THE GLIDING FEDERATION OF AUSTRALIA

GFA AD 579
(ISSUE 1)

GFA AIRWORTHINESS DIRECTIVE

TYPE AFFECTED:	Stemme powered sailplanes with light metal (aluminium alloy) control rods, as follows; S10-V, serial numbers 14-004 to 14-030, 14-042M and 14-047M; S10-VT, S/Ns 100-001 to 11-063, except for 11-002 and 11-009. Note: S10 models are affected if they have had light metal control rods fitted as a result of modifications after repairs, otherwise they are not affected.
SUBJECT:	Checking of the curled or pressed ends of light metal control rods for visible cracks.
BACKGROUND:	Cracks have been discovered in the ends of light metal control rods with curled or pressed ends in the area of the beading. See attached Service Bulletin.
DOCUMENTATION:	Stemme Service Bulletin A31-10-059 (with compliance date extended to 31 October 2002) and Inspection Record D23-10S-001 form part of this AD.
ACTION REQUIRED:	Carry out and record inspections as required by the above two Stemme documents.
WEIGHT AND BALANCE:	Not affected.
IMPLEMENTATION:	Within 100 flight hours, but in any case not later than 31 October 2002.
COMPLIANCE:	The requirements of this GFA Airworthiness Directive are mandatory. This Directive is issued pursuant to the Rules and Regulations of the Gliding Federation of Australia.

SIGNED:  SENIOR TECHNICAL OFFICER AIRWORTHINESS	For and on behalf of: THE GLIDING FEDERATION OF AUSTRALIA

This Service Bulletin provides from page 1 to 3 the original version in German, approved by the Luftfahrt-Bundesamt, and from page 4 to 6 a translated version in English. The translation has been performed to the best of our knowledge and judgement.

1 Subject:

Control of all light metal control rods in the area of the curled or pressed end-pieces for visible cracks.

Note: Light metal control rods can be identified by their yellowish-green colour as a result of their surface protection (anodisation). In comparison, the steel rods are either plain metallic or painted grey and carbon fibre rods are black.

2 Affected Powered Sailplane:

Type STEMME S10, models S10, S10-V and S10-VT / LBA Type Certificate No. 846, FAA Type Certificate: G58EU and G06CE.

All S/N with light metal control rods are affected:

- model S10-V: 14-004 up to 14-030, 14-038M, 14-042M and 14-047M,
- model S10-VT: 11-001 up to 11-063, excluded 11-002 und 11-009, as well as
- all other S/N of all models, including model S10 (S/N 10-xx), which have received new control rods in the result of repairs (i.e. new tail boom ==> see invidual Maintenance Manual of the affected s/n).

Note: As part of repair works and / or replacement of the tail boom, light metal elevator control rods with the STEMME-part no. 10SH-LA have been built into the serial numbers 14-038M, 14-042M and 14-047M. No other control rods in these serial numbers are affected.

All curled / pressed end-pieces of the control rods of the following model are to be inspected:

- airbrake control rods: 10SB-RMA; 10SB-RMB; 10SB-RML; 10SB-RMR; 10SB-TIA
- elevator control rods: 10SH-LA; 10SH-RMA; 10SH-RMB
- aileron control rods: 10SQ-RMA; 10SQ-RMB; 10SQ-RMD; 10SQ-RVA; 10SQ-RVB; 10SQ-TA06; 10SQ-TAS; 10SQ-TAV; 10SQ-TIS
- Flap control rods: 10SW-RMD; 10SW-TIS, 10SW-TI05

Note: The CFRP- control rods in the airbrake control (Stemme-part number: 10SB-TIG) are not affected.

3 Time of compliance:

The mandantory inspections which are described in this SB must be performed within the next 100 flight hours, not later than march, 31. 2002.

