928 Motorsports Supercharger Installation

Porsche 968 1992-95
Stage I Supercharger Kit

928 Motorsports Supercharger Installation

Toll-Free Tech Hot Line:

877-FOR-928M

877-367-9286

Please do not copy this manual and give copies to your friends.

Our ability to bring you this supercharger kit at this price relies on our customers coming to us for our knowledge and experience in supercharging these cars.

Much of this information was hard to acquire and the product of multiple trials and errors. Please do not give any section of this manual to your friends, but rather, encourage them to contact 928 Motorsports, LLC for their own kit.

Thank you for your cooperation.

968 INSTALLATION OUTLINE

We will be performing these tasks in this order.
This will allow for the smoothest possible installation with the least repetition.

REMOVE AIR FILTER HOUSING

REMOVE MAF SENSOR AND RUBBER ELBOW

REMOVE UPPER RADIATOR MOUNTS

REMOVE STOCK RADIATOR FANS

REMOVE ALL BELTS

REMOVE CLIP IN BELT COVER

REMOVE ENGINE LIFT HOOK, MODIFY BELT COVER

REMOVE ALTERNATOR BOLT, INSTALL IDLER PULLEY

INSTALL NEW RADIATOR FAN

INSTALL NEW UPPER RADIATOR MOUNTS

MODIFY UPPER RADIATOR HOSE

INSTALL PRIMARY SUPERCHARGER BRACKET

INSTALL SECONDARY SUPERCHARGER BRACKET

HANG SUPERCHARGER

INSTALL BELTS

MODIFY PCV SYSTEM

INSTALL SUPERCHARGER-TO-THROTTLE BODY TUBING

INSTALL SUPERCHARGER INTAKE TUBING AND BOV (Blow Off Valve)

LENGTHEN MAF SENSOR WIRING HARNESS

INSTALL AIR FILTER

INSTALL FMU (Fuel Management Unit)

INSTALL RAPTOR COOLER

START AND TUNE THE ENGINE

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PREPARATION:

We recommend that you steam clean or power wash your motor before beginning the supercharger installation. It's more fun to work on a clean motor than a greasy one.

NOTE: “Left” and “Right” are used in this manual frequently. Left and Right are always from the perspective of sitting in the car.

Remove Air Filter Housing:

The first thing we will have you do is remove some items to make room for your supercharger kit. Lets start with the Air Filter Housing.

Remove the bolt that holds the air filter housing down at the front here:

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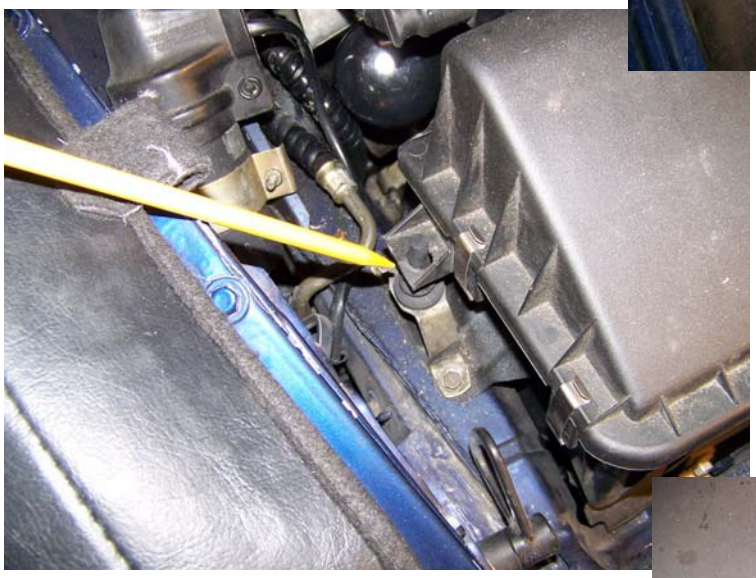
Unhook the spring latch between the air filter housing and the MAF sensor here:



Lift the air filter assembly up and off the rubber mounts on each side that it sits on, and out of the car.

Start a box or a bin in your garage now for parts that will not be going back on to the car.

This air filter assembly goes in it.

Someday, if you decide to return your 968 back to stock, you will need these parts.

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Remove Mass Air Flow (MAF) Sensor:

Now that the air filter assembly is out of the way, we can remove the MAF sensor and mounting boot. These are the items indicated by yellow arrows here:

Start by loosening the clamp shown by the blue arrow and pull off the MAF sensor.

Disconnect the wiring harness from the side of a MAF by unlatching the wire bail shown here:

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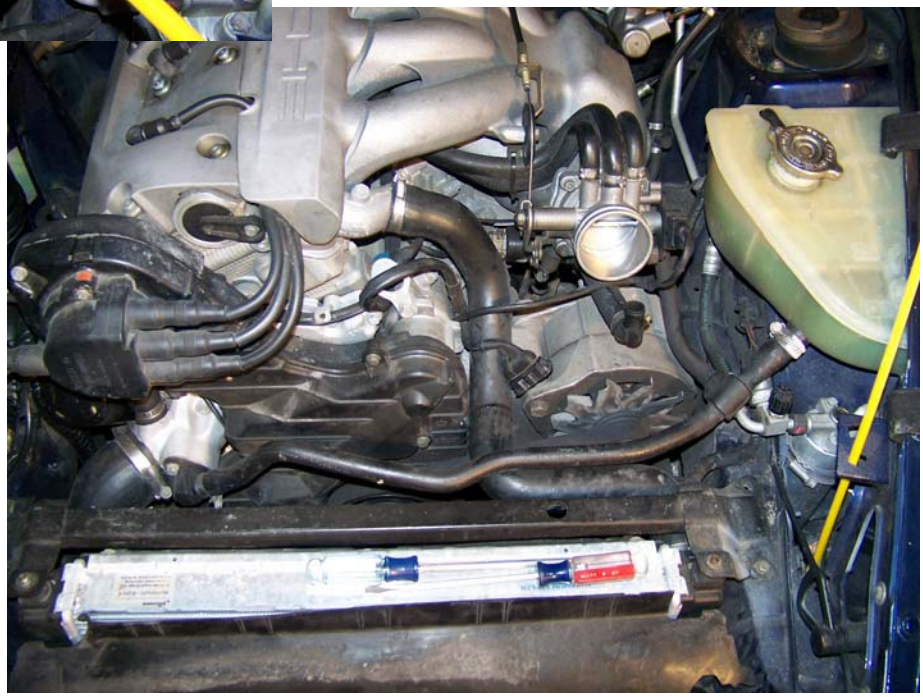
Now there are two clamps to loosen on the remaining rubber boot.

The first is shown by the blue arrow here:

...and the second is under the rubber boot shown here:

Your engine bay should look like this now:



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Remove Upper Radiator Mounts:

Remove the bolts on each end of the radiator crossbar, and remove the radiator crossbar from the vehicle.

We will need these bolts again on Page 17.

Also remove the bolts that hold down the air filter assembly rubber mounts and remove them too.

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Remove Stock Radiator Fan:

Time to remove the old stock radiator fans. We will be replacing them with a new fan later.

Remove the two mounting bolts in the upper corners of the radiator that hold the fan to the radiator

Unplug the wiring harness from the fan motors. Lift the fan assembly out through the top, loosening the clips that hold the wiring harness to the fan shrouds where shown.

This fan assembly will not be going back in the car.

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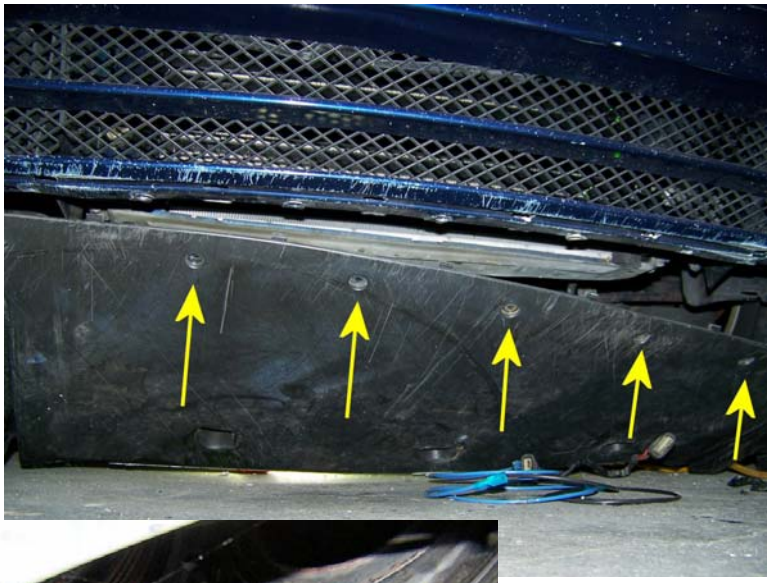
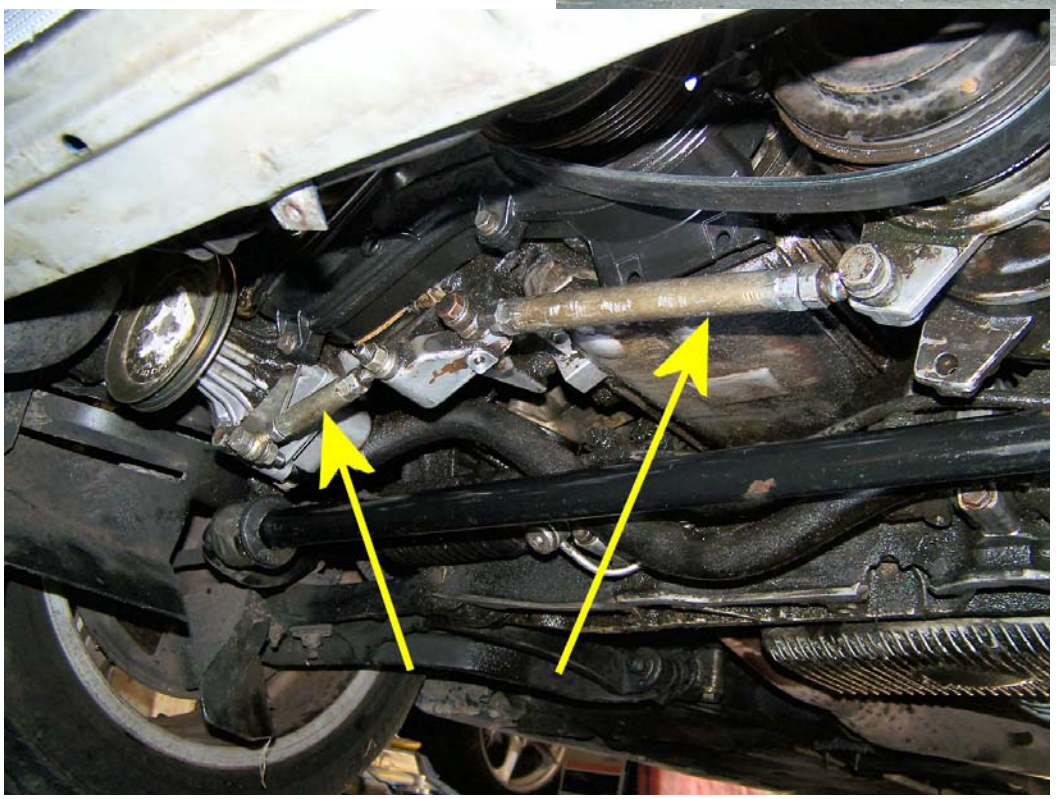
Remove All Belts:

Time to remove the Power Steering and the Air Conditioner/Alternator belts.

Access to the belt tensioners is easy once the lower front valance is removed.

Remove all the screws that attach the lower front valance to the bottom of the front bumper as shown, and set the valance aside. It will be going back on the car later.





Turn to the next page before proceeding.

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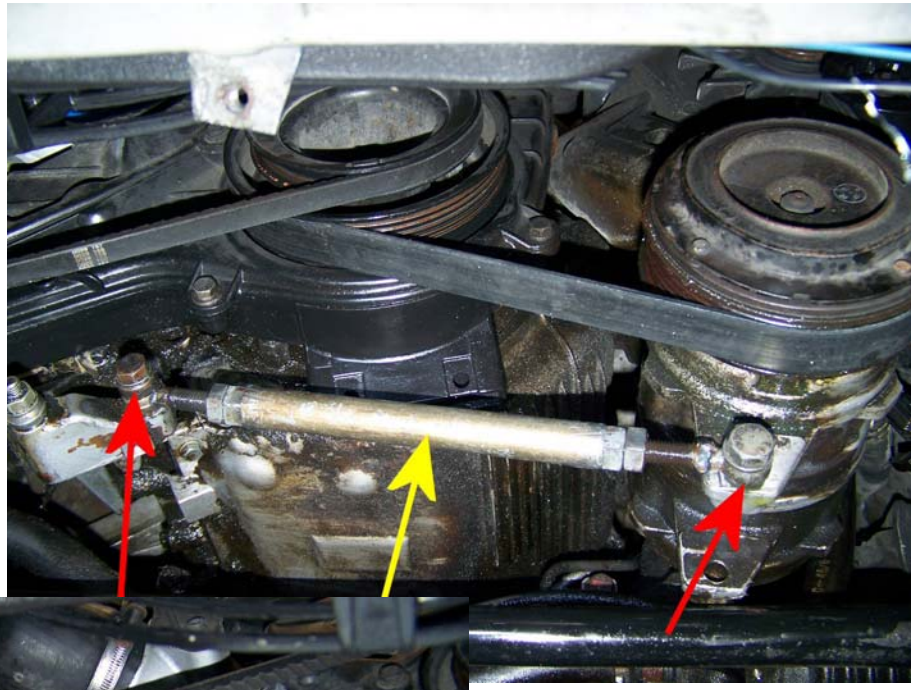
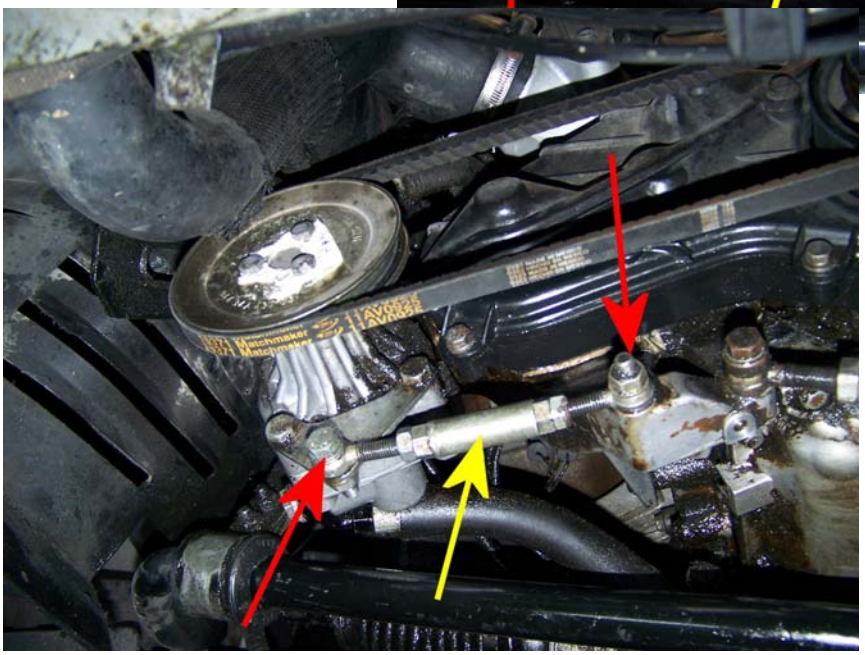
Remove All Belts (continued)

Loosen **both** the pivot bolt *and* the jam nuts on both ends of the turnbuckle when loosening these belts. If a previous mechanic has over-tightened the pivot bolts (common) and you do not loosen them before adjusting the tensioner, you can crack the mounting tabs on the alternator and the power steering pump.

