

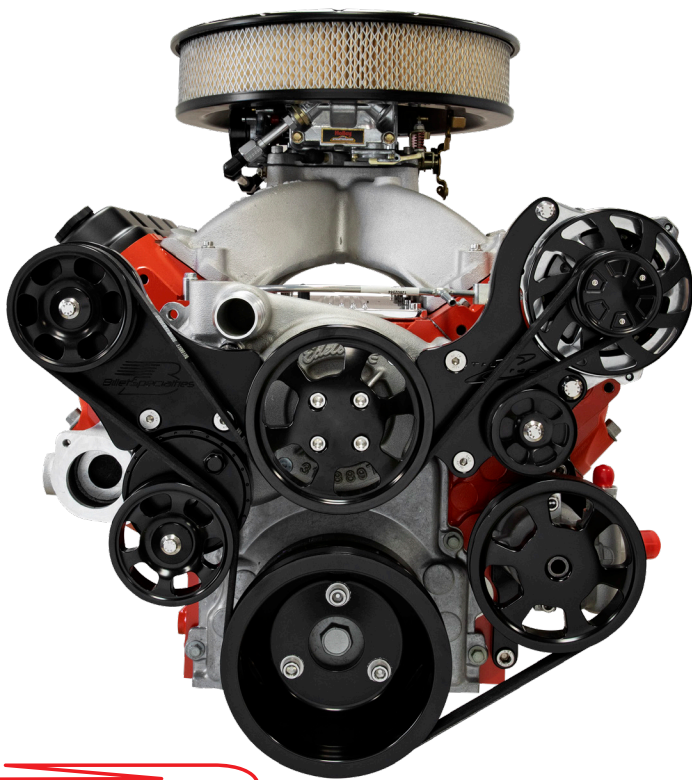
Tru Trac

LS TRU TRAC

Installation Manual
For Systems W/O AC

13455/13475/BLK13455/BLK13475

13465/13495/BLK13465/BLK13495



BilletSpecialties

Billet Specialties, Inc.

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Tech (708) 588-0505 • Fax (708) 588-7181

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLING ANY COMPONENTS OF THE TRU TRAC SERPENTINE SYSTEM

IMPORTANT!

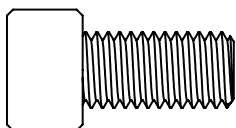
Thoroughly read the instructions, the removal and installation of the damper requires special tools, if after reading the instructions and you feel you may not be able to install the damper correctly Billet Specialties recommends you to have a professional mechanic perform the installation.

Required Tools & Materials

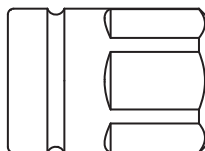
- | | | |
|--------------------------------------|--|---|
| <input type="checkbox"/> 5mm Allen | <input type="checkbox"/> 3/8" 12pt. Socket | <input type="checkbox"/> Socket Wrench & Extensions |
| <input type="checkbox"/> 6mm Allen | <input type="checkbox"/> 5/8" Hex Socket | <input type="checkbox"/> 1/2" Drive Breaker Bar |
| <input type="checkbox"/> 8mm Allen | <input type="checkbox"/> 10mm 12pt. Socket | <input type="checkbox"/> Torque Wrench Capable of 250ft/lbs. |
| <input type="checkbox"/> 1/4" Allen | <input type="checkbox"/> 12mm 12pt. Socket | <input type="checkbox"/> 1/2" Combination Wrench |
| <input type="checkbox"/> 3/16" Allen | <input type="checkbox"/> 22mm Hex Socket | <input type="checkbox"/> 3/4" Combination Wrench |
| <input type="checkbox"/> 5/16" Allen | <input type="checkbox"/> 24mm Hex Socket | <input type="checkbox"/> 11/16" Combination Wrench |
| | | <input type="checkbox"/> LocTite 272 Thread Locker |
| | | <input type="checkbox"/> Anti-Seize Compound |

Included Serpentine Belt				
With P/S	Continental Elite	6-Rib Poly-V Serpentine	Length: 71"	#4060710
Without P/S	Continental Elite	6-Rib Poly-V Serpentine	Length: 65"	#4060650

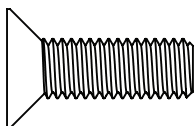
Skin Board #1 - Packaged with Power Steering Pump



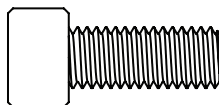
M10 - 1.5 x 20mm Socket
Head Cap Screw
Qty. 2



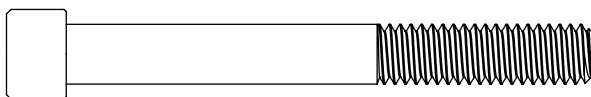
1.035" Stand-Off
Qty. 3



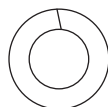
M8-1.25 x 25mm Flat
Head Cap Screw
Qty. 3



M8-1.25 x 20mm Socket
Head Cap Screw
Qty. 3



5/16-18 x 2-3/4" Socket
Head Cap Screw
Qty. 2

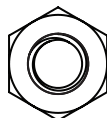


5/16" Lock
Washer
Qty. 2

Skin Board #2 - Packaged with Water Pump



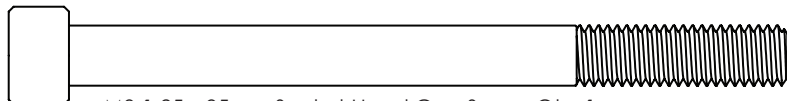
M8-1.25 x 92mm Threaded Rod Qty. 3



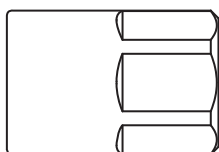
M8-1.25mm
Hex Nut
Qty. 2
Discard after use



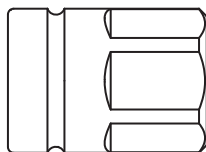
M8-1.25 x 118mm Threaded Rod Qty. 2



M8-1.25 x 95mm Socket Head Cap Screw Qty. 1



1.103" Stand-Off
Qty. 2

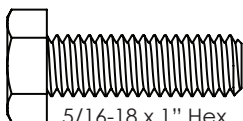


1.035" Stand-Off
Qty. 3

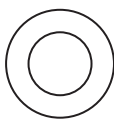
TECH TIP:

Billet Specialties recommends the use of Anti-Seize on all fasteners to prevent thread lock-up.

