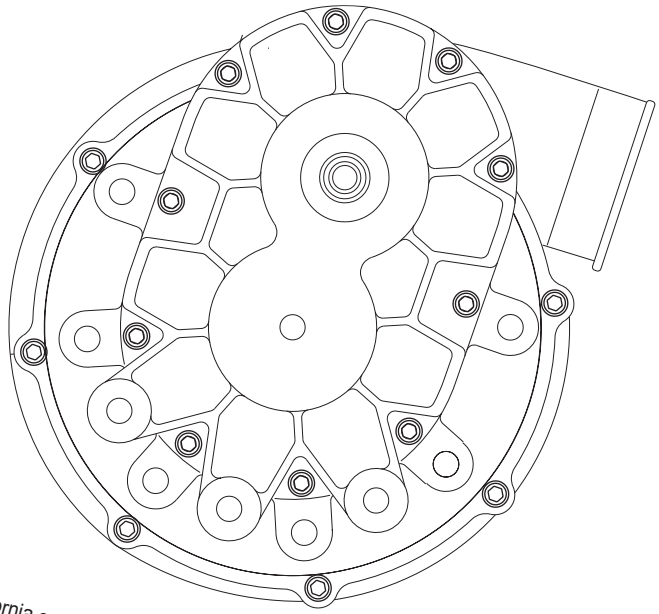
DODGE/CHRYSLER Charger, Magnum, 300C and Challenger

# Hemi Cars

## Supercharger System Installation Instructions

### 2005-2010 Model Years*



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


VORTECH®

ENGINEERING, LLC

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FAX (805) 247-0669 • www.vortechsuperchargers.com • M-F 8:00 AM - 4:30 PM PST




P/N: 4CL020-010 v5.0, 10/05/2010

# 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 8:00am-4:30pm PST.

## Take note of the following before proceeding:


1. Proper installation of this supercharger kit requires general automo tive 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 the 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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# OFF-HIGHWAY USE

When driving vehicle on non-public roads (off-road applications such as racing/high RPM) Vortech strongly recommends reducing the factory spark plug gap down to .032”.

# COPYRIGHT NOTICE



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# ATTENTION
# BEFORE STARTING INSTALLATION, PLEASE NOTE THE FOLLOWING:

Your vehicle's ECM may need to be updated. This can be determined by locating the supplied Diablosport programmer and plugging it into the vehicle's OBD2 port.

Once the programmer is powered up and is at the main menu screen, there will be four options to choose from:

- Performance tune
- Diagnostics
- Options
- Tool information

Select performance tune and follow the screen for instructions.

If you are prompted to update the vehicle's calibration, disconnect the Diablosport programmer and follow these steps:

Tools required: Diablosport U7778 Interface Kit.

In the event you are unable to purchase or locate a U7778 Interface Kit, this process can be accomplished by using the vehicle for the power source (by plugging the programmer into the vehicles OBD2 port) and by purchasing a USB to serial cable (RS232) (Note: if your computer has a serial cable outlet plug then just a serial cable will be needed).

If you are unable to use the vehicle as the power source, a power supply will be required.

The requirement for the power supply: Input 120 VAC 60Hz 30W output 12 VDC 1000 Ma, with a 5.5 x 2.5 mm tip, positive center.

With the programmer powered up and connected, and the main menu screen being displayed:

- Type the following into your web browser: vortechsuperchargers.com/dsinstaller
- Save the installer to your desktop. It should place an installer icon on your desktop.
- Double-click on the DS Downloader installer on the desktop to start the installation process. Follow the prompts to install.
- Once the installer has completed, locate the new icon that the installer has placed on your desktop. (See Fig)

DSDownloader

- With the programmer powered up and connected to your computer, double-click on the DSDownloader icon. You should see an option to download calibration update.
- Select the update and allow the program to connect to Diablosport's website. This may take a few minutes.
- Once the programmer has updated, disconnect it from the power source and the computer.
- Plug the programmer into the vehicles OBD2 port and follow the main menu screen (as described in section 10).



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# Dodge/Chrysler Hemi Cars
# 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 Automotive Limited Warranties Program and the Warranty Registration form.**

Vortech supercharger systems are performance improving devices. In most cases, increases in torque of 30-35% and horsepower of 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 10,000 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 at least 15,000 miles and spark plug wires at least every 50,000 miles.

## TOOL & SUPPLY REQUIREMENTS:

- Factory Repair Manual
- 3/8" Socket and Drive Set: SAE & Metric
- 1/2" Socket and Drive Set: SAE & Metric
- Adjustable Wrench
- Open End Wrenches: 3/8", 7/16", 1/2", 9/16"
- Flat #2 Screwdriver
- Phillips #2 Screwdriver
- Drill Motor
- 1/8", 3/16", 1/4", 27/64" Drill Bits
- 3/16" Allen Wrench
- Wire Strippers and Crimpers
- Utility Knife


**If your vehicle has in excess of 15,000 miles since its last spark plug change, then you will also need:**

- Spark Plug Socket
- NEW Spark Plugs

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# 2005-08 HEMI 5.7L CAR SUPERCHARGER KIT

## Part No. 4CL218-010L

# PARTS LIST

ENGINEERING, LLC

**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** |
| **008341** | **POWERCOOLER DECAL** | **1** |
| **008447** | **S/C STREET PACKAGE ASSEMBLY** | **1** |
| **009035** | **LUBE ASSY, 3-PACK** | **1** |
| **2A046-106** | **BELT PREMIUM 104.5”** | **1** |
| **2F329-030** | **S/C ASSY, V3 CCW SI 5.7L CAR** | **1** |
| 4GR033-034 | PULLEY, SC, C5, 20MM, 34T | 1 |
| **4CL020-010** | **INSTRUCTION MANUAL, HEMI** | **1** |
| **4CL110-030** | **FUEL ASSY, 5.7L HEMI CAR** | **1** |
| 4CL010-030 | MAP SENSOR BLOCK, 07 CHARGER | 1 |
| 5A002-017 | MAP SENSOR, 07 CHARGER SC | 1 |
| 7C010-052 | 10-24 X 1/2 BUTTN HEAD CRWW | 2 |
| 7P062-187 | 1/16NPT X 3/16 HOSE BARB | 1 |
| 7P250-045 | 1/4 MALE NPT X 3/8 MALE BARB | 2 |
| 7P375-113 | PCV VALVE, VIPER, 3/8”-1/2” HOSE 90° | 1 |
| 7P500-003 | 1/2”-3/8” REDUCER BARB UNION | 1 |
| 7R001-006 | #6 STNLS HOSE CLAMP, NARROW | 2 |
| 7R004-002 | STEPLESS CLAMP 17.0-70 | 2 |
| 7R004-687 | STEPLESS CLAMP, 13/16” | 4 |
| 7U030-053 | 3/8 X 90 MOLDED RUBBER HOSE | 1 |
| 4CL010-060 | BRKT, CHGR ENG CVR SPT FRONT | 1 |
| 4CL010-070 | BRKT, CHGR ENG CVR SPT UPPER | 1 |
| 4CL010-080 | BRKT, CHGR ENG CVR SPT LOWER | 1 |
| 7A250-074 | 1/4-20 X .75 HHCS PLTD | 1 |
| 7F250-021 | 1/4-20 NYLOCK NUT ZINC PLATED | 1 |
| 7J250-001 | 1/4 WASER, SAE, PLTD | 2 |
| 7U100-068 | BUMPER, RBR Ø .5X.25 MTG HOLE | 1 |
| 8F060-008 | FUEL INJ, 07 CHARGER SC | 8 |
| **4CL110-044** | **S/C MTG BRKT ASSY** | **1** |
| 2A017-016 | PILOT, 3/8 SCREW | 1 |
| 2A017-093 | SPACER, S/C PULLEY, .093” | 1 |
| 2A017-156 | SPACER, IDLER, HEMI | 1 |
| 2A017-105-222 | SPACER, 1”OD .328” ID, 2.225”L | 7 |
| 2A017-462 | SPACER,IDLER SMOOTH 6RIB | 1 |
| 2A017-876-12 | SPACER, .875 OD X .475 LONG | 2 |
| 2A036-136 | S/C PULLEY 3.60” 6 GROOVE W/FLG | 1 |
| 2A040-011 | PULLEY RETAINER S/C | 2 |
| 2A042-080 | BELT, GATES 20MM, 80 TOOTH | 1 |
| 2D070-159 | LARGE BEARING,EXTENDED DRIVE | 2 |
| 2D070-171 | JACKSHAFT, C5, H900 | 1 |
| 4CL010-010 | BRKT, PWR STR MTG, 07 CHGR | 1 |
| 4CL010-020 | PLATE, HEAD MTG, 07 CHGR | 1 |
| 4CL010-044 | PLATE,SC MTG, 07 CHGR | 1 |
| 4CL010-050 | MTG TAB, CHARGER CLR SPT | 2 |
| 4CL016-011 | HUB, PWR STR PLLY, HEMICAR | 1 |
| 4CL016-021 | PULLEY, PWR STR, HEMICAR | 1 |
| 4FT017-080 | SPCR, COOLER SUPPORT | 1 |
| 4GR032-032 | PULLEY,JACKSHAFT,C5,20MM,32T | 1 |
| 4GR116-300 | IDLER ASSY, 20MM BELT | 1 |
| 4CL116-350 | IDLER ASSY, 20 MM, SRT8 3.5 | 1 |
| 7J500-002 | 1/2” LOCK WASHER | 1 |
| 4FD017-011 | PILOT, 6205 BRG 1/2” SCREW | 1 |
| 4HS017-041 | SPACER, LOWER S/C PLT S2000 | 2 |
| 4NZ030-041 | BRG HSG, 350Z | 1 |
| 7A250-075 | 1/4-20 X .75 SHCS | 6 |
| 7A312-152 | 5/16-18 X 1.5 SHCS, ZN PLT | 4 |
| 7A375-100 | 3/8-16X1 G5 HXHD PLT | 4 |
| 7A375-225 | 3/8-16 X 2 1/4” G8 HX HD | 1 |
| 7B375-075 | 3/8-24 X 3/4” GR8 HXHD BOLT | 1 |
| 7B375-150 | 3/8-24X 1-1/2 GR8 HX | 1 |
| 7C012-100 | 12MM X 100MM X 1.75 HXHD BOLT | 1 |
| 7C080-066 | M8 X 1.25 X 65 HXHD CL10.9 | 1 |
| 7C080-090 | M8 X 1.25 X 90 HXHD CL10.9 | 7 |
| 7C080-100 | M8 X 1.25 X 100 HXHD ZN PLT | 3 |
| 7C080-120 | BOLT, 8MM X 120MM X 1.25 HXHD | 1 |
| 7G010-175 | 12MM X 1.75 NUT | 1 |
| 7J012-092 | 12MM WASHER, FLAT | 3 |

