



CIVIL AVIATION GUIDANCE MATERIAL – 6801

**CONTINUING⁺
AIRWORTHINESS OF
AIRCRAFT**

CAAM PART M

CIVIL AVIATION AUTHORITY OF MALAYSIA

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Introduction

This Civil Aviation Guidance Material 6801 (CAGM – 6801) is issued by the Civil Aviation Authority of Malaysia (CAAM) to provide guidance for the matters pertaining to the continuing airworthiness of aircraft pursuant to CAD 6801 – Continuing Airworthiness of Aircraft (CAAM Part M).

Organisations may use these guidelines to ensure compliance with the respective provisions of the relevant CAD's issued. Notwithstanding the Regulation 204 and Regulation 205 of the Malaysian Civil Aviation Regulations 2016 (MCAIR 2016), when the CAGMs issued by the CAAM are complied with, the related requirements of the CAD's may be deemed as being satisfied and further demonstration of compliance may not be required.



(Datuk Captain Chester Voo Chee Soon)
Chief Executive Officer
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Civil Aviation Guidance Material components and Editorial practices

This Civil Aviation Guidance Material is made up of the following components and are defined as follows:

Standards: Usually preceded by words such as “*shall*” or “*must*”, are any specification for physical characteristics, configuration, performance, personnel or procedure, where uniform application is necessary for the safety or regularity of air navigation and to which Operators must conform. In the event of impossibility of compliance, notification to the CAAM is compulsory.

Recommended Practices: Usually preceded by the words such as “*should*” or “*may*”, are any specification for physical characteristics, configuration, performance, personnel or procedure, where the uniform application is desirable in the interest of safety, regularity or efficiency of air navigation, and to which Operators will endeavour to conform.

Appendices: Material grouped separately for convenience, but forms part of the Standards and Recommended Practices stipulated by the CAAM.

Definitions: Terms used in the Standards and Recommended Practices which are not self-explanatory in that they do not have accepted dictionary meanings. A definition does not have an independent status but is an essential part of each Standard and Recommended Practice in which the term is used, since a change in the meaning of the term would affect the specification.

Tables and Figures: These add to or illustrate a Standard or Recommended Practice, and which are referred to therein, form part of the associated Standard or Recommended Practice and have the same status.

Notes: Included in the text, where appropriate, Notes give factual information or references bearing on the Standards or Recommended Practices in question but not constituting part of the Standards or Recommended Practices;

Attachments: Material supplementary to the Standards and Recommended Practices or included as a guide to their application.

The units of measurement used in this document are in accordance with the International System of Units (SI) as specified in CAD 5. Where CAD 5 permits the use of non-SI alternative units, these are shown in parentheses following the basic units. Where two sets of units are quoted it must not be assumed that the pairs of values are equal and interchangeable. It may, however, be inferred that an equivalent level of safety is achieved when either set of units is used exclusively.

Any reference to a portion of this document, which is identified by a number and/or title, includes all subdivisions of that portion.

Throughout this Civil Aviation Guidance Material, the use of the male gender should be understood to include male and female persons.



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1 Accountability (CAD 6801 2)

1.1 CAD 6801 2.1.5 – Responsibilities

- 1.1.1 The approval to carry out airworthiness reviews is optional. Part-M does not provide for CAMOs to be independently approved to perform continuing airworthiness management tasks on behalf of commercial air transport operator. The approval of such activity is vested in the CAMO approval of that AOC holder.
- 1.1.2 The operator is ultimately responsible and, therefore, accountable for the airworthiness of its aircraft.

1.2 CAD 6801 2.2.1 – MOR – Airworthiness Aspect

- 1.2.1 Accountable persons or organisations should ensure that the type certificate (TC) holder receives adequate reports of occurrences for that aircraft type, to enable it to issue appropriate service instructions and recommendations to all owners or operators.
- 1.2.2 Liaison with the TC holder is recommended to establish whether published or proposed service information will resolve the problem or to obtain a solution to a particular problem.

An approved continuing airworthiness management or maintenance organisation should assign responsibility for co-ordinating action on airworthiness occurrences and for initiating any necessary further investigation and follow-up activity to a suitably qualified person with clearly defined authority and status.

- 1.2.3 In respect of maintenance, reporting a condition which endangers flight safety is normally limited to:
- a) serious cracks, permanent deformation, burning or serious corrosion of structure found during scheduled maintenance of the aircraft or component.
 - b) failure of any emergency system during scheduled testing.

1.3 CAD 6801 2.2.2 – MOR report transmission

- 1.3.1 The reports may be transmitted electronically, to mor.airworthiness@caam.gov.my.
- 1.3.2 Each report should contain at least the following information:
- a) reporter or organisation's name and approval reference if applicable,
 - b) information necessary to identify the subject aircraft and/or component,
 - c) date and time relative to any life or overhaul limitation in terms of flying hours/cycles/landings etc., as appropriate,
 - d) details of the occurrence.



- e) other information to comply with CAD1900 – Safety Reporting.

2 Continuing Airworthiness (CAD 6801 3)

2.1 CAD 6801 3.1.1(a) – Pre-flight inspection

2.1.1 With regard to the pre-flight inspection it is intended to mean all of the actions necessary to ensure that the aircraft is fit to make the intended flight. These should typically include but are not necessarily limited to:

- a) a walk-around type inspection of the aircraft and its emergency equipment for condition including, in particular, any obvious signs of wear, damage or leakage. In addition, the presence of all required equipment including emergency equipment should be established.
- b) an inspection of the aircraft continuing airworthiness record system or the operators journey log as applicable to ensure that the intended flight is not adversely affected by any outstanding deferred defects and that no required maintenance action shown in the maintenance statement is overdue or will become due during the flight.
- c) a control that consumable fluids, gases etc. uplifted prior to flight are of the correct specification, free from contamination, and correctly recorded.
- d) a control that all doors are securely fastened.
- e) a control that controls surface and landing gear locks, pitot/static covers, restraint devices and engine/aperture blanks have been removed.
- f) a control that all the aircraft's external surfaces and engines are free from ice, snow, sand, dust etc. and an assessment to confirm that, as the result of meteorological conditions and de-icing/anti-icing fluids having been previously applied on it, there are no fluid residues that could endanger flight safety. Alternatively to this pre-flight assessment, when the type of aircraft and nature of operations allow for it, the build-up of residues may be controlled through scheduled maintenance inspections/cleanings identified in the approved maintenance programme.

2.1.2 Tasks such as oil and hydraulic fluid uplift and tyre inflation may be considered as part of the pre-flight inspection. The related pre-flight inspection instructions should address the procedures to determine where the necessary uplift or inflation results from an abnormal consumption and possibly requires additional maintenance action by the approved maintenance organisation or certifying staff as appropriate.

