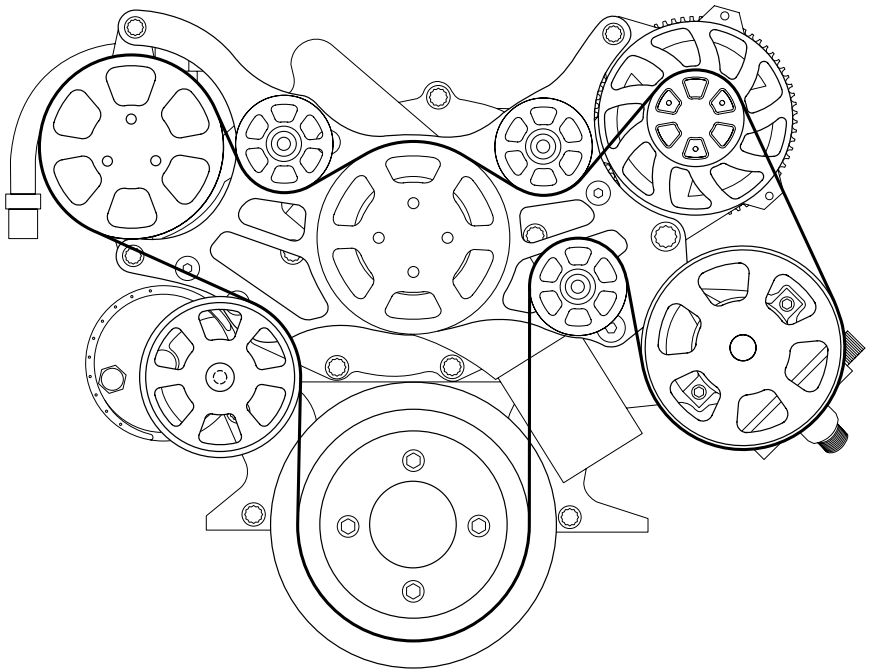


Tru Trac™

Big Block Ford
Installation Manual
For Systems with A/C
#14600 / #14620

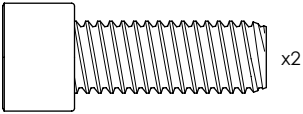


Billet Specialties, Inc.
500 Shawmut Avenue.
La Grange, Illinois 60526
Tech Line (708) 588-0505
Fax (708) 588-7181

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

IMPORTANT: VEHICLE OIL PAN MUST BE REMOVED FOR INSTALLATION

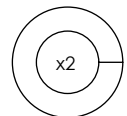
Skin Board #1 - Packaged with Power Steering Pump



3/8-16 x 1" Socket Head Cap Screw
Power Steering Bracket To Timing Cover



5/16-18 x 2-3/4" Socket Head Cap Screw
Power Steering Pump To Bracket



5/16"
Lock Washer

Required Tools & Materials

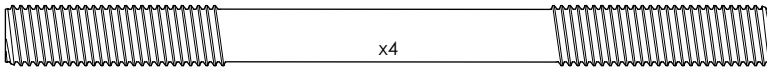
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|--|--|--------------------------------------|
| <input type="checkbox"/> Anti-seize Compound | <input type="checkbox"/> 5/8" Box End Wrench | <input type="checkbox"/> 3/16" Allen |
| <input type="checkbox"/> RTV Silicone | <input type="checkbox"/> 3/4" Box End Wrench | <input type="checkbox"/> 5/16" Allen |
| <input type="checkbox"/> Permatex Hylomar [®] gasket dress- | <input type="checkbox"/> 1 1/16" Box End Wrench | <input type="checkbox"/> 1/4" Allen |
| <input type="checkbox"/> ing | <input type="checkbox"/> Socket Wrench & Extension | <input type="checkbox"/> 7/32" Allen |
| <input type="checkbox"/> Gasket Scraper | <input type="checkbox"/> 10mm 12pt. socket | <input type="checkbox"/> 4mm Allen |
| <input type="checkbox"/> Scotch-Brite [®] Pad | <input type="checkbox"/> 12mm 12pt. socket | <input type="checkbox"/> 6mm Allen |
| 5/16-18 Thread Chaser* & Holder | <input type="checkbox"/> 3/8" 12pt. Socket | |

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

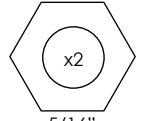
TECH TIP:

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

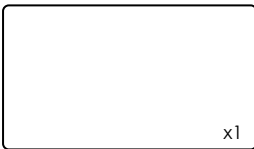
Skin Board #2 - Packaged with Water Pump



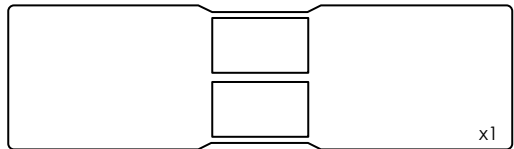
5/16-18 x 4" Block Mounting Stud x4



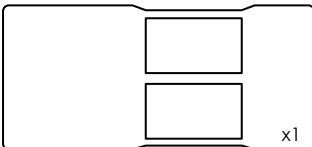
5/16" Hex Nut x2



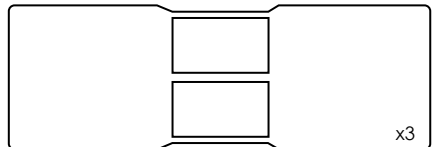
1-5/16" Spacer x1



2-5/8" Spacer Nut x1

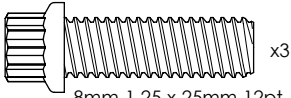


1-5/8" Spacer Nut x1

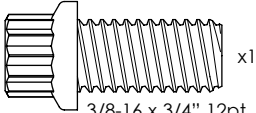


2-3/16" Spacer Nut x3

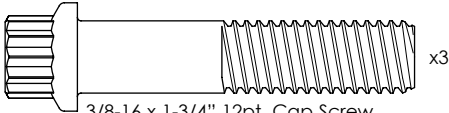
Skin Board #3 - Packaged In Main Box



x3
8mm-1.25 x 25mm 12pt. Cap Screw
Bridge Bracket To Alternator & Compressor



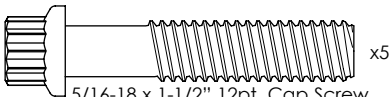
x1
3/8-16 x 3/4" 12pt. Cap Screw
Tensioner Pulley



