
AAIB Safety Study - 1/2016

AIRWORTHINESS OF AIRCRAFT REGISTERED OVERSEAS AND RESIDENT IN THE UK

Introduction

Article 17(2) of Regulation (EU) 996/2010, concerning the investigation and prevention of accidents and incidents in civil aviation, states:

'A safety investigation authority may also issue safety recommendations on the basis of studies or analysis of a series of investigations or other activities conducted in accordance with Article 4(4).'

Since 2008, the AAIB investigations of several general aviation (GA) fatal accidents involving aircraft registered overseas revealed common airworthiness issues. A safety study was initiated by the AAIB to determine if these issues were associated with aircraft not registered in the UK, but resident¹ and operated within it.

Initial information

The investigations of several fatal accidents² involving foreign registered General Aviation (GA) aircraft identified the following:

- Aircraft not registered in a European Aviation Safety Agency (EASA) Member State, but operated and resident in the UK, which have not complied with the requirements of the Air Navigation Order (ANO).
- Aircraft not registered in an EASA Member State, but operated and resident in the UK, which had no effective airworthiness oversight from the State of Registration or the UK Civil Aviation Authority (CAA).
- Aircraft registered in another EASA Member State, but operated and resident in the UK, which did not comply with EASA airworthiness requirements or the requirements of the ANO.
- Aircraft registered in another EASA Member State, but operated and resident in the UK, which had no effective airworthiness oversight from the State of Registration or the UK CAA.

Footnote

¹ Consistent with UK Department for Transport rules on foreign vehicles imported into the UK, the safety study considers aircraft operated and based in the country for six months or more to be permanently resident.

² Registrations YU-HEW, HA-LFB and RA-3585K – see www.aaib.gov.uk

This study contains facts which have been determined up to the time of issue. It is published to inform the aviation industry and the public of the general circumstances and should be regarded as tentative and subject to alteration or correction if additional evidence becomes available.

Additional aircraft inspections

In order to determine if these issues were unique to the aircraft investigated, others that had not been involved in reportable occurrences were inspected by the AAIB on an opportunity basis³ and the maintenance records of several EASA and non-EASA registered aircraft were examined. The records showed that each of these aircraft had been registered in EASA Member States previously and that a transfer of registration had coincided with the need to overhaul major components such as the engine. Discussion with maintenance organisations revealed that re-registration of the aircraft had been carried out to take advantage of lower maintenance costs in the new State of Registration.

Common issues

The additional inspections identified issues common with the original accident investigations.

Maintenance records indicated that, immediately after the transfer of registration, aircraft had expensive life-controlled components replaced that had been overhauled by a maintenance organisation in the new State of Registration or a non-EASA Member State. Information provided by the National Airworthiness Authority (NAA) responsible for these organisations highlighted inconsistencies in the organisations' approvals to complete this work and to release and fit components to aircraft holding an EASA Certificate of Airworthiness.

The serial numbers of several replacement components indicated that they had been manufactured under licence for use only on military variants of the aircraft type. Discussion with the Original Equipment Manufacturers (OEM) confirmed that no agreement was in place to allow these components to be installed on aircraft holding an EASA Certificate of Airworthiness. The OEMs also confirmed that since the early 1990s, when the military licence agreements lapsed, no approved maintenance or manufacturing documentation had been provided to the overhaul organisations concerned.

Aircraft which had previously been on the register of a non-EASA Member State and recently transferred to an EASA Member State's register, had been issued with full EASA Certificates of Airworthiness by the Member State. Inspection of the associated records showed that large numbers of life-limited components had been recertified with EASA 'Form 1s'⁴ during the transfer of registry. The maintenance histories of some components, including engines, were incomplete and the maintenance organisations were unable to demonstrate that all the actions necessary to confirm that these components met EASA requirements had been carried out prior to recertifying them.

Continued airworthiness standards

The current international standards for the continued airworthiness of aircraft are defined in the ICAO Airworthiness Manual (Doc 9760) published in 2001 and in Annex 6 - Operation

Footnote

³ With the cooperation of their owners and maintenance providers.

