

FOREWORD

This manual provides information on the installation, maintenance and service of the Vortech supercharger kit expressly designed for this vehicle. All information, illustrations and specifications contained herein are based on the latest product information available at the time of this publication. Changes to the manual may be made at any time without notice. Contact Vortech Engineering for any additional information regarding this kit and any of these modifications at (805) 247-0226 7:00am-3:30pm PST.



Take note of the following before proceeding:

- 1. Proper installation of this supercharger kit requires general automotive mechanic knowledge and experience. Please browse through each step of this instruction manual prior to beginning the installation to determine if you should refer the job to a professional installer/technician. Please contact your dealer or Vortech Engineering for possible installers in your area.
- 2. This product was designed for use on stock (un-modified, OEM) vehicles. The, engine, intake manifold, transmission, drive axle ratios and tire O.D. must be stock. If the vehicle or engine has been modified in any way, check with Vortech prior to installation and use of this product.
- **3.** Use only premium grade fuel with a minimum of 91 octane (R+M/2).
- **4.** Always listen for any sign of detonation (*knocking/pinging*) and discontinue hard use (*no boost*) until problem is resolved.
- 5. Vortech is not responsible for any clutch, transmission, drive-line or engine damage.

Exclusions from Vortech warranty coverage considerations include, but not limited to:

- **1.** Neglect, abuse, lack of maintenance, abnormal operation or improper installation.
- 2. Continued operation with an impaired vehicle or sub-system.
- **3.** The combined use of Vortech components with other modifications such as, but not limited to, exhaust headers, aftermarket camshafts, nitrous oxide, third party PCM programming or other such changes.

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SMALL BLOCK CHEVY GEN 3 S/C KIT

Installation Instructions

Before beginning this installation, please read through this entire instruction booklet and the Street Supercharger System Owner's Manual which includes the Limited Warranty Program, the Warranty Registration form, and return envelope.

Vortech supercharger systems are performance improving devices. In most cases, increases in torque of 30-35% and horsepower between 35-45% can be expected with the boost levels specified by Vortech Engineering. This product is intended for use on healthy, well maintained engines. Installation on a worn-out or damaged engine is not recommended and may result in failure of the engine as well as the supercharger. Vortech Engineering is not responsible for engine damage.

Installation on new vehicles will not harm or adversely affect the break-in period so long as factory break-in procedures are followed.

For best performance and continued durability, please take note of the following key points:

- 1. Use only premium grade fuel 91 octane or higher (R+M/2).
- 2. The engine must have stock compression ratio.
- 3. If the engine has been modified in any way, check with Vortech prior to using this product.
- **4.** Always listen for any sign of detonation (pinging) and discontinue hard use (no boost) until problem is resolved.
- 5. Before beginning installation, replace all spark plugs that are older than 1-year or 15,000 miles with original heat range plugs as specified by the manufacturer and reset timing to factory specifications (follow the procedures indicated within the factory repair manual and/or as indicated on the factory underhood emissions tag). Do not use platinum spark plugs unless they are original equipment. Change spark plugs every 15,000 miles.
- 6. Oil-Fed Units Only: Perform an oil and filter change upon completion of this installation and prior to test driving your vehicle. Thereafter, always use a high-grade SF rated engine oil or a high quality synthetic, and change the oil and filter every 3,000 miles. Never attempt to extend the oil change interval beyond 3,000 miles, regardless of oil manufacturer's claims as potential damage to the supercharger may result.

Tool and supply requirements:

- 3/8" ratchet and drive set: SAE and metric
- · Open end wrenches: SAE and metric
- 3/8" ratchet extensions
- · Screwdriver or nut driver set
- Power steering pump pulley installer
- · Blue threadlocker



If it has been one year or 15,000 miles or more since your vehicle's last spark plug change, then you will also need:

- Spark plug socket
- NEW spark plugs

FOR OPTIMAL OPERATION OF THIS SUPERCHARGER SYSTEM, YOU'LL NEED TO PURCHASE THE FOLLOWING ACCESSORIES SEPARATELY



Vintage Air A/C Compressor Part Number: 046768-MTR (Sanden SD7 7176 also suitable)



ACDelco Crank Pulley
Part Number: 10055879
(Used for driving the accessories)



ACDelco Water Pump Part Number: 19417097



ACDelco Water Pump Pulley Part Number: 194118448 (Was previously part number: 10055880)



BBB Industries Alternator Part Number: N7861-7 (Alternator plug positioned at 7 o'clock)



ACDelco Alternator Pigtail Part Number: 88987962



*Tuff Stuff Power Steering Pump Part Number: 6170AL (GM Type II - Bottom Pressure Port) *See "Power Steering Pump Notes" on pg. viii



ACDelco Power Steering Pump Pulley Part Number: 12568997

FOR OPTIMAL OPERATION OF THIS SUPERCHARGER SYSTEM, YOU'LL NEED TO PURCHASE THE FOLLOWING ACCESSORIES SEPARATELY

This supercharger system uses GM serpentine belt accessories, which will require you to convert your application to use electric cooling fans. A mechanical cooling fan is not designed to work with the water pump designated in this kit as it is reverse rotation from the factory water pump.



We suggest contacting your local speed shop to go over these concerns prior to purchasing this kit, since no two vehicles have the same requirements.

POWER STEERING PUMP NOTES

A. The supercharger mounting bracket assembly was designed to be used with the "Tuff Stuff 6170AL" power steering pump. This pump uses a bottom pressure port which ensures that there will be no interference between the power steering lines and the mounting bracket assembly. If you are using this pump, no further action is required. However if you opted to use the top pressure port pump, proceed to the next step.

NOTE: The "Tuff Stuff 6170AL" pump is based off of the "GM Type II" pump. What makes this pump unique is the bottom pressure port which fits better in this application.



Fig. A: "Bottom Pressure Port" power steering pump

B. It is possible to use a "GM Type II" pump that uses a top pressure port. If you decide to go this route, you will need to use the following fitting for bracket clearance:

Detroit Speed Banjo Fitting Part Number: D91801

In addition to using this fitting, Detroit Speed recommends using the following power steering hose kit:

Detroit Speed Power Steering Hose Set

Part Number: D91302

NOTE: Regardless of which power steering pump you use, you'll be required to figure out a solution for a power steering fluid reservoir for your application.

C. If you purchased the recommended power steering pump and pulley, you'll need to install the pump to the bracket assembly first, then install the pulley to the pump after the bracket assembly is installed to the engine. You will need to use a power steering pump pulley installer. Keep this in mind when you reach this step in the installation manual.



Fig. B: Top pressure port power steering pump with Detroit Speed banjo fitting



Fig. C: Power steering pump pulley installer tool

IMPORTANT INSTALLATION NOTES



Take note of the following before proceeding:

This kit should only be installed by qualified mechanics. It is imperative that the correct air/fuel mixture be maintained at all times. This kit is to be supplied to competent engine tuners for their completion by the addition of, and tuning of, appropriate fuel and ignition control components.

