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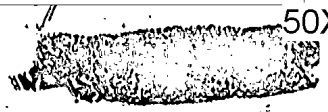

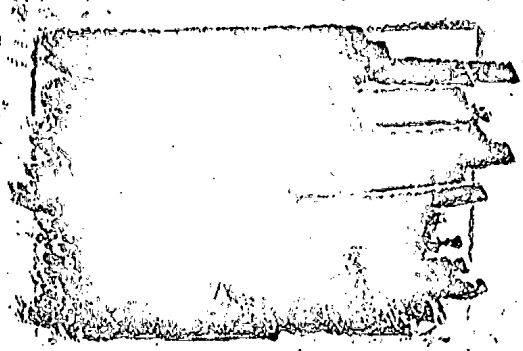

IL-14 AIRCRAFT COMPLETE LIST OF PERIODICAL SERVICING PROCEDURES

PRAGUE 1959

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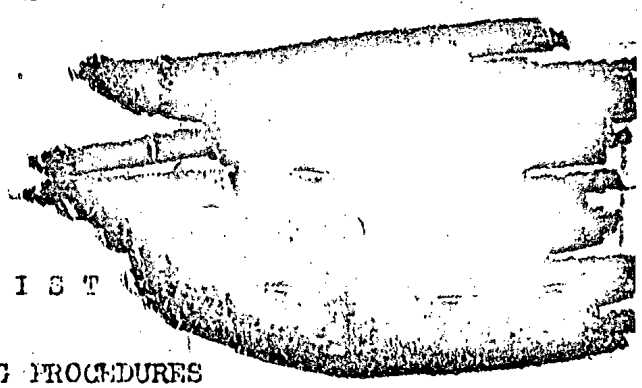

C O M P L E T E L I S T

OF PERIODICAL SERVICING PROCEDURES

FOR THE Il-14 AIRCRAFT WITH ASh-82T ENGINES.

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General Instruction.

1/ When carrying out the periodical servicing procedures it is necessary to follow the order and technology stated in the instructions for operation and technical maintenance of aviational equipment.

2/ The periodical servicing procedures of the airframe, engines, electrical installation, instruments and radio equip - ment have to be effected with regard to the flight hours of the aircraft after each 25 ± 5, 5o ± 5, Ioo ± lo and 3oo ± lo flight hours.

3/ In order to secure a troublefree operation of the aircraft in different climatic conditions of its bases /considerable humidity, dust, etc./ in case of intensive operation of different units /increased number of landings/, and also in case of longer interruptions in flight activities or replacement of engines, the responsible engineer is entitled to render instructions for effecting of extraordinary procedures on all or some of the aircraft /units/ in accordance with the present complete list of periodical servicing procedures.

4/ In case of premature removement of engine or replacement of some unit, the first servicing procedures of the newly installed engine or unit should be effected before the appointed time simultaneously with the accomplishing of the next usual servicing procedures of the aircraft and further on after each 25 ± 5, 5o ± 5, loo ± lo, 3oo ± lo flight hours of the aircraft calculated from the instant of the first servicing procedures.

5/ The replacement of the pyro-cartridges in the operating heads of the fire extinguishing system bottles should be effected

after one year.

6/ The hydraulic mixture in the hydraulic system should be exchanged after 2 years.

7/ The control tests of the aircraft air storage bottles, of the fire extinguishing system bottles and the oxygen bottles should be effected in terms indicated by the High pressure inspection official on the bottles.

8/ In all assemblies of the aircraft airframe, engine, special equipment where the use of the NK-30, GOI-54, AF-7o, GSA lubricants is foreseen, the CIATIM-2o1 grease may be applied as well.

Pre-flight Preparation.

The pre-flight preparation of the aircraft includes the checking of the actual condition of the aircraft and the accomplishing of procedures required for the preparation of aircraft for the prospective flight.

Preparatory Works.

1/ Drain the deposits from the drain points of the fuel system. The draining should be carried out till the complete removement of water and fuel contaminations from the sumps. Close and lock the draining cocks.

2/ At the temperature of the outside air of minus 5 degrees of Centigrade and below that value effect the warming up of the engines according to the requirements of instruction for operation.

3/ Untie the aircraft and check whether chocks are placed under the landing gear wheels and whether fire extinguishing means are in the near of the aircraft.

4/ Remove the fixator clamp from the rudder, the plugs from the draining pipes of the fuel system, from the air intakes of the aircraft heating system and from the anti-icers.

5/ Remove the covers from the aircraft, engines, propellers, pressure heads and remove the vessels from below the engine cowlings.

Pre-flight Inspection of the Aircraft by the Flight Engineer.

In order to ensure full inspection and for reduction of the time required for the inspection carry out same according to a determined route.

Check the condition of the starboard power unit

1/ Inspect the propeller, heater, distributing ring and check for damage, proper locking and oil leakage from the cylinder group of the propeller.

2/ Check the attachment of accessories on the engine crankcase nose part.

3/ Check the cowlings for leakage of oil and fuel, for correct closing of locks and the air intake filter for fouling of the mesh.

4/ Check by means of the metering pin the quantity of oil in the oil tank and be sure of the reliable closing of the filler neck cover.

5/ Check through the filler necks of the fuel tanks the quantity of fuel and after this close tightly the covers and the rubber caps of the filler necks. No water or dirt should be in the rubber cups of the fuel tanks' filler necks. Inspect the upper surface of the wing and check the access hole covers for

proper closing and the wing upper skin for damage.

Check the starboard landing gear installation and engine nacelle.

6/ Inspect the righthand shock-absorbing strut of the landing gear and check for leakage of mixture through the sealing, make sure that the depression of the shock-absorbing strut equals 180 - 230 mm. Be sure that the link of the leg attachment to the lock of retracted position readily rotates round its axle.

7/ Check the wheel tyres and hoses of the braking system for damage, the tyres for normal depression /at normal gross weight the depression of the tyres should be 55 - 65 mm/.

In case of necessity inflate the tyres to the normal pressure of air, which should be 4.8 - 5.2 kg per sq.cm.

8/ Open the access door to the landing gear extended position lock and check the lock for proper closing, make sure that the safety pin is fitted in the latch, that the springs, the cables of the locks control and the terminal switches are not damaged.

9/ Open the landing gear doors, inspect in the nacelle the accessories, pipe-lines, the hoses of the hydraulic, fuel, oil and pneumetic systems and check for leaks and external damages. Check the correct locking of the drain cocks and the attachment of the accessories.

10/ Check the fuel presence in the container of the primer.

11/ Be sure that the upper lock of the landing gear is open, that the springs, the cable of the lock control and the terminal switches are not damaged. Close the doors.

Check the landing gear nose intallation:

12/ Inspect the nose shock-absorber strut of the landing

gear and check for leaks of mixture through the sealings. In - spect the shimmy dampeners and be sure that no leaks of hydraulic mixture and damages occur. According to the metering pins check the charging of the shimmy dampeners. The metering pins should protrude over the cover by 6,5 - 12,5 mm. Be sure that the link of the leg attachment to the retracted position lock readily rotates round its axle.

13/ Check whether the landing gear upper lock is opened, whether the springs, the cable of the control and the end switch are not damaged.

14/ Check the condition of the nose wheel for damage of tyre and its depression. /At normal gross weight the depression of the tyre should be 45 - 55 mm/. If necessary, inflate the tyres to the normal pressure of air, which should be 4.3 - 4.8 kg per sq.cm.

15/ Inspect and check the port power unit, landing gear and nacelle in the same sequence and extent as stated above.

Check the wing lower part:

16/ Inspect the port detachable part of wing /wing outer section/ from below and check for external damage of the skin of wing, wing flap, aileron and of the knuckle joints of hinge brackets, be sure that the inspection doors are closed tightly and that the landing flood-lights and position lights are not damaged, that the draining pipes of the fuel tanks are not fouled. Check the covers of the fuel tanks access holes for leaks of petrol.

17/ Inspect the lower skin of the centre section and the wing fillets, check for external damage and tight closing of access doors.

Then inspect the starboard part of wing in the same extent and sequence.

Inspect the fuselage:

18/ Inspect the fuselage nose part and check for damage of skin, glass of the landing floodlights, the pressure head and the aerial installation.

19/ Inspect the lefthand board of the fuselage and check for external damage of skin and fillets.

20/ Inspect the tail plane, fin, rudders and trim tabs and check for external damages and integrity of the tail light protective cap.

21/ Inspect the skin of the righthand border of the fuselage and be sure that the access doors of the parachute flares containers and the access door of the water closet bowl are closed.

Check the tail section and the rear cargo compartment:

22/ Enter the aircraft, inspect the tail section and the rear cargo compartment and check for foreign matter and water accumulation. Be sure of the control cables correct condition. Check the lock of the cargo compartment access door for proper closing.

Check the passengers' cabin:

23/ Inspect the entrance door, windows, emergency exit hatches and check for damage, reliable closing of locks of the emergency exit hatches and for foreign matter in the cabin. Check the fastening of the furniture. Be sure of the presence of transportable fire extinguishers and of their sealing.

Check the front cargo compartment and the hydraulic section:

24/ Inspect and check:

- for foreign matter,

- for reliable closing of the front cargo compartment access door,

- the level of fluid in the hydraulic system reservoir, for leakage of fluid from the reservoir, pipe-lines connections and hydraulic accumulators and for external damages of these units,

- the OSU-4 fire extinguishers, the board fire extinguisher and the integrity of their sealings.

