

ROYAL CANADIAN AIR FORCE



**ENGINEERING GUIDES
AND
PROCEDURES
AIRCRAFT INSPECTIONS**

**REVISION
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PART 1

MAINTENANCE POLICY

LEVELS OF MAINTENANCE

1 To standardize maintenance concepts throughout the RCAF, definitions of the levels of maintenance as contained in CAP 78, Maintenance Requirement Number 1, have been revised as shown hereunder. In general, these definitions are based on the locals and type of work. While more than three levels of maintenance could be defined, the three levels shown have been decided as sufficient to simplify understanding of the maintenance system.

(a) First Line Maintenance - This is the level of maintenance giving immediate support to operating equipment and includes:

- (1) -7 and special inspections;
- (2) replenishment of fuel, oil, hydraulic, oxygen systems, etc;
- (3) towing, parking, and in general, ground handling of aircraft;
- (4) modification, repair, and adjustment involving only brief down times.

(b) Second Line Maintenance - This is the maximum level of maintenance normally undertaken at an operating base and is beyond the short down time limits of first line maintenance. It will include:

- (1) -7A and special inspections;
- (2) modifications, shop repairs, structural repairs, preservation, adjustment and alignment;
- (3) build-up of engines, assemblies and accessories.

(4) calibration of test equipment against secondary standards;

(5) occasional fabrication of parts or tools.

(c) Third Line Maintenance - Third line maintenance is that maintenance beyond unit capacity and capability and in general involves very long down times for the equipment. It might be undertaken at Repair Depots or by industry. It includes:

- (1) complete overhaul;
- (2) major repairs and modifications complete rebuilds;
- (3) extensive fabrication and manufacture;
- (4) salvage;
- (5) calibration to primary standards.

2 Notwithstanding the wording of the definitions, it is clearly desirable to make maximum use of RCAF resources and to minimize total down time of equipment. Flexibility in applying these revised levels of maintenance definitions is therefore important. This may introduce some deviations from the normal definitions from time to time and permit changing the level at which work may be done if experience or altered circumstances indicate a change would be advantageous to the RCAF.

3 Mobile Repair Parties might be employed at any base to undertake first or second line work, and in some instances, third line work. Only in those instances where units require assistance in meeting unavoidable peak loads will MRPs be authorized for first or second line work.

PART 2

MAINTENANCE REQUIREMENTS

1 The inspections required for RCAF Aircraft are:-

- (a) CAIR
- (b) Periodic
- (c) Supplementary
- (d) Special
- (e) Primary
- (f) Before Flight
- (g) Post Flight

CAIR

2 CAIR is a maintenance requirement beyond unit capabilities and fully detailed in EO 00-50-17. On receipt of aircraft after CAIR the airframe will begin a new periodic cycle and the engine will be phased in at its next periodic due.

PERIODIC INSPECTION

3 The periodic inspection is a thorough and searching inspection of the entire aircraft. The inspection consists primarily of checking certain components, area and systems of the aircraft, which due to their function require less frequent inspection than those carried out on the Supplementary or Primary inspection. This inspection will be accomplished to determine that no condition exists which, if not corrected, could result in failure of a component or cause a system malfunction prior to the next periodic inspection. These inspections are progressively being changed to equalized inspections with the result that major and minor inspections will soon become obsolete. The inspection cycle and periodicity for all aircraft types are specified in Appendix "A" to this Engineering Order.

SUPPLEMENTARY INSPECTIONS

4 Supplementary inspections may be defined as a periodic inspection on items to be inspected more often than the periodic inspection items, but less often than the primary inspection items as detailed in EO 00-15-10

SPECIAL INSPECTIONS

5 Special Inspections are issued as -5 EOs Command message or letter and each inspection is to be carried out as detailed by the issuing authority.

6 On acceptance of an aircraft, the Form L14 is to be checked to ascertain that all applicable Special Inspections have been entered and carried out as required. If necessary, a physical check shall be made to ensure that the state of the aircraft, with regard to Special Inspections is correct.

7 When the requirements of a Special Inspection are recurring, the user unit is to amend the applicable Maintenance Schedules accordingly, pending receipt of the revised EO

PRIMARY INSPECTION - PI

8 This inspection will consist of checking certain components, areas or systems of the aircraft on an hourly basis (e.g. 48 hours, 72 hours, or 7 days) to determine, that no condition exists which, if not corrected, could result in failure or malfunction of the component prior to the next scheduled inspection which directs attention to a suspected condition.

9 The periodicity of the Primary Inspection for each aircraft type will be specified in the FOREWORD of the applicable -7 EO at the next revision. Unless otherwise specified in the -7 EO, the validity of the Primary Inspection will be:-

(a) An aircraft on a 24 hour PI is to be considered "Serviceable" for a period of twenty-four hours following the time of take-off of the first flight after the PI, providing the first

flight commences during the twenty-four hour period following the PI (e. g. PI completed at 0800 hours, 24 Sep, the flight commenced 0600 hours, 25 Sep, the PI may be considered valid for all flights commencing prior 0600 hours 26 Sep).

