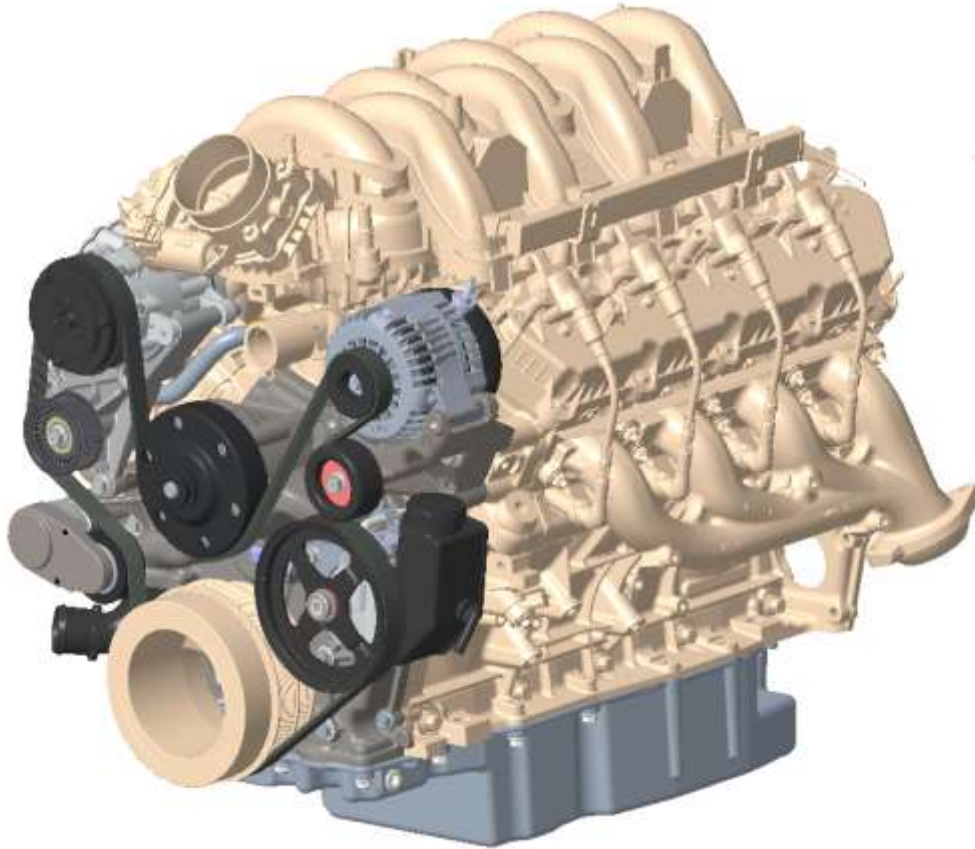




Holley Accessory Drive and Oil System Kits



20-345 shown

Covered products:

Part Numbers	Type	Description
20-345 & 20-345BK	Complete Kit	Including alternator, A/C, P/S, timing cover, oil pump, oil pan, other accessories, and adapters.
20-325 & 20-325BK	Base Kit	Allows adding components for any custom application not needing all accessories and/or different alternator choices

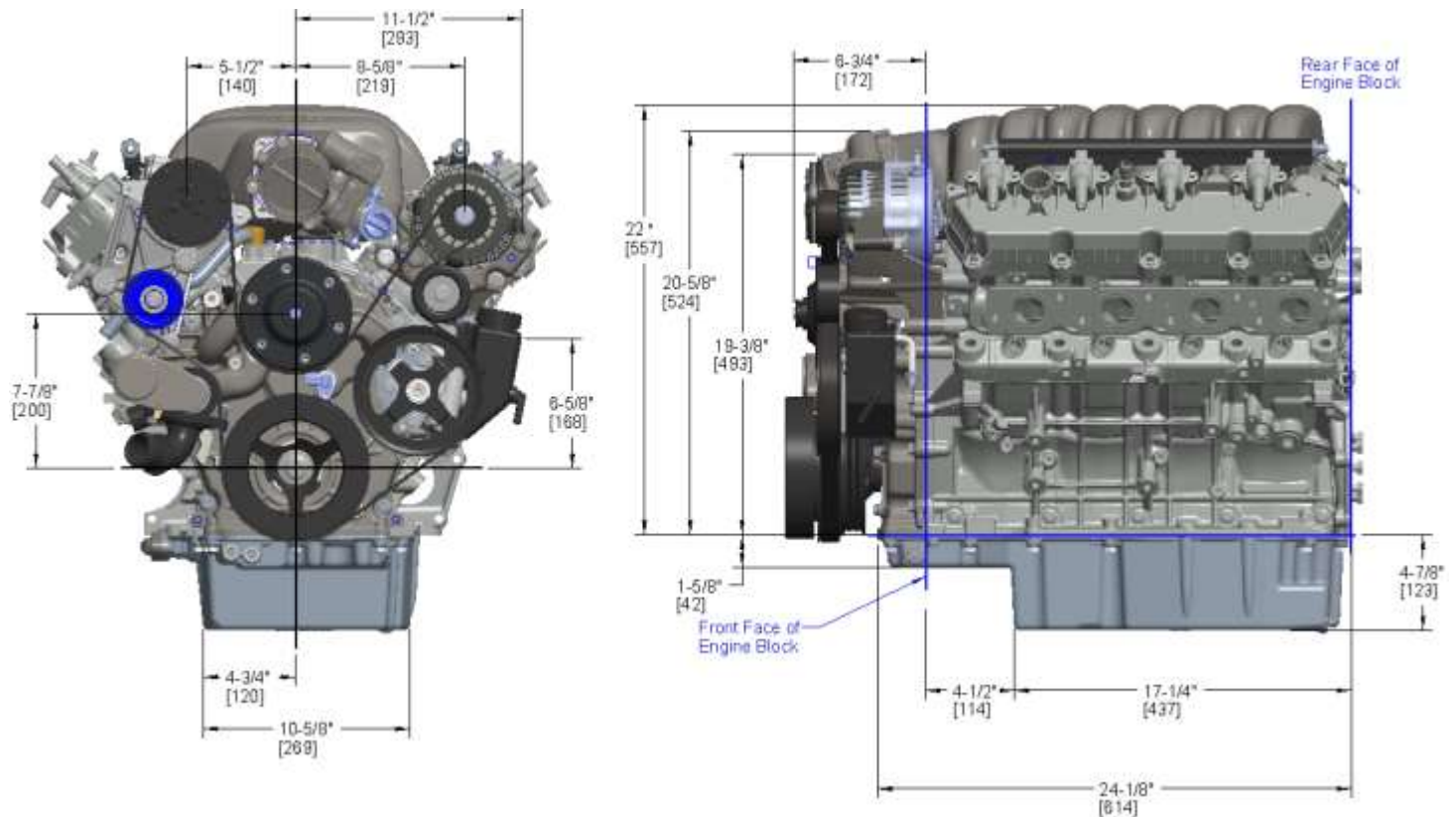
This instruction sheet also covers individual components that may or may not be included in the above kits.

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Dimensions:

Shown with P/N 300-900 low-profile intake and P/N 534-265 fuel rails. Dimensions are with P/N 197-300 small case alternator. Large case alternators will be slightly taller.



Introduction:

Holley's High-Mount accessory drive and innovative oiling system has everything pulled up and in tighter than other options. When paired with Holley's low-profile intake manifold, this system allows for a bolt-in swap to 1953-1979 F100, F150, and F250 2WD trucks and other applications while retaining the factory hood.

The patent pending oil system replaces the factory bottom-mounted oil pump with a more conventional crankshaft-driven, front-mounted design. Oil cooler connection allowances are also provided.

The accessory drive incorporates the timing cover, water pump, and alternator, and can also be configured with A/C and/or P/S, if desired. This system works with the original crank pulley, as well as, aftermarket damper/pulleys.

Application Notes:

- **Oil Filter:** Motorcraft P/N FL820S
- **PAN CAPACITIES:** Total Oil Capacity w/ stock filter – 6.5 Qt. (Sump Oil Capacity – 6 Qt.)

Truck Applications (1953-1979): This oil pan is intended for use in street/strip and light competition applications as-shipped and was specifically designed to enable Godzilla 7.3L engine swaps in 1953-1979 Ford F100, F150 and F250 2WD trucks. Fits both stock* and Crown Vic swapped Suspensions. When used with Crown Vic suspension will require remote Oil filter adapter.

*Clears stock frame engine crossmember and steering components when engine crankshaft centerline is installed at the stock Ford small block height, or higher.

- **Other Swap Applications:** This system also allows clearance for other applications that originally utilized a rear sump oil pan.
- **External P/S Reservoir Option:** In some applications, the supplied reservoir may interfere with the vehicle. In these cases, a remote reservoir can be utilized. Holley P/N PS0001ERL will adapt the supplied P/S pump to a connection appropriate for use with a remote reservoir.
- **Hydro-Boost Applications:** Use adapter P/N PS0002ERL and reservoir 198-211 or 198-212. These reservoirs have the additional inlet for the hydro-boost return.

MODULAR ACCESSORY OPTIONS:

The accessory drive components in this system can be configured in several different ways. For example, there are alternator options available for different electrical demands. Also, deleting the A/C and/or P/S are options if configured as a custom modular setup. The “base kits” supply all but the components with options. If you purchased a “Holley complete kit”, all these options are already chosen for the most common, cost effective combination. See the “included components list” for items that will be included in these kits.

For those configuring a custom setup, review each section below. The part numbers in **BLUE** are your choices and may need to be purchased in addition to your “base kit”. Here, you can review and decide which components will be required for your individual needs. When **BLUE** numbers are listed as **XXX / ZZZ**, the first is the natural version and the second is the black version of that component.

Assembly Instructions:

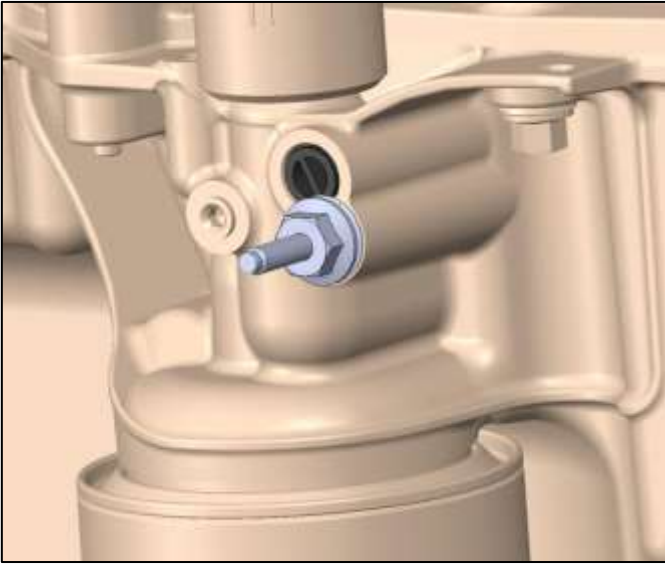
IMPORTANT NOTE IF PAINTING COMPONENTS: The alternator and A/C compressor ground through the brackets. If painting or coating these brackets, the mating surfaces must all be bare metal allowing a ground path from the accessories’ mounting feet to the engine block and ultimately the negative terminal on the battery.

NOTE:

- Read the entire instruction sheet before beginning.
- It is important to follow all these instructions in the order below.

