

MANDATORY BULLETIN

MB No: L13AC/016a Revision 1

Concerns: L-13AC „Blanik“ Sailplanes

Subject: Determination of a sailplane safe life.

Reason: Effective utilization of a sailplane fatigue life based on analysis of reel operating conditions influence and individual sailplanes inspection.

This Revision 1 fully substitutes the previous version from January 23, 2013

To be carried out at the latest: At achieving of flight hours or take-offs according to the bulletin text.

To be carried out by: Operator

Costs to be covered by: Operator

Necessary material to be delivered by: Blanik Aircraft CZ s.r.o., Beranových 65
190 00 Praha 9 – Letňany, Czech Republic, upon order

Bulletin becomes effective: On the day of its issue

Total sheet: 14 (5 SB Pages + 5 Appendixes)

Released: Mr. Oldřich Cimbálek
Head of Office of Airworthiness
8th of March 2017



**The technical content of this document is approved
under the authority of DOA ref. EASA.21J.609**

L-13 AC SAILPLANE AIRFRAME SAFE LIFE

L-13 AC sailplane airframe safe life is determined in accordance with SAFE LIFE philosophy based on fatigue tests results and in flight strain-gauge measurements. The initial Service life of 2,000 FH, 8.000 take-offs can be reached providing the conditions, stated in Maintenance Manual, Section 2.1.5., are kept. The scatter factor can be reduced if an acceleration monitoring unit AMU1B.01 is installed. The final service life could be extended if an operator devolves measured data for all operating time.

A. WORKING PROCEDURE

I. Correction of a sailplane airframe Service life

If value of 200 aerobatic flight hours is exceeded before reaching the initial service life of 200 FH, then an operator sends Information about the sailplane actual operating conditions to the Type Certificate (TC) holder. AMO (Approved Maintenance Organization) certifying person, who elaborated the information, certifies it (date, seal, name, grade and signature). The operator confirms data correctness by signature on the form which is stated in the Appendix 1 of this bulletin. TC holder, after service life analysis, determines conditions for next sailplane operation which can be aerobatic flights limitation or service life reduction.

The procedure for increase of total aerobatic time above the initial value of 200FH is described in Section III. of this bulletin.

NOTE: The number of aerobatic flight hours will be probably increased only on condition of initial sailplane airframe lifespan decrease.

II. Procedure for a sailplane airframe service life extension above 2,000 FH, 8.000.take-offs

Recommendation:

If it is possible apply for service life extension at the time when the sailplane is to be transferred to Periodical Maintenance (Inspection No. 2 or higher), so Inspection check could be done as first part of appropriate Periodical Maintenance.

II.I Sailplane service life extension above the initial service life

The operator sends an order with a request for analysis of real operating conditions influence to a sailplane fatigue life and possibility assessment of the sailplane service life extension to the TC holder. The operator devolves information about the sailplane real operating conditions certified (date, seal, name, grade and signature) by AMO certifying person, who elaborated it. The operator confirms data correctness by signature on the form which is stated in the Appendix 1 of this bulletin.

In addition, the operator of the sailplane equipped with an AMU1 B.01 acceleration monitoring unit sends information about operation with the AMU1 B.01 according to the Appendix 2 of this bulletin. If the sailplane was not operated with the AMU1 B.01 all the time, the operating conditions have to be explicitly divided into operation with the AMU1B.01 and without one. Detailed description of the AMU1B.01 acceleration monitoring unit and its operating conditions is stated in Maintenance Manual, Chapters 10.10., 10.12. and others. In case an analysis of real operating conditions influence to a sailplane fatigue life allows service life extension, the TC holder performs inspection check with participation of AMO certifying person and operator eventually.

Good technical condition of a sailplane and implementation issued bulletins for a sailplane are conditions for a sailplane Service life extension.

CAUTION

Extended Service life is valid providing that the previous operating conditions are kept in next operation and also procedures and limitations, stated in valid operation documentation, have to be kept.

On base of an analysis of real operating conditions influence to a sailplane fatigue life and the inspection check result the TC holder decides to extend the sailplane airframe Service life for next 500 FH or less number of FH with regard to determined final Service life and makes out the Inspection Protocol according to the Appendix 3 of this bulletin.