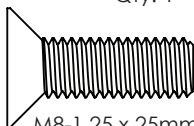
Skin Board #3 Packaged in Main Box



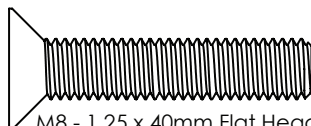
5/16-18 x 1" Hex
Head Bolt
Qty. 1



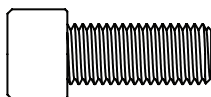
5/16" Flat
Washer
Qty. 1



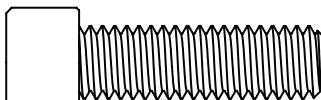
M8-1.25 x 25mm Flat
Head Cap Screw
Qty. 4



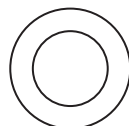
M8 - 1.25 x 40mm Flat Head
Cap Screw
Qty. 2



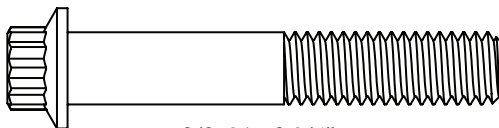
5/16-24 x 3/4" Socket
Head Cap Screw
Qty. 4



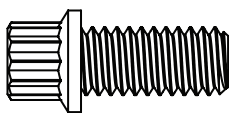
3/8-16 x 1-1/4" Socket
Head Cap Screw
Qty. 3



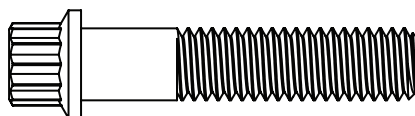
3/8" Belleville
Washer
Qty. 3



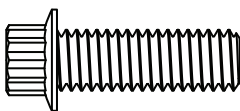
3/8 -16 x 2-1/4"
12pt. Cap Screw
Qty. 1



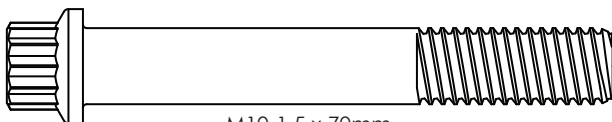
3/8-16 x 3/4"
12pt. Cap Screw
Qty. 1



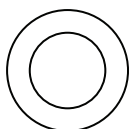
3/8-16 x 1-3/4"
12pt. Cap Screw
Qty. 1



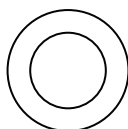
M8-1.25 x 25mm
12pt. Cap Screw
Qty. 2



M10-1.5 x 70mm
12pt. Cap Screw
Qty. 1



1mm
Shim Washer
Qty. 2



.5mm
Shim Washer
Qty. 2

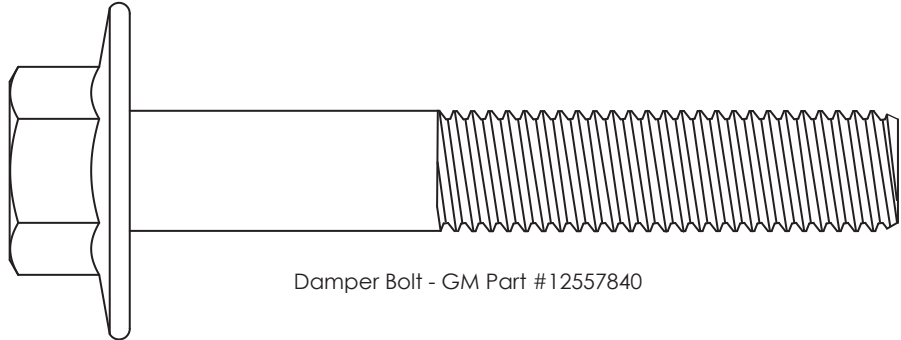
Engine Prep

- Disconnect battery.
- Remove existing accessory drive and water pump.
- Remove factory damper bolt & damper (**see recommended damper tools**).
- Clean gasket areas, Inspect front crank seal and replace if necessary.

A note about painted engine blocks - It is important the alternator and alternator bracket have a good ground to the engine block. Improperly grounded high amp alternators will either not charge at full output or not charge at all. Remove any paint that comes in contact with the water pump and alternator bracket. This also applies if you choose to paint the water pump.

Damper Installation Tools

GM Part Number	Description
J-41816	Crankshaft balancer remover or similar
J-41816-2	Crankshaft balancer remover step plate
J-42836-A	Flywheel holding tool
J-41665	Crankshaft balancer and sprocket installer
J-41478	Crankshaft front oil seal installer
J-45059	Angle Meter



Damper Bolt - GM Part #12557840

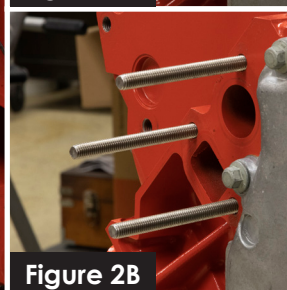
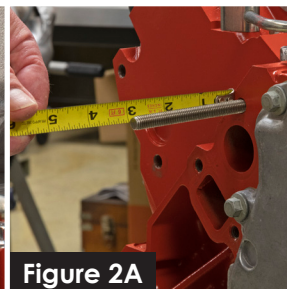
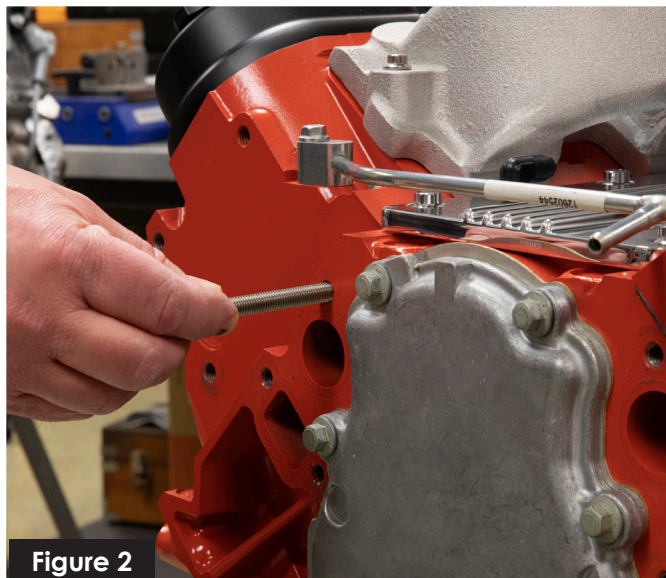


ATI Damper Installation

Install ATI Crank Damper per instructions included with the ATI Damper.