2.1.3 An operator should publish guidance to maintenance, flight personnel and any other personnel performing pre-flight inspection tasks, as appropriate, defining responsibilities for these actions and, where tasks are contracted to other organisations, how their accomplishment is subject to the quality system of Chapter 11 of CAD 6802. It should be demonstrated to the CAAM that pre-flight inspection personnel have received appropriate training for the relevant pre-flight inspection

tasks. The training standard for personnel performing the pre-flight inspection should be described in the operator's continuing airworthiness management exposition.

2.2 CAD 6801 3.1.1(b) – Defect rectification system

2.2.1 The operator should have a system to ensure that all defects affecting the safe operation of the aircraft are rectified within the limits prescribed by the approved minimum equipment list (MEL) or configuration deviation list (CDL) as appropriate. Also, that such defect rectification cannot be postponed unless agreed by the operator and in accordance with a procedure approved by the CAAM.

2.2.2 When deferring or carrying forward a defect rectification, the cumulative effect of a number of deferred or carried forward defects on a given aircraft and any restrictions contained in the MEL should be considered. Whenever possible, deferred defect rectification should be made known to the pilot/flight crew prior to their arrival at the aircraft.

2.2.3 A system of assessment should be in operation to support the continuing airworthiness of an aircraft and to provide a continuous analysis of the effectiveness of the approved continuing airworthiness management organisation's defect control system in use.

2.2.4 The system should provide for:

- a) significant incidents and defects: monitor incidents and defects that have occurred in flight and defects found during maintenance and overhaul, highlighting any that appear significant in their own right.
- b) repetitive incidents and defects: monitor on a continuous basis defects occurring in flight and defects found during maintenance and overhaul, highlighting any that are repetitive.
- c) deferred and carried forward defects: Monitor on a continuous basis deferred and carried forward defects. Deferred defects are defined as those defects reported in operational service which are deferred for later rectification. Carried forward defects are defined as those defects arising during maintenance which are carried forward for rectification at a later maintenance input.
- d) unscheduled removals and system performance: analyse unscheduled component removals and the performance of aircraft systems for use as part of the maintenance programme efficiency.

2.3 CAD 6801 3.1.1(c) – System for aircraft maintenance check

2.3.1 An approved continuing airworthiness management organisation should have a system to ensure that all aircraft maintenance checks are performed within the limits prescribed by the approved aircraft maintenance programme and that, whenever a maintenance check cannot be performed within the required time limit, its postponement is allowed in accordance with a procedure agreed by CAAM.

2.4 CAD 6801 3.1.1(d) – System to analyse maintenance programme effectiveness

2.4.1 An approved continuing airworthiness management organisation should have a system to analyse the effectiveness of the maintenance programme, with regard to spares, established defects, malfunctions and damage, and to amend the maintenance programme accordingly

2.5 CAD 6801 3.1.1(e) – Accomplishment of any safety and continuing airworthiness requirements

2.5.1 Any other safety directives with a continuing airworthiness impact include operating rules such as extended diversion time operations (EDTO / long range operations (LROPS), reduced vertical separation minima (RVSM), NAT-HLA, Low Visibility Operations (LVO), RNAV, etc.

2.5.2 Continued airworthiness requirement established by state of design includes TC related requirements such as: certification maintenance requirements (CMR), certification life limited parts, airworthiness limitations, fuel tank system airworthiness limitations including Critical Design Configuration Control Limitations (CDCCL) etc.

2.6 CAD 6801 3.1.1(f) – Maintenance check flight

2.6.1 Maintenance check flights are carried out under the control and responsibility of the aircraft operator. During the flight preparation, the flight and the post-flight activities and for the aircraft hand over, the processes requiring the involvement of the maintenance organisations or their personnel should be agreed in advance with the operator.

2.6.2 Depending on the aircraft defect and the status of the maintenance activity performed before the flight, different scenarios are possible and are described below:

- a) The aircraft maintenance manual (AMM), or any other maintenance data issued by the design approval holder, requires that a maintenance check flight is performed before completion of the maintenance ordered. In this scenario, a maintenance release after incomplete maintenance when in compliance with para 5.9 of CAD 8601 or para 13.2 of CAD 8602 should be issued by the maintenance organisation and the aircraft can be flown for this purpose under a permit to fly. Due to incomplete maintenance, it is advisable to open a new entry on the aircraft journey log to identify the need for a maintenance check flight. This new entry should contain or refer, as necessary, to data relevant to perform the maintenance check flight under Permit to Fly with conditions in accordance with para 2.2(b)2) of CAD 8305 , such as: aircraft limitations due to incomplete maintenance, maintenance data reference and maintenance actions to be performed after the flight. After a successful maintenance check flight, the maintenance records should be completed, the remaining maintenance actions finalised and the aircraft released to service in accordance with the maintenance organisation approved procedures.

Note.– Incomplete maintenance in this paragraph is referring to a part of instruction/s which cannot be withdrawn and restrict the maintenance personnel to clear the rest of instruction and issue the maintenance release.

- b) Based on its own experience and for safety considerations and/or quality assurance, an operator may wish to perform a maintenance check flight after the aircraft has undergone certain maintenance while maintenance data does not call for such flight. Therefore, after the maintenance has been properly carried out, a maintenance release is issued and the aircraft airworthiness certificate remains valid for this flight.
- c) An aircraft system has been found to fail, the dispatch of the aircraft is not possible in accordance with maintenance data and the satisfactory diagnosis of the cause of the fault can only be performed in flight. The process for this troubleshooting is not described in the maintenance data and therefore scenario a) above does not apply. Since the aircraft cannot fly as the Certificate of Airworthiness ceased to be in force under Regulation 27 of CAR 2016, a permit to fly issued in accordance with para 2.2a) of CAD 8305 is required. After the flight and the corresponding maintenance work, the aircraft can be released to service and continue to operate under its original certificate of airworthiness.

2.6.3 For certain maintenance check flights, the data obtained or verified in flight will be necessary for assessment or consideration after the flight by the maintenance organisation prior to issuing the maintenance release. For this purpose, when the personnel of the maintenance organisation cannot perform these functions in flight, the maintenance organisation may rely on the crew performing the flight to complete these data or to make statements about in-flight verifications. In this case the maintenance organisation should appoint the crew personnel playing such a role and brief them on their functions before the flight.

2.7 CAD 6801 3.1.1(g) – Assessment of non-mandatory information

2.7.1 The CAMO managing the continuing airworthiness of the aircraft should establish and work according to a policy, which assesses non mandatory information related to the airworthiness of the aircraft. Non mandatory information such as service bulletins, service letters and other information that is produced for the aircraft and its components approved by holder of a Design Organization Approval, the manufacturer, or any other data as specified by the CAAM.

