Subject : Free play in automatic elevator hook-up, adjustment

Effectivity type: DG-500
variants: all

Accomplishment : Before October 15th, 2024.

Reason : On a DG-300, the rod end at the upper end of the elevator pushrod in the fin broke off at the thread.
It was found that the adjustment screw was turned in too far, which caused jamming of the roller inside the funnel. The roller couldn´t be moved up to the front of the funnel, even with higher force.

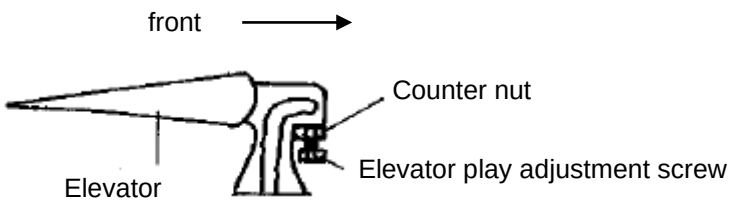


Figure 1, schematical view of elevator

Thereby each time when rigging and during operation a bending force acted on the rod end, which caused failure of the rod end with time.
As the type of automatic elevator hook-up is similar in all DGs equipped with automatic hook-up, the following instructions are valid for all affected DG gliders and motor gliders.

Since the instructions for adjustment of the free play in the maintenance manuals are insufficient, these will be amended.

In addition, a check of the automatic elevator hook-up is required.

Instructions : 1. Manual revision: Exchange the following maintenance manual pages against new pages issued December 2023, marked with TN500/17. Respect the marked changes.
DG-500: 0.1, 0.3, 1.2, 1.3
DG-500M: 0.1, 0.3, 1.2, 1.3
DG-500MB: 1a, 2, 8, 9

2. Check of the free play adjustment of the automatic elevator hook-up.
2.1 For this step, one of three alternative methods can be chosen, method a), b) or c):
a) Remove the complete rod end with the roller installed by loosening the M5 nut and the M8 lock nut. After the parallelogram lever has been removed, the rod end can be turned out of the control rod. When removing the rod end from the control rod, count the number of rotations for correct re-installation.
b) Remove the roller from the rod end by removing the M6 DIN985 nut and the M6 bolt from the rod end. Then stick the roller on an 8 mm f7 pin.
c) Use tool W75, which can be ordered at DG Aviation.
a), b) and c) Now enter the roller (at the rod end or on the pin) into the funnel at the elevator and slide it around the corner (horizontal tailplane not rigged to glider). Now move the roller completely to the front. If the roller can´t be moved without force completely to the front, this is an indication the glider was operated with the adjustment screw turned in too far, see instruction 2.2. In this case,

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turn back the adjustment screw and bend back the sheet metal in the funnel, which was bent by the adjustment screw. Then adjust the free play again and tighten the counter nut.

2.2 In case the glider was operated with the adjustment screw turned in too far (see instruction 2.1), the rod end must be replaced by a new one 5St94.
If a new rod end is needed, order it immediately at DG.
Mark the removed rod end as unserviceable part.

2.3 The roller on the rod end has an f7-H8 fit. In case the roller has too much free play on the rod end, or if the roller is no more round you must replace the roller by a new one 5St95/3.
After the exchange check the free play and adjust see 2.1.

2.4 Use new self-locking nuts and a new cotter pin with instructions:
self-locking nut M5 DIN985-8 zn
self-locking nut M6 DIN985-8 zn
cotter pin 1,5x12mm DIN94St

2.5 Rig the horizontal tailplane and when moving it backwards, monitor if you need a higher force. By lifting the elevator trailing edge and looking from the rear into the gap at the right-hand side in front of the rudder, check if the roller is moved up to the front end of the funnel, see also photo at the end of the TN
Check the elevator displacements and adjust if necessary.

Material : Manual pages, see instructions 1
If necessary: roller 5St95/3
rod-end 5St94
self-locking nut M5 DIN985-8 zn
self-locking nut M6 DIN985-8 zn
cotter pin 1,5x12mm DIN94St

Weight and balance	:	influence negligible
Remarks	:	Manual pages can be obtained from the DG aviation website.

