



THE GLIDING FEDERATION OF AUSTRALIA

GFA AD 604
(ISSUE 1)

GFA AIRWORTHINESS DIRECTIVE

TYPE AFFECTED: DG-500MB. Serial No: All S/N up to 5E220 B15
S/N 5E236 B16 and 5E 237 B17: Optional
S/N 5E241 B18: During production

SUBJECT: Electrical System, Extension/retraction of spindle drive.

BACKGROUND: The original fitment type Warner "LA10" spindle drive has failed in some gliders, and must be replaced by a more reliable unit: Stross "BSA 10"

DOCUMENTATION: Technical Note 843/18 issue 2 forms part of this AD and is available from the GFA Secretariat, or directly from DG-Flugzeugbau, or their website: www.dg-flugzeugbau.de

ACTION REQUIRED: Exchange the spindle drive and modify the electrical system in accordance with the instructions given in the Technical Note

WEIGHT AND BALANCE: Negligible effect

IMPLEMENTATION: All S/N up to 5E220 B15: not later than March 31 2004
S/N 5E236 B16 & 5E237 B17: Optional
S/N 5E241 B18: During production

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:

John G. Vane
CHIEF TECHNICAL OFFICER AIRWORTHINESS



For and on behalf of:

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OF AUSTRALIA

Exchange of the spindle drive model „Warner LA10“ by the model „Stross BSA10“

For the reconstruction the drawings 5M210, 5E218 and MM diagram 13b are needed. The figures in brackets () refer to diagram 13b.

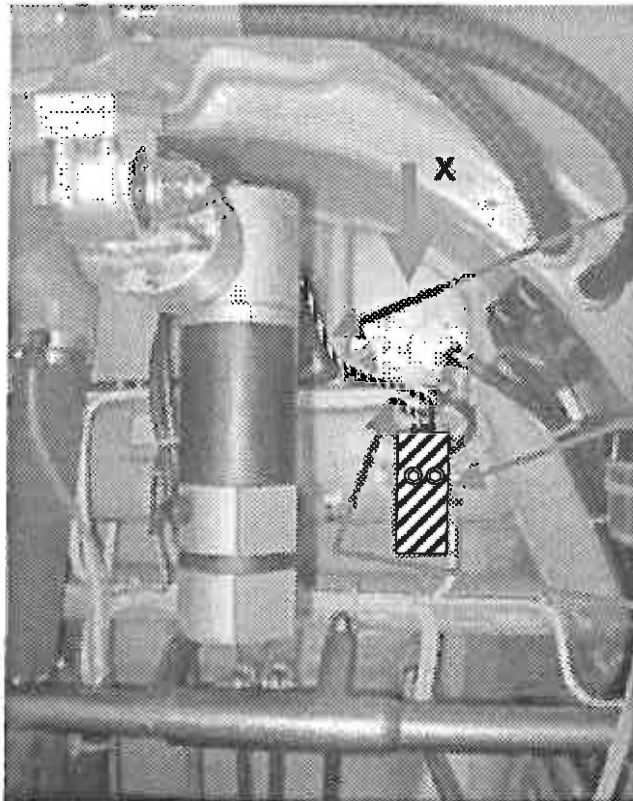
Attention: Prior to the installation of the spindle drive model „Stross BSA10“ instruction 5 of TN 843/17 must be executed!