(b) An aircraft on a 48 or 72 hour PI is to be considered serviceable for a period of 48 or 72 hours respectively from the time the PI was completed. If however, the first flight commenced during the last 24 hours of the inspection's validity, the PI shall be considered valid for 24 hours from time of take-off of that first flight (e. g. A 72 hour PI completed 0800 hours, 24 Sep, the flight commenced 0600 hours, 27 Sep, the PI may be considered valid for all flights commencing prior to 0600 hours, 28 Sep).

(c) An aircraft on a 7 day PI is to be considered serviceable until 2359 hours of the seventh day following the completion of the PI. For example, if a 7 day PI is completed at 0800 hours 24 Sep, the PI may be considered valid until 2359 hours 1 Oct.

BEFORE FLIGHT INSPECTION - BFI

10 This inspection is to be carried out BEFORE THE FIRST FLIGHT OF THE DAY and will consist of checking the aircraft for flight preparedness by performing visual examinations and operational checks of certain components to assure no defect or maladjustment exists that could cause accidents or aborted flights. The BFI when completed, and signed out in the L14 Log Set, shall be considered valid for a period not exceeding 24 hours.

NOTE

For aircraft on a 24 hour primary the Before Flight Inspection will not be required.

POST FLIGHT INSPECTION - PFI

11 The Post Flight Inspection is to be carried out after EACH flight and will consist of checking the aircraft to determine if it is suitable for another flight, by performing visual examination of certain components, areas or systems, to assure no defects exist which would be detrimental to further flight.

NOTE

See EO 00-15-10 for Command air-worthiness responsibilities.

FLYING AND RUNNING TIMES

12 The flying time of an aircraft and the running time of an aero-engine installed therein, is to be calculated as the period during which the aircraft is in motion (e. g., from the time the chocks are withdrawn, or brakes released, or moorings dropped and the aircraft starts to taxi, until it finally returns to rest or picks up its moorings after flight). In the case of helicopters, these times are to be calculated from rotor engagement, with intent to fly, to rotor disengagement. This period, to the nearest five minutes is to be recorded in Form L14 (Aircraft Maintenance Record Set) as the flying time of the airframe and running time of an aero-engine respectively. Running time of an aero-engine, while the aircraft is stationary, is not to be recorded, but must be kept to a minimum.

AUTHORIZED DEVIATIONS AND TOLERANCES

INSPECTIONS

13 Consecutive Primary Inspections may be waived, up to a limit of seven days, if aircraft is not flown. After this period, the aircraft is to be given a Primary Inspection, including an engine run-up. If it is anticipated that the period of non-flying will exceed one week, temporary storage action is to be considered. This order does not absolve units from complying with Engine Maintenance Instructions contained in -2 and -9 EOs.

14 Commands may authorize any period of anticipation of Periodic Inspections and may delegate this authority to specific units as required. Inspections may be anticipated by 10% of the basic periodicity without altering the time at which subsequent inspections are due. When inspections are anticipated by more than 10% of the basic periodicity, the time when the next inspection is due must be advanced by the amount of the anticipation.

15 Commands may authorize a delay of periodic inspection by an amount not exceeding 10% of basic periodicity and may delegate this

authority to specific units as required. No further delay of inspections is permissible except:

- (a) Where necessary to complete an emergency search and rescue mission. AOsC responsible for that search and rescue operation may authorize the delay of a periodic inspection of the RCAF aircraft involved by an additional 10% of the basic periodicity.
- (b) When authority has been granted by AMC for special operational or maintenance conditions.

NOTE

When operational requirements dictate, the conditions of paras. 14 and 15 may be combined. In such cases requests to AMCHQ for any additional delay in an inspection must state the amount by which the previous inspection was anticipated.

- 16 Regardless of the period of delay, the time when the next inspection is due is to remain unchanged.
- 17 Commands may authorize any period of anticipation of supplementary inspections and may delegate this authority to specific units as required. Supplementary Inspections may be delayed by 10% of the supplementary inspection cycle. Anticipation or delay up to 10% of the supplementary cycle may be made without altering the time at which subsequent supplementary inspections are due. When inspections are anticipated by more than 10%, the time when the next supplementary inspection is due must be advanced by the amount of anticipation. For particular applications, when the above instructions are not practical, specific instructions will be issued by AMCHQ.
- 18 Engines installed in aircraft will normally be replaced when the overhaul time shown in Appendix "A" has been reached. To facilitate maintenance scheduling and to preclude the unnecessary removal of aircraft from flying status, engines may be replaced at the scheduled aircraft periodic inspection nearest the engine overhaul time shown in Appendix "A" providing the following limitations are adhered to. Engine overhaul time may be extended or anticipated

a maximum 50% of the aircraft basic periodicity, or 12-1/2% of the engine overhaul cycle whichever is less.

