



**United Kingdom
Civil Aviation Authority**

**AIRWORTHINESS
DIRECTIVE**

AD No: G-2004-0021 R1

Issue Date: 15 September 2004

This AD is issued by the UK CAA acting for and on behalf of the European Aviation Safety Agency as the Primary Aviation Authority (ICAO Annex 8 Authority of State of Design) for the affected product(s).

Approved by the European Aviation Safety Agency under approval number 2004-9032 Rev 1 on 10 September 2004.

In accordance with Article 9(7)(b) of the Air Navigation Order 2000 as amended the following action required by this Airworthiness Directive (AD) is mandatory for applicable aircraft registered in the United Kingdom.

No person may operate an aircraft to which an AD applies except in accordance with the requirements of that AD unless otherwise agreed with the Authority of the State of Registry.

Type Approval Holders Name:

Type/Model Designation(s):

SHORT BROTHERS PLC

**SD3-30, SD3-60, SD3-SHERPA,
SD3-60 SHERPA**

Type Certificate Data Sheet No: BA11

Superseded/ Revised ADs: G-2004-0021

**ATA 28 - FUEL SYSTEM – INTRODUCTION OF ADDITIONAL BONDING AND ADDITIONAL
BONDING/INSULATION CHECKS ON FUEL TANK INTERNAL COMPONENTS**

Manufacturer(s): Short Brothers PLC

Applicability: Models SD3-30, SD3-60, SD3-Sherpa and SD3-60 Sherpa aeroplanes, certificated in any category.

Reason: This Airworthiness Directive has been revised to include additional information in Table 1 that was unintentionally omitted from the original issue of Airworthiness Directive (AD) G-2004-0021.

The FAA and JAA have examined the underlying safety issues involved in recent fuel tank explosions on several large transport aeroplanes, including the adequacy of existing regulations, the service history of aeroplanes subject to those regulations, and existing maintenance practices for fuel tank systems. As a result of those findings, the FAA issued a regulation titled "Transport Airplane Fuel Tank Systems Design Review, Flammability Reduction and Maintenance and Inspection Requirements". In addition to new airworthiness standards for transport aeroplanes and new maintenance requirements, the rule included Special Federal Aviation Regulation No. 88. JAA worked closely with FAA and published their equivalent requirements in JAA Fuel Tank Safety Recommendation Letter reference 04/00/02/07/03-L024 dated 3 February 2003.

Among other actions, SFAR 88 and the JAA Safety Recommendation Letter require certain type design holders to substantiate that their fuel tank systems can prevent ignition sources in the fuel tanks. This requirement applies to type design holders for large turbine-powered transport aeroplanes and for subsequent modifications to those aeroplanes. It requires them to perform design review and to develop design changes and maintenance procedures if their designs do not meet the new fuel tank safety standards. Airworthiness Directives will be adopted to mandate any changes found necessary to address unsafe conditions identified as a result of these reviews.

In evaluating these reviews FAA and JAA established four criteria intended to define the unsafe conditions associated with fuel tank systems that require corrective actions. The percentage of operating time during which fuel tanks are exposed to flammable conditions is one of these criteria. The other three criteria address the failure types under evaluation: single failures, single failures in combination with other latent condition(s) and in-service failure experience. For all four criteria, the evaluations included consideration of previous actions taken that may mitigate the need for further action.

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Based on this process, EASA has determined that the actions identified in this AD are necessary to reduce the potential of ignition sources inside fuel tanks, which, in combination with flammable fuel vapours in fuel tank explosions and consequent loss of the aeroplane. In this case, two additional bonding jumpers between the fuel vent pipes and the aircraft structure are required, as are additional inspections including bonding/insulation checks on internal components of the fuel tank.

Effective Date: 15 September 2004

Compliance/Action

- a) Within 1 month after the effective date of this AD, insert Shorts Flight Manual Advance Amendment Bulletin 1/2004 or later EASA approved revision in the Aircraft Flight Manual.
- b) Within 6 months after the effective date of this AD, perform the following tasks in accordance with the applicable Shorts Service Bulletin or later EASA approved revision specified in Table 1 of this AD.

Aircraft Type/Model	Applicable Service Bulletin	Aircraft Maintenance Manual Sections 5-20-01 & 5-20-02 introduced by
SD3-30	SD 330-28-37 initial issue dated June 2004	TR330-AMM-13 and TR330-AMM-14 Dated June 2004
SD3-60	SD 360-28-23 initial issue dated June 2004	TR360-AMM-33 and TR360-AMM-34 Dated July 2004
SD3-SHERPA	SD3 SHERPA-28-2 initial issue dated June 2004	TRSD3S-AMM-15 and TRSD3S-AMM-16 Dated July 2004
SD3-60 SHERPA	SD360 SHERPA-28-3 initial issue dated June 2004	TRSD360S-AMM-14 and TRSD360-AMM-15 Dated July 2004

Table 1

- i. Carry out an insulation resistance check of the fuel tank float switches in accordance with Section 2 Part A of the applicable Service Bulletin.
- ii. Inspect the condition of the Fuel Quantity Gauging System sensor cables and the cable supports inside the fuel tanks in accordance with Section 2 Part B of the applicable Service Bulletin.
- iii. Inspect the integrity of the existing bonding of the 2 off vent pipes inside cell 2 of the forward fuel tank in accordance with Section 2 Part C of the applicable Service Bulletin.
- iv. Install new bonding jumper wires between the forward and aft fuel tank vent pipes and the aircraft structure in accordance Section 2 Part D of the applicable Service Bulletin.

Any defect identified as a result of performing the tasks specified in Paragraph b) must be rectified prior to further flight.

- c) Upon completion of Paragraph b) of this AD, compliance with section 5-20-01 and 5-20-02 of the applicable Aircraft Maintenance Manual introduced as specified in Table 1 (or later approved AMM revision) of this AD is mandatory.

Reference Publications: Shorts Service Bulletins, Aircraft Maintenance Manual Temporary Revisions and Flight Manual Advance Amendment Bulletin 1/2004 - copies may be obtained from Short Brothers PLC, PO Box 241, Airport Road, Belfast BT3 9DZ, Northern Ireland.

Remarks: Enquiries regarding this AD may be directed to Civil Aviation Authority, Safety Regulation Group, Aircraft Projects Department, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR, United Kingdom. Phone: +44 (0) 1293 5733289 Fax: +44 (0) 1293 573976 E-mail: peter.moule@srg.caa.co.uk