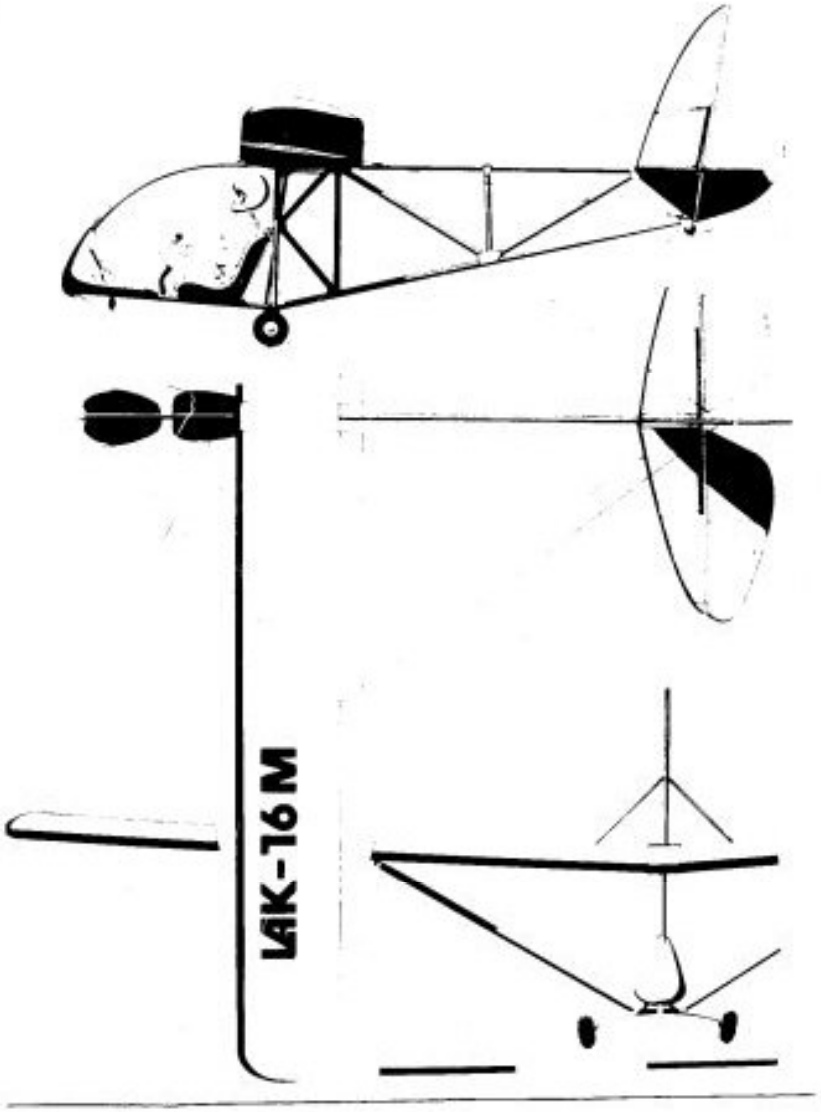


General view of the sailplane LAK-16M

1.General data

1.1. Flight limitations

- maximum towing speed	90 km/h
- maximum flying speed	90 km/h
- minimum flying speed	46 - 48 km/h
- maximum loading factor	+3,5 - -1,8
- maximum roll angle	30
- minimum pilot's weight	40 kg
- maximum pilot's weight	80 kg
- center-of-gravity range	25% - 45% mac

1.2. Flight data

- L/D max	12
- best range cruise speed	55 km/h
- economy cruise speed	52 km/h
- minimum sinking speed	1,25 m/sec
- take-off speed	48 km/h
- starting distance	20 - 30 m

2. Flight operation

It is recommended to use winches that operate on the basis of "infinitive cable".

The recommended start preparation is shown in fig.1.

2.1. It is necessary:

- seat oneself;
- adjust and fasten safety belts;
- check the full control stick and pedal motion and define neutral positions.

2.2. Runs

In order to avoid take off perform runs only with mounted air brakes.

At the beginning of run avoid rolling by energetically moving ailerons and rudder.

Keep control stick 1/3 away from its forward limit position.

2.3. Take-off

Before performing take-off remove air brakes. At the beginning of starting run avoid rolling by energetically moving ailerons and rudder.

For smooth take-off starting run avoid rolling by energetically moving stick 1/3 away from its forward limit position.

The glider takes off spontaneously having reached the necesary towing speed.

If the towing cable gets into the landing gears or into the tail bumper stop towing.

2.4. Towed flight

In towed flight after take-off it is necessary to stick to the speed that allows climbing and level flight. Perform climbing and level flight above the towing cable, compensate cross wind with rudder and ailerons.

2.5. Release

The glider performs self release when towing stops. When the glider deviates from its corse or when transition to gliding is delayed then the release becomes a bit troublesome.

2.6. Gliding

In gliding flight the glider's stability and handling is good.

The gliding speed is controlled according to velocity head.

Turns can be performed at a bank angle up to 30 in such way that the turn is completed at an altitude of 10 meters (not lower); landing must be performed upwind.

When performing turns it is necessary to increase the gliding speed.

2.7. Landing

Start levelling at an altitude of 1,5 - 1 m by gently moving control stick aft.

Compensate drift with the help of rudder.

Perform holding off at an altitude of 1 - 0,5 meters. All control stick movements during landing must be smooth.

Start pancaking at an altitude of 0,3 - 0,1 m. Control ailerons and rudder.

2.8. Emergencies in flight

2.8.1. Speed loss in flight

The waring buffet doesn't accompany speed loss. When speed is being lost the glider pancakes stably.

Wing drooping can be easily compensated with ailerons and rudder.

2.8.2. The towing cable break down

When towing cable breaks the glider must stop gliding and land.

2.8.3. When seating oneself into the glider or getting out of it at a wind velocity exceeding 4 m/s, make sure that a person supports the wing wearing strut.

CAUTION: Perform flights only with dry and clean wing surfaces because in presence of any humidity or contamination the aerodynamic performanse of wing airfoil deteriorates greatly.

3. Glider preparation

3.1. Glider inspection

During glider inspection the following items must be checked:

3.1.1. The condition of paint-and-varnish coating and electroplating of glider sub-assembly units.

3.1.2. The condition of lubrication of all joint of the glider.

3.1.3. The condition of butt joints and hinged connections.

3.1.4. The condition of all welded seams of the glider.

3.1.5. Absence of deformations and backlash in all butt joints and connections of the glider.

3.1.6. The condition of all riveted isints. The of backlash and deformations in riveted joints.

3.1.7. Absence of deformations on towing lock.

3.1.8. The condition of wing shells. Absence of damage.

3.1.9. The condition of aileron mouting hinges. Absence of deformations and backlash in bolted joints of hinges.

3.1.10. The condition of glueing of aileron root ribs and aileron control mounting bracket.

3.1.11. Absence of damage on tubes of wing bracing struts and tailplane.

3.1.12. The condition of the rod cables. The condition of turnbukle lock.

3.1.13. The condition of framework elements of tailplane, elevator, fin and rudder. Absence of framework deformations and backlash.

3.1.14. The condition of fabric covering of the tail unit.

3.1.15. Absence of damage on the main and forward spring of the landing gear.

3.1.16. The locking condition of the main axis of landing gear wheel

3.1.17. Check the air pressure in the main landing gear wheel - 1,5 (+0,3) kg/sq.cm.

3.1.18. The condition of tail wheel.

3.1.19. The ease of control motion.

3.1.20.The condition of rods and cables in control system.

3.1.21. The condition of rollers. Presence of lubrication on their bearing.

3.1.22.The condition of protecting shell. The reliability of its mouting to the fuselage.

3.1.23.Absence of cable wreaking in place of its connection to control stick and to the rudder bellcrank.

3.1.24.The condition of seat and sefety belts.

3.1.25.The condition of the glider cowling, absence of damage, reliability of mouting of the cowling to the fuselage.

3.2. Elemination of imperfections.

All imperfections are according to the instructions of the Service Manual.

3.3. Intermediate inspection.

Intermediate inspection is performedaccording to the items of part 3.1 before flight and after each 25 flights. Inspection after rough landing is obligatory.

In case of rough landing check the condition of the rod cables (see if there's any relaxation) and control systems, see if any waviness nas appeared on wing shells.

If any waviness is present the reasons of their appearing must be studied and decision must be made whether to continue flights or to repair the glider.

