

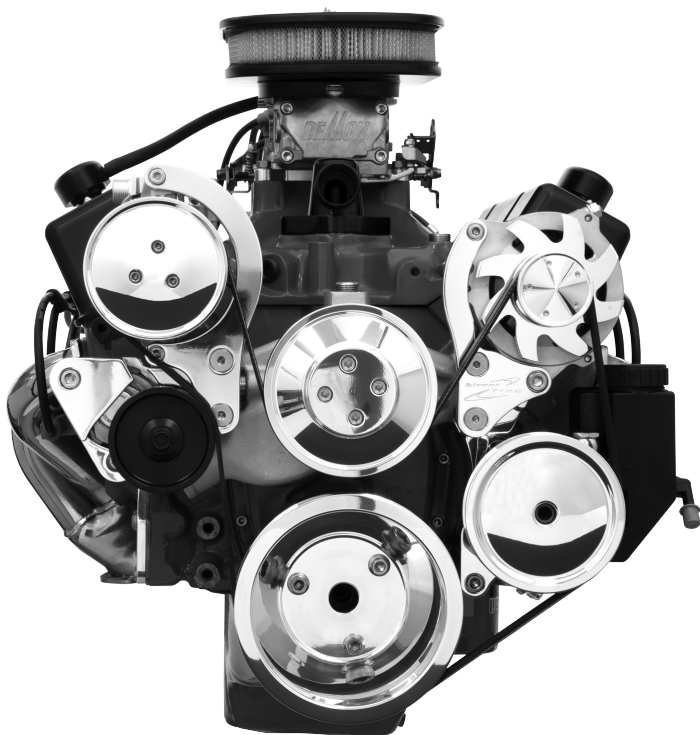
Street Trac

SMALL BLOCK CHEVROLET®

Installation Manual

#ST1320 / STB1320 SMOOTH PULLEY

#ST2320 / STB2320 TEC STYLE PULLEY



**BilletSpecialties™**

Billet Specialties, Inc.

500 Shawmut Ave. • La Grange, IL 60526
Tech (708) 588-0505 • Fax (708) 588-7181

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

Required Tools & Materials

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

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

- ☐ Socket Wrench & Extension
- ☐ Breaker Bar
- ☐ 15mm Combo Wrench
- ☐ 1/2" Combo Wrench
- ☐ 11/16" Combo Wrench
- ☐ 3/4" Combo Wrench
- ☐ 7/8" Deep Socket

- ☐ 3/32" Allen
- ☐ 3/16" Allen
- ☐ 7/32" Allen
- ☐ 1/4" Allen
- ☐ 5/16" Allen
- ☐ 6mm Allen
- ☐ 8mm Allen

TECH TIP:

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

Prepping the block:

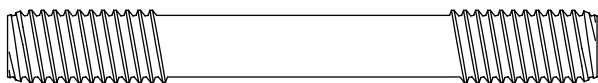
- Disconnect the battery.
- Remove the existing alternator, air conditioning compressor and associated brackets.
- Remove all pulleys and water pump.
- Remove all traces of gasket and sealer with gasket scraper and Scotch Brite® pad.
- Clean threads in block by chasing with a 3/8-16 thread chaser.

Important

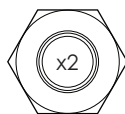
If you have a painted block, remove any paint from the block where the brackets come in contact. This ensures a good ground for the alternator for proper charging output from the alternator. There is also a grounding lug on the alternator for an additional ground strap.

Make sure you follow the charge wire recommendations on the paperwork included with the Power Master alternator. Failing to do so, can reduce the working voltage and amps as well as damage the alternator.

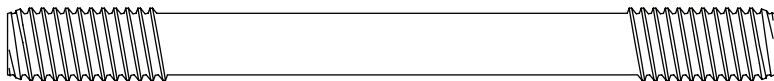
WATER PUMP



3/8-16 x 3" Threaded Stud Qty. 3



3/8" Zinc Hex Nut



3/8-16 x 4" Threaded Stud Qty. 1



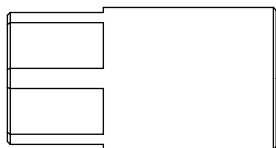
AS122 O-ring Qty. 4



AS111
O-ring
Qty. 2



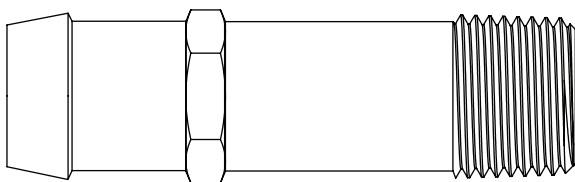
Medium Spacer Nut - 2.241" Qty. 1



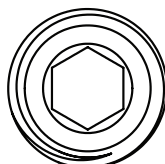
Short Spacer Nut - 1.400" Qty. 1



Long Spacer Nut - 2.678" Qty. 2

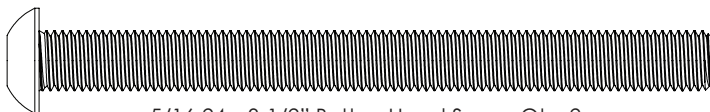


Heater Hose Fitting Qty. 1

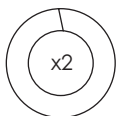


1/2-14 NPT Plug
Qty. 1

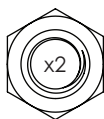
POWER STEERING



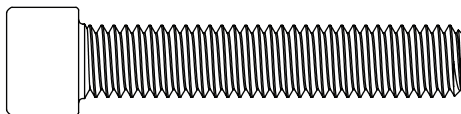
5/16-24 x 3-1/2" Button Head Screw Qty. 2



