

**DEPARTMENT OF CIVIL AVIATION
MALAYSIA
AIRWORTHINESS NOTICE**

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DUPLICATE INSPECTION OF CONTROL SYSTEMS

1. Introduction

- 1.1 Control systems which are vital to the safety of aircraft are designed to a high level of integrity, but are also reliant on specified maintenance actions to safeguard that integrity throughout the life of the aircraft. For this reason, the DCA requires duplicate inspections, following initial assembly or disturbance of such systems, to prevent the possibility of assembly of a single feature leading to catastrophe.
- 1.2 The essence of the requirement is that one inspection is to be completed and immediately followed by a second, totally independent one. The person completing the second inspection must neither assume or presume that a particular action has been completed by the person making the first inspection.

2. Definitions

- 2.1 Control system
A system by which the flight path, attitude or propulsive force of an aircraft is changed, including the flight, engine and propeller controls, the related system controls and associated operating mechanism.
- 2.2 Duplicate Inspection
An inspection first made and certified by one qualified person and subsequently re-inspected and certified by a second qualified person.

3. Requirements – General

- 3.1 A duplicate inspection of all control systems in an aircraft shall be made after initial assembly and before a Certificate of Release to Service has been issued after overhaul, repair, replacement, modification or adjustment and in any case before the first flight.

NOTE: Depending on the extent of work it may be possible to limit the duplicate inspection of a Control System to that part of the system which has been disturbed.

- 3.2 The first and second inspection must take account of the full extend of the work undertaken and not simply the immediate area of disturbance. This is to ensure that distant or remote part of the system that may have been affected by the disturbance are also subject to duplicate inspection. Where work has been carried out on other systems for safety precautions, or to enhance accessibility, the need to carry out duplicate inspection on the system shall be considered. Persons who carry out and certify duplicate inspections are therefore required to undertake an independent review of the complete task, as detail in the maintenance manual and by reference to the worksheets used, including shift hand-over records, to assess the scope of the duplicate inspection(s) required.

- 3.3 It may not be possible to inspect the complete control system when assembled in an aircraft, due to routing of controls through conduits or boxed-in section and the pre-sealing of various units. In these cases the persons certifying the duplicate inspection shall be satisfied that a duplicate inspection has been made previously on the units and covered sections and that the sealed units are acceptable for the particular use. Tests that are necessary shall be completed to determine that these particular units and sections have full, free and correct directional movement.

NOTES: (a) In some circumstances, due to peculiarities of assembly or accessibility, it may be necessary for both parts of the inspection to be made simultaneously the duplicate.

- (b) It is desirable that the inspections of the Control System are made as near as is practicable to the time of the intended flight and that the full extent of the disturbance is understood by both persons who carry out the duplicate inspections.
- 3.4 If a control system is disturbed after completion of the duplicate inspection, the part that has been disturbed shall again be inspected in duplicate and a Certificate of Release to Service issued before the aircraft flies.
- 3.5 The inspections required for Control Systems shall include an inspection to ensure that full, free and correct movement of the controls is obtained throughout the system relative to the movement of the cockpit controls. An additional inspection shall be made, when all covers and fairings are finally secured, to ensure that full and free and correct movement of the controls is obtained.
- 3.6 Persons qualified to make the first and/or second part of a duplicate inspection are as follows:
 - (a) Appropriately rated Licensed Aircraft Maintenance Engineer.
 - (b) Appropriately authorized persons employed by an approved organization.
- NOTE: Certification responsibilities in relation to MCAR affecting Licensed Aircraft Maintenance Engineers and approval Holders of Approved organizations are given in DCA Airworthiness No. 3.
- 3.7 Should a minor adjustment of the Control System be necessary when the aircraft is away from base, the second parts of the duplicate inspection may be completed by a pilot or flight engineer licensed for the type of aircraft and authorized by the organization.

4. Requirements – Control System Units or Components

- 4.1 Where appropriate to the unit or component forming part of the a control system, a schedule of inspections and functioning tests shall be compiled at manufacture, overhaul and repair, and the following shall be certified:
 - (a) Duplicate Inspection of the section/part of the units or components which will be concealed during the bench assembly and which cannot be proven during inspection and functioning tests when installed in the aircraft control system.

NOTE: The organization is responsible to ensure that Duplicate Inspection requirements are met for works that are sub-contracted and the release documentation is certified accordingly.
 - (b) Duplicate Inspection of the completed assembly of the unit or component, functioning and checking for correct relative movement.
- a. Persons qualified to make the first and/or second part of the duplicate inspection required at paragraph 4 are as follows:
 - (a) For Approved Manufacturing Organizations, persons qualified and authorized to perform such inspections in accordance with the company procedures.
 - (b) For Approved Maintenance Organizations who release Control System units and components, both inspection and the subsequent Certificate of Release to Service must be issued by authorized by the organization.

This Notice cancels Airworthiness Notice No. 51, Issue 2, dated 1 April 1987, which should be destroyed.

DIRECTOR GENERAL
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MALAYSIA.