

8. If reusing the engine front cover, remove and DISCARD the crankshaft front oil seal (8) using an appropriate tool.
9. Clean the engine block and cylinder head to front cover sealing surfaces.
10. Clean the front cover sealing surface.

Installation Procedure

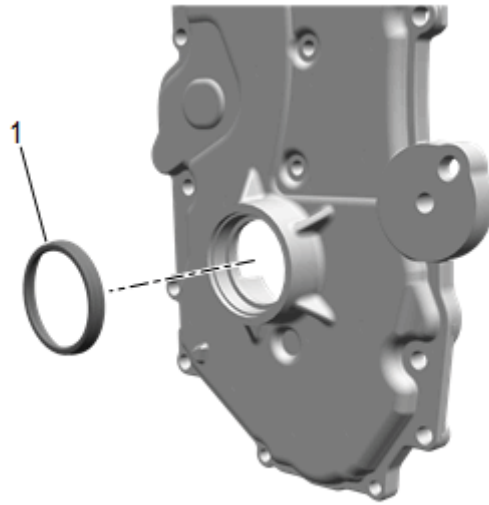
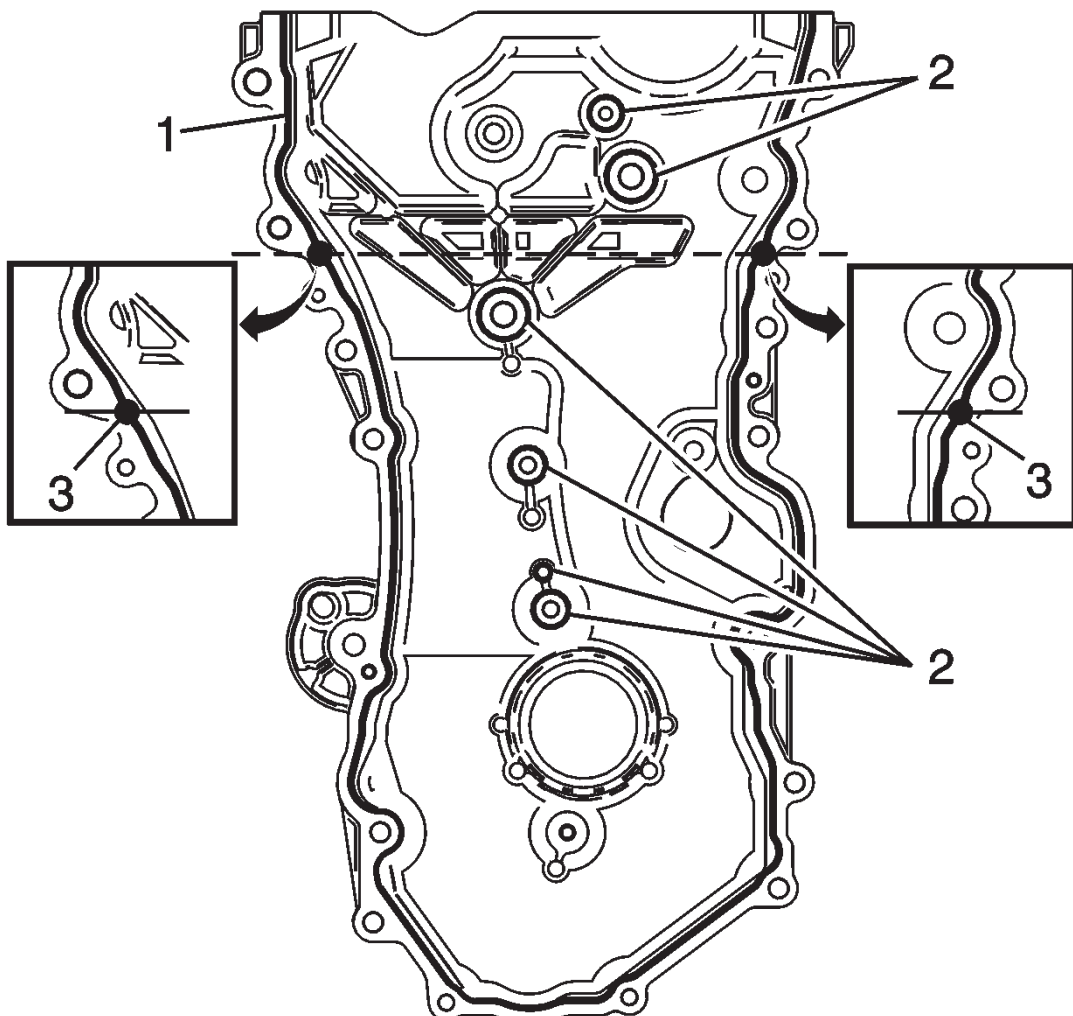


