

The most common RV-7/7A and RV-9/9A fuselage construction question?

Reference drawing #28: In all of the following text the part references are for an RV-7/7A. The parts F-772, F-776, and F-704 should be F-972, F-976, and F-904 if you are building an RV-9/9A.

Regions of interest on drawing: Skins F-772, F-776, F-704 spar carry through (A-9 and A-10), and NOTE #1 (G-6 and G-7).

The drawing indicates three different rivet situations for the two forward rows of rivets where the spar flange of F-704 and the skin F-776 are "over lapped" by the skin F-772.

The first situation involves the tricycle gear "A" model kits only. The construction plans state that the "outboard" 5 rivets on both the left and right side of the plane (most forward row in F-776) need to be installed "double flush". Having the rivet's shop heads on the inside of the plane flush with the interior surface of the F-704 allows the tricycle gear leg socket to fully nest into position. To achieve this, the builder will have to machine countersink the F-704 on the inside (top surface of the flange of the F-704 if the plane is upright) so that the rivet, when driven, will end up flush with that surface. On the exterior, the F-772 will be dimpled and the F-776 and F-704 flange will be machine countersunk to accept the F-772 dimple. Obviously the F-776 is too thin for a machine countersink and the result will be an "over countersinking" of that skin and a slight countersinking of the F-704 flange underneath. This is standard practice.

The second situation involves the intersection points of the four forward floor stiffeners with the F-704/F-772/F-776 flange and skins. It is denoted on the plans with arrows and the comment "SEE NOTE #1". In this case, the key point is that the builder should not for any reason dimple the flange of the F-704, as it would complicate the fit of the floor stiffeners. In this case the same exterior process should be used as in the first situation above. Dimple the F-772, machine countersink the combination of F-776 and the flange of F-704.

The third situation involves all of the remaining rivets (the non-special case rivets). You have two options. One is to dimple all three surfaces. The builder will find the F-704 a bit thick to take a good dimple so if the dimple is found insufficient, lightly machine countersinking the initial dimple will improve the fit (nesting) of the dimples of the F-776/F-772 skins. The second method is simply to continue the process used for the four floor stiffener locations. Thus machine countersink the combination of the F-776 skin and F-704 spar flange sufficiently to accept the dimple of the F-772. This will work fine.