5/16"
Split Washer

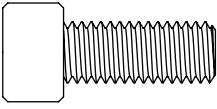


5/16-24
Hex Nut

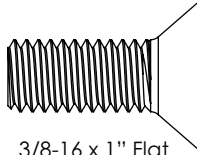


3/8-16 x 2" Socket Head Cap Screw
Qty. 2

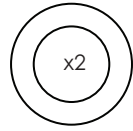
ALTERNATOR



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



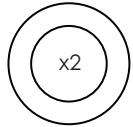
3/8-16 x 1" Flat
Head Screw Qty. 2



.5mm
Shim Washer

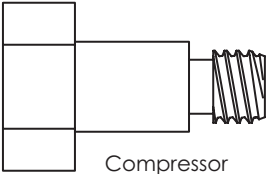


M10-1.5 x 75mm Socket
Head Cap Screw
Qty. 1

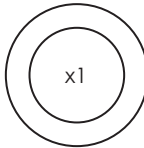


1mm
Shim Washer

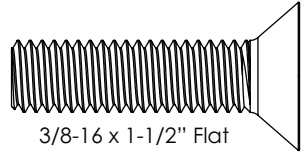
COMPRESSOR / TENSIONER



Compressor
Shoulder Bolt
Qty. 1



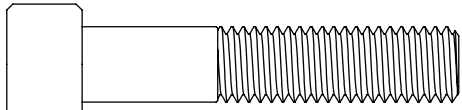
1/2" Flat
washer



3/8-16 x 1-1/2" Flat
Head Screw
Qty. 2



M10-1.5 x 30mm Socket
Head Cap Screw
Qty. 1

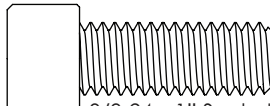


M10x1.5 x 50mm Socket
Head Cap Screw
Qty. 1

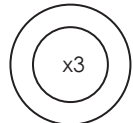
PULLEYS / COVERS



5/16-24 x 1/2" Socket
Head Cap Screw
Qty. 4



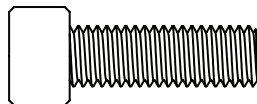
3/8-24 x 1" Socket
Head Cap Screw
Qty. 3



3/8" Belleville
Washer



1/4-20 x 3/4" Socket
Head Cap Screw
Qty. 3



M8-1.25 x 25mm Socket
Head Cap Screw
Qty. 2

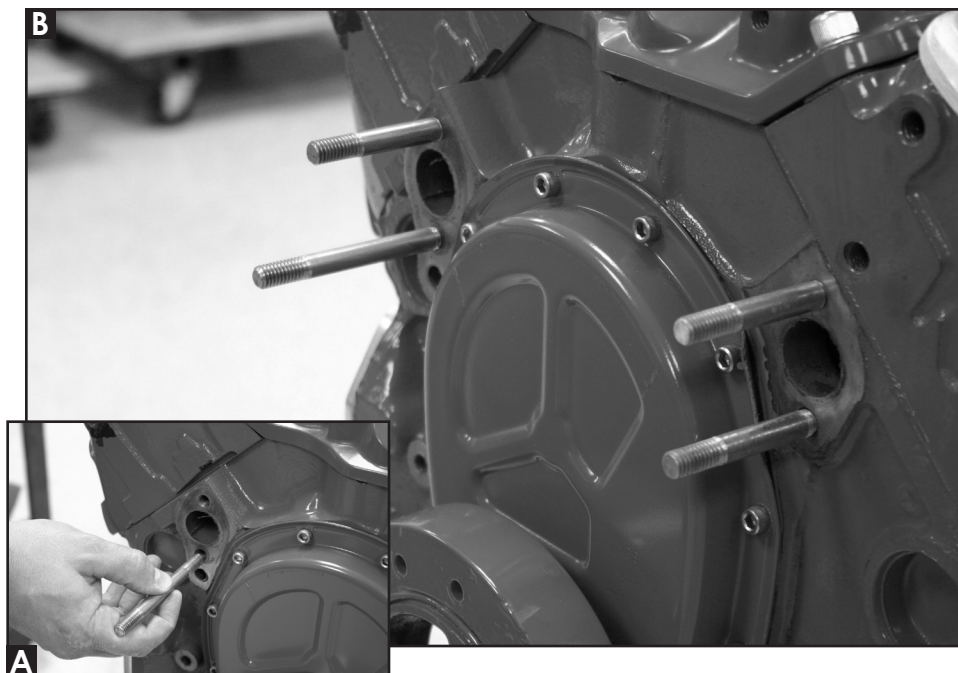


Figure 1: Install Mounting Studs

Apply RTV silicone to one end of each mounting stud.

A) Thread the 3/8-16 x 4" stud into the bottom passenger side.

B) Follow by threading the remaining three 3/8-16 x 3" studs into the three remaining water pump mounting holes.

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

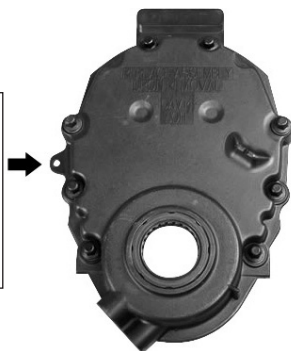
Example



Note for GM Crate Motors

The flat tab located on the passenger side of the plastic timing cover GM P/N 12562818 must be removed.

This tab interferes with installation of the compressor/tensioner bracket. Trim tab flush with timing cover.