25/ Open the protecting cover, inspect and check the tank, units, pipe-lines and connections of the fluid anti-icer system. Check the tank for presence of spirit. Close the cover.

Check the flight compartment:

26/ Inspect and check:

- the pop hatch and its attachment, the condition of the safety cable and damper,

- the charging with air of the emergency bottle for the extension of the landing gear nose leg and of the bottle of emergency braking; the air pressure in the bottle should be minimum 120 kg per sq.cm. Make sure that the handle of the hydraulic system hand pumps selector valve is in the position "Normal system", the removable RKG-1 handle is in "route" position and the lower part of the handle and the lever of the locks control is in extreme front position /according to flight direction/. Be sure that the handle of the landing gear selector valve is locked in position "Extended" and the handle of the wing flaps selector valve is in position "Retracted".

27/ Be sure that all circuit breakers /AZS/ are ON and

connect the ground battery cart to the electric system of the aircraft. In case that same is not available switch on the aircraft storage batteries. The tension on the electric system should be minimum 24 volts /when engaged to load/.

28/ Check the correct function of the instruments according to the readings of the indicators having engaged the electric feed by the switch on the switch-board of the pilots. Adjust the indicator pointers of the altimeters to zero and collate the readings on the scales of the instruments with the actual atmospherical pressure. The difference in the readings should not exceed ± 3 mm of mercury.

29/ Check the zero position of pointers of the variometers. Collate the board clock.

30/ Check the proper condition of the electric warning system of the landing gear, wing flaps, shutters and doors.

31/ Check according to the readings of the fuel quantity gauges and the oil gauges the conformity with the quantity of fuel and oil and collate with the actual quantity of fuel and oil in the tanks, if necessary.

32/ Check by successive engagement and disengagement for short periods the operation of the electric mechanisms: of the cowling gills, oil cooler shutters, dust filters and booster pumps.

NOTE: When the engines are covered do not engage the mechanisms of the gills and oil cooler shutters in order to avoid damage of same.

33/ Check the operation of the light and sound signal system of the landing gear.

34/ Check by short-term engagement and disengagement the

operation of the electro-mechanisms of control of the anti-icer and heating system flaps, of the pumps for the delivery of anti-freeze fluid, the operation of the electric heating of the front glasses and of the pressure head / in case that flight in ice forming conditions is expected/. The current required for heating of one glass should not exceed 40 A.

35/ Before night flight check the illumination of the instruments, equipment and cabins, the correct condition of BAKO and ARUFOŠ. Check by short-term engagement the correct condition of taxying and landing lights. Check the functioning of the hand signal floodlight and the presence of signal flares and signalling pistol.

36/ Unclock the rudders, ailerons, throttle control levers, the parking brakes and check the operation and displacement of rudders, ailerons and trim tabs and especially for seizing and tight travel. Set the trim tabs into neutral position.

37/ Check the circuit of the emergency switching-off of accumulator batteries by aid of the emergency switch.

38/ Check the operation of engines, propellers and fuel cocks control by moving the control handles into extreme positions, - the motion should be smooth without seizing.

39/ Check the condition of glasses of the movable peep - windows and their locks.

40/ Check the seats of the pilots and the operation of the adjusting mechanisms and locks.

41/ Check whether spare fuses and electric lamps are provided.

42/ Prior to starting of the engines set the parking brake. At this the pressure in the hydraulic accumulator of brakes

should be not below 75 kg per sq.cm, and in the brakes according to the readings of the pressure gauges 18 - 30 kg per sq.cm.

Effect the starting and test run of the engines according to the instruction for operation.

Be sure of the correct condition of the aircraft and report on its readiness.

Pre-flight Inspection of the Radio-equipment by the Radio - operator.

1/ Check the condition and attachment of the aircraft aerials, the correct condition and cleanness of aerial-, partition-, and through-insulators, and the correct condition of the aerials damping. Clean the aerials from dust and oil.

2/ Inspect and check the outside condition and attachment of the radio-equipment, the correctness of panels and boards, the ready operation of the remote control drives, the intactness of the control instruments and the correctness of the lighting.

3/ Check the correct condition of the circuit for destruction of the identificator and insert the explosion fork into the socket "Explosion".

4/ Check the attachment of the aircraft inside inlets of the aerials and be sure of their reliable attachment to the through-insulators and to the terminals of the radio-equipment.

5/ Check the fuses installed in the radio equipment for reliable attachment and the presence of the foreseen spare fuses.

6/ Check the presence of the necessary number of spare radio valves.

7/ Check with running engines the operation of the communication- and short-wave commanding radio stations. When checking

be sure of the normal operation and tuning of the transmitters and of the possibility of monitoring and listening other transmission. Be also sure that the hindrance in the receiving is negligible. Check the correct connection of the aircraft intercommunication system.

8/ Check the operation and correct installation of the code of identificator.

When testing the radio- and radio-technical equipment through the ground sources of feeding, the tension should be not less than 27.5 volts.

Pre-flight Inspection of the Aircraft Equipment by the Navigator.

1/ Check the outside condition of the navigation equipment, the presence of the correction diagrams to the airspeed indicator, altimeter, compass. Be sure of the exact indication of the aircraft clock.

2/ Check by outside inspection the condition and attachment of the radio-navigational equipment, the correct condition of its aerials and of the aircraft inside inlets of aerials.

3/ Check the presence of the necessary number of spare fuses.

4/ With running engines /or through the airfield source of feeding/ check the operation of all the navigational equipment: the operation of the radio-compasses and of the landing equipment. Switch on the remote-indication gyro-magnetic compass /DGMK-3/ and collate its reading with the magnetic compass /KI-11/ /the difference in readings should not exceed 2 degrees/. Switch on the artificial horizon and the electrical gyro-right-left indicator /GPK-48/. Check the correct heating of the pressure

heads according to the warning lights.

Pre-flight Inspection of the Aircraft by the Pilot.

After having received reports from the air-crew on the condition of the aircraft the commander of the aircraft has to inspect and check the condition of the aircraft in the following sequence:

1/ Check to be sure that the propeller blades and the engine cowlings are not damaged and the locks of the cowlings are closed. Check the engine cowlings for leaks of oil and petrol.

2/ Check by outside inspection the wheel tyres to be sure that they are inflated to normal pressure and that they show no signs of outside damage, that the depression of the shock-absorbing struts is normal, and that the dampers of the nose shock-absorbing strut are normally charged.

3/ Inspect the wing, fuselage and tail unit. Be sure that the pressure head, the landing lights and aerials are not damaged and that the clamps, pins and plugs are removed.

Be sure that the aircraft surface has been cleaned.

4/ Be sure that the dislocation of the load and passengers corresponds with the permissible centre adjustment and that the cargo is fastened in a reliable way.

5/ Adjust the seat and pedals according to stature. Switch on the accumulator battery and check the charging with petrol and oil. Check the condition of the cabin windows.

Check the general condition of the instruments on the instrument panel by switching on the electric feed. Set the pointers of the altimeters to zero and collate the readings of

pressure /difference in readings should not exceed ± 3 mm /. Check the zero position of the variometers.

6/ Try the operation of the rudders, check the neutral position of the trim tabs according to the warning lights and to the mechanical indicator. Check the operation of the electro-mechanisms of ailerons and of the mechanical control of elevator trim tab. After having accomplished this set them into neutral position.

7/ Check the proper setting of the radio identification code. If necessary, check the operation of the landing equipment. The checking of the landing equipment should be effected through the airfield source of feeding at the tension of minimum 27.5 volts. Check with running engines the operation of the commanding radio station, of the radio-altimeter and of the SPU /Aircraft intercommunication system/.

Preparation of the Aircraft for Repeated Flight.

It is to be effected at short-term parking of the aircraft on an intermediary airfield on a track flight of the aircraft or on the inspection line of the aircraft in the starting area after one flight into zone or after 4 - 5 circuit flying.

The air-crew switches off the engines and checks the following:

1/ The condition of the landing gear:

- inflation and depression of the wheel tyres and checks the tyres for damage and the wheel rims for overheating,
- depression of the shock-absorbing struts,
- leakage of the hydraulic fluid at unions, accessories and hoses of the wheels braking system,

- the landing gear for mechanical damage.

2/ The condition of accessories in the engine nacelles:

- for traces of petrol or oil leakage from the acces - sories and unions of the fuel and oil system,

- for mechanical damage of electric leads, pipe-lines and accessories of the systems, of the landing gear and engine nacelle doors.

3/ The condition of the power units:

- for damage of propellers, leakage of oil from below the packing of the propellers and accessories in the front part of the engines,

- check the nozzles for leakage of petrol and the reliable attachment of the conductors to the spark plugs,

- check the engine cowlings for leakage of petrol, oil or hydraulic fluid,

- check the oil coolers for damage and leaks of oil,

- open the small side cowls of the engines and check the mounting of engines and accessories for leakage of petrol, oil or hydraulic fluid and after having done this close the cowls.

4/ The condition of the aircraft airframe:

- for deformation, nicks and perforation of the skin /especially of the wing flaps/,

- for leaks of petrol on the panels of the fuel tanks and in the draining pipes,

- for traces of leakage of the hydraulic fluid on the lower skin of the fuselage nose part,

- all access doors for proper closing,

- for damage of control surfaces, ailerons and trim tabs.

5/ Check the charging of the aircraft with fuel and oil

through the filler necks and according to the indicators. Replenish the aircraft for the expected flight, if necessary.

