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GENERAL INFORMATION

1. The Present Temporal Regulations is the basic document, determining the volume of works and the maintenance intervals for power plant, sailplane, airplane systems and equipment of the airplane JAK-52 with the engine M-14P.

Timely and qualitative accomplishment of the works, foreseen by the Present Regulations allows serviceability, high level of maintenance reliability of the airplane and its readiness to the flights.

2. The volume of works and intervals of their fulfillment according to the kinds of maintenance are determined on the basis of Maintenance Manual of the airplane JAK-52 with the engine M-14P, set of units and maintenance experience of the analogous airplanes in the aviation departments.

3. Airplane maintenance should be carried out by the technical staff having good knowledge about the construction, special maintenance features of the airplane, engine and its equipment, knowing Present Regulations, technological directions and having sufficient practice for carrying out works appointed by the order of the authorities of the operating organization and for maintenance of the airplane JAK-52 and taking full responsibility for the quality of the carried out work.

The engineering staff, appointed for the maintenance of the airplane is responsible for organization of the maintenance and also for control of the volume and quality of the carried out work in accord to the valid regulations and directions of the Present Regulations.

4. Temporal Regulations include maintenance of the glider, power plant, airplane systems, and equipment.

5. The regulations foresee the following kinds of maintenance:
   - beforehand preparation
   - after flight preparation
   - departure check-out procedure,
   - airplane preparation for the repeated flight
   - scheduled works

6. Scheduled works for airplane, engine and other units are carried out in the same periods of time, determined by the flight hours of the airplane, i.e. after every 50+-5, 100+-10, 200+-15 flight hours of the airplane. After carrying out 100 - hours scheduled works, 50 - hours scheduled works should be carried out simultaneously and after carrying out 200 hour, 50 and 100 hour scheduled works should be carried out.

Scheduled works for storage battery 12-ACAM-23 are carried out in the periods of time, indicated in the Technical Description and Maintenance Manual $f3.532.015TO, edition 6-78.

7. After changing the engine or other unit in the airplane, their scheduled works are carried out in terms of the regular scheduled works for the airplane. In this case it is allowed to carry out ahead of schedule the nearest regular scheduled works on the changed engine or unit.

8. For airplanes, carrying out training flights the scheduled works for landing gear are carried out in the following periods:
after every 150 ± 10 landings with the volume of scheduled works of 50 hours,
after every 300 ± 20 landings with the volume of scheduled works of 100 hours,
after every 600 ± 20 landings with the volume of scheduled works of 200 hours.

9. When carrying out the maintenance of the airplane the works, indicated in the Regulations should be carried out and also all the malfunctions, having appeared either during the flight and indicated in the log-book or having appeared in the course of maintenance should be eliminated.

10. All the works, determined by the Regulations, and also other works on the airplane must be carried out, using means of mechanization, ground equipment, instruments and control -testing apparatus in good working order and intended for the above mentioned proceeding to accord with instructions and technical directions for airplane JAK-52 maintenance with an engine M-14P, ready made parts, included in complete set, bulletins and instructions of the manufacturers.

The units, joints and rubbing surfaces should be lubricated by the lubricant ЦИАТИМ-201 (excluding places, specially mentioned in the Present Regulations).

**PRECAUTION: During the maintenance of the airplane it is not allowed:**

- to walk on the surface of the airplane and also on the places not foreseen for walking;
- to make possible damage of the airplane and paintwork by the ladder, filling horses or by other airfield equipment;
- to put instrument or parts on the surface of the airplane;
- to allow people walk on the flatness of the screw rotation in the front of the airplane with the working engine in the distance not nearer than 15 m.

11. In order to insure good operation of the aviation technique in various climatic conditions (excessive dampness, dustiness and so on) and also if there are big periods of time between the flights or in case the engine is changed, the deputy of the commander in chief MAC has the right to give an order to carry out extraordinary works on the airplane to accord with the Present Regulations.

**NOTE: after the first flight with the new engine and after the operation of 10 hours, the nuts of the screw fastening should be drawn up tight.**

Tightening torque of the nut is 10 -2 kgm.

12. Any kind of aircraft maintenance and any additional works, carried out on the airplane should be indicated in the technical documentation to accord with the valid regulations of the maintaining organization.

13. After every case when maximum operating overload in is reached in flight and also after a rough landing till Bnn or running out of it the inspection of the glider and engine should be carried out. It should be made clear:

- that there are no remaining deformations, or cracks on the surface, framing, landing flaps, control surfaces and ailerons, fuel flow and that there are no not sealed air system;
- airplane controls, landing gear, engine frame, index beds of the engine case, engine mounting and motor frame, frames to the fuselage, engine case, wing panels to the fuselage landing gear and tail support are in good working order;
- mounting of electric equipment instruments, naviga-
tional and radio equipment, desks, instrument panels, instrument board are in good working order.

The results of the inspection should be indicated in the log-book of the airplane.

14. The inspections for various kinds of airplane preparation should be carried out in turn, showed in the drawing 1.

1. air screw; 2.cowling; 3.engine and systems on the frame; 4.main legs of the landing gear; 5.front leg of the landing gear; 6.right wing panel; 7.starboard of the fuselage; 8.tail unit; 9.port side of the fuselage; 10.landing flap; 11.canopy; 12.first cockpit; 13.second cockpit; left wing panel.

**1. PROMPT KIDS OF MAINTENANCE OF THE AIRPLANE AND ENGINE**

**1.1 BEFOREHAND PREPARATION**

1. Take off the covers, take off the plug from the tunnel intake of the oil cooler, open the covers of the hatches, necessary for inspection; make sure that the cocks of the extension and retraction of the landing gear, landing flaps in both cockpits are in the neutral position and are fixed by the safety devices, all the switches and automatic circuit breakers, switches of magneto and electric feeding of board supply line are switched out.

2. Inspect the air screw:
   - make sure of the working order of the blades, their fastening in the transition barrels and that there are no mechanical damages. The covering of the blades should be smooth and even;
   - make sure that there are no end play and angular displacement of the blades with respect to the transition barrel (the arrow on the blade must coincide with the scale calibration on the face of the barrel corresponding to the determined angle);
   - make sure of the trustworthiness of the screw fastening on the shaft nose shaft of the reduction gear
   - make sure of the working order of threaded and bolted connections and their locking.

**WARNING:** Blades with big and deep surface injury are not allowed to operate.

3. Inspect cowling and gills:
   - Open the cowling and check the attachment points of the cowling to the fuselage brackets, working order of the swivels and studs with the fixed detects;
   - inspect the covers of the cowling, make sure, that there are no cracks, abrades, weakening of the rivets and bolted connections;
   - make sure of the working order of the gills, the integrity of the axis locking, flaps and that there are no failures in the mobile connections; check the fastening of the gills to the engine, reliability of covering and locking of the removing door seam;
   - make sure of the cleanliness, good working order and safe fastening of the intake and tubing of the cockpit ventilation, cooling of generator and compressor.

4. Carry out the internal inspection of the constant revolution regulator in order to make sure that there are no outside damages, oil flow in the join, make sure of the safe fastening to the engine, of safe and reliable fastening of the control wiring.
5. Inspect the connection of the case flanges of the units, blanks and plugs if there are no trace of the petrol or oil, eliminate the flow by drawing up the nuts tight.

6. Inspect the cylinders of the engine, inlet pipes, make sure of the reliability and sealing of the connections, that there are no abrades of the inlet pipes. Make sure of the working order of the baffles reliability of their fastening and that there are no trace of the overheating of the cylinders.

7. Check the state and the fastening of the starting valves, spreading of the compressed air the working order and reliability of the air tubes and connection points.

NOTE: The checking of drawing up nuts tight, the fastening of unit, threaded connections and drawing up the candles tight should be done when the engine is cooled.

8. Check by hand and optionally, with the help of the wrench the drawing up of the candles.

9. Inspect the exhaust manifold and air heater housing, make sure, that there are no cracks, burns out means for dislodging exhaust gases through the seal and traces of the burn out, optimally, with the help of the wrench, check the drawing up of the nuts, fastening the branch pipes of the exhaust manifold to the cylinders of the engine.

10. Check the state of the box covers of the camshold and cables for their fastening. Make sure that there are no oil down flows from below the covers.

11. Inspect the boss of the engine case make sure that there are no cracks. Check the engine fastening to the engine bed, the engine bed to the fuselage and the state of shock absorbers of the wing fastening to the engine bed ring. The souring of rubber is not allowed. The dimensions of the shock absorber packet, when the engine is installed and when the nuts are drawn up normally are equal to 35 mm.

Inspect the ring and the struts of the engine bed, make sure that there are no corrosion, cracks and deformation.

12. Check the state of the flexible horses and tubing of the fuel system, locking of their nuts, fastening. Make sure, that there are no rubbings, traces of faulty sealing, and touching other units.

13. Check the state and fastening of the carburetor to the engine and working order of joint coupling of its control.

14. Check the fastening of the fuel pump to the engine. additional tank, fuel emergency shut-off cock, fuel filter, cock for oil manuring by the petrol to the flame 0. Check the fastening of the filter by the fine fuel cleaning.

15. Making the pressure of 0.4 - 0.5 kg/sq.cm by the grease gun, check the sealing of the fuel system and its units, pay attention to the carburetor sealing, its connections, plugs and blanks if there are no flow at the filter joins by the fine fuel cleaning.

NOTE: When operating in summer, take off the sleeve, supplying fuel to the valve, of oil manuring (edition 772), muffle. connection point of the engine and valve by the covers 2842A and nuts 2704A-4, painted red. Lock the nuts. The taken off sleeve should be muffled by the safety plugs 3- OSTI. 10474-72 and give for storage.

