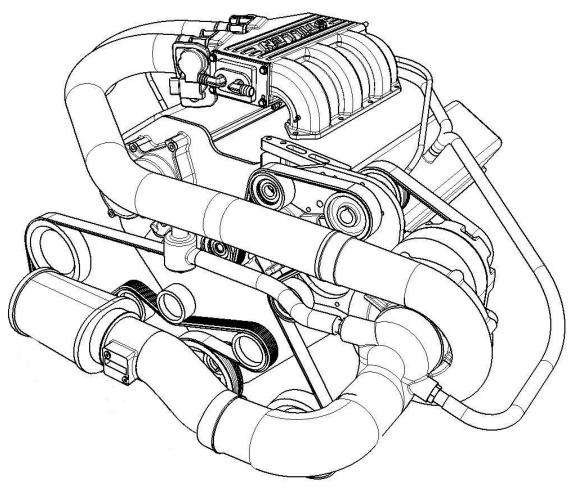


NISSAN 350Z INTERCOOLED SUPERCHARGER INSTALLATION INSTRUCTIONS

407750/407750P



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Congratulations...

on your purchasing the STILLEN supercharger system for your 370Z

For the smoothest installation and best performance and reliability from your supercharger, please follow these simple points.

- Read all the instructions to familiarize yourself with various parts and operations. A list of supplied parts is located on the back pages of these instructions.
- Check the oil in your supercharger every 2,500 miles. The initial fluid change should be done 2,500 miles after install and then every 7,500 miles
- Some parts on the list are already assembled, torqued and sealed, <u>DO NOT DISASSEMBLE</u> <u>UNLESS INSTRUCTED TO DO SO.</u> If any parts are missing or damaged, please call us immediately.
- Gather all required tools and supplies before starting installation.
- <u>Use 91 octane or higher fuel.</u> Fuel quality will vary depending on manufacturer, always use quality fuel.
- This kit is designed for stock engines. If the engine is modified in any way, contact STILLEN to discuss any conflicts or issues that could affect the superchargers performance.
- Aftermarket re-calibration devices that modify the fuel or spark curve are not recommended and may cause engine damage or failure.
- This STILLEN supercharger system is intended to be installed on a well maintained, healthy
 engine. We do not recommend installing this system on a sick or damaged engine, this can
 result in premature engine failure and possible supercharger failure. Stillen is not responsible
 for damages due to improper installation or damages due to installation on worn or
 damaged engines.
- Do not alter, modify, or adjust the STILLEN supercharger system in any way, shape or form.
 Unauthorized changes to boost levels, electronics or any other system will void warranties and can cause catastrophic damage. If this system is being installed on a new vehicle it is very important that factory break-in procedures are followed to prevent any adverse affect on the vehicle.

EXTREMELY IMPORTANT:

To insure maximum performance and safety, boost pressure MUST be checked immediately after install. We recommend using a **quality** (Snap-0n,AEM, HKS etc) calibrated boost/pressure gauge that reads 10-15psi (1 BAR) maximum if analog or a digital gauge. The gauge must be"**T"eed** into the small front vacuum line that leads to the supercharger bypass valve. Maximum boost reading will be obtained at WOT in 3rd gear @ 7000 rpm. We suggest you avoid hitting the RPM limiter or an incorrect reading will result. A dynamometer can be used if traffic conditions or an "off road" location is not available for proper testing.

The boost reading should be from 7.6-8.4 psi. Pressure can vary due to atmospheric conditions and dyno types. For example a Dynojet dyno boost reading will be .3-.4 low as compared to actual road testing. Make sure to do 2-3 tests and write down your results to confirm an accurate reading. If outside the recommended pressure readings please contact Stillen technical support immediately for further assistance



WARNING:

WE STRONGLY URGE THAT YOU REFER
THIS INSTALLATION TO AN ASE
CERTIFIED MECHANIC WITH EXPERIENCE
IN THIS TYPE OF INSTALLATION.
FAILURE TO DO SO COULD LIMIT YOUR
TECH SUPPORT AND AFFECT YOUR
WARRANTY.

YOU NEED TO MAKE SURE YOU HAVE
THE TUNE FOR YOUR VEHICLE
BEFORE INSTALLING THE
SUPERCHARGER! !READ THE
PROVIDED ECU PROGRAMMING
INSTRUCTIONS ON HOW TO CHECK
THIS!!

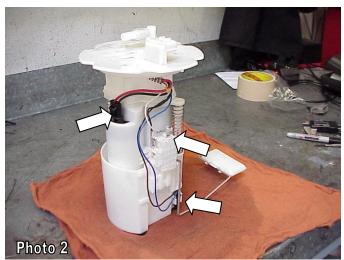
FUEL PUMP INSTALL

<u>Caution:</u> Never work on an open fuel system in an enclosed area. Always have adequate ventilation and be in an area with no open flames or sparks, and NO SMOKING.

