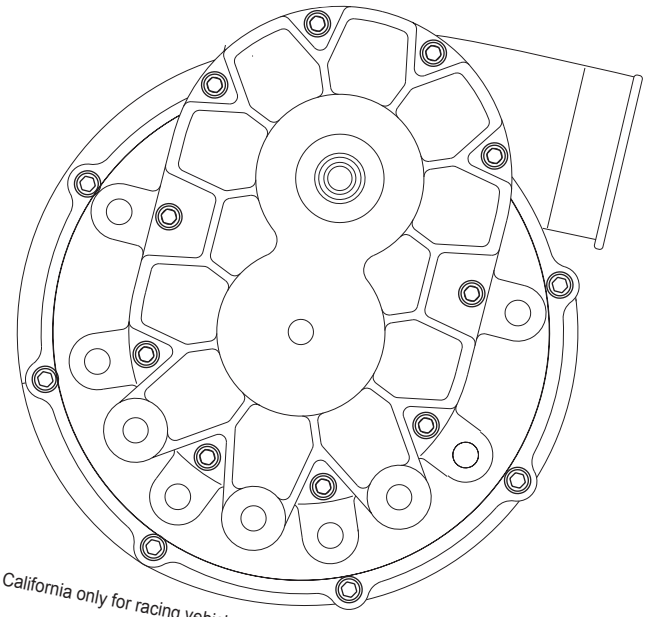
GM LS SWAP

EFI, PASS. SIDE MOUNT*

Supercharger System Installation Instructions

(For use with C5 Corvette FEAD)



*Legal in California only for racing vehicles which may never be used or registered or licensed for use upon a highway.

VORTECH®

ENGINEERING, INC

1650 Pacific Avenue, Channel Islands, CA 93033-9901 • Phone (805) 247-0226
Fax: (805) 247-0669 • www.vortechsuperchargers.com • M-F 7:00 AM - 3:30 PM (PST)

DP/N: 4GX020-050 - v1.0, 10/13/17

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 PCM (computer), engine, 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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NOTICE

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GM LS SWAP

EFI; PASS. SIDE MOUNT

Installation Instructions

Congratulations on selecting the best performing and best backed automotive supercharger available today... the VORTECH® supercharger!

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.

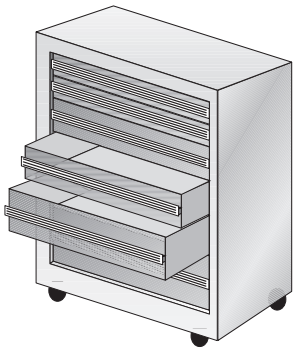
Installation on new vehicles will not harm or adversely affect the break-in period so long as factory break-in procedures are followed.

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. *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 at least 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.
6. 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 20,000 miles.

TOOL & SUPPLY REQUIREMENTS

- 3/8" socket and drive set: SAE & metric
- 1/2" socket and drive set: SAE & metric
- Adjustable wrench
- Channel Locks
- Open end wrenches: 3/8", 7/16", 1/2", 9/16"
- Open end 3/4" tappet wrench or slim 3/4" wrench
- Screwdriver set
- Red Loctite
- Blue Loctite



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

- Spark plug socket
- NEW spark plugs

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EFI, GM LS SWAP, C5 FEAD

Part No. 4GX218-130L

PARTS LIST

ENGINEERING, INC

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

PART NO.	DESCRIPTION	QTY.
008110	**SMALL SILVER DIE CUT DECAL**	**2**
008130	**LICENSE PLATE FRAME, VORTECH**	**1**
008447	**1 YR S/C STRT INFO PKG ASY VORT**	**1**
009035	**S/C LUBE, BOTTLED, 3-PACK**	**1**
2F328-090	**V3 S/C ASY, LS SWAP, C5 FEAD S**	**1**
4GR110-110	**ASSY, DAMPER PIN, LS1-LS2-LS6**	**1**
4GX020-050	**INSTR MAN, EFI LS SWAP, G3, C5**	**1**
4GX110-064	**MNTG BRKT ASY, C5 FEAD, G3, LS**	**1**
2A017-126-242	SPCR, 1.25” OD, .469” ID, 2.420” L	1
2A017-878-09	SPACER, .875 O.D. X 2.42 LONG	6
2C017-002	PILOT, 6203/5 BRG, 7/16 SCREW	1
4GX010-051	MNTG PLT,REAR,CYL HD,G3,LS SWAP	1
4GX010-061	MNTG PLT, FRONT, S/C, G3, LS SWPA	1
4GX010-071	SUPPORT, MNTG PLT, G3, LS SWAP	1
4GX016-150	IDLER, GROOVED, 10-RIB, DUAL BRG	1
4GX017-021	SPACER, IDLER, C5 FEAD, 1.945"L	1
7A375-126	3/8-16 X 1.25 HHCS, GR8, PLT	4
7A375-178	3/8-16 X 1-3/4 HXHD G8	1
7A375-352	3/8-16 X 3.5" HX HD GR8	3
7A375-400	3/8-16 X 4" BOLT HXHD GR8	1
7A437-750	7/16-14 X 7.50 HXHD GR8 ZINC	1
7C010-030	M10 X 1.5 X 30 HXHD CL10.9	2
7C010-120	M10 X 1.50 X 120 HXHD, CL10.9 ZN	2
7F437-008	7/16-14 NYLOCK NUT, HXHD FLNG	1
7J010-002	WASHER, M10 FLAT, ZN PLT	4
7K375-040	3/8 AN960 FLAT WASHER PLATED	9
4GX116-020	**DRIVE ASSY, 10-RIB, LS SWAP, GM**	**1**
2A017-024	SPACER, IDLER SMALL	1
2A041-630	BELT, K100630 GATES 10-RIB	1
4GX017-011	SPACER, CRANK PULLEY, LS SWAP	1
4MA018-041	CRANK PLY, 10-RIB, 6", UNIV	1
7B375-300	3/8-24 X 3" HXHD GR8	3
7K375-040	3/8 AN960 FLAT WASHER PLATED	3
4FA011-042	BELT TENS PLATE, HEAVY DUTY	1
4FD017-011	PILOT, 6203/5 BRG, 1/2 SCREW	1
4FP116-030	IDLER W/BRNG ASSY, 36MM	1
7C012-020	M12 X 1.75 X 20MM HXHD	3
7C012-065	M12 X 1.75 X 65MM HXHD	1
7G010-175	M12 X 1.75 NUT	1
7J012-092	WASHER, M12 FLAT, ZN PLT	4
4GX212-030	**DISCH ASY, EFI LS SWAP TRK**	**1**
4GX012-040	DISCH TUBE B, EFI LS SWAP, TRK	1
4GX112-030	DISCH TUBE A, EFI LS SWP TRK SAT	1
7P375-250	3/8 X 3/8 X 1/4 MALE BARB TEE	1
7PS300-275	REDUCER, BLK 3.0- 2.75	1
7PS300-300	SLEEVE, BLACK, 3.00D X 3.00	1
7PS388-301	ELBOW, REDUCER, 3.88-3.00 X 90	1
7R002-024	#24 SAE TYPE F SS HOSE CLAMP	1
7R002-044	#44 SAE TYPE F SS HOSE CLAMP	1
7R002-048	#48 SAE TYPE F SS HOSE CLAMP	4
7R002-064	#64 SAE TYPE F SS HOSE CLAMP	1
7U030-218	7/32 VAC HOSE, BUNA-N	5 FT
7U133-070	FILLER HOSE	1
8D204-064	**ASY, RACE BYPASS VALVE,BLK/SAT**	**1**
8H040-050	**AIR FILTER 3.5"FLG X 7"L**	**1**
8H040-175	**FILTER, 1.75" I.D., RACE BYPASS**	**1**