16. Check the magneto fastening to the engine, conductors to the magneto and candles the state of the cable braid or the ignition system. Check all the places of the-cable braid contact with the engine and unit parts, paying attention to the obligatory clearance between the ignition cable braids and edge of the cylinders.

17. Make sure of the working order of the compressor
and the reliability of its fastening to the engine.

18. Make sure of the control drafts for the engine and gills, their manufacturing reliability, flanging and fastening to the unit levers.

19. Inspect the oil system, venting and drainage pipe lines:
- check the sealing of pipe lines connections and units (for leak proofness), paying special attention to the closing of the flexible horses and to the cleaness of the drainage tube line openings;
- check the state and fastening of the oil system units.

Poor off 0,5 liters of oil from the oil sump through the separating funnel with the narrow-meshed net. In case there are metal particles found, state the reason of their occurring in the oil. Check the working order of the electric circuit of the filter indicator.

20. Check the working order of the air carburetor collector for cleanliness and fastening to the dust filter. Take off the dirty filter clean it in the pure petrol and install in the place.

21. Inspect the front part of the fuselage. Make sure that there are no sheathing damages, weakening of the rivets, working order and hatches covers snugging, leak proofness of the fuel system bib cock.

22. Inspect the main legs of the landing gear:
- Check the outer state of the wheels, their brake equipment and aviation tires.
- According to the marks on the tire and wheel flange, check, if the tire haven’t turned in respect with the wheel flange;
- Check the air charge of the aviation wheel tires (the compression at the normal charge 3+-0,5 kg/sq.cm should be 25-30 mm);
- Check the state and horses attachment of the air system to the leg struts;
- Check the state and the lock fastening in the retracted position;
- Check the state of the attachment units of the shock absorbing struts and folding bracing struts;
- Check the state of the shock absorbing struts, bracing struts, cylinders of landing gear extension and retraction, oil flow through the seal of the struts, not tolerable backlashes in the flexible connections and proofness of joint parts and units;
- Visually check the shock absorbers charge by nitrogen (the output of the mirror surface rod at the normal nitrogen pressure 19+1 kg/sq.cm must be 200-205 mm)
- Check the sealing and integrity of the charging connection point;
- Make sure of the working order of the main landing gear position indicators;

23 Inspect the front leg of the landing gear:
- Check the outer state of the wheel and tire;
- According to the marks on tire and wheel flange check if the tire haven’t turned in respect of the wheel flange;
- Check the air charge of the aviation tires (compression when charged normally 3+-0,5 kg/sq.cm should be 15-20 mm)
- Check the state and fastening of the lock in the retracted position;
- Check the state of the attachment units of the shock absorbing strut and folding bracing strut;
- Make sure of the damper working order, that there are no
backlashes in the connections and oil AMT -10 flow through the seal;

- Visually check the shock absorbers charge by nitrogen (the output of the mirror surface rod at the normal nitrogen pressure 26+1 kg/sq.cm should be 140-145 mm). Check the sealing and integrity of the charging connection point;
- Check the state of shock absorbing strut, bracing struts, cylinders of extension and retraction and make sure, that there are no deformation and cracks, oil flow through the seal of the struts and not tolerable backlashes in the connections and joint places and reliability of joint parts and units;
- make sure, that there are no damages in the filling in recess of the front landing gear leg;

24. Check the charging of the air cylinders ( manometer must show the pressure in the system of 50 +- kg./sq.cm.

25. Make sure of the seat fastening reliability to the fuselage frame and proofness of the safety belts and their fastening, make sure of the reliability of locking handle operation of the fastening belts in the plate spring.

26. During winter-spring operation period the sealing of manure cock part 772 when the storage battery is switched on, for that:
- Disconnect the fuel pipe from the manure cock outlet;
- With the help of the injector, make the pressure of 0,2-0,5 kg/sq.cm in the fuel line and keep it for three minutes. don't allow the leakage of the fuel.

27. Inspect the engine control levers:
- Make sure, that there are no seizing and additional noises when the control levers work in all the movement range;
- Make sure that the end positions of the levers in the cockpits correspond the end positions of the levers on the units and on controlled throttle;

**NOTE: the checking of full opening and closing of the throttle should be carried out when the fire cock is closed**
- Make sure of the stopper-rod device of the engine control levers.

28. make sure of the air-tightness of the air system according to the pressure reducing range in the network during the not operating time of the airplane.

29. Inspect the left wing and aileron:
- Make sure that there are no remaining deformations, sheathing damages,weakening of the rivets, fuel underflow and fillet snugging against the hatches covers;
- make sure of the hinge units of ailerons and connecting control draft with the arm on aileron;
- make sure of the storage battery fastening, that there are no traces of electrolyte and cleanliness of the drainage pipe;
- make sure of the cleanliness of the inlet openings of the pressure head;
- through the hatch in the sheathing, check the state of the filling neck of the fuel tank, cleanliness of the cup and poor off pipe.

30. After clearing all the faults, notified by the pilot and revealed during the inspection, make sure that:
- the cocks of landing gear extension and retraction and of the landing flaps are in the neutral position and are fixed by the locks;
- all the switches and circuit breakers are switched off;
- magneto and electric feeding switches of board power supply are in the position ВЫКЛ (switched off) (the airplane is de-energized);
• all the cockpits are clean without foreign articles in them.

31. Carry out works for beforehand preparation of electric and radio equipment (see the part 6 of this book).

• make sure of the working order of the mechanical place indicator of the front landing gear leg.

32. Inspect the right wing and aileron:

• make sure that there are no remaining deformations, sheathing damages, weakening of the rivets fuel flow under the sheathing and fillet snuggling against the hatches covers and the cleanness of the drainage fuel tanks.
• make sure of the sealing and attachment reliability of the oil cooler and its tubing.
• make sure of the control draft proper attachment to the air cooler outlet pipe.
• make sure of the aileron hinge unit working order and control drafts connection to the arm on the aileron;
• through the hatch on the sheathing, check the state of the filling neck of the fuel tank, cleanness of the cup and the poor off pipe.

33. Inspect the aft part of the fuselage and support:

• make sure that there are no sheathing damage, weakening of the rivets and that there is tail hatch cover snuggling;
• make sure, that there are no damages of the cloth sheathing of elevator and rudder;
• make sure of the aileron hinge unit and elevator trimmer working order;
• make sure through the hatch, that there are no foreign things in the fuselage;
• In. Check extension and retraction of the landing gear, inspect the cable laying, check the reliability of turn buckle locking, termination and fastening to the control surface levers airplane control cables, make sure, that there are no cable rubbing.

34. Make sure of the landing flaps working order, hinges and flap control parts.

35. Inspect the canopy of the airplane, make sure of its cleanness, transparency, fastening reliability and transparency integrity. Check if it is easy to move and that the canopy mobile parts are snuggling to the frame, state and fastening of the shock absorbers, operation of the canopy locks. Make sure of the cleanness of the drainage openings, guiding rails of the moving canopy parts, good working order and reliability of the back view mirror fastening.

36. make sure that the control handles, pedals and control wheel are moving easily and till the end. Make sure, that control surfaces, ailerons, elevator trimmer are deflecting freely (without knocking and seizing) and fully to the needed direction and to the sides and that there are no backlashes, bigger than allowed in the controls;

37. Check the extension and retraction of the landing flaps.

38. Inspect the state and fastening of the cylinders of the main and emergency air systems.

39. Check the state of the units, tube lines and all horses and units, and unit rubbing horses and tube lines and their sealing.

• make sure of the gill working order, the integrity of the flap axis locking and that there are no intolerable wears out of true in the flexible joints; check gill fastening to the engine and reliability of removed flap lock opening and locking;
• make sure of the cleanliness, working order and reliability of fastening of collectors and tube lines of the cockpit ventilation system, blowing over of the generator and compressor.

40. Inspect the turn regulator, make sure of it’s fastening to the engine, that there is no oil flow in the joints and working order of control wiring fastening.

41. Inspect the joints of the case and accessories as well as the engine, if there are no traces of oil or fuel flow.

42. Inspect the cylinders of the engine, inlet pipes, make sure, of the fastening reliability air tightness of the connections, that there are no traces of overheating. Make sure of the baffle working order and their fastening reliability.

43. Inspect the starting valves, air compression distributor, air pipes and connection point. Make sure of the working order, air tightness and fastening reliability.

44. Check the fastening reliability of the candles and cylinder heads.

45. Inspect the exhaust manifold and cockpit air heater. Make sure of the reliability of manifold fastening to the engine cylinders and that there are no traces of exhaust gases, getting through the sealing.

46. Inspect the bosses of the engine case make sure of the engine fastening to the engine bed and engine bed fastening to the fuselage. Inspect the ring and bracing struts of the engine bed.

47. Inspect the state of the flexible horses and pipe lines of the fuel system, locking their nuts, fastening. Make sure that there are no rubbings, touching other units and traces of air tightness failure.

48. Check the state and carburetor fastening to the engine, working order of the control joint coupling.

49. Check the fastening of the fuel pump to the engine of the additional tank, fuel emergency shut-off cock, fuel filter, cock for oil dilution by the fuel to the frame 0. Check the fastening of the fine cleaning filter.

50. Making the pressure of 0,4-0,5 kg/sq.cm with the fill in injector, check the leak proofness of the fuel system, paying attention to the system units leak-proofness.

51. Check the fastening of magneto to the engine, the state of ignition system cable braiding, fastening of conductors to magneto and candles. Make sure of conductors flanging and that conductors do not touch the cylinder edges.