Required tools: Hexagon socket wrench 5mm, socket wrench 7mm, 10mm, 17mm, 19mm
Open-end wrench 17mm, 19mm, hot air gun, drill Ø4mm,
bolt securing fluid Loctite 243

1. Extend the engine. Place a suitable board over the engine bay cut-out in such a way so that it safely supports the upper end of the propeller mount. Retract the engine until the upper end of the propeller mount rests on the board.
2. Switch off the electrical master switch.
3. Remove the rear baggage compartment wall.
4. Note the installation of the wiring of the spindle drive. After the exchange the installation of the wiring must be done according to the original installation.
5. Remove the hose clamp for rubber boot (8) from the fire wall. Disconnect the electrical wiring and the bolting of the spindle drive with the fuselage and the propeller mount and remove the spindle drive from the fuselage. Remove the rubber boot from the spindle drive.
6. Remove the front suspension bracket for the spindle drive 8M184 (1) from the fuselage. Place spacer 5M200 (3) between GFRP part in the fuselage and suspension bracket 8M184 and fix the bracket with new longer bolts M6x30 DIN912-8.8zn. Attention: Take care that the contact area of the spacer 5M200 is clean and flush! Secure the bolts with Loctite 243 (Working instructions for the correct use of Loctite see MM sect. 4.8)
7. Fix the voltage converter to the fire wall with bolts M4x45 DIN933-8.8zn according to sketch 1. For this purpose drill two holes Ø4mm in the fire wall. If the fire wall is not flush in the contact area of the voltage converter this must be corrected. Mark and sand carefully the contact area on the fire wall and put some cotton flock resin between fire wall and voltage converter (add some releasing agent to the converter housing!) Attention: Choose the position of the voltage converter in a way so that after installation the bolts do not interfere with the coolant pump or the coolant lines in the engine compartment. If necessary shorten the bolts accordingly. Also take care that when drilling the holes Ø4mm neither the coolant pump nor the coolant lines in the engine compartment are damaged.
8. Install the rubber boot (8) on the new spindle drive but don't tighten the hose clamp yet.
9. Attach the spindle drive BSA10 to bracket 8M184 (1) according to drawing 5M210. Don't tighten bolt (4) and don't fix the spindle drive to the propeller mount yet.
10. Connect the spindle drive to the electrical wiring of the fuselage according to drawing 5E218. Before the connectors are joined, slide one heat-shrink tube over each wire connection.
 - a) Power supply of the spindle drive: Connect wire 411 from the spindle drive to wire 41 and wire 591 to wire 59.
 - b) Power supply of the additional brake: Connect wire 83 and 84 from the fuselage wiring respectively with wires 832 and 842 of the voltage converter according to wiring scheme 5E218. Wires 843 and 833 from the voltage converter must be connected with the wires 841 and 831 of the additional brake of the spindle drive.
 - c) Test: Switch on electrical master switch. When the manual extension/retraction switch is pushed forward the spindle drive must extend. Otherwise the connectors of the spindle drive 411 and 591 must be exchanged.
11. Extend the spindle drive so far that the rear bolt (12) can be attached to the propeller mount. But don't tighten the bolt.
12. Carefully extend the engine via the manual extension/retraction switch towards to fully extended position. Watch the clearance between spindle drive and fire wall and also rear baggage compartment bulkhead. In any position of the spindle drive there must be a clearance from the airframe of at least 3mm.
13. Retract the engine until the propeller mount rests again on the board across the engine bay.
14. Fix the rubber boot (8) with hose clamps (7) and (9) on the fire wall and the spindle drive, see diagram 13b. Tighten the rear attachment bolt of the spindle drive (12). Extend the engine following the instructions of the MM sect. 4.22 and then tighten the front attachment bolt (4).

15. Shrink the heat shrink tubings over the engaged electrical connectors of the spindle drive and the additional brake and attach the wiring with tyrapas according to the original installation.
16. Adjust the cut-out in the rear baggage compartment wall and the Plexiglass plate to fit the new spindle drive. In any position of the spindle drive there must be a lateral clearance of at least 5mm between the spindle drive and the rear baggage compartment wall and with the Plexiglass plate (see sketch 2). Reinstall the rear baggage compartment wall and the Plexiglass plate.

sketch 1: Attachment of the voltage converter on the fire wall (rear baggage compartment wall removed)