2.8 CAD 6801 3.1.1(h) – Aircraft ground de-icing and anti-icing programme

2.8.1 Refer Appendix 2 of CAGM 6801.

2.9 CAD 6801 3.2 – Aircraft maintenance programme

2.9.1 Refer to CAGM 6804.

2.10 CAD 6801 3.3 – Airworthiness directives (AD)

2.10.1 CAMO shall comply with all applicable Airworthiness Directives issued by the CAAM and certifying authority of the State of Design of the aircraft, engine and propeller. Appendix 1 of this CAGM provides the acceptable means for the CAMO to update CAAM on the ADs that have been assessed and reviewed. The declaration form CAAM/AW/6801-02 shall be sent to CAAM on monthly basis.

2.11 CAD 6801 3.4.1 – Data for modification and repairs

2.11.1 Organisation repairing an aircraft or component should assess the damage against published approved repair data and the action to be taken if the damage is beyond the limits or outside the scope of such data. This could involve any one or more of the following options; repair by replacement of damaged parts, requesting technical support from the type certificate holder or from holder of a Design Organization approval and finally CAAM approval of the particular repair data. Guidance for the accomplishment of such can be found in CAGM 8110.

2.12 CAD 6801 3.5.4 – Aircraft continuing airworthiness record system

2.12.1 The current status of AD should identify the applicable AD including revision or amendment numbers. Where an AD is generally applicable to the aircraft or component type but is not applicable to the particular aircraft or component, then this should be identified. The AD status includes the date when the AD was accomplished, and where the AD is controlled by flight hours or flight cycles it should include the aircraft or engine or component total flight hours or cycles, as appropriate. For repetitive ADs, only the last application should be recorded in the AD status. The status should also specify which part of a multi-part directive has been accomplished and the method, where a choice is available in the AD.

2.12.2 The status of current modification and repairs means a list of embodied modification and repairs together with the substantiating data supporting compliance with the airworthiness requirements. This can be in the form of a Supplemental Type Certificate (STC), SB, Structural Repair Manual (SRM) or similar approved document.

2.12.3 The substantiating data may include:

- a) compliance programme;
- b) master drawing or drawing list, production drawings, and installation instructions;
- c) engineering reports (static strength, fatigue, damage tolerance, fault analysis, etc.);
- d) ground and flight test programme and results;
- e) mass and balance change data;
- f) maintenance and repair manual supplements;

- g) maintenance programme changes and instructions for continuing airworthiness; and
 - h) aircraft flight manual supplement.
- 2.12.4 Some gas turbine engines are assembled from modules and a true total time in service for a total engine is not kept. When owners and operators wish to take advantage of the modular design, then total time in service and maintenance records for each module is to be maintained. The continuing airworthiness records as specified are to be kept with the module and should show compliance with any mandatory requirements pertaining to that module.
- 2.13 CAD 6801 3.5.4(d) and CAD 6801 3.5.8 – Control of service life-limited components and its record**
- 2.13.1 The term ‘service life-limited components’ embraces:
 - a) components subject to a certified life limit after which the components should be retired, and
 - b) components subject to a service life limit after which the components should undergo maintenance to restore their serviceability.
- 2.13.2 The current status of service life-limited aircraft components should indicate:
 - a) for components subject to a certified life limit: the component life limitation, total number of hours, accumulated cycles or calendar time and the number of hours/ cycles/time remaining before the required retirement time of the component is reached;
 - b) for components subject to a service life limit: the component service life limit, the hours, cycles or calendar time since the component has been restored back to their service life and the remaining service (hours, cycles, calendar time) life before the components need to undergo maintenance.
- 2.13.3 Any action that alters the components’ life limit (certified or service) or changes the parameter of the life limit (certified or service) should be recorded. When the determination of the remaining life requires knowledge of the different types of aircraft/engine on which the component has previously been installed, the status of all service-life limited aircraft components should additionally include a full installation history indicating the number of hours, cycles or calendar time relevant to each installation on these different types of aircraft/engine. The indication of the type of aircraft/engine should be sufficiently detailed with regard to the required determination of remaining life.
- 2.13.4 Recommendations from the type certificate holder on the procedures to record the remaining life may be considered.

2.14 CAD 6801 3.5.8 – Record controls

- 2.14.1 When an owner/operator arranges for the relevant maintenance organisation to retain copies of the continuing airworthiness records on their behalf, the owner/operator will continue to be responsible for the retention of records. If they cease to be the owner/operator of the aircraft, they also remain responsible for transferring the records to any other person who becomes the owner/operator of the aircraft.
- 2.14.2 Keeping continuing airworthiness records in a form acceptable to the CAAM normally means in paper form or on a computer database or a combination of both methods. Records stored in microfilm or optical disc form are also acceptable. All records should remain legible throughout the required retention period.
- 2.14.3 Paper systems should use robust material, which can withstand normal handling and filing.
- 2.14.4 Computer systems should have at least one backup system, which should be updated at least within 24 hours of any maintenance. Each terminal is required to contain programme safeguards against the ability of unauthorised personnel to alter the database.
- 2.14.5 Continuing airworthiness records should be stored in a safe way with regard to damage, alteration and theft. Computer backup discs, tapes etc., should be stored in a different location from that containing the current working discs, tapes, etc., and in a safe environment. Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities and reference to records maintained by individual mechanics, etc. When these things have been done and the record is still incomplete, the owner/operator may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the CAAM for acceptance. The CAAM may require the performance of additional maintenance if not satisfied with the reconstructed records.

2.15 CAD 6801 3.5.8(g) – Modifications and repairs record retention period

- 2.15.1 For the purpose of this paragraph, a “component vital to flight safety” means a component that includes certified life limited parts or is subject to airworthiness limitations or a major component such as, undercarriage or flight controls.

2.16 CAD 6801 3.6.1 – Aircraft journey log content

- 2.16.1 Aircraft journey log is a system for recording defects and malfunctions during the aircraft operation and for recording details of all maintenance carried out on an aircraft between scheduled base maintenance visits. In addition, it is used for recording flight safety and maintenance information the operating crew need to know.

- 2.16.2 Cabin or galley defects and malfunctions that affect the safe operation of the aircraft or the safety of its occupants are regarded as forming part of the aircraft journey log book where recorded by another means.
- 2.16.3 The operator's aircraft journey log system may range from a simple single section document to a complex system containing many sections but in all cases it should include the information specified for the example used here which happens to use a 5 section document / computer system:

Section 1 - should contain details of the registered name and address of the operator the aircraft type and the complete international registration marks of the aircraft.

Section 2 - should contain details of when the next scheduled maintenance is due, including, if relevant any out of phase component changes due before the next maintenance check. In addition this section should contain the current maintenance release for the complete aircraft, issued normally at the end of the last maintenance check.

Note:- The flight crew do not need to receive such details if the next scheduled maintenance is controlled by other means acceptable to the CAAM.

