



DIRECCIÓN NACIONAL DE AERONAVEGABILIDAD (DNA)
DIRECCIÓN AVIACIÓN GENERAL (DAG)
REPÚBLICA ARGENTINA

ADVERTENCIA 079/DAG

La presente ADVERTENCIA tiene por objeto dar a conocer una situación que puede resultar de interés para Talleres Aeronáuticos de Reparación, operadores y/o propietarios de aeronaves. Se emite a los efectos de informar y las recomendaciones no tienen carácter mandatorio.

Ciudad Autónoma de Buenos Aires, 30 de noviembre de 2007.

APLICABLE A: Aeronaves marca Aeronca, Bellanca, Champion y American Champion Aircraft Corporation (ACAC).

MOTIVO: Desgaste excesivo y rotura de hebras en cables de comando.

ANTECEDENTES: Esta Advertencia pone en conocimiento del público usuario del Special Airworthiness Information Bulletin (SAIB) N° CE-07-45 de fecha 24-Agosto-2007, emitido por la Federal Aviation Administration de EE.UU., relacionado con desgaste excesivo y rotura de hebras en los cables de comando de aeronaves modelo 7AC, 7ACA, S7AC, 7BCM, 7CCM, S7CCM, 7DC, S7DC, 7EC, S7EC, 7ECA, 7FC, 7GC, 7GCA, 7GCAA, 7GCB, 7GCBA, 7GCBC, 7HC, 7JC, 7KC, 7KCAB, 8KCAB, 8GCBC, 11AC, S11AC, 11BC, S11BC, 11CC, y S11CC, que, de no ser detectado y apropiadamente corregido, podría provocar la pérdida de control de la aeronave.

Se adjunta a esta Advertencia el SAIB N° CE-07-45 (dos páginas).

RECOMENDACION: Esta Dirección recomienda la inspección de cables de comando y la lubricación de poleas de acuerdo al párrafo "Recommendations" del SAIB N° CE-07-45.

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SUBJ: Flight Controls

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) advises you of an airworthiness concern for airplanes built by **Aeronca, Bellanca, Champion, or American Champion Aircraft Corporation (ACAC)** where possible flight control cable fraying, if undiscovered/unchecked by maintenance, could lead to loss of flight control.

The models include: 7AC, 7ACA, S7AC, 7BCM, 7CCM, S7CCM, 7DC, S7DC, 7EC, S7EC, 7ECA, 7FC, 7GC, 7GCA, 7GCAA, 7GCB, 7GCB, 7GCBA, 7GCBC, 7HC, 7JC, 7KC, 7KCAB, 8KCAB, 8GCBC, 11AC, S11AC, 11BC, S11BC, 11CC, and S11CC.

This airworthiness action has been taken after consideration of the responses from ACAC as well as airplane owners/ operators through relevant associations and type clubs, using the procedures found in the Small Airplane Directorate Airworthiness Directives Manual Supplement (Airworthiness Concern Process Guide). At this time, this airworthiness concern is not considered an unsafe condition that would warrant an airworthiness directive (AD) action under Title 14 of the Code of Federal Regulations (14 CFR part 39).

Background

There are several service difficulties for frayed elevator and rudder control cables in the areas where the cables pass over pulleys in the empennage of the airplane. Recently a fixed based operator reported that a pilot performing aerobatics in a Decathlon (8KCAB) noticed a change in elevator control stick pressure and position. Upon landing, it was discovered that the up elevator control cable had stretched as a result of three of seven strands failing. The fraying had occurred where the up elevator cable passes over a pulley just below the vertical stabilizer.

Discussion

Metallurgical examination of the above-mentioned cable by a laboratory has not discovered any abnormalities in the wire rope used in the fabrication of the cable. However, the wire rope was not manufactured by a company listed on the military Qualified Products List (QPL) of Products Qualified Under Detail Specification MIL-DTL-83420 Wire Rope, Flexible, For Aircraft Control, General Specification For; document number QPL-83420-14. Wire rope that is not manufactured by a company that is listed in the QPL does not mean the rope is not adequate for the application; however, it raises the possibility that the rope may not meet all the performance requirements required by the MIL-DTL-83420 specification, including a reduction in the wire rope fatigue life.

Cable wear and degradation is expected, especially in the vicinity of the pulleys. Section 8, "Inspection and Repair of Control Cables and Turnbuckles" of Chapter 7, "Aircraft Hardware, Control Cables, and Turnbuckles" in Advisor Circular AC 43.13-1B, "Acceptable Techniques, Methods, and Practices – Aircraft Inspection and Repair" includes recommended procedures for inspection and care of control cables. Specifically, paragraphs 7-149.d and 7-152 respectively cover

close inspection in critical fatigue areas and cable corrosion protection/lubrication (for carbon steel cables).

The ACAC service manual does call for a visual inspection of the control cables at the 100-hour or annual inspection. It is assumed that any initial/minor fraying of control cables will be detected at the inspection before it can progress to cable stretch or failure. Airplanes flown routinely for aerobatics will also incur more cable wear than those flown with much lighter loads imposed on the flight controls.

The pulleys used with the flight control cables for elevator, rudder, and aileron are self lubricating and sealed so lubrication is not required. However, most of the pulleys used for the elevator trim and flaps (for those airplanes that have flaps) are constructed of aluminum riding on a steel insert. These pulleys require lubrication with general purpose oil at intervals not to exceed 100 hours to keep the pulleys from binding and causing undue control cable wear (See the Airplane Service Manual for details).

Recommendations

We recommend that the airplane flight control cables be thoroughly inspected every 100 hours. This is especially important in the 2- to 3-inch areas where the cables travel over pulleys. If possible, the inspector should have another person move the control being inspected over its full travel, while the cable is being inspected. Fraying of a few wires may be difficult to detect unless the cable is bent such that broken wires protrude from the cable. Some cable bending occurs where the cable passes over the pulleys, however, the inspector may wish to remove the cables from the airplane for a complete and thorough inspection. If cable replacement is required, we suggest the wire rope used in the replacement cable be manufactured by a QPL qualified company. As of the writing of the SAIB, any cable manufactured by ACAC will contain QPL qualified wire rope.

In addition , we highly recommend lubrication of the elevator trim and flap pulleys (for airplanes with flaps – 5 of 7 pulleys require lubrication) at intervals not to exceed the recommended intervals in the airplane service manual.

For Further Information Contact

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