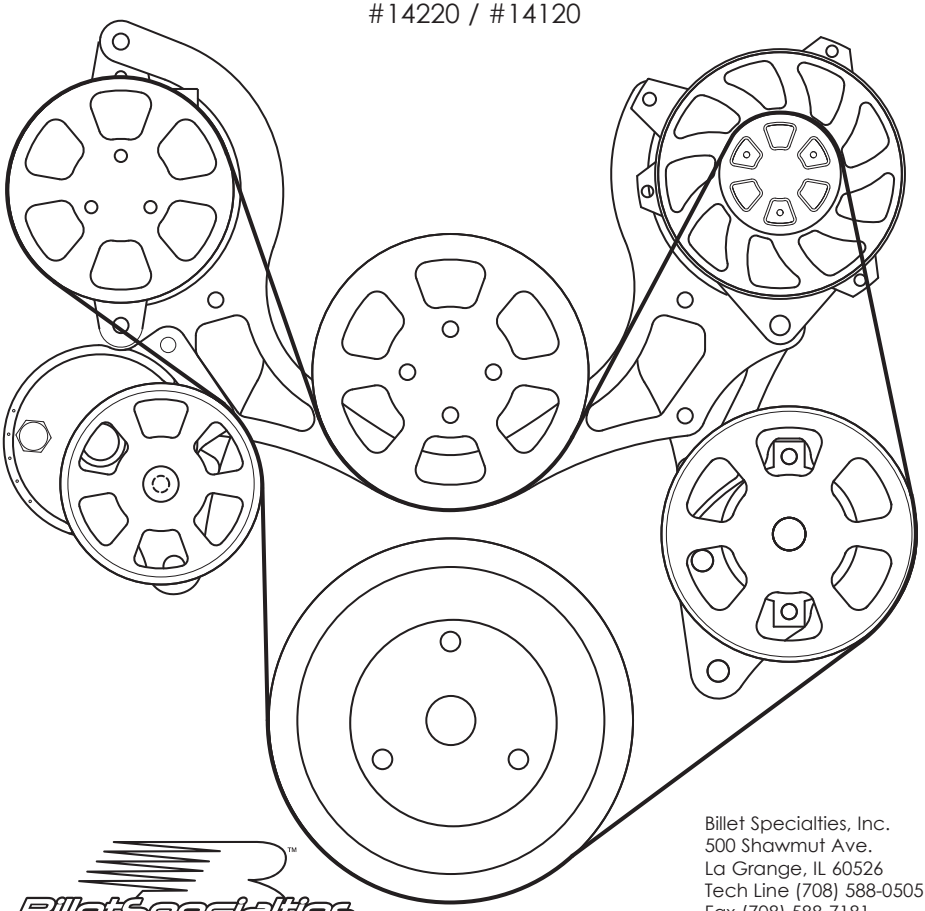
Tru Trac™

Big Block Chevrolet

Installation Manual
For Systems with A/C
#14220 / #14120



Billet Specialties, Inc.
500 Shawmut Ave.
La Grange, IL 60526
Tech Line (708) 588-0505
Fax (708) 588-7181

Billet Specialties™

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

Required Tools & Materials

- ☐ Anti-seize Compound
- ☐ Loc-Tite® Thread Locker
- ☐ RTV Silicone
- ☐ Gasket Scraper
- ☐ Scotch-Brite® Pad
- ☐ 3/8-16 Thread Chaser* & Holder
- ☐ 7/16-14 Thread Chaser*

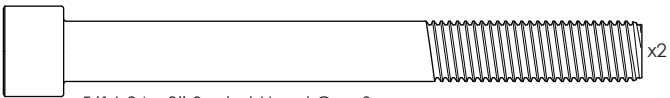
*Thread chasers are available at your local parts store and are different from a thread cutting tap.

- ☐ 9/16" Combo Wrench
- ☐ 11/16" Combo Wrench
- ☐ 3/4" Combo Wrench
- ☐ Socket Wrench & Extension
- ☐ 10mm 12pt. socket
- ☐ 12mm 12pt. socket
- ☐ 3/8" 12pt. socket

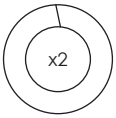
- ☐ 3/16" Allen
- ☐ 5/16" Allen
- ☐ 1/4" Allen
- ☐ 3/8" Allen
- ☐ 4mm Allen
- ☐ 5mm Allen
- ☐ 6mm Allen

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

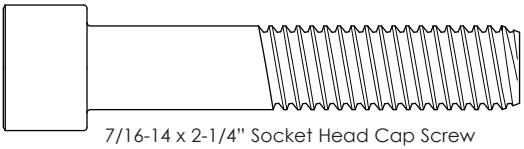
Skin Board #1 - Packaged with Power Steering Pump



5/16-24 x 3" Socket Head Cap Screw
Power Steering Pump



5/16" Lock Washer



7/16-14 x 2-1/4" Socket Head Cap Screw
Power Steering Bracket

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Prepping The Block

- Disconnect the battery.