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

NOTE: For optimal operation of this supercharger system, Vortech recommends using the following accessories. (Not available through Vortech)

ARP Balancer Bolt Kit
P/N: 234-2503
QTY: 1

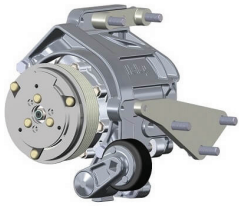
Summit Racing Harmonic Damper
P/N: SUM-C2501
QTY: 1

ACDelco Mechanical Water Pump
P/N: 19195105
QTY: 1

Note: Any straight water neck is OK.
Mr. Gasket Chrome Water Neck
P/N: 2671
QTY: 1

Chevrolet Perf. Deluxe Serpentine Drive Kit
P/N: 19257325
QTY: 1

Note: Contact Holley for vehicle compatability.
Holley Low LS Drive System A/C
P/N: 20-160
QTY: 1



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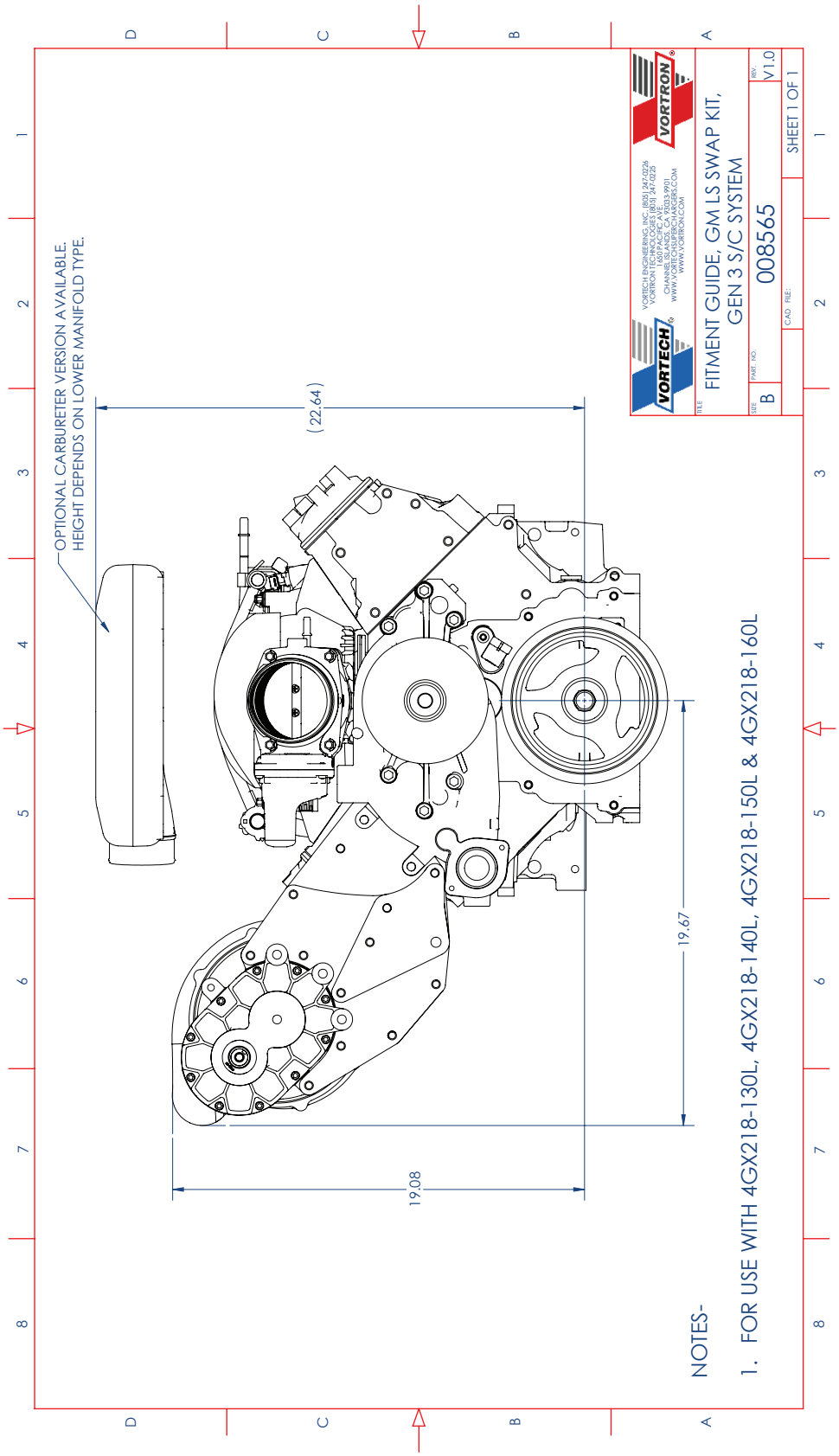
REFERENCE DIMENSIONS



IMPORTANT INSTALLATION NOTES

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 tuner system is based on the OEM C5 Corvette damper and accessory/FEAD configuration. Due to some variations in the OEM FEAD over the years, your installation may require minor modifications (belt length change, etc.). **Mounting plate modifications may also be required depending on vehicle applications**.
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.

