MAINTENANCE MANUAL

I A R - 8 2 3

INITIAL CERTIFICATION REPORT

This manual is in compliance with the requirements of FAR-23, § 23.1529 Regulation. Technical data contained in this manual have been checked and certified as being correct.

Signature: .....

Date : .....

No.AN-03 SRA certification approval

Notes :

1. This statement shall be not applied to revisions subsequent to the initial certification date of any certification authority. Revisions made by any other Type Certification Authority shall be certified separately and enclosed in the revised pages list.

2. Introducing data by any other modification or revision which are not in compliance with § 23.1529 FAR-23 Regulation invalidates the Initial Certification. Report given in the manual title page as concerning any implication of the introduced data as well. Modifications and revisions made by any other Type Certification Authority not in compliance with the Initial Certification Report, shall be enclosed in a separate Revision List.

3. The manual consists of two volumes.

PERMANENT REVISION LIST

No.	Issue	Date	Signature	No.	Issue	Date	Signature

* When receiving revisions, insert the new pages and the date of their insertion. Sign list.

DELIVERY OF REVISIONS

To make certain that revisions of this maintenance manual are promptly procured by the Operator, it is impotant that a RECEIPT NOTE (as given below) should be immediately cut out, filled in and returned to the manual publisher.

If any change in the Operator's address or if the manual is transferred to another person, such a RECEIPT NOTE shall be filled in and returned as well.

PUBLICATION _____

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Signature _____ Date _____

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DESCRIPTION OF MAINTENANCE MANUAL

This Maintenance Manual is conceived and published in compliance with § 23.1529 from FAR -23 Regulation requirements.
The airplane manufacturer and the Airworthiness Authority, mutually agreed upon the form of the manual whose presentation was simplified but, according to recommandations, the structural parts - Group/Chapter/Subject - were kept.
The subject of this manual may be affected by the licenciator mandatory recommendations, the manufacturer Service Bulletins and modifications and/or the Maintenance Type Procedures.
In order to keep to date this manual, the new issues (Revisions) shall be regularity elaborated. If required, anticipated information may be delivered in form of temporary revision; this kind of Revision shall be distinctly printed on yellow paper. If necessary, all important instructions an/or anticipated information will besubsequently incorporated in Permanent Revisions. The new or modified technical data will be marked at the left side of the page by a vertical black line. In case of a Chapter/Subject orafully revised page, the black line marking won't appear any more.

When new pages (Revisions) are incorporated in to the manual at the last approved issue, the autentification is automatically made by properly filling the Revisions List. Each revised page, the Preliminary chapter includingly, carries a page number, at the of the page on the outer corner, and the month and the respective issue number on the inner corner When numbering the pages, take into account those which are left blank. A page modification will also carry the last valid issue number.
After page 2, containing the revision lists, to the next issues, there will be incorporated the pages carrying "The Manual Editor Note to Issue .... " where will be specified the modified or added pages to the respective issue, subsequent to 2 nd Issue.

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ASSOCIATED PUBLICATIONS

Spare Parts Catalogue
IAR - 823

Service- Bulletins
IAR - 823

Inspection - Guide
IAR -823

Airframe Repairing
IAR - 823

Flight Manual
IAR - 823

Modification Cards
IAR - 823

Replacement
IAR 823

HARTZELL Propeller
Owner's Manual
FAA Approved Manual

Lycoming Operator's Manual (inc.Supplement) for O-540 and IO-540, TIO-540 series Aircraft Engines

Caution ...

Beside the above mentionned publications there shall be used all the other manuals and instructions given by the manufacturers concerning the respective accessories installed on the airplane.

Content structure

The Maintenance Manual content is structured on five groups

Each chapter begins with Description and Operation; the mechanic details preceed the electrical ones. If required, there follows the problem of "Defect Search", presented in the form of a diagram. Alway in the form of a diagram it is presented the problem of "Maintenance". It is intended that such diagrams should be conceived separately or copied from the manual, to facilitate the activity in hangar.

According to standerds, symbols are used in the electrical diagrams of the manual. The symbols of the lubrication diagrams are explained in the following paragraph.

Because of the variety and multitude of operations of this airplane, the Maintenance Manual was conceived especially to offer useful information about the standard airplane.

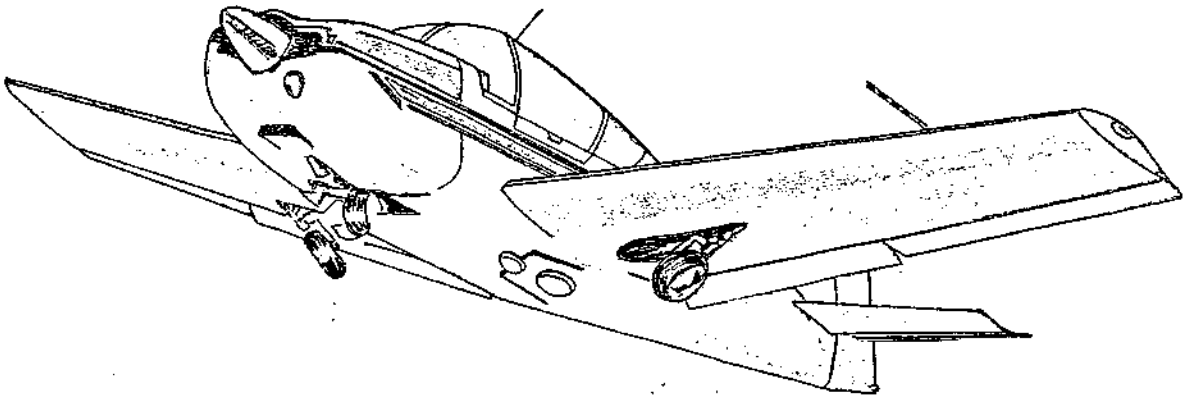
When by the owner's request, optional equipment or new arrangements are provided, all specific information are to be issued in the form of appendixes to the respective Chapters.

In order to offer the possibility of controlling the weight of such a modified airplane, withing Group 1 there is a chapter covering test and balances. Within the respectiv graph, refferences will be made with respect to the position in the manual of the Appendixes related to those modifications. Information about engine, propeller and other equipment except these concerning dismouting and mounting, are not given in the manual since they may be obtained from the publications associated to the manual and mentionned in its beginning.

LUBRICATING SYMBOLS

The lubricating diagrams of this manual contain detailed information about the types of lubricants to be used and the applying methods. To avoid a redundant eyplanatory text, there has been used a simple system of symbols. The caption below helps to understand the symbols used :

Symbol	Lubricant Standard SRR	Lubricant Standard USA	Approved Purpose	Remarks
	MIL - L 7870 A		All - purpose oil	Lows temperatures
	MIL - G 23827		All-purpose graphite grease Large temperature range	Keep out of rubber, plastics
	MIL - G 7187		Graphite grease for starter gears and other slowly moving parts	Not to be used for electrical equipment or anti-friction bearing.
	MIL - T 5544A (ASG)		Anti jamming graphite mixture for certain mountings; as spark plugs for instance	Proper for high temperature conditions
	-		Tecalemit lubrication	-
	-		Lubricate when mounting only	
	-		No need to lubricate	For plastic or oil impregnated bearings



INTRODUCTION

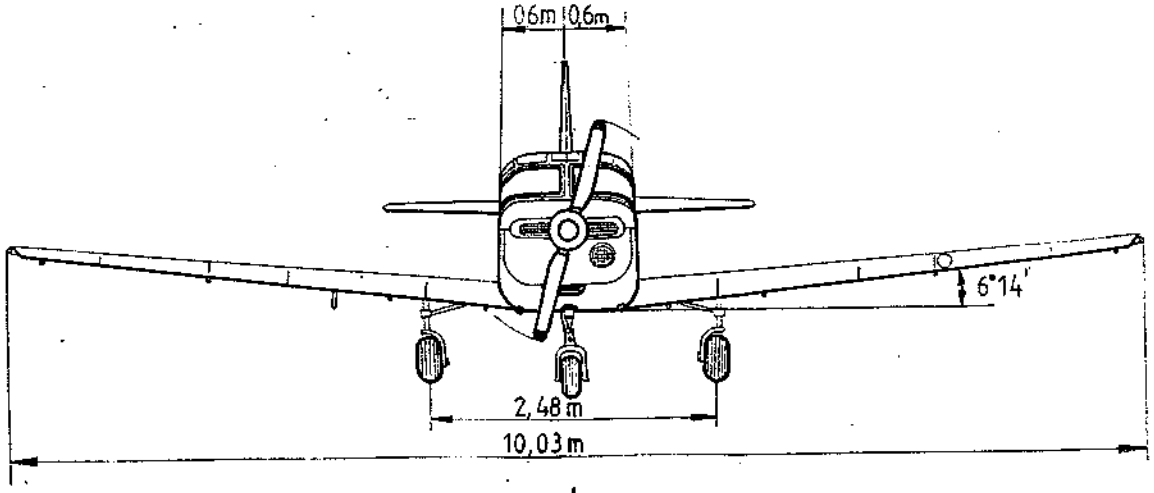
1. The "IAR-823" is a standard monoplane, single engine, low wing, metalic airplane (except the control surfaces which have a fabric skin). It is designed and built for a large operation range. Other characteristics of this airplane, used in the first place in utilitarian version, are the strength and the relative simplicity as well.
2. The semi-monocoque fuselage is formed as it follows:
   - The rear fuselage with strips and frames of squeezed sheet segments, linked by the skin sheet panels. It incorporates the tail unit controls and the battery.
   - The front fuselage is formed by cross-bars spars, on sides and the floor spars that constitute at the same time the central plan ribbs with which it is constructively integrated. The front fuselage has a lifting skin, doubled on sides by another skin in which, internally, cut-outs have been performmed; the floor is partially dismountable and constitutes the cabin platform. The cabinceiling is supported by the first frame of the rear structure, the bevel frame, and continues forwards by a narrow transom supported by the windshield central pylon. To this transom are hinged the two upward convertible, fully transparent side doors. On the lateral parts, between the bevel frame and the first rear fuselage frame, there are the cabin rear windows. The firewall forms the fuselage front part, closing the side booms, floor booms and the board panel below the windshield. For use as taxi, the cabin can accommodate four persons, including pilot, by mounting a bench; the baggage place is behin this bench. By dismounting the RH seat and the bench the airplane is made proper for cargo transport. When used for training, the bench is removed and all controls are doubled on the right side.
3. The single-spar wing is formed by the integrated central plan at fuselage front part and the two extremal wings; in plan it has a trapeze form. It is formed by: squeezed sheet rib segments, main spar with sheet care riveted to the bracket strips and squeezed sheet fake spar. In the

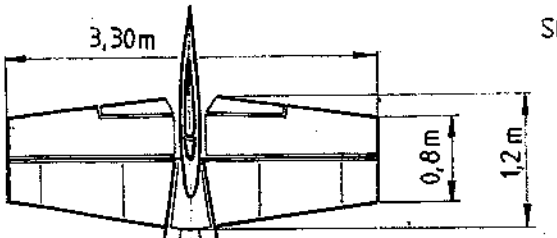
case formed by the skin and the main spar there are the fuel tanks, one in each extreme wing and two in the central plan, in the outer area of the fuselage, on one side and the other of the wing junction respectively. At junctions, the extreme wings are assembled to the main strut by two bolts, and by one to the auxiliary spar. The central plan is attached to the fuselage at angle of 3 degrees. The extreme wing attachment linearily decreases to the tip with only one degree.

4. The trapeze horizontal empennage is attached to the last four fuselage frames by four bolts, through the two stabilizer struts. The fin is attached to the last fuselage frame by two bolts, and to the stabilizer rear spar, by one bolt, through a linking part.
5. The rudder is aerodynamically trimmed and is attached to the fin main spar by means of two hinges. Its structure is formed by a spar and squeezed sheet ribbs.
   The trailing edge incorporates the double Bauden cable controlled fletner. The two elevator parts have a similar construction to the rudder and is attached to the elevator rear spar by two hinges. Included in the trailing edge of the RH elevator there is a fletner which is controlled by an electric motor situated in front of the stabilizer, in thefuselage. The winglet has a similar construction to the other control surfaces and it is hinged to the extreme wing fake spars by two hinges. Contrary to control surfaces themselves, the flaps is fully sheet and hinged to the extreme wing fake spar by one hinge, and to the central plan take spar by another hinge. Continuing the flap, towards the fuselage, the wing trailing edge is attached to the central plan and constitutes the foot step.
6. The airplane is provided with a retractable there-wheels undercarriage, having the main legs hinged in the central plan near the junctions; its nose wheel is orientable.
   The in-legs incorporated shock-absorbers are oleopneumatic.
   In emergency cases the undercarriage can be retracted/extended either manual or by electro-mechanic actuation.

Main wheels tyres and inner tubes are interchangeable. The main wheels are provided with single-disc Cleveland type brakes. The brakes actuating is carried out by the hydraulic system of the rudder control - brake pedals assy.

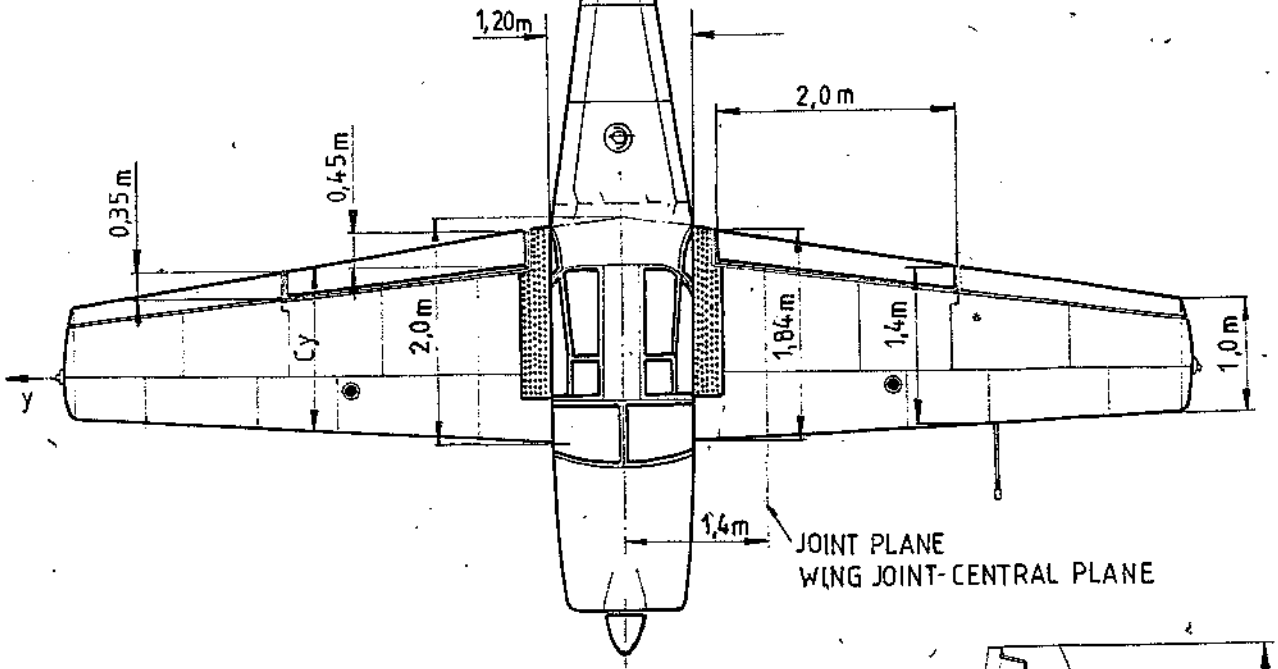
8. The normal intake Lycoming engine has six cylinders and is assembled on a welded tubes rigg, by a dynafocal mouting provided with Lord dampers. In its turn, the engine rigg has eight fastening points on the firewall, by means of studs. The engine and its appropriate aggregates are included in the assy formed by the upper cowling - easy to remove thanks to the six locks - and the lower cowling, all being supported by the fuselage on the firewall lower form line.
9. The constant speed, variable pitch Hertzell propeller is fitted with a slip.
10. The basic airplane instrument panel is fitted with the proper navigation and communication installations to provide flight safety in day visibility conditions. By optional changes or depending on the airplane version, certain instruments can be doubled, replaced by others or completed.
11. The airframe component parts are covered with anti-corrosion paint. The airplane outer surfaces are painted eith coloured poliurethanic enamel applied according to drawings.

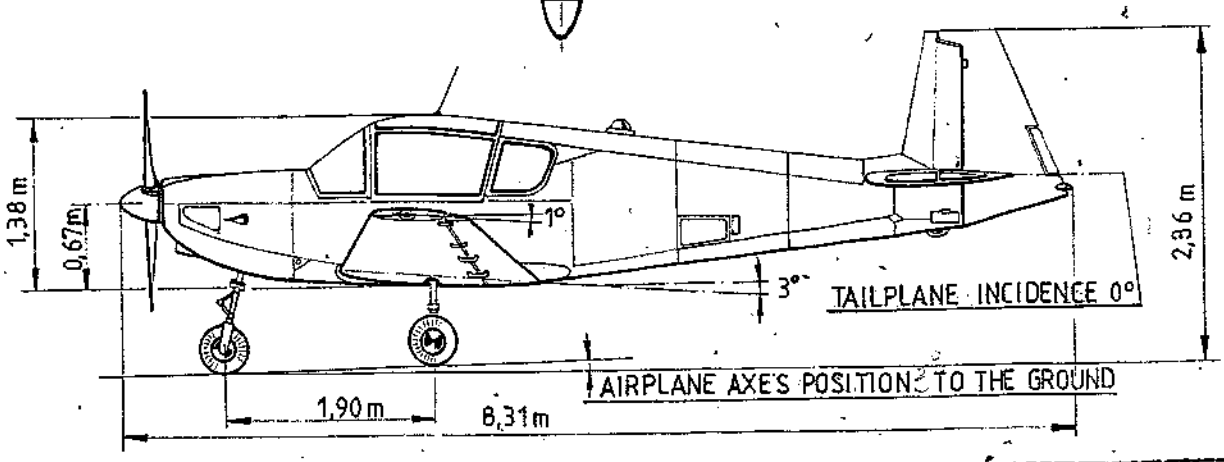




SURFACES AREAS

Areas	m2
Wing, ailerons flaps	15
Tailplane and elevator	3,3
Fin and rudder	1,5





MAIN DETAILS

General

Manufacturer Design Type	IAR-823 and versions
Mission	Transport, in versions, utilitarian, normal
Crew	One or two pilots (optional dual controls)
Wing Airfoil	NACA - 23012
Fuel Capacity (l)	360
(us gal)	95
Fuel Quality	100/130 grade (Min)
Fuel Specification (American Specification)	MIL-G-5572D

Undercarriage

Wheels (main)	Two: Goodyear III type 600-6, 30-23A Cleveland single-disc, hydraulic brake 445 mm x 160 mm tyre
Wheel (nose)	One: 04 Kleber - Colombes 355 mm x 150 mm tyre
Shock Absorbers Pressure (Kgf/cm^2)	-main leg : 14,5 ± 0,5. nose leg : 15 ± 0,5.
Brake Liquid	585DTD, or auto brake liquid, STAS 4059 - 67
Shock Absorbers Liquid	AMG - 10
Retracting Electromechanic System	Labinal

Engine Group

Engine	One: Io-540-G1D5 Lycoming (290 HP, 2575 rpm)
Lubricating Oil Capacity (l)	11.3
(us gal)	12
Min.Lubricating Oil Quantity (l)	5.7
(us gal)	6
Lubricating Oil Quality - over 16°C	SAE 50

(ambiant temperature)	between - 1°C and 32°C	SAE 40
	between - 18°C and 21°C	SAE 30
	below - 12°C	SAE 20

Lubricating Oil Specification (American Specification)
the first 25 operating hours MIL-o-6082
next period MIL-22851A

Components

Injector — Bendix RSA-10ED1
Magneto — Bendix SGLN-1227

Communication and Navigation

For further information concerning the equipment installed on a certain airplane, reffer to the respective manufacturer publications.

GROUP 1 GENERAL DATA

List of Chapters

Chapter 1.1.

PILOT'S CONTROLS AND EQUIPMENT

CONTENTS

DESCRIPTION AND OPERATION

General

1. This chapter describes the cockpit controls instruments and other equipment, the arrangement of these items and the support panels is given by the illustrations showing the instrument panel and the corresponding caption. The designations assigned to the items and panels are those used to describe the controls instruments and equipment. Where necessary, also a brief description of an instrument or control function or of a part of equipment is given within the caption of the respective illustration. The text in brackets written with capital letters in the caption indicates the inscriptions on placards.
Chapter 1.2. includes details regarding the emergency controls and equipment.

Pilot's accomodation

2. Climbing on the footstep behind the wing on either side using also the outer climb handle, the cabin is accesible seizing the handle above the windshield central pylon. The front seats are adjustable to and fro and provided each with a pair of safety belts and pair of shoulder harnesses for aerobatic version and only a pair of safety belts for utility and normal version. The bench is provided with two pairs of safety belts and the seatback can be tilted in 3 positions.

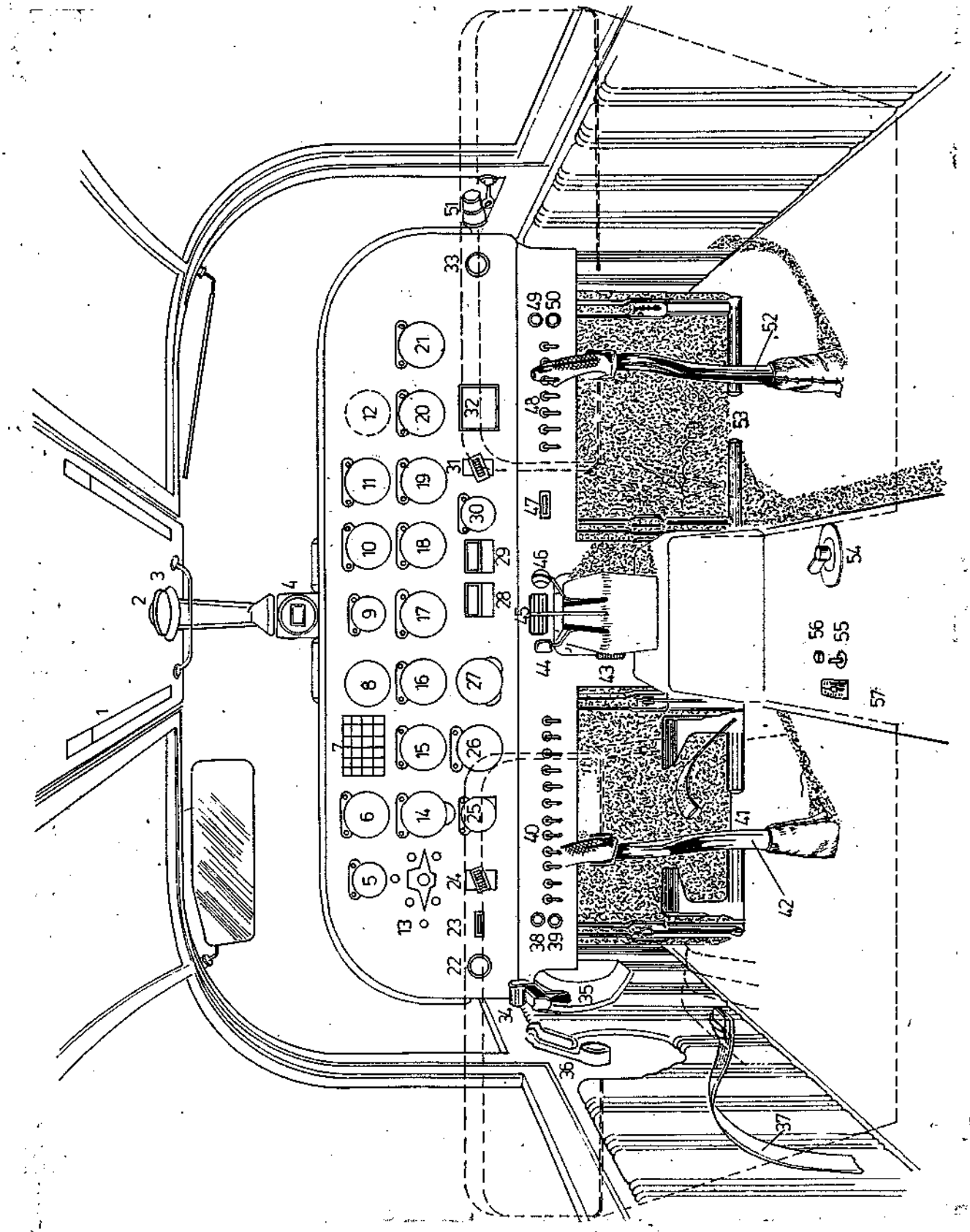


Figure 1. Standard airplane cockpit

Caption to figure 1

1. Door jettisoning
2. Rudder trimmer control
3. Dome light
4. Magnetic compass
5. Flap position indicator
6. Airspeed indicator
7. Warning panel TS1
8. Obturator
9. RPM indicator
10. Intake pressure indicator
11. Airspeed indicator
12. Obturator
13. Landing gear position indicator
14. Altimeter
15. Gyrohorizon
16. Rate of climb indicator
17. Cylinder Head Temp. indicator
18. Triple indicator UKZ-2
19. Altimeter
20. Slide & Turn indicator
21. Rate of climb indicator
22. Instrument illumination Rheostat
23. Flap control
24. Landing gear control
25. Accelerometer
26. Slide & Turn
27. Clock
28. Fuel gauge
29. Fuel gauge
30. Voltampermeter
31. Landing gear control
32. Transceiver Bendix
33. Rheostat
34. LH Engine
35. LH propeller pitch lever
36. Landing Gear Emergency Control Hand crank
37. Safety belt
38. Headsets Jack
39. Mike Jack
40. Switch board
41. Rudder and brakes control assy
42. Control stick
43. Levers tightening adjustment nut
44. Center propeller pitch lever
45. Landing gear control
46. Mixture control lever
47. Flap control
48. Swich board
49. Headsets Jack
50. Mike Jack
51. UFO lamp
52. RH lever
53. RH rudder and brakes control pedals assy
54. Fuel cock actuating button
55. Trimmer swich
56. Trimmer neutral position light
57. Elevator trimmer position indicator

RESERVED

Chapter 1.2

EMERGENCY CONTROLS AND EQUIPMENT

CONTENTS

DESCRIPTION AND OPERATION

ILLUSTRATIONS

NOTE :
The Manufacturer has not fitted the standard aircraft with manual extinguisher and first-aid kit. These equipment will be described in supplements to this chapter if required.

