

AIRWORTHINESS BULLETIN

Automatic Pilot Servos, Servo-Disconnects and Overpower Forces

AWB 22-001 Issue : 1 Date : 6 January 2011

1. Effectivity

All aircraft fitted with automatic pilot systems.

2. Purpose

CAA Airworthiness Advisory Circular No 67 -1 was originally issued in 1972 to provide generic guidance on basic maintenance of autopilot systems. This AWB is reissuing the contents of the circular as the information contained is still valid today.

3. Background

A number of safety features are usually built into each automatic pilot system. One mandatory feature requires that either:

- the pilots be able to disengage the autopilot quickly and positively such that it will not interfere with the control of the aeroplane, or
- that one pilot is able to overpower the autopilot sufficiently to control the aeroplane.

Automatic pilot installations are checked during certification to ensure that disconnect mechanisms and/or servo overpower forces comply with those requirements. It is important that these mechanisms remain serviceable and that the required overpower forces remain within the specified tolerances while the aircraft is in service. However, from time to time, defects can occur in which servos have deteriorated to a point where the safety mechanisms fail to operate. For this reason, regular inspections should be made to ensure that each part of a servo is capable of performing its intended function. Such an inspection should include condition of lubrication where applicable, as lack of attention to this seems to be the cause of many defects in automatic pilot servos.

During the replacement of a servo the maintenance person performing the task should confirm that the replacement unit is the correct type and the part number is approved for use on that particular position on the aircraft concerned. Servos may have similar outside appearances but can have vastly different operating characteristics, overpower forces or direction of operation. After a servo has been changed the automatic pilot should be operated and checks should be carried out to ensure that:

- the servo and the control surfaces to which it is attached operate in the correct sense;
- the servo operates with adequate clearance from all possible obstructions and that operation is without any signs of binding;



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- disconnect mechanisms operate in a positive manner; and
- servo forces are within the limits specified.

4. Recommendations

Maintenance schedules or systems of maintenance should be reviewed to ensure that all manufacturers' tests and checks, including periodicity, are incorporated into any approved aircraft maintenance program.

5. Enquiries

Enquiries with regard to the content of this Airworthiness Bulletin should be made via the direct link e-mail address:

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