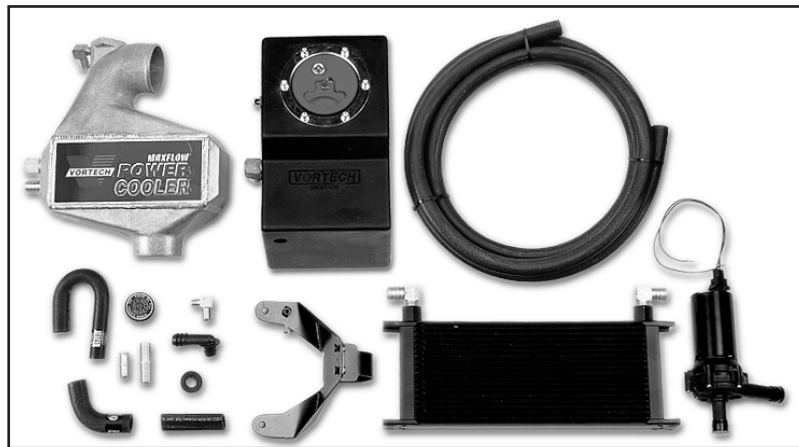


# Maxflow® Power Cooler™

## Installation Instructions



**1986 - 1993 Ford 5.0 Mustang**  
**Part# 8N301-010      CARB E.O.# D-213-15**

P/N: 8N201-010??  
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This product may not be legal for use on public roads in all 50 states.

**VORTECH**  
**ENGINEERING, INC.**



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Vortech Engineering, Inc. • 1650 Pacific Avenue • Channel Islands, CA 93033-9901  
Voice: (805) 247-0226 • Fax: (805) 247-0669 • M-F 8AM - 4:30PM (PST)  
[vortechsuperchargers.com](http://vortechsuperchargers.com)

# Vortech® Maxflow® Power Cooler® Installation Instructions

## 1986 - 1993 Ford 5.0 Mustang

***Congratulations on selecting the best performing and most efficient aftercooler today... the Vortech® Maxflow® Power Cooler™!***

Before beginning this installation,  
please read through this entire instruction booklet

The Vortech® Maxflow® Power Cooler™ System was designed as a street/strip oriented aftercooler, specifically for use on 1986 - 1993 Ford 5.0 Mustangs vehicles equipped with a Vortech Supercharger producing up to approximately 580 hp. The Maxflow Power Cooler System will fit and work equally well with other brands of centrifugal superchargers as well as turbochargers, with minor modifications.

As with any power enhancing product, this system is intended for use on healthy, well-maintained engines. **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 a note of the following key points:**

1. Use only premium grade fuel 92 octane or higher (R+M/2).
2. Always listen for any sign of detonation (pinging) and discontinue hard use (no boost) until problem is resolved.

IMPORTANT NOTE: If the vehicle still has the battery located in the factory position, it must be relocated into the trunk to make room for the water tank assembly. Vortech part no. 8N150-010 is a Heavy-Duty Battery Relocation Kit that may be purchased separately. Commonly available "universal" relocation kits may be used but they will most likely contain smaller cable. Additional fabrication may also be necessary when using a "universal" kit.

## TOOL & SUPPLY REQUIREMENTS

- Adjustable Wrench
- Open End Wrenches  
(5/16", 7/16", 1/2", 9/16", 3/4", 7/8" and 18mm)
- Flat #2 Screwdriver
- Phillips #2 Screwdriver
- Pipe Tape (Teflon®)
- Wire Cutters
- Wire Strippers
- Hack Saw
- Round File
- 1" Hole Saw
- Tape Measure
- Drill Motor
- Utility Knife
- 3/8" Ratchet
- 7/16", 1/2", 9/16", 8mm,  
and 10mm Sockets
- 3/16" Allen Wrench
- 1/2" Breaker Bar
- Soldering Gun
- Hammer
- 1/4" NPT Tap
- 7/16" Drill Bit
- Valve Cover Gaskets (optional)

# FORCEPOWER™ PARTS Basic Limited Warranty

Vortech Forcepower Parts carry a Ninety (90) Day LIMITED WARRANTY from the date of purchase from your dealer or Vortech. The part(s) must be used in the manner intended by Vortech. Any component found to be defective in either material or workmanship, will be replaced or repaired at our option, at no charge to the customer. This warranty does not include any part that is used for racing. **This warranty is nontransferable and is extended to original purchasers residing within the United States or Canada only.** The warranty excludes hoses and sleeves, as well as all electronic support components manufactured by any other company.