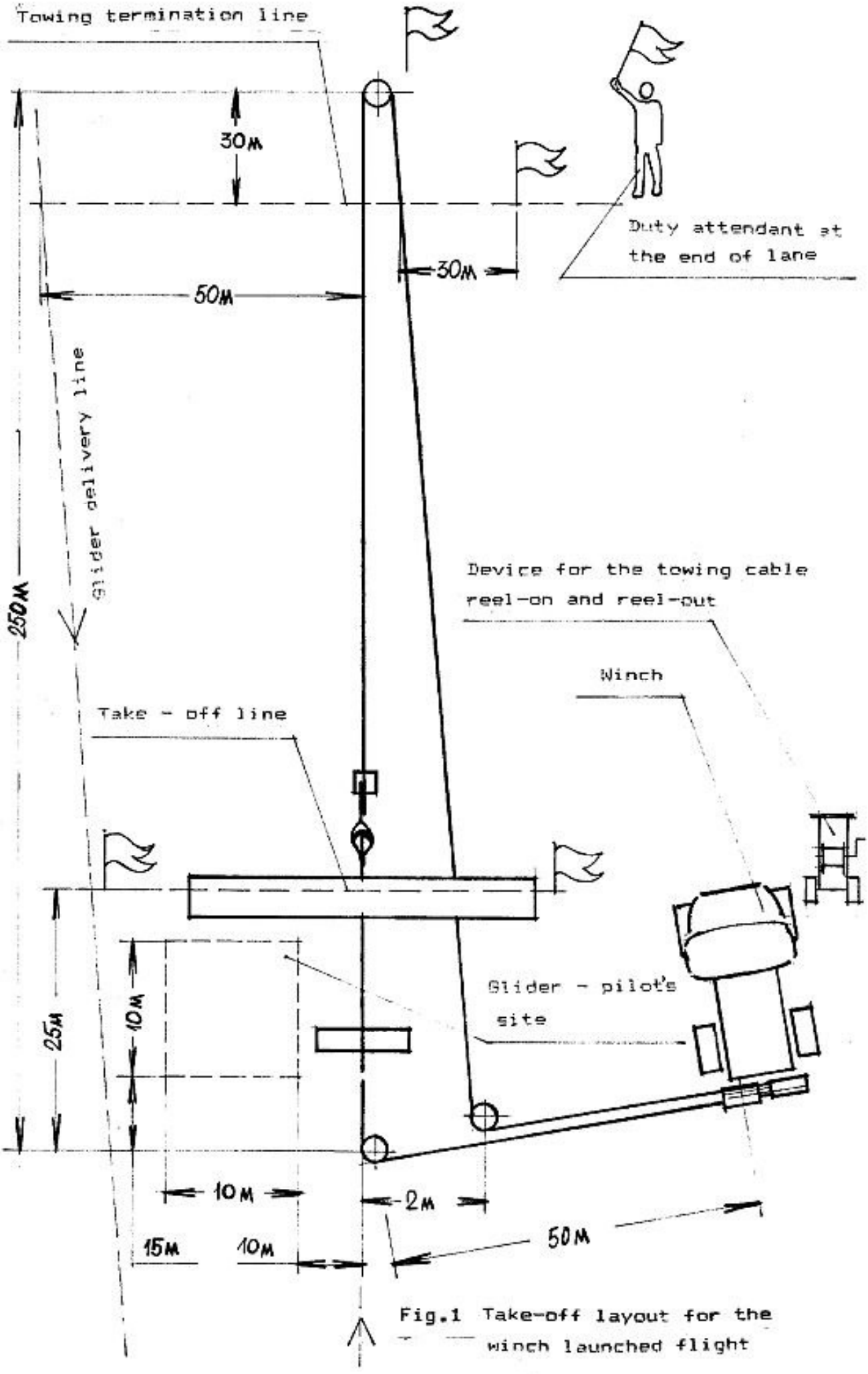


Fig.1 Take-off layout for the winch launched flight

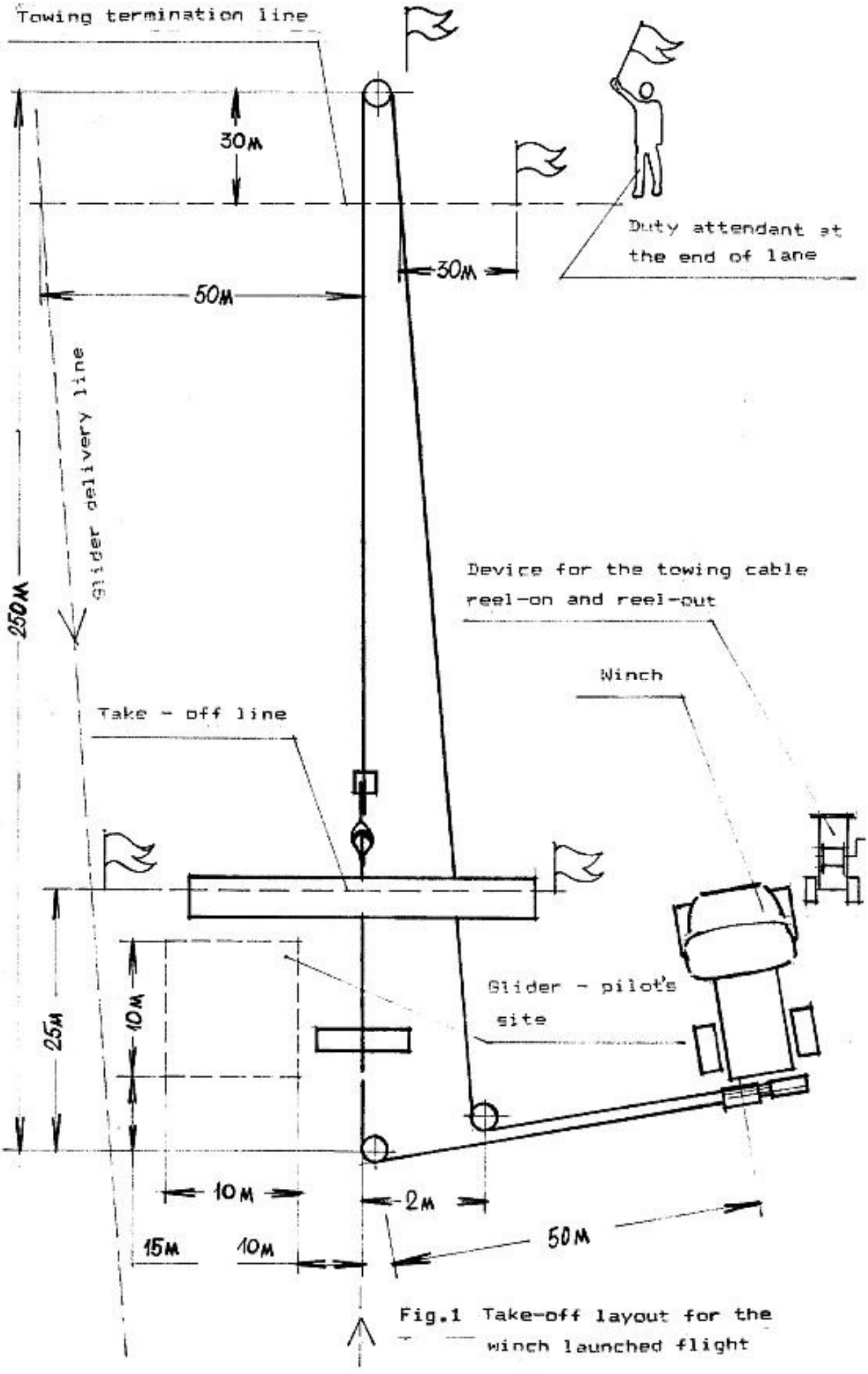


Fig.1 Take-off layout for the winch launched flight

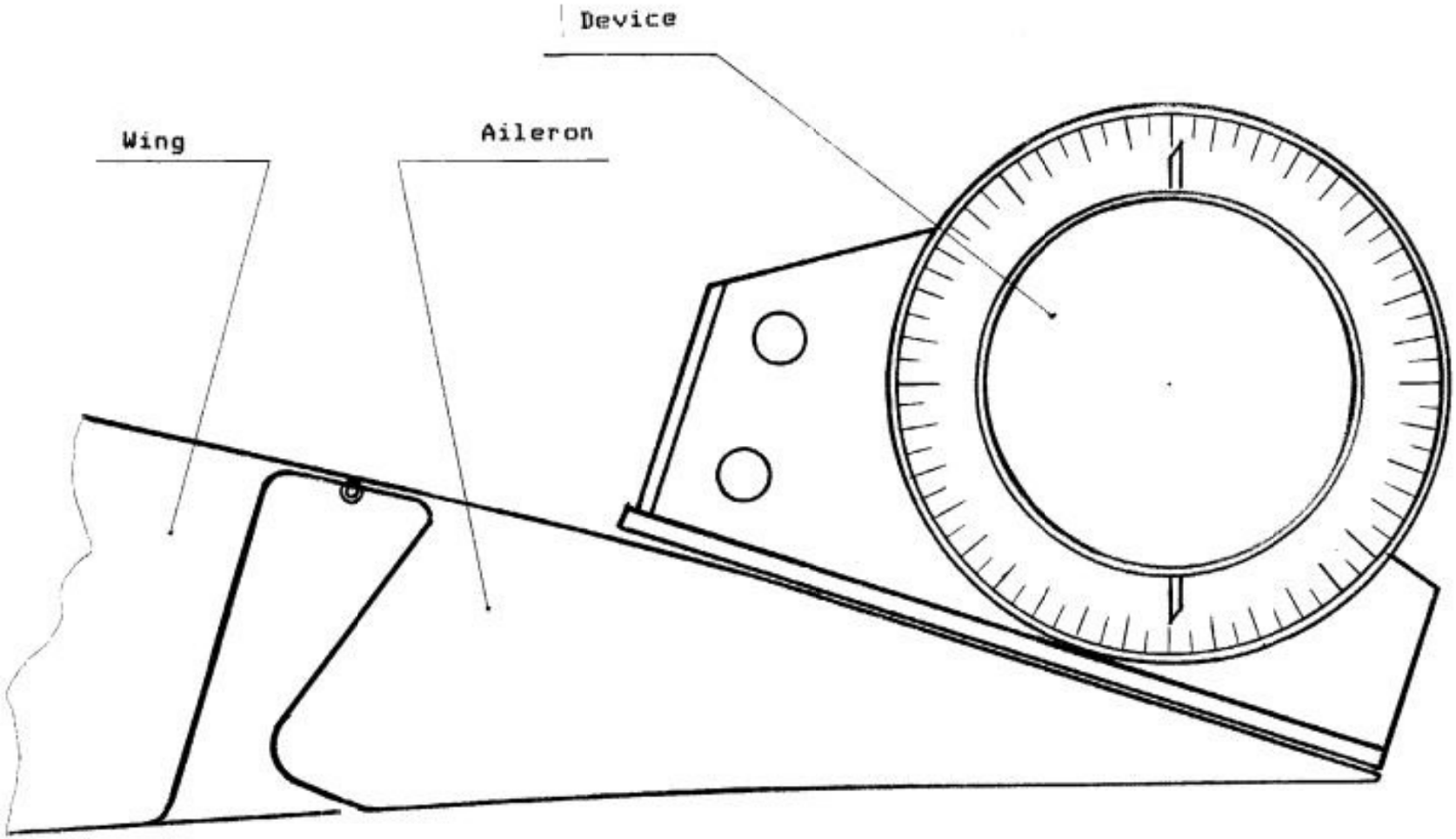