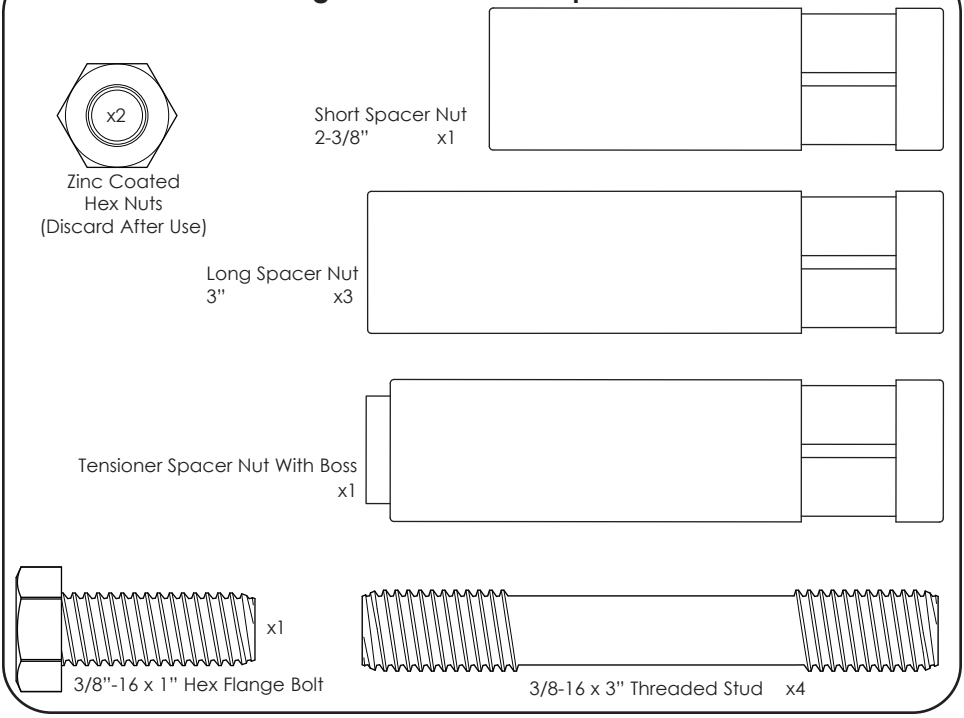
- Remove the existing alternator, air conditioning compressor and associated brackets

- Remove pulleys and water pump

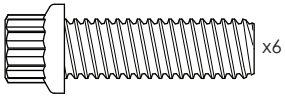
-Remove all traces of gasket and sealer with a gasket scraper and Scotch Brite® pad.

- Clean threads in block by chasing the water pump mounting threads with a 3/8-16 thread chaser and the threads on the two lower bosses on either side of the balancer with a 7/16-14 thread chaser.

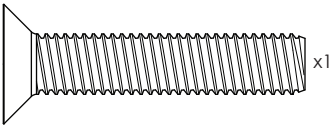
Skin Board #2 - Packaged with Water Pump



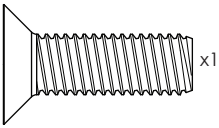
Skin Board #3 - Packaged In Main Box



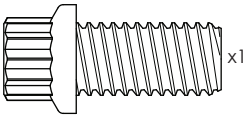
8mm-1.25 x 25mm 12pt. Cap Screw
Bridge Bracket



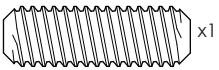
8mm-1.25 x 40mm Flat Socket
Cap Screw - Bridge Bracket



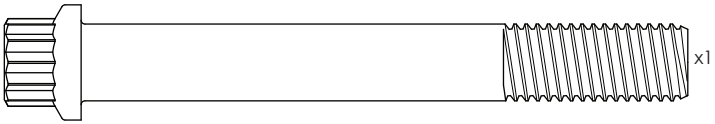
8mm-1.25 x 25mm Flat Socket
Cap Screw - Bridge Bracket



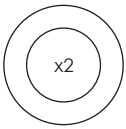
3/8-16 x 3/4" 12pt. Cap Screw
Tensioner Pulley



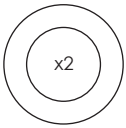
8mm-1.25 x 25mm Socket Set Cup Point
Tensioner Assembly



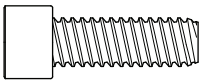
10mm-1.25 x 80mm 12pt. Cap Screw
Alternator



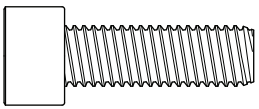
10mm x .5mm
Shim Washer



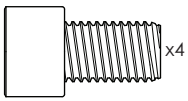
10mm x 1mm
Shim Washer



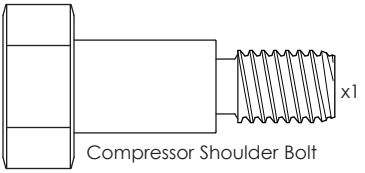
1/4-20 x 3/4" Socket Head Cap Screw
A/C Clutch Cover



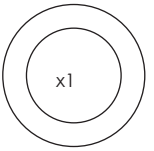
8mm-1.25 x 25mm Socket Head Cap Screw
A/C Manifold



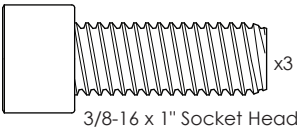
5/16-24 x 1/2" Socket Head Cap Screw
Water Pump Pulley



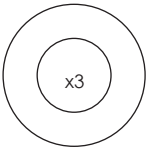
Compressor Shoulder Bolt



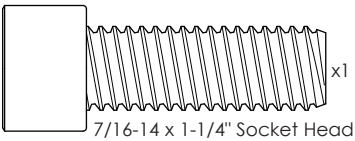
Compressor Bolt Washer



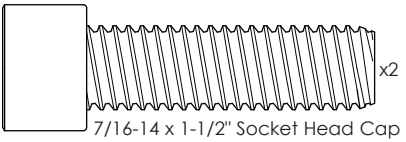
3/8-16 x 1" Socket Head Cap Screw
Crank Pulley