Vortech Engineering, Inc. agrees to honor any warranty claim at its sole discretion and **only after inspection by Vortech engineers at the Vortech factory.** No warranty will be honored if any Forcepower part being submitted for inspection is found to have been tampered with, improperly installed, or mishandled in any way. Claims for freight damage must be held against the freight company. NOTE: THE DURATION OF ANY AND ALL WARRANTIES ON FORCEPOWER PARTS ARE LIMITED TO NINETY (90) DAY DURATION OF THE EXPRESS WARRANTY. IN NO EVENT WILL VORTECH BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

If you require any additional details regarding Vortech warranties, please call at (805) 247-0226, M - F, 8:00-4:30 Pacific Time.

## WARRANTY/REPAIR PROCEDURE NINETY (90) DAY LIMITED WARRANTY

If the product should fail within the ninety (90) day warranty period as outlined above, follow the procedures below completely:

1. Phone Vortech directly (805) 247-0226 and be prepared with the following information:
  - A. Copy of the invoice on which the part was purchased.
  - B. Year, make, model, vehicle mileage and engine specifications of vehicle in which part is installed.
  - C. Description of perceived problem.
  - D. Mileage on Vortech product(s) - where applicable.
2. Once the information is given to Vortech as outlined in Warranty/Repair Procedure item 1 above, Vortech will either:
  - A. Issue you a RETURN AUTHORIZATION NUMBER or;
  - B. Offer suggestions to aid you in additional troubleshooting.

**NO RETURNS WILL BE ACCEPTED WITHOUT A RETURN AUTHORIZATION NUMBER APPEARING ON THE OUTSIDE OF THE RETURN CARTON.**
3. Once you are assigned a RETURN AUTHORIZATION NUMBER, you must box and carefully "safety package" the Vortech product(s) being returned. "Safety Package" means to pack each product within the box in such a way so that it will not hit other product(s) components, or the side of the box during shipping. The box must be strong enough to easily hold the weight of the product(s) plus the packaging and sturdy enough to maintain its shape during shipping.

**CLEARLY MARK THE RETURN AUTHORIZATION NUMBER IN 2" HIGH ALPHANUMERIC CHARACTERS IN 2 LOCATIONS ON THE BOX WITH A BOLD BLACK MARKER.**
4. Include within the box the following six (6) items:
  - A. A copy of the original invoice or receipt.
  - B. Your name, address and daytime phone number.
  - C. A description of the year, make, model and specification of the engine (noting ALL modification in detail), where applicable.
  - D. A description of the perceived problem or defect.
  - E. The RETURN AUTHORIZATION NUMBER.
  - F. The address to which the product is to be return shipped after inspection by Vortech.
5. Ship the properly safety packaged and marked box by UNITED PARCEL SERVICE (UPS), prepaid and insured for the retail value of the product(s) being returned for inspection, to the Vortech factory at:

**Vortech Engineering, Inc.  
Warranty Dept.  
1650 Pacific Ave.  
Channel Islands, CA 93033-9901**

6. If Vortech's limited warranty applies, your product(s) will be repaired or replaced at Vortech's option and returned to you freight prepaid, via UPS ground service. If the limited warranty does not apply, we will advise you of the specific reason for denial and tell you the costs involved in repairing your product(s). After relating such information we will, at your option, either proceed with repairs as quoted or return your product(s) to you in the state they are in at the time of inspection for warranty evaluation by UPS COD insured for the new retail replacement value. This means that you must pay any disassembly and/or inspection charges, return shipping and insurance charges if the Vortech limited warranty does not apply.

