

**DOCKET NO.: SA-517
EXHIBIT NO. 3-S**

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.**

**SAFETY BOARD RECOMMENDATION LETTER TO THE FAA
dated NOVEMBER 30, 1995 AND RESPONSES**

(14 pages)



National Transportation Safety Board

Washington D.C. 20594
Safety Recommendation

Log 2564

Date: November 30, 1995
In reply refer to: A-95-120

Honorable David R. Hinson
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On January 29, 1995, a Beechcraft A36, N3086T, crashed after the pilot declared a missed approach at the Dekalb-Peachtree Airport, Chamblee, Georgia. The private instrument-rated pilot was killed, and the airplane was destroyed. The airplane was being operated under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91. At the time of the accident, instrument meteorological conditions prevailed. An instrument flight rules flight plan had been filed for the personal flight, which had originated in Orlando, Florida.

The pilot had been receiving air traffic control (ATC) services from controllers at the Atlanta Terminal Radar, Approach Control (TRACON) and the local controller at the Dekalb-Peachtree Airport. The Dekalb-Peachtree ATC tower is a Level I non-approach control facility, and as such, approach control services are provided by the controllers at the Atlanta TRACON. After being vectored for an instrument landing system (ILS) approach to runway 20L, the pilot declared a missed approach to the tower. During the missed approach, radar and radio communications were lost.

All of the controllers who provided ATC services to the pilot of N3086T were interviewed on February 7, 8, and 9, 1995. In addition, staff from both facilities were asked to provide data as a part of the Safety Board's continuing investigation of the accident.

Among the data that Safety Board investigators received from the Atlanta TRACON was a continuous data recording (CDR) editor listing, which disclosed that before the accident, four minimum safe altitude warning (MSAW) general terrain warning (GTW) alerts concerning the target of N3086T had been directed to the tower at Dekalb-Peachtree.

The MSAW system is designed so that it can provide both an aural and a visual alarm to alert a controller when an aircraft is at an altitude that may place it in unsafe proximity to another aircraft, obstruction, or terrain. The visual alert is the message "LOW ALT" displayed above the aircraft identification in a full data block for the duration of the alert condition. The aural alarm is a buzzer that sounds in the radar facility and/or tower. FAA Order 7110.65, "Air Traffic Control," directs that once a controller observes or hears an MSAW alarm and recognizes that an unsafe situation may exist, the controller's first priority is to issue a safety alert to the

pilot. Once the pilot informs the controller that action is being taken to resolve the situation, no further alerts need to be issued.

The Dekalb-Peachtree tower has a D-BRITE¹ radar display for use by the local controllers during the performance of their duties. As stated in FAA Order 7110.65, "Air Traffic Control," paragraph 3-9, "Use of Tower Radar Displays," 3-9a Note, "Unless otherwise authorized, tower radar displays are intended to be an aid to local controllers in meeting their responsibilities to the aircraft operating on the runways or within the surface area". It also notes, "...local controllers at nonapproach control towers must devote the majority of their time to visually scanning the runways and local area; an assurance of continued positive radar identification could place distracting and operationally inefficient requirements upon the local controller."

There is no MSAW speaker installed in the Dekalb-Peachtree tower, but rather the controller receives a visual MSAW alert that is displayed on the D-BRITE display. During an interview with Safety Board investigators, the local controller stated that he did not observe a visual MSAW alert for N3086T, because he had been involved with other duties before the accident that did not allow him to continually monitor the data block for the airplane.

On February 8, 1995, Safety Board investigators requested that the FAA provide, in writing, its policy concerning the installation of MSAW aural alarms (speakers) at low density ATC towers equipped with D-BRITE radar displays. In a June 27, 1995, written response to this question, the manager of the FAA's Air Traffic Investigations Staff, ATH-10, indicated that after coordination with three offices within the Air Traffic Service, "...it was determined that no policy exists for the operation of an aural alarm associated with MSAW in VFR towers that are not combined with full radar approach control facilities". The memorandum also stated that, "...controllers are required to comply with FAA Order [7110,65], Paragraph 2-6, Safety Alerts. Once a controller observes end recognizes such an unsafe situation, safety alerts become first duty priority."

The Safety Board believes that the responsibilities of local controllers in VFR terminal facilities are unique in that they do not provide radar services to aircraft, but rather visually scan the movement and traffic area. Because they focus on seeing the aircraft rather than scanning a radar display, they may not observe a visual alert displayed on the radar screen indicating an aircraft's unsafe condition that would elicit their intervention and action. However, the Safety Board believes that an aural MSAW alert would more likely attract a local controller's attention because of the reduced operating environment of the tower cab and the narrower traffic focus which would facilitate a quicker response should an unsafe situation arise.