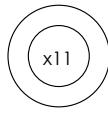
x3
3/8-16 x 1-3/4" 12pt. Cap Screw
Idler Pulleys



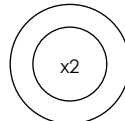
x4
5/16-18 x 2" 12pt. Cap Screw
Timing Cover To Block



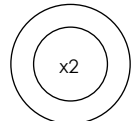
x5
5/16-18 x 1-1/2" 12pt. Cap Screw
Water Pump To Timing Cover



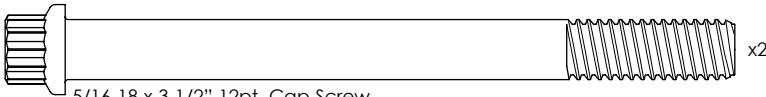
x11
5/16"
Flat Washer



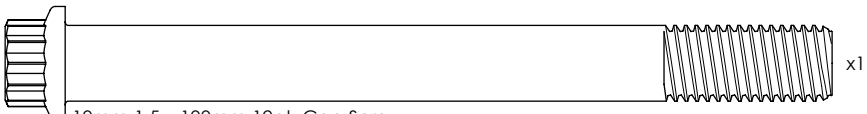
x2
10mm x .5mm
Shim Washer



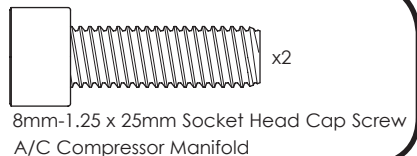
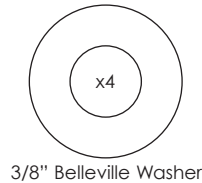
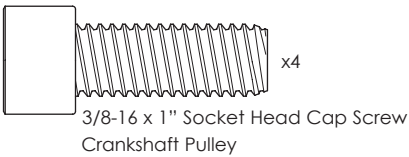
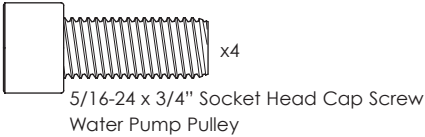
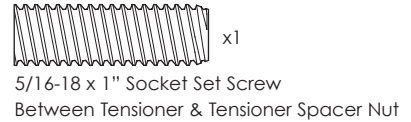
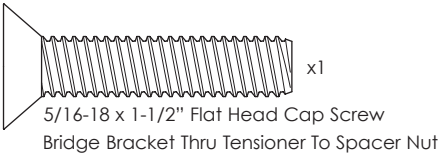
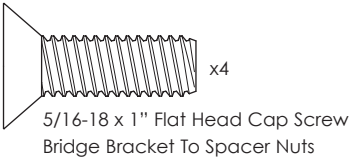
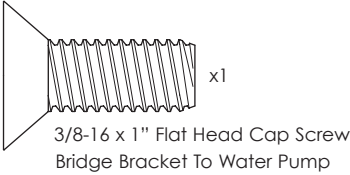
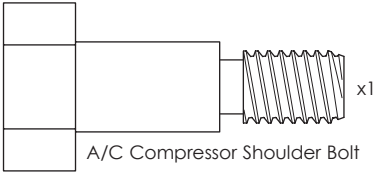
x2
10mm x 1mm
Shim Washer



x2
5/16-18 x 3-1/2" 12pt. Cap Screw
Water Pump Thru Timing Cover To Block



x1
10mm-1.5 x 100mm 12pt. Cap Screw
Bridge Bracket To Alternator



Other Hardware / Gaskets

Continental Elite Poly-V Serpentine Belt - 70.50" #4060705 (with power steering)
Continental Elite Poly-V Serpentine Belt - 57.75" #4060578 (without power steering)

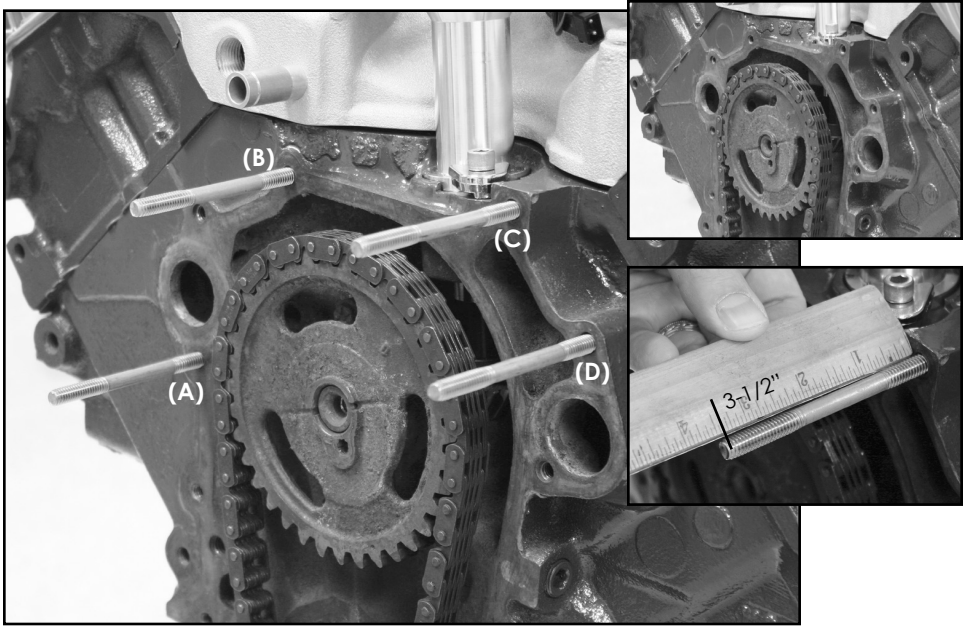


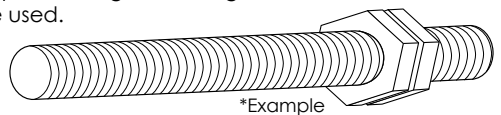
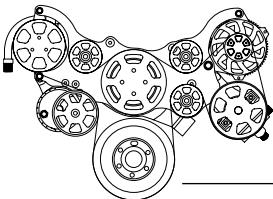
Figure 1: Prepping The Block

