

# IO 390 Plenum Installation Instructions

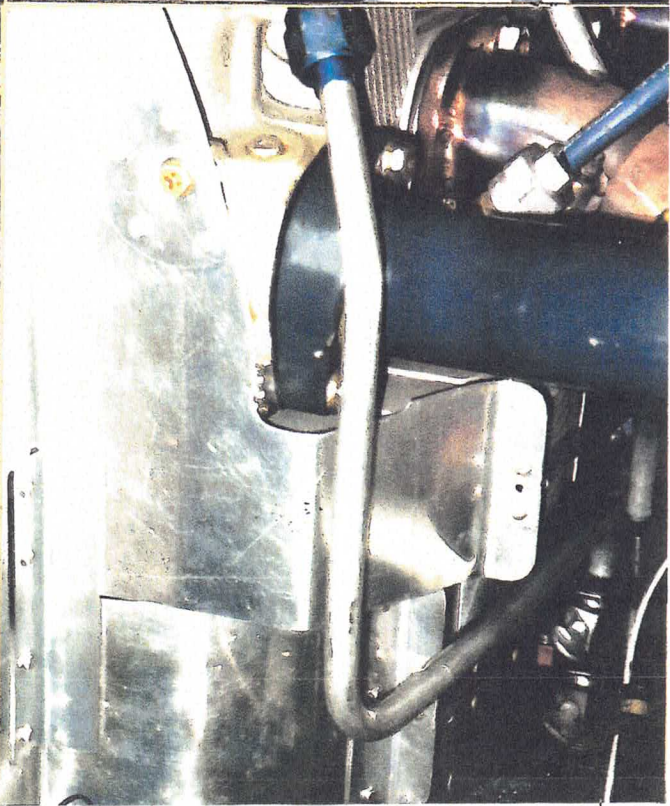
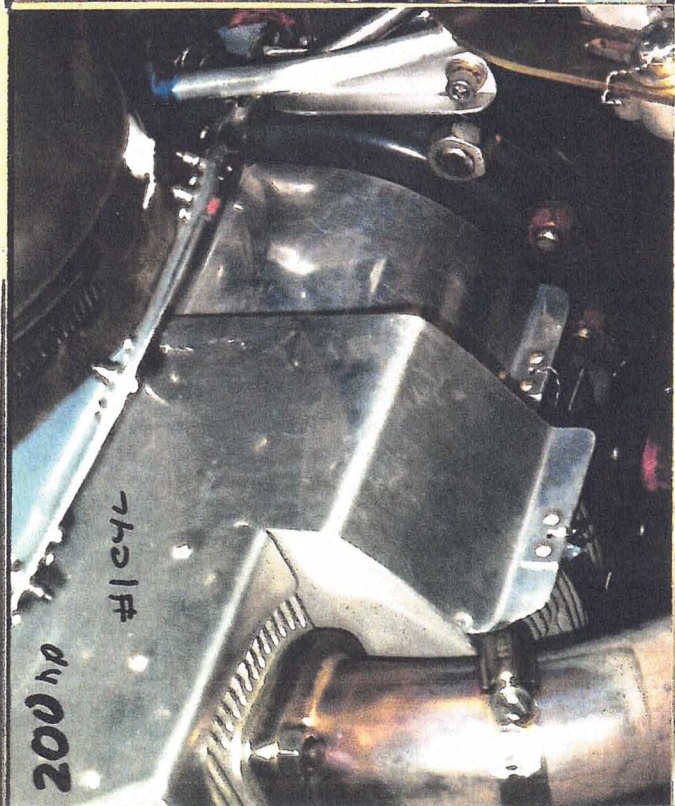
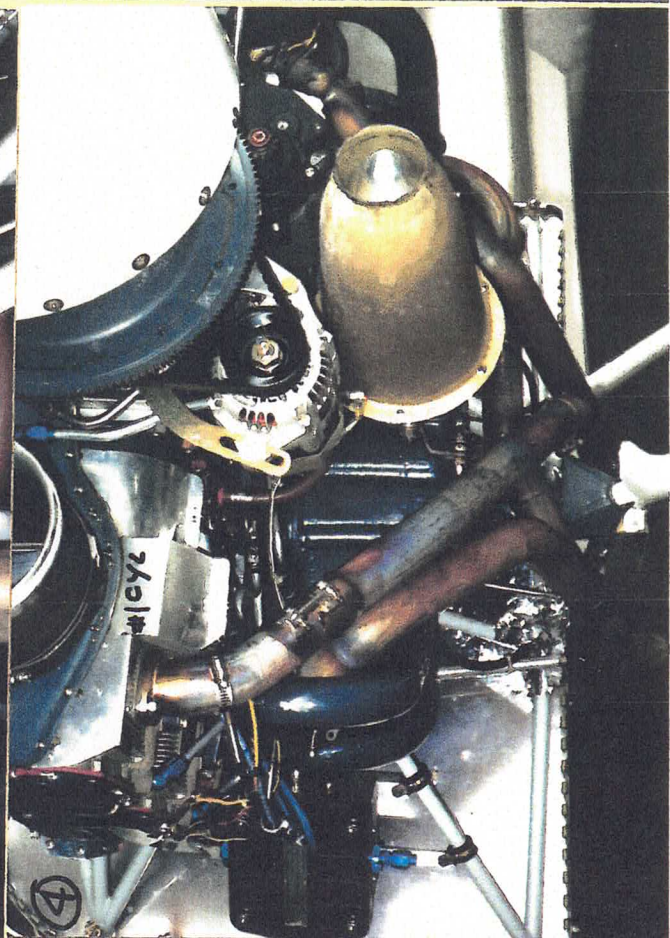
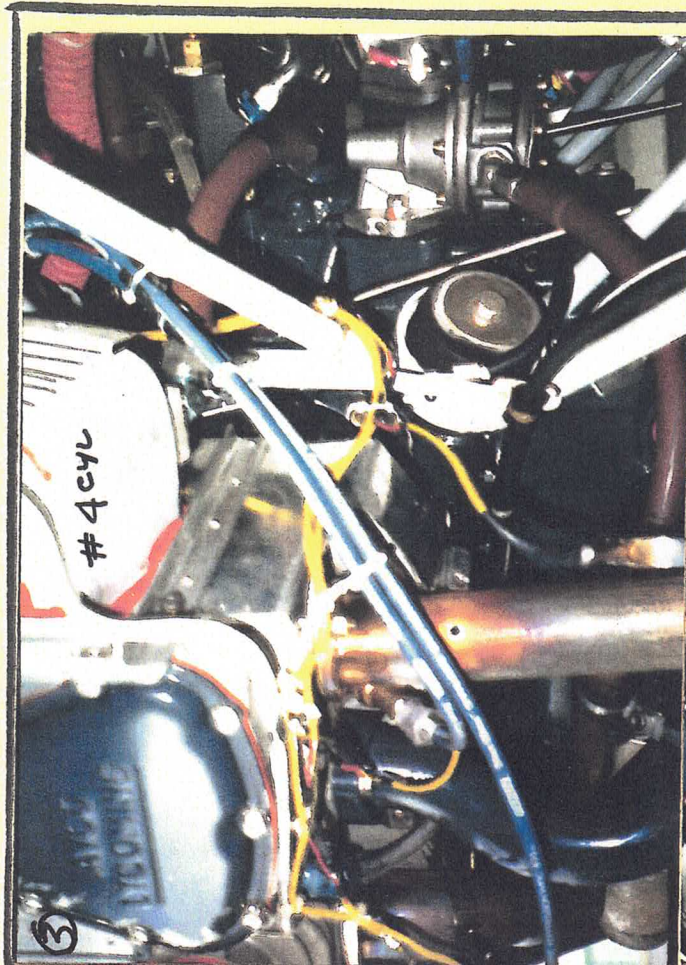
Installing the plenum is simple. All we are doing is putting a lid on top of the engine and stopping up all the holes. Take care and don't force it on or you will break it. Once it is installed, it's very strong. You must make a final fit around the cylinder valve covers and the cylinders, keeping 1" air gap on the cylinders and 2 ½" gap on the heads. That's where the air passes out of the engine. Cut the baffles that wrap around the cylinders long so that you can get proper air gaps. Use aluminum that is less than T6. If you use T1 or T4, it will make life easier.

