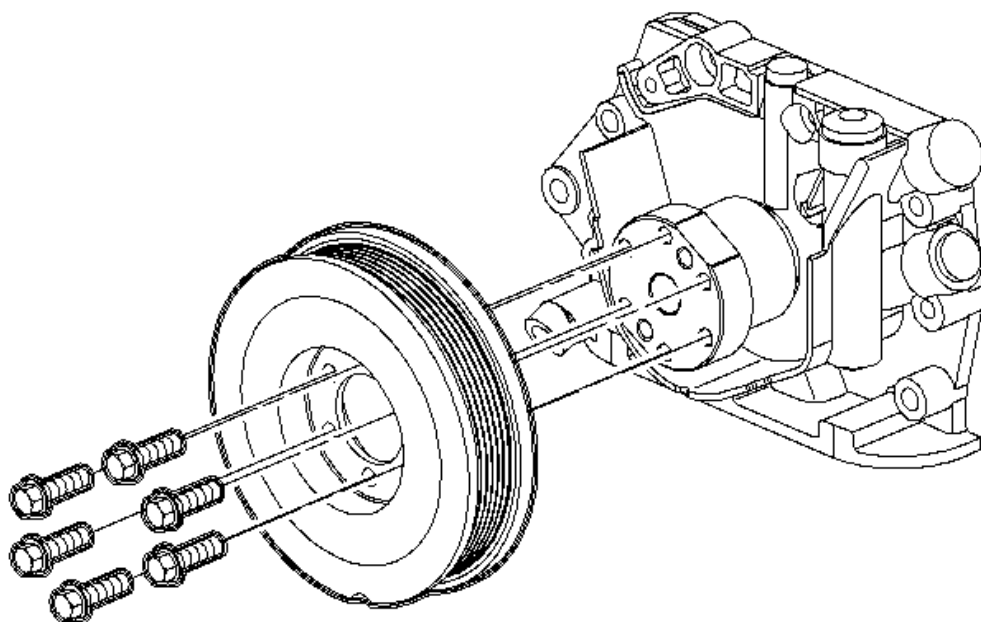
1. Loosen the following before removing the drive belt if removing the front timing belt cover:
  - Loosen the water pump pulley bolts.
  - Loosen the power steering pump pulley bolts.
2. Use a wrench on the center bolt of the tensioner pulley to rotate it downward.
3. Remove the belt from the tensioner.
4. Remove the belt from the accessory drive pulleys.