<table>
<tr><th></th><th>6.00" Crank Pulley
P/N: 4MA018-041</th><th>7.00" Crank Pulley
P/N: 4MA018-051</th><th>Idler Pulley Position
(Tensioner Plate)</th></tr>
<tr><td>3.60" S/C Pulley
P/N: 2A031-360
(Included in kit)</td><td rowspan="4">Belt Length - 63.0"
P/N: 2A041-630
(Included in kit)</td><td>Belt Length - 65.0"
Continental P/N: 4100650
(Not available through Vortech)</td><td rowspan="4">Lower</td></tr>
<tr><td>3.48" S/C Pulley
P/N: 2A031-348</td><td>Belt Length - 65.0"
Continental P/N: 4100650
(Not available through Vortech)</td></tr>
<tr><td>3.33" S/C Pulley
P/N: 2A031-333</td><td>Belt Length - 64.4"
Continental P/N: 4100644
(Not available through Vortech)</td></tr>
<tr><td>3.12" S/C Pulley
P/N: 2A031-312</td><td>Preferred Belt Length - 64.4"
Continental P/N: 4100644
(Not available through Vortech)

Optional Belt Length - 64.0"
P/N: 2A041-640</td></tr>
</table>

NOTE: If the supercharger drive pulley will not slide onto the shaft, DO NOT FORCE IT. Light heating of the supercharger drive pulley with a propane torch will aid in installation.

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1. HARMONIC BALANCER INSTALLATION

A. Lock the engine from rotating and remove the OEM damper pulley bolt. Using a proper damper removal tool, remove the crank pulley.

(See Fig. 1-a)

NOTE: A/T vehicles: Lock the engine through the trans dust cover with an open end wrench to one of the torque converter mounting bosses on the flex plate.

M/T vehicles: Place car in 6th gear with wheels on the ground and apply parking brake.

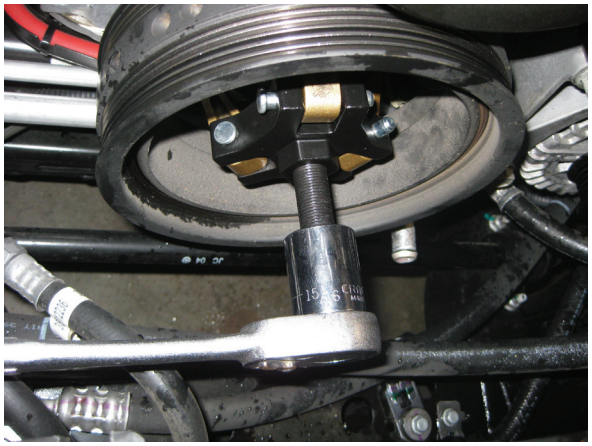

Fig. 1-a: Remove Damper Bolt & OEM Damper

B. Install the replacement damper onto the crankshaft using a proper damper installation tool with thrust bearing. After the new damper is fully seated, remove the install tool. Install the supplied drill guide with the raised section piloting in the damper bore. Temporarily secure in place by installing the supplied socket head cap screw. Do not over-tighten the screw as it may distort the drill guide (its purpose is just to hold the guide in place while drilling).

(See Fig. 1-b)

NOTE: Do NOT use the NEW supplied crank bolt to "pull" the damper onto the crankshaft.

Fig. 1-b: Install Provided Damper

C. Using an angle or small drill motor, mark supplied Ø1/4" drill bit to a depth of 2.27" with electrical tape or use a drill stop to ensure that the hole will be deep enough for the supplied 1/2” long dowel pin. The depth of the drilled hole will reach 1/2" when the 2.27" mark on the drill bit is flush with the face of the damper.

(See Fig. 1-c)

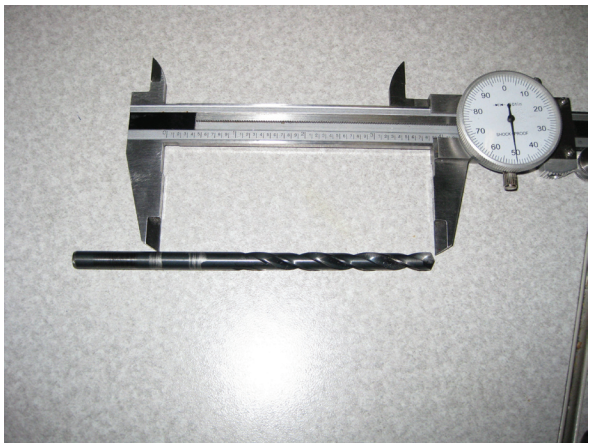

Fig. 1-c: Mark Drill Bit Depth To 2.27"

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1. HARMONIC BALANCER INSTALLATION, cont'd

D. Drill the hole making sure to keep the tool perpendicular to the damper. Use extra care. Drill only as deep as necessary.

