

Some Notes on AIRPLANE TOWING of SAILPLANES

By THEODORE BELLAK

To those of you who cast anxious eyes upon the group of pilots using the airplane as a means of being towed, encouragement and caution must be given. The airplane offers the quickest and perhaps, also, the easiest method to reach areas of convection and mountains where slope soaring can be done, and to perform exhibitions and test new ships. Contrary to general belief, stresses on the sailplane in proper airplane tow are less, not greater, than in auto or winch towing.

Sometimes, when a pilot wishes to do thermal soaring, he need not go very high, only high enough to go above the inversion strata, many times found at 1,000 to 1,500 feet during the summer. Using the ordinary winch and auto tow, he cannot penetrate this area unless he has the use of a very large operating field. This condition, frequently encountered on the Texas Expedition, is illustrated in Figure 1. We have not yet definitely proven that the thermals found above inversions have broken through or formed above, but the former theory seems the most likely.

Assume that a pilot possesses a ship licensed for airplane towing, conspicuously placarded for its maximum permissible speed to dictate his limitations. He must also hold a valid Commercial Glider Pilot's license and, in addition, an application must be made for a permit to tow. If the pilot and ship are approved for airplane towing, a Certificate of Non-application will be given to the ruling prohibiting one aircraft towing another. This corresponds to the previously issued Airplane Tow Permit. On this Certificate are written the purposes of being towed by aircraft. These purposes generally fall into three classes: exhibition, research, and student training. In the latter case, a prospective student should be checked out by an experienced sailplane pilot. The C.A.A. should make this mandatory.

The choice of an airplane with which to tow should be made with care. It should have good rearward vision, ample reserve power, and a stalling speed well

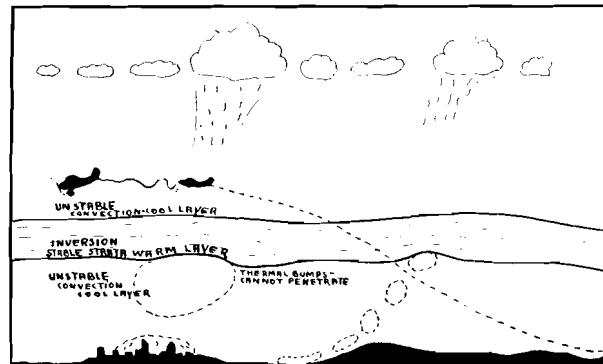


Figure 1

below the maximum permissible towing speed of the glider. Sixty horsepower should be the minimum to be used only on large fields; in general, 90 to 220 horsepower is desirable. Good tow planes are the Waco F, Fleet, Standard, Consolidated and Bird biplanes.

The towplane pilot must hold a Commercial License. Both towplane and sailplane must be licensed and equipped with approved parachutes. For beginners, a 400 foot minimum towline is compulsory. Manila rope 5/16" in diameter is satisfactory.

The act of towing is simple and safe, providing several rules are observed. First, the novice pilot should bear in mind the danger of the slipstream generated by the towplane. It can put the pilot of the sailplane in awkward and uncomfortable attitudes that may be dangerous. He should especially be conscious of it near the ground. It is a wise rule to stay directly in line or not more than 6 to 10 feet above the towplane. Beyond this, the undesirable load factor will increase as shown in Figure 2. If he drops suddenly below and his left wing is pressed downward, followed by a bad shaking up of the entire ship, violent enough to give him a good case of the jitters—he is in the slipstream. Falling below may have been caused by the expectancy of a thermal from MacSlippery's Soap Works chimney in the panorama below, or the entrance of both sailplane and powerplane into a downdraft and updraft respectively. He should remember always to keep his eyes on the towplane.

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