

Cost savings in the manufacturing of the airframe must be realized. The author believes that this can be accomplished this by designing a large amount of commonality in a family of two airplanes: with 4-seat and 6-seat accommodations and by reducing the parts-count.

For easy reference these airplanes will be referred to as the Jayhawk-400 and Jayhawk-600 respectively. These airplanes will be designed to have aerodynamically common wings, aft fuselage, empennage as well as a common avionics/flight management and control system, common flight control actuators and common components in many other systems. Such commonality and the incorporation of automated aluminum bonding techniques should allow for a 40% reduction in manufacturing and engineering manhours.

The following areas of commonality have been identified as a result of several design studies carried out by the author's students:

- * the same wing torque-box and carry-through structure
- * as much commonality in the wing leading and trailing edge as practical
- * the same fuselage, except for length
- * the same empennage
- * the same landing gear
- * as much commonality in the propulsion installation as practical
- * the same flight control systems
- * the same basic fuel system
- * the same electrical system (**no hydraulic system, period!**)

In terms of their external appearance the Jayhawk 4 and Jayhawk 6 will differ primarily in the length of the fuselage. Figures 6 and 7 show several candidate configurations which have evolved from student design studies. The airplane of Figure 6 is being developed by Mr. Charles Svoboda, a doctoral student. The airplane of Figure 7 was developed by a small team of undergraduate students.