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T.O. 11-17A-6
(FORMERLY AN 01-100LAA-6)

HANDBOOK
INSPECTION REQUIREMENTS

USAF MODEL
L-17
AIRCRAFT

REVISION
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- f. Carburetor heat system for operation by noting rpm drop when controls are actuated.
- g. Wing flaps for operation and correct position indication.
- h. Cabin combustion heater for output by noting availability of heat at outlets or observing indication lights if installed.
- i. Defroster system for unrestricted heat output.

3. (Deleted)

SECTION V

SPECIAL INSPECTION REQUIREMENTS

This section contains inspection requirements that supplement the basic requirements of preflight, postflight, and periodic inspections. When one of the requirements become due, it is to be added to the basic requirements of an inspection to be performed. Requirements that fall due at the expiration of an interval of calendar time will be added to the requirements of the inspection that will be accomplished nearest to the time when the special requirement is due.

<i>Accomplish</i>	<i>System and Item</i>
	AIRFRAME (System No. 3)
Prior to transfer, immediately upon assignment of aircraft, and every 6 months.	1. Inventory equipment installed in aircraft.
When circumstances or conditions specified in applicable test flight directive exist.	2. Flight test.
(Deleted)	3. (Deleted)
(Deleted)	4. (Deleted)
Every 4th periodic.	5. Flight test.
Every six months.	6. First aid kit removed and inspected for condition and completeness of contents.
After cleaning or repair and every 12 months.	7. All safety belts weight tested.
Whenever control surfaces are caught by high winds or propeller blasts and moved violently against their stops.	8. All control surfaces for security of attachment; hinges, hinge brackets, control horns, torque tube attachments for damage. All parts for sheared rivets or bolts.
Every 4th periodic.	9. Flight control surfaces for specified range of travel.
Every 4th periodic.	10. Control cables for specified tension, corrosion and fraying.
Every 8th periodic.	11. Horizontal and vertical stabilizer attaching bolts for looseness.
Every 20th periodic.	12. Flight control cables which are not accessible throughout their entire length removed and inspected for fraying exceeding permissible limits and corrosion.
Every 16th periodic.	13. Wing attaching bolts for looseness using torque wrench to detect looseness; if one quarter or more of the bolts are loose, remove and inspect all attaching bolts for wear, cracks and retorque all bolts spot checked or removed to specified torque values.
Every 2nd Periodic on Aircraft having undated PAMPCO pulleys installed.	14. Cables for specified tension, corrosion and fraying, especially those portions of cables which contact pulleys.
Whenever any cable is removed or replaced.	15. All undated PAMPCO pulleys within the length of the cable system affected replaced.

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INTRODUCTION

This handbook contains complete requirements for scheduled maintenance inspections and scheduled replacement of accessories and components applicable to the aircraft to which the handbook pertains. This handbook does not contain instructions for repair, adjustment, or other means of rectifying defective conditions; nor does it contain detailed instructions for troubleshooting to find causes for malfunctioning. The inspection requirements in the handbook are stated in such a manner as to establish what equipment is to be inspected and what conditions are to be sought. Applicable portions of the appropriate maintenance handbooks should be consulted to obtain maintenance instructions that are beyond the scope of this handbook.

The inspections prescribed by this handbook will be accomplished at specified periods by Air Force organizational or Navy Class D maintenance activities with assistance provided by Air Force field maintenance or Navy Class C activities when required. Compliance with the provisions of the handbook is required in order to assure that latent defects are discovered and corrected before malfunctioning or serious trouble results.

This handbook is divided into six sections. Sections I, II and IV comprise the basic inspection requirements for Preflight, Postflight and Periodic Inspections. Section V contains inspection requirements that supplement the requirements of one of the above sections at specific periods or upon occurrence of specific conditions. Section VI contains requirements for replacing specific accessories or components at prescribed periods. Section VII contains conditions under which test flights are required and inspection requirements for accomplishment of prescribed test flights. In order to arrange inspection and replacement requirements as nearly as possible according to the

manner in which work will be divided and assigned, the requirements in each section of the handbook are divided into groups under "System" headings. A system title indicates either a functional system or a group of related components.

Requirements shown in Sections I, II, and IV are only basic requirements of the inspection. It may be necessary to obtain additional requirements from Section V or Section VI to complete the inspection; for example, if the 4th Periodic is to be accomplished, any requirements that fall due at every 2nd or 4th Periodic Inspection are to be included with the basic requirements of the Periodic Inspection. Discrepancies appearing on Aircraft Flight Reports become a part of the requirements of appropriate Postflight or Periodic Inspection in order that the number of delayed discrepancies may be held to an absolute minimum.

No attempt is made to sequence the order or performance of inspection requirements. The inspection methods employed, the availability of specialists at specific times, and the facilities utilized are too variable to establish standardized sequencing.

The inspection intervals designated for accomplishment of inspection requirements are the maximums, and are prepared from factual operating data for the primary use of the aircraft by type designation and will be revised as experience dictates. These inspection intervals should never be exceeded. Due to local conditions (types of missions, special utilization, geographical locations, etc.), Commands, Local Commanders, and/or their Maintenance Officers, who not only have the prerogative, but are expected to exercise it, should increase the frequency or scope of any inspection as required.

This handbook pertains to all of a model or certain series of aircraft and may, therefore, contain inspection requirements applicable to specific equipment that is not installed on individual airplanes. When this situation is encountered, those requirements that are not applicable should be disregarded.

Additional information relative to recording of inspections and the use of this handbook may be obtained by consulting applicable technical directives.

Revisions to this handbook will be published when

necessary to add, delete, revise, or change frequency of requirements. Such revisions will be based on factual data accumulated as a result of maintenance experienced with the aircraft concerned. Data will be gathered by field studies, from Unsatisfactory Reports or Reports on Unsatisfactory or Defective Material, and from any other communications pertaining to the handbook and its requirements. Recommendations proposing changes to this handbook should be submitted to the Technical Services Division of the AMA or AFD having prime engineering responsibility for the aircraft, or to the Bureau of Aeronautics.

SECTION I PREFLIGHT INSPECTION

This inspection will be accomplished prior to the first flight of the day. The inspection consists of checking the aircraft for flight preparedness by performing visual examination and operational tests to discover defects and maladjustments that, if not corrected, could cause accidents or aborted missions. Requirements preceded by an asterisk are applicable only when use of the equipment concerned is contemplated. Requirements preceded by a double asterisk will be accomplished prior to each flight when more than one flight is made in the same day.