# Vortech® Maxflow® Power Cooler™

Part No. 8N301-010

1986 - 1993 Ford 5.0 Mustang

## PARTS LIST

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

### Air/Water Aftercooler Assembly (8N201-010)

PART NUMBER	DESCRIPTION	QUANTITY
8N101-010	Air/Water Aftercooler	1
7P500-078	1/2" NPT x 3/4" Hose Fitting	1
7P500-026	1/2" NPT to 3/4" 90° Barb	1
7P750-100	3/4" NPT x 1" Straight Hose Fitting	1
7P250-048	1/4" NPT x 5/8" 90° Barb	1
7U030-065	3/4" 90° Hose	1
7P375-075	3/4" Hose Barb	1
8N103-010	Oil Filler Assembly	1
8N102-010	Idler Air Control	1

### Oil Filler Assembly (8N103-010)

PART NUMBER	DESCRIPTION	QUANTITY
7U100-054	Crank Vent Grommet	1
7U100-056	90° Vent Tube	1
7U100-053	Oil Fill Cap	1
7U030-060	3/4" x 5/8" x 180° Hose	1
7U100-055	6" Nylon Tie Wraps	4
7P250-048	1/4" NPT to 5/8" 90° Barb	1
7U033-000	5/8" x 4" PCV Hose	1
7P625-002	5/8" Hose Barb	1

### Water Cooler Assembly (8N106-010)

PART NUMBER	DESCRIPTION	QUANTITY
8N006-010	Water Cooler	1
8N100-001	Nylon Mounting Kit	1
8N010-010	Pump Support	1
7A250-050	1/4" - 20 x 1/2" SHCS	2
7F250-021	1/4" - 20 Nylock Nuts	2
7J250-022	1/4" Washers	2
7C010-075	10-24 x 3/4" SHCS	2
7F010-024	10-24 Nylock Nuts	2
7J010-001	#10- Flat Washers	2

### Water Tank Assembly (8N155-010)

PART NUMBER	DESCRIPTION	QUANTITY
8N105-010	Water Tank	1
7U038-000	3/4" x 14 Feet Heater Hose	1
7U100-055	6" Nylon Tie Wraps	10
5W001-009	16-14GA Male Slides	2
5W001-010	16-14GA Female Slides	3
5W001-011	16-14GA Eyelet	1
5W001-002	Fuse Tap	1
5W014-010	6 ft. 14GA Red Wire	1
5W014-030	2 ft. 14GA Black Wire	1
7R007-001	Nylon Clamp, 1-1/8"	12
5W001-015	Fuse Blade	1
5W001-014	Fuse Holder	1
5W001-019	Solderless Connector, 10-12	1
5W001-040	12- 10 GA, Female Slide	1

### Idle Air Control Assembly (8N102-010)

PART NUMBER	DESCRIPTION	QUANTITY
8N004-011	Adapter	1
7A250-102	1/4-20 x 1" SHCS	2
8N005-020	Adapter Gasket	1
7J006-093	6mm Washers	2
7P250-048	1/4" NPT to 5/8" 90° Barb	1
7U033-000	5/8" x 15" PCV Hose	1
7U034-016	1" x 12" Gas Hose	1
5W001-007	3/16" x 8" Heat-shrink tube	1
5W018-010	18 GA Strd. Wire, Red	1
5W018-024	18 GA Strd. Wire, White/Yellow	1
5W001-006	3/8" Heat Shrink Tubing	1
7R001-008	#8 Hose Clamps	2

# 1. Preparation and Removal

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- A. Disconnect and remove the battery (if located in the factory position).
- B. Remove the supercharger discharge tube and bypass valve assembly.
- C. Remove and set aside the supercharger inlet elbow and flex tube.
- D. Remove the belt tensioner, the supercharger drive belt and supercharger. Set aside.