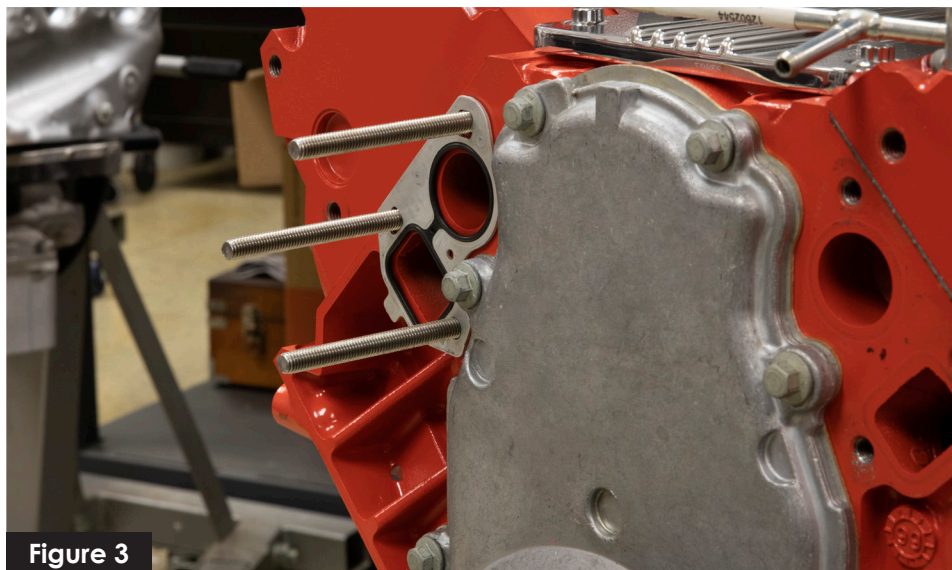
TECH TIP:

Billet Specialties recommends the use of Anti-Seize on all fasteners to prevent thread lock-up.



Install Water Pump

Install the three M8-1.25 x 92mm threaded studs into the passenger side of the engine block as shown (Figure 2), Leave 3" of exposed thread (Figure 2A & 2B). Use the two supplied M8 hex nuts locked together if necessary.



Slide the LS water pump gasket over the studs against the engine block. (Figure 3).

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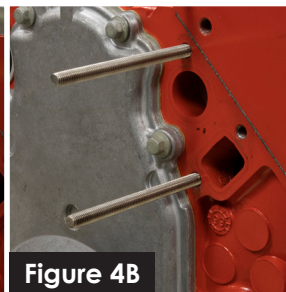
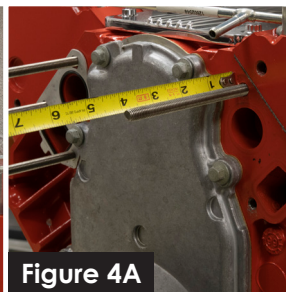
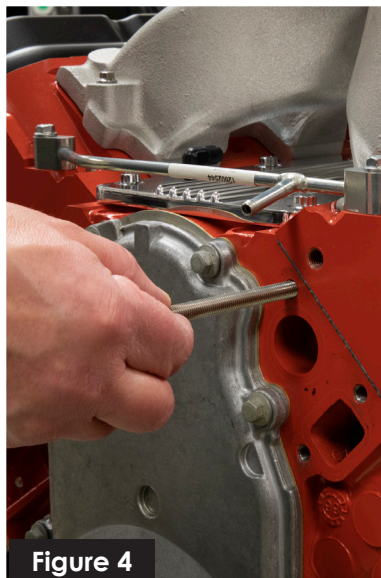


Figure 4

Figure 4A

Figure 4B

Figure 4C

Install Water Pump Cont.

Install the two M8-1.25 x 118mm threaded studs into the driver side of the engine block near the timing cover as shown (Figure 4), leave 4" exposed thread (Figure 4A & 4B). Use the two supplied M8 hex nuts locked together if necessary. Slide the LS water pump gasket over the studs and against the engine block. (Figure 4C).

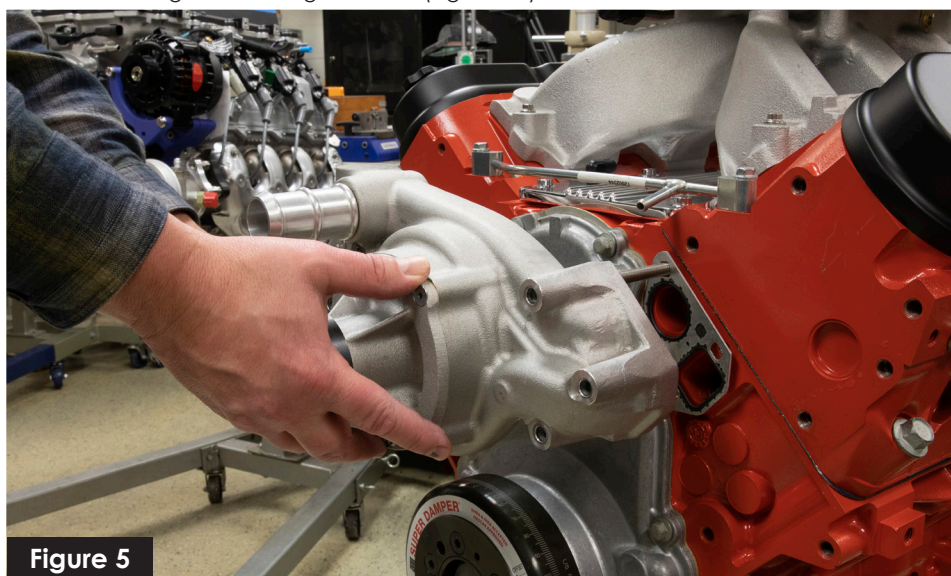


Figure 5

Install water pump onto engine (Figure 5), at this time apply anti-seize to the exposed threads of all the studs.