The Safety Board believes that both MSAW aural and visual warnings should be generated at all VFR terminal facilities that receive radar information from a host radar control facility. While the Safety Board is aware that an unsafe condition must first be observed and

¹D-BRITE - digital bright radar indicator tower equipment

recognized before it can be acted upon, it also believes that the available lead time to react to an unsafe situation would be increased through the use of an aural warning system.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Within 90 days from the receipt of this letter, develop a policy that would require the installation of aural minimum safe altitude warning (MSAW) equipment in those visual flight rules terminal facilities that receive radar information from a host radar control facility and would otherwise receive only a visual MSAW alert. (Class II, Priority Action) (A-95-120)

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT and GOGLIA concurred in this recommendation.

By: 




U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

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JUL 31 1997

The Honorable James E. Hall
Chairman, National Transportation
Safety Board
490 L'Enfant Plaza East, SW.
Washington, DC 20594

Dear Mr. Chairman:

This is in further response to Safety Recommendation A-95-120 issued by the Board on November 30, 1995, and supplements our letters dated February 21, 1996, and June 19, 1996. This safety recommendation was issued as a result of the Board's investigation of an accident on January 29, 1995, involving a Beechcraft A36, N3086T. The airplane crashed after the pilot declared a missed approach at Dekalb-Peachtree Airport, Chamblee, Georgia. The private instrument-rated pilot was killed, and the airplane was destroyed.

A-95-120. Within 90 days from the receipt of this letter, develop a policy that would require the installation of aural minimum safe altitude warning (MSAW) equipment in those visual flight rules terminal facilities that receive radar information from a host radar control facility and would otherwise receive only a visual MSAW alert.

FAA Comment. The Federal Aviation Administration (FAA) surveyed each region to determine how many operational remote sites do or do not have aural alarms installed. The FAA found 43 remote displays with aural alarms and 69 remote displays without aural alarms. It is anticipated that implementation of the aural alarms at the remaining 69 remote displays will be completed by February 1998. Funding for this effort is estimated at \$399,000 and will be provided under an existing engineering services contract.

I have enclosed a copy of the survey report and a copy of the implementation schedule for the Board's information. I believe

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that the FAA has met the full intent of this safety recommendation, and I consider the FAA's action to be completed.

Sincerely,

A handwritten signature in cursive script, appearing to read "Barry L. Valentine".

Barry L. Valentine
Acting Administrator

Enclosures

ARTS IIIA MSAW AURAL ALARM SITE SURVEY REPORT

SITE	LOCID	REGION	EXISTING REMOTE DISPLAYS WITH AURAL ALARMS	EXISTING REMOTE DISPLAYS WITHOUT AURAL ALARMS	EXTRA IOPE CCA NEEDED (YES OR NO)
DEPOT SPARES	OEX	AAC		5	5
DEPOT (TEST BED ETC.)	OEX	AAC		1	1
FAA ACADEMY	OEX	AAC		1	1
DES MOINES IOWA	DSM	ACE	1	0	0
KANSAS CITY MO	MCI	ACE	2	3	0
OMAHA NEBRA	OMA	ACE	3	1	0
ST LOUIS MO	STL	ACE	3	3	0
FAATC	ACY	ACT		1	1
FAATC TATF	ACY	ACT			
ALBANY NY	ALB	AEA	0	0	0
BALTIMORE MD	BWI	AEA	0	0	0
BUFFALO NY	BUF	AEA	2	1	0
DULLES WASH DC	IAD	AEA	0	0	0
NORFOLK VA (Note 3)	ORF	AEA	0	3	1
PHILADELPHIA PA	PHL	AEA	0	3	0
PITTSBURGH PA	PIT	AEA	2	1	0
ROCHESTER NY	ROC	AEA	2	0	0
SYRACUSE NY	SYR	AEA			0
WASH NATL DC	DCA	AEA	2	3	1
CLEVELAND OHIO	CLE	AGL			
COLUMBUS OHIO	CMH	AGL			
DAYTON OHIO	DAY	AGL	0	1	0
DETROIT MICH	DTW	AGL	1	3	1