Disconnect battery; remove all existing accessory drive brackets and components from motor. Remove crankshaft damper and spacer. Remove water pump and timing cover housing, scrape away any existing gasket material with a gasket scraper and dress surface with a Scotch Brite® pad. Drop oil pan and repeat surface prep. Clean and prep threads on engine block, use a 5/16-18 thread chaser if necessary. Thread chasers are available at your local auto parts store or tool dealer and are different from a thread cutting tool.

Install Studs In Block

Apply RTV sealer to one end of the four 5/16-18 x 4" threaded studs and thread 1 stud **(A)** into the lower passenger side water pump mount hole. Skip the upper water pump hole and thread the second stud **(B)** into the upper passenger block mount hole. Follow by threading stud **(C)** into the upper driver side block mount hole near the distributor. Thread the last remaining stud **(D)** into the upper water pump mount hole on driver side of block. Apply anti-seize to the exposed threads of the studs at this time. Check installed height of studs by measuring 3-1/2" from block surface – adjust studs if necessary. Apply anti-seize to the exposed threads on each stud. The studs can easily be tightened by threading two 5/16-18 zinc coated nuts (*supplied*) onto the stud and tighten them against each other to act as a drive nut (*discard nuts after use*).

Note: Fuel pump eccentric must be removed from timing gear. Replace cam bolt & washer. Refer to your repair manual for proper torque specifications for cam bolt. Caution! If camshaft bolt loosens up sever engine damage can occur. A good thread locking compound should be used.



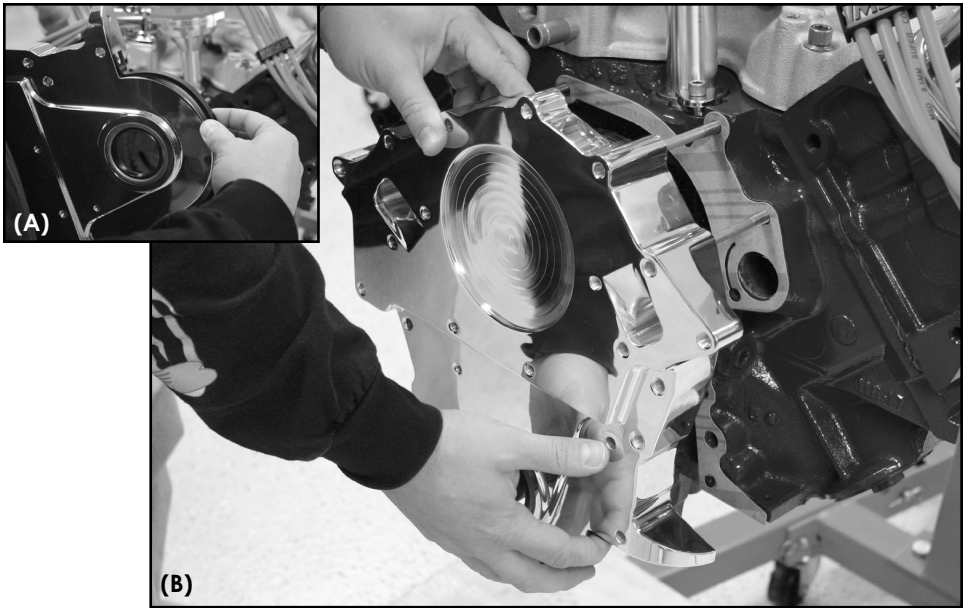


Figure 2: Prepare & Install Timing Cover

(A) Install oil pan end seal into timing cover with a thin bead of RTV silicone (*use sparingly*). Lubricate crank seal with motor oil or grease to protect seal at start-up. Apply Permatex Hylomar[®] gasket dressing to both sides of timing cover gasket and place on engine block.

Install Timing Cover

(B) Slide timing cover over studs. Apply anti-seize to four 5/16-18 x 2" ARP 12pt. cap screws. Install 5/16" stainless steel washers to each screw at this time. Thread screws and washers into bottom mount holes in timing cover and finger tighten.

Install timing pointer in the factory location.

For Kits With Power Steering

Apply anti-seize to two 3/8-16 x 1" socket head cap screws. Place power steering bracket #14607 to timing cover and thread the two 3/8-16 x 1" socket head screws through bracket and into timing cover. Tighten firmly.



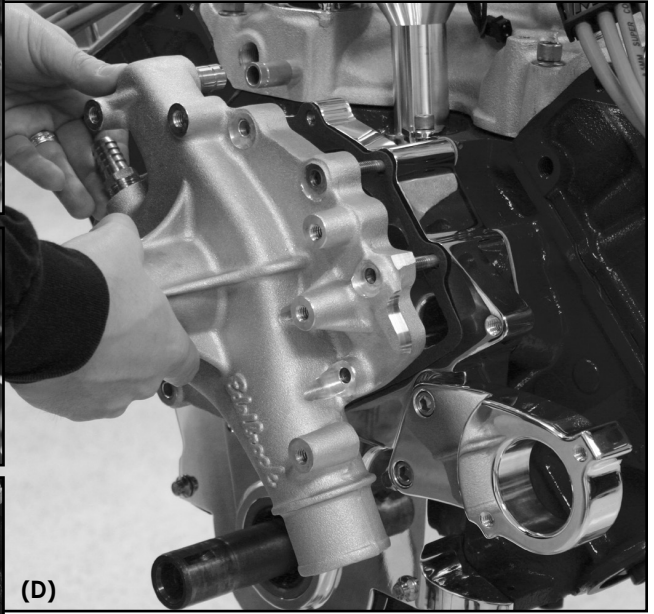
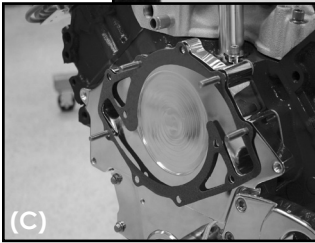
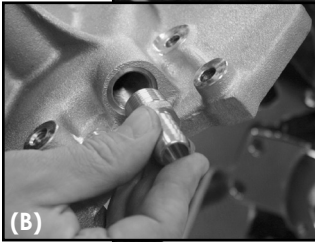
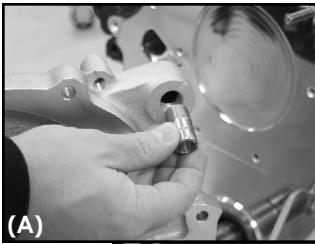