NOTE

Although it is desirable that periodic inspections of an engine coincide with the airframe, this is not always practical with multi-engine aircraft. Periodic inspections on aircraft engines may be based on engine times independent of the airframe time, except that all periodic inspections will be carried out at the same time as the airframe inspection.

An example could take this form: (using 125 Hr Periodicity)

Airframe	750 Hrs
#1 Engine	125 Hrs
#2 Engine	375 Hrs

OTHER LIFED ITEMS

- 19 Removal of other "lifed" items may be anticipated or delayed to permit removal at the periodic inspection nearest to completion of their authorized lives.

CHANGE IN INSPECTION FREQUENCY

- 20 When special operational or other conditions require it, Commands may TEMPORARILY, reduce the interval between inspections, or lower item lives. Where permanent change of inspection frequency of "life" seem desirable, recommendations should be submitted to AMCHQ by UCR Form STATS 318.

INSPECTION OF AIRCRAFT ON TRANSFER

21 Aircraft are to be prepared for transfer in accordance with the conditions outlined in paragraphs 22 to 30. If any of these requirements cannot be met, AMCHQ is to be advised.

22 Canadian based aircraft fitted with VHF radios will be equipped with the correct frequency control crystals for ferrying under IFR conditions. They require the following communication facilities: (Effective date Feb 64)

(a) Aircraft with ICA-67 Fitment (10 channel capability):

Frequency	Service	Frequency	Service
		120.40 mc	Ottawa Terminal
		120.60 mc	Ottawa Departure
		120.80 mc	Ottawa Arrival
119.50 mc	Approach Control	121.50 mc	International Aeronautical Emergency
119.70 mc	Air Traffic Control Centres	121.90 mc	Ground Control Common
121.50 mc	International Aeronautical Emergency	122.20 mc	Radar Advisory
121.90 mc	Ground Control Common	123.80 mc	Ottawa Advisory
122.20 mc	Radar Advisory	124.80 mc	Edmonton Centre
126.20 mc	Military Aerodrome Control	126.20 mc	Military Aerodrome Control
126.70 mc	Radio Range	126.70 mc	Radio Range
134.10 mc	Ground Control Approach Primary	134.10 mc	Ground Control Approach Primary
137.70 mc	VHF/ADF	137.70 mc	VHF/ADF
		141.03 mc	Ground Control Approach

(b) Aircraft with Dual ICA-67 Fitment (20 channel capability):

Frequency	Service	Suggested ARC-502 Channel Arrangement	
118.00 mc	Toronto GCA	1. 118.00 mc	13. 124.80 mc
118.30 mc	Winnipeg Tower	2. 118.30 mc	14. 126.20 mc
118.70 mc	Calgary Tower	3. 118.70 mc	15. 126.70 mc
119.20 mc	Toronto Radar Arrival	4. 119.20 mc	16. 134.10 mc
119.30 mc	Arrival Control	5. 119.30 mc	17. 137.70 mc
119.50 mc	Approach Control	6. 119.50 mc	18. ---
119.70 mc	Air Traffic Control Centres	7. 119.70 mc	19. 141.03 mc
120.10 mc	Montreal Departure	8. 120.10 mc	20. ---
120.40 mc	Ottawa Terminal	9. 120.40 mc	21. ---
120.60 mc	Ottawa Departure	10. 120.60 mc	22. 121.50 mc
120.80 mc	Ottawa Arrival	11. 120.80 mc	23. 122.20 mc
121.50 mc	International Aeronautical Emergency	12. 121.90 mc	24. 123.80 mc
121.90 mc	Ground Control Common	(d) Aircraft with ARC-49 Fitment (48 channel capability):	
122.20 mc	Radar Advisory	Frequency	Service
123.80 mc	Ottawa Advisory	118.00 mc	Toronto GCA
126.20 mc	Military Aerodrome Control	118.10 mc	Vancouver Tower
126.70 mc	Radio Range	118.30 mc	Winnipeg Tower
134.10 mc	Ground Control Approach Primary	118.70 mc	Calgary Tower
137.70 mc	VHF/ADF	118.80 mc	Winnipeg Centre

(c) Aircraft with ARC-502 Fitment (24 channel capability):

