THE GLIDING FEDERATION OF AUSTRALIA

GFA/AD 266

Issue 1

AIRWORTHINESS DIRECTIVE

TYPES AFFECTED: Foka 5 Sailplanes (SZD-32)
All serial numbers

BACKBROUND: Manufacturers Bulletin No. BE-005/81 "Foka 5", details the factory and Polish Aviation Authorities attitude to the continuing airworthiness of this type.

The Bulletin asks for:

(1) Major inspection at 1300 hrs. T.T.
(2) Major inspection at 2000 hrs. T.T.
(3) Reduction of category to non aerobatic, and reduction of V_{NE} to 118 knots IAS, for operations over 2000 hours T.T or 12 years since first flight.

G.F.A. COMMENT: "Foka" 5 series sailplanes in Australia have shown a tendency towards glue failure, with the rate of glue decay depending on age and storage. The factory inspection scheme and limitations after 12 years/2000 hours are aimed at ensuring that glue condition will not compromise inflight safety.

After 12 years/2000 hours, each Annual Form 2 inspection report must include a glue condition statement by the Inspector issuing the new Maintenance Release.

ATTACHMENTS:

(1) Bulletin BE-005/81 "Foka 5"
(2) Special inspection programme for SZD 32A Foka 5 gliders
(3) Page 3-5A of Maintenance Manual.

These documents for part of this AD are reproduced as received from the factory in May 1983.

ACTIONS REQUIRED:

(1) MAINTENANCE MANUAL AMENDMENT

Page 3-5A (attached) to replace Page 3-5 in the original Manual

(2) MAINTENANCE RELEASE

Where a sailplane has -

(a) Exceeded 1300 hours
(b) Exceeded 2000 hours
(c) Exceeded 12 years since first flight,

It's Maintenance Release will have to be endorsed with special inspection requirements discussed in (3) and (4)

(3) INSPECTION REQUIREMENTS

(a) Where a sailplane has exceeded 1300 hours but is under 2000 hours -

At or before the next Form 2, the sailplane is to be inspected in accordance with the "Special Inspection Programme"

Issued by: M P Burns	Chief Technical Officer Airworthiness	2/8/1983
For and on behalf of:	GLIDING FEDERATION OF AUSTRALIA	Sheet 1 of 2

(b) Where a sailplane has exceeded 2000 hours or 12 years since first flight -

(1) IMMEDIATELY - Placard the cockpit

(a) No aerobatics, including intentional stalls and spins, allowed.

(b) V_{NE} = 118 knots IAS

(2) AT OR BEFORE THE NEXT FORM 2

Carry out an inspection in accordance with the "Special Inspection Programme".

(4) ANNUAL INSPECTIONS (GFA FORM 2 AFTER 2000 HOURS OR 12 YEARS)

(1) Normal GFA Form 2 annual inspections to be carried out.

(2) Glue condition inspections in accordance with Sections 2-2-0, 3-1-0, 4-1-1, 4-2-1 must be included in the Form 2 inspection

(3) Any evidence of glue deterioration to be Defect reported to the GFA RTO/A or CTO/A before issue of a Maintenance Release.

(4) Every 2nd annual Form 2 inspection to include fully the "Special Inspection Programme".

IMPLEMENTATION:

All required actions may be carried out by persons endorsed on his/her 1109 "C. of A. Wood".

20 YEAR SURVEY

Should any examples of this type reach 20 years in service, it is anticipated that proof loading and extensive structural access/inspection will be required.

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 Aviation.

BULLETIN No. BE-005/81 "FOKA-5"

Ref. : Change of the overhaul time schedule and further operation of SZD-32 "FOKA-5" glider.

Procedure of introduction : on all gliders since issue of this Bulletin.

Elaborated in PDPS - TKP on February 4, 1981

Elaborated by : /-/ B. Szuba, M.Sc.

Verified by : Chief Designer
/-/ B. Bereś, M.Sc.

Director PDPS PZL-Bielsko
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Approved by : Ministry of Communication, Central Administration of Civil Aviation /Civil Aircraft Inspection Board/.

Major Specialist
Febr. 11, 1981
/-/ J. Trzeciak, M.Sc.

1. GROUNDS FOR AND PROCEDURE OF INTRODUCTION.

1.1. The following time schedule for overhauls is established as a consequence of special technical inspections and long-lasting observation of operation of the SZD-32 "Foka-5" gliders :

- up to the 1 st general overhaul . . . . . 1300 hours
- between the 1 st and 2 nd general overhaul. . 700 hours

providing that :

1.1.1. inspection is carried out following the instructions of "The special inspection programme for SZD-32 "Foka-5" gliders" - issue 1980.