Fig.2 Deflection measuring device

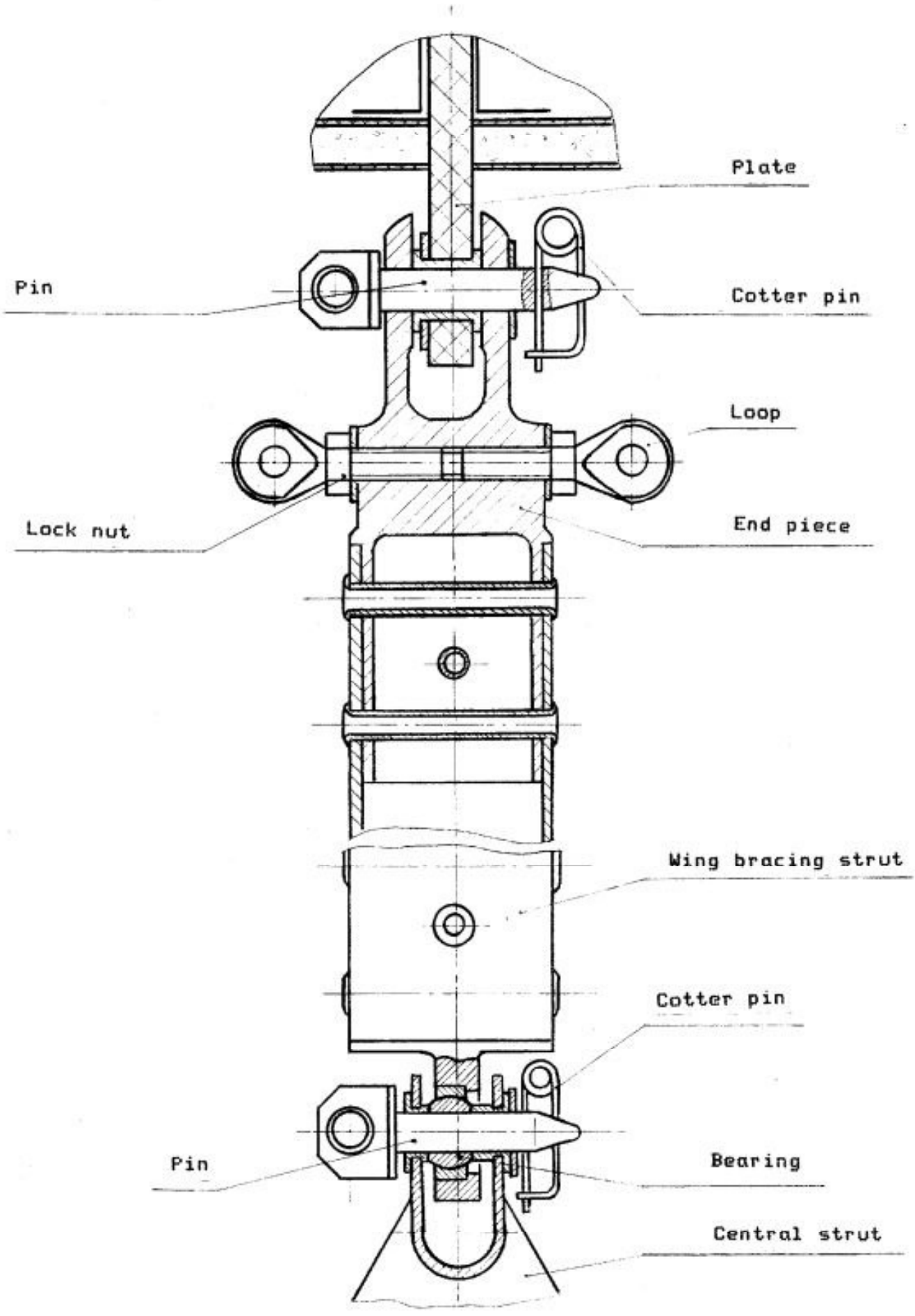


Fig.3 Correct setting of wing bracing struts

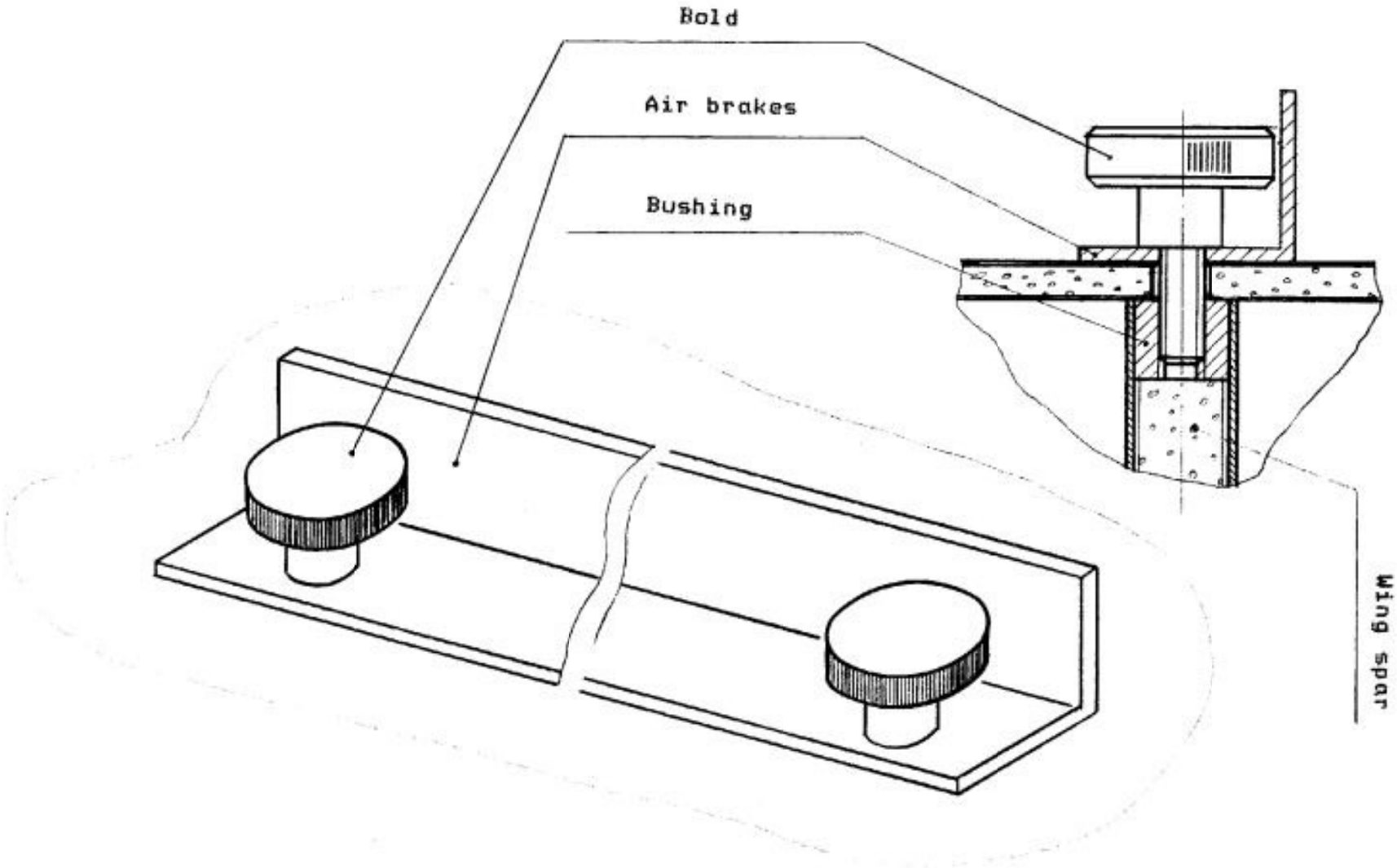


Fig.4 Mounting of airbrakes

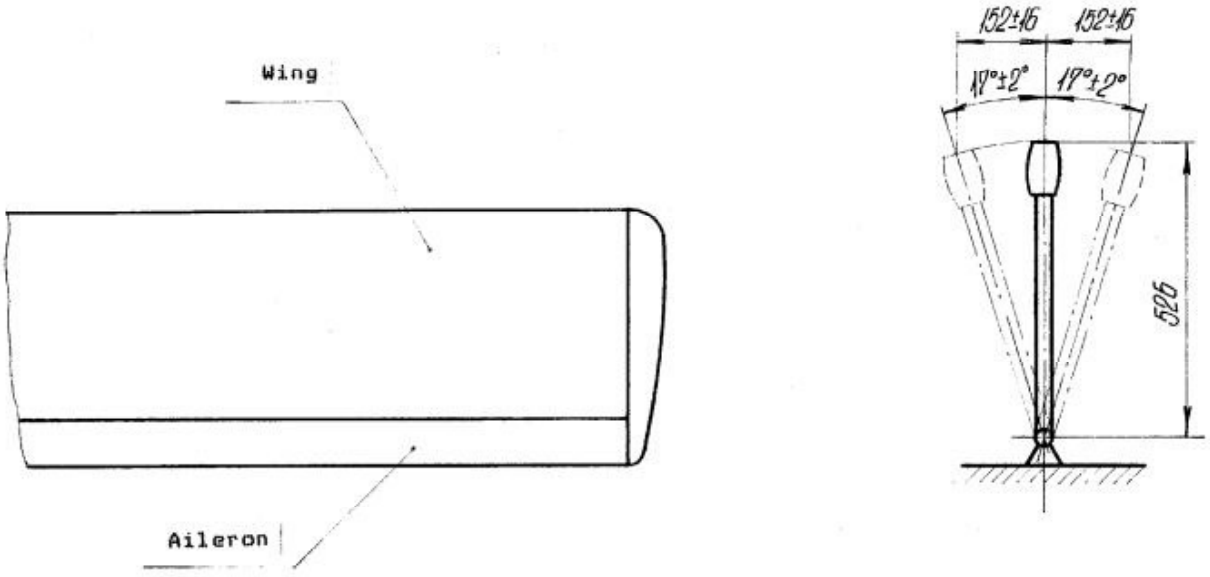


Fig.5 Linear and angular deflections of control stick and aileron

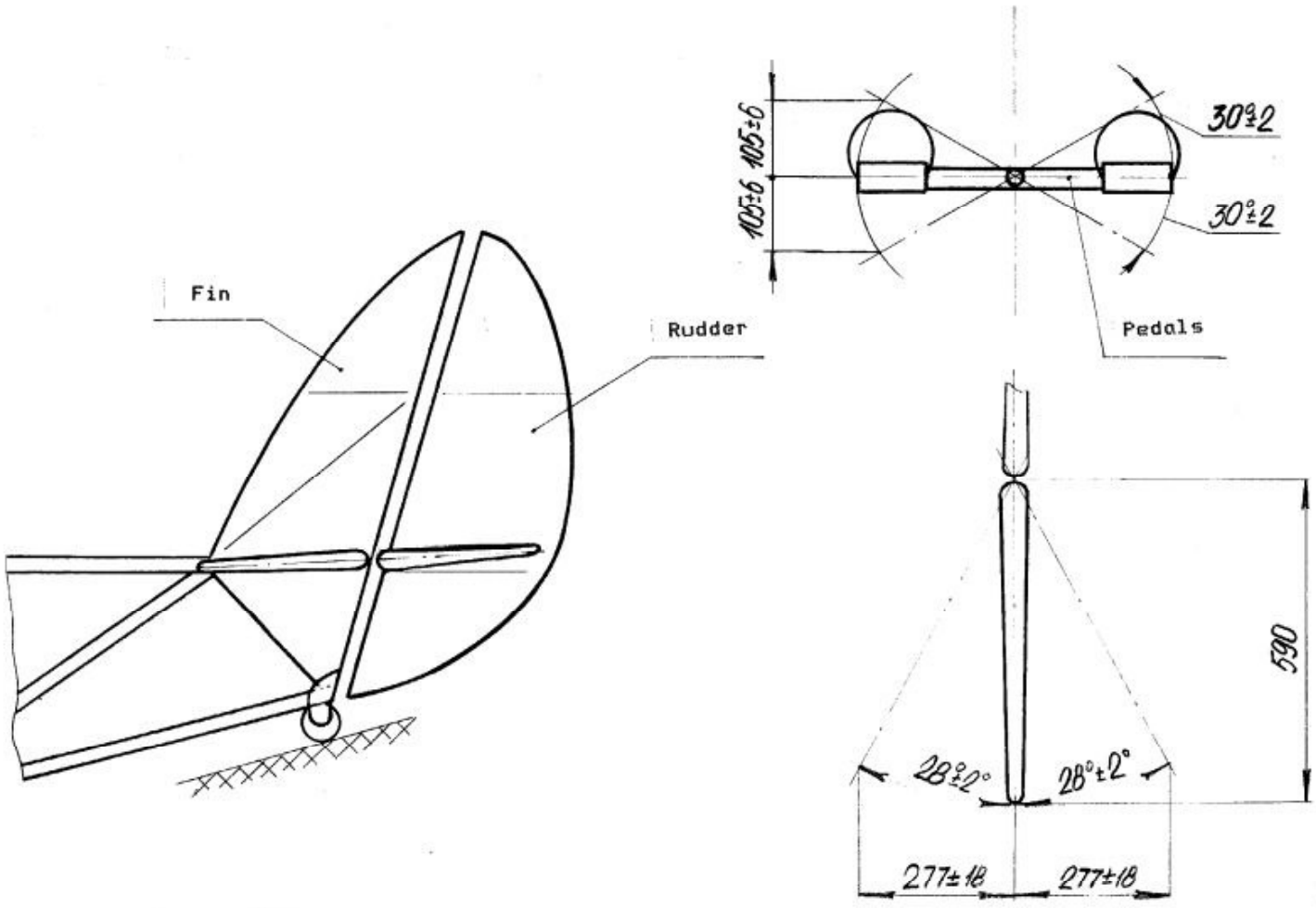


Fig.6 Linear and angular deflections of pedals and rudder

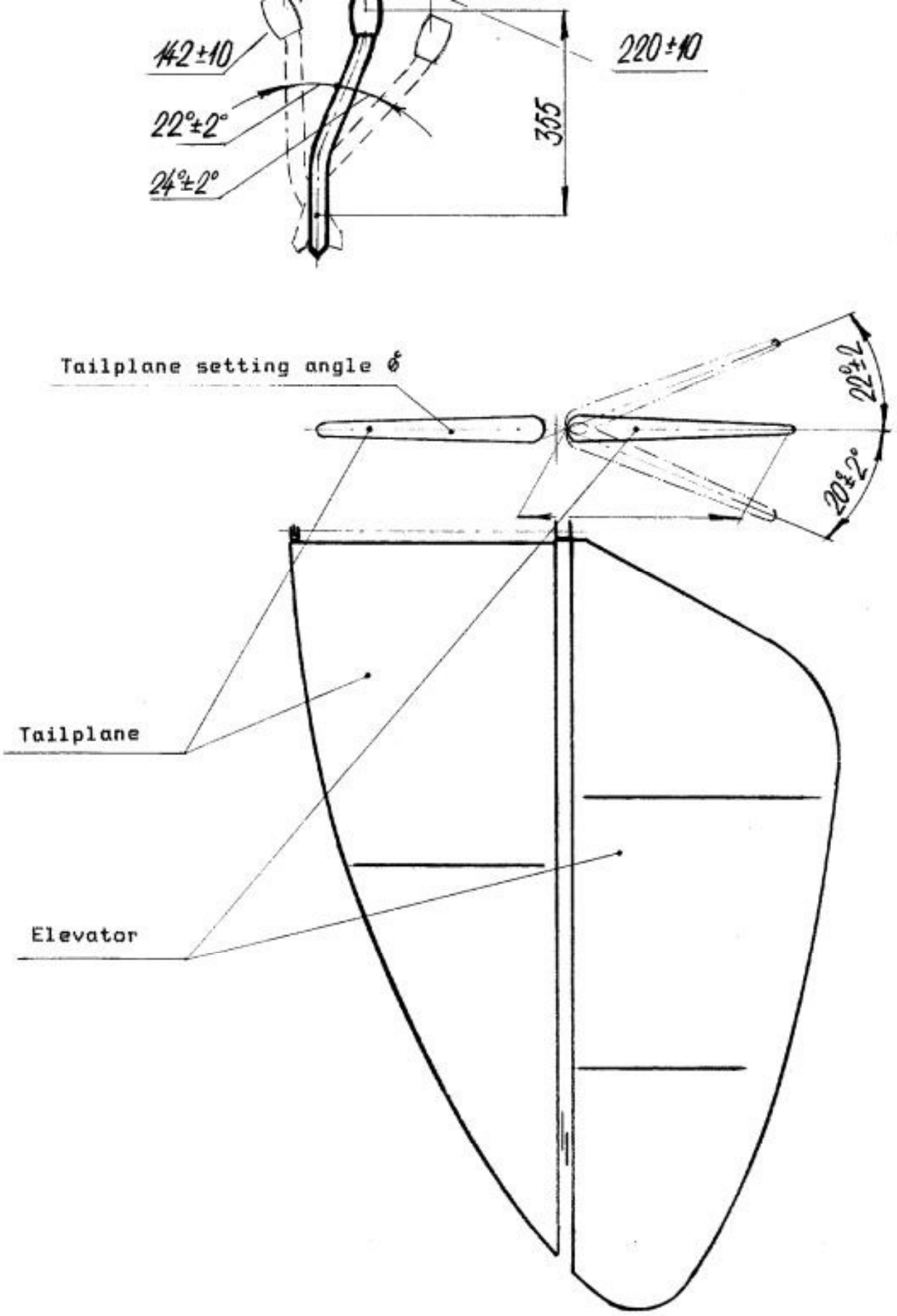
