

Air America Inc.
San Juan, Puerto Rico
June 3, 2017
ERA17FA195

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

SURVIVAL FACTORS SPECIALIST'S REPORT

Pages 5

NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594

SURVIVAL FACTORS SPECIALIST'S REPORT

November 8, 2017

I. ACCIDENT

Operator	:	Air America Inc.
Aircraft	:	Piper PA-23-250 [N21WW]
Location	:	San Juan, Puerto Rico
Date	:	June 3, 2017
Time	:	1418 AST ¹
NTSB #	:	ERA17FA195

II. SURVIVAL FACTORS SPECIALIST

Emily Gibson
National Transportation Safety Board
Washington, DC

III. SUMMARY

On June 3, 2017, about 1418 Atlantic standard time, a Piper PA-23-250, N21WW, operated by Air America Inc., was destroyed during impact with water and a reef, and a subsequent post crash fire, shortly after takeoff from Luis Munoz Marin International Airport (TJSJ), San Juan, Puerto Rico. The commercial pilot sustained minor injuries, two passengers were seriously injured, and one passenger was fatally injured. The on-demand air taxi flight was conducted under the provisions of 14 Code of Federal Regulations Part 135. Visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed for the planned flight to Benjamin Rivera Noriega Airport, (TJCP), Isla de Culebra, Puerto Rico.

IV. COMPONENTS EXAMINED

The airplane was equipped with 6 forward-facing occupant seats; 2 front seats, 2 middle seats, and 2 rear seats. The pilot was seated in the front left occupant seat and an adult male was seated in the front right occupant seat. A 15-year-old female was seated in the middle right occupant seat and the fatally injured, another 15-year-old female, was seated at the middle left occupant seat. There were no occupants seated in the rear seats of the airplane.

The NTSB investigator-in-charge (IIC) recovered the seatbelt restraint system from the middle right seat of the airplane wreckage and shipped it to the NTSB survival factors specialist for

¹ All times are reported in Atlantic standard time unless otherwise noted.

examination. The two-point restraint system, a lap belt, had no manufacturer labeling. It was marked:

Rated Strength: 3000#
Conforms to FAA TSO-C22g
Repair by C&M Marine Aviation Services Only

A survivor of the accident stated that the fatally-injured occupant was buckled in the restraint at the time of the accident. A civilian who also aided in the rescue, helped two of the occupants out of the water but stated the fatally-injured occupant could not be evacuated. A rescue diver indicated in a statement that the victim was still restrained in the belt when he arrived at the airplane and he had no trouble releasing it to recover the victim. The victim was removed through the right-side door. The IIC soaked the entire restraint assemble in fresh water for approximately 1 hour prior to packaging and before being sent to NTSB headquarters for examination.

IV. DETAILS OF EXAMINATION

The restraint system was photographed in the NTSB Materials Laboratory (see figure 1). The buckle-side webbing was intact with no tears or cuts and did not appear to be faded. The lift latch-style buckle release could be rotated through its full range of travel, approximately 180 degrees (see figure 2). It was noted that the insert tab released from the buckle about the 90 degree point (see figure 3). The spring inside the buckle lever showed some evidence of corrosion (see figure 4), but no restriction in motion was evident. The restraint latched as designed when the insert tab engaged the buckle. There were minor wear scratches observed on the buckle and insert tab but no fresh scrapes or witness marks at the area of interaction between the buckle and insert tab. The webbing on the insert tab portion of the lap belt was intact with no cut or tears and did not appear to be faded. The seatbelt attachment points were intact with no visible signs of deformation. The buckle released from the insert tab as shown in figure 3. The adjusted length of the restraint (as received) when latched measured 38 ³/₄ inches. The adjusted buckle portion measured 18 ⁷/₈ inches and the insert tab portion measured 19 ¹¹/₁₆ inches. The overall length of the restraint when latched measured 68 ³/₁₆ inches. The overall length of the buckle portion measured 37 inches and the insert tab portion measured 31 ³/₁₆ inches.



Figure 1- Overview of restraint system.

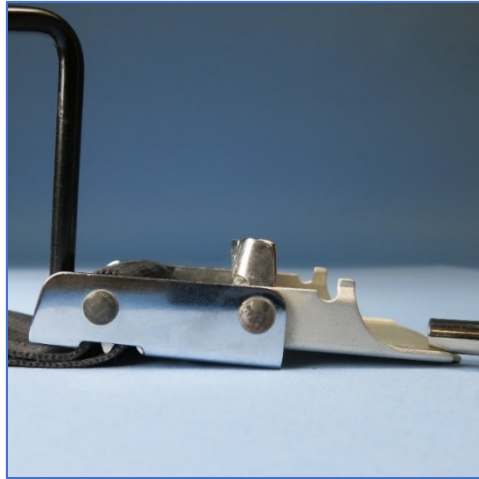


Figure 2 - View of lift latch-style buckle lever in full 180-degree release point.

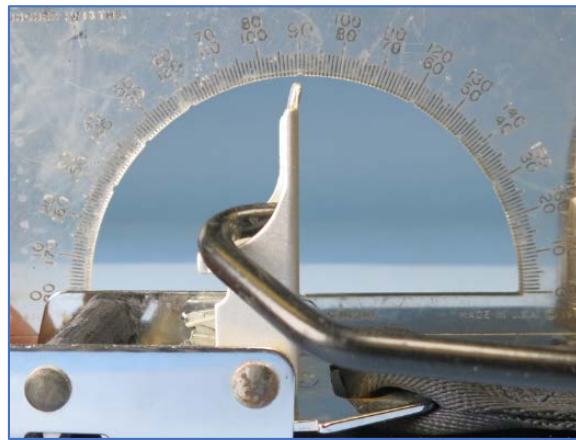


Figure 3 – Insert tab released from the buckle about the 90-degree point.



Figure 4 – Corrosion inside buckle lever.

V. REGULATORY INFORMATION

A search of Federal Aviation Administration (FAA) regulations, guidance documents, policies, and Technical Standard Orders (TSO) did not produce information concerning a standard for lift latch release angles. The SAE Aerospace Standard 8043 cited a maximum 30 lb. release force, but did not indicate a release angle.

The FAA's Civil Aerospace Medical Institute (CAMI) published a report in 2002 on the topic of Human Factors associated with the certification of airplane seats, seatbelt adjustment and release involving over 1100 participants and examining the performance of lapbelts with lift-latch buckles that released at either 30°, 60° and 90°². The report concluded that there was no significant release time difference between the 3 angles, although it noted there were 15 instances when a participant had to open lift-latch twice to successfully open it, and 9 of those instances involved belts that released at 90°.

No European Aviation Safety Agency (EASA) requirements were found however, the United Kingdom's Civil Aviation Authority (CAA), Specification 1 cited a 70 to 95-degree requirement for a release angle. The specification stated that "to avoid inadvertent release there should be a free movement of the lever and the belt to remain fastened until the lever attains an angle of 70 degrees or no more than 95 degrees to its rest position." The CAA also stated FAA TSO-C22g qualified seatbelts were considered acceptable for installation with no further consideration of the requirements within Specification 1.

Emily S. Gibson
Survival Factors Investigator

² DOT/FAA/AM-02/11 Human Factors Associated With the Certification of Airplane Passenger Seat Belt Adjustment and Release June 2002