

an extremely long cable is used on a very large field. Thus it is almost impossible for an instructor in a two place ship to gain sufficient altitude on the take off to permit the student to take over the controls. The problem is quite different than in power ships where one can depend on the power of the motor to keep the plane aloft once it is off the ground. If a two place ship is used for instruction and winch tow or shock cord launching is employed, the instructor must gain altitude by spiraling in a thermal or by slope soaring. If dependence is placed on getting altitude by means of thermals, two things are necessary before training can proceed; a glider of good performance and favorable meteorological conditions. In the event that slope soaring is used the glider's performance becomes less important. However, in slope soaring the air is usually turbulent especially at the lower altitude near the slope and therefore not recommended for instruction purposes. In both cases teaching is very difficult and unfavorable.

The author is in an exceptionally good position to bring before you an excellent example of the comparison between the two methods; single place and two place glider training. In 1941 in non-occupied France I was asked by the French authorities to organize glider instruction in their country on the basis of the experiments made in Poland, Germany and Russia. For certain reasons I had many difficulties in my work but I continued the project until I left for Canada. Contrary to my advice the method of instruction set up was by means of two place gliders. Five different types of two place gliders were specially designed and built for instruction purposes.

There were about 20 two place gliders to start the instruction of new pupils. All glider instructors were given a six weeks course, both theoretical and practical.

Comradery, teamwork and cooperation are concomitant outgrowths of glider flight training.

In all about a year and a half of hard work for building of equipment, gliders and training instructors before the pilot training program could be started. Approximately 500 persons were employed during this preliminary period. After all this time had elapsed the glider training program proved that two place instruction could be used *only in certain cases*. This characteristic example of the failure of the two place ship for instruction shows us clearly that my conviction that single place ships should be used for training was determined not only by custom but on the sound basis of previous experiments and tests.

The author now takes up the subject of what kind of single place glider is the best for the first steps in glider training.

From the outset of glider history in Europe we used the primary type of glider with minor differences in the principles of construction. Before glider training became widespread, this type of ship was used during a protracted training period; even for initial soaring flights. This primary type has an open seat for the pilot. It was in such a ship that I obtained my C certificate.

In later years the above type was used only for a few flights and then a second type of glider with an enclosed cockpit was used.

Experiments in teaching power plane pilots to glide brings to light the interesting fact that the power plane pilot fears a glider wherein he sits out in front without any enclosure. Such a reaction is readily understood when one considers that a power plane pilot is usually accustomed to a large cabin. Even a completely inexperienced student is more at ease in an enclosed cockpit. The enclosed cockpit gives the pupil a sense of security which is of great psychological value and also permits him to have a resting place for his left hand while piloting with his right. From the instructors viewpoint such a glider is superior for training purposes.