4 Background Information:

The following types of individual cracks with a depth of between 0.08 in. and 0.39 in (2mm and 10mm) have been discovered on the light metal control rods with curled or pressed end-pieces in the area of the beading:

- Across the control rod: usually on the sides, but also in the dip of the compression. In the case of compressions, cracks usually in irregular / extremely cruciform compressions.
- Alongside the control rod: in the compression area, usually on the peak of the compression.
- *Longitudinal grooves on the surface, which look like a crack. They occur during the drawing process of the manufacture of the half-finished product and do not play a significant role in safety.*

The possibility cannot be safely eliminated that any existing deep cracks can increase in size and depth during the operation of the aircraft (e.g. as a result of high levels of stress and / or corrosion). It is for this reason that affected light metal control rods must be controlled and, if a defect is found, they are to be replaced.

It is not expected that new cracks will form in previously perfect control rods during the operation of the aircraft; therefore, a single, thorough control carried out in accordance with this SB is sufficient.

5 Actions:

5.1 Inspections:

A control of the curled / pressed end-pieces of the control rod takes place as part of routine maintenance works in accordance with the maintenance manual S10 and models (see control of model 2b / annual inspection in the maintenance manual S10-VT / or every 100 hours / annual inspection in maintenance manual S10 and S10-V); therefore at least once a year.

As part of this SB, one single, thorough inspection of the curled or pressed end-pieces of the control rods is to be carried out in accordance with the specified inspection report D23-10S-001, after which normal controls will be carried out in accordance with the specifications in the maintenance manual.

Furthermore, due to the cracks discovered, it is once again highlighted that the normal, routine control of the end-pieces of the control rods must be carried out carefully. This includes:

- The unscrewing of the ventilation slots on the plain flaps and ailerons, in order to control the wing with a lamp and mirror, and
- The opening of the control hole in the tail tube.

5.2 Modifications to the Manuals:

None.

6 Mass and balance:

Not affected.

7 Material:

- magnifying glass, lamp and mirror
- endoscope wich is suitable for the realisation of the SB:
  - stiffness borescopes with a rod diameter ≤ 0.2 in.(5 mm); line of sight 75-90°; visual field angle: at least 55°, with rotating rod,
  - Flexoscope with a rod diameter d ≤0.2 in (5 mm) is conditionally suitable ; with diameter d >0.2 in. (5 mm) is not suitable,
  - in result of their larger diameter are tilt prisma-borescopes conditional suitable,

  If used a modern endoscope is a enlarger not necessary. A magnification up to twentyfold is realized in the dependence from the distance to the inspected object.

8 Associated documents:

The following documents are required for inspection:

Item	document number	type of document	title of document
1	D23-10S-001 / 01.a	inspection report	inspection report light metal control rods
2	A40-1x-xxx	maintenance manual	maintenance manual

9 Accomplishment and log entry:

An for the inspection euiped authorised mechanic may carry out the actions described in this Service Bulletin and must be checked and entered in the airplane's log book by a licensed inspector. The regulations on the keeping of service records must be adhered to.

Note: An aircraft maintenance organisation is normally euiped for the inspection. The Stemme service team is also euiped for an locally inspection. Please contact the service team via internet or phone for the coordination of the dates for inspection.

(End)

STEMME Entwicklungsbetrieb LBA.NSD.005	**Inspection record** **aluminium control rods according to SB A31-10-059**	Dokumentnummer: **D23-10S-001** Änd.-Index: 01.a Seite: 3 (von 5)

Serial No.:	Owner:	Date of inspection:	Inspector:

No.	Control rod	Method of inspection	Result	Complaint YES	Complaint NO	Sign
	Cockpit section					
1.	10SQ-RVA	with magnifier, lamp and mirror				
2.	10SQ-RVB	with magnifier, lamp and mirror				
	Frame section					
3.	10SB-RMA	with magnifier, lamp and mirror				
4.	10SB-RMB	with magnifier, lamp and mirror				
5.	10SB-RML	with magnifier, lamp and mirror				
6.	10SB-RMR	with magnifier, lamp and mirror				
7.	10SH-RMA	with magnifier, Lamp and mirror				
8.	10SH-RMB	with magnifier, lamp and mirror				
9.	10SQ-RMA	with magnifier, lamp and mirror				
10.	10SQ-RMB	with magnifier, lamp and mirror				
11.	10SQ-RMD (right)	with magnifier, lamp and mirror				
12.	10SQ-RMD (left)	with magnifier, lamp and mirror				
13.	10SW-RMD	with magnifier, lamp and mirror				
	Tail boom					
14.	10SH-LA	inspection type A				
	Center wing (TI) (right)					
15.	10SQ-TIS	with magnifier and lamp				
16.	10SW-TI05	inspection type B				
17.	10SW-TIS	wing root: inspection with magnifier and lamp; inside of the Center wing: inspection type C				
18.	10SB-TIA *[1]	with magnifier, lamp and mirror				
	Center wing (TI) (left)					
19.	10SQ-TIS	with magnifier and lamp				
20.	10SW-TI05	inspection type B				
21.	10SW-TIS	wing root: inspection with magnifier and lamp; inside of the Center wing: inspection type C				
22.	10SB-TIA *[1]	with magnifier, lamp and mirror				

STEMME Entwicklungsbetrieb LBA.NSD.005	**Inspection record** **aluminium control rods according to SB A31-10-059**	Dokumentnummer: **D23-10S-001** Änd.-Index: 01.a Seite: 4 (von 5)

Serial No.:	Owner:	Date of inspection:	Inspector:

No.	Control rod	Method of inspection	Result	Complaint Yes	Complaint No	Sign
	Outer wing (TA) (right)					
23.	10SQ-TA06 (inner)	inspection type B				
24.	10SQ-TA06 (outer)	inspection type B				
25.	10SQ-TAS	connecting area outer – center wing: with magnifier and lamp; inside outer wing inspection type C				
26.	10SQ-TAV	inspection type C				
	Outer wing TA (left)					
27.	10SQ-TA06 (inner)	inspection type B				
28.	10SQ-TA06 (outer)	inspection type B				
29.	10SQ-TAS	connecting area outer- center wing: with magnifier and lamp; inside outer wing inspection type C				
30.	10SQ-TAV	inspection type C				

*1 not necessary if 10SB-TIG (CFRP- control rods) are installed

All control rods with positive result are recorded in the work record. The complete inspection according to the SB A31-10-059 is certified.

site, date stamp sign inspector

Inspection type A

1. Open the bottom front control hole in the rear left tail boom area.
2. Take off the position dimensions of the bottom front control hole.
   Orientation dimensions:
   Distance from the lower edge: approx. 4.73 in. (120mm);
   Distance from the trailing edge: approx. 17.73 in. (450mm).
3. Using an endoscope, ensure that there are no cables or suchlike on the side opposite to the tail tube.
4. Get the second plug ready. Transfer the distance dimensions to the right side of the tail tube and drill a hole to fit the plug; ideally, it should be ground with a reamer.
5. Control 10SH-LA from both sides by using an endoscope and then close the holes with the plugs.

Inspection type B

Depending on the accessibility of the control rods, a decision must be made whether the ventilation slot must be torn off the wing. Should this be necessary, hit the sides with a tool such as a screwdriver until they become loose and hit or tear at the ventilation slot in the direction of the wing / trailing edge. This prevents a large degree of damage to the surface.

With a high-quality, appropriate endoscope:

1. Unscrew the ventilation slot on flap or rudder.
2. Remove the control rod from the flap or rudder.
3. Control the control rod end to the flap or rudder connection with a magnifying glass, lamp and mirror (or with an endoscope).
4. Using the endoscope, control the compression connection in the wing.

With a less appropriate endoscope:

1. Remove the ventilation slot on the flap or rudder.
2. Remove the control rod from the flap or rudder.
3. Control the control rod end to the flap or rudder connection with a magnifying glass, lamp and mirror (or with an endoscope).
4. Unscrew the control rod end-piece to the the flap or rudder connection from the control rod.
   Guide the fuse wire through the control hole and twist.
5. In order to control the internal compression connection with the endoscope, push the control rod in and, with the aid of the fuse wire, rotate into the left and right final position.

