79, Park Lane
HAREFIELD,
Middlesex.
UB9 6BL

Dear Karl ,

In reply to your letter of 15-10-80, I enclose drawings of the hook and it's installation on the Auster (C.A.A. approved). At the time of writing the installation for the Super Cub is not complete.

I would mention that the hook can be installed on any tug aeroplane, provided that there is clearance for the lower edge of the rudder and bottom clearance for the tail-wheel and skid. If these clearances cannot be obtained I think the towbar could be offset approximately 2".

We at Booker have found that the critical angle of the tow is 41° from the horizontal. In flight at this angle the tug pilot (Super Cub or Auster) has the control column hard back, the glider (K 13) pilot also has the control column hard back.

The prototype automatic hook was designed to release at 35° from horizontal, after testing it is the opinion of Chris Rollings and other test pilots that this angle is about right.

In flight tests, the hook releases when the glider is gently climbed at 35°. When the glider is climbed as steeply as possible the tug pilot only feels a slight jerk on release at 35°.

I will, in my home workshop, be making a batch of 12 hooks and as soon as drawings for the Super Cub are ready and approved by the C.A.A. I will let you have a copy.

Yours

R.P. Green

R.P. GREEN

Enc.

COPY.

BRITISH GLIDING ASSOCIATION LTD.

to E. Niedemeyer
Civil Aviation Authority
Airworthiness Division
REDHILL

Wycombe Test Group
C/O CFI Gliding
Wycombe Air Park
Booker Airfield
High Wycombe, Bucks.

REPORT ON THE OPERATION OF AUTO-RELEASE GLIDER TOW HOOK FITTED TO TERRIER G-AVYK

1 Glider towing trials of this hook commenced on 12th May 1979. Initial flights were conducted by members of the BGA Wycombe Test Group.

2.From these flights the following was deduced :

a. Normal Tow, as standard hook

b. Training Tow with 'normal ' Out of position demonstration as standard.

c. With a slow progression upwards, to a glider position higher than a pilot in full control would accept, the hook released automatically, before the tug pilot had any control problems.

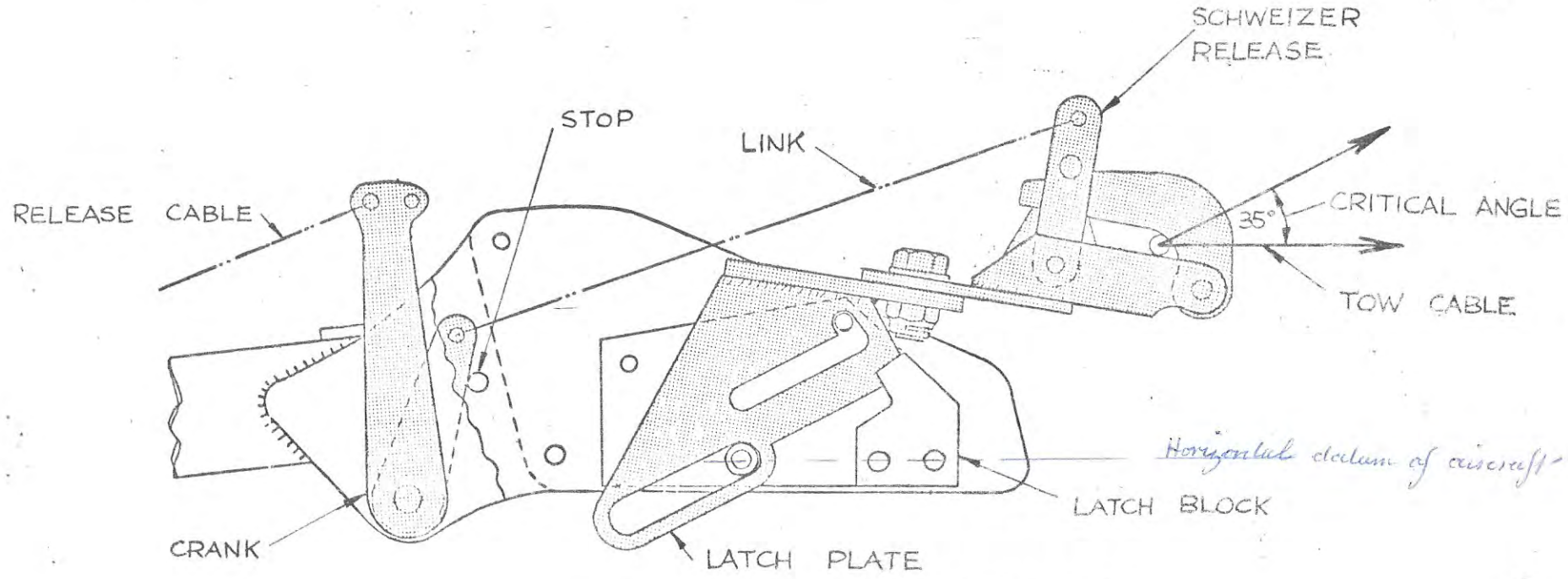
d. Using a Ke-13 glider at max AUW the tow rope was connected to its rear (winch launching) hook. An accelerated climb was carried out to simulate a glider out of control. In this case the tug was pitched down rapidly before release, which took place before a tug down attitude of 10 degrees was reached. On release the tug was immediately controllable with a total height loss of less than 50 feet.

e. Using the normal tug emergency glider release control results in an immediate and clean rope/glider release even under tension

3.Since the 12th May, G-AVYK has carried out 1071 glider tows of suitably selected and briefed Club pilots. There have been no spurious releases on tow, nor have there been any occasions when a genuine auto release was required. There have been two or three occasions when the rope has released from the hook whilst taxying without a glider attached (not under tension). There is no apparent risk of release on the ground whilst under load. A minor mod is envisaged by the designer, R. Green, to eliminate this nuisance

4.Conclusions : The hook appears to fully fulfill its designers intentions in that i. A glider in any normal position is not released and ii. a glider dangerously high is released. In the worse case of an uncontrolled 'winch' type launch the maximum time of tug uncontrollability is about 2" control being regained on auto release. Even if this took place immediately upon the tug becoming airborne it is considered that the chances of tug pilot survival are considerably greater than is currently the case with standard hooks due to the limitation on pitch down before release. The prototype hook has maintained its criteria over 1000 + launches. The odd spurious taxying release mentioned above can, apparently, be eliminated, but in any case is of nuisance value rather than of operational interest.

J. Ellis, (signed)
for Wycombe Test Group.



AUTOMATIC RELEASE MECHANISM