3/8" Belleville Washer



7/16-14 x 1-1/4" Socket Head Cap Screw
Compressor Bracket



7/16-14 x 1-1/2" Socket Head Cap Screw
Alternator Bracket (Without Power Steering)

Other Hardware / Gaskets

Continental Elite Poly-V Serpentine Belt: 66-3/4" #4060667 (with power steering)
Continental Elite Poly-V Serpentine Belt: 64-1/4" #4060642 (without power steering)

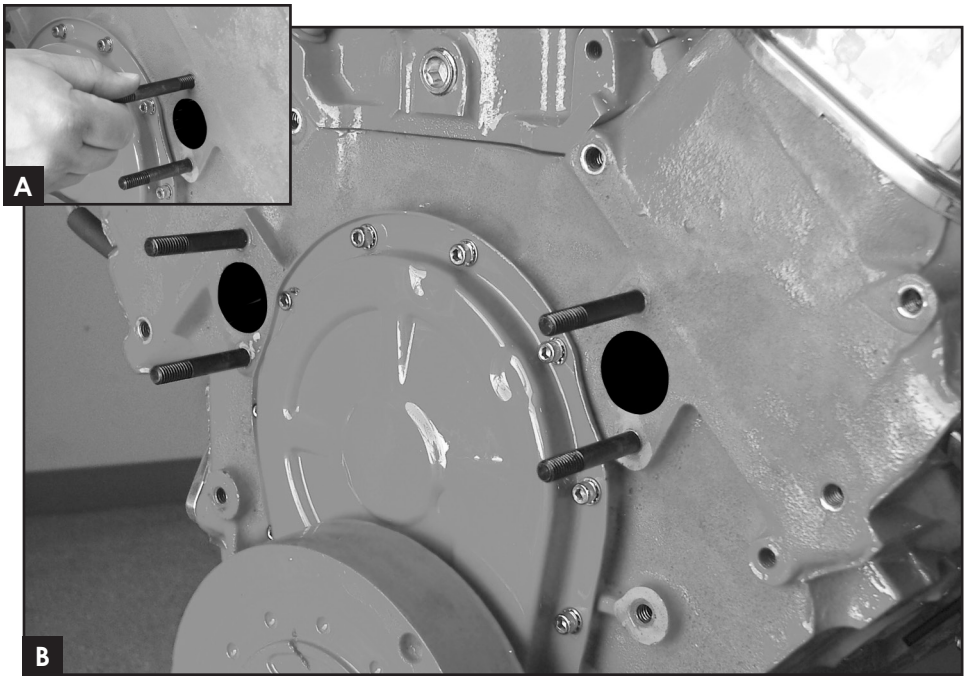
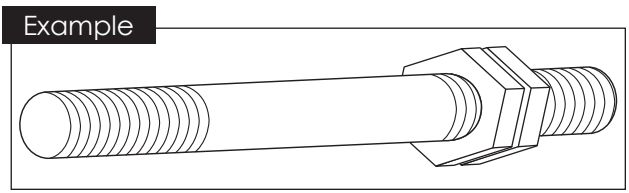


Figure 1: Installing Mounting Studs

Apply RTV silicone to one end of the four 3/8-16 x 3" threaded studs.

A] Use the two included 3/8-16 nuts (zinc plated) tightened against each other to act as a drive nut to ease installation (see illustration below).

B] Seat studs firmly into block.



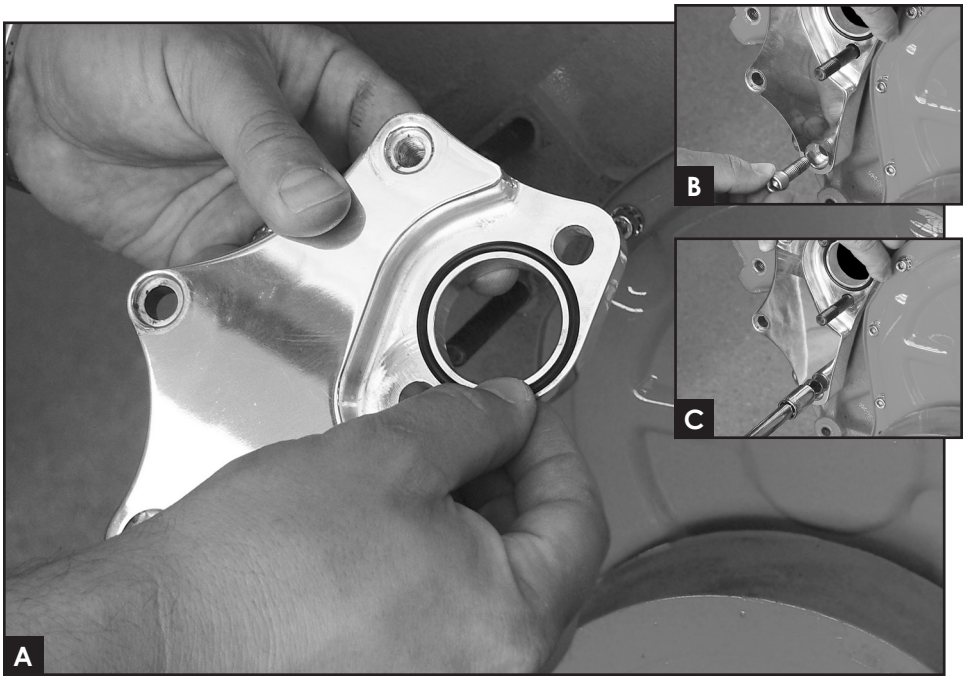


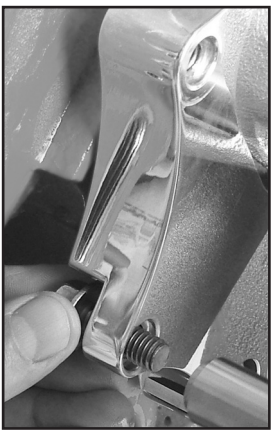
Figure 2: Install O-Rings & Compressor Bracket

A] *The a/c compressor and alternator mounting brackets incorporate o-rings on both sides for sealing.*

B] Slide the a/c compressor bracket onto the water pump studs on passenger side of block and seat against block.