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Figure 6

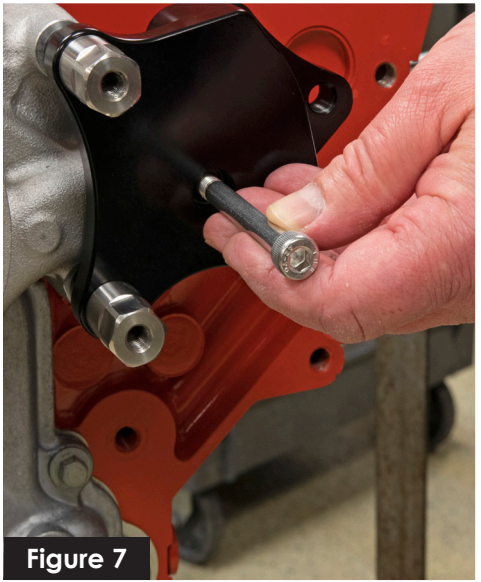


Figure 7

Install Alternator Bracket

Install the driver side alternator bracket P/N 13550G over the studs. Thread the two 1.103" Standoffs onto the studs and finger tighten (Figure 6). Finish driver side installation by threading the M8-1.25 x 95mm socket head cap screw through the bracket and into the block and finger tighten (Figure 7).

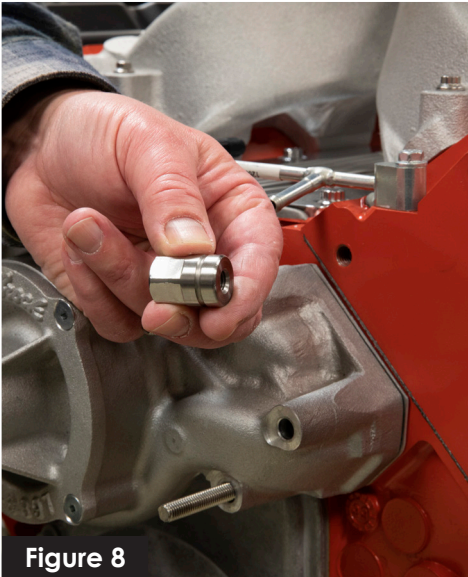


Figure 8

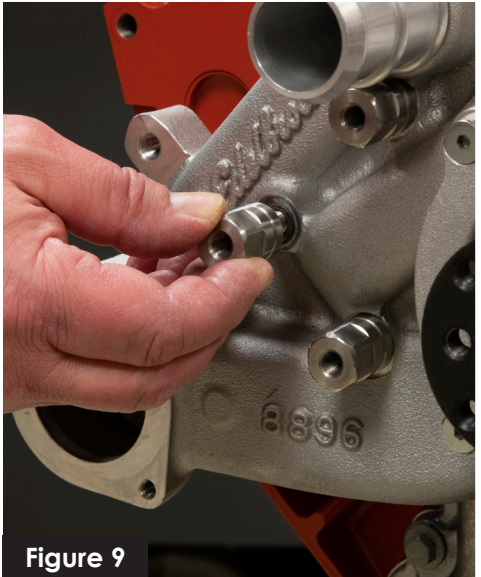


Figure 9

Finish by installing the three 1.035" spacers identified by a machined groove on them (Figure 8) onto the three passenger side studs. (Figure 9). Tighten all fasteners firmly at this time. (Both passenger and driver side).

TECH TIP:

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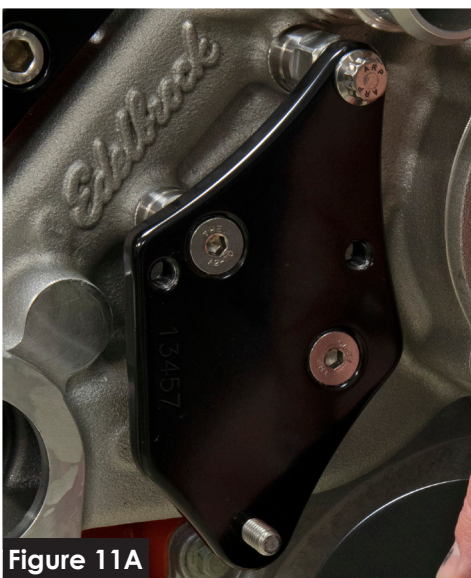
Install Tensioner Bracket and Tensioner

Apply anti-seize to the threads of the following:

- (1) M8-1.25 x 25mm ARP 12pt. cap screw
- (2) M8-1.25 x 25mm flat head cap screw
- (1) 5/16-18 x 1" hex head bolt

Tensioner Bracket

Push the 5/16-18 x 1" hex head bolt and 5/16" flat washer into the back of the tensioner bracket P/N 13457 (Figure 12) as shown. Place the bracket with the bolt and washer on the passenger side of the water pump as shown. Thread the two M8-1.25 x 25mm flat head cap screws through the bracket and into the bottom standoffs (Figure 12A).



Finish by threading the M8-1.25 x 25mm ARP 12pt. cap screw through the hole in the bracket and into the top standoff. Tighten all three fasteners firmly. (Figure 13 & 13A).