Loosen the pivot bolts (RED ARROWS) and then loosen the jam nuts on each end of the turnbuckle (YELLOW ARROWS) and turn center section of the turnbuckle.



Air Conditioner and alternator belt:



Power Steering pump belt

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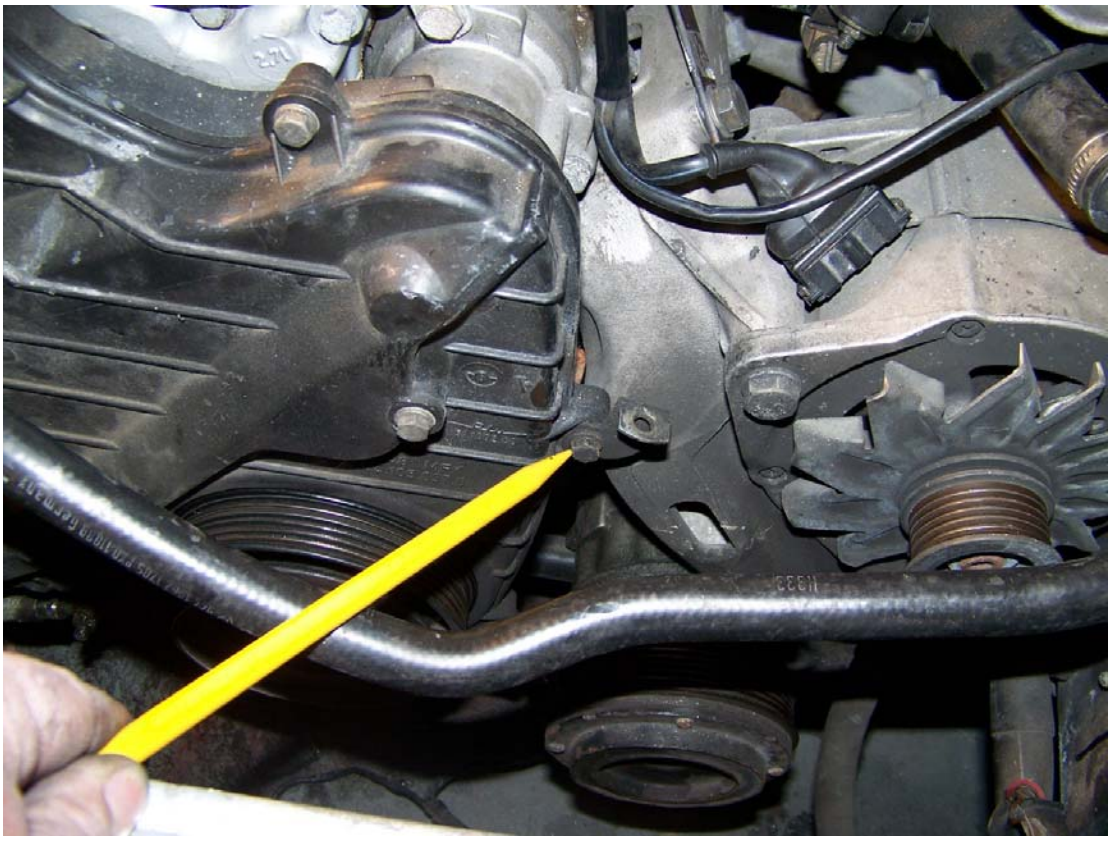
Remove Clip on Timing Belt Cover:

Locate the clip on the timing belt cover shown in this picture. Remove the bolt holding it on, remove the clip, and put the bolt back in. The clip will not be going back on.



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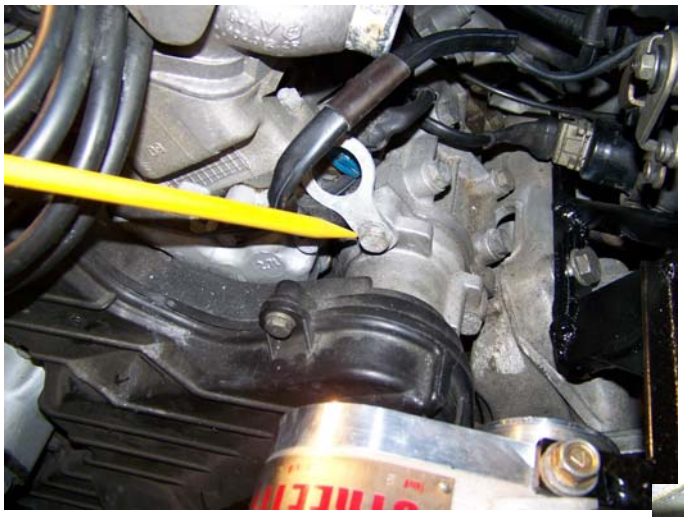
Remove Engine Lift Hook, Modify Cover:

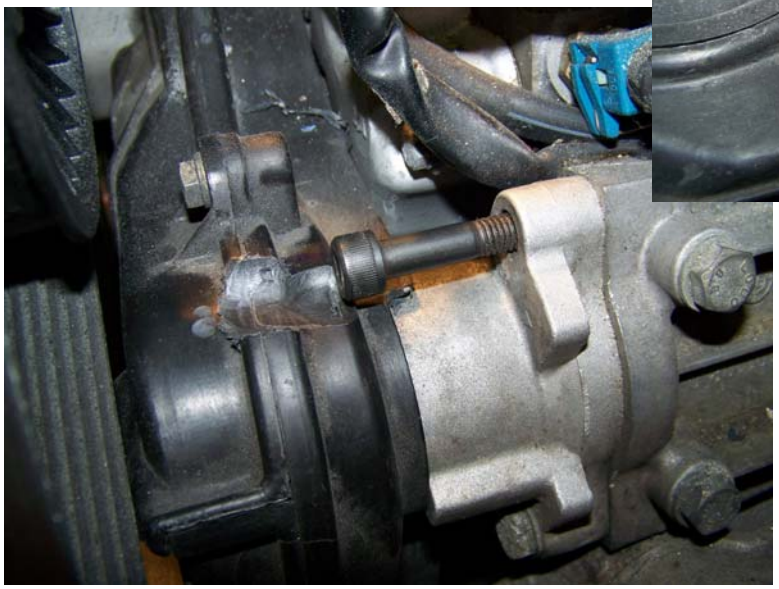


Locate the engine lift hook as shown in this picture. Remove the bolt that holds it on, and remove the lift hook. It will not be going back on. In its place we will be mounting the Secondary Supercharger Bracket.

The new bolt we will be using is longer than the bolt you just removed.

You must modify the plastic belt cover to allow the new, longer belt to slide into place.

This can be done with a Dremel tool, a round file, or a die grinder.



Create a trough in the plastic that allows the bolt to come and go.

When you can slide the new longer bolt into the threaded hole, you have done enough.

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Replace Crankshaft Pulley (Stage II kits only)

The crank pulley stack is changed on 968 Stage 2 kits. You will find that the pulley stack is held on to the harmonic balancer with a ring of small bolts, so you do not have to remove the crank pulley itself.

Remove the stock pulley stack and replace it with the 928MS pulley stack. It is recommended to replace the bolts with a drop of Loctitie blue on each one.

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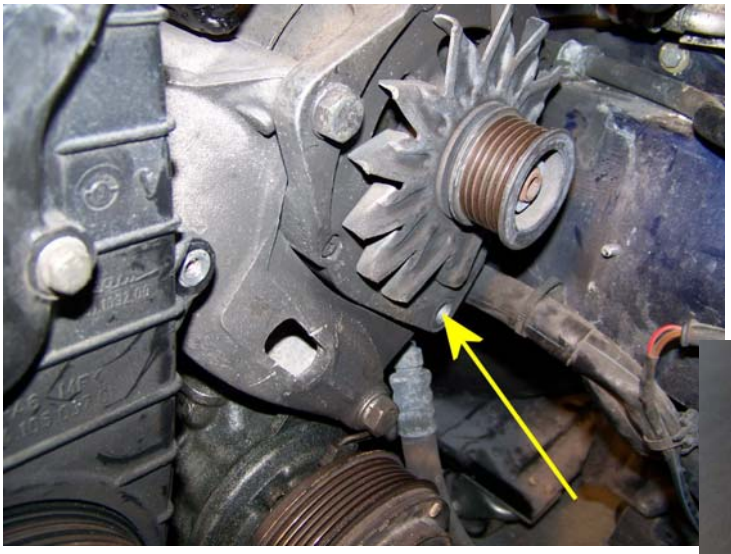
Remove Alternator Bolt, Install Idler Pulley:

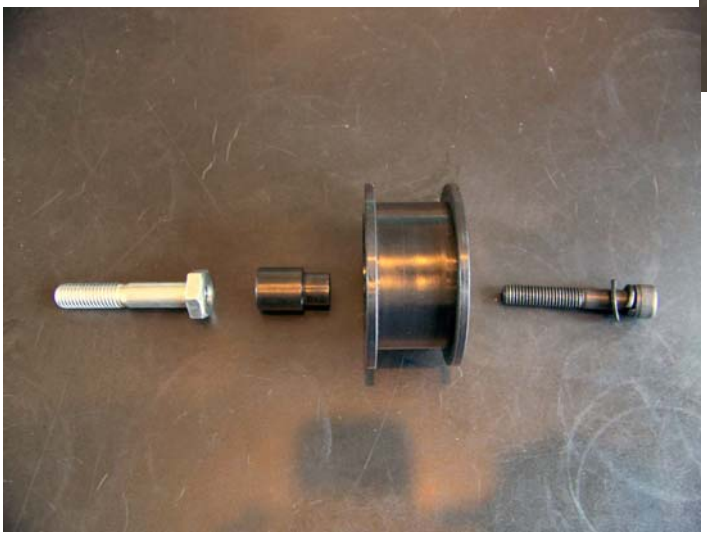
One problem that the 968 has is very little belt wrap on the alternator pulley. This causes the 968 owner to over-tighten their alternator belt (which often breaks the belt tensioner turn-buckle), or suffer with poor charging.



We can correct that by installing our 968 Idler Upgrade (provided) to increase belt wrap on the alternator.

Remove the lower alternator mounting bolt as shown. (Don't worry, the alternator will not move and is held in place by the upper bolt)

Find the special alternator bolt provided that looks like this and install it.



Here is a picture of the Idler Pulley Upgrade exploded so you can see which pieces go in which direction.

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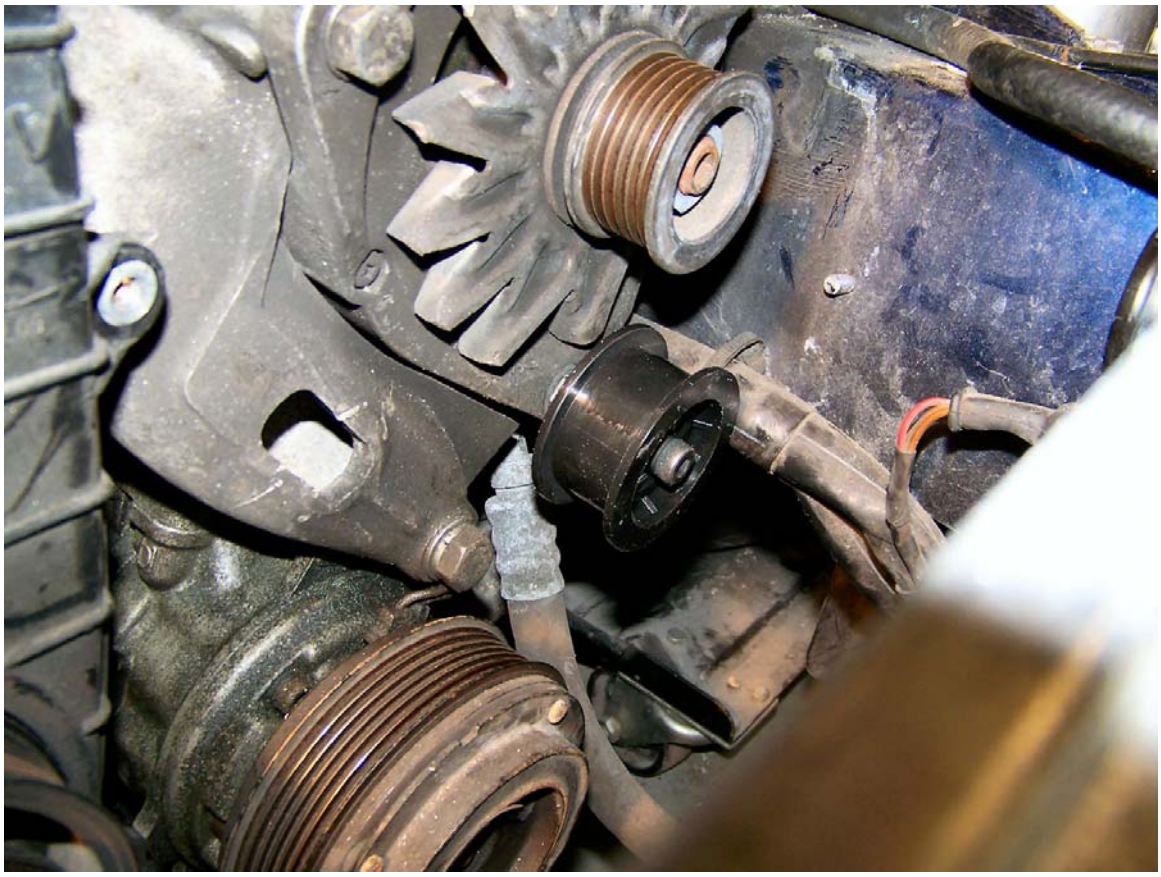
Now install the Idler Pulley by mounting it onto the special alternator bolt.