DESCRIPTION AND OPERATION

General

1. There have been provided door jettisoning controls for possible emergency situations.
A manual extention mechanical system replaces the electric control if the landing gear electro - mechanical retracting system fails in flight.

Emergency exits and their controls

2. The airplane can be abandoned in case of emergency by door jettisoning.
The door is detached from the fuselage by actuating downwords the jettisoning lever, as follows :
- remove the door hinge pins;
- the door is detached from the jack by means of two cams which extract the jack pin.

Extending landing gear using emergency control

3. The landing gear electrical retracting system and operation are described in chapter 3.9. The manuel extension of landing gear in flight because a malfunction or on ground when checking it during the maintenance procedure, is carried out by swinging the emergency control handle and performing 117 handle turns as per shown direction.

WARNING

Swing handle and start rotating the lever only after the electrical disconnection of landing gear.

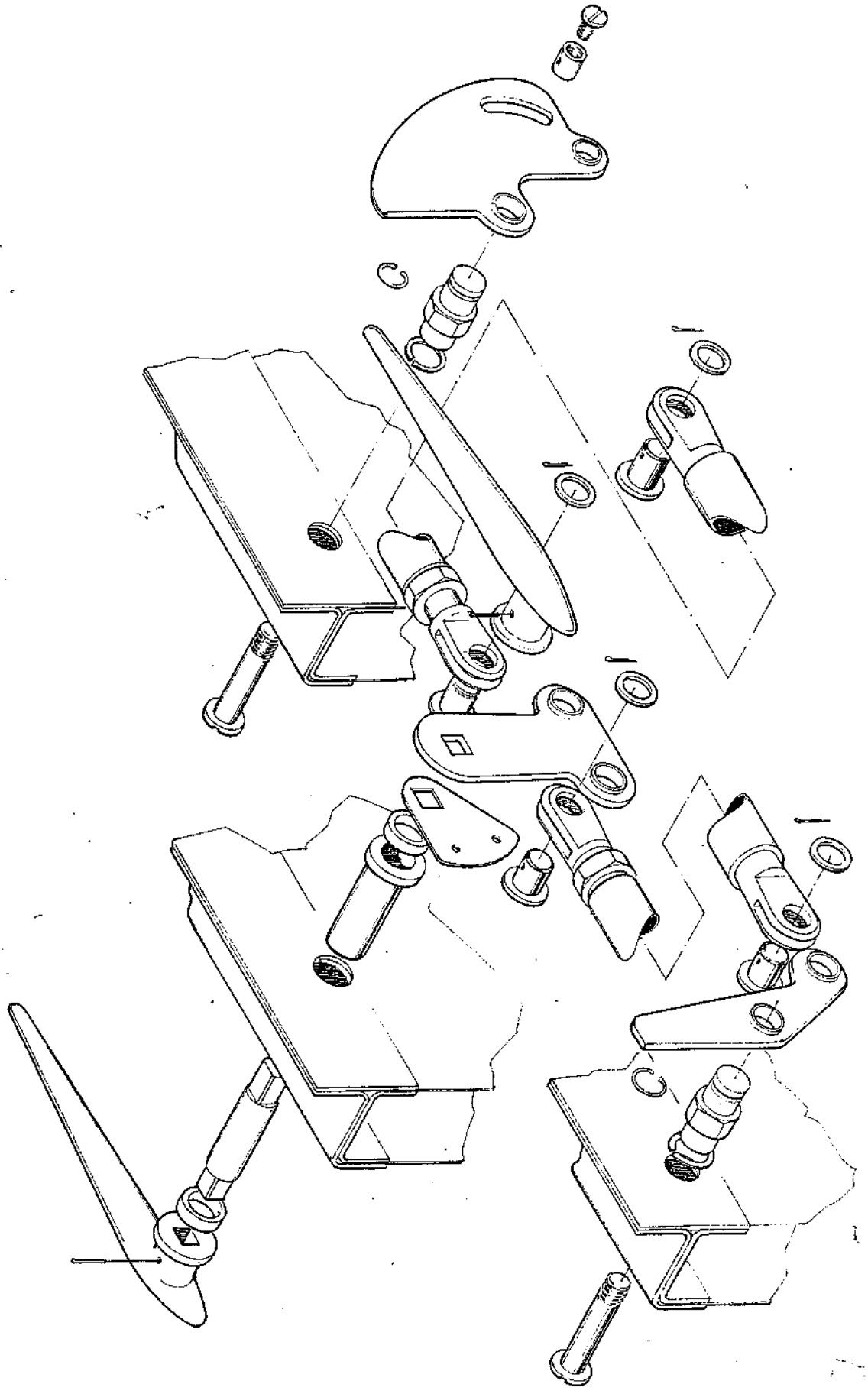


Fig. 1A

Chapter 1.3.

GROUND MANEUVRING AND PREPARATION FOR FLIGHT

Content Page

21. Tyres
22. Brakes
23. Engine Starting and Operating Procedures

Fig. ILLUSTRATIONS

2. Parking and Ground Fastening
3. Full-Filling and Ground Checks
4. Diagram of Front Leg Retracting Pressure
5. Diagram of Main Leg Retracting Pressure

Ground Maneuvring

Warning

Before starting the ground maneuvres, ensure that the magnetos and battery supply switches are OFF. The oil tap is OFF.

General

1. In order to carry out different ground maneuvers and operations the airplane is provided with the necessary equipment.

Towing

2. To ground maneuvring, use the towing bar which is attached to the nose wheel hub.

CAUTION

Pay attention to the nose wheel orientation angle (max. $\pm 45^{o}$)

When towing the airplane, the pilot flight controls shall be locked.

Parking

3. The airplane shall always be parked nose in wind direction and wheels wedged - on. The braking system cann't be used for wheel wedging since it is not provided with parking brak.

Ground Fastening (fig.2)

CAUTION
Check that fastening ropes are not tensioned.

General

4. The airplane shall be oriented in wind direction and wheel wedged.
The fastening points are provided in the wing structure
The fastening ropes shall have min.800 Kg strength.
For an above 80 Km/h predicted wind, shelter the airplane in hangar.

5. Reserved
6. Reserved

Nose Fastening

7. To avoid airplane reserving on tail or turning because of the wind, it is recommanded to fasten its nose. The fastening made by passing the rope around the nose fork.
8. Reserved

Locking of the Flight Control Surfaces

9. To prevent the occurence of dangerous efforts at the flight controls, that appear at high wind conditions, it is necessary to lock the flight surfaces.
The locking devices.

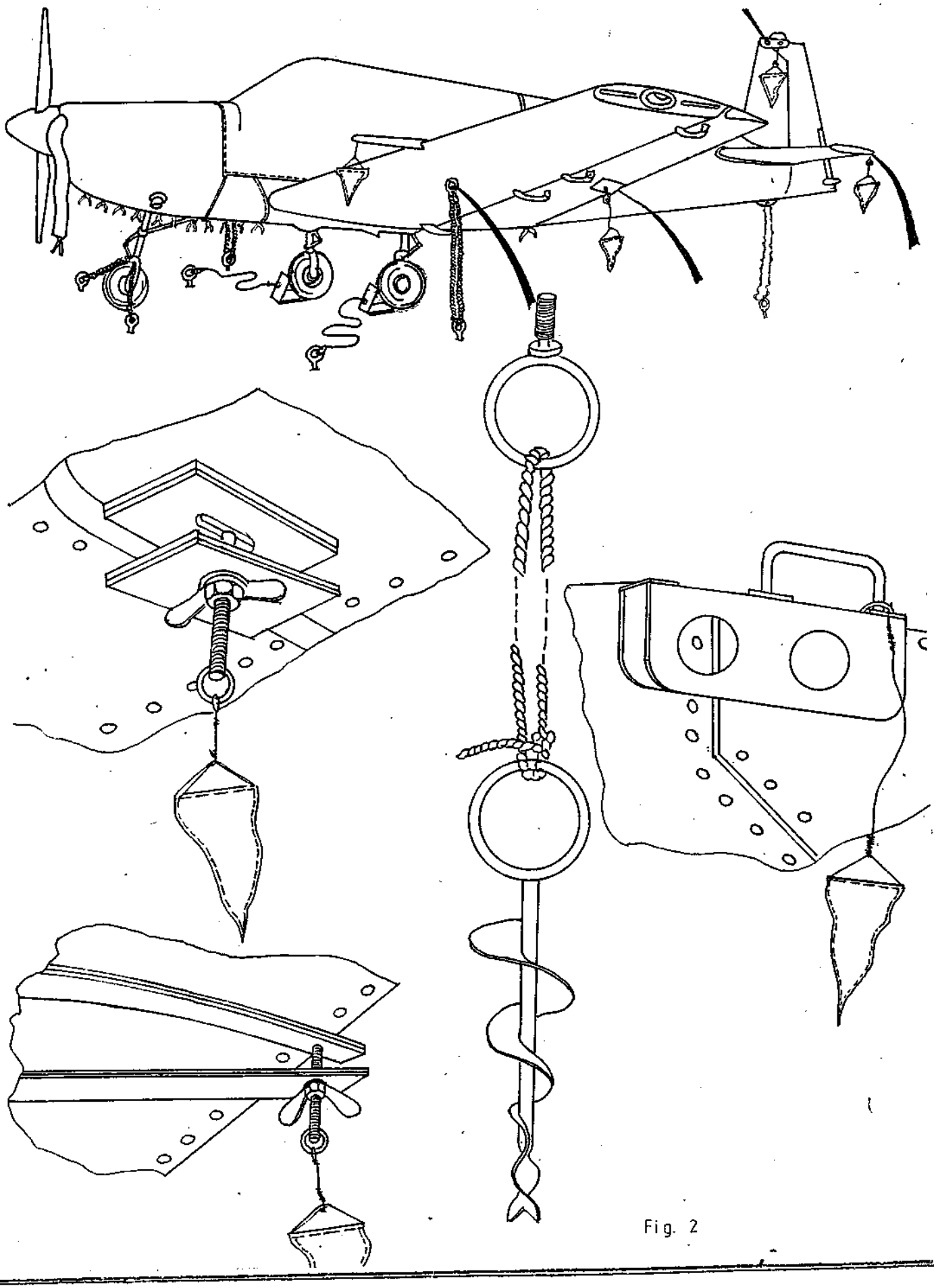


Fig. 2

The lockings should be of an approved type and shall be mounted according to indications given in fig.2.

Protection Covers

10. The Pitot head cover to which the warning red flag is attached, is mounted while the airplane is parked.

PREPARATION FOR FLIGHT

WARNING ..
ENSURE THAT ALL CONTROL SURFACES LOCKING DEVICES, AS WELL AS THE PROTECTION COVERS HAVE BEEN REMOVED, AND THAT ALL FASTENING RINGS HAVE BEEN DETACHED.

Maintenance of Weindshield and Cabin Windows

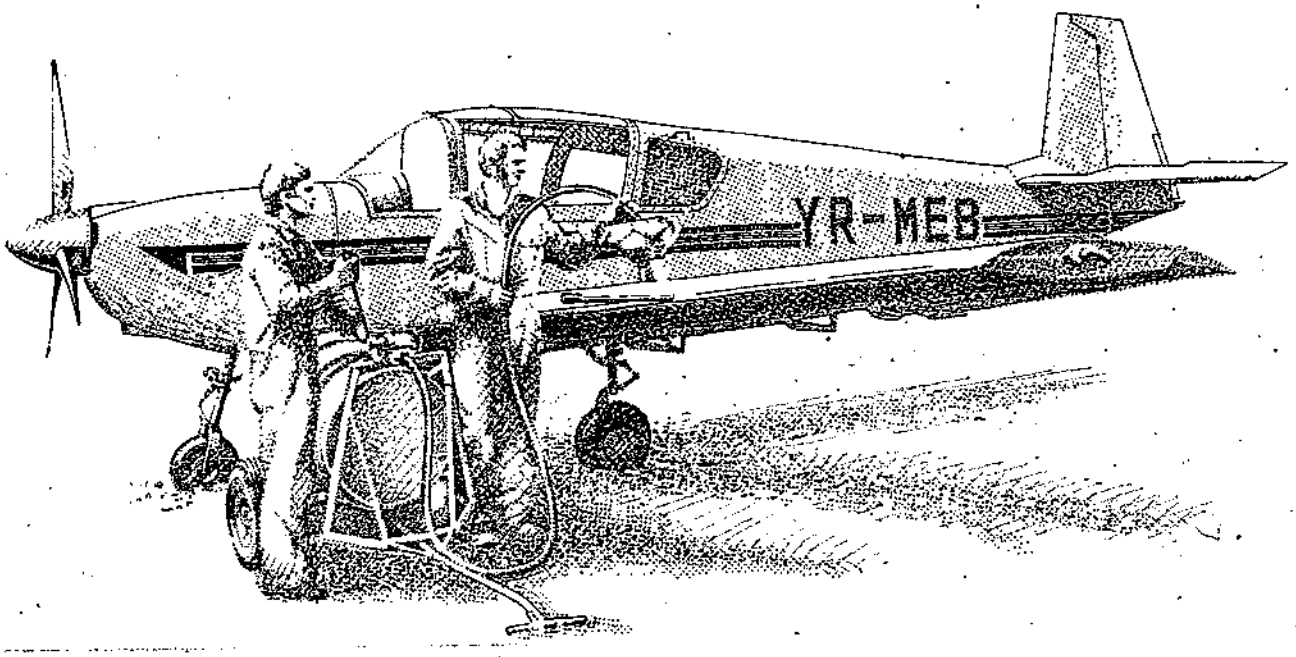
11. The plexiglass cleaning is carried out by means of cold water and solvent. It is forbidden to use of oil solvents.

Fuel System

WARNING ...
ENSURE THAT WHEN FULLFILLING, ALL ANTI-FIRE CAUTIONS HAVE BEEN TAKEN. CHECK IF THE MAGNETOS, SUPPLY-BATTERY GENERAL ARE OFF.

General

12. The filling caps are situated on the wing cuter lower.
The central plan tanks communicate with those of the extreme wings. The two tank groups have a 2 x 180 l = 360 l capacity, the fullfilling of each group being accomplished by the tank cap of the extreme plan. From this capacity, only 2 x x 170 l = 340 l is usefull.



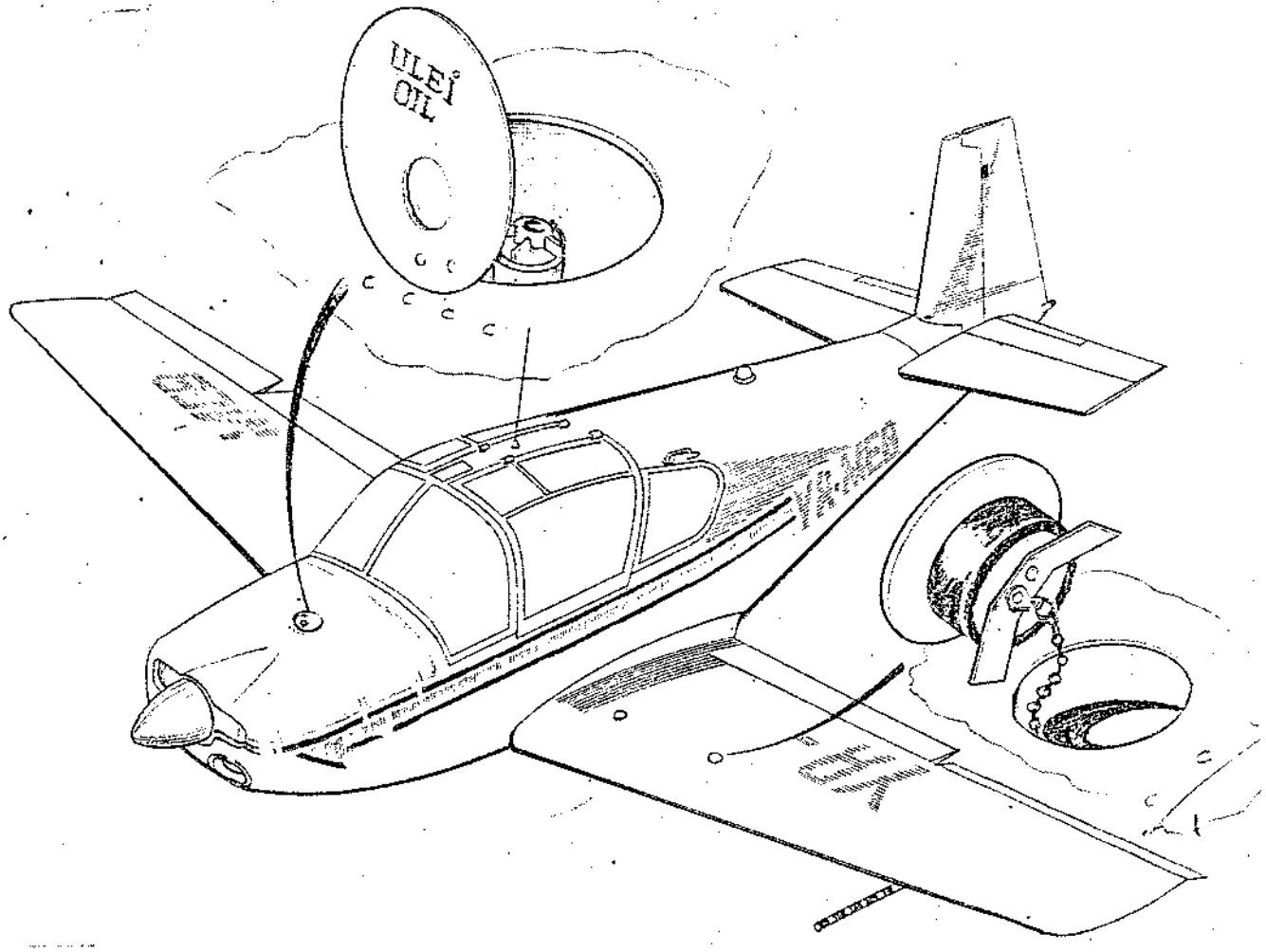


Fig. 3

Fuel Quality

13. See Main Details

Fullfillement

14. Reduce flow before the last 5 liters flowing, to avoid the fuel pouring out while fullifilling.

Note .....

Use an appropriate filter while filling the tanks.

15. Reserved.

Engine Oil

Level Check

16. Open the upper cowling access door and release gauge cap; Check oil level, which must be within the following limits :

Max. - 11.3 l (12 US quarts)
Min.Safety Level - 5.7 l (6 US quarts)

Oil Quality

17. See Main Details

Battery Check

18. Remove battery through the rear fuselage side access door after having previousely dismounted the belts and check for leakeage or corrosion. At even intervals, but not necessarily before each flight, check the electrolyte level and specific weight.

Emergency Equipment

19. Check if the fire extinguisher and fuse ends are in good condition, clean and moisturless. Check the doors jettisoning system

Undercarriage

General Inspection

20. Check the undercarriage condition for deterioration, especially after abnormal landings. Check the shock - absorbers sealing and travel. At even interwals, not necessarily before each flight, check if the shock absorber pressure is within the prescribed limits, respectively 14.5 Kgf/cm^2 at the main legs shock absorbers and 15 Kgf/cm^2 at that of the front leg. The shock absorber pressure - travel diagrams are given in fig. 4.5.
Check the undercarriage retracting system

Tyres

21. Check the tyres condition and pressure

- Main wheel tyres - 2.8 Kgf/cm^2
- Nose wheel tyre - 2.5 Kgf/cm^2

Brakes

Check the oil level of the braking installation tank.

Engine Starting and Operating Procedure

According to Lycoming Operator's Manual.