The fuel system is under pressure, use appropriate safety precautions when disconnecting the fuel system!

- 1. Disconnect the battery.
- The fuel pump is accessed from behind the passenger seat.
 Remove the rear seat. Unlatch the plastic screws on the cover plate and lift out of the way. (photo 1)
- 3. Unplug the connector and fuel line.
- Remove the screws securing the assembly to the tank. Carefully lift out the fuel pump housing assembly. Disconnect the saddle tank crossover tube. Be careful of the float arm.
- 5. On a clean work bench, unplug the fuel pump. Unplug the wires to the top of the sending unit (note what color is on what terminal) and unclip the fuel temp probe. Unclip and remove the lower bucket. (photo 2)
- 6. Using a screwdriver, unclip the retainer that holds the fuel pump inside the housing. Remove the pump. (photo 3)







- 7. On the supplied fuel pump, make sure the 4 tabs on the bottom have been filed off. If not, file them flush (photo 4)
- 8. You will also need to file down the 2 raised bosses on the supplied pump as shown in (photo 5 & photo 6) File them flush.
- 9. Transfer the outlet nipple seal and pickup screen (photo 7) to the new pump and carefully insert the pump and carefully insert the pump back into the assembly. It will be necessary to file the grooves in the pump

retainer a little longer to get the new pump to

clip in securely.









10. On the bottom of the lower bucket, you will see a small swirl jet. Using a screwdriver, CAREFULLY pry this valve up. It only needs to come up enough to be able to drill the hole in the tip. It is important to note that it is thin plastic and can break easily. NO REPLACEMENT PARTS ARE AVAILABLE FOR THE FUEL PUMP ASSEMBLY. (photo 8)



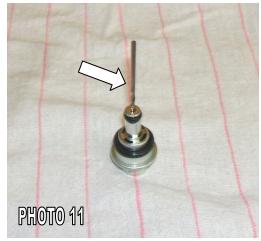
11. Using the supplied #50 drill (smallest), carefully drill the jet larger. DO NOT DRILL THROUGH THE OTHER SIDE! Clean out the jet and push it back down into the lower bucket. (photo 9)



12. On the side of the main assembly is the silver pressure regulator. (photo 10)



13. Using the 7/16 (larger) drill bit, carefully drill the opening in the tip (on the bottom of the regulator) larger. DO NOT DRILL TOO DEEP OR YOU WILL RUIN THE REGULATOR! YOU ARE JUST DRILLING THE TIP. Clean out any metal shavings. (photo 11 shows the regulator removed to



(photo 11 shows the regulator removed to show it more clearly)

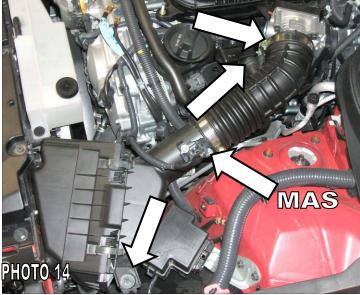
- 14. Reinstall the lower bucket making sure the springs are in place. Plug in the level sensor and clip the temp sensor back in place.
- 15. Reinstall the pump assembly into the care. Be sure the large seal is in place and tube for the saddle tank is attached. Install the locking ring.
- 16. Attach the fuel line and connector. Install the cover and install the rear seat.
- 17. Reconnect the battery and start the vehicle to make sure everything is working. Shut off vehicle.



REMOVING STRUT TOWER BAR, AIR BOXES & FASCIA

- Disconnect the negative battery cable. Remove the strut tower bar and engine cover and set aside. The strut tower bar will not reused.(photo 13)
- Unplug the Mass Airflow Sensors (MAS) and unclip the wire from the air boxes.(photo 14)
- 3. Loosen the clamp on the intake tube where it attaches at the throttle body and remove the bolt that holds the air box in using a 10mm socket. Remove the small hose clamp connecting the breather tube to the intake tube. Remove complete intake as 1 piece. It will require a firm tug to release it from the rubber grommets on the bottom.
- 4. Remove Fascia. This will require removing the bolts from the lower engine cover. You will also have to remove the plastic clips from the front wheel well liners to reach the bolts under very end of the fascia. After removing all the hardware, firmly pull the fascia out of the clips around the
 - headlights and pull the fascia away from the vehicle. Set out of the way.
- 5. Remove foam fascia support piece by pulling it straight forward. Set out of the way.