This is the finished installation of the Idler Pulley Upgrade.

Now you have more belt wrap on your idler pulley, and do not have to over-tighten the belt just to stop slippage!



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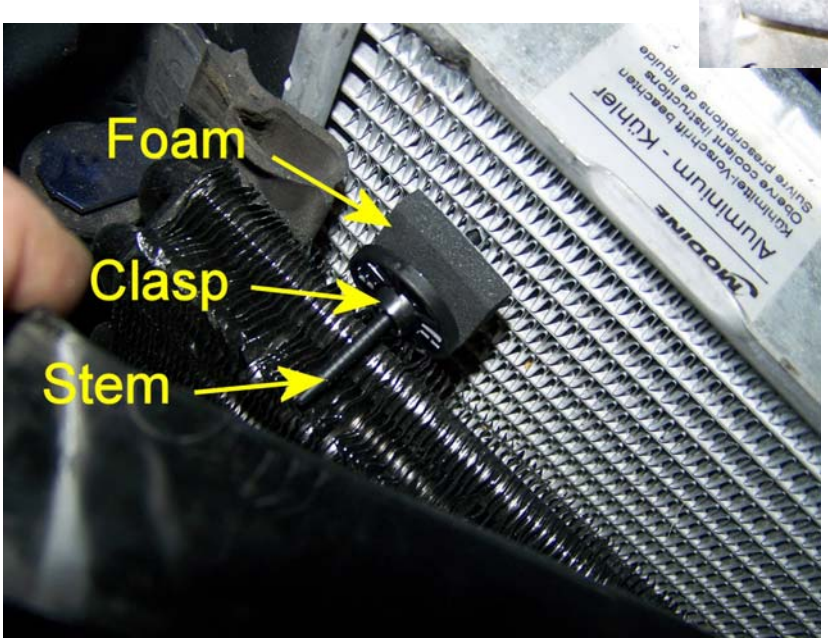
Install New Radiator Fan:

Time to install your new high-output radiator fan provided. The fan is already equipped with a shroud and a seal around the perimeter for you.

Position the fan on the inside of the radiator on the right end of the radiator.

NOTE: Left and Right are always from the perspective of sitting in the car.

Place the retainer through the mounting holes in the fan shroud and through the cooling core of the radiator.



On the front, add the foam squares provided and the retaining clip.

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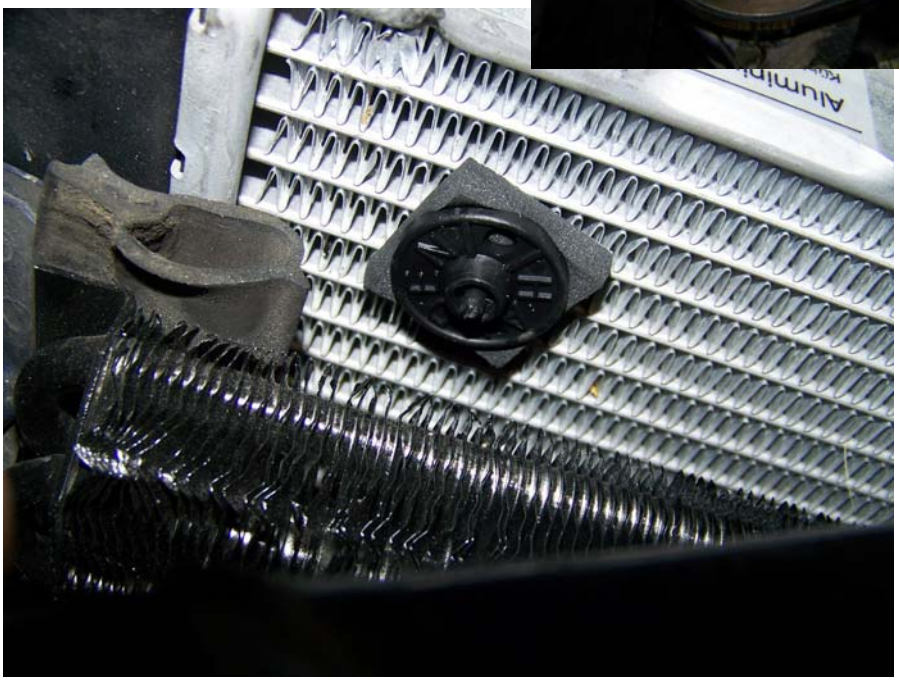
Locate all of the retainers before adding the retaining clips to be sure you can clear the air conditioning compressor on the other side.



After they are all pulled tight, trim off the excess stem with a wire cutter.

Wire the new fan now into the existing fan wiring harness you unplugged before.

There are two connectors from the two old fans that you can choose from. The connector closest to the left side is the low temp fan, and that's the preferred one to use.

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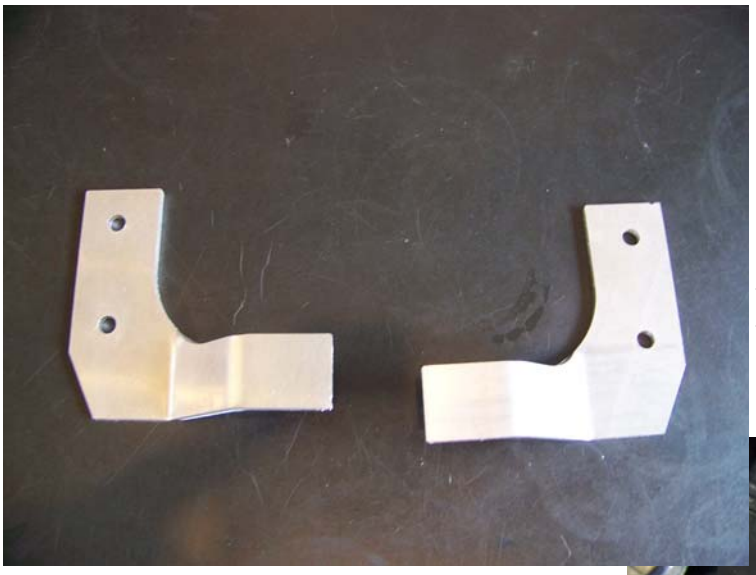
Install New Upper Radiator Mounts:



Locate the new L and R upper radiator mounts from your kit.

In order to make room for the super-charger, we are going to tip the top of the radiator further forward than it used to be.

Lay them in place as shown. You will note that we are re-using one of the factory threaded holes, and the second hole will need to be drilled.

Insert the factory bolts you removed ear-lier through the new mounts and snug them up to hold the location of the mount. Tip the top of the radiator forward as far as you can.

Now drill the second hole into the frame (using our mount as a guide) and insert the special self-tapping screw provided.

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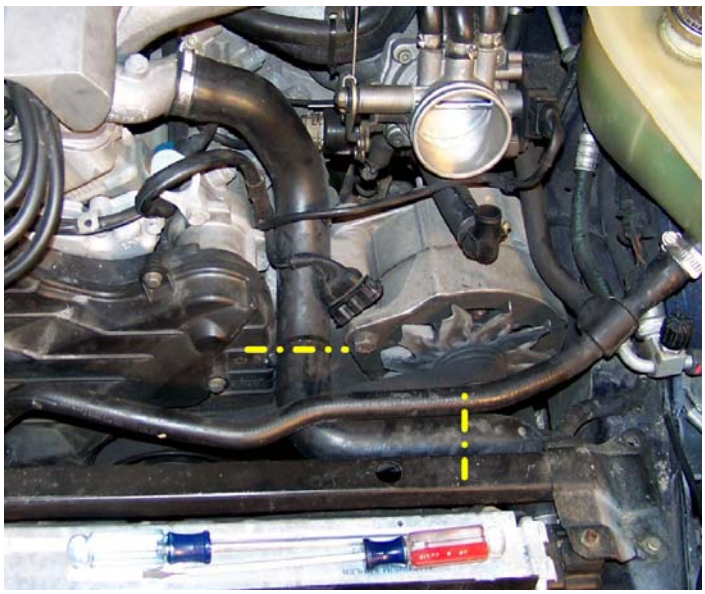
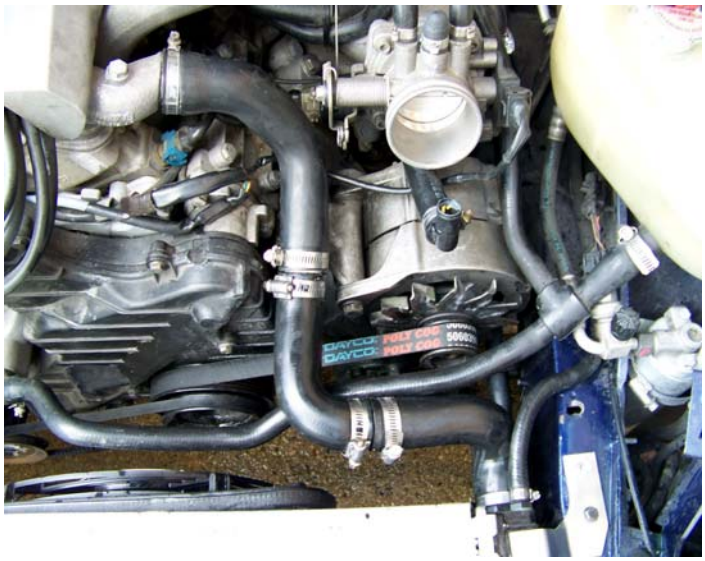
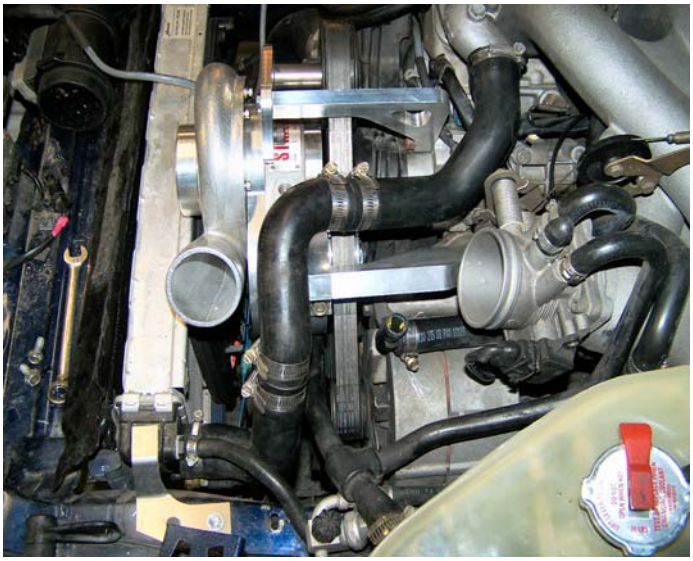
Modify Upper Radiator Hose:

The object here is to flip just the center section of the radiator hose around. Cut the stock radiator hose at the spots shown by the dotted yellow lines below. Insert the aluminum hose splices provided into each end and secure with clamps. Flip the section over, and put it back into place. Loosen the hose clamp at the radiator and rotate the hose down somewhat also.







This will provide the clearance you need for the supercharger head unit and mounting brackets.

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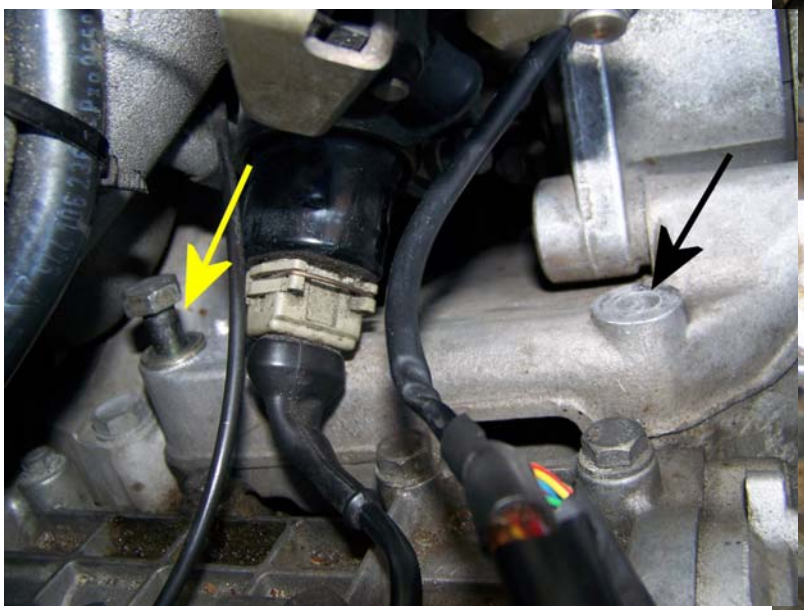
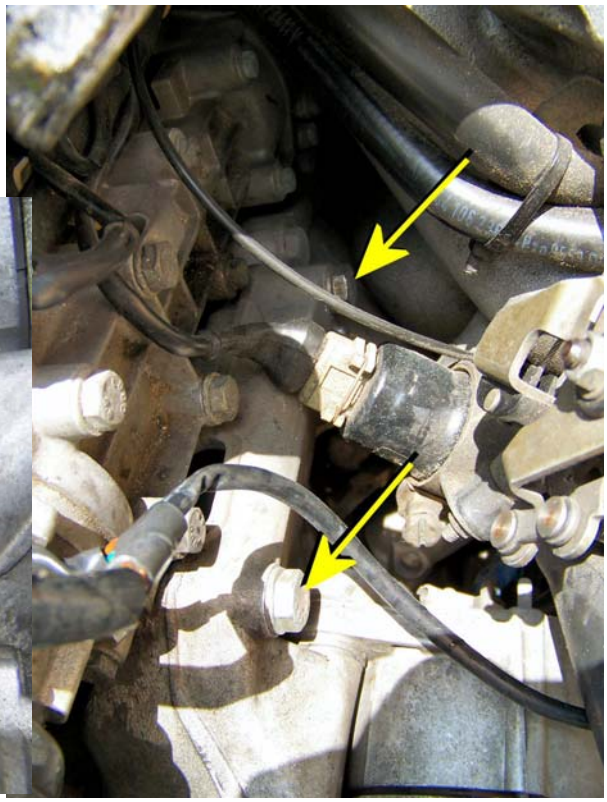
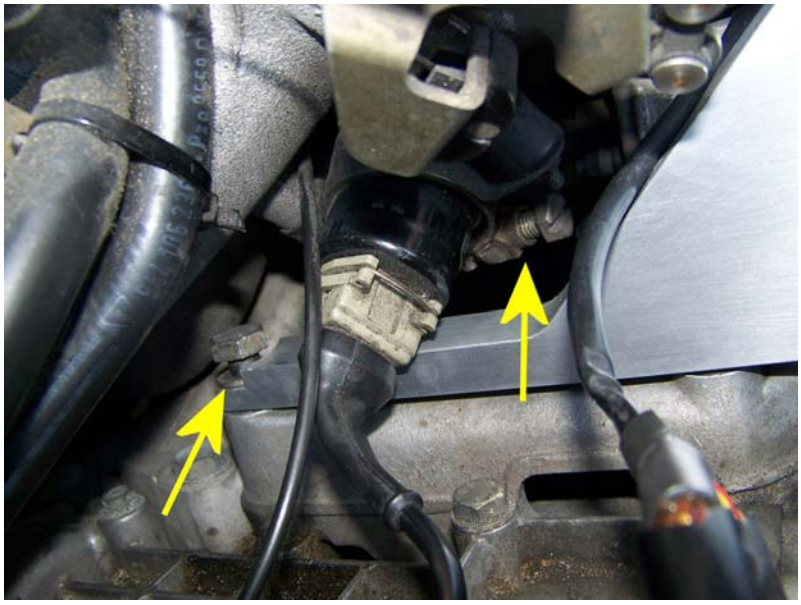
Install Primary Supercharger Bracket:

Locate the two large bolts shown below on the side of the engine. They are in the valley between the engine block and the throttle body.







