



## Replacement of the retrieval line made of steel

### Electrical systems before 2009

#### Threading the retrieval line

- push the retrieval wire from outside through the bowden wire (line guide)
- push the threading wire and pull it towards the winches
- thread the retrieval line through the loop of the tension sensor (micro switch)
- fix retrieval line to the reel.

#### Knotted the retrieval line to the reel

Make knots carefully as they can reduce the tensile strength of the cable by half!!

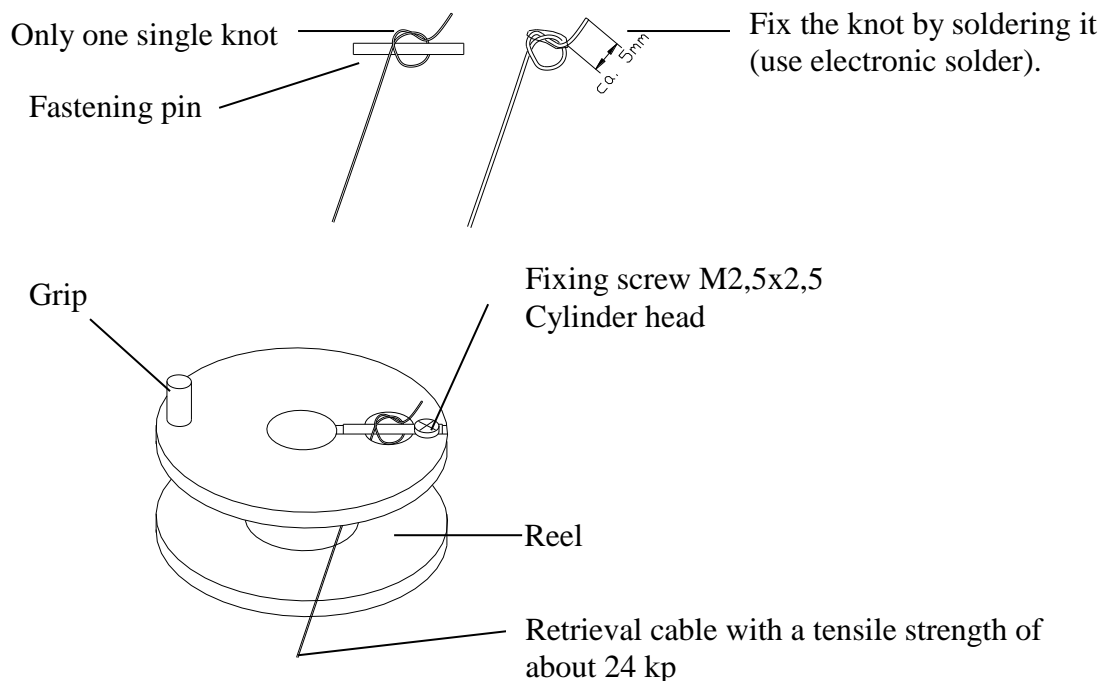
Therefore:

Fold the end of the cable to a lengthy flat loop to double the cable.

Bind it to the fastening pin of the reel by forming a simple knot with the doubled cable end.

The knot must sit tightly on the fastening pin, however it must be able to swivel.

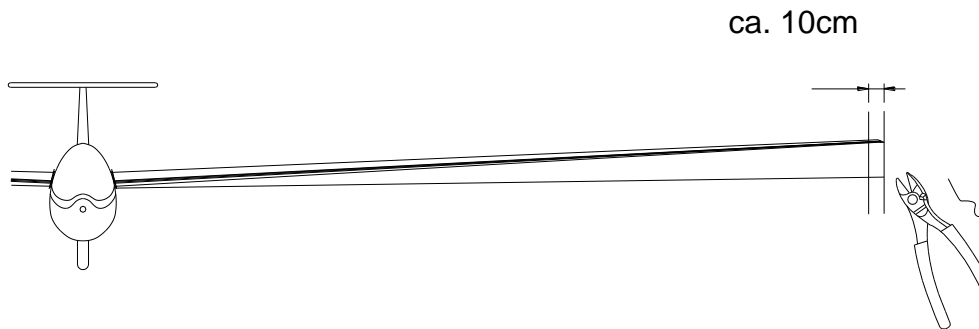
Add some tight knots and pull the loose ends of the cable up to the top of the reel.



If a stranded metal cable is used then secure the cable to the pin by a single knot and fix the knot by soldering it (use electronic solder). Pull the loose end of the cable to the upper side of the reel.