Section 3 - should contain details of all information considered necessary to ensure continue flight safety. Such information includes:

- a) the aircraft type and registration mark,
- b) the date and place of take-off and landing,
- c) the times at which the aircraft took off and landed,
- d) the running total of flying hours, such that the hours to the next schedule maintenance can be determined. The flight crew does not need to receive such details if the next scheduled maintenance is controlled by other means acceptable to the CAAM.
- e) details of any failure, defect or malfunction to the aircraft affecting airworthiness or safe operation of the aircraft including emergency systems, and any failure, defect or malfunctions in the cabin or galleys that affect the safe operation of the aircraft or the safety of its occupants that are known to the commander. Provision should be made for the commander to date and sign such entries including, where appropriate, the nil defect state for continuity of the record. Provision should be made for a maintenance release following rectification of a defect or any deferred defect or maintenance check carried out. Such a certificate appearing on each page of this section should readily identify the defect(s) to which it relates or the particular maintenance check as appropriate.

In the case of maintenance performed by a Part-145 maintenance organisation, it is acceptable to use an alternate abbreviated maintenance release consisting of the statement 'Part-145 maintenance release instead of the full certification statement specified in paragraph 5.9 b) of CAD 8601 or its associated guidance.

When the alternate abbreviated maintenance release is used, the introductory section of the journey log should include an example of the full certification statement from paragraph 5.9 b) of CAD 8601.

- f) the quantity of fuel and oil uplifted and the quantity of fuel available in each tank, or combination of tanks, at the beginning and end of each flight; provision to show, in the same units of quantity, both the amount of fuel planned to be uplifted and the amount of fuel actually uplifted; provision for the time when ground de-icing and/ or anti-icing was started and the type of fluid applied, including mixture ratio fluid/water.
- g) the pre-flight inspection signature.

In addition to the above, it may be necessary to record the following supplementary information:

- a) the time spent in particular engine power ranges where use of such engine power affects the life of the engine or engine module;
- b) the number of landings where landings affect the life of an aircraft or aircraft component;
- c) flight cycles or flight pressure cycles where such cycles affect the life of an aircraft or aircraft component.

Note 1:- Where Section 3 is of the multi-sector 'part removable' type, then such 'part removable' sections should contain all of the foregoing information where appropriate.

Note 2:- Section 3 should be designed so that one copy of each page may remain on the aircraft and one copy may be retained on the ground until completion of the flight to which it relates.

Note 3:- Section 3 layout should be divided to show clearly what is required to be completed after flight and what is required to be completed in preparation for the next flight.

Section 4 - should contain details of all deferred defects that affect or may affect the safe operation of the aircraft and should therefore be known to the aircraft commander. Each page of this section should be pre-printed with the operator's name and page serial number and make provision for recording the following:

- a) a cross reference for each deferred defect such that the original defect can be identified in the particular section 3 sector record page.
- b) the original date of occurrence of the defect deferred.
- c) brief details of the defect.
- d) details of the eventual rectification carried out and its maintenance release or a clear cross-reference back to the document that contains details of the eventual rectification.

Section 5 - should contain any necessary maintenance support information that the aircraft commander needs to know. Such information would include data on how to contact maintenance engineering if problems arise whilst operating the routes etc.

Notwithstanding the above, a single page journey log that contain all the foregoing information may be used by the operator.

2.17 CAD 6801 3.6.2 – Aircraft journey log document type

- 2.17.1 The aircraft journey log system can be either a paper or computer system or any combination of both methods acceptable to the CAAM.
- 2.17.2 In case of a computer system, it should contain programme safeguards against the ability of unauthorised personnel to alter the database.

2.18 CAD 6801 3.7.1 – Transfer of aircraft continuing airworthiness records

- 2.18.1 Where an owner/operator terminates his operation, all retained continuing airworthiness records should be passed on to the new owner/operator. CAAM should be satisfied that all continuing airworthiness records necessary for the duration of the lease agreement are transferred to the lessee or made accessible to them.

3 Maintenance Standards (CAD 6801 4)

3.1 CAD 6801 4.1.2 – Maintenance data

3.1.1 Except as specified in paragraph 3.1.2, each person or organisation performing aircraft maintenance should have access to and use:

- a) the regulations on continuing airworthiness of aircraft or component, and associated guidance; ,
- b) all applicable maintenance requirements, procedures, standards or information issued by CAAM;
- c) all applicable airworthiness directives,
- d) the appropriate sections of the aircraft maintenance programme, aircraft maintenance manual, repair manual, supplementary structural inspection document, corrosion control document, service bulletins, service sheets modification leaflets, non-destructive inspection manual, parts catalogue, type certificate data sheets, restricted type certificate data sheet, supplemental type certificate data sheet, TSO authorisation, major modification approval, major repair design approval or any other relevant approval deemed to have been issued by the authority as required for the work undertaken except that in the case of operator or customer provided maintenance data it is not necessary to hold such provided data when the work order is completed.

3.1.2 In addition to sub-paragraph 3.1.1, for components each organisation performing aircraft maintenance should hold and use the appropriate sections of the vendor maintenance and repair manual, service bulletins and service letters plus any document issued by the type certificate holder as maintenance data on whose product the component may be fitted when applicable, except that in the case of operator or customer provided maintenance data it is not necessary to hold such provided data when the work order is completed.

3.2 CAD 6801 4.1.3 – Responsibility of maintenance organisation on the maintenance data used

3.2.1 Data being made available to personnel maintaining aircraft means that the data should be available in close proximity to the aircraft or component being maintained, for mechanics and certifying staff to perform maintenance.

3.2.2 Where computer systems are used, the number of computer terminals should be sufficient in relation to the size of the work programme to enable easy access, unless the computer system can produce paper copies. Where microfilm or microfiche readers/ printers are used, a similar requirement is applicable.

3.2.3 Maintenance tasks should be transcribed onto the work cards or worksheets and subdivided into clear stages to ensure a record of the accomplishment of the maintenance task. Of particular importance is the need to differentiate and specify,

when relevant, disassembly, accomplishment of task, reassembly and testing. In the case of a lengthy maintenance task involving a succession of personnel to complete such task, it may be necessary to use supplementary work cards or worksheets to indicate what was actually accomplished by each individual person. A worksheet or work card system should refer to particular maintenance tasks.

3.2.4 The workcard/worksheet system may take the form of, but is not limited to, the following:

- a) a format where the personnel writes the defect and the maintenance action taken together with information of the maintenance data used, including its revision status,
- b) an aircraft log book that contains the reports of defects and the actions taken by authorised personnel together with information of the maintenance data used, including its revision status,
- c) for maintenance checks, the checklist issued by the manufacturer (i.e., 100H checklist, Revision 5, Items 1 through 95)

3.2.5 Maintenance data should be kept up to date by:

- a) subscribing to the applicable amendment scheme,
- b) checking that all amendments are being received,
- c) monitoring the amendment status of all data.