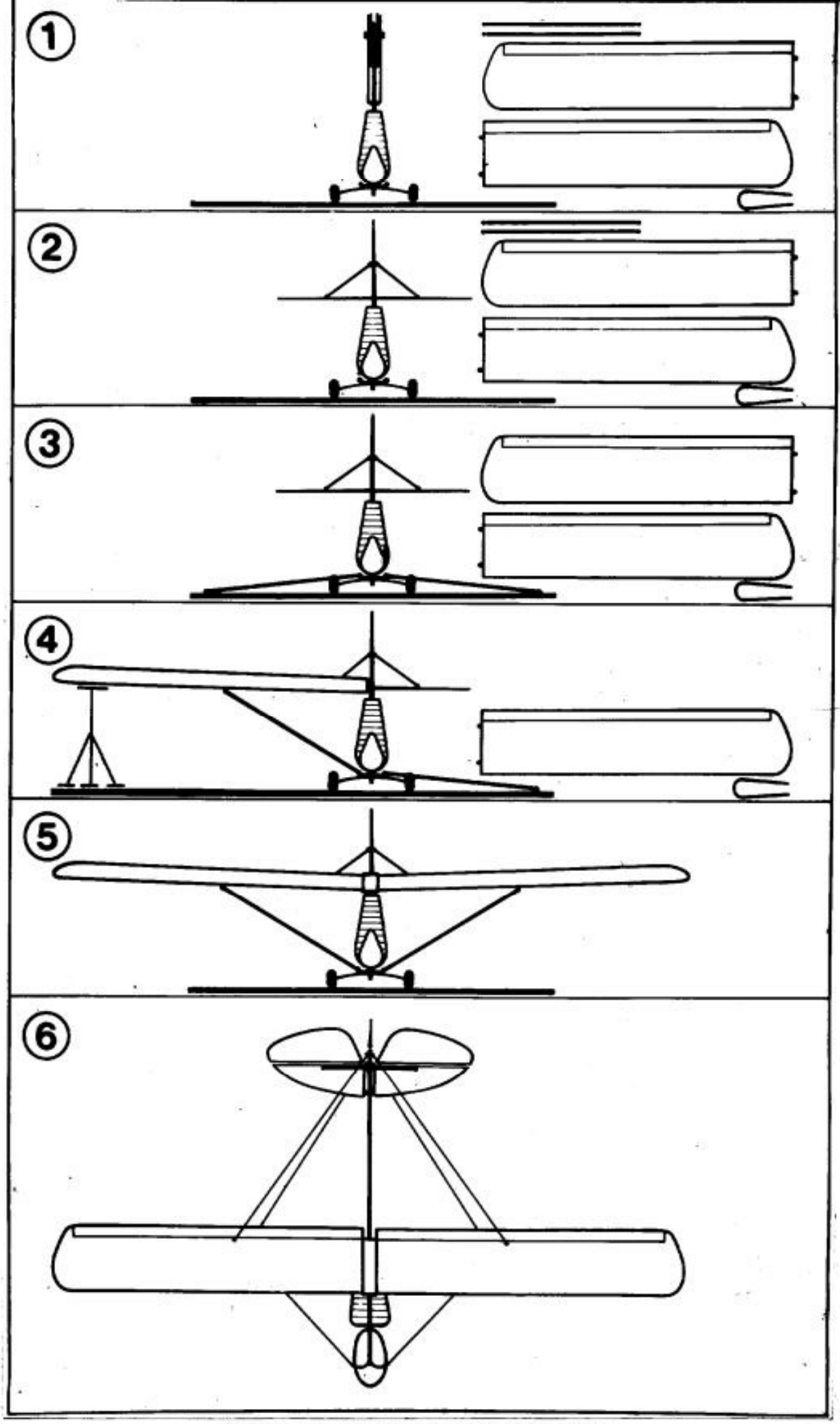


Fig.7 Linear and angular deflection of control stick and elevator.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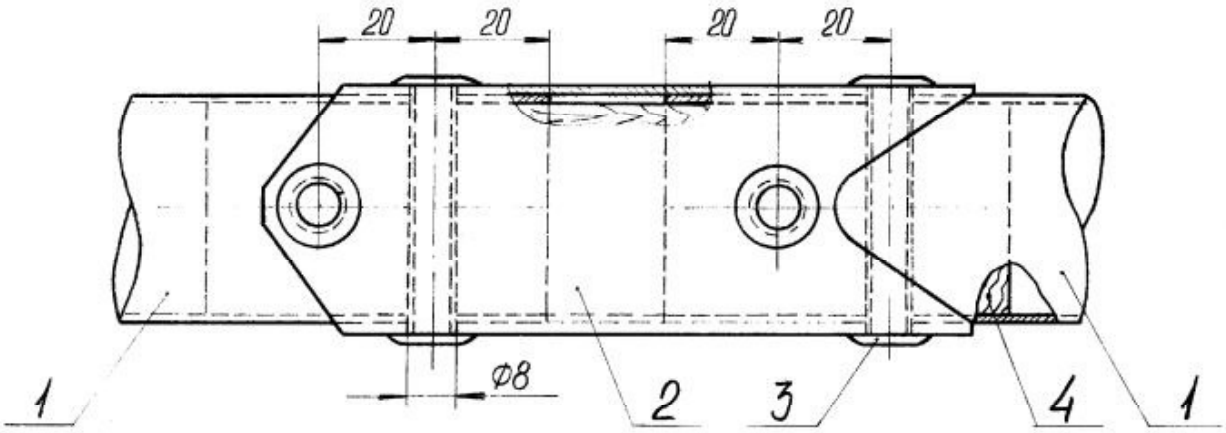