1.1.2. there are no cracks found with a magnifying glass of min. 5 times magnification :

- on the main fittings
- on the head of the wing spar
- on the arm of the balancing slug of elevator unit
- in the fitting of elevator unit.

1.2. Further extension of the overhaul life above 2000 hours has to be approved in every case by Manufacturer and Authority.

1.3. The following flight limitations should be applied acc. to item 1.2. of this Bulletin to gliders which have exceeded 12 years of life, or their overhaul life was extended above 2000 hours :

- cloud flying prohibited
- aerobatics excluding spin and stall prohibited
- night flying prohibited
- never-exceed speed V_{NE} = 220 km/h

The restrictions introduced should be entered in the Flight Manual and shown on Placard in the cockpit.

2. LIST OF THE GLIDERS COVERED WITH THIS BULLETIN.

This Bulletin refers to all SZD-32 "Foka-5" gliders.

3. RANGE OF INSPECTION.

Acc. to items 1.1.1 and 1.1.2 of this Bulletin.

4. FINAL STATEMENTS.

4.1. After completing of all the works, mentioned in item 3 of this Bulletin, and repairing of all noticed defects of the verified glider one should introduce the completed works in the glider documents and submit the glider to Authority in order to extend the overhaul life acc. to item 1.1 of this Bulletin.

4.2. Page No. 3-5 of the Technical Service Manual should be replaced by page No. 3-5a. This replacement should be introduced to List of Revisions of Technical Service Manual.

4.3. All the works, mentioned in item 3 of this Bulletin, should be accomplished by User himself.
Work has to be supervised by the Authority.

5. ENCLOSURES.

5.1. The Special Inspection Programme for SZD-32 "Foka-5" gliders.

5.2. Page No. 3-5a of the Technical Service Manual of SZD-32 "Foka-5" glider.

- THE END -

3.4. Schedule of maintenace works.

Amount of flight hours	Perform works acc. to items of chapter 3.3
After each 50 flight hours	from item 1 to 8 inclusive Make an inspection of cables at cable pulleys.
After each 200 fligh hours	from item 1 to 20 inclusive
After each 100 flight hours or every 6 mouth	inspection of emergency jettisoning of a canopy

3.5. Schedule of main overhauls.

- The first main overhaul should be performed after 1300 flight hours.
- The second one should be performed after 2000 flight hours as long as the requirements acc. to item 1.2 of this Bulletin were met.

The extended inspections acc. to item 1.1.1. of Bulletin No. BE-005/81 "Foka-5" and additional inspection of main fittings for cracks appearing should be carried out :

- before the first main overhaul . . . . each 500 flight hours
- between the first and the second main overhauls . . . . . each 300 flight hours

Gliders, which have exceeded 2000 flight hours or 12 years life, can be operated further with following restrictions :

- cloud flying prohibited
- aerobatics excluding spin and stall prohibited
- night flying prohibited
- never-exceed speed V_{NE} = 220 km/h

Range of every overhaul is defined in the Overhaul Manual and appointed by Veryfying Committee, which states a technical condition of a glider after detailed inspection.

During the overhaul one should follow Overhaul Manual of Gliders - Part 1, and Overhaul Manual of SZD-32 "Foka-5" glider.

List and range of operating inspections is contained in Flight Manual.

After each overhaul check the mass and c.g. of the glider. Any questions consult with Authority.

SPECIAL INSPECTION PROGRAMME

for SZD-32A "FOKA-5" gliders

ISSUE 1980

Elaborated by :

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Accepted by :

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August 1, 1980

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SPECIAL INSPECTION PROGRAMME for SZD-32A "Foka-5" glider.

1.0.0. GENERAL DIRECTIONS

1. Durring the inspection all the instructions included in technical description of Technical Service Manual, Schedule of Maintenance Works as well as in Overhaul Manual of SZD-32A "Foka-5" glider should be observed. The inspection of a glider should be performed acc. to the instructions below ;
2. The inspection should be performed in contact with Authority proper in respect to the place of the inspection.
3. The inspection should be performed in air-conditioned rooms, with a necessary equipment for.

