

<b>E.Margański i Wspólnicy Zakłady Lotnicze</b>	<b>Enclosure No 1 to BO-112/2005 SWIFT S-1 Working Instruction Inspection of control column in elevator control system</b>	<b>SWIFT S-1</b>
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Enclosure No 1  
to  
Bulletin No BO-112/2005 SWIFT S-1

**WORKING INSTRUCTION  
INSPECTION OF CONTROL COLUMN  
IN ELEVATOR CONTROL SYSTEM  
OF SWIFT S-1 GLIDER**

Elaborated:

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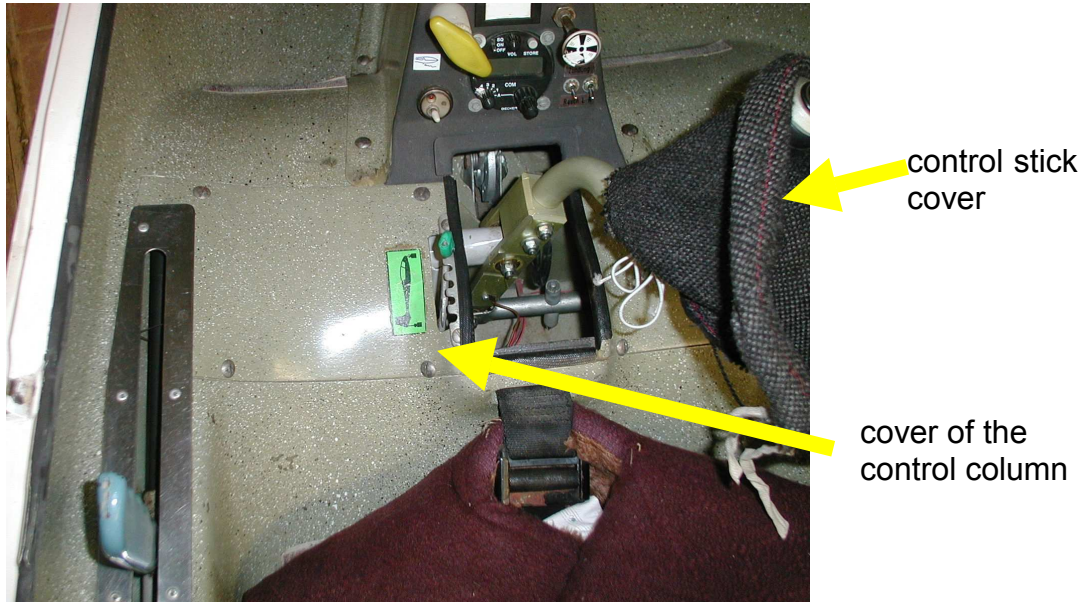
Note:

This Working Instruction has been originally elaborated at LTB  
Güntert&Kohlmetz GmbH as the TN 397/3 document.

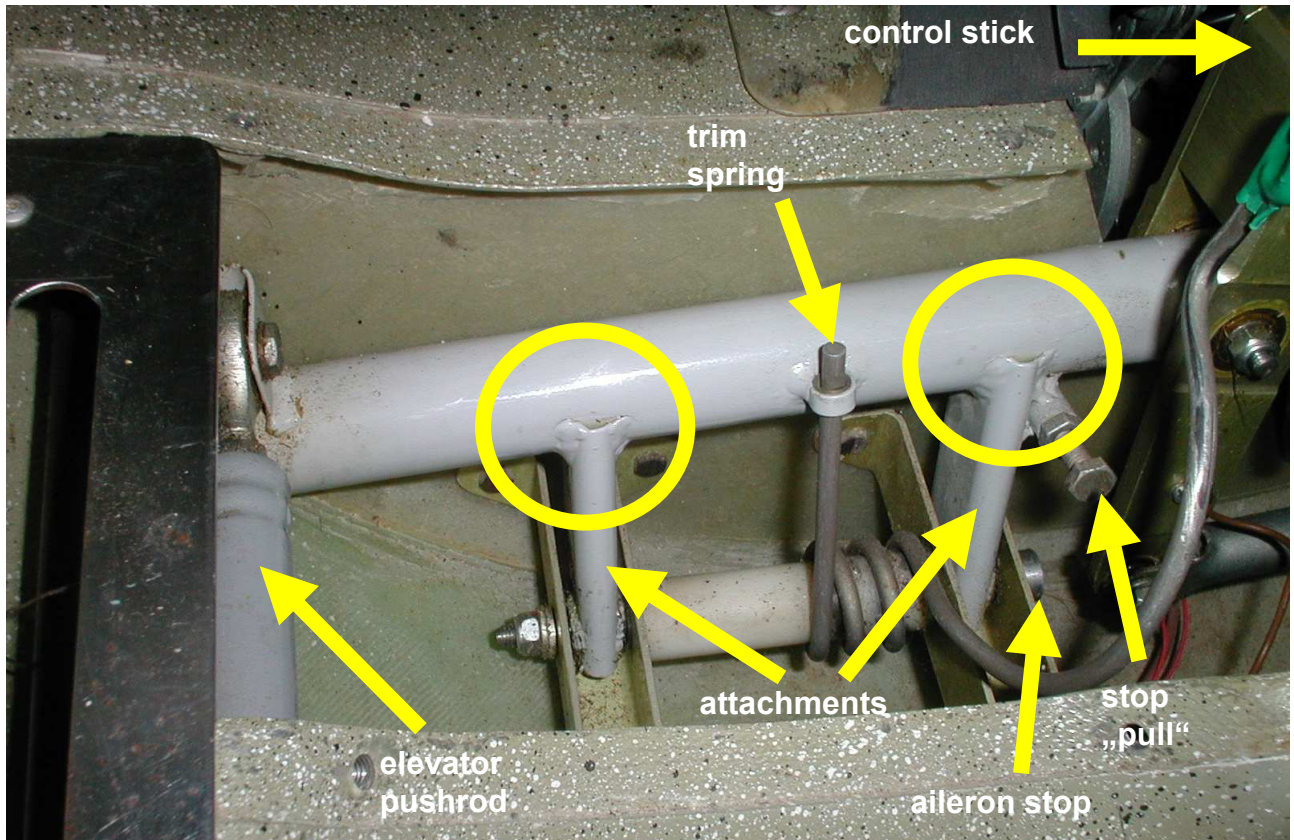
**This a.m. document has been adopted at Zakłady Lotnicze for the purpose of  
Bulletin No BO-112/205 SWIFT S-1.**