| PART NO. | DESCRIPTION | QTY |
|---|---|---|
| 7J312-000 | 5/16 FLAT WASHER-SAE | 11 |
| 7J375-044 | 3/8 SAE WASHER, PLTD | 4 |
| 7K250-001 | 1/4” AN WASHER | 6 |
| 7U100-068 | BUMPER, RBR Ø.5X.25 MTG HOLE | 2 |
| 7U100-069 | KEY, 3/16 SQUARE X .73 LONG | 1 |
| 7U100-073 | KEY, 3/16 SQUARE X 1.375 LONG | 1 |
| 7U100-084 | SNAP RING,V9 | 1 |
| 7X100-027 | WAVE WASHER-LARGE (V-2) | 1 |
| **4CL110-110** | **ASSY, DAMPER PIN** | **1** |
| 4GR010-110 | GUIDE, DWL PIN INST | 1 |
| 7C014-095 | M14-1.5 X 95MM SHCS | 1 |
| 7U250-019 | DOWEL PIN, 1/4X1/2 +.001” | 1 |
| 7U250-026 | DRILL BUSHING, 1/4 ID, 3/8 OD, 1/2L | 1 |
| **4CL112-010** | **AIR DISCHARGE ASSY** | **1** |
| 4CL012-010(8) | DUCT, CAC TO T-BODY | 1 |
| 4CL112-020(8) | DISCH TUBE, SC TO CAC | 1 |
| 5A002-018 | IAT HARNESS EXT, HEMI | 1 |
| 7S275-092 | ELBOW, 2.75 X 90 SILICONE | 1 |
| 7S275-300 | SLEEVE, 2.75” X 3.00”L, BLUE | 2 |
| 7S350-277 | ELBOW, 3.5 X 2.75 90º SILICONE | 1 |
| 7R002-016 | #16 SAE TYPE F SS HOSE CLAMP | 2 |
| 7R002-044 | #44 SAE TYPE F SS HOSE CLAMP | 7 |
| 7R002-056 | #56 SAE TYPE F SS HOSE CLAMP | 1 |
| 7U030-046 | 5/32” VACUUM LINE | 7 |
| 7U034-016 | 1” GS HEATER HOSE | 0.25 |
| 8D001-001 | STD COMPRESS BYPASS VALVE | 1 |
| 8H040-300 | AIR FILTER, 3.5” OFFSET, 300C | 1 |
| 4CL010-050 | BRKT, CLR SPT, CHGR | 2 |
| 4CL010-060 | BRKT, ENG CVR SPT FRONT | 1 |
| 4CL010-070 | BRKT, ENG CVR SPT UPPER | 1 |
| 4CL010-080 | BRKT, ENG CVR SPT LOWER | 1 |
| **4CL112-030*** | **AIR INLET ASSEMBLY, HEMI** | **1** |
| **5A003-050** | **DIABLO PREDATOR, HEMI** | **1** |
| **8N006-020** | **WATER COOLER** | **1** |
| **8N105-190*** | **WATER TANK MTG ASSY** | **1** |
| **8N107-190** | **WATER PUMP MTG ASSY** | **1** |
| 5W001-011 | 16-14 GA RING TERM .26” HOLE | 1 |
| 5W001-013 | 14-16 GA BUTT CONN BLU INSUL | 2 |
| 5W001-024 | MINI ATC FUSE TAP | 1 |
| 5W001-025 | FEMALE SLIDE,INSULATED,MINI | 1 |
| 5W001-054 | 18 GA FUSE HOLDER | 1 |
| 5W014-030 | 14GA STRD WIRE BLACK | 5 |
| 7R003-027 | ADEL CLAMP,1-11/16” | 1 |
| 8F001-402 | PUMP, WATER, PIERBURG | 1 |
| 8N100-001 | NYLON MOUNTING KIT | 1 |
| **8N201-380(8)** | **WELDED CLR ASSY** | **1** |

*SEE PAGE viii FOR INDIVIDUAL COMPONENTS IN ASSEMBLY



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# 2005-10 HEMI 6.1L SRT-8 SUPERCHARGER KIT

**Part No. 4CL218-030L**

# PARTS LIST

ENGINEERING, LLC

**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** |
| **008341** | **POWERCOOLER DECAL** | **1** |
| **008447** | **S/C STREET PACKAGE ASSEMBLY** | **1** |
| **009035** | **LUBE ASSY, 3-PACK** | **1** |
| **2A046-106** | **BELT PREMIUM 104.5"** | **1** |
| **2F329-090** | **S/C ASSY, V3 CCW SI STR8 CAR** | **1** |
| 4GR033-030 | PULLEY, SC, 20MM 30T | 1 |
| **4CL020-010** | **MANUAL, 2007 DODGE HEMI CHGR 5.7L** | **1** |
| **4CL110-100** | **FUEL SYSTEM ASSY, SRT-8 CAR** | **1** |
| 4CL010-100 | OIL FILL CAP, SRT-8 | 1 |
| 7P375-156 | 3/8"X3/8"X5/32" MALE BARB TEE | 1 |
| 7R001-006 | #6 STNLS HOSE CLAMP, NARROW | 2 |
| 8F060-008 | FUEL INJ, 07 CHARGER SC | 8 |
| 5A002-017 | MAP SENSOR, 07 CHARGER SC | 1 |
| **4CL110-044*** | **S/C MTG BRKT ASSY, HEMI** | **1** |
| **4CL110-110*** | **ASSY, DAMPER PIN, CHGR** | **1** |
| **4CL112-010*** | **AIR DISCHARGE ASSY, 07 CHGR** | **1** |
| **4CL112-030** | **AIR INLET ASSY, HEMI** | **1** |
| 4CL010-180 | BRKT, CHALLENGER AIR INLET | 1 |
| 4CL012-030 | DUCT, INLET 08 HEMI CHALLENGER | 1 |
| 7A250-039 | 1/4-20 X 3/8" SHCS ZINC PLTD | 2 |
| 7J250-001 | 1/4 WASHER, SAE, PLTD | 2 |
| 7R002-056 | #56 SAE TYPE F SS HOSE CLAMP | 1 |
| 7R002-080 | #80 SAE TYPE F SS HOSE CLAMP | 1 |
| 7S500-351 | INLET SLEEVE, HEMI, 5 X 3.5 | 1 |
| 8H040-235 | AIR FILTER, 4" FLG X 7.0L | 1 |
| 7P500-009 | 1/2"X90 HOSE BARB UNION | 1 |
| 7U030-036 | 1/2" OIL DRAIN HOSE | 4' |
| 8H040-300 | AIR FILTER 300C | 1 |
| 7U032-020 | 3/8 P/S HOSE | 32" |
| **5A003-050** | **DIABLO PREDATOR, HEMI** | **1** |
| **5A102-023** | **ASSY, VOLT BOOST SRT8 HEMI G2** | **1** |
| 5A002-023 | VOLTAGE BOOSTER, G2 MSD PROG | 1 |
| 5W001-040 | 12-10GA FEMALE SLIDE INSULATED | 2 |
| 5W001-010 | 16-14GA FEMALE SLIDE INSULATED | 2 |
| 5W001-043 | 12-10GA X 1/4" RING TERMINAL | 1 |
| 5W001-017 | 12-10GA X 3/8" RING TERMINAL | 1 |
| 5W001-005 | 3/8" PLASTIC WIRE LOOM | 8 |
| 5W001-007 | 3/16" HEAT-SHRINK TUBING | 0.38 |
| 5W001-007 | 3/16" HEAT-SHRINK TUBING | 0.38 |
| 7U100-044 | TIE WRAP, 4" NYLON | 10 |
| 7U100-055 | TIE WRAP, 7.5" NYLON | 12 |
| 7U030-109 | VAC HOSE, 7/64 ID | 4.5 |
| 7P156-082 | 5/32 TEE | 1 |

| PART NO. | DESCRIPTION | QTY |
|---|---|---|
| **8N006-020** | **WATER COOLER** | **1** |
| **8N105-190** | **WATER TANK MTG ASSY** | **1** |
| 7A250-051 | 1/4-20 X .50" HHCS PLTD | 2 |
| 7A0250-101 | 1/4-20 X 1 HHCS ZINC PLTD | 1 |
| 7U100-027 | PLASTIC RIVET, BUMPER CVR | 6 |
| 4FT017-080 | SPACER, COOLER SUPPORT .5"L | 1 |
| 4CL010-190 | BRACKET RESERVOIR | 1 |
| 7A250-050 | 1/4-20 X .50 SHCS ZINC PLTD | 3 |
| 7E010-075 | #12 X 3/4" SHT METL SCRW HEX | 8 |
| 7P375-075 | 3/4" HOSE UNION | 3 |
| 7P500-026 | 1/2NPT X 3/4 BARB 90° BRASS | 3 |
| 7P500-750 | 1/2NPT-3/4 BARB 90° SHORT | 2 |
| 7P500-078 | 1/2NPT X 3/4 HOSE FIT STRT | 1 |
| 7R007-001 | NYLON RATCHET CLAMP 1-1/8" | 16 |
| 7U030-065 | 3/4"X90° RUBBER HOSE, SHORT | 3 |
| 7U038-000 | 3/4" HEATER HOSE | 14 |
| 7U038-012 | HOSE,3/4"DIA 90 ,4X12 LEGS | 4 |
| 7U100-044 | TIE WRAP, 4" NYLON | 10 |
| 7U100-055 | TIE WRAP, 7.5" NYLON | 10 |
| 8N055-030 | TANK, WATER, TRIANGLE SHAPE | 1 |
| 8N055-050 | PLASTIC CAP, SURGE TANK | 1 |
| 8N056-060 | SURGE TANK, PLASTIC | 1 |
| 4CL010-110 | BRKT, FLUIDYNE RAD. MTG, SHORT | 1 |
| 4CL010-120 | BRKT, FLUIDYNE RAD. MTG, LONG | 1 |
| 4CL010-130 | BRKT, SURGE TANK MTG, HEMI CAR | 1 |
| 4CL010-140 | BRKT, FLUIDYNE RAD 300L SHORT | 1 |
| 4CL010-150 | FLUIDYNE RAD 300L LONG | 1 |
| 4CL010-160 | BRKT, FLUIDYNE, CHLGR DRVR | 1 |
| 4CL010-170 | BRKT, FLUIDYNE, CHLGR PSGR | 1 |
| 4GJ014-020 | WATER TUBE B, GTO | 1 |
| **8N107-190*** | **WATER PUMP MTG ASSY, 07 CHGR** | **1** |
| **8N201-380(8)** | **WELDED CLR ASSY** | **1** |

*SEE PAGE vii FOR INDIVIDUAL COMPONENTS IN ASSEMBLY

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# 2005-10 HEMI 5.7L CAR TUNER KIT

## Part No. 4CL218-110L

# PARTS LIST

**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 |
| 008341 | POWERCOOLER DECAL | 1 |
| 008447 | S/C STREET PACKAGE ASSEMBLY | 1 |
| 009035 | LUBE ASSY, 3-PACK | 1 |
| 2F329-030 | S/C ASSY, V3 CCW SI STR 07 CHGR | 1 |
| 4GR033-034 | PULLEY, SC, 20MM 34T | 1 |
| 4CL020-010 | MANUAL, 2007 DODGE HEMI CHGR 5.7L | 1 |
| 4CL110-044* | S/C MTG BRKT ASSY, 07 CHARGER | 1 |
| 4CL110-110* | ASSY, DAMPER PIN, CHGR | 1 |
| 4CL112-010* | AIR DISCHARGE ASSY, 07 CHGR | 1 |
| 4CL112-030* | AIR INLET ASSY, HEMI | 1 |
| 8N006-010 | WATER COOLER | 1 |
| 8N105-190* | WATER TANK MTG ASSY, 07 CHGR | 1 |
| 8N107-190* | WATER PUMP MTG ASSY, 07 CHGR | 1 |
| 8N201-380(8) | WELDED CLR ASSY | 1 |

*SEE PAGE vii FOR INDIVIDUAL COMPONENTS IN ASSEMBLY



P/N: 4CL020-010 v5.0, 10/05/2010

# 2005-10 HEMI 6.1L SRT-8 CAR TUNER KIT

**Part No. 4CL218-130L**

# PARTS LIST

ENGINEERING, LLC

**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 |
| 008341 | POWERCOOLER DECAL | 1 |
| 008447 | S/C STREET PACKAGE ASSEMBLY | 1 |
| 009035 | LUBE ASSY, 3-PACK | 1 |
| 2F329-090 | S/C ASSY, V3 CCW SI STR | 1 |
| 4GR033-030 | PULLEY, SC, 20MM 30T | 1 |
| 4CL020-010 | MANUAL, 2007 DODGE HEMI CHGR 5.7L | 1 |
| 4CL110-044* | S/C MTG BRKT ASSY, 07 CHARGER | 1 |
| 4CL110-110* | ASSY, DAMPER PIN, CHGR | 1 |
| 4CL112-010* | AIR DISCHARGE ASSY, 07 CHGR | 1 |
| 4CL112-030* | AIR INLET ASSY, HEMI | 1 |
| 8N006-010 | WATER COOLER | 1 |
| 8N105-190* | WATER TANK MTG ASSY, 07 CHGR | 1 |
| 8N107-190* | WATER PUMP MTG ASSY, 07 CHGR | 1 |
| 8N201-380(8) | WELDED CLR ASSY | 1 |