Remove the bolt at the front completely, and loosen, but do not remove, the bolt at the back as shown. Also loosen the bolt that holds the Idle Air Controller so that the Idle Air Controller is loose in its clamp.

Slide the Primary Supercharger Bracket under the Idle Air Controller and under the rear mounting bolt as shown. The front bolt that you removed gets replaced with the longer bolt of the same size provided in your kit. Spin the bolts down, but do not put a final torque on them at this time. The idle air controller mount does not get re-tightened.

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Install Primary Supercharger Bracket (continued)

This picture shows the Primary Supercharger Bracket Installed.

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Install Secondary Supercharger Bracket

This picture shows the Primary Supercharger Bracket Installed.

The M8 socket-head bolt 50mm long provided in your kit goes through the hole in the bottom of the bracket and into the block where we removed the engine lifting hoop earlier (**Remove Engine Lift Hook, Modify Cover**).

Snug the bolt, but do not put a final tighten on it at this time.

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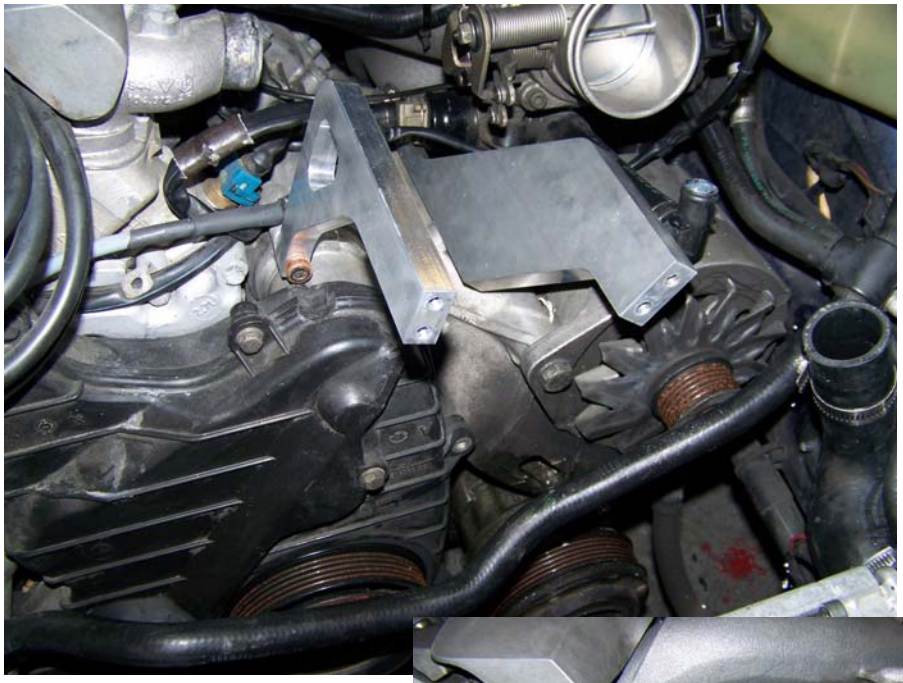
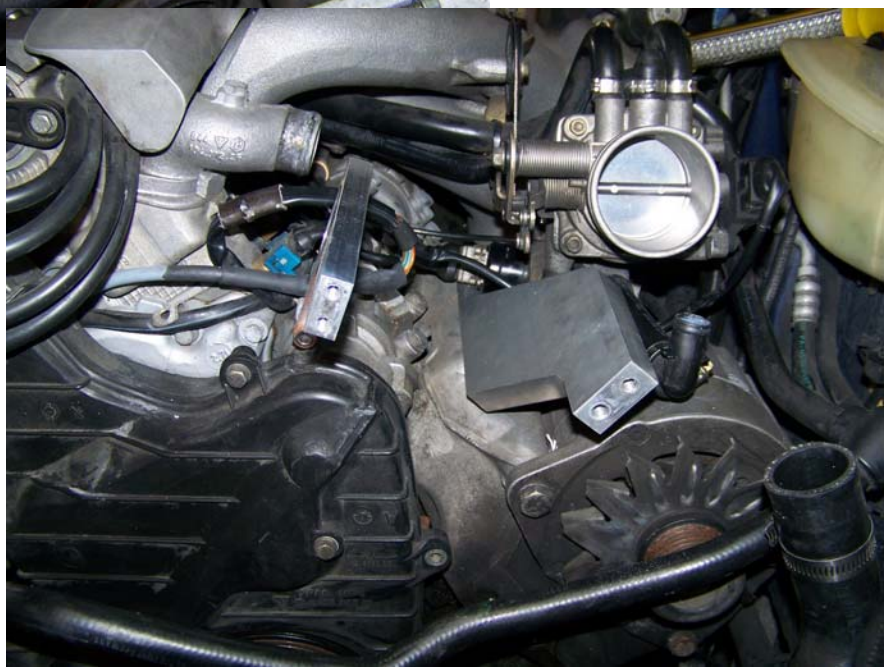
These pictures show the Primary and Secondary supercharger brackets installed.
Your engine should look like this at this time.





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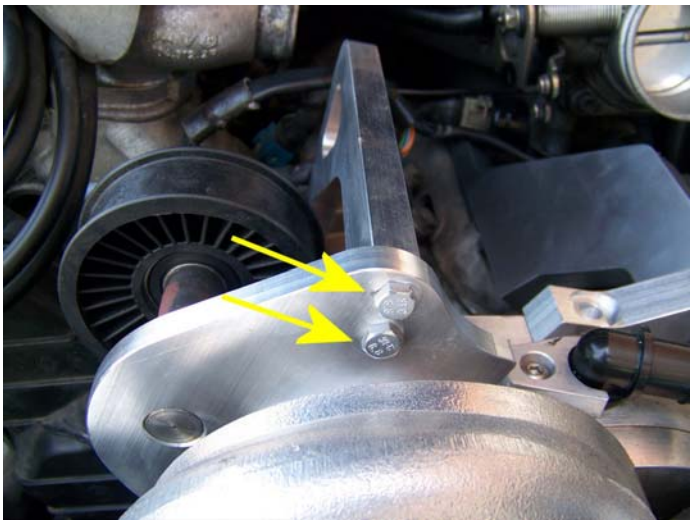
Mount the Supercharger to the Brackets

The Raptor Supercharger comes with brackets pre-mounted to it for your convenience.

Nestle the supercharger behind the radiator as shown, and hang from the mounts as follows:

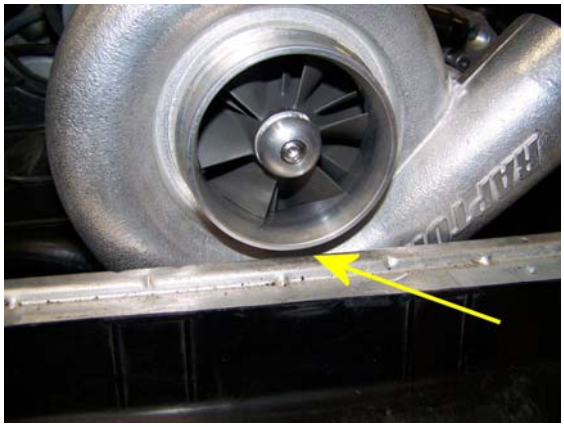
Two M8 x 30mm socket-head bolts go through the supercharger plate and into the end of the Primary supercharger mount as shown.



Two M6 x 25mm hex-head bolts go through another supercharger plate and into the Secondary supercharger bracket as shown.

Spin the bolts in, but do not put a final torque on them at this time.

Its important that an air gap be maintained between the supercharger inlet and the top of the radiator.



Take the 2” length of three- inch silicone hose from your kit and install it over the supercharger inlet now to maintain that gap.

It goes on hard—but it does go on.

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Mount the Supercharger to the Brackets (continued)

These pictures show the supercharger mounted to its brackets.

All the fasteners should be turned down lightly at this time, but none of them tight.

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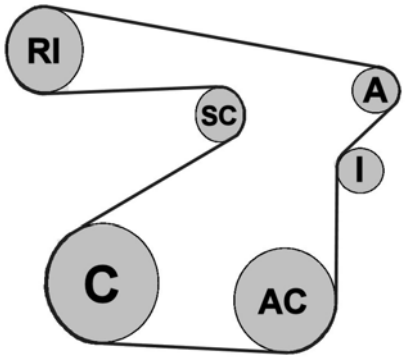
Install the Belts and Adjust Belt Tracking



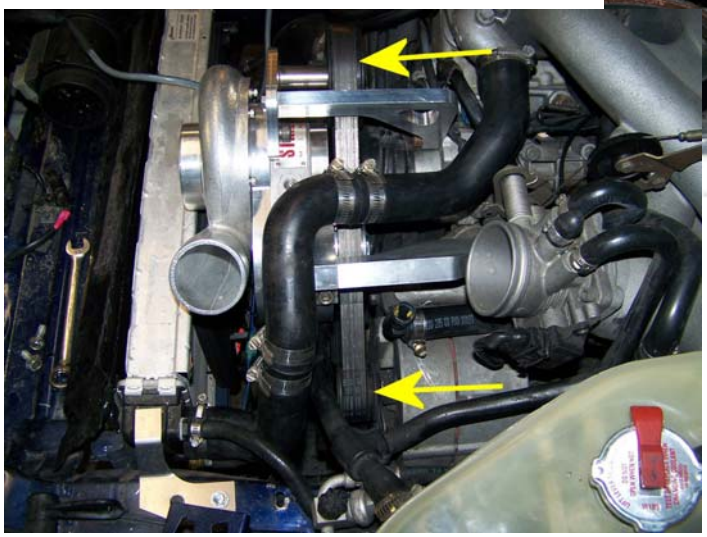
968 Belt Schematic with Supercharger

This diagram shows the belt schematic for your supercharged 928.

C = Crankshaft
AC = Air Conditioner
I = Idler
A = Alternator
RI = Reversing Idler
SC = Supercharger

Start by running the belt around the crankshaft, air conditioner, new idler pulley and alternator as shown.

Then run the belt from the top of the alternator to the top of the reversing idler, around the reversing idler to the supercharger (which runs on the back of the belt) and down to the crankshaft.



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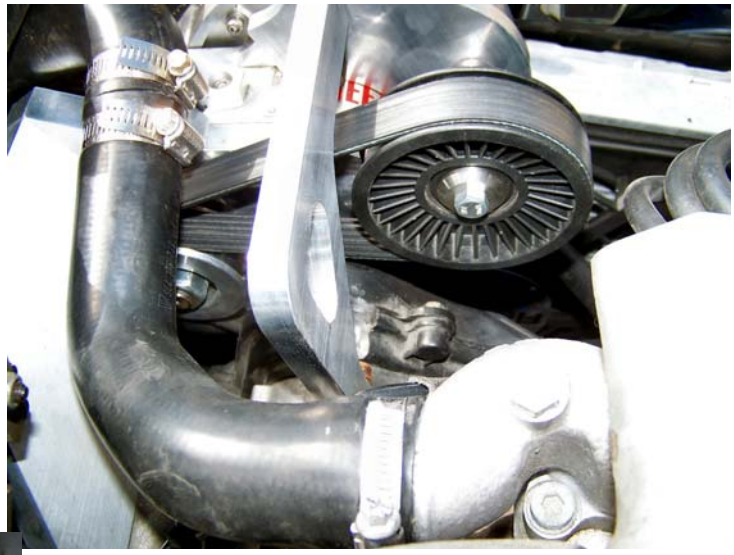
Install the Belts and Adjust Belt Tracking (continued)

This picture shows the belt from the engine-side looking forward.

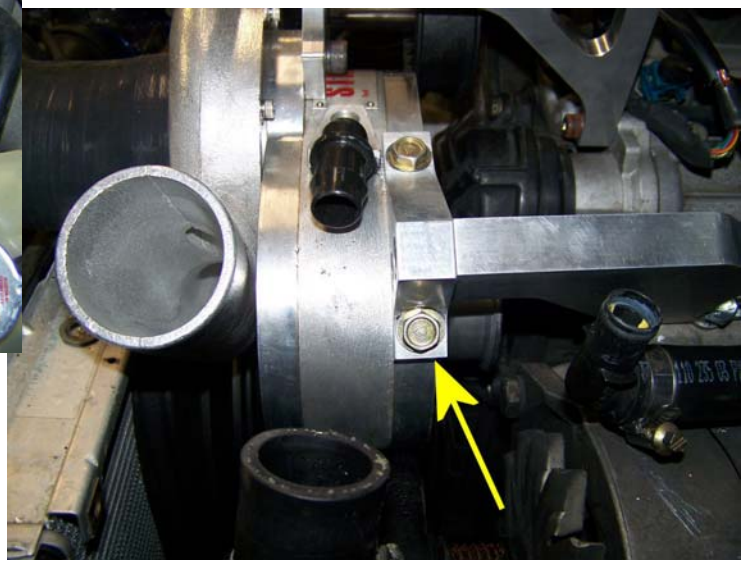


Now turn the adjusting barrels of the two belt tensioners just enough to take the slack out of the belts, but do not fully tighten at this time.

