Safety Information Bulletin

Airworthiness

SIB No.: 2017-09

Issued: 22 June 2017

Subject: Lack of Monitoring of DU-875, DU-885 and DU-885AF Displays

Ref. Publications:

[1] Esterline Service Bulletin Avionics (SBAv) SBAv-0058 Issue 03, dated 31 May 2017 (or later Issue).
[2] Esterline SBAv-0060 Issue 01, dated 31 May 2017 (or later Issue).
[3] Esterline Safety Analysis Report for the Display Unit (DU -8x5) - Document number P0616-SDRL-DU-8x5-021 Issue 06, release date 18 December 2009.
[4] Esterline Safety Analysis Report for the Display Unit (DU -8x5AF) - Document number P0903-SDRL-DU-8x5AF-021 Issue 00, release date 06 May 2015.
[5] Esterline Failure Mode Effect Analysis for the Display Unit (DU-885) - Document number P0616-SDRL-DU-885-020 Issue 05, release date 16 November 2016.
[6] Esterline Failure Mode Effect Analysis for the Display Unit (DU-875) - Document number P0615-SDRL-DU-875-020 Issue 02, release date 09 November 2011.
[7] Esterline Reliability Prediction Report for the Display Unit (DU-875) - Document number P0615-SDRL-DU-875-022 Issue 03, release date 24 October 2011.
[8] Esterline Reliability Prediction Report for the Display Unit (DU-885) - Document number P0616-SDRL-DU-885-022 Issue 05, release date 24 October 2011.

Applicability:

All operators, Type Certificate (TC) and Supplemental Type Certificate (STC) holders of aeroplane types fitted with Esterline Belgium (formerly BARCO NV) DU-875, DU-885 and DU-885AF displays, as identified by Part Number (P/N) in Appendix 1 of this SIB and as identified in Appendix 2 of this SIB. These displays are installed as part of the Honeywell Primus Elite display update of the Primus 1000 and Primus 2000 suites.

Description:

DU-875, DU-885 and DU-885AF displays perform their intended function through a number of automatic self-tests. It became apparent, at the occasion of further development, that some of these tests are not performed as frequently as foreseen and some failures are not reported as intended. This may result in the equipment not meeting its specification. It could also result in the installation not meeting the safety objectives of the aeroplane Failure Hazard Analysis (FHA) as initially determined at the time of the installation approval.

The equipment manufacturer is preparing a mid-term software update to recover the intended performance of the displays. The safety documentation has been partially updated, but some results are still subject to discussion with EASA, requiring the interim use of conservative values.

This SIB will be updated to reflect the release of the safety documentation and of the software update.

At this time, the safety concern described in this SIB is not considered to be an unsafe condition that would warrant Airworthiness Directive (AD) action under Regulation (EU) 748/2012, Part 21.A.3B.

Recommendation(s):

EASA recommends all affected TC and STC holders to re-evaluate the compliance of DU-875, DU-885 and DU-885AF displays with the FHA objectives, including the 'no single failure' criterion, using the safety documentation (ref. [3] to [8]) from the equipment manufacturer with the modifications listed in Table 1 below, and to report any non-compliance to EASA and the local authority to determine the need for further action.

Table 1: Conservative values modifying documents [3] and [4]

Undesired Event	Conservative Failure Rate to consider in place of the Calculated Failure Rate (/H)
UE01	5E-06
UE02	1E-07
UE03	1E-05
UE04	1E-07
UE05	Unmodified
UE06	1E-06
UE07	1E-05
UE08	1E-05
UE09	Unmodified
UE10	5E-06
UE11	Unmodified
UE12	Unmodified

In addition, EASA recommends all operators of aeroplanes fitted with DU-875 or DU-885 displays, as listed in Appendix 1 and 2 of this SIB, to accomplish the following repetitive actions in accordance with the instructions of section 5 of Esterline SBAv-0058 (ref. [1]) until the equipment is upgraded with a software release recovering the intended performance:

- For displays in Multi-function Display/Navigation Display (MFD/ND) position, check for the presence of latent failure using the dedicated tool,
- For displays in Primary Flight Display/Engine Indicating and Crew Alerting System Display (PFD/EICAS) positions, temporarily move the display to a MFD/ND position, check for the presence of latent failure using the dedicated tool,
- Displays exhibiting latent failures should be reported to the equipment manufacturer and should be returned for repair through the known channels.

