



AIRWORTHINESS DIRECTIVE

Issue 1

CANCELLED 21/05/2019

TYPES AFFECTED: DG200, DG200/17, DG200/17C - All serial numbers.

SUBJECT: Flight and Maintenance manual amendments and canopy jettison maintenance.

BACKGROUND: Glaser-Dirks have issued Technical Notes No. 323/5 and 323/6 which call for revision of the Flight and Maintenance manual as well as changes to the cockpit placards and routine servicing of the single piece canopy jettison mechanism.

ACTION: Within 30 days

1. Add or exchange Flight manual pages 1, 3, (12, 17/12), 12a, 13a, 27 and 28 and Maintenance manual pages 0, 7, 7a, 7b, 10, 13 and Diagram 3a - dated 8/12/1987
2. Within 30 days (Single piece canopy)
Paint the canopy opening lever red. (This is to indicate that both the opening lever and the jettison knob have to be operated to release the canopy).
3. Within 30 days (Single piece canopy)
Remove the ventilation placard from the canopy frame, trim it to a circular shape and glue it to the ventilation operating knob with a suitable adhesive.
4. Every three months (Single canopy only)
Check the canopy jettison in accordance with the instructions given on Page 13a of the Flight Manual and Pages 7 and 10 of the Maintenance manual and endorse the Maintenance Release "check canopy jettison.....(date)."

IMPLEMENTATION:

1. Manual pages may be changed by any competent person.
- 2, 3 and 4. Cockpit placards may be changed and canopy jettison checked by a DoTC 1109 inspector authorised "Component replacement" any type and the work entered in the sailplane logbook.

MATERIALS: Manual pages are available from the GFA Secretariat, Bldg. 130 Wirraway Road, Essendon Airport. Vic. 3041

COMPLIANCE: The requirements of this Airworthiness Directive are mandatory. This Directive is issued pursuant to Air Navigation Regulations under the delegated authority of the Secretary of the Department of Transport & Communication.

Issued by: *A.P. Burns*Chief Technical Officer,
Airworthiness


18.12.1987

For and on behalf of:

GLIDING FEDERATION OF AUSTRALIA

Sheet 1 of 1

Manual contents and Amendments

Nr.	Page	Description	Date	Signature
1	manual 22	main pin securing	June 80	
2	manual 22 maint.m.18, diag. 6	automatic self connection for the elevator control	Sept.80 " 80 " 80	
3	manual 13,14 maint.m. cover 6,7, 18	automatic trim control and wheel brake control connected to the airbrake handle	Sept.80 " 80 " 80 " 80	
4	manual 13a	single piece canopy	Sept.80	
5	maint.m diag. 7	Spring mounted landing gear	Sept.80	
6	manual 22 maint.m. 7	waterballast system	Sept.80 " 80	
7	Flight manual 3,12,17/12, 12a, 13a, 27, 28. Maint. manual 0,7, 7a, 7b, 10, 13, diag. 3a	Emergency procedures, canopy jettison and ventilation, Tow release maintenance Service time Increase GFA AD 324, AD 325, (TN 323/5 and 323/6).	8.12.87	

5. Assembly and Disassembly

5.1 Assembly	22
5.2 Filling the Water Ballast Tanks	23
5.3 Tie-Down, parking	24
5.4 Disassembly	25
5.5 Trailering	25
5.6 Care and Service	25

6. Additional

6.1 Proper Use of Flaps	26
6.2 Maintenance	27
6.3 Repair	27
6.4 Tow Release	28
6.5 Maximum total service time and inspect.	28
6.6 Performance polars	28

Further information dealing with Inspection, Maintenance Repair. C of G, etc. can be found in the Maintenance Manual for the DC-200.