## 1 Action 1 – Inspection of the control column

Check the control column (Dwg-No. A/2-1.00.200) for cracks and, if the stops (two M6 bolts) are installed both for front (push), and for rear (pull) position of the control stick.



picture 1: Cover of the elevator controls



picture 2 : Elevator control column

- I) Dismantle the control stick cover and remove the left (in flight direction) access cover of the controls close to the control stick (s. picture 1).
- II) Inspect the welding seams of the attachments (see circles in picture 2) over the whole length for cracks and other damage; use a strong pocket lamp and a mirror - if necessary. If crack or other damage is found, the control column must be replaced.



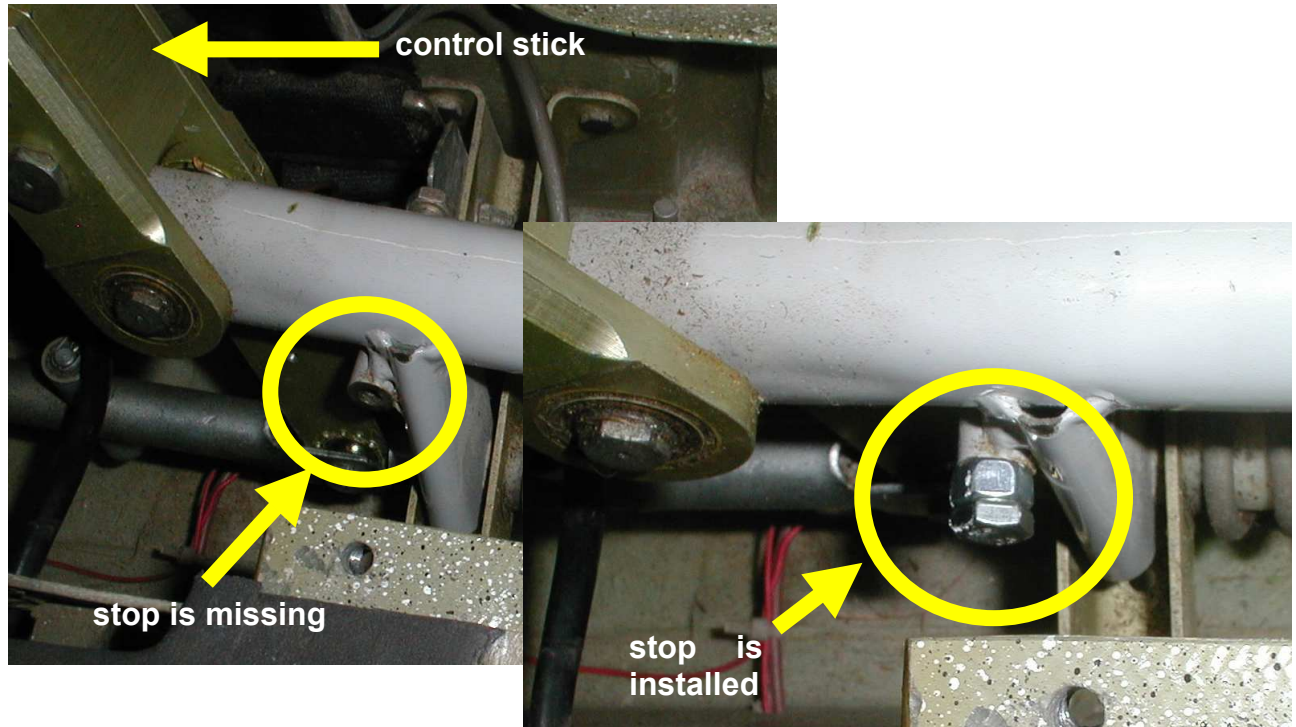
**picture 3: Damage viewed from front**



**picture 4: Damage viewed from behind**

picture 3 and picture 4 show a sample of the possible damage.

- III) Check if a stop is installed on the control column for the „nose down“ (push) position. If no stop (bolt M6) is found, this must be retrofitted according to part 2 of this Working Instruction.



picture 5: Check of the stop for elevator „nose down“ (viewed from front)

- IV) If no damage to the control column is found, and both stops are installed and correctly adjusted, the access cover of the control column and the control stick cover can be assembled again.  
No further action is necessary.

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## **2 Action 2 – Exchange of the control column**

When exchanging the elevator control column, pay special care to the bolt mounting the column with its bearings, as the head of this bolt is at the same time the stop for the aileron (see picture 2). Therefore it is necessary that the washers and spacers (if installed) are fitted at the same position when the new column is assembled.

In detail the following procedure is recommended:

- Disassemble the control stick and elevator pushrod from the column.