This product is intended for use on healthy, well maintained engines. Installation on a worn-out or damaged engine is not recommended and may result in failure of the engine.

Vortech Engineering is not responsible for engine damage. Installation on new engines will not harm or adversely affect the break-in period so long as factory break-in procedures are followed.

- 1. This system was designed to be as compact as possible, however due to the variation of vehicles which use the Small Block Chevy engine, your installation may require minor modifications for proper fitment.
- 2. Pulley diameter changes: Careful size selection is mandatory for proper engine and supercharger longevity. Contact the Vortech Tech Line for assistance with impeller speed calculations if necessary.

This is a universal supercharger system. It is assumed that some custom fabrication may be necessary for proper fitment on your application. Some of the things you might want to consider are:

- 1. Coolant hoses may need to be modified in order to clear the supercharger system.
- 2. Wiring may need to be lengthened or shortened for proper fitment of the alternator, or the alternator plug may need to be changed in order for the original wiring to work with the recommended alternator.
- 3. It may be necessary to come up with a solution for a power steering pump reservoir, as the one equipped with your vehicle may not be suitable for the power steering pump we recommend.
- 4. Changes to the discharge assembly may be required depending on the following:
 - a. Intake manifold that is different from stock
 - b. Carburetor different from "stock style"
 - c. Use of a charge air cooler system
 - d. Aftermarket hood that causes fitment issues
 - e. Upgrading to a larger supercharger unit

This supercharger system uses GM serpentine belt accessories, which will require you to convert your application to use electric cooling fans. A mechanical cooling fan is not designed to work with the water pump designated in this kit as it is reverse rotation from the factory water pump.

We suggest contacting your local speed shop to go over these concerns prior to purchasing this kit, since no two vehicles have the same requirements.



Small Block Chevy, Gen 3 S/C Kit Part No. 4GP218-090L PARTS LIST

IMPORTANT: Before beginning installation, verify that all parts are included in the kit. Report any shortages or damaged parts immediately.

1. BASIC COMPONENT REMOVAL & WATER PUMP INSTALLATION



Use blue threadlocker on all fasteners in this section.

A. This supercharger system has been designed to incorporate various accessories offered by Chevy Performance, therefore the factory small-block accessories will not be used. Remove all accessories and drain the engine coolant into a clean container.



Fig. 1-A: Remove all accessories

B. Using a 9/16" socket, locate the water pump and install it as shown, making sure to use the gaskets and hardware supplied with the water pump. Torque the screws to the following:

For aluminum block: 22 ±2 lb-ft

For iron block: 33 ±2 lb-ft

NOTE: The water pump is installed now for ease of installation throughout the manual. Three of the four screws will be removed and replaced with the supercharger mounting bracket hardware in a later step.



Fig. 1-B: Install water pump

C. Locate the water pump pulley and install it to the water pump. Secure using the hardware that should have been supplied with the water pump.

NOTE: Securing the water pump pulley hardware is easier once the accessory belt is installed. This will be covered again later in the manual.



Fig. 1-C: Install water pump pulley

1. BASIC COMPONENT REMOVAL & WATER PUMP INSTALLATION

D. Remove any crank pulley and/or accessories attached to the front of the harmonic balancer. Using a damp rag, wipe off the mounting surface of the harmonic balancer.



Fig. 1-D: Remove crank pulley and/or accessories from harmonic balancer

A. **Before you begin:** You may be required to change your alternator plug as the vehicle's original plug may not be compatible with the suggested alternator. Verify that your vehicle has the correct alternator plug, otherwise change it out for the suggested alternator plug (not available through Vortech). The new plug should come with wiring instructions for easy installation, otherwise contact your local speed shop for assistance.

ACDelco Alternator Pigtail Part Number: 88987962



Fig. 2-A: Alternator plug (Not available through Vortech)



Use blue threadlocker on all fasteners in this section.

B. Using a 9/16" socket, remove the upper screw on the driver side of the water pump. It will not be reused. One of the supercharger mounting bracket screws will be installed to this location in a later step.



Fig. 2-B: Remove upper driver side water pump screw

C. The supercharger mounting bracket assembly should come preassembled, however we have included a diagram near the back of this manual in case spacers or hardware get misplaced. You'll also notice that all hardware and spacers are held in place using plastic retainers. Leave the hardware and plastic retainers in place and do not remove them until you are directed to do so. This ensures that all spacers and hardware remain in the correct position during installation. The only hardware that may come bagged seperately are five 3/8"-16 x 1.25" screws and five 3/8" washers. These are used to secure the supercharger to the mounting bracket assembly.



Fig. 2-C: Supercharger mounting bracket assembly

E. **Power steering option only:** Remove the entire ribbed idler assembly and replace it with the supplied hardware and spacers. The power steering pump rests on three Ø.750" x 1.530" spacers and is secured from the front using two M8 x 1.25 x 110mm screws and one M8 x 1.25 x 60mm screw from the back side of the rear support plate. Locate the power steering pump and position it as shown, making sure to secure the previously mentioned hardware using a 1/2" socket. Be sure to use the supplied washers on all three screws.

NOTE 1: The power steering pump MUST be installed to the mounting bracket assembly prior to installation to the engine. Refer to the diagram located in Appendix A1 during assembly.

NOTE 2: Install the pump to the bracket assembly first, then install the pulley to the pump after the bracket assembly is installed to the engine. You will need to use a power steering pump pulley installer.

D. Remove the plastic retainers except for the one on the upper-left side. Make sure that the hardware and spacers remain in place. Position the supercharger mounting bracket assembly as shown and begin to thread in all four 3/8"-16 screws by hand. Once all of the screws are in position, use a 9/16" socket and torque wrench to torque the screws to the following:

For aluminum heads/block: 22 ±2 lb-ft For iron heads/block: 33 ±2 lb-ft

E. **Installation tip:** When installing the supercharger mounting bracket assembly to the engine, check the clearance between the back of the alternator to the front of the intake manifold and front of the driver side valve cover. It may be necessary to slightly grind down the front edges of those components for proper fitment. Keep this in mind moving forward

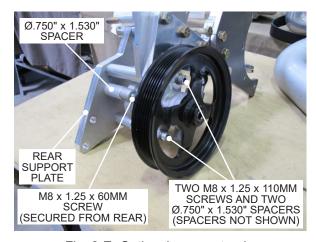


Fig. 2-E: Optional power steering

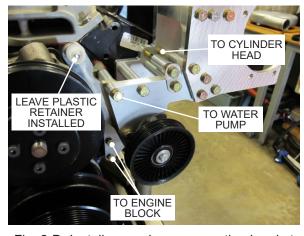


Fig. 2-D: Install supercharger mounting bracket assembly



Fig. 2-E: Alternator clearance

F. There is a plastic cap temporarily securing the M8 x 1.25 x 25mm screw and washer to the mounting bracket assembly. Remove the plastic cap and temporarily set the screw and washer aside.