EASA also recommends all operators of aeroplanes fitted with DU-885AF displays, as listed in Appendix 1 and 2 of this SIB, to accomplish these repetitive actions in accordance with the instructions of section 5 of Esterline SBAv-0060 (ref. [2]) until the equipment is upgraded with a software release recovering the display intended performance.

EASA also recommends all operators of aeroplanes fitted with DU-875, DU-885 or DU-885AF displays, as listed in Appendix 1 and 2 of this SIB, to upgrade the displays with a software release recovering the display intended performance in accordance with instructions that will be made available by Esterline.

Note: The interval defined in ref. [1] and [2] as well as the failure rates defined in Table 1 of this SIB are based on conservative assumptions and are expected to be modified in a further release of these documents.

Contact(s):

For further information contact the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.

For a copy of the Esterline SBAv, or technical assistance or advice, contact Esterline Belgium, President Kennedy Park 35A, 8500 Kortrijk, Belgium, E-mail: display.support@esterline.com.

Appendix 1 – Affected Displays and Aeroplane Manufacturers

The ETSO Approval Holder of the affected displays is Esterline Belgium.
Affected displays are known to be installed on, but not limited to, the aeroplanes listed below.

DU Type	DU Part Number		TC Holder(*)	STC Holder(s) (*)	Aeroplane Model(s)
		With Revision Index Equal or Less Than			
DU-875	K9321060A04	00	328 SUPPORT SERVICES GMBH		Dornier 328-100
DU-875	K9321060A05	00	No known installations		
DU-875	K9321060A10	08	No known installations		
DU-875	K9321060A11	01	BOMBARDIER INC.	LEARJET INC.	BD-700-1A10 and BD-700-1A11
DU-875	K9321060A11	01	DASSAULT AVIATION	DASSAULT AIRCRAFT SERVICES (DAS), STANDARD AERO	Falcon 900EX and Mystère Falcon 900
DU-875	K9321060A12	01	EMBRAER S.A.	EMBRAER, 328 DESIGN GMBH	EMB-135BJ (Legacy 600/650)
DU-875	K9321060A13	01	TEXTRON AVIATION, INC.		750 (Citation X)
DU-875	K9321060A13	01	EMBRAER S.A.	CHIPPEWA AEROSPACE, INC.	EMB-135 and EMB-145 Series
DU-875	K9321060A13	01	BOMBARDIER INC.	LEARJET INC.	BD-700-1A10 and BD-700-1A11
DU-875	K9321060A13	01	DASSAULT AVIATION	DASSAULT AIRCRAFT SERVICES (DAS), STANDARD AERO	Falcon 900EX and Mystère Falcon 900
DU-875	K9321060A13	01	BOMBARDIER INC.	CHIPPEWA AEROSPACE, INC.	BD-700-1A10 and BD-700-1A11
DU-875	K9321060A13	01	DASSAULT AVIATION	CHIPPEWA AEROSPACE, INC.	Falcon 900EX and Mystère Falcon 900
DU-875	K9321060A14	00	TEXTRON AVIATION, INC.	CHIPPEWA AEROSPACE, INC.	550, 560 XL (Excel) and 560 (Encore and Ultra)

DU Type	DU Part Number		TC Holder(*)	STC Holder(s) (*)	Aeroplane Model(s)
		With Revision Index Equal or Less Than			
DU-875	K9321060A14	00	LEARJET INC.	JETCITY CHIPPEWA AEROSPACE, INC.	Learjet 40 and Learjet 45
DU-885	K9321061A01	11	No known installations		
DU-885	K9321061A02	02	No known installations		
DU-885	K9321061A03	01	GULFSTREAM AEROSPACE CORP.		GIV and GIV-SP
DU-885	K9321061A10	12	No known installations		
DU-885	K9321061A11	03	No known installations		
DU-885	K9321061A12	02	GULFSTREAM AEROSPACE CORP.		GV
DU-885AF	K9321063A00	01	GULFSTREAM AEROSPACE CORP.		GIV and GIV-SP
DU-885AF	K9321063A10	01	GULFSTREAM AEROSPACE CORP.	GULFSTREAM AEROSPACE CORP.	GV

(*) The displays are usually installed by an STC Holder, but could also be installed directly by the TC Holder.

Appendix 2 – Affected Displays Index Numbers

The display part number is composed of 11 alphanumerical characters plus 2 additional digits as striked out on the equipment plate. These two digits are referred to as the revision index in Appendix 1 of this SIB.

The example below shows the part number K9321060A11 with revision index 01: