ENGINE PREP

- Disconnect battery
- Remove existing accessory drive and water pump
- Remove factory crank pulley bolt with an impact wrench and 24mm socket
    - Save the existing crank bolt, you will need it later

- Remove crank pulley/damper with the recommended tools:
    - J-41816 Crankshaft balancer remover or similar
    - J-42386-A Flywheel holding tool
    - J-41816-2 Crankshaft balancer remover step plate

- Clean gasket areas, inspect front crank seal and replace if necessary
  GM P/N 12585673

- Leave flywheel holding tool in position for damper installation

Install Crank Damper
Source: GM document #642784

Recommended Installation Tools:
- J-41665 Crankshaft balancer and sprocket installer
- J-41478 Crankshaft front oil seal installer - Use threaded rod and nut only
- J-42386-A Flywheel holding tool
- J-45059 Angle meter

- Inspect crank snout for burrs or scratches - clean up with fine emery cloth or steel wool.
- Slide the new damper on crank snout as far as possible.
- Use the J-41665 and the threaded rod and nut from J-41478 in order to install the balancer.

- Assemble the threaded rod, nut, washer and installer. Insert the smaller end of the installer into the front of the balancer.

- Using a wrench hold the hex end of the threaded rod. Use a second wrench and rotate the installation tool nut clockwise until the balancer is started onto the crankshaft.

- Remove the tool and reverse the tools direction. Position the larger end of the installer against the front of the balancer.

- Using a wrench hold the hex end of the threaded rod. Use a second wrench and rotate the installation tool nut clockwise until the balancer is installed onto the crankshaft.

- Remove the balancer installation tool.
- Install the old balancer bolt and tighten. Tighten old balancer bolt to 240 ft. lbs. (330N·M)

IMPORTANT: Failure to apply proper torque to the old balancer bolt may result in the balancer not being fully seated. This could lead to failure of this joint in the future.

• The nose of the crankshaft should be recessed 2.4 - 4.48 mm (0.094 - 0.176 in) into the balancer bore. Remove the old bolt and measure the hub to crankshaft distance.

Installing New Crankshaft Bolt
• Coat the three to five threads of the new bolt with LocTite 272 thread locker.

Notice: Be sure to follow the torque procedure for installing the new crankshaft bolt. Use of impact tools, or not using torque and angle method will result in joint failure.

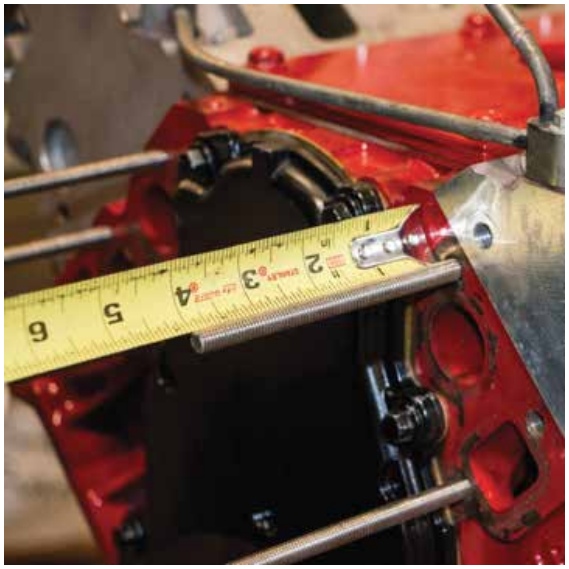
• Install and tighten the new crankshaft bolt a first pass to 37 ft. lbs. (50N·M)
• Put a paint stripe on the bolt running from the 12 o'clock to the 6 o'clock position in order to verify the correct torque requested in the next step.

• When tightening for the second pass, a minimum torque of 236 ft. lbs. (320 N·M) should be observed. If this torque is not achieved, the bolt (GM part #12557840) should be replaced.

• Tighten the crankshaft balancer bolt a second pass to 140 degrees using the J-45059.

• Recheck the position of the previously painted stripe to assure 140 degree rotation. Achieving the correct torque angle is critical to the success of this repair. Over-torquing or under-torquing the joint will result in an unsatisfactory installation.

• Remove the J-42386-A Flywheel Holding Tool.



INSTALL WATER PUMP

1. Apply anti seize to one end of each of the three 8mm-1.25 x 92mm long threaded studs and two of the 8mm-1.25 x 118mm long studs.

2. Thread the three 92mm studs into the passenger side of the engine block, installed length should be 3in from block.

3. Follow by threading in the two 118mm studs into the driver side of the engine block, installed length should be 4in from block.

