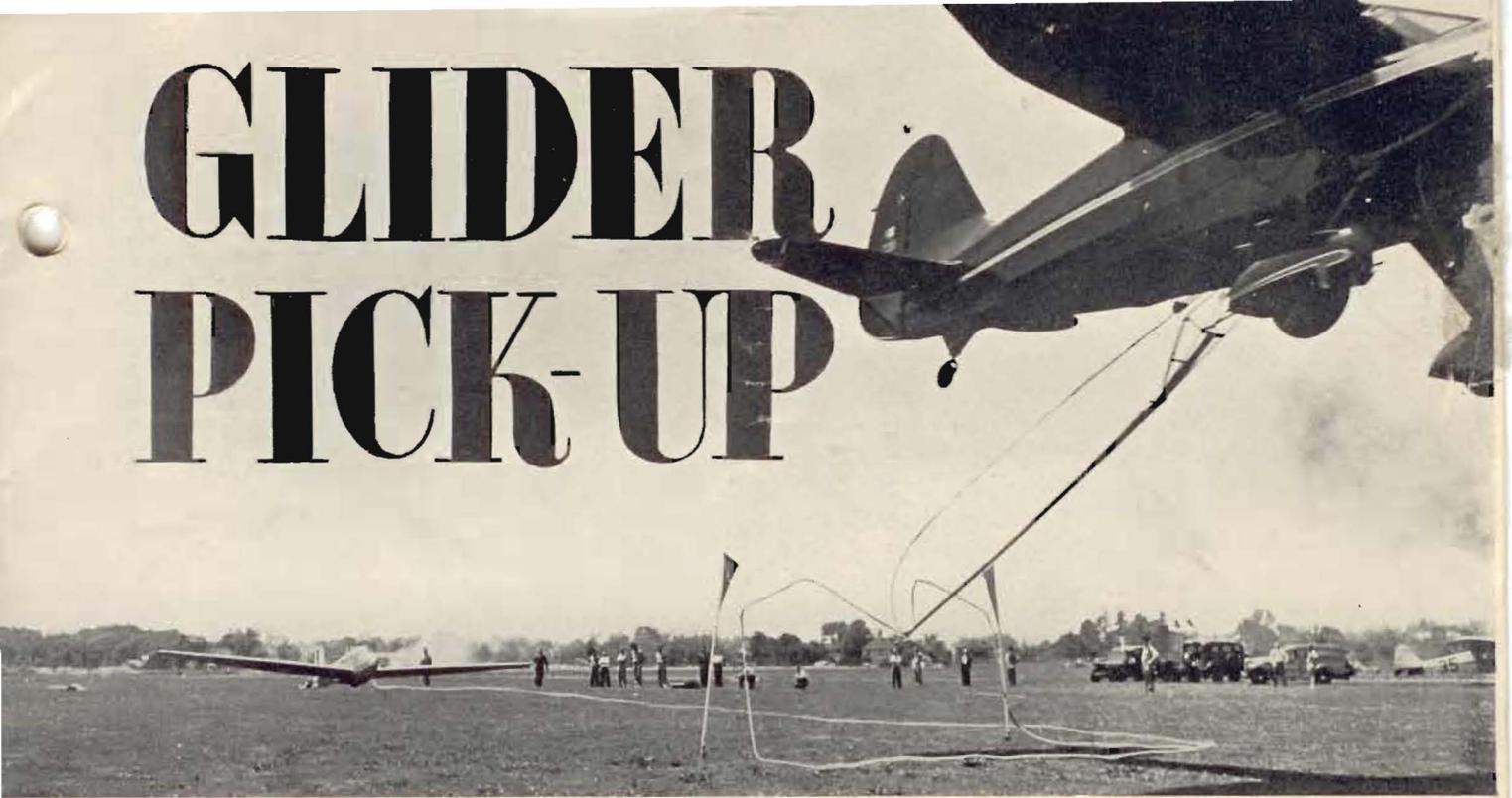


# GLIDER PICK-UP



Official Photograph U. S. Army Air Forces

*Arthur B. Schultz*

**F**ANTASTIC? I'll say it was! I never could just figure out what kind of a star attraction could make a super-duper soaring champion like Dick duPont lose interest in cloud hopping and keeping his nose to the grindstone.

One day in September 1941 I got a phone call from Dick—could I arrange to get a glider to Wright Field to help put on a demonstration for the Army? Would I pass up a chance to boost gliding and soaring? No! A week later I had postponed my vacation and was on deck at Wright Field with a Midwest Sailplane I'd borrowed from XYZ.

In a Dayton hotel I met Cammy Vinet, All American Aviation's number one test pilot who was to be the tow plane pilot for the demonstration. Cammy began to outline the program. My heart sank! They were going to try to pick up XYZ's perfectly good Midwest—and perhaps wreck it (but they'd, consolingly, pay the damages)—with one of their air mail pick-up planes! What would I tell XYZ when I returned mournfully home with the pieces?