II.II Next extension of a sailplane airframe Service life

Procedure is the same as during the first sailplane Service life extension above the initial Service life.

NOTES

- a) A sailplane Service life extension has to be performed when the permitted service life is reached at the latest with a tolerance of -50 FH.
- b) If any defects requiring periodic check were found in the course of Inspection Check, determine their checks periodicity in the Inspection Protocol (see the Appendix 3). Record carrying out and results of individual checks into the sailplane Logbook.
- c) Installation of an AMU1 B.01 acceleration monitoring unit is recommended (according to IB L13AC/015b Revision 1) to longtime measurement of service loads. An analysis of measured data enables more effective sailplane utilization with anticipation of safe life higher value achievement.
- d) The operator of the sailplane equipped with an AMU1 B.01 acceleration monitoring unit provides downloading data from the acceleration monitoring unit at least once a year or after 100 hours of operation (whichever occurs first). Send downloaded data together with the sailplane basic data to verification by the TC holder (see Chapter 10.12.5. of Maintenance Manual). First downloading data and filling the form is done within the AMU1 B.01 initialization by the TC holder or within bulletin L13AC/015b Revision 1 realization.
- e) Inspection commission in constitution of a supervisory authority representative, AMO certifying person authorised by the supervisory authority and the operator may carry out the inspection check abroad. The AMO certifying person has to have an authority to the Inspection No. 4 check and certification execution of L-13 AC Blanik sailplane periodical maintenance. Inspection is carried out according to "L-13 AC Sailplane Inspection Check Program for the purpose of Service Life Extension in compliance with L13AC/016a Mandatory Bulletin". The Inspection Commission makes an "Inspection Protocol" about condition assessment with a recommendation of the Commission. The Inspection Protocol shall contain data according to the Appendix 3 of this bulletin. The operator sends the Inspection Protocol and data of the sailplane operation according to the Appendix 1 and 2 eventually complete with a request for the sailplane condition assessment and Service life extension to the TC holder. The TC holder sends to the operator a certificate of the sailplane Service life extension after an analysis of real operating conditions influence to a sailplane fatigue life, carrying out calculation and the sailplane condition assessment according to the Inspection Protocol.

III. Procedure for a sailplane total aerobic life extension above the initial 200LH

An operator will send an order to the TC holder with request for an analysis of impact of real operation conditions to fatigue sailplane lifespan, and for evaluation of possibility of the total aerobic life extension. An operator is required to submit an information about true operation conditions of sailplane, verified (date, stamp, name, position and signature) by OC AMO, who elaborated the data. The data rightness has to be approved by an operator on the Form stated in Appendix 1 of this SB.

An operator of sailplane equipped by the registration accelerometer AMU1B.01 will also send an operation data with the accelerometer i.a.w. the Appendix 2 of this SB. If the sailplane was not operated with the accelerometer for the whole assessed operation time, the operation condition has to be unambiguously split for operation with and without the accelerometer. The detailed description of the AMU1B.01 and its operation conditions is stated in the Sailplane Technical Manual, Chapter 10.10, 10.12 and following.

The TC holder will analyse the data and evaluate a possibility of the aerobic life extension. In case of a possible increase of aerobic FH number the TC holder will establish new operation conditions and limitations which will be obligatorily kept, and specify total aerobic life and new sailplane lifespan.

In case the analysis of Impact of real operation conditions to fatigue sailplane lifespan allows an extension of aerobic time the TC holder, together with the AMO or operator representative, will perform an inspection check.

The extension of the sailplane airframe life is conditioned by good technical status of sailplane and implementation of all relevant bulletins.

CAUTION:

Assuming possible extension of aerobic life the initial airframe lifespan will be reduced by value defined by the TC holder on the base of submitted average operation conditions.

B. MATERIAL REQUIRED

Not required.

C. ILLUSTRATED PART

Not affected.

D. DOCUMENTATION REQUIRED

Maintenance Manual for the sailplane L-13 AC Blanik, Doc. No. Do-L13AC-1032.3.

E. AMENDED DOCUMENTATION

Carry out revision of the Maintenance Manual acc. to the L13AC/019d documentation bulletin.

