

BULLETIN No BE-037/89 "JANTAR-ST"

Ref: Possible lite-time extension above 3000 flying hours
for the gliders of: SZD-41A, SZD-48 and SZD-48-1 type.

Way of introducing: Acc. to user's decision.

Elaborated in PDPS-TKE

on 1988.10.14.

Director of PDPS "PZL-BIELSKO"

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This is the translation of the original Polish Text
approved by C.A.C.A.

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Stafiej

1. GROUND FOR INTRODUCING THIS BULLETIN.

The allowed life-time of the gliders of: SZD-41A, SZD-48 and SZD-48-1 established as the result of fatigue tests of wing main spar pins, according to Bulletin No BE-026/86 "JANTAR-ST" is 3000 flying hours.

As the consequence of positive result of the wing structure fatigue tests this life-time can be extended up to 6000 flying hours providing that the pins of wing spar root have been replaced.

2. LIST OF GLIDERS OF FACT. NOS. COVERED WITH THIS BULLETIN.

This Bulletin is valid for the following gliders:

- 2.1. SZD-41A "JANTAR-St" of Fact. Nos from B-628 to B-933 with the ships B-700 to B-702 excluded to be treated seperately.
- 2.2. SZD-48 "JANTAR-St.2" of Fact. Nos from W-846 to W-890.
- 2.3. SZD-48-1 "JANTAR-St.2" of Fact. Nos from W-891 to W-926 and B-985 to B-1274 with the ships B-1266 and B-1268 excluded which have obtained the life time extensions in Bulletin No BE-035/88.

3. DESCRIPTION OF THE CHANGES INTRODUCED WITH THIS BULLETIN.

This Bulletin introduces the replacement of wing spar root pins after completing 3000 flying hours.

4. LIST OF ENCLOSURES.

The "Procedures for wing spar root pin replacement on SZD-41A, SZD-48 and SZD-48-1 gliders" is enclosed.

5. FINAL STATEMENTS.

- 5.1. The gliders of SZD-41A, SZD-48, SZD-48-1 type (the ships of Fact. Nos B-1266 and B-1268 excluded) after completing 3000 flying hours are not allowed for further operation.

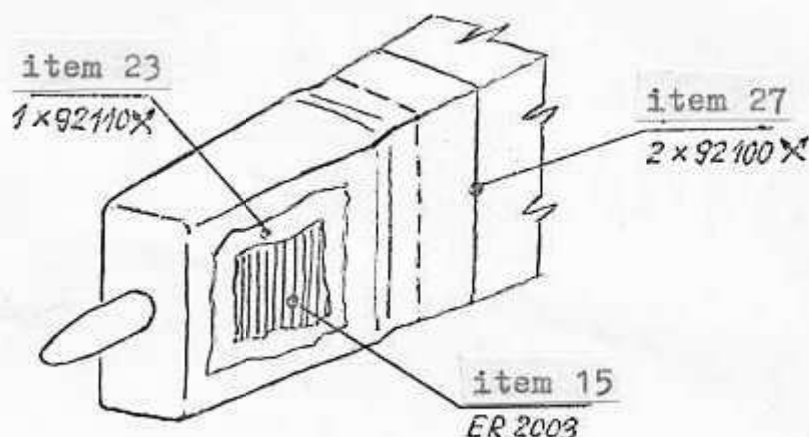
- 5.2. The further operation will be possible providing the spar root pins are replaced with the new ones fixed in the duraluminium block (acc. to drawing No 14-04-00 version II, SZD-48-3).
- 5.3. The pin replacement is to be performed by the producer or the repair workshop approved by the Authority.
- 5.4. The pin with block to be replaced is delivered by the producer on the user's order.
- 5.5. The gliders of above mentioned types having replaced the spar root pins acc.
to: "Procedures for ..." obtain the extension up to 6000 flying hours of total life-time.
- 5.6. The pin replacement should be noticed in the Glider Log Book and the change in Technical Service Manual of 3000 into 6000 flying hours (with inspection after each 1000 flying hours) introduced.
- 5.7. The 1000 flying hours inspection should be performed acc. to directions of the Bulletin No BE-08/79 "JANTAR-ST".