1.1.0. PRELIMINARY INSPECTION

1. Check humidity of the glider. In case of humidity remove water and place the glider in airy, dry room at temperature ranging 18 to 25°C. The canopy and all the inspection openings should be opened when drying the glider. Time of drying is four days at least.
2. Assemble the glider.
   In the time of assembling a special attention should be paid to the correct procedures, especially to unconventional troubles.
3. Check uniformity of the gap between the fuselage-to--wing connection.
4. Check, the all-moving elevator unit deflected in the extreme positions that it doesn't rest on the fin and the rudder.
5. Check, that the fairing of all-moving elevator unit correctly fitts the fin.
6. Check connection and securing of all the control systems. Pay a special attention to the correct securing of quick-locking ends of pushrods as well as to securing of the all-moving elevator unit.
7. Inspection of glider stabilization.
   - Check the neutral position of elevator control system acc. to Technical Description Fig. 21

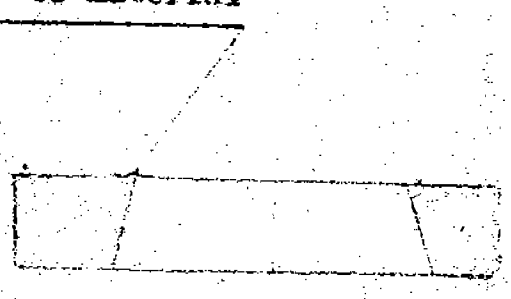
- Check the neutral position of aileron control system acc. to Technical Description Fig. 22.
- Check the neutral position of pedals acc. to Technical Description Fig. 23.

8. Check deflections of the control surfaces, ailerons, balance-tab and airbrake plates acc. to Technical Description Fig. 35.
9. Check friction forces in the control systems acc. to Schedule of Maintenance Works item 3.3.19.
10. Estimate the general condition of the glider paying a special attention to the glider operation in accordance with instructions of Technical Description of Technical Service Manual.
11. Disassemble the glider.
12. Wash up all the accessible metal fittings as well as moving connections and rolling or slide bearings /this one perform just before the inspection and grease them just after/.

2.0.0. WING INSPECTION:

2.1.0. MAIN FITINGS INSPECTION

1. Disassemble the main cones set of the right wing.
2. Check rectilinearity of rulings of the cones with the hair straight-edge. Any deviations of rectilinearity as well as sensible kneadings and surface cavings are not allowed.
3. Check for any "flashes" of material round the openings of main fitings-see Sketch No. 1.



Sketch No. 1

4. Check the contact surface of the conical bolts to the openings of the wing main fittings by means of marking-off ink. The minimum contact area should be at least

70 per cent of the whole area.
The inspection should be performed on the single fittings in assembled condition.

5. Check ovalization of the conical openings in the wing main fittings by an attempt of insertion between bolts and openings the 0,05 mm thick gap gauge.
This is allowed the gap gauge to be inserted no deeper then 1/3 of the fitting thickness and less than 1/6 of the opening circumference.

6. Check, by means of magnifying glass of at least 5 times magnification, for any cracks of :
- the main fittings,
- wood on the roots of the wing spar.
No Cracks are allowed.

7. Check, by means of an attempt to rotate the rivet or rivet washer by hand, that rivets connecting the main fittings to the spar flanges are slack.

2.2.0. INSPECTION OF THE CONDITION OF GLUE-JOINTS.

1. Check condition of glue-joints by means of tapping the leading edge, ribs closing the cut-out for aileron, ribs No. 1, wing spar sections of airbrake box and fittings for wing ground transportation as wellas trailing edge. Pay a special attention to the places of visible lacquer cracks.

2. Make a control cut-outs which enable the glue-joints inspection in the region of rib No. 1 and the wing spar. Minimum distance between edge of cut-out and rib is at least 60 mm.

3. Check condition of glue-joints in accessible places through the inspection openings, openings after removal end plates of wing as wellas control cut-outs.
This inspection should be carried on by an attempt of inserting of 0,05 mm thick gap gauge between the glued elements. During the inspection it is recommended to press the structure elements by hand to enlarge a possible gap. Pay a special attention to the places of visible cracks and glue leakage.

4. If there are any places inaccessible through the inspection, openings and control cut-outs suspected to be unglued, make additional cut-outs and inspection acc. to item 2.2.3.

5. Any unglueing and gaps between joined elements are not allowed.

6. Places of a cut-out should be repaired acc. to Overhaul Manual.

2.3.0. INSPECTION OF THE AILERON AND AIRBRAKE MOUNTING.

1. Check plays of the moving connections.
An allowed diameter clearance in a moving connection between bolt and sleeve should be smaller than 0,12 mm.

2. Check the forced in sleeves by attempt of impression, rotation or extraction them.
An impression, rotation or extraction of sleeves are not allowed.

2.4.0. INSPECTION OF THE WING CONTROL SYSTEMS.

1. Check condition of the rolling bearings.
Bearings jamming during rotation, noticeable plays and lack of balls are not allowed.