Frequency	Service	Frequency	Service
118.00 mc	Toronto GCA	118.90 mc	Minneapolis Discreet
118.30 mc	Winnipeg Tower	119.00 mc	Kincheloe Control
118.70 mc	Calgary Tower	119.10 mc	Montreal Tower
119.20 mc	Toronto Radar Arrival	119.20 mc	Toronto Radar Arrival
119.30 mc	Arrival Control	119.30 mc	Arrival Control
119.50 mc	Approach Control	119.50 mc	Approach Control
119.70 mc	Air Traffic Control Centres	119.70 mc	Air Traffic Control Centres
120.10 mc	Montreal Departure	119.90 mc	Lakehead Radar Departure
120.40 mc	Ottawa Terminal	120.10 mc	Montreal Departure
120.60 mc	Ottawa Departure	120.40 mc	Ottawa Terminal
120.80 mc	Ottawa Arrival	120.60 mc	Ottawa Departure
		120.80 mc	Ottawa Arrival

Frequency	Service
121.50 mc	International Aeronautical Emergency
121.90 mc	Ground Control Common
122.20 mc	Radar Advisory
123.60 mc	Montreal Centre Ground Remote
123.70 mc	Terminal Control
123.80 mc	Ottawa Advisory
124.00 mc	Edmonton Centre, Calgary Remote
124.80 mc	Edmonton Centre
125.90 mc	Detroit Centre
126.20 mc	Military Aerodrome Control
126.70 mc	Radio Range
134.10 mc	Ground Control Approach Primary
137.70 mc	VHF/ADF
141.03 mc	Ground Control Approach

NOTE

The foregoing plan is designed specifically for aircraft in transit involving 129 TFF staffs and is not to be interpreted as an implementation scheme for adoption by all RCAF airborne activities.

The plan does not preclude the fitting of additional crystals for "special" flights. It will be observed that "open" channels have been preserved for this purpose and selection of added frequency facilities by crews is permissible.

Owing to the density of VHF traffic in various centres and other related problems, it is often found advisable to effect periodic adjustments in the spectrum and for this reason, it is to be expected that EO 00-50-7 will require constant revision. Advance information outlining details of new frequency facilities will be promulgated by message.

The channel arrangement of ARC-502 frequencies is based on prescribed limitations to the maximum separation of frequencies applicable to that equipment. This is due to the method of automatic tuning in the receiver. Therefore, it is necessary to ensure that the separation within each three consecutive channels in the ARC-502 does not exceed a 3.0 mc

spread except where operation is at the higher end of the band in which case a less rigid separation requirement in the area of 4.5 to 6.0 mc is imposed.

23 DELETED.

24 RCAF aircraft based outside Canada will, of necessity, use frequencies assigned by the national administrations concerned.

TRANSFER BETWEEN COMMANDS

25 Before the aircraft is released for ferrying, the consignor unit is responsible that:

(a) The next Periodic Inspection due has been carried out when the time remaining to the next Inspection is less than 25% of the basic periodicity PLUS calculated ferry time. (Calculated ferry time must provide a reasonable margin for normal diversions).

(b) The aircraft is complete and serviceable for its intended operation role.

(c) All modifications in the applicable categories have been embodied. Kits received for modifications which have not been embodied because of low priority or modification kits JUST received at the time of transfer are to be forwarded to the consignee unit (with the aircraft if practicable). Supply depots are to be advised to take the necessary forwarding action in cases where modification kits have been demanded but not received prior to departure of the aircraft.

(d) All applicable Special Inspections have been carried out.