52. Inspect the compressor and make sure of the reliability of its fastening to the engine.

53. Inspect engine and gills control drafts. Make sure of their working order and fastening reliability to the unit levers.

54. Close the bonnet, canopy and all the inspection holes.

55. Carry out the last works (taking out the instruments of the on ground maintenance, control surface locks, cover the airplane and so on), seal the airplane.

56. After carrying all the works, execute service records in the airplane documentation.

1.2 AFTER FLIGHT PREPARATION

1. Accept the airplane on the ground. Make sure, that there are no additional noises, when the engine is throttled down. When the engine is stopped, put blocks at the main landing gear wheels, make sure, that there is no wheel overheating
and that the earthing cable is touching the ground (concrete).
Put on the cover and air pressure receiver pipe.
Make sure that storage battery and magneto are switched off.

2. Get the notes from the crew about all malfunctions of the airplane, engine and equipment and write them down in the airplane operation log.

3. If any malfunctions occurred during the flight, eliminate the cause of the malfunction and eliminate malfunction.
If the temperature in the outside is going to drop lower than +5, make oil dilution by the fuel.

4. Clean the fuselage from dust, mud (ice) canopy hinge, wing, tail support, cowling of the engine, air screw of the wheel, shock absorbing struts, locks, landing gear arches, air collector, engine and its accessories, tunnel of the air cooler, gills.

5. Poor off the condensate from the filter sump of the air system. Close and lock the tap of the filter sump.

6. Charge the airplane by the fuel, oil and compressed air.

7. Open the cowling of the engine and hatches covers, necessary for maintenance and inspection.

8. Inspect the air screw. Check the state of the air screw blades, their fastening in the transition cups that there is no axional backlash and angular displacement of the blades of the main transition cup (arrow on the blade must coincide with the scale gradation on the face of the cup, according to the determined angle), reliability of the air screw fastening on the shaft gear box lip, the state of all cut, bolt connections of the screw and their locking. **CAUTION: It is not allowed to operate blades with big and deep surface damages.**

9. Inspect the cowling and gill:
   - Inspect the fastening units of the cowling to the arms of the fuselage, working order of the swivels;
   - Inspect the cowling covers make sure that there are no cracks of the rubbing, weakening of the rivets and bolted connections and that swivels are of working order;
10. Inspect the oil system and breathing pipe check the leak-proofness of pipe lines connections and units, paying special attention to the termination places of flexible horses; check the state and fastening of the oil system units; check the cleanliness of the drainage pipe opening.
11. Check the working order cleanness and fastening of the carburetor dust filter collector.
12. Inspect the front part of the fuselage. Make sure that there are no sheathing damages, weakening of the rivets and hatches covers snugging and leakproofness of the poor off cock of the fuel system.
13. Inspect the main legs of the landing gear:
   - check the outer state of the wheels, their brake equipment and aviation tires.
   - According to the marks on the tire and wheel flange, check, if the tire haven’t turned in respect with the wheel flange;
   - Check the air charge of the aviation wheel tires according to the strut compression (compression at the normal charge 3 +- 0,5 kg/sq.cm should be 25-30mm);
   - check the state and horses attachment of the air system to the leg struts;
   - clean, inspect and lubricate the lock of the retracted landing-gear;
   - check the state of the attachment units of the shock absorbing struts and folding bracing struts to the wing;
   - check the state of the shock absorbing struts, cylinders of landing gear extension and retraction, oil flow through the seal;
   - visually check the shock absorbers charge by nitrogen (the output of the mirror surface rod at the normal nitrogen pressure 19+1 kg/ sq.cm must be 200-205 mm)
   - check the sealing and integrity of the charging connection point;
   - lubricate the rod of the shock absorbing struts and cylinders lifting platform by thin layer of the lubricant ЦИАТИМ-201;
   - make sure of the working order of the main landing gear position indicators.
14. Inspect the front leg of the landing gear:
   - check the outer state of the wheel and tire;
   - according to the marks on tire and wheel flange check if the tire haven’t turned in respect of the wheel flange;
   - according to the strut compression, check the air charge of the aviation tire (compression when charged normally 3+-0,5 kg/sq.cm should be 15-20mm);
   - clean, inspect and lubricate the lock of the retracted position;
   - check the state of the attachment units of the shock absorbing strut and folding bracing strut;
• make sure of the damper working order, its fastening and hinge couplings with the fixed member that there is no oil AMF-10 flow through the seal;
• visually check the shock absorbers charge by nitrogen (the output of the mirror surface rod at the normal nitrogen pressure 26.1 kg/sq.cm should be 140-145 mm);
• lubricate the rod by a thin layer of lubricant miATHM-201
• check the state of shock absorbing strut, bracing struts, cylinders of extension and retraction and make sure, that there is no oil flow through the seal and not tolerable backlashes in the connections;
• make sure, that there are no damages in the filling in of recess of the front landing gear leg;
• make sure of the working order of mechanical place indicator of the front landing gear leg.

15. Inspect the right wing and aileron:
• make sure that there are no remaining deformations, sheathing damages, weakening of the rivets fuel flow under the sheathing and the fillet snugging against the hatches covers;
• make sure of the sealing and attachment reliability of the oil cooler and its tubing.
• make sure of the control draft proper attachment to the air cooler outlet pipe.
• make sure of reliability of control drafts connection to the arm on the aileron and proper aileron hinge angles;

16. Inspect the aft part of the fuselage and support:
• make sure that there are no sheathing damage, weakening of the rivets and that there is tail hatch cover snugging;
• make sure, that there are no damages of the cloth sheathing of elevator and rudder;
• make sure of the aileron hinge unit and elevator trimmer working order;

17. Make sure of the landing flaps working order.

18. Inspect the canopy of the airplane, make sure of its cleanness, transparentness, fastening reliability and transparency integrity. Check the moving easiness of the mobile parts, the operation of shock absorbers and canopy locks.

19. Make sure that the control handles, pedals, control wheel, control surfaces, ailerons and elevator trimmer are moving easily and till the end.

20. Check the state of the units, tube lines and all horses of air system. Make sure, that there are no weakenings in the tube line, horses and units, rubbing of horses and pipe-lines and in their sealing.

21. Check the charging of the air cylinders (manometer must show the pressure in the system of 50 ± 1 kg./sq. cm. Charge additionally, if necessary.

22. Inspect the engine control levers, make sure, that there are no seizing and additional noises when the control levers work in all the movement range, make sure that the end positions of the levers in the cockpits correspond the end positions of the levers on the units and of controlled throttles;

NOTE: the checking of full opening and closing of the out the airplane. Make sure, that the wheels of the main landing gear are at the supporting blocks and that earth cable is touching the ground (concrete).

NOTE: If the engine before operation must be heated by the ground heater, the cover should be taken off after the heating and the blank from the air cooler collector should be taken out only after the starting and
heating the engine.

23. If necessary, remove dust, snow, ice and hoar-frost:
   • from the aircraft surface, canopy glass, outside antenna;
   • from the control units and from hinge of control surface, flaps, ailerons, elevator trimmer between the wing stitches, stabilizer, fin and front aileron edge and control surfaces;
   • from the shock absorbing struts, wheels, locks of the retracted landing gear position and also from the arch of the front leg, from the intake and exhaust passage of the air cooler.

24. Inspect the air screw and make sure of its working order.

25. Inspect the cowling of the engine:
   • open the cowling and check the coupling joints of the cowling to the fuselage, the working order of the swivels;
   • make sure that the gills and the collectors of cockpit ventilation, generator and compressor blowers are clean.

26. Inspect the power plant and make sure of the working order and reliability of the engine, engine bed and exhaust manifold make sure of the good working order of fuel, oil and air tube lines and horses.

27. Make sure of the fastening of the engine control drafts, draft connections with the carburetor, turn regulator, gill control levers, and air heating valve at the carburetor intake.

28. Inspect the front part of the fuselage, make sure that there are no sheathing damages, and hatches covers snugging and leakproofness of the pour off cock of the fuel system.

29. Inspect the main legs of the landing gear:
   • check the outer state of the wheels, their brake equipment and aviation tires.
   • make sure, that there are no defects of struts, bracing struts, extension and retraction cylinders and coupling joints;
   • make sure of the working order and fastening reliability of the tube lines and hoses of the wheel air brake arrangement.
   • Check the air charge of the aviation wheel tires according to the strut compression (compression at the normal charge 3 ± 0.5 kg/sq.cm should be 25-30mm);
   • make sure, that the lock of the retracted landing-gear is clean;
   • visually check the shock absorbers charge by nitrogen (the output of the mirror surface rod at the normal nitrogen pressure 19+1 kg/sq.cm must be 200-205 mm)
   • make sure, that the brake surface of the rod is not damaged and that there is no oil AMr-10 flow. Remove the lubricant from the brake struts rods of the air cylinders with a clean napkin.

30. Inspect the front leg of the landing gear:
   • carburetor throttle should be carried out when the fire cock is closed.

31. Make sure of the seat fastening reliability to the fuselage frame and proofness of the safety belts and their fastening, make sure of the reliability of locking handle operation of the fastening belts in the plate spring.

   During every after flight checking inspect the spines, locks and the wholeness of the pilot’s fastening belts stitching up. If the defects of the spinning locks, and of the wholeness of the stitching up are found, and also if there is rubbing of the belt tape, change the belts.

NOTE: When carrying out works in the cockpit, put the belts of the lashing system along the side boards in order to exclude a possibility of their spoiling by feet or
soiling.