2. Check condition of cables, push rods and turnbuckles.
If the operation time of cables is longer than 300 flight hours or 3 years, cables should be replaced by new ones.

3. Check plays in the control systems.
An allowed diameter clearance in a moving connection between bolt and sleeve is 0,12 mm. The forced in elements cannot move under attempt of impression, rotation or extraction then by hand.

4. Before assembling of control systems the moving-places should be greased with technical vaseline as well as non-acid and anhydrous grease for bearings.

5. After assembling of control systems check all the securing devices /eg. split pins, safety wires and the like/.

2.5.0. INSPECTION OF THE AILERON.

1. Check condition of the aileron glue-joints by attempt of inserting between glued elements the 0,005 mm thick gap gauge and simultaneous pressing the joint by hand in such a way to enlarge a possible gap.

2. Check the aileron balancing mass fixing.

3. Check condition of the aileron fabric covering acc. to Overhaul Manual.

4. Check mass-balance of the aileron acc. to Overhaul Manual.

5. Check fixing of the aileron fittings.

2.6.0. INSPECTION OF THE RIB No. 1

1. Check the rib's No 1 surface by means of magnifying glass of at least 5 times magnification, paying special attention to possible cracks and defects on rib's surface.

2. Disassemble the conical seats from fittings.
Check them paying special attention to possible defects of conical holes and thread.
Check, by means of marking - off ink, contact surface of holes to proper cones of the fuselage.
It should be above 70 per cent.

NOTICE : When assembling the seats take care to the seats into the same fittings.

3. Check fixing of the lever unit.

4. Make a general inspection of the joint between the rib and wing spar or wing covering.

2.7.0. INSPECTION OF THE AIRBRAKE.
/make when the works acc. to item 2.4.0 are completed/.

1. Check the force of jump over dead point in the airbrake control system
- minimum force on the lever at the rib No. 1 is 2 kG,
maximum force is 6 kG.

2. Check reliability of locking the airbrake plates by attempt to extend them by means of belts, when the airbrake is refracted. Pull the belts with force of 8to10kG.

2.8.0. INSPECTION OF THE LACQUER AND ANTICORROSION COATINGS.

1. Check quality of the external lacquer coatings. In case of any defects like cracks of lacquer it is necessary to wash down or gently flake off lacquer in the place of crack and afterwards check, for any defects of the plywood covering of wing.

2. Check for corrosion of elements as well as loss of lacquer or another protective coating of elements.

3.0.0. INSPECTION OF THE FUSELAGE.

3.1.0. INSPECTION OF THE CONDITION OF GLUE-JOINTS.

1. Check condition of the glue-joints by means of tapping the covering in the region of the covering-to-frames joints. Pay a special attention to the central part of fuselage in the section of root chord as well as to places of visible lacquer cracks.

2. Make a control cut-out in the plywood covering of the upper part of fuselage between ribs No 14 and 15.

3. Check condition of glue-joints in the accessible places through the inspection openings and control cut-outs. During inspection pay a special attention to the bottom stringer of fuselage as well as to possible cracks of aprons and gussets of frames. Make an inspection by attempt of inserting between joint elements the 0,05 mm thick gap gauge, paying a special attention to places of greater glue leakage with bigger cracks. During inserting the gap gauge the glue-joint should be loaded on by hand in such a way to enlarge a possible gap. Any unglueing and gaps between joined elements are not allowed.

4. If there are places inaccessible through the inspection openings and control cut-outs suspected to be unglued, make an additional cut-outs and then inspect acc. to item 3.1.3.

3.2.0. INSPECTION OF THE CONTROL SYSTEMS IN FUSELAGE.

1. Check condition of rolling bearings.
Rolling bearings should not rotation, noticeable plays and lack of balls in rolling bearings are not allowed.

2. Check condition of cables, turnbuckles and push rods.
If the operation time of cables is longer than 300 flight hours or more than 3 years, cables should be replaced by new ones.
Cables having breaked single wires as well as push rods with well-marked indentations or another defects are not allowed to be operated.

3. Check condition of riveting on the control levers.
Pay a special attention for any loosening of connection, which becomes visible by relatively big clearance round rivet heads, or, in extreme cases, by a little displacement of connected elements during an attempt of loading with hand the connected elements.

4. Check plays in the fittings of control systems Allowed diameter clearance of moving connection between bolt and sleeve is lower than 0,12 mm.
Forced in elements cannot move during attempt of their impression, rotation or extraction by hand forces.