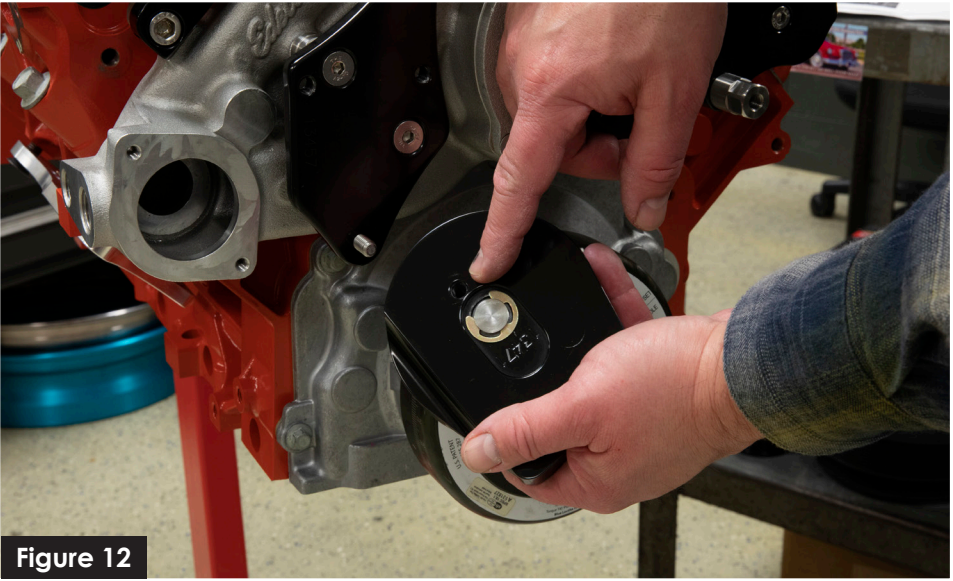


Figure 12

Install Tensioner

Align the threaded hole in the back of the tensioner (Figure 12) with the threads of the 5/16-18 hex head bolt sticking through the tensioner bracket, finger tighten the tensioner to the bracket while aligning the top tensioner holes with the bracket.

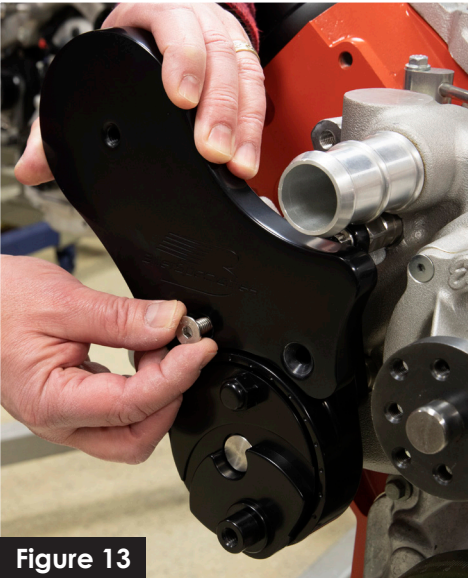


Figure 13

Install Idler Bridge Bracket

Apply anti-seize to the threads of the two M8-1.25 x 40mm flat head cap screws. Next, place the idler bridge bracket P/N 13476 on the passenger side of the motor, align the two bottom holes with the tensioner. Thread the two M8-1.25 x 40mm flat head cap screws through the idler bridge bracket, tensioner into the tensioner bracket. (Figure 13) Only finger tighten at this time (Figure 14).

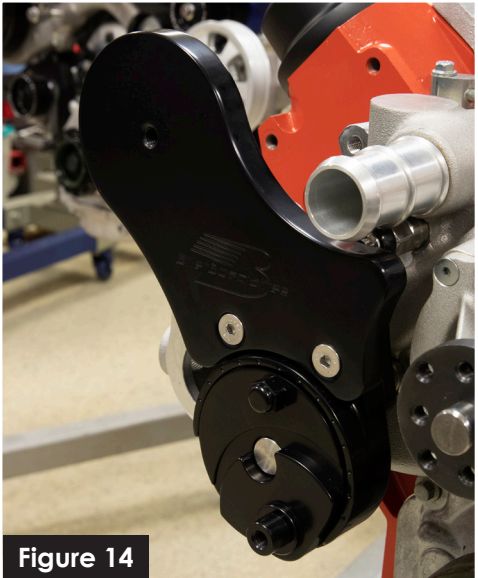
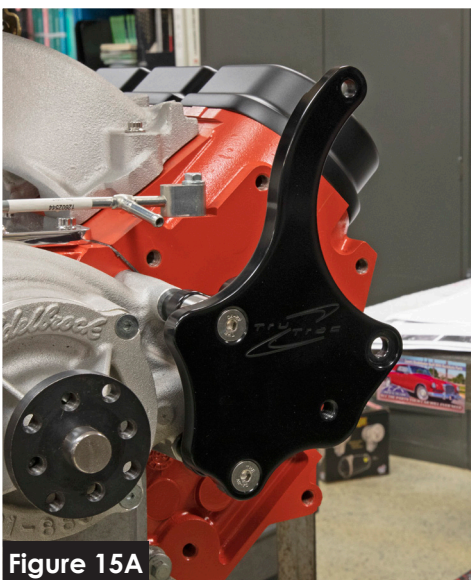


Figure 14



Install Alternator Bridge Bracket

Apply anti-seize to the threads of the two M8-1.25 x 25mm flat head cap screws. Next place the alternator bracket P/N 13550D to the driver side of the water pump and align with the two standoffs. Install the flat head cap screws and finger tighten. (Figure 15 & 15A).



Install Water Pump Pulley

Apply Loctite 272 Thread Locker to the threads of the four 5/16-24 x 3/4" socket head cap screws. Install water pump pulley as shown and tighten firmly. (Figure 16).

Install Crank Pulley

Apply Loctite 272 Thread Locker to the threads of the three 3/8-16 x 1-1/4" socket head cap screws. Install crank pulley as shown (Figure 17), install the Belleville washers with the cup of the washer facing towards the pulley tighten firmly.