32. Inspect the left wing and aileron:
- make sure that there are no remaining deformations, sheathing damages, weakening of the rivets, fuel underflow and fillet snugging against the hatches covers;
- make sure of the hinge units of ailerons and connecting control draft with the arm on aileron;
- make sure of the storage battery fastening, that there are no traces of electrolyte and cleanness of the drainage pipe;
- make sure of the cleanness of the inlet openings of the air pressure system.

33. After clearing out all the faults, noticed by the pilot and revealed during the inspection, make sure that:
- cocks of landing gear extension and retraction and of the landing flaps are in the neutral position and are fixed by the locks;
- all the switches and circuit breakers are switched off;
- magneto switches and electric feeding switches of board power supply are in the position БIК.Н (switched off) (the airplane is de-energized);
- all the cockpits are clean without foreign articles in them.

34. Close the bonnet, hatches covers and mobile parts of the canopy. Install the blanks in the collector of the air cooler and on the branch pipe of the exhaust manifold.

35. By the outer inspection, make sure once more that there are no damages on the sheathing of the airplane, elevator trimmer is in the neutral position, landing flaps are removed, and that supporting blocks are reliably put at the wheels of the main landing gear and earth cable is touching the ground (concrete), the airplane is reliably tied down.

36. Carry out the final works (taking out the instruments of the on ground maintenance, control surface locks, cover the airplane and so on), seal the airplane.

1.3 PRE FLIGHT PREPARATION

1. Take off the covers of the airplane, take off the blanks from the air cooler collector and from the branch pipe of the exhaust manifold, take off control surface locks and tie

2. Check the leak-proofness of the membrane mechanism fuel cock of the carburetor fuel passage, in order to check that it is necessary to make a pressure of 0,12-0,15 kg. sq.cm. in the fuel system by the filling injector and keep it for three minutes. The leak proofness of the atomization pipe testify the working order of the membrane mechanism.

   Making the pressure of 0,4-0,5 kg./sq.cm., check the leak proofness of the fuel system.

3. Check the control of the engine, fire cock, gill and air cooler flap, make sure, that there are no seizing of the control wiring in all the ranges of positions of the levers.

   NOTE: the checking of full opening and closing of the carburetor throttle should be carried out when the fire cock is closed.

4. Make sure of the proofness of the safety belts and their fastening, make sure of the reliability of handle locking in the plate spring.

   During every after flight checking inspect the spines, locks and the wholeness of the pilot’s fastening belts stitching up. If the defects of the spinning locks, and of the whole-
ness of the stitching up are found, and also if there is rubbing of the belt tape, change the belts.  

**NOTE:** *When there is one pilot flying in the first cockpit, the fastening belts of the second cockpit should be put into the lock of the right waist belt according to the standard diagram, tighten two lower shoulder belts and the middle belt, taking up the slack fully. Then the fastening link of the middle belt must tightly snug against the cup of the seat.*

5. Check the airplane charge with fuel, oil and air. The airplane charging with fuel and oil must correspond the flight task.

6. Make sure, that in the both cockpits:
   - the circuit breakers, switches on the instrument panels and desks are in the switched off position;
   - magneto is switched off;
   - that cocks of landing gear extension and retraction and of the landing flaps are in the neutral position and are fixed by the locks;
   - the fire cock is closed;
   - the cock of the air system is closed;
   - there are no foreign articles;

7. Inspect the aileron of the left wing:
   - make sure, that there are no sheathing damages, fuel underflow and make sure of the hatches covers opening.
   - make sure of the hinge units of ailerons and connecting control draft with the arm on aileron;
   - make sure of the storage battery fastening, and cleanliness of the drainage pipe;
   - make sure of the cleanliness of the inlet openings of the air pressure system.
   - check the outer state of the wheel and tire;
   - make sure, that there are no defects of strut, bracing strut, in the extension and retraction cylinder, at the coupling joints and in the leg joint.
   - according to the strut compression, check the air charge of the aviation tire (compression when charged normally 3+-0.5 kg/sq.cm should be 15-20mm);
   - make sure, that the lock of the retracted position is clean;
   - visually check the shock absorbers charge by nitrogen (the output of the mirror surface rod at the normal nitrogen pressure 26+-1 kg/sq.cm should be 140-145 mm);
   - make sure of the damper working order, its fastening and hinge couplings with the fixed member that there is no oil AMr-10 flow through the seal;
   - make sure, that the brake surface of the rod is not damaged and that there is no oil AMF-10 flow. Remove the lubricant from the brake strut rod of the lifting and extending cylinder with a clean napkin.

8. Inspect the right wing and aileron:
   - make sure that there are no sheathing damages, weakening of the rivets fuel flow under the sheathing and under the fillet and the reliability of hatches covers opening;
   - make sure that there is no oil leakage from the oil cooler;
   - make sure of reliability of control drafts connection to the arm on the aileron and proper aileron hinge angles;

9. Inspect the aft part of the fuselage and support:
   - make sure that there are no sheathing damage, and that
there is tail hatch cover snuggling;
• make sure, that there are no damages of the cloth sheathing of elevator and rudder;
• make sure of the aileron hinge unit and elevator trimmer working order.

10. Make sure of the landing flaps working order.
11. Inspect the canopy of the airplane, make sure of the cleanliness of the drainage openings, canopy directing rails, of the cleanliness, and transparency integrity. Check the moving easiness of the mobile parts, the operation of shock absorbers and canopy locks.

12. Make sure that the control handles, pedals, control wheel deflect easily and till the end. Make sure that control surfaces, ailerons and elevator trimmer deflect freely (without knocking and seizing) and fully to the needed direction and side and that there are no backlashes, bigger than allowed in the controls;

13. Check the extension and retraction of the landing flaps.

14. Check the charging of the air cylinders (manometer must show the pressure in the system of 50 +/− kg./sq. cm). Charge additionally, if necessary.

15. Check the working order of the landing gear indicators, landing flaps, and fuel-quantity indicator.

16. Poor off 0,2-0,3 litre of fuel from the filter sump make sure, that there is no water, crystals, ice and mechanical impurity in the poured off fuel.

NOTE: In case of finding free water, ice crystals, mechanical impurities in the poured out fuel, draw the sediment from all the drawing points until the fuel, being drawn is clean. It is not successful to eliminate the impurity of the fuel at the additional drawing, it is necessary to draw all the fuel, to clean tanks and charge with condensed fuel.

17. Close the cowling, hatches covers and mobile parts of the canopy, close and lock all bib cocks.

18. Prepare the engine for starting. Start and test-operate the engine in accord to the Instructions of engine operation.

NOTE: 1. If the engine hadn’t operated for more than three days, before starting, it is necessary to carry out works, preventing hydro shock in the cylinders and of additional lubrication of mirrors of the cylinders for excluding the possibility of half dry friction between the pistons and cylinder mirrors.

2. When the temperature of surrounding air is lower than +5 C, heat the engine by on ground heater in the course of 15-30 min., but in such a way, that the temperature of the cylinder heads is not lower than 30C.

3. If, because of the low temperatures of the surrounding air (minus 30C and lower), before starting the engine the oil hadn’t diluted but poured out after the switching off before starting, it is necessary to charge the oil tank with oil, heated till 70-80C. When charging, pour through the oil filter cock 2,5-, litres of oil for filling and heating oil tube lines.

19. After test operating of the engine, make sure that there are no oil and fuel underflow.

20. Fill in the control page of the airplane readiness to the flight and give it in to the pilot for carrying preflight inspection.
1.4 AIRPLANE PREPARATION FOR THE REPEATED FLIGHT

1. Get the information from the crew about the operation of the aviation technique.
   Charge the airplane with the fuel, oil and compressed air according to the flight task and pour out the sediment of fuel after 5-10 minutes.
   Pour off the condensate from the filter sump of the air system, close and lock cock of the filter sump.
2. If necessary, clean the airplane, engine cowling, air screw, canopy glass and landing gear from mud (snow, ice).
3. From the outer inspection of engine cowling, air screw, fuselage canopy, wing, landing flaps, ailerons and tail support, make sure that:
   • there are no remaining deformations of the power plant, nicks or drifts on the sheathing, weakening of the rivets.
   • Make sure of the reliability of locks of coverings of hatches covers and cowling;
   • of the moving nimbleness of the mobile parts of the canopy and good condition of their locks;
   • that the hinge units of aileron, control surfaces and landing flaps are not damaged;
   • that the openings of drainage, fuel and oil system are clean;
   • that the inlet openings of the air pressure receiver are clean;
   • that there are no damages and soiling of the cockpit canopy;
   • that there is no leakage of oil and fuel from beneath the engine cowling and on the sheathing of the fuselage and wing;
   • that there are no damages of the air screw blades that the blades are reliably fastened in the sleeve, the cylinder to the screw sleeve and that the air screw itself is reliably fastened on the engine shaft.
4. Check the position of the levers, switches, circuit brakers in both cockpits and make sure that there are no strange articles;
5. Inspect the legs of the landing gear and their arches:
   • make sure of the compression when the wheel tires are normally charged;
   • make sure, that there are no damages of the aviation tires, their inversion in respect with flanges (according to the marks); make sure of the proper locking of the nuts of wheel and air brake flange fastening;
   • make sure of the normal charge of the shock absorber, according to the inlet of rods mirror surfaces;
   • inspect the shock absorbers, struts, lifting and leg extension cylinders and make sure, that there is no damages, oil AW-10 flow on the strut rods and of working order of the flexible connections, fixing locks of the legs in the retracted position, fastening units of the shock absorbing struts, struts and cylinders of the landing gear extension and retraction, mechanisms, indicating the position of the landing gear;
   • make sure of the working order of the front leg damper, that there is no oil AMF-10 leakage in the fastening reliability and that there are no backlashes in the connections of shock absorbing struts.
6. Carry out the final works: closing of the hatches, locking of the bib cocks, removing the instrument and on ground
2. SCHEDULED WORKS OF THE AIRPLANE AND POWER PLANT

<table>
<thead>
<tr>
<th>Content of the works</th>
<th>Terms of carrying out works after every</th>
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**POWER PLANT**

1. Open the covers of the cowling, clean the engine, engine bay to the cowling from the accumulated mud.
2. Inspect the power plant in the scale of beforehand preparation. Eliminate the defects, revealed during the inspection.
3. Change the filter element of the oil fine cleaning filter, for that:
   - take off the locking and unscrew the cover of the filter;
   - take off the filter element;
   - mount the new filter element from the new single set;
   - change the seal rings into new from the spare set;
   - screw and tighten the cover of the filter;
   - clean the taken off filter element in the ultrasonic instrument according to the instruction No.63.

