



THE GLIDING FEDERATION OF AUSTRALIA

**GFA AD 522**  
(ISSUE 1)

## GFA AIRWORTHINESS DIRECTIVE

**TYPE AFFECTED:** DG-500/22 ELAN, DG-500 ELAN ORION, DG-500 ELAN Trainer, DG-500/20 ELAN. All serial numbers up to 5E203.

**SUBJECT:** Elevator Control in the Vertical Fin.

**BACKGROUND:** On one DG-500 the push rod guide of the elevator control rod came loose in the mid-point of the vertical fin. If the guide slips up or downwards this may cause hard movement of the elevator control. The reason that the guide may come loose is a very high compressive load on the foam core in its stand. To prevent from this problem the foam core must be stiffened using epoxy resin thickened with cottonflocks.

**DOCUMENTATION:** DG Flugzeugbau Technical Note No. 348/12 and 843/12 (powered variants), Working Instruction No. 1 for TN 348/12 (843/12) and Drawing 5L36. All documents are attached and herewith become part of this AD.

**ACTION REQUIRED:**

1. Visual inspection and function test of the elevator control rod.
2. Application of design improvements by increasing the stiffness of the elevator control support stand with thickened epoxy resin.

The actions must be performed in accordance with the Technical Note and the Drawing of the manufacturer.

**WEIGHT AND BALANCE:** Influence negligible.

**IMPLEMENTATION:** Materials according to the Technical Note.

**COMPLIANCE:**

Action 1: Before next flight.  
Action 2: Not later than 31. December 1999.  
Action 1 may be performed by the owner or a daily inspector.  
Action 2 to be performed by an inspector rated for minor repairs FRP and to be signed off in the log book by a Form 2 inspector.  
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:

CHIEF TECHNICAL OFFICER AIRWORTHINESS

For and on behalf of:

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OF AUSTRALIA

DG Flugzeugbau GmbH  
Postfach 4120 76625 Bruchsal  
Tel. 07257/890

Technical Note  
No. 348/12  
843/12

page 1 from 1

Subject : Elevator control in the vertical fin

Effectivity : DG-500 ELAN all models up to ser. no. 5E203  
DG-500M, DG-500MB up to ser. no. 5E203

Accomplishment : Instruction 1 prior to next flight  
Instruction 2 latest December 31. 1999

Reason : On one DG-500 the push rod guide of the elevator control rod in mid-point of the vertical fin came loose. If the guide slips up or downwards this may cause hard movement of the elevator control.  
The reason that the guide may come loose is that the foam core of it's stand may be compressed by a very high load. To prevent such problems the foam core must be stiffened using resin thickened with cottonflocks.

Instructions : 1. Visual inspection of the push rod guide: Loosen the rubber boot from the rear upper rib of the fin, be careful not to damage the boot. Hold tight the upper end of the pushrod while a second person applies loads as high as possible at the control stick in forward and rearward directions. Move the control system several times between both stops under these loads. If the outer aluminium tube of the guide doesn't move, you may reinstall the rubber boot using Pattex as glue or proceed with instruction 2. If the tube moves a detailed repair is necessary.  
2. Stiffen the stand using resin thickened with cottonflocks according to working instruction No. 1 for this TN. If instruction 2 was not executed directly after instruction 1, instruction 1 has to be repeated.

Material : Pattex contact glue  
Glassfibre fabric Style 92125 50x70mm  
Epoxy resin with hardener: allowable types listed in the repair manual  
Cottonflocks  
2 split pins 1.5x12 DIN94 zn (zinc plated)  
1 split pin 2x20 DIN94 zn  
Working instruction no. 1 for TN 348/12  
Drawing 5L36

Weight and balance : influence negligible

Remarks : Instruction No. 1 may be executed by the owner and is to be entered in the aircraft logs.  
Instruction No. 2 is to be executed by the manufacturer or by a licensed workshop and to be inspected and entered in the aircraft logs by a licensed inspector.

