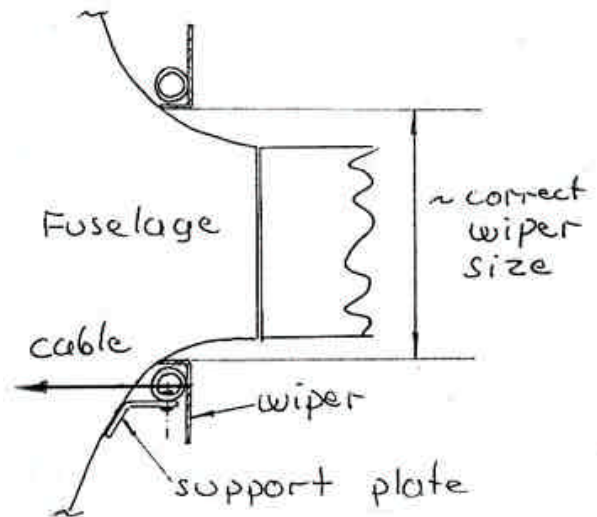


Note: Read both instructions (Mounting and Users) before proceeding. It requires a general understanding of where all parts are located, how they are mounted and operate, and particularly how the bug wiper is deployed and retracted, to assemble the hardware for proper operation.

- 1 **Mount the winch to the right side of the canopy where you easily reach the reels. Use e.g counter sink type short plate screws or simply Velcron tape. Be sure that you do not damage the cocpit side beam by the screws. Before mounting, visualize the routing for the black guide tubing for the winch gable. Avoid any extra or sharp bends in guide tubing causing unnecessary friction which causes higher minimum speed for correct outward travel.**

The bug wiper is sized according to the thickness of the sail-plane's wing. The shape of the bug wiper support plate may have to be adjusted to properly support the bug wiper. This is done by noticing how the wiper "nests" against the fuselage, while standing in an upright position for proper deployment



- 2 **Next step is to drill a hole in the side of the fuselage for the bug wiper cable to pass through. The location of this hole is to be determined according to the wiper nesting against the fuselage.**
- 3 **To fit the guide tube on the fuselage skin there are two joint pieces to be inserted. Drill minimum hole through the skin (max 1.5 mm). If there is enough material available enlarge it from inside to 5.0 mm and to the depth needed for the joint piece thread. Use quick epoxy to glue the joint piece on the fuselage. Some kind of fillet around the joint piece is recommended.**

Note: be careful not to drill through the skin with 5.0mm drill. The small hole is needed to stop the cable. The copper sleeve must not pass through this hole.

Note: The heads of the pop-rivets provided can be used as bushings for the hole. Use 2.5mm drill instead.

4 The next step is to cut the guide tubing to the right length. Note that on both ends of the tubing there is a small conic part made to make the tubing fit on the joint piece. Do not remove it when cutting the tubing. The other end of guide tubing will be supported by the support pieces at the winch.

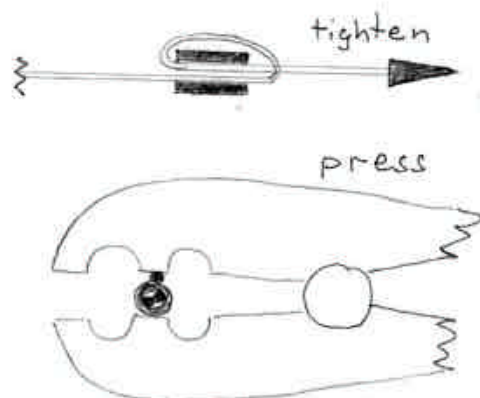
5 Feed the cables through the guide tubing and out the guide holes on the fuselage.

Take carefully some 1m of free cable from both reels. Make use of the delivered 1.5m piece of cable by bending it double at the midpoint and pushing it outside through the guide tubing and pulling the actual wire through.

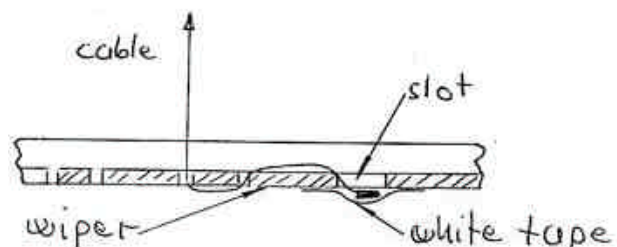
The cable furnished is 10.5 m long. It is recommended not to cut it to the exact wing length but leave it as it is. The cables are damaged always at the outer ends and this leaves you the possibility to cut the damaged part some times away and still have adequate amount of wire.

This of course means that you must be careful when driving the wipers out. The cable is attached to the bug wiper in a manner which allows easy removal of the bug wiper when not in use. The free end of each cable is terminated by making a cable stop.

6 Press the copper sleeve by standard AMP electric pliers. Only a light press is needed but just on the wire to keep the diameter below 3.0 mm (holes at the wipers)



7 Attach the cable by threading the end through the wiper and then through the secondary hole into the slotted hole. Tape down the end piece along the wiper's side with white tape.



- 1** After sailplane assembly and the bug wipers are installed, be sure that both wipers are held firmly against the fuselage and the cables lay correctly on their reels.
- 2** Always after using the winch tighten the clutches to avoid unwanted sudden operation which may cause loss of the wiper.
- 3** The wiper shall not be driven further than 200-300mm from the wingtip It can be left there for waiting the right moment for retrieval. It is recommended to deploy the wiper before coming into the thermal and retrieve while thermalling.
Note: do not operate the wipers at airspeeds less than 100 km/h for correct outward travel
- 4** The idea is to install the bug wiper on the sailplane only when needed. The bug wipers are easily removed due to the method of cable attachment. After disconnecting the cables from the bug wiper tighten the cables against the fuselage.
- 5** The bug wiper can be used also in rainy conditions. The deploying of the wipers do shorten the drying time of the wing after leaving a rain shower.
- 6.** It is recommended to cut yearly some 100-300mm of the cable to ensure proper strenght and avoid the friction caused by the twisted outer end of the cable.
New copper sleeves must be installed. They are available at the sales agent and the manufacturer.

Manufacturer:

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