⁴ This is the certificate of release to service following manufacture or repair/overhaul which states that all work on the component has been completed in accordance with the appropriate regulations. A Form 1 is required for each component replaced in order for the aircraft's Certificate of Airworthiness to remain valid.

of Aircraft, and Annex 8 - Airworthiness of Aircraft of the 1944 ICAO Chicago Convention. The Airworthiness Manual contains standards and recommended practices intended to ensure consistent airworthiness standards are applied across all contracting States.

The EASA was created in 2003. Since then, control of civil aviation airworthiness standards within European Member States (for aircraft subject to the essential requirements of Annex 1 of the EASA Basic Regulation responsibility) has been gradually transferred from the individual States' NAAs to the EASA, a process which is now complete.

The NAAs still exist, but their role has changed to domestic implementation and oversight of the common rules developed by the EASA, as enforcement measures can only be taken under the domestic legal system of the State in question.

The Flight Standards Directorate of the EASA is responsible for the standardisation of Member State NAAs. The Directorate undertakes standardisation audits to ensure that airworthiness requirements are being applied consistently across all Member States.

With the application of common airworthiness requirements across Europe, aircraft with an EASA Certificate of Airworthiness are now permitted to operate and reside within any European Member State, such as the UK, without the need to request permission from the NAAs of the countries they visit, or the need to advise them of entry and exit dates, or the likely location of the aircraft.

Aircraft registered in States which are members of the European Civil Aviation Conference (ECAC) have also been granted a general exemption to operate in the UK for 28 days without requiring permission from the CAA. Aircraft registered in non-European States, but which have a Certificate of Airworthiness issued by an International Civil Aviation Organisation (ICAO) Member State, are permitted to reside temporarily in the UK after permission has been sought and granted from the CAA. Hence, the CAA do not monitor foreign registered aircraft resident in the UK.

In the United Kingdom, continued airworthiness standards are defined in CAP 393 – Air Navigation: The Order and Regulations, also referred to as the Air Navigation Order (ANO). Aircraft registered in an EASA State are assumed, by virtue of EASA standardisation, to be compliant with the EASA requirements or the ANO, and are therefore able to operate within the UK indefinitely, without having to demonstrate compliance to the CAA. However, the operator of an aircraft which either does not meet the EASA requirements or comply with the ANO is required to apply for an exemption to the requirements from the CAA. The exemption, if granted, is usually granted for a limited period and is subject to conditions which restrict the aircraft's operation.

Under the ANO the CAA retains the ability to prevent an aircraft from flying if it is considered to be unsafe.

Communication with the CAA

Since June 2012 the AAIB has, on several occasions, met or contacted representatives of the UK CAA to highlight the AAIB's safety concerns, and to request that the CAA inspect other aircraft and their records to determine the prevalence of the issues identified so far. The AAIB provided a list of aircraft suitable for such inspections and has, to date, been made aware of the findings of three inspections.

The AAIB also requested that the CAA confirm the status of approvals held by foreign maintenance organisations necessary to conduct component overhaul and certification as identified during the AAIB investigation. The AAIB has received no response.

Performance-based regulation

Performance-based regulation (PBR) is a process of regulatory oversight which is based on the identification of known risks and safety performance. PBR is central to the EASA's and ICAO's future regulatory strategy. In June 2014 the CAA published Civil Airworthiness Publication (CAP) 1184 titled: *'The transformation to performance-based regulation'*. This document defined the transition process that the CAA has adopted to move from the current system of oversight to PBR. CAP 1184 states:

'A performance-based approach will help us to identify the safety outcomes. This will allow us to target our resources strategically to the areas with the greatest potential to deliver safety improvements. Our safety experts will support the industry to better understand their own risks in the context of the total aviation system and take proactive steps to manage them.'

Coroner's recommendation

An inquest on 25 March 2013, concerning one of the fatal accidents considered in this safety study, heard evidence of airworthiness issues identified as a result of the original investigation conducted by the AAIB. The Coroner, under Schedule 5 of the Coroners and Justice Act 2009, asked The Secretary of State for the Department of Transport to consider:

'Reviewing the arrangements which apply to the operation of helicopters based and flown in this country which are registered in other countries, including the issue of record keeping, maintenance and airworthiness.'