3.3 CAD 6801 4.2.1 – Performance of maintenance

3.3.1 Maintenance should be performed by persons authorised to issue a maintenance release or under the supervision of persons authorised to issue a maintenance release. Supervision should be to the extent necessary to ensure that the work is performed properly and the supervisor should be readily available for consultation.

3.3.2 The person authorised to issue a maintenance release should ensure that:

- a) each person working under his/her supervision has received appropriate training or has relevant previous experience and is capable of performing the required task; and
- b) each person who performs specialised tasks, such as welding, is qualified in accordance to an officially recognised standard.

3.4 CAD 6801 4.2.1(c) – Recommended standards and practices

3.4.1 The general maintenance and inspection standards applied to individual maintenance tasks should meet the recommended standards and practices of the organisation responsible for the type design including those specified in paragraph 4.1 of CAD 6801, which are normally published in maintenance manuals.

3.4.2 In the absence of maintenance and inspection standards published by the organisation responsible for the type design and those specified in paragraph 4.1 of CAD 6801, maintenance personnel should refer to the relevant aircraft airworthiness standards and procedures published or used as guidance by the CAAM. The maintenance standards used should contain methods, techniques and practices acceptable to the CAAM for the maintenance of aircraft and its components.

3.5 CAD 6801 4.2.1(d) – Use of proper tooling and equipment

3.5.1 When performing maintenance, personnel are required to use the tools, equipment and test apparatuses necessary to ensure completion of work in accordance with accepted maintenance and inspection standards. Inspection, service or calibration that is performed on a regular basis should be performed in accordance with the equipment manufacturers' instructions.

3.5.2 All tools requiring calibration should be traceable to an acceptable standard. In this context, 'officially recognised standards' means those standards established or published by an official body, being either a natural or legal person, and which are widely recognised by the air transport sector as constituting good practice.

3.5.3 If the organisation responsible for the type design involved recommends special equipment or test apparatuses, personnel should use the recommended equipment or apparatuses or equivalent equipment provided the procedure has been accepted by CAAM.

3.5.4 All work should be performed using materials of such quality and in such a manner that the condition of the aircraft or its components after maintenance is at least equal to its or their original or modified condition (with regard to aerodynamic function, structural strength, resistance to vibration, deterioration and any other qualities affecting airworthiness).

3.6 CAD 6801 4.2.1(e) – Control of working environment

3.6.1 The working environment should be appropriate for the maintenance task being performed such that the effectiveness of personnel is not impaired.

- a) Temperature should be maintained such that personnel can perform the required tasks without undue discomfort.
- b) Airborne contamination (e.g. dust, precipitation, paint particles, filings) should be kept to a minimum to ensure aircraft/components surfaces are not contaminated, if this is not possible all susceptible systems should be sealed until acceptable conditions are re-established.
- c) Lighting should be adequate to ensure each inspection and maintenance task can be performed effectively.

- d) Noise levels should not be allowed to rise to the level of distraction for inspection staff or if this is not possible inspection staff should be provided with personnel equipment to reduce excessive noise.

3.7 CAD 6801 4.2.1(f) – Proper facilities

- 3.7.1 Facilities should be provided appropriate for all planned maintenance. This may require aircraft hangars that are both available and large enough for the planned maintenance. Aircraft component workshops should be large enough to accommodate the components that are planned to be maintained. Protection from inclement weather means the hangar or component workshop structures should be to a standard that prevents the ingress of rain, hail, ice, snow, wind and dust etc.

3.8 CAD 6801 4.2.1(g) – Control of risk of multiple errors

- 3.8.1 To minimise the risk of multiple errors and to prevent omissions, the person or organisation performing maintenance should ensure that:-
 - a) every maintenance task is signed off only after completion;
 - b) the grouping of tasks for the purpose of sign-off allows critical steps to be clearly identified; and
 - c) any work performed by personnel under supervision (i.e. temporary staff, trainees) is checked and signed off by an authorised person.
- 3.8.2 To minimise the possibility of an error being repeated in identical tasks that involve removal/installation or assembly/disassembly of several components of the same type fitted to more than one system, whose failure could have an impact on safety, the person or organisation performing maintenance should plan different persons to perform identical tasks in different systems. However, when only one person is available, then this person should perform re-inspection of the tasks as described in para 3.10.

3.9 CAD 6801 4.2.1(h) – Critical maintenance tasks

- 3.9.1 The following maintenance tasks should primarily be reviewed to assess their impact on safety:
 - a) tasks that may affect the control of the aircraft, flight path and attitude, such as installation, rigging and adjustments of flight controls;
 - a) aircraft stability control systems (autopilot, fuel transfer);
 - b) tasks that may affect the propulsive force of the aircraft, including installation of aircraft engines, propellers and rotors; and
 - c) overhaul, calibration or rigging of engines, propellers, transmissions and gearboxes

3.10 CAD 6801 4.2.1(h) – Independent inspection

3.10.1 What is an independent inspection?

Independent inspection is one possible error-capturing method. It consists of an inspection performed by an 'independent qualified person' of a task carried out by an 'authorised person', taking into account that:

- a) the 'authorised person' is the person who performs the task or supervises the task and assumes the full responsibility for the completion of the task in accordance with the applicable maintenance data;
- b) the 'independent qualified person' is the person who performs the independent inspection and attests the satisfactory completion of the task and that no deficiencies have been found.;
- c) the maintenance release is issued by the 'authorised person' after the independent inspection has been carried out satisfactorily;
- d) the work card system should record the identification of each person, the date and the details of the independent inspection, as necessary, before the maintenance release is issued.

3.10.2 Qualifications of personnel performing independent inspections:

In the case of Subpart F- Limited Maintenance Organization (LMO), the organisation should have procedures to demonstrate that the 'independent qualified person' has been trained and has gained experience in the specific control systems to be inspected. This training and experience could be demonstrated, for example, by:

- a) holding a Part-66 licence in the same subcategory as the licence subcategory;
- b) holding a Part-66 licence in the same category and specific training in the task to be inspected; or
- c) having received appropriate training and having gained relevant experience in the specific task to be inspected.

3.10.3 How should independent inspection be performed?

Independent inspection should ensure for example correct assembly, locking and sense of operation. When inspecting control systems that have undergone maintenance, the qualified person should consider the following points independently:

- a) all those parts of the system that have actually been disconnected or disturbed should be inspected for correct assembly and locking;
- b) the system as a whole should be inspected for full and free movement over the complete range;
- c) cables should be tensioned correctly with adequate clearance at secondary stops

- d) the operation of the control system as a whole should be observed to ensure that the controls are operating in the correct sense;
- e) if different control systems are interconnected so that they affect each other, all the interactions should be checked through the full range of the applicable controls; and
- f) software that is part of the critical maintenance task should be checked, for example version and compatibility with the aircraft configuration.

