

THE GLIDING FEDERATION OF AUSTRALIA

GFA AD 450
(ISSUE 1)

GFA AIRWORTHINESS DIRECTIVE

TYPE AFFECTED: DG-400 Serial Numbers 4-1 to 4-188.

SUBJECT: Engine extension/retraction drive.

BACKGROUND: Defective drive pinion gears have been found on the spindle drive motor.

Note: The manual amendment required by Technical Note 826/18 have been incorporated in the in the manuals reissued under GFA AD 401.

Because Technical Note 826/18 was issued a long time ago it is possible these modifications have already been incorporated. In that case all that is required is a log book entry confirming that the requirements of this AD have been complied with.

DOCUMENTATION: Glaser-Dirks Technical note 826/18 and Service Instruction 1/10/86 which form part of this AD.

ACTION REQUIRED:

1. Before next flight the engine extension time must be checked. If the extension time is greater than 13 seconds then the gas strut needs to be replaced in accordance with page 41 of the Maintenance Manual.

Attention is drawn to item 22 of the Maintenance Manual which requires the extension time to be checked after each 25 engine hours.

2. At the next annual inspection after 1 May, 1996 the mounting plate between the spindle motor and the gear box must be replaced in accordance with Procedure 4 of Technical Note 826/18 and service instruction 1/10/86.

WEIGHT AND BALANCE: Not affected.

IMPLEMENTATION: Checking of the engine extension time may be performed by persons rated for Daily Inspections on the DG-400.

Replacement of the gas strut, if needed, and replacement of the mounting plate between the spindle motor and the gear box must be performed by persons rated for Annual Inspections on the DG-400.

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:


CHIEF TECHNICAL OFFICER AIRWORTHINESS

For and on behalf of:

THE GLIDING FEDERATION
OF AUSTRALIA

Subject: Engine extension/retraction drive.

Applicability: DG-400's works numbers 4-1 to 4-188.

Priority: Procedure 1, 2 must be executed immediately.
Procedure 3, 4 must be executed within 90 days.

Description: On one DG-400 damage has occurred to the drive pinion gears on the spindle motor that operates the engine extension/retraction mechanism. This damage has been caused by a defective gas-strut with insufficient pressure which has resulted in increased loads on the spindle motor's pinion gears.

Procedure 1: The maximum permitted time to extend the engine is 13 seconds. If this time is exceeded, then the gas-strut is too weak and must be replaced.

The following pages of the aircraft hand books must be replaced:

Flight Manual, page 29 (new version February 1987).
Maintenance Manual, page 33 (new version February 1987).
Maintenance Manual, diagram 7 (new version February 1987).

Procedure 2: Check the engine extension time.

Procedure 3: If the extension time exceeds 13 sec. the gas-strut needs to be replaced. It must be replaced with one of type 10-02-250-600/1200 N, available from Glaser-Dirks.
See page 41 of the Maintenance Manual for the gas-strut replacement procedure.

Procedure 4: Modification of the spindle-drive.
The mounting plate between the spindle motor and the gearbox has to be replaced in order to reduce the amount of free-play between the drive gear and the gearbox.

In order to complete the replacement work, please refer to the following service instruction 1/10/86.

Note: Procedures 1 and 2 may be performed by the aircraft owner.
Procedures 3 and 4 must be performed and inspected by a licensed repair shop.
The aircraft log must be updated to indicate that Procedures 1, 3 and 4 have been performed, and reference made to Technical Note 826/18.

Author Bruchsal 4
March 10th 87

Wilhelm Dirks
Dipl.-Ing. W. Dirks

LBA-Approved:
The German original of this TN has been approved by the LBA under the date of April 10th 1987 and is signed by Mr. Skov. The translation into English has been done using the best available knowledge and judgement. In any case of doubt, the German original is to be considered authoritative.