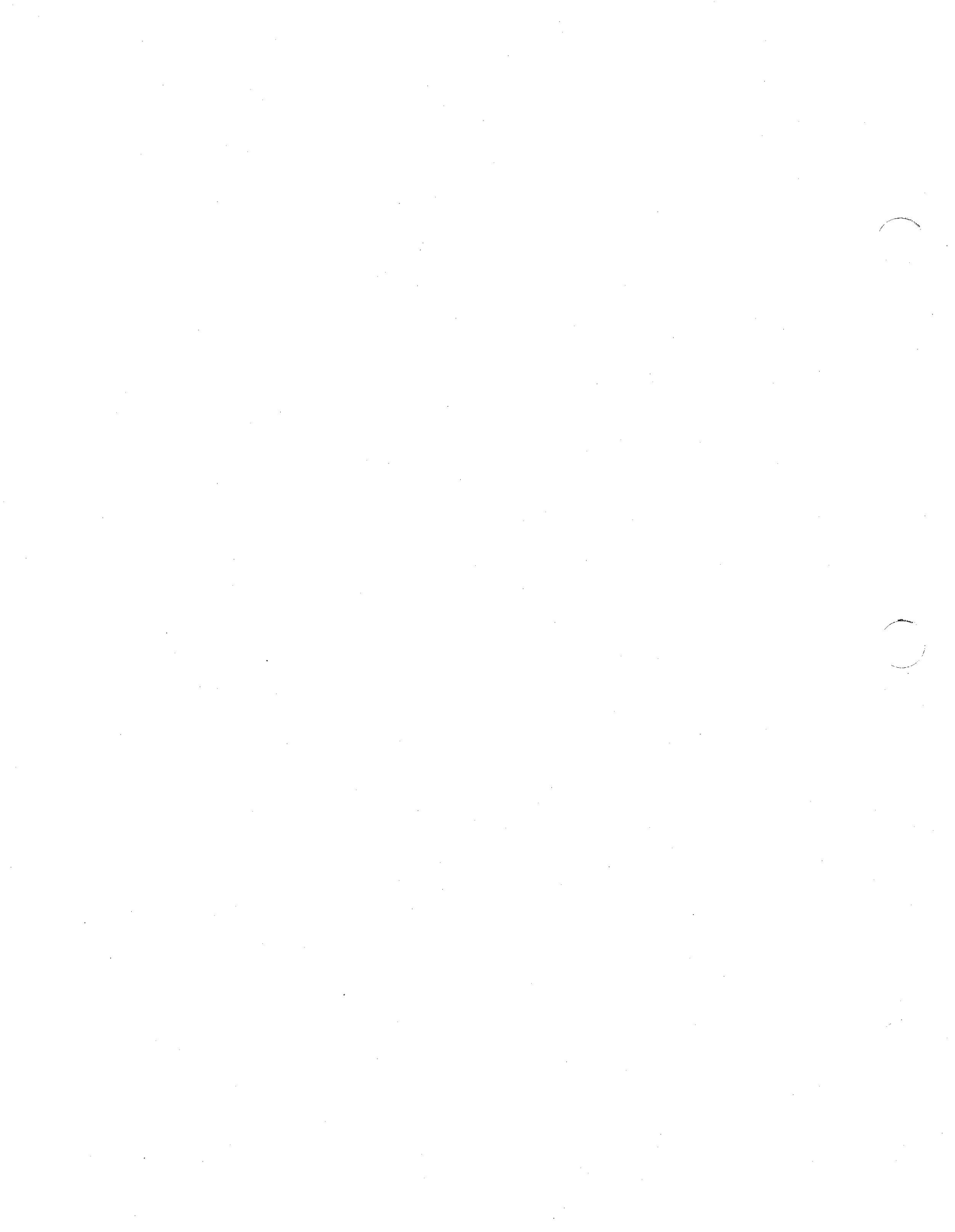
(e) The aircraft is clean.

ACCEPTANCE INSPECTIONS

26 On receipt of an Aircraft the CTSO of the Consignee Unit will determine if an Acceptance Inspection is required and establish the extent of the inspection as deemed necessary. Commands may institute inspection requirements for the complete aircraft, specific systems or items.

TRANSFER WITHIN A COMMAND

27 The inspection procedure is to be as directed by the Command concerned.



TRANSFER TO A REPAIR DEPOT
OR CONTRACTOR

* 28 The consignor unit is responsible that

the aircraft is prepared for ferrying in accordance with sub-paragraphs (a), (b) or (c) as applicable and in all instances, the aircraft is to be serviceable, clean and complete to scale.

(a) When the aircraft is being transferred for overhaul (such as for CAIR) the servicing, replacement and/or repair of components is to be limited to such work as is required to ensure serviceability of the aircraft for the ferry flight. The next Periodic Inspection due is to be carried out if the time remaining to the next inspection is less than the calculated ferry time plus a reasonable margin for normal diversions. Action regarding modification kits is to be taken as per para. 25(c).

(b) When the aircraft is being transferred for reasons other than a complete overhaul or CAIR (i. e, fly-in repairs beyond unit capacity, replacement of components, embodiment of modification, etc.) the next Periodic Inspection due is to be carried out when the time remaining to the next inspection is less than 25% of the basic periodicity PLUS calculated ferry time. (Calculated ferry time must provide a reasonable margin for normal diversions). This also applies when transfer order action is not taken.

(c) When the aircraft is being transferred for storage, the next periodic inspection due is to be carried out only if the time remaining is less than 10% of the basic periodicity or if the calculated ferry time would exceed the tolerance authorized in para. 16 of this order.

NOTE

Aircraft are despatched to a Repair Depot under the provisions of para. 28(b), in order that specific work may be accomplished. Under these conditions, it is NOT intended that the Repair Depot or Contractor will be required to carry out any further work which can be considered as normal maintenance. The responsibility for the condition of the aircraft rests with the CTSO of consignor unit who is to ensure that the aircraft is FULLY serviceable excepting repair or replacement of components which is to be carried out. Only under unusual circumstances this requirement be relaxed, and then only on authority of AMCHQ.

TRANSFER FROM A REPAIR DEPOT OR CONTRACTOR TO A UNIT

29 Before the aircraft is released for ferrying, the RD or contractor is responsible that:

(a) The next Periodic Inspection due has been carried out:-

(1) When insufficient flying time remains to complete the ferry flight to the destination. Calculated ferry time must provide a reasonable margin for aircraft diversions.

(2) After the aircraft has undergone Cat. "B" crash repairs.