ENGINE DISASSEMBLY

1. Unplug the throttle bodies and purge valve. Disconnect the vacuum and water lines that run to the plenum. Leave the metal vacuum tree attached to the plenum. Remove the bolts and nuts holding the plenum to the lower intake manifold and lift the plenum out of the car. (photo 16)



- 2. Remove the 2 studs in the lower manifold (photo 17)
- 3. Cover the tower manifold with a towel to keep items from falling down into the runners.
- 4. Remove the 3 sheet metal brackets on the top of the timing cover.



5. Remove the radiator overflow bottle and hoses. (photo 18)



6. Using a pair of pliers, bend the lower water line back until it is clear of the belt line. You will need to cut the rubber line a little shorter. (photo 19)

Note: Not all vehicles have this tube.

- 7. Using a ½" drive ratchet, release the tension from the drive belt and insert an Allen wrench or bolt into the locking holes to lock it in place. Remove the belt.
- 8. Remove the 7 rib idler in (photo 20). Keep it as it will be installed onto the supercharger assembly later.





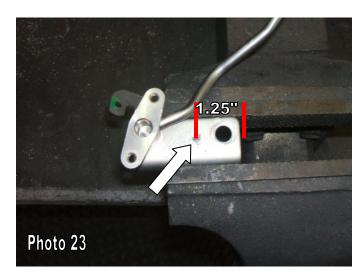
 Unclip the wires that are attached to the dipstick tube. Unbolt the dipstick tube and pull out the dipstick tube. Push the wires back and reinstall the tube with the wires behind it. (photo 21)



INJECTOR REPLACEMENT

- Remove x-over breather tube first. This will be reinstalled later.
- Remove the 4 bolts on the fuel feed tube as well as the 1 holding it to the timing case. Pull the tube out. Unplug the injectors.
- 3. Remove the 4 bolts holding the fuel rails to the lower intake manifold. Remove the retainers and pull out the injectors.
- 4. Using the grease supplied with the injectors, grease the o-rings and install the new injectors in place of the stock ones and plug them in. You will be reusing the retainer clips.
- Reinstall the injector rails and reconnect the plugs.
- 6. On the fuel feed tube, you will drill a new mounting hole as in (photo 23). The hole will be centered on the bracket and 1.25" from the end. Lightly grease the o-rings and reinstall the tube and bolts. Gently bend the fuel tube until you can reinstall the mounting bolt through the new hole. (photo 24)

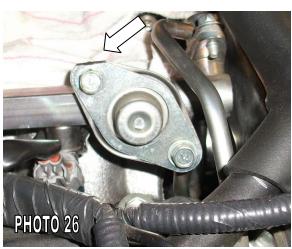








7. Next you will need to grind the corner of the FPR on the passenger side flush with the tangent of the bolt head. See (photo 25 & photo 26)



PLENUM INSTALLATION

1. Transfer the large gasket from the lower flange on the stock plenum to the grove in the new plenum.



2. Transfer the purge valve to the new manifold.

- 3. Install 3 of the supplied flange bolts into the passenger side of the lower intake manifold. These bolts will need to stay above the mounting surface by about 1/2". This will allow you to install the new plenum by slipping it under the bolts and over the top of the drivers side fuel rail.
- Remove the hose on the passenger side valve cover. Using a pair of side cutters, cut off the tabs that held the hose harness.

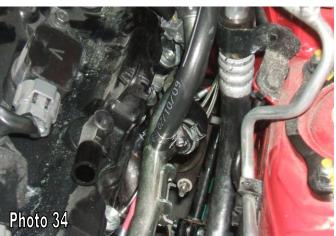


- 5. After you have slipped the manifold under the 3 bolts, start the rest of the bolts around the manifold but DO NOT TIGHTEN THEM YET. Using the supplied 12mm long wrench, snug down the 3 bolts under the manifold. You will have to put a small bend in the end of the wrench (if not done so already) to reach over the fuel rails. (Photo 31)
- 6. Tight down the rest of the bolts to **10-12 ft-lbs** then tighten the 3 bolts under the plenum to approx. the same torque.
- 7. Plug in the purge valve. You will have to remove some tape from the harness and pull out some extra wire.
- 8. Install the supplied, square cut o-rings into the grooves in the throttle body mounting faces. Transfer the throttle bodies from the stock plenum to the new plenum reusing the stock mounting bolts. You will need to twist the 90° fitting down using a pair of pliers in order to attach the water lines. (photo 33) You will need to gently bend the fuel line in order to clear the connector. Plug in the connector for the rear throttle body.
- 9. You will now install the throttle body extension harness. It measures approximately 17" in length. Connect to the engine harness on the driver's side and route along the front of the engine to the relocated throttle body. Ensure the connectors are fully engaged and locked together. Secure to the wire loom located at the front of the engine