Then Cammy dug into the details of the plan—explained how pick-up worked—why they were sure their pick-up gadget (designed to pick-up a 50 pound mail bag) could pick-up a 500 pound glider—Lewin Barringer was going to be the glider pilot and he had confidence in the idea. Maybe this nightmare wasn't so bad after all. Maybe there was something to it.

I retired to my room, but not to sleep. With the technical data Cammy had supplied me, my pocket slide rule and plenty of hotel stationery I started figuring. By 3 A.M. my doubts were satisfied. If their 50 pound pick-up gadget would do what they said it would, if the airplane didn't exceed 100 m.p.h. and if everything went smooth, I was sure the wings wouldn't be left behind and that the fuselage could keep up with the release all right. The wild idea didn't look so bad after all!

Next day Dick and Lewin arrived and the rest is history. Three successful pick-ups were made and the Army was satisfied that glider pick-up had possibilities.

A few days later Helen Montgomery was stunting XYZ's Midwest at an airshow near Detroit, not in the least suspecting that the glider she was flying had just made history by being the first glider to be "picked-up" by an airplane passing overhead at 100 miles per hour. Few XYZ members will know until they read these words just what happened that week when their pet sailplane was taken to Wright Field for a "demonstration."

All American Aviation was given experimental contracts to develop larger units to be designed especially for glider pick-up. A new engineering department was organized, with your writer as its chief, and in several months, quoting from the company's monthly, PICK-UP, June 1942 issue, ". . . Saturday, May 30, marked the first time in the history of aviation that a 'full fledged' airplane has been picked up from the ground by another

airplane in flight.

"Unable to obtain a glider for tests being made by our Engineering Department, in connection with glider pick-ups, a two-place Cub Training plane was substituted. With no structural changes the propeller was removed from the Cub and a burden release attached to the prop hub.

"Saturday evening, after preliminary tests, such as tow-offs, etc., the ground station was set up and, with Mr. Richard C. duPont, Triple A President, at the Cub controls, the history-making pick-up was made. The Cub left the ground smoothly and with no shock or strain apparent to watchers on the ground. This was verified by Mr. duPont and substantiated by accelerometers in the Cub and the Stinson pick-up plane. These meters recorded a maximum of  $\frac{3}{4}$  g for the entire operation." (In the opinion of the writer this is really mild as a good snappy winch launching or shock cord take-off can easily develop 2 g's.)

"These tests were continued the following day and on Monday, June 1, another page was added to aeronautical history. More than satisfied with the operation of the gear with one person in the Cub, Mr. duPont decided to add a passenger.

"Company officials, who had witnessed the pick-ups, were so thoroughly convinced of the safety of the operation that they were perfectly willing, in fact anxious, to be taken along as 'ballast.' Several flights were made, carrying in the order named: Arthur B. Schultz, chief engineer, Henry A. Wise, secretary; Charles W. Wendt, treasurer; Harry R. Stringer, vice-president; Don Seevers, and Walter Setz of the Engineering Department."

A short time later, on June 4-5, this new equipment was demonstrated at Wright Field and, quoting from a release by the War Department, Bureau of Public Relations: ". . . Picking up gliders from the ground by an airplane flying at more than 100 m.p.h. has been successfully demonstrated at the Army Air Forces Materiel Center, Wright Field, Dayton, Ohio, it was announced today by the War Department.

"High Army Air Force officers who witnessed and participated in the glider pick-up demonstration flights pronounced them highly successful and indicated that the system may be utilized to speed up the training program for glider pilots recently inaugurated by the Army Air Forces.

"Using this pick-up system, training gliders can be picked up from a stationary position on the ground by a plane in flight and towed until they gain sufficient altitude to be released by the glider pilot. The airplane then circles and makes another pick-up of a waiting glider. In this way, gliders can be picked up at the rate of one about every three minutes.

"The equipment demonstrated at Wright Field was

designed for picking up light training gliders and the demonstrations so far have been limited to gliders of this type.

"The glider used in the Wright Field demonstrations was an XTG-3, (Schweizer Two Place) and the pick-ups were made by a Stinson monoplane (Wasp powered SR 10F). In practice pick-ups preceding the demonstrations, a Piper Cub airplane with the propeller removed was used in place of the glider.

"At the controls of the glider during the first non-stop pick-up was Colonel F. R. Dent, Air Corps, Chief of the Experimental Glider Unit at Wright Field, who expressed himself as being entirely satisfied with its operation.

"Succeeding pick-up flights were made by several young officers of the Glider Unit, among them Second Lieutenant Chester J. Decker, one of the five American possessors of the Golden 'C' certificate of the Soaring Society of America.

"Under the pick-up system the glider is placed about 200 feet back of two uprights, between which a towline is placed. Inside the cabin of the airplane which is making the pick-up is a revolving reel, equipped with a built-in brake which carries the towline cable and the hook.

