Advisory Circular

AC91-10

Aircraft Maintenance Programmes

Initial Issue

01 July 2002

GENERAL

Civil Aviation Authority Advisory Circulars (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate Advisory Circular.

This Advisory Circular also includes Explanatory Material (EM) where it has been shown that further explanation is required. Explanatory Material must not be regarded as an acceptable means of compliance.

PURPOSE

This Advisory Circular provides methods, acceptable to the Director, for showing compliance with the maintenance programme requirements of Part 91 and explanatory material to assist in showing compliance.

RELATED CAR

This AC relates specifically to Part 91, Subpart G – Operator Maintenance Requirements and Part 119 – Air Operator Certification.

CHANGE NOTICE

There was no previous issue of this AC, consequently no change is in effect.

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Note:

*All the information contained in this AC is explanatory material therefore all items may be regarded as tagged **EM**.*

General

The operating rules contained in Parts 91, 121, 125 and 135 specify that the operator is responsible for the airworthiness of the aircraft and associated equipment. The responsibility of an operator for an aircraft's airworthiness includes ensuring that the aircraft is maintained in accordance with an appropriate maintenance programme.

Under Part 91, private operators may choose one of three options:

- a maintenance programme established and approved under Part 119; or
- a manufacturer's recommended maintenance programme; or
- a maintenance programme established and approved under Part 91.

A maintenance programme approved under a Part 119 air operator certificate must include the manufacturer's recommended programme, the minimum maintenance requirements of Part 91 and provide for the maintenance of all equipment required by applicable regulatory requirements. Such a programme is generally more comprehensive than that required under Part 91 and may be utilised for private operations if the operator considers it appropriate to do so.

A maintenance programme developed for an aircraft to be operated privately under Part 91 may utilise the manufacturer's recommended programme ***or*** a programme of maintenance established specifically for that aircraft ***and*** in both cases, the programme must include the minimum maintenance requirements of Part 91.

Regardless of the option chosen, the operator must ensure the minimum rule requirements are included together with all further maintenance requirements necessary for a particular operation.

This advisory circular provides background information on the considerations to be taken into account when devising a maintenance programme and gives specific guidance on the requirements to be met for approval of a programme under Part 91.

What is a maintenance programme

The core of a maintenance programme is a compilation of the individual maintenance and inspection tasks, referred to as schedules, used by an operator to maintain the airworthiness of an aircraft.

The schedules contained in a programme will include those of aircraft manufacturer, those required by Part 91 and 121, 125 or 135, and those issued by the manufacturer's of installed equipment.

The programme will also include procedures and detailed instructions (or reference thereto) for the accomplishment of the maintenance and inspection schedules, references to technical manuals for maintenance standards and methods, and specifications for recording and certification of schedules.

A maintenance programme provides a basis for the control by an operator of—

- the operator's responsibility for airworthiness
- the performance of maintenance
- the continuing suitability of the programme

A maintenance programme details what, when, who, and how maintenance is performed

Objectives of a programme

The objectives of a maintenance programme are to—

- maintain the inherent safety and reliability levels of the equipment
- restore safety and reliability to their inherent levels when deterioration has occurred
- obtain the information necessary for design improvement of those items whose inherent reliability proves inadequate
- accomplish the above goals at a minimum total cost, including maintenance costs and the costs of resulting failures

These objectives recognise that maintenance programmes, as such, cannot correct deficiencies in the inherent safety and reliability levels of the equipment. The maintenance programme can only prevent deterioration of such inherent levels. If the inherent levels are found to be unsatisfactory, modification will be necessary to obtain improvement.

For an air operator there is one other consideration of the maintenance programme – the consideration of providing an aircraft that the customer is satisfied with. Considerations of customer satisfaction may drive maintenance decisions but operators must not consider these factors without an equivalent consideration of safety.

Development of a maintenance and inspection schedule

Content

The development of a maintenance and inspection schedule requires a large number of decisions. These decisions should include—

- Which individual tasks are necessary
- How frequently these tasks should be scheduled
- What facilities are required to enable these tasks to be accomplished
- Where these facilities should be located
- Who should accomplish these tasks
- Which tasks should be accomplished concurrently, in the interests of economy

When deciding on the content of the schedule the following questions should be asked—

- For each failure mode of an item—
  - Is a reduction in the item's performance detectable by routine flight crew monitoring?
  - Is a reduction in the item's performance detectable by in-situ maintenance or unit test?
  - Does the failure mode have a direct adverse effect upon operating safety?
- For each function of an item—
  - Is the function of the item hidden from the viewpoint of the flight crew?
- For each item as a whole—
  - Is there an adverse relationship between age and reliability?

Note:

Performance in this context is a measure of an item's resistance to fail. For example, if an item is damage tolerant and that item partially fails, then the item's failure resistance is reduced.

The schedule itself should consist of two groups of tasks—

- A group of scheduled tasks to be accomplished at specified intervals to prevent deterioration of the inherent safety and reliability levels of the equipment, including—
    - Lubrication and Servicing
    - Operational or Visual Check
    - Inspection or Functional Check
    - Restoration
    - Discard
- A group of non-scheduled tasks that restore the equipment to an acceptable condition and result from—
    - The scheduled tasks accomplished at specified intervals
    - Reports of malfunctions
    - Data analysis by the operator, the manufacturer, or the CAA

The schedule should specifically address those significant items or systems identified by the manufacturer or from service experience that have a direct effect on safety. The programme should include—

- A description of each significant item and its functions
- A list of the item's failure modes and effects
- The expected failure rate of the item
- Any functions hidden during normal operation
- Any system redundancy
- The potential indications of reduced failure resistance
- The identification of whether the item needs to be on MEL, if applicable

Categories

A schedule is normally based around four general categories—

- Aircraft checks and inspections
- Powerplants and their components
- Systems and their components
- Structural inspection

All four can be controlled by a composite programme, or each may be handled individually. Each category would provide information relating to maintenance intervals and inspection schedules.

Sources of information

To monitor and control a schedule information should be assembled on a regular basis. Sources of information, the content of which may subsequently require the amendment of the programme, include—

- pilot reports
- technical log entries
- maintenance work sheets
- workshop reports
- functional check reports
- special inspection reports
- stores reports
- safety reports
- service bulletins, letters, and notices
- airworthiness directives

Types of inspections and actions

(a) **Combination** - a task that includes two or more types of task that must be accomplished by the same person and normally involve a sequence of operations.

(b) **Circumstantial** - a maintenance task that is carried out on an as required basis and is not a scheduled maintenance task.

(c) **Crew inspection** - a visual inspection by flight crew prior to or following a flight to detect obvious external discrepancies.

(d) **Detailed visual inspection** - an intensive visual examination of a specified detail, assembly, installation, or system to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting and inspection aids such as mirrors or magnifying lenses. Surface cleaning and elaborate access procedures may be required.

(e) **Discard** - the removal from service of an item. The discarding of an item may be at a specified life limit, circumstantially on failure or as a matter of course for consumable items such as seals, gaskets, and split pins.

Discarded, or scrapped, finite-life items should be mutilated in such a way as to prevent inadvertent use. Advisory circular AC20-1 provides guidance on scrapping finite-life items.

(f) **Functional check -** a quantitative check to determine if one or more functions of an item perform within specified limits.

(g) **General visual inspection** - a visual examination of an interior or exterior area, installation, or assembly to detect obvious damage, failure, or irregularity. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, or flashlight and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked.

(h) **Lubrication** - any act of lubricating or servicing for the purpose of maintaining inherent design capabilities. Lubrication also constitutes a scheduled discard task in as much as the old lubricant is replaced by the new lubricant.