ELECTRICAL POWER OFF

PREPARATION

1. Wheels chocked.
2. All dust excluder plugs, pitot tube cover, and canopy cover removed.
3. Maintenance stands and/or ladders provided.
4. Flight controls unlocked.
5. Fire extinguishers provided.
6. Aircraft statically grounded.
7. Flight control lock engaged after completion of inspection.
8. Wings and flight control surfaces for ice and snow.
9. Preflight entries made in applicable forms.

AIRFRAME (System No. 3)

1. Aircraft and engine cowl, scoops, fairing, panels and doors for damage and security.
2. Wings, fuselage and control surfaces for damage.
3. Flight controls for free movement; control surfaces for correct direction of movement with respect to cockpit controls.
4. Static ground wire for good contact with ground and security.
5. Trim tabs for free movement and proper direction of movement with respect to cockpit controls.
6. Engine controls for full travel, unrestricted movement, and spring back.
7. Throttle friction lock for sufficient friction.
- **8. Clean windshields and windows inside and out.
- **9. All loose equipment stowed and secured.
10. First aid kits for broken seal and availability.
11. Check lists and ash trays available.
12. Safety belts for bent, damaged or corroded metal parts; fabric and leather for cleanliness, cuts or fraying; latching parts for freedom of operation and positive locking; date of last weight test; security of attachment.

LANDING GEAR (System No. 4)

- **1. Landing gear for damage.
- 2. Landing gear shock struts for leakage and specified inflation.
- **3. Wheels for damage.
- 4. Tires for blisters, grease or oil, and specified inflation.
- 5. Brakes for effectiveness (no sponginess).

HYDRAULIC PNEUMATIC (System No. 5)

- 1. Reservoir for specified fluid level.

UTILITY (System No. 6)

- 1. Portable fire extinguishers for accessibility and secure storage.
- 2. Heater air scoop, air outlet, and exhaust outlet for obstructions.
- 3. Portable A-20 fire extinguisher for dents, broken indicator glass, pressure within specified limits, seal intact and security of mounting.

POWER PLANT (System No. 7)

- **1. Oil sump for proper servicing and security of dip stick and filler cap.
- **2. Exterior of aircraft for oil leakage.

FUEL (System No. 8)

- **1. Fuel tanks for specified servicing and security of filler caps.
- **2. Fuel drain cocks, and sumps for water and foreign matter.
- **3. Exterior of aircraft for fuel leakage.
- 4. Fuel vent outlet for obstruction.
- 5. Fuel selector valve for operation.

SUPERCHARGER AIR INDUCTION, EXHAUST (System No. 11)

1. Air duct openings for obstructions.

PROPELLERS (System No. 12)

- **1. Propeller blades for damage.

INSTRUMENTS (System No. 15)

- **1. Pitot static port openings for obstructions.
2. Instrument cover glasses for cleanliness.
3. Compass correction cards available.
4. Rate of climb indicator for zero setting.

RADIO AND RADAR (System No. 16)

1. External antenna for damage.

ELECTRICAL POWER ON

PREPARATION

1. External power source provided.

LANDING GEAR (System No. 4)

1. Landing gear position lights for correct indication.

FUEL (System No. 8)

- **1. Fuel quantity gage for reading comparable with known contents in tanks.
2. Emergency fuel pump for operation.
3. All fuel system components, lines, hoses, and connections in engine area and accessible components in aircraft system for leakage and security (fuel pressure "ON").

ELECTRICAL (System No. 14)

1. Instrument lights for illumination.
2. Cabin light for illumination.
3. Position lights for illumination.
4. Landing lights for illumination.

RADIO AND RADAR (System No. 16)

1. Broadcast radio receiver for operation in "ANT" position by assuring sensitivity, selectivity, clarity of tone, dial calibration, ease of rotation of dial tuning control; "ANT-LOOP" switch to "LOOP" position, rotate loop and check signal on two minima.
2. Range receiver for operation by assuring sensitivity, selectivity, clarity of tone, dial calibration, ease of rotation of dial tuning control; "ANT-LOOP" switch to "LOOP" position, rotate loop and check signal on two minima.
3. Liaison radio (VHF) for operation by contacting control tower and checking transmitters for adequate power, accuracy of frequency, modulation, and clarity of side tone; receiver for operation in "HI-LO" position by assuring sensitivity, selectivity, clarity of tone, dial calibration, ease of rotation of dial tuning control.

SECTION II

POSTFLIGHT INSPECTION

1. This inspection is basically a combination of requirements for checking equipment that requires daily or frequent verification of satisfactory functioning, plus requirements that prescribe searching for defects that become apparent after the aircraft is flown. It is intended that evidence of chafing, leaks, and similar conditions be discovered and corrected during the Postflight Inspection to preclude progression of such a relative minor problem to a state that would require major maintenance to remedy the deficiency. The Postflight Inspection is, therefore, an important function that should be performed with care. Requirements preceded by an asterisk, are applicable when the equipment concerned has been used.

2. The intervals at which the Postflight Inspection will be accomplished are contained in applicable aircraft inspection systems directives.

ENGINE OPERATION

PREPARATION

1. Portable fire extinguishers provided.

OPERATION

1. Perform the following in accordance with applicable directives.
 - a. "PRE ENGINE START"
 - b. "ENGINE START"
 - c. "ENGINE WARM-UP"
 - d. "COMPLETE COCKPIT CHECK"
 - e. "PRE SHUT-DOWN"
 - f. "STOPPING ENGINE"
 - g. "AFTER ENGINE SHUT-DOWN"
2. Perform the following additional operational checks during "ENGINE OPERATION":
 - a. Engine for operation on all sources of air.
 - b. Engine instruments for correct response to engine power application and freedom from excessive oscillation or fluctuation.
 - c. Wing flaps for operation and correct position indication.
 - d. Availability of fuel from all sources by checking engine operation in each fuel tank selector position.
 - e. Generator and voltage regulator for output; reverse current relays for cut-in and cut-out.
 - f. Carburetor heat system for operation by noting rpm drop when controls are actuated.

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- g. Cabin combustion heater for output by noting availability of heat at outlets or observing indication lights if installed.
- h. Voltage regulator for correct bus voltage (Check with voltmeter of known accuracy).