5. Assembly and Disassembly

5.1	Assembly	22
5.2	Rigging of the insertable wing tips	17/22
5.2	Filling the Water Ballast Tanks	23
5.3	Tie-Down, parking	
5.4	Disassembly	24
5.5	Trailering	25
5.6	Care and Service	25

6. Additional

6.1	Proper Use of Flaps	26
6.2	Maintenance	27
6.3	Repair	
6.4	Tow Release	
6.5	Maximum total service time and inspect.	28
6.6	Performance polars	

Further information dealing with Inspection, Maintenance, Repair, C of G, etc. can be found in the Maintenance Manual for the DC-200.

Diagrams

1	ballast chart	
17/2	calculated rate of sink polar DG-200/17	
3	measured rate of sink polar DG-200	15 m
4	Mc Cready polars DG-200	

5. Assembly and Disassembly

5.1	Assembly	22
5.2	Rigging of the insertable wing tips	17/22
5.2	Filling the Water Ballast Tanks	23
5.3	Tie-Down, parking	
5.4	Disassembly	24
5.5	Trailering	25
5.6	Care and Service	25

6. Additional


6.1	Proper Use of Flaps	26
6.2	Maintenance	27
6.3	Repair	
6.4	Tow Release	
6.5	Maximum total service time and inspections	28
6.6	Performance polars	

Further information dealing with Inspection, Maintenance, Repair, C of G, etc. can be found in the Maintenance Manual for the DC-200/17 C.

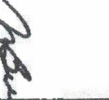
Diagrams

1	ballast chart DG-200/17 C	
1	a ballast chart DG-200/17 C (metric)	
17/2	calculated rate of sink polar DG-200/17	
3	measured rate of sink polar DG-200	15 m
4	Mc Cready polars DG-200	15 m

Manual contents and Amendments

Nr.	Page	Description	Date	Signature
1	manual 22	main pin securing	June 80	
2	manual 22 maint.m.18, diag. 6	automatic self connection for the elevator control	Sept. 80 " 80 " 80	
3	manual 13,14 maint.m. cover, 6,7,18	automatic trim control and wheel brake control connected to the air-brake handle	Sept. 80 " 80 " 80	
4	manual 13 a maint.m. diag. 7	single piece canopy spring mounted landing gear	" 80 " 80 " 80	
6	manual 22 maint.m. 7	waterballast system	" 80	W.D.A.
7	Flight manual 3,12, 17/12, 12a, 13a, 27, 28. Maint. manual O, 7, 7a, 7b, 10, 13, Diag. 3a	Emergency procedures, canopy jettison and ventilation, Tow release maintenance Service time increase GFA AD 324, AD 325, (TN 323/5 and 323/6.)	8.12.87	

Manual Contents and Amendments

No.	Page	Description	Date	Signature
1	manual 22	main pin securing	June 80	
2	manual 22 maint.m.18, diag. 6	automatic self connection for the elevator control	Sept. 80 " 80 " 80	
3	manual 13,14 maint. m. cover, 6,7,18	automatic trim control and wheel brake control connected to the air-brake handle	Sept. 80 " 80 " 80	
4	manual 13 a maint. m. diag. 7	single piece canopy spring mounted landing gear	" 80 " 80 " 80	
6	manual 22 maint. m. 7	waterballast system	" 80	
7	Flight manual 3,12, 17/12, 12a, 13a, 27, 28. Maint. manual O, 7, 7a, 7b, 10, 13, Diagram 3a.	Emergency procedures, canopy jettison and ventilation, Tow release maintenance Service time increase GFA AD 324, AD 325 (TN 323/5 and 323/6)	8.12.87	

3. Emergency Procedures

3.1 Spin Recovery

Apply rudder opposite to spin direction, pause, then ease stick forward, after rotation has stopped neutralize the controls and carefully pull out of the dive. The ailerons should be kept neutral during recovery. Pushing the flaps to -12° expedites spin recovery when spinning with positive flap settings. Waterballast in both wings does not influence recovery.

3.2 Canopy Jettison

Bail Out

a) Two piece canopy:
To bail out, open the canopy a few inches and it will be blown open and tear off in the airstream.

b) Single piece canopy:

Open the canopy - opening lever and pull then the emergency release knob.

