ATI PERFORMANCE PRODUCTS

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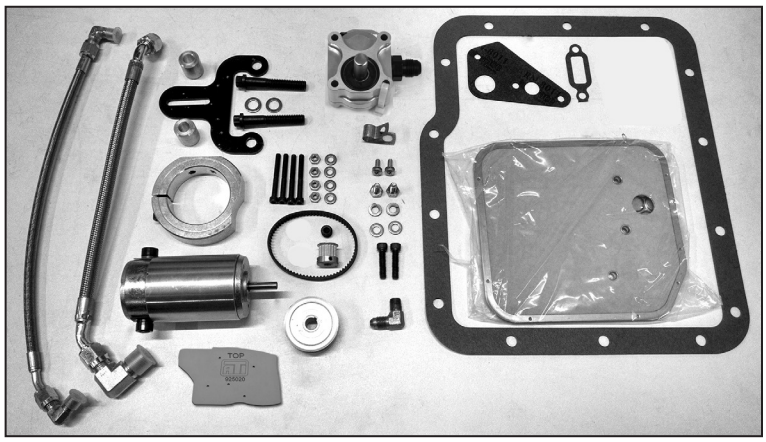
Instructions

SCS-30 COOLING SYSTEM

U.S. Patent #8,251,851

Part # 925000



Tools and Parts required:
Drill, drill bits, punch, hammer, black RTV, thread sealant, various wrenches and sockets.

PARTS LIST

- ☐ Electric Motor
- ☐ Pump Assembly
- ☐ Feed Hose Assembly
- ☐ Suction Hose Assembly
- ☐ 17 Tooth Gear
- ☐ 44 Tooth Gear
- ☐ Mini Cog Belt
- ☐ Filter Extension
- ☐ Extension to Filter Gasket
- ☐ Extension to Valve Body Gasket
- ☐ Pan Gasket
- ☐ Mounting Collar
- ☐ Mounting Bracket
- ☐ Bracket Spacers
- ☐ Adel Clamp
- ☐ (4) 10-32 x 1.75” Allen Head Bolts
- ☐ (4) 10-32 Hex Head Lock Nuts
- ☐ (4) #10 Flat Washers
- ☐ (2) 3/8-16 x 2 1/4” 12 Point Bolts
- ☐ (2) 3/8” Flat Washers
- ☐ (2) 1/4-20 x 1” Allen Head Bolts
- ☐ (2) 1/4” Lock Washers
- ☐ (2) 1/4-20 x 1” Hex Head Bolts
- ☐ (2) 1/4” Flat Washers
- ☐ (2) 10-24 x 1/2” Machine Screws
- ☐ Instructions
- ☐ Template

CASE PREPARATION

1. It is best to start with a clean, empty case to avoid any debris getting inside of the assembled unit.
2. Remove the small black and silver tag mounted right behind the dip stick if so equipped.
3. Locate the supplied template on the inside of the case as shown in **Figure A** by lining up the template with the outer lines of the case and tape in place.
4. Use a transfer punch and a hammer to stamp indicator locations in the case’s surface.
5. Once you have made the five marks in the case properly, drill the holes accordingly.
6. The four outside holes require a 3/16” drill bit. The large center hole will require a 3/4” drill bit to finish but should be started with a smaller pilot hole. ***NOTE: You need to drill from the inside out. If you go too large, the o-ring will not seal!***
7. Be sure to prep the contact surface (the area where the pump will sit against the case). This involves knocking any high points in the casting down. If you have a Bridgeport or similar knee mill, a machined finish is always best but in lieu of that, an abrasive pad on a right angle die grinder will also work. ***DO NOT USE A HARD WHEEL!*** You just want to create a nice, smooth flat surface for a good seal. (**Figure B**)

   NOTE: Make sure to remove any debris created from prepping the surface. You want the case clean when you are done and ready for assembly.