Fig. 2-F: Set alternator screw aside

G. There are two 3/8"-16 x 4.250" screws and two 3/8" washers securing the alternator stabilizer to the mounting bracket assembly. Using a 9/16" socket, temporarily remove both screws. The upper screw has a 1.715" length spacer attached to it. Temporarily remove the spacer from the bracket assembly. The lower screw passes through a 3.070" length spacer that's sandwiched between both mounting plates. This spacer can remain in place at this time.

NOTE: The 3.070" length spacer should stay in place between both mounting plates when the screw is removed, however if it does not, be sure to reinstall it when installing the alternator in a later step.

H. Install one 3/8"-16 x 4.250" screw, one 3/8" washer, the alternator stabilizer and the 1.715" length spacer to the driver side of the alternator as shown. When installing the alternator in the next step, make sure that the spacer remains in place as shown.

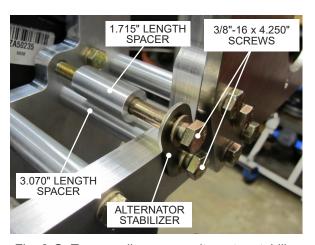


Fig. 2-G: Temporarily remove alternator stabilizer and associated hardware

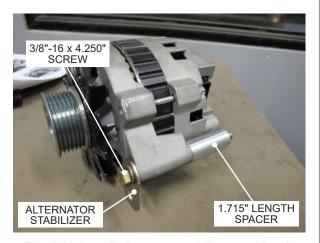


Fig. 2-H: Install alternator stabilizer and hardware as shown

I. Before mounting the alternator, plug in the alternator connector to the alternator. Lower the alternator into postion and begin to thread the 3/8"-16 x 4.250" screw into the bracket, making sure that the 1.715" spacer remains in place. Next, reinstall the other previously removed 3/8"-16 x 4.250" screw and 3/8" washer and reinstall it to the bracket, making sure that it passes through the alternator stabilizer.

NOTE: The 3.070" length spacer should have stayed in place between both mounting plates when the screw is removed, however if it did not, be sure to reinstall now.

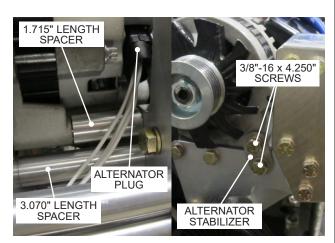


Fig. 2-I: Install alternator

J. Locate the previously removed M8 x 1.25 x 25mm screw and use it to secure the passenger side of the alternator to the mounting bracket assembly. Use a 1/2" socket to secure the M8 x 1.25 x 25mm screw. Next, use a 9/16" socket to secure both 3/8"-16 x 4.250" screws on the driver side of the alternator.

NOTE: As you secure the 3/8"-16 x 4.250" screws, you'll notice the alternator stabilizer will start to bend into position. This is normal.

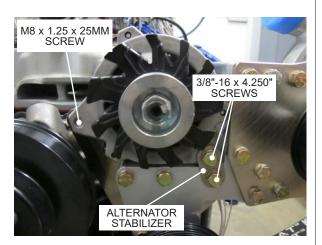


Fig. 2-J: Secure alternator hardware

3. A/C IDLER ASSEMBLY INSTALLATION (NON-A/C ONLY)



Use blue threadlocker on all fasteners in this section.

NOTE: This section applies to vehicles without A/C. If you are running A/C, proceed to Section 4.

A. Using a 9/16" socket, remove the two screws on the passenger side of the water pump. They will not be reused. Two of the A/C mounting bracket screws will be installed to this location in a later step.



Fig. 3-A: Remove passenger side water pump screws

B. The A/C idler assembly should come preassembled, however we have included a diagram near the back of this manual in case spacers or hardware get misplaced. You'll also notice that all hardware and spacers are held in place using plastic retainers. Leave the hardware and plastic retainers in place and do not remove them until you are directed to do so. This ensures that all spacers and hardware remain in the correct position during installation.



Fig. 3-B: Ribbed idler pulley (Vehicles without A/C only)

C. You'll notice that there are three small holes located on the front A/C mounting plate. The rear of the spring tensioner has a locating tab that registers into one of these holes. For this setup, use the hole closest to the bottom of the plate.



Fig. 3-C: Spring tensioner locating tab holes

3. A/C IDLER ASSEMBLY INSTALLATION (NON-A/C ONLY)

D. Remove the remaining plastic retainers, making sure that the hardware and spacers remain in place. Position the A/C idler assembly as shown and begin to thread in all five screws by hand. Once all of the screws are in position, use a 9/16" socket and torque wrench to torque the screws to the following:

For aluminum heads/block: 22 ±2 lb-ft For iron heads/block: 33 ±2 lb-ft



Fig. 3-D: Install A/C idler assembly



Use blue threadlocker on all fasteners in this section.

NOTE: This section applies to vehicles running A/C. If you don't plan on running A/C, see Section 3.

A. Using a 9/16" socket, remove the two screws on the passenger side of the water pump. They will not be reused. Two of the A/C mounting bracket screws will be installed to this location in a later step.

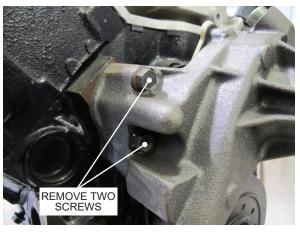


Fig. 4-A: Remove passenger side water pump screws

NOTE: Refer to the diagram located in Appendix B during disassembly.

B. You'll need to disassemble the A/C idler assembly as some parts will be reused in the A/C mounting bracket assembly.



Fig. 4-B: A/C idler assembly

C. Using a 17mm socket, remove the M10 x 1.5 x 145mm screw, 3/8" washer, and the spring tensioner. Set them aside as they will be reused.

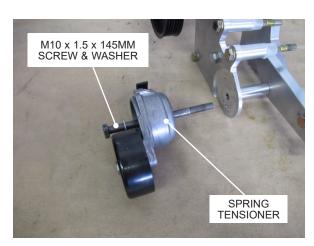


Fig. 4-C: Remove spring tensioner and associated hardware

D. Remove the two 3/8"-16 x 4.00" screws, two 3/8" washers and two 1.460" length spacers and set them aside as they will be reused.