Oil Pan and Timing Cover Removal:

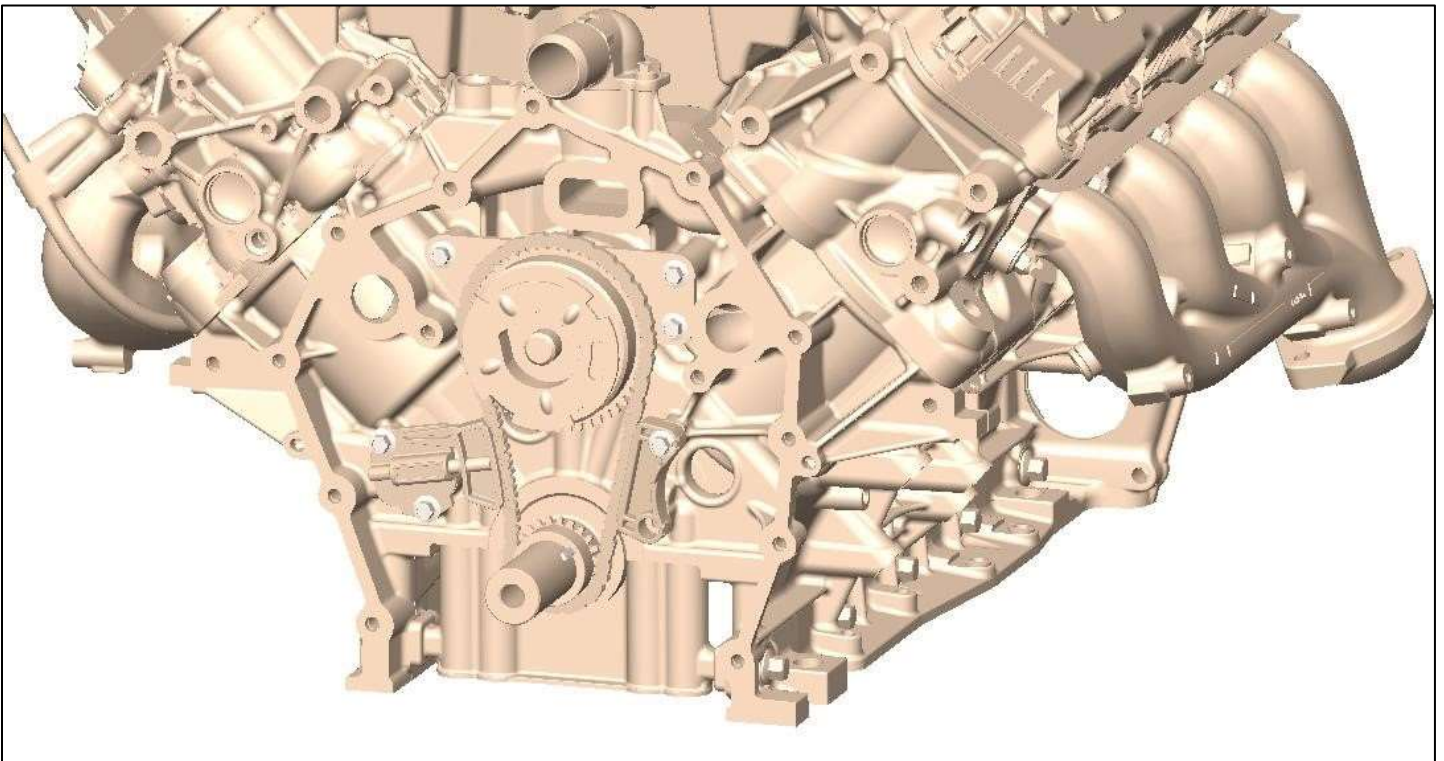
Remove the oil pan assembly, damper pulley, timing cover, drive chain, and oil pump jackshaft assembly. Make certain to slide the chain drive gear off the crankshaft. Leave all timing chain components in place. Refer to engine maintenance handbook for disassembly details.



HELPFUL HINT: There is a black plastic pin above the oil filter that must be removed *before* removing the oil pan. First, remove the retainer bolt. Next, using needle nose pliers, pull the pin out. It will not be reused.

NOTE: Both the timing cover and oil pan are originally sealed with RTV sealant and will require light prying to remove. Tabs on the parts being removed are provided to help with this process.

The engine should be disassembled to appear similar to the below.



At this time, clean all RTV surfaces well with a scraper. Take care not to scratch the surfaces.

Timing Cover Assembly:

Components Required – 97-401 / 97-417 timing cover

Heater Options: P/N 97-425 heater delete kit -OR- 300-901 heater line adapter

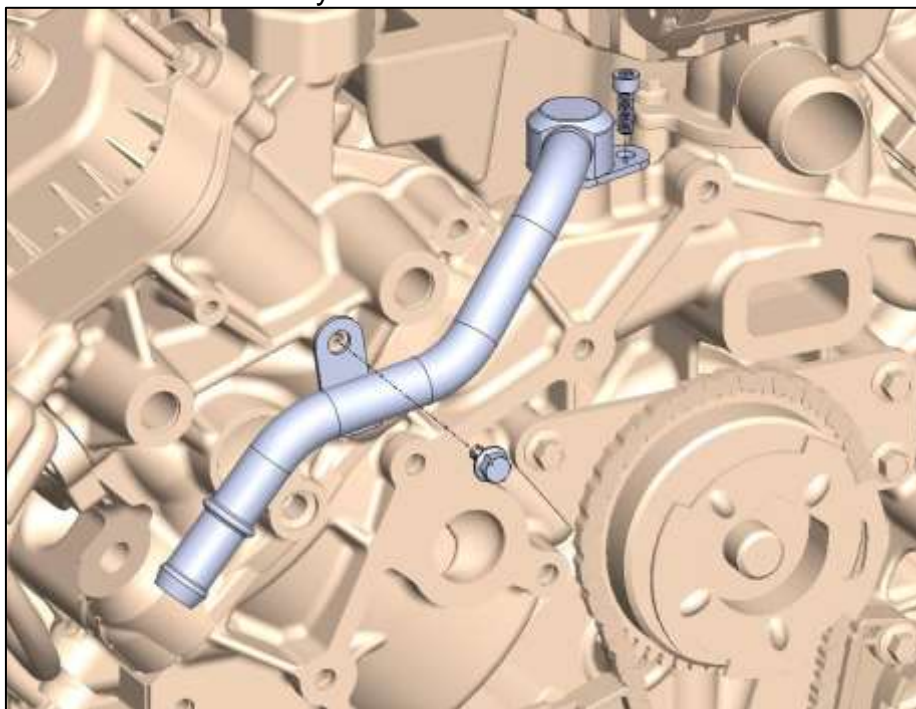
NOTES:

The first step in installing the timing cover is to configure the heater hose ports for your application. The next steps will explain assembly if utilizing a heater.

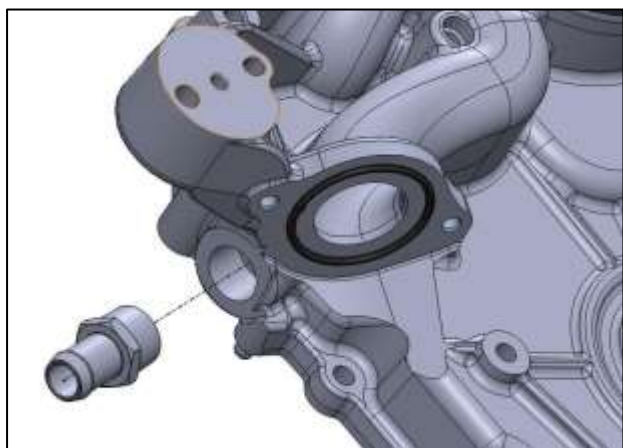
- **Heater delete applications** – use **97-425** for specific components to block off the ports.
- **Heater applications** – Use **300-901** heater line adapter. This adapter will work with either the original Ford or Holley intakes and is required for A/C applications and the Holley low intake. This adapter is *not* required for A/C delete applications when using the original Ford intake.

300-901 - Before installation, remove the original top heater tube from the top front of the engine block. Oil all O-rings and mating surfaces before assembly.

Install O-ring and retainer plate as shown below. Next, install the two M6 bolts included with the **300-901** as shown to the right.



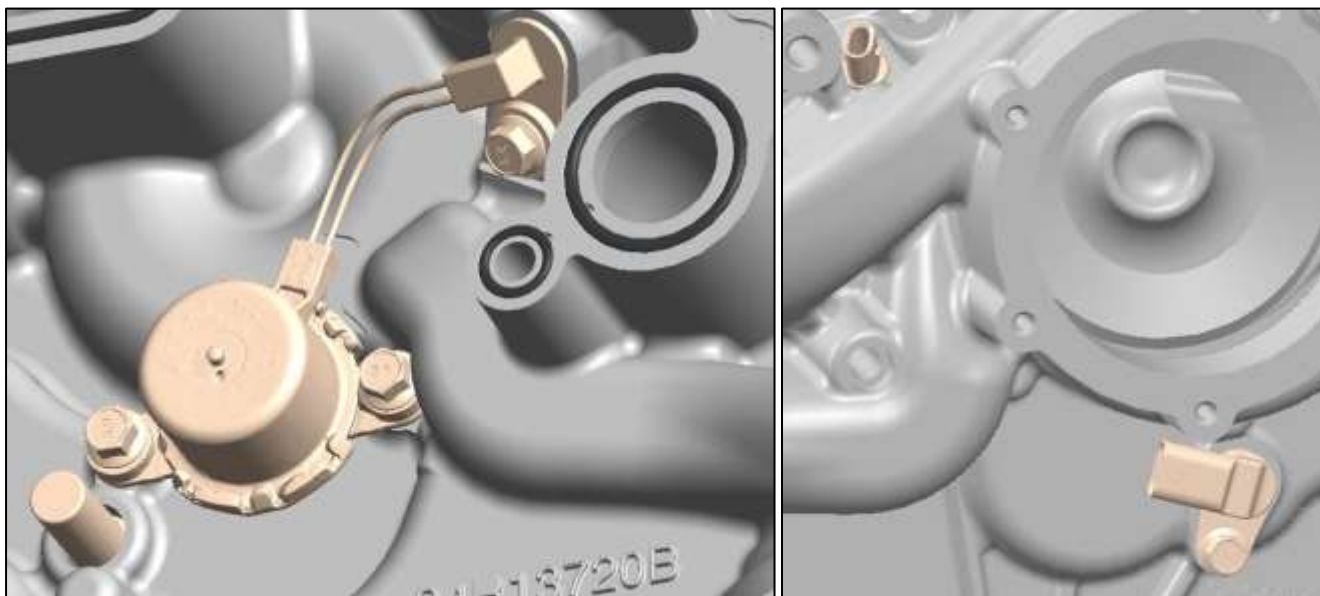
NOTE: Torque M6 bolts to 85 in./lbs.



NOTE: On all NPT adapters, use thread sealant (Loctite® brand 567 pipe thread sealant or equivalent). Install to finger tight, and then tighten 2 to 3 rounds.

WARNING: Loosening NPT fittings after installation can cause leaks.

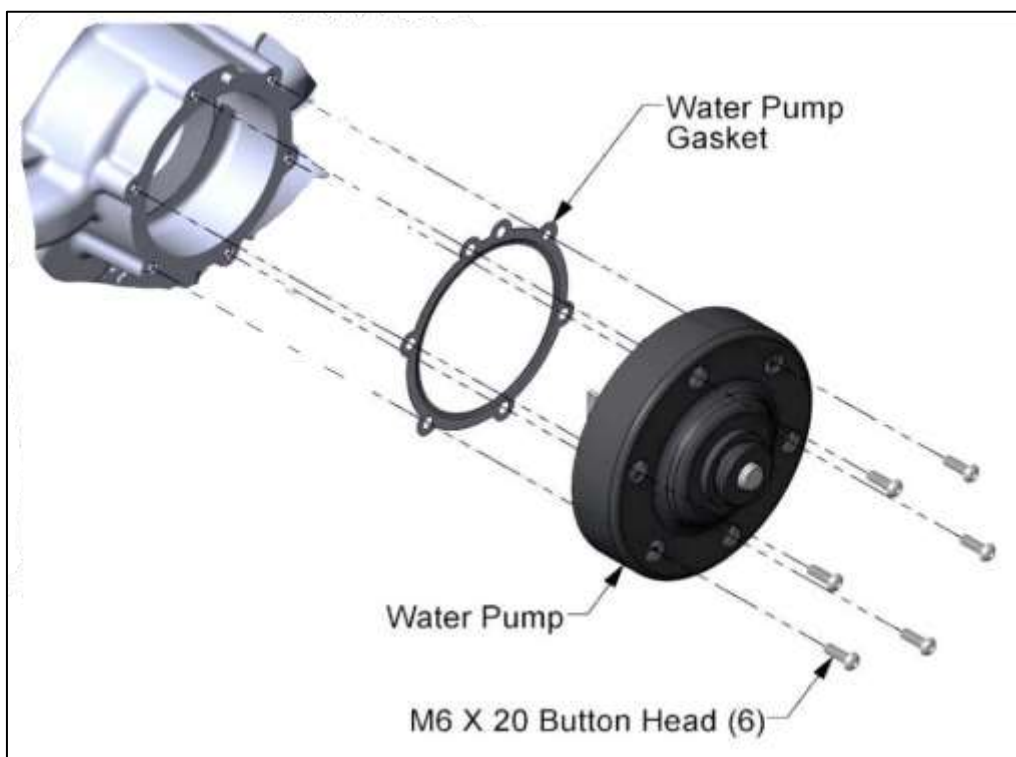
Reinstall all original sensors to the new timing cover:



Water Pump and Gasket Installation:

Components Required –GM 12619770 gasket and 97-200 water pump assembly

NOTE: Make certain the gasket and pump are aligned to the dowel pin.