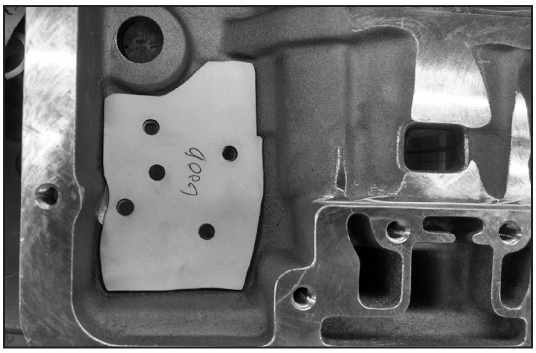


Figure A

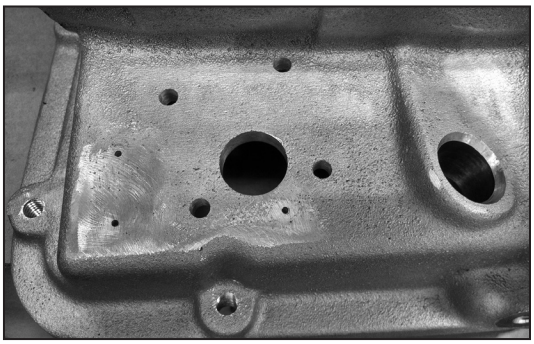


Figure B

8. The pump is designed offset so you can only install it one way. The pick-up side will face forward and the pressure side will face rearward. (**Figure C**)

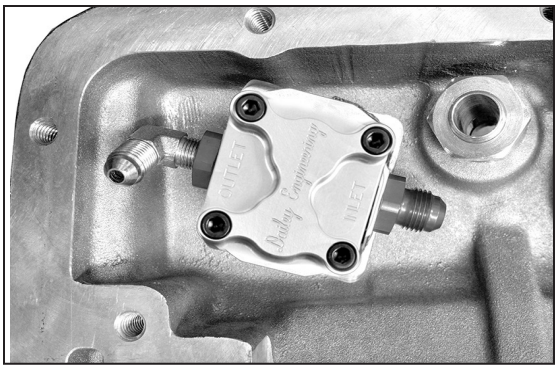


Figure C

9. Install the required 90° -4AN fitting in the pump now. You will not be able to install it once the pump is installed into the case. A -6AN straight fitting is already in one side of the pump (which faces forward). The 90° -4AN fitting goes in the other side (facing rearward).

   NOTE: Be sure to use the regular 90° fitting and NOT the modified fitting with the check ball which goes on the valve body mentioned below. The -4 hose should come with the two 90° fittings attached to the hose. The straight end goes to the pump and the 45° end goes to the valve body.

10. Mock up the pump before final installation. Make sure the holes line up nicely and the outer diameter of the bushing fits snugly in the large hole. Also verify the 90° fitting is aimed in the correct direction

    NOTE: Check for proper clearance. It can be a tight fit between that 90°fitting and the case. No grinding should be necessary if the fitting is threaded into the pump far enough.



Figure D

11. Remove the cover on the pump, put a little trans fluid on the gears and rotate them to ensure they are not dry. Replace the pump cover.

12. Apply a thin coat of black RTV to the top of the pump and the inside of the case where they will meet. Attach the pump to the case with the four 10-32 x 1.75” Allen head bolts and locknuts. Use the four #10 washers here; one under each of the lock nuts. The bolts go through the pump first and stick through the top of the case. You can put a dab of silicone on the washers to help ensure the holes are sealed thoroughly. (**Figure D**)

13. When mounting the actual pump on the inside of the case, it is important to tighten up the four fasteners slowly and evenly. This is imperative so as not to TWIST and/or deform the pump housing and inadvertently change the clearance in the gears. While tightening, you should be able to spin the pump with your thumb and fingers. If it doesn’t spin at any time during this process, STOP! You may have twisted the housing slightly. Back the fasteners off until it does spin and try tightening evenly again. Once it is tightened down securely, ensure the pump still spins with your fingers. There should be a light drag due to the double o-ring on the shaft where the bushing seals.

