

Project 8 – A concept of the structure

This project consists of four parts

- 1) Aeroplane breakdown into main subassemblies
- 2) Conceptual drawing of the aeroplane structure
- 3) Wing structure section
- 4) Main fittings of loading diagram

All four parts have to be prepared as drawings. Appearance of these drawings is unrestricted, however they should clearly illustrate the author's concept of the aeroplane structure. ATTENTION: copy of the drawing from the book or any other earlier document will not be accepted.

Drawing presenting main subassemblies should be prepared first. It should define clearly where subassemblies are to be disconnected. It can be either three view drawing or axonometric drawing. See fig.1 and 2 for examples.

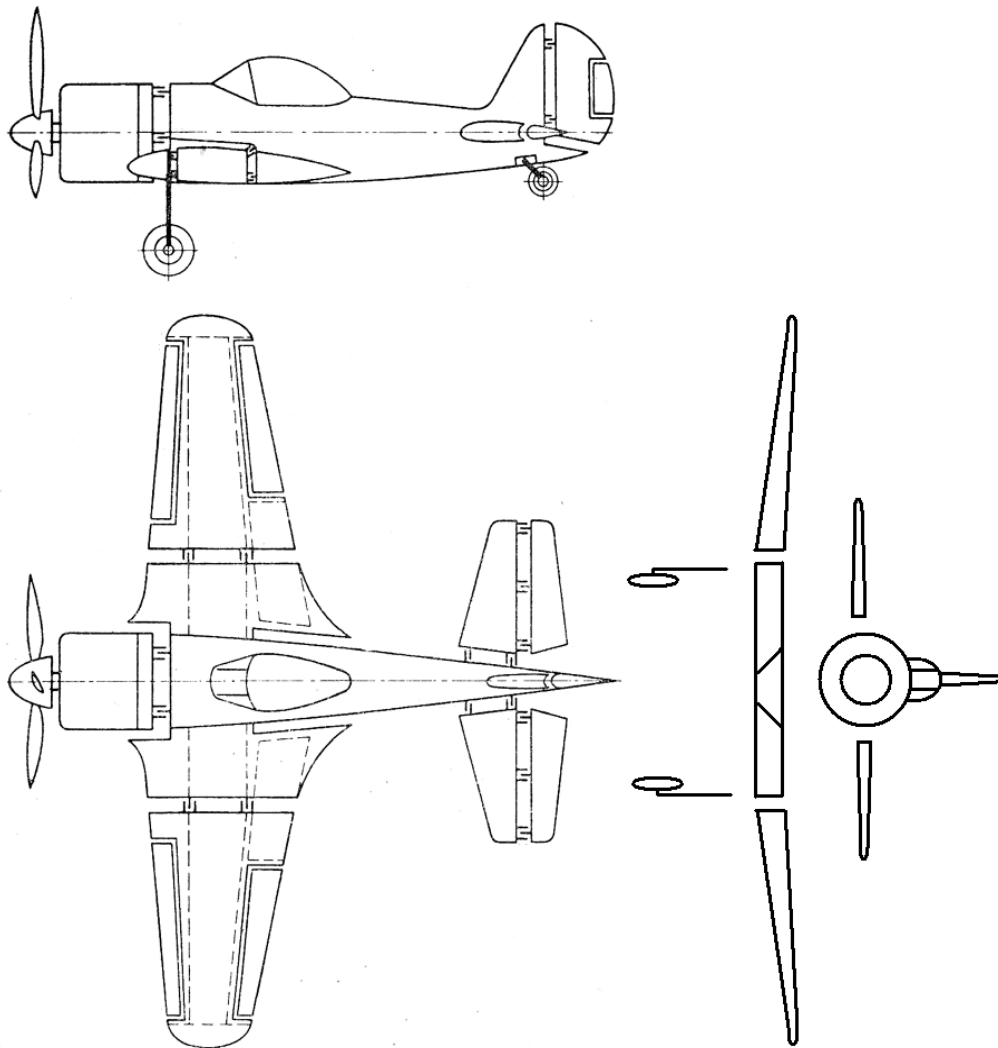


Fig.1 Example of the drawing good enough to be accepted. (by Wiślicki)