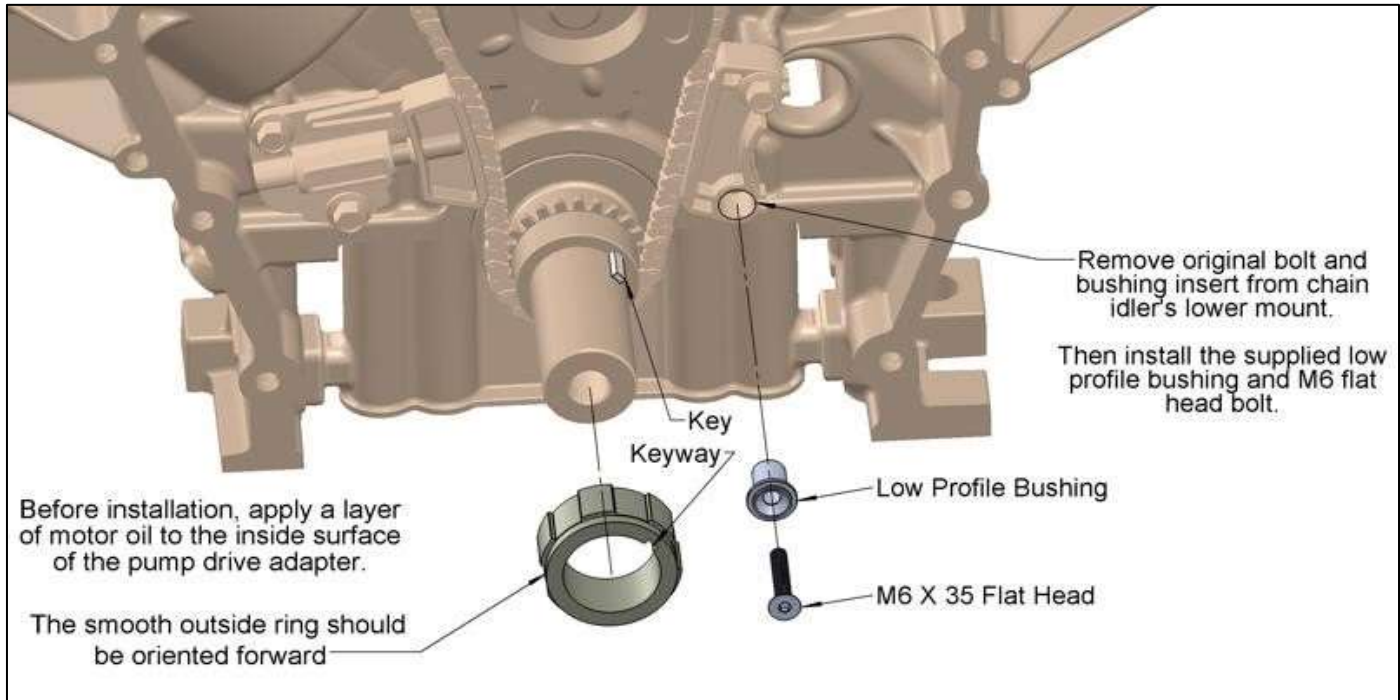


NOTE: Torque M6 bolts to 85 in./lbs

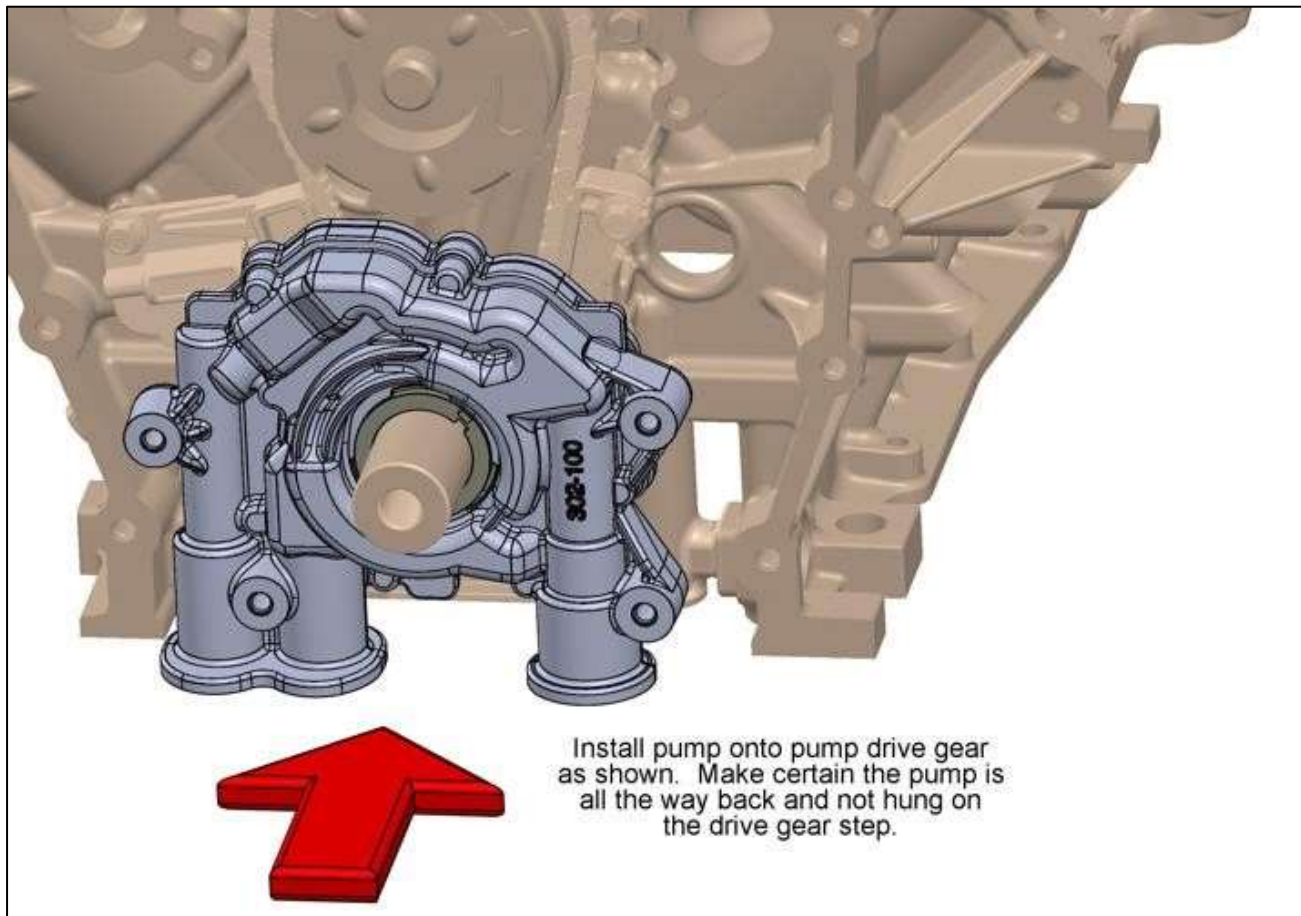
WARNING: Do not overtighten water pump bolts.

Oil Pump Installation:

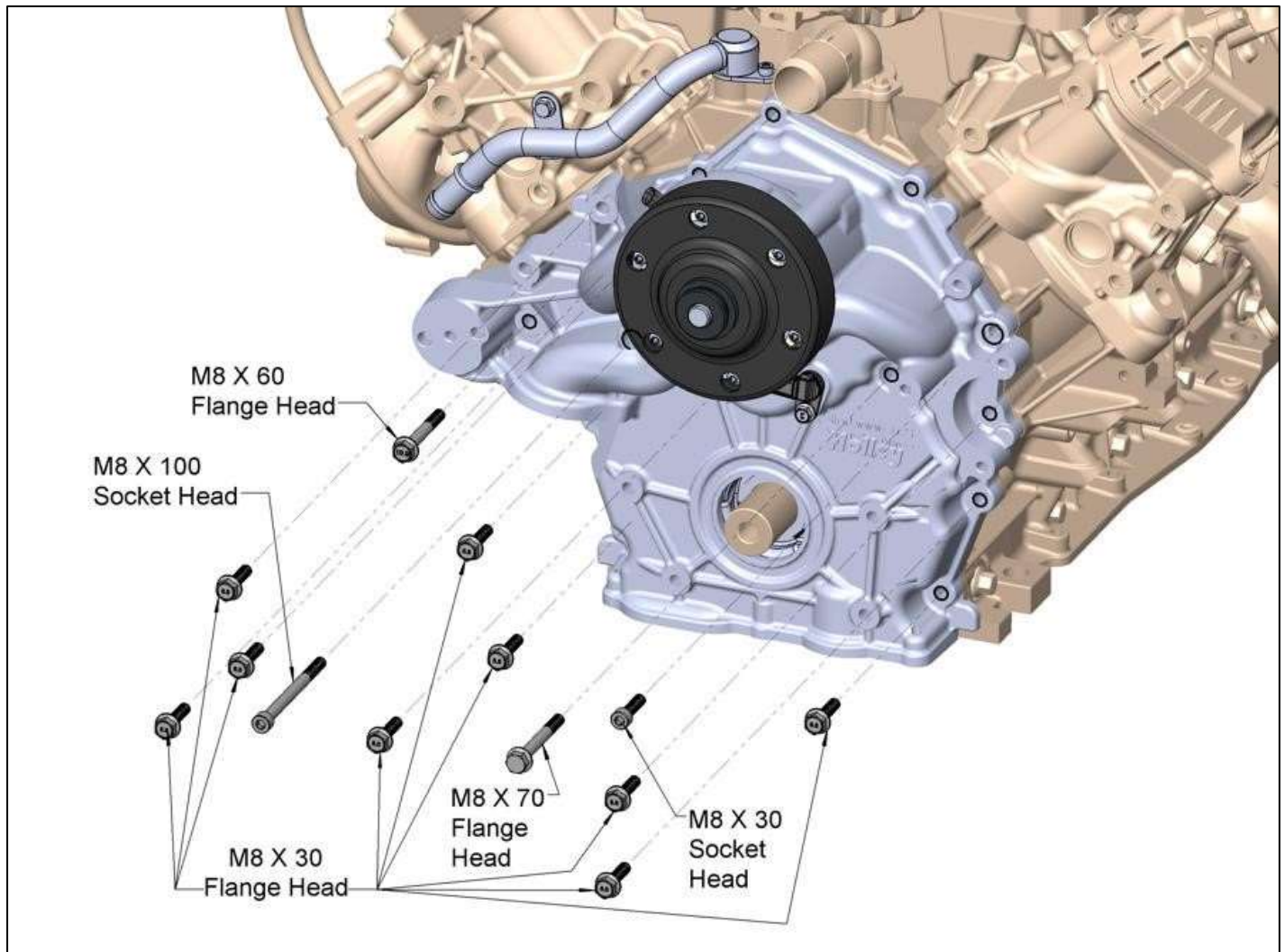
Components Required – Idler bushing, 302-101 oil pump drive adapter, and 302-100 oil pump



Torque M6 bolt to 85 in./lbs. (use blue thread locker)



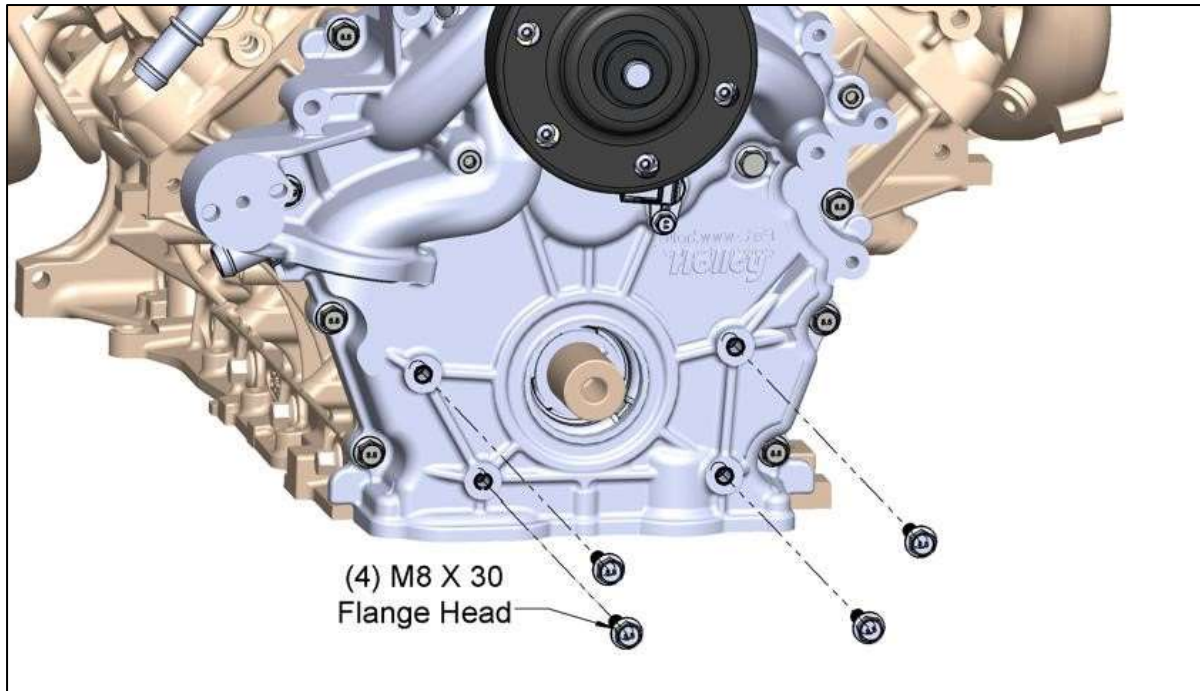
Inspect timing cover to confirm all O-rings are installed and free of surface damage. Oil all O-rings. Confirm all the front sealing faces of the engine are clean and there are no deep scratches. Install the timing cover to the block and torque bolts.