14. Set the large (44 toothed) gear/pulley on the pump shaft. It should be mounted so it does not interfere with the nuts holding the pump to the case. Snug it lightly for now but remember to come back and tighten completely once the motor is installed and you can verify proper belt alignment. Use Blue Loctite© for final set-screw tightening. (**Figure D**)

VALVE BODY INSTALLATION

15. Any ATI valve body produced in recent years will already be drilled and tapped for the SCS-30 system and shipped with an NPT pipe plug in the hole. If you have an ATI-prepped valve body, simply remove the plug and screw the 90° -4AN fitting with the check ball in this port. **(Figures E & F)** This fitting should be attached to the -4 hose in the 45° hose end. Be sure the fitting ends up in a good location for the hose routing. You must be sure the fitting is installed far enough into the valve body so as to cover the pin and prevent it from coming out once installed. You can install this fitting with the valve body bolted in place.

    If you do NOT have an ATI-prepped valve body, then you must drill and tap a 1/8” NPT hole in the location shown in **Figure F**. This is where the SCS pump will push the fluid through the transmission.

    NOTE: There are two -4 AN 90° fittings supplied with this kit. One of them has a check ball in it and only flows one way. It can be identified by the pin in the NPT threads. This fitting must go into the valve body directly. It allows fluid to flow from the pump through the transmission but prevents line pressure from bleeding off back through the pump. **(Figure E)**

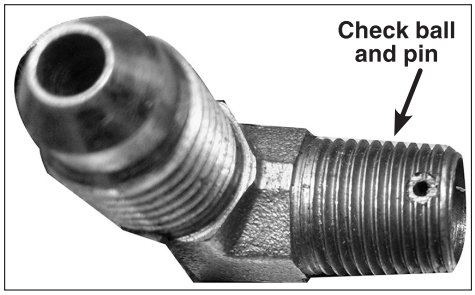


Figure E

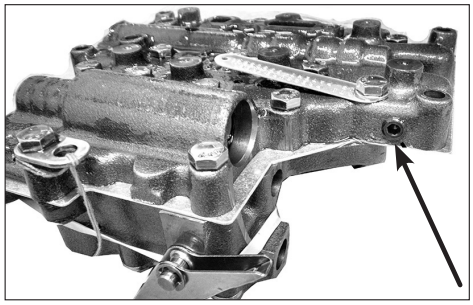


Figure F

16. Once you have installed the valve body and the 45° fitting, you can install your rooster comb guide plate. This should slide into place with no other modifications necessary.
17. You will want to install the 90° -6AN fitting in the adapter/extension block before attaching it to the valve body. Be sure the fitting is facing in the proper direction as shown is **Figure G**.

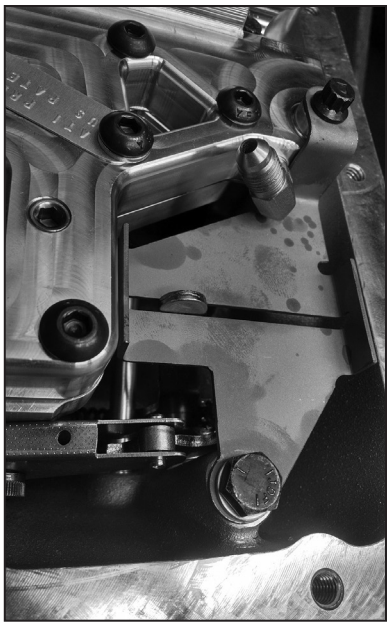


Figure G

FOR <u>CAST IRON</u> VALVE BODIES:

18. Use the two allen head bolts and washers to attach the adapter.
19. Now you can install the -6 pick up hose and fittings also shown in **Figure E**. This is where the pump draws from; picking up filtered fluid only.
20. Connect the -4AN braided hose to the two 45° fittings. This goes between the valve body and SCS pump. The straight end goes to the pump and the 45° end goes to the valve body.
21. Install the supplied adel clamp using the valve body bolt as seen in **Figure H**. This holds the -4 braided line in place. It can attach to a few different bolts. Choose the one that creates the least amount of tension.