The low sides of the cockpit allows for a quick push-off exit.

3.3 Recovery from unintentional cloud flying

Spins are not to be used to lose altitude. In emergency, pull out the spoilers fully before exceeding a speed of 190 km/h and fly at 190 km/h (103 kts) (118 mph) until leaving the cloud.

At higher speeds pull out the spoilers very carefully by reason of high aerodynamic and g-loads.

3.4 Landing with the gear retracted

Even on soft fields the DG-200 can be landed with the landing gear extended. With the stick pulled back during rollout there is no danger of nosing over. Only in the case of an extremely short landing field should the pilot choose to land wheel up.

After a gear up landing the tow release and its cable defectors must be checked for damage. All damaged parts must be replaced before the next take off.

3.5 Rain and Icing

1. Influence of flight characteristics

Rain and light icing raise the stall speed and best landing approach speed slightly. The sink speed is raised remarkably. Otherwise there are no noticeable changes in flight characteristics.

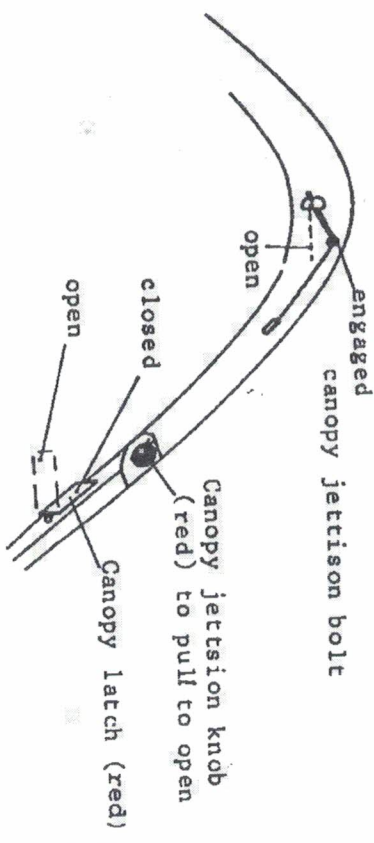
2. Water Ballast

When the OAT outside air temperature dips under 0°C (32° F) there is a danger that the water ballast may freeze. Avoid flying for more than a few minutes with the ballast under 0°C. It must be dumped before possibly freezing and damaging the wings!

3.6 Landing with only one tank filled

If you suspect, that water did not flow out of one tank, you have to set the flaps to -12° after touch down. Approach should be done with +12° flap setting.

Single piece canopy



Canopy jettison

1. open canopy latch
 2. Pull canopy jettison knob
- The spiral spring installed in the front hinge will lift the canopy as far as necessary to be blown open by the airstream.

Ground function test of the canopy jettison
Pull canopy jettison knob. The spring must lift the canopy 1 to 2 cm in the front even if the canopy latch is in its closed position.

Reassembly of the canopy
Pull canopy jettison knob to fully opened position. Pull the canopy hinge to its opened position. Insert the jettison spring. Take the canopy, one person in front, one person at the rear.
 Attach the canopy on the hinge and press it down. Push the canopy jettison bolt with one hand into its forward engaged position.

Diagram 2 is a rate of sink polar. The competition pilot should set up the DC-200 with the CG near the aft limit. This enhances thermal performance but be prepared for some pitch sensitivity.

Naturally, the wing fuselage gap and the stabilizer bolt should be taped. The sailplane must be clean to obtain the performance shown in diagram 2.

Dirty surfaces and/or rain reduce flight performance

6.2 Maintenance

Before every assembly all fittings should be cleaned and lubricated. Every 3 month all the bearings and hinges should be cleaned and greased, see the greasing programme sect. 7 of the maintenance manual. At the emergency release of the single piece canopy should be greased and checked. At the annual inspection all displacements, weights, adjustments and general condition must be checked. See manual.

6.3 Repair

Minor damage may be repaired by a licensed airframe mechanic. Advices see DG-200 Maintenance Manual. Don't do any repairs without considering the Service Manual!

