DG Flugzeugbau GmbH
76646 Bruchsal

Technical Note
No. 843/17

Subject : Powerplant / electrical system / manual revision

Effectivity : DG-500MB
Instruction 1, 2, 4, 6: All serial no.
Instruction 3: All serial no. from 5E187 B3 and up
Instruction 5: All serial no.s optional for retrofit, from 5E236B16 on standard

Accomplishment : Instruction 1, 2, 3, 4, 6: Up to 31.03.2003
Instruction 5: optional

Reason : Instruction 1: Both electrical circuits of the coolant pump (via batteries and via generator) are protected by the DEI circuit breaker. Thus the coolant pump will stop running if this circuit breaker pops out. By installing a resettable fuse and by changing the wiring in the control unit, the coolant pump will continue running via the generator circuit if the DEI circuit breaker pops out.

Instruction 2: The choke butterfly valve of the carburettor Mikuni BN 38 new version is held open by a spring. To ensure that the choke butterfly valves don't close in case of a broken spring, the axles will be secured by pins on both carburettors.

Instruction 3: From s/n 5E187 B3 and up the butterfly valve axles of the front and rear carburettor are connected by a metal coupling. Due to vibrations this coupling failed in some cases. For this reason the metal coupling will replaced by an elastomeric coupling.

Instruction 4: The rear rubber cord for the engine bay doors may elongate due to wear by such an amount that it may slide on top of the propeller tip when the engine is retracted. This position may block the extension of the engine. A retaining cord will be installed to prevent such incidence.

Instruction 5: Due to the power consumption of the spindle drive there is the possibility of wear of the contacts of the manual extension / retraction switch and of the switch which changes over from automatic to manual operation, as the full electric power is flowing through these switches.
To reduce the wear a solution was developed where the high power is switched via the relays in the control unit and only low power to control the relays is flowing through the switches. This means that a functioning control unit is necessary for the manual operation, but the DEI may be defective or switched off. A failure analysis showed that a defective control unit is very unlikely.
It is of advantage that the travel of the spindle drive is limited by the limit switches. So during manual operation it is not possible to drive against the stops.
The extension-retraction switch unit will be rotated by 180° to reduce the possibility of operating the change-over switch inadvertently.

Instruction 6: If a canopy operating handle has too low friction a canopy might open inadvertently e.g. due to engine vibrations.

Instruction 7: Manual revision due to instructions 1-6 and resulting from operating experience.

Instructions :
1. Remove the control unit which is installed in the lower part of the rear control column and ship it together with the order form for instruction 1 to DG for modification (incl. exchange of the fuse 250V 2A 5x20m for the second fuel pump). When reinstalling the control unit regard the notes in MM sect. 1.14.3.
2. Secure the choke butterfly valves of both carburettors according to drawing 8M303.
3. Exchange the metal coupling between both butterfly valve axles of the carburettors by an elastomeric coupling according to working instruction no. 1 for TN 843/17.
4. Install the additional retaining cord according to working instruction no. 2 for TN 843/17.
5. Modification of the switch unit and of the wiring according to working instruction no. 3 for TN 843/17.

Instructions (cont.) :

6. Check and adjust if necessary the friction of the canopy operating handles
7. Exchange the following manual pages against new pages issued July 2002 marked with TN 843/17:

   FM: 0.1, 0.3, 0.4, 0.5, 3.3, 3.4, 3.6, 4.5, 4.8, 4.12, 4.13, 4.14, 4.18, 4.20, 4.21, 4.22, 5.5, 7.6, 7.8, 7.12, 8.8
   MM: 1-5, 23-28, 30-34, 36a, 37, 49-51, 54, , 72, 73, 78, 79, 84, 91, 93, wiring schemes 5E101issues G and H, amendment 5E218 to wiring plan 5E102

Material :

1. Modified control unit 8E103 (incl. exchange of the fuse 250V 2A 5×20m), 1 × Ty-rap 4.8 x 360 mm.
   Order form for instruction 1
2. Drawing 8M303, 2 × notched taper pin 2,5×10 DIN 1471, Loctite 243
3. Working instruction no. 1 for TN 843/17
   Elastomeric coupling S55
   2 × gasket for carburettor flange (SOLO part no. 20 61 203)
4. Working instruction no. 2 for TN 843/17
   Drawing 5R172
   Eye-bolt M4×15
   Nut M4 DIN439B zn
   2 × washer 4,3 DIN9021 Stzn
   Nut M4 DIN985-8zn
   0.5m rubber chord ∅2mm
   0.2m heat shrinking tube, large (6.5-2.0)
   1 × Ty-rap 2.4 x 92 mm
5. Working instruction no. 3 for TN 843/17
   Drawing 8E217, amendment 5E218 to wiring plan 5E102
   New switch unit with wiring
   2 × flat end terminals 6,3 mm
   3 × heat shrink tubing pieces, large (6.5-2.0-25mm)
   4 × heat shrink tubing pieces, small (2.4-1.2-25mm)
   Strain relief shackle with 2 screws
   Cover plate 8E217/1
   1 × Ty-rap 4.8 x 360 mm
7. Manual pages, see above.

Weight and balance : Influence negligible

Remarks : Instructions No. 1-6 are to be executed by the manufacturer or by a licensed workshop. We recommend to execute instructions 2 and 3 by the manufacturer. Use the enclosed order form.
All instructions have to be inspected and entered in the aircraft logs by a licensed inspector.

Bruchsal, date:
July 10th, 2002

Author:
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10.07.2002

Type certification inspector:
Dipl. Ing. Wilhelm Dirks

LBA – approved:

The German original of this TN has been approved by the LBA under the date of *July, 31th 2002* and is signed by *Mr. Blume*. The translation into English has been done by best knowledge and judgement.