*SEE PAGE vii FOR INDIVIDUAL COMPONENTS IN ASSEMBLY

P/N: 4CL020-010 v5.0, 10/05/2010

# 2009 5.7L Challenger
## Part No. 4CL218-040L
# PARTS LIST

**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** |
| **008341** | **VORTECH CHARGE COOLER DECAL** | **1** |
| **008447** | **1 YR S/C STRT INFO PKG ASY VOR** | **1** |
| **009035** | **S/C LUBE, BOTTLED, VORT 3-PACK** | **1** |
| **2A046-106** | **BELT PREMIUM 104.5",C5 CORVETT** | **1** |
| **2F329-130** | **V3 S/C ASY, 6.1L HEMI SRT8 30T** | **1** |
| **4CL020-010** | **MANUAL, 05-08 DODGE HEMI CHGR** | **1** |
| **4CL110-030** | **FUEL SYSTEM ASSY, 5.7L HEMI** | **1** |
| **4CL110-054** | **ASSY, S/C MTG BRKT,09 5.7L M6** | **1** |
| 008725 | CAP, TAMPER PROOF, VORT S/C | 2 |
| 2A017-016 | PILOT, 6203/5 BRG, 3/8 SCREW | 1 |
| 2A017-093 | SPACER, S/C PULLEY, .093" | 1 |
| 2A017-105-222 | SPACER, 1"OD X .328"ID X 2.225 | 5 |
| 2A017-462 | SPACER,IDLER SMOOTH 6RIB | 1 |
| 2A017-156 | SPCR, SM IDLER, DBL BRG JACK | 1 |
| 2A036-136 | S/C PULLEY 3.60" 6 GROOVE W/FL | 1 |
| 2A040-051 | PLY RETAINER, TAMPER PRF CAP | 2 |
| 2A040-061 | RETAINER CUP, VORT S/C PLY | 2 |
| 2A042-080 | BELT, GATES 20MM, 80 TOOTH | 1 |
| 2D070-159 | LARGE BEARING,EXTENDED DRIVE | 2 |
| 2D070-171 | JACKSHAFT, C5, H900, 1INCH | 1 |
| 4CL010-230 | PLATE, SUPPORT, REAR, 09 5.7L | 1 |
| 4CL010-221 | PLATE, CYL HEAD, 09 5.7L M6 HE | 1 |
| 4CL010-044 | PLATE, SC MTG, 07 CHGR | 1 |
| 4CL010-251 | CAC, SUPPORT BRACKET, 09 5.7L | 1 |
| 4CL116-350 | IDLER ASSY, 20MM GILMER, SRT8 | 1 |
| 4FD017-011 | PILOT, 6203/5 BRG, 1/2 SCREW | 1 |
| 4FT017-080 | SPCR, COOLER SUPPORT | 1 |
| 4GR032-032 | PULLEY,JACKSHAFT,C5,20MM,32T | 1 |
| 4GR116-300 | IDLER ASSY, 20MM GILMER, C5 | 1 |
| 4HS017-041 | SPACER, LOWER S/C PLT S2000 | 2 |
| 4NZ030-041 | BEARING HSG, 350Z | 1 |
| 7A312-152 | 5/16-18 X 1.5 SHCS, ZN PLT | 4 |
| 7A375-124 | 3/8-16 X 1-1/4 HHCS, G5, PLATE | 4 |
| 7A375-225 | 3/8-16 X 2-1/4 HXHD G8 | 1 |
| 7B375-075 | 3/8-24 X 3/4" GR8 HXHD BOLT | 1 |
| 7B375-150 | 3/8-24 X 1-1/2 GR8 HX | 1 |
| 7C012-100 | 12MM X 100MM X 1.75 HXHD BOLT | 1 |
| 7C080-090 | M8 X 1.25 X 90 HXHD CL10.9 | 3 |
| 7C080-100 | M8 X 1.25 X 100 HXHD ZN PLT | 3 |
| 7C080-120 | BOLT, 8MM X 120MM X 1.25 HXHD | 1 |
| 7G010-175 | 12MM X 1.75 NUT | 1 |
| 7J012-092 | 12MM WASHER, FLAT | 1 |
| 7J312-000 | 5/16 FLAT WASHER-SAE | 11 |
| 7J375-044 | 3/8 SAE WASHER, PLTD | 4 |
| 7J500-002 | 1/2" WASHER, SPLIT LOCK | 1 |
| 7U100-068 | BUMPER, RBR .5 X .25 MTG HOLE | 2 |
| 7U100-069 | KEY, 3/16 SQUARE X .73 LONG | 1 |
| 7U100-073 | KEY, 3/16 SQUARE X 1.375 LONG | 1 |
| 7U100-084 | SNAP RING, EXT DRV HOUSING | 1 |
| 7X100-027 | WAVE WASHER, LARGE, V2 INPUT | 1 |
| 7C080-025 | M8 X 1.25 X 25 HXHD | 3 |
| 2A017-750-09 | SPACER, .75 OD X .328 ID X .36 | 3 |
| **4CL110-110** | **ASSY, DAMPER PIN, HEMI** | **1** |
| 4GR010-110 | GUIDE, DWL PIN IST, C5 | 1 |
| 7C014-095 | M14-1.5 X 95 MM SHCS | 1 |
| 7U250-019 | DOWEL PIN,1/4D X 1/2L | 1 |
| 7U250-026 | DRILL BUSHING, 1/4ID,.375OD | 1 |

| PART NO. | DESCRIPTION | QTY |
|---|---|---|
| **4CL112-010** | **AIR DISCHARGE ASSY,HEMI CAR** | **1** |
| 4CL012-010 | DUCT, CAC TO T-BODY, 07 HEMI C | 1 |
| 4CL112-020 | DISCH TUBE, SC TO CAC, CHGR | 1 |
| 5A002-018 | IAT HARNESS EXT, HEMI CAR | 1 |
| 5W001-005 | 3/8" PLASTIC WIRE LOOM | 0.75 |
| 5W001-012 | 18-22 GA BUTT CONN RED INSUL | 4 |
| 5W018-070 | 18GA STRD WIRE GREEN | 0.75 |
| 5W018-080 | 18GA STRD WIRE BLUE BULK | 0.75 |
| 7R002-016 | #16 SAE TYPE F SS HOSE CLAMP | 2 |
| 7R002-044 | #44 SAE TYPE F SS HOSE CLAMP | 7 |
| 7R002-056 | #56 SAE TYPE F SS HOSE CLAMP | 1 |
| 7PS275-092 | ELBOW, 2.75 X 90 SILICONE BLK | 1 |
| 7PS275-300 | SLEEVE, BLACK 2.75ID X 3.0 | 2 |
| 7PS350-277 | ELBOW, SIL 3.5X2.75 90, BLK | 1 |
| 7U030-046 | 5/32" VACUUM LINE | 5 |
| 7U034-016 | 1" GS HEATER HOSE | 0.25 |
| 7U100-062 | GROMMET, 1/2"ID X 3/4"OD | 1 |
| 8D001-001 | STD COMPRESS BYPASS VALVE | 1 |
| 8H040-075 | 1" AIR FILTER BY-PASS | 1 |
| **5A003-050** | **DIABLO PREDATOR, HEMI CAR** | **1** |
| **8N006-020** | **WATER COOLR, FLDYN DUAL PASS** | **1** |
| **8N105-190** | **WATER TANK MTG ASSY, 07 CHGR** | **1** |
| 4CL010-110 | BRKT, FLUIDYNE RAD MTG, SHORT | 1 |
| 4CL010-120 | BRKT, FLUIDYNE RAD MTG, LONG | 1 |
| 4CL010-130 | BRKT, SURGE TNK MNT HEMI | 1 |
| 4CL010-140 | BRKT, FLUIDYNE RAD 300C, SHORT | 1 |
| 4CL010-150 | BRKT, FLUIDYNE RAD 300C, LONG | 1 |
| 4FT017-080 | SPCR, COOLER SUPPORT | 1 |
| 4GJ014-020 | WATER TUBE B, GTO,HEMI | 1 |
| 4CL010-190 | BRKT, CAC TANK, HEMI | 1 |
| 7A250-050 | 1/4-20 X .50 SHCS GR8 ZINC PLT | 4 |
| 7A250-051 | 1/4-20 X .50 HHCS GR5 ZINC PLT | 2 |
| 7A250-101 | 1/4-20 X 1 HHCS ZINC PLTD | 1 |
| 7E010-075 | #12 X 3/4" SHT METL SCRW HEX | 8 |
| 7J250-001 | 1/4 WASHER, SAE, PLTD | 7 |
| 7P375-075 | 3/4" HOSE BARB UNION, BRASS | 1 |
| 7P500-026 | 1/2NPT X 3/4 BARB 90 BRASS | 5 |
| 7P500-078 | 1/2NPT X 3/4 HOSE FIT STRT | 1 |
| 7P500-750 | 1/2"NPT TO 3/4" SHORT 90 BARB | 2 |
| 7R007-001 | NYLON RATCHET CLAMP 1-1/8" | 16 |
| 7U038-000 | 3/4" HEATER HOSE | 9 |
| 7U038-012 | HOSE,3/4"DIA 90,4X12 LEGS | 4 |
| 7U100-027 | RIVET, PLASTIC, HEMI BMPR CVR | 6 |
| 7U100-044 | TIE WRAP, 4" NYLON | 10 |
| 7U100-055 | TIE WRAP, 7.5" NYLON | 10 |
| 8N055-030 | TANK, WATER, TRIANGLE SHAPE | 1 |
| 8N055-050 | PLASTIC CAP, SURGE TANK | 1 |
| 8N056-060 | SURGE TANK, PLASTIC | 1 |
| **8N107-190** | **WATER PUMP MTG ASSY, 07 CHGR** | **1** |
| 5W001-011 | 16-14 GA RING TERM .26" HOLE | 1 |
| 5W001-013 | 14-16 GA BUTT CONN BLU INSUL | 3 |
| 5W001-024 | MINI ATC FUSE TAP | 1 |
| 5W001-025 | FEM SLIDE,INSUL,MINI,22-16AWG | 1 |
| 5W001-054 | 16 GA FUSE HOLDER WITH WIRE | 1 |
| 5W014-030 | 14GA STRD WIRE BLACK | 10 |
| 7R003-027 | ADEL CLAMP,1-11/16" | 1 |
| 8F001-402 | PUMP, WATER, PIERBURG | 1 |
| 7U100-061 | GROMMET, 3/8 ID 5/8 FLANGE | 1 |
| 5W001-032 | 1/4" PLASTIC WIRE LOOM | 120 |



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

| PART NO. | DESCRIPTION | QTY |
|---|---|---|
| **8N201-380** | **WELDED CLR ASSY, 07 HEMI CHGR** | **1** |
| **4CL112-030** | **AIR INLET ASSY, HEMI CHALLENGE** | **1** |
| 4CL010-180 | BRKT, CHALLENGER AIR INLET | 1 |
| 4CL012-030 | DUCT, INLET 08 HEMI CHALLENGER | 1 |
| 7A250-039 | 1/4-20 X .375 BHCS | 2 |
| 7P500-009 | 1/2" X 90 HOSE BARB UNION | 1 |
| 7R002-056 | #56 SAE TYPE F SS HOSE CLAMP | 1 |
| 7R002-080 | #80 SAE TYPE F SS HOSE CLAMP | 1 |
| 7S500-351 | INLET SLEEVE, HEMI, 5 X 3.5 | 1 |
| 7U030-036 | 1/2" OIL DRAIN HOSE | 4 |
| 7U032-020 | HOSE, 3/8" ID P/STEERING RET | 32 |
| 8H040-235 | AIR FILTER, 4" FLG X 7.0L | 1 |
| 8H040-300 | AIR FILTER,3.5" FLANGE,300C,OF | 1 |
| **4CL110-060** | **ASM, P/S, 09 5.7L M6 HEMI CHAL** | **1** |
| 7P375-075 | 3/4" HOSE BARB UNION, BRASS | 1 |
| 7R004-007 | STEPLESS CLAMP, 28.6 X 7MM WID | 2 |
| 7R002-010 | #10 SAE TYPE F SS HOSE CLAMP | 1 |
| 7P500-078 | 1/2NPT X 3/4 HOSE FIT STRT | 1 |
| 7P500-036 | 1/2 NPT, STREET, 45 DEG | 1 |
| 4CL010-241 | FITTING, P/S, 09 5.7L M6 HEMI | 1 |
| 5A002-024 | CONNECTOR, MAP SENSOR, 5.7L HE | 1 |
| **4CL145-010** | **ASSY, FUEL LINE, 2009 5.7L HEM** | **1** |
| **5A102-023** | **ASSY, VOLT BOOST SRT8 HEMI G2** | **1** |
| 5A002-023 | VOLTAGE BOOSTER, G2 MSD PROG | 1 |
| 4CL010-210 | MTG BRKT, GEN 2 FPVB HEMI CAR | 1 |
| 5W001-040 | 12-10GA FEMALE SLIDE INSULATED | 2 |
| 5W001-010 | 16-14GA FEMALE SLIDE INSULATED | 2 |
| 5W001-043 | 12-10GA X 1/4" RING TERMINAL | 1 |
| 5W001-017 | 12-10GA X 3/8" RING TERMINAL | 1 |
| 5W001-005 | 3/8" PLASTIC WIRE LOOM | 8 |
| 5W001-007 | 3/16" HEAT-SHRINK TUBING | 0.38 |
| 5W001-007 | 3/16" HEAT-SHRINK TUBING | 0.38 |
| 7U100-044 | TIE WRAP, 4" NYLON | 10 |
| 7U100-055 | TIE WRAP, 7.5" NYLON | 12 |
| 7U030-109 | VAC HOSE, 7/64 ID | 4.5 |
| 7P156-082 | 5/32 TEE | 1 |
| 7F010-024 | 10-24 NYLOCK NUT | 4 |
| 7C010-075 | 10-24 X 3/4 SHCS GR5 ZINC | 4 |
| 7J008-001 | #8 FLAT WASHER | 4 |

# 1. PREPARATION AND REMOVAL

A. Disconnect negative cable at the battery.

B. Remove the plastic engine covers and set aside.

C. Remove the valve cover breather hose from the factory air inlet duct. Remove the air filter and all ducting up to the throttle body. Unplug the IAT (Inlet Air Temperature) sensor and remove it from the air filter housing. Set it aside for later use.