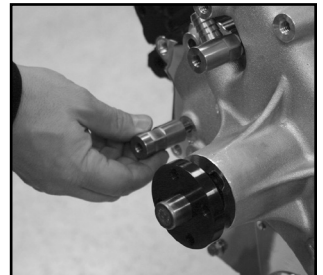
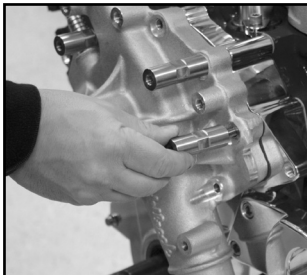
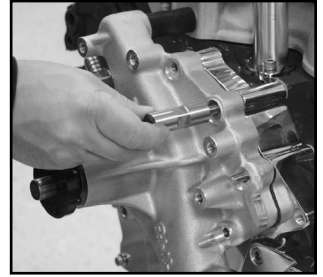
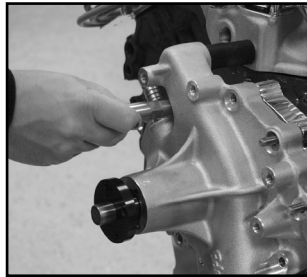
Figure 3a: Prepare Water Pump For Installation

(A) Install supplied water pump to manifold nipple and **(B)** heater hose barbed fitting or block-off if heater is not being used.

(C) Apply Permatex Hylomar[®] gasket dressing to both sides of water pump gasket. Slide gasket over studs and position.

(D) Slide water pump over studs.

Thread the three 2-3/16" spacer nuts with the hex end out onto the top three exposed studs and finger tighten. Follow by threading the 1-5/8" spacer nut with the hex end out onto the remaining exposed stud (bottom passenger side) and finger tighten.



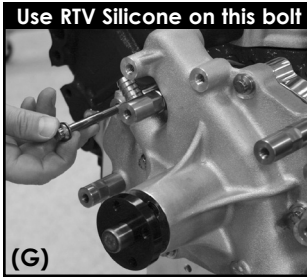
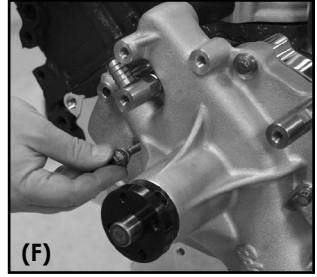
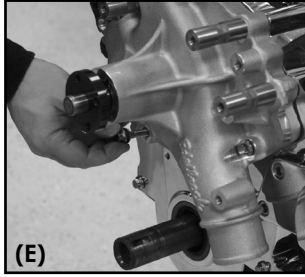
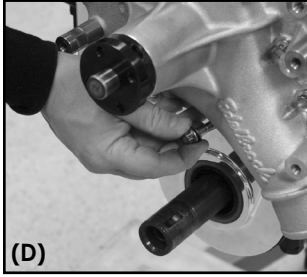
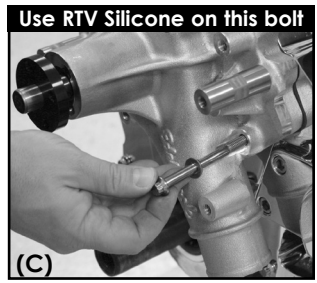
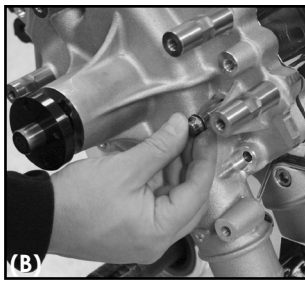
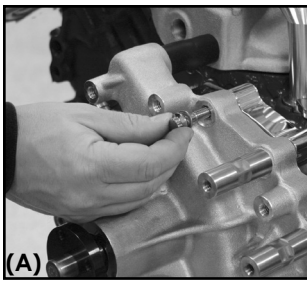


Figure 3b: Install Water Pump

Apply anti-seize to the five 5/16-18 x 1-1/2" ARP 12pt. cap screws and RTV Sealer to the two 5/16-18 x 3-1/2" ARP 12pt. cap screws. Also install a 5/16" stainless steel washer to each screw at this time.

(A) Install first 5/16-18 x 1-1/2" ARP cap screw and washer at the top center of the water pump and finger tighten.

(B) Thread the next 5/16-18 x 1-1/2" ARP 12pt. cap screw and washer into the next exposed hole to the right. **(C)** Followed by installing one 5/16-18 x 3-1/2" ARP 12 pt. cap screw and washer through the next exposed hole (far right driver side).

(D,E,F) Next, install three 5/16-18 x 1-1/2" ARP 12pt. cap screws with washers into the next 3 exposed holes on the bottom of the water pump.

(G) Finish water pump installation by threading final 5/16-18 x 3-1/2" ARP 12 pt. cap screw with washer into last exposed hole on water pump passenger side.

Tighten all installed hardware on timing cover bottom and water pump evenly and slowly in a cross pattern. Also tighten spacer nuts firmly at this time.