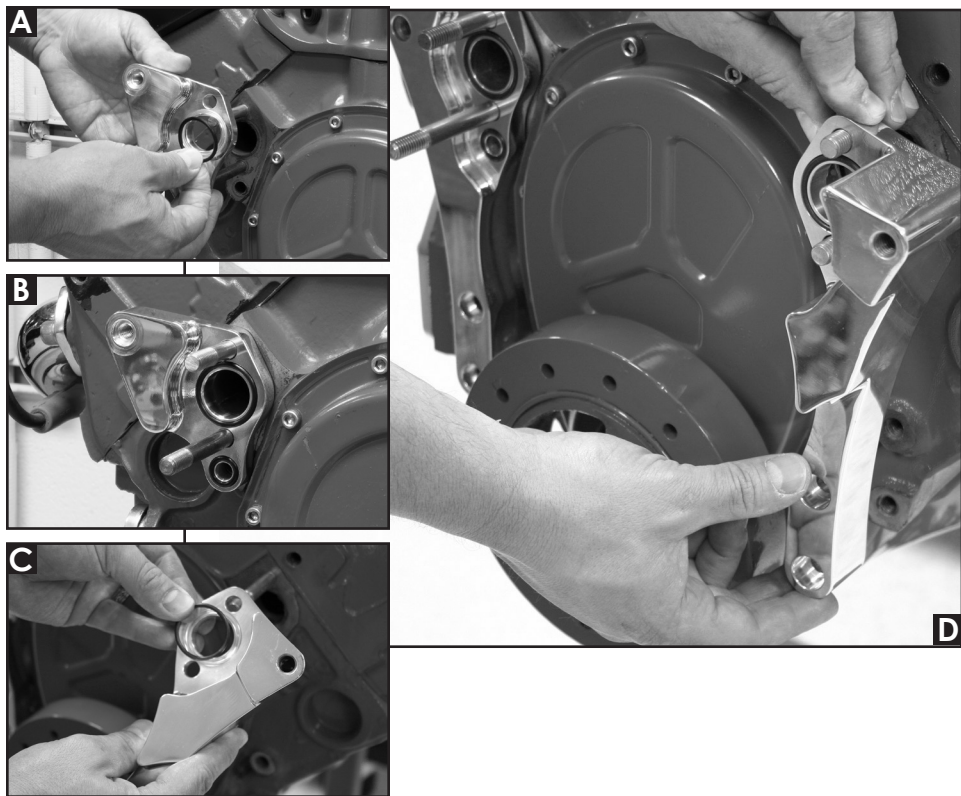


Figure 2: Install Compressor Bracket & Alternator Bracket

- A)** Locate the compressor bracket (ST1320C) and install the large and small bypass o-rings to both sides of the bracket, make sure they are seated in the groove properly.
- B)** Finish by sliding the compressor bracket over the passenger side studs and seat against the block.
- C)** Locate the alternator bracket (13201) and install the two remaining o-rings 1 per side, make sure they are seated in the groove properly.
- D)** Finish by sliding the alternator bracket over the driver side studs and seat against block.

Apply anti-seize the exposed threads on each stud.

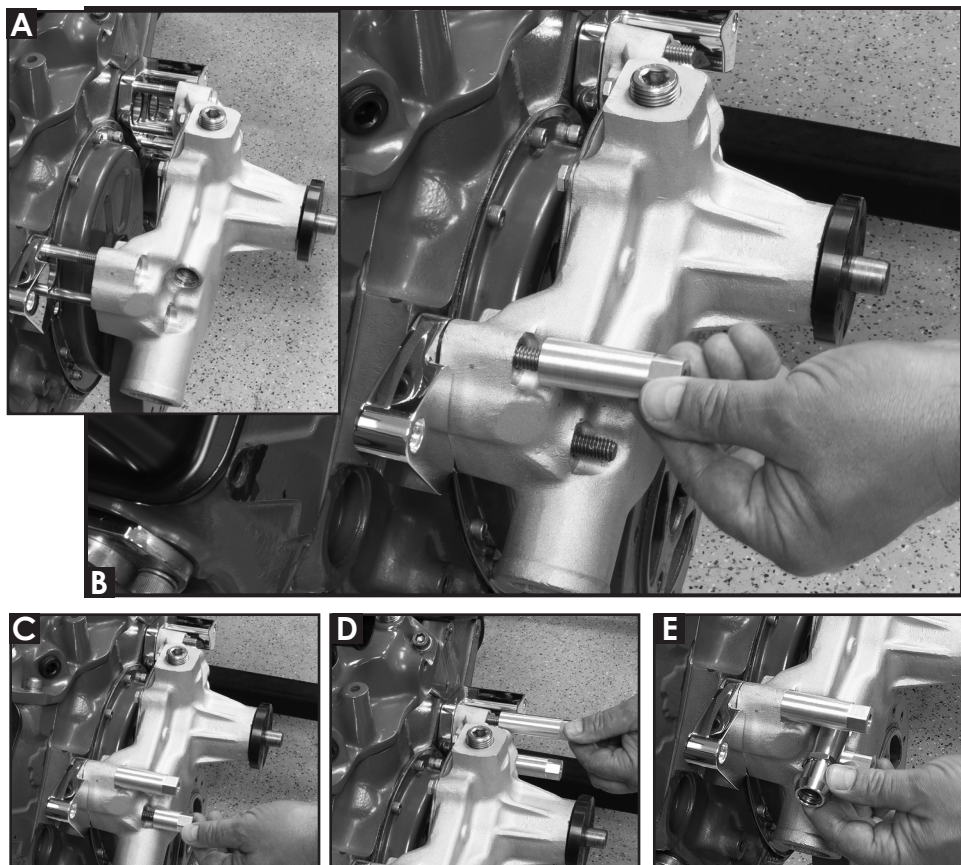


Figure 3: Install Water Pump & Spacer Nuts

A) Slide water pump over studs and seat against brackets.