ELECTRICAL POWER OFF

PREPARATION

- 1. Wheels chocked.
- 2. Maintenance stands and/or ladders provided.
- 3. Remove or open necessary cowling and/or applicable inspection panels, doors, etc.
- 4. Reinstall or close cowling inspection panels, doors, etc., upon completion of inspection.
- 5. All dust excluder plugs, pitot tube cover, and engine and/or canopy cover installed after completion of inspection.
- 6. Flight control lock engaged upon completion of inspection.
- 7. Maintenance stands and/or ladders removed.
- 8. Aircraft statically grounded.
- 9. Release brakes after completion of inspection.
- 10. Switches "OFF" after completion of inspection.
- 11. Close and lock canopy after completion of inspection.
- 12. De-energize electrical system after completion of inspection.
- 13. Moor airplane if necessary.

AIRFRAME (System No. 3)

- 1. Aircraft cabin, fuselage exterior, wings, wheel wells, and empennage for cleanliness.
- 2. Static ground wire for security and good contact with ground.
- 3. Scoops, fairings, panels and doors for damage and security.
- 4. Wings, fuselage, empennage and flight control surfaces for damage and security.
- 5. Windshields and windows for security, cracks, leaks, and cleanliness.
- 6. Canopy for damage, security and freedom of movement.
- 7. Pilot's, co-pilot's and passenger seats for breaks or cracks, cleanliness and security.
- 8. First aid kit for:
 - a. Broken seal.
 - b. Completeness of contents inside compartment.
 - c. Kit bears serviceable tag, AF Form 50B.
- 9. Upholstery for torn fabric.

10. Aircraft technical publications file for availability.
11. All required postflight entries made in applicable forms.

LANDING GEAR (System No. 4)

1. Landing gear for damage and cleanliness.
2. Polished surfaces of shock struts and hydraulic pistons cleaned with cloth moistened in hydraulic fluid; inspect for damage.
3. Tail skid for damage.
4. Wheels for damage.
5. Tires for cuts, blisters, grease or oil, and alignment of slippage marks.
6. Exposed brake lines for chafing, leakage at connections and security of anchorage clamps.

HYDRAULIC PNEUMATIC (System No. 5)

1. Reservoir for specified fluid level.

UTILITY (System No. 6)

1. Portable fire extinguisher for discharge, proper safetying (seal wire taut and lead seal affixed) and security.
2. Portable A-20 fire extinguisher for dents, broken indicator glass, pressure within specified limits, seal intact and security of mounting; mounting bracket for security.

POWER PLANT (System No. 7)

1. Cowling for damage, defective or missing fasteners, and security.
2. Exposed areas of engine, with accessory section access doors or cowling removed; visually for damage and leakage.
3. Oil sump fully serviced.
4. Sump lines, hoses, connections, and other components for leakage.
5. Oil cooler tubes for leakage, damage, and obstructions.
6. Oil cooler door, hinges, and linkage for damage.

FUEL (System No. 8)

1. Fuel tanks serviced; filler cap seals for deterioration; filler caps for security.
2. Fuel vent and drain lines for obstruction and chafing.
3. Exterior of aircraft for fuel leakage.
4. Tank sumps and strainers for water.

SUPERCHARGER, AIR INDUCTION, EXHAUST (System No. 11)

1. Exhaust stacks and tail pipes for damage, leakage and security.
2. Air mixing chamber for security.
3. Air duct openings for obstruction.

PROPELLERS (System No. 12)

1. Propeller and visible components for external leakage.
2. Propeller hub and blades for damage.

ELECTRICAL (System No. 14)

1. Battery area for leakage or overflow of electrolyte.
2. Spare lamps and fuses available in holders or clips.

INSTRUMENTS (System No. 15)

1. Instrument indicating pointers for indications consistent with existing temperature, pressure, direction, altitude; cover glasses for cracks and looseness; range and limit markings intact.
2. Pitot and static port openings for obstructions; pitot head for alignment.

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RADIO AND RADAR (System No. 16)

1. Externally mounted radio compass loop for damaged loop housing and security.
2. Mast type antennas for security, damaged insulation, and nicked or cracked metal covering.
3. Fixed wire antennas for cracked insulators, broken tension units, loose connections and security.
4. Spare fuse holders for specified number of serviceable fuses.
5. Visually inspect following items:
 - a. Antenna lead-ins for damaged insulators, proper spacing from surrounding objects, and security.
 - b. Plugs for proper insertion into jacks and receptacles.
 - c. Junction boxes and covers for damage.
 - d. Headset and microphone cordage and plugs for damage and proper stowage.
 - e. Flexible shafts for broken or crushed casing.
 - f. Flexible conduit for crushed walls, breaks and loose fittings.

ELECTRICAL POWER ON

PREPARATION

1. External power source provided.

FUEL (System No. 8)

1. All fuel system components, lines, hoses, and connections in engine area and accessible components in aircraft system for leakage and security. (Fuel pressure "ON").
2. Fuel quantity gage for readings comparable with known contents in tanks.

SECTION III

The Periodic inspection replaces the Intermediate and Major inspections. The requirements for Periodic inspections are contained in Section IV.

SECTION IV PERIODIC INSPECTION

1. The periodic inspection is a thorough and searching inspection of the entire aircraft. The inspection includes certain requirements that are also applicable to preflight, and postflight inspections. The thoroughness of the check required and special tools or test equipment to be used are indicated in the statement of the requirement.
2. The periodic inspection will be accomplished at the expiration of 50 flying hours after the preceding periodic inspection.
3. The intervals at which a calendar periodic inspection will be accomplished are contained in applicable aircraft inspection systems directives.

ELECTRICAL POWER OFF

PREPARATION

1. Wheels chocked.
2. Maintenance stands and/or ladders provided.
3. Remove or open engine cowl, fuselage, wing, and empennage inspection doors, panels, plates, fairings, shrouds, baffles, etc.
4. Reinstall or close engine cowl, fuselage, wing, empennage, cowling, inspection doors, panels, plates, fairings, shrouds, baffles, etc., upon completion of inspection.
5. Fire extinguishers provided.
6. All dust excluder plugs, pitot tube covers and canopy covers removed.
7. Flight control surface locks removed. Flight controls unlocked.
8. Aircraft statically grounded.
9. Flight control lock engaged upon completion of inspection.