NOTE: When flying circuits it is necessary, after a rough landing, to stop the aircraft on the inspection line, switch off /stop/ the engines and check the condition of landing installation, airframe assemblies and power units which have been subjected to overloads. Check the air-tightness of the petrol-, oil-, and hydraulic systems. Until this inspection has been accomplished the aircraft is not permitted to a repeated flight.

After - flight Preparation.

It is to be carried out after the end of the flight day /night/. Removing of defects is to be effected after the after-flight inspection has been accomplished.

Preliminary Procedures.

1/ After the aircraft has taxied to the parking area, stop the engines, switch off the accumulator batteries and close the fire cocks. Lock the landing gear selector valve handle in the position "Extended", the handle for locking of the controls and parking brakes set into position "ON".

2/ Place wheel chocks under the landing gear wheels, put the fixator clamp on the rudder.

3/ Open the access doors of the landing gear extended position locks and after having made sure that the locks are closed fit safety pins into the locks.

Lift the side covers of the engine cowlings, remove the lower cowls, open the landing gear doors and all easily detachable access hole covers necessary for the inspection.

When removing and opening the cowlings and access doors pay attention to ensuring that they show no traces of leakage of petrol, oil or hydraulic fluid and check the correct condition of the cowlings and access doors.

5/ Before the engine cools down drain o.5 - 1.o.1 of oil from the oil sump through the funnel provided with mesh No 24 /576 holes in 1 sq.cm./, inspect same and make sure that the oil does not contain metallic chips and other metallic contaminations.

6/ Clean the aircraft airframe, the power units and landing gear from dust and dirt. Rinse from outside the honeycombs of the oil coolers.

Prior to the cleaning be sure that the rinsed assemblies and accessories of the aircraft show no traces of leakage of oil, petrol or hydraulic fluid. In case that such traces are revealed, determine the cause of leakage. Clean the lavatory.

7/ Persons who are not members of the air-crew and are carrying out the after-flight preparation of the aircraft should receive from the air-crew notes on the operation of the aircraft equipment in flight and on all revealed defects.

After-flight Inspection of the Aircraft and Power Units.

1/ Inspect the propellers and check the following:

- the reliability of the propeller attachment on the engine shaft and on the blades in the propeller hub as well as the locking of the oil duct nut,

- check for nicks, cracks, hollows and deep scratches on the propeller blades and the setting of the blades according to the marks / 22º/,

- check the reliability of attachment of the antifreeze fluid duct pipe, the condition of the anti-icer ring for damage and fouling of the pipes, and the condition of the clamps and their safetying,

- check for leakage of oil from below the cylinder nut, the rear cone, and the rubber sealing sockets of the blades.

2/ Inspect the engine and their accessories and check the following:

- the flange of the thrust bearing, the reliability of its attachment and safetying, the plugs on the crankcase nose part and the attachment bolts of the nose part to the crankcase middle part,

- the constant speed governor, the fittings and pipe-lines of the selector valves, the plugs on the housing of the reductor - the reliability of attachment, safetying and check also for leaks from the unions,

- the rollers and cables of the regulator control, their attachment and safetying,

- the collector of ignition - the attachment of detachable leads and adapters, the reliability of the collector attachment and the attachment of the adapters to the spark plugs,

- nozzles and PV-82T pipes - for eventual interference, leakage in the unions and the reliability attachment,

- the magnetto and the starting coils - the reliability of attachment and leaks of oil from below the flanges,

- the cylinders and deflectors for reliable attachment, intactness of the safetying, for leaks of oil from below the cylinder flanges, the valve housings and casings of the rocker arms, push-pull rods and for traces of overheating,

- the intake pipes for reliable attachment,

- the front oil pump for attachment, leakage of oil from the joints and the condition of the safetying,

- the engine mount for cracks in the ring and brace assemblies, for reliable attachment of engine to the mount and of the mount to the engine nacelle, for cracks and deformation and integrity of safetying,

- the MV-82T pump for reliable attachment of the pump and pipes, for interfering of pipes and freedom of motion of the limb lever,

- the oil pump Msh-6SV, the hydraulic pump MSh-13, the fuel pump 704 A-V, the accessories of the feathering system /the 451 pump, the D-2500A and AVP-4 electromotors/, their pipe-lines, hoses and fittings,

- the reliability of attachment and the integrity of lokking of the joints, unionsm of pipes, hoses and fittings for leakage of petrol,oil or hydraulic fluid, for mutual interfering, hollows and cracks,

- the power generating unit and starter for reliable attachment and safetying,

- the oil cooler and its girder - for cracks, intactness of safetying, for leakage of oil and be sure of the correct condition of the doors control mechanism,

- the throttle housing for condition of screws limiting the turn of the flap, the intactness of safetying of the control push-pull rod of flap and RS-24M.

- the de-aerator for cracks, attachment, integrity and cleanness of the drain pipe,

- the mesh of the dust filter for cracks and dirt,

- the brackets, push-pull rods and doors of cowlings, mechanisms of the doors control for damage, integrity of safe - tying of the push-pull rods and the locks,

- the engine oil sump for reliable attachment, for cracks and leaks of oil,

- the exhaust collector for cracks, wear in unions, for sagging of sections and breaking through of gases in unions, interference of the engine section details,

- the bodies of the silk and mesh filters for cracks, fuel leakage from the unions and reliability of attachment and safetying,

- oil tank, hoses and pipes in the engine nacelle for reliability of attachment, integrity of safetying, for damage and leaks, condition of durite hoses and clamps,

- the engine controls for damage, interference of lin - kage, rollers and bellcranks, for integrity of locking / check throughout the whole range of displacement/,

- build up pressure in the fuel system 1.5 - 1.8 kg per sq.cm. and check for leakage paying special attention to the air-tightness of the 704A-V fuel pump sealing /for leakage from the draining pipe/.

3/ Inspect the engine nacelles and their fittings and check:

- the doors of the main landing gear and locks; the mechanism of the doors control for damages and fouling; recti-linearity of push-pull rods and condition of the fireproof bulk-head,

- the fire cock, the BCN booster fuel pump, the acces-sories on the hydraulic panel and the accessories of the engine priming system for reliability of attachment, safetying, for

traces of leaks and for attachment of pipe-lines,

- accessories of the electric system and electric leads for reliable attachment and fouling,

- the control cables for damage, fouling and integrity of the turnbuckles safetying,

- drain the deposits from the draining cocks of the sump-filters.

4/ Inspect the main landing gear, their section, and check:

- the wheel tyres for cracks, cuts, punctures, swelling, displacement of tyres /according to marks/, for the inflation of the tyres /normal 5 ± 0.2 kg per sq.cm/, and depression /55 - 65mm/

- the wheel drums for cracks, traces of overheating, attachment of the drums on the axle, integrity of fittings and leakage,

- the braking hoses, the hydraulic selector valve for reliability of attachment, wear and traces of leakage,

- the shock-absorbing struts for normal depression /180 - 230 mm/, for leakage, damage of filler necks; determine according to the traces on the inner cylinders the maximum stroke on landing. In case that the stroke exceeded 290 mm check by means of pressure gauge the inflation with air and recharge the strut,

- the cross-beam, brace, torque link and the lower assembly for damage, cracks, greasing, check the condition of the housing, floating piston valve, pipe-line for leaks, cracks and fouling,

- the freedom of revolution of the torque link bolt by wrench,

- the locks of the extended and retracted position of

the landing gear for damage of springs and cables, for fouling of locks, proper lubrication and reliability of the terminal - switches /Up and Down switches/ attachment,

- the hydraulic actuating cylinders of the landing gear for reliability of attachment and for damage or leakage.

5/ Inspect the landing gear nose leg, its section /well/ and check:

- the wheel tyre for cracks, cuts, punctures, swelling, displacement of the tyre, for normal pressure in the tyre /4.3 - 4.8 kg per sq.cm./ its depression 45 - 55 mm/,

- the wheel drum for damage, integrity of the axle safe-tying in the fork,

- the shock-absorbing strut for normal depression /170 - 260 mm/, for leakage and damage of the filler necks,

- the fork, torque link and the coupling of the shimmy dampers with the movable yoke for damages, cracks, lubrication, integrity of safetying and reliability of attachment,

- the shimmy dampers for correct charging / the pin should protrude over the cover by 6.5 - 12.5 mm/, for leakage and damage /at the temperature of minus 20 degrees of Centigrade the permissible protruding of the pin is minimum 3.5 mm/,

- the cross-beam, braces, attachment assemblies, doors and their control mechanisms for damage, cracks, correct safe - tying and lubrication,

- the ready turning of the torque link bolt by wrench,

- the locks of the landing gear retracted and extended position for damage of springs and cables, for fouling of locks, lubrication, reliable attachment of the terminal switches and the correctness of safetying,

- the hydraulic actuating cylinders of the main and emergency system of the landing gear for reliability of attachment, damage or leakage,

- accessories, pipe-lines and hoses of the hydro-pneumatic system for leaks, wear and other damage and for correct condition of the safetying.

6/ Inspect the centre section and check:

- the skin for deformation, loosening or shear of rivets and screws,

- attachment angles of the engine nacelles to the centre section for reliability of attachment and for cracks,

- wing flaps for damage of the skin, correct condition of the hinge brackets, proper lubrication of the assemblies and correct condition of the safetying.

7/ Inspect the wing and check:

- the skin for deformation, loosening or shear of rivets and screws,

- access hole covers for integrity of attachment, cracks, and correct condition of the easily detachable access door locks,

- the ailerons for integrity of skin, attachment of the balance weights, for cracks in the hinge assemblies and push-pull rods, proper lubrication of the hinges, condition of the trim tab for damage, and seizing during motion,

- the ailerons and trim tabs control for sufficient tension of the cables, correct condition of the rollers and bell-cranks and for reliable safetying,

- the panels of the fuel tanks for traces of leakage, clearness of the draining pipes, integrity of screws and their loosening, check the condition of the oil tanks and fuel tanks filler necks,

- the fillets of the centre section to the fuselage for presence of screws and for their loosening as well as for damages and cracks of the fillets,

- the exhaust pipes for reliable attachment and cracks,

- the landing floodlights and position lights for damage of slackening of attachment,

8/ Inspect the fuselage and check:

- the skin for deformation, slackening or shear of rivets and screws,

- the entrance door, loading doors and the w.c. door for damage, tight closing and correct condition of the locks,

- the fairings, fillets and air intakes for reliability of attachment, deformation or slackening of attachments,

- the aerial masts for damage and reliability of attachment.

9/ Inspect the tail unit and check:

- the skin of the fin and tail plane for deformation,

- the hinge brackets of the control surfaces for cracks, proper lubrication of the hinges, for plays and integrity of safetying,

- the elevators, the rudder and the trim tabs for damage, holes and cracks, for slackening or rotting of the fabric skin, attachment of the static balance weights, for interference of the rudder and elevator leading edges with the trailing edges of the fin and tail plane,

- the tail light for reliability of attachment.

10/ Inspect the inside tail section of the fuselage and check:

The control of the rudders:

- cables, rollers and brackets of their attachment for wear, tearing of cable strings, damage of the turnbuckles, correct condition of the safetying, sufficient tension and correct revolving of the rollers,

- the pipe-lines of the fin and tail plane anti-icer for damage,

- the tube of the rudder and the locking mechanism for damages, integrity of attachment and safetying, for foreign matter in the section and the proper arrangement of the technical equipment.

11/ Inspect the passengers' cabin and check:

- the inner skin and the furniture for damage or fouling and for reliability of the attachment of furniture,

- emergency exit hatches, windows for damage, correct condition of locks, reliability of their safetying and the integrity of blinds,

- the individual ventilation system, the ceilings for correct condition, for damage and deformation,

- the fire extinguishers for integrity of attachment and proper condition of the sealing.

12/ Inspect the flight compartment and the service section and check:

- the emergency hatch for correct attachment, integrity of cable and of the shock absorbers,

- the hydraulic reservoir for reliability of attachment, leaks, fluid level /according to the measuring glass and table/,

- the hydraulic accumulators, the fire extinguisher bottles for reliability of attachment, proper condition of

sealing and for leaks,

- the cabin glazing for integrity of the glasses, correct condition of the peep windows and locks and for reliability of attachment of the glass cleanres,

- the seats of the air-crew for reliability of attachment, for damage and cleanness of runners,

- the control organs of the aircraft and power units for seizing and tight travel /prior unlock/, for fouling of the controls; then lock the controls,

- check whether the flaps of the heating and anti-icer equipment are closed,

- the central board for fouling of the levers, integrity of indicators and dials, switches and instruments, for foreign matter inside of the board.

After-flight Servicing of the Electric Equipment.

1/ Check the accumulator batteries under load of 12 A, when the tension is below 24 volts pass same for charging. Switch off the accumulator batteries.

2/ In the engine section check:

- the power generating units, the reliability of their attachment, be sure of the correct condition and tight fitting of the protecting strips and of the safetying of their clamping bolts, the condition and reliability of coupling of pipe-lines of the power generating units cooling system,

- the electric mechanisms of the cowl gills, the electric starters, the electro-magnetic priming cocks and of the feathering pumps. Be sure of the tight fitting of the protecting strips and caps of the cocks and of the correct condition

of the safetying, check the starting coils,

- the condition of the hoses of electric leads, the reliability of their attachment, reliability of coupling and attachment of the plug- and-socket joints of the fireproof bulkhead and at the accessories,

- the condition of the fire switches bodies, the reliability of their attachment and connection,

- the attachment of the terminals of minus leads of the power generating units and of the starter.

3/ In the landing gear sections check:

- the distributing devices for attachment of the installation and connection of the leads to the fuses, relay and distributing mains, be sure that all dirt and oil has been removed,

- the electro-motor of the feathering pump, the electric mechanisms of the oil cooler shutters, the fuel pumps and the electro-mechanisms of priming,

- be sure that the correct condition and tight fitting of the insulating tapes of the electromotors, of the reliable attachment of mechanisms and correct condition of locking; clean the accessories from dirt and oil,

- the reliable attachment of the electric leads, their condition, the reliability of engagement into the fitting and plug-and-socket connections, the reliability of attachment and coupling at the parts of the plug-and-socket connections and their safetying,

- for mechanical damage of RS-7 ballast resistors, the reliable contact of the short pin with the aircraft body and the coupling of the R-25A compensating wiring,

- the correct condition and reliable attachment of the terminal /Up and Down/ switches of the main and nose landing gear, the correct condition of the safetying, the proper condition of the rubber sealings and removal of fouling,

- the attachment of electro-mechanism of the anti-icer flaps control,

the correct condition of the pressure relays and the integrity of their safetying.

4/ In the centre section and in the wing check:

- the attachment of the installation /open the central switchboard and the accumulator panel/ and the coupling of leads to fuses, shunts of the ammeters, relays and distributing mains, the attachment of the electro-mechanism of cabin vent flap control. Be sure that the Automatic circuit breaker is switched on,

- the intakes for accumulator containers vent, be sure of their correct condition and cleanness,

- the BANO /position lights/ and head-lights, be sure of correct condition and cleanness of their glazing. Bulbs with sagging filament or with darkened glass have to be replaced,

the attachment of terminals of the main and negative leads.

5/ In the cabin of the radio-operator check:

- whether all circuit breakers are switched on and in correct condition, check the integrity and properness of the fuses, the attachment and damping of the carbin voltage regu - lators and the outside condition of the measuring instruments and the installation for control on the switchboards,

- the attachment and damping of the glass heating automat,

- the accurateness of operation of the switches of electric devices,

- the condition of the electric leads /open the central switchboard/ and the coupling of the terminals to the automatic circuit breakers,

6/ In the flight compartment check:

- the correct operation of the switches and selector switches on the switch-boards and panels of the accessories control,

- the attachment of the K-50D contactors and of the timing automat of the propellers feathering,

- the integrity of signal and control lamps of the fire-extinguishing installation, the correct condition of the control knobs and of the safety plates,

- the integrity and tightening of the bonding strips attachment of the knobs of rheostats and UFO lamps.

7/ Test the electric equipment under tension /through the airfield battery cart/:

- the functioning of the electro-mechanisms of cowl gills, of the oil cooler shutters, of dust filters, trim tabs, air flaps of the heating and anti-icing system, the accuracy of operation of the switches, selector switches with respect to their purpose and the correct reading of the pointer indicators and of the light signal system,

- the illuminating and light-signal equipment: the fittings of the illumination and of the ultraviolet irradiation of the instruments and operating places of the air-crew, the cei-

ling lamps of the passengers cabin and auxilliary rooms, fittings of individual illumination, the doors signal system, and also the integrity of bulbs and protective glasses, their cleanness and proper operation of the switches, rheostats and buttons of their circuits,

- the correct operation of the electric heating of the glass /the current power should not exceed 40 A when one glass heating has been engaged/,

- the correct operation of the head lights and BANO /position lights/,

- the correct operation of the light and sound signal system of the landing gear,

- the operation of the electric pumps for delivery of fluid to the propellers and canopy glazing, and the correct condition of rheostats and their circuits /check together with the flight engineer at charged systems/.

After-flight Servicing of the Radio-equipment.

1/ Take out the plug of the FOF unit explosion from the feeding socket and insert same into the false socket.

2/ Be sure of the mechanical correctness, reliable attachment and cleanness of:

- the attachment assemblies of the aerials / masts, yokes/,

- the through-insulators and their anti-icer shields,

- the leads, hinge insulators, dampers and anti - icer caps,

- the dipoles and the pin-like emergency aerial,

- the access hole covers of the inside-fuselage aerials

of the radio compasses and radio-marker-receiver.

Remove dust and dirt from the aerials.

3/ In the tail section check the correct condition, re - liable attachment and cleanness of shock-absorbing frames, housings and front panels of the radio-equipment and their bonding, be sure that the union nuts of the high frequency cables and of the cables for feeding of the equipment are tightened. Be sure of intactness of the sealing.

4/ In the radio-operator' s cabin and service section chec the correct condition, reliable attachment, cleanness, and proper condition of damping of the equipment, working crystals of the commanding radio station, dehumidifier of the loop aerials of radio compasses, the reliable connection of the high frequency feeders and feeding cables, the condition of the main and emergency aerials inlets and their connection to the aerial switches, through insulators, and to the equipment.

5/ In the flight compartment check the correct condition, cleanness and reliable attachment of instruments, panels, boards, switches and drives of the remote control of the radio-equipment, fuses in the control panels of the radio-compasses and their accordance with the nominal current, be sure that all foreign matters have been removed.

6/ Check the operation of all radio-installations by sub - sequent engagement through the airfield source of current from all places of their use, in all versions and ways of operation and at all frequency subranges. Be sure of the normal operation of all controls of the equipment, of the control instruments and proper illumination of the diale.

After-flight Servicing of the Instrument Equipment.

1/ In the flight compartment and passenger cabin check:

- the condition of the instruments /by outside inspection/, be sure of the correct adjustment of dials of the baro - metric pressure of altimeters and of the setting of the vario - meter pointers to zero,

- switch on the electric supply and according to the position of the pointers make sure that the electric instruments are in correct condition, wipe the glasses of the instruments and the instrument panel clean from dust,

- the operation of the cocks for engagement of the static duct of the pressure head and of the servo-units of the automa - tic pilot, be sure in the correct condition of the electric heating of the pressure head,

- the operation of the electric gyroscopic instruments. Collate the readings of the remote control gyromagnetic compass with the readings of the magnetic compass / the permissible dif - ference with calculation of the deviation ± 2 degrees/, be sure of the correct condition of the individual illumination of the instruments,

- the presence of the correction diagrams for the navigational instruments and the time of their validity.

2/ In the section of the landing gear nose leg check:

- for leaks of oil from the unions of pipe-lines at the nuts of stuffing boxes of the automatic pilot servo-units, for proper tightening and safetying of the stuffing box nuts and union nuts of the pipe-lines and for correct condition of the automatic pilot pipe-lines,

50X1-HUM

- the cables of the automatic pilot follow-up system for seizing of rollers, tearing of strings and sagging of cables,

- for cracks and breaks of the textolite plate and for correct condition of guide links of the automatic pilot servo - units,

- the transmitter of the landing gear position indicator and be sure of reliable coupling of its push-pull rod with the landing gear tang and of absence of plays at the push-pull rods connections, of reliable tightening and integrity of safetying of the plug-and-socket connection union nut.

3/ In the sections of the main landing gear check:

- the correct condition of pipe-lines of the pneumatic system for the supply of automatic pilot and pressure - vacuum gauges,

- the transmitters of the landing gear position electric indicators and the electric indicators of the oil coolers shutters position, the reliable connection of the push-pull-rods with the tangs of the transmitters and eyes on the landing gear and on the oil cooler shutters, be sure that there is no play at the connections of the push-pull rods and that the attachment of the tangs on the transmitters is reliable,

- the reliability of the pick-ups of the electric oil gauges and fuel pressure gauges attachment to the fire-proof bulk-heads,

- the reliable tightening and safetying of union nuts of the pipe-lines and plug-and-socket connections,

- the condition of the vacuum regulator mesh.

4/ In the engine sections check:

- the power generating units of the electric tachometers,

be sure of their reliable attachment on the engines, check for leaks of oil from below the generator units flanges, the tightening and safetying of nuts of the plug-and-socket connections,

- the reliable attachment and integrity of safetying of pick-ups of the oil temperature gauges and of the union nuts of their plug-and-socket connections, the condition and attachment ot the UPRN-1 transmitters,

- for breaks, cracks, deformation, wear and slackening in the connections of pipe-lines of the automatic pilot pneumatic system, of the system of the pressure-vacuum gauges and of the electric pressure gauges of fuel,

- for grindings and tears of the armoured hoses of the electric pressure gauges of oil, be sure of the reliable fastening of armouring in the terminals, for damage of the hoses attachment to the pumps and to the transmitters of the instruments,

- the transmitters of the electric indicators of the cowling gills position and be sure of the reliable coupling, and for plays at the couplings of the push-pull rods with the tange of the transmitters and with the cowling gills,

- the correct condition and properness of tightening of the bonding strips and minus leads of the electric instruments.

Concluding Procedures.

1/ Remedy the defects revealed in flight and during the after-flight inspection.

2/ Check the proper condition of the fuel and lubricants, the cleanness of filters of fuel and oil filling car and replenish the fuel and oil system of the aircraft.

3/ Moor the aircraft on the parking place and set the fi -

xator clamp on the rudder.

4/ Place covers on the aircraft and engines.

5/ Arrange the tools and ground equipment.

Periodical Servicing Procedures.

The periodical servicing procedures have to be carried out only after inspection in the extent of the after-flight preparation has been accomplished.

After each 25 ± 5 flight hours of the aircraft

1/ Check the condition and rinse the filter of the R-5o constant speed governor.

2/ Check the condition of the mesh and silk fuel filters, rinse the filters, After reinstallation check the fuel system for air-tightness under the pressure of 1.3 - 1.8 kg per sq. cm.

After Each 5o ± 5 Flight Hours of the Aircraft

Power Units

1/ Carry out the 25 hours servicing procedures.

2/ Check the condition of the oil filters:

- of the front oil pump /MFS-19-1/, the rear oil pump /MFS-19/ and of the NV-82 pump. When revealing considerable fo- ling /75% of the area and more/ of the NV-82 filter mesh, it is necessary to check the condition and rinse the oil filter of th RS-24M mixture governor.

Check the magnetic plugs of the front oil pumps - be sure that they are not fouled, damaged and contain no metallic par- ticles.

Prior to reinstalling rinse the filters with fuel and grease with the MK-22 or MS-2o oil.

NOTE: Inspection and rinsing of the oil filters have to be of -

fected also after replacing of units and pipe-lines of the oil system.

3/ Check the condition of the control of throttle valves, constant speed governors, mixture controls, cowling gills, oil cooler shutters, cross-feed valves and fire cocks, dust filters and flaps of the heating system.

Be sure of the accordance of the readings of indicators with the position of levers and switches on the panel, engines and accessories.

Check the correct position of cables on the rollers, for tears of cable strings and for their interference with the details of accessories and for wear and seizing of the rollers.

Restore the lubrication /CIATIM-201/ in the hinge joints of the engine control.

4/ Check the air-tightness of the oil dilution system cock. At the temperature of the outside air above 10 degrees of Centigrade the dilution system should be disconnected and choked.

5/ After accomplishing of the periodical servicing procedures test-run the engines, be sure of their correct operation and then open the side cowlings, the landing gear doors and be sure that all systems of the power unit are air-tight.

NOTE: 50 hours servicing procedures for the power units have to be accomplished also after the first test-run of the newly installed engine and additionally it is necessary in this case to carry out the following procedures:

1/ Check the condition and rinse the mesh fuel filter of the NV-83 pump and the oil filter of the RS-24M mixture governor /without regard to the condition of the NV-82 oil filter/.

2/ Tighten the nut of the propeller spinner. Effect the tightening only on cooled-down engine.

Airframe.

1/ Restore the lubrication in all frictioning assemblies of the landing gear and doors mechanisms. Check carefully the condition of the welded assemblies and seams of the landing gear mechanisms and landing gear hinge assemblies, be sure that there are no cracks and damages. Recharge the lubricating nipples of the journals. Check the value of the axial clearance in the coupling of levers of the nose leg torque link. The total clea - rance should be o.1 - o.3 mm.

2/ Check the value of clearance between the braking blocks and the wheel lining. The clearance should be o.3 - o.4 mm.

3/ Rinse and inspect the locks of the landing gear exten - ded and retracted position and the mechanisms of the locks control, cables, rollers and bellcranks. Be sure that no tears of cable strings occur, neither seizing and wear of rollers, corrosion, cracks and damage of the safetying.

Apply fresh CIATIM-2o1 grease on the frictioning surfaces of the locks and of the machanisms of the locks control.

4/ Check the operation of the emergency braking system. For this purpose press the braking lever and be sure/by observation through the slot/ of the correct operation of the floating pi - ston valves. After checking press 2 - 3 times the brake pedals in order to return the floating piston valves into working po - sition. The time of the full braking should be o.8 - 1 second, of the unbraking 1 - 1,5 seconds.

5/ Turn by 2 - 3 revolutions the filters of the hydraulic system for cleaning purposes. Set the handles of the filters paralelly to the aircraft axis and lock them.

6/ Check the fluid level in the multipliers of the brakes

/the normal level of fluid should be 10 - 15 mm above the lower edge of the metering pin/.

7/ Check the condition of the wing flaps control. Be sure of the correct condition of the wing flaps hinge assemblies, brackets and push-pull rods, for slackening of attachment and damage of the safetying. Be sure that no leaks from the wing flaps actuating cylinder occur, check its reliable attachment, inspect the push-pull rods to be sure that they do not interfere with details and accessories of the aircraft neither seize during extension or retraction of the wing flaps, that the displacemer of the wing flaps on the left and right wings is synchronous. Restore the CIATIM-201 grease in the hinges of the wing flaps and in their control.

8/ Restore the grease in the control quadrants of the ailerons at places where they touch the cables.

9/ Check the condition of the rudder locking system for cracks in the assemblies, for reliable operation of the latches and springs and for wear in the couplings.

Electric Equipment.

1/ Inspect the attachment and check the operation of the electric mechanisms provided in the fuselage, surfaces, in the aileron, and rudder. Be sure of the tight fitting of the insu - lating tapes, of the reliable safetying and connection of elect- ric leads. Check the time required for full motion of each e - lectric mechanism.

2/ Check the condition of coating of rivet heads of the automatic circuit breakers and restore same if necessary / by BF-4 glue/ at such circuit breakers on which the rivet heads are

not sunk in the toxtolite base of the body.

3/ Check the attachment of the mesh filters and their coupling with the electric leads of the circuit.

4/ Check the outside condition of the connector for air - field feeding, in case of necessity clean the pins and wash them with B-7o petrol.

5/ Remove the accumulator batteries from the aircraft and check the cleanness of their contacts. Check all details of the batteries and grease the intercell connections with a thin layer of vaseline. Inspect the place for the installation of the accumulator batteries with the aircraft system. Inspect and dry the containers of the accumulator batteries.

6/ Disconnect the connectors of leads of electric fuses of the fire extinguishers and check the cleanness of the connector pins and of the sockets. Reinstall the plugs and lock them by spring latches.

7/ During test-running of the engines check according to the aircraft instruments the value and the stability of tension of each power generating unit /when changing the rotational speed of the engines from 15oo to 24oo rpm at the load on the power generating unit 4o - 5o A. the tension should be 27.5 - 28.5 volts, the return current of the power generating unit disconnecting from the aircraft electric system maximum 35 A./, the equal distribution of load between the paralelly operating power generating units /the difference of load over 15 A is not permissible/.

8/ Rechange the accumulator batteries on the charging station / not less than once a month/.

50X1-HUM

Radio and Radio-technical Equipment.

1/ On the convertors of all types and transformers of the PO type inspect the collector brush assemblies. Clean the collectors from the brush dust. Be sure of the ready motion of the brushes in the brush holders and of the normal height of the brushes. Blast the inner cavity of the convertors by compressed air.

2/ Check the condition of the screening of cables and leads of feeding of the whole wiring. Be sure that no friction and variable contact occurs between them and between the metallic details of the aircraft.

3/ Check the condition of damping of the radio-equipment, inspect and grease the roller of the FOF set /identification/ turning mechanism.

4/ Check the condition of the radio equipment bonding strips and the quality of their contacts with the mass of the aircraft and with the installation, and the reliable attachment of the inside-fuselage of the aerials.

Instrument Equipment.

1/ Check the correct condition of damping of all instrument boards and panels with instruments.

Check the reliable attachment of the instruments and the condition of pipe-lines located behind the instrument panel, the firm attachment of the durite hoses on the pipe-lines and fittings of the instruments, for interference, the correct condition of the plug-and-socket connections at the instruments and their safetying, and the correct condition of the leads insulation.

Remove dust and dirt from behind the instrument panel.

3/ Remove from the aircraft the electric combined action artificial horizon AGK-47 B, the electrical gyroscopic right-left indicator, inspect and check the main parameters according to technical conditions and the contacting surfaces of the plug-and-socket connections.

3/ Carry out the outside inspection of transmitters of the fuel quantity gauges and oil gauges, be sure of their air-tightness, check the reliable coupling of the plug-and- socket connections.

4/ Check the air-tightness of couplings of the hydraulic and vacuum systems of the AP-45 automatic pilot and the oil slide valves for seizing.

Check the condition and tautening of cables and the condition of rollers of the follow-up system of the automatic pilot.

When testing the engines check the operation of the automatic pilot and the value of air-pressure /vacuum/ drop of the automatic pilot feeding system / 80 - 100mm of mercury/ and of the automatic pilot oil pressure / 7 - 10 kg per sq.cm/.

5/ Check the operation of the temperature compensation of the TCT type temperature gauges. When the readings of the instruments differ from the temperature of the ambient air by ± 10 degrees, adjust the instruments.

6/ Be sure of the correct condition of the individual illumination of the instruments.

7/ When testing the engines be sure of the correct operation of the engine control instruments, of the anti-icing and heating systems and of the gyroscopic instruments.

50X1-HUM

After Each 100 ± 10 Flight hours of the Aircraft Power Units.

1/ Carry out the 50 hours servicing procedures.

2/ Before the engines cool down, drain the oil from the oil tanks, oil coolers, sumps and from oil pumps. Replenish with fresh oil.

3/ Remove the sparking plugs from the engine, clean the electrodes from scale, check the value of clearances between the electrodes /normal clearance 0.28 - 0.36 mm/, check the condi - tion of threads on the plugs, plug bushes and adapters.

Check the contacts and screening for cracks, burnt places and breaks of springs. Check the sparking plugs on tester for airtightness and sparking.

NOTE: New sparking plugs remove from the engine and check after first 20c and then after each 100 flight hours of the aircraft.

4/ Remove the covers of the valve housings and check:

- the condition and correctness of the valve springs, valve covers and gaskets,

- for plays of lever rollers on their axles /if a play exceeding 0.3 mm has been revealed, the lever has to be replaced/,

- the clearance between the lever rollers and the valve stems /the clearances on a cool engine should be 0.35 $^{+\ 0.25}_{-\ 0.10}$ mm at the piston position in the top dead centre during compres- sion cycle/.

The adjustment screws of the valve levers have to be locked after adjustment in the position at which the cut-out of the levers is between the marks on the adjustment screw and the screw protrudes above the surface of the inlet valve by 0 - 5 mm, and above the surface of the outlet valve lever by 2 - 4 mm.

Reinstall the covers of the valve housings.

NOTE: The checking of clearances between the rollers and stems should be effected after 90 - 100 degrees of revolution of the propeller in its normal sense of rotation in the following numerical sequence of the cylinders: 1-14-13-12-11-10-9-8-7-6-5-4-3-2.

5/ Check the condition of the magneto, remove preliminarily the screen with the distributor. Measure the clearance between the contacts of the contact breaker /the clearance should be 0.2 - 0.3 mm./

Inspect and check the correct condition of the contact spring of high tension outlet in the socket of the distributor cover, check the condition of the carbon with the spring.

Inspect the outlets of high voltage and the terminals of the upper cover. Check the attachment of the distributor runner. Check the cam for lubrication. In case that the cam is not sufficiently greased, wipe the cam until attaining glitter with a clean rag dipped in turbine oil A and not allowing the leak of oil, add 2 - 3 drops of turbine oil on the felt of the contact breaker pad.

6/ Check by a wrench the tightening of fastening nuts of the intake pipes to the compressor and to the engine cylinders.

7/ When operating on dusty airfields, in summer remove and inspect the dust filters. Rinse the filter by petrol and thereafter dip same into a mixture consisting of 85% of MS or MK oil and of 15% petrol. Reinstall the filter.

8/ Test the installation for feathering of the propellers by full feathering and unfeathering of the propellers on ground.

9/ After first 100 hours of flight of the aircraft remove

from the engine shaft the AV-5o propeller and check the condition of grooves, spinners and thread of the shaft for nicks, cracks, shear of thread and other defects.

Check the tightening of nut of the thrust bearing of the propeller shaft /the nut should be tightened to stop by blows of a 4oo g hammer on the arm of the wrench/.

Check the fitting of the hub on the cones and of the cones on the propeller shaft /permissible is the adhesion of minimum 6o% of the whole supporting surface without breaks on the perimeter/.

After the reinstalling of the propeller test the engine and the feathering installation.

Airframe.

1/ Carry out the 5o hours servicing procedures.

2/ Open the access doors of the centre section and wing of the aircraft and illuminating the inspected sections by a torch check the condition of the carrying system.

Be sure that no cracks, deformation occurs, check for shear and slackening of rivets and screws, for corrosion of the inner skin and the carrying elements, and for traces of fuel leakage.

Clean the inner sections of the wing and centre section from dust and dirt.

3/ Open the floor panels in the flight compartment, passenger cabin and lavatory, the access doors in the fuselage and check the following:

- the condition of the carrying system, component parts and details below the fuselage flooring,

- the pipe-lines of the heating and anti-icing systems for cracks, deformation, traces of overheating, for reliable attachment and tightness of connections,

- the emergency air storage bottles for condition and reliability of attachment,

- the inner skin of the fuselage and the carrying system for cracks, deformation, shear or slackening of rivets and for corrosion; special attention pay to the condition of these detail in the area of the lavatory.

Clean the inner sections of the fuselage from dust and dirt.

4/ Check the condition of the control of rudder, elevator, ailerons and trim tabs. Be sure that in the hinge assemblies, brackets, rollers, bellcranks and push-pull rods occurs no corrosion, cracks, slackening of attachment, seizing / at the motion ofrudder elevator, ailerons and trim tabs/, wear of couplings and damage of safetying,

- be sure that the cables run correctly on the rollers, check them for corrosion, tear of strings, for damage of the turnbuckles safetying, for normal tautening of the cables and correct operation of the trim tabs mechanisms.

Be sure of the reliable attachment of the balance weight to the control column, of the correct condition of the attach - ment assemblies of control columns and of the reliable attach - ment of the pedals and bellcranks.

Check the correct displacement of rudder elevator, ailerons and trim tabs according to the following table:

Denomination of the control elements	Direction of displacement	value of displacement /in degrees/
Elevator	up	30 - 1
	down	17 - 1
Elevator trim tab	up	10 ± 2
	down	17 ± 2
Ailerons	up	25 ± 1.5
	down	15 ± 1
Trim tab of ailerons	up	18 - 30′
	down	18 - 30′
Rudder	to right	25 - 1
	to left	25 - 1
Rudder trim tab	to right	9 ± 1
	to left	9 ± 1

Be sure that there is no slackening of tautening, damage of paint coating of the elevator, rudder and ailerons skin.

Be sure that the safetying in couplings of assemblies of elevator, rudder, ailerons and trim tabs is not damaged. Be sure of the reliable attachment of the weights.

Check the tightening of nuts and bolts in the control system.

5/ Check the condition of filters of the hydraulic system located on the panels, in the hydraulic reservoir and in the automatic pilot system. Be sure that the filters are not choked by dirt. Rinse the filters.

NOTE: When revealing considerable fouling of the filters, drain the fluid from the system, pump through the system clean fluid and drain it, then fill the system with fresh fluid having it first filtered through a silk material.

6/ Check by means of pressure gauge the charging of the

hydraulic accumulators with compressed air. When revealing the pressure in the hydraulic system to zero, the initial air pressure in the hydraulic accumulators should be the following:

- in the hydraulic accumulators of the main system 63 - 75 kg per sq.cm.,

- in the hydraulic accumulator of brakes 39 - 47 kg per sq.cm.

- in the hydraulic accumulator of the automatic pilot 3.5 - 4 kg per sq.cm.

7/ Check the hydraulic system for air-tightness. For this purpose build up in the system a pressure of 110 $\pm$ 10 5 kg per sq.cm., in the pneumatic system 120 - 150 kg per sq.cm. The system should remain under this pressure for the period of one hour.

Be sure that there is no leakage or escape of air from the accessories, hoses, pipe-lines and of their unions. The pressure drop in the hydraulic system during this time should not exceed 80 $\pm$ 5 kg per sq.cm.

Simultaneously check whether the hoses and pipe-lines do not interfere with each other and with the details of the aircraft /the clearances should be minimum 3 mm/.

8/ Check the operation of the relief automats of the hydraulic pumps through the ground hydraulic station or with running engines.

9/ Check the extension and retraction of wing flaps 2 - 3 times through the main system and 1 - 2 times by aid of the hand pump. During this follow the operation of the wing flaps actuating cylinder for seizing, leaks or other defects.

10/ Check the operation of braking systemthrough all hyd-

raulic accumulators and then through the hydraulic accumulator of brakes.

When all hydraulic accumulators are charged it should be possible without recharging to effect 35 full brakings at the pressure drop on the pressure gauge of the brakes hydraulic accumulator to 45 kg per sq.cm.

With one charged hydraulic accumulator of brakes /effect the discharging of the main system hydraulic accumulators by a double extension and retraction of the wing flaps/, it should be possible to accomplish minimum 17 full brakings at pressure drop on the pressure gauge of the brakes hydraulic accumulator to 45kg per sq.cm.

11/ Remove and rinse the air filter installed in the charging line.

12/ Check the air-tightness of the fire /fuel/ cocks.

13/ Drain the deposits from the sumps of the air charging line.

14/ Remove, dismantle and rinse the filter of the propellers and cabin canopy glazing anti-icing system.

Electric Equipment.

1/ Carry out the 50 hours servicing procedures.

2/ Power generating units and electric starters:

- remove the insulating tape, remove from same oil and dust, blast the power generator units and electric starters with compressed air under pressure of 1 - 1.5 kg per sq.cm.,

- inspect the collector, brushes, brush springs and the current leading brush wires,

- check the height of the brushes,

- check the reliable connection of the electric leads

to the power generating unit and electric starter,

- check the attachment of leads to the clamps of the RS-7 minus resistor, the integrity of its insulating sleeve and inspect the contacts at the joint points of the resistors with the aircraft body.

3/ Open the covers of the starting vibrators, inspect the contacts of the vibrator, dress and adjust them if necessary.

4/ Check the condition of the horn contacts, its attachment and the connection of the leads.

5/ Blast by means of compressed air the drain pipes of the containers of accumulator batteries.

6/ Check the condition of the terminal switch of elevator trim tab neutral position warning.

7/ Check the reliable attachment of the taxying lights.

8/ Be sure of the correct functioning of electromagnetic locks of the parachute flares containers and of reliable attachment of electric leads to same.

9/ Remove the right cover of the engine control column side access hole and of the switchboard of the engines control and check the attachment of the switches, selectors, ARUFOSh, rheostats, terminal switch of the horn and the connection of electric leads to them and the condition of the electric leads insulation. Be sure that the electric leads do not touch the control cables.

10/ After expiration of the producer's guarantee:

inspect the contact surfaces of the contactors and reloys, wash them with spirit and be sure of the reliable connection of current leading mains and of electric leads. In the contactor block of the accumulator batteries engagement check the correct

50X1-HUM

condition of the selenium rectifiers,

- remove the DMR-4oo, rinse with spirit the contacts of the contactor and check the tension for engagement of the relay, the contact resistance of the contactor, potentional difference between the terminal "Gen" and the terminal "Bat" at which the relay gets engaged, the intensity of the return current of relay and the insulation resistance of all current conducting details with regard to the mass,

- unseal the protecting strips of the electromotors of mechanisms, inspect the brushes, collectors, blast the electromotors by compressed air, check the operation of the mechanisms and measure the value of consumed current and the time required for displacement,

- remove the voltmeters and ammeters from the aircraft and check them for exact indication.

11/ Pass the aircraft accumulator batteries to the accumulator charging station for effecting of the control charging and discharging in order to restore the capacity of the accumulator batteries. /Minimum once in three months/.

Radio and Radio-technical Equipment.

1/ Carry out the 5o hours servicing procedures.

2/ Concerning apparatuses:

- remove the equipment from the aircraft and check the condition of mounting, the attachment of the radio and details radio valves inside the blocks,

- inspect, rinse with spirit or B-7o petrol /wipe/ and blast by compressed air the contacts of all relays installed in the equipment blocks and the glides of the variometers,

50X1-HUM

- check the equipment on testers for the principal parameters,

- check the correct and reliable attachment of the telegraph key and of the control panel of the radio stations transmitters, of flexible cables and of their plugs, of the aircraft radio equipment switches and electric leads, of inside fuselage aerial leads and of the aerial switches,

- check the shelves and brackets of attachment of blocks and accessories of the equipment for cracks.

3/ Concerning transformers of MA and 2PP-40 type.

Inspect the collector-brush assemblies. Clean the collectors from the brush dust, be sure of ready motion of brushes in the brush holders and of the normal height of the brushes. Blast the inner cavity by compressed air.

4/ Concerning details of the wiring and control of stations:

-- open the reductors of the remote drive, clean or rinse them, check the reliable attachment and condition of details and lubricate them,

-- check the correct and reliable attachment of the control column buttons and of their connecting leads,

- in accordance with the instruction check the integrity of filaments in the electric detonators,

- check the reliable attachment of contacts in the junction boxes of the radio equipment.

5/ Check through the airfield source of electricity by the tension of minimum 27.5 V the operation of all radio sets from all places of their use in all versions and ways of operation and at all sub-range frequencies. Be sure of the correct operation of all controls, instruments and of proper illumination of the dials.

6/ Check by listening with running engines the level of disturbances of the radio reception.

Instrument Equipment.

1/ Carry out the 5o hours servicing procedures.

2/ Concerning the remote indicating gyro-magnetic compass check:

- the error of the remote transmission and the swinging of the indicating instrument pointer in the adjusted position,

- the time of adjustment of the compass, the reterdation, time for settling down of the transmitter,

- the reliable connection and correct safetying of the plug-and-socket connections,

- the condition and reliable fastening of the compass transmitter,

- inspect the fastening of the DGMK units, check the radio valves of the amplifier on the tester.

3/ Concerning the magnetic compasses.

Check the value of retardation and the time of the settling down of the compass card. Check the fluid in the com - passes for air bubbles and for cleanness.

4/ Concerning the temperature gauges of the TCT and TUÖ type. Check the reliable attachment of the pick-ups of the tem- perature gauges, the reliable insulation of connection points of the thermo-electrodes of the thermo-couples with the connec- ting leads, the reliability of the plug-and-socket connections and their safetying at the indicators.

5/ Concerning the air-speed indicators, altimeters and variometers check:

- the air-tightness of the instrument housings, the main errors of the instruments, the variation of the indications, smooth motion of the pointers, work out new correction charts for the air-speed indicators and altimeters. For the checking the instruments have to be removed from the aircraft,

- the presence of the distinction marks at the necks of the static and dynamic pressure on the housings of the airspeed indicators and on the durite hoses, in case of necessity apply the marks,

- the correct union of the pipe-lines and the airtightness of the systems after reinstallation of the instruments on the aircraft.

6/ Concerning the pneumatic gyroscopic instruments check:

- their principal technical data /the instruments have to be removed from the aircraft/

- the pressure drop at the necks of the gyroscopic instruments,

- the condition of the group dust filter.

7/ On indicators of the UZP and UPRN type inspect the attachment of indicator transmitters, motion rods, the correctness and safetying of the plug-and-socket connections, check the main error, the variation of indication and the seizing of the indicators motion system.

8/ On the transformer of the PAG-1F type inspect the brush collector assemblies. Clean the collectors from the brush dust. Be sure of the ready motion of brushes in the brush holders and of the normal height of brushes. Blast the inner cavity by compressed air.

9/ On the electric artificial horizon AGK-47B check:

- the attachment of solenoids of the longitudinal and

lateral correction,

- the static balance of the gyro,
- for sparking and reliable contact of the brushes,
- for the condition of the ball bearings.

NOTE: To be carried out after 2oo flight hours of the aircraft and further on after each loo flight hours.

lo/ Inspect and replace if necessary:

- tha dampers of the gyro-unit and the amplifier of the DGMK /remote indicating gyro-magnetic compass/,
- the durite hoses of the dynamic and static pressure instrument systems, of the automatic pilot nad turn-and-bank indicator, of the system of static pressure of the P-3B Pitot tube.

11/ Check the adjustment of cables for control of the engagement cocks of the automatic pilot servo-units.

12/ Rinse, inspect the filter of the automatic pilot hydraulic system and reinstall same.

13/ Concerning the electric tachometers:

Remove the indicator and the generator from the aircraft, inspect and check the principal technical parameters of the set, the contact surfaces of the plug-and-socket connections.

Concerning the electric three-pointer indicator and electric pressure gauges:

Remove from aircraft, inspect and check the principal technical parameters of sets, the condition of the effective surface of the potentiometer and of the transmitters brushes, the condition of the rubber sealing of housing cover, the airtightness of transmitter housings, the contact surfaces of the plug-and-socket connections.

NOTE: Before expiration of the producer's guarantee do not effect servicing procedures on the electrical tachometers, indicators and pressure gauges.

After finishing the 100 hours servicing procedures it is necessary to test the engines and the whole equipment on the ground and then to perform a fest flight in order to check the operation of the aircraft equipment in flight.

After Each 300 ± 10 Flight Hours of the Aircraft

Power Units

1/ Carry out the 100 hours servicing procedures.

2/ When replacing the engines do not effect the servicing procedures, but instead carry out the following:

- rinse the oil tanks /without removing from the aircraft/, pipe-lines and hoses of the oil system and oil cooler /under pressure through a special appliance/,

- disassemble the exhaust collectors and inspect their details, nozzles, joint rings, bonding strips, bushes and hinge bolts. Check for cracks, excessive wear of bushes and bolts or wear of nozzles. In case of necessity replace or repair the respective details.

Airframe.

1/ Carry out the 100 hours servicing procedures.

NOTE: The points 5 to 12 including the 100 hours servicing procedures for the airframe effect after accomplishing the 300 hours servicing procedures concerning landing gear /p.8/.

2/ Check the tightening of the joint bolts of the wing attachment to the centre section, check for cracks or traces of corrosion in the joint.

3/ Check the condition of assemblies of the fuselage at -

tachment to the centre section for cracks, corrosion and loosening of attachment.

4/ Check the tightening of bolts of the tail plane joint.

5/ Open the side panels on the central board, clean the cables and levers. Check for seizing when moving the levers and the operation of the safety latches,

Inspect the landing gear selector valve and wing flaps selector valve, the pipe-lines and unions and check for slackening of attachment, touching of pipes and foe leakage of fluid.

6/ Remove the access hole covers of the heating elements and inspect:

- the condition of the centre section skin in order to reveal cracks,

- the condition of heat-insulating material on the heating element pipes,

- the condition of the welded seams connecting the half-nozzles with the half-housings,

- remove the nozzles of the anti-icing system and inspect their condition in order to reveal breaks of the walls /through wear/ in the joint points.

7/ Rinse the sprocket chains and the sprockets of the control columns. Inspect and check them for damage and cracks in the angles of the splined joint. Lubricate by fresh CIATIM-201 grease.

8/ Place the aircraft on jacks and carry out the following procedures on the landing gear:

a/ remove the wheels, dismantle them, remove the old grease and inspect the axles, brake mechanisms, bearings, drums and attachment details. Check for cracks, deformation, fissures, excessive wear of brake shoes, oil spots or fouling; wash and

dry the brake details, lubricate the bearings of the wheels by the NK-50 grease, check the condition of tubes and tyres for cracks, wear and other defects, assemble the wheels and mount on the aircraft /the pressure of the tyres should be: for the main landing gear 5±0.2 kg per sq.cm, for the nose wheel 4.5 $^{+0.3}_{-0.2}$ kg per sq.cm./

b/ check the clearances between the latches of the main and nose landing gear locks and the tail portions of the hooks /the clearances should equal 0.3 - 1.5 mm/.

c/ check the value of play in the cross-beam journals and in the couplings of the nose gear brakes /displacement should not exceed 1 mm/,

d/ remove the attachment bolts of the torque links of main and nose landing gear, inspect the bolts and their respective holes for wear and fissures, inspect the faces of the intermediary washer of the central hinge; in case that the wear exceeds 0.5 mm it is forbidden to tighten more the bolt, it is necessary to replace the intermediary washer,

e/ remove the lower collar of the nose shock absorbing strut, rinse and check the condition of inserts,

f/ check the fluid level in the landing gear shock-absorbing struts,

g/ fill into the pneumatic cylinder of the nose landing gear emergency system 100 cc of MVP oil,

h/ check the operation of brakes by performing 2 - 3 brakings through the main system and 1 - 2 through the emergency system,

i/ perform the retraction and extension of the landing gear through the main system /by aid of the ground hydraulic unit/ 2 - 3 times, make sure that the retraction and extension

pass normally without jerks and seizing; when being retracted, the landing gear does not brush against the engine nacelle details, the pressure at the retraction does not exceed 65 kg per sq.cm and at extension / in the moment when the locks are closing/ does not exceed 12 kg per sq.cm; check the operation of the landing gear position indicating system, the adjustment and tightness of the doors closing,

j/ perform the extension of the landing gear through the hand pump 1 - 2 times; at 35 - 40 full cycles of the pump operation the landing gear should extend and get locked, perform the extension of the main landing gear by its own weight and of the nose leg through the emergency pneumatic system.

k/ check the landing gear actuating cylinders for suf - ficient spare travel, be sure that this spare travels make: for the nose landing gear minimum 4 mm for retraction and 6 mm for extension , for the main landing gear minimum 1 mm to both sides/ check at the pressure of 110 kg per sq.cm in the system/.

Electric Equipment.

1/ Carry out the 100 hours servicing procedures.

2/ Inspect the condition of the contactors of the MTF-2 mechanism. Check the direction of the flood lights.

3/ After expiration of the guaranteed life time remove from the aircraft the voltage regulators, measure the resistance of the carbon pile insulation with respect to the body / resistance of the insulation should be 2 meg./ Check the range of the regulated tension of the equalizing winding and stability of operation.

4/ Check the condition of rheostats, remove dust and dirt

and check for corrosion on the metallic details and for damage of bodies,

5/ The aircraft electric system:

- check the outside condition of insulation of the leads running separately and of leads running on braids,

- check the condition of the vinyl tubes and strips on the braids of the leads, installed in the nacelles and on the engine mounting,

- at warm and dry weather dry the insulation of the leads of the aircraft electric system, for which purpose open all access doors, covers of switch-boards, cabin canopies and boxes with electric leads,

- check the reliable coupling of the plug-and-socket connections of the aircraft system and be sure of the correctness of their safetying, check the condition of the electric leads,

- open the switch-boards of pilots and check the condition of electric leads, switches and rheostats,

- blast the braids and leads by compressed air under the pressure of 1.5 - 2 kg per sq.cm,

- check the fittings and integrity of the leads terminals in the switch-boards and in the central distributing board.

6/ Check the condition of the rubber details of the aircraft electric system;

- of gaskets under the clamps for attachment of braids and leads,

- sealing gaskets in the fittings of lamps and lights,

- insulating caps on the fittings of warning system

50X1-HUM

- sheath of braids of the UT-2 and UT-3 mechanisms and cabin lamps KLSKK-45 and VLS-45,

- rubber dampers of the carbon regulator panels,

- bushes of the holes of bulkheads and in the skin of formers. Deffective rubber details have to be replaced.

Radio-and Radiotechnical Equipment.

1/ Carry out the 100 hours servicing procedures.

2/ Check the lubrication of the convertors and trans - formers ball bearings. Restore the lubrication.

3/ Check on tester the set of operational and spare radio valves.

4/ Open the housing of the radio compass frame, inspect same and check:

- the condition of surfaces of the contact rings, brushes and gears of the frame revolving mechanism, exchange the grease in the bearings and gears,

- the condition of the terminals soldering and the reliability of contacts of the feeding leads.

5/ Remove the aerials of the radio-altimeters, distance gauges and ultra-high frequency radio stations, check the cleanness of contact surfaces of the aerial bases and the aircraft skin. After reinstalling the aerials apply laquer on the edges of the aerials bases.

6/ Inspect the plug-and-socket connections of the feeding cables and of the high frequency feeders and be sure of the reliability and cleanness of the contact surfaces in the con - nections.

Instrument Equipment.

1/ Carry out the 100 hours servicing procedures.

2/ Pressure head, system of the static pressure:

- disconnect the pipe-lines of the static and dynamic pressures from the instrument fittings and from the pressure heads and blast the pipe-lines by compressed air under the pressure of 0.5 - 1.0 kg per sq.cm.

- check the outside condition of the heating element and the integrity of ceramics,

- connect the pipe-lines of the static and dynamic pressure to the pick-ups and instruments, check the airtightness of the systems.

3/ Thermoelectric temperature gauges. Open the places of the pick-ups connections with the connecting leads, wipe and restore the junction places.

4/ Pneumatic and hydraulic pressure gauges. Remove from aircraft, inspect and check the basic error and the seizing of the meachnism. After reinstalling of the aircraft check the airtightness of their attachment to the systems pipe-lines.

5/ Fuel and oil gauges. Remove the set of instruments from the aircraft, inspect and check:

- the main error,
- the air-tightness of the pick-up and float,
- the reliability of clamping and safetying of the float lever.

6/ The transmitters of the UZP type. Remove from the aircraft and check:

- the condition of the effective surface of the potentiometer,
- the condition of brushes,
- the condition of rubber sealing of the housing cover,

7/ Check the lubrication of the ball bearings of PAG-1F inverters. Refill grease.

Aircraft Storage.

In case that the aircraft is for any reason whatsoever out of service, then it is necessary to treat the aircraft and engine for corrosion proofing and to store the aircraft in accordance with the requirements of the instruction for maintenance and [redacted] instruction.

Contents.
