M.I.C.M. - C.N.I.A.R.
INTREPRINDEREA DE CONSTRUCTII AERONAUTICE
2200 B R A S O V

MANDATORY SERVICE BULLETIN

IS-28B2/EO-2

APPROVED BY	:	DEPARTMENT OF CIVIL AVIATION with no. 10645/24.05.1978
PRODUCT	:	IS-28B2 glider
OBJECT	:	Additional ballast using in dual control.
COMPLIANCE	:	Revision Record Card no.600/16.05.1978

DATE: 16.05.1978

1. PLANNING INFORMATION

A. Applicability

The modification is applied until the 16th June 1978 to the gliders under servicing and until the 26th March 1978 to the gliders under manufacturing.

B. Reason

Additional ballast using in dual control, with light pilots.

C. Description

The modification does not imply any change from the constructive point of view ; it only indicated the mode of using the additional ballast in case of light pilots (the sum of the two pilots' weights is below 138 Kgf). For using this in single control, all the prescriptions in the Flight and Maintenance Manual are valid.

D. Compliance

Improvement of longitusinal stability characteristics in case of two light pilots.

E. Accomplishment

Additional ballast during servicing shall be used according to the Flight and Maintenance Manual.

F. Material-Cost and Availability

Two limiting placards.

G. Tooling

None.

H. Weight and Balance

According to the Flight and Maintenance Manual chapter 3.2.

I. References

See the Flight and Maintenance Manual - chapter 3.2.

J. Documents Affected

Flight and Maintenance Manual.

2. ACCOMPLISHMENT INDICATIONS

A. Preparation

None.

B. Application

Unglue the placards existing on the glider and glue with prenadez the placards delivered together with this bulletin.

C. Servicing Indications

For gliders serial no.47 and subs. only.

3. MATERIAL INFORMATION

A. Material List

Two limiting placards part no. 28.BF.02.800

B. Tooling List

None.

C. Supply Indications

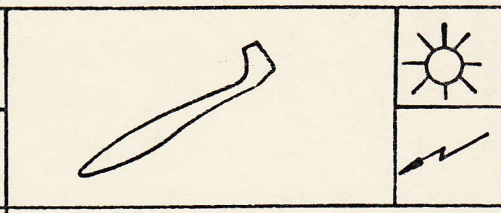
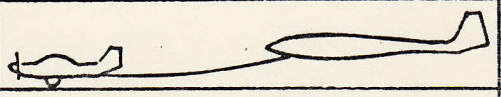
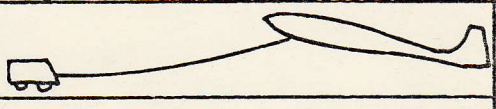
None.

4. INDENTIFICATION

The modification application is mentioned in the glider logbook.

5. APPENDICES

Amendment no.8 of the Flight and Maintenance Manual IS-28B2 glider (page 7B1 and 9B).

LIMITARI LIMITATIONS		Km/h	Knots	mph
V_{NE}		230	124	143
V_B		165	89	103
V_T		140	75	87
V_W		125	67	78
V_L		230	124	143
V_F	 +3	130	70	81
$V_{\text{frînă}}^{\text{brake}}$		230	124	143
V_A		165	89	103
$\pm n$		+5,3 g -2,65 g		+6,5 g -4,0 g
Gmax.	daN	590		520
Wmax.	lb	1301		1146
Gmin. pilot fără lest (simplă c-dă) Min. pilot weight without ballast (simple control)	daN	83		
	lb	183		
Gmin. echipaj fără lest Min. crew weight without ballast	daN	138		
	lb	304		

LIMITARE VITEZE

28 B-F.03-800

INDEX OF ENTERED CHANGES

Those paragraphs of the text where changes, have been made are to be marked by a vertical line and the corresponding number of alteration alongside.

