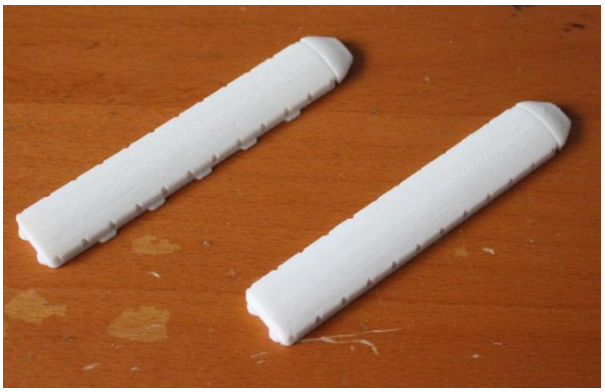
# Semi-Scale Turbo Allison Motor

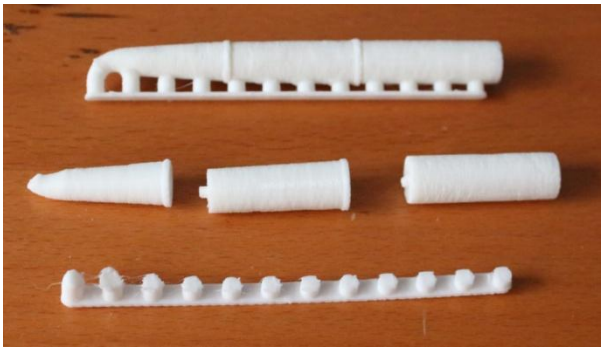
Tools needed

Sandpaper, Xacto knife, drill bits, CA Gap filling glue, Spackling compound, paint

1) Check all of the part for burrs and seams from the 3d printing process. They can be cleaned up with the Xacto blade and/or sanding. Rough areas can be filled a bit with spackling compound and sanded. This is really important on the head covers which you want to make as smooth as possible.



2) Attach the end caps to the head covers. The fit just above the tabs Note they are mirror images, so one end cap on the left and one on the right. Fill the gap with a bit of spackling compound and sand smooth when dry.

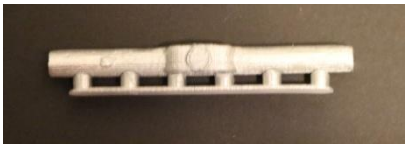


You can also assemble the exhaust header, since it is all pretty much one color and can be painted in the assembled state. The header is three pieces - where the center piece is just slightly tapered and the third piece is a cylinder. Assemble them on a flat surface since you want the plate to be flat. There are small holes in the back which may have to be cleaned up a bit for the pins to fit. Use a bit of spackle if there are gaps.

The 4th piece of the exhaust header has an "S" shape and is attached to bend in toward the motor You can see that part in the following picture..

3) At this point it is probably a good idea to paint the various parts. The pictures to the right provide one concept for a color scheme. I used Perfect Match paints from the auto supply. The exhaust header, cross beam and turbo "hot end" are painted with the red primer. Other parts are either Perfect Match Red or Silver.

6) Assembly the upper intake tube, which consists of a long tube and a header piece. The header has pins that will fit into holes in the intake tube. The middle two stubs on the header have a flat side that will match up with the protrusion on the exhaust tube.

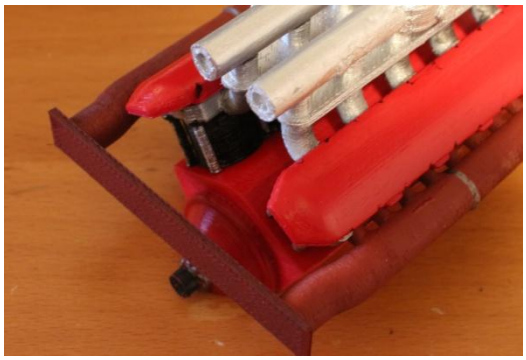


7) Assemble the turbo cold end has a "cap"