**NOTE: Temporarily cap oil feed and oil drain to protect your engine from foreign particles.**

- E. Remove the FMU, disconnect the lines noting their position for assembly.
- F. Remove the idle air control unit and throttle body linkage from the intake manifold.
- G. Remove the upper intake manifold and both valve covers.

**NOTE: The stock valve cover gaskets may have small metal spacers that could become dislodged from the gasket during removal. Check carefully to ensure that they are all accounted for.**

- H. Remove the front bumper cover and headlight assembly (optional).

**NOTE: Removal of the bumper cover is not required but will allow easier installation of the water cooler/pump assembly.**

## 2. Valve Cover Modification

**NOTE:** It is imperative that the supplied rubber grommets are fitted during the fabrication process and material is removed carefully.

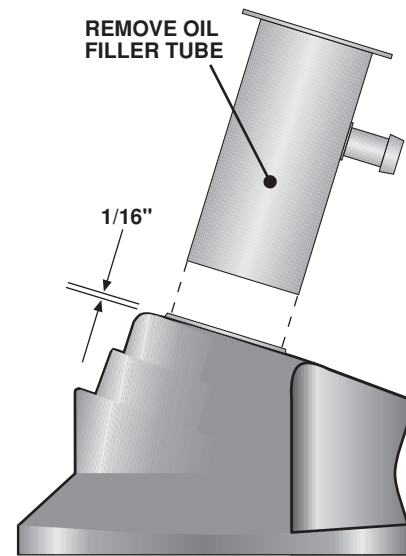
### Passenger side valve cover modification

- A. With a hack saw or a die grinder carefully cut off the oil filler tube shown.
- B. You should have approximately 1/16" of lip remaining.
- C. With a hammer, carefully fold the remaining 1/16" lip inward until a secure grommet fit is achieved.
- D. Grind or file the remaining oil filler flange square as shown in the graphic. Deburr and remove sharp edges.
- E. Thoroughly clean the valve cover ensuring that there are no chips or shavings in the internal oil baffle.
- F. Install the supplied rubber grommet and the 90° plastic crankcase vent tube, pointing toward the distributor. (See Photo)
- G. Using the new gasket (or old gasket if in good condition), reinstall the valve cover.

### Drivers' side valve cover modification

- A. To provide a hole for the new oil fill cap it is necessary to drill a hole in the top of the valve cover.
- B. Measure and mark the location to be drilled.

**NOTE:** The valve cover **MUST BE HELD SECURELY** or the hole saw will walk, creating an oval shaped hole, preventing a proper seal for the oil fill cap.



Passenger Side Front View

90° Vent Tube      1/4" NPT x 5/8" Barb

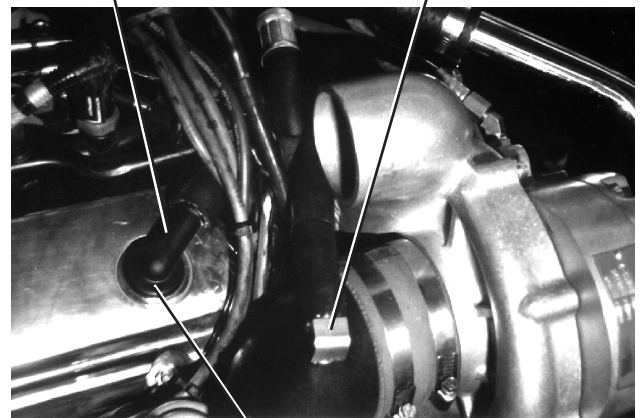


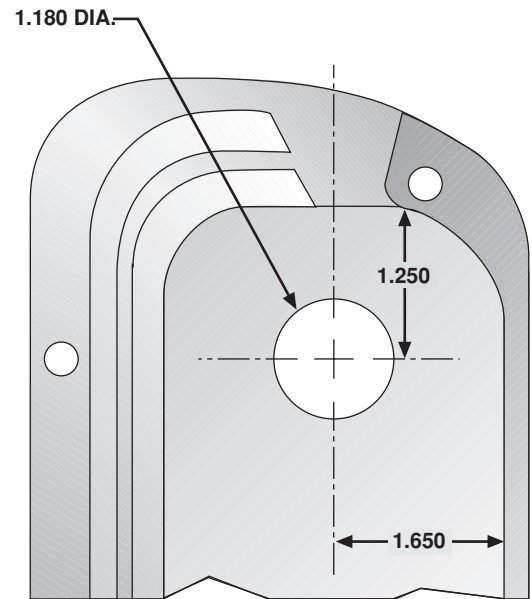
Photo - 1

Rubber Grommet

## 2. Valve Cover Modification

(continued)