D. Remove the splash pan from the bottom of the vehicle and set aside.

E. Remove the front bumper cover from the vehicle (see following page).

F. Remove the accessory drive belt.

G. Unplug the electrical connector and remove the electric radiator fan assembly from the vehicle (cooling system may need to be drained and upper radiator hose removed).

H. Remove the power steering pump pulley from the pump.

I. Install the supplied power steering pulley hub onto the power steering pump so that it is flush with the end of the shaft. (See Fig. 1-a)

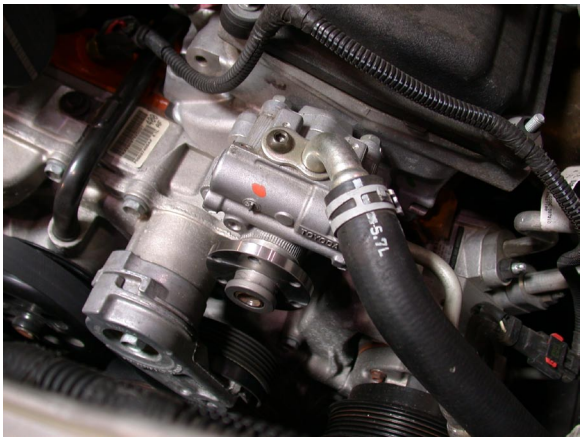

Fig. 1-a



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## 1E. FRONT FASCIA REMOVAL

1. Unless already completed in step 1, remove the plastic splash pan on the bottom of the vehicle.
2. Remove the electrical plug for the fog lights located on the passenger side of the vehicle.
3. Remove the plastic rivets securing the inner fender liners (new rivets are supplied for re-installation).
4. Locate the two 10mm headed screws in the front outer edge of the inner fender (one on each side of the vehicle) (See Fig 5.A-1. Remove the screws and set aside to be reinstalled in a later step.
5. Locate and remove the four 10 mm nuts (Two on each side of the vehicle) (See Fig 5.A-2)
6. Remove the two covers from the top of the fascia (See Fig 5.A-3)
7. Remove the six plastic retaining clips securing the top of the fascia to the radiator core support.
8. Gently pull the corners of the fascia way from the fenders. And remove the fascia.
9. Remove the plastic clips retaining the inner fascia support. And remove the inner fascia support. (See Fig 5.A-4, 5.A-5)

**(300C and 2008 Magnum: skip to section 6. All others proceed as follows)**

10. Remove the three 8 mm headed screws from the drivers side headlight.
11. Pull the headlight straightforward and remove.
12. Remove the two head light plugs. And set the head light assembly aside.

Fig. 5.A-1 (Challenger Shown)

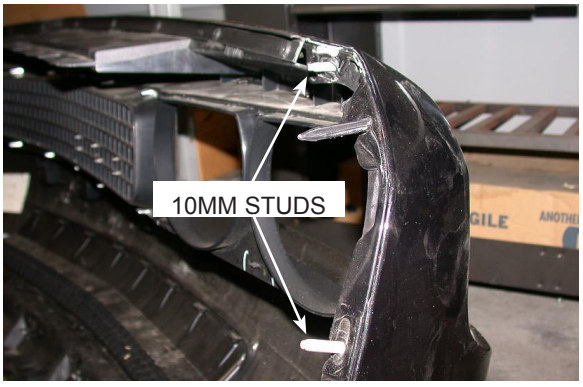
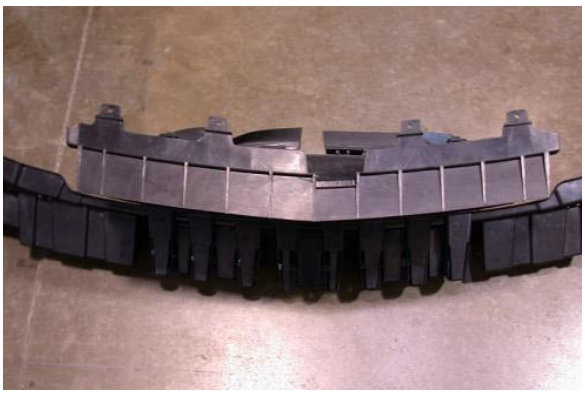



Fig. 5.A-2 (Challenger Shown)

Fig. 5.A-3 (Challenger Shown)



## 2. HARMONIC DAMPER DOWEL PIN INSTALLATION

NOTE: The purpose of this section is to provide access to the harmonic damper bolt area so that the crankshaft can be pinned to the damper to prevent the damper from spinning on the crankshaft. The following steps will work on all or most applications. If it is not possible to get adequate clearance by performing the following steps, follow the manufacturer's steps for removing the harmonic damper until there is sufficient room to work in.

A. Remove the crankshaft damper bolt. (A factory tool may be used to keep the engine from rotating or carefully use a pry tool to keep the damper from rotating.)

B. Install the supplied drill guide with the raised section piloting in the damper bore. 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. 2-a.

C. Using a small drill motor (right angle pneumatic works well), mark a 1/4" drill bit with electrical tape or a drill stop so that the hole will be deep enough for the supplied 1/2" long dowel pin. See Fig. 2-b.

D. Drill hole in damper/crankshaft.

E. Remove the socket head cap screw.

F. Clean area of metal chips and install the supplied dowel pin in the drilled hole making sure that it does not protrude past the damper face.

G. Install and tighten the crankshaft damper bolt to 129 ft-lbs (176 Nm).

H. Re-install the radiator fans and verify that the electrical connector is plugged in.

Fig. 2-a

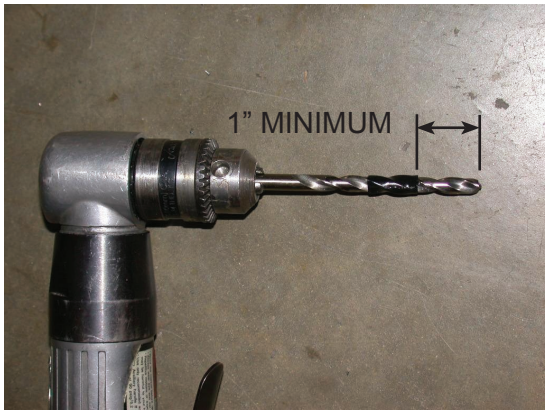



Fig. 2-b



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## 3. FUEL INJECTOR REPLACEMENT

A. Relieve the fuel system pressure

B. Disconnect the eight fuel injector plugs and retaining clips from the injectors.

> **NOTE:** Do not reinstall the factory injector retaining clips onto the new injectors.

C. Remove the four screws that hold down the fuel rail on the intake manifold. Lift up on the rails evenly and remove all eight injectors.

D. Using a small amount of clean motor oil, lightly lubricate the O-rings on both ends of the Vortech supplied fuel injectors.

E. Install the new injectors into the fuel rails with the terminals facing outward.

F. Carefully lower the fuel rail/injector assembly down onto the intake manifold. **2009 5.7L Challenger Only:** Fuel Rail must be mounted 180° from original position so that fuel inlet is now located on the passenger side.

G. Check to see that each injector has been seated properly into the intake manifold.

H. Tighten down the passenger side of the fuel rail assembly with the original bolts and attach the injector plugs to the injectors.

I. **(5.7L vehicles only)** Cut the engine cover mounting pedestals off of the two driver side fuel rail fasteners.

J. Install the driver side fasteners through the two supplied charge cooler core support brackets and tighten the driver side fuel rail (See Fig. 3-a). Use the shorter pair of brackets for the 6.1L and the longer pair for the 5.7L. Ensure that the supplied rubber bumpers are installed into the CAC support brackets.

K. **(5.7L vehicles only)** Use the supplied PCV valve, ½" to 3/8" hose union and 3/8" 90º hose to splice into the factory crank case breather hose as shown in Fig. 3-b.

L. Tighten a stepless clamp on each hose connection.

M. **(5.7L engine only)** Cut the brake booster line next to the brake booster and install the aluminum MAP sensor block assembly. Install a clamp on each connection. Unplug the connector from the factory MAP sensor on the back of the intake manifold and plug it into the supplied MAP sensor. (See Fig. 3-c) **2009 5.7L Challenger Only:** Install dummy plug into factory MAP sending unit to keep it from rotating out.

N. **(6.1L engine only)** Cut the brake booster line next to the brake booster and install the supplied TEE. Install a clamp on each connection. Remove the factory MAP sensor from the back of the intake manifold. Install the supplied MAP sensor into the factory location and plug it in.

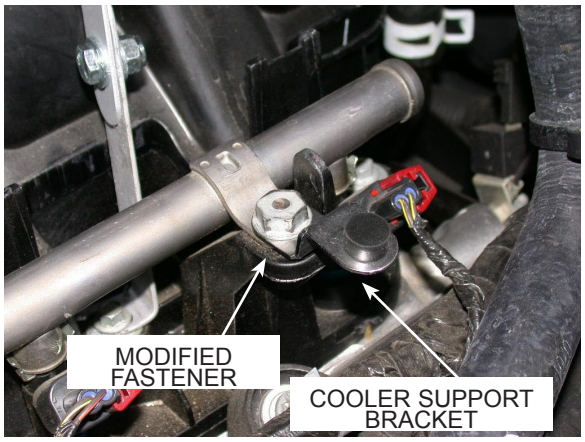



Fig. 3-a (5.7L Shown, 6.1L Similar)

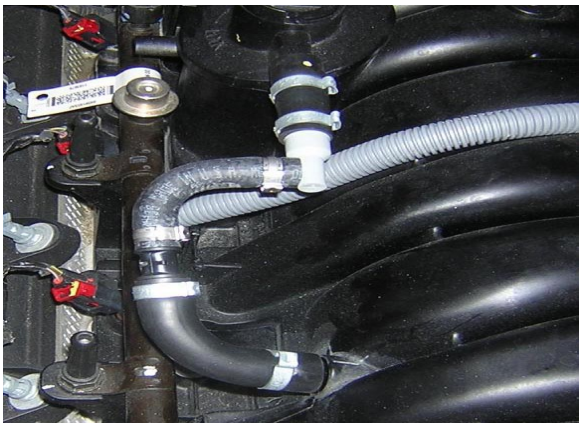


Fig. 3-b

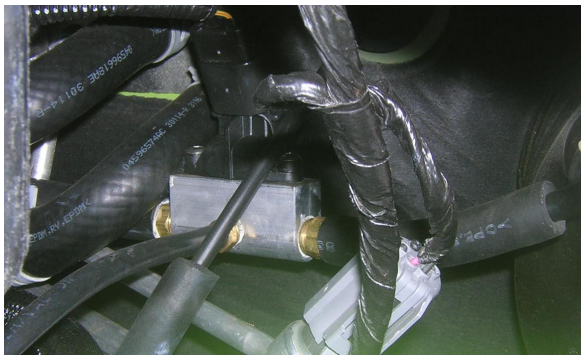
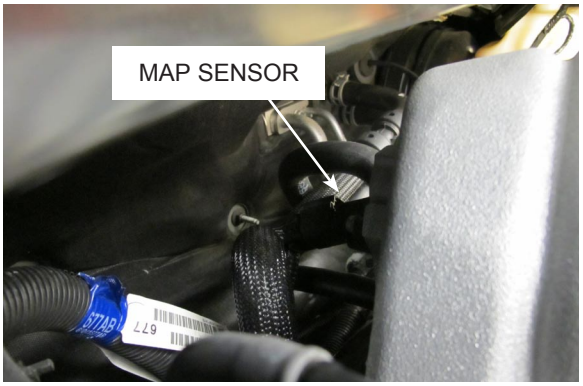


Fig. 3-c



## 4. SUPERCHARGER MOUNTING PLATE INSTALLATION

A. Remove the three bolts securing the power steering pump to the head.

B. Loosely attach the steel bracket to the back of the primary mounting plate.

C. Attach the supercharger mounting plate to the primary mounting plate using the supplied M8 x90mm bolts and spacers.

D. Without installing hardware, sandwich the power steering pump between the steel plate and the supercharger mounting plate.

