Mr. R. Allan Dunlap  
Aerodynamics Department  
Douglas Aircraft Company  
Santa Monica, California

Dear Allan:

After considerable study, I have some further suggestions on the details of the lower surface fuselage bump we talked about. With the relatively large wing root section, the height of the bump should probably be about one-quarter of the fuselage diameter to accomplish the most effective action. The rearward end of the bump should probably fair into the fuselage lines at about the midchord of the root. The most effective changes of the cross flows and pressures should be obtained with a relatively small downward slope to the forward part of the addition. Therefore, the addition should probably extend to near the nose. The forward part should probably have just a bit of concavity.

The area rule still seems to be the best way to design the shape of the addition in the region of the wing. The added areas should probably be selected to provide the total area development shown in the attached sketch. With such an approach, only the cross-sectional areas for critical forward and inboard part of wing influence the addition shape.

Sincerely,

Richard T. Whitcomb

RTW: mbb  
Enc: Sketch