Aircraft Has Smaller Wing

A Cardinal may fly better with its wings clipped.

The Cardinal in question is a single-engine light aircraft being used in a research program funded by NASA's Langley Research Center to apply advanced aerodynamic technology to the design of small general aviation aircraft.

The result of the program is a Cessna Cardinal aircraft fitted with a smaller, experimental wing.

The wing is equipped with spoilers and powerful flap systems—principles borrowed from large jet transport technology.

(Spoilers are hinged surfaces that extend above a wing to slow a plane, usually during landings.)

Re-named the Redhawk, the experimental aircraft has a wing area 37 per cent smaller than its predecessor, yet may provide more efficient cruising flight and safer operation.

The flap systems provide good take-off and landing performance, and the spoilers simplify landing approaches by allowing better control of the aircraft.

A by-product of the experimental wing is more comfort for pilot and passengers in rough air.

The program was conceived at the University of Kansas in the department of aerospace engineering and it is being funded by Langley Research Center.

Robertson Aircraft Co. of Seattle, Wash., modified the aircraft under contract to U. of K.

During flight testing, the Cardinal has been flown across the U.S. and has been operated by pilots from several general aviation companies.

Langley research pilots have flown the plan to evaluate its performance and flying capabilities. Their comments are generally favorable, especially concerning control from spoilers and low response to air turbulence.

A second phase of the research program is now underway.

A Piper twin-engine Seneca aircraft is being outfitted to study a new airfoil (wing) section developed by Dr. Richard T. Whitcomb of Langley.

It will also have spoilers and flap systems similar to those on the modified Cardinal.

The Whitcomb airfoil is expected to improve the plane's performance on either one or two engines, especially the single-engine climb rate.