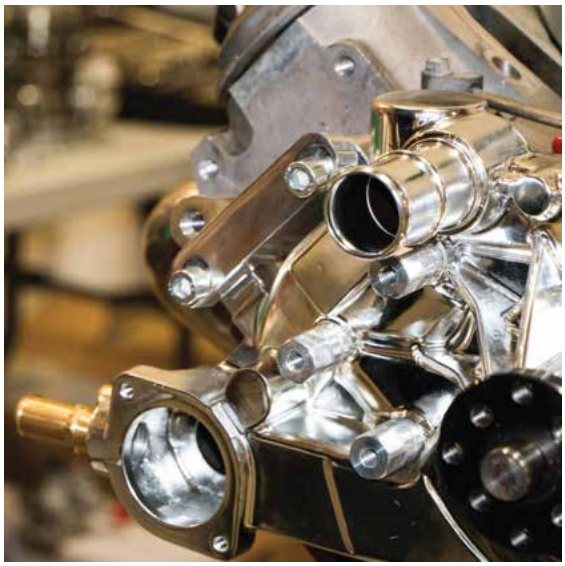
4. Slide water pump gaskets over studs, followed by the water pump. Apply anti seize to the exposed threads of all the studs.

5. Thread the three stainless stand-offs onto the passenger side of the water pump and finger tighten.

INSTALL ALTERNATOR BRACKET

1. Slide the alternator bracket onto the driver side studs. Thread the remaining two spacer nuts onto the threaded studs and finger tighten.

2. Finish by threading the 8mm-1.25 x 95mm socket head cap screw through the alternator bracket and water pump into the engine block. Tighten all fasteners firmly at this time.



INSTALL COMPRESSOR BRACKET

1. Apply anti seize to the threads of the two 10mm-1.5 x 20mm socket head cap bolts.

2. Place compressor bracket onto water pump as shown and attach with two of the 10mm-1.5 x 20mm socket head cap bolts. Tighten firmly

INSTALL TENSIONER

1. Apply anti seize to the thread of three 8mm-1.25 x 25mm socket head cap bolts.

2. Align belt tensioner with the water pump spacer nuts and tighten bolts

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INSTALL COMPRESSOR BRACKET

1. Apply Loctite Blue 242 to the following: (3) 1/4-20 x 3/4” socket head cap screws.

2. Place cover on clutch and thread the socket head cap screws through the cover and into the clutch, torque to 40-45 inch/lbs. Caution: Over tightening these fasteners will cause damage to the compressor clutch.

3. Thread the three flathead 8mm-1.25 X 25mm through the bridge bracket and into the front of the tensioner.

4. Thread the compressor shoulder bolt and washer through the rear compressor boss and into the compressor/tensioner bracket.

5. Thread the two 8mm-1.25 X 25mm through the bridge bracket and into the front compressor bosses, tighten.

INSTALL ALTERNATOR BRACKET

1. Place alternator bracket on driver side of water pump and line up holes with standoffs.

2. Thread fasteners through bridge bracket and into standoffs and finger-tighten.

3. Install water pump pulley with four 5/16-24 x 3/4” socket head cap screws, tighten.

INSTALL ALTERNATOR AND POWER STEERING

1. Place alternator between bridge bracket and alternator bracket, align alternator bosses with the bridge bracket.

2. Thread the 10mm-1.5x70mm flathead screw through the bottom bridge bracket hole, alternator, and into the alternator bracket. Finger tighten.

3. Thread the 8mm-1.25x25mm flathead screw through the bridge bracket and in to the top alternator boss, finger tighten.

4. Align power steering pump, thread two of the 8mm-1.25x25mm, and tighten.

INSTALL CRANKSHAFT PULLEY

1. Apply Loctite to the threads of the three 3/8-16 x 1-1/4” socket head cap screws.

2. Install crank the pulley as shown, tighten firmly.

INSTALL ALTERNATOR AND POWER STEERING

1. Place a 5/8” socket attached to a breaker bar on tensioner nut at approximately the 12 o’clock position, align belt onto grove of tensioner pulley.

2. Pull breaker bar clockwise until tensioner boss lines up with hole in tensioner pulley, slide pulley onto boss and slowly return wrench to starting position, applying tension to the belt.

Continue with this step ONLY if you are going to be installing your air conditioning hoses and charging your system at this time.

Remove the plate on top of the compressor body.
Apply anti-seize to the following:
• 8mm-1.25 x 25mm socket head cap screws

• Install compressor manifold onto compressor with the two 8mm-1.25 x 25mm socket head cap screws and tighten firmly (13 ft/lbs).

• Install hoses, connect clutch wire and charge system.

• **Continental Belt #4060670**

IMPORTANT

If you are NOT installing hoses and charging system at this time, place compressor manifold and hardware in a safe place and leave cover plate on compressor at this time.

• Do not connect clutch wire or apply power to clutch wire without the hoses connected and system charged – serious damage will occur to compressor.

Compressor Oil
Although the compressor is supplied with oil, the level may not be correct for the entire system. Consult the instruction manual of the air conditioning unit for proper levels and system charging procedures.

This compressor is designed for use with Air Conditioning units only. Serious damage will occur to AC compressor if used for anything other than its intended purpose. Warranty is Void if used for any non-AC application.