Figure 18

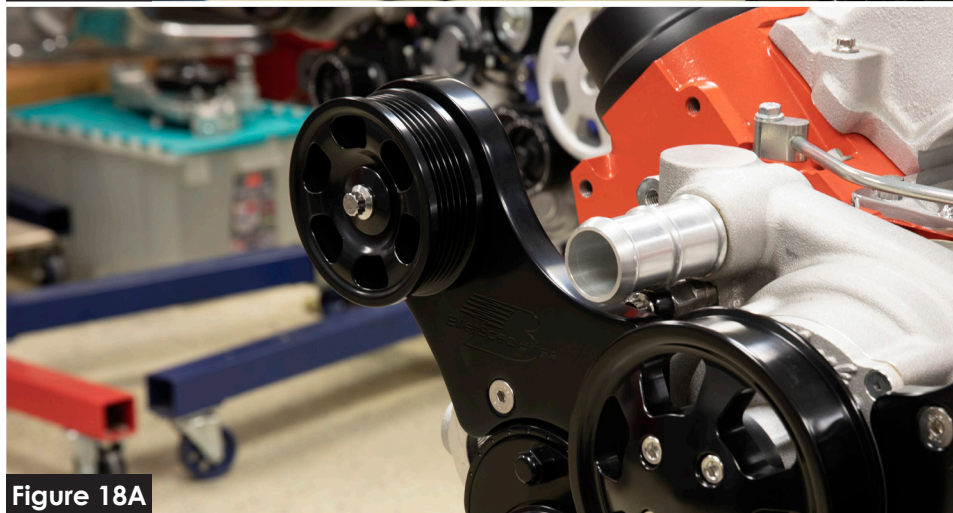


Figure 18A

Install Idler Pulley

Apply anti-seize to the following:

- (1) 3/8-16 x 2-1/4 12pt. cap screw.

Place the idler pulley bearing sleeve into the bearing on the backside of the pulley as shown (Figure 18). (The back of the pulley is identified by the fully exposed bearing). Align idler pulley and bearing sleeve with the bridge bracket and install the ARP 3/8-16 x 2-1/4 12pt cap screw with the aluminum washer (Skin packed with the pulley) into the bridge bracket. (Figure 18A). **Tighten all fasteners firmly on the passenger side firmly at this time, including the hex head behind the tensioner.**

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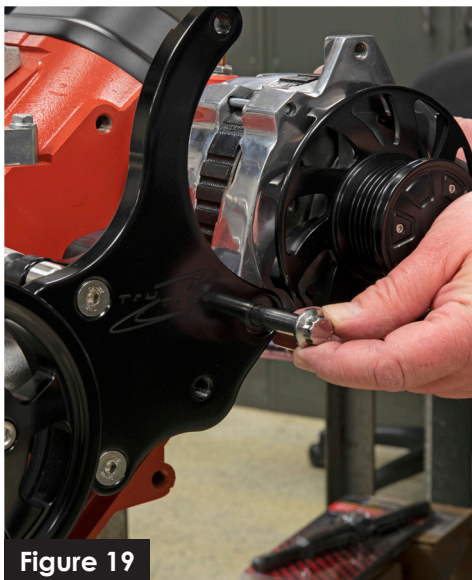


Figure 19

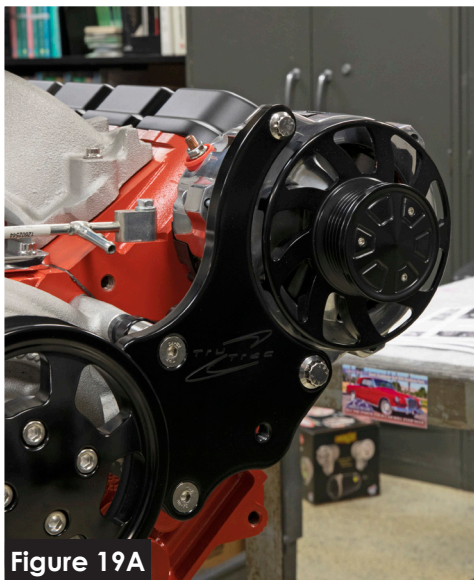


Figure 19A

Install Alternator

Apply anti-seize to the M8-1.25 x 25mm ARP 12pt. cap screw and the M10-1.5 x 70mm ARP 12pt. cap screw. Place the alternator between the bridge bracket and alternator bracket, install the M10-1.5 x 70mm ARP 12pt. cap screw through the bridge bracket and alternator bottom into alternator bracket (Figure 19). Rotate alternator up and install the M8-1.25 x 25mm ARP 12pt. cap screw (Figure 19A). **Tighten all fasteners firmly on the driver side at this time.**



Figure 20



Figure 20A

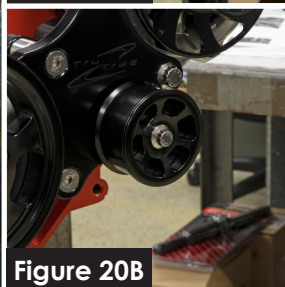


Figure 20B

Install Idler Pulley

Apply anti-seize to the 3/8-16 x 1-3/4" ARP 12pt. cap screw. Place the bearing sleeve into the back of the idler pulley (the back is identified by the fully exposed bearing). (Figure 20) Thread the 3/8-16 x 1-3/4" ARP 12pt. cap screw through the idler pulley cover, idler pulley and bearing sleeve (Figure 20A) into the bridge bracket and tighten firmly (Figure 20B).



Figure 21

Install Tensioner Pulley

Apply anti-seize to the 3/8-16 x 3/4" ARP 12pt. cap screw. Place the tensioner pulley onto the tensioner, finish installing the 3/8-16 x 3/4" ARP 12pt. cap screw and aluminum washer (packaged w/pulley) and tighten firmly (Figure 21).

