

Airplane Towing Rules

THE time has come for the reconsideration and revision of CAA regulations governing the airplane towing of gliders. With the experience gained from the tremendous amount of airplane towing done by the Army in their basic glider schools, many of the old regulations have proved to be unnecessary and even dangerous.

It is our feeling that most of these rules were originally formulated by persons who, in general, had no actual experience in such operation whereas today there are an increasing number of men in the CAA who have had or are obtaining such experience. The type of equipment in use has also greatly improved since these rules were originated. It is apparent that the majority of post-war gliders will be manufactured in reputable plants under CAA type certificates and that the era of the home built glider designed and built by guess and by gosh is passing. Simplification of Part 05, now in process with the cooperation of the Soaring Society of America, Inc., will make it practical for future individual designers to properly engineer and certificate their ships. It should be obvious, therefore, that restrictions necessary for the gliders of 1930 are not reasonable when applied to the approved designs of the present.

First and foremost on the list of hindering regulations are the requirements for a special waiver for normal airplane towing. The word "normal" is used to denote the routine towing of gliders which are certificated for such operation by aircraft deemed suitable for such work and flown by properly rated pilots. Dual or triple towing, or towing of gliders not certificated for such operation, or towing by unapproved tow planes should, of course, be permitted only by waiver and such waiver should be issued by a person with a firsthand knowledge of such operation, or who at least follows some definite published regulations prepared by people with such experience. One of the irritating inconsistencies experienced in the past has been the wide variety of waivers issued. Such variations have consisted in general of wide differences in the duration of and area covered by the waiver, in the number and grade of the pilots, and the number and type of airplanes covered, in the towing speeds and length of tow rope specified, or in the omission of some of these requirements entirely. Normal airplane towing should be recognized as a normal method of launching which is inherently no more hazardous

nor does it require a higher skill than any other form of launching. As such, it is not reasonable to require special waivers to engage in such operation. Numerous references, such as NACA Technical Note No. 753 and CAR 05 itself bear out the statement that airplane towing entails lower forces and stresses than any other method of launching.

Proposed normal towing operations have already been mentioned as those utilizing a "suitable" tow plane. In the past waivers covering aircraft tow have usually specified particular tow ships, apparently with the idea of insuring the suitability of such ships. There has been no yardstick by which the suitability of the ship could be measured however, and the inspector approving the waiver has been left to use his own judgment on a question which should better have been left to the pilots involved because of their generally wider experience. One of the following objections are generally raised against using an airplane for towing: it is either underpowered, too heavily powered, or is a cabin arrangement with lack of visibility to the rear.

The answer to the first objection is that the low limit of horsepower is a question affected by the length of field available and its approaches, and by the airplane itself, as well as by the glider to be towed.

It has been our experience that tows have been made from large fields with 50 horsepower Piper Cubs with a greater margin of safety than has been experienced with tow ships of more than triple the horsepower when operating from smaller airports. Our rate of climb on tow with a particular airplane was more than three times that obtained with another ship of similar wing loading powered by the same engine. Also apparent is the fact that different gliders will require varying amounts of power to obtain the same rate of climb. Other factors, such as field altitude, condition of take-off surface, wind velocity, and air temperature, also enter into the picture. Under such conditions it is obviously not possible to draw a rigid line on minimum power requirements.

The whole question actually reduces to balancing the length of field available on the one hand against the equipment being used and the atmospheric conditions on the other. This is exactly the same question that repeatedly confronts the airplane pilot who flies anything but the lightest equipment. Since he is left to use his own judgment in such a situation, why is