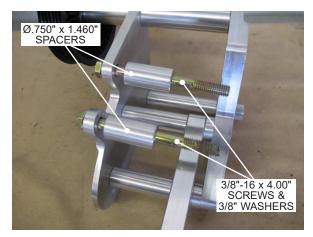


Fig. 4-D: Remove hardware and spacers

E. Remove the two 3/8"-16 x 1.250" screws and two 3/8" washers and set them aside as they will be reused.



Fig. 4-E: Remove hardware

F. Remove one 3/8"-16 x 4.25" screw, one 3/8"-16 x 5.00" screw and two 3/8" washers and set them aside as they will be reused.

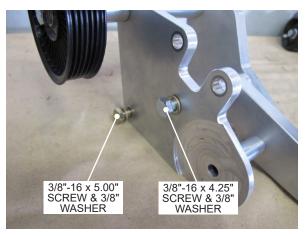


Fig. 4-F: Remove hardware

G. Remove mounting plate 1 and set it aside as it will be reused.

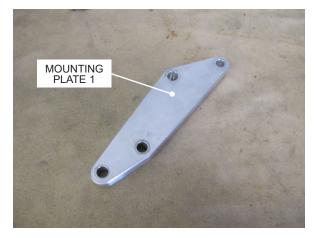


Fig. 4-G: Remove mounting plate 1

H. After you have removed the necessary parts that you'll be reusing, you'll be left with the parts shown in Fig. 4-H. Bag these parts and set them aside as they will not be reused. Keep them in safe storage in case you ever decide to remove the A/C from your vehicle.



Fig. 4-H: Unused A/C idler components

 What you see in Fig. 4-I are the components that will be reused with the A/C mounting bracket assembly. You will begin to assemble the A/C mounting bracket assembly in the following steps.



Fig. 4-I: Components to be reused

J. You'll notice that the two rear A/C compressor mounting tabs have steel bushing pressed into them. These bushings will register into the counterbores on the rear A/C mounting plate.



Fig. 4-J: A/C compressor steel bushings (Passenger side shown)

NOTE: Refer to the diagram located in Appendix C during reassembly.

K. Locate the A/C compressor and position it as shown, making sure that the two bushing on the rear mounting tabs register into the counterbores of the rear A/C mounting plate. Position the spacers as shown, then use a 1/2" socket to secure the two M8 x 1.25 x 90mm screws that secure the A/C compressor to the mounting bracket assembly. Repeat this step for the opposite side of the A/C compressor.

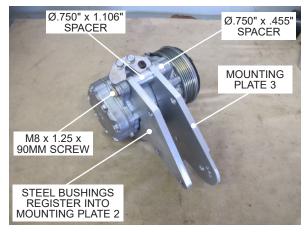


Fig. 4-K: Assemble components as shown

L. Locate the previously removed 3/8"-16 x 5.00" screw and 3/8" washer, one 1.106" length spacer and one 2.410" length spacer. Assemble the hardware and spacers as shown.



Fig. 4-L: Install spacers and hardware as shown

M. Locate the previously removed 3/8"-16 x 4.25" screw and 3/8" washer, one 1.106" length spacer and one .909" length spacer. Assemble the hardware and spacers as shown.

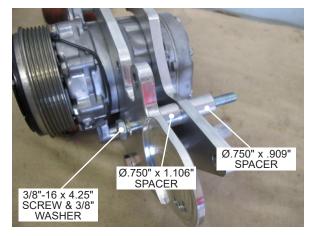


Fig. 4-M: Install spacers and hardware as shown

N. Locate the two previously removed 3/8"-16 x 4.00" screws, two 3/8" washers, and two 1.460" length spacers. Assemble the hardware and spacers as shown.

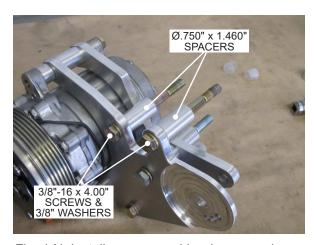


Fig. 4-N: Install spacers and hardware as shown

O. Locate the previously removed M10 x 1.5 x 145mm screw, 3/8" washer, and the spring tensioner. Also locate one 1.106" length spacer and one .909" length spacer. Assemble the hardware and spacers as shown.

NOTE: There are three small holes used by the spring tensioner locating tab. See Fig. 4-L for locating tab placement.

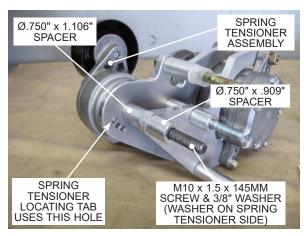


Fig. 4-O: Assemble components as shown

P. Locate the two previously removed 3/8"-16 x 1.250" screws, two 3/8" washers, and mounting plate 1. Also, locate one 3/8"-16 nylock nut, one M10 nylock nut, one 3/8" washer, and one 3/8" SAE washer (larger diameter.) Assemble the hardware and spacers as shown. Use a 9/16" socket and wrench and a 17mm socket and wrench for this step.

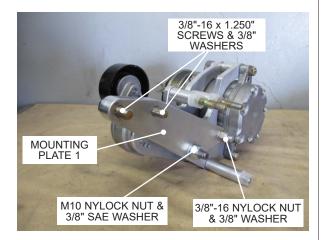


Fig. 4-P: Assemble components as shown

Q. Position the A/C mounting bracket assembly as shown and begin to thread in all five screws by hand. Once all of the screws are in position, use a 9/16" socket and torque wrench to torque the screws to the following:

> For aluminum heads/block: 22 ±2 lb-ft For iron heads/block: 33 ±2 lb-ft



Fig. 4-Q: Install A/C mounting bracket assembly



Use blue threadlocker on all fasteners in this section.

A. In order to remove the old crank bolt, you'll need to keep the engine from rotating. **With the battery unplugged**, temporarily remove the starter and set it aside. To lock the engine in place, use a flywheel locking tool or a large pry bar to keep the engine from rotating.

NOTE: Have an assistant help you with this section if you use the pry bar method.



Fig. 5-A: Keep the engine from rotating

B. With the engine locked in position, use a 5/8" socket and appropriate ratchet or breaker bar to remove the crank bolt.

NOTE: Do not use an impact wrench to remove the crank bolt as it could result in damaged threads.



Fig. 5-B: Remove crank bolt

C. The supercharger is driven by its own crank pulley. Locate the supplied crank pulley and crank pulley spacer. Align the three mounting holes on the crank pulley to the corresponding holes on the spacer. Using three 3/8" washers on the hardware, insert the three 3/8"-24 x 5.00" screws through the mounting holes.

NOTE: There is a pilot on the crank pulley spacer that registers into the center of the crank pulley. If you have trouble mating the two together, heat the center of the crank pulley using a torch or a heat gun. This expands the aluminum, making it easier to install.