NOTE: This is difficult to accomplish with the power steering lines connected. It may be easier to completely remove the power steering pump from the vehicle and install into the mounting bracket assembly out of the vehicle.

**2009 5.7L Challenger** models require removal of the inlet fitting for the power steering pump to be replaced with the supplied fitting. Set aside the hose as it will be used in a later step. **2009 5.7L Challengers** and **M6 6.1L Challengers** will require use of the supplied power steering pump fitting. Remove factory fitting from pump and install supplied fitting. Refer to Fig. 4-d for final installation reference.

E. Start the supplied 8mm bolt in the outside hole making sure that it does not protrude through the back and impact the a/c line (Bend the a/c line slightly if necessary).

F. Install a .475" spacer between the supercharger mounting plate and the power steering pump at the two remaining power steering pump mounting holes. Install 8mm x 90mm bolts and washers.

G. Position the supercharger mounting plate assembly in front of the engine and secure it to the head using the three M8 x 100 mm bolts and one M8 x 120mm bolt. (See Fig. 4-b).

H. Tighten all of the mounting plate bolts in steps so that the protruding bolt heads do not hit the power steering pump pulley.

NOTE: **Only 2009 5.7L Challengers and M6 6.1L Challengers** continue with steps I, J, K. All other systems reattach the power steering lines now and skip to section 5.

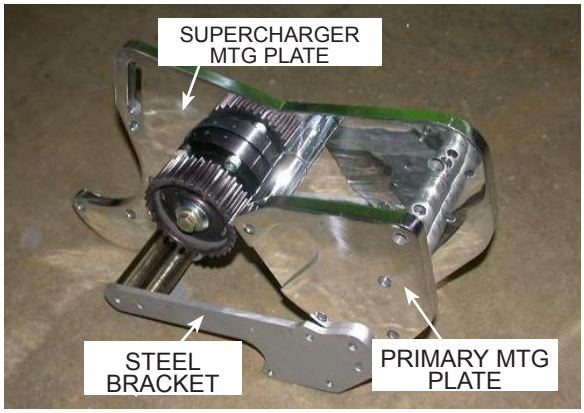



Fig. 4-a

Fig. 4-b

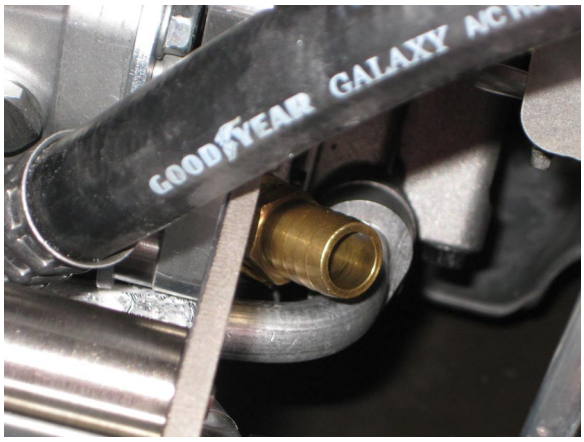



Fig. 4-d (2009 5.7L Challenger and M6 6.1L)

## 4. SUPERCHARGER MOUNTING PLATE INSTALLATION, CONT'D

**Steps I, J and K apply to 2009 5.7L Challenger and M6 6.1L Challenger Only:**

I. Remove power steering hose from pump to reservoir. Cut hose as depicted in Figure 4-e Set aside the two longer pieces of hose and discard the two shorter pieces. Replace the small bend with a ¾ hose union and attach the 2 pieces of hose together.

J. Install hose so that the end with the single bend attaches to the pump. Do not install clamps. Mark union for correct clocking. Remove hose from car and install stepless clamps at union (See Fig. 4-f).

K. Install hose assembly back into car using the factory clamp to secure the hose to the reservoir and a supplied hose clamp to attach the hose to the power steering pump.

Fig. 4-e (2009 5.7L Charger/Challenger)

Fig. 4-f (2009 5.7L Charger/Challenger)

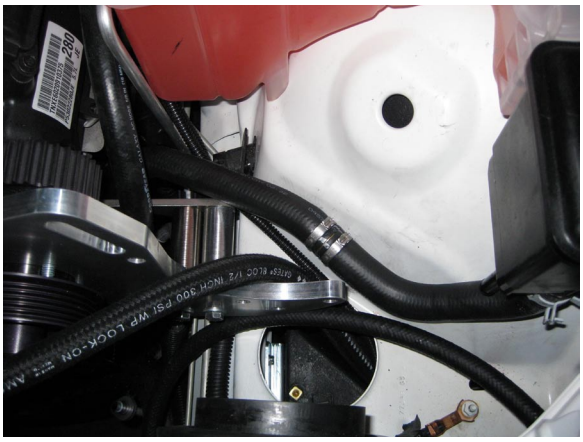


Fig. 4-g (2009 5.7L Charger/Challenger)

## 5. SUPERCHARGER INSTALLATION

A. **(This step applies to 300C and 2008 Magnum vehicles only. All others skip to step B)** Install a ½" breather hose from the engine to the hole in the air filter using the supplied barbed fitting. Insert the air filter into the space behind the driver side headlight for later attachment to the supercharger inlet. (See Fig. 5-a)

NOTE: ½" hose should point towards the passenger side and then back under the supercharger plate and up to the manifold port.

B. Install the supplied 3" aluminum idler in the lower 3/8-16 hole for the 6.1L and in the upper 3/8-16 hole for the 5.7L. Make sure that the snap ring side is facing forward (away from the mounting plate). (See Fig. 5-b). **2009 5.7L Challenger models** will use inner most hole on mounting plate for idler pulley.

C. Install the supplied power steering pump pulley on the already installed hub using the supplied 1/4" hardware.

D. Install the supplied accessory drive belt (as shown in Fig. 5-c).

E. Position the supercharger in front of the mounting plate assembly in front of the engine and install and tighten the four 3/8" x 1 ¼" bolts.

F. **(This step applies to 300C and 2008 Magnum vehicles only. All others skip to step G)** Install the air filter onto the supercharger inlet and tighten the clamp.

G. Install the supplied gilmer (toothed) belt around the pulleys on the mounting plate assembly.

H. Using the supplied M12 x 100mm bolt, install the supplied 3.5" aluminum idler with the bearing retaining snap ring pointed towards the front of the vehicle. The screw should pass through a flat washer, S/C mounting plate, 1.55" idler spacer, the idler, thick bearing washer, lock washer and nut. Install the supplied nut and lock washer on the end of the screw and tighten the idler so that the gilmer belt is snug. (See Fig. 5-d).

I. Secure the remote drain hose away from the belt and hoses using tie-wraps.


Fig. 5-a

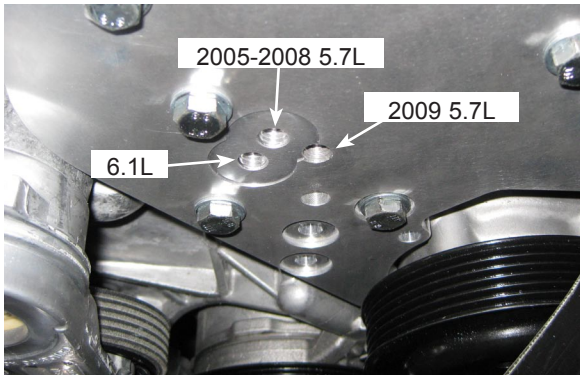



Fig. 5-b

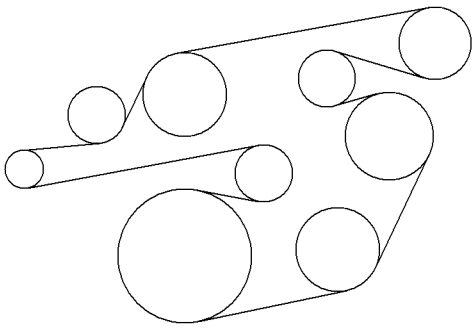


Fig. 5-c

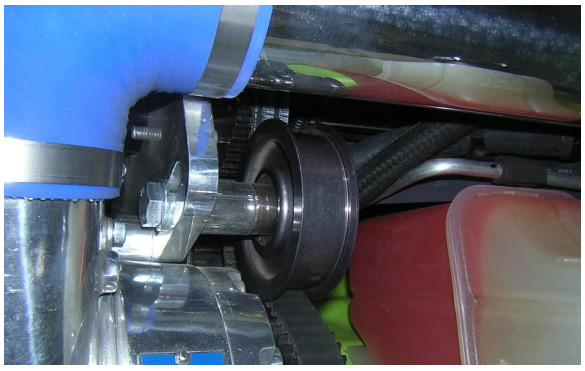


Fig. 5-d

## 5A. AIR INLET INSTALLATION (300C and 2008 Magnum installations skip to section 6. All others proceed as follows)

1. Locate assembly (4CL112-030) insure that all parts are present.
2. Attach the rubber sleeve to the plastic duct with the hose claps provided.
3. Attach the air filter to the inlet duct. (See Fig 5.A-1)
4. Attach the mounting bracket to the duct with the fasteners provided. (See Fig 5.A-2)
5. Remove the 15 mm headed bolt at the bottom of the core support. Set the bolt aside to be reinstalled in a later step (See Fig 5.A-3)
6. Remove the hood latch cable clip and move to the side to be reattached to the inlet duct-mounting bracket in a later step.

Fig. 5.A-1

Fig. 5.A-2


Fig. 5.A-3

## 5A. AIR INLET INSTALLATION, CONT'D (300C and 2008 Magnum installations skip to section 6. All others proceed as follows)

1. Locate assembly (4CL112-030) insure that all parts are present.
2. Attach the rubber sleeve to the plastic duct with the hose claps provided.
3. Attach the air filter to the inlet duct. (See Fig 5.A-1)
4. Attach the mounting bracket to the duct with the fasteners provided. (See Fig 5.A-2)
5. Remove the 15 mm headed bolt at the bottom of the core support. Set the bolt aside to be reinstalled in a later step (See Fig 5.A-3)
6. Remove the hood latch cable clip and move to the side to be reattached to the inlet duct-mounting bracket in a later step.
7. Remove the 3/8" power steering hose from the drivers side of power steering cooler and from the reservoir. Set aside; it will not be used.
8. Locate the 30-inch piece of power steering hose that is provided. Install the hose clamps from the factor power steering hose.
9. Route the new power steering hose down and behind the core support between the radiator and the core support. (See Fig 5.A-4)
10. Attach the inlet duct to the inlet of the super-charger and secure with the hose clamp previously installed.
11. Reinstall the 15 mm headed bolt removed in an earlier step. Attach the hood latch cable to the bracket supporting the inlet duct. (See Fig 5.A-5)
12. Attach the crank case breather hose to the 90º plastic fitting on the end of the air filter. (See Fig 5.A-6)
13. Route the breather hose through the round hole located in the inner fender to the crank case breather fitting on the intake manifold.
14. Check the power steering fluid level and re-fill as necessary.
15. Re-install headlight, hardware and connectors.

Fig. 5.A-4

Fig. 5.A-5

Fig. 5.A-6

# 6. CHARGE AIR COOLER (CAC) INSTALLATION

## 6A. Charge Air Cooler and Surge Tank Installation

1. Using sealant, install two “short” 90 degree fittings (two of the supplied 90º fittings have shorter hose barbs than the others) into the CAC end tank. Point the upper one horizontally towards the driver side and point the lower one down. (See Fig. 6.A-a)
2. Install a 90º fitting into the bottom of the surge tank and point it towards the front of the vehicle. Install a straight fitting into the side of the surge tank.
3. Attach the supplied surge tank to the strut tower using the supplied bracket and ¼-20 x ½” socket head cap screws (See Fig. 6.A-b).
4. Install molded 90º hoses onto the barbed fittings on the CAC core and point them forward.
5. Lower the CAC into place over the driver side valve cover.
6. Attach the 90º hose connected to the upper fitting on the cooler end tank to the straight fitting installed in the side of the surge tank (trim hose as needed).
7. Verify that all water hose connections have tightened clamps installed.
8. Trim the strut top cover as needed and reinstall. (See Fig A-c).