Figure 4: Install Oil Pan

Apply a thin bead of RTV silicone on oil pan. Align and place oil pan rail gaskets on oil pan noting that there is a right and left side apply another thin bead of silicone to top of gasket.

Install rear oil pan seal on motor by applying a thin bead of RTV silicone to both sides (*apply sparingly*). Seat gasket firmly into block flush with surface, align and mount oil pan with saved hardware. Tighten to OEM specs.

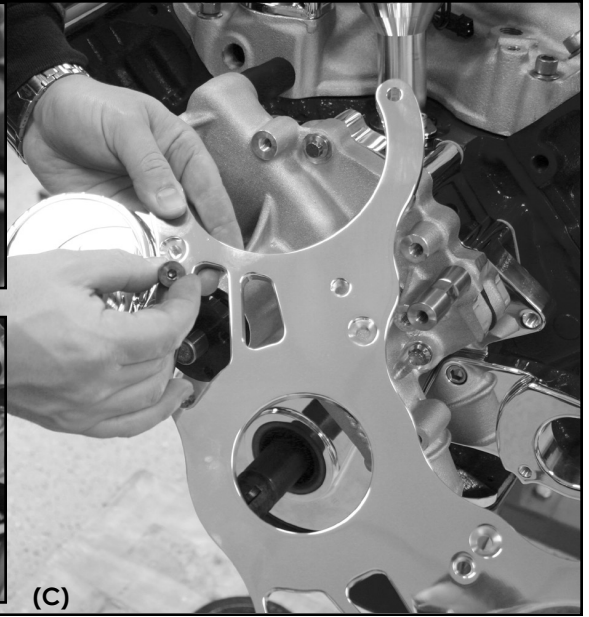
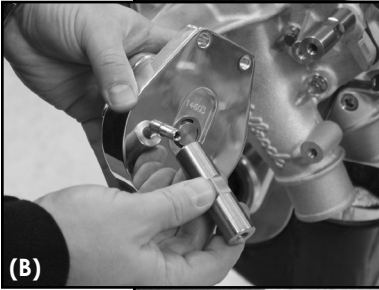
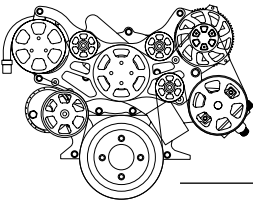


Figure 5: Prepping The Tensioner

(A) Apply anti-seize to one end of 5/16-18 x 1" socket set screw and thread into back of tensioner and finger tighten.

(B) Apply anti seize to exposed threads of stud, then thread 2-5/8" spacer nut onto stud and tighten firmly.

(C) Attach tensioner assembly to bridge bracket by applying anti seize to one 5/16-18 x 1" flat head cap screw through bridge bracket into tensioner and finger tighten.



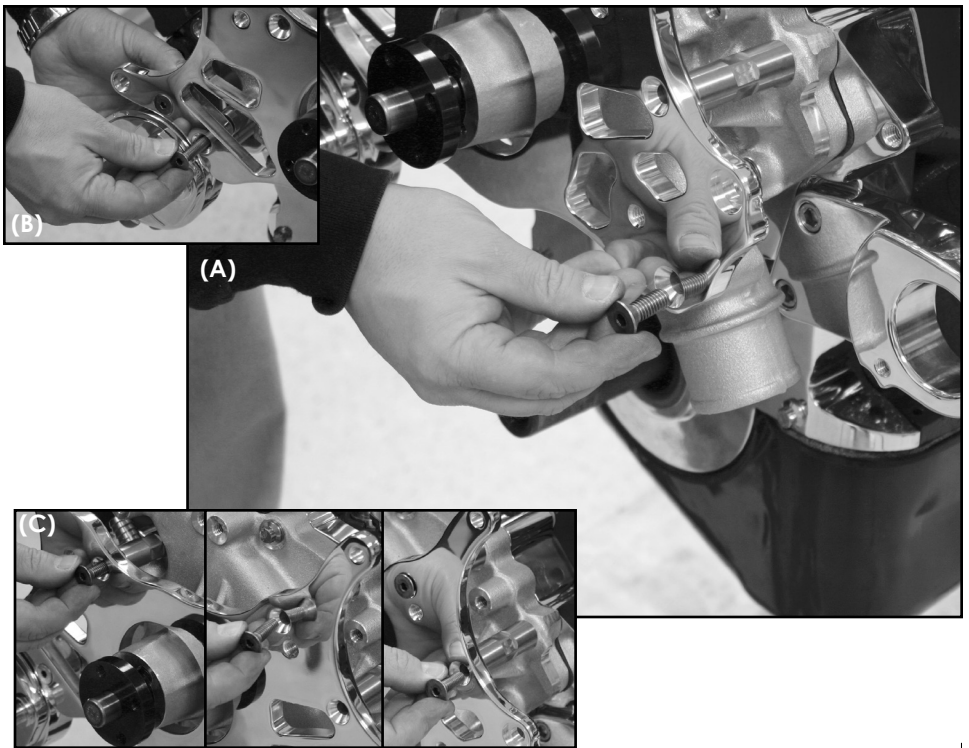
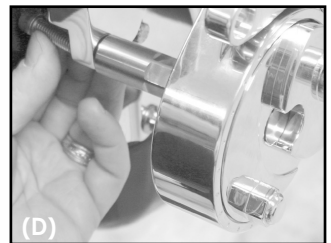


Figure 6: Install Bridge Bracket

Apply anti seize to three 5/16-18 x 1" flat head cap screws, one 5/16-18 x 1-1/2" flat head cap screw and one 3/8-16 x 1" flat head cap screw.

(A) Place bridge bracket up to motor and align with mounts. Thread one 3/8-18 x 1" flat head cap screw through driver side bottom bridge bracket and into water pump boss, finger tighten. **(B)** Follow by threading the 5/16-18 x 1-1/2" flat head cap screw through the bridge bracket and tensioner and into the lower spacer nut and finger tighten. **(C)** Finish the installation by threading the remaining three 5/16-18 x 1" flat head cap screws into the top three spacer nuts and finger tighten each one.