- C.** Using a 1" hole saw, carefully drill into the top of the valve cover as shown in the graphic. Carefully finally fit the hole to the new oil cap using a round file. Bevel the opening, removing all burrs and sharp edges.
- D.** Thoroughly clean the valve cover.
- E.** Using a new gasket (or old gasket if in good condition), reinstall the valve cover.
- F.** Reinstall the upper manifold, throttle body and throttle linkage. Inspect and replace gaskets as needed.

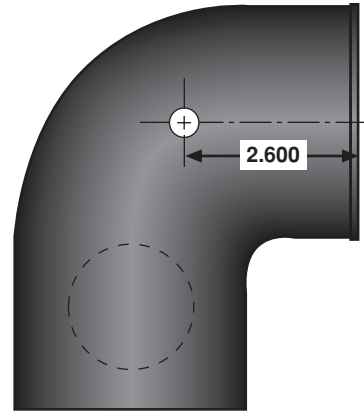




### 3. Inlet Elbow Modification

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- A. Carefully mark the inlet elbow as shown.
- B. Drill a 7/16" hole in the specified location, tap 1/4" NPT and install the 1/4" NPT x 5/8" barb x 90°.
- C. Orient the fitting as shown to approximately the one o'clock position.

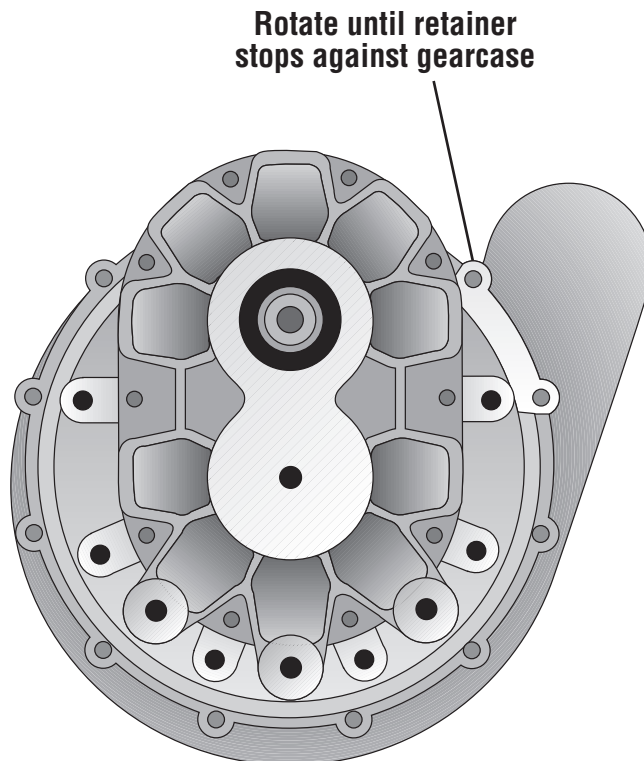


## 4. Supercharger Reclocking and Reinstallation

- A. Loosen and remove the six (6) 1/4-20 cap screws and retaining plates that hold the compressor housing to the gearcase.
- B. Carefully rotate the supercharger volute to the specified location as shown.