(See Fig. 1-d)

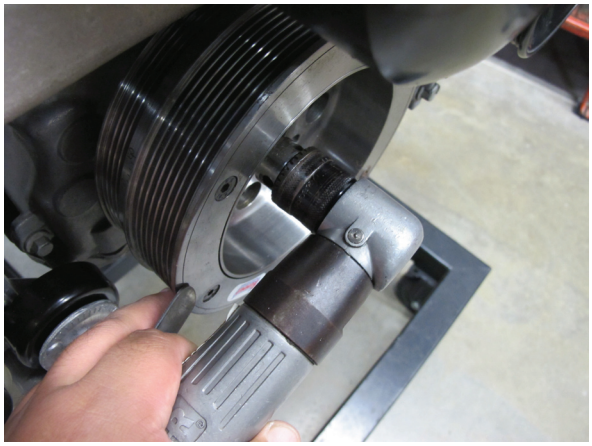

Fig. 1-d: Drill Dowel Pin Hole

E. Remove the socket head cap screw and drill guide.Install the supplied Ø1/4" x 1/2" long dowel pin into the drilled hole with the chamfered end pointed toward the front of the vehicle.

(See Fig. 1-e)

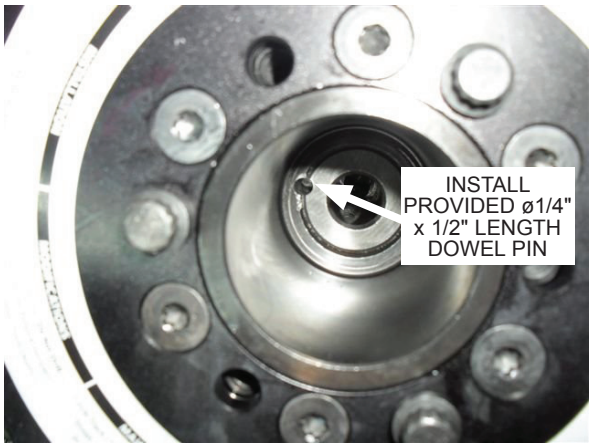

Fig. 1-e: Inspect Dowel Pin Hole & Install Dowel Pin

F. Verify that the dowel pin is recessed slightly from the damper face. Lightly coat the threads of the new damper bolt with red loctite. First, install and torque to 37 ft-lb. Next, using a 1/2" drive or larger breaker bar, tighten the damper bolt an additional 120º or torque to 250 ft-lb.

(See Fig. 1-f)

NOTE: Remember to use red loctite on the new damper bolt.

Fig. 1-f: Install & Torque Damper Bolt

2. SUPERCHARGER MOUNTING BRACKET ASSEMBLY INSTALLATION

NOTE: Use blue loctite on all hardware in this section.

A. Make sure there is nothing currently installed on the passenger side cylinder head. Locate the provided 2x M10 x 30mm screws, 2x 10mm washers & cylinder head plate. Install the screws into the 2x holes furthest to the right on the cylinder head plate. Proceed to line up the screws with the corresponding cylinder head mount holes & begin to thread them in. Leave the screws hand tight at this time.

(See Fig. 2-a)

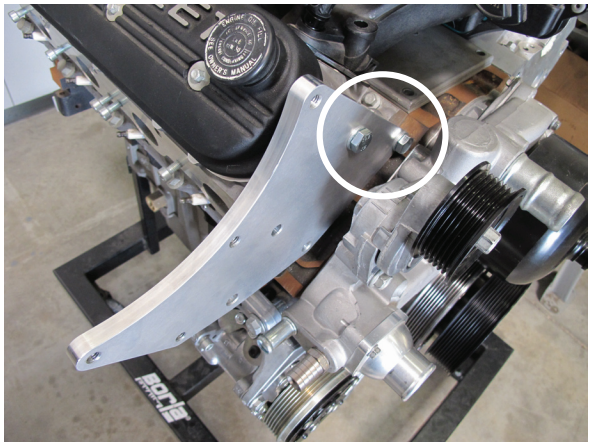

Fig. 2-a: Passenger Side Cylinder Head

B. Due to casting variances among LS water pumps, it may be necessary to clearance the top section of the water pump near the lower water neck in order for one of the supercharger bracket spacers & 1x M10 x 1.5 x 120mm screws to fit properly. At this time, continue with the installation of the supercharger mounting bracket assembly & only complete to this step if you encounter a fitment issue.

(See Fig. 2-b)

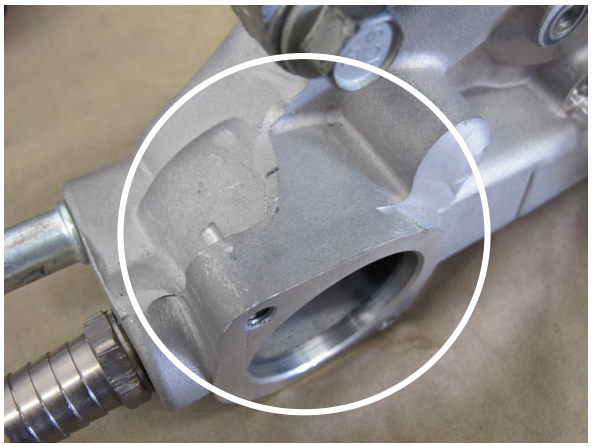

Fig. 2-b: Clearance Water Pump If Necessary

C. Locate the provided 3x .875" O.D. x 2.42" length spacers, 3x 3/8-16 x 3.50" screws, 3x 3/8 AN washers & the supercharger mounting plate. Using the provided hardware, secure the supercharger plate to the cylinder head plate, making sure to place the 3x spacers between both plates. Leave the screws hand tight at this time.

(See Fig. 2-c)

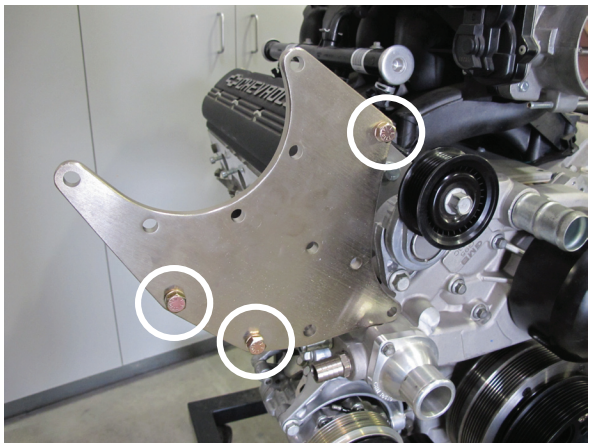

Fig. 2-c: Loosely Attach Supercharger Plate

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2. SUPERCHARGER MOUNTING BRACKET ASSEMBLY INSTALLATION, cont'd

D. Locate the provided 2x M10 x 1.5 x 120mm screws, 2x M10 washers, 1x 3/8-16 x 4.00" screw, 1x 3/8 AN washer, the mounting plate support & the remaining 3x .875" O.D. x 2.42" length spacers. Using the provided hardware, secure the mounting plate support & supercharger plate to the cylinder head plate, making sure to place the 3x spacers between the cylinder head plate & supercharger plate. Leave the screws hand tight at this time.