Fig. 6.A-a

Fig. 6.A-b

Fig. 6.A-c

## 6B. RESERVOIR AND WATER PUMP ASSEMBLY AND INSTALLATION

1. Attach the water reservoir bracket to the reservoir using ¼-20 x .5" cap screws. (See Fig. 6B-a for bracket orientation).
2. In the area in front of the driver side front wheel, position the water reservoir/bracket next to the frame rail. Orient the assembly for best clearance, at least 6" from the rear face of the bumper (See Fig. 6B-b)
3. Mark mounting bracket location and remove. Drill two 11/64" holes for the supplied #12 sheet metal screws (See Fig. 6B-c).
4. Using thread sealant, install the 1/2" NPT 90° hose barb fitting into the top and bottom of the supplied plastic reservoir.
5. Secure the assembly to the frame rail using two #12 sheet metal screws.
6. Trial fit the front bumper cover to verify water reservoir clearance.
7. Cut off the electrical plug on the water pump leaving as much wire connected to the pump as possible. Install the supplied ¼" eyelet on the water pump ground wire (brown wire).
8. Connect the pump inlet to the bottom reservoir fitting with a piece of the supplied hose. Point pump to discharge up at a 45° angle for 300C vehicles, or forward (and slightly up, to allow air to escape the pump housing) for all other vehicles. Secure hose with clamps on both ends. Drill a hole in the radiator support and secure the water pump to it using an adel clamp and #12 sheet metal screw. Make sure to ground the fuel pump under the mounting screw. (See Fig. 6B-d)
9. Connect a hose to the top of the reservoir and run it up to the area next to the driver side valve cover. This hose will later be connected to the 90 degree fitting installed in the bottom of the supplied surge tank (trim for ideal routing).
10. Drill a 5/8 hole in rear facing side of the power distribution box lid approx. 3 inches from inner edge. Insert supplied grommet into hole. Install supplied fuse holder from inside of lid, pressing one end into the grommet. Connect fuse tap and slide connector to fuel pump fuse referring to the owner's manual. Connect remaining end of fuse holder to water pump wire using supplied wire. Route wire behind engine following the factory loom. Install supplied split loom over wire (See Fig. 6-e).

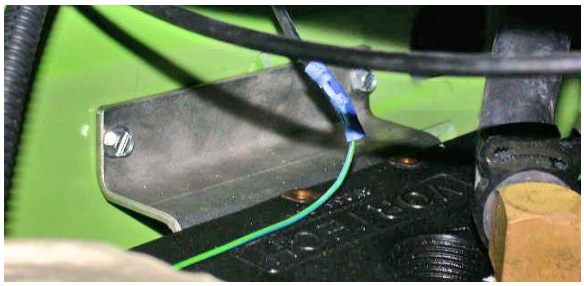


Fig. 6.B-a

Fig. 6.B-b

Fig. 6.B-c

Fig. 6.B-d

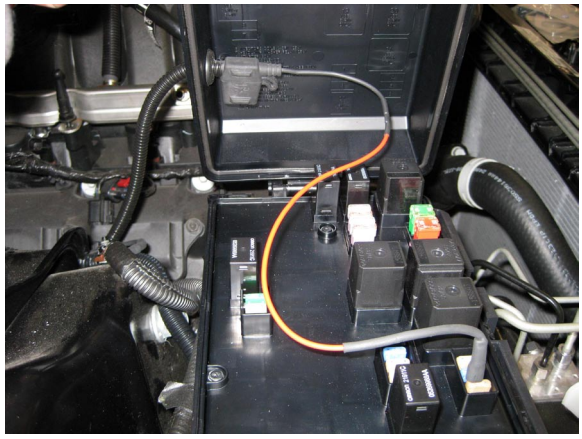


Fig. 6.B-e

## 6C. CHARGE AIR COOLER RADIATOR INSTALLATION

1. **(Challenger vehicles only. All others skip to step 2)** Attach the supplied brackets to each side of the CAC radiator as shown in figs. 6.C-a and 6.C-b. Remove the two small plastic panels from the front bumper cover as shown in Fig. 6.C-c. Skip to step 5.
2. **(300C vehicles only. All others skip to step 3)** Attach the longer pair of the supplied brackets to the charge air cooler radiator. The driver side bracket should be attached by sandwiching the supplied ½" long spacer between the bracket and the CAC radiator. (See Fig. 6C-d). With the foam bumper installed on the vehicle position the CAC radiator with brackets on top of the steel bumper so that it has about ½" clearance behind it. Mark the four frontmost mounting bracket holes to be drilled. Remove assembly, drill 11/64" holes and install the CAC radiator using four #12 sheet metal screws. (See Fig. 6C-e). 300C models skip ahead to 6C.5
3. Attach the shorter pair of the supplied brackets to the charge air cooler radiator. The driver side bracket should be attached by sandwiching the supplied ½" long spacer between the bracket and the CAC radiator. (See Fig. 6C-f).

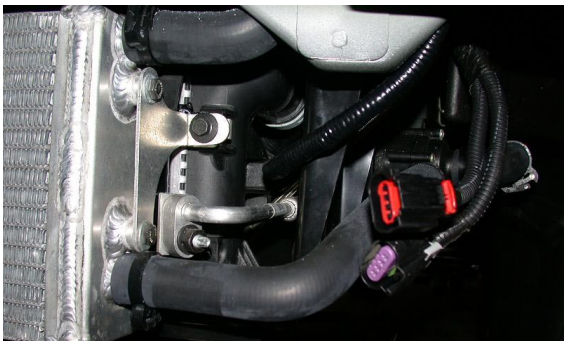


Fig. 6.C-a

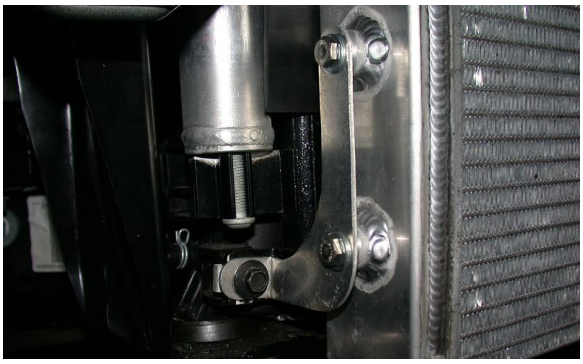


Fig. 6.C-b

Fig. 6.C-c

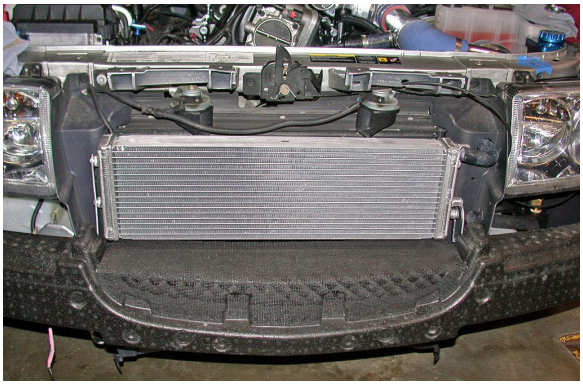


Fig. 6.C-e

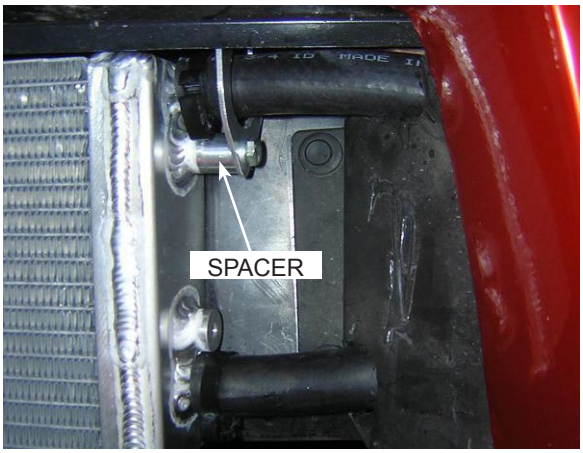



Fig. 6.C-f

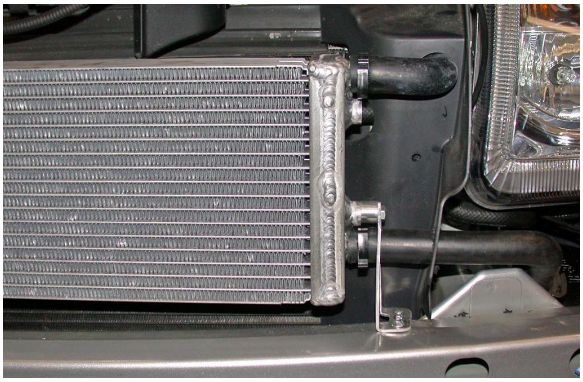


Fig. 6.C-d

## 6C. CHARGE AIR COOLER RADIATOR INSTALLATION con't

4. With the hard plastic bumper installed on the vehicle position the CAC radiator with brackets underneath the steel bumper and centered. Mark the four frontmost mounting bracket holes to be drilled. Remove assembly, drill 11/64" holes and install the CAC radiator using four #12 sheet metal screws. (See Fig. 6C-d and Fig 6C-g).
5. Connect the water pump discharge to the bottom hose barb on the CAC radiator using the supplied 90º hose (and additional straight hose if needed). See Figure 6C-f for CAC hose routing.
6. Connect the upper hose barb on the cooler radiator to the water inlet fitting on the CAC core using the supplied hose mender, hose, and a molded 90 degree hose. Drill a hole in the plastic side panel as needed to allow smooth hose routing. (For 300C and Challenger vehicles use the supplied aluminum tube to extend the line into the engine bay above the driver side valve cover as shown in Fig. 6C-h).
7. Remove cap from surge tank and slowly fill system with 25%/75% coolant/water mix. Check for leaks.
8. Re-install the front inner and outer fascias and fender liner in reverse of removal.

Fig. 6.C-g

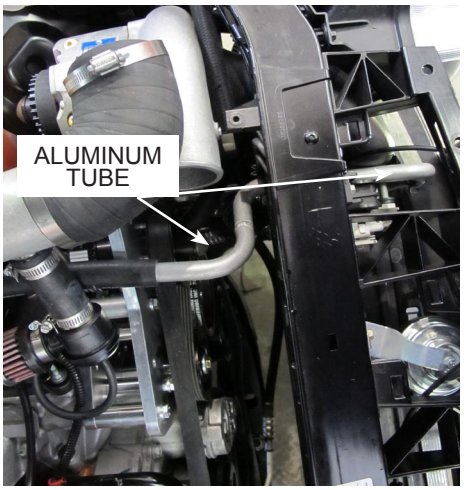



Fig. 6.C-h (300C/Challenger Only)