(i) **Operational check** - an operational check is a task to determine that an item is fulfilling its intended purpose. The task does not require quantitative tolerances and is considered to be a failure finding

task. These checks are normally carried out to ensure the availability of hidden functions.

(j) **Replenishment** - replenishment includes the actions of oiling, fuelling, charging, and inflating. This is a task not normally considered maintenance, although a maintenance programme may refer to replenishment when detailing other tasks.

(k) **Restoration** - that work necessary to return the item to a specific standard of functional performance. Restoration may vary from cleaning or replacement of single parts up to a complete overhaul.

(l) **Special detailed inspection** - an intensive examination of a specific detail, installation, or assembly to detect damage, failure, or irregularity. The examination is likely to make extensive use of specialised inspection techniques and equipment such as NDT and video probes. Intricate cleaning and substantial access or disassembly procedures may be required.

(m) **Visual inspection** - a visual check is an observation to determine that an item is fulfilling its intended purpose. Does not require quantitative tolerances. This is a failure-finding task.

(n) **Zonal visual inspection** - a general visual inspection of each aircraft zone, an area defined by access and area, to check all systems and assemblies for security, damage, leaks, and wear and tear. These inspections are not directed at a particular failure but a survey of general conditions and visually evident deterioration in a discrete space.

Maintenance patterns

Schedules are normally established on one of three patterns:

Periodic - In this type of programme each type of inspection is more detailed than the last and includes all those actions required to be completed more frequently. The inspections are arranged at regular intervals as shown in Figure 1 where the inspections are numbers 1, 2, 3, and 4.

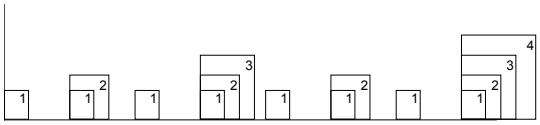

Figure 1. Periodic maintenance programme

Flexible - This type of maintenance programme provides a certain flexibility in application. The scheduled inspections should be divided into tasks of roughly equal size that can be undertaken on an opportunity basis. Each task has a latitude built in to allow the flexibility.

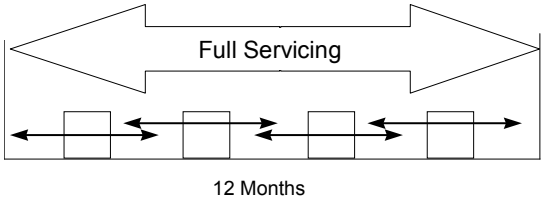

Figure 2. Flexible maintenance programme

Progressive - Similar to the flexible programme, the progressive programme breaks down a complete inspection into tasks of roughly equal size. The progressive programme however defines specific inspection intervals that equalises the tasks over a given twelve-month period.

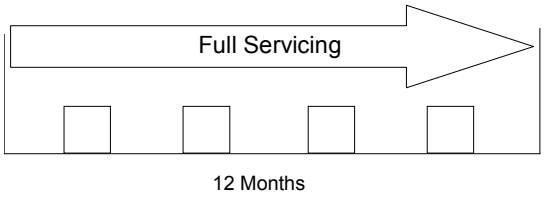

Figure 3. Progressive maintenance programme

Equalised - An equalised, or phased, maintenance programme is similar to the periodic programme but does not divide the inspections into such small units. Larger, less frequent inspections are defined of equal size to ensure that turn-around time is constant and that all required replacements occur at their required frequencies.

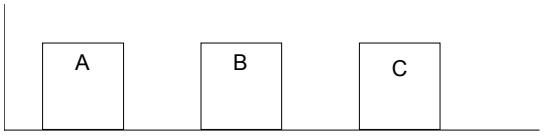

Figure 4. Equalised maintenance programme

Latitudes

The concept of latitudes is to provide the maintenance planner the ability to move scheduled servicings to fit in with operational needs. Part 91 provides a latitude of 10%.