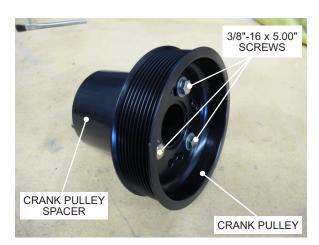


Fig. 5-C: Crank pulley assembly

D. Locate the accessory crank pulley. Place the previously assembled crank pulley spacer and crank pulley into the dish of the accessory crank pulley, making sure to align the hardware to the three mounting holes on the accessory pulley. The drive pulleys will be installed as one assembly in the next step.



Fig. 5-D: Crank pulley assembly with accessory pulley

E. Lift the drive pulleys into position and loosely install the three 3/8"-24 x 5.00" screws into the harmonic balancer. They will be torqued to spec in a later step.



Fig. 5-E: Install belt drive assembly with accessory pulley to harmonic balancer

F. Located the supplied 7/16"-20 x 2.75" crank bolt and 7/16" washer. Install the crank bolt until it is fully seated. In order to torque the new crank bolt, you'll need to keep the engine from rotating. To lock the engine in place, use a flywheel locking tool or a large pry bar to keep the engine from rotating. Using a 5/8" socket, an extension and a torque wrench, torque the bolt to 60 ±2 lb-ft.



Fig. 5-F: Torque the crank bolt

G. Using a 9/16" socket and torque wrench, torque the three 3/8"-24 x 5.00" screws to 37 ±2 lb-ft.



Fig. 5-G: Torque the 3/8"-16 x 5.00" screws

H. Temporarily loosen the spring tensioner until it is "hanging" as shown. This is done to ease the installation of the accessory belt. Locate the supplied accessory drive belt and install it as shown. For ease of installation, we suggest sliding the belt over the A/C compressor (or ribbed idler for non-A/C systems.) You may need to use some force to get the belt over the ribs of the A/C compressor.

NOTE: The accessory belt is a tight fit. We suggest letting it sit out in the sun for around 30 minutes or slightly warming it with a heat gun. This makes the belt flexible and easier to install.



Fig. 5-H: Install accessory drive belt

I. With the accessory drive belt in position, you will now secure the spring tensioner. Rotate the spring tensioner counter-clockwise and place the locating tab on the back of the spring tensioner into the lowest hole on the A/C mounting plate. Once the tensioner is in position, secure the M10 x 1.50 x 145mm screw using a 17mm socket. The belt will be properly routed in the next step. This is done to help ease the installation of the accessory belt.

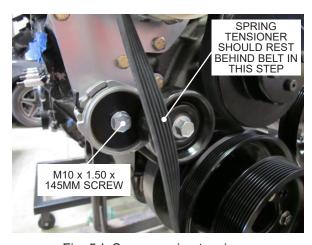


Fig. 5-I: Secure spring tensioner

J. Using a 15mm wrench, turn the spring tensioner clockwise, then slide the belt over the smooth idler pulley. Be sure that the belt is seated correctly on all of the accessories. Verify that the water pump pulley hardware is secure.

> NOTE: If you're having trouble getting the accessory belt onto the spring tensioner, you may have to slightly loosen the A/C mounting bracket assembly screws to allow the assembly to slightly shift, making it easier to install the belt.



Fig. 5-J: Tension accessory drive belt

K. Now that the accessory belt is installed, proceed to secure the water pump pulley hardware.

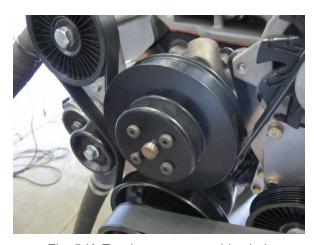


Fig. 5-K: Tension accessory drive belt

6. SUPERCHARGER & SUPERCHARGER BELT INSTALLATION

NOTE: For your convenience, we have included a pulley & belt selection guide in Appendix E. Reference that guide if you decide to change your pulley combination in the future.

A. Place the supercharger onto the supercharger mounting plate as shown. Using a 9/16" socket and torque wrench, use the five supplied 3/8"-16 x 1.25" screws to secure the supercharger and torque to 22 ±2 lb-ft.



Fig. 6-A: Install supercharger

B. Locate the supplied manual belt tensioner plate. Using the three supplied M12 x 1.75 x 20mm screws and three M12 washers, loosely attach the manual belt tensioner plate to the supercharger as shown.

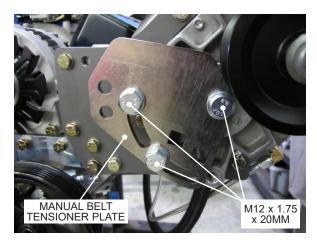


Fig. 6-B: Install manual belt tensioner plate

C. Locate the supplied M12 x 1.75 x 65mm screw, M12 x 1.75 nut, M12 washer, piloted idler spacer and flanged idler pulley. Use the supplied hardware to secure the flanged idler pulley to the upper hole on the manual belt tensioner plate. Be sure the snap ring on the idler pulley is facing towards the idler plate.

NOTE: You may be required to use the lower hole on the tensioner mounting plate if you decide to change your pulley and belt combination in the future.



Fig. 6-C: Install flanged idler pulley

6. SUPERCHARGER & SUPERCHARGER BELT INSTALLATION

D. Locate the supplied supercharger drive belt and route is as shown. Once the belt is in position, press down on the manual belt tensioner assembly to tension the belt. Use a 3/4" wrench to secure the manual belt tensioner hardware. Be sure not to apply an excessive amount of tension to the drive belt.

NOTE: It may be necessary to use a 3/4" tappet wrench or a slim 3/4" wrench to tighten the M12 screws closest to the supercharger drive pulley and idler pulley.



Fig. 6-D: Install supercharger drive belt

7. CARBURETOR HAT & DISCHARGE ASSEMBLY INSTALLATION



Use blue threadlocker on all fasteners in this section.

A. Locate the carburetor hat assembly. Using a 7/16" socket, remove the screws, retainers and carburetor hat base. Verify that the diffuser is correctly installed into the receiver groove machined into the carburetor hat housing.

NOTE: The discharge assembly was designed around a stock intake manifold with a 4150 style carburetor. Use of components other than stock or "OEM style" may require custom fabrication for the discharge assembly fitment to fit properly.

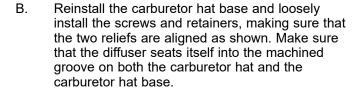




Fig. 7-A: Carburetor hat with diffuser



Fig. 7-B: Reinstall carburetor hat base

C. Clean the mounting surface of the carburetor using a clean rag. Locate the supplied carburetor gasket and install it as shown.



Fig. 7-C: Install carburetor hat gasket

7. CARBURETOR HAT & DISCHARGE ASSEMBLY INSTALLATION

D. Cleaning the mounting surface on the carburetor hat base using a clean rag. Place the carburetor hat assembly onto the carburetor, making sure to align the reliefs on the carburetor hat base with the top of the carburetor.