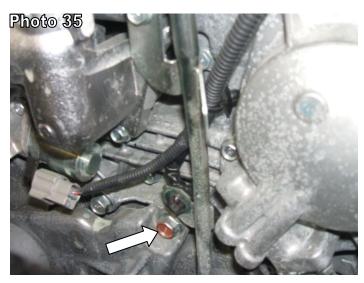


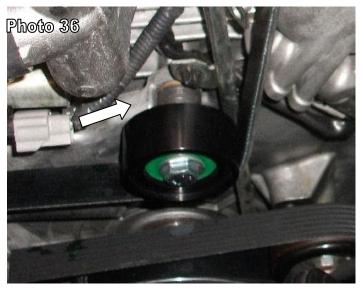






10. Remove the stock water line from the back of the engine, route 3/8" hose from the back of the engine to the straight fitting on the rear throttle body. Using a new section of 3/8 hose, connect the 90° fitting on the rear throttle body to the 90° fitting on the front throttle body. Then run a long piece of 3/8 line from the straight fitting on the front throttle body, around the back of the engine to the supply line mounting point on the drivers side. Secure all lines with hose clamps.



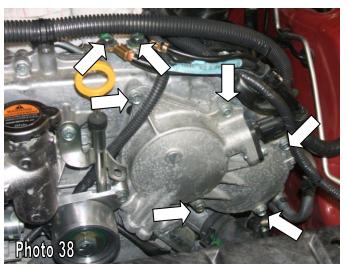


IDLER MOUNTING

- 1. Remove the bolt in (photo 35). It will not be reused.
- 2. Install the Idler using the supplied bolt and spacer. (photo 36)
- 3. Tighten the center bolt holding on the idler.
- 4. Using a pair of pliers, bend the upper harness clip mounting tab, on the dipstick tube, back to clear the belt.

SUPERCHARGER MOUNTING

- Remove the air duct by removing the plastic clip. It may take some finagling to get the ducts out of the car. It will not be reused.
- 2. Remove the 5 bolts on the timing cover and the 2 bolts holding the grounding wires on the top of the timing cover.





3. Install the inlet boot into the hole from the engine compartment. Just leave it loose in there for now. (photo 39)

 Next you will be modifying the coolant hose on the drivers side above the A/C pulley. It is recommended that you drain the coolant from the vehicle before doing so. (photo 41)

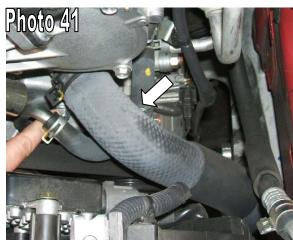


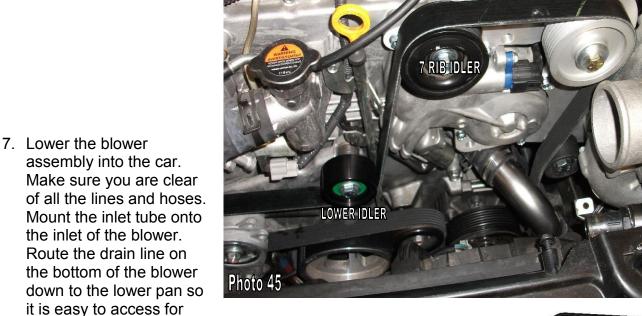
Photo 42

5. Once the hose is removed you will need to cut it where shown in (photo 42) This will be on the topside of the hose that goes into the head. The cuts are before and after the radius of the hose. (photo 43) 1st cut is about 2-3/4" from the edge. 2nd cut is 3 1/8" from the end stop.



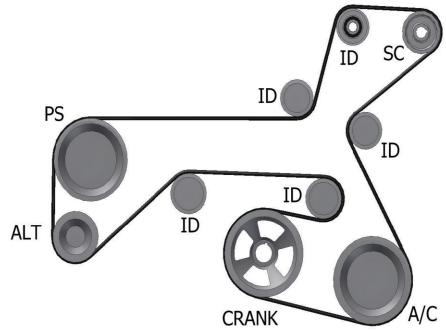
 Once the cuts are made you will assemble the hose as shown in (photo 44) Reinstall using hose clamps.





- changing the oil.

 8. Using the supplied bolts, mount the blower plate to the timing cover. You will have to remove the lower idler to insert the mounting bolts. Make sure you are not pinching any of the wire harness and make sure it sits flush and tighten the bolts.
- Install the upper support plate by mounting it to the supercharger plate and to the top of the timing case. (photo 45) Don't forget the ground

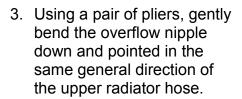


UPPER SUPPORT PLATE

- wires on the top 2 bolts. Tighten the belt on the back of the supercharger.
- 10. Install the #56 hose clamp to hold the inlet boot to the supercharger.
- 11. Install the 7 rib idler removed earlier onto the blower plate using the supplied spacer and hardware. Reinstall the lower idler. (photo 45)
- 12. You can now install the new belt per the new routing diagram. Release the tensioned and remove the Allen wrench or bolt you had holding the tensioned locked.
- 13. Check the tube you bent earlier (pg. 10 step 7) to make sure it is clear of the belt.

