



**CIVIL AVIATION AUTHORITY OF SRI LANKA
AVIATION SAFETY NOTICE**

ASN No 103	Ref No: OPS/2008/01	File Ref: OP/21/10/1/8
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- Recipients
1. Holders of Air Operator Certificate issued by the DGCA.
 2. Prospective applicants for Air Operator Certificate for Commercial Air Transport Operations.
01. Subject : **Guidance for maintaining the effectiveness of Ground Proximity Warning System (GPWS) equipment.**
02. Nature : Compulsory
03. Issue no : 01
04. Status : New
05. Effective date : With immediate effect
06. Validity : Until further notice
07. Contact person : For more details / clarifications/ about this ASN, please contact Deputy Director (Operations), Civil Aviation Authority of Sri Lanka, No 64, Galle Road Colombo 3.
Tel: +94 11 2399534/ +94 11 2441523.
E-mail: dd_ops@slt.net.lk
08. Availability : A copy of this document is available at the Technical library of Civil Aviation Authority for reference.
www.caa.lk
09. Applicability : Holders of Air Operator Certificates issued by DGCA for Commercial Air Transport Operations.
10. Comments : Comments (if any) on the contents of this ASN may be forwarded to the Contact Persons. However the Aviation Safety Notice will come into effect on the date shown therein notwithstanding any objection or comment made by any person or party unless and until an amendment to the Aviation Safety Notice is issued afresh by the Director General of Civil Aviation



REDUCED EFFECTIVENESS OF TAWS/EGPWS EQUIPMENT

1. PURPOSE. This Aviation Safety Notice provides information to air operators on factors that can reduce the effectiveness of ground proximity warning system (GPWS) equipment.

2. BACKGROUND. A controlled flight into terrain (CFIT) accident occurs when an airworthy aircraft under the control of the flight crew is flown unintentionally into terrain, obstacles or water, usually with no awareness of the impending collision on the part of the crew. CAASL has issued an Aviation Safety Notice (ASN) (Ref 053) on this subject based on a new standard introduced to the Annex-6 by International Civil Aviation and ASN (Ref 066) based on the Safety Enhancement Recommendations issued by SARAST, COSCAP-South Asia.

a. Operational experience has identified concerns about the use of EGPWS that must be addressed to ensure that the timely warning that has proven so valuable to accident avoidance is available all of the time.

b. The EGPWS/TAWS safety issues that have been identified concern the upkeep of software on which EGPWS/TAWS depends, as well as the obstacle, runway and terrain database, the provision of global navigation satellite system (GNSS) positioning, the operation of the system's "peaks and obstacles" function, and the geometric altitude function of the equipment.

3. SOFTWARE UPDATE.

a. For the EGPWS/TAWS to help reduction of CFIT accidents effectively it is necessary that the software being used by the system to be updated regularly in a timely manner. Also it is noteworthy to mention that software updates are often available free of charge from equipment manufacturers.

b. Application of software updates improves the characteristics of the equipment. Such improvements are possible on the basis of operational experience, and enable warnings in situations that occur closer to the runway threshold where previously it was not possible to provide such warnings.

c. Without information provided by the latest version of software, operation of EGPWS/TAWS may be compromised in specific situations. The flight crew, who has no convenient means of knowing the software status of the equipment on which they ultimately rely, may have a false sense of confidence in its capability.

4. DATABASE UPDATE.

a. Similarly, it is crucial to regularly and at least twice a year update the obstacle, runway and terrain database provided by manufacturers for use with their equipment in a timely manner, since the proper functioning of the EGPWS/TAWS may otherwise be jeopardized. Again, updates are issued for these databases on a regular basis, free of charge by equipment manufacturers. EGPWS/TAWS operation can also be undermined by the lack of suitable navigational input. The equipment was designed to function with a position update system, but not all installations are linked

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to GNSS receivers. While the required position data can be acquired by using an effective ground-based navaid network, the most reliable of which is provided by DME/DME, such support for area navigation systems is not available everywhere. Use of GNSS, accessible worldwide, eliminates the possibility of position shift, which is another source of false warnings (or worse, the failure to provide a genuine warning).

b. To reduce the risk of CFIT as much as possible, countries around the world need to ensure that timely information of required quality on runway thresholds, as well as terrain and obstacle data, are provided for databases in accordance with the common reference systems.

5. ALTIMETRY-BASED ERRORS.

a. Operation of EGPWS/TAWS is subject to altimetry-based errors, which are more prominent during cold weather operations. This problem can be avoided when the equipment, originally designed to work with the QNH altimeter setting, is operated together with GNSS provided geometric altitude. Additionally, use of the geometric altitude function prevents errors that arise from the use of the QFE altimeter setting for approach and landing.

6. ACTION BY AIR OPERATORS.

a. Aircraft operators are advised to obtain the greatest safety benefit from EGPWS/TAWS by following the practices mentioned below which are directly related to the equipment in use.

- update software to the latest available standard, with a proper tracking system;
- update databases to the latest available standard with a proper tracking system;;
- ensure that the GNSS position is provided to EGPWS/TAWS;
- enable the EGPWS/TAWS geometric altitude function (if available);
- enable the EGPWS/TAWS peaks and obstacles function (if available); and
- implement any applicable service bulletins issued by manufacturers with a proper tracking system;

b. It is also advised that the operators should take such other measures as may be necessary to ensure CFIT prevention through effective use of GPWS. These measures include, but are not limited to: crew training; use of standard operating procedures; and implementation of a safety management system by the operator.

