Subject : Optional use of winglets, developed by Glasfaser-Flugzeug-Service GmbH

Affected: All sailplanes model "Standard Libelle" and "Standard-Libelle 201 B" which have not been modified to comply with Technical Notes No. 201R-1 and 201R-2.

Urgency : None, optional use

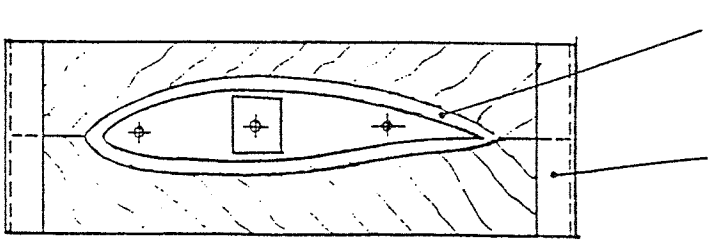
Reason : In recent years the use of winglets not only enhanced the flight performance, but also improved the flight handling characteristics, which, however, in the case of the above models, do not require any amendments of the Flight Manual, except for the rigging/de-rigging procedure.

Actions :

1. Procurement of a winglet retro-fit kit incl. wing connections and prefabricated wing tip connecting rib as per drawings No. 201-58-10 and 11, incl. identification plates and release certificate.

2. Cut off wing tip(s) as per the tracing pattern contained in the retro-fit kit and remove all styrofoam and resin adhering to the shear web for a length of 150 mm. Thereafter sand inner wing skin in the area of the winglet connection. Next remove the supporting core between inner and outer glass laminate for a depth of 15 mm, make recesses with a depth of 30 mm into the shear web (for the winglet connection) and shorten the shear web by 6 mm (in spanwise direction).

   Now cover root rib of winglet connection and winglet with tape or a similar parting material, apply a parting agent additionally and make the two-piece 20 mm templates as shown in the sketch plywood and polyester filler (for either side, right at the wing tip).



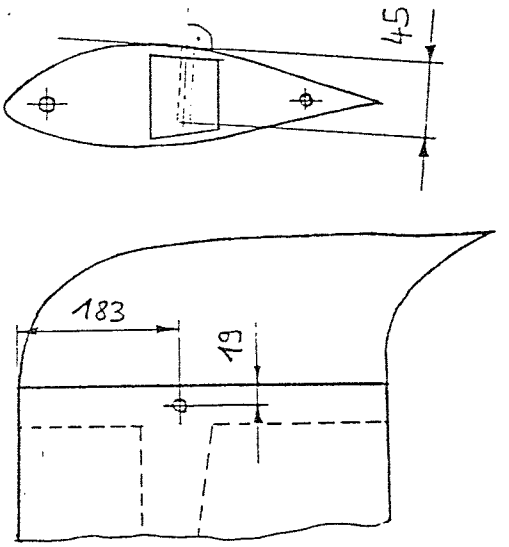
   U-shaped aluminum or wooden frames make the positioning of the templates easier when bonding the winglet connection in place. Be sure to apply sufficient parting agent to templates to avoid any bonding.

3. To ensure a proper fit of all components, first test-rig winglet and winglet connection "in dry condition - the templates must have a perfect fit and there should be no steps, no binding and no displacement.

If so, coat areas to be bonded with resin (Scheufler L 285, mixed 100 : 38 with hardener No. 286) and replace the supporting core, previously removed, by a microballoon/resin mixture. Next apply a rich microballon/resin mixture to the face of the spar box and a cotton flocks/resin mixture to all remaining areas to be bonded, then insert the winglet connection into the wing in such a manner that the bonding material is not stripped off.

Thereafter secure wing panel and winglet in proper position (using tape) and attach the two-piece template such (using two long screw clamps) that a width of 15 mm rests on the winglet and a with of 5 mm presses on the wing tip - then carefully tighten the clamps.

4. With the bonded area cured and heat-treated, next prepare the installation of the locking device by drilling a hole with a diameter of 6 mm and a depth of 45 mm at an angle of 90° to the wing surface. Thereafter the winglet may be removed.



Next trim the root rib(s), cover with tape or a similar parting foil and apply a parting agent, then insert the GFRP wing tip connecting rib (included in the kit) into the wing and fit the wing tip, previously cut off, to rib and wing - any remains of spar and shear web can be removed.
With all components brought to proper shape and their mating surfaces sanded, bond wing tip to its connecting rib, secure in proper position and attach the two-piece templates.

With the bonded area cured and heat-treated, drill the hole for the locking device and remove wing tip.

The locking device is installed as follows:

Position winglet on a pillar drill by inserting the length of a 6 mm steel rod into the hole on the winglet spar stub and the free end into the drill chuck, then secure the winglet in this position and, using a counter bore (6/12), cut an opening with a depth of 29 mm into the block fillet of the spar stub.

Thereafter the brass bushing with pin and spring is bonded in position using thickened resin. Finally ream the opening on the wing to a diameter of 6.1 mm and shorten the locking pin such that it is flush with the upper wing surface.

The adjoining areas may now be repainted, sanded and polished (using Lesonal Schwabbellack). With all components finished, the silicone skid can be attached to the winglet(s).

Material & drawings : Refer to chapter "actions"

Weight & c/g position : When flying with winglets, the mass of each wing panel is increased by 0.3 kg, a re-determination of the empty mass c/g position is therefore not required.

Note :

1.) The kit for retro-fitting the winglets and the amended page 13a of the Flight and Service Manual may be obtained from

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2.) The winglets may be retro-fitted by a qualified person, a certified repair station or Glasfaser-Flugzeug-Service GmbH.

The proper accomplishment of the actions is to be supervised and checked by a licensed inspector and must be entered in the sail-plane's log book.

3. Proof of compliance was established by the following documentation:

1. Stress Analysis dated 27.01.1995
2. Flight Test Report dated 26.07.95
3. Flutter Investgation dated 19.11.1995

Grabenstetten, November 19, 1995

Issued: H. Streifeneder

(Streifeneder)

LBA-approved:

The German original of this Technical Note has been approved by the Luftfahrt-Bundesamt under the date of 05. Jan. 1996 and is signed by Mr. U. Kopp.
The translation into English has been done by best knowledge and judgement.

Rigging the winglets

To make sure correct attachment after rigging the winglets check whether the elastic security pin has come up completely to the wing surface.

When attaching the plain wingtips for flight adhesive tape must be used to cover the slit, otherwise slipping off might be possible.