(See Fig. 2-d)

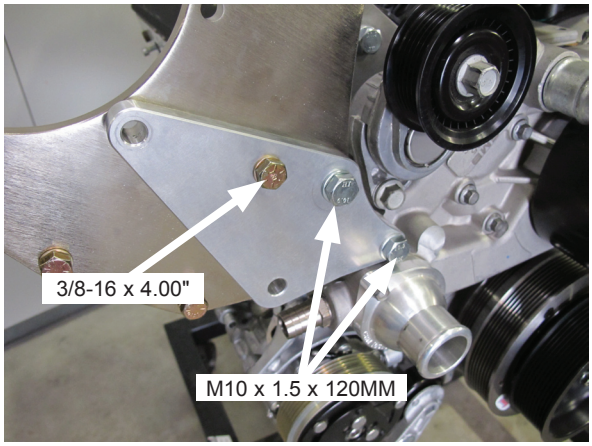

Fig. 2-d: Loosely Attach Mounting Plate Support

NOTE: If you encounter a fitment issue with the M10 x 1.5 x 120mm screw & corresponding spacer that's furthest to the right, go back & complete Step B in this section

E. Locate the provided 1x 7/16-14 x 7.50" screw, 1x 7/16-14 nylock nut, 1x 1.945" length idler spacer, 1x 1.25" O.D. x 2.42" length spacer, 1x bearing pilot & 1x 10-rib grooved idler pulley. Assemble the 1x bearing pilot, 1x 10-rib grooved idler & 1x idler spacer as shown, then slide it onto the 1x 7/16-14 x 7.50" screw. Next, place the 1x 1.25" O.D. x 2.42" length spacer between the cylinder head plate & supercharger plate, aligning it with the remaining lower hole on all 3 plates. Once in place, slide the 1x 7/16-14 x 7.50" screw through all 3 plates & through the 1x 1.25" O.D. x 2.42" length spacer. From behind the cylinder head plate, secure the 1x 7/16-14 x 7.50" screw & ribbed idler assembly using the provided 1x 7/16-14 nylock nut.

(See Fig. 2-e)

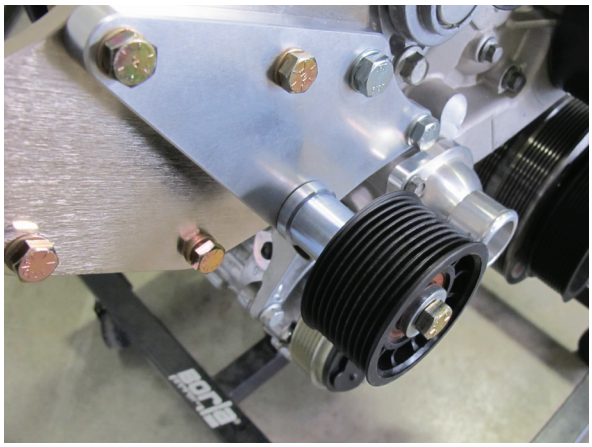

Fig. 2-e: Install 10-Rib Grooved Idler Pulley

F. Locate the provided 1x 3/18-16 x 1.75" screw & 1x 3/8 AN washer & slide it through the mounting plate support & supercharger plate as shown. This is done in order to keep both holes in the plates aligned, which will aid in the installation of the supercharger unit. Once in place, proceed to tighten all of the mounting bracket assembly hardware, including the hardware securing the cylinder head plate to the cylinder head.

(See Fig. 2-f)

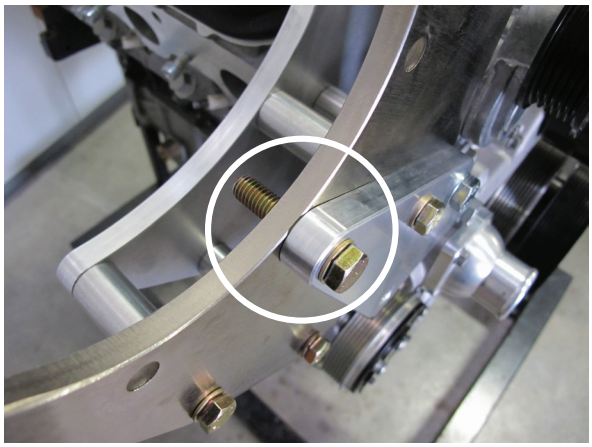

Fig. 2-f: Use Screw As Pilot & Secure All Mounting Bracket Hardware

3. SUPERCHARGER UNIT & BELT DRIVE INSTALLATION

NOTE: Use blue loctite on all hardware in this section.

A. Locate the provided crank pulley & spacer. Align the 3x mounting holes on the crank pulley spacer with the corresponding holes on the crank pulley. Insert the 3x 3/8-24 x 3.00" screws & 3x 3/8 washers through the mounting holes.

(See Fig. 3-a)

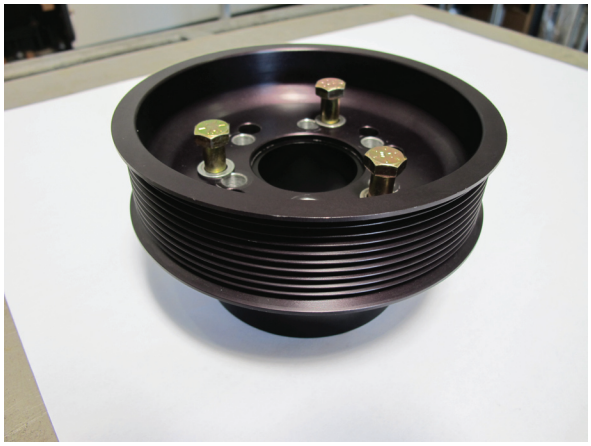

Fig. 3-a: Pre-Assemble Crank Pulley Assembly

B. Make sure the mounting surface where the crank pulley spacer will be installed is clean & clear of any debris. Line up the 3x mounting screws with the 3x mounting holes on the damper & thread them by hand. Once fully seated, torque to 37 ft/lbs.