F. TOOLS REQUIRED

Not required.

G. SPARE PARTS IN OPERATION

Not required.

H. SAILPLANE MASS

Not affected.

I. RECORD IN AIRFRAME LOGBOOK AFTER BULLETIN IMPLEMENTATION

The sailplane airframe Service life has been extended toflight hours in compliance with the L13AC/016a Mandatory Bulletin.

Defects stated in the Inspection Protocol Nohave been rectified.

Note: Paste the Inspection protocol copy into the Airframe Logbook.

In case of the initial sailplane lifespan increase:

The total sailplane aerobatic time has been extended toflight hours in compliance with the L13AC/016a Mandatory Bulletin.

Defects stated in the Inspection Protocol Nohave been rectified.

Note: Paste the Inspection protocol copy into the Airframe Logbook.

Statistical data from AMU1B.01 Accelerometer Monitoring Unit for Service life calculation of L-13 AC sailplane in accordance with L13AC/016a MB

1) Data of a sailplane equipped with an AMU1 B.01

- Sailplane serial number: (from the beginning of operation)
- Registration number: (from the beginning of operation)
- AMU1B.01 serial number: (from the beginning of operation)
- Name of AMUIB.01 file corresponding with stated data: (from the beginning of operation)
- Date of AMUI B.01 downloading data: (from the beginning of operation)
- Total flight hours: (from the beginning of operation)
- Number of hours solo: (from the beginning of operation)
- Number Of hours dual: (from the beginning of operation)
- Number of hours solo with wing tips: (from the beginning of operation)
- Number of hours dual with wing tips: (from the beginning of operation)
- Total number Of take-offs: (from the beginning of operation)
- Total number Of aerotow launches: (from the beginning of operation)
- Total number of winch launches: (from the beginning of operation)
- Aerobatic flights flown solo in flight hours (whole flights) (from the beginning of operation)
- Aerobatic flights flown dual in flight hours (whole flights): (from the beginning of operation)

2) Supplemental data for sailplane operation with AMU1 B.01

Enter here incidents related to the operation of AMU1B.01. For example information about battery replacement, detected failures and other cases described in Maintenance manuai, Sections 10.10., 10.12. as CAUTION.

Date:	Date:
signature	signature
.....
Elaborated by	Authorised Operator's Representative
Name, Stamp:	Name, Position, Stamp:
CP AMO Organisation:	Organisation Name:

Send files downloaded from AMU1B.01 by e-mail: info@blanik.aero complete with a copy of this form. Data must correspond with time of downloading. This form has to be elaborated for each AMU1B.01 file sent for evaluation. Procedure of an AMU1B.01 data Processing is stated in Section 10.12.5. of Maintenance Manual.

If needed fill up the form multiple times so that the sailplane operation with AMU 1 B.01 is described explicitly.

- Notes:
- State the entire operation history, from the very start to AMU1B.01 data downloading.
 - Each page with Statistical data has to contain signatures and date of elaboration.
 - CP AMO - Certifying Person of Approved Maintenance Organization

Split the form onto more pages is not allowed. It is possible use appendixes with supplemental data if needed

INSPECTION PROTOCOL No. XX/P0430/RR

According to operator's request there was performed an inspection check on the L-13 AC Blaník sailplane S/N.....registration mark.....on the. The reason of the inspection check is the sailplane Service life extension in compliance with L13AC/016a Mandatory Bulletin R1.

Sailplane data:

Production date: (YYYY)
 Serial number of wings:
 Serial number of fuselage:
 Owner of the sailplane:
 Operator of the sailplane:
 Number of flight hours since operation beginning: FH
 Number of take-offs since operation beginning: take-offs
 Number of flight hours since last Inspection 3, 4: FH
 Number of take-offs since last Inspection 3, 4: take-offs
 Last Inspection No. 3 performed date and place

The Inspection was performed on: (dd.mm.yyyy) in composition of the following commission:

Defects found during inspection:

State a list of all found defects. Determine a periodicity of inspections for defects which require regular checking. The performance and results of those inspection shall be recorded into the Airframe Logbook with method of their rectification:

Conclusion:

According to the technical condition of the L-13 AC Blaník sailplane, S/N....., Registration Mark the inspection team suggests to extend airframe's Service life by FH under the following conditions:

- keep on actual Service ratios in next operation (stated in sent Statistical data),
- the rectification of all defects from Inspection Protocol,
- copy of this protocol has to be pasted in the airframe logbook with record of defects rectification

In, on (dd.mm.yyyy)

On behalf of Blaník Aircraft CZ s.r.o.
 (Title, Name, Surname and position)

INSPECTION PROTOCOL No. XX/P0430/RR

According to operator's request there was performed an inspection check on the L-13 AC Blanik sailplane S/N.....registration mark.....on the. The reason of the inspection check is the sailplane Service life extension in compliance with L13AC/016a Mandatory Bulletin R1.

Sailplane data:

Production date: (YYYY)
 Serial number of wings:
 Serial number of fuselage:
 Owner of the sailplane:
 Operator of the sailplane:
 Number of flight hours since operation beginning: FH
 Number of take-offs since operation beginning: take-offs
 Number of flight hours since last Inspection 3, 4: FH
 Number of take-offs since last Inspection 3, 4: take-offs
 Last Inspection No. 3 performed date and place

The Inspection was performed on: (dd.mm.yyyy) in composition of the following commission:

Defects found during inspection:

State a list of all found defects. Determine a periodicity of inspections for defects which require regular checking. The performance and results of those inspection shall be recorded into the Airframe Logbook with method of their rectification:

Conclusion:

According to the technical condition of the L-13 AC Blanik sailplane, S/N....., Registration

Mark the inspection team suggests to extend the achieved aerobatic life by FH.

The total time of the sailplane lifespan is now established (considering aerobatic life increase) on

..... FH or Take-offs under the following conditions:

- keep on actual solo/dual occupancy ratio in next operation (stated in sent Statistical data),
- the rectification of all defects from Inspection Protocol,
- copy of this protocol has to be pasted in the airframe logbook with record of defects rectification
- next limitations resulting from aerobatic life increase accepted by operator:
 All other take-offs provided by winch are prohibited

In, on (dd.mm.yyyy)

On behalf of Blanik Aircraft CZ s.r.o.
 (Title, Name, Surname and position)



BlaniK

Design organisation **BlaniK Aircraft CZ s.r.o.**
Karolinska 661, 186 00 Praha 8, Czech Republic

L-13 AC Sailplane Inspection Check Program
for the purpose of Service Life Extension
in compliance with L13AC/016a Mandatory Bulletin

1. INTRODUCTION

This program contains listing of Inspection commission works during L-13AC sailplane check in the purpose of Service life extension in compliance with the L13AC/016a Mandatory Bulletin. Purpose of the check is determination of sailplane actual technical condition and possibility assessment of a sailplane airframe Service life extension.

Inspection commission performs the check on base of items of this program. The base condition for a sailplane Service life extension is a sailplane conforming technical condition and all measures fulfilment defined by the Inspection commission on base of the sailplane check. Next conditions for a sailplane Service life extension are stated in the L13AC/016a mandatory bulletin.

The Type Certificate holder (hereafter TC holder) Inspection commission with assistance the operator ground crew performs a sailplane check. Inspection commission in constitution of a supervisory authority representative, AMO certifying person authorised by the supervisory authority and the operator may carry out the inspection check abroad.

Note: AMO (Approved Maintenance Organisation) certifying person has to have an authority to the Periodical Inspection No. 4 check and certification execution of an L-13 AC Blanik sailplane.

Inspection check scope is determined in this program approved by the Aircraft Industries, a.s. Chief Designer. The Inspection check is especially focused on detection of a sailplane airframe damage such as mechanical deformation, cracks, corrosion, excessive plays, loose rivets and others, that could affect adversely a sailplane airworthiness in next operation. The Inspection check also includes a sailplane operation available history finding and eventual emergency events and carrying out of all issued Service bulletins and Airworthiness Directives (AD) for given sailplane. The Inspection check and Service life extension refer to a sailplane airframe only and do not refer to instruments and sailplane parts which have Service life and inspection intervals stated in certificates of quality or in Maintenance Manual.