C] Apply anti-seize to the 7/16-14 x 1-1/4" socket head cap screw and thread the bolt through the compressor bracket and into the block.

*** GEN. VI BLOCK ***
For Generation VI blocks without a fuel pump boss, you will need to install the 3/8-16 x 1" hex head flange bolt *(shown on page 11)* through the compressor bracket at this time.



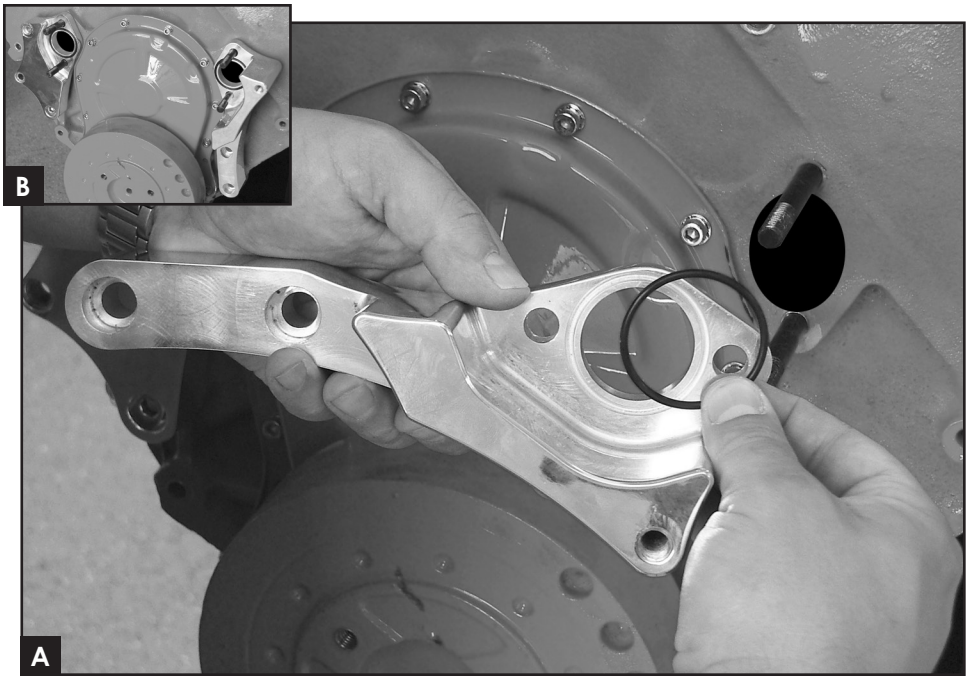


Figure 3: Install Alternator Bracket

A] Install alternator bracket o-rings on both sides

B] Slide the alternator bracket onto the water pump studs on driver side of block and seat against the block.