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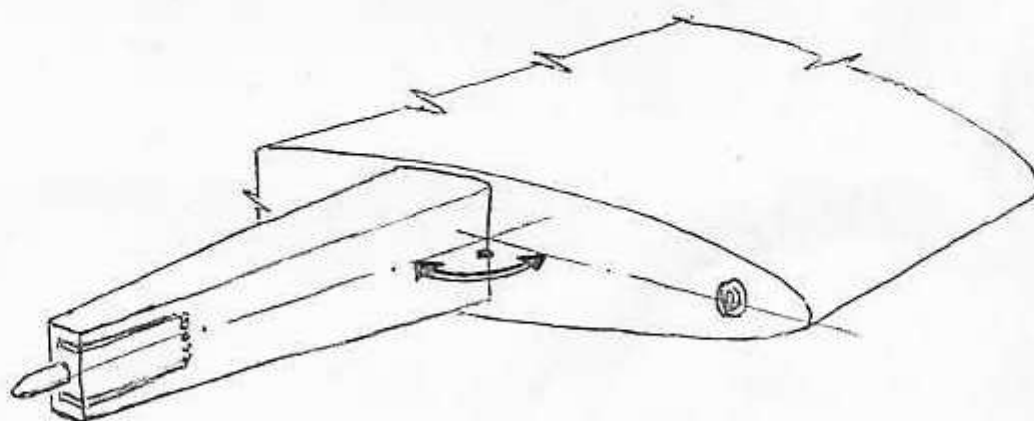
PROCEDURES FOR WING SPAR ROOT PIN REPLACEMENT ON SZD-41A,
SZD-48 AND SZD-48-1 GLIDERS.

1. REMOVING OF "OLD" PINS.

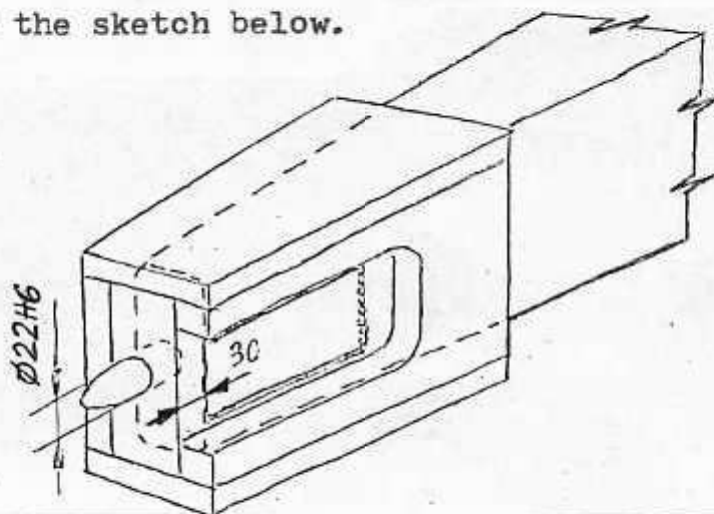
- 1.1. Remove the fabrics item 27 and 23 and roving wrap item 15 (items acc.to drawing No 11-90-00 and 11-91-00, sheets 1 and 2) out of the spar roots. Smooth and clean the opened surfaces.