(D) Apply anti seize to the 5/16-18 x 1" socket head cap screw and thread through the timing cover and into the spacer nut attached to the tensioner, finger tighten.



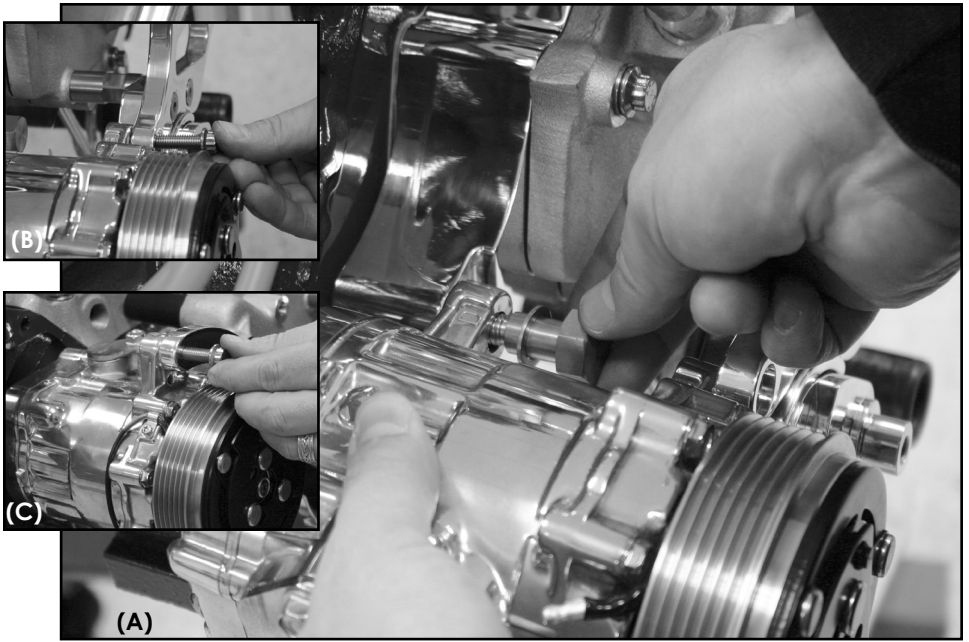


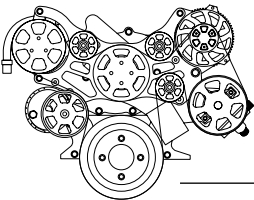
Figure 7: Install The A/C Compressor

Apply anti seize to the compressor shoulder bolt and to two 8mm-1.25 x 25mm ARP 12pt. cap screws.

(A) Place the A/C compressor between the timing cover and bridge bracket, thread compressor shoulder bolt and washer through bottom compressor ear and into timing cover, finger tighten.

(B) Next, thread one 8mm-1.25 x 25mm ARP 12pt. cap screw through bridge bracket and into compressor bottom ear, finger tighten.

(C) Follow by aligning compressor top ear with bridge bracket and thread remaining 8mm-1.25 x 25mm ARP 12pt. cap screw through bridge bracket and into compressor, finger tighten.



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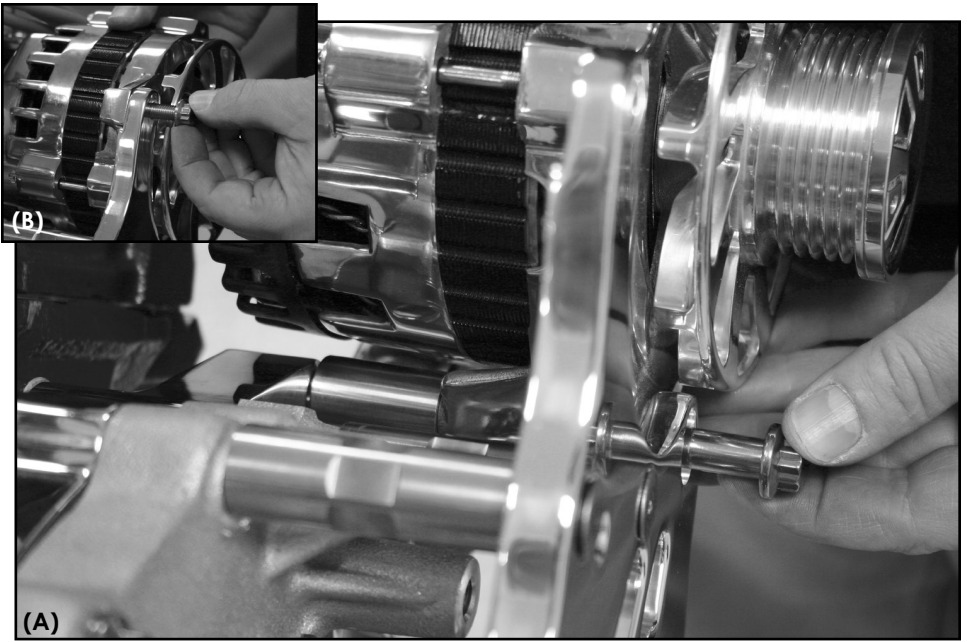


Figure 8: Install The Alternator

Apply anti seize to one 10mm-1.5 x 100mm ARP 12pt cap screw and one 8mm-1.25 x 25mm 12pt. cap screw.

(A) Place the alternator between the timing cover and bridge bracket with the wide mount boss at the bottom and align with bridge bracket. Thread the 10mm-1.5 x 100mm ARP 12pt. cap screw through the bridge bracket, alternator, 1-5/16" spacer and into the timing cover, finger tighten.

(B) Align top alternator ear with bridge bracket and thread remaining 8mm-1.25 x 25mm ARP 12pt. cap screw through bridge bracket and into alternator.

The alternator mounting boss may vary in width due to the polishing process. 10mm shim washers are provided to shim the alternator if needed at the bottom.