Item Number	Pages containing alterations	Nature of alteration	Date		Signature
			approved	Changing the affected pages	
1.	18.A	Trim cable tension	10.11.1976	14.11.1976	
2.	3A; 35A;	Braunschweig System Capability	04.05.1977	10.05.1977	
3.	4A; 5A; 6A; 16A; 32A1;	Lower Airbrake and Wheelbrake linked	01.02.1977	07.04.1977	
4.	first page	Avaibility Domain	01.02.1977	07.04.1977	
5.	19A;	Equipament Specification	01.02.1977	07.04.1977	
6.	7A.1; 9A;7A;	Ballast mounting	01.02.1977	06.02.1977	
7.	6B; 16B;	Maximum aerobatic weight	04.05.1977	10.05.1977	
8.	7B; 9B; 16C, 17B.	Balance range extention	28.06.1978	30.06.1978	
9.	26 A;	Total life	28.06.1978	30.06.1978	

- check airebrakes **extention** and retraction
- check rivet connections, that none of the rivets have worked loose(wing and fuselage)
- check tyre pressure (landing gear)
- shock absorber checking
- tail plane firmly connection and rudder displacement
- stabilizer and elevator connecting system clearances

The following checks are to be made in the cabin (for both pilot seats)

- check all obdjects are attached
- check retractable landing gear control locking
- check airbrakes control locking
- check flap control locking and the provided displacement values (-5^0; 0^0; $+5^0$; $+10^0$; $+15^0$) (for IS-28B2 glider)
- check trim-tab **moveament**
- control stick check, controls clearances
- check foot-pedal **moveament and clearances**
- check jettisoning canopy lever control locking
- altimeter setting (pre-flight only)

3.2. Balancing instructions

Balance limits :

8 - forward 22 %

8 - rear (aft) 47 % %

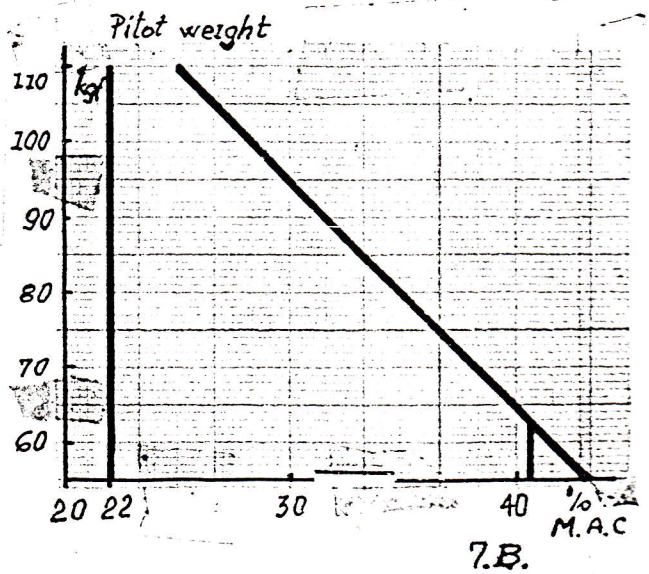
Optimal balance is the half-way of this interval.