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ARTS IIIA MSAW AURAL ALARM SITE SURVEY REPORT

SITE	LOCID	REGION	EXISTING REMOTE DISPLAYS WITH AURAL ALARMS	EXISTING REMOTE DISPLAYS WITHOUT AURAL ALARMS	EXTRA IOPB CCA NEEDED (YES OR NO)
INDIANAPOLIS IND	IND	AGL			
MILWAUKEE WISC	MKE	AGL	0	2	0
MINNEAPOLIS MN	MSP	AGL	0	3	1
BOSTON MASS	BOS	ANE	1	3	0
HARTFORD (WINDSOR)	BDL	ANE	1	3	0
PROVIDENCE (QUONSET)	PVD	ANE	0	2	1
PORTLAND ORE	PDX	ANM	2	0	0
SALT LAKE CITY UT	SLC	ANM	4	2	1
SEATTLE WASH	SEA	ANM	5	0	1
ATLANTA GA	ATL	ASO	1	1	0
BIRMINGHAM ALA	BHM	ASO	0	0	0
CHARLOTTE NC	CLT	ASO	0	0	0
CINCINNATI OHIO	CVG	ASO	0	1	0
FORT RUCKER ALA	OZR	ASO	0	2	1
JACKSONVILLE FLA	JAX	ASO	0	1	1
LOUISVILLE KY	SDF	ASO	0	1	0
MEMPHIS TENN	MEM	ASO	0	0	0
MIAMI FLA.	MIA	ASO	1	2	1
NASHVILLE TENN	BNA	ASO	0	0	0
ORLANDO FLA	MCO	ASO	0	2	1
RALEIGH/DURHAM NC	RDU	ASO	0	0	0
TAMPA FLORIDA	TPA	ASO	0	5	1
ALBUQUERQUE NM	ABQ	ASW	0	0	0

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ARTS IIIA MSAW AURAL ALARM SITE SURVEY REPORT

Note 1: Information not required for sites which are shaded.			
Note 2: ARTS IIIA can have a maximum of 4 remotes (standard) or 6 remotes (needs extra IOPB CCA, supplied by AUA-320).			
Note 3: Both Air Traffic & Airway Facilities called to increase their quantity from 2 to 3 each aural alarms.			
7156665 IOPB MSAW drivers	28	\$500	\$14,000
7162926 Interconnect Assy Mod	77	\$1,000	\$77,000
7159085 LAA	0	\$4,000	\$0
7159075 AACU	77	\$4,000	\$308,000
7161000 Speaker	0	\$1,000	\$0
7159090 Power Cable (w/AACU)	0	\$200	\$0
7159093 ACCU/LAA Cable	0	\$700	\$0
7159094 LAA/DEMARC Cable	0	\$500	\$0
7159091 Speaker Cable	0	\$200	\$0
Total			\$399,000

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AACU MSAW SCHEDULE

DATE 05/28/97

SIGNIFICANT MILESTONES	1997												1998											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	
MSAW Production First Article																								
Component Analysis				▼																				
Parts Ordered				▼																				
Assembly and Test								▼	▼															
Field Evaluation/First Article								▼	▼															
MSAW Production 76 Units																								
Parts Ordered									▼															
Assembly and Test												▼	▼		▼									

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U.S. Department
of Transportation
**Federal Aviation
Administration**

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Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

JUN 19 1996

The Honorable James E. Hall
Chairman, National Transportation
Safety Board
490 L'Enfant Plaza East, SW.
Washington, DC 20594

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A-95-120
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Hicks

Dear Mr. Chairman:

This is in further response to Safety Recommendation A-95-120 issued by the Board on November 30, 1995, and supplements our letter dated February 21, 1996. This safety recommendation was issued as a result of the Board's investigation of an accident on January 29, 1995, involving a Beechcraft A36, N3086T. The airplane crashed after the pilot declared a missed approach at Dekalb-Peachtree Airport, Chamblee, Georgia. The private instrument rated pilot was killed, and the airplane was destroyed. The airplane was being operated under the provisions of 14 CFR Part 91. At the time of the accident, instrument meteorological conditions prevailed. An instrument flight rules flight plan had been filed for the personal flight, which had originated in Orlando, Florida.

A-95-120. Within 90 days from the receipt of this letter, develop a policy that would require the installation of aural minimum safe altitude warning (MSAW) equipment in those visual flight rules terminal facilities that receive radar information from a host radar control facility and would otherwise receive only a visual MSAW alert.