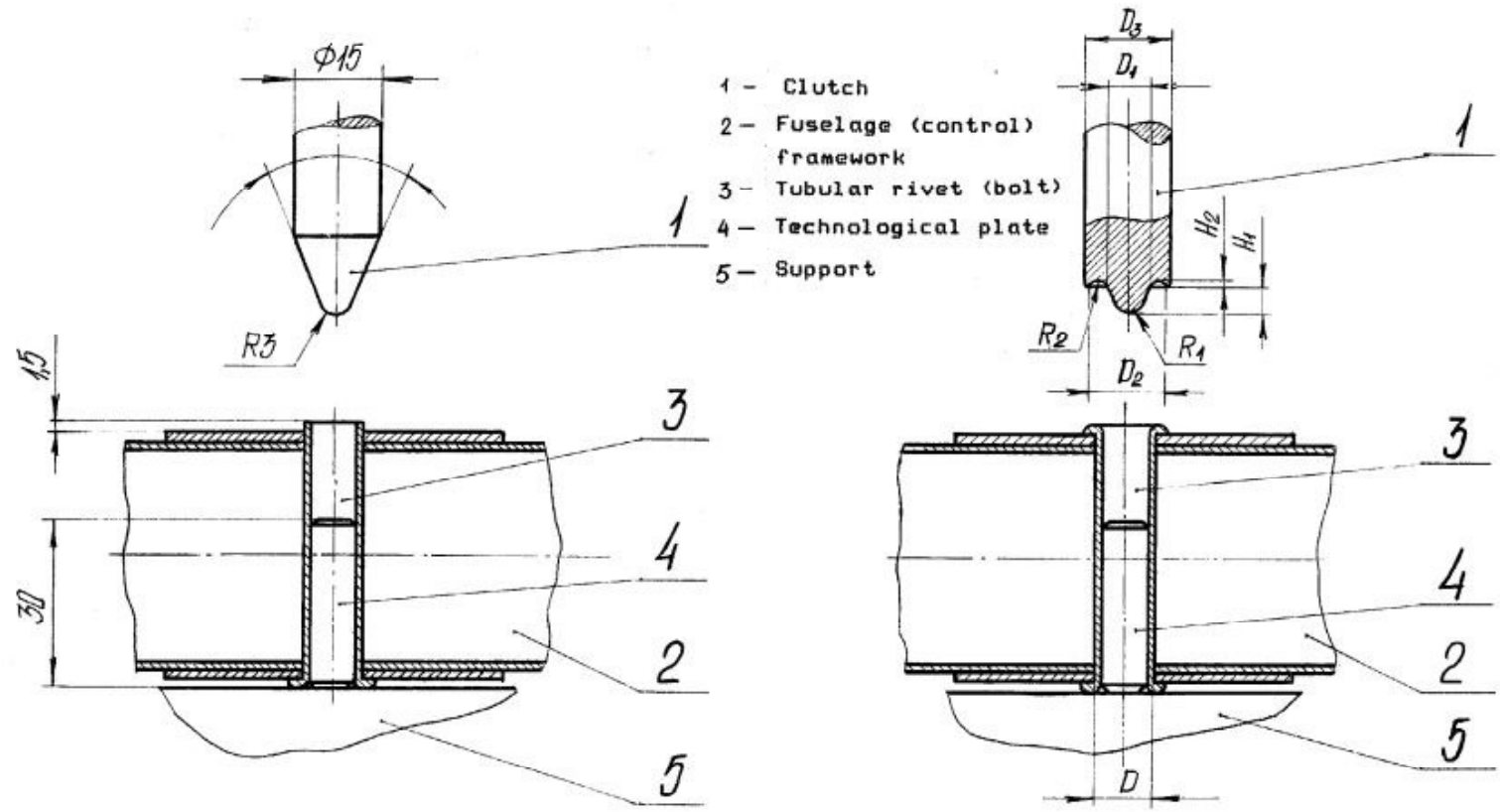
1 – Fuselage (control) framework

2 – Clutch

3 – Tubular rivet (bolt)

4 – Wooden plate

Fig.9 Repair of fuselage framework (control) with the help of outer clutch



D	D_1	D_2	D_3	H_1	H_2	R_1	R_2
6×1	6	10	12	3,5	1,0	2,5	1,75
8×1	8	13	15	4,0	1,2	3,5	1,75

Fig.10

-riveting of tubular rivets during repair of selage framework (control)