6.4 Tow release

The tow release is to be maintained in accordance with the GFA Manual of Standard Procedures.

6.5 Maximum total service time and concerning inspection see maintenance manual section 6.

Maintenance and Inspection

1. Weight and balance record
2. Control displacements and tolerances
3. Inspections

Inspection Procedure, for Increase of Service time^{7a,b}

4. Exchange of the waterbags
5. Repair of damage
6. Service and Care
7. Lubrication
8. Material list
9. Check list after crash landing
10. Repair instructions
11. Control surface massbalances
12. Play in control systems
13. Repair of the bowden cable in the parallel-gram stick mechanism.
14. Tangential play of the wings
15. Instrument- and equipment list

diagrams

- 1 Empty weight G.G.
- 2 Airspeed calibration
- 3 Placard locations
- 4 Pattern for aileron adjustment
- 5 aileron, flap and airbrake controls
- 6 elevator control
- 7 rudder control, landing gear

6.6 Performance polaires
The rate of sink polars of the DG-200 were measured by the DFVLR.
This curves are plotted in Diagramm 3. The following air-speed (kts) ranges have been shown optimal for the various flap settings.

Wing loading	kg/m ²	32	36	40	45
flap- setting	+ 8°	-75	-80	-85	-90
	0°	75-95	80-100	85-105	110-160
	- 4°	95-140	100-145	105-155	110-160
	- 8°	140-150	145-160	155-170	160-180
	-10°	150-170	160-180	170-190	180-200
	-12°	more than 170	> 180	> 190	> 200

Wing loading	lbs/ft ²	6,6	7,4	8,2	9,2
flap- setting	+ 8°	-40	-43	-46	-49
	0°	40-50	43-55	46-57	49-60
	- 4°	50-75	55-78	57-84	60-86
	- 8°	75-80	78-86	84-92	86-97
	-10°	80-92	86-97	92-103	97-108
	-12°	> 92	> 97	> 103	> 108

Wing loading	lbs/ft ²	6,6	7,4	8,2	9,2
flap- setting	+ 8°	-47	-78	-53	-56
	0°	47-59	78-62	53-65	56-68
	- 4°	59-87	62-90	65-96	68-99
	- 8°	87-93	90-99	96-106	99-112
	-10°	93-106	97-112	106-118	112-124
	-12°	> 106	> 112	> 118	> 124

To accelerate or flatten out use always flaps and elevator simultaneous.
Set the flap earlier in its position as for the speeds listed above because flatten out raises the wings loading and speeding up lowers it.
Set the flaps earlier as higher the g-loads. Flatten out with 1.5 g or speeding up with 0.5 g changes the optimal speed approximately 15 km/h (8kts) (10 mph) at low speeds and 30 km/h (16 kts) (20 mph) at high speeds.

Maintenance and Inspection

1. Weight and balance record	1
2. Control displacements and tolerances	1
3. Inspections	3
4. Inspection Procedure for Increase of Service time	7a,b
5. Exchange of the waterbags	8
6. Repair of damage	9
7. Service and Care	9
8. Lubrication	9
9. Material list	11
10. Check list after crash landing	12
11. Repair instructions	15
12. Control surface massbalances	17/17
13. Play in control systems	18
14. Repair of the brake cable	18
15. Tangential play of the wings	17/19
16. Tangential play of the insertable wing tips	17/19
17. Instrument- and equipment list	20

Diagrams

Empty weight C.G.	17/ 1
Airspeed calibration	17/ 2
Placard locations	17/ 3
Pattern for aileron adjustment	4
aileron, flap and airbrake controls	5
elevator control	6
rudder control, landing gear	7