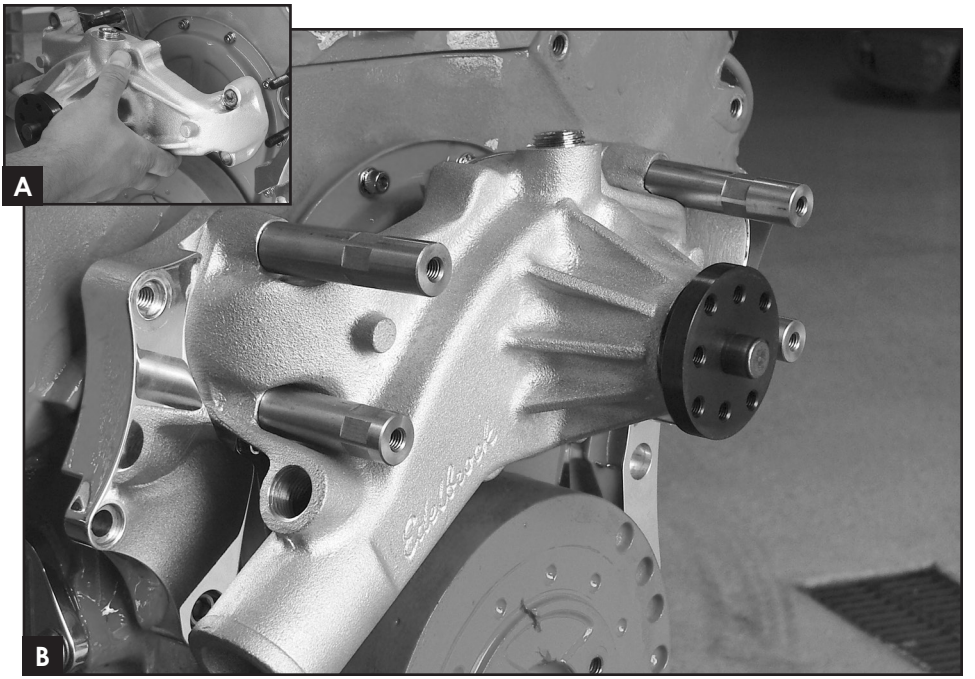


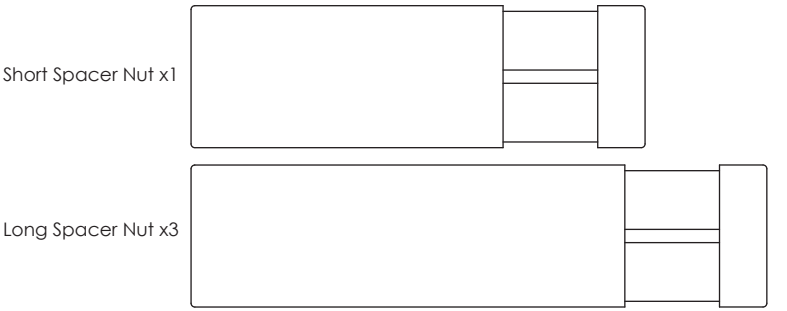
Figure 4: Install Water Pump & Spacer Nuts

Apply anti-seize to all exposed threads on the block mounting studs.

A] Slide the water pump over the four mounting studs.

B] Install the four spacer nuts that hold the water pump in place.
- The short spacer nut attaches to the passenger side lower stud.
- The long spacer nuts without a boss install on the three remaining studs.
- Tighten all firmly

Now would be a good time to install the heater hose fitting onto the water pump.



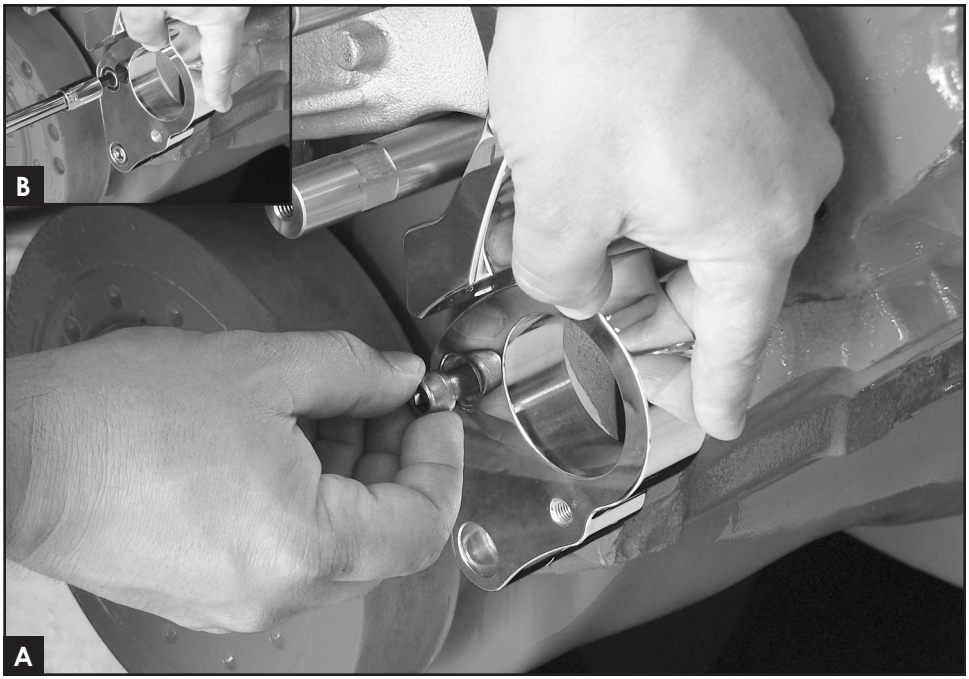


Figure 5: Install Power Steering Bracket

Without Power Steering: Apply anti-seize to the two 7/16-14 x 1-1/2" socket head cap screws and install them through the lower end of the alternator bracket into the block.

With Power Steering: Apply anti-seize to the threads of the two 7/16-14 x 2-1/4" socket head cap screws.

A] Place power steering bracket onto the lower end of the alternator bracket.

B] Thread the two screws though both brackets and into the block and tighten firmly.

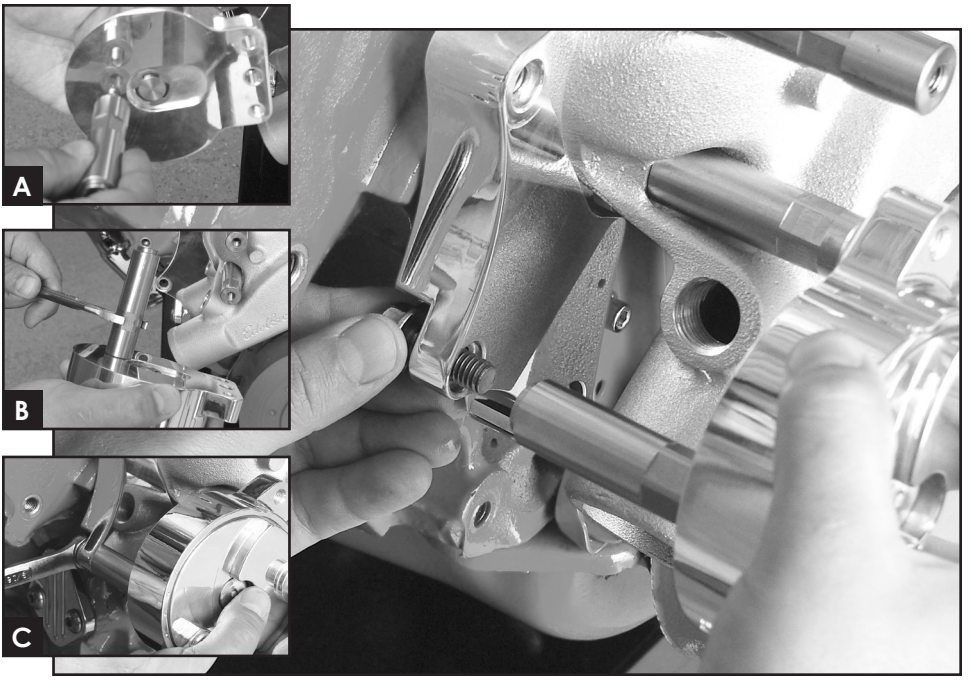


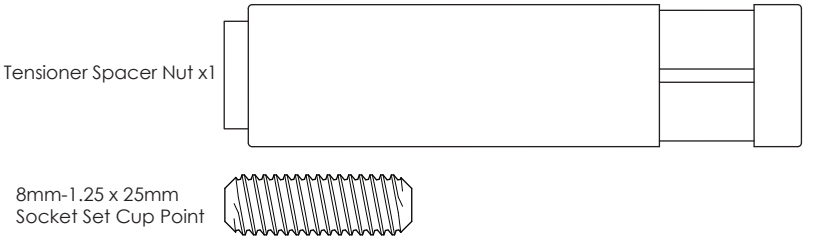
Figure 6: Install the Tensioner

A] Apply anti-seize to the 8mm-1.25 x 25mm socket set stud and thread into the remaining long spacer nut with boss, tighten with 4mm Allen key (stud installs in spacer nut opposite of boss).

B] Attach the long spacer nut with boss to the backside of tensioner.

C] Attach assembly to lower compressor bracket ear by applying anti-seize to the 3/8-16 x 1" Hex Head Flange Bolt and threading it through the lower ear of the compressor bracket into the spacer nut boss.

Do not completely tighten at this time.



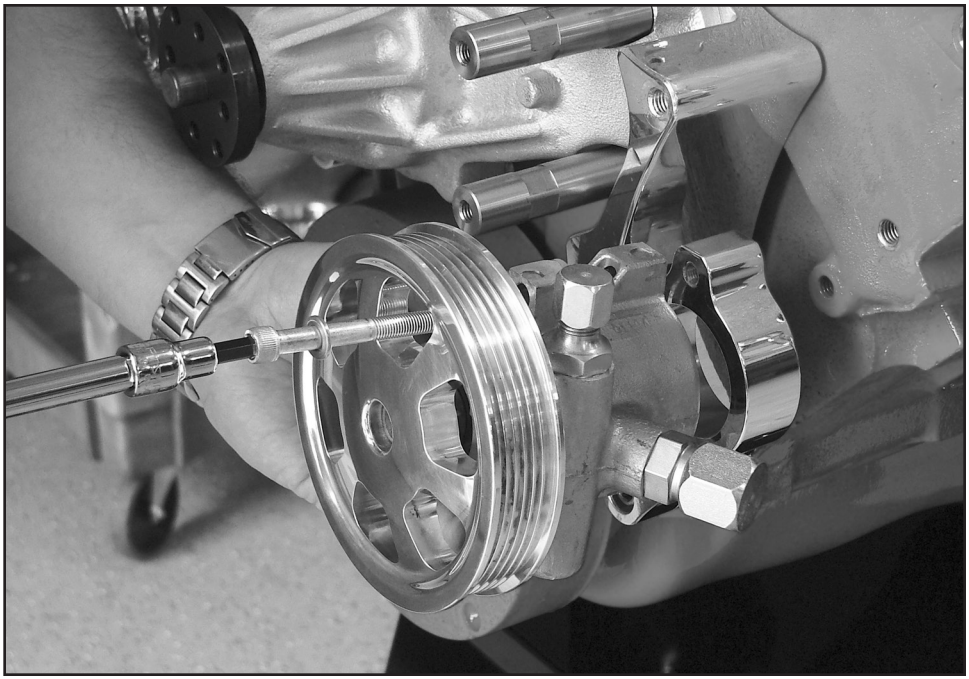


Figure 7: Install Power Steering Pump with Pulley

Apply anti-seize to the threads of the two 5/16-24 x 3" socket head cap screws; place pump to bracket and align.

Install lock washers to screws and thread through the power steering pump into the bracket and tighten firmly.