3.10.4 What to do in unforeseen cases when only one person is available.

Re-inspection:

- a) Re-inspection is subject to the same conditions as the independent inspection is, except that the 'authorised person' performing the maintenance task is also acting as 'independent qualified person' and performs the inspection.
- b) For critical maintenance tasks, re-inspection should only be used in unforeseen circumstances when only one person is available to carry out the task and perform the independent inspection. The circumstances cannot be considered unforeseen if the person or organisation has not assigned a suitable 'independent qualified person' to that particular task.
- c) The maintenance release is issued by the 'authorised person' after the re-inspection has been performed satisfactorily.
- d) The work card system should record the identification of the 'authorised person' and the date and the details of the re-inspection, as necessary, before the maintenance release is issued.

3.11 CAD 6801 4.3.2 – Aircraft defects

- 3.11.1 An assessment of both the cause and any potentially hazardous effect of any defect or combination of defects that could affect flight safety should be made in order to initiate any necessary further investigation and analysis necessary to identify the root cause of the defect.

3.12 CAD 6801 4.3.4 – Defer defects

- 3.12.1 All deferred defects should be made known to the pilot/flight crew, whenever possible, prior to their arrival at the aircraft.
- 3.12.2 Deferred defects should be transferred on to worksheets at the next appropriate maintenance check, and any deferred defect which is not rectified during the maintenance check, should be re-entered on to a new deferred defect record sheet. The original date of the defect should be retained.
- 3.12.3 The necessary components or parts needed for the rectification of defects should be made available or ordered on a priority basis, and fitted at the earliest opportunity.

4 Components (CAD 6801 5)

4.1 CAD 6801 5.1.1 – Component installation

- 4.1.1 To ensure a component is in a satisfactory condition, the approved maintenance organisation under CAD 8601 or CAD 8602 should perform checks and verifications.
- 4.1.2 Performance of above checks and verifications should take place before the component is installed on the aircraft.
- 4.1.3 The following list contains typical checks to be performed but not limited to:
- a) verify the general condition of components and their packaging in relation to damages that could affect the integrity of the components;
 - b) verify that the shelf life of the component has not expired;
 - c) verify that items are received in the appropriate package in respect of the type of component: e.g. correct ATA 300 or electrostatic sensitive devices packaging, when necessary;
 - d) verify that component has all plugs and caps appropriately installed to prevent damage or internal contamination. Tape should not be used to cover electrical connections or fluid fittings/openings because adhesive residues can insulate electrical connections and contaminate hydraulic or fuel units.
- 4.1.4 The purpose of the CAAM Form 1 or equivalent is to release components after manufacture and to release maintenance work carried out on such components under the approval of respective authority and to allow components removed from one aircraft/component to be fitted to another aircraft/ component.
- 4.1.5 For the purpose of acceptance of component, paragraph 5.5 of CAD 8601 or Chapter 9 of CAD 8602 and its associated airworthiness guidance shall be referred.
- 4.1.6 Any item in storage without CAAM Form 1 or equivalent cannot be installed on Malaysian registered aircraft unless CAAM Form 1 is issued for such item by an appropriately approved maintenance organization in accordance with CAD 8601 and CAD 8602.

4.2 CAD 6801 5.1.1(b) – Authorised released documents (CAAM Form 1 or equivalent)

- 4.2.1 The CAAM Form 1 or equivalent identifies the airworthiness status of an aircraft component. Block 12 'Remarks' on the CAAM Form 1 or equivalent in some cases contains vital airworthiness related information which may need appropriate and necessary actions.
- 4.2.2 The fitment of replacement components should only take place when the maintenance organisation approved under CAD 8601 or CAD 8602 is satisfied that

such components meet required standards in respect of manufacture or maintenance, as appropriate.

- 4.2.3 Maintenance organisation approved under CAD 8601 or CAD 8602 should be satisfied that the component in question meets the approved data/standard, such as the required design and modification standards. This may be accomplished by reference to the TC/STC holder or manufacturer's parts catalogue or other approved data (i.e. Service Bulletin). Care should also be taken in ensuring compliance with applicable AD and the status of any service life-limited parts fitted to the aircraft component.

4.3 CAD 6801 5.1.3 – Control of standard parts

- 4.3.1 Standard parts are parts manufactured in complete compliance with an established industry specification which includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. The specification should include all information necessary to produce and verify conformity of the part. It should be published so that any party may manufacture the part. Examples of specifications are National Aerospace Standards (NAS), Army-Navy Aeronautical Standard (AN), Society of Automotive Engineers (SAE), etc.
- 4.3.2 To designate a part as a standard part the TC holder may issue a standard parts manual accepted by the authority of original TC holder or may make reference in the parts catalogue to a national/international specification (such as a standard diode/capacitor etc.) not being an aviation only specification for the particular part.
- 4.3.3 Documentation accompanying standard parts should clearly relate to the particular parts and contain a conformity statement plus both the manufacturing and supplier source. Some material is subject to special conditions such as storage condition or life limitation etc. and this should be included on the documentation and / or material packaging.
- 4.3.4 CAAM Form 1 or equivalent is not normally issued and therefore none should be expected.

4.4 CAD 6801 5.1.4 – Control of consumable/raw material

- 4.4.1 Consumable material is any material which is only used once, such as lubricants, cements, compounds, paints, chemicals dyes and sealants etc.
- 4.4.2 Raw material is any material that requires further work to make it into a component part of the aircraft such as metals, plastics, wood, fabric etc.
- 4.4.3 Material both raw and consumable should only be accepted when satisfied that it is to the required specification. To be satisfied, the material and or its packaging should be marked with the specification and where appropriate the batch number.

- 4.4.4 Documentation accompanying all material should clearly relate to the particular material and contain a conformity statement plus both the manufacturing and supplier source. Some material is subject to special conditions such as storage condition or life limitation etc. and this should be included on the documentation and / or material packaging.
- 4.4.5 CAAM Form 1 or equivalent should not be issued for such material and therefore none should be expected. The material specification is normally identified in the TC/STC holder's data except in the case where CAAM has agreed otherwise.
- 4.4.6 Items purchased in batches (fasteners etc.) should be supplied in a package. The packaging should state the applicable specification/standard, P/N, batch number and the quantity of the items. The documentation accompanying the material should contain the applicable specification/standard, P/N, batch number, supplied quantity, and the manufacturing sources. If the material is acquired from different batches, acceptance documentation for each batch should be supplied.

4.5 CAD 6801 5.2 – Component removed and installed on aircraft

- 4.5.1 Component removal from and installation on an aircraft is considered to be aircraft maintenance and not component maintenance. Therefore, paragraph 5.2 of CAD 6801 requirements do not apply to this case.