Finded condition is recorded in Check Finding on base of which the Inspection commission elaborates a resulting protocol with determination about the sailplane airframe Service life extension and defining necessary conditions which must be carried out.

2. INSPECTION CHECK PROGRAM

Proceed according to valid directives and procedures stated in a sailplane operational documentation during the Inspection check. It is a visual check of prescribed areas by means of tools providing adequate check quality, unless otherwise stated. Prescribe NDT in case of suspicion to a crack. Take photographs of significant findings or findings which are not described in operational documentation or require monitoring during operation. Take photographs of records in the sailplane Logbook refer to Service life or significant repairs description or structural units replacement. Devolve the photographs together with the Inspection Protocol on the TC holder to next elaboration.

1. Sailplane documentation checkup
 - number of flight hours
 - number of take-offs
 - records about checks and inspections
 - records about emergency events
 - records about implementation of Mandatory Bulletins
 - a sailplane aircraft units S/N verification - placards on the fuselage (frame No. 5) and wings (root ribs)
2. Sailplane general condition " paint condition check
 - structure condition check (corrosion, local deformations, cracks)
 - fabric skins check
 - screwheads condition check of all lids, covers and plexiglasses
3. Wing
 - wing-fuselage midsection joining condition check (corrosion, plays)
 - check on structure accessible areas and rivet joints condition check especially in joining of

- skin to spar at wing root and on skins joints areas
 - root rib check (cracks, deformation)
 - wing skin check on lids areas
 - check of wing accessible inner spaces
4. Tail unit
- stabilizer and fin skins condition check (corrosion, cracks, deformation)
 - rivets loosening check
 - stabilizer spar condition check at root part and at stabilizer and elevator hinges
 - hinges condition check on stabilizer and fin (cracks, corrosion, plays)
 - fin spar condition check
 - check of plays in stabilizer hinges and attachment points
 - rudder and elevator condition check
 - rudder and elevator hinges check and their attachment areas (cracks, loose rivets, deformation)
 - check of skins on fin and stabilizer trailing parts (cracks, oil canning)
5. All trim tabs control
- bearings condition check (plays, corrosion, lubrication)
 - cables condition check (tension, smooth and easy movement)
 - trim tabs hinges check
 - turning or seizure check of bearings in tie rods
 - backlash check in control
6. Elevator and ailerons control
- control bridge and elevator drive check (cracks, deformation, corrosion)
 - levers and brackets condition check (cracks, deformation, corrosion)
 - check of bearings and tie rods and levers junctures condition (plays, tilting, corrosion, lubrication)
 - cables tension check
7. Pedal control
- pedals condition check (cracks in welded joints, wear, adjusting, plays, corrosion)
 - plays check in pedals positioning
 - cables check (lubrication, tension and condition in bends on pulleys)
8. Air brakes and their control
- tie rods and control levers condition check (plays)
 - air brake flaps condition check (cracks, deformation, corrosion)
 - bearings in control condition check (tilting, seizure)
9. Fuselage
- midsection ribs condition check
 - skins and rivet joints condition check
 - tilting cockpit canopy hinges condition check and its securing
 - floors condition check
 - midsection spar condition check
 - landing gearwell condition check
 - towing equipment attachments condition check
 - front attachment spar condition check on frame No. 5
 - condition check inside fuselage behind frame No. 6 (corrosion, frames flanges cracks)
 - fuselage skin check on hole edge for landing gear
 - frames No. 13, 14, 15 condition check
 - rudder foot hinge check and area of its attachment and adjacent structure (cracks, loose rivets, deformation)
10. Landing gear
- landing gear attachment condition check
 - landing gear damper and its attachment condition check
 - wheel and tire condition check
 - check of brake and its adjusting

11. Rubber parts and electrical bonding
 - check condition of all accessible rubber parts and bonding
12. Canopy
 - cockpit canopy transparency check
13. Sailplane interior
 - seats and their attachment and safety belts condition check
 - upholstery condition check
 - interior equipment condition check
 - placards condition check
 - markings condition check

Next perform visual check of sailplane areas which are critical in term of fatigue life

- a) Check accessible critical areas of the wing spar caps (through holes in the root rib) and also on the wing outside up to the distance circa 500 mm from the wing attachment axis (pay special attention to the spar caps at the area of last rows of rivets connecting the wing attachment with the spar cap and cap splice - see Fig. 1). Focus especially on cracks occurrence, loose rivets and corrosion.

