



Aeronautical Works, Kunovice, Czech Republic

Aero

Holding Company, Prague, Czech Republic

MANDATORY BULLETIN No. L13/067a

Sheet: 1
Of: 1
Enclosures: 9

Effectivity: Flight Manual and Maintenance Manual for L13 and L13A BLANÍK

Reason: Specification of aerobatic operation

Description: Holders of Flight and Maintenance Manuals are to file the new sheets 4 and ¹⁶~~24~~ into the appropriate positions for the Flight Manual and the new sheet No. ~~22~~ into the ²³ Maintenance Manual. The new sheets 0-1, 1-2, 3-2 with the date 14.12.1992 are to be filed into the L13 A Flight Manual and the sheets 0-1, 0-2, 2-4 with the date 14.12.1992 into the Maintenance Manual.

To be accomplished not later than: Upon receiving this bulletin

To be accomplished by: The holder of the Flight and Maintenance Manual

Cost covered by: There will not be any.

Material availability: The sheets to be exchanged are enclosed with this bulletin.

Validity: The day of delivery of the sheets to be exchanged.

Manhours:

Jiří Pěsák Fridiš

Manufacturer

Ing. Příhoda

Civil Aviation Inspectorate

AERONAUTICAL WORKS LET UH. HRADIŠTĚ-KUNOVICE CZECHOSLOVAKIA
TECHNICAL MANUAL OF THE L'13 A SAILPLANE

R E C O R D O F R E V I S I O N S

No.	No. of bulletin	List of effective pages date	Alter ation eected in following pages No.	Alteration carried out by date
1	064	June 30/88	0-1; 0-2; 2-4	
2	067a	Dec. 14/92	0-1; 0-2; 2-4	

AERONAUTICAL WORKS LET UH. HRADIŠTĚ-KUNOVICE CZECHOSLOVAKIA
TECHNICAL MANUAL OF THE L 13 A SAILPLANE

L I S T O F E F F E C T I V E P A G E S

No. page	D A T E	No. page	D A T E	No. page	D A T E	No. page	D A T E
01	Dec 14/92	3-14	Oct. 30/81	4-24	Oct. 30/81	5-27	Oct. 30/81
02	Dec 14/92	3-15	Oct. 30/81	4-25	Oct. 30/81	5-28	Oct. 30/81
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AERONAUTICAL WORKS LET UH. HRADIŠTĚ-KUNOVICE CZECHOSLOVAKIA
TECHNICAL MANUAL OF THE L 13 A SAILPLANE

2.3. SERVICE LIFE

The basic service life of the sailplane is 6,000 flight hours, provided that the operating conditions, outlined below, are fulfilled:

- 4.8 take-offs per 1 flight hour
- the ratio winch launching: aerotow 5 : 1
- crew: 35% two pilots, 65 % solo.
- ratio of elementary training to advanced training and high-performance soaring is 40% : 60%, aerobatics takes 2% of total operational time (from take-off to landing). Contact manufacturer, if ratio for aerobatics is exceeded.

FLIGHT MANUAL OF THE L 13A GLIDER

LIST OF EFFECTIVE PAGES

No. page	DATE	No. page	DATE
0-1	14. 12. 1992	4-1	30. 10. 1981
0-2	30. 10. 1981	4-2	30. 10. 1981
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2-23	30. 10. 1981		
3-1	15. 4. 1982		
3-2	14. 12. 1992		
3-3	13. 1. 1983		
3-4	30. 10. 1981		
3-5	30. 10. 1981		

AERONAUTICAL WORKS LET UH. HRADIŠTĚ - KUNOVICE CZECHOSLOVAKIA
FLIGHT MANUAL OF THE L 13A GLIDER

LIST OF CHANGES

System of making changes is described in the 1st item of this manual. This list or its next parts will be edit in accordance every new change.

No. of change	No. of bulletin editing change	No. of changed pages	Date of editing new pages	Date of correction this manual and signature
1	L 13/056	0-1, 1-2, 3-1	15.4.1982	
2	L 13/058	0-1, 1-2, 3-3	13.1.1983	
3	L 13/067a	0-1, 1-2, 3-2	14.12.1992	

AERONAUTICAL WORKS LET UH. HRADIŠTĚ - KUNOVICĚ CZECHOSLOVAKIA
 Flight manual of the L 13A glider

c/ Maximum cross wind component

Maximum cross wind component for safe approach and landing is 5,5 m/sec.

d/ Maximum permissible all-up weight and approved manoeuvres

WARNING: Aerobatics flights must be noted in glider Log - book so that to be evidence of total flight time of aerobatics from new.

CATEGORY	Maximum permissible all-up weight	Crew	Approved manoeuvres
Aerobatic	880 lbs /400 kp/	1 person ^{x/}	Spin, loop, roll of the top of a loop, stall turn, half roll and loop, slow roll inverted flight
Aerobatic	1100 lbs /500 kp/	2 persons	Spin, loop, roll off the top of a loop, stall turn, half roll and loop
Cloud-Flying	1100 lbs /500 kp/	2 persons	

x/ See Para. /e/ - Solo flights.

e/ Solo flights

If the sailplane is to be flown solo, the pilot must be sitting on the front seat, and his weight must be minimum 150 lbs /68 kp/.