**NOTE:**
1. For filter element transportation to the place of ultrasonic cleaning, put the filter element to the bag, made of cotton film and pack to the carton box.
2. Put the cleaned filter element to the single set of spare parts for future use.
3. When carrying out scheduled works, fully exclude the possibility of inside filter soiling.
4. Filter disassembly, except for changing the filter element is STRICTLY FORBIDDEN.
4. Take off the covers of the camshaft boxes and check the state of the mechanism parts.
   - Check the clearance between the rollers of the rockers and faces of the valve stems if necessary state clearances 0,3 ±0,15 -0,1 mm.
   - Check the tightening of locking nuts, control screws and of all the rockers.
   - Check the tension of all the cables of the fastening of valve box covers, if necessary, regulate the tension of the cables.

**NOTE:**
1. While carrying out works, pay special attention to the reliability of control screw rockers fastening.
2. If the clearance between the rollers of the rockers and faces of the valve stems hadn't changed after the first 100 hours of engine operation, the future checking should be carried out after every 200 operating hours.
5. Take off the filter indicator oil sump and oil filter of the back cover, for that:
   a) switch off the power, disconnect the conductor, pour off the oil from the oil sump and back cover through the filtering funnel with the narrow meshed net. (Metal, other particles and traces of coke on the wall are not tolerated).
   b) unscrew three nuts of the bed and take off filter indicator together with the cup. Inspect the filter and wall. In case metal particles are found on the wall of the filter, state the cause of their occurring in the oil;
   c) clean the filter indicator with pure not ethyled fuel, then immerse it for one hour in the solution of glycerol and spirit (20% glycerin and 80% spirit) and blow with the dry pressed air with the pressure of 0.8-1 kg./sq.cm.

Before installing filter-indicator in the sump, connect feeding conductor to it.

Check the working order of the internal circuit of the filter, for that close on the mass of the filter net having closed block of the indicator plates between each other before that.

After checking internal circuit of the filter, take off the strap from the plate block;

   c) put the cup with the filter-indicator to their place, fasten them with three nuts, connect the conductor.

Check the working order of the external circuit of the filter indicator, for that take off the rubber cap from the terminal of the filter and close it on the mass, then the indicating lamp **JET IN THE OIL** on the instrument panel must light up. The lamp switches off when the circuit is being closed.

6. Poor off the oil from the oil tank. Take off, inspect clean and put to its place filter element of the oil system filter sump, filter in the back cover of the engine (screen filter of the oil pump) and filter supplying oil to the turn regulator. Fill in fresh oil to the oil tank.

**NOTE:**

*Oil change on the dusty airfields should be carried out after every 50 hours of engine operation.*

7. Take off inspect clean and install to its place the filter element of the oil system filter sump.

8. Carry out the following works on the carburetor:
   a) take off, inspect, clean in the pure fuel, fuel filter of the carburetor with the cap, taken off. Put on the cap after the cleaning and lock it by the spring lock so that the folded ring would come into the opening of the cap and filter frame.
   b) take off, inspect and clean with the pure petrol and blow with the pressed air with the pressure not more than 0.5 kg/sq.cm the air filter of the carburetor;
   c) measure the initial position of the altitude corrector needle and, if necessary, regulate according to barographics;
   d) take off the breathing cork of the aneroid surface, check the cleanness of the openings, clean with the pure fuel and blow with the compressed air with the pressure not more than 0.5 kg./sq.cm;
   e) take off, clean in the pure fuel and blow with the compressed air drawing off jet;

**NOTICE.**

Before installing filters and boxes to their places, check the state of the sealed rings. The faulty ring should be
changed by a new one from the single set.

f) unscrew the lower outlet cork and pour off the sediment from the fuel chamber;

NOTICE.
In case the air passage of the carburetor is soiled, it is allowed to carry out the following works, without taking into account the operating hours of the engine:

a) draw through the fuel at the pressure of 0,1 kg/sq.cm. after that blow with the compressed air with the pressure not more than 0,5 kg./sq.cm. the air system of the carburetor through the opening of the cork of air pressure changing;

b) take off clean with the fuel and blow with the compressed air the blowing off jet.

9. Carry out the following works of magneto maintenance:

a) take off the screen with the distributor and the upper cap; check the screw connection in the breaking mechanism and the rotation of the little lever on the axis (screw connections must be reliably tightened, little lever must rotate on the axis without seizing); clean the contacts of the breaker, rub them with the suede or with clean white calico, moistened in the pure rectified spirit, check, and, if necessary, regulate the clearance between the contacts within the limits of 0,25 - 0,35 mm, indicate the regulation of magneto in its passport;

In case the oil underflow or oil films are found on the metal surfaces of the parts and units which are in the area of interrupting mechanism, eliminate them with the bleached calico, moistened in the pure rectified spirit and wringed out; lubricate the spring of the interrupter with the thin layer of turbine oil, mark “A”, not allowing underflows and oil getting on the contacts of the interrupter;

b) in the distributing mechanism, check the working order of the contact spring in the jack of the high voltage outlet of the distributor cover, the state of the angle piece with the spring; change the faulty parts, from the single set of the spare parts.

In case the soiling on the distributor and on the traveler is found, clean them with dry clean suede;

c) If necessary, change the terminal in the upper cap and high voltage outlets, having taken the new parts from the single magneto set;

d) check the transformer fastening, traveler attachment to the cam. In case the separation of the thread is found on the screws, change them into new from the single set of the spare parts;

e) inspect the cam, if it is soiled, rub it till shining with the suede or clean white calico, moistened a little in the pure rectified spirit and with the thin brush, saturated a little in the turbine oil mark “J1” not allowing underflows of the oil or getting it on other parts, lubricate the operating surface with it. Drop 5-6 drops of the turbine oil mark “n” by the pipette in the cam lubricator opening.

f) Unlock and unscrew the corks of the magneto drive, pour off the accumulated oil then screw the corks.

the works should be carried out on the hot engine.

10. Check the fastening of the air compressor. Take off, clean and dry with the dry compressed air with the pressure of 0,4 - 0,5 kg./sq.cm the felt filter of the compressor. Check if the inlet valve moves freely.

NOTICE.

After cleaning the filter element, install it in the housing at the same surface at which it was before cleaning and the lock should be installed with the middle part bended out.
11. The following works should be carried out at the maintenance of the candles:
   a) take off the candles from the engine according to the disassembly rules;
   b) clean the candles with the pure fuel and dry in the air;
   c) clean the chamber of the candles from the carbon in the sand streamed apparatus of the DM instrument with the dry sand, passed through the sieve with 1600 holes for 1 sq.cm. with the air pressure of 6-8 kg./sq.cm after cleaning by sand blow the chamber of the candles with dry air at the pressure of 4-5 kg./sq.cm and clean in the pure fuel;
   d) after cleaning the chambers of the candles, carry out the thorough inspection of the insulator tip. In case the cracks are found on the insulator tip, the candle must be changed;
   e) inspect the internal cavity of the candle screen and clean with the clean rag, if it is soiled;
   f) regulate the clearance between the electrodes, having mounted them within the limits of 0.4-0.46 mm on the special contrivance of the instrument FIM.

   **NOTE:**
   
   1. When changing the spark clearance, apply only special-feelers.
   2. It is forbidden to make a pressure with the feelers on the central electrode.
   3. It is categorically forbidden to use not standard instrument for the regulation of spark clearances so as to avoid loads (pressure) on the central electrode.
   g) check the candles for continuity of sparking on the instruments FIM or MCKPA at the pressure of 10 kg/sq.sm when the clearance between the electrodes is 0.46 mm and the pressure 11.5 kg/sq.cm when the clearance between the electrodes is 0.4 mm;
   h) check the candles on the same instrument for air tightness at the pressure of 25 kg./sq.cm in the course of 30 sec., it is allowed to make air percolation to the water, not more than 30 bubbles at the abstraction horse with the inner diameter of 16 mm and of 50 cm length; when the candles get moistened again, clean their inside cavity with the dry napkin after that dry candles at the temperature of 160-180 C in the course of 1 hour and 30 minutes and then test for sparking.

   **NOTE:**

   The taken off candles from the engine may be installed again for operating full service life if they work on the instrument without regulating clearances at the pressure not lower than 8 kg./sq.cm.

12. After engine operating life of 300 hours check compression in all the cylinders with the help of pressure gauge, for that it is necessary:
   a) to screw in the pressure gauge into the candle opening of the cylinder, which is being checked;
   b) turn the screw smoothly and follow the indications of the pressure gauge, at the normal compression the indications of the pressure gauge should be within the limits of 3.5-5 kg./sq.cm.