Bruchsal, date:  
Oct. 6.. 1999

LBA - approved:

15. OKT. 1999

Author:  
Dipl. Ing. Wilhelm Dirks

*Wilhelm Dirks*

The German original of this TN has been approved by the LBA under the date of \_\_\_\_\_ and is signed by Mr. Fendt. The translation into English has been done by best knowledge and judgement.

Type certification  
inspector:  
Dipl. Ing. Swen Lehner

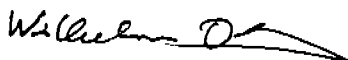
*Swen Lehner*

**Working instruction No. 1 for TN 348/12 (843/12)**

**Stiffening of the stand for the elevator control pushrod guide in the vertical fin**  
Details see drawing 5L36

1. Remove the rudder.
2. a) Gliders with fin battery installed: In the centre of the fin trailing edge shear web you will find the end of the battery box drain line. Make a mark 15mm below the centre of the drain line on the centre line of the shear web.  
b) Powered sailplanes: Measure from the lower edge of the upper rudder stand 555 mm (21.9 in.) downwards to make the mark.
3. Cover and tape the Mylar seals on both sides each with a piece of cardboard or similar in the working area to protect the seals and to secure your hands from being injured by the sharp ends of the seals.
4. Use a dia. 10mm drill. Wrap some layers of tape around the drill 16mm away from its tip.
5. Carefully drill a hole into the shear web at the marking until the tape touches the shear web.
6. Prepare a dia. 2mm pianowire according to the sketch on drawing 5L36.
7. Scratch out the foam 6mm (.24in.) around the hole, from both the shear web and the stand. Enlarge this hole up to the aluminium tube of the push rod guide. No foam shall remain at the tube in the area of the hole.
8. Roughen the shear web over its whole width 30mm above and below the hole.
9. Apply mixture of resin and hardener to the roughened surface and the inside of the hole including the aluminium tube.
10. Mix cottonflocks to the resin and fill the prepared hole completely.
11. Cover the hole with a piece of glassfibre fabric style 92125 laid up diagonally 70mm (2.8 in.) wide and 50mm (2 in.) high.  
Gliders with fin battery installed: cut off the edge of this fabric at the drain hole so as not close the hole.
12. Allow to cure at room temperature. Then postcure for min. 18 hours with 54°C. Use a hot air gun, direct the hot air from behind onto the repaired area. Take care to give sufficient distance between the gun and the surface and check the temperature at the repaired surface.  
We recommend to protect the inside of the fin trailing edge with a heat resistant insulating fabric (e.g. as used for soldering or welding) to prevent deformation of the material.
13. Execute a control check of the elevator control.
14. Reinstall the rudder using new split pins.