**NOTE: If the compressor housing does not rotate freely relative to the gearcase, DO NOT FORCE IT. SERIOUS SUPERCHARGER DAMAGE MAY OCCUR. The machined mating surfaces are designed to prevent pressurized air from escaping and have minimal tolerances. If the housing will not move or is very tight, contact Vortech Engineering immediately at (805) 529-9330 and ask for our service department for further assistance.**

- C. Evenly retighten the six (6) cap screws, torque to 5 ft./lbs.
- D. Reinstall the supercharger, securing the oil drain, oil feed and the air inlet elbow. The air inlet elbow must be rotated down to the 8 o'clock position to allow proper clearance for the aftercooler.
- E. Install the large end of the rubber 180° crankcase vent hose to the 3/4" plastic vent tube located in the passenger side valve cover and the opposite end to the 5/8" fitting located in the air inlet elbow. (See photo in step 2, page 2)
- F. Secure the hose ends with the 6" tie wraps provided.



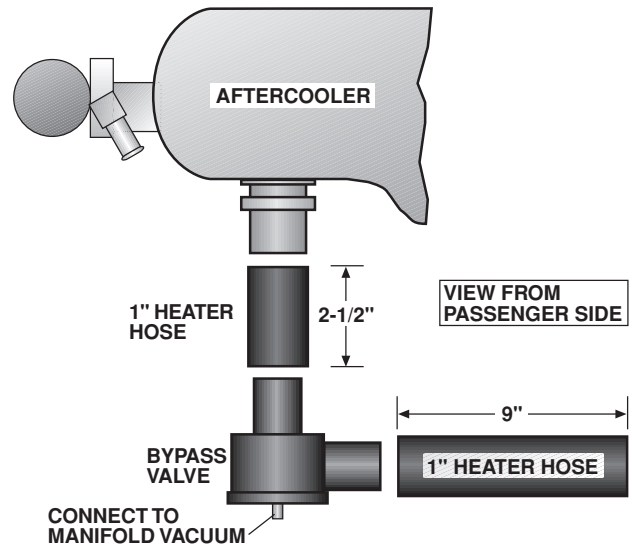
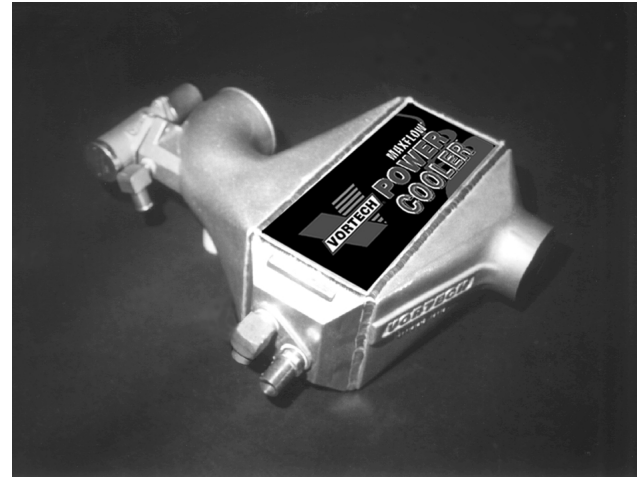
## 5. Idle Bypass Solenoid Relocation and Wire Extension

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- A.** Using the original 6mm bolts and gasket, install the cast aluminum Vortech idle air adapter in the position previously occupied by the factory idle air controller on the throttle body. The 5/8" fitting must be pointing downward.
- B.** From the 5/8" barbed fitting, temporarily route the 5/8" x 15" hose to the rear of the passenger shock tower and position out of the way.
- C.** The idle air controller plug harness must be extended to accommodate relocation onto the aftercooler. Carefully remove approximately 6" of the factory wire wrap.
- D.** Extend the connector by cutting the wires and soldering on the matching 12" extensions. Use the supplied shrink tubing to protect the soldering joints. Slip the tubing over wire before soldering and gently heat until tube seals joint.