**Fig. 326: Removing & Installing Drive Belt Tensioner**  
Courtesy of GENERAL MOTORS CORP.

5. Remove the belt tensioner bolts.
6. Remove the tensioner from the engine.

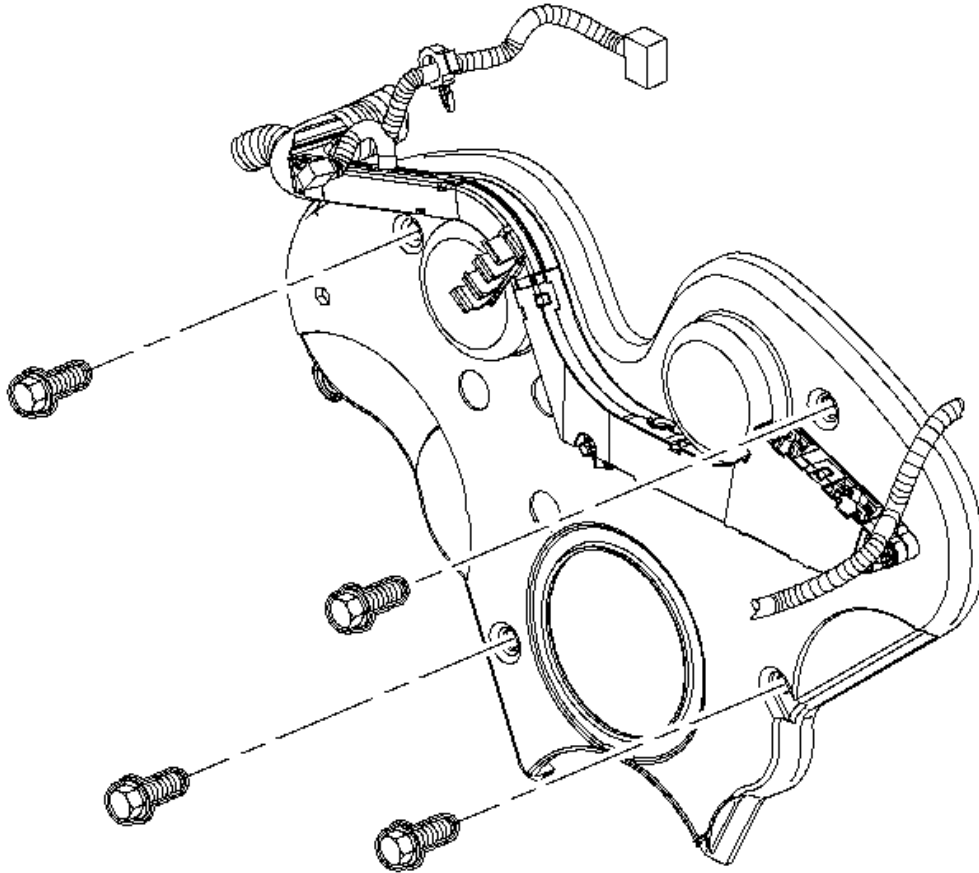
#### **Crankshaft Balancer Removal**



**Fig. 327: Removing & Installing Crankshaft Balancer**  
Courtesy of GENERAL MOTORS CORP.

1. Remove the crankshaft balancer bolts.
2. Remove the crankshaft balancer.

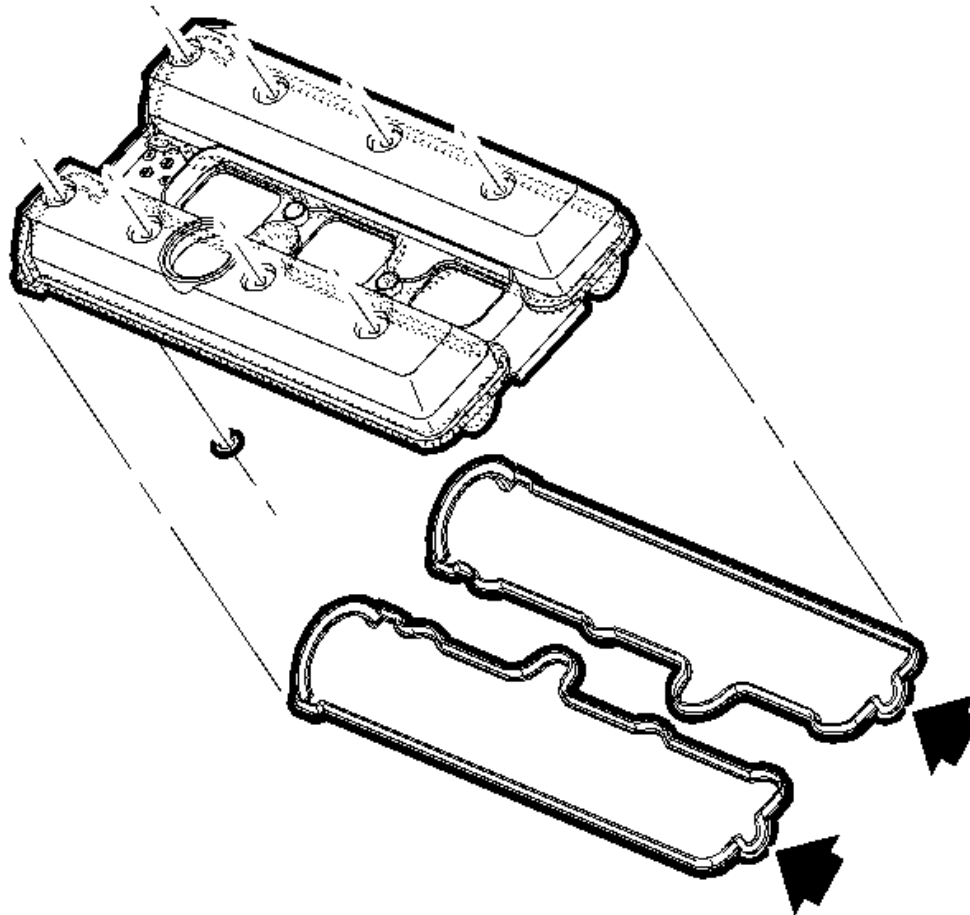
#### **Timing Belt Cover Removal - Front**



**Fig. 328: Removing & Installing Front Timing Belt Cover**  
 Courtesy of GENERAL MOTORS CORP.

1. Remove the water pump pulley bolts.
2. Remove the water pump pulley.
3. Remove the power steering pump pulley bolts.
4. Remove the power steering pump pulley.
5. Remove the wire harness channel.
6. Remove the front timing belt cover bolts.
7. Remove the front timing belt cover.