   **NOTE:**

   Compression should be checked on the warm engine, when the temperature of the cylinder heads is 40-60 C

13. After pouring off the oil, clean the oil manifold.
and oil tank with the clean not ethyled fuel.

ATTENTION:

The work should be carried out when the inlet and exhaust pipes are disconnected from the engine fuel pump.

14. Disconnect the drainage pipes from the fuel tanks, consumption tank and blow the tube lines with the compressed air with the pressure of 1-2 kg/sq.cm after that connect them to the fuel tanks and to the consumption tank.

15. Inspect the oil and fuel tube lines in the fuselage and wing, check the locking of the nuts, connection points in the passages, flanging of the tube lines. Tube lines affected by corrosion and with the rubbed surface should be changed.

16. Take off hatches of the wing fuel tanks and consumption tank fastening. Make sure, that tank shells are not touching wing construction, check the tension of the tank fastening tapes, turn buckles locking and the reliability of tube lines connection.

Inspect the fuel tanks and the consumption tank, make sure that there are no cracks and rubbings of the tank shells.

17. Check the magnitude of the gill flaps backlashes in the closed, middle and opened positions. Eliminate big backlashes of the flaps, changing the worn out parts. Lubricate with a thin layer of lubricant ЦИАТИМ-201 the mobile gill connections.

18. Open the hatches covers of the fuselage and inspect drafts, cables, control cranks and engine control levers. Make sure that there are no mechanical damages (deformations, cracks) worn out cables; make sure of the reliability of draft connections with the levers and control cranks.

clean, inspect and lubricate with the lubricant ЦИАТИМ-201 all joint couplings of the engine control conductors and opened bearings.

NOTE:

Check the tightening of the nuts of the arms fastening, mounted on P-2 and on the flange of engine reduction gear M-14P with a calibrated wrench Mkп=1,5 +0,3 kg.sec/m

AIRFRAME

1. Inspect the fuselage of the airplane, its power plant, sheathing, fillets, attachment points, riveted seams, pointwise-welded joints and bolted connections.

Make sure, that there are no cracks, deep scratches, deformations, corrosion, weakening of the rivets and bolted connections, faults of the lacquer-paint covering.

For inspecting tail part of the fuselage, take off the seat of the pilot from the second cockpit and use the hatch in the area of frame7 in the port board.

2. Inspect the tail support:

a) make sure, that there are no deformations, cracks of the sheathing of fin and horizontal tail, weakening of the rivets and bolts of sheathing fastening to the frames; Make sure of the working order of bearings that there is no wear out of true in the sleeves of the hinge units of elevator and rudder that there are no deformations, cracks, corrosion of the control surfaces hinge arms, weakening of the bolted and riveted arm fastenings to the fin and horizontal tail;

b) make sure, that there are no traces of deformation of the elevator and rudder frames, weakening of the tension and breaks of their fabric sheathing, shallowness and damage of laque paint covering of the sheathing. Make sure of the working
order of the hinge arms, control levers and their fastening to the control surfaces frame, that the drainage openings are clean;

c) inspect the trimmer on the elevator and dip-rod loop of its fastening, check the magnitude of the trimmer backlash.

3. Take off the fillets of the tail support, check the joint units of fin and horizontal tail to the stabilizer, make sure, that there are no cracks, corrosion of the working order of units fastening to the fuselage, fin and horizontal tail, that there are no weakening of the nuts, joint bolts and of the working order of their locking.

4. Inspect the wing, ailerons and landing flaps:
   a) make sure that there are no cracks, scratches, deformations, weakening of the riveted and bolted connections of the metal sheathing, breaks and loosing strength of the fabric sheathing and its fastening, damage of the lacque paint covering; make sure of the cleaness of the drainage openings in the lower fabric cover of ailerons; make sure of the working order of hatches covers and locks of their fastening;
   b) Inspect hinge units of the ailerons make sure of their working order and that there are no intolerable backlashes in the bearings, weakening of the fastening, deformations and cracks of the arms. Check the state of the arm fastening to the wing and ailerons.

   Make sure of the working order and reliability of the control levers fastening to the ailerons;

   c) Inspect the fastening of the flaps, make sure of working order that there are no intolerable backlashes in the joint coupling. Check the state of the arm flaps. Lubricate the joint coupling with the lubricant ЦИАТИМ-201; Inspect the turn units (forked clevis) make sure of their free rotation, spray lubricators with the lubricant ЦИАТИМ-201;

   d) take off the wing fillets and inspect attachment points of the wing panel to the fuselage, make sure, that there are no cracks, deformations, failures of locking, weakening of the rivet tightening of the joint bolts and backlashes in the connections of wing panels to the fuselage.

   Make sure of the drainage pipes of the battery container cleanness and of the working order of the hatches and their locks.

5. Carry out the following works on the seats of the front and back cockpits:
   a) check the attachment points of the seat fastening to the fuselage. Lubricate the mobile joins of the seat according to the lubrication map:

      b) inspect the lashing system, check the fastening and the state of the belts, working order of the lock.

      Check the amount of the force, needed for opening the lock of the lashing system (the force should be 6-10 kg.).

6. Carry out the following works on the cockpit ventilation and heating:
   a) inspect the air passages and units of the system: make sure that there are no damages, traces of air leakage, that units and tube lines are fastened reliably, check the tightening of the clamps:

      b) check the travel smoothness of the system overswitching draft on the regime of cockpit heating or ventilation: the possibility of the positive locking of the butterfly type valve in the three positions (opened, half opened and closed) and the possibility of free rotation of the turn packings on the ends of the air passages;

      c) take off and check the heat resistant branch pipe;
d) when the engine is operating, check the air intake for heating (the valve is opened) and ventilation (the valve is closed) of the cockpits.

7. Inspect the cockpit canopy of the airplane. Make sure of its integrity, cleanness, transparency and reliability of glass fastening of the frames and edging of the canopy, of the working order of the canopy mobile parts locks,
shock absorbers, cables and their fastening to the mobile parts and fuselage, of the proofness and reliability of the back view mirror. Clean the drainage pipes directing rails of the mobile parts of the canopy. Carry out works according to the lubrication maps. Check the moving easiness and snuggling of the mobile parts of the canopy against not mobile ones.

**AIRPLANE CONTROL**

1. Inspect the airplane control handles in the cockpits, pedals and control wheels of the elevator trimmer control. While fully deflecting control handle, pedals and trimmer control wheels in the both cockpits, check the deflection angles and the neutral position of the ailerons, rudder, elevator and trimmer; make sure of the travel smoothness of the controls, that the efforts are not needed, that there are no seized and crunchings in the bearings. Pay special attention to the state of the joint in the elevator draft.

   **ATTENTION:**
   *If there will be noted increased friction force or seizing in the airplane control connector, it is necessary to state the cause immediately and eliminate it.*

2. Make sure of the working order of the elevator trimmer position indicator and the correspondence of their readings to the position of the trimmer.

3. Open the hatches covers of the fuselage, wing, take off the seat of the back cockpit and the floor covers which can be taken off in the places where the airplane control connector is. Inspect the drafts, rods, cables, direction indicators from the airplane control handles, parts airplane control steering wheels and air cylinder of the flap control till the aileron levers, landing flaps, control surfaces and elevator trimmer.

   Make sure, that there are no corrosion, mechanical damages (deformations, cracks), weakening of the bearing termination, worn out cables; make sure of the reliability of draft connection with the control cranks and levers, integrity of the locking and metalization, that the clearances are as required by technical conditions between the mobile and not mobile and control parts of the interconnected mobile, and also construction elements.

   Check by the strain-measuring device the cable tightening (see drawing 2,3,4)

   Clean, inspect and lubricate with the lubricant ЦИАТИМ-201 all the joint couplings of the control connectors, which have open bearings.

4. Inspect the shafts of the airplane manual control, make sure, that there are no mechanical damages of the housings, pipes and shaft supports. Check all joint couplings of the shaft. Change the lubricant in the frictioning parts.

5. Inspect the cylinder of the landing flaps control and the arm of its fastening. Make sure that there are no damages in the cylinder tight seal and tub line connections of the pneumatic system, make sure of the bolt connections and locking reliability.

6. Check the time for extension and retraction of the landing flaps, it should not exceed 5 seconds.
Pour 5-10 sq.cm of the lubricant 132-25 rOCT 10957-74 to the working cavity of the cylinder flaps through the connection point, after that carry out the extension and retraction of the landing flaps.

7. Check the radial backlash of the flap and support control rods. The backlash should be within the limits of 0,01-0,3 mm.

**LANDING GEAR**

1. Inspect wheels and tire of the front and main legs of the landing gear. Make sure, that there are no traces of the overheating of the wheels that drums and their flanges work well; that the wheels are reliably fastened on the semiaxis of the shock absorbing fixed members, make sure of the connection of flexible horses of the pneumatic system with wheel brake equipment of the main legs wheels, that there are no cuts, punctures, not tolerable wear, local swelling, displacement of tire covers in respect to the wheel drums (according to the marks)

2. Inspect the fixed members of the shock absorbers and the units of their fastening to the airframe. With the help of the magnifier make sure that there are no cracks on the welded seams and in the attachment points. Inspect the joint slots and all mobile and not mobile joint couplings of the shock absorbing struts, make sure of their working order and reliability of locking that there are no work outs in the mobile connections. Check the fastening of the baffle of the front leg, make sure that there is no oil AMF-IO flow, backlashes and other defects in the connections.

Check the state of the working surfaces, flaps of the shock absorbing struts and that there is no oil AHF-IO underflow.

3. Check the pressure of nitrogen by the manometer in the area of the shock absorbing struts. The pressure should be equal to the pressure indicated on the placard on the shock absorbers.