"The tow plane comes in and as it approaches the pick-up ground station, the pilot levels off much in the same manner as he would in making a landing, except that his speed is much greater, anywhere from 95 to 120 miles per hour. He lowers the pick-up arm and the hook at the end catches the suspended towline. At the moment of contact, with the airplane from 12 to 14 feet from the ground, the cable reel inside the plane is permitted to spin freely to cushion the initial load imposed by the dead weight of the glider on the ground. The shock is taken up by the towline which is made of nylon to give maximum strength with great resilience.

"Gradually the reel-brake is applied, the glider accelerates smoothly, and by the time the speeding tow-plane has leveled off, the glider is air-borne. Then the brake is full locked and the glider is in full tow. When the glider has gained sufficient altitude the glider pilot cuts himself loose.

"During the demonstrations at Wright Field, although the airplane made the pick-ups at about 100 miles per hour, there was no noticeable shock or strain on either the airplane or the glider.

"With further developments of this launching technique, using multi-engine airplanes as tow-planes, and employing heavier reels, tow-cables, and brake, its application to the Army Air Force's heaviest transport gliders is contemplated. Similarly, the system may eventually be adapted to the pick-up of large commercial freight and passenger glider trains."

Needless to say, The Soaring Society of America is well  
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## Glider Pick-Up

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represented by men actively interested in this development. Colonel Fred R. Dent heads up the glider section at Wright Field and has several SSA men on his staff including Lt. "Chet" Decker, Lt. "Bob" Cardenas and Lt. "Ted" Walkowicz. Major Lewin B. Barringer assisted by Maj. Elliot Noyes, headed up activity in Washington as right hand man to General Arnold on glider development. At All American Aviation, President Richard C. duPont (the Tom Swift of the outfit) was former president of the SSA and held many national soaring records; your narrator is chief engineer and is currently treasurer of the SSA; genial Wally Setz is research engineer and needs no introduction; Glen ("Unk") Mead serves the dual duties of designing engineer and glider test pilot; and "Don" Doolittle is aeronautical engineer. As developments continue, it is probable that almost everyone at all actively interested in the glider program will eventually come into contact with this most fascinating development of the year—Glider Pick-Up!

## Total Energy Variometer

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this the ratio  $\frac{A_1}{A_2}$  has to be equal to  $\sqrt{2}$  or 1.414. If the venturi is made circular in cross-section the areas will be:

$$A_1 = \pi R_1^2, \quad R_1 \text{ is radius of mouth of orifice}$$

$$A_2 = \pi R_2^2, \quad R_2 \text{ is radius of throat of orifice}$$

$$\frac{A_1}{A_2} = \frac{\pi R_1^2}{\pi R_2^2} = \sqrt{2}, \quad \frac{R_1}{R_2} = \sqrt[4]{2} = 1.18$$

In other words the throat could be 1 inch in diameter and the mouth 1.18 inches or the throat could be .846 inches in diameter and the mouth 1 inch.

I think that this type of variometer is well worthwhile experimenting with. Gus Raspet, who has called my attention to the article and helped me to unravel the technical data, intends to test Mr. Kantrowitz' theory and I hope that in the near future we may hear from him as to the practical results of the experiment.

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### STREAMLINING THE SOARING SOCIETY OF AMERICA

The L/D ratio of the S. S. A. must be improved to permit the more efficient functioning of the Society. We mean to reduce the parasitic drag caused by our old system of beginning and ending a membership on the month it is received. There is a large amount of bookkeeping and checking with the old system. This drain on the secretary's time and energies delays the Society's efforts in carrying out its main purpose—the promotion of gliding and soaring as a national activity. This work is of tremendous importance and is done by the Society without the help of paid executives or rental of office space. It is done by the officials of the Society after they have put in a day's work earning their bread and butter.

To help this work along, memberships will begin either on January 1 and end on December 31, or begin on July 1 and end on June 30. We ask, as your contribution to the work of the Society, your cooperation. In no case will the continuity of your Soaring issues be upset. We are fully aware that you joined the Society chiefly because you have a deep interest in gliding and soaring and a conviction that its promotion will further the interests of the air age. But please remember that your help will make the work of your officers more efficient so that the objectives of our Society may be more fully realized.

### LIFE MEMBERSHIP IN THE S.S.A.

Have you thought of becoming a life member? It is a practical idea. After all, once a glider pilot, always a glider enthusiast. At the suggestion of Winnie Block, we recommend a plan which has a three way benefit—to you, to the S.S.A., and to the nation. Buy a \$100 War Bond, making it payable to the S.S.A. You spend \$75 for a membership that usually costs \$80—a saving of 16%. The S.S.A. will reap the benefit when the bond matures. And last, and perhaps most important, your money will be invested in the future of your society and the nation.

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