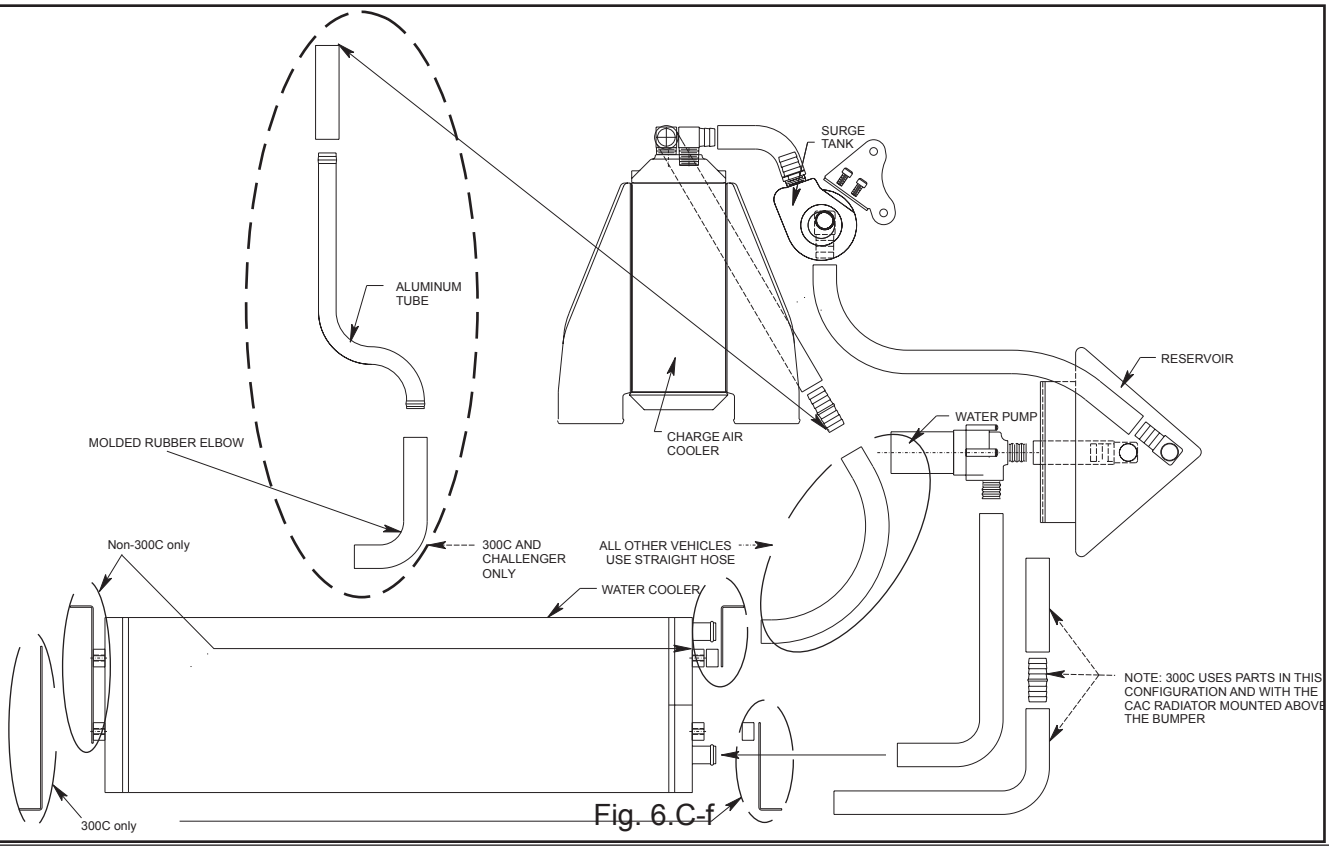



Fig. 6.C-f

## 7. SUPERCHARGER DISCHARGE ASSEMBLY INSTALLATION

A. Attach the straight supercharger discharge tube to the supercharger using the supplied Ø2.75" 90º elbow per Fig. 7-a.

B. Attach the other end to the CAC inlet using the supplied Ø2.75 x 3" sleeve and #44 hose clamps.

C. Install the supplied bypass valve onto the barb on the discharge tube using 1" hose and point it towards the rear of the vehicle. Install the supplied 1" air filter on the bypass valve discharge. (See Fig. 7-b).

D. Connect 5/32" vacuum line from the bypass valve to the tee fitting installed in the brake booster hose in step 3M or 3N. Locate the 5/32" tee in the Fuel Pump Voltage Booster assembly and install inline for use in a later step. Attach the supplied 5/32" vacuum hose to this fitting and run along the firewall toward the passenger side.

E. **(6.1L engine only)** Re-install the passenger side plastic engine cover. In order to provide room for the charge cooler, remove the oil fill cap, transfer the o-ring on the factory oil fill cap to the supplied oil fill cap and install the supplied oil fill cap.

F. **(5.7L engine only)** Cut off the driver side portion of the engine cover leaving only a thin portion (~3/4") extending beyond the colored insert. Loosen the intake manifold bolt and install the supplied "engine cover lower bracket" (see Fig. 7-c).

G. **(5.7 engine only)** Remove a nut from the driver side rear corner of the colored insert and install the "upper engine cover bracket" (See fig. 7-d).

H. **(2009 5.7L Challenger only)** Do not re-install the factory engine cover.

Fig. 7-a

Fig. 7-b

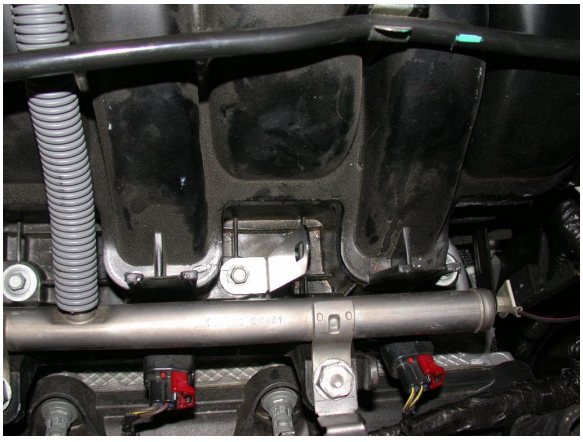


Fig. 7-c

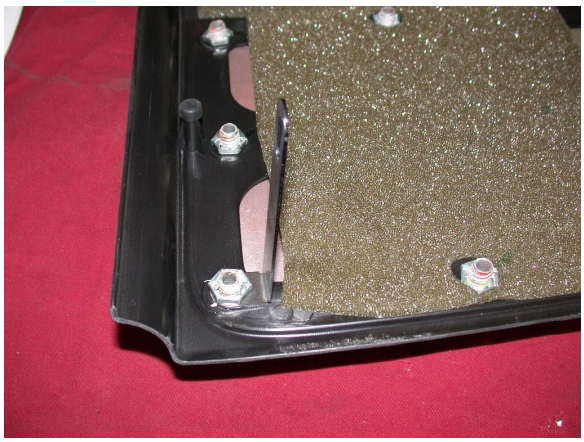


Fig. 7-d

## 7. SUPERCHARGER DISCHARGE ASSEMBLY INSTALLATION con't

I. **(5.7L engine only)** Remove a nut from the driver side front corner of the colored insert and install the "front engine cover bracket" onto the underside of the engine cover (See Fig 7-e).

J. **(5.7L engine only)** Install the engine cover on the passenger side factory pedestals. Using the supplied ¼" hardware connect the "upper bracket" to the "lower bracket" as shown. Slots allow the height to be adjusted as needed.

K. Install the factory air temperature sensor into the hole in the discharge tube that connects the CAC outlet to the throttle body using the supplied grommet.

L. Install the discharge tube using the supplied 90º silicon elbow (if necessary, rotate the engine breather tube so that it does not interfere with the discharge duct).

M. The IAT sensor wires must be lengthened in order to reach the new IAT sensor mounting location in the discharge duct. If an extension harness is not included use the supplied wire and crimp connectors to accomplish this. (Soldering is recommended).

N. Plug in the IAT sensor and tighten hose clamps on each connection.

O. Re-install the front bumper cover using the supplied replacement plastic rivets.

Fig. 7-e

Fig. 7-f


Fig. 7-g

## 8. FUEL PUMP VOLTAGE BOOSTER INSTALLATION (SRT-8 and 2009 5.7L MODELS ONLY, 2006-2008 5.7L SKIP TO SECTION 10)

A. Remove the 7 plastic clips retaining the windshield wiper shroud.

B. Remove the plastic cap covering the windshield wiper nuts. Remove the nuts using a 15mm wrench. Mark the wiper arm location orientation before removing the wiper arms. Remove the wiper arms (See Fig. 8-a).

C. Remove the small plastic clips on each corner of the cowl cover. Lift up on the cover and set aside.

D. On the passenger side of the vehicle locate the shroud covering the inlet vent.

E. Secure the supplied FPVB on the vent shroud using the provided self tapping screws. (See Fig 8-b and 8-c).

F. Drill a 1/2" or larger in the shroud cover to route the wires through.

G. Route the fuel pump power wires through the hole in the shroud cover, across the firewall, and secure with wire ties. (See Fig 8-m)

H. Locate the rubber grommet on the driver's side of the firewall. Make a small slice in the grommet. Insert the two wires through the grommet.

I. Remove the two plastic clips securing the under dash cover. Set aside the cover to be reinstalled in a later step. (See Fig 8-f).

J. Lift up the plastic door sill running across the door and remove. (See Fig 8-g). It will be reinstalled in a later step.

K. Route the fuel pump wires along the door to the fuel pump located under the rear seat. Remove the rear seat by lifting up on each side of the lower section (the upper section does not need to be removed). Secure the wire with the provided wire ties and wire loom.

L. Locate the factory fuel pump wires. Remove the tape from the wires. Seperate the blue with orange or blue with red depending on model year. (See Fig 8-i)

NOTE: Crimp on butt connectors are provided but it is recommended that all of the wire connections be soldered and insulated.

M. Cut the blue with red/orange trace wire and attach the red wire from the FPVB to the end that is going to the fuel pump. This wire will power the fuel pump.

Fig. 8-a

Fig. 8-b

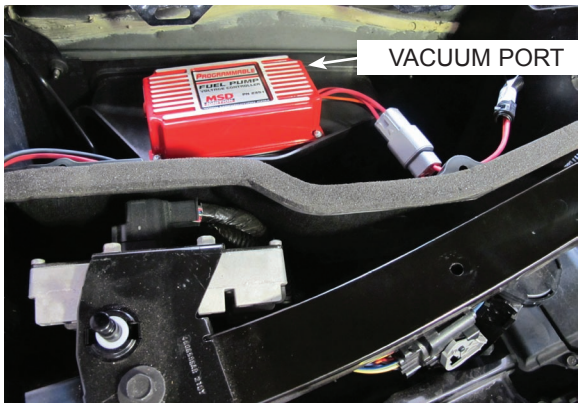



Fig. 8-c

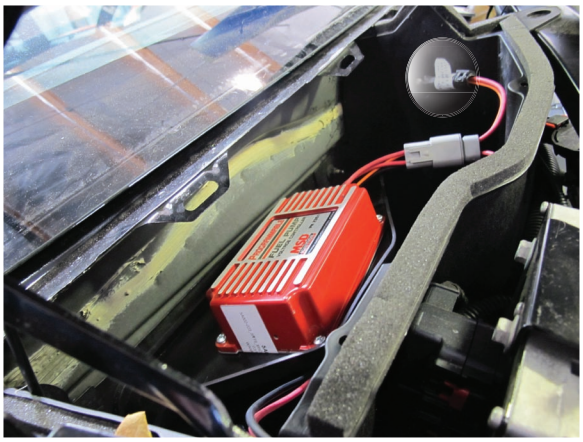


Fig. 8-e

## 8. FUEL PUMP VOLTAGE BOOSTER INSTALLATION con't

N. Attach the orange wire to the blue wire with red/ orange trace into the vehicle wiring harness.

O. Refer to the fuel pump wiring diagram that is provided for futher explanation if needed.

P. Reinstall the rear seat, door sill, and the under dash cover at this time.

Q. Route the red power wire and black ground wire through the firewall toward the fuse box. Cut the wires to proper lengths to attach to factory ground lug and factory power distribution box. (See Figs. 8-k and 8-l for closeup view ). Use supplied ring terminals, crimp and attach to the factory lugs.

R. Locate the 5 3/2" Vacuum hose connected in step 7D, refer back if needed. Connect the hose to the vacuum port on the FPVB, this will be the boost reference.