AIRFRAME (System No. 3)

1. All stencils, decals, and insignia for legibility.
2. Aircraft (cabin, fuselage exterior, wings, wheel wells, and empennage) cleaned.
3. Fuselage, wing, and fixed and movable surface drain holes for obstructions.
4. Static ground wire for security and good contact with ground.
5. Windshields, and windows for cracks, crazing, leaks, security and cleanliness.
6. Aircraft and engine cowl, scoops, fairing, panels, and doors for damage, corrosion and distortion; associated latches, hinges and fasteners for damage.

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7. Wing, horizontal stabilizer and vertical stabilizer attaching bolts visually for looseness; attachment fittings for damage and corrosion.
8. Wings, fuselage and empennage for missing rivets, bolts, screws or nuts, skin damage and corrosion.
9. Canopy for corrosion, cracks, missing rivets or bolts and freedom of movement throughout range of travel.
10. Canopy control cables, pulleys, turnbuckles, guides, fairleads, and links for wear, cracks, and alignment; brackets for cracks, corrosion and security.
11. Flight control surfaces (including trim tabs, flaps) for internal damage, corrosion, missing rivets and excessive play; attaching brackets for damage or missing bolts and pins.
12. Flight control surfaces (ailerons, elevators, rudder, trim tabs and flaps, as applicable) for the following conditions:
 - a. Mechanism, including bearings, screws, torque tubes and connecting rods for damage and wear or binding.
 - b. Pulleys, guides and fairleads for damage, wear and alignment.
 - c. Accessible cables for cleanliness, corrosion and fraying, particularly at pulleys, fairleads and cable guides.
 - d. Turnbuckles and turnbuckle terminals for damage.
 - e. Hinges and attachment fittings for damage, wear and security.
13. Flight control balance weights for security.
14. Engine controls, flexible casing, wires, and rod end fittings for damage, wear and alignment; fire-wall seals for deterioration and security.
15. Engine controls for unrestricted movement and spring back.
16. Throttle friction lock for sufficient friction.
17. Pilot's, co-pilot's and passenger seats for damage and security.
18. Pilot's and co-pilot's seats for ease of adjustment and positive locking in all positions.
19. Safety belts for bent, damaged or corroded metal parts; fabric and leather for cleanliness, cuts or fraying; latching parts for freedom of operation and positive locking; date of last weight test; security of attachment.
20. First aid kit for:
 - a. Identification markings legible.
 - b. Broken seal.
 - c. Completeness of contents inside compartment.
 - d. Kit bears serviceable tag, AF Form 50B.
21. Check lists and ash trays available.
22. Upholstery for damage.
23. Aircraft technical publications file current and complete.
24. Control surface lock system for damage.

LANDING GEAR (System No. 4)

1. Bungee springs for breakage and damage.
2. Landing gear components (shock struts, torque links, safety switches, attaching fittings etc.) for security, damage and corrosion; shock struts for leakage and specified inflation. Cables for corrosion and fraying.

3. Polished surfaces of shock struts and hydraulic pistons cleaned with cloth moistened in hydraulic fluid; inspect for damage.
4. Tail skid for damage, corrosion and security.
5. Movement of rudder and nose wheel in each direction for proper relationship.
6. Steering linkage components for damage, security, wear, corrosion, and adjustment.
7. Accessible brake lines for damage, leakage at connections, and security of anchorage clamps.
8. Tires for uneven tread wear, cuts, blisters, free of grease or oil, specified inflation, and alignment of slippage marks.
9. Accessible brake lines, hoses, connections, and components for leakage with parking brakes in "ON" position.
10. Brakes for effectiveness, (no sponginess).
11. Brake handle and mechanical linkage for specified adjustment, wear and security.
12. Landing gear selector control handle for damage.

HYDRAULIC PNEUMATIC (System No. 5)

1. Pump and valves for leakage and security; lines, hoses and connections for leakage, chafing, other damage and security.
2. Flap actuating cylinder for leakage and security. Flap restrictor filter element removed and cleaned (replace if foreign matter cannot be removed or element is damaged).
3. Reservoir for specified fluid level, leakage and security.
4. Hand pump for operation and leakage by operating wing flaps; pump and handle for security.

UTILITY (System No. 6)

1. Portable A-20 fire extinguisher for dents, broken indicator glass, operating mechanism for cleanliness, pressure within specified limits, seal intact and security of mounting, mounting brackets for cracks and security.
2. Manual heat and ventilating controls for freedom of operation and full range of travel.
3. Heater combustion air inlet and heater exhaust outlet for obstructions.
4. Heater drain lines for obstructions.
5. Combustion heater fuel lines, hoses, and connections for leakage and security.
6. All accessible cabin heating duct insulation for damage and security.
7. Temperature control units for damage and security.

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POWER PLANT (System No. 7)

1. Cowling for damage and security, defective or missing fasteners.
2. Engine mounting and supporting bolts for security; rubber washers for deterioration.
3. Air deflectors and baffles for damage and security, rubbing against cylinder fins.
4. Cylinders for damaged fins and safetying of hold-down nuts or cap screws.
5. Crankcase breather for obstruction.
6. Starter for security and damaged mounting flange.
7. Engine for fuel or oil leakage, loose or missing nuts, bolts, studs and clamps.
8. Push rod housings for damage, leakage and proper safetying.
9. Engine mounts for cracks, corrosion and loose attaching bolts.
10. Carburetor screen for cleanliness and damage.
11. Oil screen removed, cleaned, and checked for damage and metal particles.
12. Vacuum relief valve screen cleaned.
13. Oil sump for service and leakage.

FUEL (System No. 8)

1. Fuel tanks serviced.
2. Fuel tank filler caps for security and leakage; gaskets for deterioration and excessive wear.
3. Exterior of aircraft for fuel leakage.
4. Fuel vent and drain lines for obstruction, chafing and damage.
5. Fuel strainer for damaged screen and cleanliness.
6. Engine driven fuel pump screen for damage and cleanliness.
7. Fuel selector valve for operation; linkage for wear and security.
8. Fuel quantity transmitter for internal corrosion and proper safetying of cover and connector plug.
9. Primer and primer lines for chafing, leakage and security.

OIL (System No. 9)

1. Entire oil system for leakage; tubing for dents, cracks, chafing and security; flexible connections for cracks or cuts and tightness of hose clamps.
2. Oil cooler tubes for leakage, damage, and obstruction; oil cooler for security.
3. Oil cooler door, hinges and linkage for wear and damage; door for full range of travel.
4. Oil temperature bulb for security.