4. Check the level of the oil AMF-10 in the shock absorbers of the landing gear.

5. Inspect the cylinders - lifts, of the landing gear legs and their attachment points. Make sure that there are no damages, that there is tight seal of the cylinders and connections with the horses of the pneumatic system of the reliability of bolt connections and lockings.

6. Take apart, clean, inspect, lubricate with the lubricant UPIATPIM -201 and install to their places locks of the retracted position.

7. Pack lubricant U,HATI1M-201 in the lubricator of the landing gear.

8. Pour 15-20 cubic cm. of lubricant 132-25 FOOT 10957-74 in the working cavities of the cylinders of landing gear lifts.

9. Pour 2-3 cubic cm. of lubricant 132-25 into the working and emergency cavities of every cylinder of leg retracted position locks opening. After carrying out works according to 2.40, 2.41, carry out the extension and retraction of the landing gear. Make sure of the air-tightness of the cylinder connections with the passages of the air system.

10. Take off wheels of the landing gear and carry out the following works:
a) eliminate the old lubricant from the wheel bearings and wash with dehydrated kerosene.
b) clean the drum of the wheels from soiling, blow the brake equipment with the compressed air, inspect the drums, parts of the wheels and brake equipment; make sure that there are no traces of overheating, cracks wears out deformations, not tolerable wears out of the brake blocks at the inner tubes.
c) inspect the semiaxis of the wheels;
d) fill the wheel bearings with a new lubricant HK-50 rOCT 5373-67;

Note:
1. Lubricant HK-50 should be used only for filling in the space between the rollers and iron rings.
2. The wheel should be changed together with the bearings.
11. Check the presence of the clearances between the construction of wing fuselage and landing gear elements. Measure longitudinal and perpendicular backlashes and the backlash of landing gear turn according to the wheel axis faces. The longitudinal and perpendicular backlash should be not more than 2 mm, the total backlash of leg turn (in the hinge axis and spline-joint) not more than 3mm.
12. Check the size of the clearance with probing rod between the support of the folding struts middle joins of the landing gear front and main legs. The clearance should be 0,1-0,2 mm.

The inspection should be carried out with the extended landing gear, in the position “neutral”.
13. Take off the tires of the landing gear wheels, take off the inner tubes from the tire cover, inspect and make sure that there are no foldings, rubbings, cracks and defects of charging tube mounting. Check if there are no defects of the inner surface of the tire covers. Eliminate old talc from the tire covers and from the surface of the tire cover with talc powder and mount the aviation tire on the wheel drum.

14. Carry out control extension and retraction of the landing gear from the main and from the emergency pneumatic systems at the normal air pressure in the systems and check:
   a) operation of the locks of extended and retracted positions;
   b) operation of mechanical indicators and the indication of landing gear position;
   c) time for landing gear retraction should not exceed 8 seconds and not synchronlessness of the leg extension should not exceed 1 min.

   Note:
   The operations No 34-47 should be carried out when the airplane is lifted on the lifts.

15. Take off the brake posts and folding struts of the landing gear front and main legs.

   Disassemble folding struts and spline joins. Wash the parts of landing gear hinge units and joint couplings with the dehydrated kerosene. Clean the lubrication passages with soft wire. Inspect all frictioning surfaces. Change the faulty parts.

   Lubricate all the frictioning surfaces with the lubricant ЦИАТИМ-201. Assemble the folding struts and spline-joins, install shock absorbing posts into their places. Fill lubricant to all prelubricators according to the lubrication map. Carry out works, indicated in point 2.46.

   Note:
   The lifting and putting down the airplane by the lifts should be carried out when the braking of the main legs is not applied.

AIR SYSTEM

1. Inspect the units and tube lines of the air system. Make sure that units and tube line are fastened reliably that the connections arc air tight, that units do not touch each other and units of the construction.

2. Pour of condensate from the main and emergency cylinders.

3. Take off the uniflow boiler filter of the air system, take apart, check the state of the parts, wash with the petrol B-70 and dry the washer, collect the filter, blow with dry compressed air and install to its place.

4. Blow with the compressed air with the pressure of 50 kg/sq. cm. the tube lines of the air system having disconnected them from the consumers and units.

5. Check the air tightness of the main and emergency air system.

6. Check the operation of the brakes from the main and emergency system;
   a) the air pressure in the brakes should be 8+1 kg/sq. cm.
   b) The time for pulling the brakes on and off should not be more than 1,5 seconds.

7. Check the regulation of preservative valve and the automatic pressure machine of air system.
NOTE: Referring point 2.51. For blowing tube lines of the air system it is allowed to use dry (with dew point not higher than -45°C) compressed air from the airfield cylinder. The compressed air should be sent to the tube lines of the system through the stand, engaging filter with the filtering fineness not more 5 mk, moister separator and reductor. In the blowing process of the tube line parts, control the cleanness of the internal cavities of the passages with the help of cotton napkin. In case the napkin is soiled, proceed on blowing till the final elimination of soiling.

3. MAINTENANCE, WHEN THE ENGINE IS CHANGED

1. The oil filter should be taken off from the engine, which is being taken off after the end of the service life or before it. The oil filter should be inspected and made sure that there are no metal chips, then it should be installed back.

NOTE: In case the metal chips are found on the oil filter of the taken off engine, the oil cooler and oil tank should be changed, and tubing, horses and units of the oil system should be carefully inspected.

The taken off oil tank and oil cooler should be sent to repairing department for cleaning in the stationary equipment.

2. The inside preservation of the taken off engine to accord with Maintenance Instructions of the engine M-14P should be carried out. Pour out the oil from the oil tank and system.

3. Take off the air screw, from the contamination, inspect the blades, sleeve and cylinder unit; make sure that there are no damages of the parts and screw.

4. Disassemble and take off the engine. Clean the compartment: fire wall, drafts, tubing.

5. Take off the oil tank, filter element of the oil filter sump and oil cooler, clean them inspect and install them to their places.

6. Clean and inspect the engine bed, make sure that there are no damages, cracks in the welding seams and units, inspect the engine studs, joins, bolts, make sure that there are no wears out of true, drawing and cutting damages.

7. Inspect fuselage arm fastenings of the engine bed and cawling, make sure that there are no wears, cracks and other defects.

8. Inspect the opposite wall, the state of unit fastening to it, sealing gaskets, dislodging control drafts by the engine, tubing and electric lines.

9. Inspect control drafts and then tips, fuel, oil and air horses and tubing; change the faulted ones.

10. Inspect the cowling of the engine make sure that there are no rubbings, cracks and rigidity in the sheathing, that swivels are in working order and that there is no wear out of true, preventing further operation of the mobile joints of the gills.

11. According to the guidance of maintenance instructions for the engine M-14P and airplane JAK-52, install the new engine in the airplane and carry out mounting of the unit tubing, gills, air screw covers of the cowling.

Carry out regulation works, fill up the airplane with fuel and oil, make sure of the leak-proofness of the fuel and oil
system and in the leak-proofness of the valve of oil manure by the petrol.

Re-activate and check the newly installed engine.

12. After operating, take off the engine, check it, clean and install back all the fuel and oil filters.

13. After changing the engine, carry out the test flight of the airplane in the period of 30 min. to accord with the instructions of the crew.

14. After the test flight, the following works, indicated in chapter 4 should be carried out in the first five flight hours of the airplane with the newly installed engine.

NOTE: In case the engine is changed, carry out works for electric and instrument equipment, indicated in chapter 8.

4. MAINTENANCE AFTER THE FIRST TEST FLIGHT AND AFTER THE FIRST FIVE FLIGHT HOURS WITH THE NEWLY INSTALLED ENGINE

1. Carry out all the works, foreseen by the first beforehand inspection.

2. Pour off the oil from the engine, oil tank and oil cooler, take off, inspect and clean the screen filter at the end cover (screen filter of the oil pump) filter-indicator and filter sump of the oil system and filter of the turn indicator. Fill in fresh oil.

3. Change the filter element, filter of the fine fuel cleaning. After installing new filter element, change the sealing rings.

CAUTION: When changing the filter element, strange things occurring in the inside of the filter should be excluded.

4. Inspect and clean fuel filter of the carburetor in the pure fuel with the cap, taken off.

NOTE: Oil and filter element of the fuel fine cleaning filter should be changed only after the first five hours of the engine operation.

5. Carry out the cleaning of the taken off filter element in the ultrasound equipment to accord with instruction No 63. The cleaned filter element should be put into the spare set of the engine.

5. AIRPLANE STORAGE MAINTENANCE

1. In case the airplane is not allowed to fly for more than 7 days, because of any reasons, it is necessary to carry out its preservation for that required period to accord with the requirements for the airplane and engine technical operation.

2. If the airplane is not flying and if it is not preserved, it is necessary to carry out the following works after every 7 days:
   - clean the dust and mud from the airplane clean the drainage openings at the lower fabric sheathings of the control surfaces and ailerons;
   - carry out works of departure check out procedure maintenance.

NOTE: Places, affected by corrosion should be scrapped bright by the fine glass-paper, sanded with the paste roil, cleaned with the pure petrol B-70 and lubricated with the
technical petroleum jelly.
- run-up the engine in all modes according to the schedule of engine run-up;
- eliminate the defects, found out during the preflight maintenance and engine run-up;
- change the lubricant for the working surfaces of the landing gear fixed members of the rod and lift cylinders.
- In summer time take off the covers, open the covers of the airframe hatches, inspect the airplane and dry the covers.