OVERFLOW BOTTLE MOUNTING.

- Mount the bracket to the air box bracket on the passengers side reusing the stock bolt and supplied hardware to secure the extension bracket.
- Slide the bottle down into the clip of the bracket. You may have to push one of the power steering lines out of the way.



 Install the supplied piece of hose from the overflow nipple to the overflow bottle. Make sure to hook it up to the side of the cap that has the tube that reaches to the bottom of the bottle. You can reuse the stock hose clamps.







INTERCOOLER INSTALLATION

- First you will be mounting the pump.
 The pump is mounted to the bracket using 2 Adel clamps. In front of the drivers wheel well there is an open area. Remove the lower air box baffle and bracket. You may have to temporarily remove the horn to have more room to work.
- Hold the pump bracket up to the sheet metal and mark the mounting holes. Using a drill, drill 2 pilot holes. Hold the pump bracket up and install using the supplied self-drilling screws. Reinstall the horn if removed.
- 3. Next is the tank. Install one of the 5/8" to 3/4" dual ID hoses to the fitting on the bottom of the tank and secure it with a hose clamp. Feed the 3/4" end under the blower to the top of the pump and secure that end with a clamp. Mount the tank to the 2 holes in the sheet metal surrounding the master cylinder compartment.
- 4. Install the second dual-id hose with the 3/4" end onto the outlet side of the pump and secure with a clamp. Route this line around the core support and in front of the radiator. Leave it there for now.
- 5. Using one of the 5/8" hoses with the 90° ends, attach the 90° end to the end of the intercooler tank and attach the other end to the intercooler that is mounted inside the plenum. You will have to route it and cut it to length and secure it with clamps.
- 6. Install one of the other 90° hoses to the other side of the intercooler and secure with a clamp. Route it down under the new radiator overflow tank, through the air box inlet hole, and out in front of the radiator. Leave it there for now.

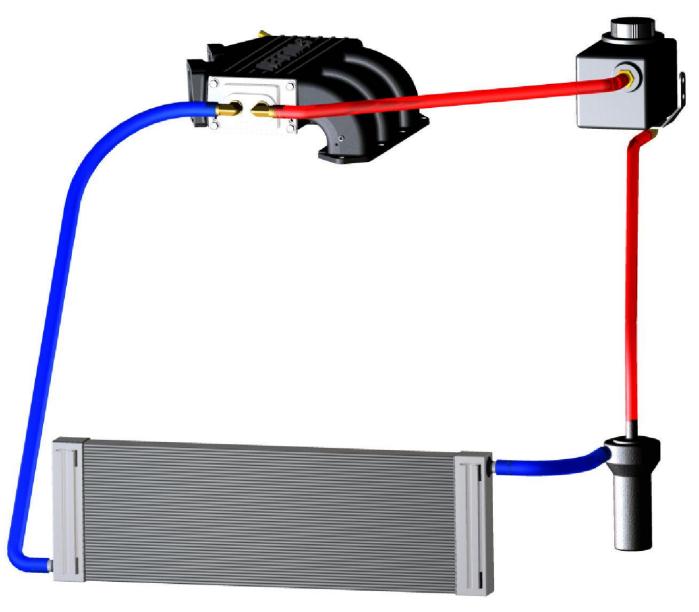






- 7. Mount the heat exchanger using the provided brackets and hardware onto the bumper. Use the self drilling screws to mount it.
- 8. Attach the hoses to the heat exchanger and secure with hose clamps. your routing should be like