B) Thread the medium spacer nut (2.241") onto the top passenger stud with the hex end out and finger tighten at this time.

C) Thread short spacer nut (1.400") with the hex end out onto the bottom passenger stud and finger tighten.

D) Thread the two remaining long spacer nuts (2.678") with the hex end out onto the driver side studs and finger tighten.

E) Finish by installing the supplied heater Hose Fitting and NPT Plug into the water pump.

TIP

For ease of installation, now is a good time to pre-install your heater hose and clamp.

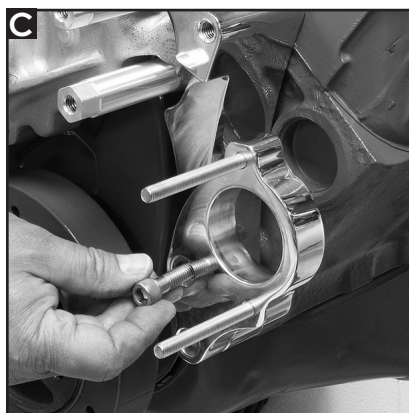
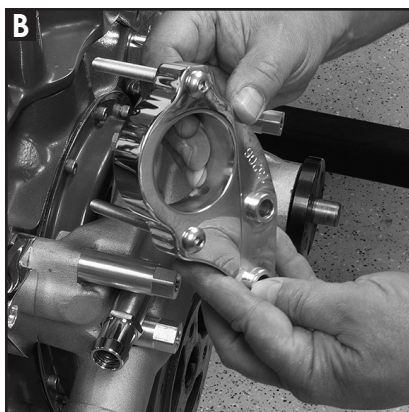
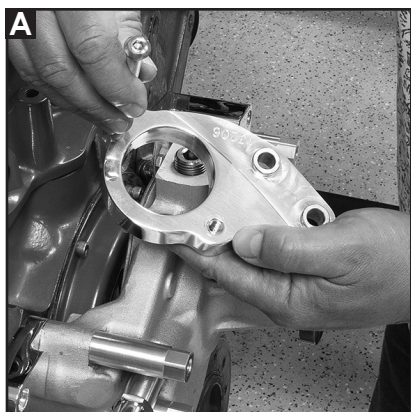


Figure 4: Install Power Steering Bracket

A,B) Locate the power steering bracket (13206), apply anti-seize on the threads of the two 5/16-24 x 3" button head cap screws and install them from the back of the bracket as shown, tighten firmly (15 ft-lb).

C) Next, place the bracket onto the bottom of the alternator bracket. Apply anti-seize to the threads of the two 3/8-16 x 2" socket head cap screws. Thread the two cap screws through the power steering bracket, alternator bracket and into the block. Tighten firmly (22 ft-lb)

Finish by tightening all four water pump spacer nuts firmly (23 ft-lb).

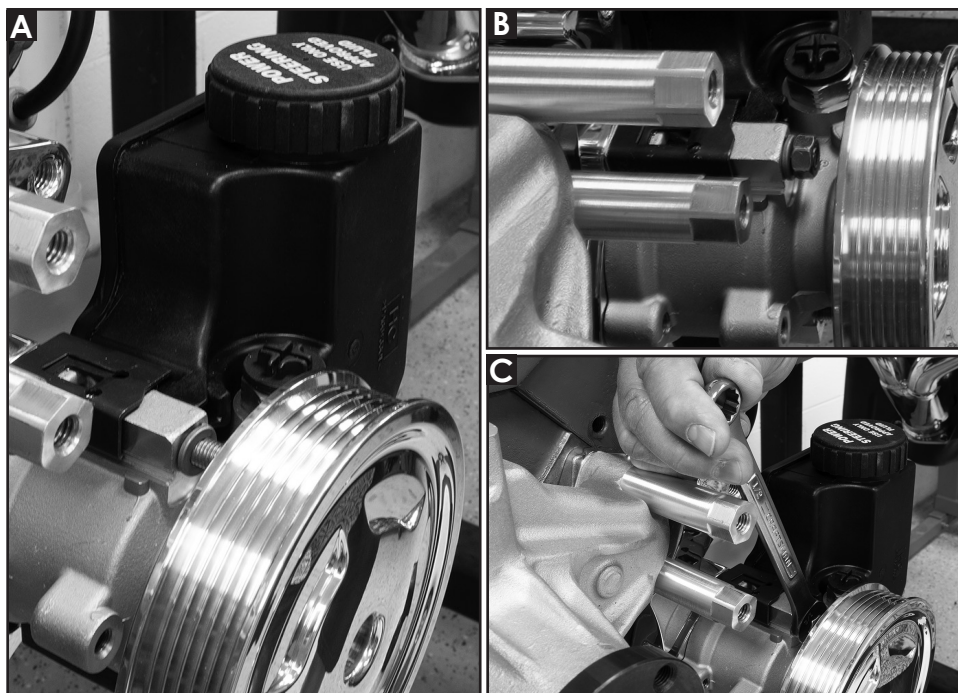
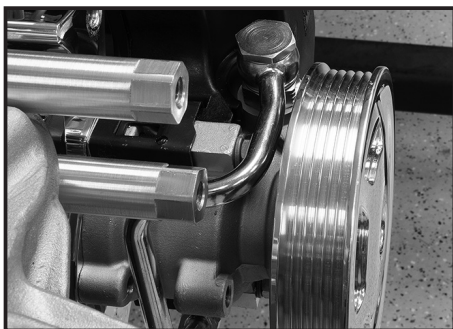
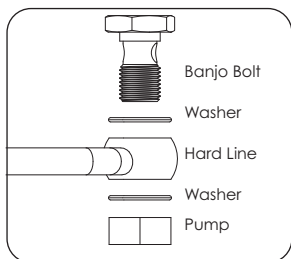


Figure 5: Install Power Steering Pump

A) Slide the power steering pump with pulley onto the power steering bracket.