3. After every 30 +- 5 days of not operating of not preserved airplane, the following works should be carried on:
- carry out works, foreseen after not operating for 7 days;
- switch on the radio equipment for 10-15 minutes for drying it;
- put the airplane on the lifts and carry out control extension and retraction of the landing gear;
- after airplane preparation for flight after not operating for 15 days and more, carry out works, foreseen for the preflight maintenance including the checking of the landing gear extension and retraction system operation and the pressure in the wheel brakes.

4. After every 3 months and +-7 days of not operating of not preserved airplane the following works should be carried out:
- lubricate systems and units after every 200 flight hours according to the lubrication drawings.
- carry out works, foreseen after every 30+-5 days of non operation.
- carry out the test flight of the airplane for 30 min. according to the instruction for the crew.

NOTE: Airplane and engine preservation for long storage, their re-activation and preservation care should be inspected accord with the requirements of the subpart 2.7 “Temporal Instruction for maintenance. Training sporting airplane JAK - 52” and to the Maintenance instruction for the aviation engine M-14P”.

MAIN LANDING GEAR LEG

Table, of the lubrication points

<table>
<thead>
<tr>
<th>Contents of the works</th>
<th>Terms of carrying out works at every</th>
<th>Lubrication means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50+-5h. 100+-10h. 200+-15h.</td>
<td></td>
</tr>
<tr>
<td>Rub with clean cotton cloth</td>
<td>5,10</td>
<td>5,10</td>
</tr>
<tr>
<td>Wash with kerosene</td>
<td>If necessary</td>
<td>-</td>
</tr>
<tr>
<td>Lubricate with the lubricant ЦИАТИМ-201</td>
<td>5,10</td>
<td>5,10</td>
</tr>
<tr>
<td>Spray lubricant ЦИАТИМ-201</td>
<td>3,6,7,9,10</td>
<td>3,6,7,9,10</td>
</tr>
<tr>
<td>Spray lubricant 132-25</td>
<td>1-5 -10 cubic cm.</td>
<td>syringe</td>
</tr>
<tr>
<td>Clean with pure fuel</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>Charge the labyrinths between the rollers and roller cages with the lubricant HK-50</td>
<td>-</td>
<td>8</td>
</tr>
</tbody>
</table>

**Naming Of The Points**

1- cylinder lock opening operating cavity of the retracted position of the main landing gear leg;
2- cylinder lock opening emergency cavity of the retracted position of the main landing gear leg;
3- joint coupling of the lift- cylinder;
4- internal cavities of the lift-cylinder;
5- joint coupling of the landing gear leg position mechanical indicator;
6- hinge axis of the landing gear main leg;
7- axis of the spline- joint;
8- wheel bearings;
9- rotation axis of the folding strut;
10-hook and catching axis of the rubbing surfaces of the retracted position lock of the front landing gear leg;
Table of the lubrication points

<table>
<thead>
<tr>
<th>Contents of the works</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50+-5h.</td>
<td>100+-10h.</td>
</tr>
<tr>
<td>Rub with clean cotton cloth</td>
<td>4.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Wash with kerosene</td>
<td></td>
<td>If necessary</td>
</tr>
<tr>
<td>Lubricate with the lubricant ЦИАТИМ-201</td>
<td>4.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Spray lubricant ЦИАТИМ-201</td>
<td>2,3,5,6,8,9</td>
<td>2,3,5,6,8,9</td>
</tr>
<tr>
<td>Spray lubricant 132-25</td>
<td></td>
<td>1-15 –20 cubic cm.</td>
</tr>
<tr>
<td>Clean with pure fuel</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Charge the labyrinth between the rollers and roller cages with the lubricant HK-50</td>
<td>-</td>
<td>7</td>
</tr>
</tbody>
</table>

**Naming Of The Points**

1- internal cavities of the lift-cylinder;
2- joint couplings of the lift cylinder;
3- hinge bolts of the landing gear front le
4- joint couplings of the damper;
5- rim of the shock absorbing cup of front strut;
6- axis of the spline- joint;
7- wheel bearings;
8- rotation axis of the folding strut;
9- hook and catching axis of the rubbing surfaces of the retracted position lock of the front landing gear leg;
10- cylinder lock opening operating cavity of the retracted position of the front landing gear leg;
11- cylinder lock opening emergency cavity of the retracted position of the front landing gear leg;
Table of lubrication points

<table>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50+-5h.</td>
<td>50+-5h.</td>
</tr>
<tr>
<td>Rub with clean cotton cloth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wash with kerosene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubricate with the lubricant ЦИАТИМ-201</td>
<td>1-6-8-15</td>
<td>1-6-8-15</td>
</tr>
<tr>
<td>lubricate with oil MC-20 or MK-22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Naming Of The Points**

1- ball bearings in the control handle pivots;  
2- ball bearings in the control wheels;  
3- steering connection, connecting control handle and sector;  
4- cable laying in the area of touching with rollers and sectors;  
5- outward pressure sleeves of the guide rollers;  
6- joint couplings on the lever of the trimmer;  
7- dip rod loop of elevator trimmer hinge;  
8- trimmer control mechanism;  
9- ball bearings of the sectors;  
10- ball bearings of the aileron control levers;  
11- ball bearings of aileron hinge units;  
12- ball bearings of levers connection with control drafts;  
13- control shaft support bearings;  
14- joint couplings of mechanism utilization with levers and units;  
15- rudder and elevator turn sleeves.
RUDDER AND LANDING FLAPS CONTROL

Table of the lubrication points

<table>
<thead>
<tr>
<th>Contents of the works</th>
<th>Terms of carrying out works at every</th>
<th>Lubrication means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50+-5h.</td>
<td>100+-10h.</td>
</tr>
<tr>
<td>Rub with clean cotton cloth</td>
<td>1,2,3</td>
<td>1,2,3</td>
</tr>
<tr>
<td></td>
<td>4,5,6</td>
<td>4,5,6</td>
</tr>
<tr>
<td></td>
<td>8.10</td>
<td>8.10</td>
</tr>
<tr>
<td>Wash with kerosene if necessary</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lubricate with the lubricant ЦИАТИМ-201</td>
<td>1,2,3</td>
<td>1,2,3</td>
</tr>
<tr>
<td></td>
<td>4,5,6</td>
<td>4,5,6</td>
</tr>
<tr>
<td></td>
<td>8.10</td>
<td>8.10</td>
</tr>
<tr>
<td>Spray lubricant 132-25 5-10 cubic cm.</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Lubricate with 7 oil МС-20 or МК-22</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Naming Of The Points

1- ball bearings in the pedal adjusting plate;
2- joint couplings of the drafts, rods and turn buckles;
3- ball bearing of the lower hinge unit Pn ;
4- bearings in the rudder arm;
5- cable laying and rods in the area of touching rollers support and sectors;
6- ball bearings of rod support;
7- dip rod loops of landing flaps;
8- bearings of drafts and rods;
9- internal working cavities of the cylinder flaps;
10- joint couplings of the adjustment of pedals.
ENGINE CONTROL

<table>
<thead>
<tr>
<th>Contents of the works</th>
<th>Terms of carrying out works at every</th>
<th>Lubrication means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50+ -5h. 100+ -10h. 200+ -15h.</td>
<td></td>
</tr>
<tr>
<td>Rub with clean cotton cloth</td>
<td>1,2,3,4,5 1,2,3,4,5 1,2,3,4,5</td>
<td>-</td>
</tr>
<tr>
<td>Wash with kerosene</td>
<td>if necessary</td>
<td>-</td>
</tr>
<tr>
<td>Lubricate with the lubricant ЦИАТИМ-201</td>
<td>1,2,3,4,5 1,2,3,4,5 1,2,3,4,5</td>
<td>brush</td>
</tr>
</tbody>
</table>

Naming Of The Points

1- ball bearings of gill ring;
2- joint couplings of gill flaps and of mixture heating;
3- cable ends of flexible horses of engine control;
4- all joint couplings of levers and drafts;
5- joint couplings of oil cooler exhaust valve flap;

PILOT’S SEAT

Table of lubrication points

<table>
<thead>
<tr>
<th>Contents of the works</th>
<th>Terms of carrying out works at every</th>
<th>Lubrication means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50+ -5h. 100+ -10h. 200+ -15h.</td>
<td></td>
</tr>
<tr>
<td>Rub with clean cotton cloth</td>
<td>- - 1,2</td>
<td>-</td>
</tr>
<tr>
<td>Wash with kerosene</td>
<td>if necessary</td>
<td>-</td>
</tr>
<tr>
<td>Lubricate with the lubricant ЦИАТИМ-201</td>
<td>- - 1,2</td>
<td>brush</td>
</tr>
</tbody>
</table>

Naming Of The Points

1- joint couplings of seat hinge units;
2- joint couplings of spinnings and safety belts lock
Table of lubrication points

<table>
<thead>
<tr>
<th>Contents of the works</th>
<th>Terms of carrying out works at every</th>
<th>Lubrication means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50+ -5h.</td>
<td>100+ -10h.</td>
</tr>
<tr>
<td>Rub with clean cotton cloth</td>
<td>7,8</td>
<td>-</td>
</tr>
<tr>
<td>Wash with kerosene</td>
<td>if necessary</td>
<td></td>
</tr>
<tr>
<td>Lubricate with the lubricant ЦИАТИМ-201</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Spray lubricant ЦИАТИМ-201</td>
<td>7</td>
<td>-</td>
</tr>
</tbody>
</table>

Naming Of The Points

1- ball bearings of the mobile canopy parts;
2- joint couplings of the levers;
3- canopy lock;
4- break down sleeves of the rollers;
5,6- directing rails of the mobile canopy parts;
7- pipe;
8- ball with bolt.