FOR KITS WITHOUT POWER STEERING PROCEED TO BELT INSTALLATION

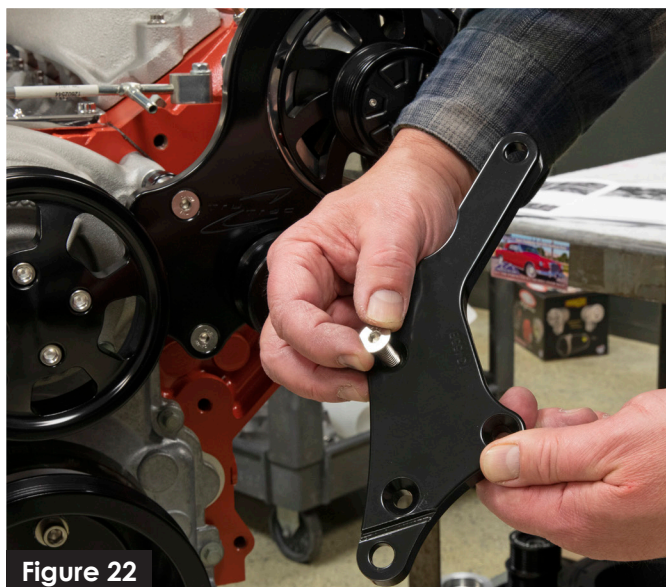


Figure 22

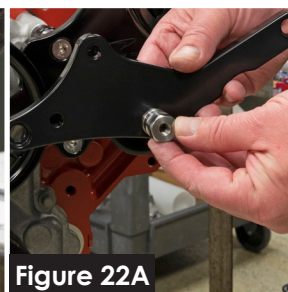


Figure 22A

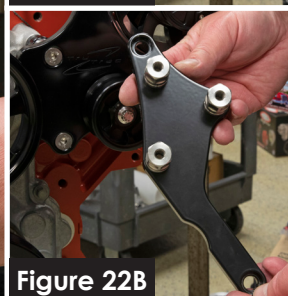


Figure 22B

Assemble Power Steering Block Bracket

Apply anti-seize to the three M8-1.25 x 25mm flat head cap screws. Attach the three 1.035" spacers identified by a machined groove on them to the power steering block bracket P/N 13455B with the flat head cap screws from behind as shown. (Figure 22, 22A & 22B) Tighten Firmly.



Figure 23

Assemble Power Steering Pump Bracket to Block Bracket

Apply anti-seize to the three M8-1.25 x 20mm socket head cap screws. Install the power steering pump bracket P/N 13455A to the standoffs as shown and tighten firmly. (Figure 23).



Figure 24

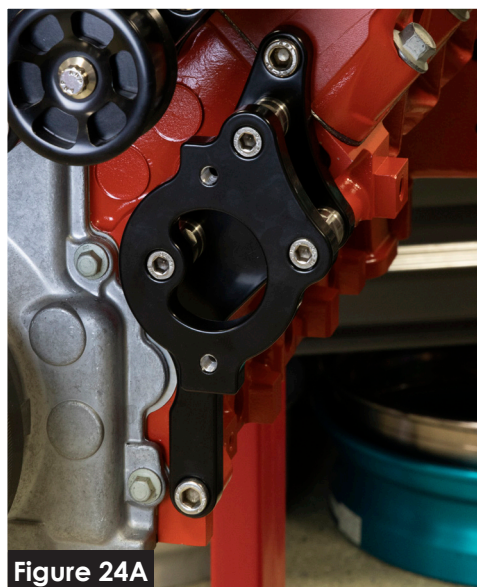


Figure 24A

Install Bracket Assembly to Engine Block

Apply anti-seize to the two M10-1.5 x 20mm socket head cap screws. Attach the power steering block bracket with the three standoffs and power steering pump bracket to the engine block as shown (Figure 24 & 24A). Tighten Firmly.

TECH TIP:

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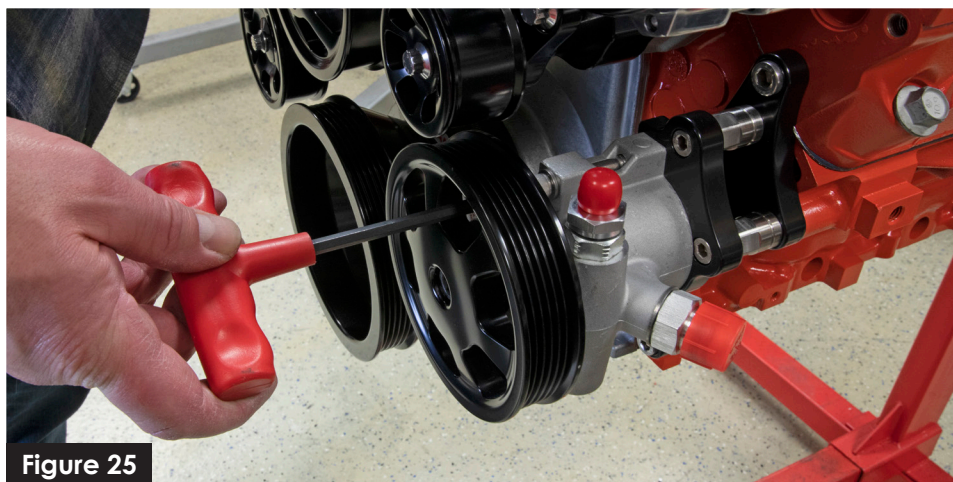


