

unit that had been in continuous service for more than five years was re-engineered and modernized. This unit, the Model 4C, is now in daily mail and express service and has been thoroughly checked out at a maximum of 100 lb., 45 kg., picked up at 200 mph, 325 kph. The average single-place glider or sailplane "snatched" and accelerated to a speed of 60 or 70 mph, 95 to 115 kph, would involve less energy than the mail pick-ups mentioned above. Based on the flying equipment available to the majority pursuing the sport, the Model 4C would appear to be adequate. This, of course, would not include the heavy two-seaters and faster towplanes. Aircraft of this type would require the Model 15. In addition, the Model 4C unit would be hard pressed on a high frequency pick-up schedule as would be the case at contests or large clubs.

The pertinent data of the two units is listed below:—

	Model 4C		Model 15	
Wt. of unit.	75 lb.	34 kg.	98 lb.	44.5 kg.
Width	17 in.	430 mm.	23 in.	585 mm.
Height	21	535	24	610
Fore & Aft	17	430	24	610

These figures include the electric motor for cable reel-in. Since many towplanes do not carry an electric system (Stearman primary trainer, DH Tiger Moth, etc.), the motor may be omitted at a saving in weight, dimensions and costs, but at a decrease in pick-up frequency as cable reel-in would be manual.

The installation of a pick-up unit in any aircraft is not a simple matter. The average glider tug requires major modifications in and about the aft cockpit where the unit is mounted. Structure and controls constitute the major considerations since the latter generally are carried under the flooring conflicting with unit cable payout.

The energy absorbing material, UNOLYN, serves the same purpose as either of the above units. It can be supplied to accommodate almost any combination of

glider and tug. The modifications to the towplane require the reinforced tow point and suitable mounting of the pick-up arm. When properly engineered, repeat "snatches" without landing of the towplane and "series" pick-ups can be made with UNOLYN just as with mechanical units.

In comparing the costs of sailplane pick-up generally it can be assumed that certain items are constant regardless of system, tug or sailplane involved. Thus, the pick-up arm, hook, etc. parts would cost about \$120.00. Nylon rope and accessories common to any and all types of glider pick-up would be \$25.00. Ground station, \$20.00 complete. No additional equipment or modifications are needed to the sailplanes. Disregarding costs of conversion and installation of pick-up arm, tow point, mechanical unit (if used) in a towplane, a hasty comparison may be made. This analysis will be broken into two categories: Class I, covering gliders and sailplanes grossing a maximum of 550 lbs., 250 kg., and towplanes exceeding 1200 lbs., 550 kg.; Class II, covering gliders and sailplanes exceeding 550 lbs., 250 kg., and towplanes exceeding 2200 lbs., 1000 kg. In both classes, pick-up speed would not exceed 70 mph, 100 kph. Class I gliders would include Schweizer 1-19, Briegleb BG-6, Midwest, Kirby Kite, Wanderlust, Grunau Baby, Wolf, D-28 (Windspiel), Moswey II, III, S-18-III, Mu-13, etc. Class I tugs would include Cub Cruiser, Stinson L-5, Tiger Moth, Klemm, etc. Class II gliders, Schweizer SG2, 2-22, Briegleb BG-8, all of the TGs, Kirby Gull, Sperber, Minimoa, Kranich, Olympia, Reiher, Weihe, Orlik, Spyr IV, V, S-21-I, II, Mu-10, etc. Class II tugs, Stearman PT, Waco UPF, Vultee "Valiant", Stinson-Vultee L-1A, Miles "Master", Fieseler "Storch", etc.

UNOLYN pick-ups would expend \$15.00 of the plastic for each pick-up in Class I. The Model 4C unit, applicable to this class, is valued at \$3750.00. More than 250 pick-ups would be required to justify the investment in this mechanical unit alone. In Class II, UNOLYN cost per pick-up would be \$30.00. The Model 15 unit, applicable to Class II, is valued at



A Stinson SR-10F with the Model 15 about to snatch an LNE-1. The Stinson is a little fast for a tug but with skillful piloting tow speeds can be kept below 90 mph.