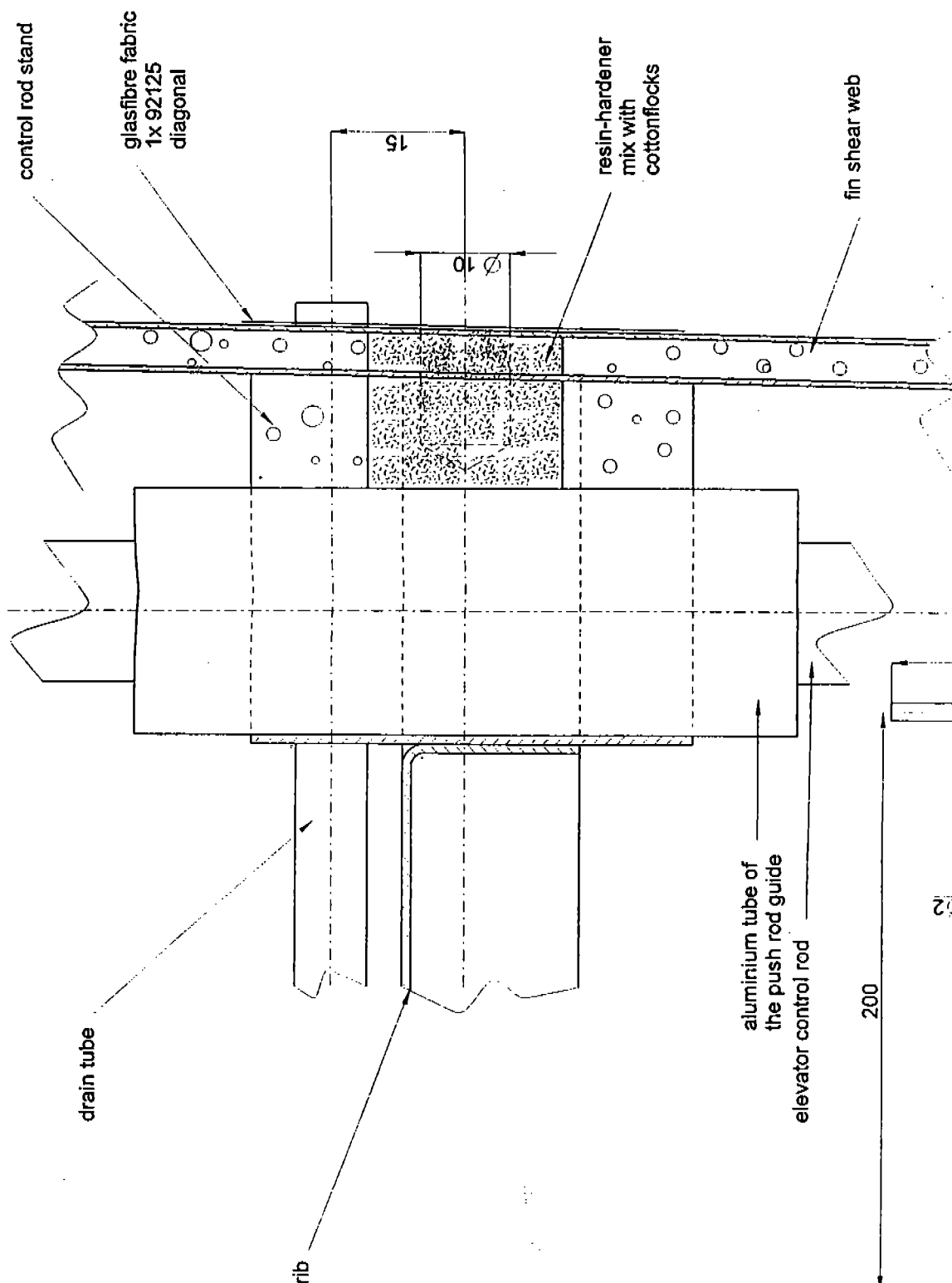
September 28. 1999




Dipl. Ing. Wilhelm Dirks  
DG Flugzeugbau GmbH

**Material:**

Glasfibre fabric Style 92125 50x70mm  
Epoxy resin with hardener: allowable types listed in the repair manual  
Cottonflocks  
2 split pins 1.5x12 DIM94 zn (zinc plated)  
1 split pin 2x20 DIN94 zn  
Drawing 5L36



Toleranzen nach Arbeitsanweisung BA 1		Tag	Name	DG Flugzeugbau GmbH 76648 Bruchsal 4 Im Schöllengarten 20	 5L36
Schweißen nach Arbeitsanweisung SA 1		Gez.	24.09.89 W. Ditzel		
		Gepr.			
		Norm.			
		Maßstab	2:1	Elevator control Stiffening of the Control rod stand TN348/12, 843/12	
		Nicht ohne Toleranz- angabe nach:			
Ausg.	Änderung	Am.	Tag	Name	

Teil 1  
Oberflächenschutz  
Vorrat: Federstandart

M 2:1

tool to remove the foam