#### Camshaft Cover Removal



**Fig. 329: Identifying Camshaft Cover Seals & O-Rings**  
Courtesy of GENERAL MOTORS CORP.

1. Remove the camshaft cover bolts.
2. Remove the camshaft cover.

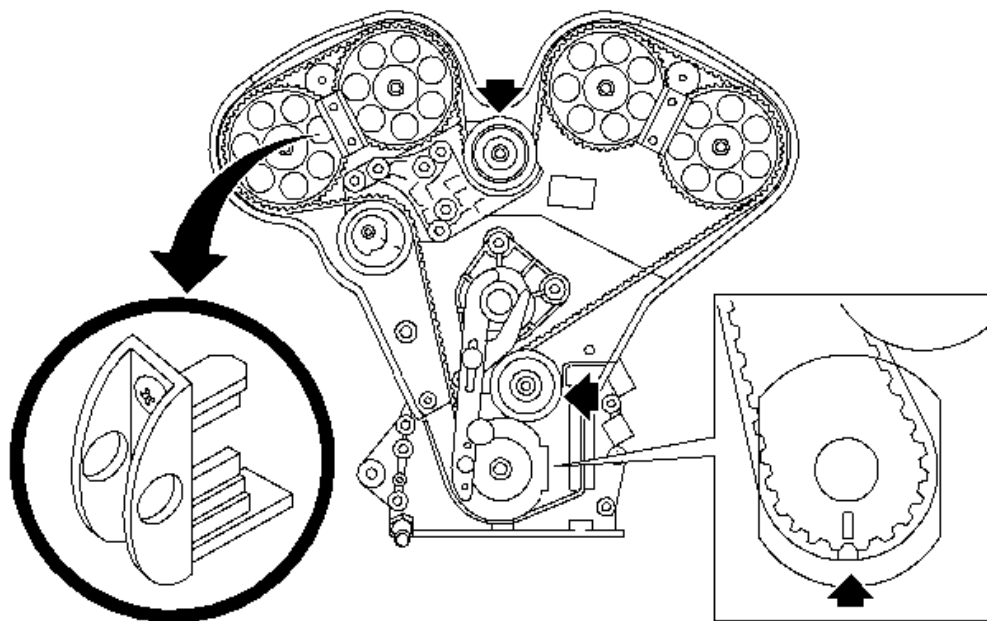
**IMPORTANT:** Ensure that all 8 sealing O-rings are accounted for. O-rings may stick to camshaft bearing caps. O-rings may fall into the oil return journals in the cylinder head.

3. Remove the camshaft cover seals.

#### Camshaft Drive Sprocket Removal

## Tools Required

- **J 42065** Crank Hub Holding Tool. See **Special Tools**.
- **J 42069** Timing Belt Alignment Kit. See **Special Tools**.
- **J 42098** Crank Hub TORX Socket. See **Special Tools**.