Tighten all bridge bracket fasteners, compressor shoulder bolt and tensioner bolt behind timing cover firmly at this time.





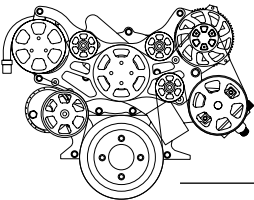
Figure 9: Install Power Steering Pump

Install one 5/16" split washer to each of the two 5/16-18 x 2-3/4" socket head cap screws then apply anti seize to threads.

(A) Place power steering pump with pulley (fittings to driver side) to power steering bracket and align holes. Thread the one 5/16-18 x 2-3/4" socket head cap screws through the power steering pump and into the bracket.

(B) Repeat the process with the second 5/16-18 x 2-3/4" socket head cap screw.

Tighten both 5/16-18 x 2-3/4" screws firmly (26 ft/lb).



TRU
Trac

Bill's Specialties

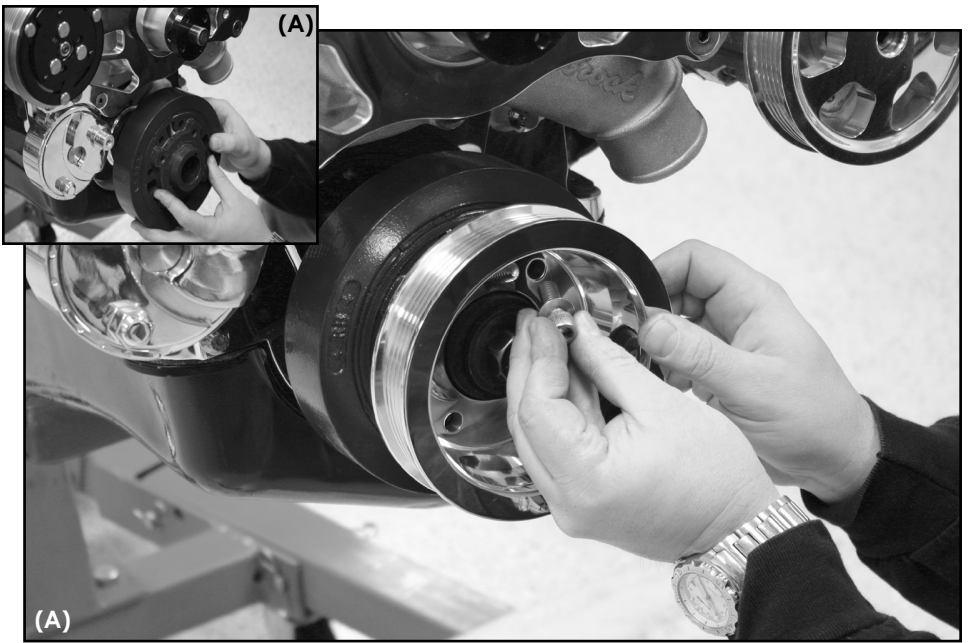


Figure 10: Install Damper & Crank Pulley

(A) Install Damper and spacer on crank per OEM specifications.

Place a 3/8" Belleville washer onto one of each of the four 3/8-16 x 1" socket head cap screws, apply anti seize to the threads.

(B) Place crank pulley on damper and attach with the four 3/8-16 x 1" socket head cap screws with belleville washers and tighten firmly (46 ft/lb).

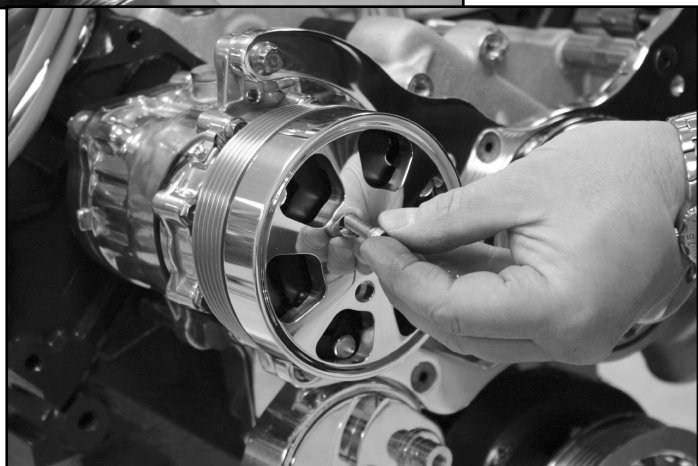
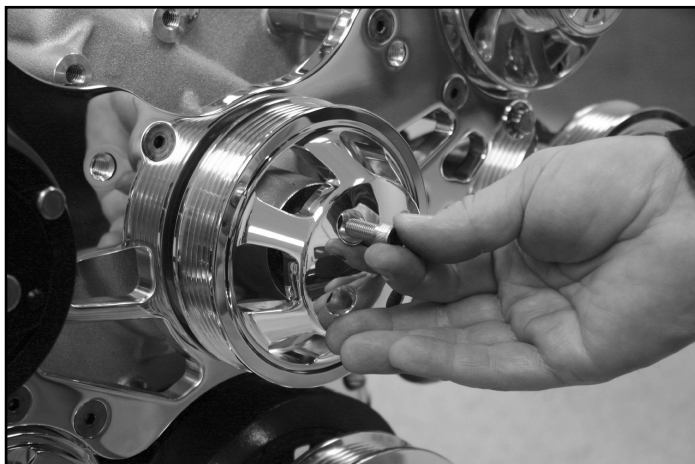


Figure 11: Install Water Pump Pulley & A/C Compressor Clutch Cover

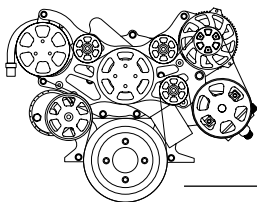
Water Pump Pulley

Apply anti seize to four 5/16-24 x 3/4" socket head cap screws. Place water pump pulley on water pump and attach with 5/16-24 x 3/4 socket head cap screws, tighten firmly (26 ft/lb).