S. Reinstall the firewall cover and windshield wiper arms.

Fig. 8-f


Fig. 8-g

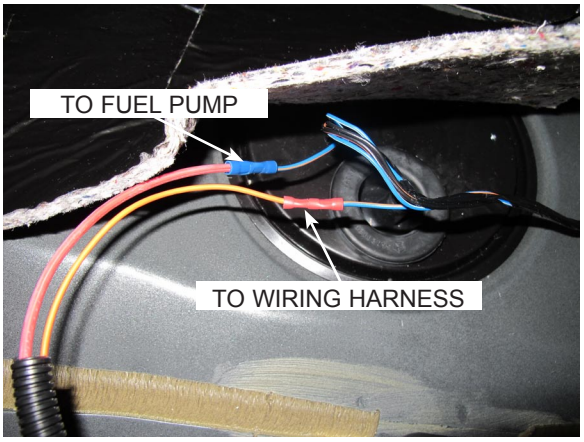



Fig. 8-h

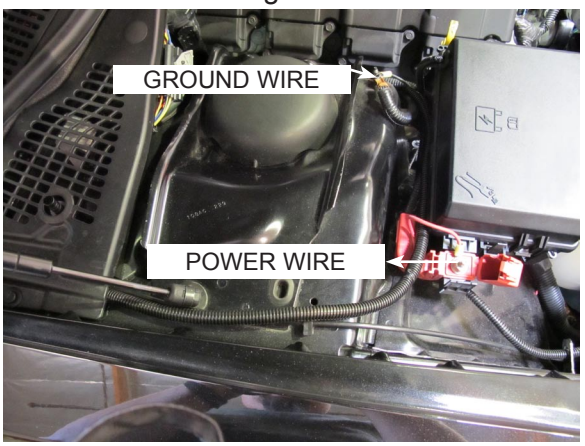



Fig. 8-i

## 8. FUEL PUMP VOLTAGE BOOSTER INSTALLATION con't

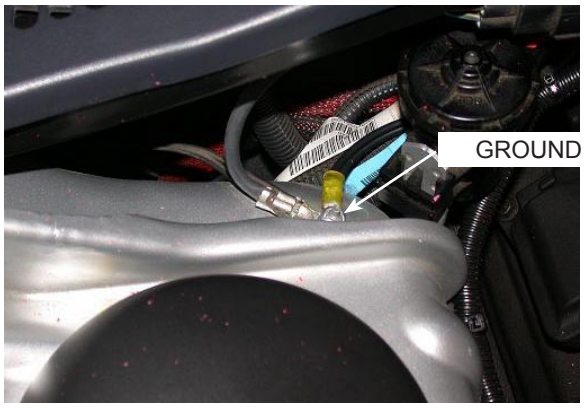



Fig. 8-k


Fig. 8-l

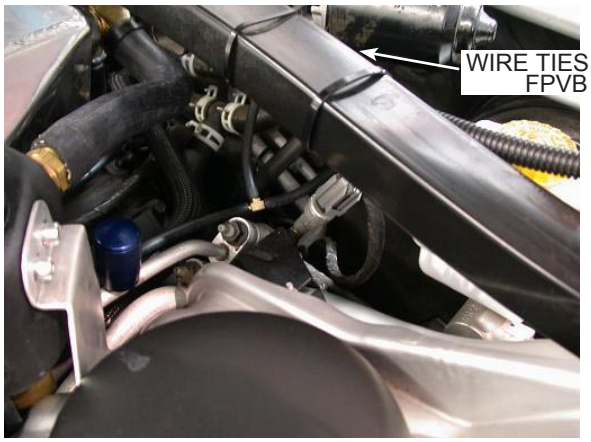
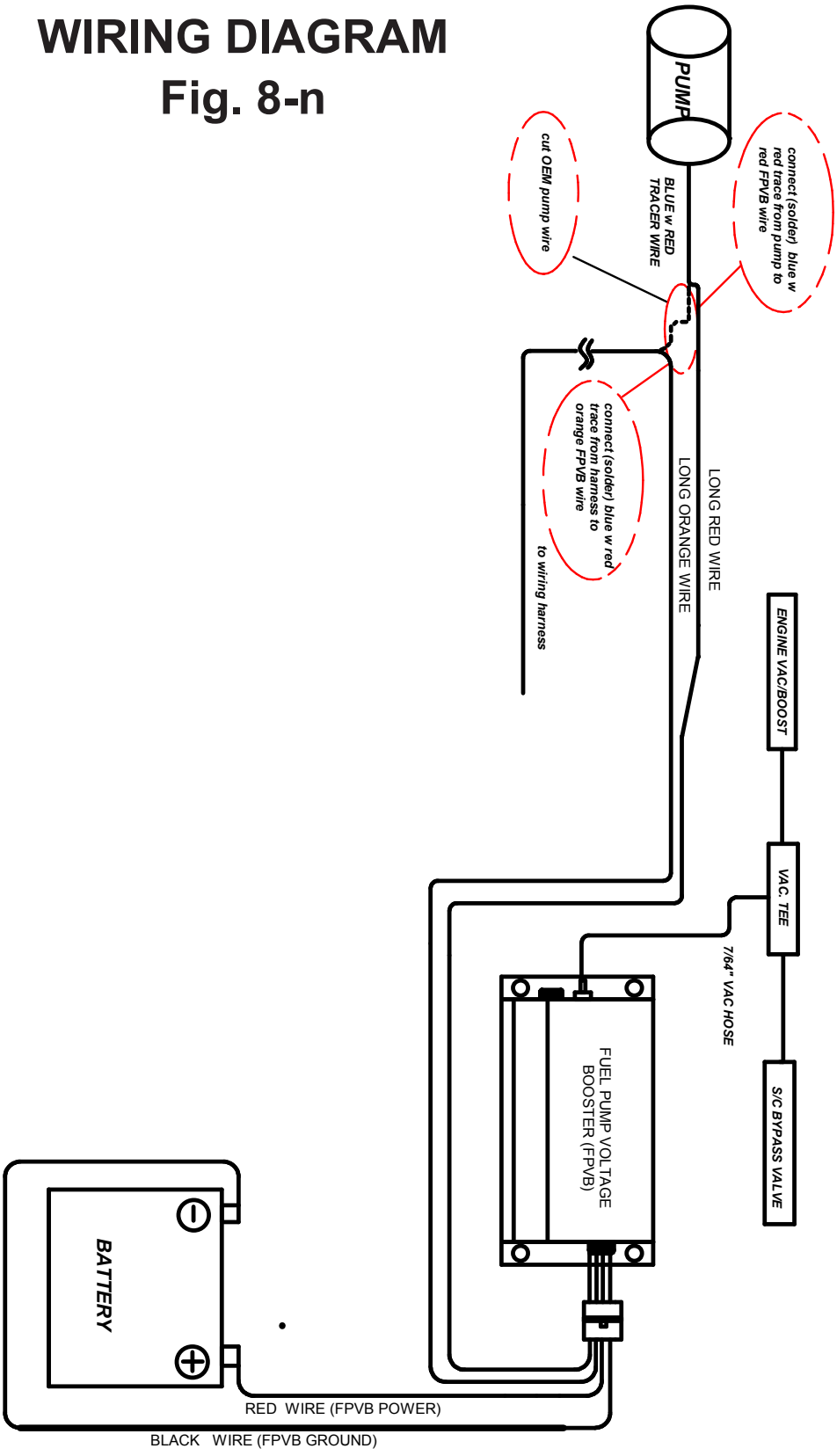



Fig. 8-m

## 8. FUEL PUMP VOLTAGE BOOSTER INSTALLATION con't

# WIRING DIAGRAM
# Fig. 8-n



## 9. REFLASH COMPUTER

**IMPORTANT!** To ensure trouble-free programming of your vehicle's computer:

- Make sure the vehicle's battery is sufficiently charged.
- Turn off all accessories and close doors to prevent unnecessary drain on the battery.
- Do not attempt to program your vehicle while a battery charger is connected.
- Improper battery voltage will result in failure of the programming process.
- Do not disconnect the cable or turn off the ignition during programming.

**A.** Reconnect the battery.

**B.** Locate the vehicles OBD2 connector located below the dash on the driver's side of the vehicle.

**C.** Attach the OBD2 connector from the Flash tool that is provided in the kit to the vehicle's OBD2 port. Make sure this connector is seated all the way in the vehicle's OBD2 port. You do not want this connector coming out during programming or damage may occur to the vehicle's ECM.

**D.** The Reflash tool should power up and display three parameters.

**1.** Performance Tune

**2.** Diagnostics

**3.** Options

**E.** Select "Performance Tune" and press the enter button in the middle of the arrow keys.

**F.** Read the disclaimer entirely, then select agree and press ENTER.

**G.** At this point follow the instructions on the screen displayed on the reflash tool. If you have any questions, either refer to the manual that is provided with the reflash tool or contact our service department for further assistance.

**H.** Turn the ignition on (*do not start the vehicle*). Set the parking brake and press the ENTER button to continue.

NOTE: Do not disturb the cable, or turn the ignition off during this time. If the programming is disrupted, the computer will not start or run your vehicle!


Fig. 9-a

**I.** SELECT TUNE will be displayed at the top of the screen. Use the arrow keys to select the appropriate tune for your vehicle and press the ENTER button. You will have a choice of two to choose from:

**1.** Vortech (used for installing kit)

**2.** Original Backup

**J.** Continue to follow the screen and when finished, unplug the reflash tool from the vehicle's OBD2 port.

P/N: 4CL020-010 v5.0, 10/05/2010

## 10. FINAL ASSEMBLY AND CHECKING

NOTE: This supercharger has been factory pre-filled with special synthetic lubricant. Oil does not need to be added to a brand new unit. However the following fluid level check should be performed.

A. Remove the factory installed flat head brass shipping plug (not the dipstick) from the top of the supercharger case.

B. Replace the sealed shipping plug with the supplied "vented" plug. Do not operate the supercharger without it.

C. Ensure that the .06" copper sealing washer is located on the dipstick base.

D. Thread the clean dipstick into the supercharger until it seats.

E. Once the dipstick has seated, remove the dipstick from the unit. Fluid should register in the crosshatched area on the dipstick.

F. DO NOT OVERFILL!! Drain excess fluid from the unit if it is above the maximum level on the dipstick. Install and tighten the dipstick in the gearcase.

G. If your vehicle has gone over 20,000 miles since its last spark plug change, it is a good idea to change the spark plugs now, before test-driving.

H. Make sure that the vehicle is filled with 91 octane or higher fuel before commencing test drive.

I. With key on, make sure charge air cooler water pump is operating and that water is flowing through the surge tank. Fill as necessary. If water is not flowing, remove the hose from the bottom of the surge tank and lower until water flows out of hose. This should prime the pump. Reconnect hose, verify water flow and top off surge tank. Do not run the water pump for extended periods (30 seconds or more) without water flow.

J. Check all fittings, nuts, bolt and clamps for tightness.

K. At this point it is OK to start the vehicle.

**WARNING**: DO NOT ATTEMPT TO OPERATE THE VEHICLE UNTIL ALL COMPONENTS ARE INSTALLED AND ALL OPERATIONS ARE COMPLETED INCLUDING FINAL CHECK. FAILURE TO DO SO MAY CAUSE PREMATURE FAILURE OF MAJOR COMPONENTS.

L. With engine running, check power steering hose connections for leakage. Let engine run for two minutes. Turn steering wheel in both directions.

Fig. 11-a


Fig. 11 -b

## 11. FINAL ASSEMBLY AND CHECKING con't

Verify:

- Smooth power assist
- Noiseless operation
- Proper fluid level
- No system leaks
- No bubbles, foam or discoloration in fluid

M. Verify that the gilmer belt is running smoothly. If wear is detected on the side of the belt, it is probably too tight. If it is vibrating excessively, tighten until there is minimal movement.

N. Turn off vehicle and recheck all fluid levels and verify that no hoses, wires, etc. are near exhaust headers or moving parts and that there is no fluid leakage.

O. Re-install the splash pan.

P. Test drive vehicle by gradually working up to full throttle and paying close attention to any abnormal sounds or engine detonation.

Q. Install the engine cover by trimming the driver side to clear the supercharger kit.

R. Read the STREET SUPERCHARGER SYSTEM OWNER'S MANUALAND RETURN THE WARRANTY REGISTRATION FORM within thirty (30) days of purchasing your supercharger system to qualify for the 3 year limited warranty.

**WARNING**: NEVER OPERATE YOUR ENGINE AT FULL THROTTLE WHEN THE ENGINE IS COLD. ALWAYS ALLOW PLENTY OF TIME FOR THE OIL TO REACH FULL OPERATING TEMPERATURE BEFORE RUNNING ABOVE 2,500 RPM. FULL SUPERCHARGER OPERATING TEMPERATURE IS GENERALLY ACHIEVED ONLY AFTER THE ENGINE WATER TEMPERATURE HAS BEEN AT THE NORMAL INDICATED OPERATING RANGE FOR TWO OR THREE MINUTES.

### V3 supercharger long term maintenance and care:

- CAUTION: Use of any fluid other than the Vortech supplied synthetic lubricating fluid will void the warranty and may cause component failure.

  Replacement Vortech SL lubricating fluid part numbers:

  009035: Package of three 4 oz. bottles
- 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 then be changed at least every 7,500 miles.

1. Drain the fluid, re-fill the unit only with 4 oz. of Vortech supplied synthetic lubricating fluid.
2. Confirm proper oil level using the dipstick. DO NOT OVERFILL!! (See steps 11-B through 11-E)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P/N: 4CL020-010 v5.0, 10/05/2010