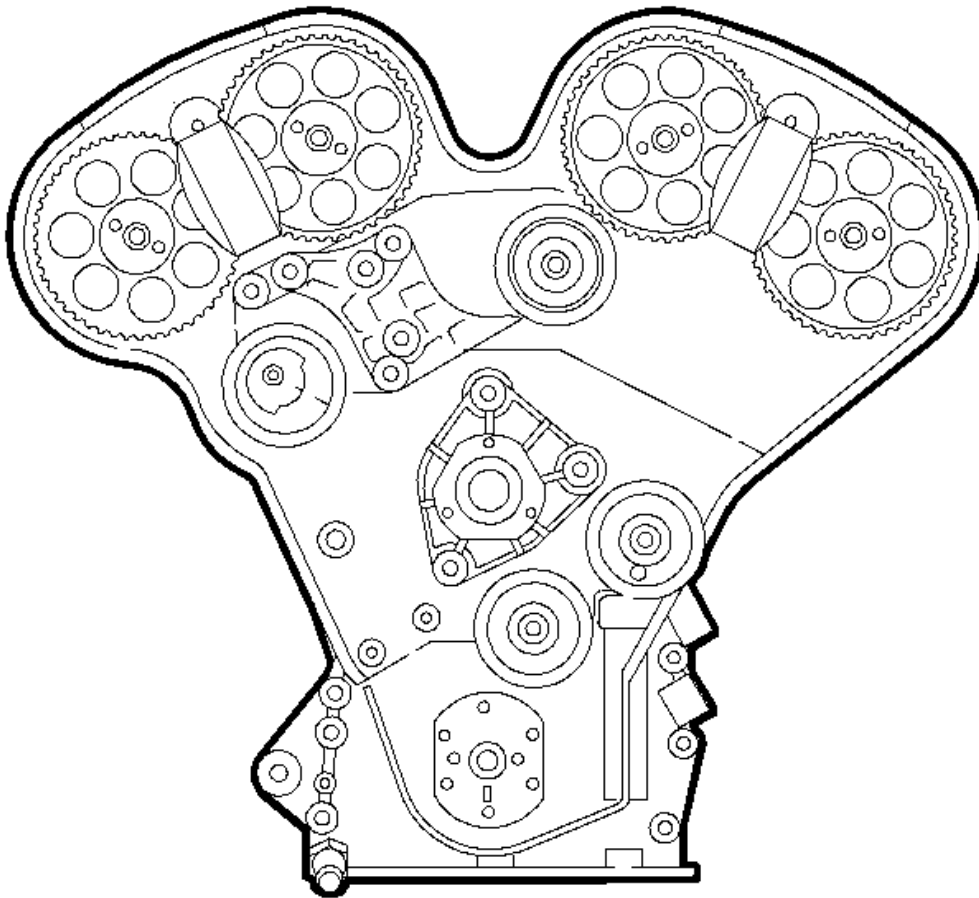


**Fig. 330: Installation Of Special Tools For Camshaft Drive Sprocket Removal**  
Courtesy of GENERAL MOTORS CORP.

1. Install the **J 42065** and remove the crank hub TORX using the **J 42098** . See **Special Tools**.
2. Remove the crankshaft drive gear bolt and discard.

**IMPORTANT:** Some lobes on the camshafts may be under load from the lifters. Rotate the camshafts carefully until the camshafts are no longer under a load if applicable.

3. Install the kit tool J 42069-1, found within the **J 42069** , between the camshaft gear 1 and 2 to hold the camshaft gears in place while removing the bolt. See **Special Tools**.
4. Install the kit tool J 42069-2, found with the **J 42069** , between the camshaft gear 3 and 4 to hold the camshaft gears in place while removing the bolt. See **Special Tools**.



**Fig. 331: View Of Installed Camshaft Locks**  
Courtesy of GENERAL MOTORS CORP.

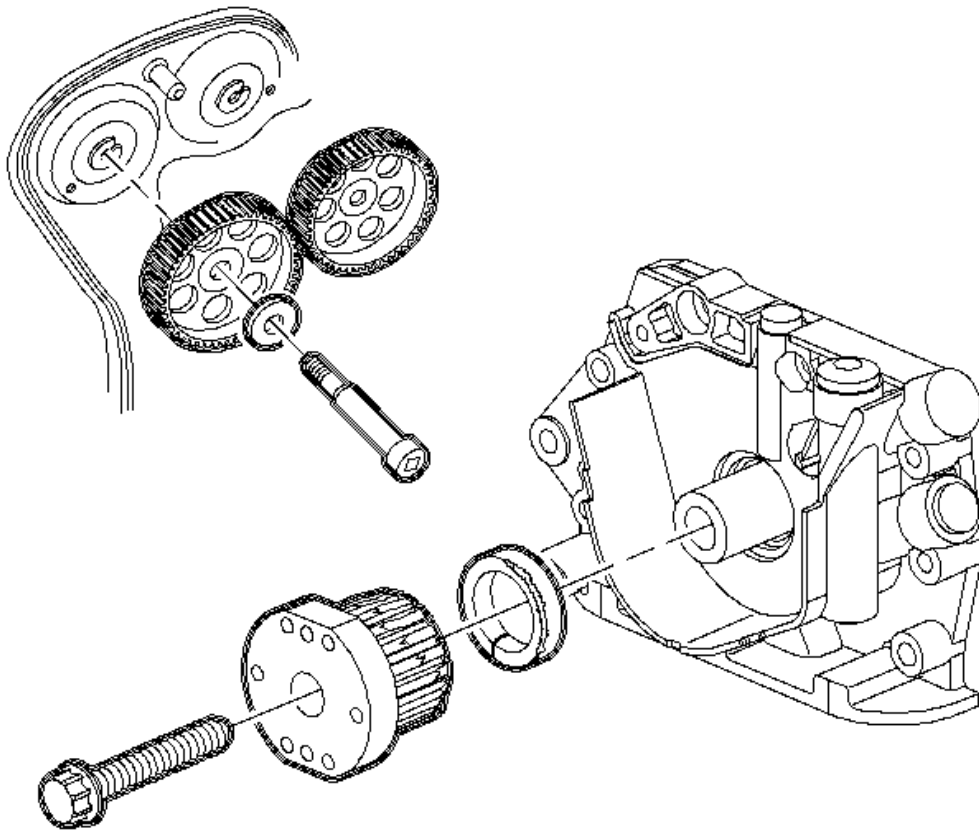
5. Loosen the timing belt tensioner.



**IMPORTANT:** Do not rotate the crankshaft if the camshaft is not locked in place with 1-2 and 3-4 camshaft locks, J 42069 and J 42069-2. See Special Tools.

**IMPORTANT:** Do not rotate the camshafts unless the crankshaft is at 60 degrees BTDC or valves may contact the pistons.

6. Remove the timing belt.



**Fig. 332: Removing & Installing Camshaft Gear & Crankshaft Drive Gear Bolts**  
Courtesy of GENERAL MOTORS CORP.

7. Remove the camshaft gear bolts and discard.