1. Remove lift bracket & move spider over between #1 and #3 cylinder. As you begin to fit this plenum, install by first fitting it around the governor housing holding the rear up and working it down around the #2 and #4 cylinder. Then it will drop around the #1 and #3 calmers. (If you force it or try another way, you will break it at the mount g face of the governor.)
2. Cut a little at a time until it goes down around the valve corners. The goal is for it to line up flush with the rear of #4 cylinder. Make all changes with a small grinder or sander. Do not cut with shears.
3. When you are satisfied that the plenum is on correct, hold a small flashlight behind the holes above the valve covers and drill. I have a small light that has an extended wire. Use a small drill and wollar out the hole.
4. Cut out paper patterns and fit it to the engine. Draw on aluminum and cut out. (Note: Van's baffles won't work)
5. Start with #4 cylinder. The baffle drawings around the cylinder must be adjusted so that you have 2 ¼" air gap under the engine at the head and 1" at the barrel gap. (That's where the air leaves the cooling fins - Drawing #1, Part 1). For all baffles that wrap around the cylinders, leave the cylinder wrap piece long, secure with clecos, then pull tight against the cylinder divider baffle that is supplied by Lycoming. Mark it and remove. Make a 1" gap, bend the tab down, and cut off the surplus aluminum.
6. Next, cut out #2 drawing and check on the engine. If the fit is okay, then cut from aluminum (.032 or .041) If you use T3 it will bend without breaking. Drill and install blind nuts. I use alien bolts (#8 Ace Hardware stainless steel). Across the top of the engine use R.T.V. Silicone sealer to seal part #2 to the engine block. Also, install 1 each ¼" cap screw through the block. Again, make sure you have a 1" air gap on cylinders.
7. Make the baffle behind #3 cylinder (drawing #3 and 3A). Cut from the pattern and fit making sure there is a 1" gap on the cylinder and 2 ¼" gap on the head. (See note C on the drawing). Remember the bend will consume some material. (Make sure all inside 90-degree cuts have a 1/16" hole drilled at each corner). Screw to the plenum with #8 blind nuts and seal to block with R.T.V. silicone sealer.
8. Cut out #4 pattern from .032 or .025 aluminum. Fold down 90 degrees as shown. Install a 3/8" cap screw in the case rear hole below the governor. Now bend a slight curve in part #4 as shown on plan #4. Fit to the underside of the plenum. It will intersect the #2 cylinder approximately ½" above the center lines of the cylinder. The cap screw will keep you from going too high. Make

part 4A and install under part #4. Rivet together. Cut out part 4B and install the same as the rear of the engine. This part will rivet part #4. (Note: this part slopes slightly to the center of the engine)