Fig. 7-D: Align carbuertor hat reliefs

E. Locate the supplied 5/16"-18 x 2.75" screw and sealing washer supplied with the carburetor hat assembly. Slide the sealing washer onto the screw, then insert the screw through the opening on the top of the carburetor hat. Hand tighten the screw to the carburetor.

NOTE: Some carburetors use a 1/4"-20 screw to fasten the carburetor hat. If possible, it is suggested that you open up the 1/4"-20 threaded bore on the carburetor to accept a 5/16"-18 screw. If your carburator does not have enough material to open up the bore, we suggest swapping out your carburetor for one that will accomodate a 5/16"-18 screw. The larger screw is beneficial under high boost applications as it better secures the carburetor hat than a 1/4"-20 screw.



Fig. 7-E: Secure carbuertor hat

F. Locate and install the supplied 3.00" to 2.75" silicone reducer sleeve to the discharge of the supercharger. Loosely install one #44 hose clamp and one #48 hose clamp over the sleeve but do not tighten them at this time.

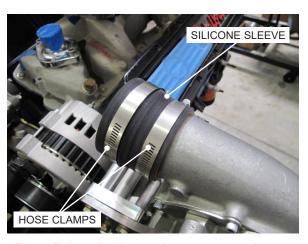


Fig. 7-F: Install silicone sleeve to supercharger (YSi-Trim shown)

7. CARB HAT & DISCHARGE ASSEMBLY INSTALLATION

G. Locate and install the supplied 3.00" ID x 3.00" length silicone sleeve to the carburetor hat. Loosely install two #48 hose clamps over the sleeve but do not tighten them at this time.

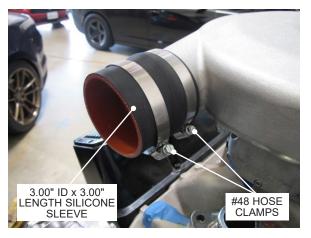


Fig. 7-G: Install silicone sleeve to carburetor hat inlet

H. Locate and install the supplied discharge tube into both silicone sleeves as shown. With the discharge tube in position, proceed to secure the carbuertor hat screws using a 7/16" socket for the carburetaor hat retainer screws and a 1/4" allen key for the 5/16"-18 x 2.75" screw. Secure all four hose clamps using a 5/16" or 8mm nut driver.



Fig. 7-H: Install discharge tube

I. Locate the bypass valve and bypass valve filter. Install the bypass valve filter as shown. Use a 5/16" or 8mm nut driver to secure the hose clamp for the air filter.

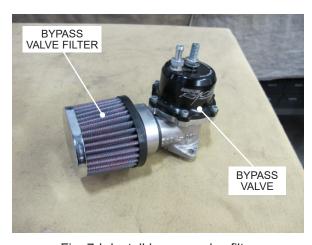


Fig. 7-I: Install bypass valve filter

7. CARB HAT & DISCHARGE ASSEMBLY INSTALLATION



Use blue threadlocker on all fasteners in this step.

J. Install the bypass valve to the discharge tube as shown, then use a 3/16" allen key to secure the two 1/4"-20 x .750" bypass valve mounting screws. Be sure to use the supplied hardware and gasket.



Fig. 7-J: Install bypass

K. We have included a 5 foot length of 7/32" vacuum hose. Attach one end of the hose to the fitting on the bypass valve. If possible, attach the other end of the vacuum hose directly to the intake manifold via a barbed fitting or an interface suitable for your application. If that's not an option, use the supplied 3/8" vacuum tee and tap into a source that will see full vacuum and boost.



Fig. 7-K: Install vacuum hose

8. AIR INLET ASSEMBLY INSTALLATION

A. There are two ways to mount the air filter to the supercharger, depending on how much space you have within the engine compartment. If you're limited on space, simply install the supplied air filter directly to the supercharger inlet as shown. The air filter should come preinstalled with the required hose clamp



Fig. 8-A: Install air filter

B. If you have a fair amount of space within the engine compartment, we highly suggest using the supplied molded air inlet. This gives the supercharger a cooler source of inlet air. Loosely install the supplied 3.50" ID x 2.00" length silicone sleeve and two #56 hose clamps.

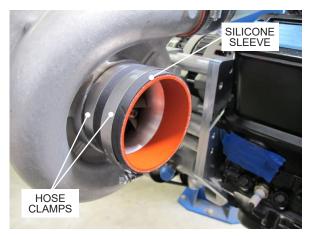


Fig. 8-B: Install silicone sleeve

C. Locate the supplied molded air inlet and install it to the previously installed silicone sleeve. Position the molded inlet in a way that best suits your application.



Fig. 8-C: Install molded air inlet to supercharger inlet

8. AIR INLET ASSEMBLY INSTALLATION

D. With the molded air inlet correctly positioned, locate and install the supplied air filter to the molded inlet as shown. The air filter should come preinstalled with the required hose clamp. Once all components are in position, proceed to secure all three hose clamps.



Fig. 8-D: Install air filter to molded inlet

E. You'll notice that this air inlet assembly includes one 3.75" ID x 2.00" length silicone sleeve, one 3.50" ID x 1.00" length sleeve, and two #60 hose clamps. These are included in case you upgrade to a larger supercharger in the future, giving you the option to reuse the molded air inlet assembly.



Fig. 8-E: Extra parts

9. FINAL CHECK

WARNING: Do not attempt to operate the vehicle until all components are installed and all operations are completed including the final check.

- **A.** If your vehicle has gone over 15,000 miles since its last spark plug change, you will need to change the spark plugs now *before* test driving the vehicle.
- B. Check all fittings, nuts, bolts and clamps for tightness. Pay particular attention to oil and fuel lines around moving parts, sharp edges and exhaust system parts. Make sure all wires and lines are properly secured with clamps or tie-wraps.
- C. Check all fluid levels, making sure that your tank(s) is/are filled with 91 octane or higher fuel before commencing test drive.
- D. Start the engine and allow to idle a few minutes, then shut off.
- E. Recheck to be sure that no hoses, wires, etc. are near exhaust headers or moving parts. Look also for any signs of fluid leakage.
- F. PLEASE TAKE SPECIAL NOTE: Operating the vehicle without ALL the subassemblies completely and properly installed may cause FAILURE OF MAJOR COMPONENTS.
- **G.** Test drive the vehicle.
- H. Always listen carefully for engine detonation. Discontinue heavy throttle usage if detonation is heard.
- I. Read the STREET SUPERCHARGER
 SYSTEM OWNER'S MANUAL AND
 RETURN THE WARRANTY
 REGISTRATION FORM within thirty (30)
 days of purchasing your supercharger system to qualify.

For internally lubricated V3 units only

This supercharger has been factory pre-filled with special Vortech synthetic lubricant. Oil does not need to be added to a brand new unit; however a fluid level check should be performed.