Fig. 95: Front Crankshaft Seal
Courtesy of GENERAL MOTORS COMPANY

1. If replacing or removing the crankshaft seal, use **EN-50820** installer to install a NEW front crankshaft seal (1) into the engine front cover.



NOTE:

- The engine front cover surface must be free of contamination prior to applying the sealer.
- Install and align the cover within 20 minutes of applying the sealer.
- The cover must be fastened to final torque specification within 60 minutes of applying the sealer.
- Additional sealant is necessary to reduce the possibility of leakage where the cylinder head to engine block interface along the bead path flange on the front cover.

2. Apply a 5 mm bead of sealer directly in the flange (1) of the engine front cover perimeter mating surface. Also apply a 5 mm bead of sealer directly to the locations indicated (2). Finally, apply a 14 mm dab of sealant at the locations indicated (3). [Adhesives, Fluids, Lubricants, and Sealers \(LTG\)](#) [Adhesives, Fluids, Lubricants, and Sealers \(LCV\)](#)

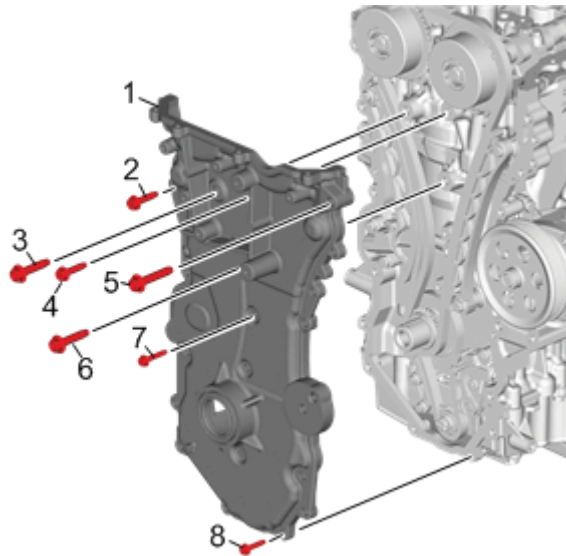


Fig. 97: Identifying Engine Front Cover Bolts
Courtesy of GENERAL MOTORS COMPANY

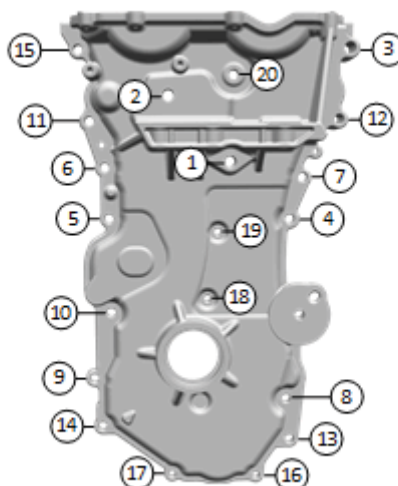
3. Install the engine front cover (1).

NOTE:

Only bolts 3,5 and 6 will be replaced with NEW bolts.

4. Install by hand 3 NEW M10 bolts (3, 5, 6) in the engine front cover, as shown.

5. Hand start the remaining engine front cover bolts (2, 4, 7, 8).



CAUTION: Refer to [Fastener Caution](#) .