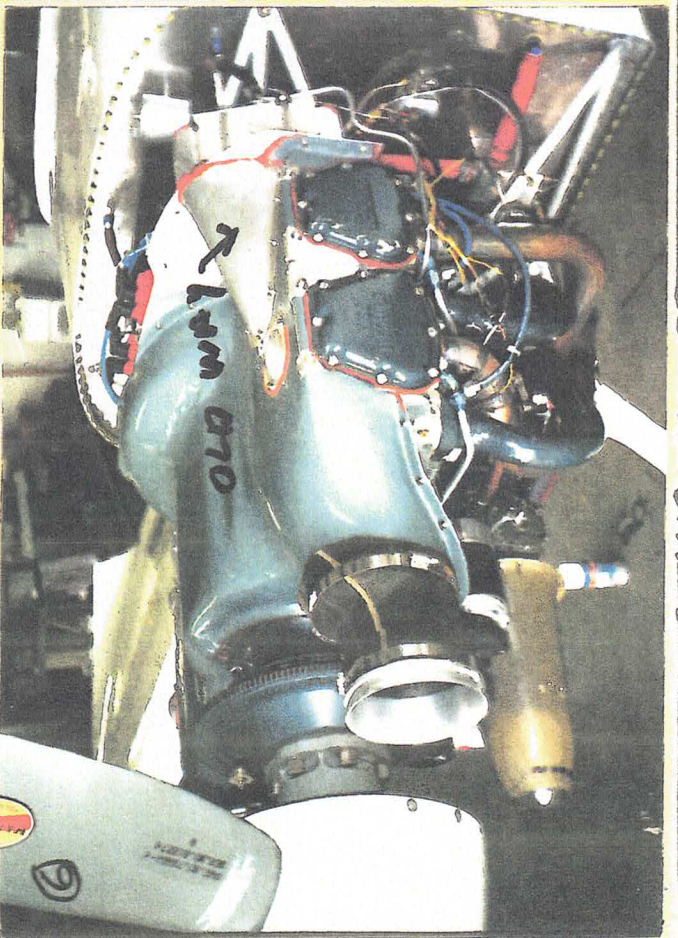
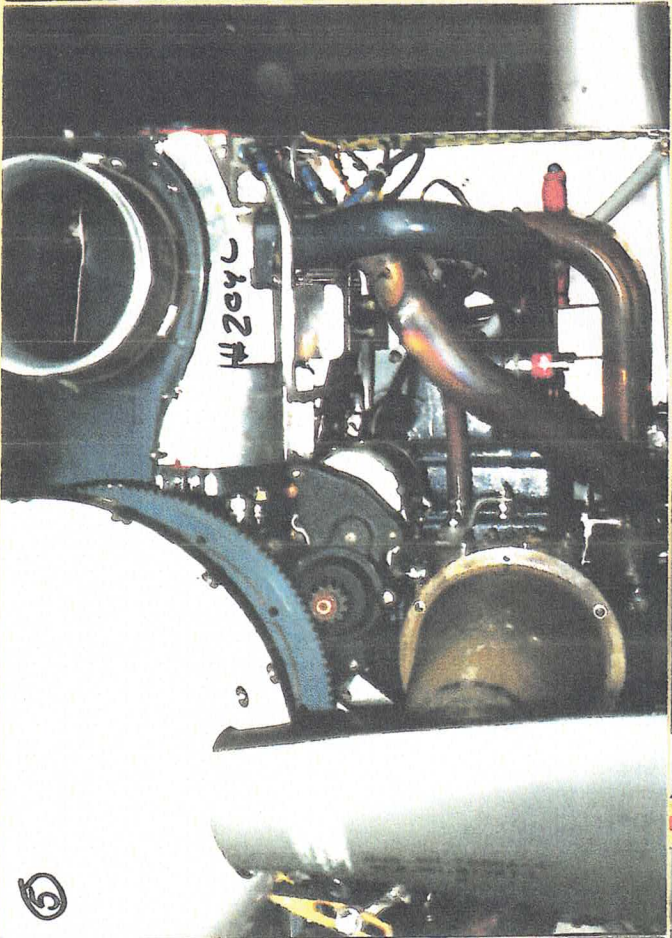
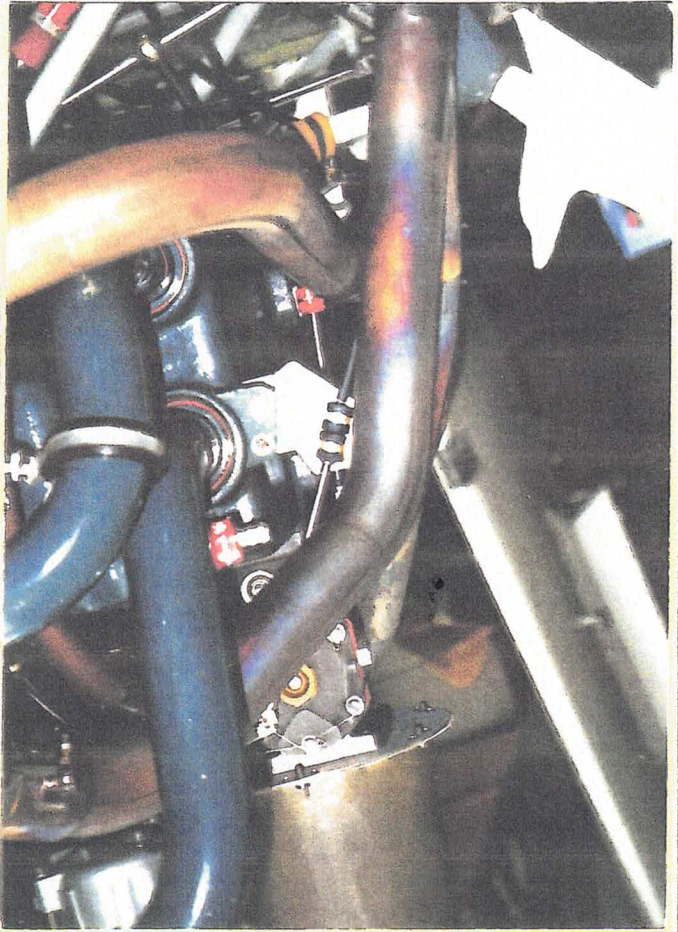
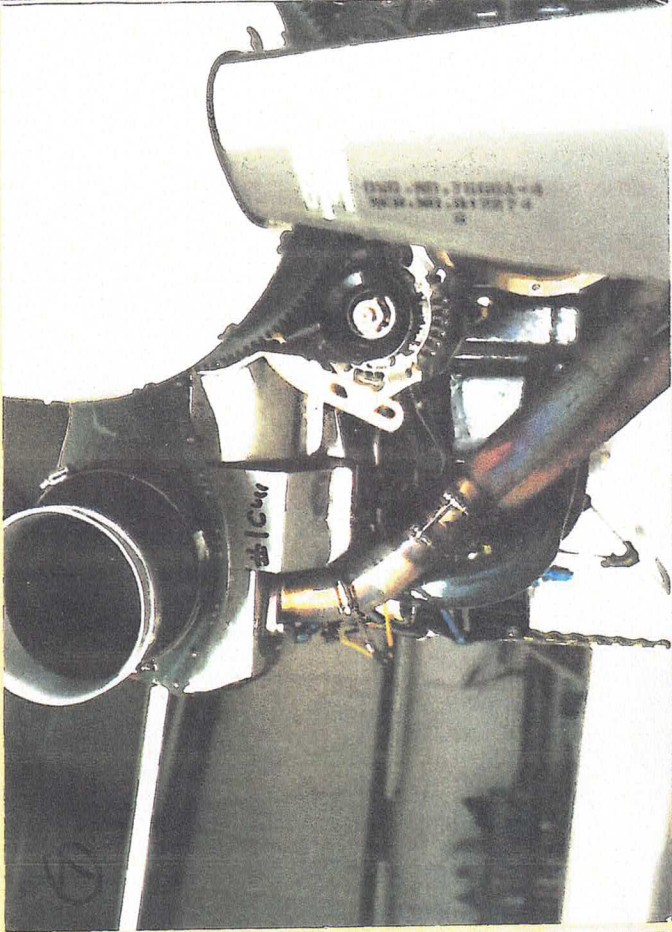
9. Part #5 (Drawing #5 and 5A must be taped together). Cut out and fit paper drawing. Cut the cylinder baffle long and mark on the engine. Then cut to length. Secure part 5 to the plenum with #8 screws and blind nuts. Seal any holes with R.T.V. Silicone sealer.