5. Check condition of rollers and their mounting.

6. Before assembling of control systems the moving areas should be greased with technical vaseline or non-acid and anhydrous grease for bearings.

7. After assembling of the control systems check all the securings /eg. split pius, safety wires etc./.

3.3.0. INSPECTION OF THE LANDING GEAR.

1. Check condition of the tyre.
Tyre protector cannot be worn off and should be without little rubber cracks which indicate an advanced rubber ageing.

2. Check condition of the brake jous.
Friction lining thickness should be greater than rivet heads height.

3. Check condition of the slide bearing of the wheel hub.
Allowed maximum clearance between fixed and movable parts is 0,2 mm.

4. Check condition and fixing of the landing gear-to--spar fittings by means of inserting the 0,05 mm thick gap gauge under rivet heads.

5. Check condition of the metallic cover plates on the skids.

6. Check condition of the rubber shock absorbers in the skids.

3.4.0. INSPECTION OF THE COCKPIT.

1. Check the operation of the mechanism of canopy emergency jettisoning.
During a proper jettisoning the front of canopy should vigorously lift up to 20 mm. In negative case, the second attempt is allowed after previous disassembling of the mechanism, washing it in extraction naphtha, greasing with grease for bearings and assembling.

2. Estimate a free length and deflection of a spring pusher loaded by 5 kG and 10 kG. Estimate a spring loding at the full spring depression /coil-to coil/. The Commitee has in its disposal the allowed values.

3. Check the correct canopy opening and sure locking of closed canopy by attempt of opening without releasing the handle of the canopy lock.

4. Check fixing of the back-rest and head-rest.
Pay a special attention to the rest locking.

5. Check condition of the pilot belts and their fixing in the cockpit. Check the belts for conformity to the valid documentation.

6. Check condition of the brackets and locking elements for belts fixing. No defects are allowed.

7. Check condition of the drainage-units in the static and total pressure systems.

8. Check permeability of the static and total pressure systems by means of blowing dry air through pipes detached from the cockpit instruments.

9. Check readability of the descriptions in the cockpit. Pay a special attention to the description of limitations for glider and also to the Placards.

10. Check the colour marking of the control handles, especially the handle of emergency canopy jettisoning to be of red colour.

11. Disassemble the inspection openings covers inside the cockpit to inspect a condition of structure, glueing and control systems.

3.5.0. INSPECTION OF THE ELEVATOR CRADLE.

/Fig. 33 of Technical Description/

1. Check correctness of fixing and locking of the balancing slug "6" and functioning of the safety lock "5".

2. Check a mass-balancing of the elevator.

3. Check a wear of the fork joint "[illegible]" and the lever "14" of the trimming tab control system.

4. Check the absence of plays of the cradle due to the axis of rotation "2".

5. Check condition of the rear pins "8" and play between pins and holes in all-moving elevator unit.
Allowed clearance is 0,12 mm.

4.0.0. INSPECTION OF THE CONTROL SURFACES.

4.1.0. INSPECTION OF THE RUDDER.

1. Check condition of the glue-joints by means of tapping a spar of trailing edge and closing ribs. Inspect, with a special care, the places of visible lacquer cracks.

2. Check condition of the fabric covering.

3. Check the play between elements of the rudder-to--fuselage mounting.
Allowed play between fixed and movable part is 0,12 mm.

4.2.0. INSPECTION OF THE ELEVATOR UNIT.

1. Check condition of the glued joints by means of tapping a leading edge, main and rear spars, trailing edge and ribs. Pay a special attention to the central part of the elevator unit and places of visible laoquer cracks.

2. Disassemble the balancing-tab.

3. Check condition of the glue-joints of balancing-tab by means of tapping it.

4. Check the balancing-tab mounting and its plays.

5. Check the glued joints by means of attempt of inserting between the joint elements the 0,05 mm thick gap gauge and simultaneous loading the structure by hand to enlarge a possible gap.

6. Check condition of the fabric covering.

7. Check the fitting-to-wooden structure fixing by means of attempt to move or detach the fitting by hand force, as well as by inserting between fitting and wooden structure the 0,05 mm gap gauge.

5.0.0. INSPECTION OF THE GLIDER'S DOCUMENTS.

1. Check that the following Bulletins has been introduced:
   - BR-001/70 "Foka-5"
     from W-478 to W-498
     "Improvement of bolt or seat mating in levers of the elevator unit",
   - BE-002/75 "Foka-5"
     all gliders
     "Inspection of the aileron balancing-weight fitting".

2. Check the notices on the periodic works carried on the glider.

- THE END -