(b) Upon completion of the work specified, and providing that no Periodic Inspection is necessary, as per para.(a) above, only such additional work has been undertaken as is considered essential to airworthiness.

(c) Upon removal of aircraft from Serviceable Reserve, the instructions contained in EO 05-1-9 are to be followed.

TRANSFER FROM A UNIT TO CEPE FOR EXPERIMENTAL WORK

30 An aircraft selected from an operating unit for use by CEPE will be allotted and transferred from the operating unit to a Repair Depot or Civilian Contractor. The consignor unit is responsible for ensuring that before being ferried, the aircraft is serviceable, clean and complete to scale. The servicing, replacement and/or repair of component is to be limited to such work as is required to ensure serviceability of the aircraft for the intended ferry flight. The next Periodic Inspection due is to be carried out only if the time remaining to the next inspection is less than the calculated ferry time plus a reasonable margin for normal diversions. Action regarding modification kits is to be taken as per para. 25(c).

ASSIGNMENT TO THE UNITED NATIONS

30A Aircraft selected for duty with the United Nations shall be completely serviceable; with particular emphasis placed on the following points:

(a) Lifed items shall have at least 50% life left;

(b) Instruments shall be recalibrated;

(c) Aircraft log sets shall be complete and legible;

- (d) Repair of skin damage and painting for UN role shall be completed;
- (e) All modifications shall normally be completed;
- (f) Items on calendar maintenance shall be checked and lified items replaced as necessary;
- (g) Other items of particular importance to the intended role and the intended area of operation shall be installed.

30B The successful fulfillment of United Nations assigned roles is of utmost importance to the nation and to the service, and assigned aircraft and equipment is to receive very close scrutiny. Due to short notice it may not be possible at times to carry out all the details

listed above, in which case priorities shall be assigned after consultations between AFHQ, AMC and ATC. The modifications to receive top priority shall be those concerning flight safety and airworthiness.

INSPECTION OF AIRCRAFT ON DETACHMENT

31 During detachment of an aircraft from the parent unit, the Captain of the aircraft is responsible that:

- (a) The aircraft is inspected and serviced according to existing maintenance instructions.
- (b) For adequate maintenance, the following publications and maintenance forms are carried in the aircraft.

- (1) The applicable -2, -4, -7 and -7A EOs.
- (2) The Aircraft Travelling Log (see EO 00-15-1, Part 2).

POST FLIGHT INSPECTION BY PILOT IN ISOLATED AREAS

32 When normal facilities are not available and when it would not be practical to have an authorized technician brought to the aircraft, a qualified pilot may be authorized to carry out post flight inspections, providing:

- (a) He is current on the particular aircraft.
- (b) The post flight inspection is carried out in accordance with relevant command instructions.
- (c) Any unserviceabilities are not rectified by other than a qualified technician.

BEFORE FLIGHT INSPECTIONS BY PILOT IN ISOLATED AREAS

33 When normal facilities are not available and when it is not practical to have an authorized technician brought to the aircraft, a qualified pilot may be authorized to carry out Before Flight Inspections on the T33, Expeditor and CF100 aircraft providing:

- (a) He is current on the particular aircraft.
- (b) The Before Flight Inspection is carried out in accordance with relevant command instruction.
- (c) Any unserviceabilities are not rectified by other than a qualified technician.

MAINTENANCE-TRANSIENT AIRCRAFT

34 Units are to take all steps possible not to despatch an aircraft when a landing at another base will cross a primary inspection period. Where a primary or a post flight inspection of a transient aircraft is necessary, the following procedures apply:

- (a) The Unit Engineering Officer at the visited unit is to select Group 3 or 4 technicians to carry out the applicable inspection. Previous experience on that aircraft is desirable but is not necessarily mandatory.

(b) The despatching unit is to attach to the travelling form L14, a copy of the primary and post flight inspection schedules for that aircraft, plus any specific handling and servicing instructions; and

(c) When the flight of a highly complex aircraft such as the Argus is liable to result in the need for a primary inspection at a transient base, the despatching unit should send qualified technicians with the aircraft to carry out the inspection

(d) In addition to the travelling L14 a transient aircraft servicing requisition Form L92 is to be completed on all RCAF transient aircraft. All corrected snags are to be entered on reverse side of form and signed for by personnel responsible for rectification. The completed L92 will be retained for three months then destroyed.

PRIMARY INSPECTIONS QUALIFICATION OF TECHNICIANS

35 Normally only technicians holding Group 4, 3 or 2 in the applicable trade are permitted to sign Section 3 of Form L14-1 in certification of the satisfactory completion of a Primary Inspection. Under certain circumstances, however, Group 1 technicians, when considered qualified by the Unit Specialist Officer through "on the job" training, (Qualification by Method 4, CAP 471, Vol. 3) may be permitted to carry out and sign for Primary Inspections in their trade. Technicians of Communications (Air) (Ground) and Radar (Air) (Ground) trades may be permitted to carry out and sign for Primary Inspections in the Airborne Telecommunications equipment provided that they are considered qualified by the Unit Specialist Officer. (Qualification by Method 4, CAP 471, Vol. 3). The signature of the "NCO i/c" in this section is to be that of the NCO in general charge. The L14 signing authority for Auxiliary Air Force Tradesman is detailed in EO 00-15-1, Part 5.