## 6. Aftercooler and Idle Air Bypass Controller Mounting

- A. With the supplied gasket and 1/4-20 hardware, mount the idle air controller to the aftercooler as shown.
- B. Cut the supplied 1" hose into 2-1/2" and 9" lengths and attach to the supercharger air bypass valve (See graphic). Secure the assembly to the air inlet elbow with #16 clamps.
- C. Remove the silicone sleeves and clamps from the original discharge tube.
- D. Reinstall the 2-3/4" diameter silicone sleeve onto the supercharger discharge tube, slide the sleeve back as far as possible, leaving the two #44 hose clamps loose.
- E. Slide the 3" diameter silicone sleeve onto the aftercooler discharge, leaving the two #48 hose clamps loose.
- F. Secure the 1" supercharger air bypass hose assembly to the plastic 1" fitting on to aftercooler discharge.
- G. Slide aftercooler into the position and secure the silicone sleeves and clamps.
- H. Secure the 5/8" hose with the #8 hose clamp onto the 5/8" x 90° fitting located on the Maxflow® Power Cooler™.



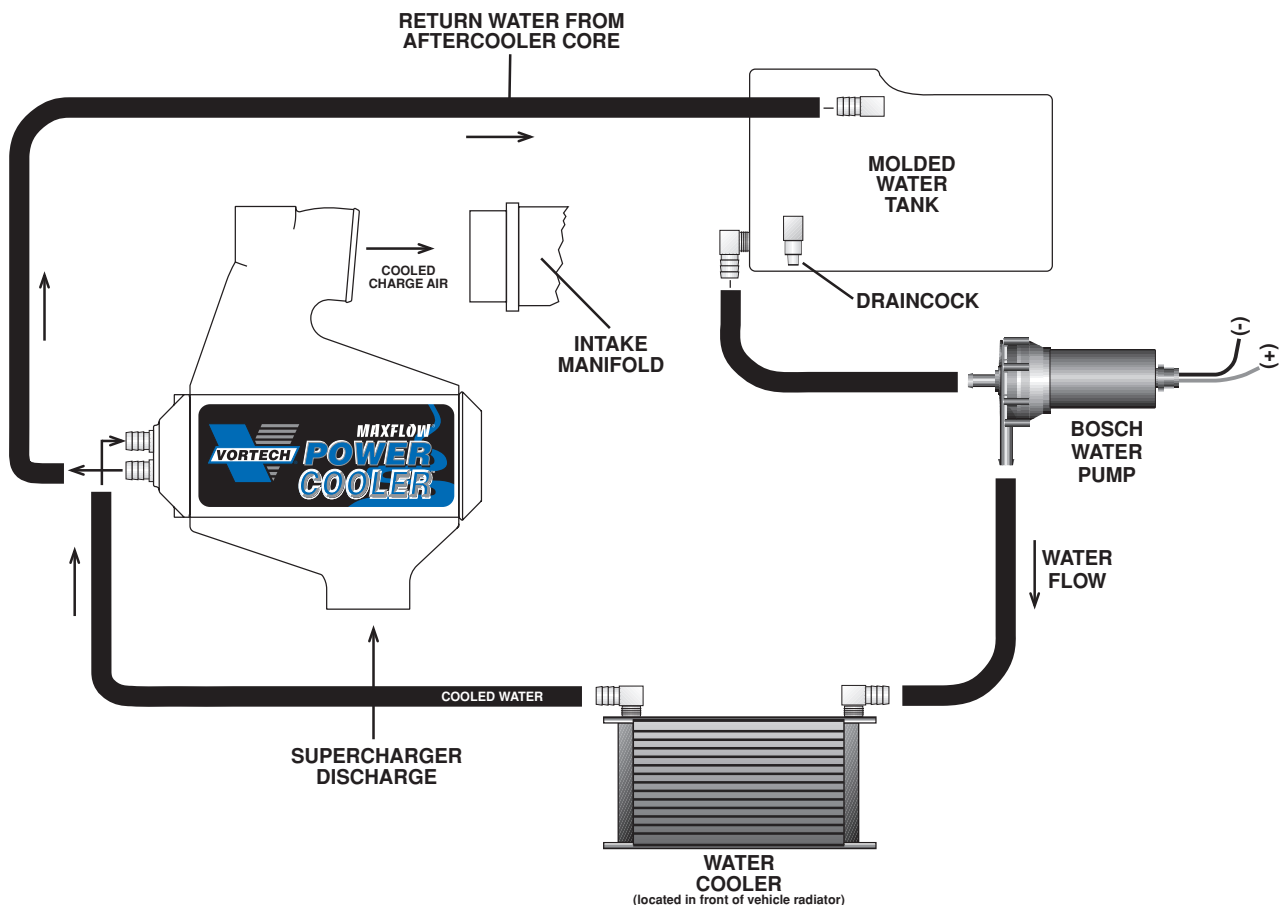
# 7. Water Tank Mounting/Plumbing Schematic