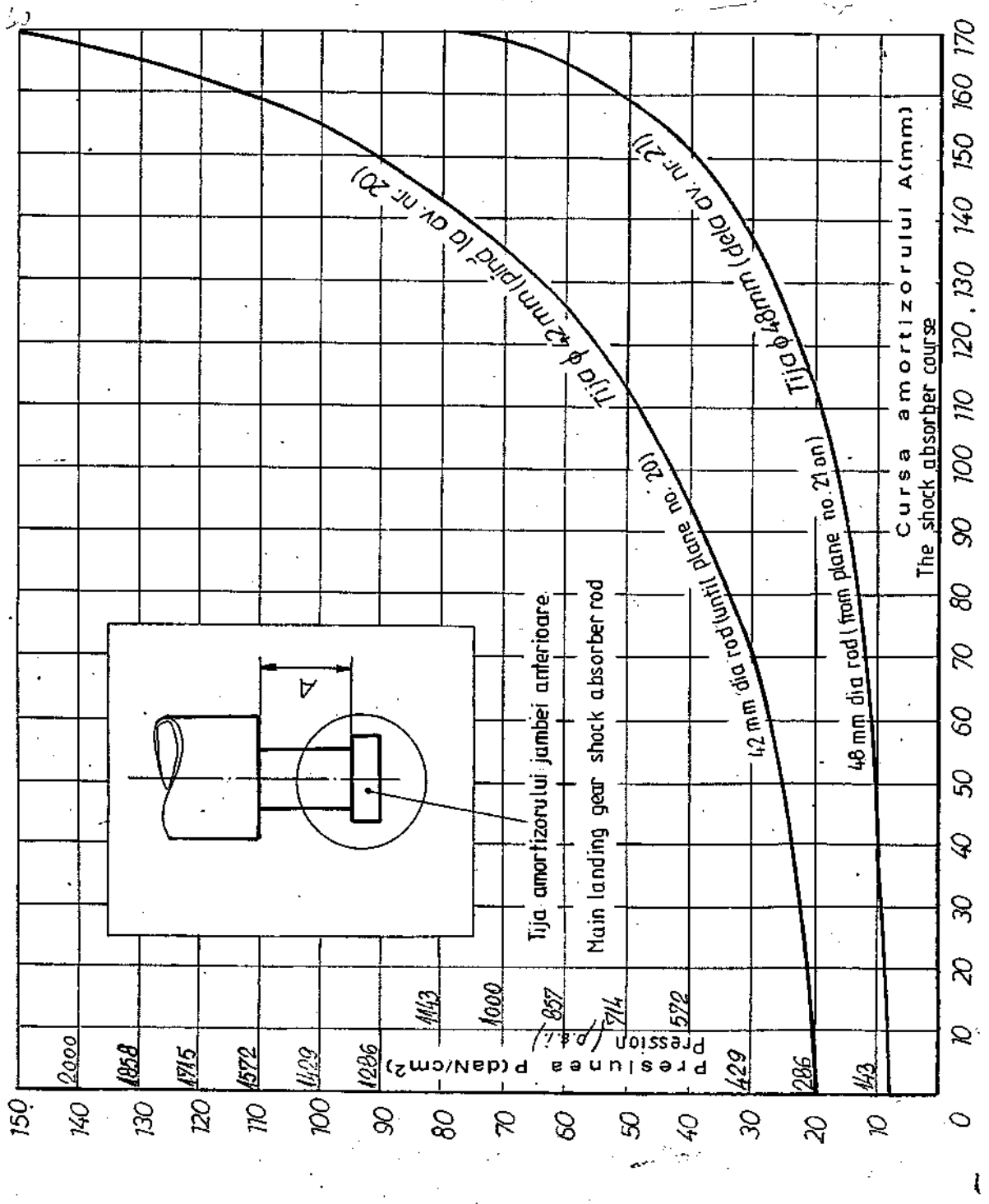


Fig. 4 - Diagram of Front Leg Shock Absorber Travel

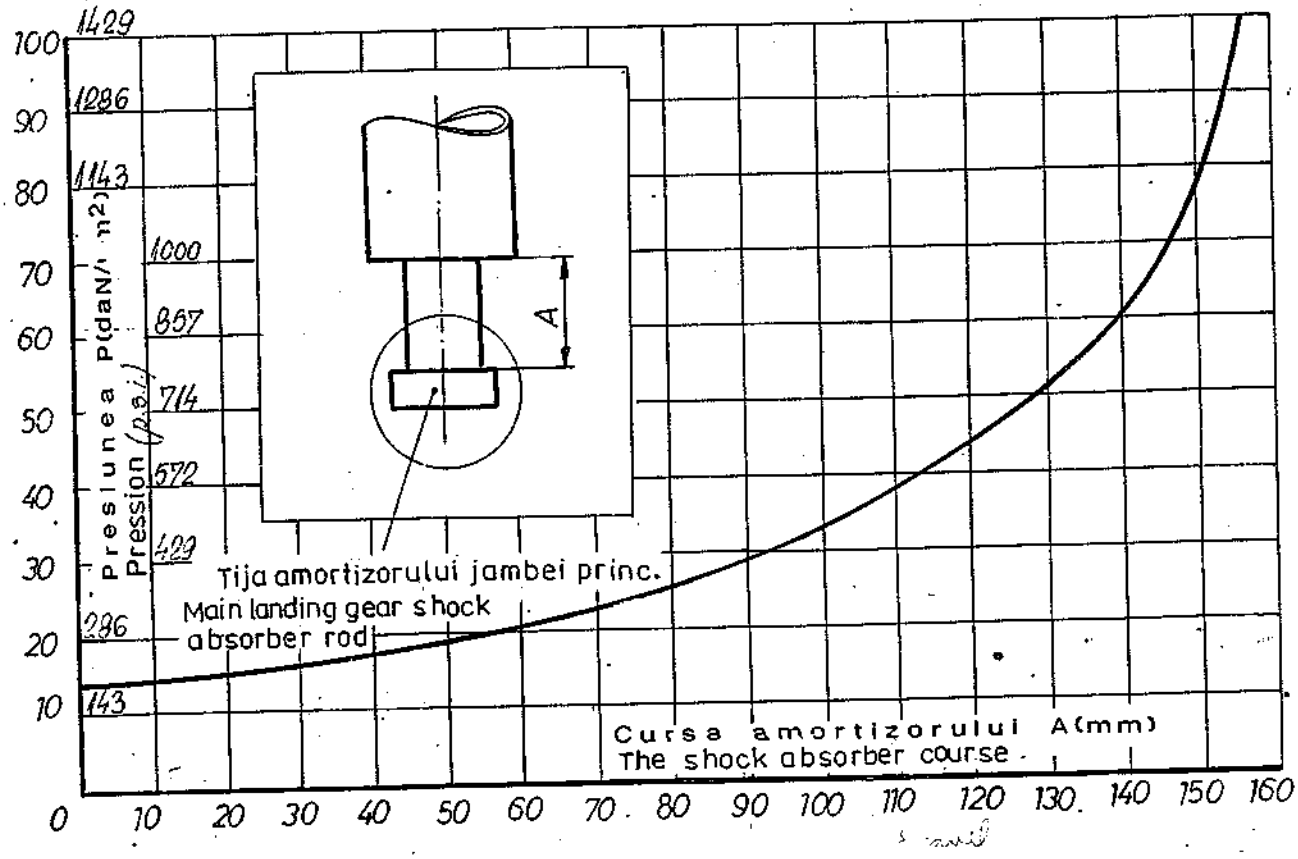


Fig. 5 Diagram of Main Leg Shock Absorber Travel

Chapter 1.4

GENERAL MAINTENANCE

CONTENT Page

DESCRIPTION AND OPERATION

WARNING ...
BEFORE STARTING GENERAL MAINTENANCE WORKS, CHECK THAT ALL ELECTRICAL AND FUEL CONTROLS ARE OFF.

CAUTION ...

Ensure that Pitot head is covered.

Jacking (fig.1)

General

1. The jacking points are located as it foolows: two point simetrically situated behind the firewall and one central point at the tail (near the landing skid). The jack items are given in table 1.

Jacking procedure

2. For a complete airplane jacking :
   (1) Get the main jacks, having the adapting ends trasversally oriented, in front of the fuselage orifices. Get the spherical ends to the height of the orifices entrance area by screwing them. Displace the transverse jacks till the spherical ends fully penetrate under the skin beads.
   (2) Get the tail jack in front of the pad and, by screwing, adjust the adapting end eyes to the pad eye height, then introduce and secure the bolt.
   (3) Simultaneausly start jacking till the wheels are above the ground, the airplane being in horizontal position. By lifting the adapting ends bodies of the main jacks to the fuselage orifices , the securing is carried out.
   Secure the jacks.

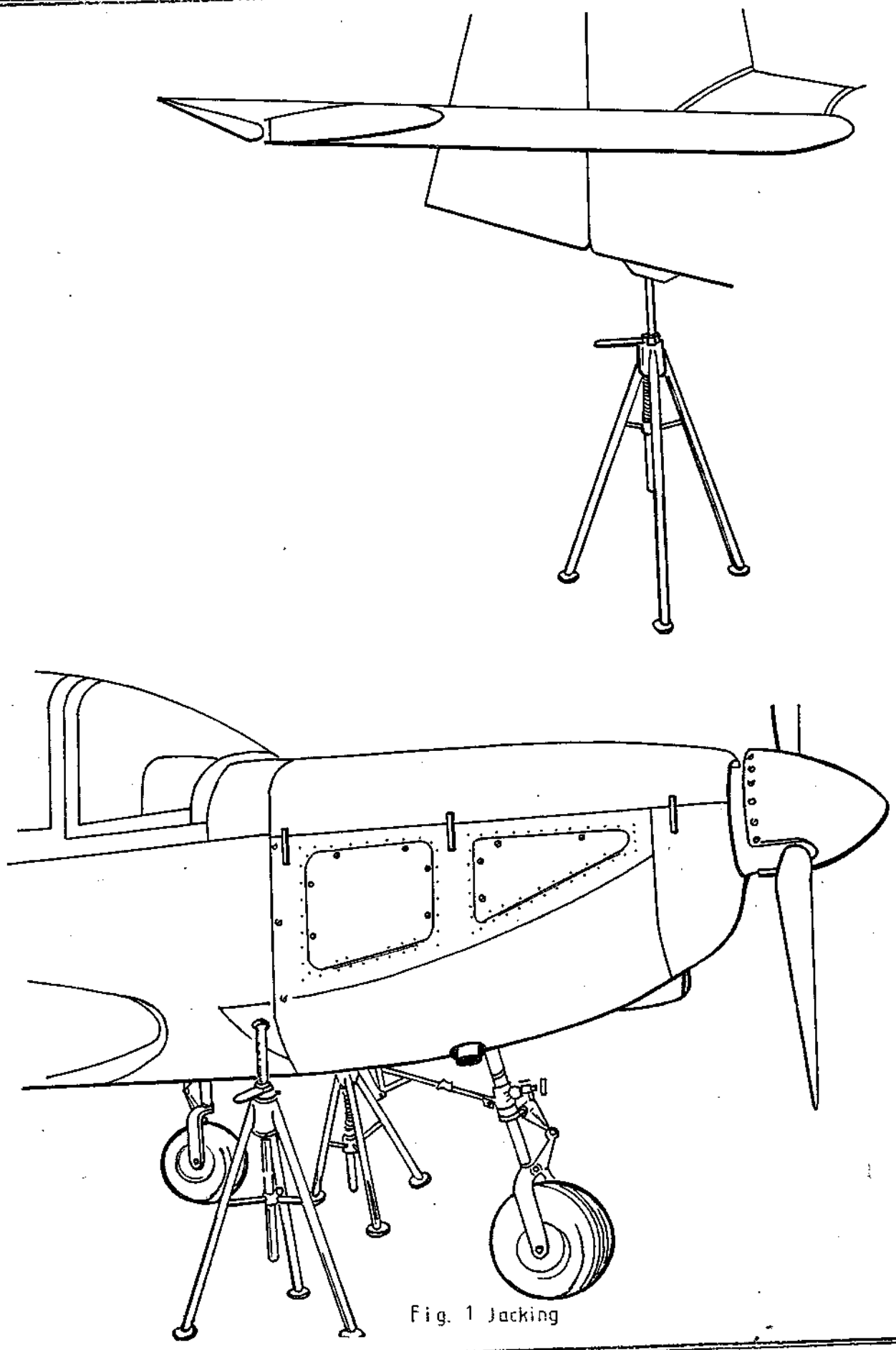


Fig. 1 Jacking

General

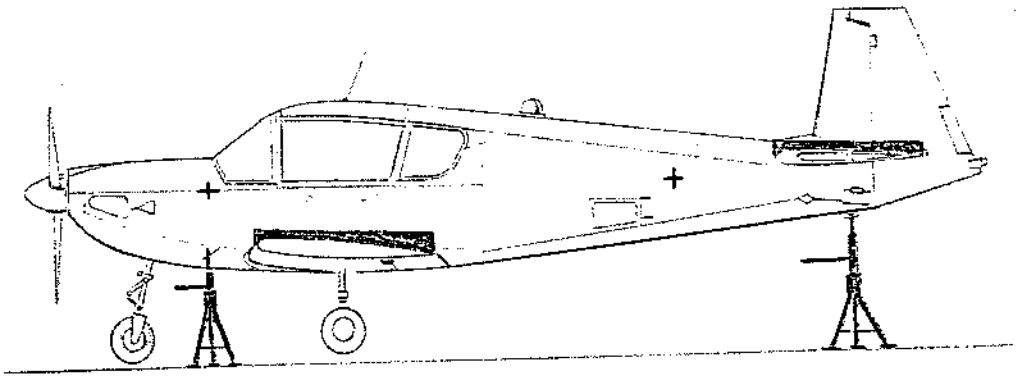
3. From time to time it is necessary to lift airplane in horizontal position (leveled) for weighing and GC determination as well as for calibration.

Leveling

4. Leveling instructions :
   - Longitudinal leveling :
     (1) Jack the airplane
     (2) By means of a inclination compass, check the airplane position (depending on the pop rivets of the LH fuselage side).
     (3) Lift/lower the jacks till obtaining the airplane horizontal position.
   - Side leveling :
     (1) Use the main spar upper sole, the part between the seats, eventually remove one seat.
     (2) Adjust an indication compass along the spar and also adjust the jacks till obtaining the horizontal position.
     (3) Check if the airplane horizontal position is obtained in longitudinal as well as in side direction.

Calibration

5. In order to check the airplane shape, carry out the cross-over calibration refering to the fixed flight surfaces position, and compare the measurings with the calibrated data, Check periodically the wing wedging angle.
Checks and measurings according to fig.2.



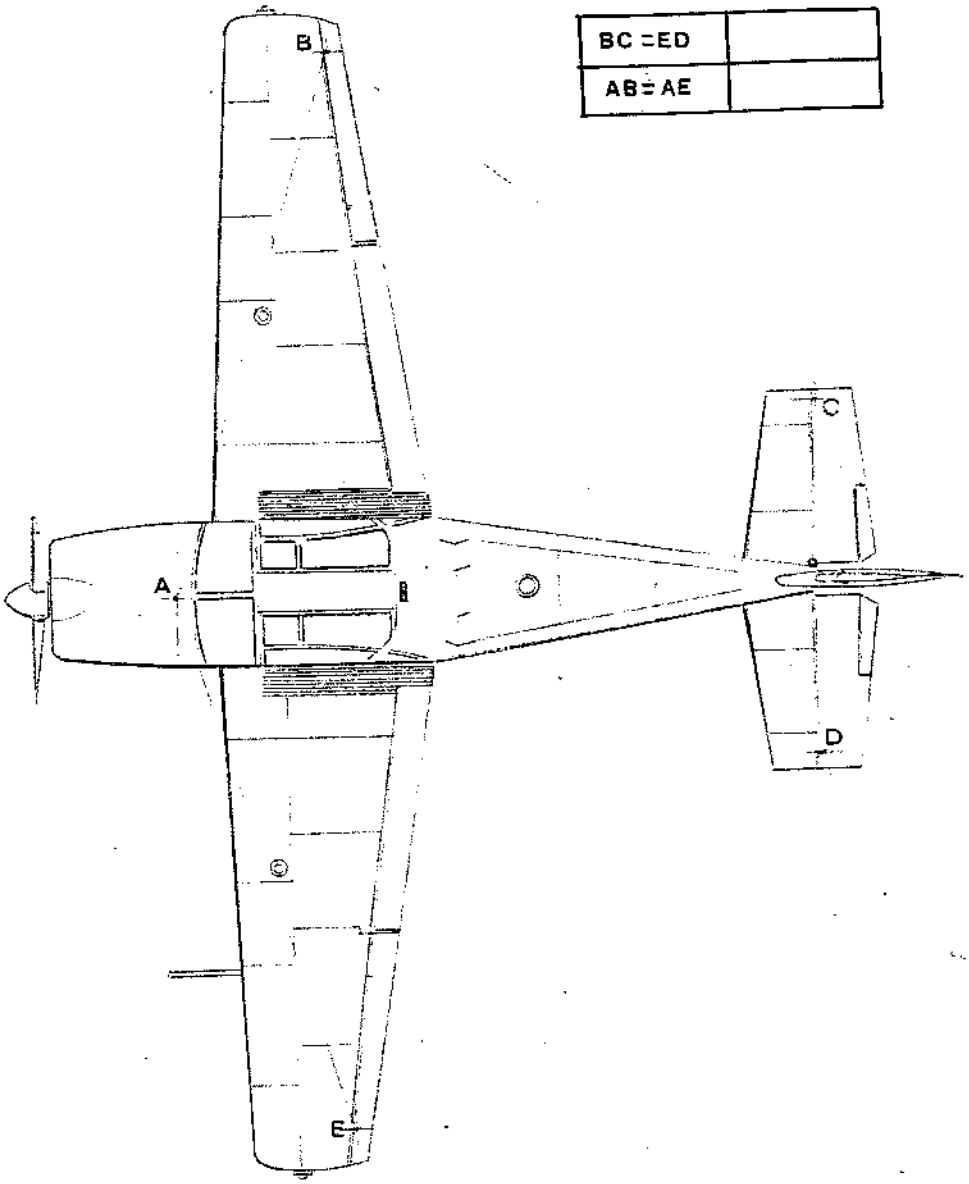


Fig. 2 Leveling and Calibration

Greasing

6. The instructions for greasing are given in the respective chapters of this manual, but the periodicity depends on the airplane operating conditions : for further information refer to the Inspection Guide.

Drain Holes (fig.3)

7. The drain holes are situated at the fuselage lower parts as shown in the illustrations. The drain holes shall be periodically checked (for clogging).

Access Doors and Removable Panels (fig. 4 and 5)

8. In order to facilitate the checking of certain airframe or flight controls areas, access doors are provided. Their role and location are given in fig. 4 and 5.

Earth Connection Tests

9. It is recommanded to check regularily the airframe and its system for electrical connection. In this respect, it is necessary to perform local removings and penetrations of the tested parts protection. Restaure the respective parts protection after these tests. The earth connection tests are devided into two categories : low resistance tests and high resistance tests, as shown in Table 2.
In order to carry out the earth connection tests, the follwing equipment is required :
(1) An earth connection tester with reading scale from 0 to 0.1 ohms and a 12 m electrodes opening.
(2) A megohmmeter to test the 250 V insulation resistance.
(3) Two metallic plates each having a sufficient area to contain the main wheel print, plus another metallic plate for the nose wheel print.

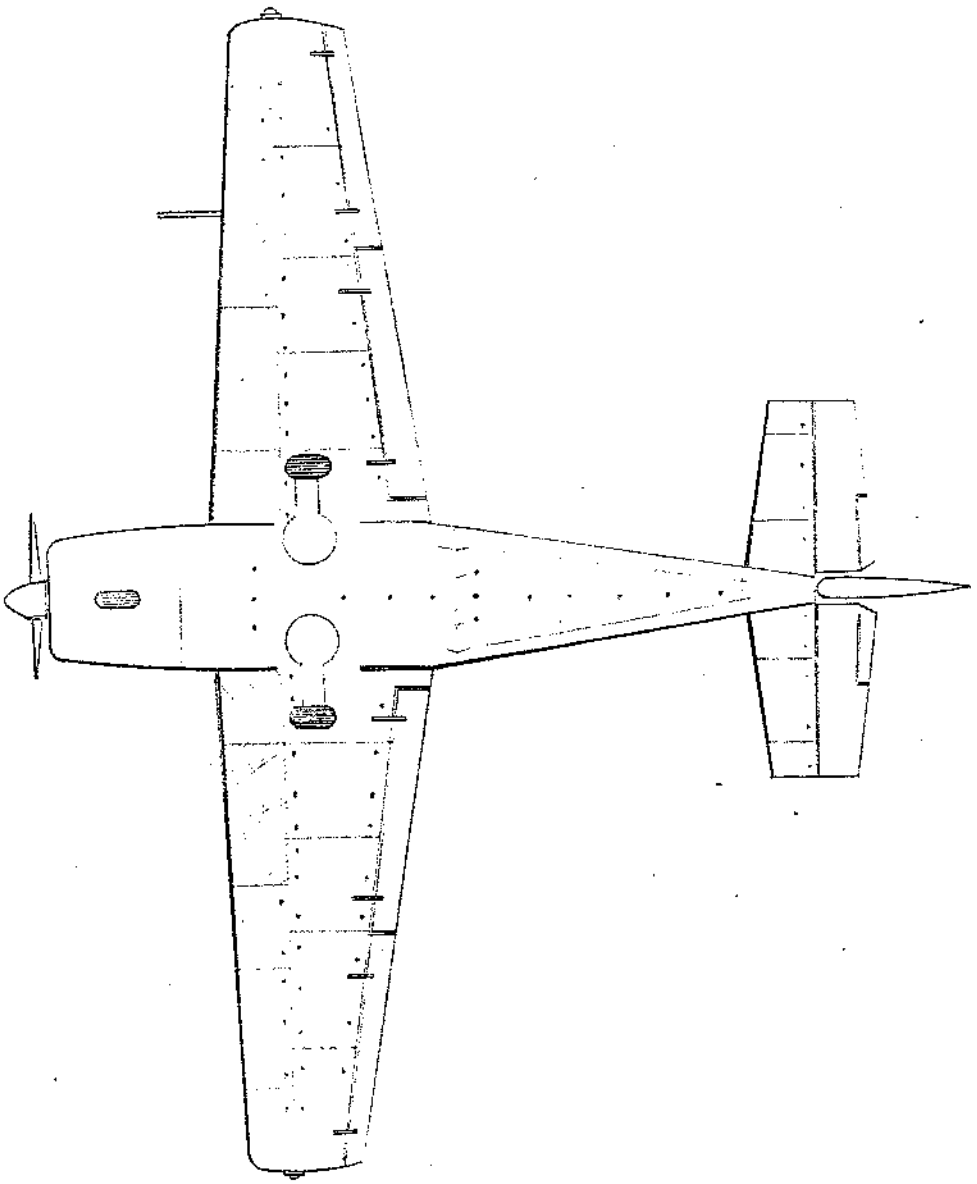


Fig. 3 Drain Holes Location

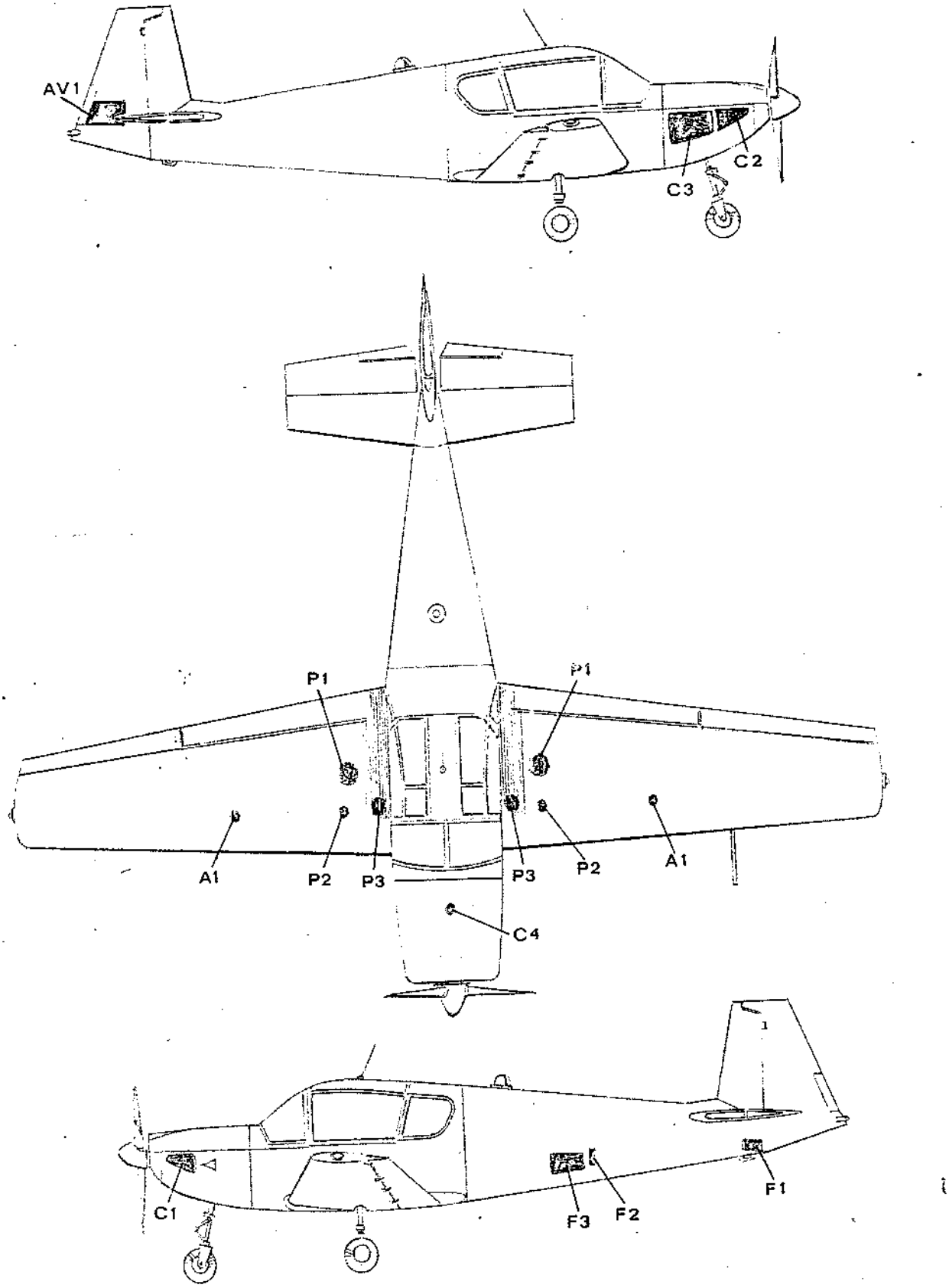


Figure 4- Rear Acces Doors and Removable Panels

Cover/Panel Identification	Access to :	Ø shows that the part belongs to the strength structure
	WING	
A1	Extreme Tank	
A2	Pitot Head	Ø
A3	Aileron Control	Ø
A4	Aileron Control	Ø
	CENTRAL PLAN	
P1	Main Leg	Ø
P2	Central Plan Tank	
P3	Fuel Gauge	
P4	Flap Control	
P5	Fuel Gauge	

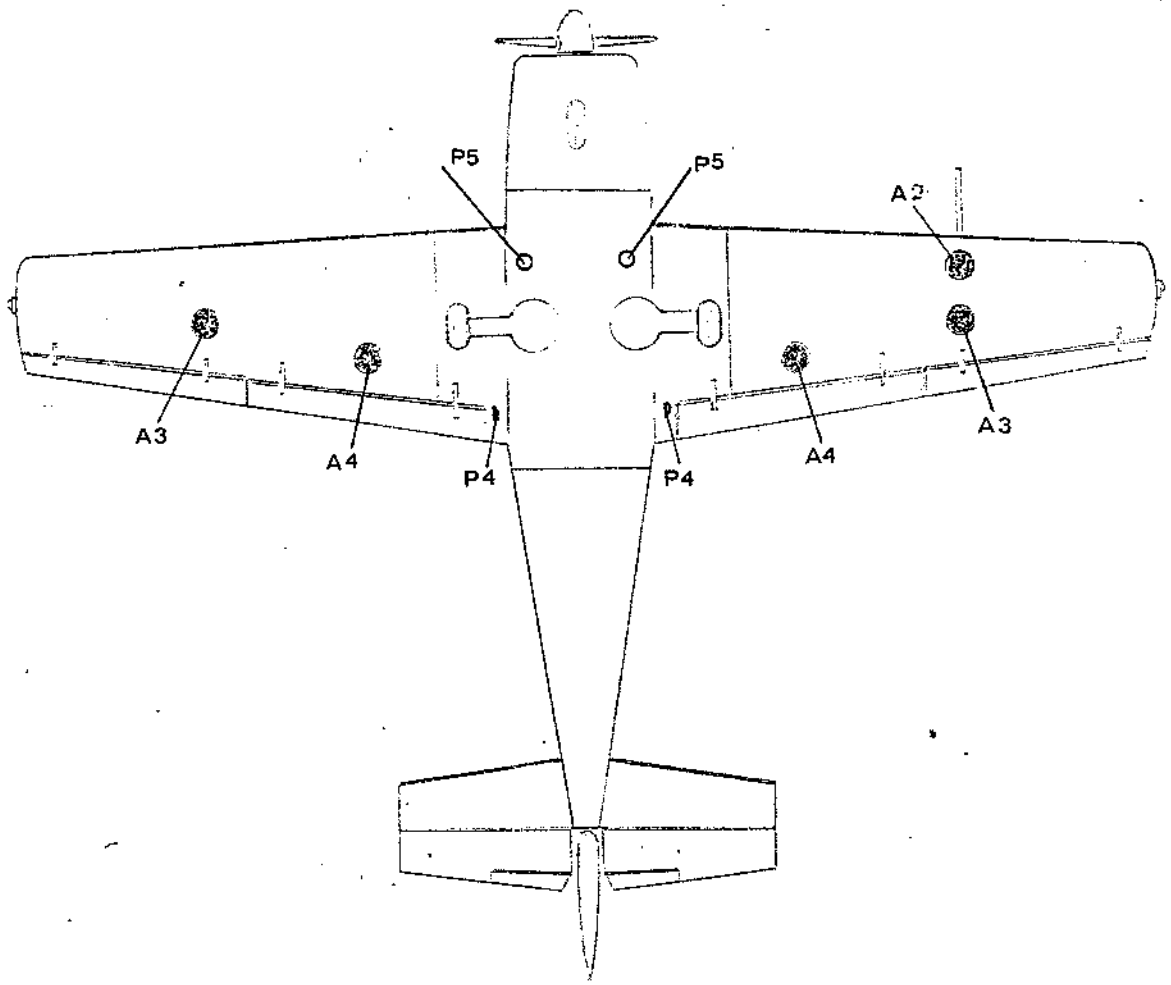


Figure 5- Lower Acces Doors and Removable Panels

Caption to Fig.4 and 5

Cover/Panel Identification	Access to :	Ø showe that the part belongs to the shength structure
	FUSELAGE	
F1	Rudder and Elevator Controls	Ø
F2	Ground Plug	
F3	Battery	
	TAIL UNIT	
AV1	Rudder Trimmer	
	COWLING	
C1	Engine LH	
C2	Engine Front RH	
C3	Engine Rear RH	
C4	Oil Gauge	

Table 1 SERVICING EQUIPMENT

Drawing no.	Designation	Use
823-17-404	Front jack (2 pcs)	Leveling, calibration, leg dismounting, wheels replacement etc.
823-17-405	Rear jack	

TABLE 2 EARTH CONNECTION TESTS

Test no.	Description and Procedure
1.	AIRFRAME AND SYSTEM COMPONENTS Connect the tester to the earth connection main point (EP 1) of the electrical installation and apply the tester probe to each of the following components. Read the resistance that should not exced 0.05 ohms. It the reading is above this value, establish its origin, remove it and repeat the test.