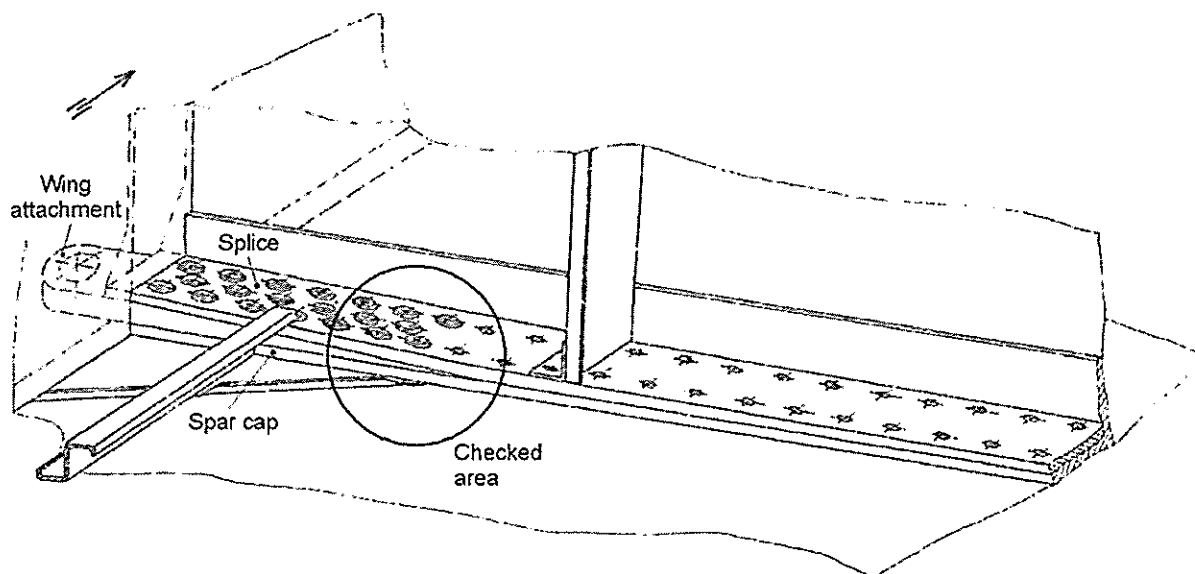


Fig. 1

Check wings attachments of the fuselage midsection through the openings in the web of the fuselage midsection. Focus especially on cracks occurrence, loose rivets and bolts and corrosion.

- b) Check the wing skins joints in sections No. 7, 13, 19, 25 for cracks, loose rivets and corrosion. Check the ribs flanges and stringers inside the wing by means of an endoscope (for example) in above mentioned sections.

The sections No. 7, 13 and 19 are accessible through lids on skins of the wing lower side. The section No. 13 can be best checked through the mounting hole after the down air brake is dismantled. The section No. 25 is accessible at deflected aileron and deflected skin through the rear spar web. There is no problem if the aileron is dismantled.

- c) Check the support of the landing gear and its attachment especially for cracks, loose rivets and corrosion.
- d) Check control lines condition and their attachment for corrosion, cracks, deformation, abrasion etc. Check difficult checkable areas by means of an endoscope (for example).

3. CONCLUSION

The Inspection commission elaborates the resulting protocol with finded condition and defects and with determination about Service life extension in accordance with the L13AC/016a mandatory bulletin. The protocol must define necessary conditions which must be carried out. The resulting protocol is devoived on the operator, the local supervisory authority and the TC holder to next elaboration.

Note:

In case of inspection abroad the inspection commission States in conclusion of the inspection protocol if recommends Service life extension and under what conditions. Except finded defects, the protocol has to contain also the check result of critical areas in term of fatigue life - namely a), b), c), d) items. The protocol has to be approved by the local supervisory authority or has to contain an appendix with an authority to the inspection check execution for purpose of the sailplane airframe Service life extension.