

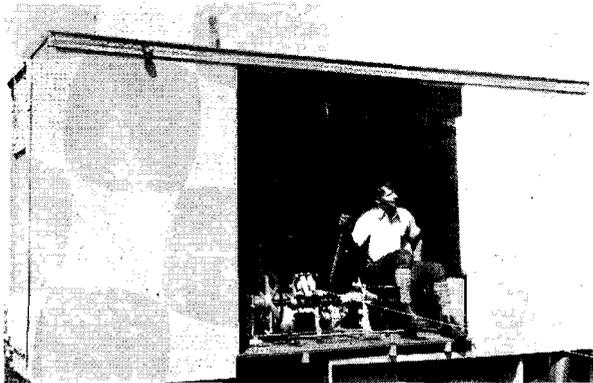
the towing is uphill. If the car is not in good running condition, it will always break down on the best flying days. While self-winding devices are a convenience, they are always expensive to build and are apt to get out of order. Their main advantage is that they eliminate one man, but I have yet to see one operated without three or four helpers standing around watching.

The duPont winch was one of the best I have seen, but I do not think the outrigger used to take the strain off the rope was necessary, as the Newark Glider Club uses the same arrangement but has the rope going directly to the self-winder, and it has been used for two seasons without breaking*. The belt drive used on the duPont winch experienced some slipping when heavy ships were launched, and I believe chain driven winches are more practical. The idea of using a power take-off is a good idea, but it is quite expensive for the average club.

The M.I.T. winch was well designed but I cannot see why they went to the trouble of using four tires (any one of which going flat would put it out of commission) when a power take-off or an extra clutch or transmission mounted between the driving wheels of the car and the regular clutch could have been used. Another disadvantage is that the wheels must be jacked up and the springs blocked. I have found that a 14 or 16 inch

**EDITOR'S NOTE: The long-armed outrigger of Paul duPont's winch has been replaced by a very short arm so that the winch can be moved anywhere and made ready for operation without delay. By a clever device of staking the rope to the ground at the take-off location, the winch is unwound by being driven slowly ahead, thus eliminating the rope retrieving car.*

Above: Newark Glider Club Winch.
Below: M.I.T. Winch.



The duPont winch.

diameter drum, with a flange about the same diameter of the car wheel, is best.

Special attention should be paid to the guide rollers, as they travel very fast. I would suggest ball bearings fitted with oil cups here. Special emergency rope-cutting guillotines are good to use, but in my opinion a release on the glider, which will automatically release when the glider gets ahead of the rope, should be used. If a pilot forgets to release and the rope is cut, he still has four or five hundred feet of rope dragging, and this can easily get caught in the telephone wires or anything else in the way.*

Some hints on building a winch are as follows: Keep it simple. The simpler you make it, the less trouble you will have with it. If you are short of cash, a drum bolted to the rear wheel, with a manually operated guide, is your best bet, and, if your car goes on the "fritz", you can take off the drum and mount it on another. If you are a small group, a drum can be made to fit your own car and can be put on and taken off when necessary.

We have a drum bolted to a Ford "A" wheel, and it is only necessary to jack up the car and change wheels, as in changing a tire. A Model "A" wheel will also fit a "V-8". This arrangement is good for going soaring, since the car that tows the trailer can also be used for launching. A highly important factor is the operation of the winch, as improper handling can be dangerous. Since the car does not go along the ground as in auto towing, the driver of the winch does not realize the speed at which he is towing and very often the speedometer readings are inaccurate.

The method we use is to put the winch in high gear, keeping the motor running fairly fast, slowly accelerating when we are sure the slack has all been taken out of the rope. The winch is given full power and the clutch slipped until the glider begins to move and the

**EDITOR'S NOTE: The safety of such an arrangement is very questionable. A cutting device must always be included for the contingency of the glider release jamming. We would prefer a glider release such as the DLV.*

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