The concept of maintenance schedules are that inspections occur a regular intervals, therefore the application of latitudes should be restricted because the variation of the planned intervals negates the effect of the developed schedule. For this reason the application of a latitude in one inspection interval must be adjusted for in the next interval. For example, if a 100 hour servicing is due at 1000 hours but is extended by 10 hours to 1010 hours, the next scheduled inspection remains due at 1100 hours.

Maintenance programmes work on nominal inspection intervals and these nominal intervals should be maintained.

Special requirements

Certain types of operation require specific maintenance programmes to be developed, such as ETOPS, RNP, RVMS, and MNPS. These programmes are required to include analysis systems, reliability reporting, modification incorporation, and other checks to ensure their continued applicability and the aircraft's ability to continue operating in that way.

These types of programmes are normally for larger aircraft types and are well supported by manufacturers and regulatory authorities. They are not further discussed in this advisory circular.

Escalation

Escalation is a method of increasing a maintenance interval based upon analysis of equipment performance. Escalation can be included in maintenance programmes to vary specified time limitations for aircraft inspections or component inspections, checks, or replacements. To apply an escalation programme, the maintenance manual must include manufacturer's data and operator analysis procedures.

Using programmed escalation the time limitations may be individually extended under the following conditions—

- The need for escalation results from some unforeseen event that inhibits accomplishing the task at the scheduled period
- Escalations should not exceed 10% without a change to the maintenance programme
- The escalation does not result in exceeding the—
    - intervals specified by an airworthiness directive
    - life limitations
    - limitations specified by MELs
    - mandatory or special structural inspections

Escalation is not carried out routinely and in most cases individuals will not be able to provide the required analysis to determine a suitable escalation period.

Development of maintenance programmes

As described at the beginning of this AC, a maintenance programme should consist of a core of maintenance and inspection schedules, procedures and detailed instructions for the accomplishment of those schedules, references to technical manuals for maintenance standards and methods, and specifications for recording and certification of schedules

The complexity of the maintenance programme will generally be proportional to the complexity of the aircraft being operated and the operating rules that apply e.g. a single piston engine fixed wing aircraft operated privately under Part 91 will require a somewhat less complex maintenance programme than that applicable to a multi engine turbine powered helicopter engaged in air operations under Part 135.

Air operations

In addition to schedules for the performance of maintenance, air operators certificated under Part 119 are required to establish a maintenance programme that contains—

- procedures for the induction of aircraft onto the programme
- instructions and procedures for the conduct of maintenance, including pre-flight and after-flight inspections completed by the pilot
- procedures for trend analysis if the programme utilises condition monitored maintenance
- procedures to ensure all inspections in the programme are performed
- procedures for recording, rectification or deferral of deficiencies found during maintenance
- instructions for exceeding an inspection interval and the conditions that are applied
- instructions for changing the inspection interval due to service experience
- procedures for retention of a description of work performed including the name of the person releasing the aircraft to service
- procedures to ensure the programme continues to meet at least the minimum requirements of Part 91 and the manufacturer's recommendations

In order to define the maintenance programme, a ***Maintenance Programme*** document should be produced which lists all required maintenance and inspection schedules and either specifies in detail, or provides a summary cross reference to, the required procedures and instructions listed above.

For the operators of large aircraft, the Maintenance Programme should form a separate manual and contain detailed procedures and inspections.

For most air operators, procedures and instructions are normally contained in the operator's maintenance control manual or, in the case of smaller operators, that section of a single volume exposition. For these operators the Maintenance Programme document will normally be an Appendix to the maintenance control manual but may be lodged as a controlled document within the organisation's overall system for managing controlled documents.

