



PLEASE OBSERVE CLOSELY! Hastily improvised modifications on 'mad weekend' show up in this photo of the 1-19. Young 'Doug' Bradley, above, made surprise 90-mile flight at National Contest in 'souped up' glider.

## 'QUICKIE' MODIFICATION OF 1-19 PRIMARY ACCOMPLISHED AT MISSISSIPPI STATE

Aerodynamics Aids Cause Of 14-Year-Old Pilot

*Concerning this article: The writers are both members of the Aerophysics Department at Mississippi State College, Carmichael being an aerodynamicist and Storer a craftsman-pilot. Also mentioned in the article are Dr. August ("Gus") Raspet, Department head, and George Tabery, craftsman-pilot.*

by BRUCE CARMICHAEL  
and GUY STORER

THE BEGINNING of the story goes back to when Guy Storer started to check out 14-year-old Doug Bradley in the 1-19. It soon became evident that this boy was a natural flyer when he climbed several thousand feet in a thermal on his first airplane tow.

One morning we at Mississippi State College received word that Doug was on his way down — soaring — from Tupelo in the 1-19. This ship was never designed for a cross country machine and its penetration is very poor. This didn't bother Doug however and at the end of 3 hours he had landed at Camp's Airport near Starkville, 57 miles from take-off. This evidence of determination, plus the information that he intended to fly the ship at the National contest in Texas this year called for some effort to be made to encourage him and improve his chances for competitive flying.

The following weekend, Doug, and his father, Jack Bradley, were joined at the hangar of the Aerophysics Department by the writers, Gus Raspet and George Tabery, at which time a

council of war was held to decide what could be done in a hurry with available materials to improve the performance of the 1-19. The most obvious drag source was the large open cockpit. The large outflow of air plus the drag of the head and shoulders of the pilot could be certain to account for a high pilot protruding into the airstream portion of the drag at the higher airspeeds.

Guy and Gus soon had a frame welded up for a hatch to go over the pilot's shoulders. Sheet metal was

fastened to the side portions and a bubble canopy fitted to the top. The rear part of the bubble was sawed off to avoid interference with the triangular wing support structure behind the pilot. Since the shoulder fairing hatch and bubble protruded beyond the contour of the triangular wing support structure it was necessary to fair bulges to these sides to allow sealing of the cockpit and continuous streamlines from the hatch and bubble onto the fuselage. These bulges were formed by sanding chunks of Styro-

Figure 1

Flight Tested Performance of Schweizer 1-19 Before and After Modification