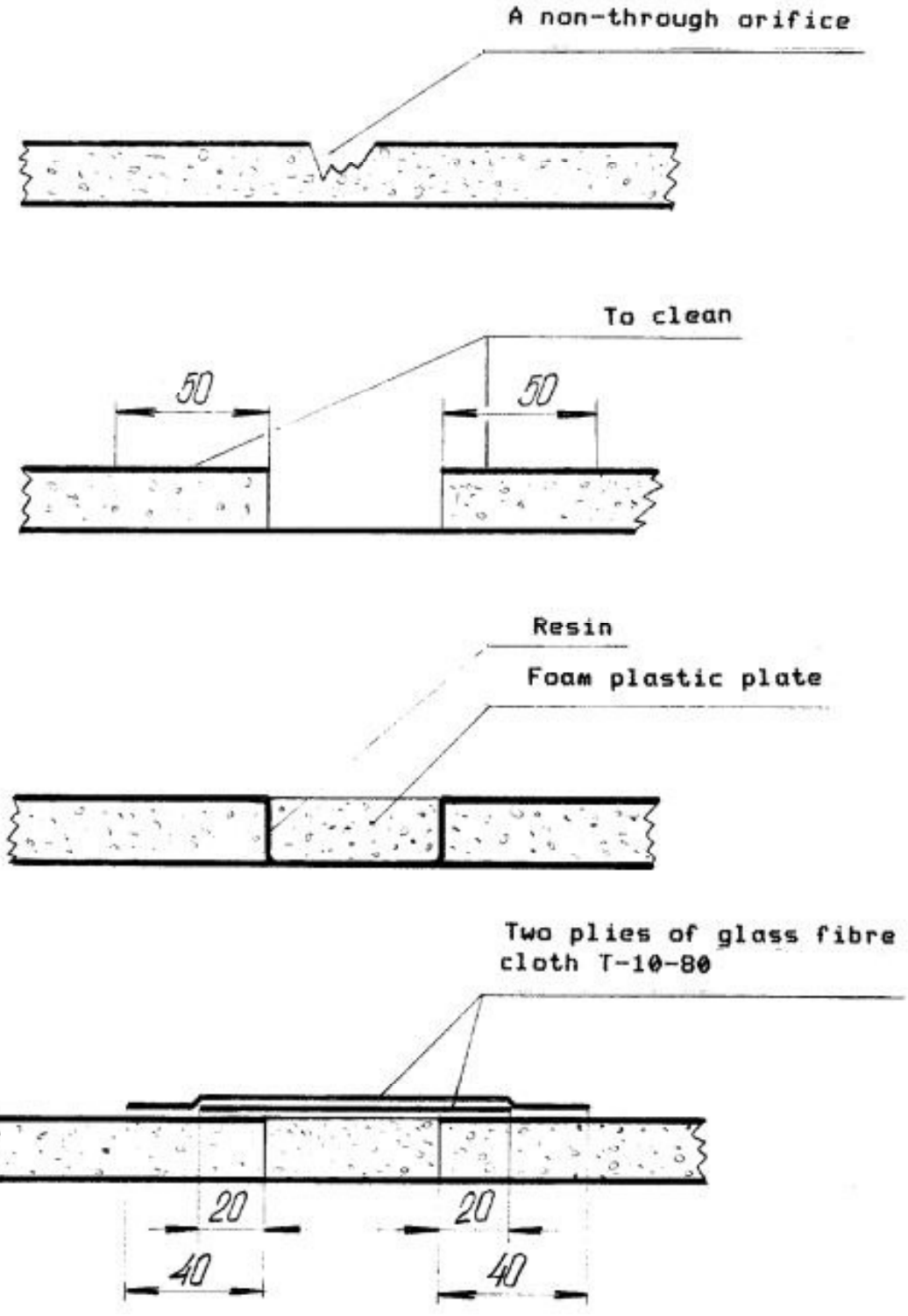


Fig.11 Repair of a non-through orifice in a three-plied

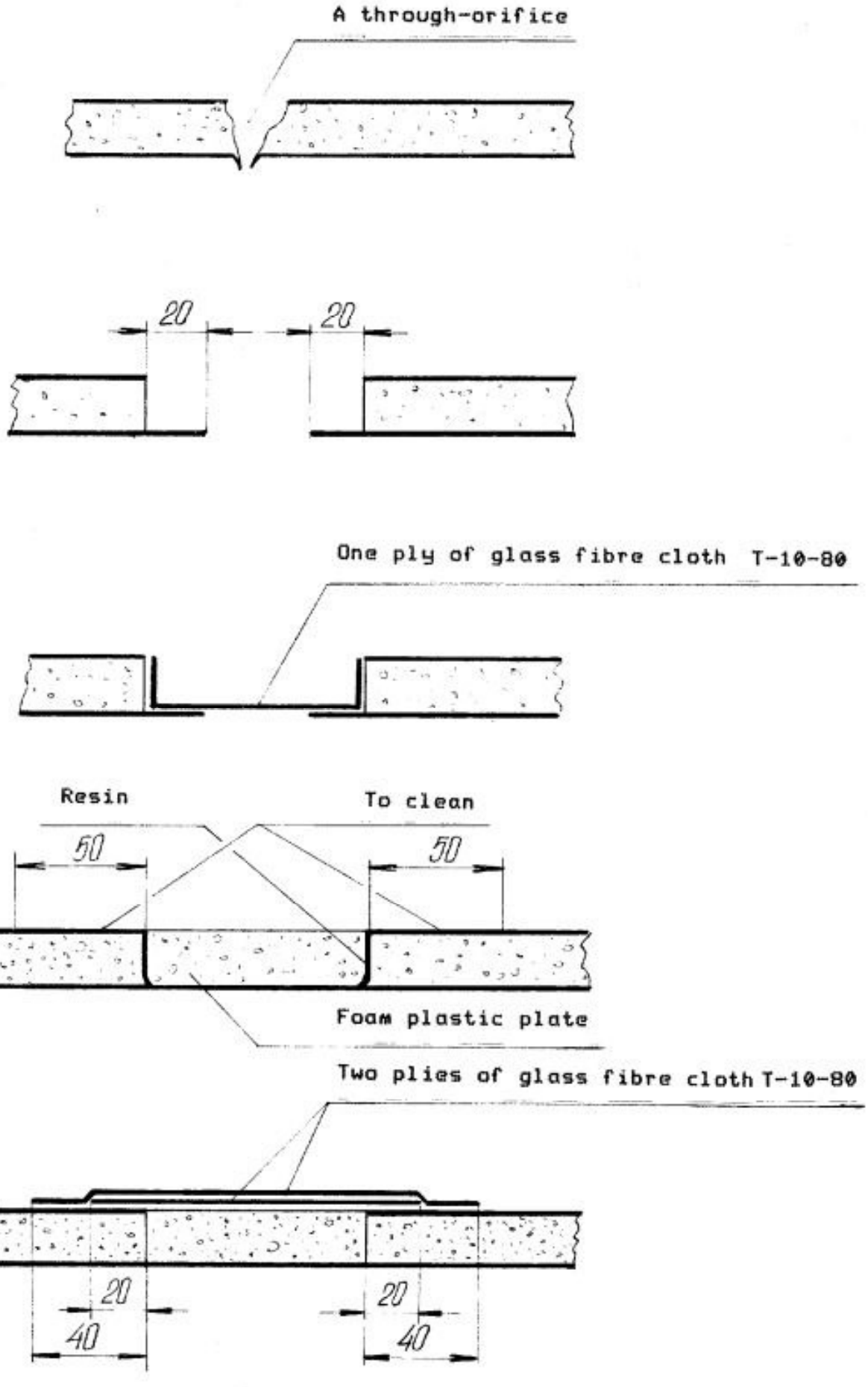


Fig.12 Repair of the through-orifice in a three-plied coating

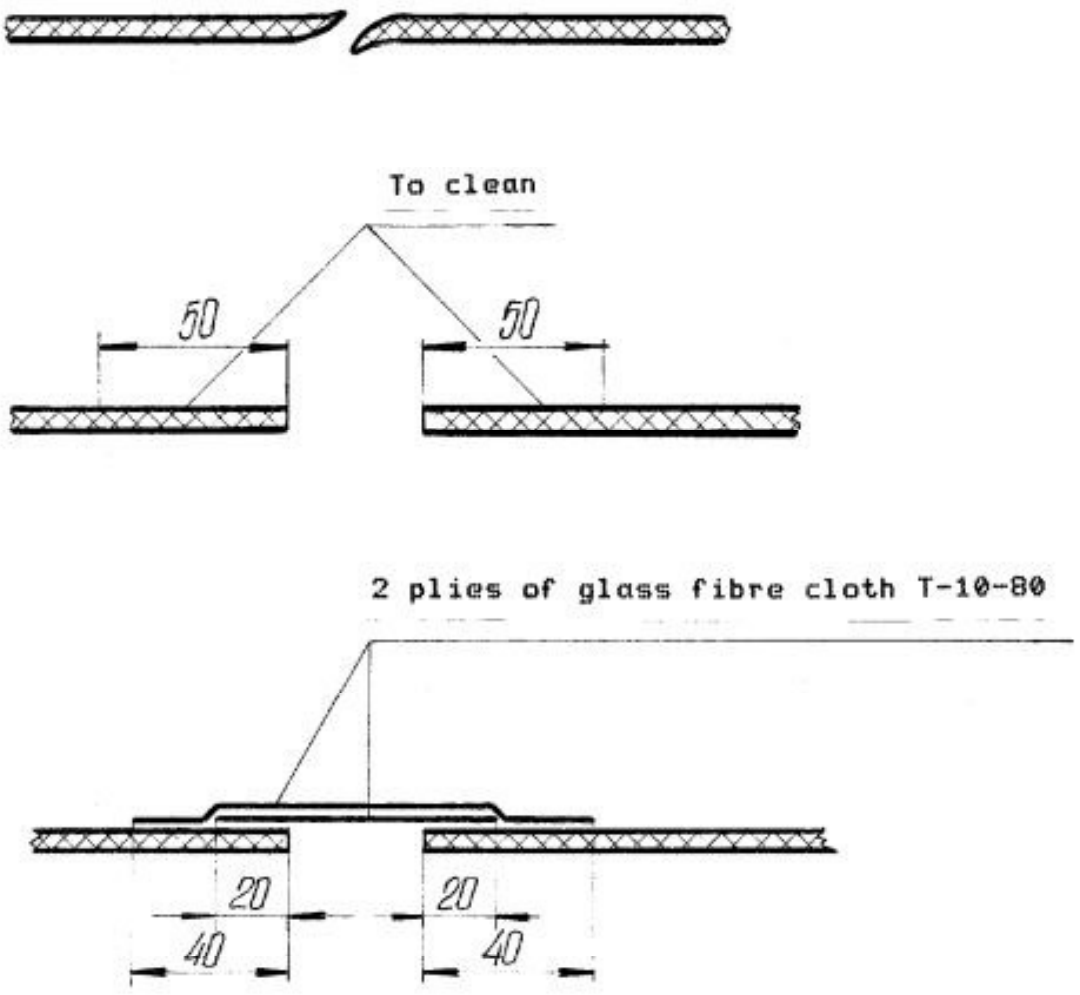


Fig.13 Repair of glass fibre coating without filler

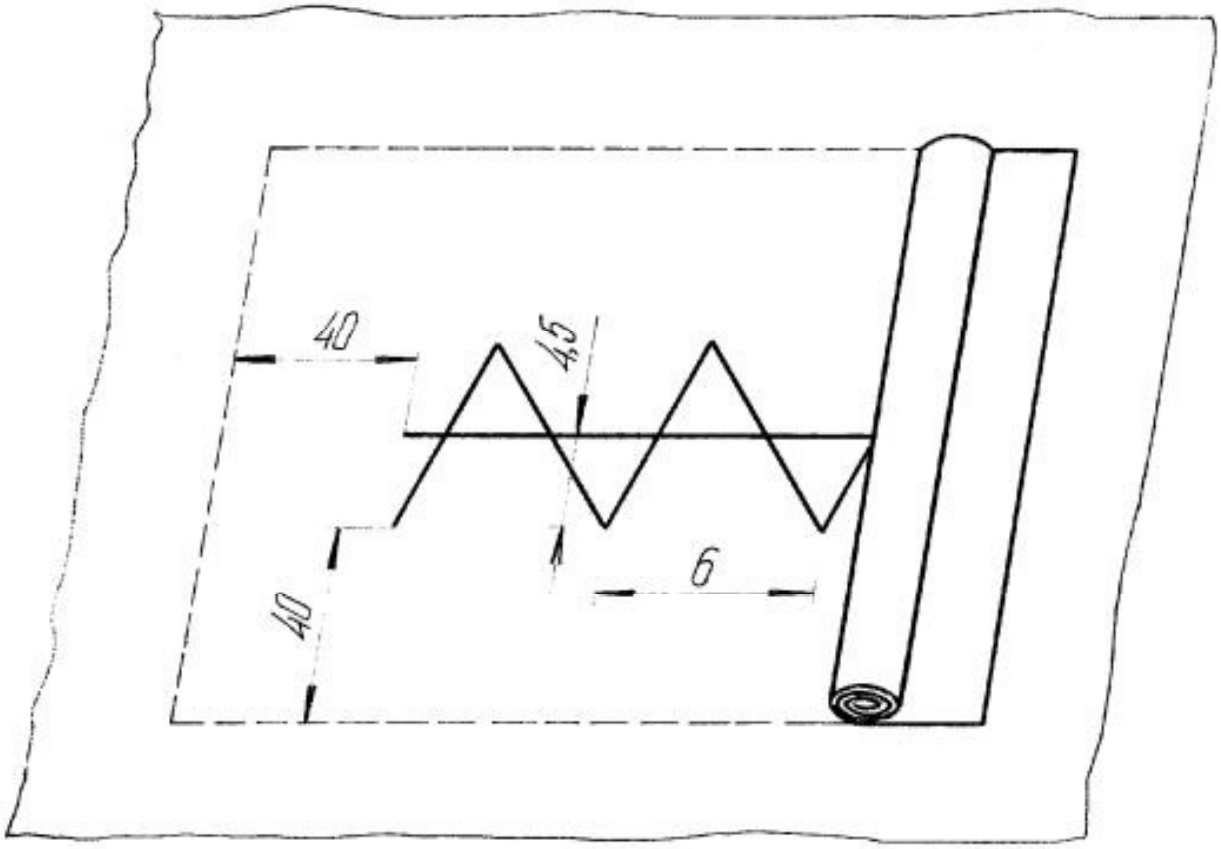


Fig.14 Repair of cloth coating by patching (breaks with smooth edges)