B&C) Next, place the two loc-washers and thread the 5/16" nuts onto the two 5/16 button head screws with lock washers through pump and into bracket tighten firmly (15 ft-lb) with 1/2" combo wrench.

Finish by installing the hardline kit



Warning

Do Not Start the motor unless the power steering system is fully connected and fluid is in the system – **running the pump dry will damage the pump and void the warranty.**

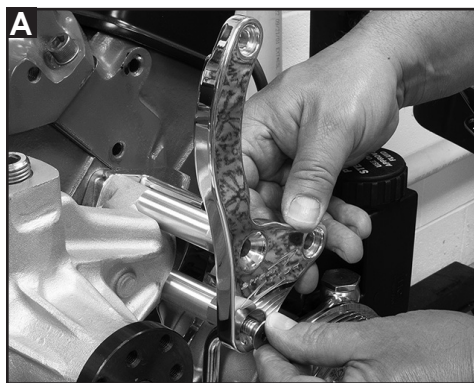
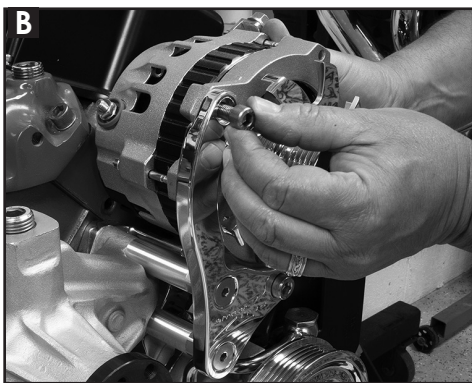
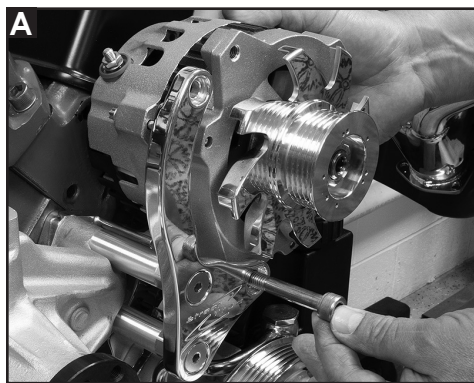


Figure 6: Alternator Bridge Bracket Installation

Apply anti-seize to the two 3/8-16 x 1" flat head cap screws.

A&B) Place the alternator bridge bracket (ST1320B) to the driver side spacer nuts and finger tighten at this time.

Figure 7: Alternator Installation



Apply anti-seize to the threads of the M8-1.25 x 20mm socket head cap screw and the M10-1.5 x 75mm socket head cap screws.

A&B) Place the alternator in the bracket and attach with the M8 and M10 socket head cap screws. (shim washers are provided if necessary) Finish by tightening all four fasteners firmly.

- 3/8-16 @ 22 ft-lb
- M8 @ 18 ft-lb
- M10 @ 29 ft-lb)

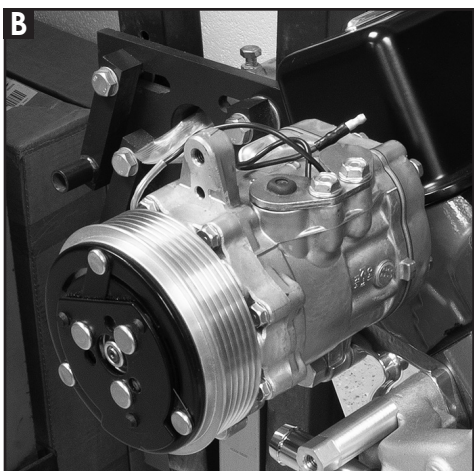
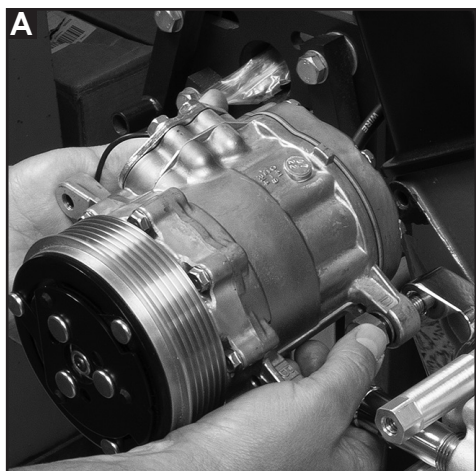


Figure 8: Install AC Compressor

Apply anti-seize to the threads of the Compressor Shoulder Bolt, then install the 1/2" Flat Washer onto the Shoulder Bolt.

A) Place the AC Compressor up to the AC Compressor bracket as shown. Thread the Bolt and Washer through the Compressor ear and into the bracket.

B) Next, rotate the Compressor to the approximate 12 o'clock position and finger tighten at this time.