An air operator's Maintenance Programme document should—

- identify by type and registration the aircraft which are subject to the programme
- list all manufacturer's inspection schedules and instructions for continued airworthiness, including pre-flight and post flight inspection
- list inspections required after abnormal occurrences such as heavy landings or severe turbulence
- identify the Airworthiness Directives which must be complied with
- identify airworthiness limitations that must be complied with, i.e. finite lives and TBOs
- include the inspection requirements of Part 91
- instructions for applying latitude to inspections
- instruction for trend analysis if the programme utilises condition monitored maintenance
- instructions for recording, rectification and deferral of deficiencies
- instructions for release to service
- details of the inspections required to induct an aircraft onto the programme
- instructions for changing an inspection interval due to service experience
- details of role equipment which is subject to the programme
- have a unique issue date and revision status

An example of the more common form of Maintenance Programme is shown in Appendix A.

Private operations

Under Part 91, operators of private aircraft have the option of using a maintenance programme—

- currently approved for an air operator under Part 119; or
- currently recommended by the manufacturer; or
- established by that operator and approved under 91.623; or
- in the case of special category aircraft, established by that operator and approved at the time of issue of the airworthiness certificate under Part 21.

Use of an air operator's programme

The use of a currently approved air operator's programme is based on the fact that it will contain the most comprehensive requirements applicable to the aircraft concerned and by definition will contain all the necessary maintenance programme requirements applicable to the same aircraft operated privately under Part 91.

In adopting such a programme, the operator should be aware that some provisions in the programme may not be applicable to private operations and may be overly stringent.

If the 119 approved programme relies on procedures and instructions contained in a maintenance control manual (and it invariably will), that manual must be form part of the programme adopted for private use. This can necessitate the identification of organisational material in that maintenance control manual which is not applicable to the private operator.

Use of a manufacturer's programme

This is the most common form of programme applied to private aircraft, however operators must ensure that the manufacturer's programme contains the minimum inspection requirements of Part 91. If Part 91 requirements are not covered, the operator must establish a programme (which may consist of the manufacturer's recommended programme supplemented with the requirements of Part 91) and get it approved under 91.623.

Approval under 91.623

An operator seeking to establish his own programme must meet the requirements of 91.623. The document must contain schedules, procedures and instructions not dissimilar to those required for an air operator but they are not required to be to the same level of complexity.

Unlike the air operator, the private operator is not required to have a maintenance control manual, therefore the maintenance programme document approved under 91.623 must include what, when, who, where, and how in sufficient detail to assure the CAA that airworthiness is being controlled.

Programmes for special category aircraft

The maintenance programme document required for an aircraft issued with a special category airworthiness certificate under Part 21 must contain an inspection schedule meeting the minimum requirements of Part 43 Appendix C and the applicable requirements of 91.609. 91.611, 91.612, 91.613, 91.615 and 91.616.

Application for approval of maintenance programme under Part 91

General

The applicant should obtain form CAA 91/02 from the CAA Airworthiness Authority and complete all required information.

The applicant should provide their details as required by the form, and advise the maintenance organisation that will conduct maintenance in accordance with the programme, the maintenance status of the aircraft, engine(s), and propeller(s) and what inspections are proposed to induct their aircraft onto the programme.

These requirements ensure that the maintenance programme can be introduced and continued by the operator.

Maintenance status

The maintenance status of the aircraft should be detailed to enable the induction programme to be adequately assessed.

The completion of a Maintenance Review will generally be acceptable in indicating the maintenance status of the aircraft. This review should be fully documented and a copy of any discrepancies and associated rectification provided with the application.

Induction

The process of inducting an aircraft onto a maintenance programme must ensure that no maintenance is overlooked during the transition period. The method of induction should be fully stated on the application, including any subsequent checks that may be necessary to ensure the induction was successful.

Compliance with programmes

Continuity of programmes

Maintenance programmes are integrated carefully and aspects of programmes can not normally be mixed-and-matched. When utilising a maintenance programme, and particularly a manufacturer's programme, all aspects of the programme must be applied.

If an operator wishes to change their current maintenance programme the provision of 91.625 must be applied to ensure the satisfactory continuation of the maintenance.

When introducing an aircraft previously operated privately to an air operation, the maintenance requirements of the air operator programme must be carefully assessed to ensure all required maintenance actions are called up or rescheduled. The only practical way of achieving this assessment is by the completion of a maintenance review. This ensures that the aircraft is conforming with its type certificate and the airworthiness requirements of the air operating rules.

Fitted equipment

An aircraft can be fitted with many different configurations of instruments and equipment depending on the type of operation to be conducted. Fitted equipment is that equipment permanently installed to enable the aircraft to conduct a particular operation.

A maintenance programme is required to address the aircraft as a whole and should, therefore, take into account the requirements of additional or optional fitted equipment. If that equipment is changed then the maintenance programme should be examined for its continued applicability, and amended if necessary.

Compliance with manufacturer's recommendations

If the aircraft manufacturer's programme is the operator's selected option under 91.621, the life recommendations from all sections of the manufacturer's manual must be applied. If any operator does not wish to apply all the limitations, that operator must apply for the approval of a separate programme.

Programme suitability

The operator is required to maintain the airworthiness of an aircraft. To maintain airworthiness, the maintenance programme must be continually assessed to ensure it continues to reflect latest airworthiness requirements and remains appropriate for the aircraft operation. The maintenance programme, or by reference the operator's maintenance control manual, should include a procedure for assessing manufacturer's recommendations and amendments of Civil Aviation Rules and applying them to the programme.

Typical systems used in assessing the applicability of the programme include—

- data collection
- data analysis
- corrective action
- performance standards
- maintenance interval adjustment and process change
- programme revision

A controlled document revision system should be applied to the Maintenance Programme document.

Appendix A - Example Aircraft Maintenance Programme

Reims F406

Aircraft to which this programme applies	P2-###	
The aircraft shall be maintained in accordance with the following:		
Daily preflight	Aircraft Flight Manual	
Inspection period	Continuous Inspection Programme - plus special inspections	4 phase checks at 100 hr intervals within 12 months
Inspections	In accordance with Continuous Inspection Programme (D 2536-4-13)	
Abnormal occurrence inspection	In accordance with Ch 5 of the Aircraft Maintenance Manual (D 2536-4-13)	
Radio stations and navigation equipment	In accordance with Rule Part 43 Appendix B	Every 24 months
Altimeter systems	In accordance with Rule Part 43 Appendix D	Every 24 months
Compass swings	In accordance with Advisory Circular AC43.7	Every 24 months
Emergency location transmitter	In accordance with Rule Part 43 Appendix F	Every 12 months
Transponder	In accordance with Rule Part 43 Appendix E	Every 24 months
Emergency equipment:	Fire extinguisher and first aid kit in accordance with Advisory Circular AC43.6	Every 12 months
	Lifejackets and flotation equipment in accordance with manufacturers instructions	Every 12 months
Propeller	In accordance with McCauley Service Bulletin 137 latest revision	3500 hr / 72 months
Engine	In accordance with P & W Service Bulletin12003 latest revision	3600 hr
Maintenance review	In accordance with Procedure 7.19 of the Example Aviation Management & Policy Manual	Every 12 months
Role equipment	Freight nets in accordance with manufacturer's instructions	Every 12 months
The following requirements shall also be complied with:		
Component overhaul and finite life retirement	Airframe components in accordance with Ch 5 of the Aircraft Maintenance Manual (D 2536-4-13).	
Airworthiness Directives	All relevant ADs from the following shall be complied with • Aircraft type ADs issued by the DGAC • FAA ADs for the engines, propellers and components • PNG General Series promulgated in the PNG AD Register.	