NOTE

Air/Obs(AI) and Air/Obs(Rad) may be permitted to carry out and sign for Primary Inspections in the Airborne Telecommunications Equipment provided that they are considered qualified by the Unit Specialist Officer. The authorization

will be for a six month period, and their qualifications DRO'd and entered in the Log Book.

36 When an aircraft is required to operate from an isolated base with only one TECHNICAL CREWMEMBER, that TECHNICAL CREWMEMBER may be authorized to sign Section 3 of Form L14-1 in certification of the satisfactory completion of the Primary Inspection in all trades.

NOTE

For the purpose of this order, isolated base means any location where an aircraft may be required to land, or to depart from, where RCAF maintenance facilities including tradesmen qualified on the type of aircraft involved are not available.

For the purpose of this order, TECHNICAL CREWMEMBER means a crewman, flight technician, or flight engineer. Flight technicians and crewmen shall be certified by the Unit Specialist Officer as being qualified and able to meet the requirements of his applicable trade or trade supplement.

PERIODIC INSPECTIONS QUALIFICATION OF TECHNICIANS

37 Only technicians holding Group 4, 3 or 2 (in that order of preference) of the applicable trade, are permitted to carry out Periodic Inspections and certify the Aircraft Maintenance Schedules. Group 1 technicians may assist in Periodic Inspections under the immediate supervision of the qualified technicians responsible.

NOTE

In the case of Airborne Telecommunications and Radar Equipment Group 4, 3 and 2 technicians of the Comm (Air) and Radar (Air) trades are permitted to carry out Periodic Inspections and certify the aircraft maintenance schedules of the opposite trade providing the tradesmen are considered qualified by the Unit Specialist Officer, (Qualifications by Method 2, CAP 471, Vol. 3).

38 The satisfactory completion of each Periodic Inspection is to be recorded as one entry in Form L14-1B. The column "Rectified By" is to be signed by the NCO or airman in charge of the crew. The column "Inspected and Passed By" is to be signed by the NCO in charge of maintenance after he has signed the Certificate sheet in the Maintenance Schedule. In addition, signatures in the "Rectified By" and "Inspected and Passed By" columns of L14-1B will be certification that the aircraft has been inspected and is clear of foreign objects. The column "Certified Serviceable" must be signed by an AE Officer or an Aircraft Maintenance Superintendent. The CTSO, or his equivalent, may delegate this responsibility to technical officers of branches other than Tech/AE and to senior NCOs of any aircraft trade, where circumstances so dictate, and where he is satisfied that they are qualified to assume this responsibility.

QUALIFICATION OF TECHNICIANS WHO LACK EXPERIENCE ON AN AIRCRAFT TYPE

39 Qualified technicians (Group 4, 3 and 2) who lack experience on the type of aircraft they are to work with, or technicians with provisional groupings, shall normally be subject to a period of practical training to familiarize them with the aircraft. The familiarization period will qualify the technicians through Method 2, CAP 471, Vol. 3, to carry out and sign for before flight, post flight, Primary and Periodic Inspections. The six months minimum employment requirement of Method 2, CAP 471, Vol. 3, may be reduced, if in the judgment of the CTSO a shorter period will suffice. Qualified technicians who have previously been qualified on a particular type of aircraft, but have not been employed on that aircraft for the past year, shall be requalified in accordance with Method 4, CAP 471, Vol. 3.

GENERAL

40 Where a disagreement takes place between a junior and senior technician concerning the serviceability of any item, or of the aircraft as a whole, and where the senior technician overrules the decision of the junior, the senior is to indicate his decision by his own signature.

RECONDITIONING, OVERHAUL OR SPECIAL REPAIR

41 In spite of normal maintenance and progressive replacement, certain components will deteriorate until rectification is beyond the capacity of RCAF maintenance organizations. The rate at which overall deterioration of an aircraft will occur depends upon:

- (a) The rate of build-up of flying time.
- (b) The role of the aircraft and conditions under which it is used.
- (c) The standard of maintenance.

42 As the rate of deterioration may vary quite widely, it is impossible to lay down definite times, either calendar or flying hours, at which aircraft should be overhauled or reconditioned. The responsibility for airworthiness of an aircraft rests with the user formation. Therefore the unit concerned is to submit UCR Form STATS 318 recommending an aircraft for overhaul, reconditioning, or special repair when it is beyond unit capacity to maintain the aircraft in an airworthy condition.