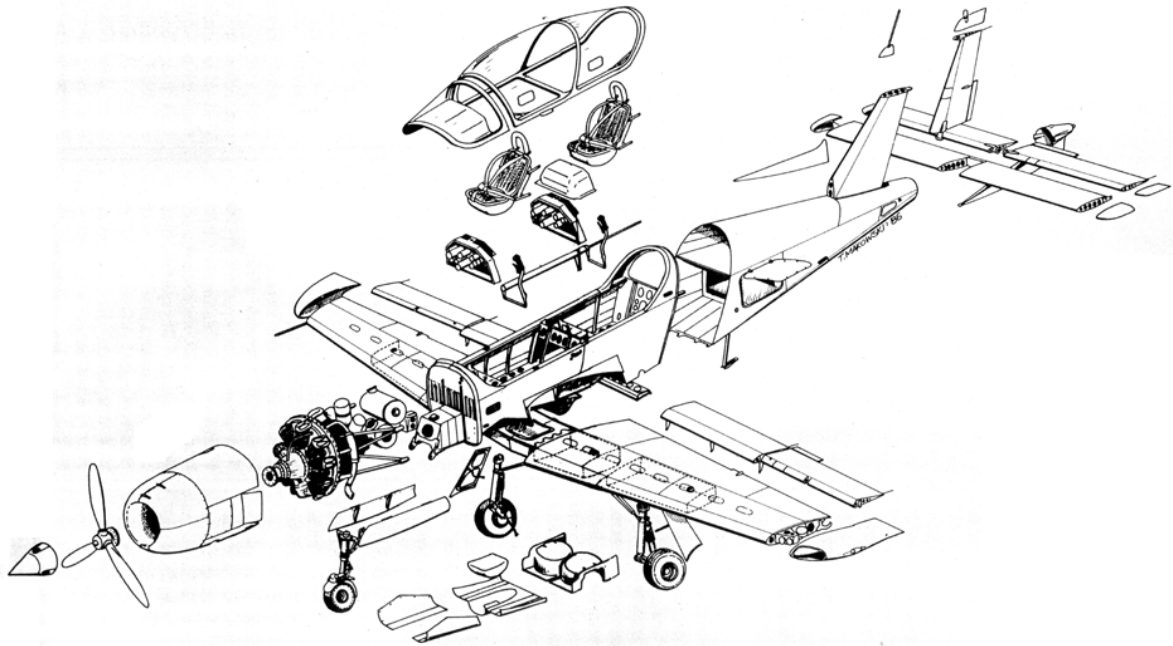


Fig.2 Example of the drawing good enough to be accepted. (by PZL)

Second drawing or set of drawings should present types of applied structures (e.g. monocoque, semimonocoque etc.) and main components (spars, reinforced ribs, reinforced frames etc.). These components should be marked. Short description should define their function and material.. See fig 3 for example.

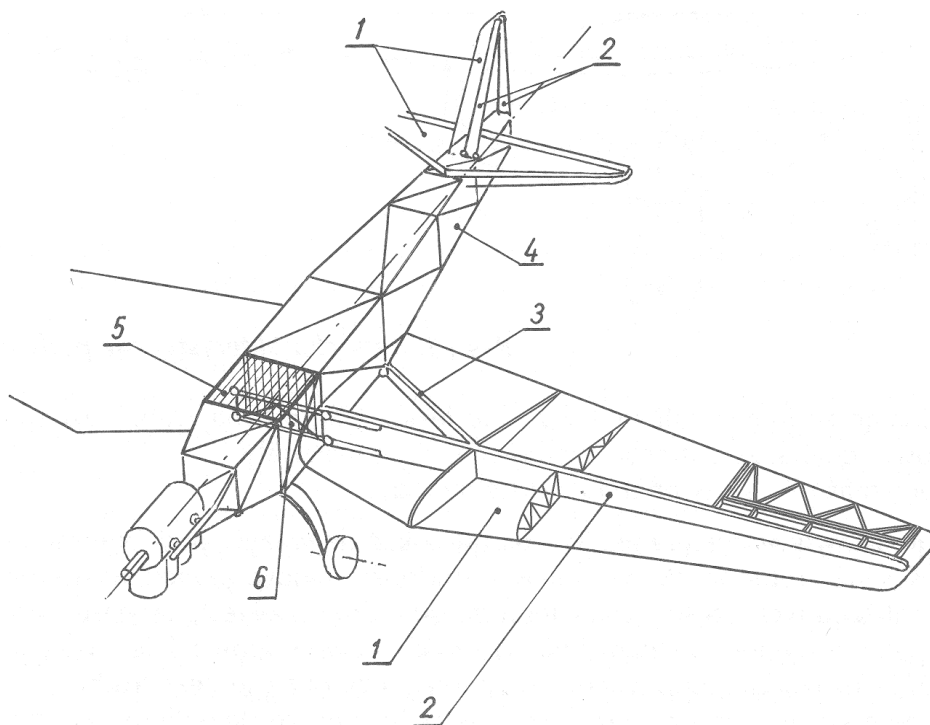


Fig.3 Example of the drawing good enough to be accepted. Short description should be attached to this drawing, defining functions of main components and materials. (by Soltyk)

Third part of the project should be completed with application of the drawing prepared in project 3. Airfoil shown in this drawing should be supplemented with a wing section presenting structural components (e.g. normal rib, spar, skin, stringers etc.) in the area of aileron.