FAA Comment. The Federal Aviation Administration (FAA) has completed its cost benefit analysis to determine the feasibility of implementing this safety recommendation. As a result, the FAA is proceeding with the implementation of this recommendation. Each region will be contacted to determine how many remote sites do not have aural alarms installed and appropriate action will be taken to ensure implementation at those sites. This task should be accomplished by the end of March 1997. Funding for this effort is estimated at \$270,000 and will be provided under an existing engineering services contract.

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I believe that the development of a policy and the allocation of funding to install aural alarms at remote sites that do not already have aural alarms addresses this safety recommendation completely.

Sincerely,


David R. Hinson
Administrator

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FEB 21 1996

The Honorable James E. Hall
Chairman, National Transportation
Safety Board
490 L'Enfant Plaza East, SW.
Washington, DC 20594

Dear Mr. Chairman:

This is in response to Safety Recommendation A-95-120 issued by the Board on November 30, 1995. This safety recommendation was issued as a result of the Board's investigation of an accident on January 29, 1995, involving a Beechcraft A36, N3086T. The airplane crashed after the pilot declared a missed approach at Dekalb-Peachtree Airport, Chamblee, Georgia. The private instrument rated pilot was killed, and the airplane was destroyed. The airplane was being operated under the provisions of 14 CFR Part 91. At the time of the accident, instrument meteorological conditions prevailed. An instrument flight rules flight plan had been filed for the personal flight, which had originated in Orlando, Florida.

A-95-120. Within 90 days from the receipt of this letter, develop a policy that would require the installation of aural minimum safe altitude warning (MSAW) equipment in those visual flight rules terminal facilities that receive radar information from a host radar control facility and would otherwise receive only a visual MSAW alert.

FAA Comment. The Federal Aviation Administration (FAA) is conducting a cost benefit analysis to determine the feasibility of implementing this safety recommendation. It is anticipated that the cost benefit analysis will be completed by the end of March 1996.

I will apprise the Board of the FAA's course of action to address this safety recommendation as soon as the cost benefit analysis is completed.

Sincerely,

David R. Hinson
Administrator

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RESPONSE TO NTSB REQUEST #11

Hardware installation of a separate DBRITE System at Agana ATCT was completed in July 1997. The Agana System will require it's own mappers which are being ordered. No delivery date is available. Because we have no firm date for the Mapper delivery, no firm date is available for commissioning. Yes, additional controller training will be required which will focus on the different type of equipment (own controls) and MSAW alerts, which will be available to the tower controllers.

MSAW is not required in VFR towers since terrain avoidance is a function of IFR service, therefore, the CERAP would have responsibility for notifying pilots of low altitude alerts (this could be done through the tower if the aircraft is on tower's frequency). Therefore, there is no requirement for Agana Tower to have MSAW available (as is the case with all VFR towers).

MSAW was not available because it is not a requirement in a VFR tower. Agana Tower was sharing (and still shares) the DBRITE signal from the Anderson AFB System. When Agana system is commissioned, it will have its own controls and receive the signal directly from the CERAP Automation System. This will negate the need for a shared signal with Anderson. Finally, MSAW would not be displayed to tower controllers (even if it were available) unless the ARTS IIA were programmed to generate the alerts.

Until Agana gets its own independent DBRITE, they continue to share the signal from Anderson ATCT.

Aug 21-97 03:26P LAS VEGAS TRACON

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U.S. Department
of Transportation
Federal Aviation
Administration

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AWP-500

Memorandum

Subject: **INFORMATION: Minimum Safe Altitude Warning (MSAW)/Conflict Alert (CA) aural alarms at Level II Towers**

Date: August 12, 1996

From: Air Traffic Manager, Southern California TRACON

Reply to
Attn: of:

To: Manager, NAS Implementation Branch, AWP-450
Attn: Khanh Tran, AWP-454.17
Thru: Manager, Systems Operations Branch, AWP-530

Minimum Safe Altitude Warning (MSAW)/Conflict Alert (CA) aural alarms are not required at Level II VFR Towers within our jurisdiction.

Use of Tower Radar Displays is defined in Order 7210.3M, paragraph 12-5-3 b. Level II VFR Towers within our jurisdiction are not considered radar facilities, and monitoring of MSAW/CA alarms by these types of facilities would have a negative impact on overall air traffic operations.

Southern California TRACON has appropriate procedures in-place to provide issuance of MSAW/CA to Level II Towers. Activation of alarms would be inappropriate at these facilities.

If you have any comments or require additional information, please contact Walter White, Assistant for Manager Airspace and Procedures, at (519) 537-5830.

[Handwritten Signature]
Walter White

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