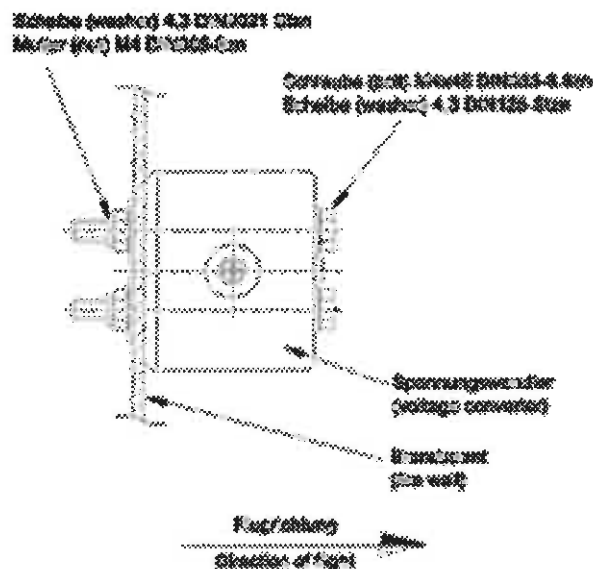


Connection of the power supply of the additional brake (wires 833 and 843)

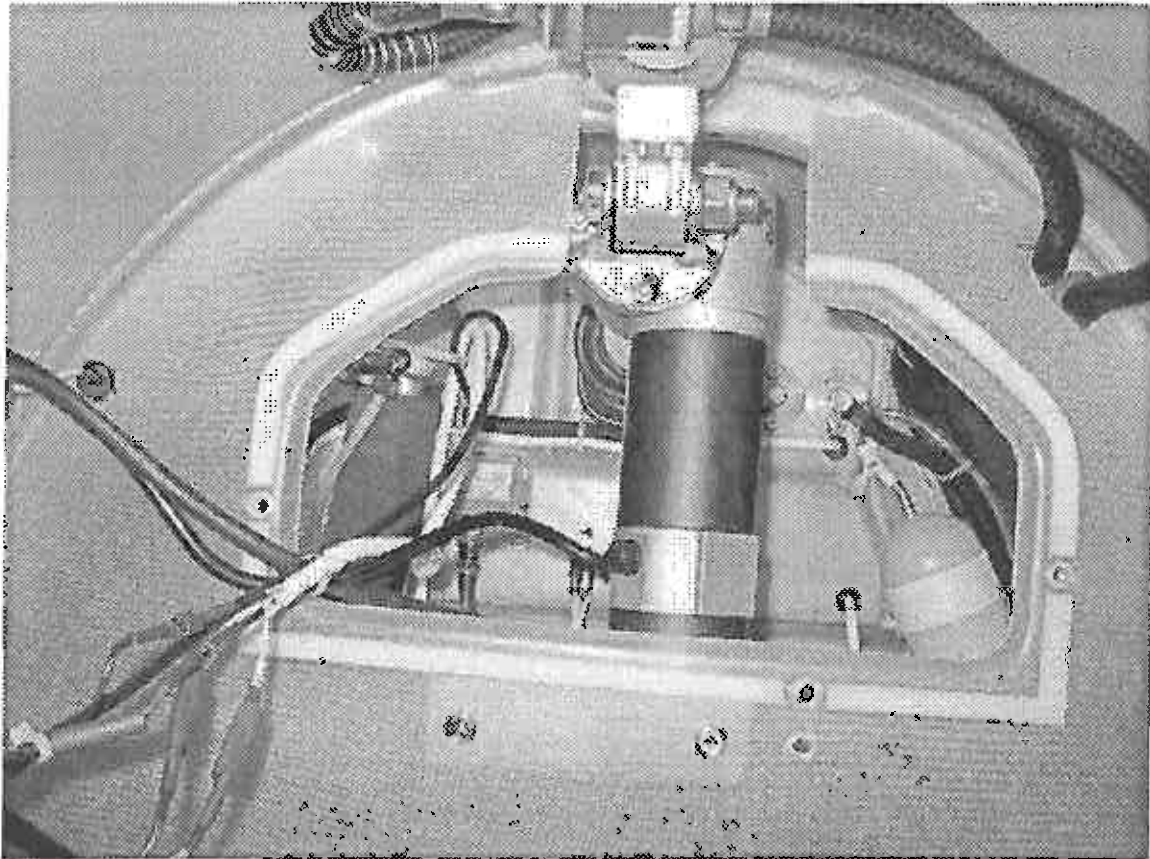
Installation of the voltage converter on the fire wall (Take care to provide sufficient clearance between the bolts and the parts of the coolant system!)