Prior to operating the supercharger on the vehicle and after installation onto the vehicle:

Remove the factory installed flat-head brass shipping plug (not the dipstick) from the top of the supercharger case. Replace the sealed shipping plug with the supplied "vented" plug. Do not operate the supercharger without it. Check the supercharger fluid level.

Fluid level checking procedure:

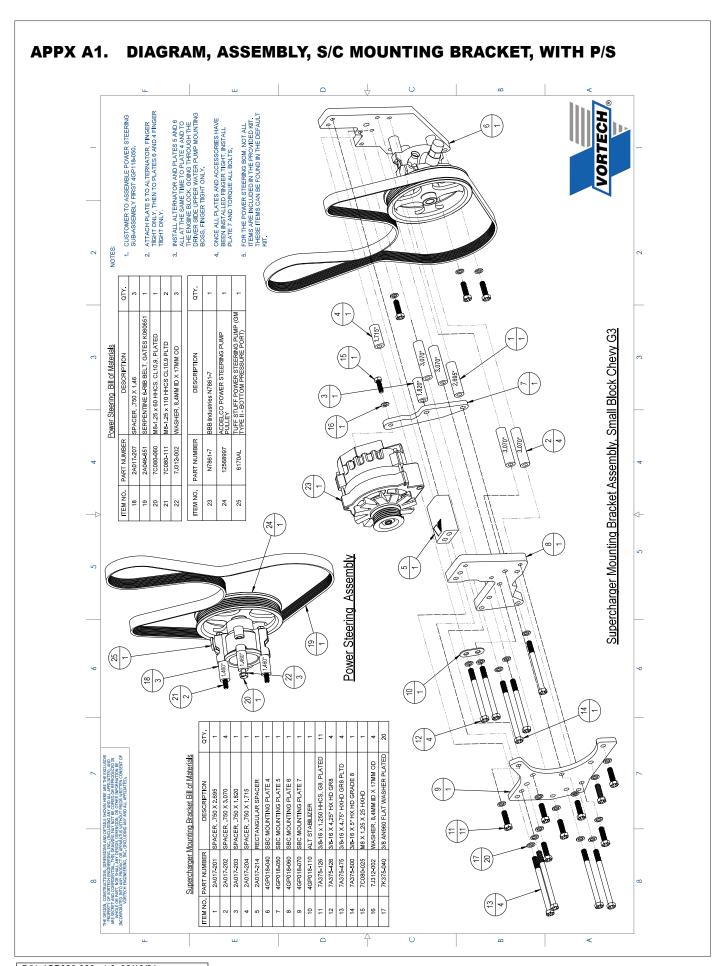
- 1. Verify that the vehicle is at room temperature. Ensure that the .06" copper sealing washer is located on the dipstick base.
- 2. Thread the clean dipstick into the unit until it seats.
- 3. Once the dipstick has seated, remove the dipstick from the unit. Fluid should register in the crosshatched area on the dipstick.
- 4. DO NOT OVERFILL!!! Drain excess fluid from the unit if it is above the maximum level on the dipstick.

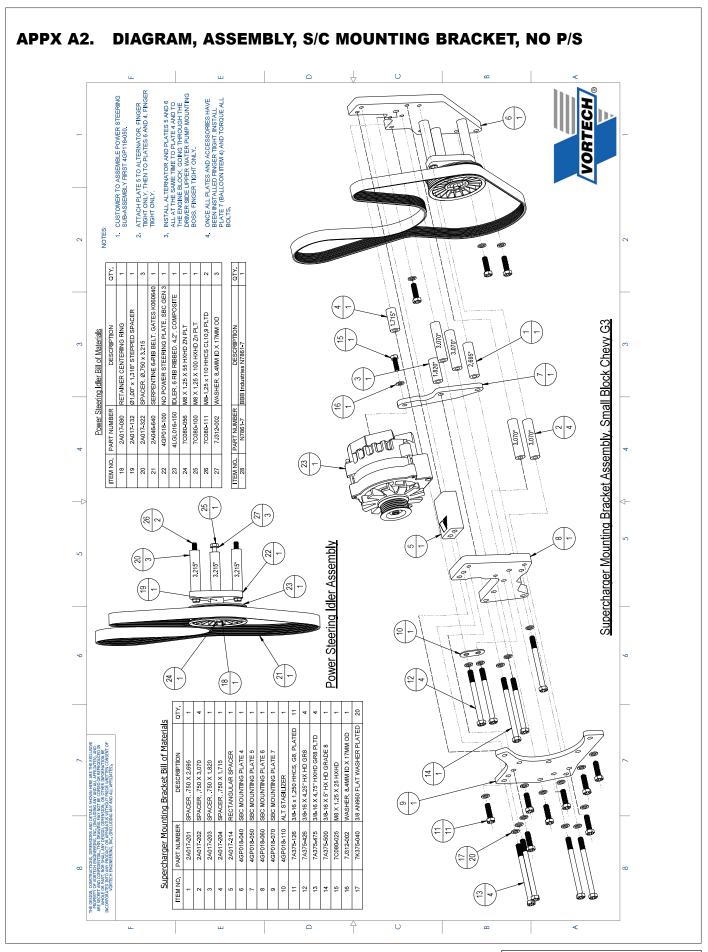
Check the fluid level using the dipstick at least every 2,500 miles.

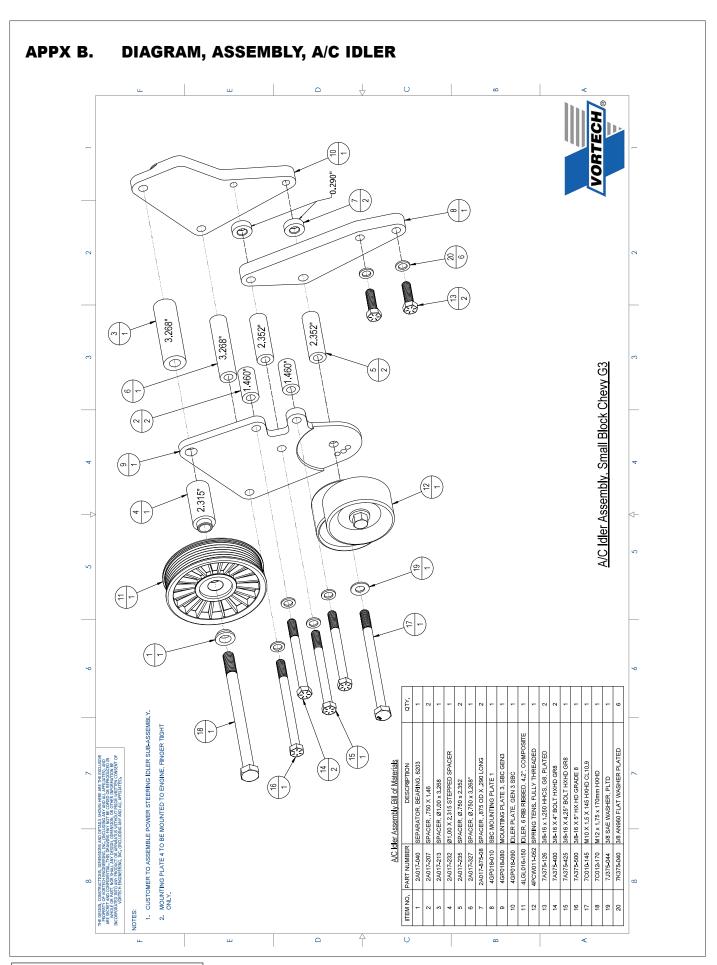
Initial supercharger fluid change must be performed at 2,500 miles. The supercharger fluid must be changed at least every 7,500 miles.