    NOTE: The adel clamp hole may be small and need a little filing in order to clear the bolt.
22. Use the two Phillips head screws to attach the filter to the adapter. You may want to trim the excess part of the gasket for a cleaner installation. (This is a good time to check for proper pan clearance).

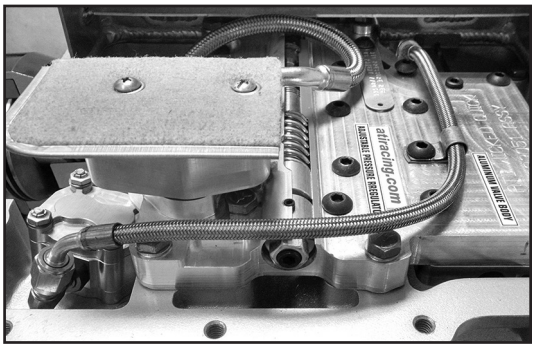


Figure H

FOR <u>ALUMINUM</u> VALVE BODIES:

*****This Must Be Specified At The Time Of Order!*****

If you have the #203051 Wicked Quick™ Valve Body, the filter adapter/ extension block will be different. The opening on the valve body side is different where the fluid flows and will use two of the same gasket. There are only one set of screws (two 10-24 x 1 3/4") going all the way through from the filter to the valve body. The filter and block will be attached at the same time.

23. Bolt the block in place temporarily so you can attach and tighten the -6 feed hose. You will not be able to tighten the hose end once the filter is on.
24. Trim the two gaskets to remove the excess that hangs over and put the two screws through the filter, gasket, block, and second gasket. Then attach to the valve body. (**Figure I**)



Figure I

MOUNTING THE ELECTRIC MOTOR

The electric motor will be mounted with the shaft going down and the two electrical connections up.

28. BEFORE installing the motor, put the small (17 toothed) gear/pulley on the shaft and snug it in place. One of the two set screws should lock into the notch on the shaft.
29. The motor goes into the aluminum collar. The collar should have the indent on the inside with the allen bolt clamp on the outside. This collar is how we adjust the height of the motor for proper alignment.
30. The collar bolts to the black “Y” bracket. This bracket can go on one of two ways. It MUST be put on the correct way to ensure proper alignment and adjustment. Look closely at the slot where the collar mounts; it needs to be angled down and away from the transmission (parallel to the top of the case). You can slide the motor in and out in this slot to set belt tension.
31. The “Y” bracket gets mounted to the transmission via the tailhousing bolt holes on the passenger side (**Figure J**). Use the two 12 point bolts and washers supplied. They will go through the bracket and then the two aluminum spacers will go between the bracket and the tailhousing with the bolts going all the way into the case. Typically, the larger of the two spacers goes on top to ensure the motor gear/pulley is in line with the pump gear/pulley. You may need to use a washer to shim one spacer or the other to ensure proper belt alignment.



Figure J

NOTES:

1. The small HTD belt should not be “tight”. It needs to have a small amount of slack in it, just like a cog style blower belt. You can adjust this by sliding the collar holding the motor in and out on the bracket. The ground wire can be bolted to one of the bracket bolts.
2. The electric motor MUST be wired with the positive (+) side to ground! Power goes to the negative (-) terminal. This is because the motor is inverted in order to turn the pump in the correct direction; the motor must spin backwards. This motor is compatible with both 12 and 16 volt batteries.
3. You MUST use a deep pan when using the SCS-30 system.
4. Always check for proper filter clearance!
5. ATI recommends using thread sealant on the NPT side of all fittings (NOT on the A/N side of the fittings). Be sure to remove excess sealant when the fittings are tight.