- Disassemble the lower attachment bolt M6 (hinge axis). Mark the position of all washers and spacers since these must be assembled at the same position, when installing the new column!
- Pull the elevator control column together with the trim spring up and disconnect the trim spring by pulling it downwards.
- Install the trim spring on the new column, and install the column in reverse order.
- After installation of the new column, all items of part 3 of this Working Instruction must be completed and the elevator deflections and stops must be adjusted
- Additionally, the aileron deflections must be checked.

### 3 Action 3 – Retrofit of a stop bolt for the „nose down“ position of the elevator

To retrofit the „Swift S-1“ with a front elevator stop the following parts are necessary (all parts are available at the Günstert + Kohlmetz company):

- 1 bolt M6 x 20
- 1 nut M6
- if necessary, some washers 6.4 and a lock nut M6

The bolt M6 x 20 must be screwed into the existing thread on the front face of the control column and locked with the nut M6 (see picture 5).

The bolt must be screwed in at least 10mm deep into the thread of the column.

The head of the stop bolt must be adjusted so to hit the front control bulkhead prior to the contact between attachment of the elevator push rod at the outer side (sheet metal-U, see picture 7) and GFRP frame!



picture 6: Control column pushed fully forward until the stop

If the elevator deflections according to the Technical Service Manual (figure 1, page 7) are not available now, the swivel head at the end of the elevator push rod on the left side of the column must be adjusted.

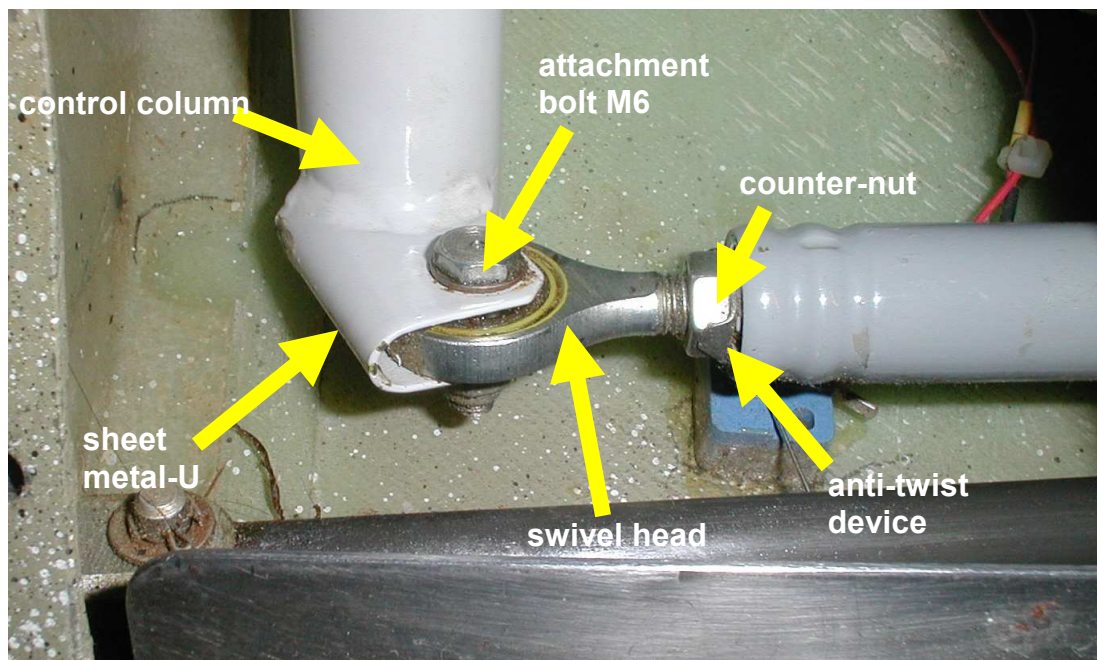
To do so, untighten and disconnect the bolt M6, one connecting the push rod end with the column, mark the positions of the washers and keep all these items. Bend off the anti-twist lock at the counter-nut (sheet metal clip), unthighten the counternut and screw the swivel head into the pushrod until the elevator deflections in „nose down“ direction reach the required value (see picture 7 and picture 8).