The rear seat cushions and safety harness must be secured.

f/ Minimum rope length for the aero-tow

Minimum rope length for the aero-tow is 15 metres, but it is recommended to use a rope with a length of about 25 - 30 metres.

LIST OF BULLETIN WHICH MODIFY THE TEXT OF THIS MANUAL

"I" is filled in under the column "bulletin Kind" if it concerns an information bulletin and "P" if it concerns an operational or Mandatory bulletin.

No.	Bulletin No.	Bulletin Kind	Changes in the following para graphs	Performed by
1	L 13/035	P	Diagram 2 - speed polar	Odstrčil
2	L 13/058	P	Maximum firmness of the weakest cable element For starting by means of a winch	Šenk
3	L 13/053	P	Attachment check for aero-tow, Securing of Soles on pedals in Flight	Šenk
4	L 13/067 a	P	Aerobatic operation of Sailplane	Duda

(d) MAXIMUM PERMISSIBLE ALL-UP WEIGHT AND APPROVED MANOEUVRES

WARNING: It is essential to record aerobatic operation of the sailplane into the Sailplane logbook so that it is possible at any time to determine the total number of flight hours flown for aerobatics since the sailplanes manufacture.

Category	Maximum permissible all-up weight	Crew	Approved manoeuvres
Aerobatic	880 lbs (400 kp)	1 person*)	Spin, loop, roll off the top of a loop, stall turn, half roll and loop, slow roll, inverted flight
Aerobatic	1100 lbs (500 kp)	2 persons	Spin, loop, roll off the top of a loop, stall turn, half roll and loop
Cloud-Flying	1100 lbs (500 kp)	2 persons	

*) See Para. (e) - SOLO FLIGHTS.

(e) SOLO FLIGHTS

If the sailplane is to be flown solo, the pilot must be sitting on the front seat, and his weight must be minimum 150 lbs (68 kp).

The rear seat cushions and safety harness must be secured.

(f) MINIMUM ROPE LENGTH FOR THE AERO-TOW

Minimum rope length for the aero-tow is 50 ft (15 metres), but it is recommended to use a rope with a length of about 80 to 100 ft (25-30 metres).

(g) MAXIMUM CABLE RESOLUTENESS

Maximum the weakest point resoluteness of the cable for winch launching is 1400 lbs (635 kp).

11. LANDING

Normally the landing should be made with the landing wheel down. After selection, check for correct locking by a firm rearward pull on the operating lever without turning the handle inboard. However, no damage should occur if the landing is made with the wheel up and, indeed, this procedure is recommended when landing on very soft ground. The wheel may be extended after landing by lifting up the tail sufficiently high to allow the wheel to be extended fully, and this should be done before taking off again or it will not be possible to obtain the optimum take-off angle during the ground run.

The normal approach speed with air brakes retracted and flaps down is 75-85 km/hr. (40-45 knots) but if air brakes are used during the approach, the speed should be 80-95 km/hr. (43-51 knots) to allow for the increase in stalling speed. For a steep approach, full flap and full air brake should be selected and the approach made at a speed of 95-110 km/hr (51-60 knots). In this case a longer float must be taken into account.

4. Sailplane service life

a/ Basic service life

The wing and horizontal tail unit were subjected to the theoretical analysis of service life as the main part. When in operation they are exposed to the greatest number of variable loadings and in terms of fatigue are the critical sections of the sailplane. The wing and stabilizer were also subjected to a laboratory fatigue test.

The basic service life of the sailplane was set at 3,000 flight hours based on the results of the laboratory fatigue test on the wing, assessment of average operating conditions, assessment and partial measurement of the loading spectrum and selection of the fatigue curve. This service life was then also submitted to the original technical conditions of the sailplane. Additionally, fatigue tests were performed on samples of a wing beam part and an attachment connected with a steel attachment in the fuselage (critical spot discovered during a fatigue test on complete wings and fuselage).

It was possible to increase the service life of the wing and fuselage to $L_B = 3,750$ flight hours by virtue of studying the results of these samples including their Scattering.

The service life for the tail unit was proven to be approximately 5x greater.

The basic service life of 3,750 flight hours applies when the following average operating conditions are generally adhered to:

- 4.83 take-offs per one flight hour
 - The ratio of take-offs by winch to the number of take-offs by aero-tow is 5:1
 - Seating: 35% double, 65% single
 - Ratio of elementary training to advanced training and high-performance soaring is 40% : 60%, of which aerobatics amounts to 2% of the total operation period (from take-off till landing)
 - The wing flaps are retracted during take-off using a winch
- Contact the manufacturer if the ratio for aerobatics is exceeded.