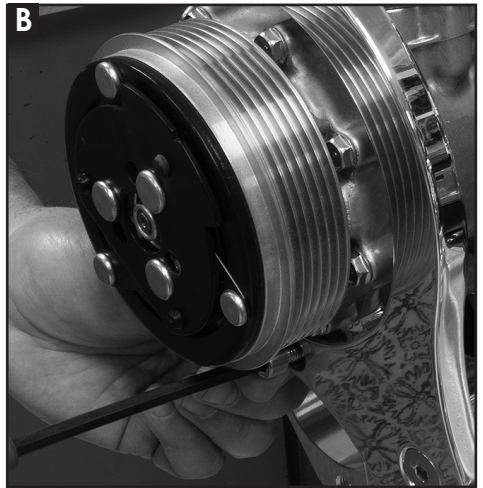
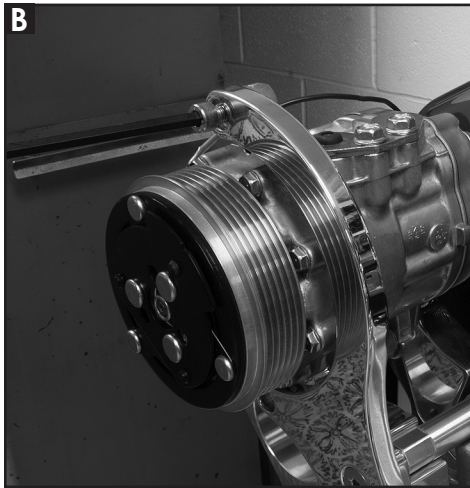
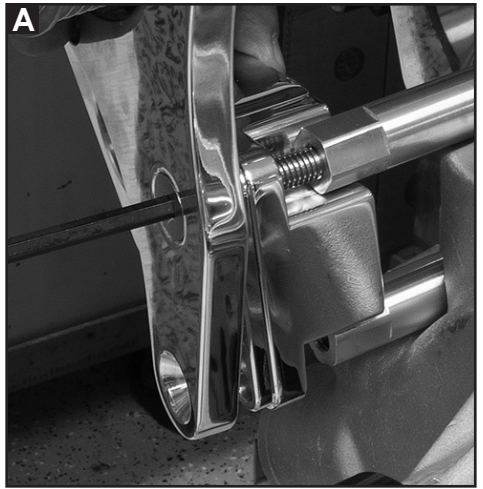
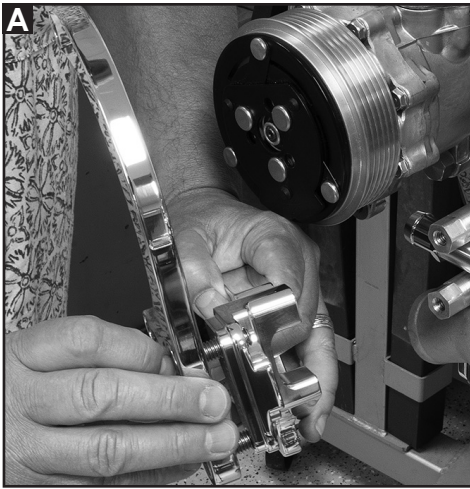


Figure 9: AC Compressor Bracket and Tensioner Bracket installation.

Apply anti-seize to the two 3/8-16 x 1-1/2" flat head screws and the two 8mm-1.25 x 20mm socket head cap screws.

A) Thread the two flat head screws through the AC Compressor Bracket (ST1320A) and the Tensioner Bracket (ST1320D) into the spacer nuts and finger tighten.

B) Next, install the two M8-1.25 x 20mm socket head cap screws through the AC Compressor Bracket and into the Compressor (not shown).

Tighten all fasteners at this time.

- compressor shoulder bolt 23 ft-lbs.
- 3/8" flat head screws 14 ft-lbs.
- M8 socket head cap screws 18 ft-lbs.