NOTE: Torque M8 bolts to 18 ft./lbs.

Use a lineup tool through the timing cover's (x4) front holes to align the pump's threaded mounting holes to the front cover. The pump can also be moved to position by reaching up under the cover. Install all four bolts.

NOTE: Hand tighten these only until the pump just touches the O-rings (do not compress the O-ring at this time). The pump torquing process will be performed after the damper pulley is installed.



NOTE: Do not tighten bolts at this time.

Crank Seal Installation:

Components Required – Ford P/N GK2Z-6700-A seal and 97-400 disposable seal install tool.

The crankshaft seal is to be installed with the rubber side facing out towards the included install tool. After lubricating the seal with motor oil, place it on the tool's pilot. Place the seal and tool over the crankshaft and align to the timing cover.

A damper installation tool must be used to seat the seal. This tool is typically available to rent from local auto parts retailers. Thread the damper installation tool into the crank by hand. Then, use a wrench on the nut of the tool to tighten until you feel the seal tool just bottom out on the front cover. Inspect the seal while tightening to ensure it presses in square to the timing cover. Visually confirm that the seal is flush to the cover.



Damper Pulley Installation:

Component Required – Ford P/N LC3Z-6A340-A damper bolt

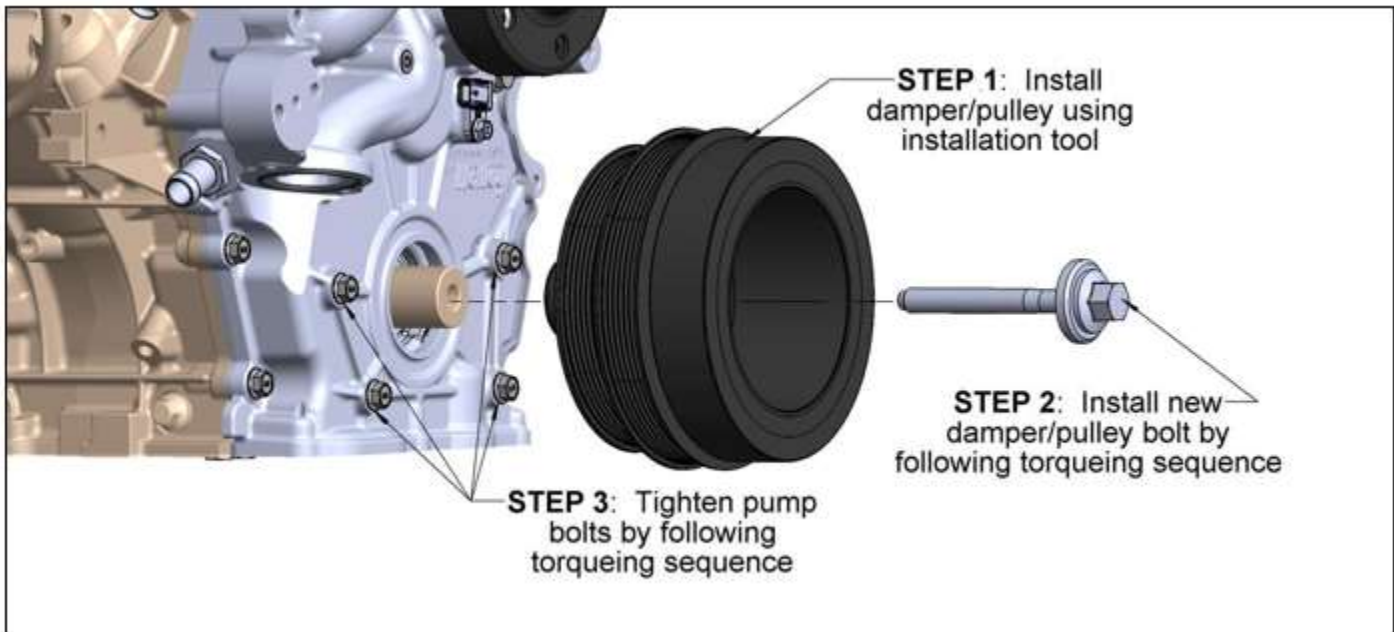
If installing an aftermarket damper, see the manufacturer's directions. If reinstalling the original damper, follow the below.

1. Lubricate the outer surfaces on the damper pulley that will come into contact with the crank seal with motor oil.
2. Use the installation tool to press the damper pulley onto the crankshaft.

NOTE: For the tightening process, a flexplate locking tool should be used to prevent the engine from rotating.

3. When pressing the damper on, you should feel a notable stop when the damper bumps the pump drive adapter.
4. Remove the damper install tool and install the included new OE damper bolt. The original damper bolt is torque-to-yield and cannot be reused.
5. Torque the damper bolt with this sequence:

1. Torque to 66 ft./lbs.
2. Loosen 360°
3. Torque to 129 ft./lbs.
4. Torque to 150°
5. Remove the flexplate locking tool



Oil Pump Positioning and Torqueing Process:

1. With oil pump bolts finger tight and just touching the internal O-rings, rotate engine one round at the crank damper bolt.
2. Tighten the (x4) oil pump bolts evenly until the pump just touches (metal to metal) the timing cover. Rotate the engine an additional full round.
3. A crow's foot tool on the torque wrench will likely be required to reach the bolt heads behind the damper pulley. Orient the crow's foot 90° to the wrench, so there is no impact on the torque measurement. Evenly torque all (x4) oil pump M8 bolts to 18 ft./lbs.

Water Inlet Options and Installation:

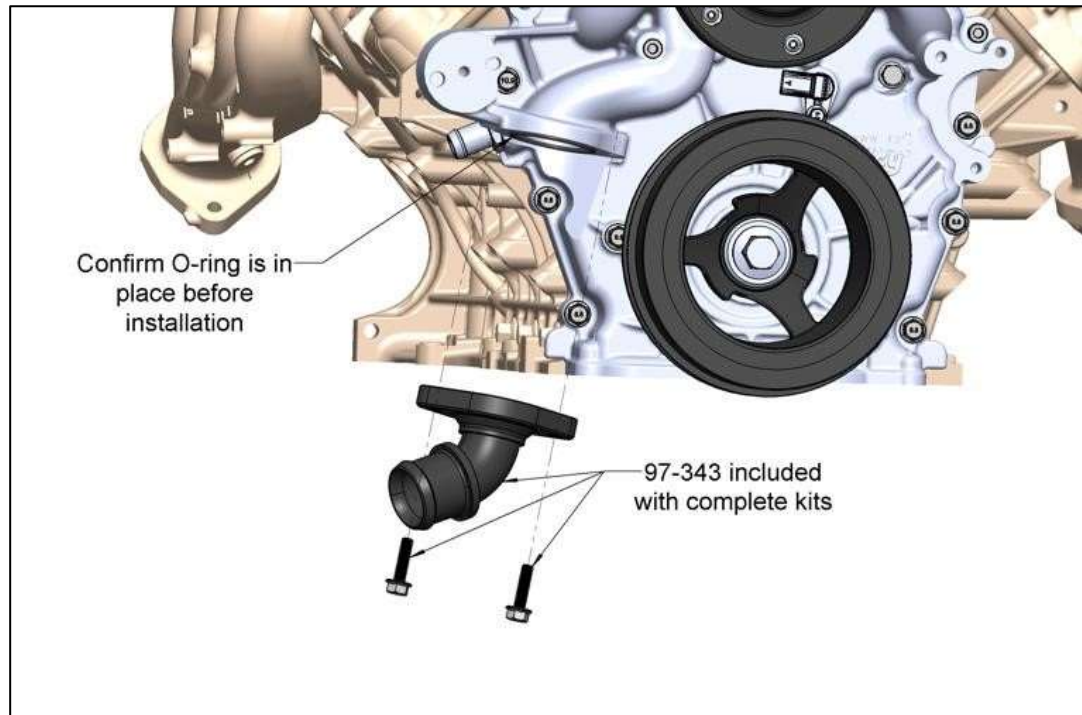
Inlet Options: – P/N 97-343, 97-341, -OR- Mopar 53021536AC

HELPFUL HINT: The Holley timing cover allows for different water inlets to make sourcing radiator hoses for your swap application easier. Complete kits includes a 45° swivel P/N 97-343. In addition to this angled adapter, the straight and 90° adapters can be sourced if that better fits your application.


Straight
Mopar P/N
53021536AC


45°
Holley P/N
97-343


90°
Holley P/N
97-341



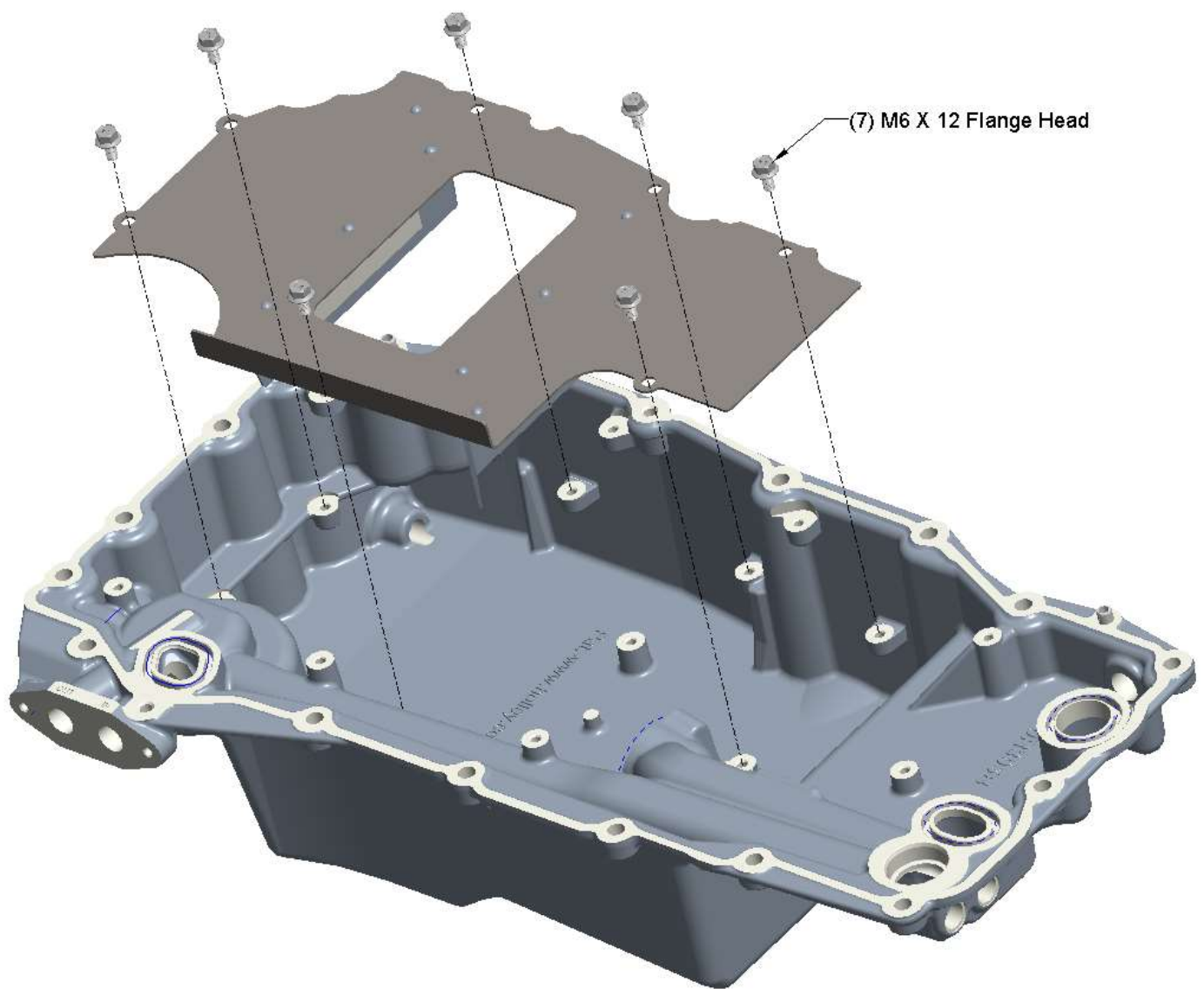
NOTE: Torque M8 bolts to 18 ft./lbs. Tighten bolts evenly to ensure an adequate seal.

