Safety Regulation Group
Requirements and Policy Unit

VIA http://dms.dot.gov

Our Ref: 9/61/10CD

17th March 2003

Docket Management System
US Department of Transportation
Docket No. FAA-2002-14081
Room Plaza 401
400 Seventh Street SW
Washington DC 20590-0001

Dear Sir,

Attention Rules Docket No: FAA-2002-14081 Transponder Continuous Operation

Please accept the attached comments on the Notice of Proposed Rulemaking.

Thank you for the opportunity to take part in your rulemaking process.

Yours faithfully,

Michael Poole
Surveyor

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Subject: UK Civil Aviation Authority comments on Docket FAA-2002-14081

The United Kingdom Civil Aviation Authority (CAA) welcomes the opportunity to participate in the FAA rulemaking of 14 CFR Part 121, NPRM No. 03-02, "Transponder Continuous Operation".

In reviewing the FAA proposals, the CAA has identified a number of concerns, as follows:

1. Faults in the wiring, hardware or software of the transponder system could lead to unintended "hijack alerts". As a minimum this would lead to increased workload for Air Traffic Control (ATC). At the extreme this could trigger an unwanted security response. This aspect needs to be carefully considered during the design and may lead to additional maintenance tasks. For example, the hijack switch will need to be functioned periodically, on the ground, to ensure serviceability. This in itself could generate further problems for ATC.

2. The incorporation of the 'hijack mode' creates additional transponder system complexity and makes it more difficult to troubleshoot technical problems when they occur.

3. Since activation of the 'hijack mode' is a capability that is required for legal operation, there will be a need to introduce means by which the crew can confirm that the function is operating prior to dispatch. This may include a pre-flight check and a means of annunciating failures to the crew. There will also need to be a corresponding MMEL entry, which could cause airlines unwanted dispatch difficulties, with delayed departures and possibly cancelled flights.

4. Regardless of changes to the electrical breaker system, continuous electrical power to the transponder system cannot be guaranteed since a hijacker could deselect parts of the electrical distribution network or one or more of the electrical generating systems. This operation (which may be part of the normal smoke drills for isolation of electrical power) could disable the operation of the transponder(s) unless they were powered by a battery or aircraft standby power system.

5. Flight Manual procedures will be required to instruct the crew following an inadvertent operation of the 'hijack mode'. Also, ATC centres worldwide will need to adopt procedures for handling this situation. It will be difficult to ensure that such procedures are in place and are effective.

6. The imposition of a unique US requirement would undermine the objective of having harmonised ICAO requirements, which will complicate the transfer of aircraft between the US and the rest of the world.

7. Inadvertent operation cannot be prevented, even if guarded switches are used. Even with flight deck annunciation, the consequences of inadvertent operation will result in a potential risk to the aircraft and costs to the airline and the state. It is known that some flight crew have raised concerns about the increased threat of a military response to the transmitted '7500' code inadvertently or otherwise. As a result they have stated that they would be unlikely to use the '7500' code even on an unmodified aircraft. This raises a further question over the benefit of making it easier to transmit '7500' by installation of the proposed modification.

8. A number of European countries, including the UK, have adopted an agreed timetable for the introduction of Mode S Enhanced Surveillance. It is our

understanding that the avionics industry has not implemented the continuous operation modifications into the current transponder specifications that are aimed at the European Mode S Programme. The CAA believes that there are substantial safety benefits that will accrue from an early implementation of Enhanced Surveillance and we are concerned that there would be a risk of a major disruption in current activities if the security related changes should be progressed further.

9. Finally, there would be no need for continuous transponder operation if potential hijackers could be denied access to the cockpit. In the UK, airlines are required to fit cockpit door locking and intrusion resistant modifications, including means for the pilot and co-pilot to monitor the door area outside of the flight deck from their seats. The intention is to allow the flight crew to identify anyone seeking entry to the flight deck and to be able to detect suspicious behaviour or a potential threat. With these requirements in place the CAA is confident that the aircraft security measures introduced thus far are sufficient to counter the perceived threat. We see no need for further costly and problematic modifications to the aircraft transponders.