Wing Spar	Fuel Pipes
Wing Tips (RH + LH)	Board Instruments
Aileron (RH + LH)	Control Stick
Flap (RH + LH)	
Elevator Trimmer (RH + LH)	Rudder Control Pedals
Elevator (RH + LH)	Main Landing Gear RH + LH
Rudder Trimmer	
Engine	Front Landing Gear
Rear - Fin Spar	Protection sheath of electrical cables :
Rear - Stabilizer Spar	- in wing
Fuel Pump	- below cabin floor

Note ...
The operator may decide to continue the testing on other airframe and system components. Within all these tests, the resistance read value between different sections and components shall not exced the 0.05 ohm prescribed value.

2. AIRPLANE EARTH CONNECTION

Get the airplane with its 3 wheels on the metallic plates and connect the megohmmeter to the electrical installation main earth point (EP 1). Apply the probe to the three plates and see if the read resistances de not exced 10 megohms.

Reserved

Chapter 1.5

LOADS AND BALANCES

The information about the correct loading procedures as well as the calculation of the airplane GC position are given in the Section V of the Flight Manual.

Reserved

Chapter 1.6

MINOR REPAIRS

CONTENT Page

DESCRIPTION AND OPERATION

General

1. In this chapter are presented the necessary procedures for minor damages repairings, within the normal flight off. Detailed instructions about the repairing procedures shall be obtained from the airplane manufacturer.

Repairing Limitations and Typical Repairs (fig.1)

Areas of Restrictive Repairs

2. The minor repairs are restricted for certain fuselage areas, which are give in the illustration. Before carring out repairs in these area, details about the damage, its location on the airplane are to be sent to the manufacturer who will provide in return the specific repairing diagram based on the damage individual evaluation.

External Repairing Areas

3. Except the above mentionned areas, minor external repairs may te carried out on the other airplane areas, with the observation of requirements and recommandations given in this Chapter.

Internal Repairing Areas

4. Beside the permitted repairing areas given in the above paragraph, the damages in the cabin can be repaired by observing the limitations and recommandations given for the airplane.

Types of Repairs

5. The types of repairs given within this chapter are limited to those necessary for minor damages remedy. The illustrations present some typical repairs accompanied by the appropriate instructions

Repairing Materials

6. All repairing materials shall have the some specification and characteristics as those of the damaged area. The protection treatment for repairing materials depends upon the available facilities. If no available treatment,

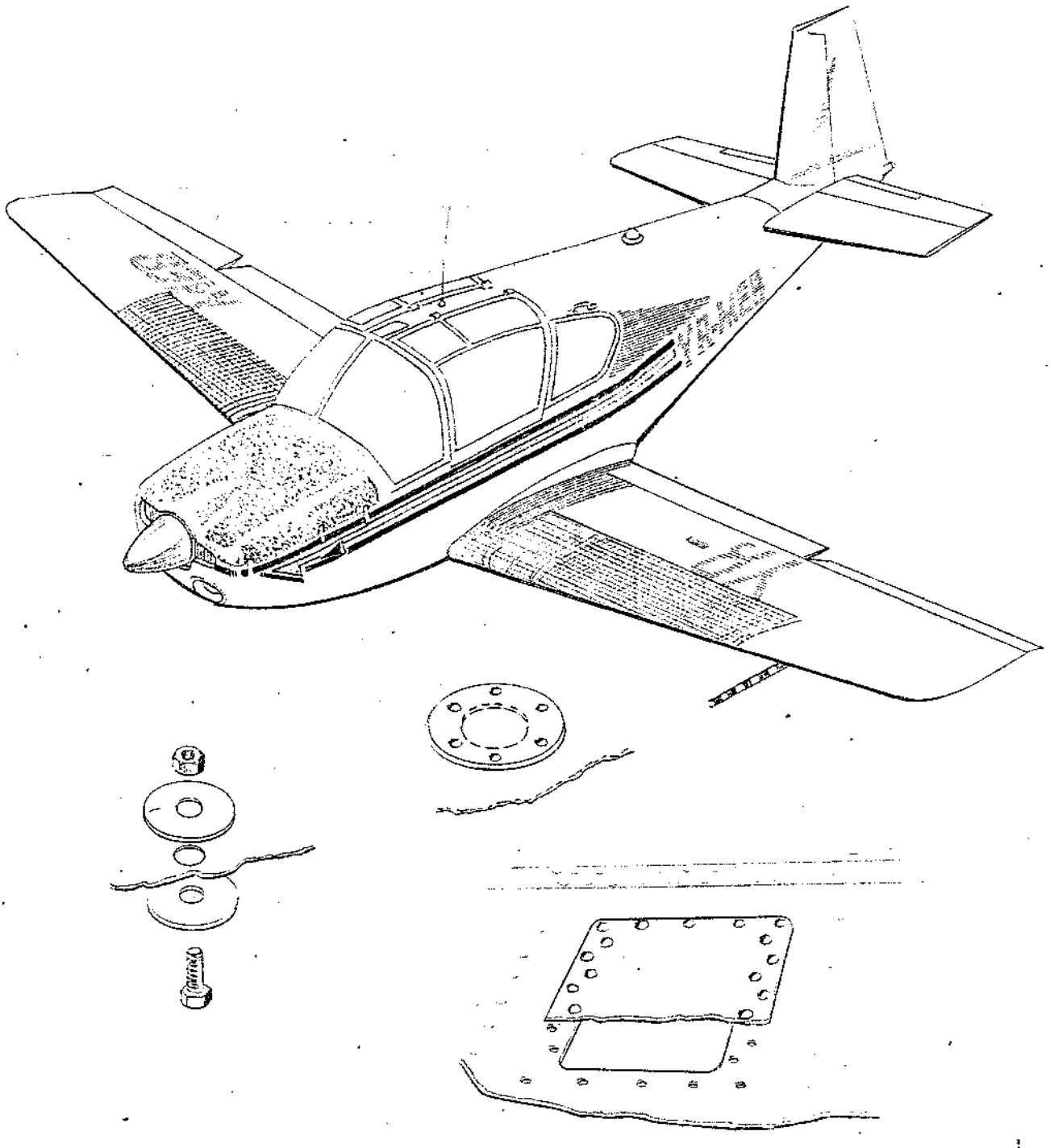


Fig. 1 - Limitations of Repairings and Typical Repairs

Repairing Data

7. To fullfill the repairing data, information from the "Replacement and General Repairs Index" are added to the typical repairs diagrams.

Fuel Tank Repairs

8. Since repairs in the fuel tanks area are restricted, special safety measures shall be taken if damages occur on the upper or lower skin of the fuel tank. These measures are intended to temporarily recondition the airplane for flight and permanent repairs shall be carried out subsequently.
For skin mendings within a temporary repair, the re-worked hole shall not exced 9 mm and a simple sandwich with double washer is to be used as illustrated below. If the damages are more serious the manufacturer shall be informed.

NOTE :
Such repairs shall be sealed by means of fluide sealing materials. Don't use rubber or cork gaskets.

Drain and Vent Holes

9. If repair have to be made at drain or vent holes, they have to copy the holes former position and shape. If a moisture collector is formed as a follow of this repair, another drain facility is to be provided.

Repairs with Fibre Glass Reinforced Resins

10. Some of the aircraft components as engine cawling, for instance, being manufactured with F.G.R.R., require a special repairing diagram; the illustration (fig. 2) shows a typical repairing diagram and gives data for such repair.

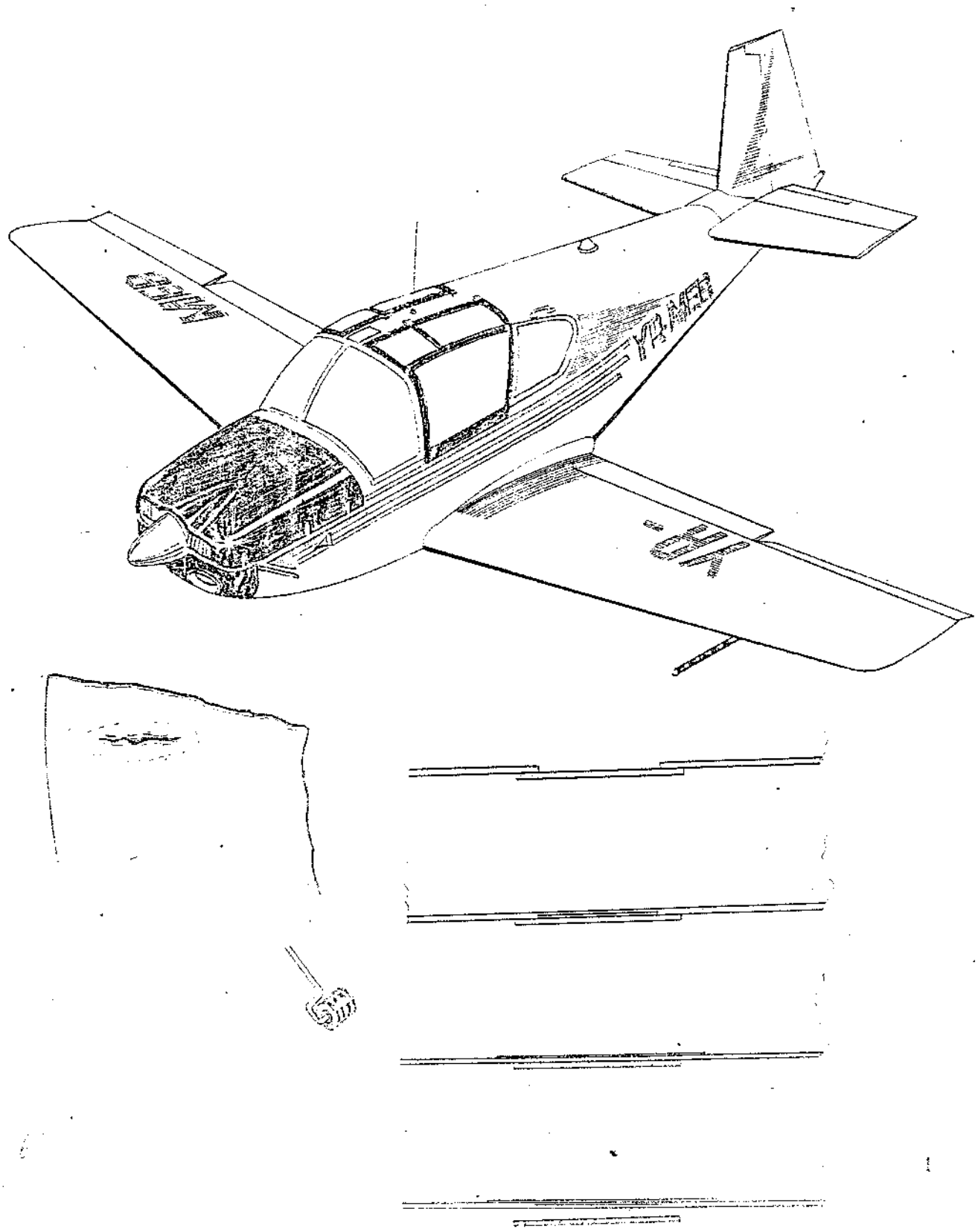


Figure 2- Repairs with Fibre Glass Reinforced Resins

Reserved

Group 2 AIRFRAME

Chapters List

Chapter 2.1

FUSELAGE

CONTENT Page

ILLUSTRATIONS

DESCRIPTION AND OPERATION

General (fig. 1)

The front fuselage is a structure formed by 4 spars, longitudinal and cross booms, the strength structure being limited by the floor and the board panel. The central plan belonging to the front fuselage is mono-spar with fake spar, strips and ribs. In the front fuselage are located the flight controls holders.
The junction between the front and the rear fuselage is made by means of a frame and some steel fittinges (15CDV6) riveted on the airframe.
The rear fuselage is a semi-monocoque structure with strips, frames and metallic skin.
In the rear fuselage there are mounted the control levers of tail unit mobile surfaces as well as the battery holder. On the frames 7, 8, 9 there are mounted the tail unit fittings.

The Front Fuselage

Construction

At the beginning of paragraph 1 it was presented the construction of fuselage front part. At this part of airframe there are also some internal sub-assies.
At the cabin front part there are two vertical diaphragms made of squeezed sheet, having the purpose to hold the board panel. Behind them there are the contro stick holder, the controls central tunnel as well as the special controls and instruments. Beside the 4 safety belts fastening eyes from the fuselage side booms, there is also the bolt fastener, assembled on the floor central booms, behind the spar and the bench fastener.

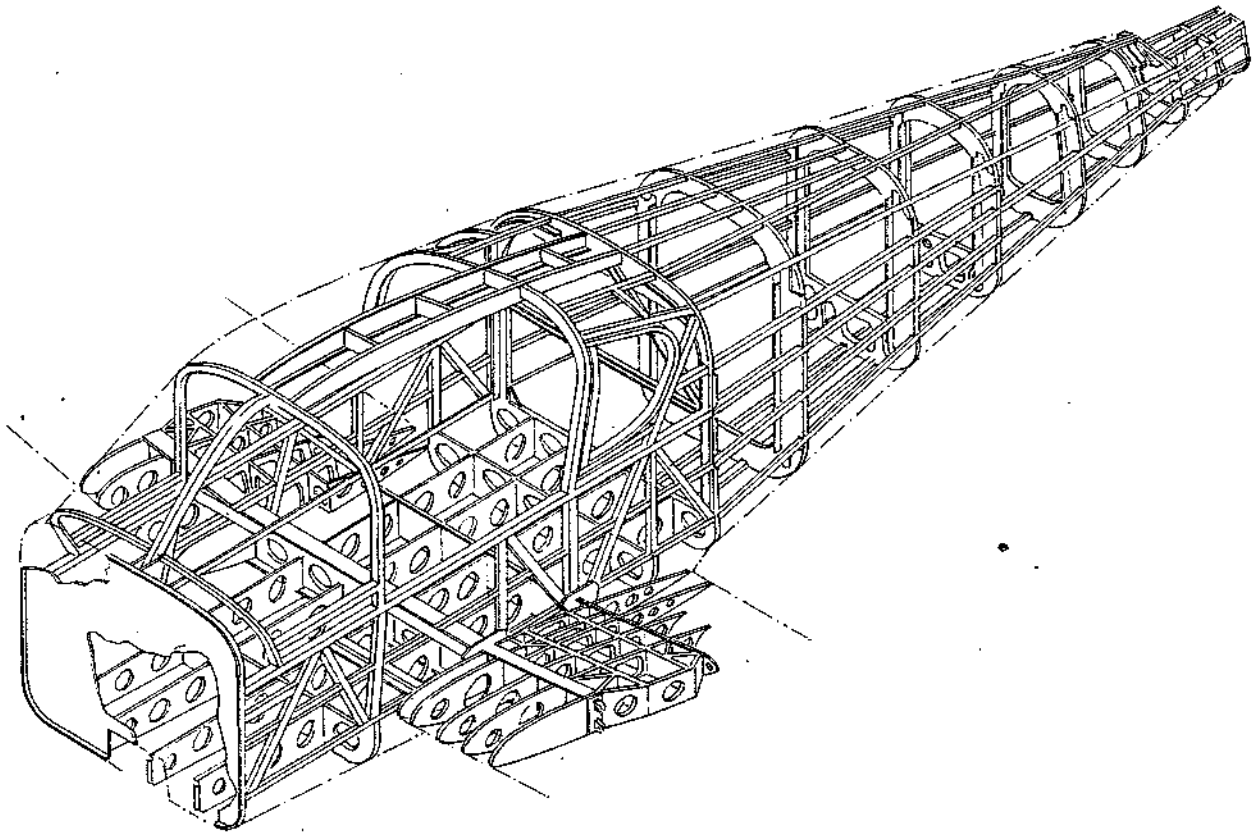


Fig. 1 Fuselage – central plane mounting

Firewall and the Junction with the engine Holder (fig.3)

3. The firewall is made of stainless steel sheet with stiffaning margin. At the lower part, the firewall is provided with a cut-off the floor central boms with ehich it forms the nose landing gear bay. The assembling of engine holder on the fuselage is carried out by means eight bolte riveted on the firewall fittings, at the location of the four fuselage spars, central booms and board panel holdes.

Central Plan

Construction

4. In great lines the construction of this part was presented in § 1.

Junction with the Extreme Wings (fig.2)

5. The assembling of extreme wings on the central plan is made by three fittings, two of them being situated on the main spar and one on the auxiliary spar.

Main legs Bearing

6. The bearings pair near the junctions, provide the hinging of the retractable gear legs. They are mounted on the landing gear booms.
At the central plan there are also the jack fitting for the main landing gear retraction. On the main spar and the gear bay front wall there are the torque tube bearings of the retracting system.

The Integrated Tanks

7. The areas between the full care ribs of sections 620 and 1380, the landing edge skin and the main spear are hermetical rooms, representing the central plan tanks. The ribs are provided with stiffened holes. The tanks sealing is made during the central plan manufecturing by coating with elastomeric sealing product. The access for inspection and servicing is provided by the inner lower removable access doors.

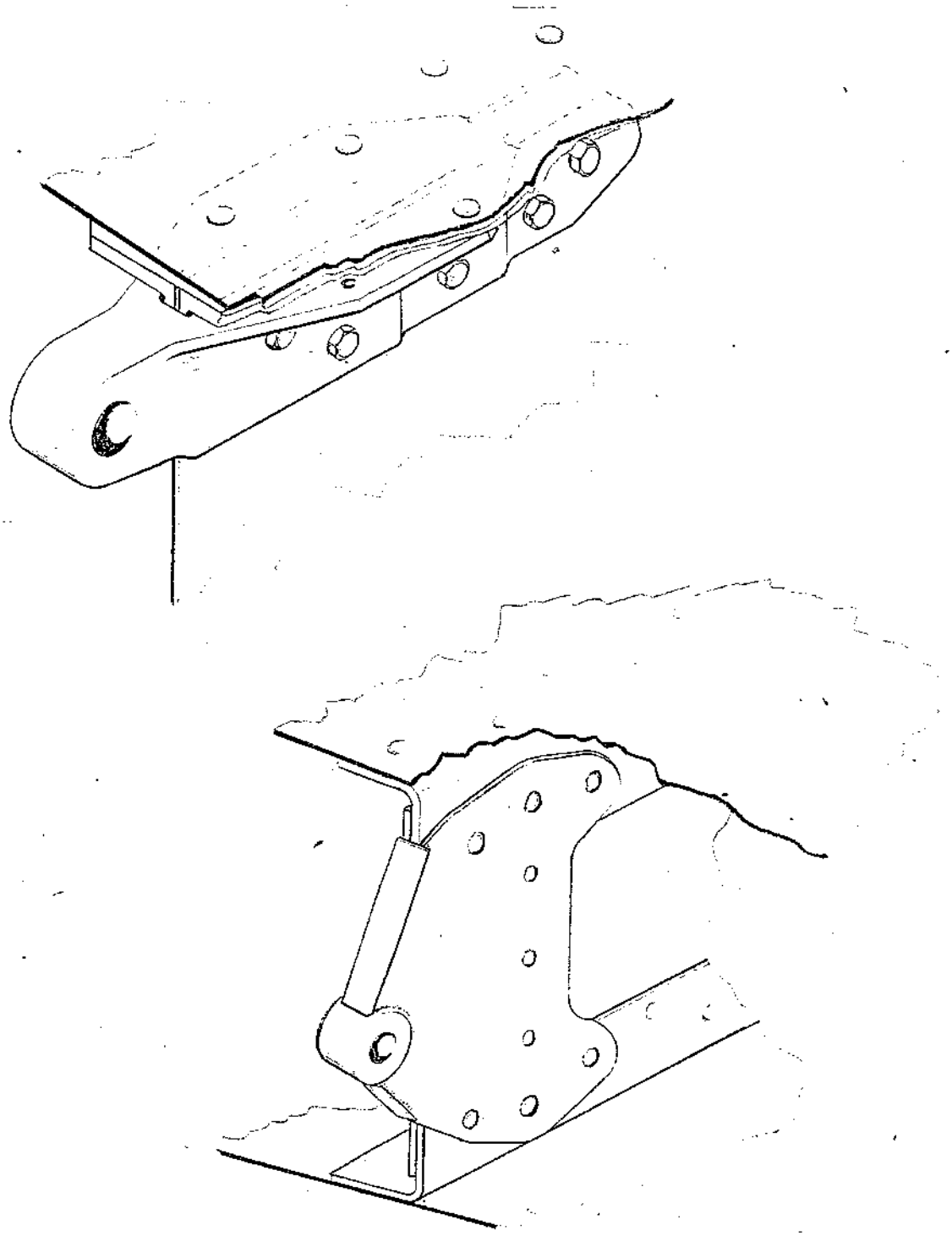


Figure 2 – Jonction with the Extreme Wings

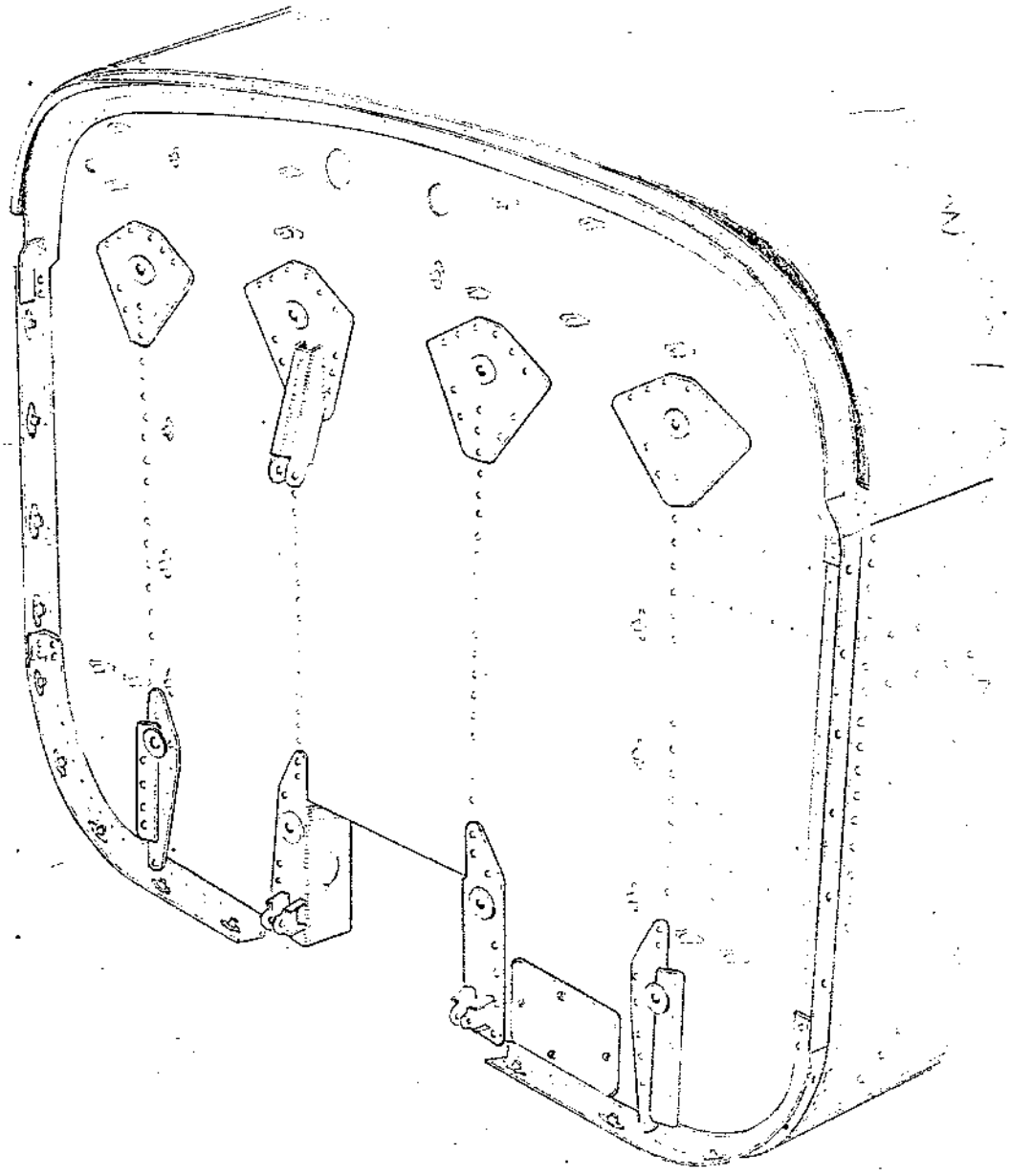


Figure 3 – Firewall and the Junction with the engine Holder

Covers

8. The central plan is fitted with several access doors

Footstep

9. The two footsteps are provided for climbing into the cabin are formed by a wooden panel coverd with waterresistant sand paper.

