A-SPEC GT35R Conversion Notes
For An Operational Air Pump
By Chuck Westbrook, Feb. 2005

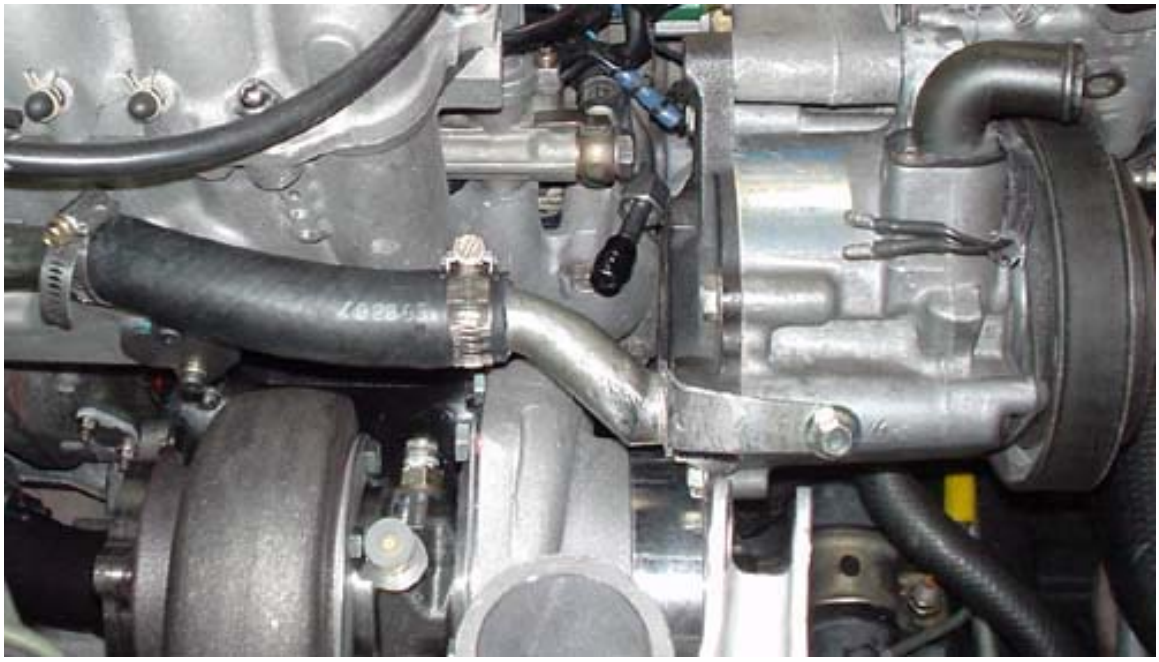
These notes do not cover installation of the kit. They are what I did to allow the air pump to remain on the engine and be functional with the stock secondary fuel rail and air control valve. This may seem to be more work than just removing the ACV and running a hose directly from the air pump to the cat; but my way looks and operates almost like stock.

Remove the air pump inlet/dump pipe set from the LIM/ACV. Cut off the dump pipe from the inlet pipe, and discard it. Cut the first 4" of the air inlet pipe off. That is right behind the first flange. Put the inlet pipe back on. Make a block off plate to cover the opening where the dump pipe connected to the ACV.

Disconnect the ACV solenoid electrical connectors. Remove the two solenoids from the rack and their vacuum lines. Screw out the SPLIT AIR BYPASS solenoid, remove it's plunger, and reinstall. The above changes now allow all the air from the air pump to go directly to the cat air supply pipe. This means that as long as the air pump is running, you can direct all of it's air to flow to a DP, MP, or CAT.

Cut off the front aluminum ear used to attach the air pump to it's adjusting bracket. This will be discussed later. Discard the bracket and grind down the stump on the air pump. Remove the pump outlet pipe. Reinstall it but rotated about 90 degrees CC looking from the rear. This places the attaching flange over the raised outlet section where the pipe goes in. Bend the flange down until it touches the aluminum. Mark where you want to drill and tap a hole to hold the pipe to the air pump. Remove the pipe, stuff the hole with a rag, drill the hole with a 7/32" drill and tap to 6mm 1.0 pitch. Pull out the rag and debris. Clean out any debris left in the cavity. Clean all oil and dirt off the end of the pipe that goes into the pump and the pump opening. Coat the pipe end with a good sealant and install it using a short common 6mm x 1.0 Mazda bolt (10mm hex head) to hold it in place. I used JB Weld epoxy to reseal the outlet pipe to the pump. See pictures below of mod and how it fits.

The air pump outlet pipe is now far away from the turbo outlet.



Since the adjusting bracket ear was cut off, the pump will be pulled down against the thermostat housing and will rest against the top coolant line for the turbo. It will also need a shorter belt, and will block the turbo inlet. To avoid all of this, I made an aluminum 3/8" thick bracket for the air pump to rest against. It replaces the original bracket and bolts into the same position with the stock bolt. See below (painted black just for the picture) and notice how it matches the outline of where it fits, and how the contour also matches that of the air pump body. Since I have a SR undersize main pulley, I found that the Gates Micro-V K050551 belt was a perfect fit for this new setup. Actually I designed the bracket to work with this belt.

You can see the bracket installed in this view (paint removed). This setup allows about 1/2" side clearance between the turbo inlet and air pump pulley. You will have to either use a smaller diameter air filter, or use an extension pipe like I did in the next picture.

The extension pushes the air filter closer to the radiator. My stock coolant hose was in the way because my Blitz FMIC causes the radiator to sit back further than stock. You might not have this problem. I had to cut off the angled end of the radiator inlet pipe, and make a special coolant hose using a COOL FLEX kit. It gives a great amount of clearance.