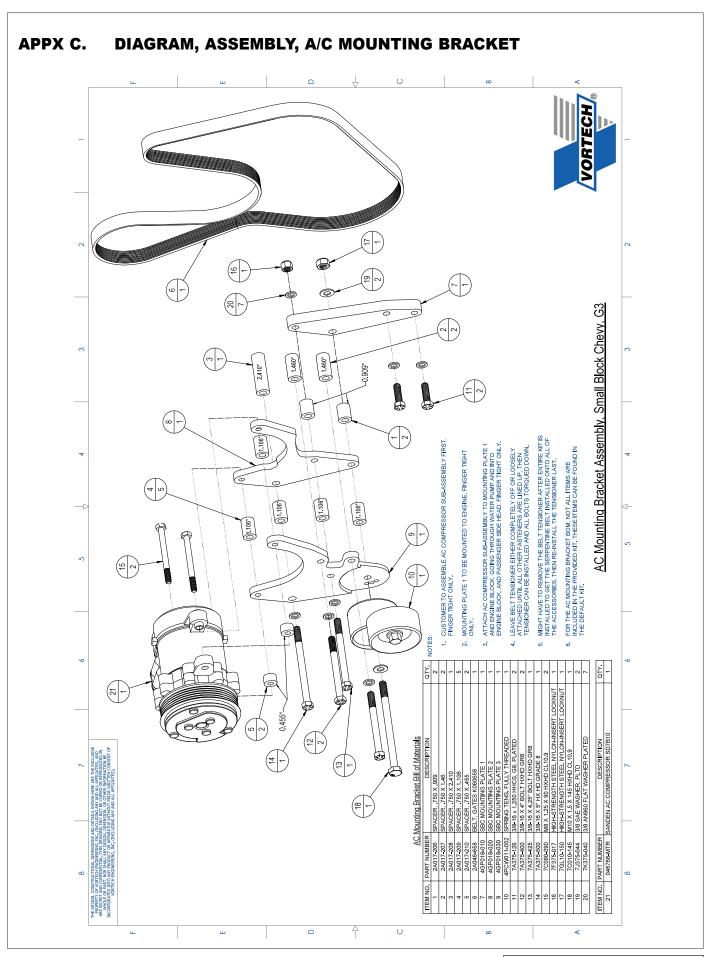
Drain the fluid, refill the unit with 4 oz. of Vortech V3 synthetic lubricating fluid and then confirm proper oil level using the dipstick. DO NOT OVERFILL!!!

WARNING: Use of any other fluid other than the proprietary Vortech/Paxton synthetic lubricant will void the warranty and may cause component failure.

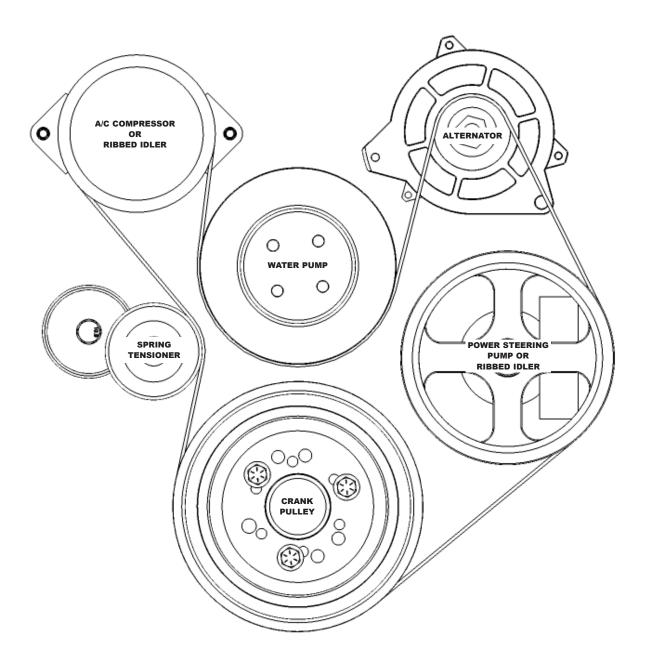








APPX D. DIAGRAM, ACCESSORY DRIVE BELT ROUTING



APPX E. GUIDE, SUPERCHARGER PULLEY & BELT SELECTION

Crank Pulley Ø" (P/N: 4MA018-041)	S/C Pulley Ø"	S/C Pulley P/N	Vortech Belt P/N	Gates Belt P/N
6.00"	3.12"	2A041-312	2A041-572	K100572
6.00"	3.33"	2A041-333	ZAU41-57Z	
6.00"	3.47"	2A041-347		K100579
6.00"	3.60"	2A041-360	2A041-579	
6.00"	3.70"	2A041-370	ZAU41-379	
6.00"	3.80"	2A041-380		
Crank Pulley Ø" (P/N: 4MA018-051)	S/C Pulley Ø"	S/C Pulley P/N	Vortech Belt P/N	Gates Belt P/N
7.00"	3.12"	2A041-312		K100594
7.00"	3.33"	2A041-333	2A041-594	
7.00"	3.47"	2A041-347		
7.00"	3.60"	2A041-360	2A041-607	K100607
7.00"	3.70"	2A041-370		
7.00"	3.80"	2A041-380		
Crank Pulley Ø" (P/N: 4MA018-061)	S/C Pulley Ø"	S/C Pulley P/N	Vortech Belt P/N	Gates Belt P/N
7.80"	3.12"	2A041-312	2A041-607	K100607
7.80"	3.33"	2A041-333		
7.80"	3.47"	2A041-347		
7.80"	3.60"	2A041-360		K100610
7.80"	3.70"	2A041-370	2A041-610	
7.80"	3.80"	2A041-380		

NOTE: If the supercharger pulley will not slide onto the supercharger input shaft, DO NOT FORCE IT. Using a propane torch or heat gun to heat the supercharger pulley will aid in installation.