Use only genuine spare parts.
Parts (except for standard parts) and material kits shall only be installed if an EASA Form 1 is existent for these products.
The DG invoice is valid as “Certificate of conformity” for standard parts.

Instructions No. 1 may be executed by the pilot/owner himself.
The actions are to be inspected and released by the pilot/owner.

Instructions No. 2: The pilot/owner is not allowed to perform the actions.
These instructions must be accomplished at an approved repair station or by an approved mechanic rated for composite aircraft structure work in accordance with DG repair methods or those methods approved by the national aviation authorities.
All actions are critical maintenance items and are to be inspected and released by a licensed inspector and to be entered in the aircraft logs.

If you have any questions concerning this TN please contact DG Aviation:
Tel.: 0049 7251 36660-0, e-mail: info@dg-aviation.de

If you find any damaged parts, false adjustment of the elevator control or false installation of parts when performing the actions of this TN, this has to be reported to reporting@dg-aviation.de.
If you find that airworthiness may be affected this has to be reported to the competent authority in addition.

During the annual inspection, the free play in the control system has to be checked. This means that the instructions 2.1 and 2.5 of this TN have to be performed, as part of the annual inspection.

Bruchsal, date:
2nd July 2024

Author: Wilhelm Dirks

Modifications/repairs approved under the authority of DOA Ref. EASA.21J.780 under Minor Change No. TM1000/50, dated 05. Mar. 2024.

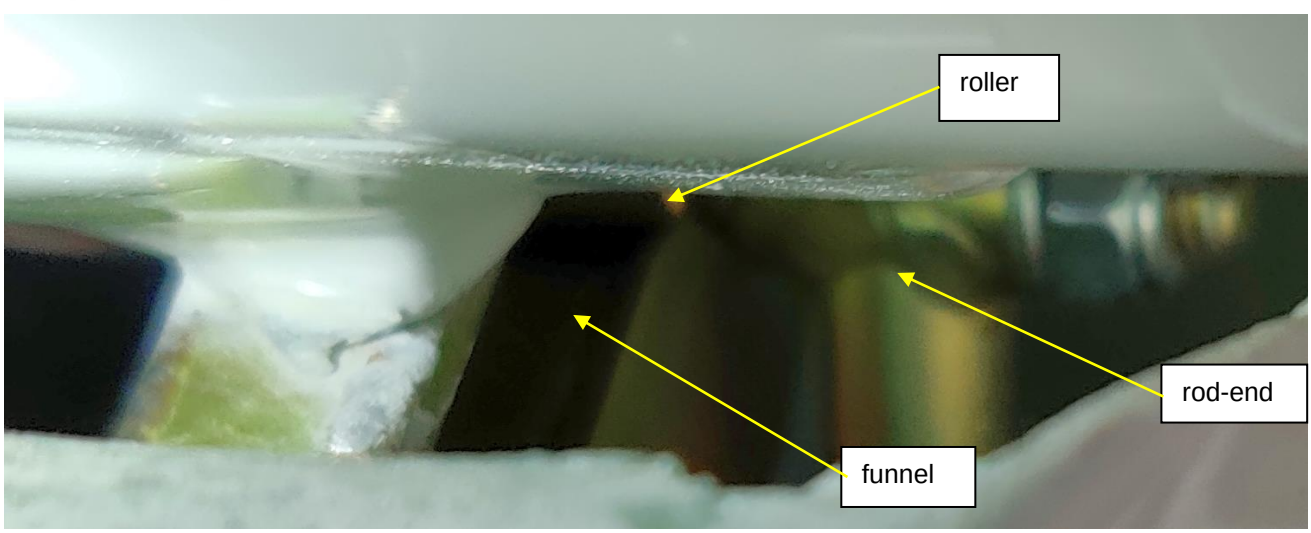


Figure 2, looking from the rear into the gap at the right-hand side in front of the rudder

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