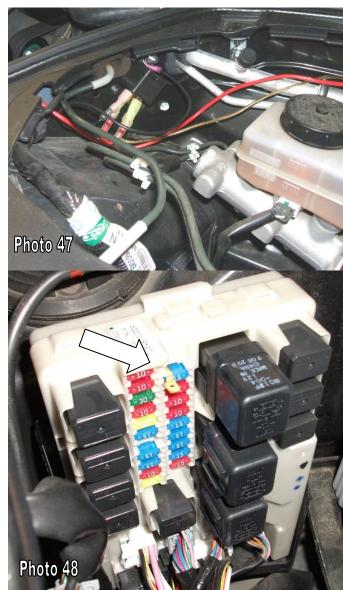


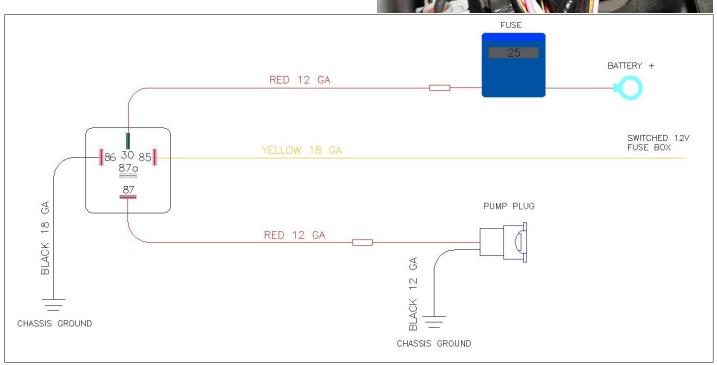


the diagram.

 Mount the relay inside the master cylinder compartment. Wire the relay per the wire diagram. Route the main power supply wire and the switched wire under the cowl and to the battery compartment.

- 10. Remove the passengers side of the cowl, unclip the fuse box, and lift it out. Remove the cover.
- 11. You will attach the switched power wire to the fuse in photo.
- 12. Reassemble the fuse box, reinstall it and reinstall the cowl.





BYPASS VALVE / VACUUM LINES

 Cut approx. 8 1/2" off of the straight end of the 1" hose. And 2 1/4"" off the short end. You will be using both pieces.

NOTE: This is already assembled for you.



Assemble the bypass valve and hose parts per picture and secure with hose clamps.



3. Attach the long straight end to the inlet boot and secure with a clamp. Route the supplied vacuum line from the bottom of the bypass valve through the opening in the timing case, to the vacuum tee near the rear of the motor. (See vac diagram) Leave the valve hanging there for now.



4. Using 1 5/8" hose with the 90° end, route the crankcase vent line from the driver side, under the blower to the fitting on the inlet boot. You will have to trim the hoses to the proper length.

5. Connect the purge valve as shown in (photo 52) You will be reusing a section of the hose shown in (photo 53) You will cut the hose to approximately 2.75" from the inner radius as shown (photo 54)







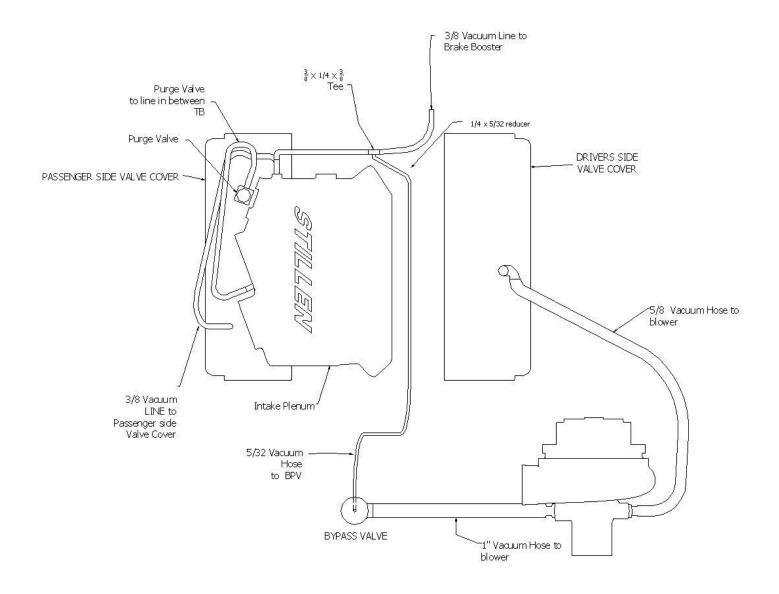
- 6. Connect the hose cut previously from the purge valve to the upper 90 deg fitting on the back of the manifold. (photo 55)
- 7. (Photo 56) shows how the 5/8 line is routed towards the inlet boot.
- 8. Remember to reinstall the xcross over tube removed previously if this hasn't been done already. (Photo 57)
- 9. You will connect the brake booster to the middle 90 deg fitting and tee into this line for the bypass valve. (Photo 58)