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IGNITION(System No. 10)

1. Flexible conduits connecting all components of system for chafing, security and fraying of metal braided covering.
2. Magneto:
 - a. Security of mounting.
 - b. Breaker compartments for cleanliness.
 - c. Breaker points for pitting.
 - d. Spark plug outlet plate for security.

SUPERCHARGER, AIR INDUCTION, EXHAUST (System No. 11)

1. Exhaust system:
 - a. Exhaust port studs for loose or missing nuts.
 - b. Exhaust collectors for cracks, leakage at slip joints and security. (Shroud removed).
 - c. Exhaust shroud for damage and security.
 - d. Tail pipes for burning, cracks and security.
2. Air ducts (intakes, scoops, elbows, etc.) for security of attachment, damage, loose or missing clamps, bolts, rivets, or screws, and obstructions in openings; flexible connections for damage and deterioration.
3. Carburetor air filter cleaned and lubricated.

PROPELLERS (System No. 12)

1. Components inspected for damage, leakage and looseness.
2. Propeller hub for damage and corrosion; blades for damage and corrosion exceeding permissible limits.
3. Servo valve controls for binding and lost motion.
4. Flexible lines for leakage at connections and security.

ELECTRICAL(System No. 14)

1. Battery area for leakage and overflow of electrolyte.
2. Starter and battery relays for security; installations externally for presence of foreign matter and dirt.
3. Spare lamps and fuses available in holders or clips.
4. All "MOMENTARY ON" toggle type switches for assurance that they do not stick in the "ON" position.
5. Reverse current relays for security of mounting; installation externally for foreign matter and dirt.

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6. Voltage regulators for security and cleanliness; shock mounts for deterioration.
7. Generator for security and cracked or broken mounting flanges and end housings.
8. Position, landing, cockpit and cabin lights for broken lens, bulbs and corrosion.
9. All heater system electrical wiring for tightness of connections, oil or grease, fraying and security.

INSTRUMENTS (System No. 15)

1. Pitot and static port openings for obstructions; drain holes probed to remove foreign matter; dust covers installed.
2. Pitot static system for moisture.
3. Compass correction cards available.
4. Magnetic compasses for discoloration of liquid, leakage and air bubbles.
5. Instrument indicating pointers for indications consistent with existing temperature, pressure, direction, altitude; cover glasses for cracks and looseness.
6. All pressure indicating instruments and corresponding connections at the instrument panels for leakage.
7. Directional gyro and artificial horizon caging mechanism for positive uncaging and caging.
8. Instruments for specified limit and operating range markings (consult latest revision of Flight Operating Instructions Handbook to assure that limit and operating range markings are correct).

RADIO AND RADAR (System No. 16)

1. Mast type "ILS" and loop antenna for security, damaged insulation, damaged metal covering and proper bonding.
2. Fixed wire antenna for cracked insulators, punctured or frayed polyethylene covering, broken tension units, loose connections and security.
3. Visually inspect the following items:
 - a. Antenna lead-ins for damaged insulators, proper spacing from surrounding objects and security.
 - b. Plugs for proper insertion into jacks and receptacles.
 - c. Junction boxes and covers for damage.
 - d. Headset and microphone cordage and plugs for damage and proper stowage.
 - e. Flexible shafts for broken or crushed casing.
 - f. Flexible conduit for crushed walls, breaks, and loose fittings.
4. All communication, navigation and radio components for damage and security.
5. Spare fuse holders for specified number of serviceable fuses.
6. Fuse clips and holders for damaged, corroded or burned contact surfaces, and sufficient tension to firmly hold fuses in place and make good contact.

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ELECTRICAL POWER ON

PREPARATION

1. External power source provided.

LANDING GEAR (System No. 4)

1. Landing gear position lights for correct indication.

UTILITY (System No. 6)

1. Combustion heater overheat solenoid and cycling solenoid valves and connecting tubing for fuel leakage (with auxiliary pump on).

FUEL (System No. 8)

1. All fuel system components, lines, hoses, and connections in engine area and accessible components, lines, and connections in aircraft system for leakage, chafing, and security; metal lines for dents or scratches exceeding permissible limits; hoses for damage and deterioration. (Fuel pressure "ON").
2. Fuel quantity gages for readings comparable with known contents in tanks.
3. Emergency fuel pump for operation.

ELECTRICAL (System No. 14)

1. Instrument lights for illumination.
2. Cabin lights for illumination.
3. Position lights for illumination.
4. Landing lights for illumination.

RADIO AND RADAR (System No. 16)

1. Using authorized portable test equipment perform as complete a functional test as possible on the follow-

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ing installations, without removing components from their respective mountings, to assure proper operation, calibration and adjustment. (Not required at inspection periods when equipment is removed for bench check):

- a. Very high frequency "VHF".
 - b. Range receiver.
 - c. Broadcast radio receiver.
2. Broadcast radio receiver for operation in "ANT" position by assuring sensitivity, selectivity, clarity of tone, dial calibration, ease of rotation of dial tuning control; "ANT-LOOP" switch to "LOOP" position, rotate loop and check signal on two minima.
 3. Range receiver for operation by assuring sensitivity, selectivity, clarity of tone, dial calibration, ease of rotation of dial tuning control; "ANT-LOOP" switch to "LOOP" position, rotate loop and check signal on two minima.
 4. Liaison radio "VHF" for operation by contacting control tower and checking transmitters for adequate power, accuracy of frequency, modulation and clarity of side tone; receiver for operation in "HI-LO" position by assuring sensitivity, selectivity, clarity of tone, dial calibration, ease of rotation of dial tuning control.

ENGINE OPERATION

PREPARATION

1. Portable fire extinguishers provided.

OPERATION

1. Perform the following in accordance with applicable directives:
 - a. "PRE ENGINE START"
 - b. "ENGINE START"
 - c. "ENGINE WARM-UP"
 - d. "COMPLETE COCKPIT CHECK"
 - e. "PRE SHUT-DOWN"
 - f. "STOPPING ENGINE"
 - g. "AFTER ENGINE SHUT-DOWN"
2. Perform the following additional operational checks during engine operation:
 - a. Engine for operation on all sources of air.
 - b. Engine instruments for correct response to engine power application and freedom from excessive oscillation or fluctuation.
 - c. Availability of fuel from all sources by checking engine operation in each fuel tank selector position.
 - d. Generator and voltage regulator for output; reverse current relays for cut-in and cut-out.
 - e. Voltage regulator for correct bus voltage (check with voltmeter of known accuracy).