(See Fig. 3-b)

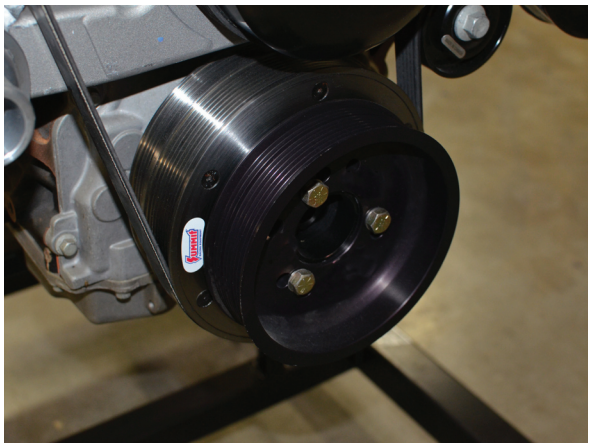

Fig. 3-b: Install Crank Pulley Assembly

C. Install the supercharger unit onto the supercharger mounting bracket assembly & clock it as shown. Use the remaining 4x 3/8-16 x 1.25" screws, 1x 3/8-16 x 1.75" screw & 5x 3/8 AN washers to secure the supercharger to the supercharger plate. You may tighten the hardware at this time.

(See Fig. 3-c)

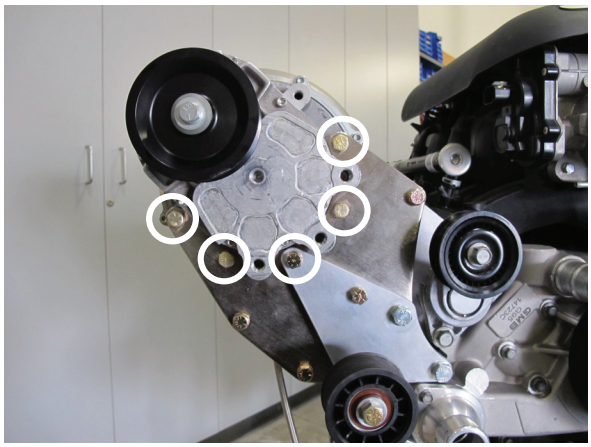

Fig. 3-c: Install Supercharger Unit

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3. SUPERCHARGER UNIT & BELT DRIVE INSTALLATION, cont'd

D. Locate the provided 3x M12 x 1.75 x 20mm, 3x M12 washers & 1x manual belt tensioner plate & install them to the supercharger unit as shown.

(See Fig. 3-d)

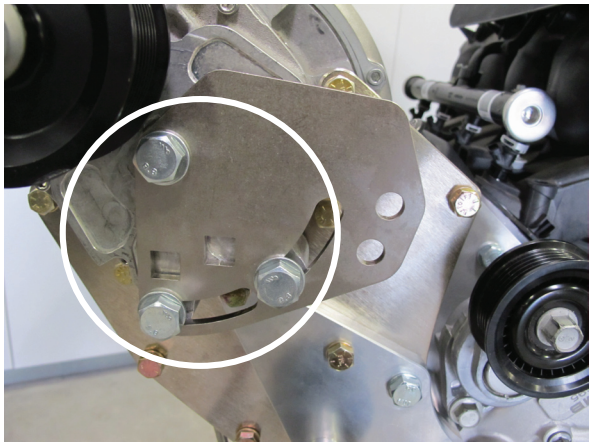

Fig. 3-d: Install Manual Belt Tensioner Plate

E. Located the provided 1x M12 x 1.75 x 65mm screw, 1x bearing pilot, 1x flanged idler pulley, 1x idler pulley spacer, 1x M12 washer & 1x M12 x 1.75 nut. Use the provided hardware to secure the flanged idler pulley to the lower hole on the manual belt tensioner plate. Be sure the snap ring on the idler pulley is facing towards the idler plate.

(See Fig. 3-e)

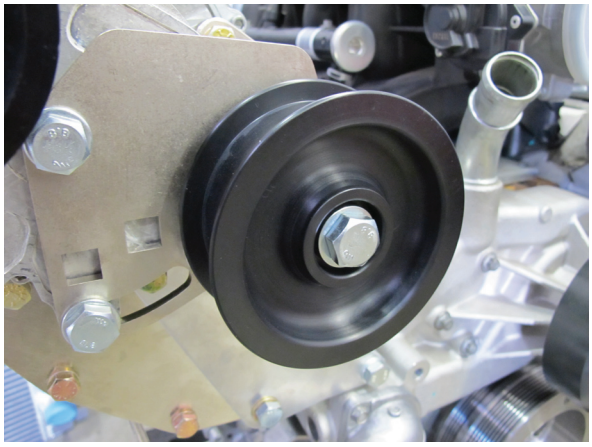

Fig. 3-e: Install Flanged Idler

F. Locate the supercharger drive belt & route it as shown. Once routed, turn the manual tensioner clockwise & use a 3/4" wrench to tighten the manual tensioner hardware. Be sure not to apply an excessive amount of tension to the drive belt.

(See Fig. 3-f)

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 super-charger drive pulley & idler pulley.