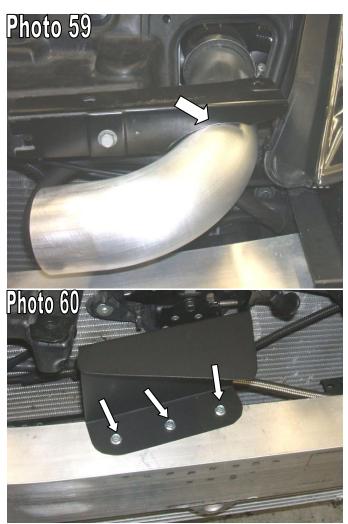


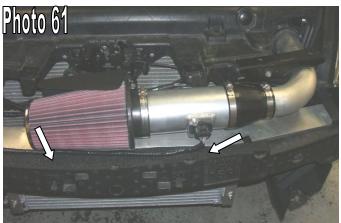




INLET INSTALLATION

- 1. First you will make clearance for the elbow as shown in (photo 59)
- 2. Transfer the MAF sensors from the stock intakes into the new MAF tube. Check to make sure the seals that are on the base of the MAFs stay in place.
- Install the step boot onto the MAF tube and secure with clamps. Do not tighten the clamps very tight yet, as you will need to move the parts around to get them in place.
- 4. Install the MAF extension harnesses. They are approximately 43" in length. Beginning on the driver's side, connect to the factory MAF connection, ensuring the connector is fully seated and locked into position. Route through the radiator support (it is recommended to follow the intercooler hose routing). Secure the harness so that it will not contact any sharp metal edges, the heat exchanger or radiator. Repeat procedure for passenger side MAF.
- 5. Plug in the MAF sensors.
- 6. Install the splash shield using the 3 self drilling screws. (photo 60)
- you will need to trim the bumper foam support flush with the top of the bumper.
- Install the filter and intake as shown in (photo 61) Make sure the MAF tube is oriented in this direction





CHARGE PIPE INSTALLATION

- 1. Slide the 2 short boots onto the throttle body ends of the tube, the longer one onto the supercharger end, and slide them down
- 2. Attach the bypass valve to the fitting on the bottom of the inlet pipe and secure with a clamp.
- 3. Install the pipe and slide the 3 boots onto the throttle bodies and blower. Secure with the clamps.
- 4. Reinstall your strut tower bar placing the provided spacers under the ends of the bar.



Follow the instructions provided with the ECU tuning cable and software.





HOOD MODIFICATION

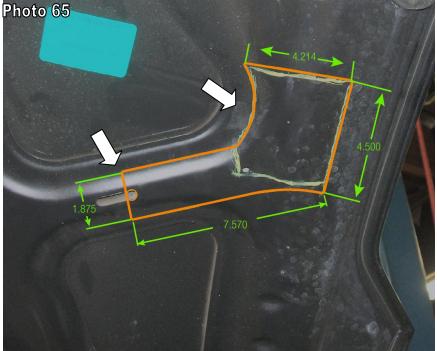
 You will be modifying your hood at this time. First you will begin by popping off the plastic clips under the hood holding on the insulator. You will begin on the drivers side. Use TEMPLATE A provided at the end of the instructions and locate

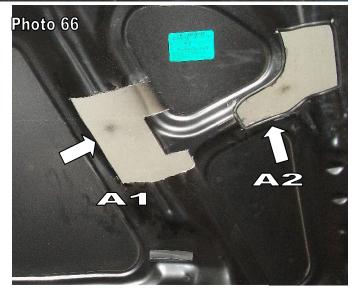
the cutout location seen in (photo 64) This is opening A1. It is recommended that you cover the engine bay to make clean up easier. Use a cutoff/grind wheel to carefully cut out the area needed. NOTE:

Take your time as you will be cutting very close to the topside of the hood at times.

- 2. Next you will be making opening A2. Where shown in (photo 65) use the slotted hole as a reference. Use Template C. It is easiest to follow the curvature of the lines on the hood when doing
- 3. When finished the cutouts should look as shown in (photo 68) extra trimming may be needed.







- 4. Now you will be cutting out the passenger side clearance holes. Using the provided TEMPLATE B cut out the size openings as shown. (See photo 67) NOTE: Take your time as you will be cutting very close to the topside of the hood at times.

 5. When done the openings should look as shown in (photo 68) Use the provided rubber trim
- and rtv silicone to seal the edges.

Engine Cover Supplement Instructions

FIG.

1. You will be installing the engine cover brackets where shown in (Fig.1) The taller one will go on the rear fuel rail bolt and the shorter one will be installed on the front 2 bolts which are holding on the support brace. See (Fig.2) You will be reusing the existing bolts already in place. For the front bracket it is recommended to loosen the bolts which secure the

Photo 68



grounds onto the drive plate support.