11. Notice : An Operator shall follow the guidance in the attachment to this ASN, to maintain the effectiveness of TAWS/GPWS equipment.
12. History of Revision : This ASN is issued in compliance with SARAST Advisory Circular No. AC (SA) 016 issued on 14 May 2008.
13. Related ASNs ASN 053 and ASN 066
14. Action Required : For strict compliance with the requirements in the attachment hereto.
15. Check list : List of current ASN numbers are as follows.

ASN No	Issue No	Date of Applicability	Remarks
ASN002	01	10.03.2000	nil
ASN003	01	18.08.2000	nil
ASN004	01	13.02.2001	nil
ASN005	01	26.03.2001	nil
ASN007	01	15.09.2001	nil
ASN008	02	16.11.2006	Replaced ASN no 008 issue no 01
ASN009	01	18.02.2002	nil
ASN010	01	18.02.2002	nil
ASN011	01	18.02.2002	nil
ASN012	01	18.02.2002	nil
ASN013	01	08.02.2002	nil
ASN014	01	01.03.2002	nil
ASN015	01	01.03.2002	nil
ASN016	01	01.03.2002	nil
ASN017	02	10.03.2005	Replaced ASN no 017 issue no 01
ASN018	01	20.03.2002	nil
ASN019	01	01.04.2002	nil
ASN021	01	01.04.2002	nil
ASN022	01	08.04.2002	nil
ASN023	01	01.06.2002	Replaced ASN no 003
ASN024	01	02.09.2002	nil
ASN025	02	15.10.2002	Replaced ASN no 001
ASN026	01	15.10.2002	nil
ASN027	01	20.12.2002	nil
ASN028	01	12.03.2003	nil
ASN029	01	21.03.2002	nil
ASN030	01	10.07.2002	nil
ASN031	01	15.07.2003	Replaced ASN no 006
ASN032	01	25.07.2003	nil
ASN033	02	25.08.2005	Replaced ASN no 033 issue no 01
ASN034	01	11.09.2003	nil
ASN035	01	12.09.2003	nil
ASN036	01	12.09.2003	nil
ASN037	01	13.10.2003	nil
ASN038	01	07.05.2004	nil
ASN039	03	05.01.2007	Replaced ASN no 039 issue no 02
ASN040	01	07.06.2004	nil
ASN041	01	16.06.2004	nil

ASN042	03	05.01.2007	Replaced ASN no 042 issue no 02
ASN043	02	12.08.2004	Amendment to ASN no 013
ASN044	02	13.03.2006	Replaced ASN no 044 issue no 01
ASN045	02	05.01.2007	Replaced ASN no 045 issue no 01
ASN046	01	14.09.2006	nil
ASN047	03	05.01.2007	Replaced ASN no 047 issue no 02
ASN048	02	05.01.2007	Replaced ASN no 048 issue no 01
ASN049	01	20.09.2004	nil
ASN051	01	20.09.2004	nil
ASN052	01	20.09.2004	nil
ASN053	03	05.01.2007	Replaced ASN no 053 issue no 02
ASN054	02	16.01.2008	Replaced ASN no 054 issue no 01
ASN055	02	11.02.2008	Replaced ASN no 054 issue no 01
ASN056	01	01.12.2005	nil
ASN057	01	01.12.2005	nil
ASN058	01	01.12.2005	nil
ASN059	-	-	Not issued yet
ASN060	02	05.08.2005	Replaced Page no 01 of the attachment to the ASN no 060 issue no 01
ASN061	02	05.08.2005	Replaced Page no 01 of the attachment to the ASN no 061 issue no 01
ASN062	01	01.03.2005	nil
ASN063	01	20.12.2004	nil
ASN065	01	06.04.2005	nil
ASN066	01	16.05.2005	nil
ASN067	01	16.05.2005	nil
ASN068	01	18.05.2005	nil
ASN069	01	18.05.2005	nil
ASN070	01	18.05.2005	nil
ASN071	01	18.05.2005	nil
ASN072	01	19.05.2005	nil
ASN073	01	19.05.2005	nil
ASN074	01	19.05.2005	nil
ASN075	01	19.05.2005	nil
ASN076	01	16.06.2005	nil
ASN077	01	08.08.2005	nil
ASN078	01	21.12.2005	nil
ASN079	01	16.09.2005	nil
ASN080	01	07.11.2005	nil
ASN081	02	25.06.2006	Replaced ASN no 081 issue No. 01
ASN082	01	23.11.2005	nil
ASN083	01	01.12.2005	nil
ASN084	01	16.12.2005	nil
ASN085	01	05.01.2006	nil
ASN086	01	06.04.2006	nil
ASN087	01	06.04.2006	nil
ASN088	01	06.04.2006	nil
ASN089	01	10.05.2006	nil
ASN090	02	25.01.2008	Replaced ASN no 090 issue No. 01
ASN091	02	24.03.2008	Replaced ASN no 091 issue No. 01
ASN092	01	09.11.2007	nil
ASN093	01	26.05.2008	nil
ASN094	01	02.06.2006	nil
ASN095	01	25.09.2006	nil
ASN096	01	11.09.2007	nil
ASN097	01	22.09.2006	nil

ASN098	01	04.04.2007	nil
ASN099	01	11.10.2007	nil
ASN100	02	08.05.2008	Replaced ASN no 100 issue No. 01
ASN101	01	28.01.2008	nil
ASN 102	01	04.03.2008	nil
ASN 103	01	01.08.2008	nil

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