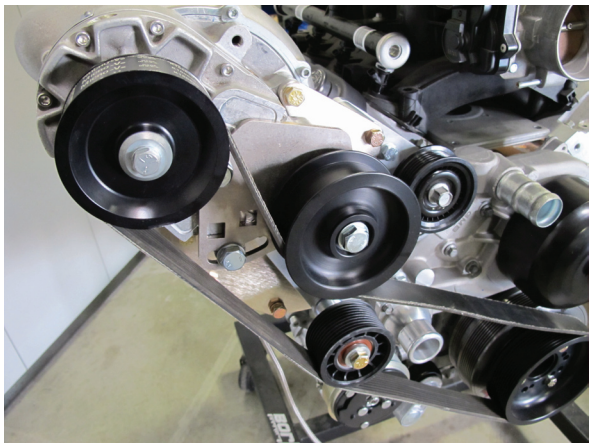

Fig. 3-f: Install 10-Rib Drive Belt

4. DISCHARGE DUCTING & BYPASS VALVE INSTALLATION

A. Install the 3.00"-2.75" reducer sleeve, 1x #44 hose clamp & 1x #48 hose clamp to the super-charger outlet. Leave the hose clamps loose at this time.

(See Fig. 4-a)

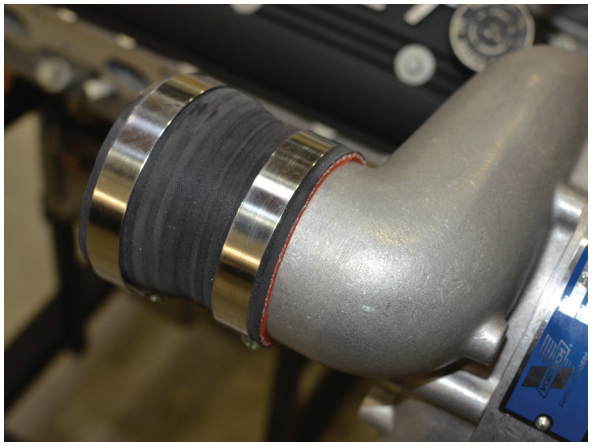

Fig. 4-a: Install 3.00"-2.75" Reducer Sleeve

B. Install the 3.88"-3.00" 90° reducer elbow to the throttle body. Use 1x #64 hose clamp on the throttle body end & 1x #48 hose clamp on the other. Leave the hose clamps loose at this time.

(See Fig. 4-b)

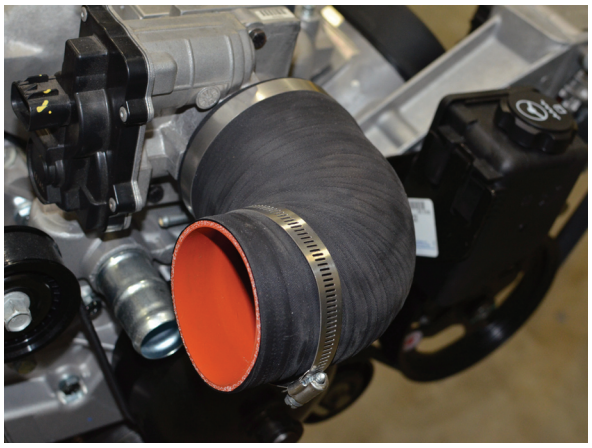

Fig. 4-b: Install 3.88"-3.00" 90° Reducer Elbow

C. Locate Tube A & insert one end into the 3.00"-2.75" reducer. Install a 3.00" sleeve & 2x #48 hose clamps onto the other end of the tube. Do not tighten the hose clamps at this time.

(See Fig. 4-c)

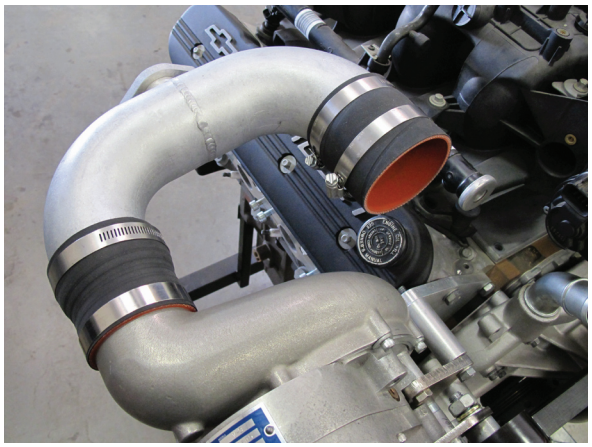

Fig. 4-c: Install Discharge Tube A

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4. DISCHARGE DUCTING & BYPASS VALVE INSTALLATION, cont'd

D. Insert the long leg of Tube B into the previously installed 3.00" sleeve on Tube A. Insert the short leg of Tube B into the previously installed 3.88" to 3.00" 90° reducer elbow on the throttle body. Once both tubes are in position, proceed to tighten all hose clamps.

(See Fig. 4-d)

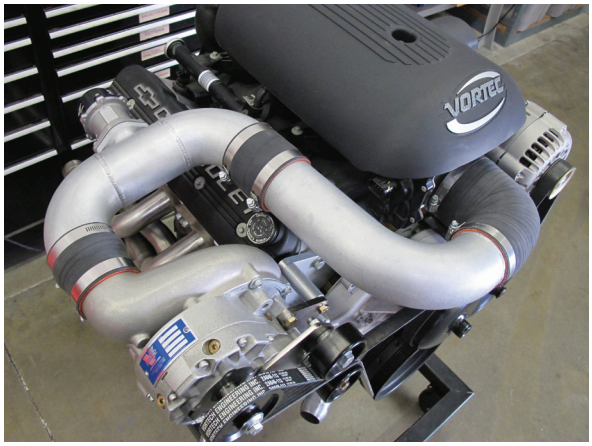

Fig. 4-d: Install Discharge Tube B

E. Install the bypass valve & bypass valve filter to Tube A. Use the provided hardware that came with the bypass valve & install it as shown. Be sure to use the provided gasket in between the bypass valve & mounting flange on Tube A.