If the required value has still not been reached, when the swivel head is screwed into the push rod as far as possible (the counter nut at the swivel head may not be removed!), the front stop bolt must be screwed further into its thread.

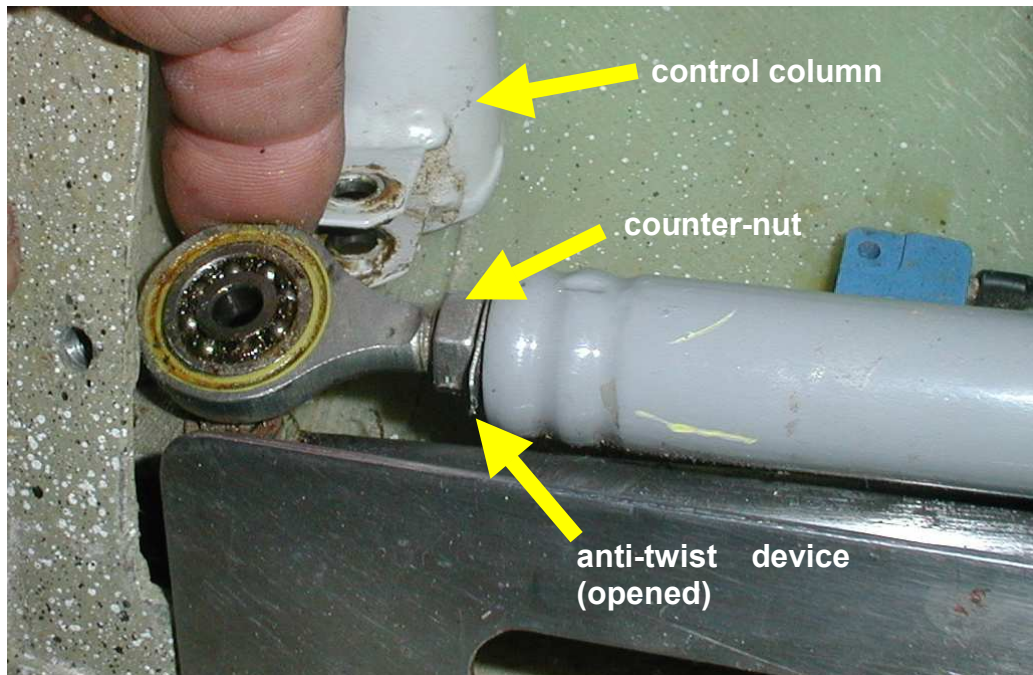
If it is not possible due to the stop bolt counter-nut, then the counter-nut of the stop bolt must be removed and a adequate amount of 6.4 washers have to be added until the stop could be tightened firmly in the desired position.

During these adjustments, one must ensure that the head of the stop bolt hits the bulkhead prior to the outer part of the control column (sheet metal-U) at any time.

If the stop bolt is fully screwed into the socket (i.e. there are no washers between its head and the mounting), or the bolt can't be screwed in further without the sheet metal-U of the shaft hitting the bulkhead first, and the required elevator deflections are still not reached, contact the manufacturer for further advise.



**picture 7: Swivel-head at the elevator pushrod fixed by a locknut and secured**



**picture 8: Swivel-head disconnected and counter-nut untightened**

If the swivel-head at the elevator pushrod had to be adjusted, the aft („nose up“) elevator stop has to be readjusted as well.

To do so, untight the counter-nut of that bolt and screw the bolt into the mounting, until the full range of elevator deflection both up and down will be reached, (but not more!) according to the Technical Service Manual. Tighten the counter-nut again afterwards.

Finally, tighten the counter-nut of the swivel-head and secure it against loosening with the anti-twist device. Connect the pushrod with the control column by means of the M6 bolt, use the washers as marked when disassembling the set. Use a new lock nut M6.

Check all controls for clearance and full deflection.