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- f. Carburetor heat system for operation by noting rpm drop when controls are actuated.
- g. Wing flaps for operation and correct position indication.
- h. Cabin combustion heater for output by noting availability of heat at outlets or observing indication lights if installed.
- i. Defroster system for unrestricted heat output.

3. (Deleted)

SECTION V SPECIAL INSPECTION REQUIREMENTS

This section contains inspection requirements that supplement the basic requirements of preflight, postflight, and periodic inspections. When one of the requirements become due, it is to be added to the basic requirements of an inspection to be performed. Requirements that fall due at the expiration of an interval of calendar time will be added to the requirements of the inspection that will be accomplished nearest to the time when the special requirement is due.

*Accomplish**System and Item***AIRFRAME (System No. 3)**

Prior to transfer, immediately upon assignment of aircraft, and every 6 months.

When circumstances or conditions specified in applicable test flight directive exist.

(Deleted)

(Deleted)

Every 4th periodic.

Every six months.

After cleaning or repair and every 12 months.

Whenever control surfaces are caught by high winds or propeller blasts and moved violently against their stops.

Every 4th periodic.

Every 4th periodic.

Every 8th periodic.

Every 20th periodic.

Every 16th periodic.

1. Inventory equipment installed in aircraft.

2. Flight test.

3. (Deleted)

4. (Deleted)

5. Flight test.

6. First aid kit removed and inspected for condition and completeness of contents.

7. All safety belts weight tested.

8. All control surfaces for security of attachment; hinges, hinge brackets, control horns, torque tube attachments for damage. All parts for sheared rivets or bolts.

9. Flight control surfaces for specified range of travel.

10. Control cables for specified tension, corrosion and fraying.

11. Horizontal and vertical stabilizer attaching bolts for looseness.

12. Flight control cables which are not accessible throughout their entire length removed and inspected for fraying exceeding permissible limits and corrosion.

13. Wing attaching bolts for looseness using torque wrench to detect looseness; if one quarter or more of the bolts are loose, remove and inspect all attaching bolts for wear, cracks and retorque all bolts spot checked or removed to specified torque values.

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Accomplish

System and Item

LANDING GEAR (System No. 4)

Whenever circumstances which could result in possible landing gear damage are reported.

Every 2nd periodic.

Every 2nd periodic.

Every 4th periodic.

Every 2nd periodic; and whenever any landing gear component is replaced, disturbed or adjusted.

1. Tires removed from wheels and inspected for breaks; wheels for cracks or distortion; landing gear components and areas of attachment thoroughly inspected for cracks and distortion. (If any damage is detected, a retraction check is required).
2. Nose wheels removed, cleaned and inspected for corrosion, cracks, and distortion; bearings and bearing surfaces for wear and damage; felt grease retainers cleaned or replaced if saturated with lubricant; bearings relubricated.
3. Main wheels removed, cleaned and inspected for corrosion, cracks and distortion; bearings and bearing surfaces for wear and damage; felt grease retainers cleaned or replaced if saturated with lubricant; bearings relubricated; brake drums for excessive or uneven wear; brakes for worn or damaged parts, leakage and specified clearance; brake blocks or lining discs for cleanliness and cracks.
4. Visible portion of rubber covered inner tube valve stems for cracking.
5. Landing gear for operation by performing the following checks:
 - a. Strut extension stop rods for specified adjustment.
 - b. Normal operation:
 - (1) Retract the landing gear with a 12 pound weight on each wheel and check for the following conditions:
 - (a) Nose gear up-lock and linkage for proper adjustment by assuring that specified clearance exists between roller and upper edge of up-lock hook slot.
 - (b) Main landing gear up-lock and linkage for proper adjustment by assuring that specified clearance exists between back face of hook and roller of gear.
 - (c) Warning horn for operation by moving throttle to full closed position with gear up and locked.
 - (d) Control panel light for correct indication.
 - (2) Extend the landing gear and check for the following conditions:
 - (a) Nose gear for positive locking by assuring that upper drag brace shoulder contacts lower side brace.
 - (b) Main gear for positive locking by assuring that upper side brace shoulder contact lower side brace linkage.
 - (c) Position lights for correct indication.
 - c. Emergency extension:
 - (1) Retract the landing gear and check for the following condition:
 - (a) Emergency release for operation by actuating handle and observing that nose and main gear up-locks release and gear locks in down position.

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Accomplish

System and Item

Every 2nd periodic.

6. Visually inspect upper M.L.G. brace assemblies for cracks, using strong light and magnifying glass.

Every 10th periodic.

7. Remove upper M.L.G. brace assemblies and inspect for cracks, using the magnetic particle method.

HYDRAULIC PNEUMATIC (System No. 5)

Every 16th periodic.

1. Hydraulic reservoir filter elements removed and cleaned; replace if foreign matter cannot be removed or elements are damaged.

POWER PLANT (System No. 7)

Whenever engine overspeed is encountered.

1. Engine inspected in accordance with applicable directives.

1st, 5th, and 10th hour after inspection of engine due to overspeed.

2. Sump plug and oil screen removed and thoroughly inspected for metal particles; oil drained from sump and thoroughly inspected for metal particles.

Periodic inspection nearest to 1/3 and 2/3 of the engine overhaul time.

3. Valves for specified clearance; valve mechanism for cracks or other damage, evidence of inadequate lubrication, leaking valve guides, broken springs, and oil sludge; rocker box covers for cracks and warpage (use surface plate or plate glass).

Every 4th periodic.

4. Cylinders for specified compression values.

After ground run, following cylinder change or engine change.

5. Cylinder hold-down nuts and/or cap screws for proper safetying. Manifolds and oil lines for leakage and security; sump plugs and oil pump pressure screens removed and inspected for metal particles.

When a new or newly overhauled engine is installed.

6. Flight test.

After flight test, following engine change, after the first flight following cylinder change.

7. Cylinder hold-down nuts and/or cap screws for proper safetying. Manifolds and oil lines for leakage and security; sump plugs and oil pump pressure screens removed and inspected for metal particles.

Prior to installation.

8. Hose clamps for security of welding or riveting; adjusting screw for damaged threads; band for extreme hardness, distortion, kinks, and proper strength; hose fitting bead for sharp edges.

Prior to first and second flights after installation.