200 hp 10360 IN A RVG A

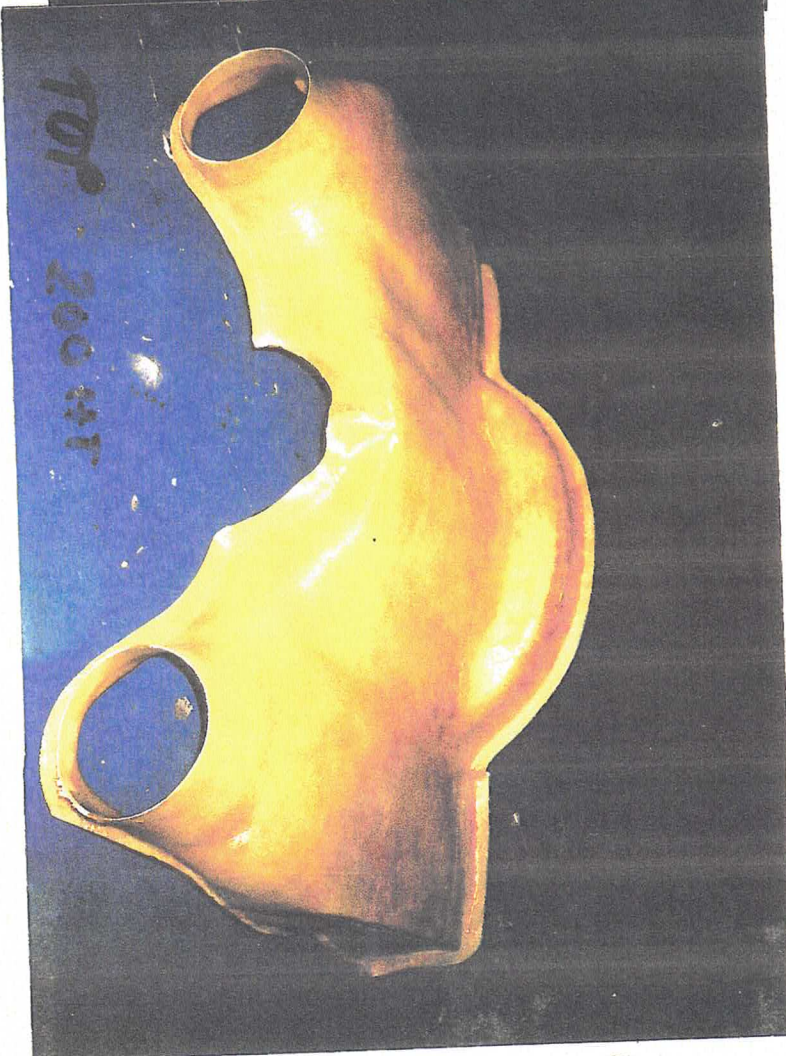
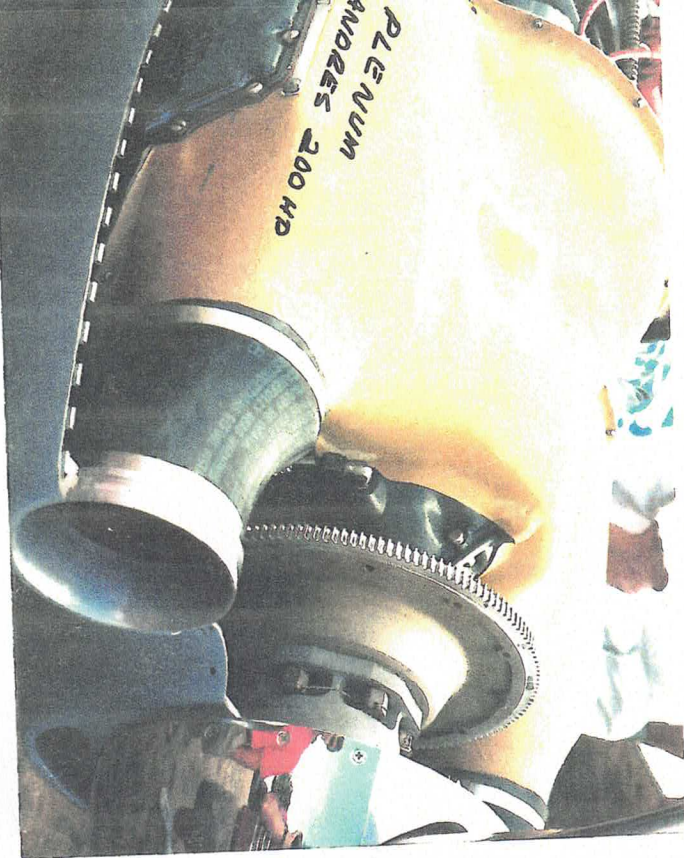