Oil Pan Assembly:

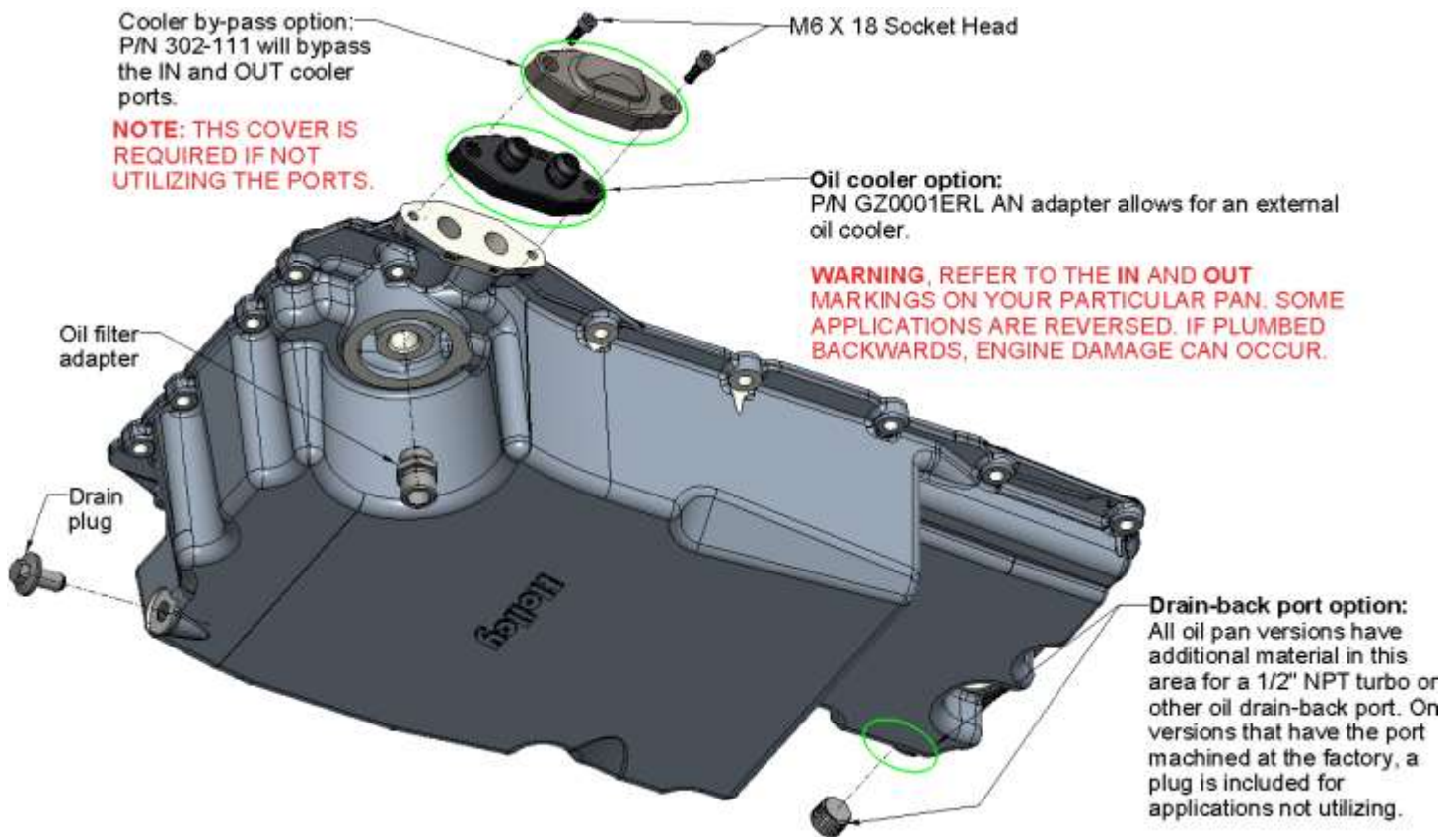
Components Required – Oil pan, baffle assembly, 302-116 pickup tube assembly, 302-115 windage tray, (x2) P/N 12666993 GM seals, and Ford seal LC3Z-6710-A seal

Oil Cooler Options – P/N 302-111 oil cooler port bypass cover -OR- GZ0001ERL oil cooler AN adapter

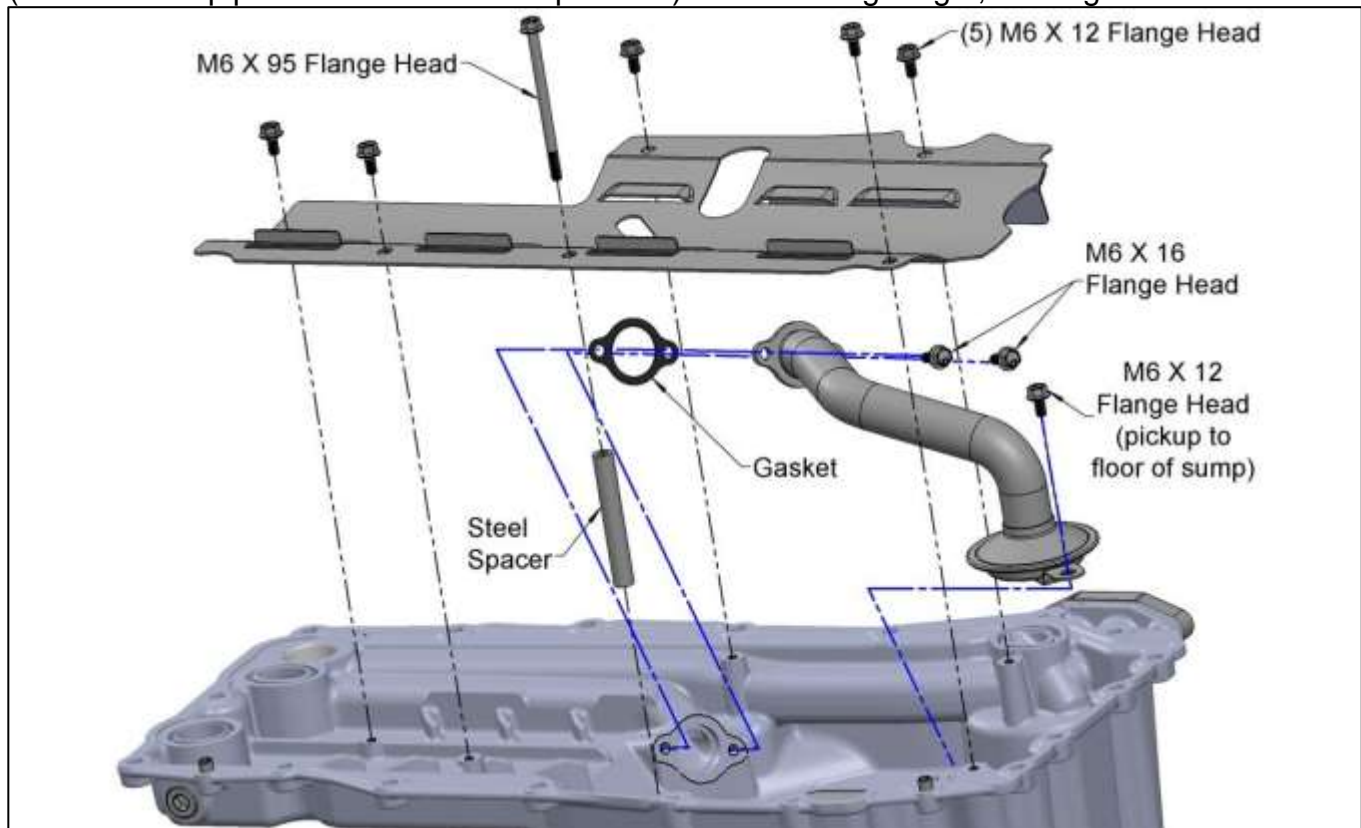
NOTE: Before assembly, inspect oil pan and components to ensure they are free from contaminants. Flush all passages to confirm there are no unseen contaminants.



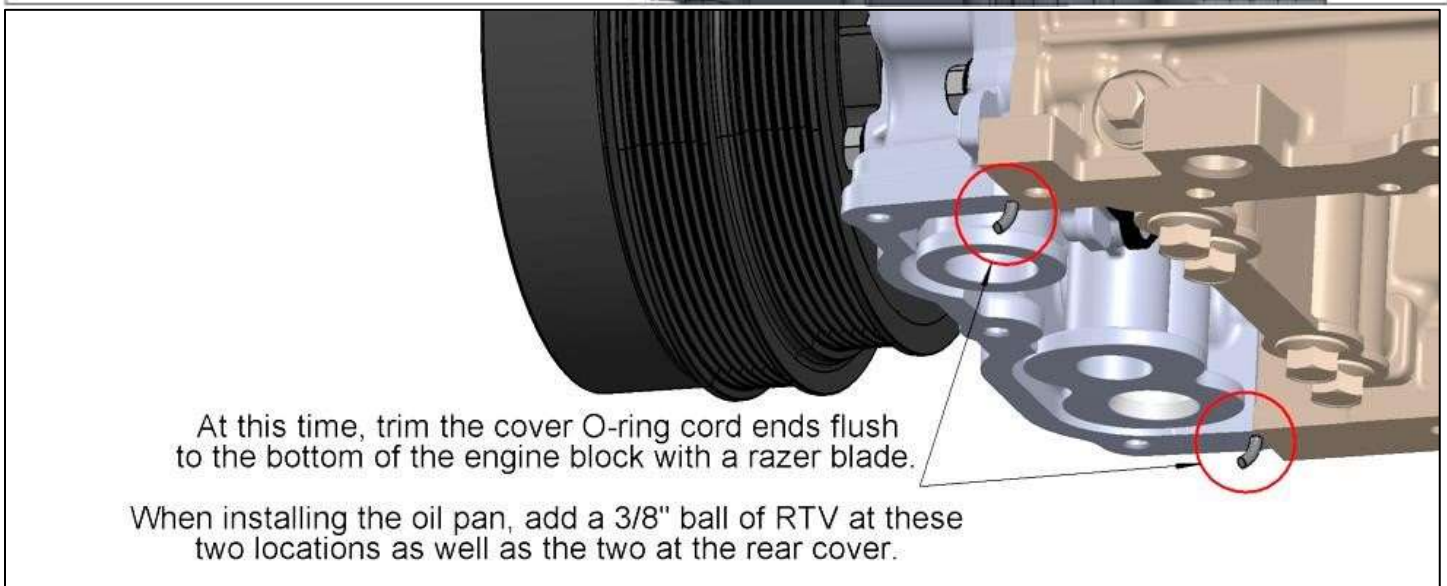
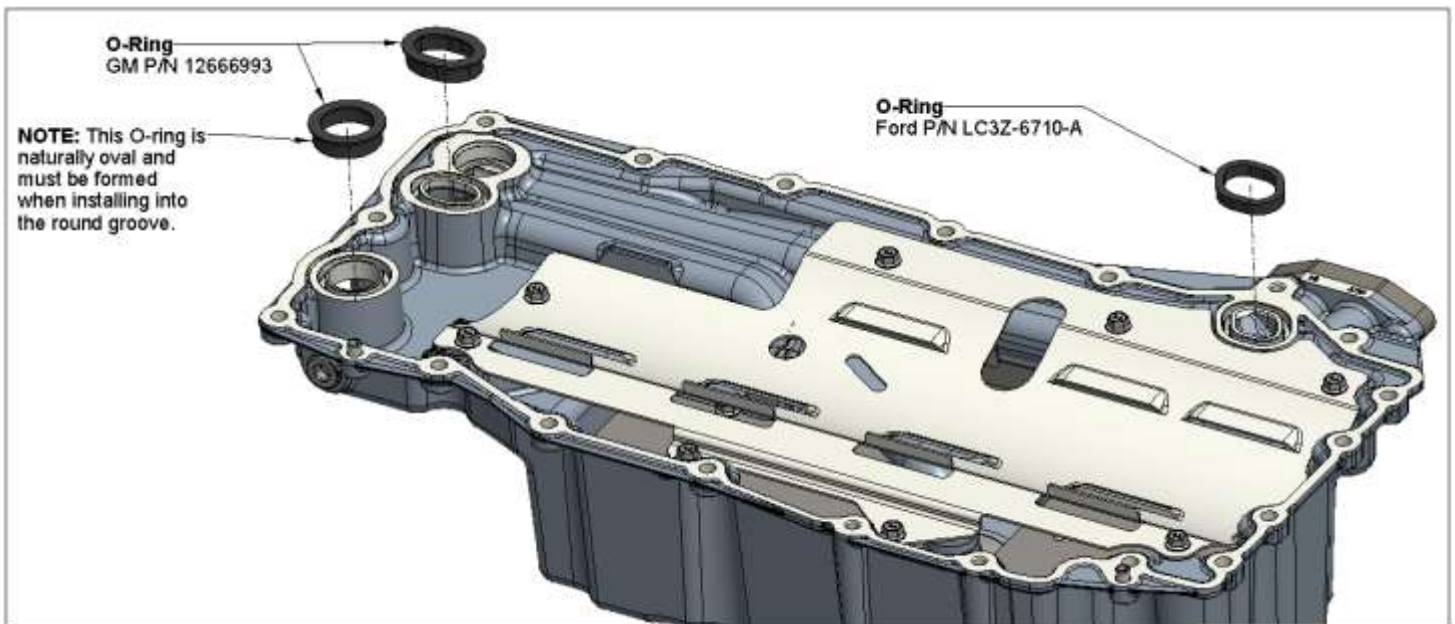
Note: Torque M6 bolts to 85 in./lbs.