9. Hose clamps for positioning, leaks, and tightness.

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Accomplish

System and Item

Every 25 hours or oftener when dusty atmospheric conditions exist.

25 hours after engine installation.

Prior to installation.

Prior to first and second installation.

Whenever any component which would affect calibration is replaced and every 6th periodic.

Every 4th periodic.

2nd periodic following installation and each 10th periodic thereafter.

Fifteen minutes after each servicing and 30 minutes after removal from heated shelter.

At engine change or oil change.

Whenever any spark plug terminal is disconnected.

Every 10th periodic.

10. Oil sump and cooler drained.

11. Intake pipe packing nuts for leakage.

FUEL (System No. 8)

1. Hose clamps for security of welding or riveting; adjusting screw for damaged threads; band for extreme hardness, distortion, kinks and proper strength; hose fitting bead for sharp edges.

2. Hose clamps for positioning and tightness; hose connections for leaks.

3. Fuel quantity system for correct calibration with tanks empty and tanks full.

4. Auxiliary and accumulator tank screens for damage and cleanliness.

5. Engine driven fuel pump drive shaft pins for signs of wear or elongated holes.

6. Tank sumps and strainers for water.

OIL (System No. 9)

1. Oil system decontaminated in accordance with applicable directives.

IGNITION (System No. 10)

1. Spark plug elbows for distortion; insulators (cigarettes) for missing or distorted contact springs; cracks, cleanliness, and secure attachment to end of ignition lead.

2. Ignition switch disassembled, inspected, and bench checked in accordance with applicable handbook.

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Accomplish

System and Item

Every postflight when dusty atmospheric conditions exist, otherwise every 25 hours.

AIR INDUCTION, EXHAUST (System No. 11)

1. Carburetor air filter for contamination and lubrication.

As often as necessary to adequately protect the propeller.

At each installation.

Prior to each installation.

When propeller is replaced or removed and reinstalled.

Every 2nd periodic.

Engine change resulting from overspeeding in excess of limits specified in applicable directives.

PROPELLERS (System No. 12)

1. Clean and coat hub and blades with a light coat of clean engine oil. When operating conditions are especially severe a light coat of corrosion preventative compound may be applied.
2. Run engine for approximately 15 minutes and retorque retaining nut.
3. Propeller shaft and thrust nut cleaned with approved solvent, inspected for corrosion, galling or pitting, and treated with corrosion preventative compound.
4. Flight test.
5. Remove propeller, if serial No. is prior to 4301, disassemble, magnaflex, inspect hub spider for cracks.
6. Propeller completely disassembled, AN steel parts magnetically inspected, all other parts given a visual inspection.

ELECTRICAL (System No. 14)

Every 4th Periodic.

1. Electrical systems from the generating source to each electrical component (excluding radio wiring from main power buses to operating units) for the following:
 - a. Wiring for deterioration, chafing, fraying, specified support and evidence of overheating.
 - b. Connector plug exteriors for corrosion, cracks, evidence of overheating and security.
 - c. Wire shielding for fraying, crimping, corrosion and damage.
 - d. Junction boxes for cracks, cleanliness and security; drain holes for obstructions.
 - e. Plastic tubing for damage, security and adequate drainage provisions.
 - f. Terminal strips, connections, bonding jumpers and ground connections for damage, corrosion and security.

Every 7 days.

2. Battery and installation:
 - a. Electrolyte for specific gravity.
 - b. All cells for proper electrolyte level.
 - c. Battery leads, connectors, and vicinity of battery for cleanliness.
 - d. Connectors for tightness.
 - e. Mounting for security.

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Accomplish

System and Item

- | | |
|---------------------|---|
| Every 4 months. | f. Battery for leakage, replace if leakage is indicated. |
| Every 2nd periodic. | g. Drains and vents for obstructions. |
| Every 2nd periodic. | h. Battery lid for condition and proper fit; gasket for condition. |
| Every 4th periodic. | 3. Battery removed for capacity check. |
| Every 2nd periodic. | 4. Starter brushes for wear exceeding specified minimum length; commutator for excessive arcing. |
| | 5. Generator brushes for wear exceeding specified minimum length, even wear, and freedom of movement in brush holders; insulation in brush leads for deterioration or chafing; commutators for arcing and presence of oil or metal particles. |
| | 6. Overvoltage protection system for specified operation. |
| | 7. Vibration isolators for sagging, specified clearance; rivets or screws for looseness, shock absorbing material for deterioration and separation of rubber to metal bond. |

INSTRUMENTS (System No. 15)

- | | |
|--|--|
| Every 150 hours, or every 3 months, whichever comes first, and at any time that equipment replacement, modification or relocation might cause compass deviation. | 1. Compass indicator for correct reading on all cardinal headings. Re-compensate if necessary. |
| Every 2nd periodic. | 2. Pitot and static system disconnected at instruments and lines cleared with dry high pressure air to remove foreign material and moisture; system leak tested utilizing instrument test set. Airspeed indicator checked for correct calibration on all major graduations within the speed range of the aircraft. |
| Every 2nd periodic. | 3. Vibration isolators for sagging, specified clearance; rivets or screws for looseness, shock absorbing material for deterioration and separation of rubber to metal bond. |

Accomplish

System and Item

RADIO AND RADAR (System No. 16)

Every 4th Periodic.

1. Radio system (from each electrical component to, but not including, junction boxes containing main power buses) for the following:
 - a. Wiring for deterioration, chafing, fraying, specified support and evidence of overheating.
 - b. Connector plug exteriors for corrosion, cracks, evidence of overheating and security.
 - c. Wire shielding for fraying, crimping, corrosion and damage.
 - d. Junction boxes for cracks, cleanliness, security and adequate drainage provisions.
 - e. Plastic tubing for damage, security and adequate drainage provisions.
 - f. Terminal strips, connections, bonding jumpers and ground connections for damage, corrosion and security.

When adjustments or changes have been made requiring flight to accomplish operation checks and calibration.

2. Flight test.

Deleted.

3. Deleted.

Every 4th periodic.

4. Remove mast "ILS" and loop type antennas and inspect for damaged insulation, nicked or cracked metal covering, and corrosion; loop stencil for legibility.

Every 4th periodic.

5. Fuse clips and holders for cracks, corroded or burned contact surfaces, and sufficient tension to firmly hold fuses in place and make good contact.

Every 2nd periodic.

6. Vibration isolators for sagging, specified clearance; rivets or screws for looseness, shock absorbing material for deterioration and separation of rubber to metal bond.