200HP IN RVG

5

6

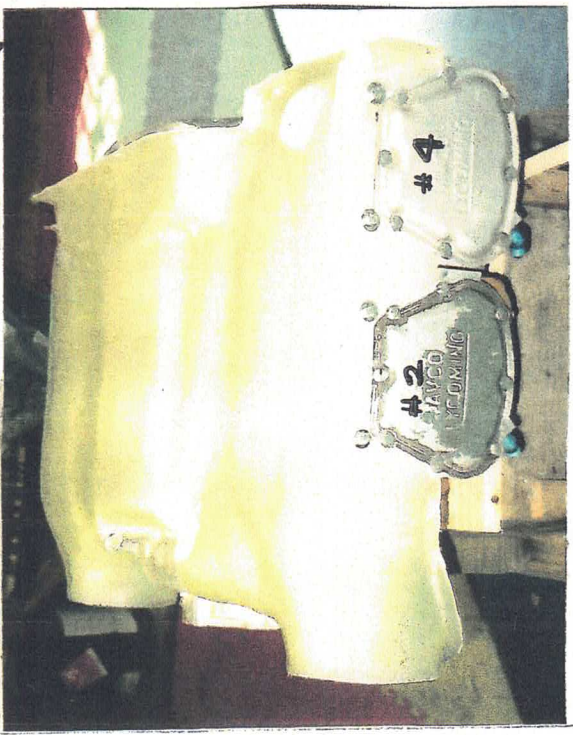






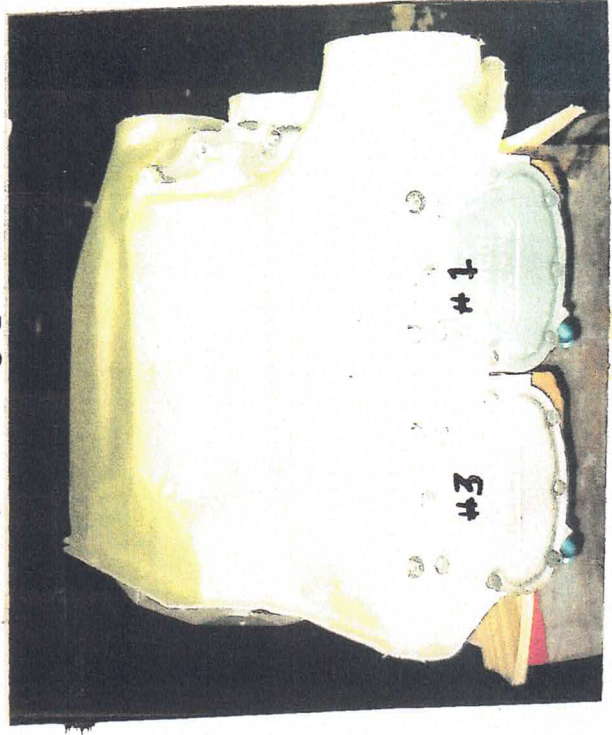
LEFT SIDE

(PICTURE #1)

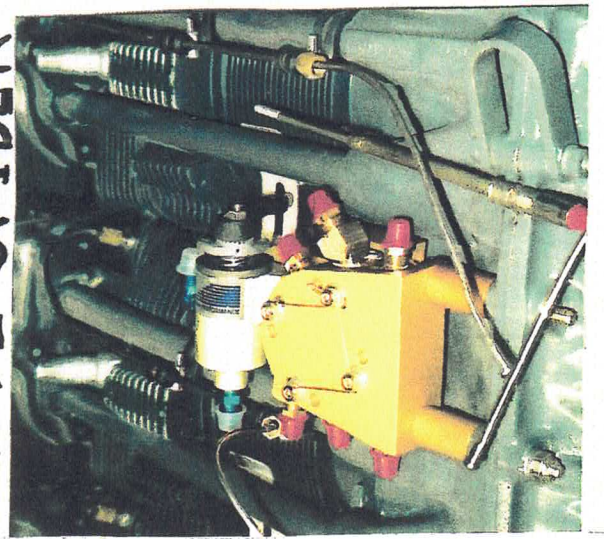


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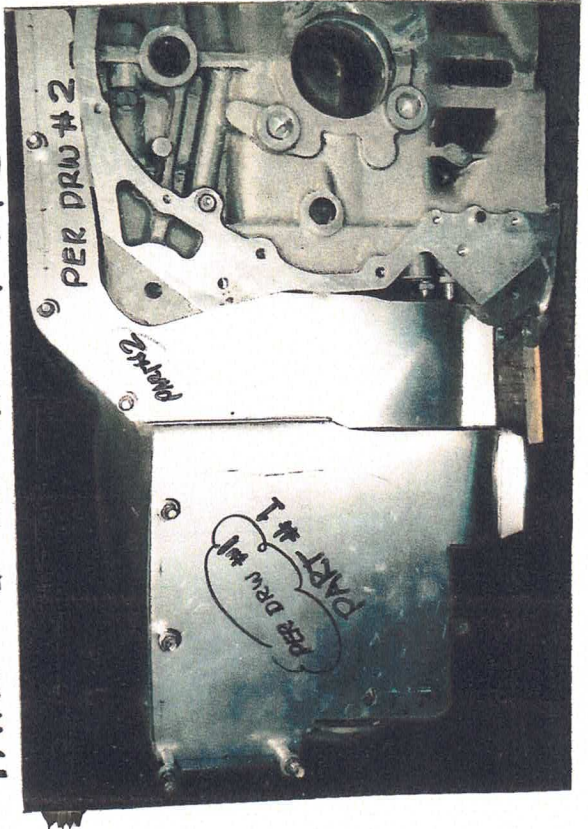
RIGHT SIDE