4.6 CAD 6801 5.2.2, 5.2.3, 5.2.4 and 5.2.5 – Component maintenance

- 4.6.1 Paragraphs 5.2.2, 5.2.3, 5.2.4 and 5.2.5 allow the performance of certain component maintenance, in accordance with component maintenance data, to maintenance organisations not holding the corresponding A/B rating, subject to the agreement of CAAM.
- 4.6.2 This is only permitted by CAAM in the case of simple component maintenance, where CAAM is satisfied that the certifying staff are appropriately qualified and the proper tooling and facilities are available. It is important to note that for more complex component maintenance, special qualifications may be required and it is not enough with holding a Part-66 aircraft maintenance licence.

4.7 CAD 6801 5.3 – Service life limited components

RESERVED

4.8 CAD 6801 5.4.1 – Control of unserviceable components

- 4.8.1 Procedures should be defined by the organisation describing the decision process for the status of unserviceable components. This procedure should identify at least the following:
- a) role and responsibilities of the persons managing the decision process;

- b) description of the decision process to choose between maintaining, storing or mutilating a component;
- c) traceability of decision.

4.9 CAD 6801 5.4.2 – Proper identification of unserviceable components

4.9.1 Approved maintenance organisation performing maintenance should ensure proper identification of any unserviceable components.

4.9.2 The unserviceable status of the component should be clearly declared on a tag together with the component identification data and any information useful to define actions necessary to be taken. Such information should state, as applicable, in service times, maintenance status, preservation status, failures, defects or malfunctions reported or detected exposure to adverse environmental conditions, if the component has been involved in or affected by an accident/incident. Means should be provided to prevent unwanted separation of this tag from the component.

4.9.3 Approved maintenance organisation performing aircraft maintenance should send, with the agreement of the aircraft owner/lessee, any unserviceable component to a maintenance organisation approved under CAD 8601 and CAD 8602 for controlled storage, or transfer the custody of the component to the owner itself under the conditions specified in paragraph 5.4.2 of CAD 6801.

4.9.4 “A secure location under the control of an approved maintenance organisation” means a secure location for which security is the responsibility of the approved maintenance organisation. This may include facilities established by the approved maintenance organisation at locations different from the main maintenance facilities. These locations should be identified in the relevant procedures of the approved maintenance organisation.

4.10 CAD 6801 5.4.3 – Classifying unsalvageable components

4.10.1 The following types of components should typically be classified as unsalvageable:

- a) components with non-repairable defects, whether visible or not to the naked eye;
- b) components that do not meet design specifications, and cannot be brought into conformity with such specifications;
- c) components subjected to unacceptable modification or rework that is irreversible;
- d) certificated life-limit parts that have reached or exceeded their certified life limits, or have missing or incomplete records;
- e) components that cannot be returned to airworthy condition due to exposure to extreme forces, heat or adverse environment;
- f) components for which conformity with an applicable airworthiness directive cannot be accomplished;

- g) components for which continuing airworthiness records and/or traceability to the manufacturer can not be retrieved.

4.10.2 It is common practice for possessors of aircraft components to dispose of unsalvageable components by selling, discarding, or transferring such items. In some instances, these items have reappeared for sale and in the active parts inventories of the aviation community. Misrepresentation of the status of components and the practice of making such items appear serviceable has resulted in the use of unsalvageable nonconforming components. Therefore organisations disposing of unsalvageable aircraft components should consider the possibility of such components later being misrepresented and sold as serviceable components. Caution should be exercised to ensure that unsalvageable components are disposed of in a manner that does not allow them to be returned to service.

4.11 CAD 6801 5.4.4(b) – Mutilation of components

4.11.1 Mutilation should be accomplished in such a manner that the components become permanently unusable for their original intended use. Mutilated components should not be able to be reworked or camouflaged to provide the appearance of being serviceable, such as by re-plating, shortening and re-threading long bolts, welding, straightening, machining, cleaning, polishing, or repainting.

4.11.2 Mutilation may be accomplished by one or a combination of the following procedures:

- a) grinding,
- b) burning,
- c) removal of a major lug or other integral feature,
- d) permanent distortion of parts,
- e) cutting a hole with cutting torch or saw,
- f) melting,
- g) sawing into many small pieces,
- h) any other method accepted by the CAAM on a case by case basis.

4.11.3 The following procedures are examples of mutilation that are often less successful because they may not be consistently effective:

- a) stamping or vibro-etching,
- b) spraying with paint,
- c) small distortions, incisions or hammer marks,
- d) identification by tag or markings,
- e) drilling small holes,

f) sawing in two pieces only.

4.11.4 Since manufacturers producing approved aircraft components should maintain records of serial numbers for “retired” certificated life-limit parts or other critical components, the organisation that mutilates a component should provide the original manufacturer with the data plate and/or serial number and final disposition of the component.

4.12 CAD 6801 5.4.5 – Use of unsalvageable components for non-flight activities

4.12.1 A maintenance organisation may choose, in agreement with the component’s owner, to release an unsalvageable component for legitimate non-flight uses, such as for training and education, research and development. In such instances, mutilation may not be appropriate. The following methods should be used to prevent the component re-entering the aviation supply system:

- a) permanently marking or stamping the component, as “**NOT SERVICEABLE.**” (Ink stamping is not an acceptable method);
- b) removing original part number identification;
- c) removing data plate identification;
- d) maintaining a tracking or accountability system, by serial number or other individualized data, to record transferred unsalvageable aircraft component;
- e) including written procedures concerning disposal of such components in any agreement or contract transferring such components.


Note:- Unsalvageable components should not be released to any person or organization that is known to return unsalvageable components back into the aviation supply system, due to the potential safety threat.



5 Appendices

5.1 Appendix 1 – Airworthiness Directives – Monthly Compliance Update

CAAM/AW/6801-02
01042021

		CIVIL AVIATION AUTHORITY OF MALAYSIA AIRWORTHINESS DIRECTIVES – MONTHLY COMPLIANCE UPDATE						
SECTION 1 : ORGANIZATION GENERAL INFO								
1.1 CAMO : <small>Click or tap here to enter text.</small>				1.2 Approval No : CAMO/YEAR/No.		1.3 Date : <small>Date.</small>		
SECTION 2 : AIRWORTHINESS DIRECTIVES COMPLIANCE								
No.	State of Design Authority	AD Reference	AD Description	Date Issue	Date Effective	Applicability	Compliance	Remark
<small>No.</small>	<small>Enter text.</small>	<small>Enter text.</small>	<small>Enter text.</small>	<small>Date.</small>	<small>Date.</small>	<small>Choose an item.</small>	<small>Enter text.</small>	<small>Click or tap here to enter text.</small>
<small>CLICK TO ADD ROW</small>								
SECTION 3 : DECLARATION BY CAMO								
<p><i>This is to inform that the airworthiness directives listed above have been reviewed and assessed for its compliance. All applicable airworthiness directives issued by the CAAM and certifying authority of the State of Design of the aircraft at the time this declaration is made have been actioned accordingly.</i></p>								
Continuing Airworthiness Manager's name : <small>Click or tap here to enter text.</small>				Signature :				
				Date :		Enter date.		
SECTION 4 : CAAM OFFICIAL USE ONLY								
<u>Comments</u> :								
Name :						Signature :		
						Date :		

*Note: This form is accessible from CAAM website.