Flap Hinge (fig.4)

10. Made of dural sheet and provided with ascillating bearing It is stiffend in the central plan area.

Rear Fuselage

Construction

11. Like the other two parts of the assy, the rear fuselage was also described within § 1.

Junction to the Empennage (fig.5)

The reinforced and properly bushed junction fitting belong to to the structure frame no.9.

Covers

12. The fiber glass access door to the battery is situated at the left rear fuselage, between frames nr.3 and 4. Near it there is the access door to the ground power unit plug. Between the frames no.8 and 9 there is the access door to the central rods.

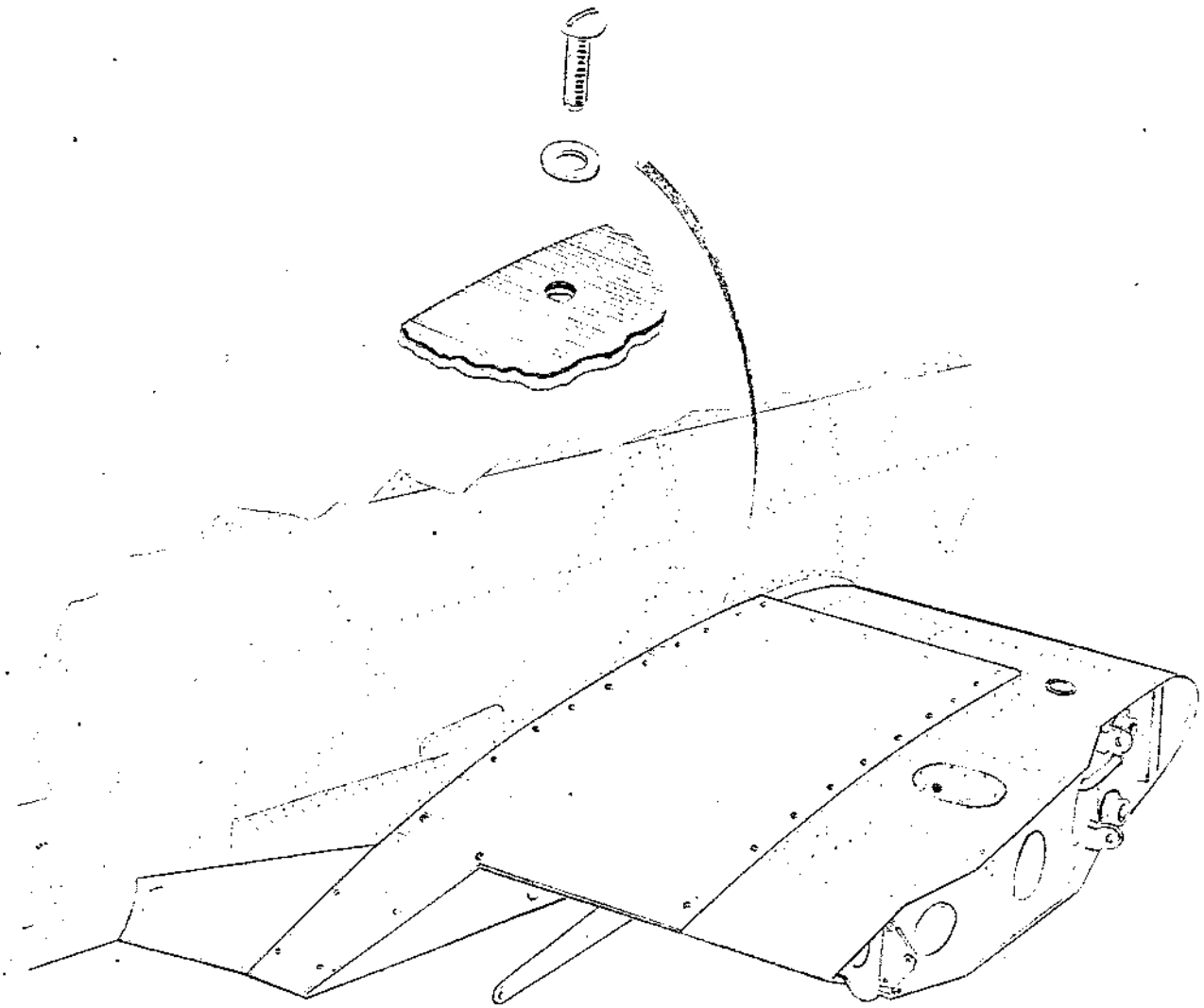


Figure 4- Footstep and Flap Hinge

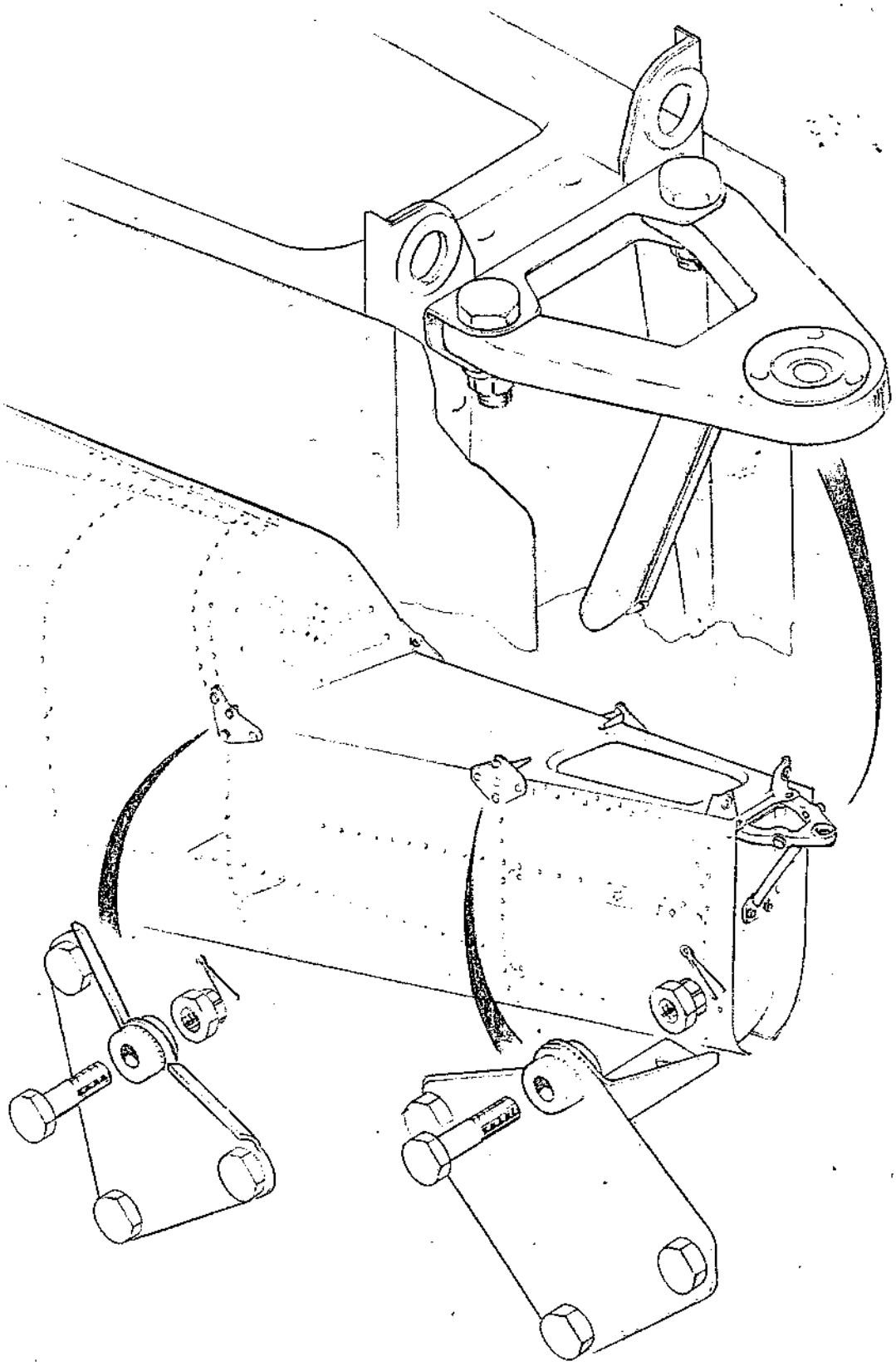


Figure 5- Empenage Junction Fittings

Chapter 2.2.

WING

Paragraph DESCRIPTION AND OPERATION

1. General

2. Spars
2. Main Spar
3. Rear Spar

Ribs

4. Front Ribs
5. Central Ribs
6. Rear Ribs
7. End Rib
8. Strips
9. Integrated Fuel Tanks
10. Flap Hinge
11. Aileron Hinge
12. Skin
13. Access Doors

Wing Junction to the Fuselage

14. Pins
15. Fairings Belts

Control Surfaces

16. Aileron
17. Flap

Fig. ILLUSTRATIONS

1. Wing Structure
2. Extreme Wing Junction to the Central Plan
3, Aileron Structure
4. Flap Structure

Diagram MAINTENANCE

DESCRIPTION AND OPERATION

General (fig.1)

1. The two left and right extreme wings toghether with the fuselage central plan form thethree parts of the airplane lifting surface. One extreme wing structure consists of main spar and the fake one, as well as of ribs, strips and the lifting skin. The main spar together with the front ribs and the leading edge skin form the wing front caisson.
Between the ribs 1480 and 2600, the leading edge caisson pylon is sealed and forms the extreme fuel tank of the tank pair left and right. The rear caisson is formed by two spars, the central ribs and the skin. The access doors have to be carefully mounted since they belong to the strength structure (see Chapter 1.4) At the end of this chapter there are presented the control surfaces mounting and dismounting operations.
The extreme wings maintain the dihedral angle and continue the external central plane structure and its trapezoidal shape as well.
The wing angle of incidence decreases lineárly from $3^{o}$to 1^{o}.
The main and dummy spars core are in the prolongation of the central plane elements, the change of incidences being achieved by rotating chords about the 30% points.

Spars

Front spar

2. The wing main spar is at 30% of airfail chord.
The spar bases are made of laminated dural profiles assembled to the core by rivets. The number of brackets decreases from four at the junction section to two at the plan extremity.
The longeron core is made of 2 mm thickness dural sheet, stiffened by the riveted transverse brackets, which are intermediate parts for the spar and ribs assembling.

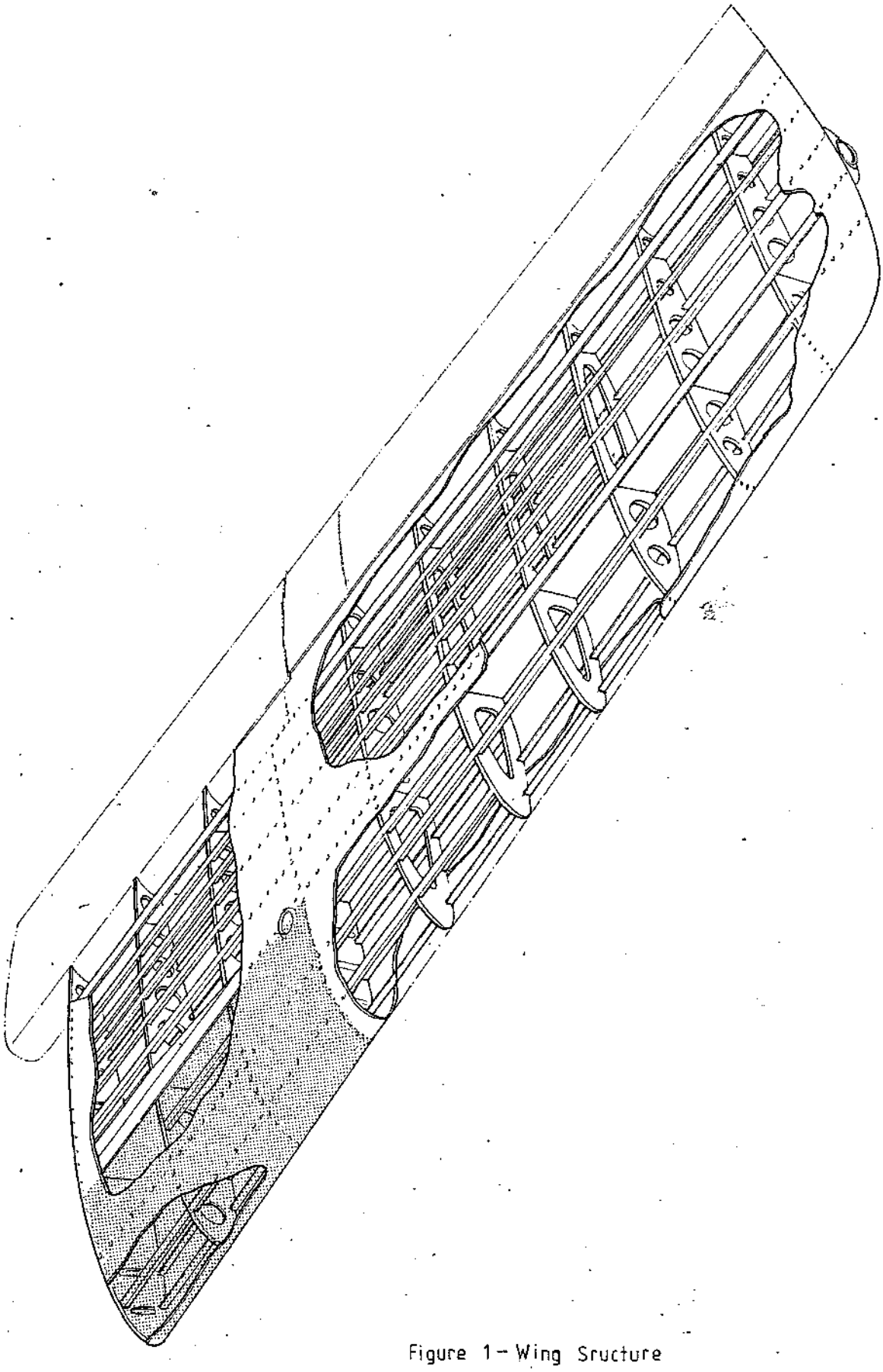


Figure 1 – Wing Sructure

Rear Spar

3. This constitutes the wing fake spar on wich are mounted the aileron and flap hinges. The rear spar is made of 1.5 mm tickness dural sheet. By bending the sheet there have been obtained the same piece bases.

Ribs

Front Ribs

4. The front ribs serie constitutes the front caisson transverse structure . Its assembling with the front spar being carried out by riveting them to the stiffening brackets. A rib is made of one single piece of dural sheet, by squeezing the riveting border with the leading edge skin and the lighting holes. The ribs forming the extreme wing tank walls have a stiffened compact core.

Central Ribs

5. Similary to the above mentionned ribs, the central ribs bases and lighting holes are stiffened and made by dural sheet squeezing. They form the central caisson transverse structure and are assembled to the auxiliary spar by flanges and to the front spars by riveting them to the stiffening brackets.

6. They are made of squeezed dural sheet.

End Rib

7. The end rib is provided with a stiffened core, with horizontal squeezes. It is made of a single dural sheet. The end it covers is tilled at 45° from the datum given in section 5000, passing through the max. thickness point of the outer lower surface (situated at 30% from the chord). The rib is assembled to the spars b by the core and by pop rivets onto the skin bordered shape. The fairing on wich are mounted the position light is riveted to the external part of the rib core.

Strips

8. The wing longitudinal structure is completed by strips. This are made of bent dural sheet and situated between the spars and the front caisson both at outer lower and inner lower surfaces and the landing edge shape in the front caisson.

The stips number of a profile shape progrssively decreasses towards the wing tip.
At the fuel tank ends, the strips are attached to the respective ribs by sealing gaskets.

Integral Fuel Tanks

9. Between the compact core ribs, the leding edge skin and the main spar there are formed the symetric tanks of the extreme wings. The tank inside ribs are provided with stiffened holes. At the strips an ribs corners there are the sealing brackets. The tank sealing is carried out during the wing manufacture by brushing them with sealing product.
The access doors are provided at the inner lower part.

Flap Hinge

10. From structural point of wiew the flap hinge is similar to that of the central plan. It is made of a thick dural sheet and fitted with a oscilatiny ball bearing. The hinge is attached to the wing structure between two ribs in front of the fake spar.

Aileron Hinges

11. They present the same construction and attachment as the flap hinges.

Skin

12. The wing skin is formed by overlapped panels, riveted on spars and ribs.

Access Doors

13. On the wing there are several access doors provided for inspections and checks.

Wing to Fuselage Junction (fig.2)

Pins

14. The wing is attached to the central plan by three pins from which two main pins for the front spar and one auxiliary pin for the rear spar. The pin junction of the front spar

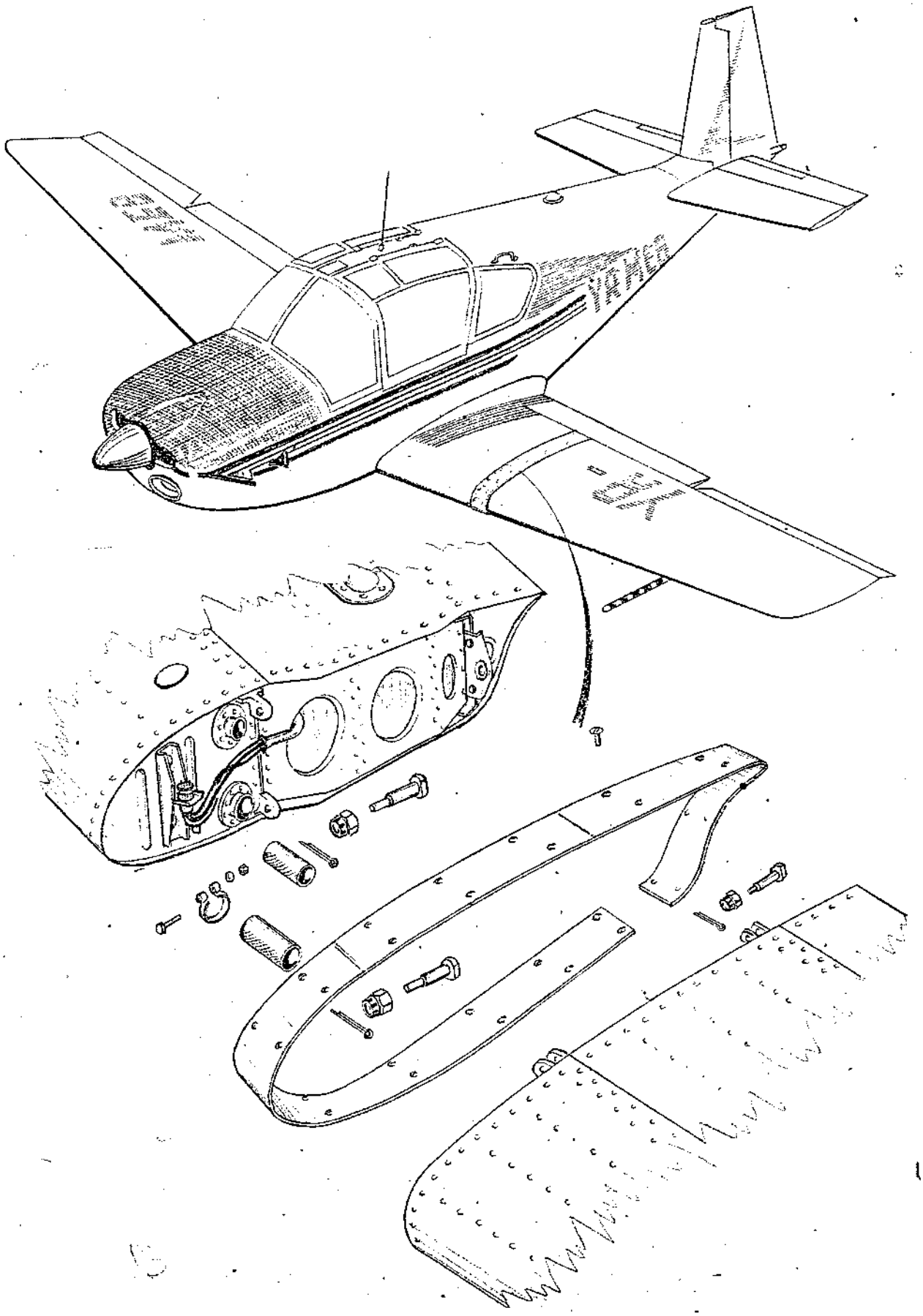


Figure 2 – Extreme Wing to Central Plan Junction

is made by two steel clevis type fittings, assembled by screws, one on the inner lower base the other on the outer lower base. The auxiliary spar junction is made by a clevis type eye fitting welded on a steel bent plate. Inside its opening enters the spar core and the bases.

Fairing Belts

15. The covering of wing-central plan junction is carried out by a dural sheet, attached by scrws to the wing and central plan skin.

Control Surfaces

Aileron (fig.3)

16. The aileron structure is of a mixt type. The dural structure, assembled by rivets, is formed by a sheet spar (Section hawing a "C" letter shape), leading and trailling edge ribs, made of squeezed sheet and a trailling edge obtained by bendings. The leading edge skin, that forms with the spar a closed caisson, is also made of sheet. The trailling edge ribs together with the whole structure are covered by stiffened fabric, sewn to the ribs bases.
On the spar there are scrwed the clevis hinges, made of bent welded steel sheet parts.
On the inner hinge assembling plate is welded the aileron driving clevis between whose eyes the control rod is attached by a pin.