MOVE SPIDER

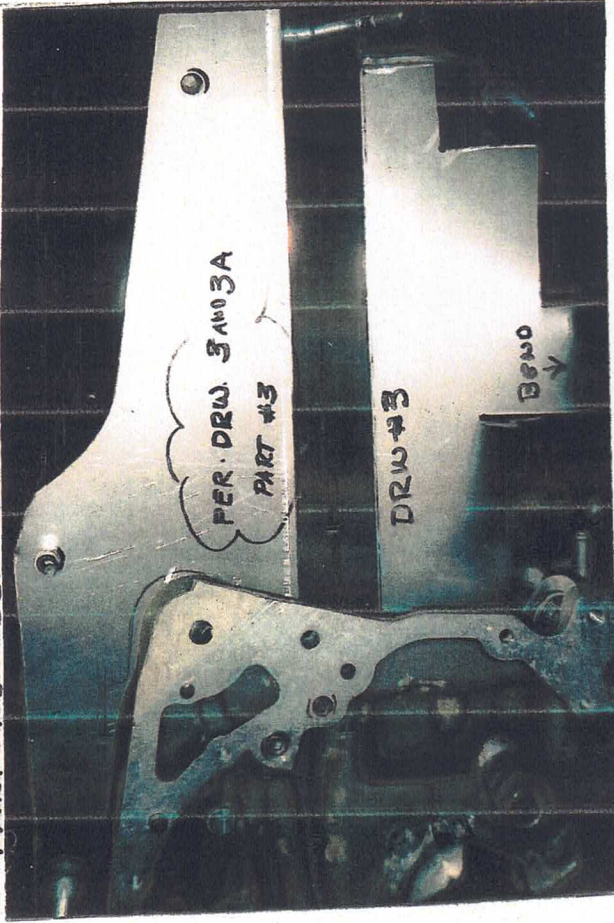


PART #1 BEHND #4 CYL

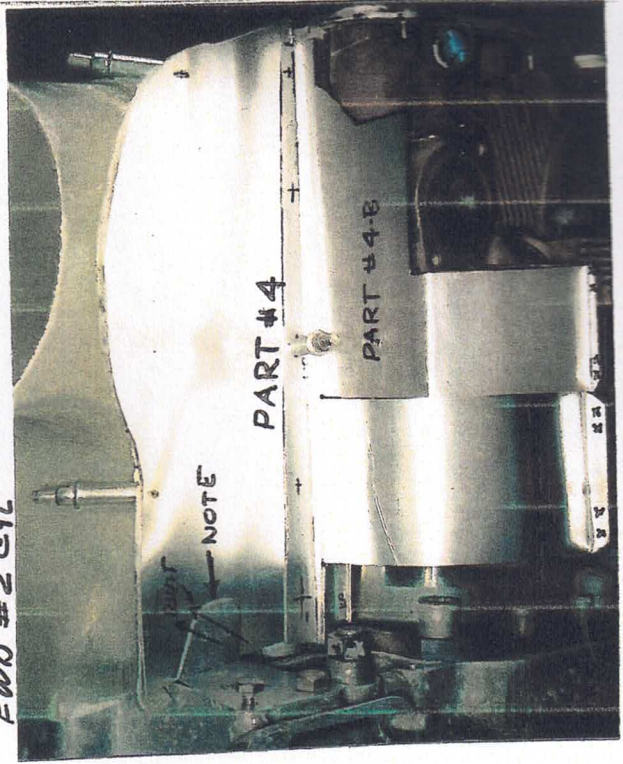




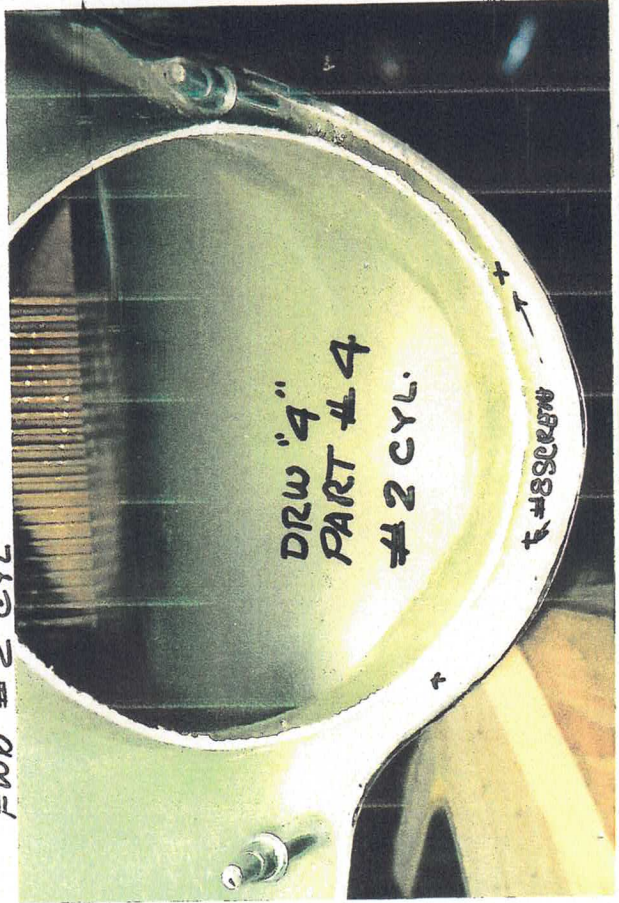
PART #3 BEHIND #3 CYL



FWD #2 CYL



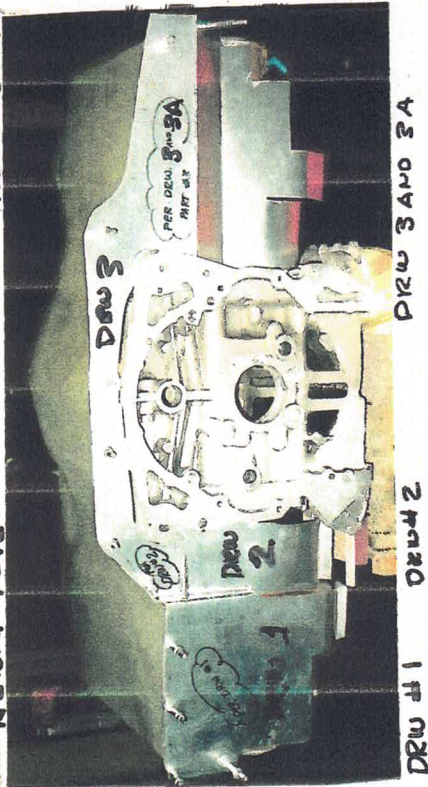
FWD #2 CYL



PICTURE #2  
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REV #3 CYL