Typ C

Use an endoscope to carry out control measures following the implementation of the necessary dismantling works on type B – inspection in the testing area.

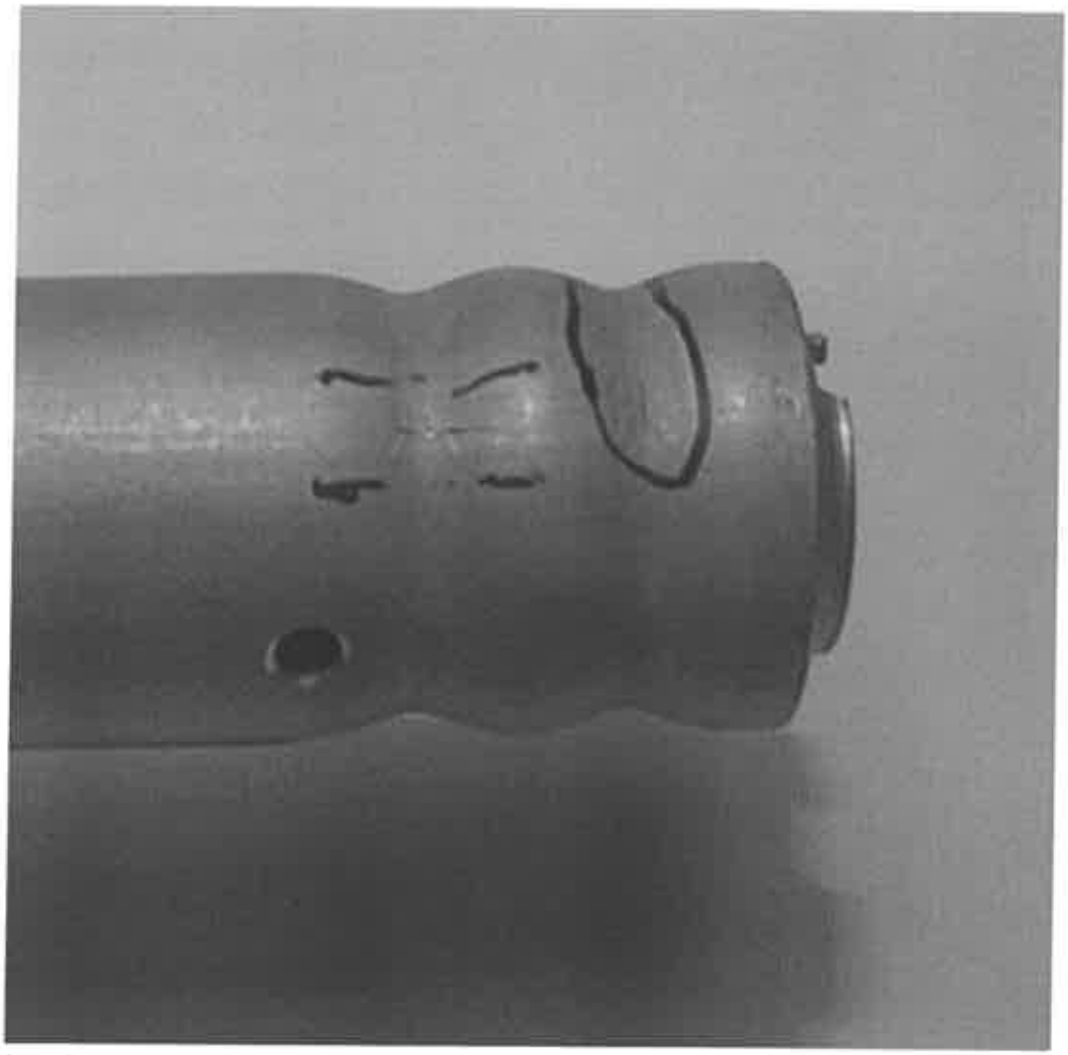

Bild 1 / picture 1:
Beispiel eines signifikanten Anrisses in der Einrollung / example for a significant crack in the control rod