## Cutting the retrieval cable to proper length.

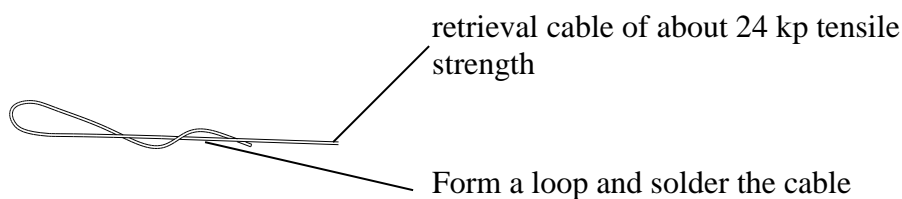
Pull the end of the retrieval cable to the wing tip until the whole cable is wound off from the reel and tensioned. Cut now the cable according to the figure below so that the cable does not reach beyond the wing tip - or the Bug wiper, when attached to the cable, cannot come closer to the wing tip than appr. 20 cm.



The bug wiper shall not come closer to the wing tip than 20 cm.

## Forming a loop at the end of the retrieval cable.

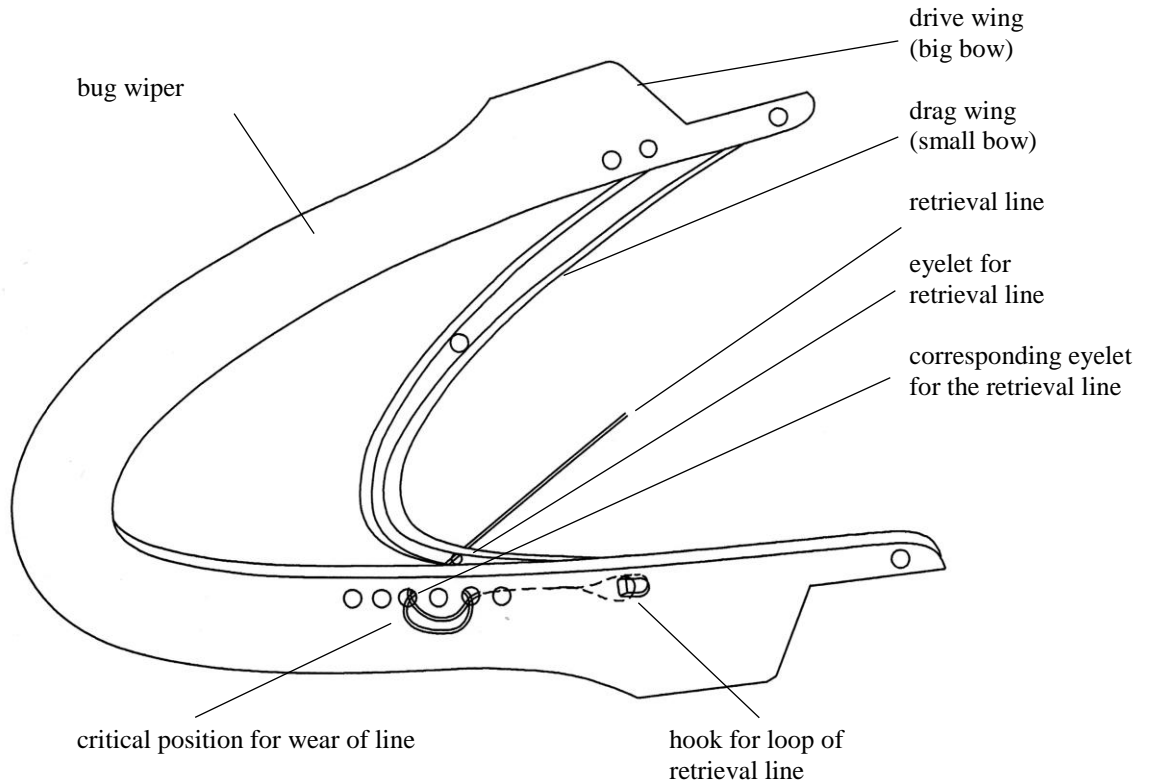
To be able to fasten the retrieval cable to the BUGWIPER form a loop.



## Securing the retrieval cable to the BUDWIPER (applies to all types).

Insert the loop of the retrieval cable into the eyelet of the small stabilizing frame, then pass it onwards through the corresponding eyelet on the big driving frame, then through the adjacent eyelet and finally hang the loop on to the hook. Then tighten the cable a little bit.

## BUGWIPER



### **Fixing the BUGWIPER to the fuselage in the retracted and collapsed position**

After having secured the retrieval cable to the BUG WIPER, ask somebody to hold the BUG WIPER and to tension the retrieval cable, while you operate the trigger switch (OFF→ON→GO→ON) to turn the winch motor on and to up wind the cable.

**NOTE:** Be sure that the cable is always tensioned during the up winding and retracting to the fuselage.

The winch pulls now the BUG WIPER to the fuselage (keep always the cable under tension!) until it collapses and the BWS electronic switches the motor off automatically.