2. Once installed you will install

the engine cover using the supplied BHCS bolts and nuts. See (Fig.3)

FINAL CHECK

- 1. Attached to the supercharger is an instruction tag and brass vent fitting. Follow these instructions for installing this vent plug in place of the shipping plug on the blower.
- 2. Check the oil level of the supercharger. It is shipped pre-oiled, however it is best to check the level before running.
- 3. Check for any unplugged vacuum lines or connectors.
- 4. Look around the belts to check for any wires or vacuum lines that may touch the belts. Secure everything clear of the belts and pulleys using zip ties. If zip tying vacuum lines, be sure not to pull the ties too tight and pinch off the lines.
- 5. Top off any coolant lost from the cooling system and fill the radiator overflow tank to the fill line.
- 6. Fill the intercooler system.
 - **NOTE:** If you live in a climate that sees freezing temperatures, you should fill the system with a 50/50 antifreeze/water mixture for winter. If you do not have freezing temperatures or for summer use, mix 1 cup Water Wetter™ with water in the system.
- 7. Reconnect the battery. Turn on the ignition, but do not start the car. The intercooler pump should start up. Fill the system as the air bleeds out. Do not let the pump suck in air as it may create an airlock. If this happens, disconnect the water line from the end of the tank, hold a finger over the fitting, and blow into the tank. This will force the water down into the pump and will release the airlock. The water level in the tank should be up to the base of the filler neck. Check the system for leaks.
- 8. Reinstall the fascia, battery and brake master cylinder cover.

EXTREMELY IMPORTANT:

To insure maximum performance and safety, boost pressure MUST be checked immediately after install. We recommend using a **quality** (Snap-0n,AEM, HKS etc) calibrated boost/pressure gauge that reads 10-15psi (1 BAR) maximum if analog or a digital gauge. The gauge must be "**T**"eed into the small front vacuum line that leads to the supercharger bypass valve. Maximum boost reading will be obtained at WOT in 3rd gear @ 7000 rpm. We suggest you avoid hitting the RPM limiter or an incorrect reading will result. A dynamometer can be used if traffic conditions or an "off road" location is not available for proper testing.

The boost reading should be from 7.6-8.4 psi. Pressure can vary due to atmospheric conditions and dyno types. For example a Dynojet dyno boost

reading will be .3-.4 low as compared to actual road testing. Make sure to do 2-3 tests and write down your results to confirm an accurate reading. If outside the recommended pressure readings please contact Stillen technical support immediately for further assistance

Notice to Installer:

It is important to give the section of these instructions titled "Care and Maintenance" to the owner of the vehicle.

CARE & MAINTENANCE

The STILLEN supercharger is designed to provide power AND reliability. All bearings used are lubricated and sealed. However there are some basic care items that should be checked regularly.

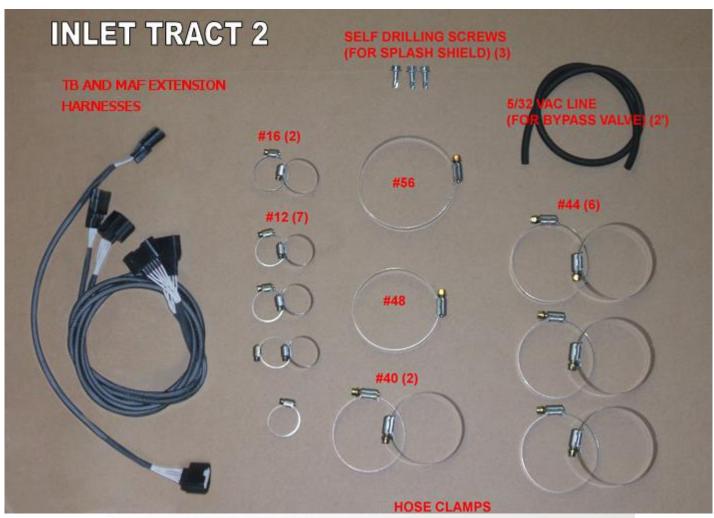
Ш	OCTANE.
	Check the oil in your supercharger every 2,500 miles. The initial fluid change should be done 2,500 miles after install and then every 7,500 miles
	IF FOR WHATEVER REASON THE VEHICLE STARTS TO PING OR
	DETONATE UNDER LOAD OR HIGH RPM GET OFF THE THROTTLE!
	Changing climate, altitude or atmospheric conditions will affect your vehicle. Various types of fuel (e.g. oxygenated, ethanol, etc) will also affect the performance of your vehicle.
	Check the supercharger drive belts regularly. Replace any that show signs of cracking/tearing.
	Check coolant level in intercooler often. It should be changed annually to maintain peak performance. Remember to use antifreeze if you live in an area that sees freezing conditions.
	Check your air filter regularly. A clogged air filter can drastically affect your vehicle. Clean and oil your air filter when it becomes dirty. DO NOT OVER OIL.
	High quality synthetic oil is recommended and oil changes should be done every 3,000 miles. This improves engine durability and longevity in a forced induction application.
	Do <u>not</u> alter, modify or adjust the Stillen supercharger system in any way. Unauthorized changes to boost levels, electronics, tuning or any other system will void warranties and can cause catastrophic engine damage.



















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