Flap (fig.4)

17. The flap is a full-metal structure, similar to that of the aileron i.e leading and trailing edge ribs, spar and trailing edge, riveted between them and made of squeezed or bent dural sheet, both on the leading edge and on the trailing edge ribs. The flap internal hinge is made of bent and welded steel sheet; between its legs it is assembled the central plan lug arm by means of a pin. On its plate is welded the driving clevis to wich is attached the flap control rod,. The second hings is also made of welded and bent sheet, its basic plate

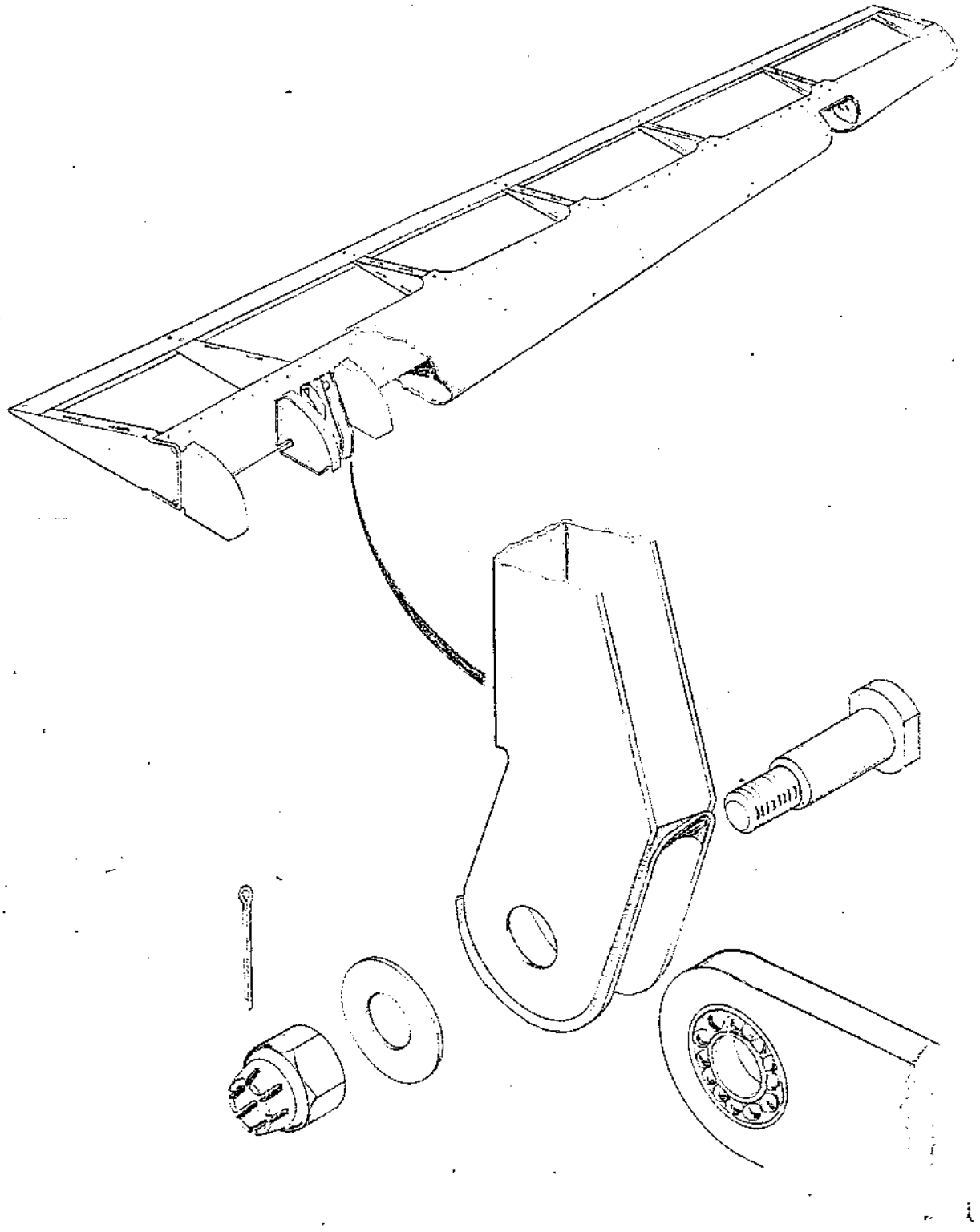


Figure 3 – Aileron Structure

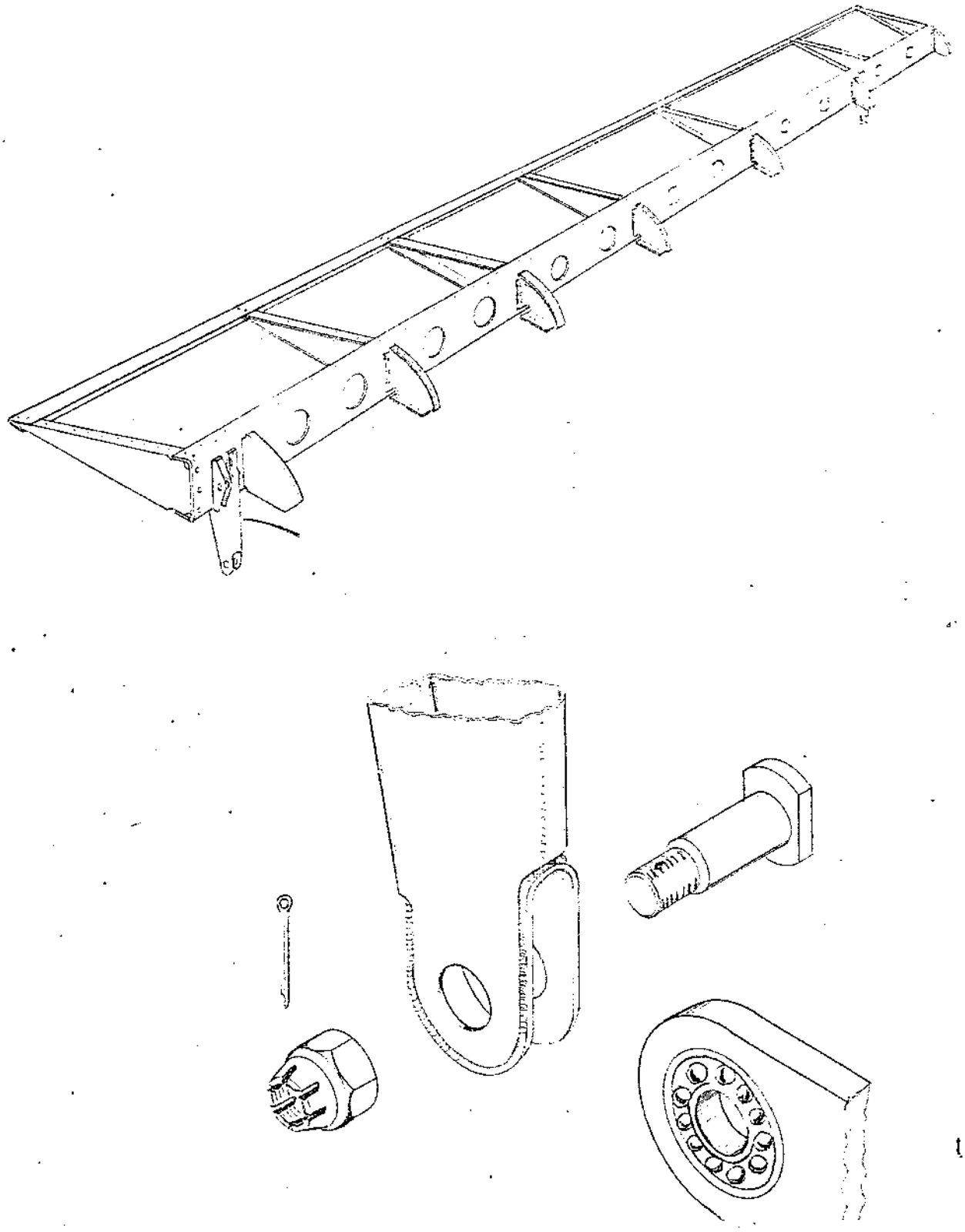


Figure 4– Flap Structure

being assembled by screws to the spar and hinged to the wing lug arm by pins. (§ 10).

GREASING (fig.5)

Each hinge of flap and aileron is provided with a ball bearing set in the lug arm, or in that of the respective surface control final rod.

Grease if necessary.

DISMOUTING (fig.6)

1. Deflect aileron downwards, for access to the control rod.
2. Dismount the hinge pin of the aileron and control final rod. Retain the crown nut and washer. Reject cotter pin.
3. Dismount hinge pins. Retain washers and crown nuts.
4. Set aileron on an appropriate holder.
5. Check aileron condition.

MOUNTING

Grease pins after checking their condition, Install aileron in reversed order to the dismounting. If a replacing assy, is to be mounted, check the aileron condition. After mounting the hinge pins and control final rod lug, the aileron and Control final rod lug, the ailerons and control Stick condition shall be in compliance with diagram 3, Chapter 3.6. Lock Crown nuts wits new cotter pins.

Dismounting (fig.7)

1. Deflect flaps at 45°, actuating the electric control for access to the hinge of the control final rod.
2. Dismount the flap hinge pin and that of the control final rod. Reject the cotter pin.
3. Dismount hinge pins. Retain washers and crown nuts.
4. Set flap in an appropriate holder.
5. Check flap condition.

MOUNTING

Check pins condition and grease them. Install flap by repeating the dismounting operations in reversed order. If a new flap is mounted, check its condition.

After mounting the hinge pins and control final rod lug, the flap position shall be according to the prescriptions (Diagram 8, Chapter 3.6.). Secure crown nuts with cotter pins.

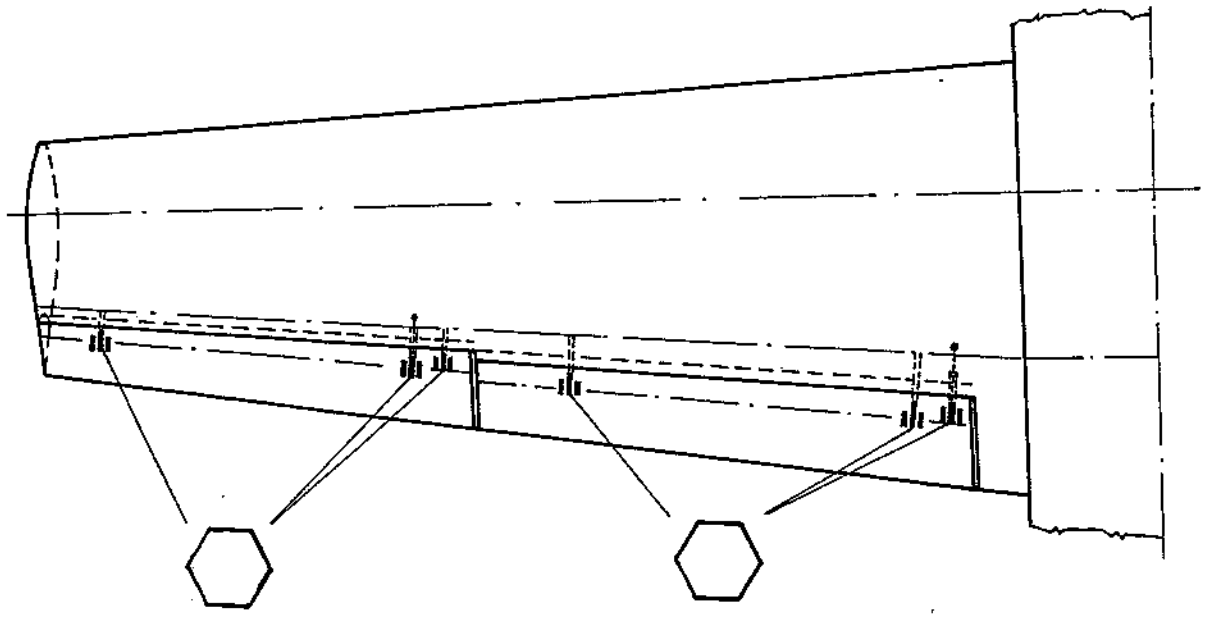


Figure 5- Greasing

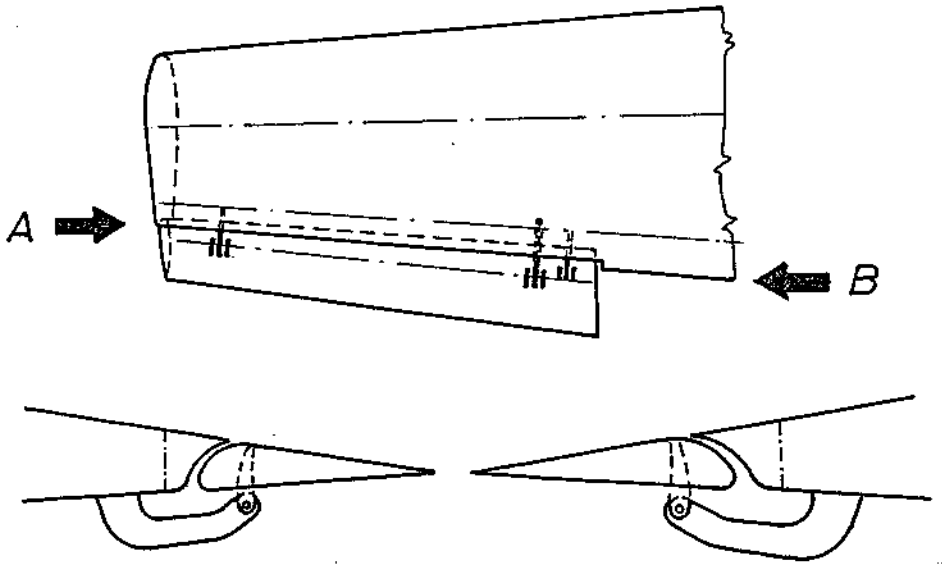


Figure 6- Dismounting of aileron

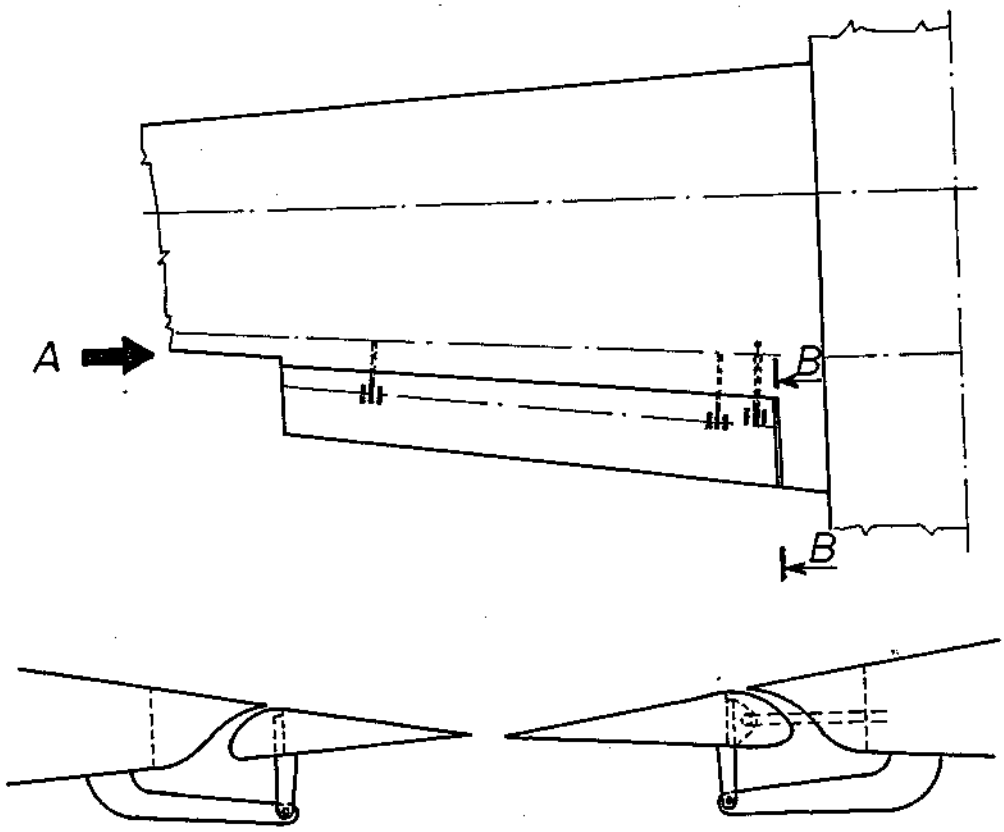


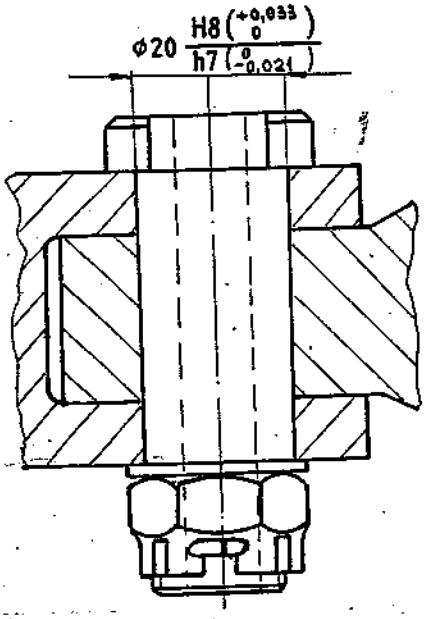
Figure 7- Dismounting of flap

DISMOUNTING

1. Deflect flaps at 45^{0}.
2. Disconnect the airplane power supply.
3. Completely empty the wing - central plan tanks, using the drain taps.
4. Dismount flap according to Diagram 3.
5. Dismount ailerons according to Diagram 2.
6. Dismount the junction strip between wing and central plan
7. Dismount the electrical plugs of the junction.
8. Dismount the securing collars of the link pipes between the tanks compartments.
9. Dismount the armament box cover for access to the aileron control.
10. Dismount metallic link and hinge pin of aileron control.
11. Secure the wing by setting at its outer lower surface two felted holders and adjust their height to undertake the wing weight.
12. Dismount the pin nuts of the central plan - wing junction hinges. Remove pins without forcing them.
13. Remove the extreme wing to 150 mm from the central plan, without forcing the fittins, Disconnect the Pitot head link.
14. Set wing on a proper holder.
15. Check wing condition.

MOUNTING

If a new wing is to be mounted, check its condition.
Before the mounting itself, check the adjustments between each pin and the boring, eventually mark the upper and lower pin of main spar junction to avoid mixing.
Grease the washer surfaces and pin rods.
Mounting is carried out by repeating the dismounting in reversed order.
Before mounting the junction strips, check tanks according to diagram 3, Chapter 3.7.



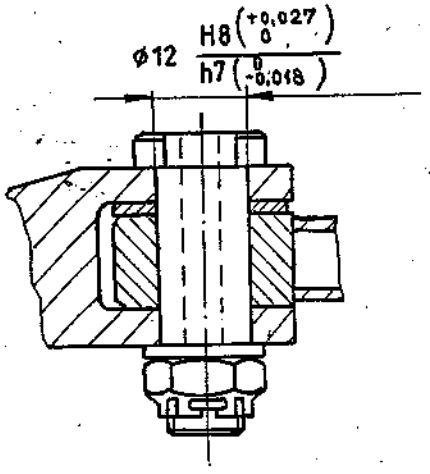


Figure 8.

Chapter 2.3

TAIL - UNIT

CONTENTS Page

DESCRIPTION AND OPERATION

General (fig.1)

1. The tail unit consists of : empennages-fuselage fairings, fin,rudder and flettner, stabilizer, elevators and fletteners. Figure 1 shows the assy of these components.

Empennage - fuselage fairings

1. All these fairings are inside of squeezed dural sheet. They are attached by means of screws to the structure which have anchor nuts.

Vertical empennage (figure 2)

Fin

3, The fin structure includes two dural spars, to which the main and leading edge ribs are riveted in between, made of squezeed dural sheet, with lightening holes.
The upper leading edge rib is undrilted.
So is the main caisson upper rib, as well.
At the front spar lower end there is an one lug fitting installed, made of 2 base plates made of steel sheet welded together by means of a third plate, reinforcing the lug.
The fin main spar is compact as well as main caisson upper rib, and at the other end there is a two lug fitting made of welded steel plates.
Assembling is also carried out by riveting the spar between the two base plates.
Also, on the main spar there is mounted at the upper end by 4 screws the upper hinge. The dural sheet skin is riveted onto the rib spar structure.

Rudder

4. The rudder has a fabric covered dural sheet structure. The spar is made of 1.5 mm thick bent sheet provided with lightening holes.
The rudder hinges are attached to the spar core; the upper one is joint to the fin linge and the lower one to the fuselage last frame core.
Also, on the spar core above the lower hinge there are installed by means of 4 screws: its base plate

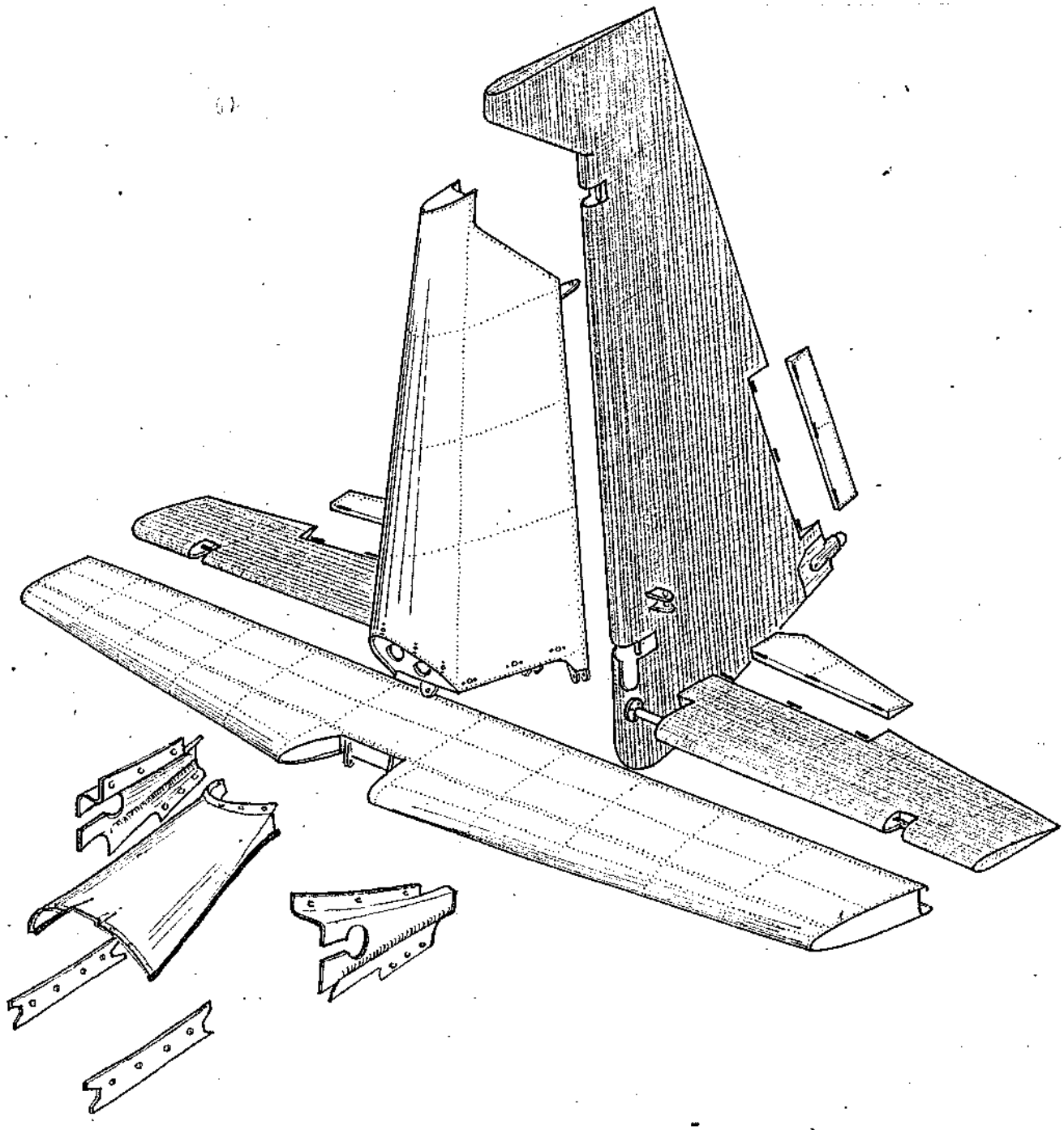


Figure 1 - Empennages and adjacent fairings

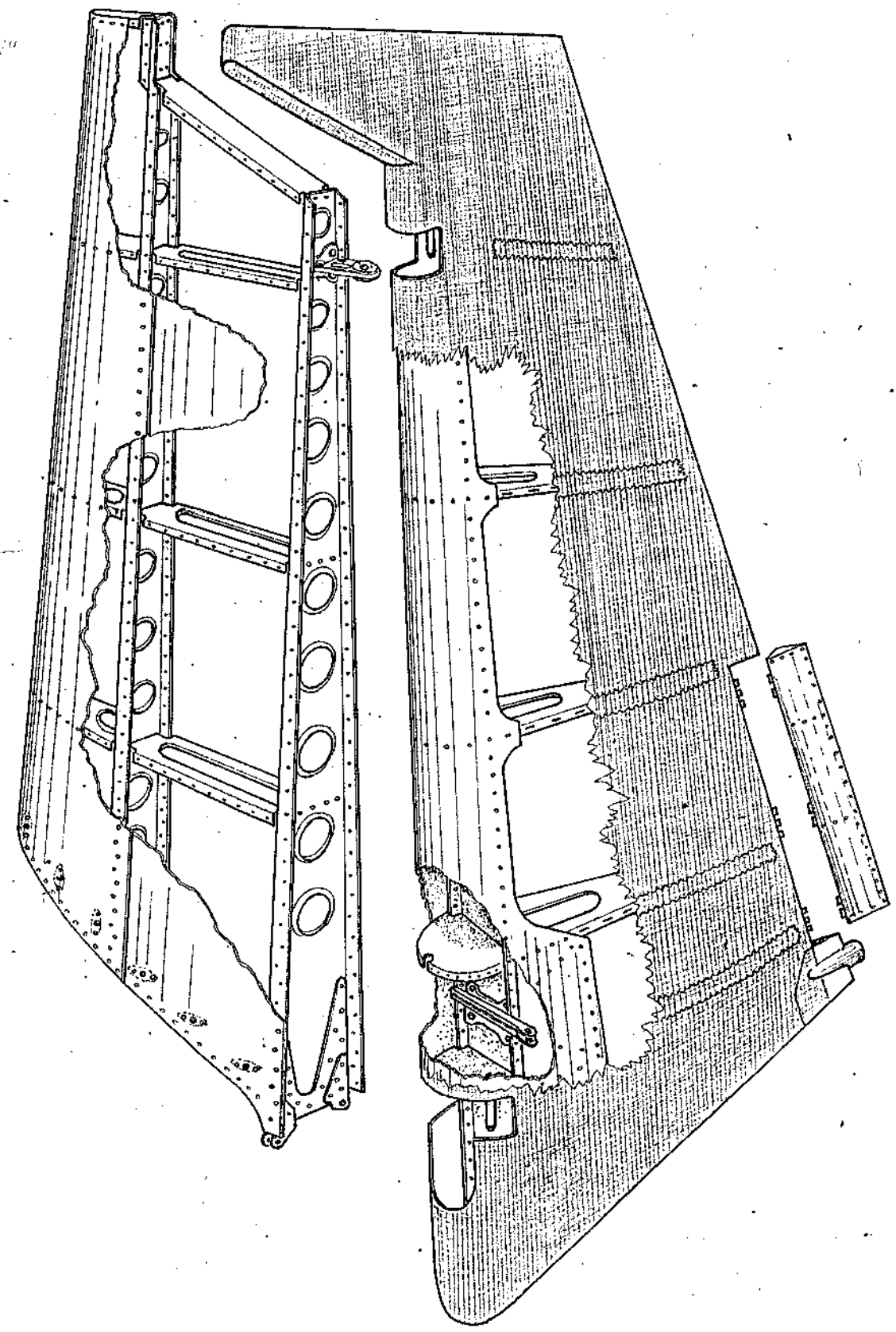


Figure 2- Fin and rudder

and the rudder actuating lever.
Leading edge ribs and trailing edge ribs are riveted behind and in front of the spar.
The longitudinal structure also includes strips riveted in between the trailing edge ribs and in the lower part of the rudder the flettner assembling boom onto which 3 milled dural hinges are riveted.
The airplane position light support is riveted to the end of this boom and the lower trailing edge rib. Flettner control access cover is attached to the rudder by means of screws
The skin is riveted to the leading edge margins and the spar bases. The whole structure is covered by fabric scwn to the trailing edge rib bases.