Check and Adjust Belt Tracking

Check that the belt is running straight and true across the new supercharger pulley and the reversing idler pulley.

You can move the supercharger on its mounts a little bit as needed (we left the bracket-to-engine bolts a little loose, remember?) to line up the pulleys.



A larger tracking adjustment is provided under the supercharger mounting bolt as shown to the right. Loosen this bolt, pivot the supercharger as needed, then re-tighten.

It is now time to put a final torque on all the supercharger and bracket mounting bolts. Then you may go back and put a final tightening on the belts themselves.

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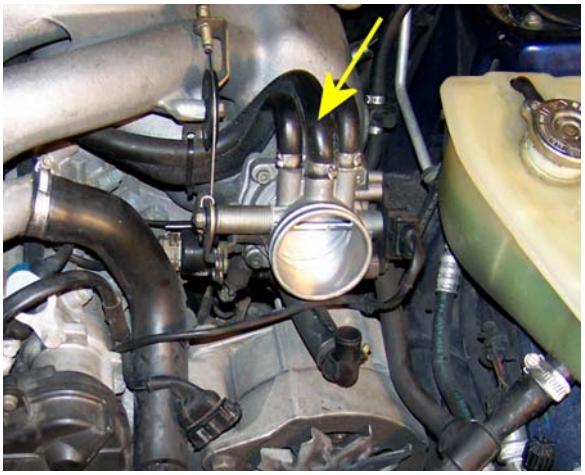
Modify PCV System

The PCV (Positive Crankcase Ventilation) system currently pulls crankcase fumes into the throttle body to be re-burned. If left as-is, the supercharger will pressurize the crankcase backwards through this system.



It is for this reason that the PCV hose has to be removed and re-routed to vent the crankcase to atmosphere.

Locate the PCV hose where it attaches to throttle body as shown .

Cut the clamp with a wire cutters and remove it.

Pull the hose off the throttle body.

Install the cap provided and clamp it in place.

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Modify PCV System (continued)

The hose we just removed gets extended and routed down to the bottom of the engine bay.

Locate the brass hose barb, 18” of 5/8” hose, and a clamp from your kit.

Use the hose barb and hose to extend the length of the PCV hose as shown.

Route the finished hose down so that the end is near the steering rack.

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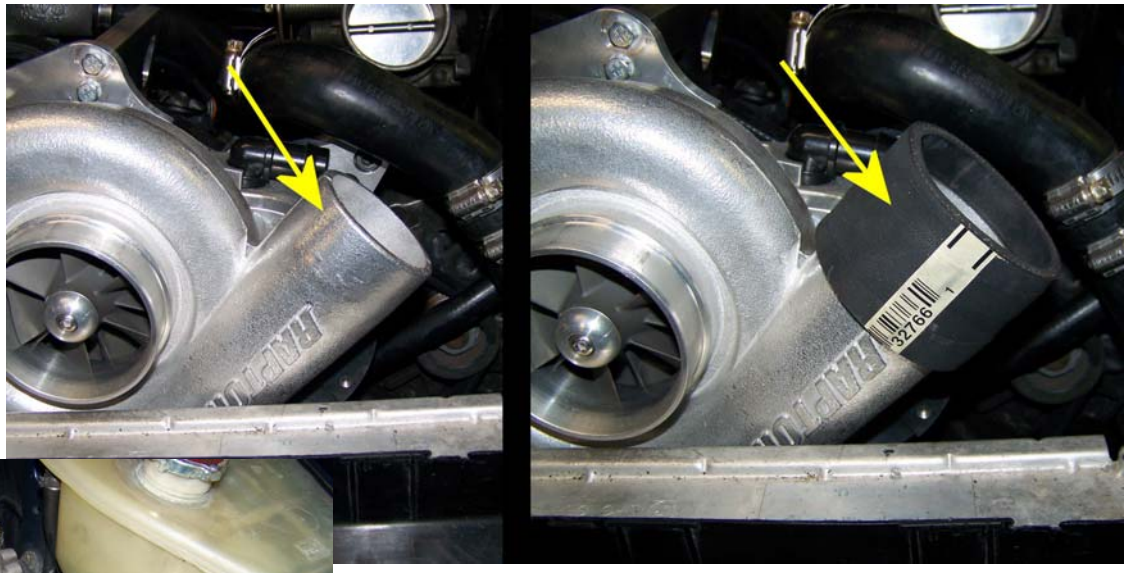
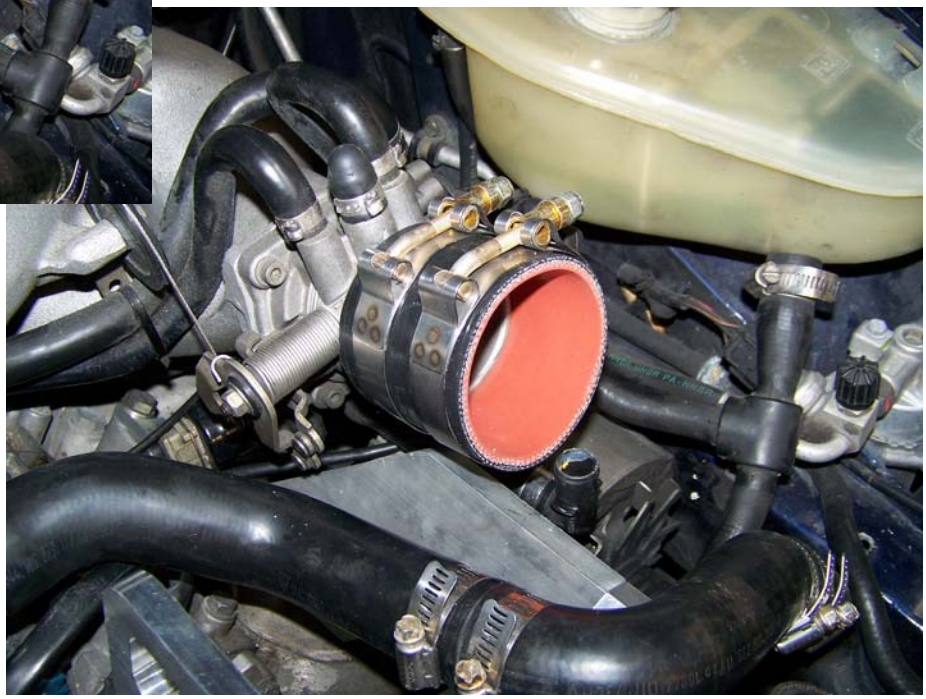
Install Supercharger-to-Throttle-Body Tubing

Locate the 3” length of 2.5” ID rubber hose from your kit and slip it over the outlet of the supercharger as shown.



Now move to the throttle body. Slip the 3” length of hose and two T-bolt clamps over the throttle body inlet as shown.



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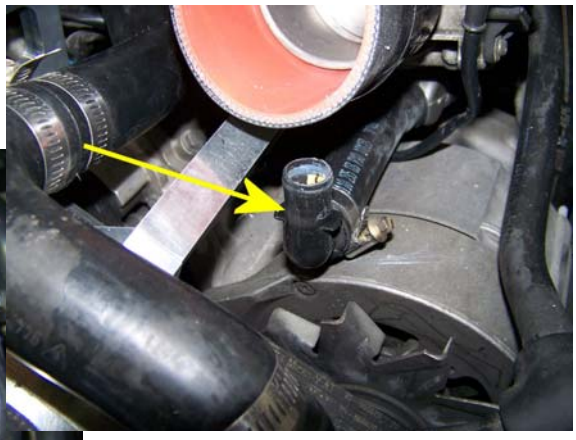
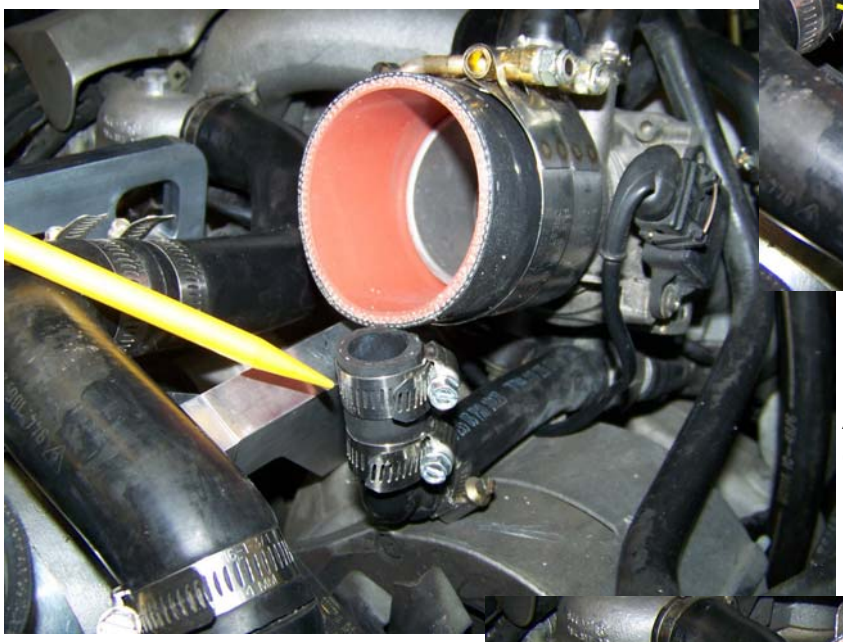
Install Supercharger-to-Throttle-Body Tubing (continued)

Locate the plastic hose connection as shown in this picture >>>





It come from the Idler Air Controller. Add a 3” length of hose to it with two clamps as shown.

Find the steel tube with two hose nipples in your kit, and slip it into the hose on the throttle body and Idle Air Controller as shown.

928 Motorsports Supercharger Installation

Install Supercharger-to-Throttle-Body Tubing (continued)

Locate the silicone 90 degree elbow from your kit that has legs on it that are 4” and 2” long as shown. Slide a t-bolt clamp on each end of it ...

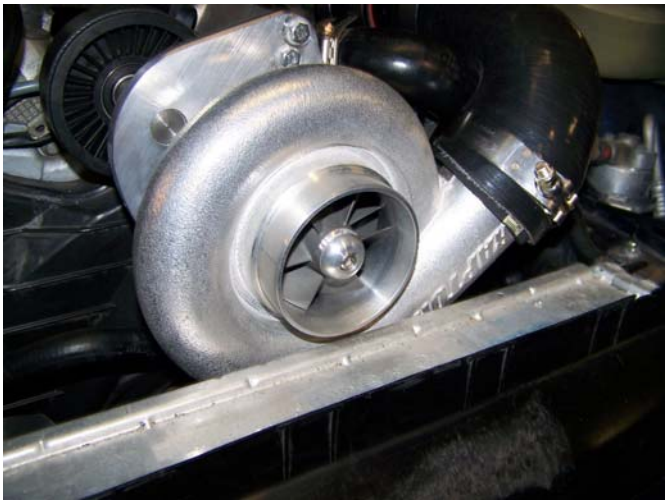
…and install it in place between the throttle body and the super-charger.

Tighten all the clamps we have installed up to this point.

928 Motorsports Supercharger Installation

Install Supercharger intake Tubing

Starting at the front of the supercharger, add the short 2” long section of 3” hose to the inlet if you have not already done so from page 24.



Slip two worm-gear hose clamps onto it as shown.

Locate the steel 90 degree tube with a 1” hose nipple welded into it, and insert it into the supercharger inlet as shown.

Now slide a 3” long section of silicone hose onto that with two worm gear hose clamps.

928 Motorsports Supercharger Installation

Install Supercharger intake Tubing (continued)

Now insert the Mass Air Flow (MAF) sensor into the hose. PAY ATTENTION to the arrow on the MAF that shows which way the air must flow and install it accordingly.

You may find it easier to remove the hose from the metal tube, get it onto the MAF, and then re-install.

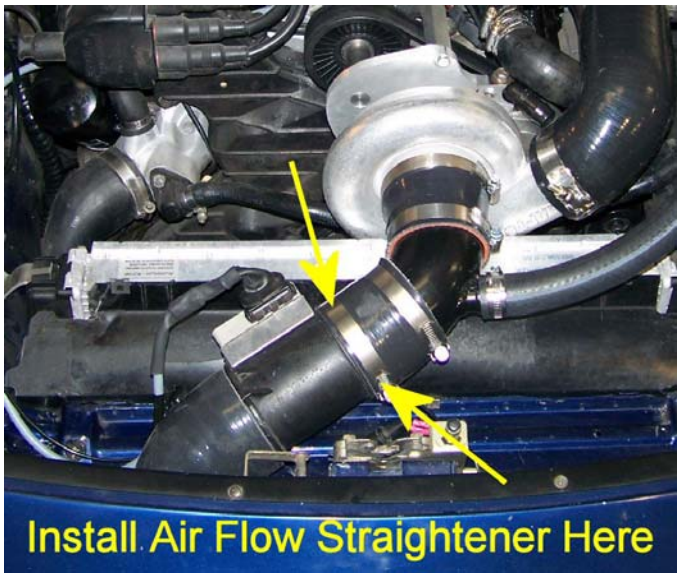
Turn the MAF so that the connection is up as shown and test the installation now to make sure the hood closes correctly.

Now insert the 90 degree silicone elbow with the legs of 4” and 1.5” into the hole in the front valance as shown, and attach to the other end of the MAF with a clamp.

This is how it should look when finished.

928 Motorsports Supercharger Installation

Install Air Flow Screen



An air flow straightener screen has been provided in your kit.

This will prevent backwash from the supercharger at idle that can disrupt the MAF sensor readings at idle.

A car with a properly installed air flow straightener will idle better and smoother with no loss of mid-range or top-end power.

Install the air flow screen on the EXIT end of the MAF sensor, as shown. Simply place it over the screen that already exists at the end of the MAF and tie it down with the ties included.

You want to tie it down as a precaution to keep it from being sucked into the supercharger!

Trim the Air Flow Screen as needed with common scissors until it fits. Tie it down, and place the hose back on. Done.

928 Motorsports Supercharger Installation

Install Blow Off Valve

The Blow Off Valve mounts on the nipple near the throttle body, and a exhausts into the nipple in front of the supercharger.

Use the pre-formed 90 degree bent rubber hose and barbed adapter to make the connection as shown .