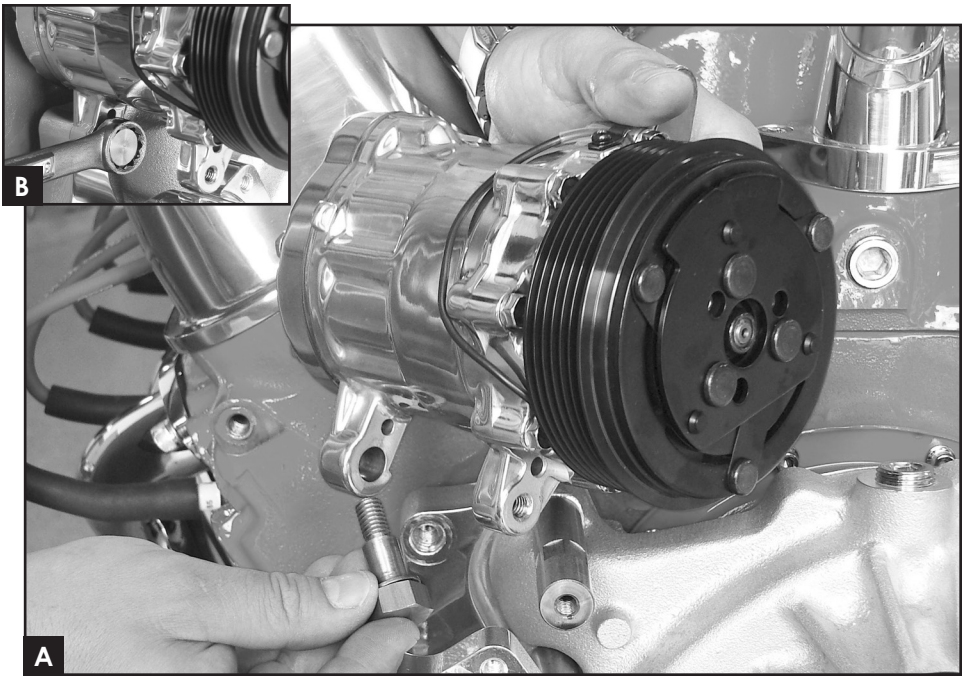


Figure 8: Install SD-7 Compressor

A] Apply anti-seize to and install the compressor shoulder bolt and washer through the lower back ear of the compressor and thread into the compressor bracket.

B] Tighten this bolt temporarily to hold compressor in place with the top and bottom ears vertically aligned.

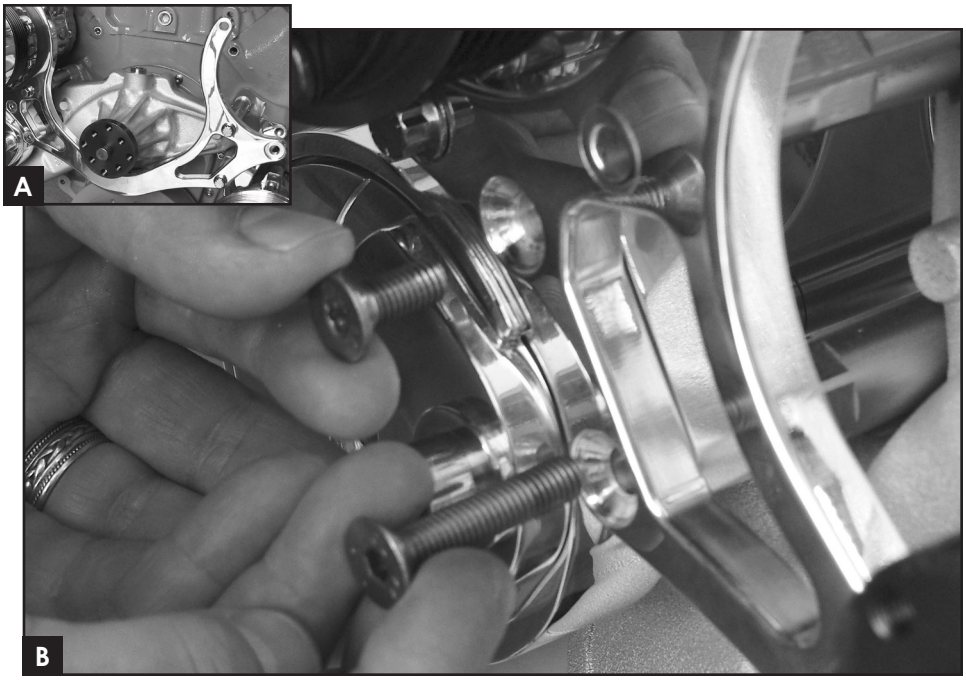


Figure 9: Attaching Bridge Bracket

A] Install the bridge bracket to the three water pump spacer nuts, the top front, and bottom front compressor ear by applying anti-seize to and using five 8mm-1.25 x 25mm 12 pt. cap screws.

B] The bridge bracket also attaches to the tensioner using a 8mm-1.25 x 40mm flat socket cap screw (installs in lower boss through bracket and tensioner into spacer nut), and a 8mm-1.25 x 25mm flat socket cap screw (installs through bracket into tensioner).

NOTE: Apply anti-seize to threads before installing. The compressor shoulder bolt on the lower rear ear and/or water pump spacer nuts may need to be loosened to help align the bridge bracket with screw holes.