Flettner

5. The flettner is the mobile post of the rudder trailing edge lower part. It consists of ribs and dural sheet skin riveted onto the ribs.
The actuating lever is made of dural sheet, bent and riveted to the middle rib.
The flettner is joint to the rudder by means of hinges.

Horizontal empennage (figure 3)

Stabilizer

6, The horizontal empennage fixed part structure consists of 2 dural sheet spars.
Two attachement fittings to the fuselage are secured by means of 3 screws to the front side of the front spar core.
The rear spar has also an 1.5 mm thick sheet core provided with lighting holes.
In the central area the rear spar is reinforced.
Two fittings identical to those of the front spar are assembled to the core by means of 3 screws. On the same side there are two pairs of hinges to mount elevators. Each hinge is made of a milled dural main body whose lug has a self, aligning bearing, onto which symmetrical bent steel sheet angle plates are mounted by means of 2 screws. The whole assy is attached to the spar by 4 screws through the base of the 2

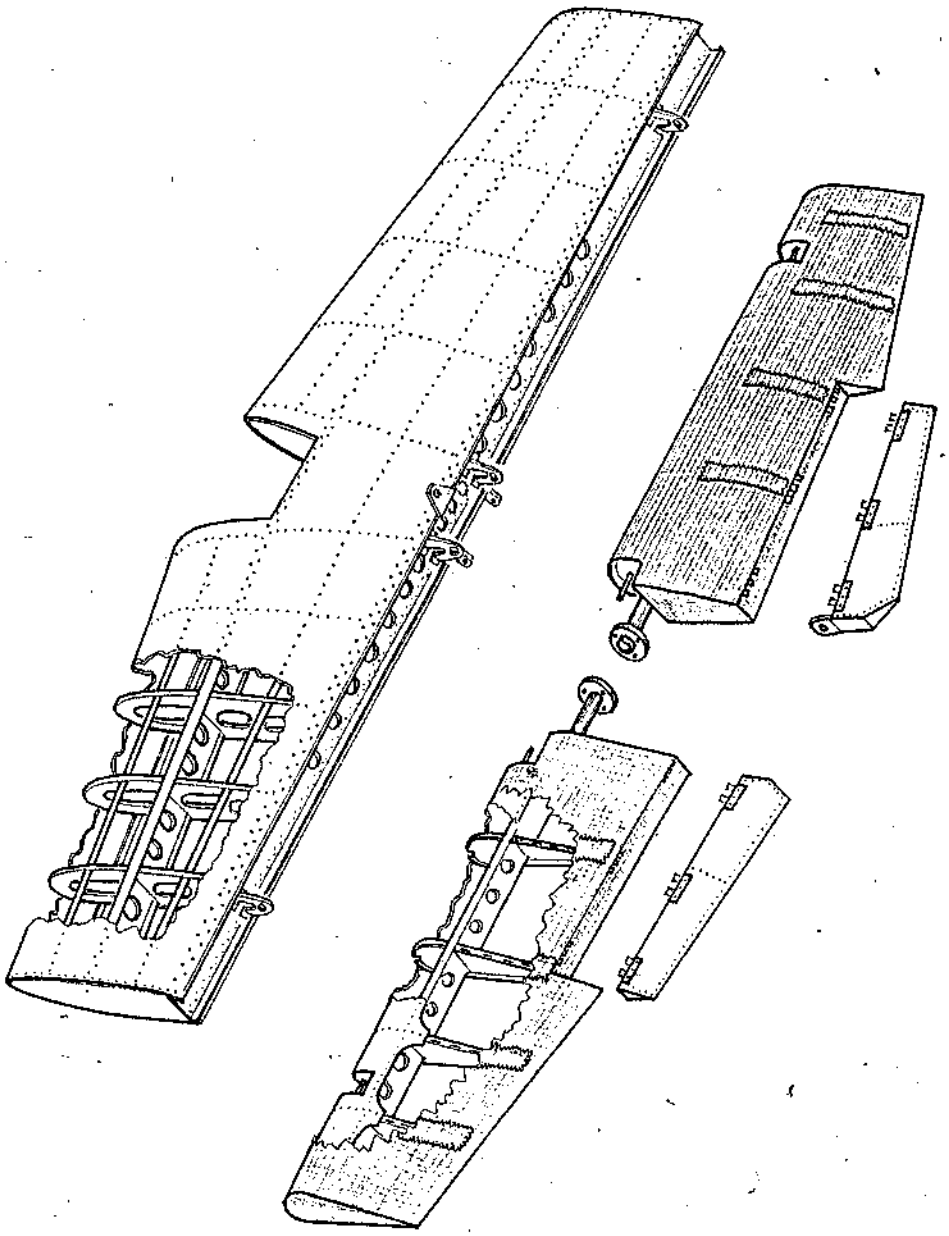


Figure 3 – Sabilizer and elevator

symmetrical angle plates.
At middle position of the upper base there is installed by means of 2 screws.The connection fitting to the fin, made of sheel steel. In front of the front spar, on its core the leading edge and trailing edge ribs are riveted.
The main ribs are located between the spars.
They are also made of sheet steel in front of the front spar and in-between spars there are riveted between ribs the strips which are dural sheet angle plates.
The skin is riveted to the structure forming 2 caissons: the front caisson interrupted in the fuselage area and the main central caisson which is continuous.

Elevator

7. The Horizontal empennage mobile part comprises 2 symmetrical elevators, The spar is made of 2 mm thick dural sheet with lighting holes in its core, On the front side of its core 4 screws attach the hinges that articulate with the stabilizer.
The strenghth part through which deflection control is transmitted to the elevator caisson is a steel tube onto which 2 steel flanges and 2 bent sheet profile is welded through which it is assembled to the spar core.
One of the flanges is tiveted onto the end rib.
Through the flanges at the end of the 2 tubes (LH + RH) there are installed by means of 4 bolts the symmetrical levers by means of which moment is transmitted from the elevator control lever.
In front of the spar there are riveted onto their margines the leading edge ribs having compact core. Trailing edge ribs are riveted onto the spar core rear side.
The end extreme rib is continous.
The flettner is articulated by hinges made of dural riveted to the boom core.
The dural sheet skin is riveted onto the rib margins and the spar bases.
The structure is covered with fabric slived so the trailing edge bases .

Flettners

8. The flettner is articulated to the elevator trailing edge. Its structure comprises ribs made of milled dural and the skin

riveted onto this.
Flettner leading edge is reinforced.
The actuating levers made of bent dural sheet are riveted.
Hinges are assembled to their conjugates located on the elevator by means of some bolts, locked using cotter pins.

Tail unit to fuselage junction (fig.4 and fig.5)

9. The tail unit is fitted to the fuselage onto its last three frames.

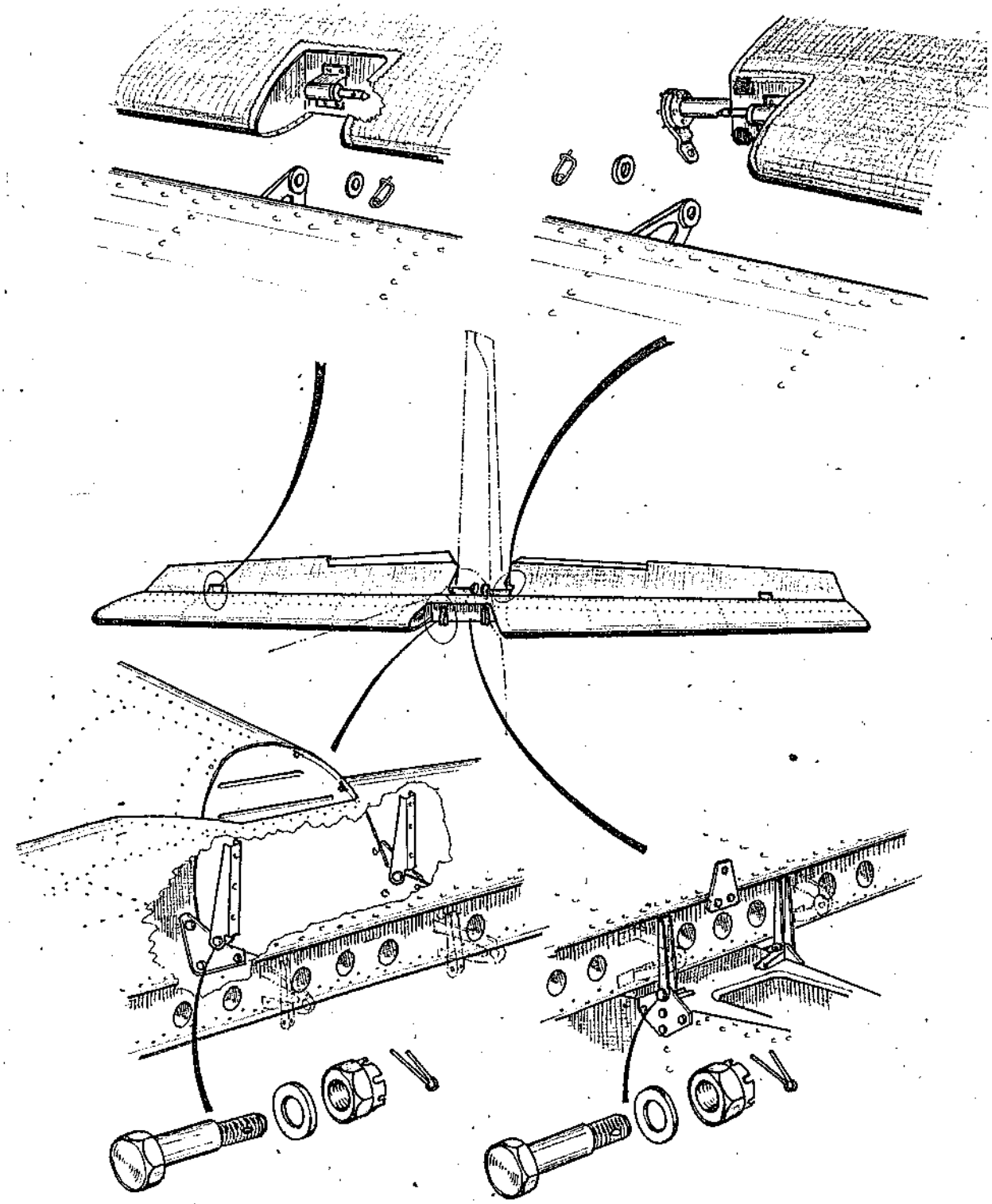


Figure 4.- Assembling stabilizer and elevator

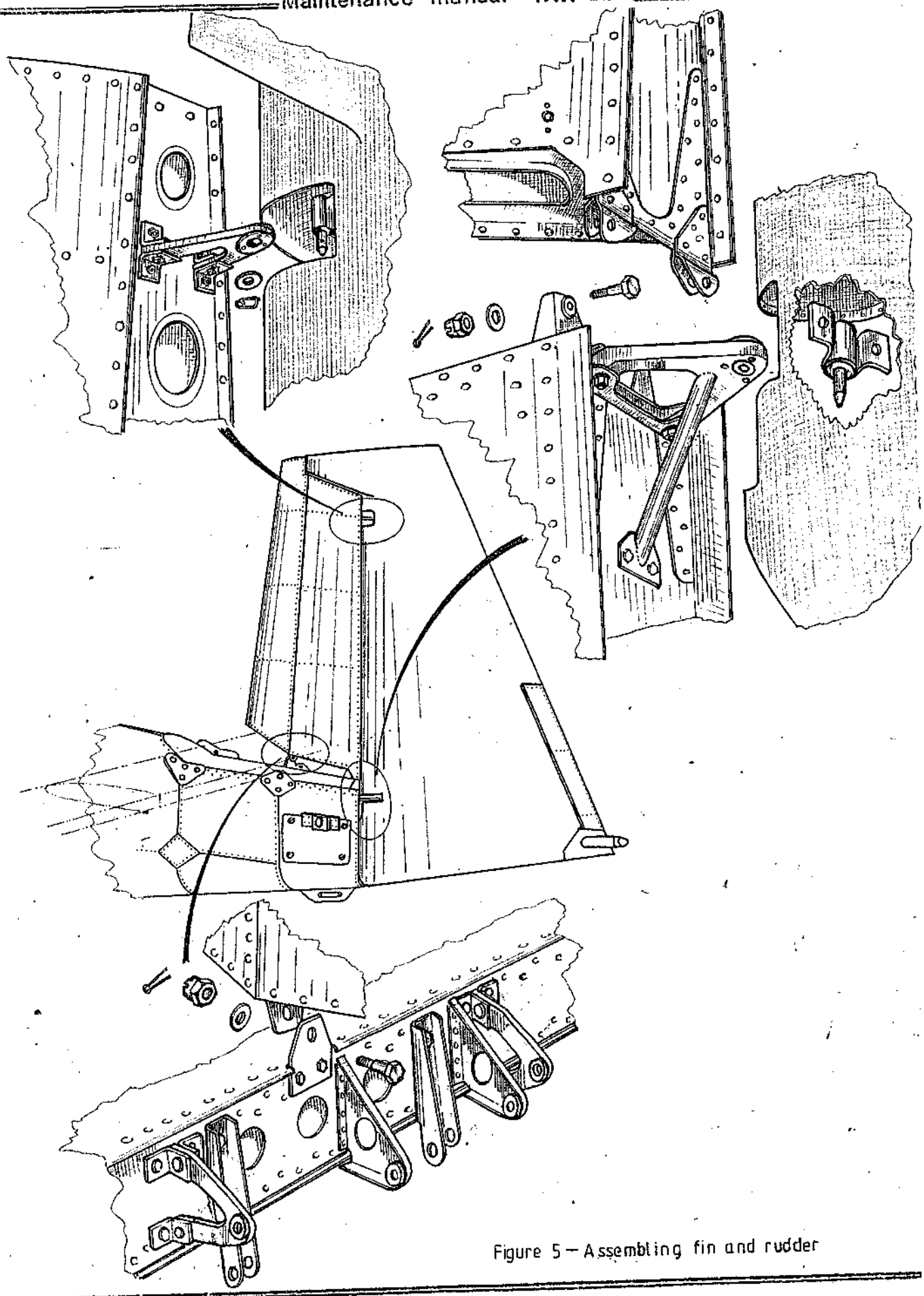


Figure 5 – Assembling fin and rudder

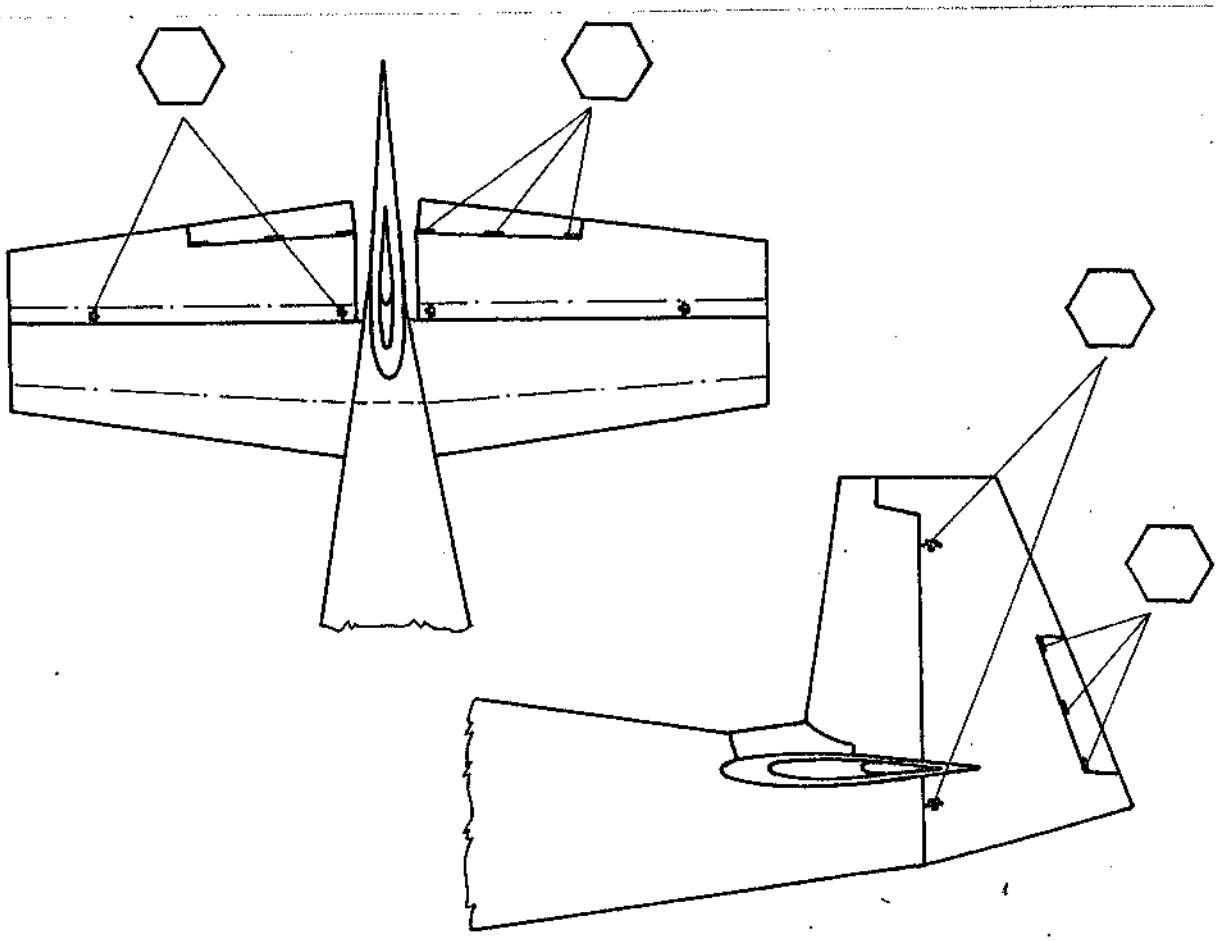


Diagram 1. Greasing empennage hinges

DISMOUNTING (see diagram 2)

1. Install tail jack
2. Dismount hinge from between the rudder final control rod and its actuating lever. Retain bolt, washer and nut for installing purposes.
3. Dismount upper fairing from between the fin and fuselage.
4. Remove rudder trim control tenders
5. Remove tail light electrical connection.
6. Remove Bowden cable from the support on the fin.
7. Remove clip from rudder upper fitting
8. Remove rudder.
9. Place rudder on a proper support.
10. Check rudder condition.

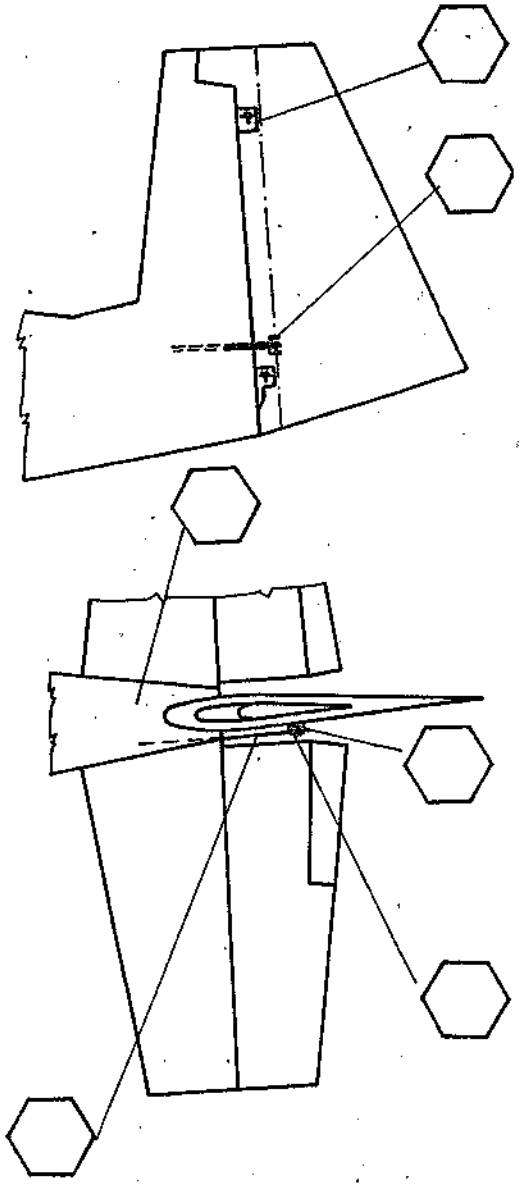


Diagram 2.

MOUNTING

Mounting is carried out repeating dismounting operations in reverse order.
If a new assy is installed, check condition.
Grease (if necessary).

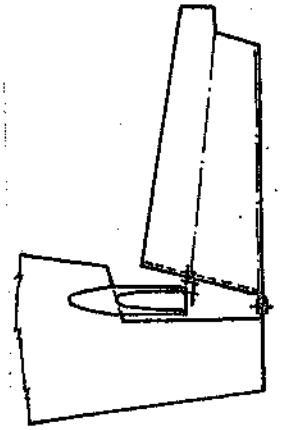
DISMOUNTING (see diagram 3)

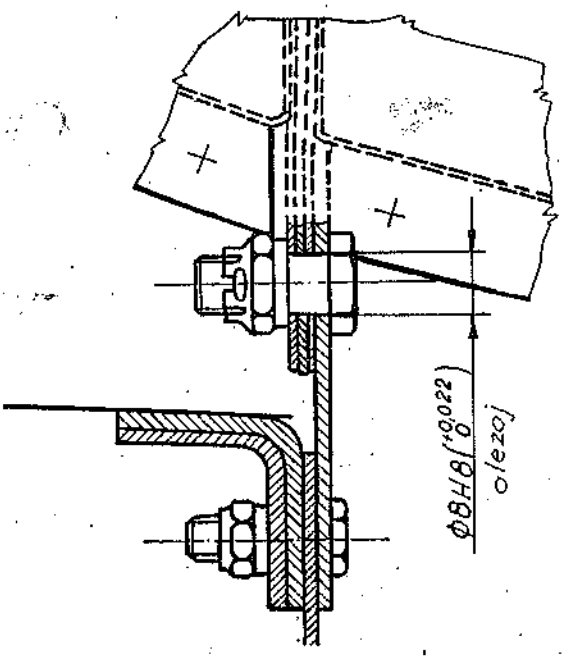
Fin is removed after dismounting rudder.