Figure 25

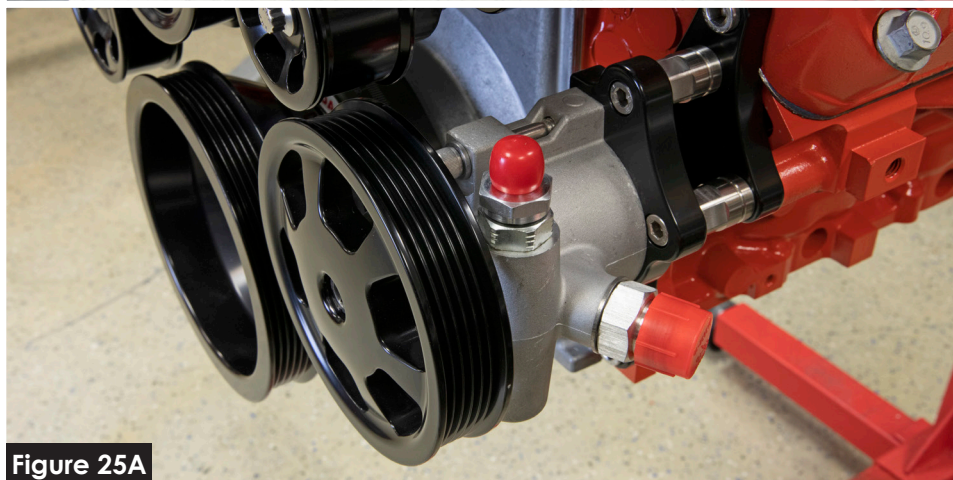


Figure 25A

Install Power Steering Pump

Install a 5/16" split washer onto each of the two 5/16-19 x 2-3/4" socket head cap screws, then apply anti-seize to the threads. Attach the power steering pump and pulley assembly to the bracket as shown (Figure 25) and tighten firmly (Figure 25A).

IMPORTANT

DO NOT START MOTOR until you have completely installed ALL power steering hoses, reservoir and added power steering fluid to the system. A bleeding procedure is included in this kit.

- **Power steering fluid is the lubricant for the pump**
- **Serious Damage will occur to the power steering pump if it is run dry.**
- **Pumps that have been run dry are not warrantable.**

Note: Automatic Transmission Fluid (ATF) should never be used in place of quality brand name power steering fluid. Billet Specialties recommends a quality synthetic power steering

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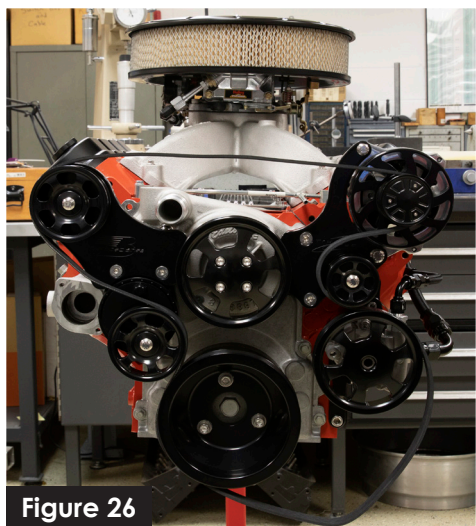


Figure 26

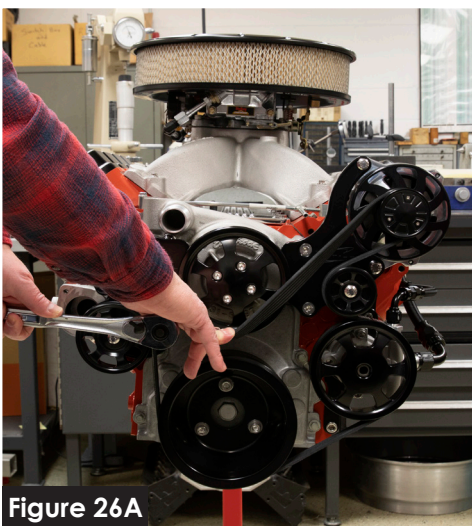


Figure 26A

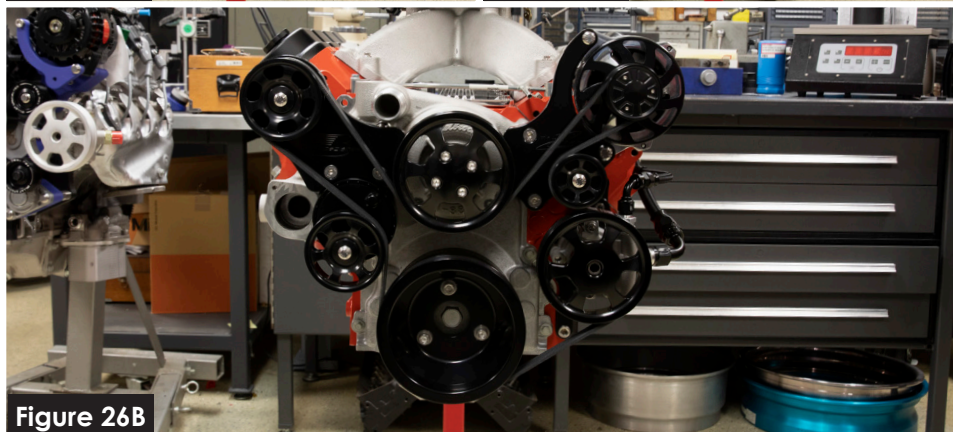
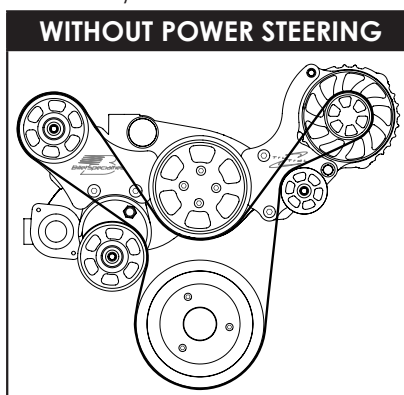
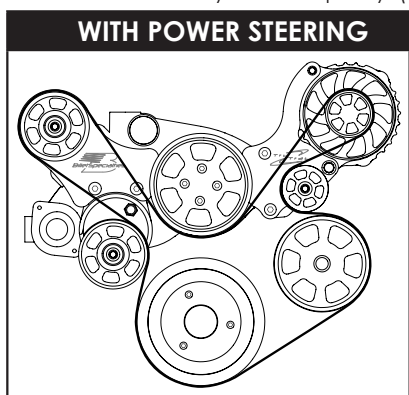


Figure 26B

Serpentine Belt Installation

Route belt as shown (Figure 26), attach a 5/8 socket and breaker bar or long ratchet onto the aluminum nut on the tensioner. Rotate the tensioner clockwise while slipping the belt underneath the water pump pulley, release tension after you have checked the belt is lined up and installed correctly on each pulley. (Figure 26A & 26B).



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