Type certification inspector

U. Schiller

Instructions for the modification of the spindle drive

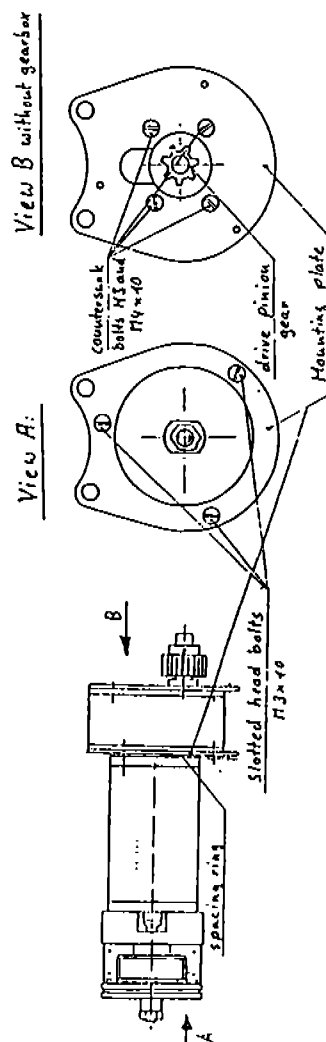
a) Removal of the drive motor

1. Extend the engine fully. Cut and remove the rubber cord attached to the forward engine doors.

Remove the canopy, and in order to secure the engine, tie a rope of at least 4 mm in diameter between the centre of the propeller and the canopy hinge.

2. Remove the large brass gear wheel (4R12) by bending the tab-washer (A 30 DIN 7952 St) back carefully with a screwdriver and undo the slotted nut (M 30 x 1,5) with a crescent wrench (45/50).
3. Lift the gear wheel carefully using a rubber hammer.
4. Remove the two M 60 x 50 bolts that attach the drive motor mechanism and disconnect all of the wiring connected to the motor. The electrical connectors are located on the cover of the flap operating lever on the left hand side of the engine compartment, and in order to disconnect them the heat-shrink tubing must be cut off.

b) Disassembly of the drive motor and replacement of the separator plate



1. Remove the three slotted-head bolts (#3) on the underside of the separator plate and then remove the gearbox.

Prepared by:

Bruchsal, 10th March 1987

Approved by:

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2. Unscrew the four countersunk bolts (two are M3 and two are M4) in order to remove the old mounting plate from the spindle motor. The old mounting plate and the spacing ring can be discarded as they are no longer required.

Note: Both the M3 slotted-head bolts and the M3 and M4 countersunk bolts are secured with Loctite. If they should prove difficult to remove, use a soldering iron (of at least 100 watts) to heat the bolts up to 150 degrees C (300 F).

3. Check the motor's exposed drive gears for signs of damage (broken teeth, excessive wear etc.). If the gears are damaged, a replacement motor can be obtained from Glaser-Dirks.
4. The new mounting plate is reassembled using three round head bolts (M 3 x 10 DIN 964 Stzn) instead of the slotted-head bolts (M 3).

Note: All bolts on the gearbox are to be secured with Loctite 72 b (672). Use sparingly!

c) Reinstalling the gearbox and spindle motor

Reassemble the gearbox and re-attach the spindle motor by reversing the steps used to removed them. Leave away the washers below the M6 locknuts of the two M6 x 50 bolts. Reconnect the cables to the spindle motor (Connect No. 75 - No. 751, No. 76 - No. 761) and insulate with heat-shrink tubing (as described below). The heat-shrink tubing must be heated with a heat-gun or a soldering iron in order to shrink it tightly around the connectors.

Materials: 1 x Mounting plate 4 R 11
2 x Locknuts #6 DIN 985.8 St.zn
3 x Roundhead bolts M3 x 10 DIN 964 St.zn
1 x piece 1/2" Heat-shrink tubing 1/2" type H,
8 cm long.

Special tools:

is:
1 x Wrench for slotted nuts 45/50 for spindle-drive
available from Glaser-Dirks
1 x Soldering iron (100 watts)