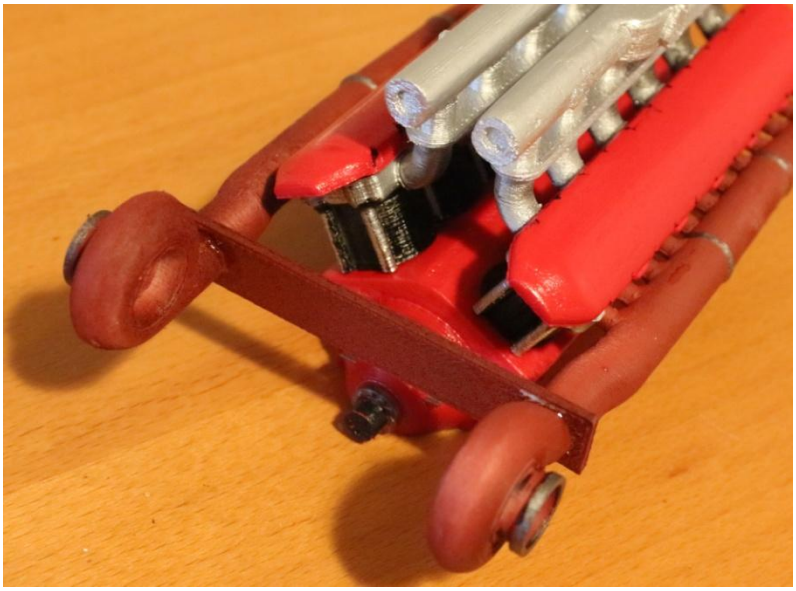
8) Now we are pretty much down to putting it all together. The cylinder blocks fit into the "crankcase". There are holes for the lower intakes and a slot for the exhaust header.

It is worth noting that the head cover extensions point back in the same direction as the exhaust.

The cross beam goes on the back edge of the exhaust header and the upper intake tubes match up with the plate from the lower intake header.



There are two different turb hot end pieces - one with a slight bend and one that is straight. They glue to the cross beam and match up with the exhaust tubes.

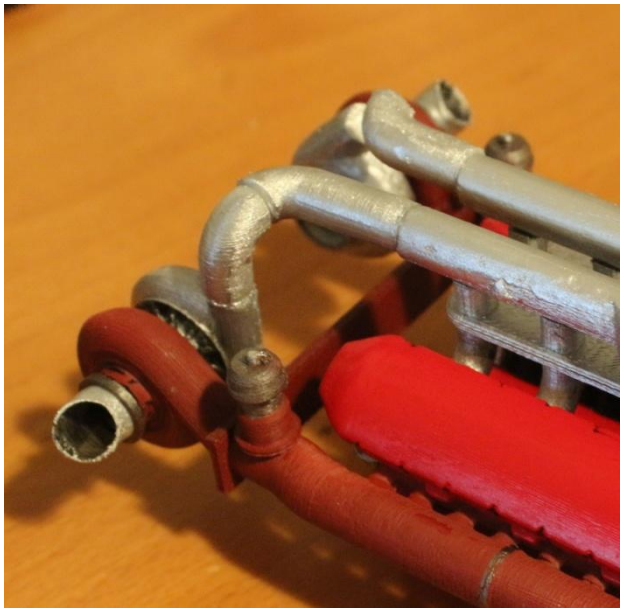


There are 4 tubes with 90 degree bends. These are used to connect the turbo cold ends to the intake tubes. There is a longer tube, a medium long tube and two shorter tubes. (The short tubes may be changed to be the same size).

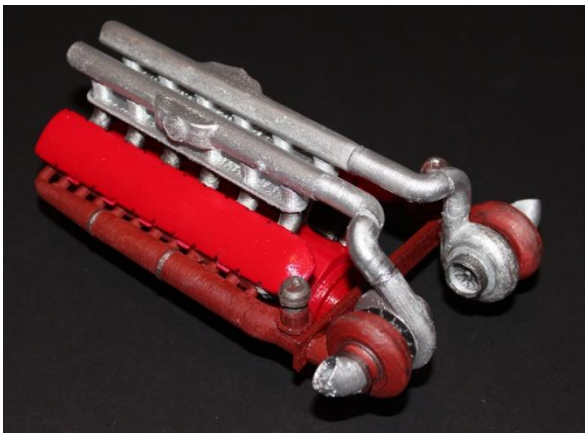
The long tube mounts on the right side intake - looking from behind the turbos - and points out.

The short tubes mount on the turbo cold ends.

The medium long tube mounts on the left side intake and points out.



Fitting the tube connecting tubes takes a bit of tweaking to get things lined up. Use the pictures below for reference.



Once everything lines up to your satisfaction, then glue the pin on the cold end into the hot side. I attached the two tubes to the intakes first and the sized up the fit of the cold end. I had to sand down just slightly on both of the short tubes to get things lined up.

At this point - add the relief valves to the exhaust - (or whatever those things are) .. the exhaust stacks to the hot end, and the gearbox to the front... and you have a Turbo Allison motor.