CROSS TRADE EMPLOYMENT QUALIFICATION OF TRADESMEN

43 Although it is not desirable that cross trade employment should be instituted gener-

ally, it may be authorized for relatively simple tasks. Where the action will reduce the number of personnel or man-hours required to complete a technical operation, tradesmen of Group 3 or above in trades associated with aircraft maintenance may be authorized to perform and be responsible for tasks that are currently the responsibility of other trades. Each requirement shall be analysed to determine the necessity for the cross employment, the tradesmen who should have prime responsibility, and any possible effect on flight safety that might result. Only when a clear cut requirement with no decrease in flight safety is indicated will this cross trade employment be authorized. (Authorization will be through Method 4 for "on the Job" qualifications as outlined in CAP 471, Vol. 3). For example, limited cross training to accomplish BFIs is permissible under this order, but the order shall not be construed as authorizing cross trade training for the purpose of primary inspections at established units.

NOTE

Group 4, 3 and 2 technicians of the Communications (Air) and Radar (Air) trades are permitted to be cross trained in the opposite trade for the purpose of carrying out Primary Inspections at established units where operational commitments or establishment so dictate. (Qualification by Method 4, CAP 471, Vol. 3).

APPENDIX "A"

Aircraft	Engine	Overhaul Time		Inspection Cycle	
		Engine	Prop	Primary	Periodic/Cycle
Argus	Wright R3350-EA1*	1600	2000	7 day	200/1600
Albatross	Wright R1820-82	1500	1600	24 hr	150/1500
Bristol 170	Hercules 734 Power Plant Skeleton	1600 3200	1600	24 hr	100/800
Canuck 3D	Orenda 8	300/400**	NA	7 day	100/400
Canuck 5, 5C and 5D	Orenda 11 and 17	500	NA	7 day	100/400
Caribou	P&W R2000-7M2	1200	2400	24 hr	150/1200
Cessna L19	Continental 0-470-11	1200	NA	7 day	100/400
Cessna L19L	Continental 0-470-L	1200	1000	7 day	100/400
CF101	P&W J57	1500	NA	7 day	150/600
CF104	J79 OEL-7****	1000/500	NA	7 day	100/600
CF104D	J79 OEL-7****	1000/500	NA	7 day	100/600
Chipmunk	Gypsy Major C1G, 7G 10 Mk. 1-3	1000	NA	7 day	100/1000
C119G	Wright R3350-89A*	1000	2000	24 hr	125/1000
Cosmopolitan	Napier Eland 504A	1200	1200	24 hr	200/1600
Dakota	P&W R1830-90C, -90D, -92	1200	1800	7 day	200/2400
Expeditor	P&W R985-AN14B	1400	1800	7 day	150/1800
Harvard	P&W R1340-AN1 S3H1	1400	1200	7 day	150/600
Hiller CH112	Lycoming V0540-BID	800	NA	24 hr	100/600
Hercules	Allison T-56-A7 Power Section	2100	1800	72 hr	300/2400
North Star	RR Merlin 622 Power Plant Skeleton 622	1400 4200	2400	72 hr	200/1600

Aircraft	Engine	Overhaul Time		Inspection Cycle	
		Engine	Prop	Primary	Periodic/Cycle
North Star C5	P&W R2800 CA 15	1200	2400	48 hr	150/600
Neptune	Wright R3350-32W* Westinghouse J34-WE-36	1250 300*****	1500 NA	7 day	200/1600
Otter	P&W R1340-53HIG, -SIHIG	1000	1500	7 day	100/800
Vertol CH113 and CH113A	GE T58-GE-8B	800	NA	24 hr	100/800
Vertol H21A	Wright R1820-103	600	NA	24 hr	100/600
Vertol H21B	Wright R1820-103	600	NA	24 hr	100/600
Vertol H44A	Wright R1820-103	600	NA	24 hr	100/600
Sikorsky H5	P&W R985-AN5	720	NA	24 hr	60/480
Sikorsky H19	P&W R1340-57, -SIH2	600	NA	24 hr	60/480
Sikorsky H34A	Wright R1820-84	600	NA	24 hr	100/600
Sabre 5	Orenda 10	300	NA	7 day	100/600
T33, Mk. 3	RR Nene 10	1200	NA	7 day	150/600
Tutor	J85-CAN-40	400	NA	24 hr	100/800
Yukon	Tyne 515/10	2400	2250	48 hr	250/2000

* Water alcohol injection.

** Engines not modified to latest turbine rotor configuration requirements are to remain at 300 hour overhaul time. (EO 10B-10-6B/462).

*** Block change at 400 hours.

**** Engines supplied with compressor rotor Part 107R450G5 have a 500 hour life.

**** Engines supplied with compressor rotor Part 107R491G8 or 107R491G7 have a 1000 hour life.

***** The Periodic Inspection of this engine will be carried out simultaneously with the reciprocating engines.