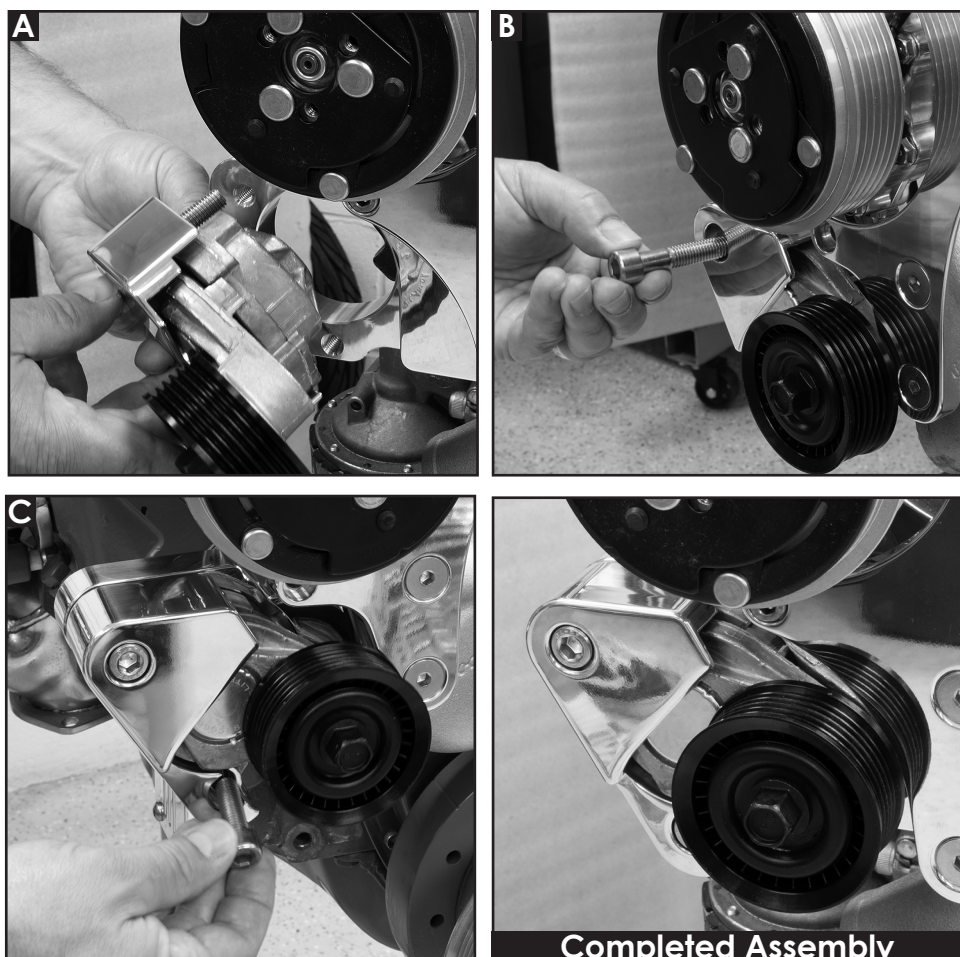
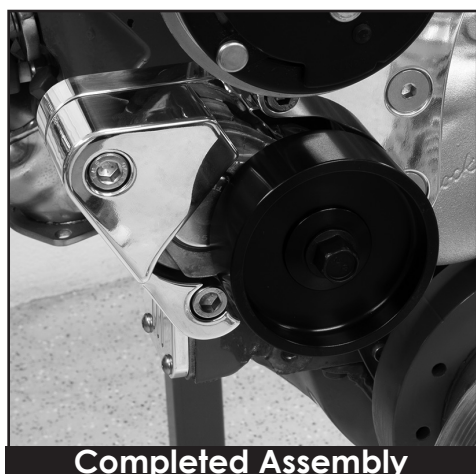
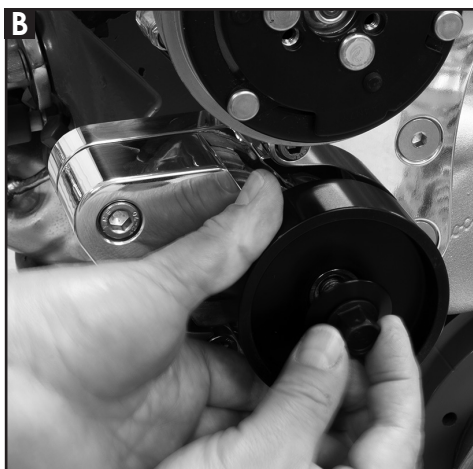
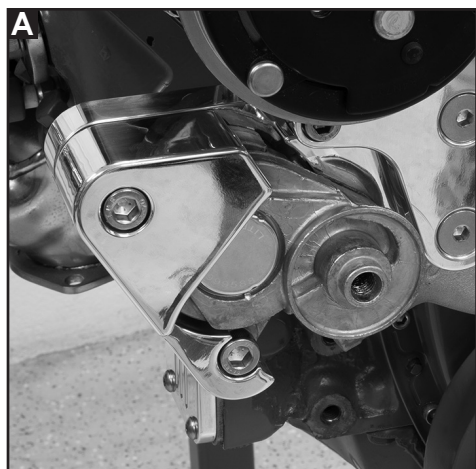


Figure 10 : Install Tensioner & Tensioner Cover

Apply anti-seize to the M10-1.5 x 30mm and M10-1.5 x 50mm socket head cap screws.

A&B) Place the tensioner and tensioner cover (ST1320I) onto the tensioner bracket and thread the long M10-1.5 x 50mm socket head cap screw through the tensioner cover and tensioner into the tensioner bracket as shown.

C) Next, thread the short M10-1.5 x 30mm socket head cap screw through the bottom of the tensioner cover and into the bracket. Tighten both fasteners firmly (29 ft-lb.)



Completed Assembly

Figure 11 : Install Tensioner Pulley & Washer

A) Remove plastic grooved pulley and metal washer from tensioner.

B) The replacement aluminum tensioner pulley (12500K) has two unique sides, a shallow side that shows the entire pressed in bearing and a deep side that only shows the center of the bearing race.

Place the tensioner pulley onto the tensioner with the deep side facing out.

Thread the bolt that came installed on the tensioner through the aluminum washer (packaged with tensioner pulley) and pulley into the tensioner.

Torque the bolt to (18 ft-lb.) **IMPORTANT DO NOT OVER TIGHTEN!**

This will strip the threads of the tensioner.

Spin the pulley to make sure it turns freely.



Figure 12: Install Water Pump Pulley

Apply Loc-Tite to the threads of the four 5/16-24 x 1/2" socket head cap screws.

Place the water pump pulley to the water pump and thread the cap screws through pulley and into water pump pulley flange, tighten firmly (11 ft-lbs.)

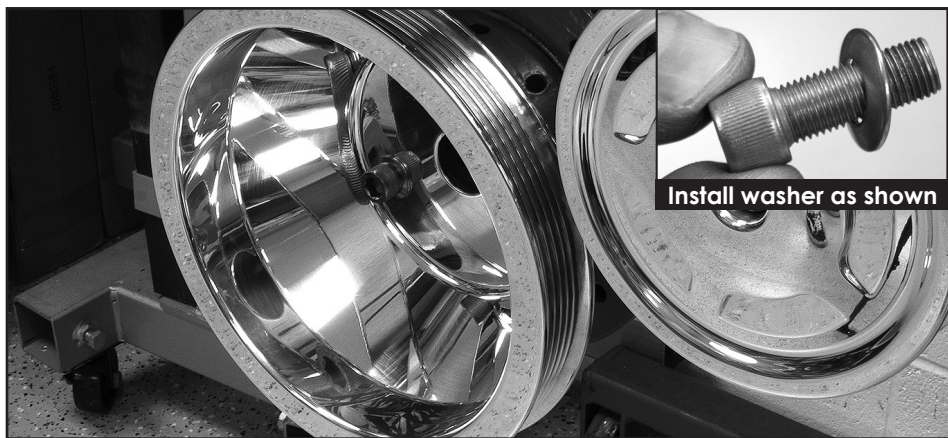


Figure 13: Install Crank Pulley

Apply Loctite Blue 242 to the threads of the 3/8-24 x 1" socket head cap screws, then place a belleville washer on each fastener as shown.