The Coroner recorded that the Secretary of State responded, in part, as follows:

'The department is aware that there are a number of helicopters based and operated in the UK that are registered in other countries. The department is working with Civil Aviation Authority (CAA) to understand whether there are similar issues with other foreign helicopters as part of the UK State Safety Programme.'

And:

'The department has asked the CAA to conduct inspection/surveys on other foreign registered Gazelle aircraft, notably from Serbia and Hungary. This work is ongoing and remains a priority for the department. The CAA has been in touch with both the Hungarian and Serbian Authorities and are working together to improve the oversight of these helicopters.'

The AAIB has not been made aware of any airworthiness action, such as the assessment of additional aircraft and their component records, taken by the CAA that addresses the concerns raised by the Secretary of State.

Safety issues

The Safety Study has highlighted a number of concerns regarding the potential airworthiness of non-UK registered aircraft permanently based and operated in the UK. Registering GA aircraft in a state other than the one in which it is intended to reside can offer significant cost savings. However, in the cases investigated as part of this safety study these savings were achieved in circumstances where non-EASA compliant standards were accepted or overlooked by owners, Part 145 maintenance organisations and the relevant NAA.

The oversight responsibilities for these aircraft remain with the state of registry, despite the NAA having no jurisdiction within the state where the aircraft is based. The NAA of the state where the aircraft is resident has no mandate to 'adopt' airworthiness oversight responsibility for these aircraft, but does have provision to conduct audits of the aircraft and its records. However, this is complicated by the absence of any requirement to declare the whereabouts or movements of these aircraft, or for their records to be held in the state of residence or in its official language. The reduction in NAA resources that has followed the transfer of responsibilities to the EASA exacerbates the challenge of addressing this problem.

Airworthiness standards are not being applied rigorously or consistently across all EASA Member States. This has resulted in a demonstrated variation in airworthiness standards between the UK and other EASA Member States, and in aircraft operating effectively unregulated, outside the control of their parent NAA. Given the unrestricted right for EASA registered aircraft to operate in any other Member State without additional checks by the host NAA, there is nothing to prevent this issue existing in all EASA Member States. Consequently, the potential exists for a significant reduction in airworthiness standards in Europe. Whilst the evidence identified to date relates to aircraft used privately, EASA Part 145 approved maintenance organisations have been implicated. The recent introduction of EASA defined but NAA administered, EU Ops requirements will also increase the risk of similar standardisation-related issues existing within commercial transport operations.

The Flight Standards Directorate of the EASA is responsible for the standardisation of Member State NAAs. Under this system one NAA typically has no authority to audit the activities of another NAA, and must accept that it is operating to the required standard.

Furthermore the move by the CAA towards a risk-based approach of regulatory oversight will result in fewer aircraft and records inspections being conducted by airworthiness authority personnel on organisations or sectors of aviation deemed to be low risk. Given the acknowledged absence of any auditing of foreign registered aircraft in the UK and the move to similar arrangements for operations oversight, it is unclear how any evidence would come to the attention of the CAA in order to raise the risk profile of foreign registered aircraft based in the UK, to the extent that inspections would begin to be conducted. The move to risk-based oversight is therefore likely to exacerbate the problem of airworthiness issues affecting non-UK registered aircraft operating in the UK remaining undetected.

In the absence of effective audits, individual States cannot be confident in the airworthiness of aircraft resident within their borders but registered elsewhere. Therefore the following Safety Recommendation is made:

Safety Recommendation 2015-039

It is recommended that the European Aviation Safety Agency determine the extent to which airworthiness standards of aircraft resident within a Member State but registered elsewhere are being applied consistently across Member States, and publish its findings.

In the UK, the CAA retains the power to prevent aircraft which fail to comply with the ANO from operating within the UK. Therefore the following Safety Recommendation is made:

Safety Recommendation 2015-040

It is recommended that the United Kingdom Civil Aviation Authority take urgent action to ensure that foreign registered aircraft, permanently based and/or operated in the United Kingdom, comply with the requirements of the Air Navigation Order and their Certificate of Airworthiness.

The AAIB will continue to study this issue and will report further as necessary.