SECTION VI REPLACEMENT SCHEDULE

This section lists units of operating equipment that are to be replaced at the periods specified or at the expiration of authorized extensions. Replacement means removal of the equipment and installation of a serviceable item in its place. Replacement of equipment will be indicated in flying hours or calendar time and will be accomplished at the periodic inspection nearest the time when the replacement is due.

Replace

System and Item

AIRFRAME (System No. 3)

(Deleted)

1. (Deleted)

LANDING GEAR (System No. 4)

Every 1000 hours.

(Deleted)

(Deleted)

(Deleted)

1. Flexible hose in brake system.
2. (Deleted)
3. (Deleted)
4. (Deleted)

HYDRAULIC (System No. 5)

Every 1200 hours.

Every 1000 hours or 5 years
from date of manufacture.

1. Hydraulic pump (engine driven).
2. All flexible hose in hydraulic system.

Replace

System and Item

UTILITY (System No. 6)

Every 24 months.

(Deleted)

Every 500 hours.

1. Type A-20 portable fire extinguisher.
2. (Deleted)
3. Cabin heater overheat switch.

POWER PLANT (System No. 7)

At expiration of maximum permissible operating time.

(Deleted)

(Deleted)

1. Engine.
2. (Deleted)
3. (Deleted)

FUEL (System No. 8)

Every 1200 hours.

Every 1200 hours.

Every 1200 hours.

1. Fuel pumps (engine driven).
2. Fuel pump (motor driven).
3. Fuel valves (selector and shut-off).

OIL (System 9)

(Deleted)

1. (Deleted)

Replace

System and Item

■ Every 200 hours.

IGNITION (System No. 10)

1. Spark plugs.

Every 800 hours.

PROPELLER (System No. 12)

1. Propeller.

Every 800 hours.

Every 800 hours.

ELECTRICAL (System No. 14)

1. Generator.
2. Voltage regulator.

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SECTION VII

TEST FLIGHT INSPECTION REQUIREMENTS

1. This section contains all conditions under which test flights are required and complete inspection requirements for accomplishment of prescribed test flights. These requirements have been established to assure a thorough inspection of the aircraft before flight, during flight, and upon completion of the test flight. When the test flight is performed for the purpose of determining whether specific equipment or systems are in proper operating condition, those requirements not related to such equipment or systems shall be disregarded unless they are required to be accomplished in conjunction with the normal preflight or flight operations required to accomplish the test flight.
2. This section is divided into four parts. Part I contains all conditions and circumstances under which test flights are required. Part II contains inspection requirements to be accomplished prior to test flight. Part III contains inspection requirements to be accomplished during a test flight. Part IV contains inspection requirements to be accomplished upon completion of test flight.

PART I

CONDITIONS REQUIRING ACCOMPLISHMENT OF TEST FLIGHT

The conditions requiring accomplishment of a test flight are listed below. Under circumstances other than those listed, the need for an aircraft to be testflown following maintenance or repair work is an engineering decision to be exercised by commanders, through their maintenance officer.

- a. To complete every 4th periodic inspection.
- b. To complete the periodic inspection on aircraft removed from extended storage.
- c. When a new or newly overhauled engine is installed or cylinder is replaced.
- d. When movable flight surfaces have been replaced, or removed and reinstalled.
- e. When flight control cables or rods have been rerouted, rerigged, or flight control mechanisms have been re-adjusted.
- f. When fixed flight surfaces have been replaced, or removed and reinstalled.
- g. When major structural modifications and/or repairs are accomplished.
- h. When adjustments or changes are made requiring flight to accomplish operational checks and calibration of accessories and/or auxiliary equipment.
- i. When replacement or removal and reinstallation of the propeller is required.

PART II

PRIOR TO TEST FLIGHT REQUIREMENTS

1. GROUND CREW RESPONSIBILITIES:

Complete preflight inspection performed in accordance with Section I of this handbook. Only double asterisk items need be accomplished if test flight is not the first flight of the day.

2. FLIGHT CREW RESPONSIBILITIES:

Complete preflight requirements performed in accordance with applicable -1 flight handbook including the following:

- a. Exterior inspection.
- b. Interior check.
- c. Starting engine.
- d. Preflight check.
- e. Taxiing.
- f. Before take-off.

**PART III
IN-FLIGHT REQUIREMENTS**

1. The following requirements to be accomplished by the pilot at take-off and climb:

- a. Maximum engine RPM.
- b. Maximum manifold pressure.
- c. Cylinder head temperature.
- d. Oil pressure within limits.
- e. Fuel pressure within limits.
- f. Oil temperature within limits.

2. The following requirements to be accomplished by the pilot at cruise:

a. Engine.

- (1) Manifold pressure.
- (2) Oil pressure.
- (3) Fuel pressure.
- (4) Oil temperature.
- (5) Cylinder head temperature.
- (6) Carburetor air temperature.
- (7) Generator output.

b. Instruments.

- (1) Airspeed.
- (2) Altimeter
- (3) Rate of climb.
- (4) Compass.
- (5) Fuel quantity gage.
- (6) Vertical Gyro.
- (7) Directional Gyro.
- (8) Trim tab indicator.

c. Communications.

- (1) VHF transmitter.
- (2) VHF receiver.
- (3) Range receiver.
- (4) Liaison radio receiver-transmitter.

d. Controls.

- (1) Aileron.
- (2) Rudder.
- (3) Elevator.
- (4) Landing flaps.

e. Landing Gear.

- (1) Operation (normal and emergency).
- (2) Gear position lights and horn.

PART IV

POST TEST FLIGHT REQUIREMENTS

- 1. The following requirements will be accomplished by the pilot after landing.
 - a. Brakes checked.
 - b. Steering.
 - c. Engine postflight operational check accomplished in accordance with applicable -1 flight handbook.
 - d. Engine shut down in accordance with applicable -1 flight handbook.
 - e. Aircraft checked for fuel and oil leaks.
 - f. Discrepancies noted during test flight entered on test flight worksheets.
- 2. The following requirement will be accomplished by ground crew as special post test flight requirements.

Accomplish

System and Item

POWER PLANT (System No. 7)

Flight test following cylinder or engine change.

- 1. Cylinder hold-down nuts and/or cap screws for proper safetying. Manifolds and/or lines for evidence of leakage and insecurity; sump plug and oil screen removed and inspected for metal particles.