REV #4 CYL



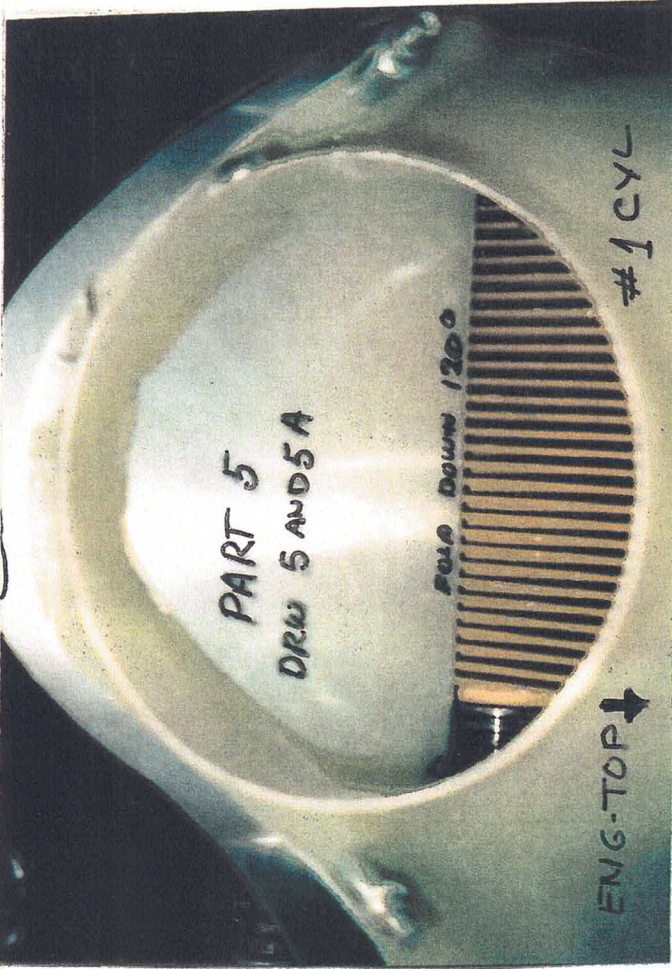
DRW 3 AND 3A

DRW #2

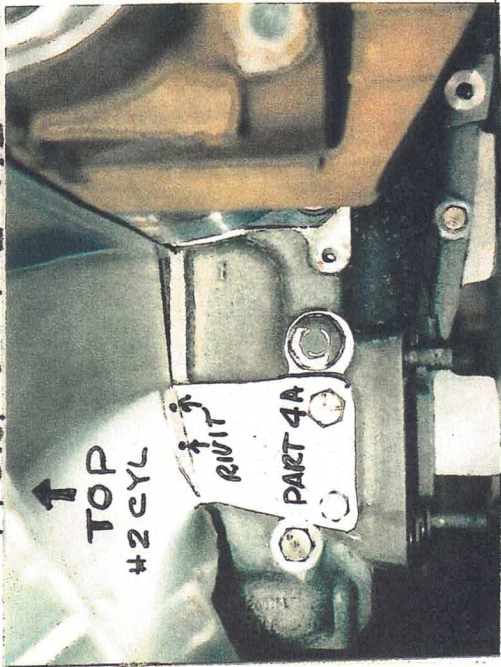
DRW #1



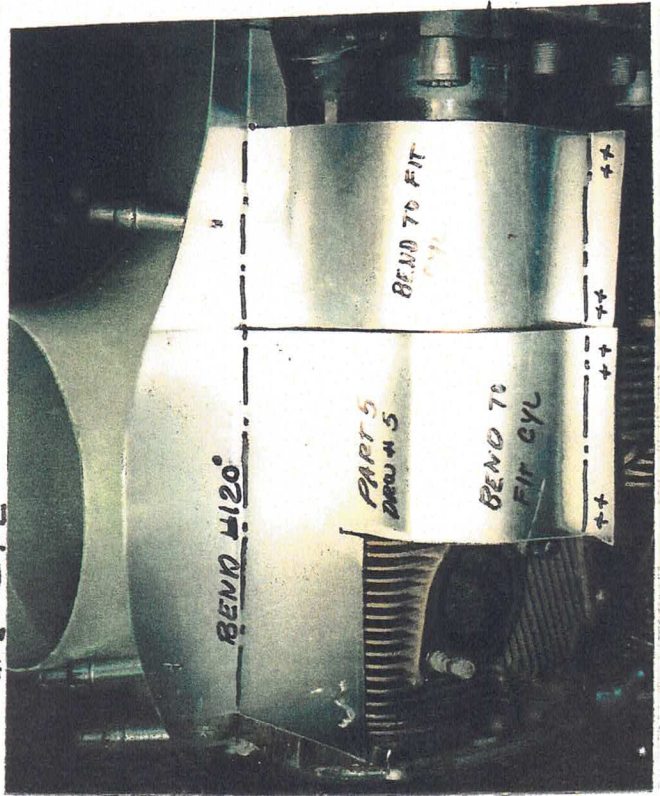
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PICTURE #3



SUPPORT ON #2 CYL



#1 CYL



PART #4 NOTE SLIGHT BEND "SOFT"