(See Fig. 4-e)

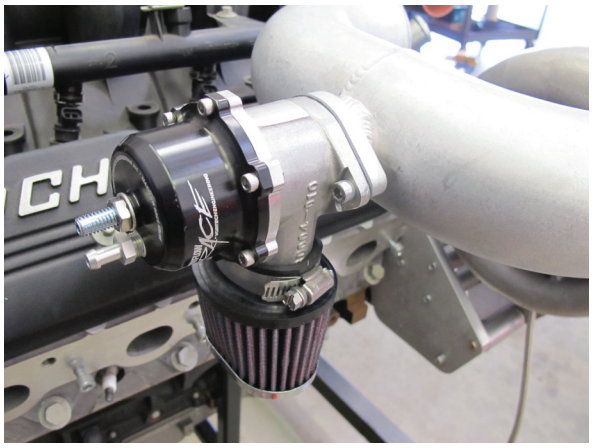

Fig. 4-e: Install Bypass Valve

F. Install the provided 7.00" long air filter to the supercharger inlet & secure using the hose clamp provided with the filter.

(See Fig. 4-f)

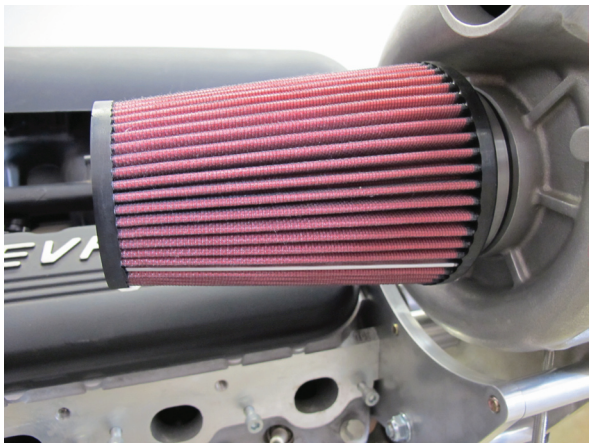

Fig. 4-f: Install Air Filter

4. DISCHARGE DUCTING & BYPASS VALVE INSTALLATION, cont'd

G. Included in this kit is a 5ft 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. If that is not an option, use the supplied 3/8 vacuum fitting & tee into a source that will see full vacuum and boost. Secure with the provided clamps.

(See Fig. 4-g)

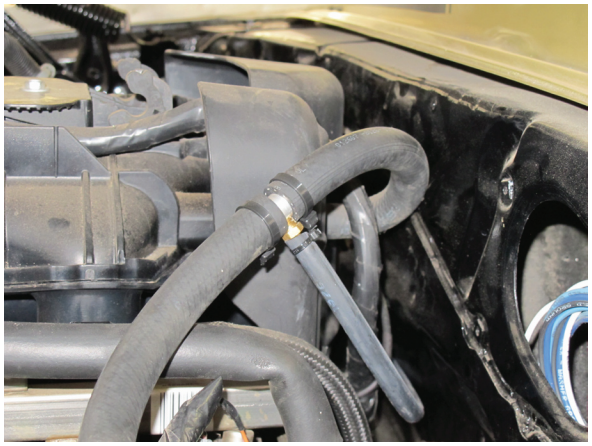

Fig. 4-g: Locate Vacuum Source

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5. UPPER RADIATOR HOSE ELBOW INSTALLATION

A. In order for an upper radiator hose to clear the discharge tube, you will need to modify & install the provided 1.25" ID hose.
(See Fig. 5-a)

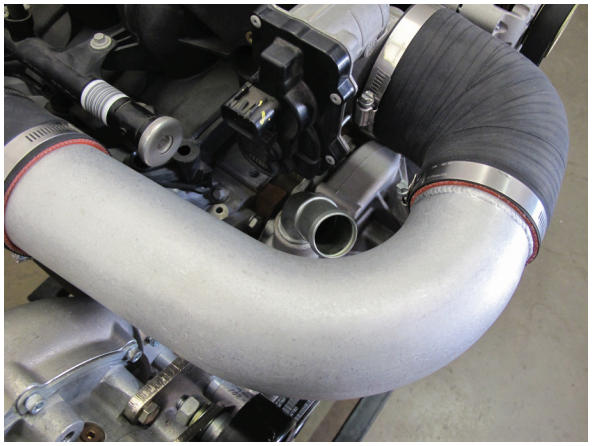

Fig. 5-a: Upper Water Pump Neck (Reference)

B. Provided in this kit is a 1.25" ID hose with 2x 90° bends. This hose will not be a direct-fit for most applications, but it is included in the kit to assist with routing of the coolant system.
(See Fig. 5-b)

Fig. 5-b: Modify Provided Coolant Hose Elbow

C. Measure 2" from the inside of the bend & cut. Discard the cut section as it will not be used.
(See Fig. 5-c)

Fig. 5-c: Modified Coolant Hose

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5. UPPER RADIATOR HOSE ELBOW INSTALLATION, cont'd

D. Install the modified end of the 1.25" ID hose to the upper water pump neck making sure to clock the hose as necessary to keep it from coming into contact with the discharge tube, then secure it with the provided #24 hose clamp. Depending on your application, you may need to cut off the other 90° bend for proper cooling system routing. Vortech does not supply the remaining length of hose as LS engines are swapped into a variety of vehicles, but can be purchased at your local auto parts store.

(See Fig. 5-d)

Fig. 5-d: Install Modified Coolant Hose Elbow

6. 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. Use a wide band O2 sensor to verify a proper air/fuel ratio (Vortech suggests 11.0:1 for 91 octane pump fuel.) Check ignition timing to make sure it is properly set before commencing test drive.

G. **PLEASE TAKE SPECIAL NOTE:** Operating the vehicle without ALL the subassemblies completely and properly installed may cause **FAILURE OF MAJOR COMPONENTS.**

H. Keep in mind that this manual does not address air/fuel or ignition timing considerations.

I. Test drive the vehicle.

J. Always listen carefully for engine detonation. Discontinue heavy throttle usage if detonation is heard.

K. 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 V-3 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. 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 V-3 lubricating fluid and then confirm proper oil level using the dipstick. DO NOT OVERFILL!!!

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

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ENGINEERING, INC

1650 Pacific Avenue, Channel Islands, CA 93033-9901 • Phone (805) 247-0226
Fax: (805) 247-0669 • www.vortechsuperchargers.com • M-F 7:00 AM - 3:30 PM (PST)

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