A/C 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.**



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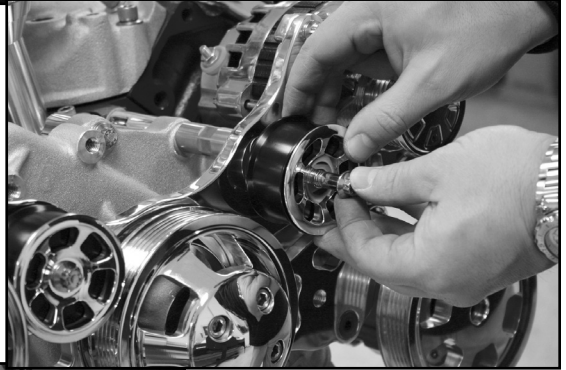


Figure 12: Install Idler Pulleys

Apply anti seize to three 3/8-16 x 1-3/4" ARP 12pt. cap screws. Thread a 3/8-16 x 1-3/4" ARP 12pt. cap screw through the idler pulley polished cover, idler pulley and boss into the bridge bracket and tighten firmly (46 ft/lbs).

Repeat step for other two idler pulleys.

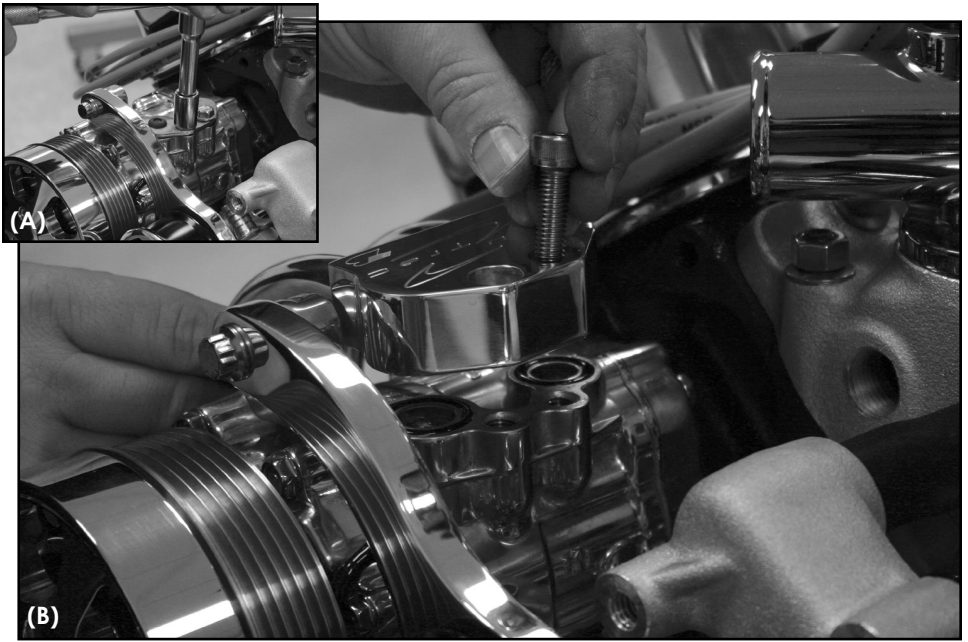


Figure 13: Install A/C Compressor Manifold

Important!

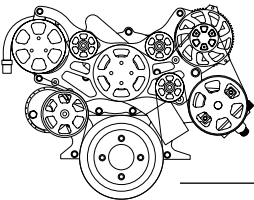
- Only remove sealed cap on compressor if you plan on charging you're A/C system. Immediately, leaving the compressor open to outside air can introduce moisture into the system causing the cooling system not to operate properly.
- Never connect the compressor clutch wire and run the compressor unless the system is completely charged. Serious damage may occur to the compressor.

(A) Attach the compressor manifold by removing the protective cover and placing the manifold onto the compressor.

(B) Apply anti-seize to the two M8-1.25 x 25mm socket head cap screws and thread through manifold into the compressor and tighten firmly.

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 service.



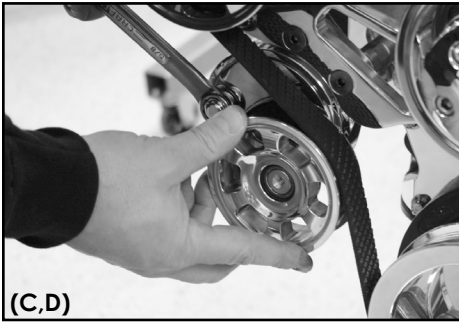
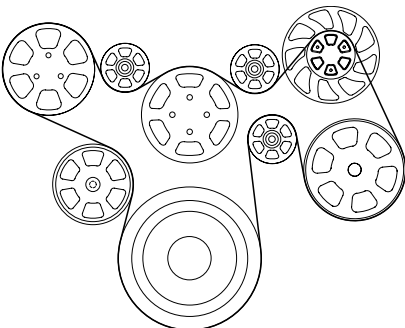


Figure 14: Install Belt & Tensioner Pulley

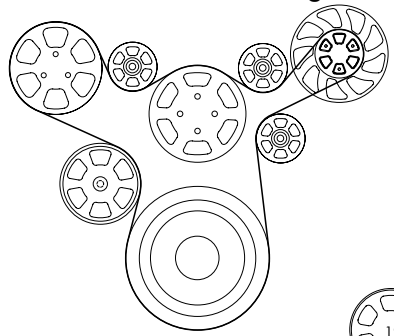
- (A)** Install and route belt as shown in the diagram below allowing belt to rest on pulley boss.
- (B)** Place a 5/8" box end wrench on tensioner nut.
- (C)** Align belt onto pulley groove above tensioner boss.
- (D)** Pull up on wrench until tensioner pulley is able to slip onto tensioner boss.
- (E)** Thread 3/8-16 x 3/4" ARP 12pt. bolt and thrust washer onto tensioner pulley and tighten firmly. (46 ft/lb)

Connect electrical and fluid lines, test run motor. Inspect fittings and hardware, tighten if necessary.

With Power Steering



Without Power Steering





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