CAUTION: This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

6. Tighten the engine front cover bolts in sequence to final torque twice:
 1. Tighten NEW sequence 1-3 bolts a first pass to 15 N.m (11 lb ft).
 2. Tighten NEW sequence bolts 1-3 a final pass to 130 degrees using **EN-45059** Angular Meter.
 3. Tighten sequence 4-11 bolts to 25 N.m (18 lb ft).
 4. Tighten sequence 12 bolt to 25 N.m (18 lb ft).
 5. Tighten sequence 13-15 bolts to 25 N.m (18 lb ft).
 6. Tighten sequence 16-17 bolts to 10 N.m (89 lb in).
 7. Tighten sequence 18-19 bolts to 10 N.m (89 lb in).
 8. Tighten sequence 20 bolt to 25 N.m (18 lb ft).
7. Connect the wire harness retainers to the front cover.

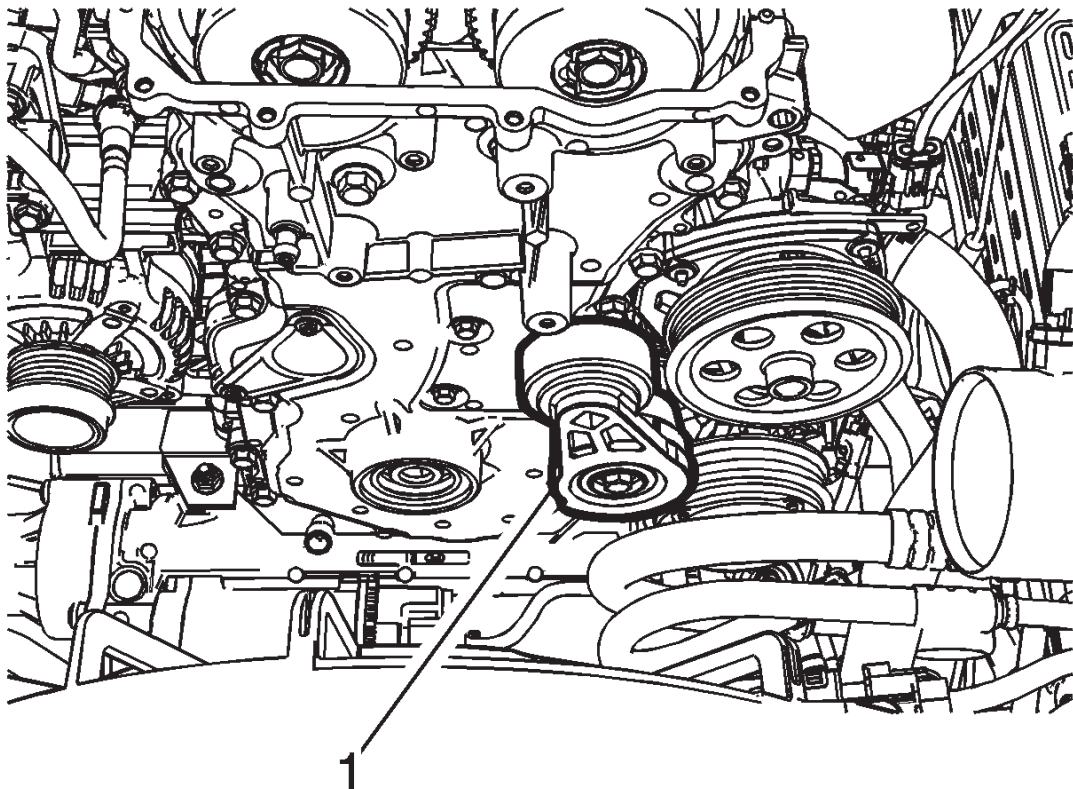


Fig. 99: Drive Belt Tensioner
Courtesy of GENERAL MOTORS COMPANY

8. Install the drive belt tensioner (1). [Drive Belt Tensioner Replacement](#)