Connection of the power supply for the voltage converter (wires 832 and 842)

View X:



sketch 2: New cut-out in the rear baggage compartment (Plexiglass-plate not shown)



Subject	: Extension/retraction spindle drive
Effectivity	: DG-500MB, all serial no's up to 5E220B15, Ser. no's 5E236B16 and 5E237B17 optional From ser. no. 5E241B18 on during production
Accomplishment	: Ser. no's up to 5E220B15: until Dec. 31.2003 latest Ser. no's 5E236B16 and 5E237B18: no urgency From ser. no. 5E241B18 on: during production
Reason	: The spindle drive Warner "LA10" which was installed up to ser. no. B15, failed in some gliders and must, therefore, be replaced by a more reliable spindle drive type Stross "BSA 10". Due to the higher current consumption of the BSA 10 instruction 5 of TN843/17 must be executed. The DEI shall be upgraded to the latest software version 5B9. A spindle drive Stross ATL10 was installed to ser. no's B16 and B17 according to the initial issue of TN843/18. It is not mandatory to exchange this spindle drive, however we recommend installation of the BSA 10 as it guarantees faster engine extension- retraction. Instruction 5 of TN843/17 is already installed in these ser. no's.
Instructions	: 1. Installation of the spindle drive Stross BSA 10 and of the voltage converter for the brake of the spindle drive according to drawing 5M210 and 5E219 (amendment to the wiring plan 5E102) and working instruction for TN 843/18 issue 2. 2. Execute TN843/17 instruction 5. 3. Check if a sticker with the No. 5B9 is on the front DEI. If not the front DEI must be removed and be sent to DG for the upgrade. 4. Exchange the following maintenance manual pages against the new pages issued June 2003, marked TN 843/18 issue 2: Maintenance manual: 1, 2, 4, 24, 91, diagram 13b, wiring scheme 5E101 issue I, drawing 5E218 (amendment to the wiring plan 5E102)
Material	: Instruction 1: working instruction for TN 843/18 issue 2 drawing 5M210, drawing 5E218 (amendment to the wiring plan 5E102) spindle drive Stross BSA 10 special version for DG-500MB complete assembly with forks voltage converter for BSA 10 spacer 5M200 4 x bolt M6x30 DIN912-8.8zn 1 x nut M12 DIN985-8zn 1 x bolt M10x58 LN9037 2 x washer 10,5 DIN125 Stzn 1 x nut M10 DIN985-8zn 8 pieces heat shrink tubing DERAY-H-6,5-2,0 5 pieces ty-raps 186x4,8 Instruction 2: See TN 843/17 instruction 5. Instruction 3: Manual pages see above
Weight and balance	: influence negligible
Remarks	: This issue replaces the initial TN issued 31.07.2002. Instructions No. 1 - 2 are to be executed by the manufacturer or by a licensed workshop. All instructions have to be inspected and entered in the aircraft logs by a licensed inspector with the next annual inspection.

DG Flugzeugbau GmbH
76646 Bruchsal

Technical Note
No. 843/18 issue 2

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Bruchsal, date:
June 25.2003

LBA - approved:

25/07/2003

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Type certification
inspector:

Dipl. Ing. Swen Lehner

Swen Lehner

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