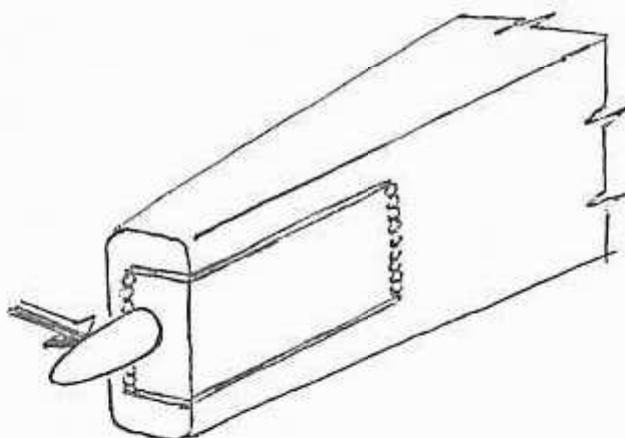
- 1.2. Mark the outline of the opening for duraluminium "block" with the pin on the external wall side (perpendicular to the root rib plane). Dimensions of the opening: length 160 mm (measured from the spar root), width 40 mm (symmetrical in respect to the pin axis).
- 1.3. According to the marking make the proper longitudinal cut and drills (avoid the damage of the opposite spar wall "oblique" in respect to the rib and spar longerons plane).



- 1.4. Preserve the "old" pin situation in respect to the spar root geometry by means of 11-90-00/Px4 tool or the auxiliary tool of wood or plywood as shown on the sketch below.

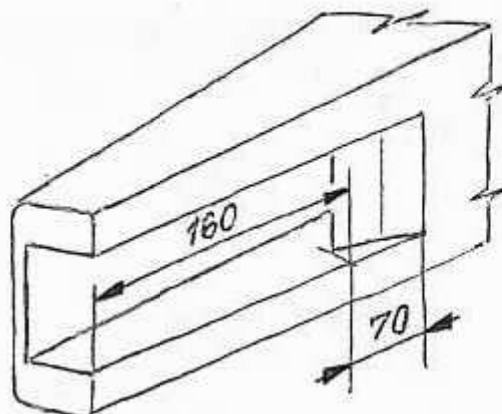


- 1.5. Sperate the pin out of the "oblique" spar wall by means of drilling with the long drill paralely to the pin axis (in case the auxiliary tool is used it should be removed out of the spar). Remove the "old" pin tearing it out of the wall.



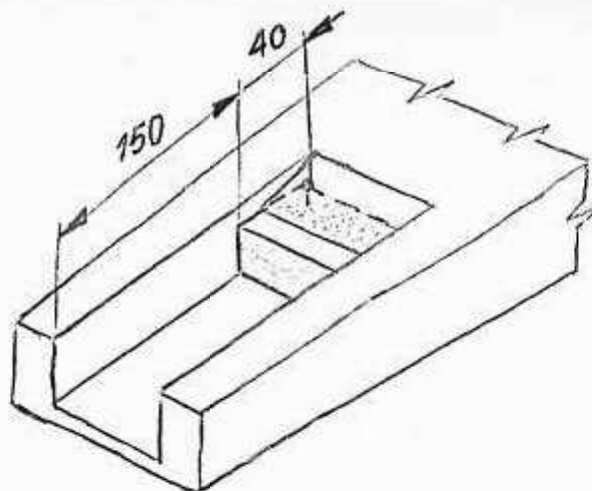
2. PREPARATION PROCEDURES BEFORE GLUEING THE PIN WITH BLOCK.

- 2.1. Clean and smooth the cavity for the "block". Fit the "block" with pin (the set based in the tool should fit without stress). In the wall side on which the opening has been made prepare the chamfering between the spar longerons for the compensating fabrics.



- 2.2. Prepare the block of CC45 foam of 40 mm thickness which after fitting should be glued on composition*) with Aerosil in the distance of 150 mm from the spar root (the foam block is aimed to close the space into the spar inside to avoid the composition flow-out when the aluminium "block" with pin is glued in). Close the opening in the pin with the plug of CC45 foam.

 *) Use the Ep 52 + Z1 composition or its equivalents accepted by the Authority for the aircraft production.



- 2.3. Prepare the "block" with pin for glueing: remove the grease using the extraction gasoline, grind the surface covered with BWF-21 glue using the sand paper of 220 grade with the cross-way motions (avoid to damage the glue layer) - remove the dust of the whole set.