NOTE: Torque M6 bolts to 85 in./lbs. and drain plug to 18 ft./lbs. NPT adapters – use thread sealant (Loctite® 567 pipe thread sealant or equivalent). Install to finger tight, then tighten 2 to 3 rounds.



NOTE: Torque M6 bolts to 85 in./lbs.

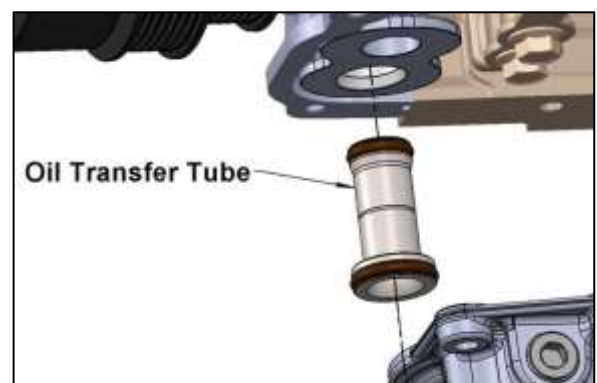


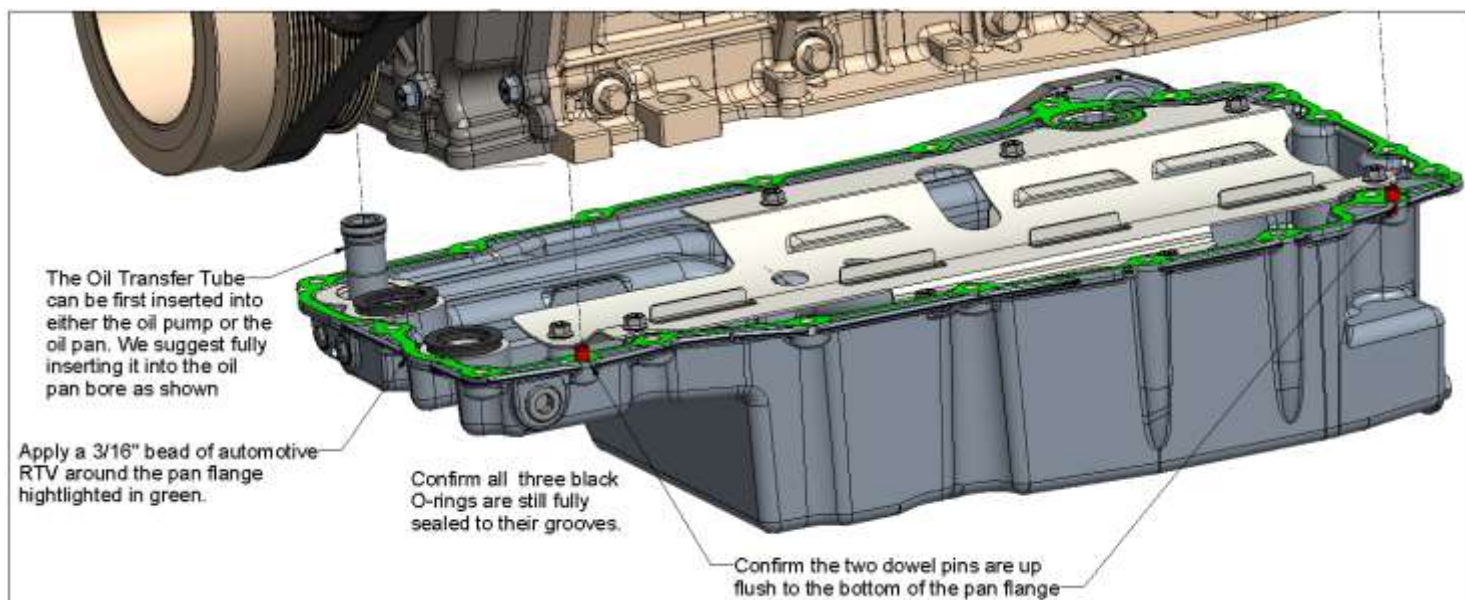
Oil Transfer Tube:

Component Required – P/N 302-86

This transfer tube allows for pump/pan alignment variations. Before installation, confirm both O-rings are in their respective groove. Fully lubricate both O-rings with motor oil.

WARNING: The Oil Transfer Tube **MUST** be installed or engine damage will occur.



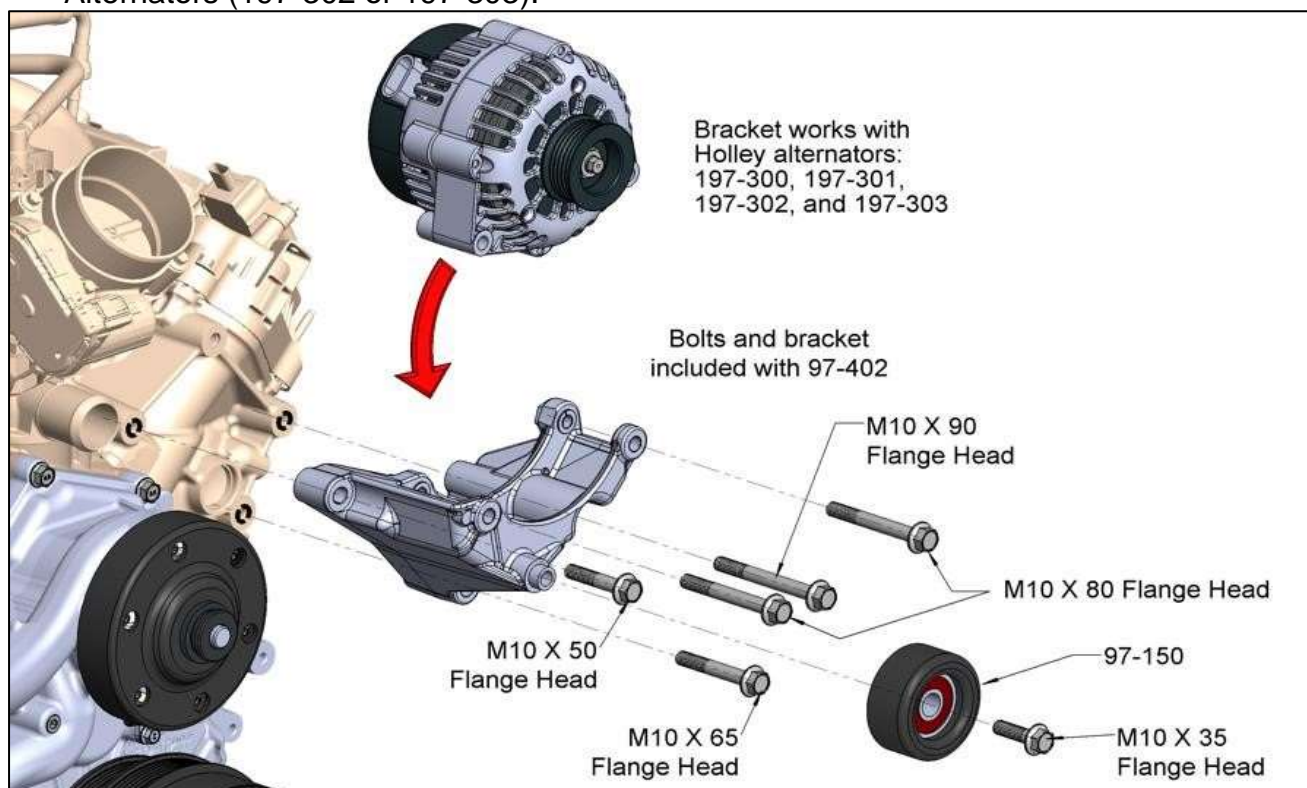


Use the (x19) M8 x 30 Flange Head Bolts to assemble the pan to the engine. Torque the bolts to 18 ft./lbs. starting with the center bolt on each side and working outward in an even pattern.

Alternator Installation:

Components Required –P/N 97-402 / 97-420 bracket, 97-150 idler, and 197-400 harness pigtail
Alternator Options: 197-300, 197-301, 197-302, or 197-303

NOTE: For high RPM race applications, it is recommended to use one of Holley's Premium Alternators (197-302 or 197-303).



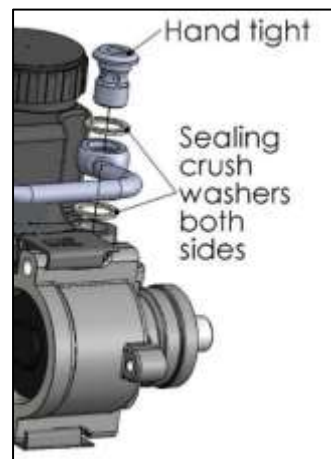
NOTE: Torque M10 bolts to 36 ft./lbs.

When wiring the alternator, install the 197-400 plug into the alternator. Next, connect the yellow wire to switched voltage that is “on” when the key is in the run position. If the vehicle has a “charge indicator light”, the yellow wire can be connected to that circuit.

OPTIONAL ACCESSORY – P/S Pump/Reservoir Installation:

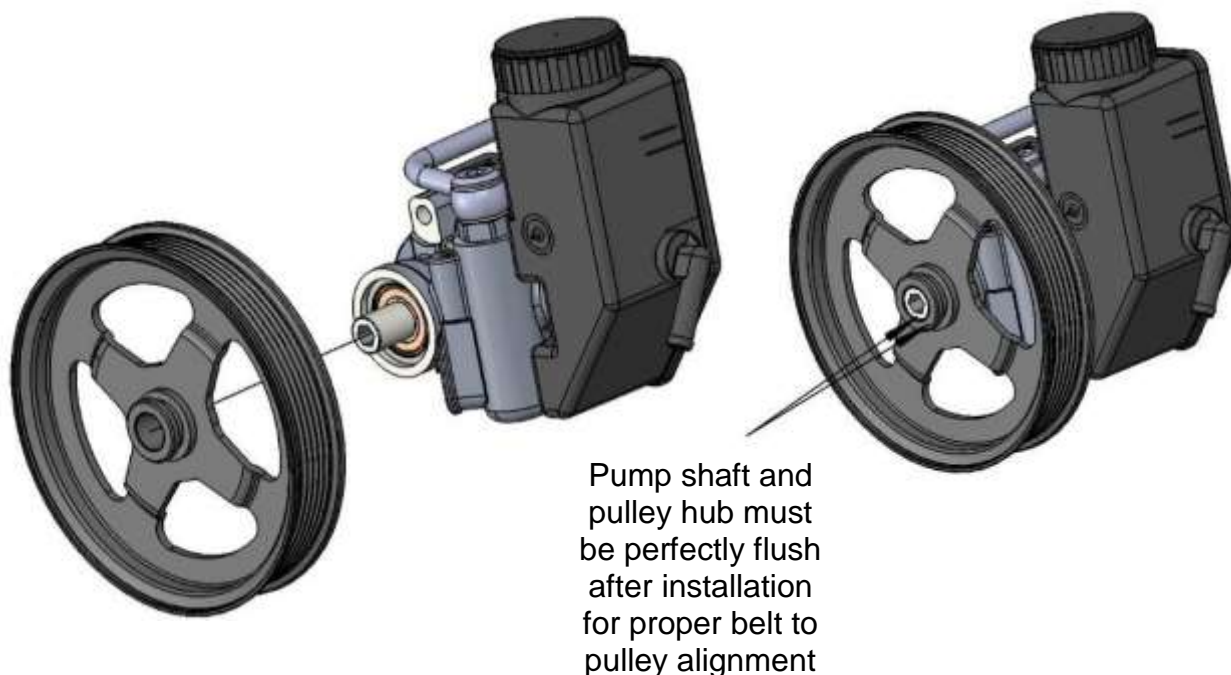
Components - 198-240 adapter, 97-152 pulley, and 198-104 P/S pump