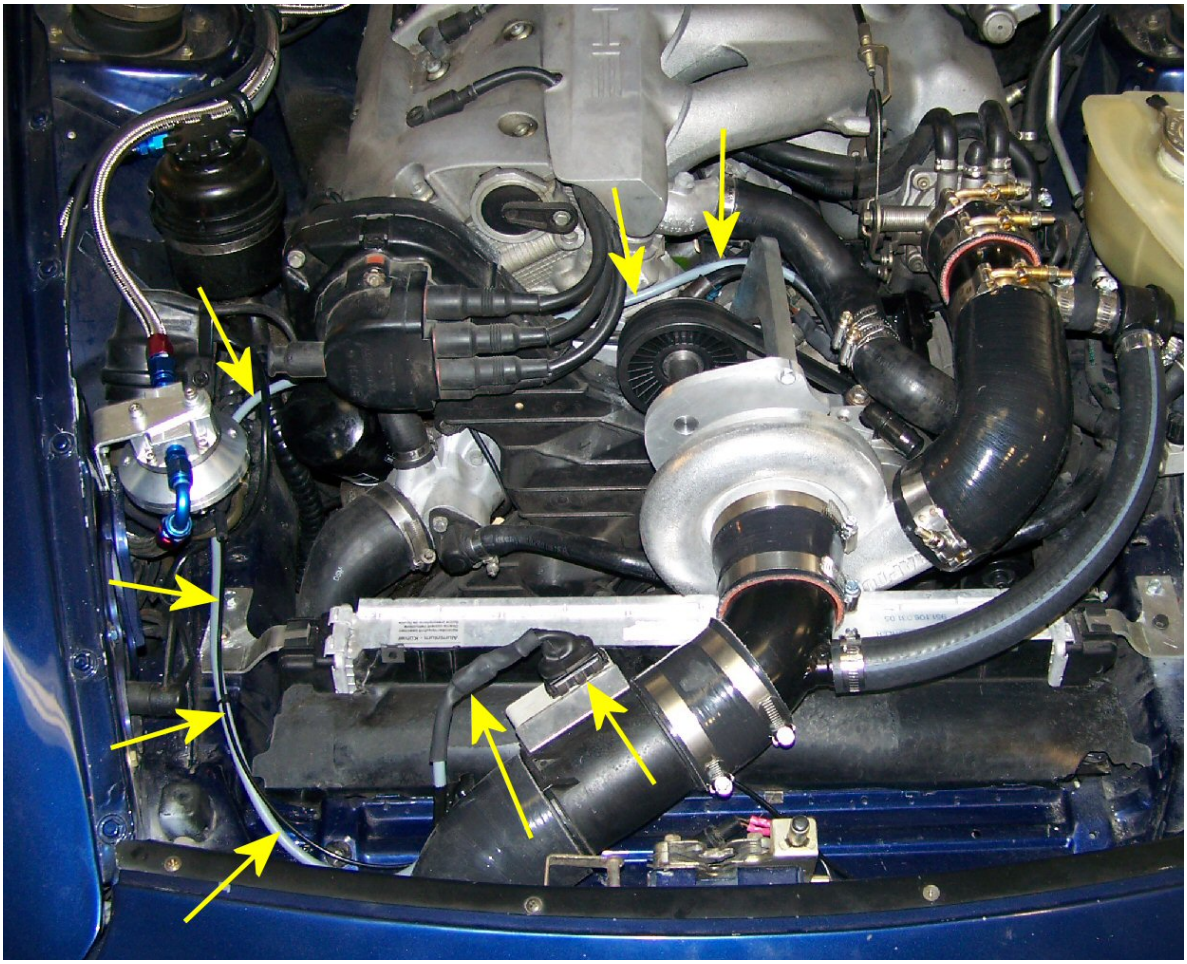
The BOV attaches with a 3” section of 1” hose and two worm gear clamps.

When finished, confirm that the hood closes correctly. Then tighten all the clamps we have installed thus far.

We will be connecting the vacuum line to the BOV a little later.

928 Motorsports Supercharger Installation

Lengthen MAF Sensor Wiring Harness



The wiring for the Mass Air Flow Sensor needs the be lengthened because the MAF is in a new location. In this picture you can see the routing of the gray 5-conductor wiring harness (provided).

The next few pages provide the details.

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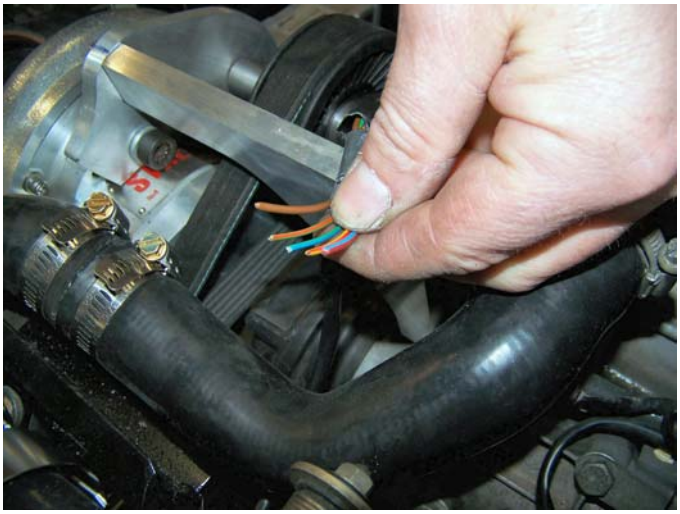
928 Motorsports Supercharger Installation

Lengthen MAF Sensor Wiring Harness (continued)

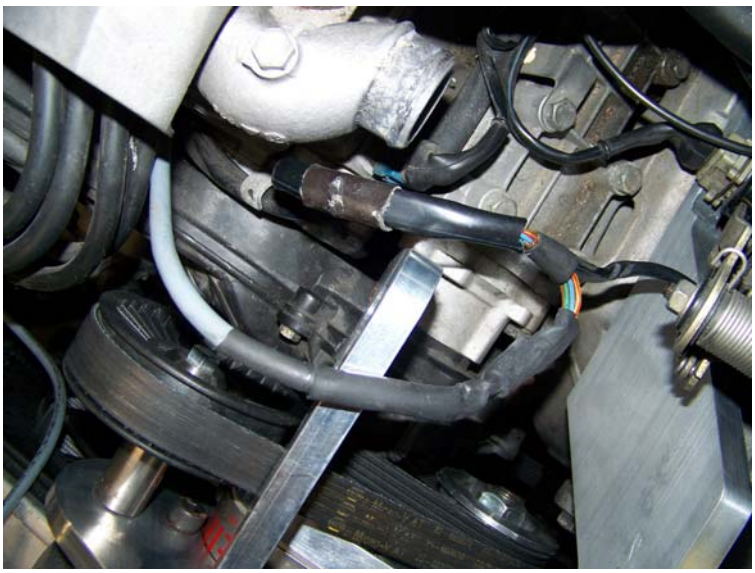
Start at the connector near the throttle body.

Clip the connector off leaving enough wire to work with comfortably.



Separate each of the 5 wires inside and strip off a little bit of insulation from each to work with.

Slip a length of heat-shrinkable insulation over the gray 5-wire harness before going further.



Then, using the red butt connectors for the small wires, and a blue butt connector for the large wire, attach one wire from each of the extensions to the MAF sensor wiring.

Use a pad of paper to write down your wiring schematic so you will be able to repeat it on the other end.

When finished, slide the heat-shrinkable insulation over your connections and shrink it tight with a hair drier.

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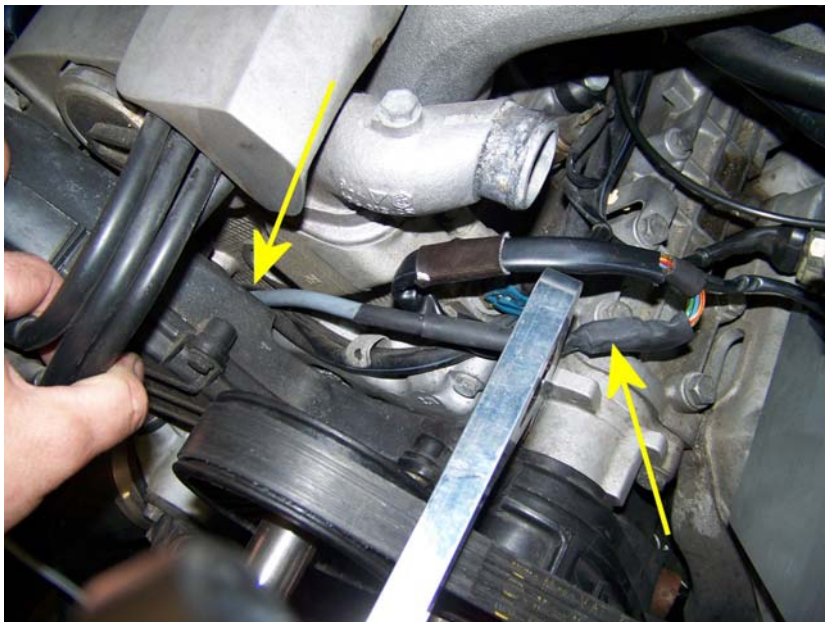
928 Motorsports Supercharger Installation

Lengthen MAF Sensor Wiring Harness (continued)

Note the routing of the wiring harness in this picture>>>



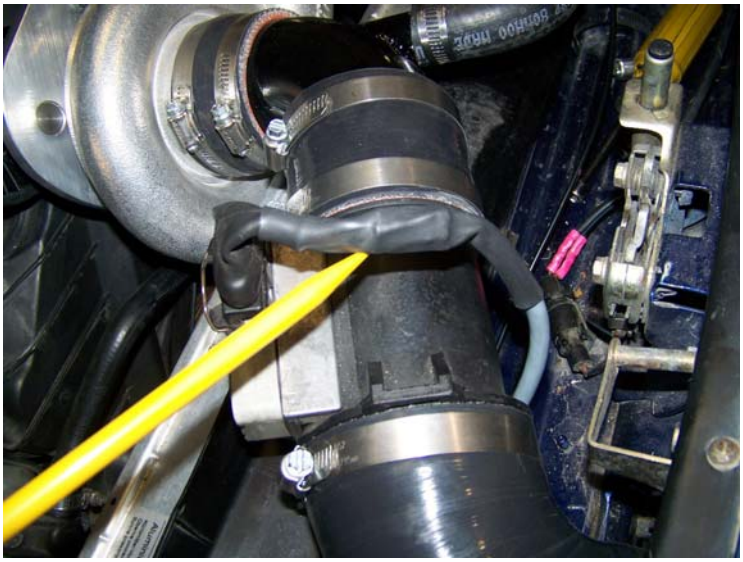
Slide the wiring harness between the timing belt cover and the front of the engine as shown. It will come out near the oil filter.

From there, route the wiring harness like the picture on **page 36** to the front and the MAF sensor.

Separate each of the 5 wires inside and strip off a little bit of insulation from each to work with.

Slip a length of heat-shrinkable insulation over the gray 5-wire harness before going further.

Then, using the red butt connectors for the small wires, and a blue butt connector for the large wire, attach one wire from each of the extensions to the MAF sensor wiring. Use your pad of paper to remember your wiring schematic.



When finished, slide the heat-shrinkable insulation over your connections and shrink it tight with a hair drier.

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928 Motorsports Supercharger Installation

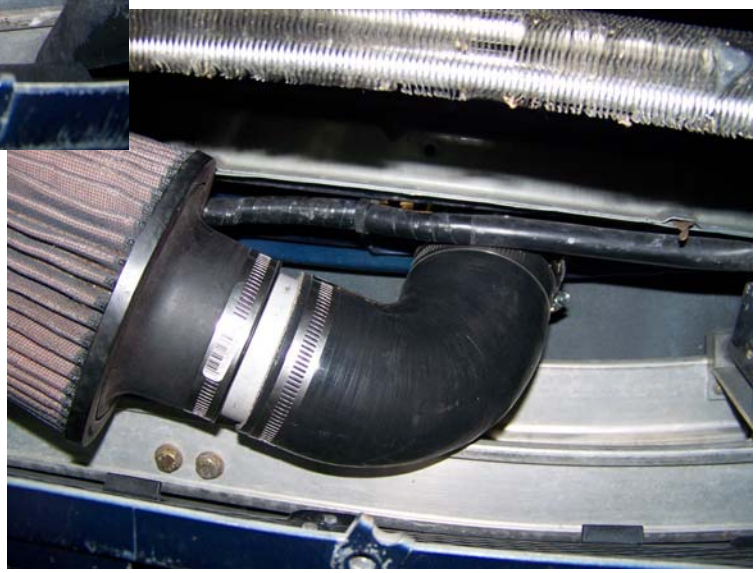
Install Air Filter

Pre-assemble your air filter assembly on the floor so that it looks like this >>>>

Note the use of the thin-wall aluminum tubes to connect the air filter to the silicone elbow, and again at the end of the elbow.

When looking behind your front bumper up from the bottom, you will see the air inlet hose peaking out that we placed their before.

Install the air filter housing up into the air inlet and clamp in place. You may tighten all the air intake clamps at this time.



928 Motorsports Supercharger Installation

Install Fuel Management Unit (FMU)

Time to mount and plumb the FMU.