3. GLUEING OF THE "BLOCK" WITH PIN.

- 3.1. Cover the cavity walls with the layer of Ep 52+ Z1 composition + 40 per cent of cut glass roving + 3 per cent of Aerosil, taking into account the plays between the "block" and cavity walls. Basing the pin with "block" acc. to the tool press it so that the composition excess could flow off. The slots and the space between the duraluminium "block" and foam block should be filled with the above mentioned composition with the cut roving up to the "block" surface plane.

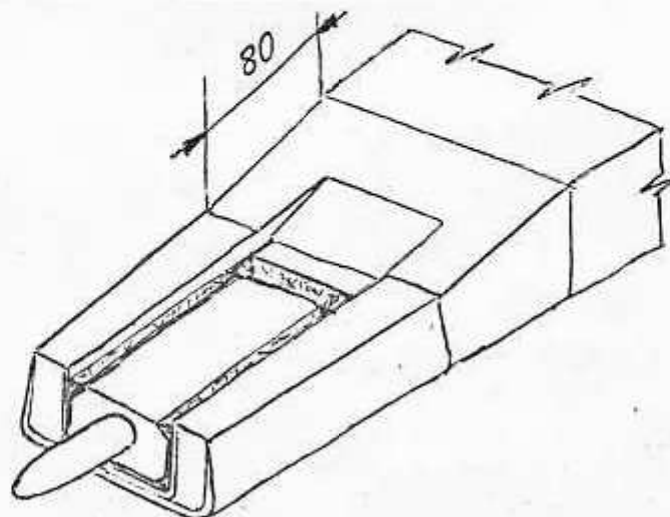
4. PREPARING OF THE SPAR FOR WALL REBUILDING AND THE WALL REBUILDING.

- 4.1. Remove the tool after 8 hours. Prepare the chamfering for the wall rebuilding as follows:

On the cavity side remove the fabrics on 160 mm length up to the longeron rovings.

On the side wall make a chamfering of 80 mm width (counting from the longeron surface) as the prolongation of 160 mm dimension.

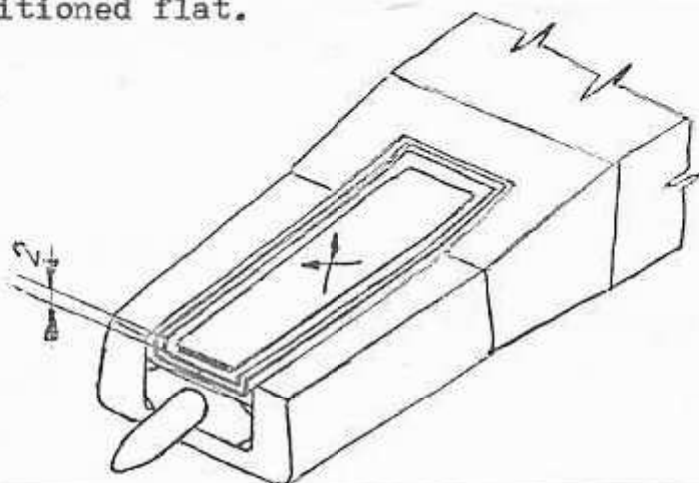
On the longeron upper surfaces make a chamfering in the fabric layers on 160 mm distance beginning from the longeron opened edge up to 80 mm chamfering length and longeron width to "disapearing" of the chamfering.