1. Remove rear lateral fairings. Retain parts.
2. Hold fin and remove 3 bolts from fittings. Use a soft metal tap. Retain parts.
3. Place fin onto a proper support.
4. Check fin.

MOUNTING

Mounting is carried out repeating the dismouting operations in reverse order. If a new fin is installed, check its condition and grease if necessary.





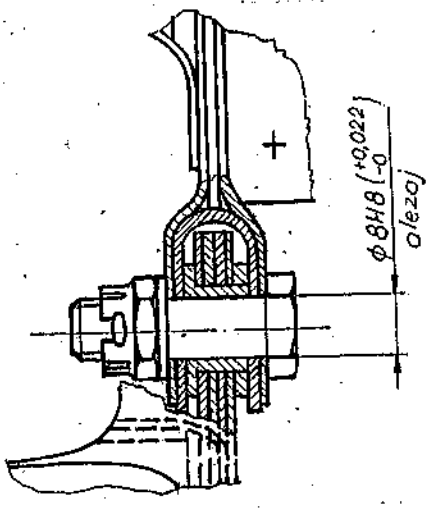


Diagram 3.

DISMANTLING (see diagram 4)

1. Remove rear lateral fairings (LH + RH)
2. Remove flettner levers (LH and/or RH)
3. Remove elevator control final rod.
   Retain bolt, nut and washer for mounting purposes.
4. Remove inner hinge chip.
5. Hold elevator and remove from hinges by pushing it ontwards.
6. Check elevator condition.

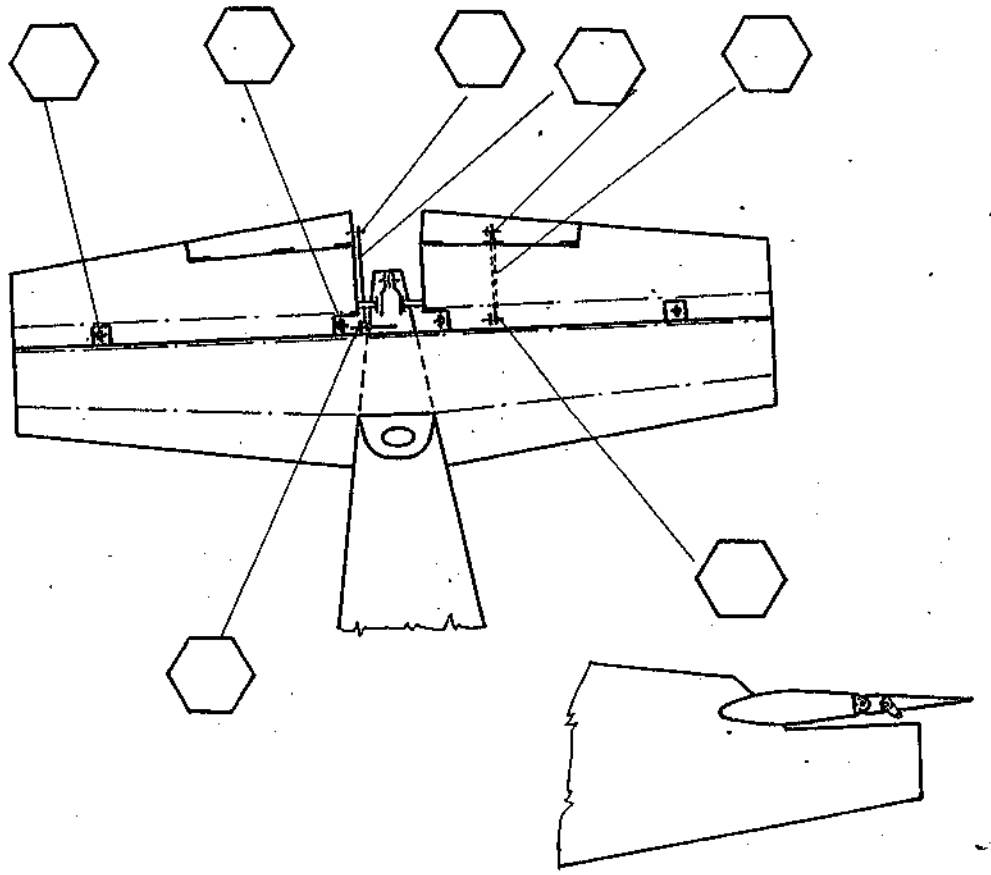


Diagram 4

DISMANTLING (see diagram5)

In order to remove stabilizer, dismantle rudder, elevators and fin accroding to the previous diagrams.

1. Remove front lateral fairings.
2. Remove 4 bolts, attaching the fittings to the fuselage Use a soft metal top if necessary. Retain bolts, nuts and washers in mounting purposes.
3. Place stabilizer onto a proper support.
4. Check stabilizer condition.

MOUNTING

Stabilizer is mounted repeating its dismantling operations in reverse order. If a new assy is installed check its condition. Grease if necessary.
Check in turn each bare, respectively each pair of bolt-fitting. Lock nuts using new cotter pins.

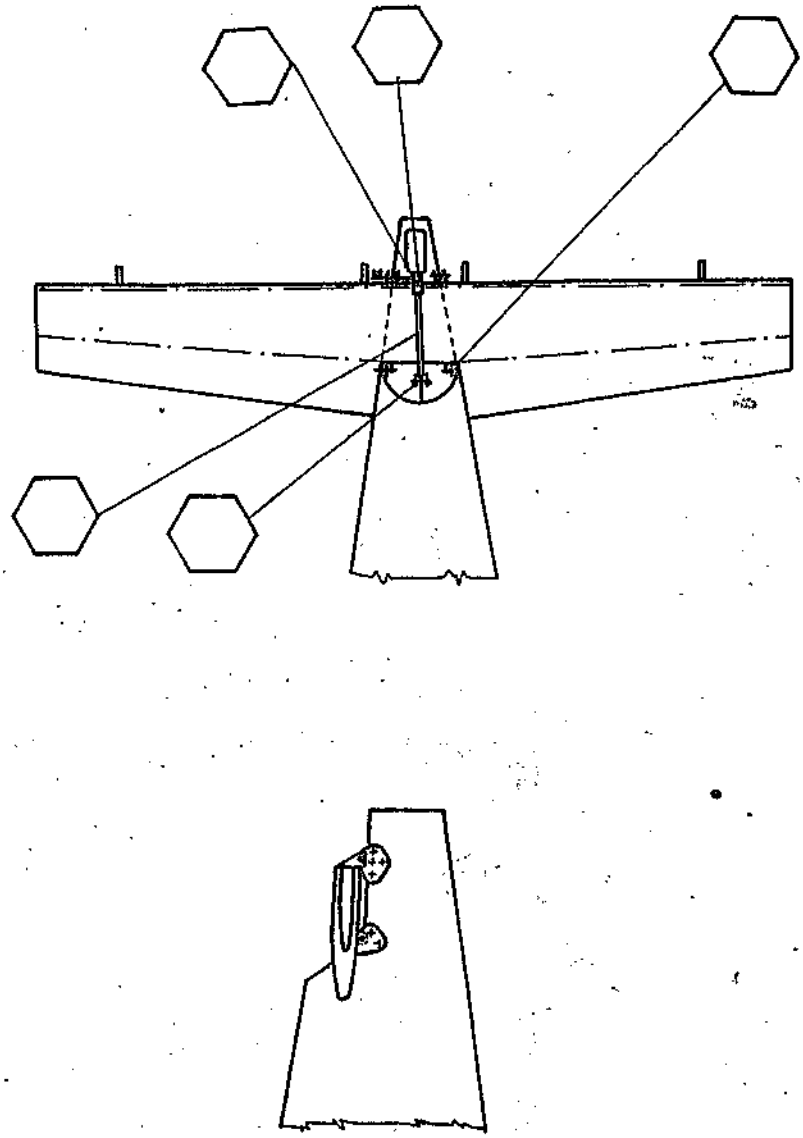


Diagram 5.

Chapter 2.4

DOORS AND WINDOWS

CONTENTS

PAGE

DESCRIPTION AND OPERATION

General

1. Data included in this chapter concerns the airplane doors, windows and windshield.

Cabin doors

2. The doors are made, of fibreglass reinforced resins:
The door structure is formed by fibreglass reinforced resin chaissons fulled with moltoprene; at the upper part it is provided with hindges fastened to the fuselage, as well as a jack fitting which facilitates opening and shutting the doors.
At the lower part the door chaisson is empty and enables mounting of door locking device.

Window

3. The one-piece window is made of a 3 mm thickness plexiglass plate. Its assembling onto the door structure is made using some screws and special nuts. There are rubber strips between the window and its frame.

Lock

4. The locking mechanism is an assy including a casing, a rack, a guiding plate, a pinion shaft, clutch etc. Articulated to the 2 racks, the pins are inside the frame and guided at ends into the brass tube bushings.

Yale

5. The door locking mechanism is a conventional yale mounted in the structure frame (left fuselage).

Opening - Shutting Jack

6. The jack, mounted between the structure and the door, facilitates shutting and especially opening the door. It is formed by two extensible cylinders each having attaching ends. The linking cylinder is hinged.

Hinges

7. Each door is ptovided with two hinges. The assembling pins together with their hinges are mounted on the structure and belong to the door jettisoning system, described in Chapter 1.2.

Cabin windows

Windshield

8. The windshield mounted on the front cut off is made of a 4 mm thickness plexiglass plate. Its fastening is made by means of screws and nuts mounted on the above mentionned cut off. A rubber strip is set between the window and the frame.

Side Windows

9. The side windows are made of a 3 mm thickness plexiglass plate, attached to the fuselage in the same manner as the windshield.

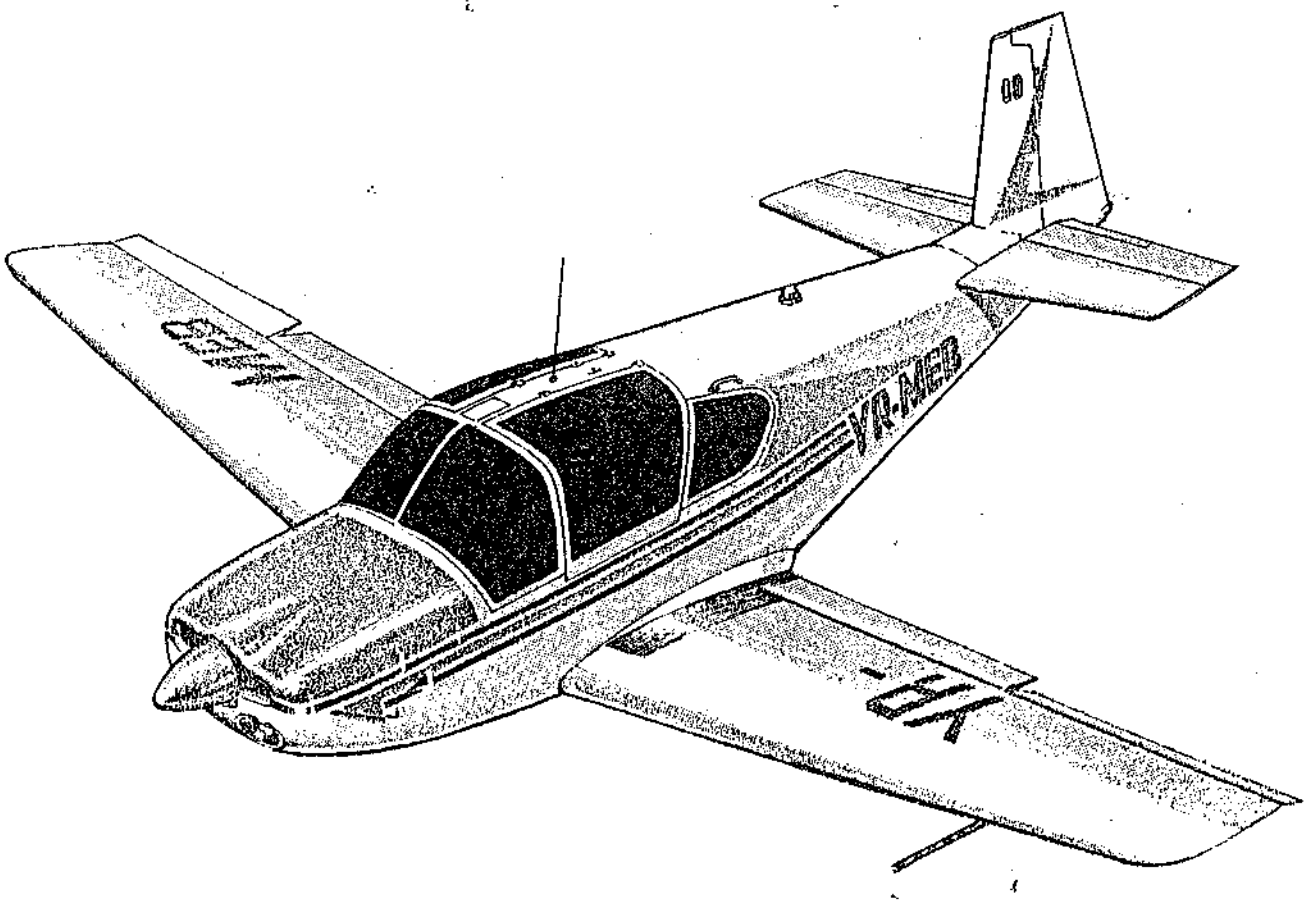


Figure 1– Doors and windows

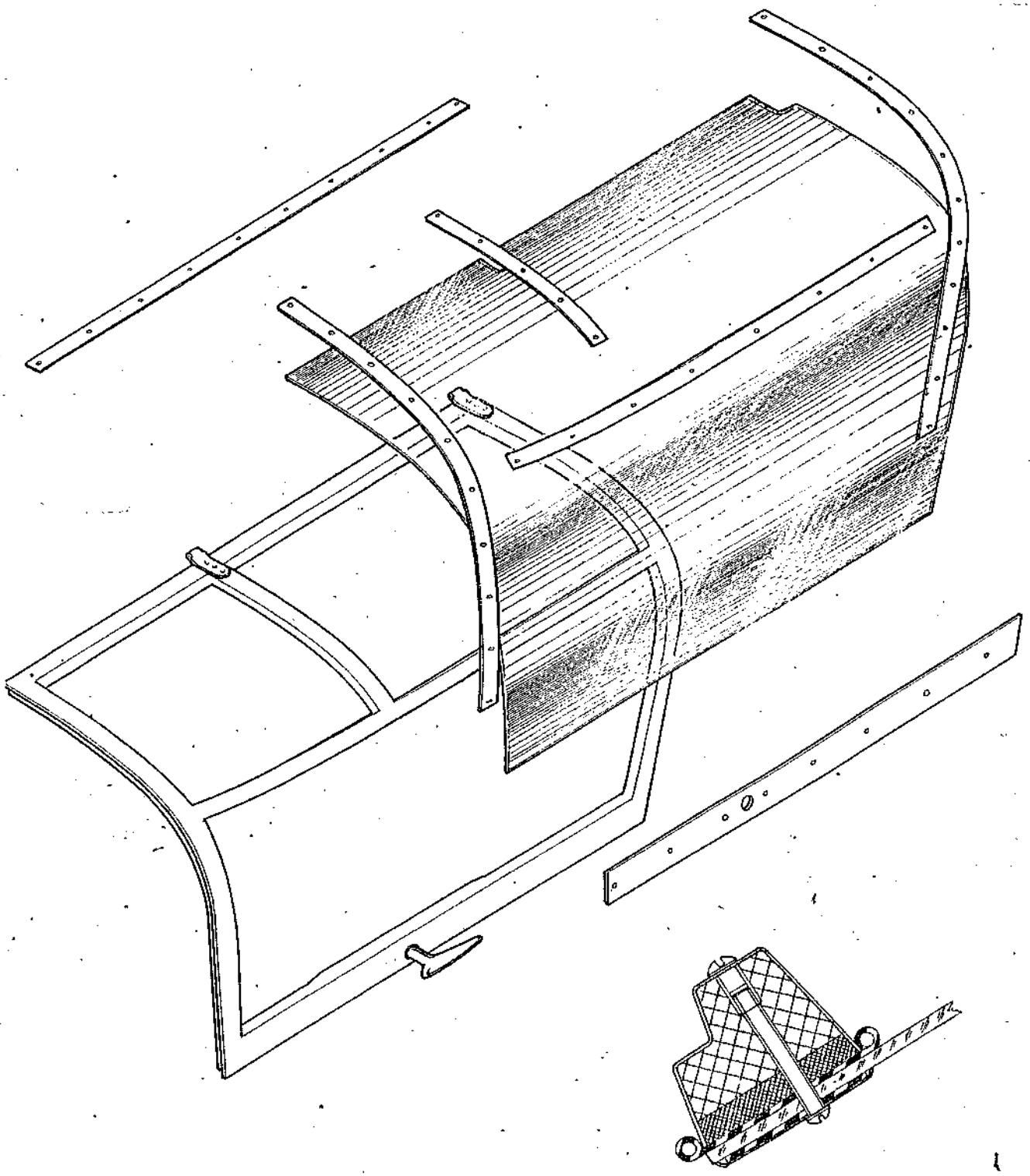


Figure 2 – Door

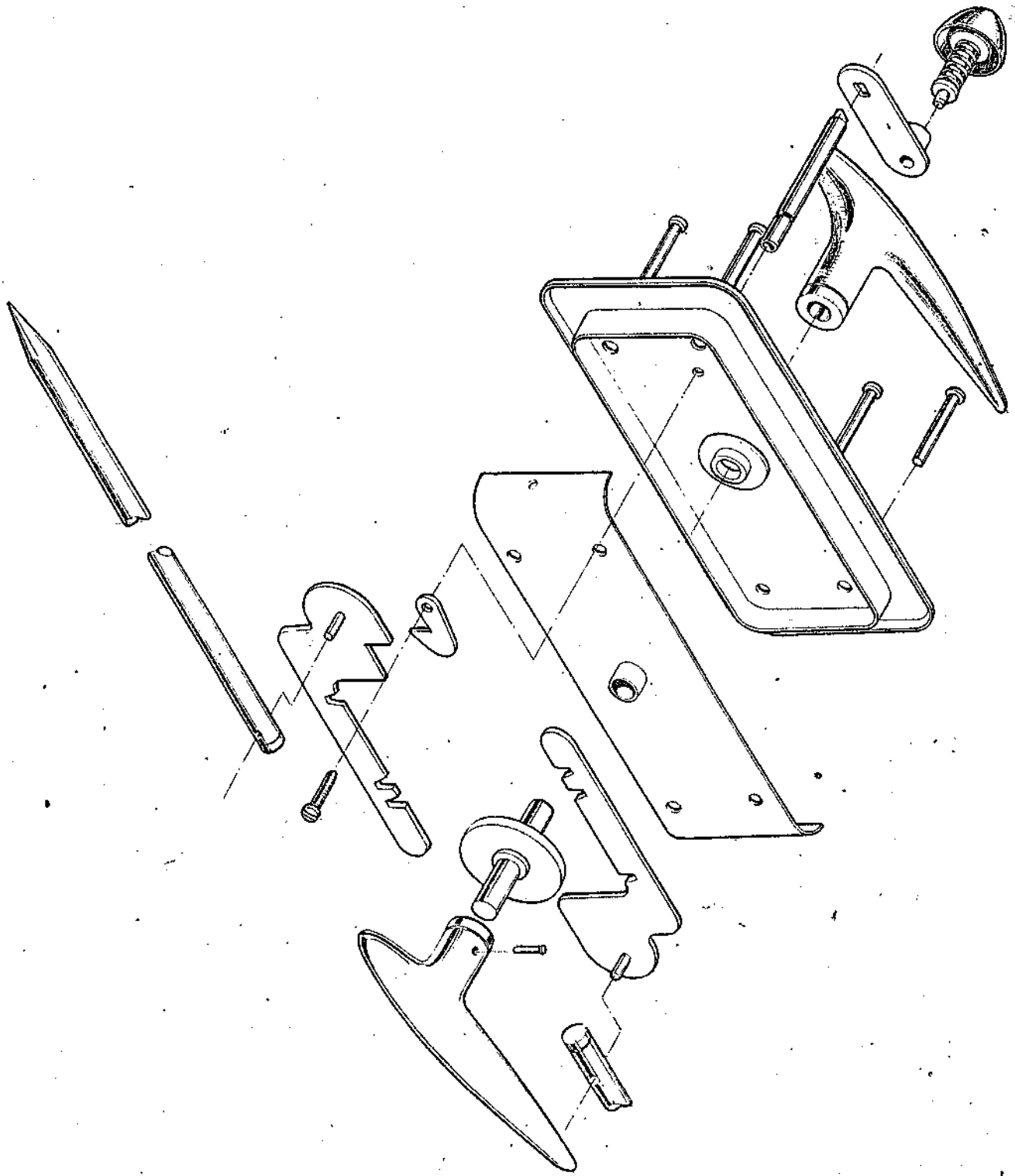


Figure 3 – Lock

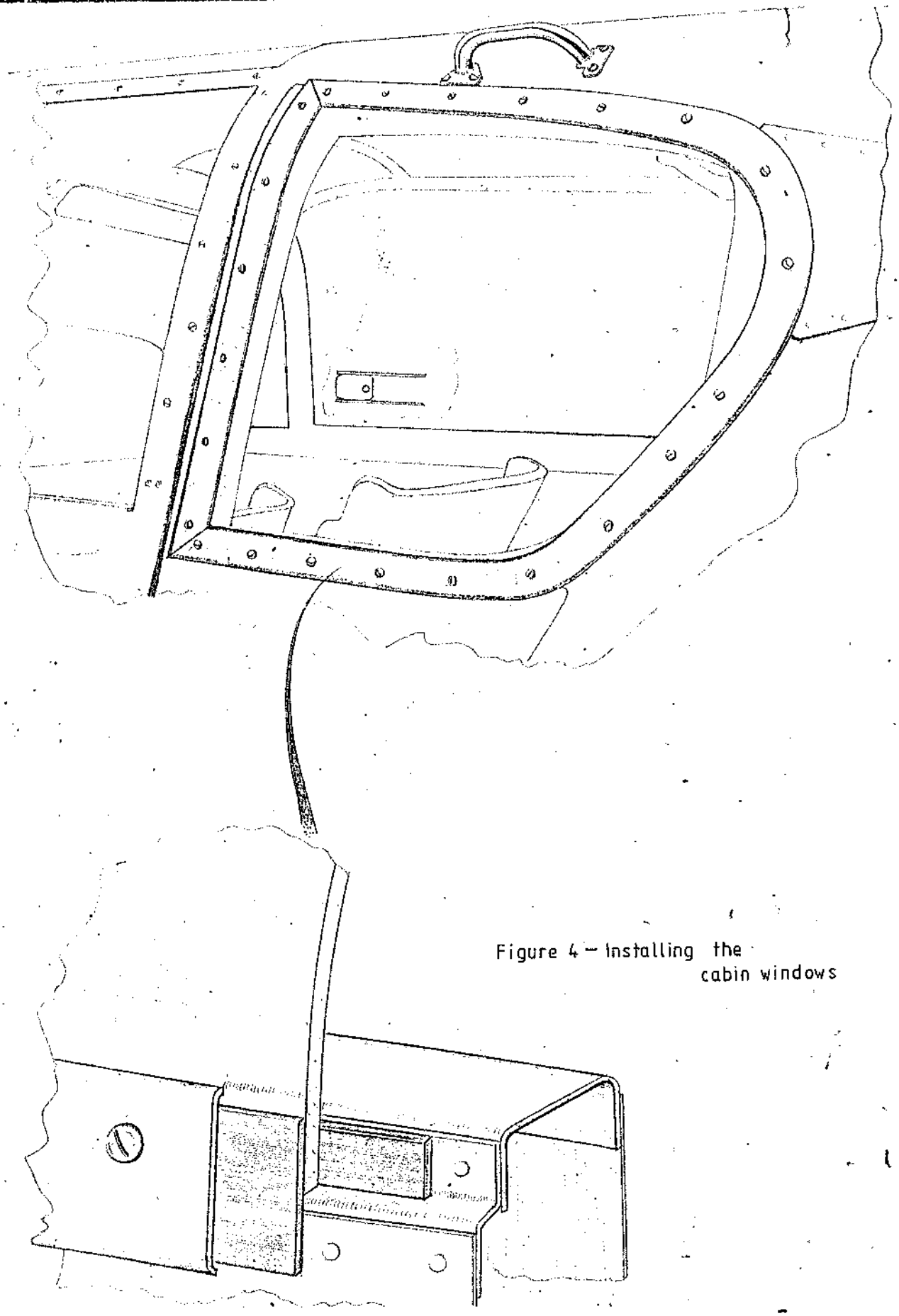


Figure 4 – Installing the cabin windows