



Barbados Civil Aviation  
Department  
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**AIRWORTHINESS**

**ADVISORY**

**CIRCULAR**

# PAINTING OF AIRCRAFT



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# PAINING OF AIRCRAFT

## 1 APPLICABILITY

This Airworthiness Advisory Circular is mandatory and applicable to all Barbados registered aircraft issued with a Certificate of Airworthiness.

## 2 INTRODUCTION

Experience has shown that a greater degree of control has to be exercised over the painting of aircraft exteriors. The term painting in this context embraces the associated processes of stripping and such terms as refinishing and refurbishing.

## 3 COMPLIANCE

- 3.1 The Owner, operator or the Approved Maintenance Organisation must assess the proposed task for its airworthiness implication, taking into account the aircraft manufacturers' published requirements and precautions in addition to the content of paragraph 6, and make a decision as to the need for a Maintenance Release. Owners and operators should consult their Approved Maintenance Organisation prior to making such a decision.
- 3.2 When a Maintenance Release is judged to be necessary, the signatory will take responsibility for the whole process and should, therefore, assess the extent of the work to establish the need to:
- (a) Carry out on-site supervision including stage inspections;
  - (b) Brief the work force to avoid any airworthiness hazard, particularly where significant problems could be concealed by subsequent work processes;
  - (c) Ensure that any task carried out is adequately defined by documented process specifications containing sufficient information to control the procedure;
  - (d) Ensure that all necessary guidance material, including the aircraft manufacturers' published data and the paint manufacturers' instructions are provided;
  - (e) Anticipate potential problems resulting from partial restoration which could mean additional paint weight in significant areas and the need for balancing of control surfaces;
  - (f) Make provision to rectify any corrosion detected following paint removal;
  - (g) Ensure the restoration of corrosion inhibiting compounds where washing or use of solvents or other paint removal techniques may have removed them in areas adjacent to those being repainted;
  - (h) Determine the basic weight and corresponding centre of gravity position.

**NOTE: *It may benefit the owner to anticipate any scheduled structural inspections including Non Destructive Inspections, which could be better accomplished following the paint removal.***

#### **4. REQUIREMENT**

When the need for a Maintenance Release has been judged necessary under paragraph 3 of this Circular, for an aircraft which has been externally painted or has had some significant change to its finish, such as paint removal and subsequent polishing, then a Maintenance Release must be issued upon completion of the process (see paragraph 6)

#### **5. CERTIFICATION OF RELEASE TO SERVICE**

5.1. The BCAD will not grant specific Approval for painting of aircraft. Therefore, specialist painting organisations will not be entitled to issue any certification in respect of the airworthiness status of an aircraft following painting, unless the organisation holds an appropriate BCAD Maintenance Organisation Approval.

5.2. A licensed aircraft engineer holding the relevant Category 'A' for the class of aircraft, with any Type Rating in the appropriate sub-paragraph of Personnel Licensing Advisory Circular No PLAC-010, has authority to issue a Maintenance Release for the satisfactory completion of the external finish.

#### **6. ADDITIONAL INFORMATION**

6.1. Examples of likely damage and hazards that must be avoided include:

- (a) Damage caused during preparation work which could adversely affect the structural integrity of the aircraft, such as:-
  - Reduction in fastener head size by uncontrolled use of power tools and abrasive media;
  - Surface scratching by use of paint scrapers;
  - Degrading of composite or plastic surfaces by abuse of particle blasting techniques;
  - Aluminum surface contamination by steel wool particles;
  - Use of incorrect chemical paint strippers.
- (b) Damage to transparencies, composites and sealants by solvent and paint removers, due to inadequate protection and/or the retention of these products in crevices.
- (c) Inadvertent deletion of placards and markings, failure to renew them, or failure to comply with the required specification for, e.g. Registration Marks, mandatory door markings and break in zone identification.
- (d) Blockage of vents, drains and other openings by debris, masking tape and residues of paint remover, paint or particle blast material. The possible ingress of water into fuel tanks through vent apertures or past filler cap seals when using high pressure hoses for washing down.
- (e) Loss of correct mass balance moments on flight control surfaces.
- (f) Uncontrolled variations to aircraft basic weight.
- (g) Variation to surface profile and aerodynamic smoothness at critical points such as surface leading edges, by the uncontrolled use of fillers or excessive paint thickness.

- (h) Inadequate knowledge of the manufacturers' finishing schemes for antennas and radomes.
- (i) Overly aggressive paint stripping which could damage the sealant around air data ports/orifices on RVSM compliant aircraft. Air flow over these areas is critical for the height keeping capability of the aircraft.
- (j) For fabric coverings, special procedures which ensure proper adhesion and protection from the effects of ultra-violet light. Aggressive removal of the old finish may cause fabric damage. The exposed fabric should be assessed for its serviceability prior to refinishing. The advice published by the manufacturer of synthetic fabric as well as that of the aircraft manufacturer would have to be made available and complied with in full as well.
- (k) The effects of excessive paint thickness on the application of nondestructive testing techniques using eddy current and ultrasonic methods.
- (l) Jamming of flight control and landing gear mechanisms by preparation treatments and paint.

6.2. Examples of finishing work that would require the issue of a Maintenance Release:

- (a) Complete repainting from bare metal or fabric, or overcoating an existing finish.
- (b) Reversion from paint finish to polished metal.
- (c) Repainting or reversion to bare metal on flying control surfaces or supercritical lifting surfaces.
- (d) Extensive polishing of bare metal finish using abrasive polishes where skin thickness or fastener head dimensions are critical, particularly where polishing is to be a repetitive requirement.
- (e) Finishing of radomes, antennas and composite materials used in Primary and Secondary structure.
- (f) Painting in areas involving critical orifices or mandatory markings.
- (g) Any alteration to the finish of Helicopter main rotor and tail rotor blades or any other critical parts.

**NOTE: (1) *It is not intended that the requirement for the issue of a Maintenance Release should include minor repairs to surface finish where airworthiness implications are minimal.***

**NOTE: (2) *The above list of examples is not intended to be exhaustive.***

- 6.3. Aircraft issued with a Special Airworthiness Certificate will be subject to the same principles of compliance with this Circular.
- 6.4. Operators and maintenance organisations are reminded that the use of self adhesive decals as an alternative to painting may totally preclude both visual and eddy current inspections. Operators and maintenance organisations need to address the impact on structural inspection tasks when using such decals and ensure that the aircraft maintenance programme requires their removal at the appropriate time.