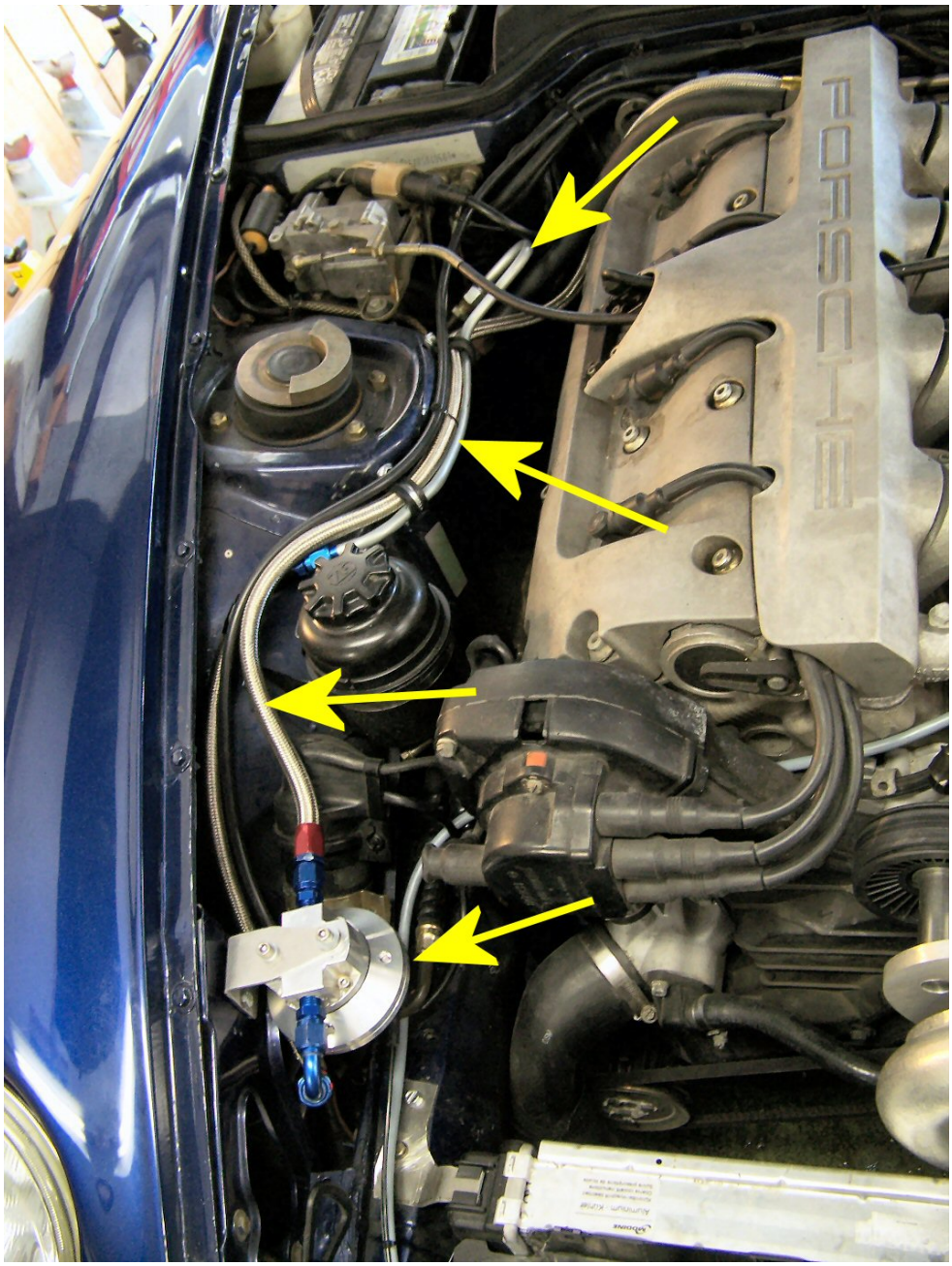
The FMU raises the fuel pressure in the system only when under boost, so the engine gets more fuel when it needs it, and no extra fuel when it doesn't.

We use a combination of custom-made hardlines and stainless braided lines to plumb your FMU.

This picture shows the complete FMU and fuel lines installed.

Refer back to this picture as needed.

Continue to the next page for detailed instructions.



928 Motorsports Supercharger Installation

Install Fuel Management Unit (continued)

Study these two pictures and mount the FMU where shown to the inner fender of the car.

Be sure that you mount the FMU low enough that you can still close the hood!

A mounting bracket is provided, and the mounting bracket secures to your fender with two M6x15mm long bolts and nuts.

Mark the inner fender though the bracket and drill two holes for the mounting bolts.

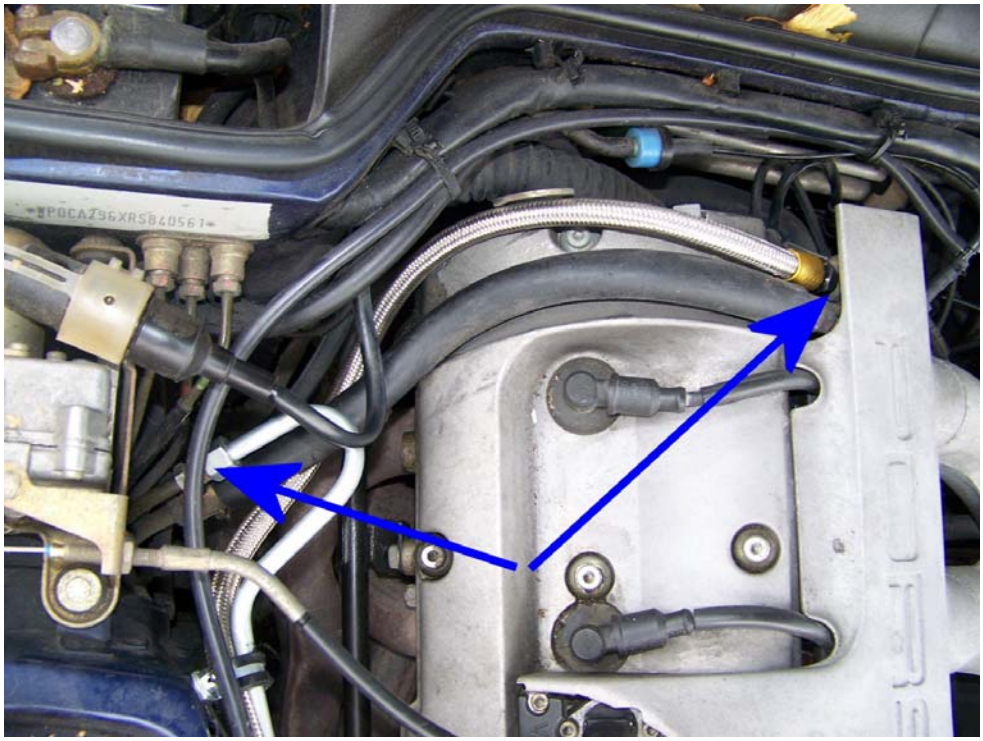
928 Motorsports Supercharger Installation

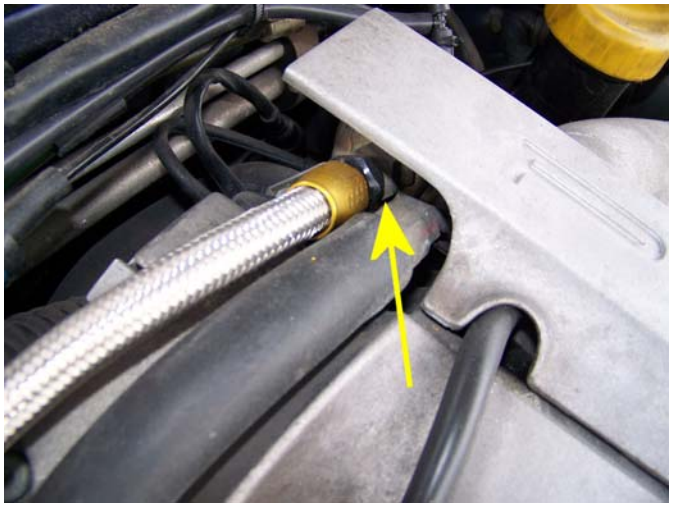
Install Fuel Management Unit (continued)

At the rear of your motor, you will find a fuel line that connects the two points shown here by blue arrows >>>

Remove that fuel line.

NOTE: always use two wrenches in opposition when tightening and loosening fuel fittings!

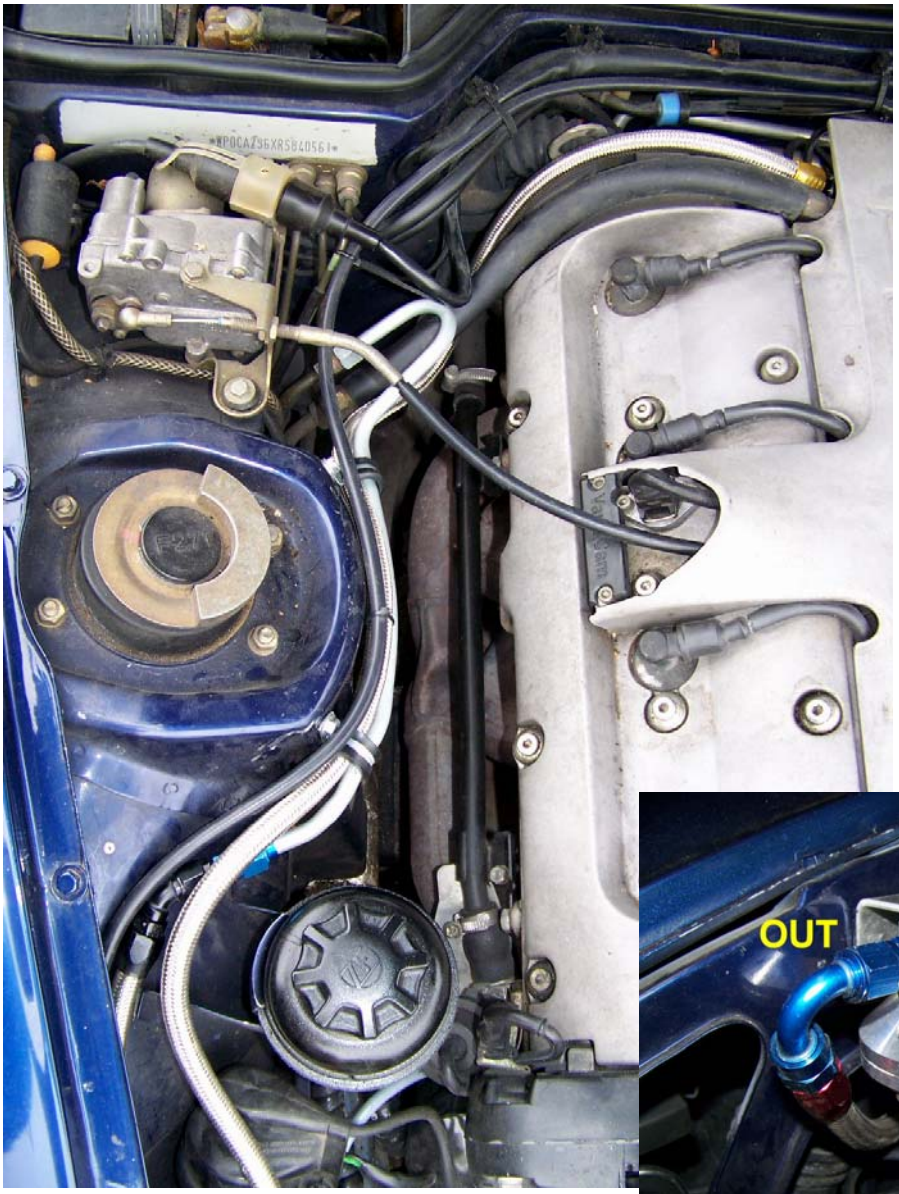




928 Motorsports Supercharger Installation

Install Fuel Management Unit (continued)

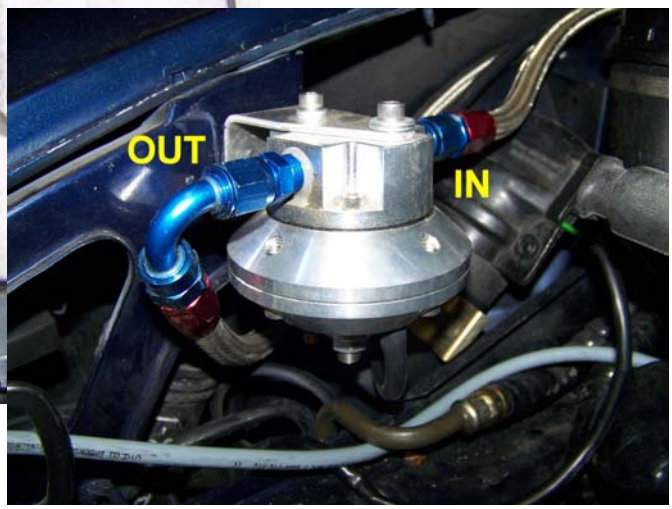
Start with the fitting at the top and rear of the motor that you just disconnected.



Take the long flexible braided line from your kit and attach it there.

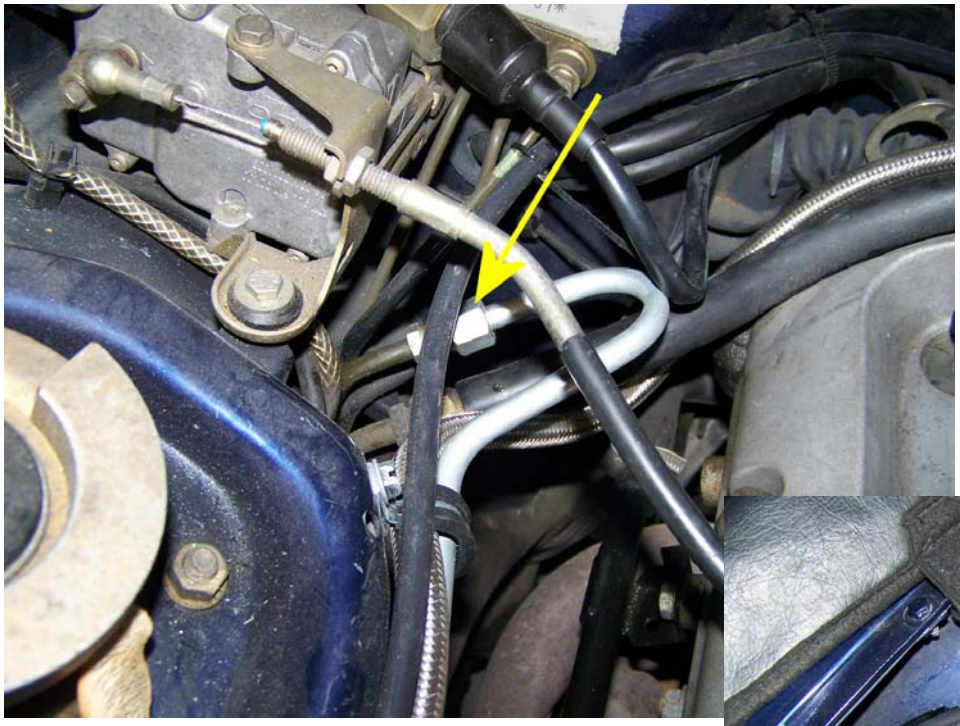
Route the flexible braided line as shown in this picture, along the inner fender where we will be securing it with clamps when we are done.

This is the inlet or supply line to your FMU, and it connects to the FMU at the port marked “IN” as shown.



928 Motorsports Supercharger Installation

Install Fuel Management Unit (continued)



Now we will plumb the “Out” or return line.

This one uses a combination of hardlines and flexible braided line.

It transitions from hardline to flexible line just behind the power steering fluid reservoir.

It also routes alongside the inner fender in the same way.

Bring it up from under the FMU and connect it as shown.

928 Motorsports Supercharger Installation

Install Fuel Management Unit Vacuum

The FMU “knows” when you have boost or not by monitoring the vacuum in the engine. We need to connect it to a good source of manifold vacuum.

Locate the vacuum connection at the back of the engine near the oil filler shown here>>>

Insert one of the vacuum tees provided into it, and the silicone onto it.