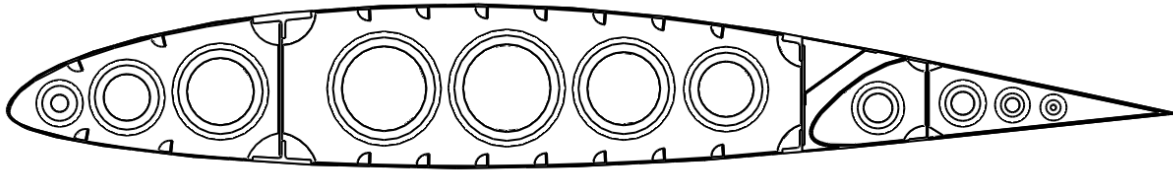


Fig.4 Example of the drawing good enough to be accepted.

In last part of the project students should prepare drawings presenting fittings of the wing, tail and engine with fuselage. Drawings should define location of lugs clearly, including internal components connected with these lugs. At the end of this project it has to be proven that all loads can be transferred through designed fitting system so that the subassembly is in equilibrium. ATTENTION: location of lugs is necessary to prepare projects 9 and 10 and should not be modified between these projects. In the case of spliced plates and tension bolts connections of monocoque structures it can be assumed in project 9 and 10, that lugs are located at the end of relevant shear webs instead of original fittings.

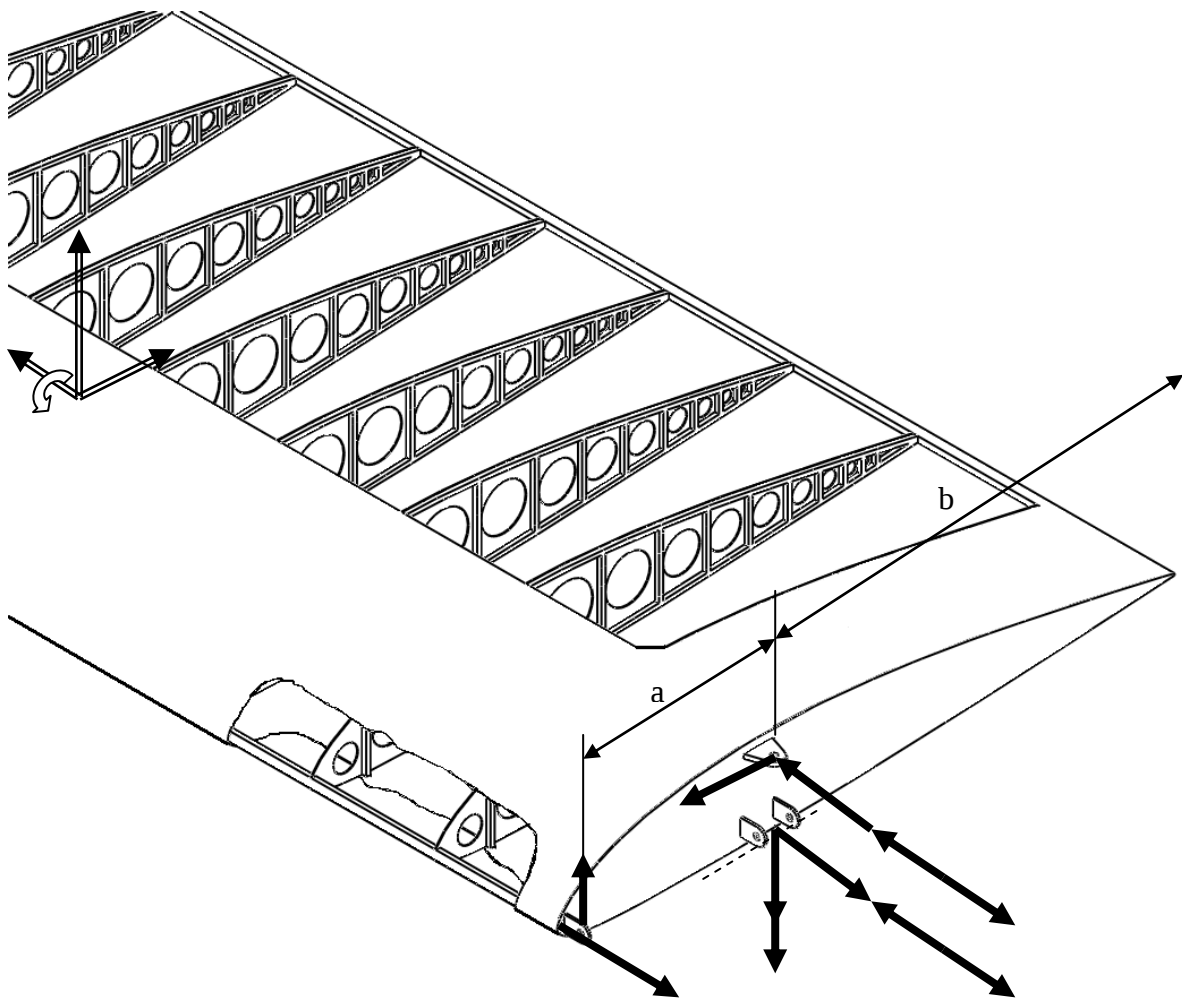


Fig.5 Example of the drawing good enough to be accepted.