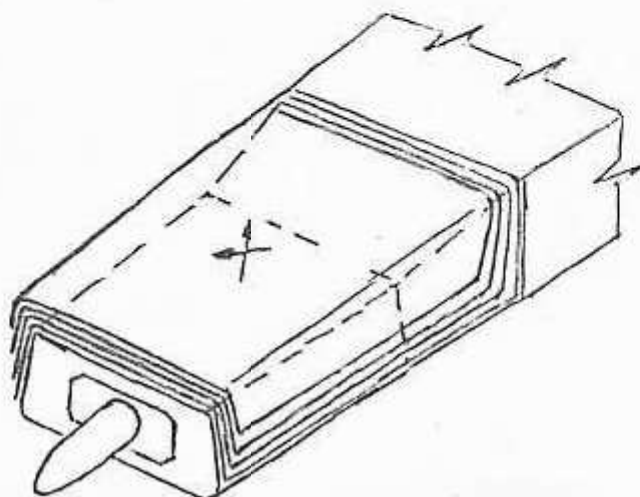
Clean and smoth the composition flows after the "block" is glued up - clean the chamfer between the longerons for the compensating fabrics.

- 4.2. Glue in (with the composition as given on page 3*) the compensating fabrics 92110 ✕ on the cavity above the "block" in such a way that when positioned on the "block" and short chamfer between the longerons they have a "C-section" shape with the legs connected to the spar longerons.

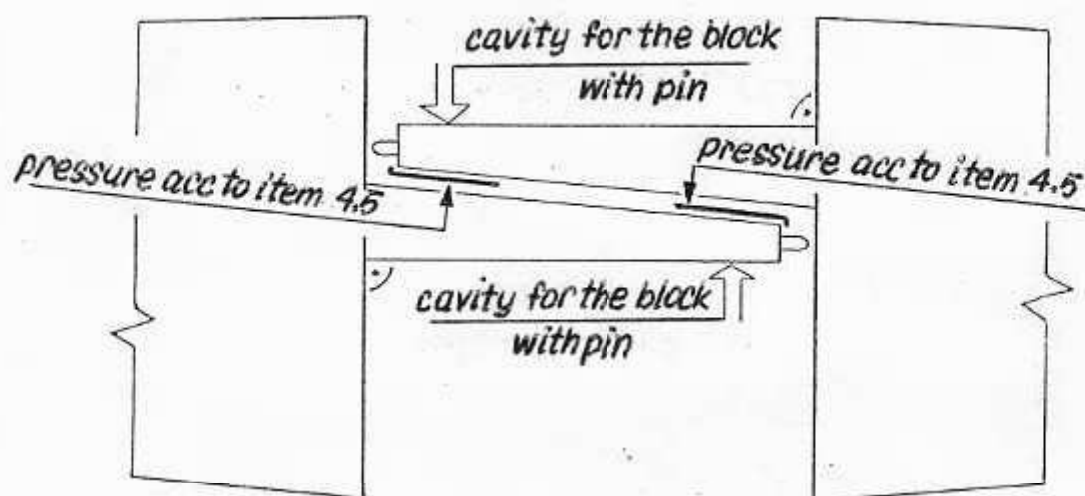
When the "C-section" legs get 2 mm width the last compensating (to longeron edges) fabrics should be positioned flat.



- 4.3. After curing the compensating fabrics the whole set should be cleaned and prepared for glueing in the fabrics for rebuilding the wall.
- 4.4. Rebuild the wall by means of glueing in 15 layers of 92110 ✕ fabrics. Place the fabrics stepping the overlaps in respect to the "chamfers" on length and width as well. The eventual identations on the root should be filled using the composition with cut fibres.



- 4.5. Check the condition of the whole set, prepare the surface and wrap on the distance of 115 mm from the spar root 120 bounds of ER 2003 roving and than glue in the covering item 23 and 27 of drawing No 11-90-00 and 11-91-00, providing that the 27 covering lenght ought to be 270 mm. Cure under the pressure applied at the "oblique" wall side to ensure the assembling play.



- 4.6. Finish the whole set after cureing. The repaired places should be heated locally in 60-65°C temperature during 8 hours.

NOTE: 1. All the works involved in the pin replacement shall be accepted by the Authority.

2. The glass fabric designation follows the INTERGLAS Catalogue and the roving designation follows the Polish Standards.

- T H E E N D -