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

Effectivity type: DG-single seaters
variants: All types and variants with automatic elevator hook-up only. This TN is not valid for variants with l'Hotellier connections in the elevator control.

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 elevator play 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.

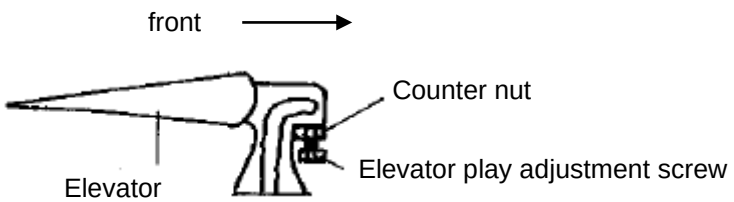


Figure 1, schematical view of elevator

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 DG-SS-09. Respect the marked changes.
DG-100: 0.1, 0.3, 0.5, 1.23 – 1.25
DG-200: 0.1, 0.3, 1.25 – 1.26
DG-300: 0.1, 0.3, 1.2, 1.3
DG-400: 0.1, 0.3, 1.2, 1.3
DG-600: 0.1, 0.3, 1.2 - 1.4
DG-600M: 0.1, 0.3, 1.2 - 1.4

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 (not useful for DG-100 – 400 as the rod end must be removed anyway see instruction 2.2) To accomplish this remove 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

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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, 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 For DG-100G, DG-100G ELAN, DG-200, DG-200/17, DG-200/17C, DG-300, DG-300 ELAN, DG-300 Club ELAN, DG-300 ELAN ACRO, DG-300 Club ELAN ACRO and DG-400 the rod end must be replaced by a new one 2L19/1.
For DG-600 or DG-600M; 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 6St50/1.
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 2L24 resp. 6St50/2 with DG-600 + 600M.
After the exchange check the free play and adjust see 2.1.

2.4 Use new self-locking nuts:
2 pcs. (1 for DG-600) self-locking nut M5 DIN985-8 zn for the parallelogram lever.
1 pcs. (2 for DG-600) self-locking nut M6 DIN985-8 zn for the roller.

2.5 Rig the horizontal tailplane and when moving it backwards, monitor that no larger force is needed. By looking through the Plexiglas window at the upper surface of the stabilizer, check if the roller will be moved up to the front end of the funnel, see also the photos at the end of this TN.
Check the elevator deflections and adjust if necessary.

Material : Manual pages, see instructions 1
If necessary: roller 2L24 resp. 6St50/2 with DG-600 + 600M
rod-end 2L19/1 resp. 6St50/1 with DG-600 + 600M
2 (1 with DG-600) self-locking nut M5 DIN985-8 zn
1 (2 with DG-600) self-locking nut M6 DIN985-8 zn

Weight and balance : influence negligible

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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 5. March 2024.

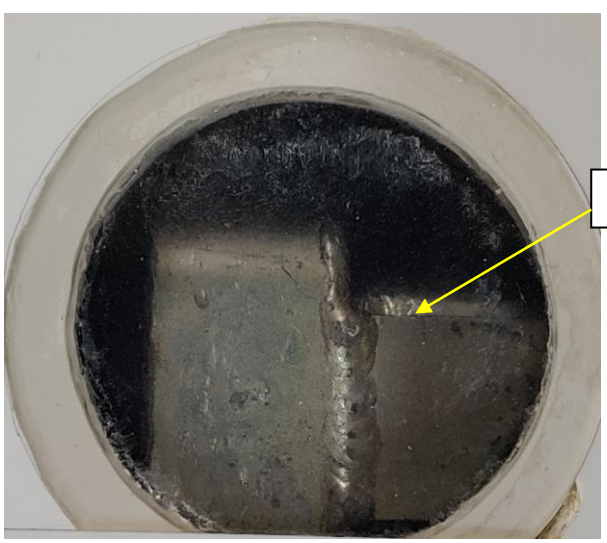


Figure 2, look through the inspection window DG-600

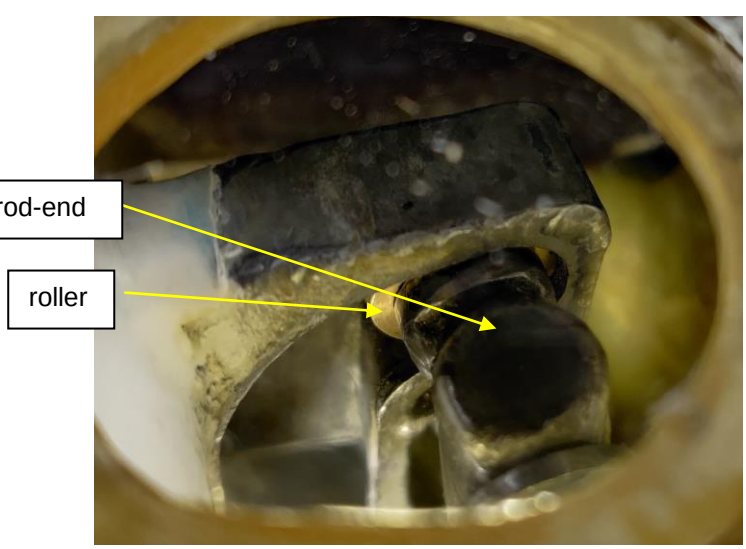


Figure 3, look through the inspection window DG-100-400

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