Maintenance and Inspection

1. Weight and balance record	1
2. Control displacements and tolerances	1
3. Inspections	3
4. Inspection Procedure for Increase of Service time	7a,b
5. Exchange of the waterbags	8
6. Repair of damage	9
7. Service and Care	9
8. Lubrication	9
9. Material list	17 C 11
10. Check list after crash landing	17 C 11 a
11. Repair instructions	12
12. Control surface massbalances	17 C 15
13. Play in control system	17 C 16
14. Repair of the bowden cable in the parallelogram stick mechanism	17 C 17
15. Tangential play of the wings	18
16. Tangential play of the insertable wing tips	17/19
17. Instrument- and equipment list	20

Diagrams

Empty weight C.G.	17 C 1
Airspeed calibration	17/2
Placard locations	17 C 3
Pattern for aileron adjustment	4
aileron, flap and airbrake controls	5
elevator control	6
rudder control, landing gear	7

3. Inspections

A Every 200 flight hours and at the Annual inspection

1. Rudder cables for wear especially near the S-shaped tube guides of the pedal adjustment mechanism. Replace worn cables with the following hardware:

Steel wire cable 3,2 mm diameter LN 9374 with copper NICHOPRESS sleeve 28-3-M. Cable is equivalent to 1/8" MIL-W-1511 A Cable. For further information (e.g. tool, number of grooves) see Aircraft Inspection and Repair FAA AC 43.13-1 A

2. The aileron and flap play (see page 18).

B Annual inspection

Control mechanism: Every year check all screwed connections and safety devices. Check controls for sufficient lubrication and rust prevention (see page 9, par 7).

Check control displacements (see page 4).

Check control system for free play (see page 18)

Check the tangential play of the wings (see page 19)

Tow Release: To be maintained in accordance with the GFA M.O.S.P.

Weight and balance must be carried out at least every four years (see page 1).

C Every 3 month

Detailed inspection and lubrication (see page 9, par 7).

Check of the emergency release of the single piece canopy according to flight manual sect. 4.1 page 13 a.

D Occasionally

Wheel Brake: If the braking effect is insufficient adjust the wheel brake at the adjustment screw on the front gear street. Check that you can open the spoilers as far as to allow a slot of min. 38 mm between spoilers and wing surface when the wheel brake starts to operate.

Landing Gear: Clean after soft field landings.

Tow Release: Clean tow release. After a gear up landing check cable defectors. Damaged parts must be replaced before the next take off.

E. Inspection Procedure For Increase Of Service Time

1. General

The results of fatigue tests of wingspar sections have demonstrated recently that the service time of GFRP gliders may be extended to 6000 hours, if for each individual glider (in addition to the obligatory annual inspections) the airworthiness is demonstrated according to a special multi-step inspection program particularly with regard to the service life. CFRP components are already certified for 6000 hours service time.

2. Dates

When the glider has reached a service time of 3000 hours, an inspection must be done in accordance with the inspection program mentioned under point 3.

If the results of this inspection are positive or if any defects found have been duly repaired, the service time of the glider is extended by another 1000 hours to a total of 4000 hours (first step).

The above inspection program must be repeated when the glider has reached a service time of 4000 hours. If the results of this inspection are positive or if any defects found have been duly repaired, the service time of the glider is extended to 5000 hours (second step).

When the glider has reached a service time of 5000 h the above inspection program again must be repeated. If the results of the inspection are still positive, or if any defects found have been duly repaired, the service time may be extended to a total of 6000 hours (third step).

For a possible service time exceeding 6000 hours procedures will be evaluated in the future.

3. LBA-approved Glaser-Dirks Flugzeugbau GmbH document No. XXXX (to be issued and approved in the future) contains the structural inspection procedures and limitations to be used for extending the service life above 3000 flight hours.
4. The inspection must only be done by the manufacturer or by a licensed repair station or inspector.
5. The results of the inspections have to be recorded in an inspection test report wherein comments are required for each inspection instruction. If the inspections are done outside the manufacturer's facilities, a copy of the records must be sent to the manufacturer for his evaluation and information.
6. The annual inspection is not affected by this inspection program.