Run this flexible vacuum line also along the inner fender with the two fuel lines you have just installed, and up to attach it to the small brass nipple on the bottom of the FMU, shown by the yellow arrow in this picture

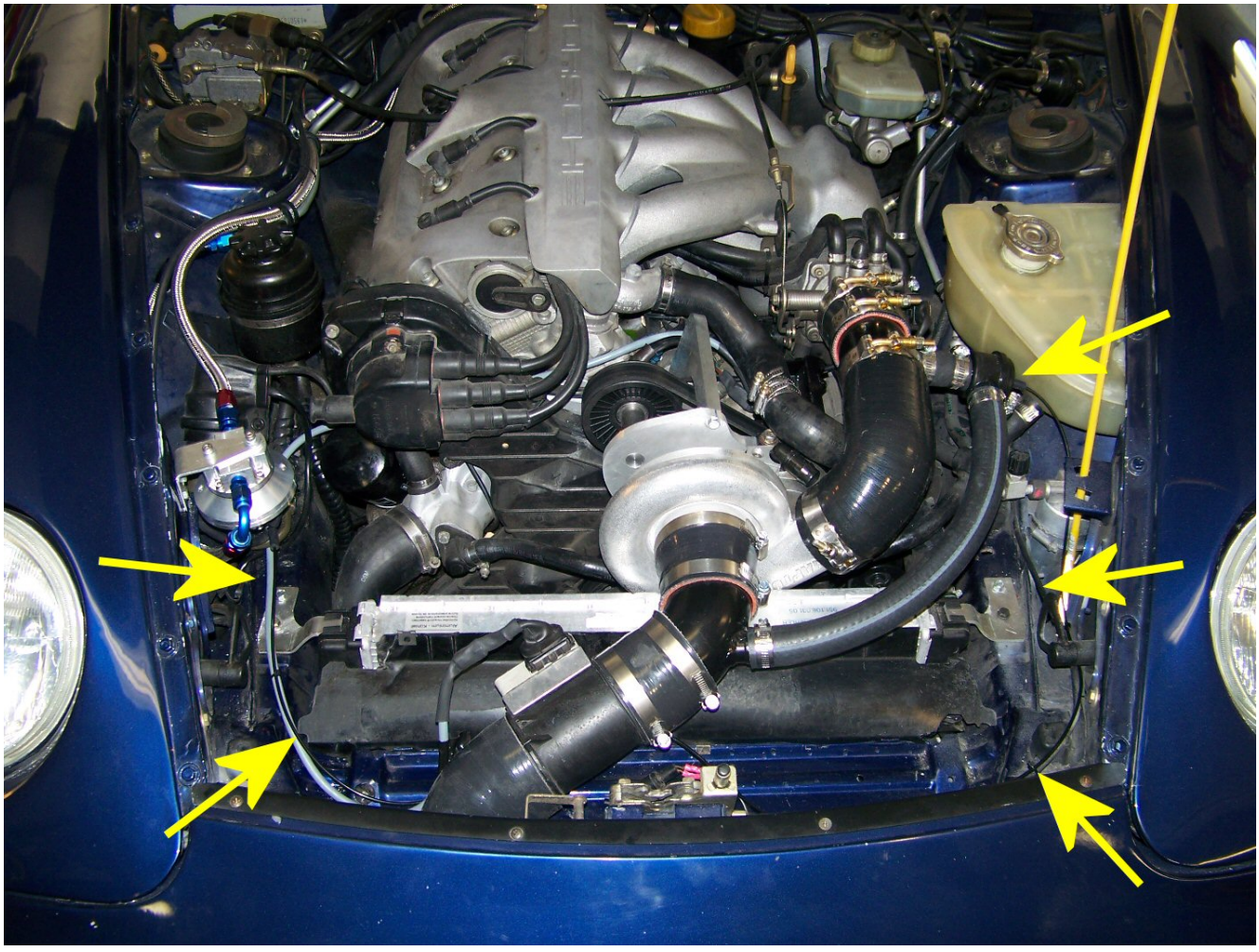
Now take the other small vacuum tee provided and cut it into the line below the FMU and attach the end of the solid nylon vacuum line to it (slide a 2 inch piece of silicone vacuum hose to make the connection).

This will be the vacuum line to the BOV, and is shown by the red arrows.

928 Motorsports Supercharger Installation

Install Fuel Management Unit Vacuum

The solid vacuum line runs across the front of the car and connects to the BOV as shown.



Now secure the 2 fuel lines and 1 vacuum line to the inner fender with the rubber-insulated straps and screw provided. Refer to the many pictures in this chapter for where to place them.

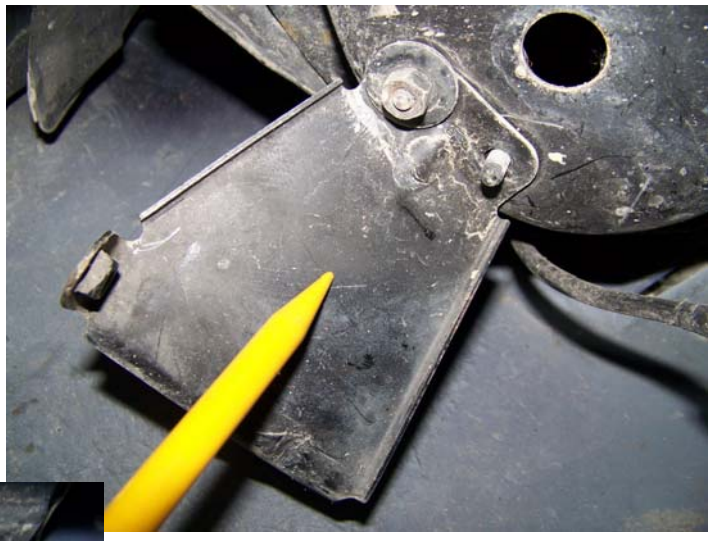
928 Motorsports Supercharger Installation

Install Raptor Cooler

All superchargers create heat, and heat is not only bad for your engine, its bad for the supercharger bearings. Only a little breeze is required to carry away the heat rise inside the supercharger and help the bearings last a good long time.

Your kit includes a “Raptor Cooler” to provide a forced-air solution to keeping the bearings cool. The fan used is water and temperature resistant and safe for this application.

Look under the left front fender of your 968 and locate this mounting bracket forward of the front tire.



Mount the Cooler to the bracket with two long cable ties each coming across the unit diagonally as shown.

928 Motorsports Supercharger Installation

Install Raptor Cooler (continued)

Push and turn the 1” hose supplied into the hole on the side of the cooler.

The hose drapes under the super-charger and pushes onto the black barbed nipple provided on the side of the supercharger. It goes on hard, push and twist and it will slowly slide on. No clamp is necessary!

In you kit, locate the paired wiring harness provided (gray outside, one red, one black wire inside.) Strip the ends off, and insert one end into the white nylon electrical connection block and tighten the small screw to secure it there.

Line up the red wire with the red wire on the connection block.

Using the wire taps and spade terminals provided, splice into the wiring for the radiator fans that we installed earlier.

928 Motorsports Supercharger Installation

Start and Tune the Engine

Time to start the motor for the first time. You may want to have an assistant in the drivers seat while you stay out under the hood.

Check For Leaks

This installation has required you to remove and replace several fuel lines. These must be checked for leaks at every fitting and junction the first time the engine is started. ***DO NOT SKIP THIS STEP***. Run your fingers around every fitting as the engine runs and when you remove your fingers, they should come up dry. If there is any gasoline on your fingers when you removed them from the fitting, shut off the engine and re-tighten those fittings.

Then check to make sure the belt is running straight and true. If not, stop the engine and adjust the supercharger on its mounts as discussed on page 27.

Also, take a moment to inspect every worm-gear hose clamp and t-bolt clamp that you installed or changed during this installation, including those on the upper radiator hose.

Tuning The Installation: The FMU

The Fuel Management Unit (FMU) we provide you with your kit is advanced, and has two adjustments: one to adjust when the FMU begins to add fuel because it senses boost pressure (called the tip-in point); and one to adjust what ratio from 1:1 to 1:3 it uses to increase the fuel pressure (this is called the “rising rate”).

Adjusting the tip-in point is done with the allen screw on top of the FMU as shown.

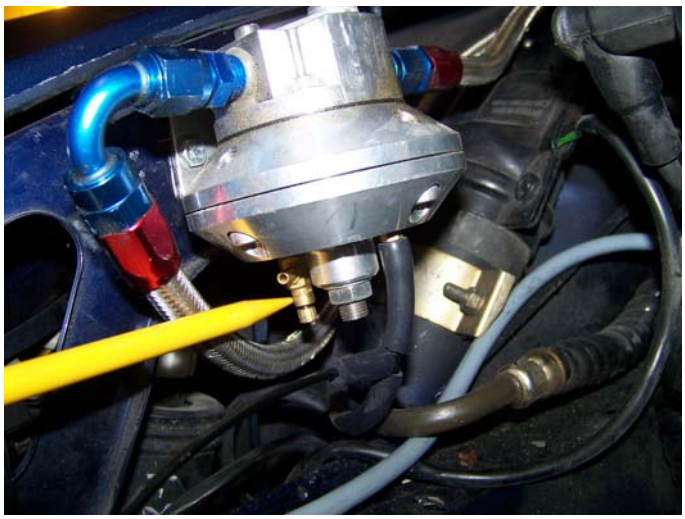
With the engine idling, turn the adjustment screw in or out to achieve an idle speed fuel pressure of about 38 to 40 psi, wherever your car runs better.

If you do not have a fuel pressure gauge hooked up, turn in the center screw until it looks like the one in this picture. Then lock the adjusting screw in place with the jam nut provided.

928 Motorsports Supercharger Installation

Tuning The Installation: The FMU (continued)

The small brass thumb screw on the side of the FMU adjusts the rising rate. Spin it gently closed for now. This will provide maximum rising rate. If we should find later that it is adding too much fuel, you can open it a little.



With an Air-Fuel Gauge Installed:
Test-drive the car under load and watch your gauges. Make several “pulls” on a country back-road.

Under full throttle and full load, the air/fuel gauge should remain to the rich-side always. If it goes “Lean” under boost, get out of the throttle, pull over and adjust it.

If the boost comes in before the fuel responds, turn the center screw in further so that the tip-in point is lower. If the fuel comes in at the right time, but cannot keep up with the boost near the redline, turn the rising rate brass screw in further.

Without an Air-Fuel Gauge Installed:
Turn the tip-in adjustment (center) in until the engine starts too stumble at idle. Then lock it in place with the jam nut provided. Turn the brass rising rate screw in until closed.

Your 968 will now be tuned well enough to drive safely. Take it to a Dyno, where it can be tuned with their gauges before doing multiple full-throttle pulls.

Replacing Old Vacuum Lines

Your kit came with a set of silicone hoses from us without charge. Check over your vacuum lines now and replace any that look suspicious. The rubber in the factory vacuum lines has been under attack by heat and ozone and they may be cracked and brittle.

The key is to remove only one vacuum hose at a time, compare it to a hose from the kit and cut a length to match. Put the new hose back on to the car, and repeat. Do only one vacuum hose at a time and you will not have any errors. Never use silicone hose for fuel or fuel vapor.

Re-install the Front Valence Panel

We had you remove the front valance panel beneath the front bumper on page 10.
If everything checks out and there are not leaks, you may now put it back on.

928 Motorsports Supercharger Installation

Trimming T-Bolt Clamps (optional)

You have installed several T-bolt clamps during this build. After these clamps were tightened, you will have long threaded ends sticking out. It is safe to trim these back a bit to improve the appearance of the installation.

Place a beach towel or old sheet over the engine and use an air-powered cut-off tool, a hack-saw or even a bolt cutters to lop off an inch or so. Do not remove too much - your want to be able to remove and re-install these clamps again in the future. Finish the ends of the bolts with a file to remove the burrs.

928 Motorsports Supercharger Installation

Regular Maintenance Items:

The Raptor Supercharger we use is typically good for about 20,000 miles between rebuilds with no maintenance whatsoever. The only thing that damages the Raptor is running at speeds above 6,500 rpm, where your 968 is not designed to go

Gasoline: Use Premium gasoline now, 91 Octane or better. Avoid Ethanol mixes if you can as the actual octane rating received before additives is lower.

Octane Booster: Is not needed. You may add octane Booster if you are going to go auto crossing or racing just to be safe. A bottle of “Octane Performance Booster” by Solder Seal is about $1.50 and treats a tank of 20 gallons. It raises 91 octane gas to about 93 octane and is cheap insurance.

Watch the Redline: Pay attention to your redline and air\fuel gauges if you have them. Observe where the air/fuel ratio rose above 13.0 to one – and remember to shift before that point for the safety of your motor. If you want a higher shift point contact us – we make pulleys for your kit in several sizes just so we can adjust your shift point to where you want it to be. .

Oil Level: Check your oil level more frequently. There is more air passing through your crankcase than before, and more oil is consumed as oil vapor. This is common with supercharged cars. Check your oil level more often.

Oil Type: Change to Synthetic Oil if your motor is all broken in (> 7,000 miles on it). The reason: some oil/crankcase vapor is being ingested by the motor (as it was before the SC kit was installed). Synthetic motor oils do not lower the octane rating of the air/fuel mixture at all, however traditional motor oils do. That's why switching to synthetic can be another good safety factor to help prevent detonation in your supercharged engine.

928 Motorsports Supercharger Installation

Driving your 968SC:

We recommend for the first 100 miles, you don't take the car all the way to red line as you are seating the bearings in your new supercharger. Make some nice runs with it and run it up to about 4,000 rpm or so and enjoy it. At the end of 100 miles, check all your belts for tension including the power steering belt and now your new supercharger belt. It is probable that the supercharger belt will have stretched and will need to be re-tightened. Simply refer back to the section on tensioning your supercharger belt and snug it up a little bit more.

As far as driving your supercharged 968, the first couple times you run it, we recommend you be on dry pavement on a straight road until you get the feel of the boost coming in and how the car takes off. You will notice that if you're in mid-corner and the boost came in, that it is likely it would kick your rear tires out. You want to be aware of this. You can no longer slap the gas peddle to the floor because you will make the car unsettle in its weight distribution and may break the rear tires free. The drivers in supercharged cars refer to this technique as a 'Rolling Throttle', you roll into the throttle as you slowly and steadily depress it to the floor to that the weight transfer can take place to the rear wheels and you can launch correctly.

Enjoy your supercharged Porsche 968 and call us if you have any questions.

By Phone: **920-485-0928**

(US toll-free): 877-FOR-928M

International 001-920-485-0928

By Fax: **920-485-2444**