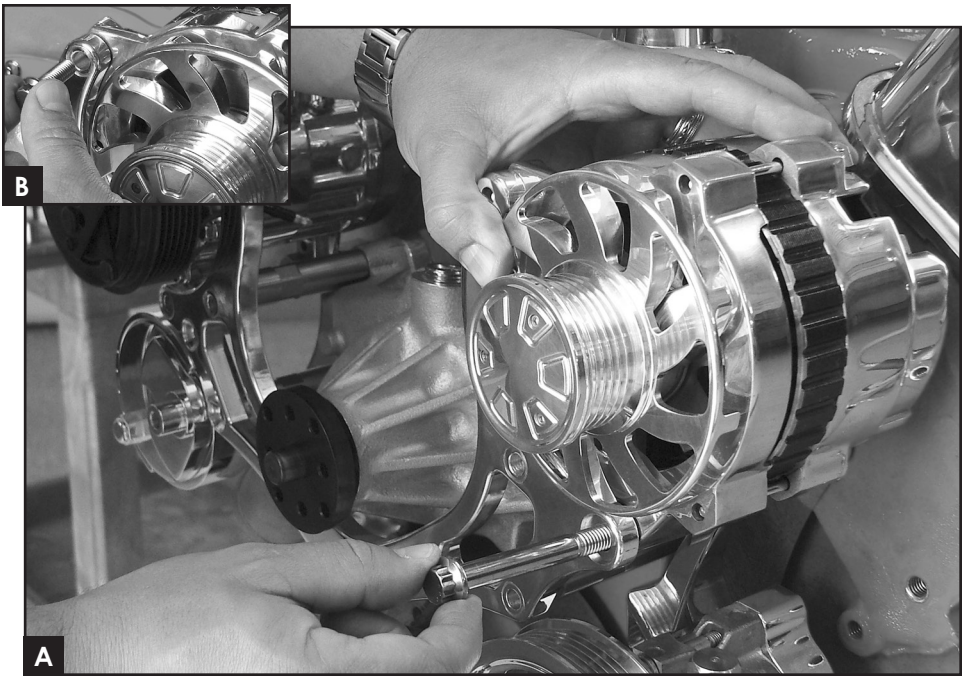


Figure 10: Attaching Alternator

A] Place the alternator behind the bridge bracket apply anti-seize to threads and install the 10mm-1.5 x 80mm 12 pt. cap screw in the lower alternator mounting hole.

Note: The alternator mounting boss may vary in width due to the polishing process. 10mm shim washers are provided to shim alternator to bridge bracket (washers may not be needed).

B] Complete alternator installation using one 8mm-1.25 x 25mm 12 pt. cap screw by applying anti-seize to threads and threading through the bridge bracket into the top ear of the alternator.

At this point we are ready to tighten the hex flange bolt on tensioner bracket and compressor shoulder bolt. Once these are tightened you may then tighten all bolts on the bridge bracket assembly.

Figure 11: Install Water Pump Pulley onto Pump

Apply anti-seize to four 5/16-24 x 1/2" socket head cap screws and install the water pump pulley onto the water pump. Tighten firmly.

Figure 12: Install Crankshaft Pulley

Install the crankshaft pulley to the harmonic balancer by applying Loc-Tite to three 3/8-16 x 1" socket head cap screws with three 3/8" Belleville washers (cup towards engine). Torque to 35 ft. lbs.

Figure 13: Install SD-7 Compressor Clutch Cover

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

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. ***Do Not Over Tighten.***

Figure 14: Install Serpentine Belt & Tensioner Pulley

A] Route belt as shown minus tensioner pulley.

B] Place a 5/8" box end wrench on tensioner, align belt onto grove of tensioner pulley.

C] Pull up on wrench until tensioner pulley hole lines up with boss on tensioner, slide pulley onto boss and slowly lower wrench to apply tension to serpentine belt.

D] Apply anti-seize to the threads of the 3/8-16 x 3/4" ARP 12pt. cap screw and thread it through the aluminum washer into tensioner boss and tighten firmly (46 ft/lbs.).

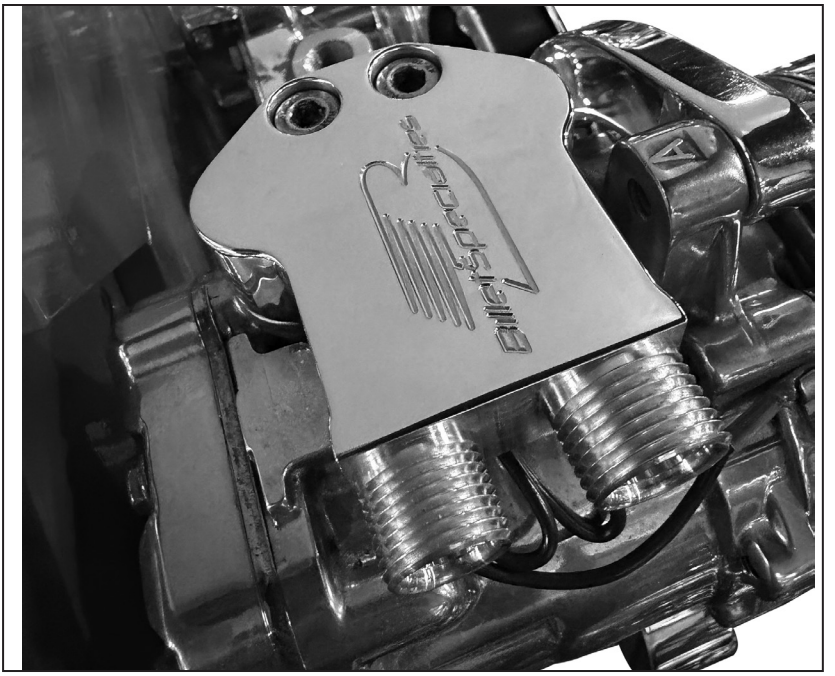


Figure 15: Install Manifold Hose Block

Attach the compressor manifold. The manifold attaches to the compressor in place of the block-off plate using two 8mm-1.25 x 25mm socket head cap screws. Apply anti-seize to threads before installing.

IMPORTANT

• Only remove sealed cap on compressor if you plan on charging your A/C system immediately, leaving the compressor open to outside air can introduce moisture into the system causing the cooling system to not operate properly.

• Never connect the compressor clutch wire and run the compressor unless the system is charged. Serious damage may 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.

• Billet Specialties recommends having your air conditioning charged and serviced by an automotive air conditioning service center with the proper equipment to ensure many years of trouble free operation.

#14220 / #14120

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Fax 708/588-7181
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