Place the crank pulley on the engine damper and align the holes. Thread the three 3/8-24 x 1" socket head cap screws and washers through the pulley and into the damper, tighten firmly (22 ft-lb.)

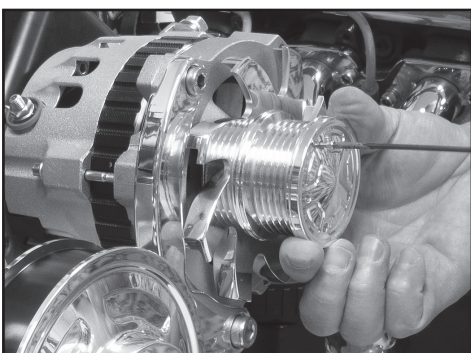
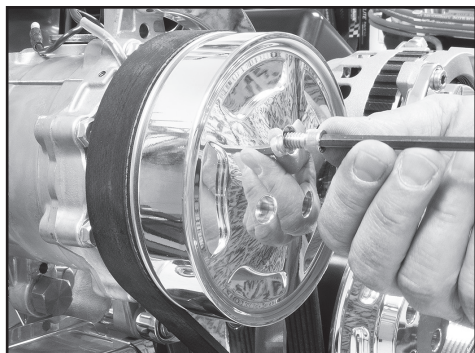


Figure 14: Install Compressor Clutch Cover and Alternator Pulley Cover

Compressor Cover

Apply loc-tite to the threads of the three 1/4-20 x 3/4" socket head cap screws. Next place the cover onto the clutch and align. Thread the three socket head cap screws through the cover and into the clutch and tighten. **(40-45 Inch-lbs.)** *Caution: over tightening these fasteners will cause damage to the compressor clutch and void warranty. DO NOT OVER TIGHTEN!*

Alternator Pulley Cover

Apply anti-sieze to the five 4-40 x 3/8" socket head cap screws (pack-aged with the cover). Attach the alternator pulley cover and align with the matching holes (note - the alternator pulley has two hole patterns) Tighten to (2 Inch-lbs.)

BELT ROUTING

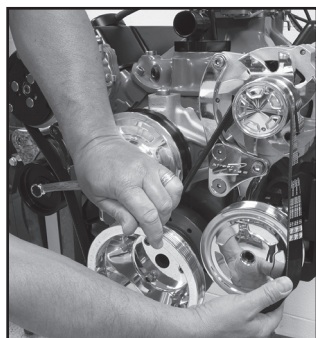
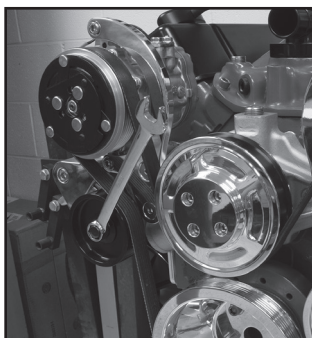
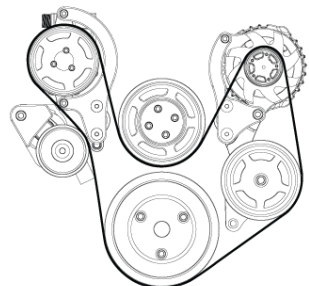


Figure 15: Install Serpentine Belt

Route belt as shown leaving the power steering pulley off. Place a 15mm socket and breaker bar or long combo wrench on the tensioner nut at the approximate angle as shown.

Push down on the bar/wrench to release the tension, push the belt over the edge of the power steering pulley into the grooves. The belt will be tight, it is recommended to remove from package and place in the sun to make it more pliable.

REPLACEMENT BELT - GATES P/N K060645



Figure 16: Install Compressor Manifold

If you are going to be installing your air conditioning hoses and charging the system at this time, remove the cover plate on top of the compressor body.

Apply anti-seize to the remaining two 8mm-1.25 x 25mm socket head cap screws. Install compressor manifold onto compressor and thread the two 8mm socket head cap screws through the manifold and into the compressor, tighten firmly (18 ft-lbs.) Install hoses, connect clutch wire and charge system.

Important

If you are NOT installing hoses and charging the system at this time, place the compressor manifold and hardware in a safe place and leave cover plate on compressor. **Do not connect the clutch wire or apply power to clutch wire without the hoses connected and the system charged –**
Serious damage will occur to compressor and void the warranty.

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 procedure.

Replacement Parts

Should you need a replacement part out on the road, the following are available at most auto parts stores.

- **REPLACEMENT BELT** - GATES P/N K060645 (2009-2013 CORVETTE)
- **REPLACEMENT TENSIONER** - CONTINENTAL P/N 49283 (1997-2004 CORVETTE)
- **REPLACEMENT ALTERNATOR** - POWERMASTER P/N 474611-170 (this is what comes in the kit
Another choice is, AC DELCO P/N 3351033* (1990-1993 ASTRO VAN V6)
*NOTE YOU WILL NEED TO RUN AN EXCITER WIRE TO THE ALTERNATOR TO GET IT TO CHARGE.
- **REPLACEMENT POWER STEERING PUMP** - 1987-1989 JEEP CHEROKEE or COMANCHE
- **REPLACEMENT WATER PUMP** - PRW Reverse rotation P/N1435006 (this is what comes in the kit. this is a reverse rotation - short water pump. Another choice is Edelbrock P/N 8882

It is recommended that you replace components that originally were supplied in the kit to ensure proper alignment and performance.

#ST1320 / #ST2320



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