1 — "Cross" seam

2 — " Herring-bone " seam

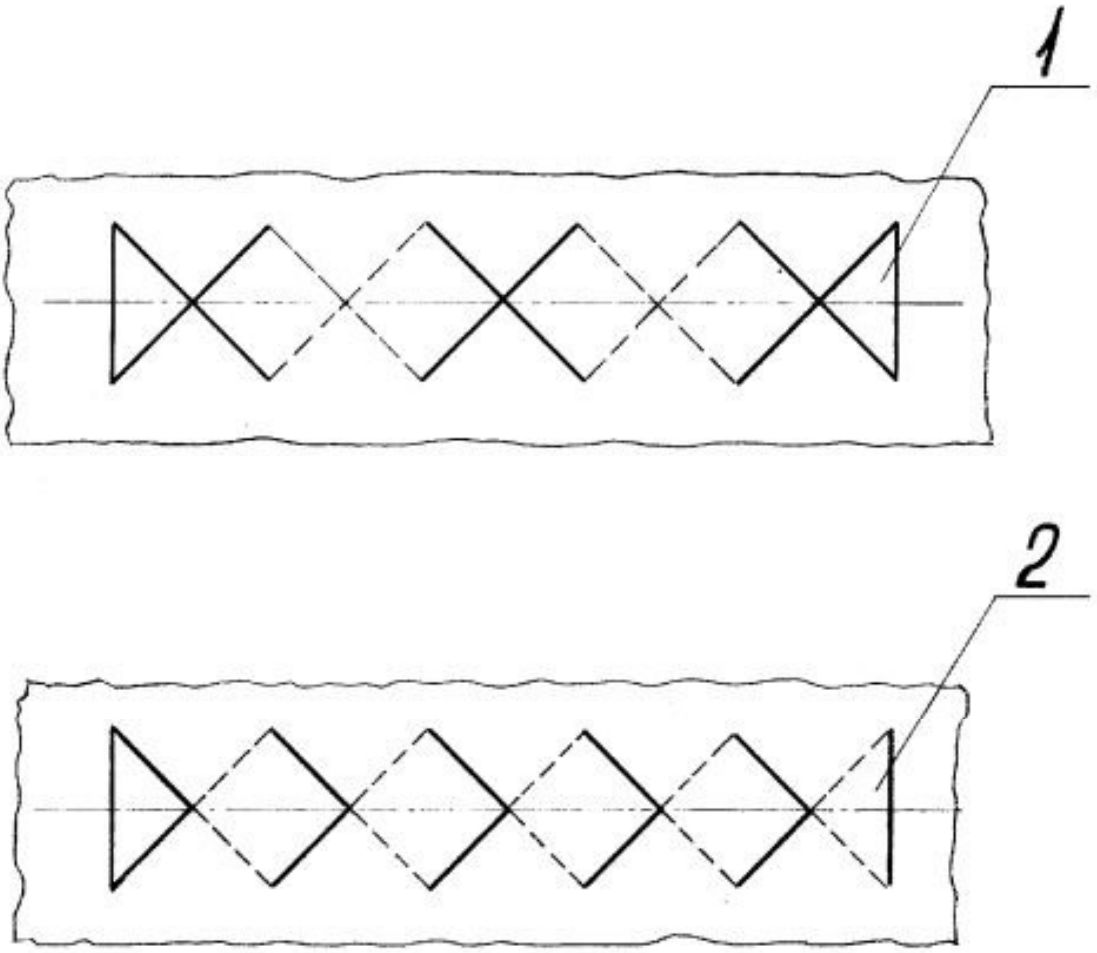


Fig.15 Types of seams

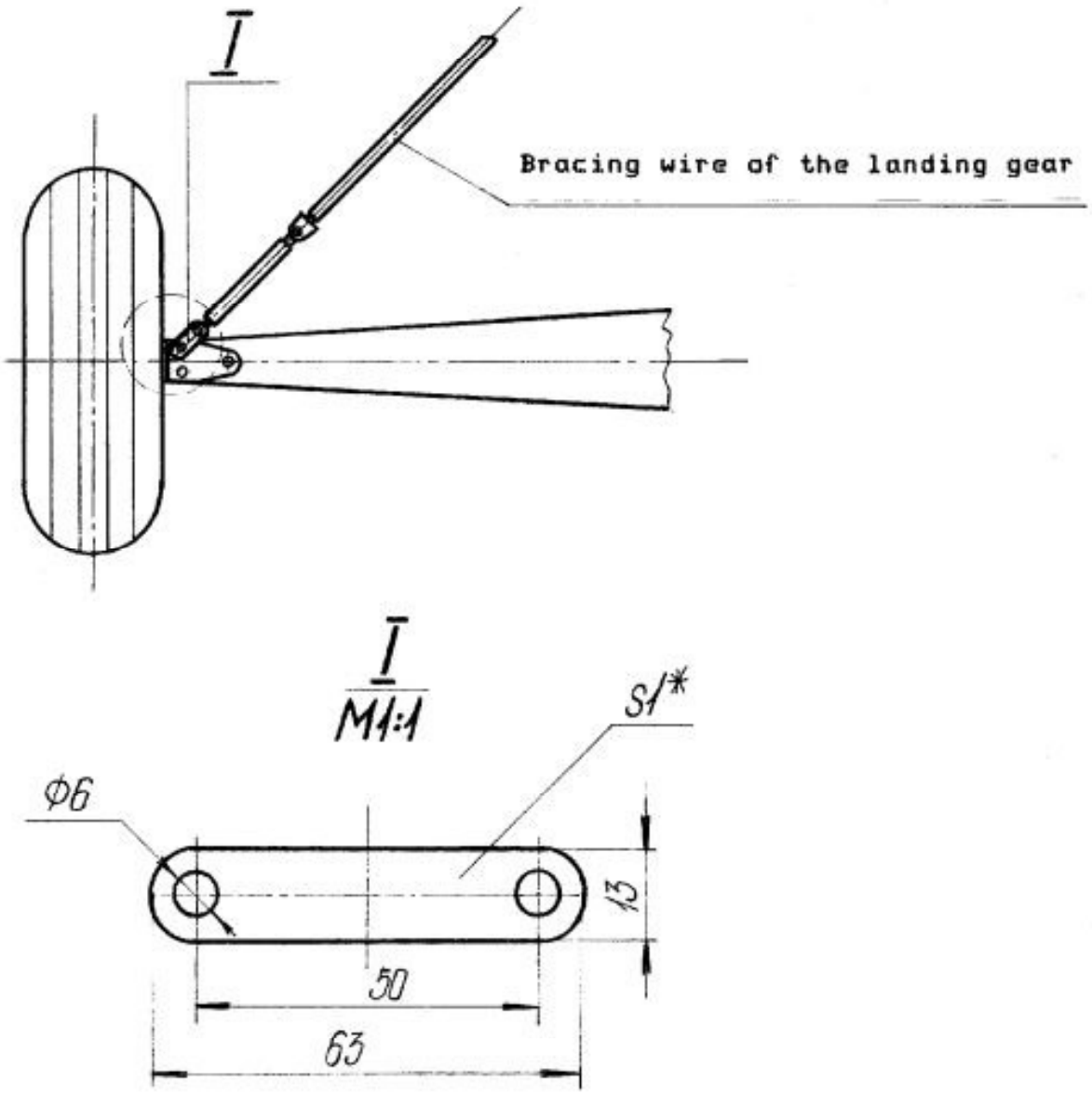


Fig.16 Safety plate of the bracing wire of the landing gear