1. Preinstall the -6 AN adapter/tube to power steering pump/reservoir at this time.



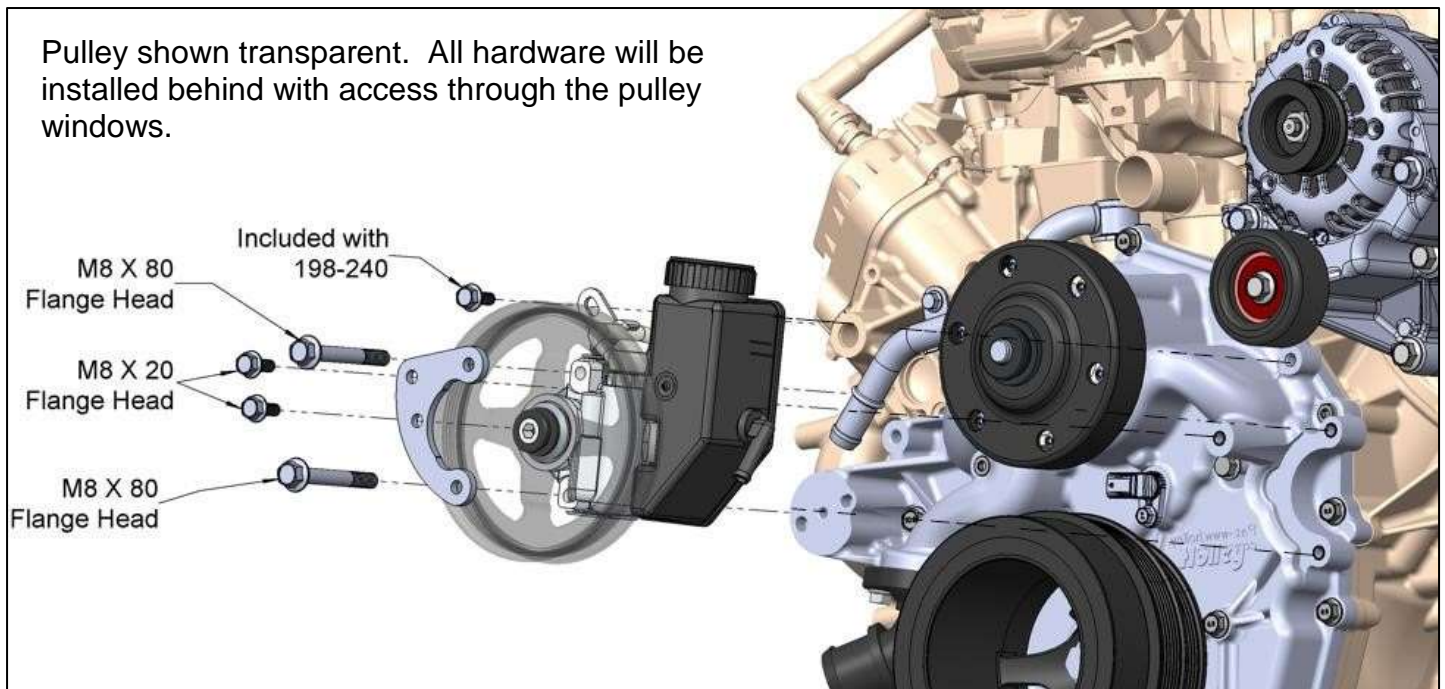
2. Install the power steering pulley using a pulley installer tool.

HELPFUL HINT: Pulley installation tools are available for rent at most auto parts stores.



NOTE: See page 4 for remote and hydro-boost reservoir options, if your application requires these.

3. Install pump assembly to engine.

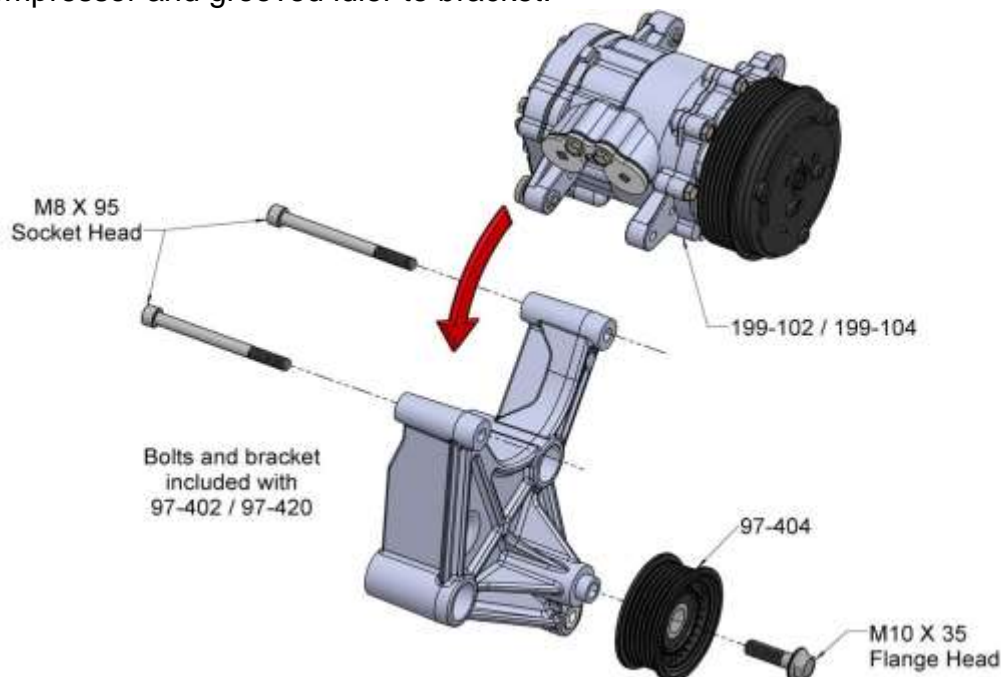


NOTE: After assembly torque M8 bolts to 18 ft./lbs. Last, torque banjo bolt to 25 ft./lbs.

OPTIONAL ACCESSORY – A/C Compressor Installation:

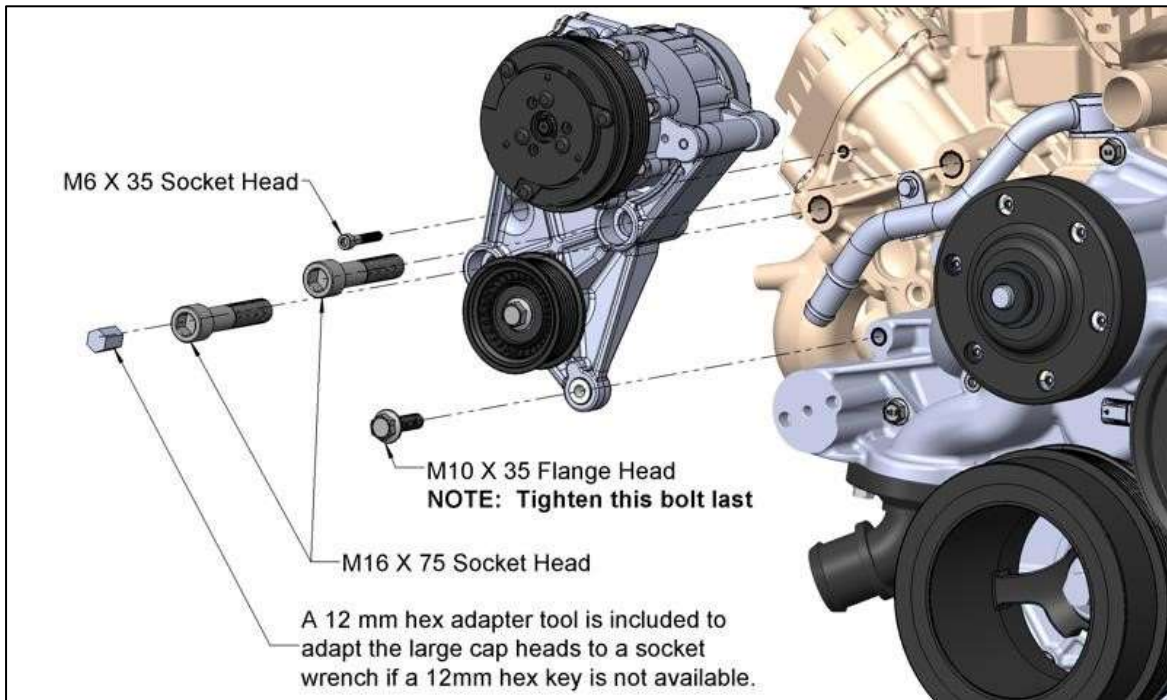
Components – P/N 199-102 / 199-104 compressor, 97-403 / 97-421 bracket, 97-404 grooved pulley, and 199-202 line adapter

1. Install compressor and grooved idler to bracket.



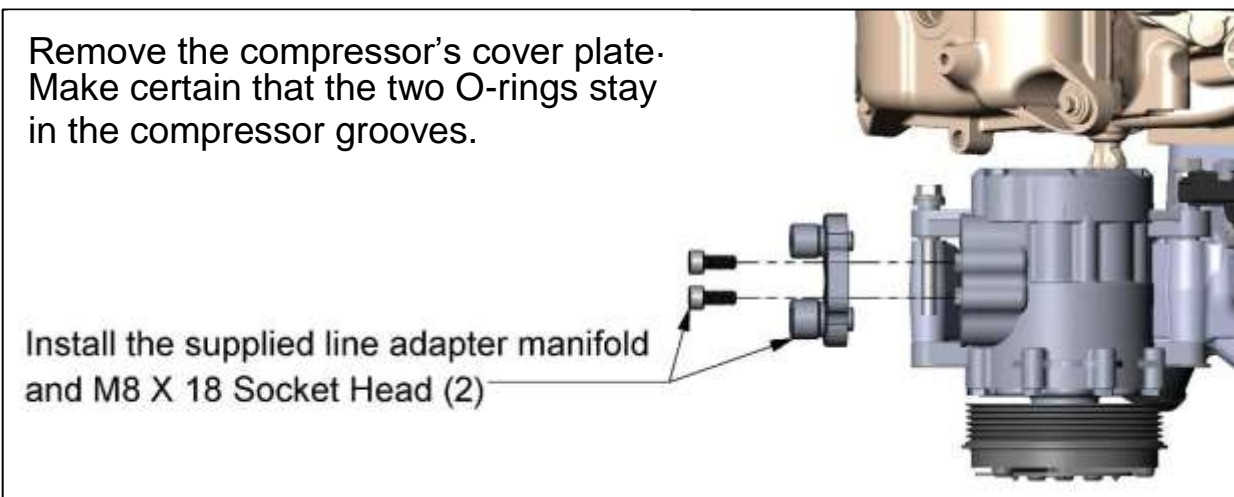
NOTE: Torque M8 bolts to 18 ft./lbs. and M10 bolts to 36 ft./lbs.

2. Install bracket assembly to engine.



NOTE: Torque M6 bolts to 85 in./lbs. and M10 bolts to 36 ft./lbs., and M16 bolts to 120 ft./lbs.

3. Install line adapter 199-202.

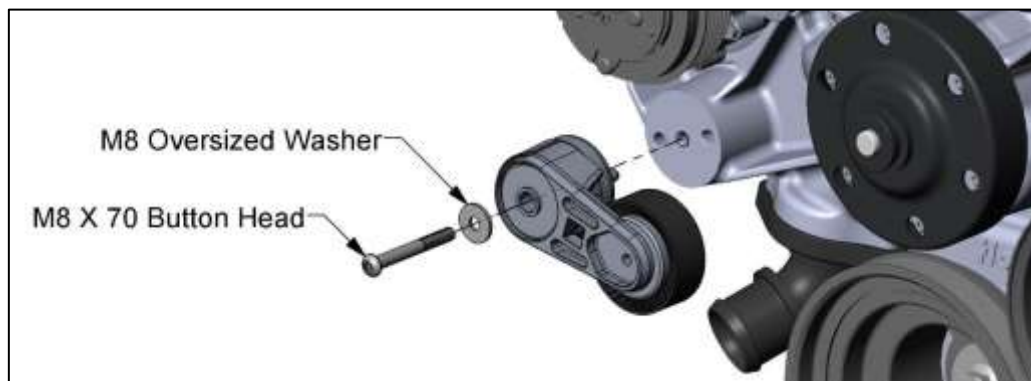


NOTE: Torque M8 bolts to 18 ft./lbs.

