

**By
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it not logical to do the same with the glider pilot, provided he is competent to so judge?

The second objection, concerning the tow ship with a supposed excessive amount of power which results in an excessively high tow speed, is not plausible when considered in the light of CAA policy concerning operations of powered craft. The glider pilot is informed of the maximum safe tow speed of the glider by means of a placard posted in a conspicuous place, and it should be his responsibility to inform the tow pilot and to determine in conjunction with the pilot of the tow ship whether or not the airplane can safely operate within that limitation. If the airplane pilot does exceed such a speed, the glider pilot always has the opportunity of releasing from tow. Failure to do so is comparable to an airplane pilot wilfully exceeding the airspeed or engine speed limitations in operating the airplane itself. Actually, experience has shown that the possibility of unintentionally exceeding placard speeds during climb in modern gliders with placards of over 100 m.p.h. is quite remote. Further, the question of too much power seldom comes up because the glider pilot, in the interests of economy, generally steers clear of such aircraft.

The final question, of the suitability of cabin aircraft, is one which again is best left to the pilot's judgment. Open cockpit airplanes are admittedly advantageous, particularly in training students, but before the war were relatively rare, and once the present crop of war training craft is used up will likely be rare again. The amount of towing done by cabin airplanes before the war, as well as the large amount of towing done by the Army using closed ships, seems to indicate that such operation can be safely carried out. Rear view mirrors have been used to supplement the tow pilot's visibility but it has been our experience that with a competent glider pilot in tow, there is no need for the tow pilot to watch the glider at all.

Concerning the pilots eligible to engage in airplane towing operations, some waivers have specified commercial pilots for the towship. Anyone familiar with the functions of the tow pilot will acknowledge, we are sure, that such flying requires no special skill other than the ability to maintain a reasonably constant speed and to exercise a reasonable amount of judgment in dropping the tow rope. Such ability and judgment is not the exclusive possession of the commercial pilot, as is testified to by the countless tows made by private pilots. It is our belief, therefore, that a commercial certificate be required of the tow pilot only when the towing is done for hire; however, it is likewise felt that a

private pilot should have a minimum number of hours, say 150 or 200, before engaging in towing.

Some waivers also have specified a minimum length of tow rope. Such minimum lengths have varied, one such under which Laister-Kauffmann is now operating specifying 450 feet. It will be clear to anyone who has towed with various lengths of rope that a long rope does not insure either safety or ease of handling the glider. The large degree of sag in a long rope can obviously become a dangerous liability in taking off over obstacles, such as trees or wires. Once away from the field, the long rope is more difficult to handle than a short rope, due to accumulation and taking up of slack, and the possibility of obtaining loads due to such surging is therefore increased. It has been our experience that the optimum length of rope is about 250 to 300 feet and that with some equipment, ropes as short as 150 feet are perfectly safe and even desirable when operating from short fields. The figures apply, of course, to towing behind airplanes with a conventional slipstream pattern. When towing with higher powered aircraft (over 300 h.p.) it is possible that tow ropes as short as 150 feet will probably make the take-off a bit rougher. (It is suggested that some tests be made in this regard; we do not have such tow equipment available.)

Finally, the present regulations require that pilots of both tow plane and glider wear parachutes. This rule is probably a holdover from the days when airplane towing usually involved speeds for which the glider was not designed and the possibility was present of the glider experiencing structural failure or jamming of its release mechanism. At present, however, with glider placard speeds amply high to cover normal towing and with release mechanisms of proved design there seems to be no foundation for any argument as to the necessity of parachutes. It seems obvious that the only critical point in the tow is the take-off, and of course the parachute is of no use at this point. Of course, if the pilot is towing up for the purpose of performing aerobatics or if he expects to do any cloud flying, then he must of course wear a chute for those purposes; but there is no more reason to wear a chute for a normal tow than to wear one when flying an airplane around the airport. It seems certain to us that the acceptance and progress of gliding and soaring will, to a large extent, hinge on the availability and ease of obtaining airplane towing, because of its generally more satisfactory results without the use of specialized equipment or large ground crews. The attractiveness of this type of flying will surely be greatly diminished if the pilot, and possibly a passenger, have to buy and maintain or rent parachutes for each flight.

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