CAAM/AW/6801-02
01042021

INSTRUCTIONS	
SECTION 1 – Organization general info	
1.1	Click and fill up CAMO name
1.2	Click and type CAMO organization approval issued by CAAM.
1.3	Click and enter date
SECTION 2 – Airworthiness Directives Compliance	
	No. – Type number by sequence
	State of Design Authority – type the short abbreviation for the state such as FAA, EASA, TCCA etc
	AD description – type the airworthiness directives description.
	Date issue – type the AD issue date
	Date of effectivity – type the effectivity date of the AD.
	Applicability – type applicability to the aircraft/fleet .
	Compliance – indicate AD compliance date/period/cycle/landings/etc.
	Remark – type any additional information that could be important to support the compliance.
SECTION 3 – DECLARATION BY CAMO	
	Continuing Airworthiness Manager declaration, name, signature and date of declaration made.
SECTION 4 – CAAM official use only	
4.1	Fill up the maintenance organization that is/are being/been engaged for the maintenance of aircraft.



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5.2 Appendix 2 – Aircraft ground de-icing and anti-icing

1 Interpretation

1.1 In this appendix, unless the context otherwise requires—

“**anti-icing**” means a precautionary procedure by which clean aircraft surfaces are protected against the formation of ice and frost and the accumulation of snow and slush for a limited period of time;

“**critical surfaces**” means the critical surfaces which is determined by the aircraft manufacturer and may include wings, control surfaces, propellers, horizontal stabilizers, vertical stabilizers or any other stabilizing surface on an aircraft;

“**de-icing**” means the process that removes ice, snow, slush or frost from aircraft surfaces;

“**de-icing/anti-icing**” means a procedure combining both the de-icing and the anti-icing and that can be performed in one or two steps;

“**drizzle**” means fairly uniform precipitation composed exclusively of fine drops (diameter less than 0.5 mm (0.02 in)) very close together where drizzle appears to float while following air currents although, unlike fog droplets, drizzle falls to the ground;

“**frost**” means a deposit of small, white ice crystals formed on the ground or other surfaces where frost is formed by sublimation when water vapor is deposited upon a surface whose temperature is at or below freezing;

“**ground de-icing/anti-icing programme**” means a programme as approved by the Authority under paragraph 2 of this appendix;

“**operator**” has the same meaning assigned to it under the Civil Aviation Regulations 2016;

“**precipitation intensity**” means the indication of the amount of precipitation collected per unit time interval where intensity is defined according to the type of precipitation occurring, based either on rate of fall for rain and ice pellets or visibility for snow and drizzle;

“**slush**” means water-saturated snow that will be displaced with a splatter by a heel-and-toe slap-down motion against the ground; and

“**snow**” means precipitation of ice crystals, mostly branched in the form of six-pointed stars where the crystals are isolated or agglomerated to form snowflakes.

2 Ground de-icing/anti-icing programme

2.1 For the purpose of paragraph 3.1.1(h)(1) of CAD 6801, CAC means a concept where an aircraft is considered to be clean when all surfaces are completely clean or when all surfaces are protected by de-icing and anti-icing fluid and the surface aerodynamic characteristics are unaffected.

2.2 Operator should ensure the ground de-icing/anti-icing programme contains the following information—

- a) establish a management plan to coordinate and implement the approved ground de-icing/anti-icing programme and the plan shall include guidance for responsibility, implementation, use and update of manuals and coordination;
- b) specify aircraft-specific procedures for each type of aircraft serviced in the ground de-icing/anti-icing programme and ground personnel are required to undertake specific training for each aircraft with unique design characteristics;
- c) specify procedures to prevent, detect and remove residues of dried fluid;
- d) specify inspection intervals as specified by the manufacturer or operator experience;
- e) explain the CAC which includes the critical surfaces of the aircraft and list those surfaces that need to be checked prior to take-off;
- f) provision of training and qualification for ground personnel and maintenance personnel where the training programme shall have a quality assurance (QA) system and a tracking system for records;
- g) Description of the fluids, equipment and operating measures and includes how fluids are tested, stored, used and contained, describe equipment available for operations, and what the operator must know when testing, inspecting and operating the equipment safely, the maintenance crew and ground de-icing crew shall be aware of the multiple measures that can be used to minimize and remove frozen contamination accretion while on the ground and methods to protect cleaned surfaces;
- h) develop an emergency response plan (ERP) in case of an emergency occurs during the de-icing/anti-icing process and a means to communicate during the emergency between parties involved;
- i) establish a reporting system to ensure the quality of the programme and to explain the reporting structure within the organization; and
- j) to establish a de-icing/anti-icing oversight programme which includes as follows:
 - 1) to conduct inspection on any person engaged by the operator who provide the de-icing and anti-icing services;
 - 2) to conduct audit on all parts of the de-icing/anti-icing operation (required to check the ongoing compliance with all regulations issued by authorities and conformity with procedures and specifications of air operators, manufacturers and handling agents);
 - 3) to train all personnel involved in the de-icing/anti-icing services and ensure the personnel is qualified;
 - 4) to define and document methods and procedures (to guide personnel in the clear and safe accomplishment of all the tasks that are necessary for de-icing/anti-icing an aircraft);
 - 5) to document training records of all de-icing/anti-icing personnel (to ensure that all training and skill requirements are fulfilled);

- 6) to publish documents required for the aircraft de-icing/anti-icing operation (to ensure the correct accomplishment of all tasks);
- 7) to maintain equipment in such a way that quality operation is ensured; and
- 8) handle fluids in such a way that fluid quality is ensured.

3 Roles and responsibilities

3.1 Operator should—

- a) ensure the aircraft surface is examined before take-off when there are ice or snow conditions;
- b) ensure inspection to detect and removal of de-icing and anti-icing fluid residues be carried out by approved maintenance organization;
- c) ensure journey log book contain details of provision for the time when ground de-icing and/or anti-icing was started and the type of fluid applied, including mixture ratio fluid/water and any other information required by the operator's procedures in order to allow the assessment on whether inspections for and/or elimination of de-icing/anti-icing fluid residues that could endanger flight safety are required;
- d) ensure the person who conduct the de-icing and anti-icing services are qualified and trained in accordance with the ground de-icing/anti-icing programme;
- e) ensure the de-icing and anti-icing services are provided in the location as specified in the ground de-icing/anti-icing programme; and
- f) conduct quality inspection or cause to conduct quality inspection against the person who provide the de-icing and anti-icing services.



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