OIL COOLER DUCT INSTALLATION

The duct system supplied in this kit is designed to provide airflow to a firewall mounted, seven row, Stewart Warner style aircraft oil cooler. In general, the technique for installation is to locate an area on the firewall for the oil cooler somewhere near and below the selected location for the 3" flanged pipe that installs in the engine baffle. Then a 3" flexible tubing is used to interconnect the baffle duct to the oil cooler duct. Some general installation hints follow:

1. A simple method of installation involves using two pieces of aluminum angle 3/4" X 3/4" X 5" in length and of either .063" or .125" thickness. First position the angles on the firewall or some similar flat area with approximately a 3 1/2" space between them corresponding to the spread of the attach flanges of the oil cooler. This attachment should be made with at least two AN3 bolts per angle at the angle's junction with the oil cooler as well as with the mounting surface. These angles MUST have a large backing plate of some kind on the firewall or mounting surface to provide resistance to flex and vibration fatigue. Additional bracing MUST also be installed as depicted in the drawing to support the oil cooler's opposite side.

2. The oil cooler inlet duct is also fitted with another pair of similar pieces of angle (supplied). The angles become flanges that attach to the inlet duct sides and also to the oil cooler top flanges. On the firewall side, the same bolts may be used that attach the oil cooler to the firewall angles. On the other side, two additional AN3 bolts will be required.

3. The 3" baffle duct needs to be fitted to the engine baffle with pop or AN rivets. The area above the #3 or #4 cylinder on the aft baffle is the commonest choice. However, the air in this region is estimated to be nearly 20 degrees warmer than the cowl inlet temperature and so if cooling problems arise, it is possible to improve the oil coolers effectiveness by obtaining the air in front of the #2 cylinder on the front inlet baffle ramp.

4. The interconnection between the baffle duct and the oil cooler duct can be made with either SCAT or CAT tubing and a couple of 3" hose clamps.

5. One of the common problems associated with the Lycoming installations is "over cooling" of the oil. If this is a problem, a simple hinged outlet trap door can be installed on the bottom of the oil cooler. Then using the same flanges of the oil cooler for attachment, a bowden cable can be installed to operate the trap door from inside the cockpit. This allows the cooler to be effectively shut off in cold weather or at high altitude where cooling may not be necessary.

6. At final assemble time for the oil cooler to oil cooler duct, it is a good idea to "goop" the corners and any obvious air leaks between the units with some RTV silastic. The high temperature red variety is available at auto stores and provides two benefits. It not only will seal air leaks but it will also provide a dampening effect that reduces the possibility of fatigue cracks from vibration