- A. Place the water tank in the tray previously occupied by the battery. (See Photo)
- B. Cut 66" length of 3/4" hose and temporarily attach to the water return fitting on the tank. Route back against the firewall and over the passenger side shock tower.

**NOTE: Do not secure the water return hose until the system has been purged of air. See step 9E (NOTE).**



- C. Attach the smaller of the two 3/4" 90° hose bends to the forward most aftercooler fitting. Following the diagram, join the 90° hose bend to the return line using a hose union and secure with clamps.
- D. Use the stock battery hold-down block and bolt to secure the water tank.



## 8. Water Cooler Assembly Mounting

**NOTE: To avoid damage to the water cooler and the air conditioning core, it is recommended that the entire front bumper skin be removed for easy access prior to the installation of the water cooler assembly.**

- A. Using the provided nylon mounting rods, mount the water cooler to the front of the radiator/air conditioning core and secure. Make sure that the cooler is positioned so that it will receive unobstructed air from the front of the vehicle.
- B. Cut and attach a 42" section of 3/4" hose to the passenger's side fitting on the water cooler and route to the 90° fitting on the aftercooler. Trim ends appropriately and secure both ends with the nylon ratchet clamps.
- C. Connect the wiring harness to the water pump. Following the diagram, position the water pump and bracket on the inner frame rail, as far forward as possible. Using the mounting bracket as a guide, mark the positions on the frame rail that are to be drilled. Drill the mounting holes and attach the water pump with bracket to the frame with the supplied #12 hardware. **NOTE: See new supplement diagram.**
- D. Attach the 3/4" 90° hose bend to the pump inlet. Cut a piece of the 3/4" hose approximately 8" in length and connect one end to the lower 90° fitting on the water tank. Install a 3/4" hose union into the opposite end and connect to the previously installed hose bend on the water pump.
- E. Cut a 54" length of 3/4" hose and attach to the outlet of the water pump. Route line toward front of vehicle and connect to the driver's side of the water cooler assembly and secure with clamps.
- F. Secure hoses with provided tie wraps.

**NOTE: Hoses must not be kinked or restricted, route away from moving parts and direct engine heat.**

- G. After all hoses have been connected and secured, remount the FMU in a new position to clear all water lines and fittings.

## 9. Water Pump Wiring

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- A. Using the factory ground lug between the inner fenderwell and the water tank, ground the black wire coming from the water pump.
- B. Route the red wire through the firewall to the fuse panel.

**NOTE: Do not attach the red wire to power until the water tank is full of water, running the water pump without water will lead to premature failure and void your warranty.**

- C. With a test light find 20 amp, fused, key-on power. Remove the fuse and install the provided fuse tap on fused side and reinstall the fuse, check again for power. (The heater blower motor fuse works well.)
- D. Fill water tank with 25% antifreeze and 75% water up to approximately 3" from the top.
- E. Turn the ignition key to the "on" position and check that water is flowing through the system. Fill tank to one inch below filler ring.

**NOTE: In many cases, the water pump must be primed on initial start-up. This may be accomplished by turning on the pump, removing the RETURN line from the tank and providing light suction on the hose to remove the air in the system.**

# 10. Final Check

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

- A.** Check all fittings, hoses and clamps for tightness and leaks. Make sure all wires and lines are properly secure with clamps or tie wraps.
- B.** Make sure all wires and hoses are routed away from hot, moving or sharp objects.
- C.** Double check to ensure water is flowing through the system.