Recording of discrepancies	All discrepancies shall be recorded in the Technical Log and assessed and certified as cleared or deferred as defects per the MEL in accordance with Procedure 7.8 of the Example Aviation Management & Policy Manual.
	All records relating to this programme shall be controlled in accordance with Procedure 7.11 of the Example Aviation Management & Policy Manual.
Release to service	All periodic inspections and all maintenance, except the daily pre-flight shall be released to service in accordance with Rule Part 43.
Extensions/Latitudes	± 10 hours (10% of the 100 hour cycle)
	Extension does not apply to finite life limits, intervals specified in Airworthiness Directives (other than repetitive inspections which may be extended up to 10%), or release to service limitations.
	TBOs may be extended only by the CAA via a Request for Variation to a Maintenance Programme and such requests should be supported by a statement of no-technical objection from the manufacturer
	The inspection interval following application of an extension shall be adjusted back to restore the inspection periodicity.
Induction onto the programme	Aircraft inducted onto this programme shall have a 100 hr inspection and a Maintenance Review carried out.
Changes to Inspection Intervals/Programme	Subject to the review process in Procedure 7.3 of the Example Aviation Management & Policy Manual and formal CAA approval.
Recording action	In accordance with Procedure 7.11 of the Vincent Aviation Management & Policy Manual.

Appendix B - Example Aircraft Maintenance Schedule

This schedule includes the schedule's identification, its applicability, and its effective date. Note also that the schedule includes—

- personnel requirements
- recording requirements
- reference to maintenance manuals and figures for clarity
- removal instructions, installation instructions, and standards that the inspection must be carried out to
- requirements to report findings of the inspection
- an amendment to include an alert service bulletin requirement
- documentation requirements of the maintenance

Departure Check – Schedule DC-56789-0-123 – 19 March 1999

To be completed after transit, stayover, or A check

Fuelling

1. Refuel completely and record quantities in log.
2. Fuel measuring sticks locked and secured. Refuelling cap fitted, manual refuel and defuel valves closed and lockwired. Access panels closed.
3. Enter engine oil uplift on performance monitoring log.

Fuel tank water drains

1. All fuel tanks drained of water content at sump drains

NOTE: To be carried out irrespective of fuel uplift

Chip detectors – in accordance with ALERT SB 787-24F5431

1. Open access panels
2. Remove chip detector

    - Refer Maintenance Manual Figure 123, depress probe, rotate anti-clockwise, release bayonet lock, withdraw from housing

    NOTES:
    Upon removal probes must be functionally identified and retained for inspection
    Inform engineer in charge if contamination found
    Wash detector in clean Kerosine in a non-metallic container

3. Install chip detector

    - Refer Maintenance Manual Figure 124, rinse probe and wipe clean
    - Lubricate seal rings
    - If seal ring damaged or swollen, remove and replace
    - Check two o-rings are fitted to each detector and lubricate with Mobil Jet 2

    CAUTION:
    INFLIGHT SHUTDOWNS DUE TO RAPIDLY DECREASING OIL QUANTITIES HAVE BEEN CAUSED BY OIL LEAKING FROM CHIP DETECTORS. THE O-RINGS CAN BE DISTORTED DURING INSERTION.

    - Carefully enter probe into housing, depress fully and rotate clockwise to engage bayonet until probe cannot be further rotated, check probe cannot be turned anti-clockwise

    NOTES:
    Check all areas for foreign objects prior to closing access panels
    Duplicate inspection is required to be performed before release to service certified

Circuit breakers

1. After checking with supervisor, check all circuit breaker panels and reset circuit breakers pulled during maintenance

Cleaning

1. Check that cleaning has been completed.

Documentation

1. Check relevant documentation has been completed.
2. Check necessary in flight documentation is complete.

Snow and ice

1. Carry out cold weather maintenance as required.
2. When de-icing/anti-icing procedures have been carried out enter the anti-icing code in aircraft maintenance records.

Departure preparation

1. All blanks and covers removed.
2. Check all pitot static probes and ports to ensure they are free from obstructions.
3. Landing gear doors closed and pins removed. Clear appropriate entries in maintenance records.
4. Nose wheel steering lock removed.
5. Panels and doors checked closed.
6. Check operations area clear of foreign objects and debris.
7. It is responsibility of departure engineer to ensure that all equipment is clear of aircraft and all aircraft doors are closed.