F. Exchange of the waterbags

Tie a piece of nylon cord (3 mm) diameter and at least 5 m long, to the nylon cord sticking out of the wing root rib. Unscrew the screw cap of valve. Pull the valve body with the tank out of its suspension in direction of the wing tip. Then pull the valve body and tank out of the wing through the opening in the root rib. Unknot the nylon cords from the tank and open the hose clamp at the valve. Attach the new tank and install it analogous. Fill the tank and check for watertightness.

- o Open fuselage access cover. Lube spoiler control and flight control quick-disconnects.
- o Remove stick mechanism cover. Lube stick mechanism.
- o Lube guide of rudder adjustment mechanism.
- o Oil bearing points of gear struts in wheel well.
- o Clean and lube all hinges (elevator, rudder, ailerons, flaps)
- o Take off the canopy and clean and grease the locking mechanism. After reinstalling the canopy, check the pilot force needed for emergency release with the red ball handle using a spring balance.
- o The force should not exceed 200 N (44 lbs.).
- o Check the canopy emergency release referring to flight manual sec. 4.1.

Check listFuselage:Fuselage to wing connections:

White spots, excessive play, bent tubes (hard assembly)?

Torsion check:

Hold fuselage steady and attempt to move vertical stabilizer - does it move easier than usual?

If so, are the cracks visible?

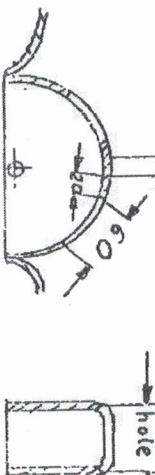
Fuselage and vertical stabilizer intersection:

Cracks? Scrape away paint and putty. While moving vertical stabilizer side to side and fore and aft, check for cracks extending into FRP.

For inspecting the controls and the bulkheads etc. in this area disassemble the tailwheel and cut 2 holes into the tailwheel box (see sketch).

Close the holes after inspection or repair with 3 layers of 92 125 glassfibre fabric. Overlap length 2 cm. Sand at minimum 3 cm around the holes with 80 grit sand paper.

You can use the original Epoxy resin (see page 11) or a polyester resin, as the tailwheel box is a non supporting part.

Stabilator mounting:
Excessive play? Check top rib of vertical stabilizer for cracks especially near fittings.Rudder bearings:

Excessive play, spots in FRP, bent fittings, cracks in finish?

Tail wheel:

Enlarged axle hole? If so, fill with thick filler.

Fuselage shell:

Outside: Cracks, creases, nicks?

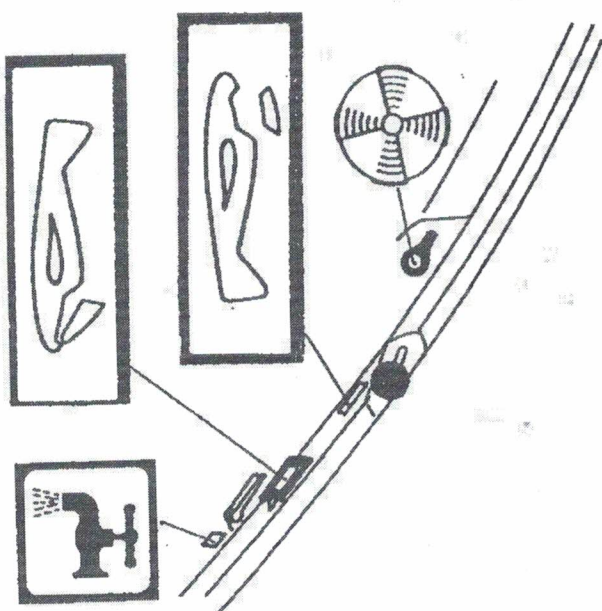
Inside: White spots, sharp white zig-zag lines, cracks?

Any loose ribs?

Has any bulkhead become loose? To check this remove also the control column boot, instrument panel cover and the access cover of the tow hook compartment and check the bulkheads in this areas carefully.

GFA AD 324 8.12.87

Difference in placarding for single piece canopy.



GFA AD 324 8.12.1987