Belt Tensioner Installation:

Tensioner Options: P/N 97-179 -OR- 97-151

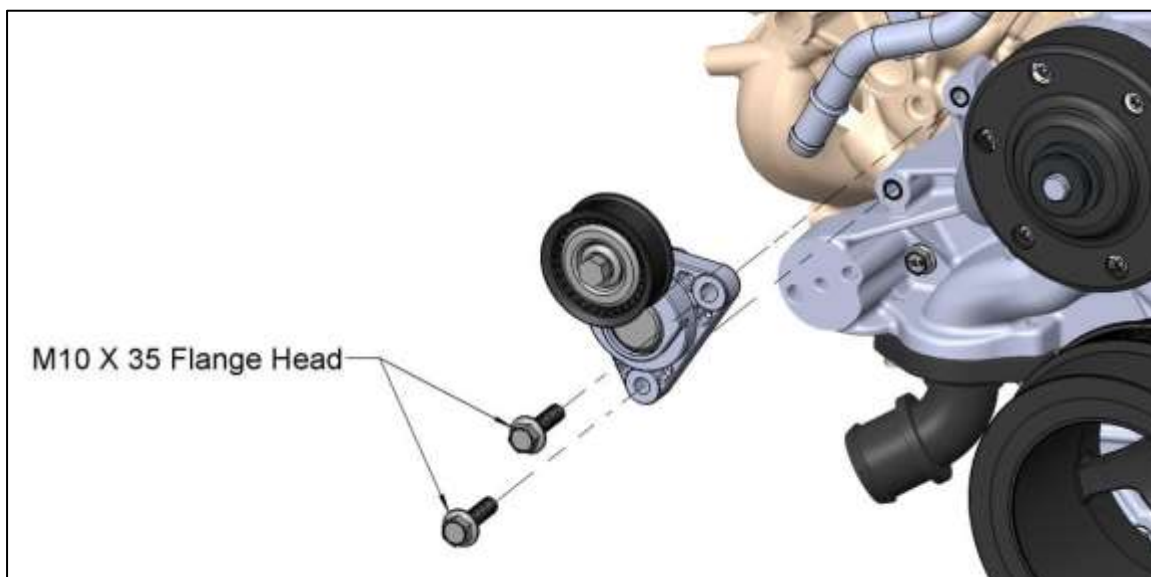
- If installing A/C:
Component – 97-179 Tensioner



NOTE: Torque M8 bolts to 18 ft./lbs

- If Not installing A/C

Component – 97-151 Tensioner

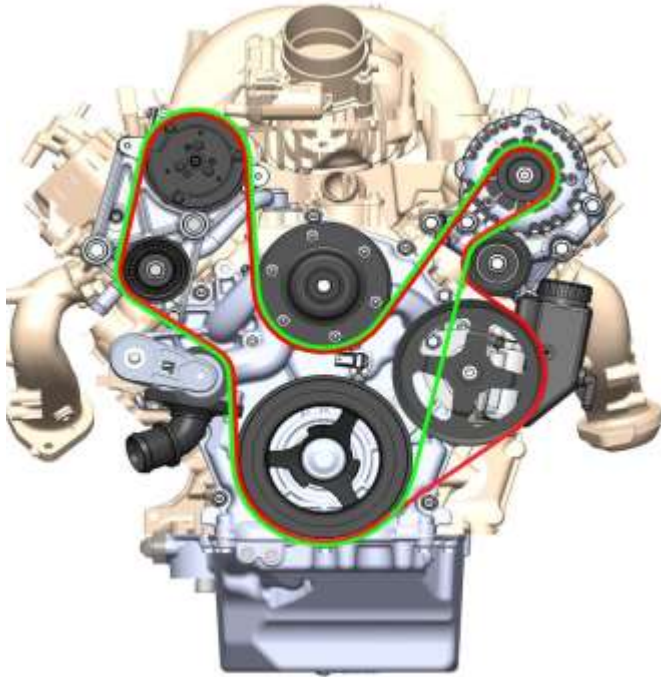


NOTE: Torque M10 bolts to 36 ft./lbs.

Belt Installation:

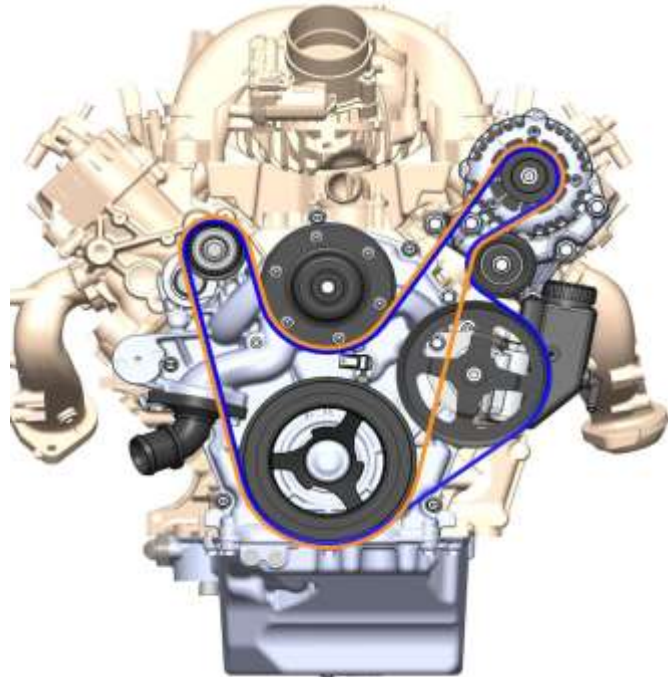
HELPFUL HINT: When installing the belt, route around all the pulleys except the water pump pulley. Slip the belt on the smooth water pump pulley last.

NOTE: All below are with a small case alternator. If using a large case alternator, a slightly longer belt will be required.



With All Accessories Including A/C and Power Steering – 6PK2010 Belt

Power Steering Delete – 6PK1885 Belt



A/C Delete – 6PK1685 Belt

A/C and Power Steering Delete – 6PK1560 Belt

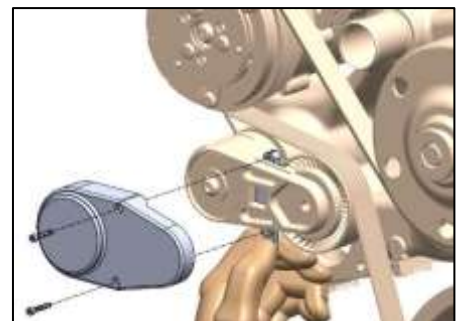
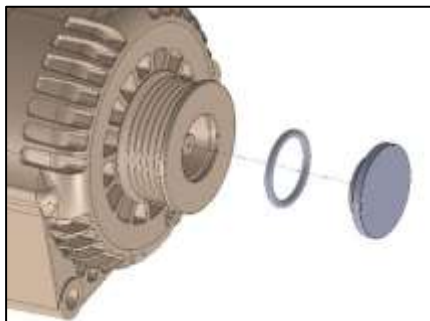
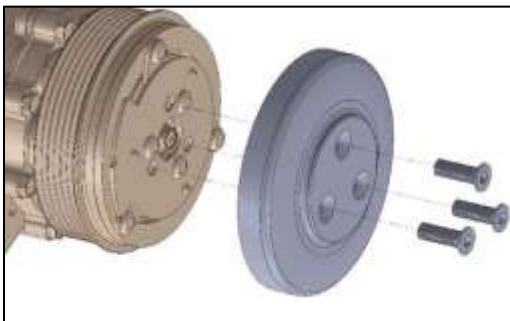
OPTIONAL ACCESSORIES – Pulley and Tensioner Covers:

Components – P/N 97-185 A/C cover, 97-187 alternator cover*, and 97-158 tensioner cover**

Cosmetic covers are included with some kits. If not included, these can be purchased individually. See instructions included with cover for installation procedures.

NOTE: *Alternator cover only works with Holley premium alternators (P/N's 197-302 and 197-303).

**Tensioner cover works only with Holley tensioner P/N 97-179.



PRE-START OIL SYSTEM PRIMING

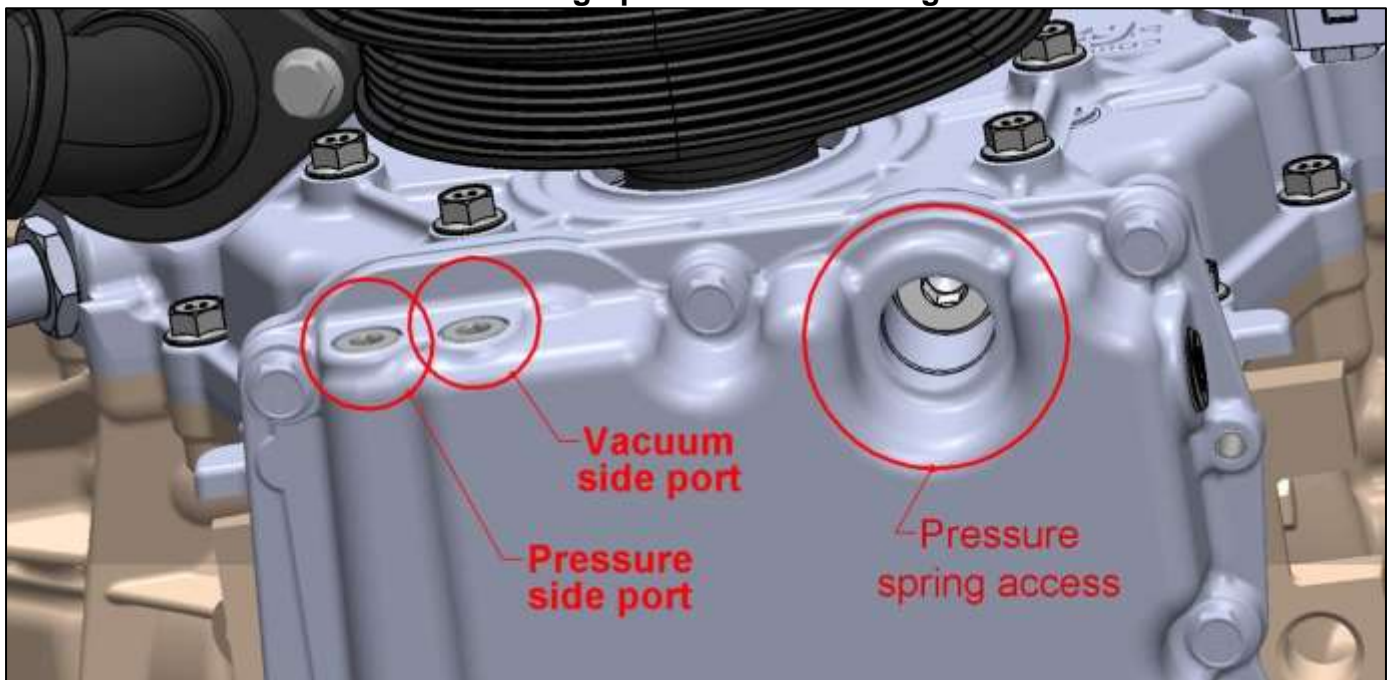
WARNING: A newly installed oil system **MUST** be primed before initially starting the engine.

1. Confirm the oil filter is installed.
2. Remove both 3/8" NPT plugs shown below.
3. Prime engine at the **pressure-side port**. To help with the process, an NPT / barb adapter can be temporarily installed in this port. Tighten snug only.

HELPFUL HINT: A brass or plastic NPT 3/8" NPT to push-on barb can be sourced at most hardware stores.

4. With either a compressed air priming kit or a common garden sprayer, force 2 - 3 quarts of motor oil into the engine at the **pressure-side port**.
5. Turn the crank pulley clockwise one round. (Remove spark plugs to relieve compression for this step if desired.)
6. Confirm oil is present inside the **vacuum-side port**. If not present, recheck after the next step.
7. Push in 1 to 2 additional quarts.
8. Remove the nipple / NPT adapter and quickly reinstall the original pipe plugs.
9. Fill engine with oil per the dipstick markings. Total oil should be 6 to 6 ½ quarts.

View looking up from under the engine.



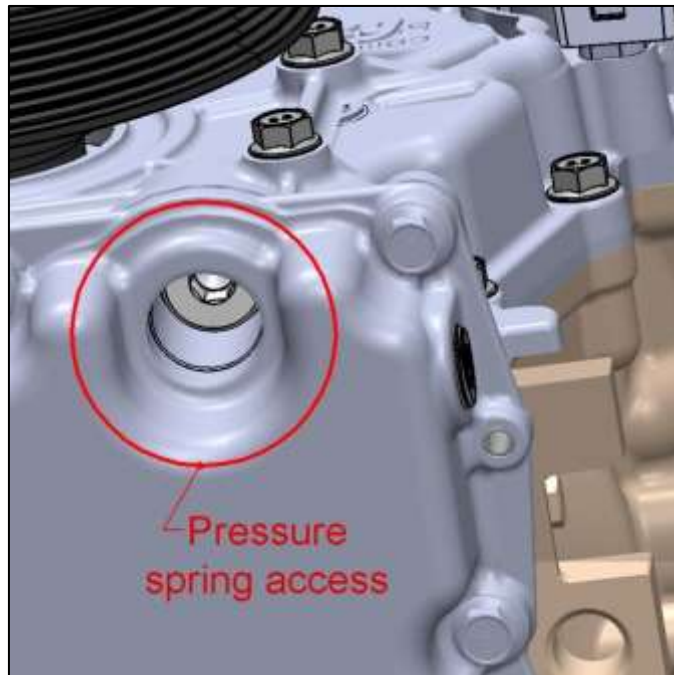
NOTE: Torque drain plug to 18 ft./lbs. NPT adapters – use thread sealant (Loctite® 567 pipe thread sealant or equivalent). Install to finger tight, then tighten 2 to 3 rounds.

Oil Pressure Spring Access:

For certain applications, higher than normal oil pressure is required. Typically, the oil pan must be removed to change the pressure spring on an oil pump. The Holley oil system allows direct access to the spring through the access port on the bottom front of the pan.

Holley high pressure spring P/N 302-102 can be purchased and installed to increase oil pressure by approximately 10 PSI at higher RPMs.

To change the spring, remove the port plug, spring, and plunger. In some cases, the plunger may stay in the port. Make sure when reassembling the plunger is on top of the spring and oriented correctly.



NOTE: Torque plug to 30 ft./lbs. (use blue thread locker).

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