6 Caution! Following text applicable to gliders construction No. 1-45.

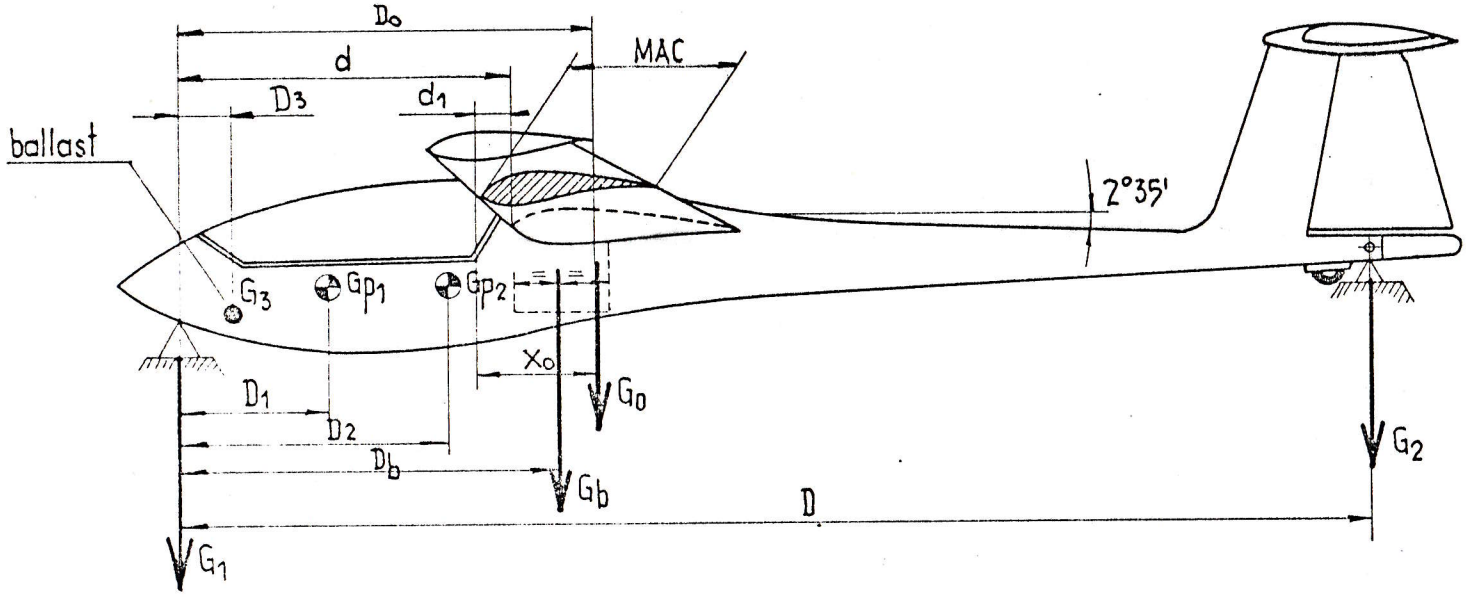
For subsequent construction No. see next page.

For one pilot-flight the following balancing diagram may be used. In this case pilot + parachute will have 61-110 kg (134.5 - 220.5 lb) weight.

Should pilot + parachute whose weight is 55 kg (121 lb) to 61 kg (134.5 lb) fly (one-man-flight), ballast is required 6 kg (13.2 lb). - Ballast will be attached under control panel (front seat) in its special place, locked by splint.



WEIGHT AND BALANCE SHEET IS.28B2, No. _____



MAC	= 1130	mm	44.48 in
d	= 2170	mm	85.43 in
D	= 7500	mm	295.27 in
D_1	= 809	mm	31.85 in
D_2	= 1916	mm	75.43 in
D_b	= 2600	mm	102.36 in
D_3	= 366	mm	14.41 in
d_1	=	mm	in

(leveling card page 17)

1. Calculation of the balance Empty sailplane.

$$X_o[\%MAC] = \frac{D_o - (d - d_1)}{MAC}\ 100$$

$$D_o = \frac{G_2 D}{G_o}\ ; \quad G_o = G_1 + G_2$$

2. Calculation of the balance limits.

$$X_{1,2}[\%MAC] = \left[\frac{D_o G_o + D_1 G_{p_1} + D_2 G_{p_2}}{G_o + G_{p_1} + G_{p_2}} - (d - d_1)\right]\frac{100}{MAC}$$

G_1		G_2		G_o		D_o		X_o
Kgf	lb	Kgf	lb	Kgf	lb	mm	in	% MAC

Date:
Signature:

	G_{p_1}		G_{p_2}		$X_{1,2}$ % [MAC]	
	Kgf	lb	Kgf	lb	Calculated	Permitted
Front pilot	83	183	-	-		47
Two pilots	90	198.5	90	198.5		22
	55	121	55	121		47

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Applicable to sailplanes S/N 46 and above.

Fig 6-27