

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, DC 20594

December 17, 2010

AIR TRAFFIC CONTROL SPECIALIST'S REPORT

DCA10FA083

A. AIRCRAFT INCIDENT

Location: 100 nautical miles North of Louis Armstrong New Orleans International Airport (MSY) New Orleans, Louisiana
Date/Time: August 9, 2010, 1134 Central Daylight Time (CDT) /1634 Coordinated Universal Time (UTC) ¹
Aircraft: Shuttle America Flight (TCF) 7630, an Embraer 175 (E170)
FAST 13, a US Air Force Northrop T-38 Talon

B. SUMMARY

On August 9, 2010, about 1134 central daylight time, a Shuttle America Embraer 170, N856RW, flight # 7630, was at a cruise altitude of 29,000 feet when they received a Traffic Alert and Collision Avoidance System (TCAS) resolution advisory (RA) to climb. Flight data indicates that within seconds, the flight crew disconnected the autopilot and climbed to 29,600 feet consistent with the TCAS alert. There were 2 pilots, 2 flight attendants and 70 passengers on board the Shuttle America flight. One passenger received a serious injury during the evasive maneuver. The commercial passenger flight was over the state of Mississippi when the TCAS RA occurred. The flight originated from the Chicago O'Hare International Airport (ORD), Chicago, Illinois, and was enroute to Louis Armstrong New Orleans International Airport (MSY), New Orleans, Louisiana. The flight was operating under the provisions of 14 Code of Federal Regulations Part 121 on an Instrument Flight Rules (IFR) flight plan.

Radar data indicates that a U.S. Air Force Northrop Corporation T-38 Talon, call sign FAST 13, was on a cross country instrument training flight at 28,000 feet and deviated to 28,600 feet for approximately 30 seconds as it was converging on Shuttle America flight 7630. The military flight was operating under the provisions of 14 Code of Federal Regulations Part 91 on an IFR flight plan from Campbell Army Airfield (HOP), Fort Campbell/Hopkinsville, Kentucky, to Chennault International Airport (CWF), Lake Charles, Louisiana. There were two crewmembers aboard the military airplane. This airplane was not equipped with a TCAS.

¹ All times are expressed in central daylight time (CDT) unless otherwise noted.

At 1053, an aviation routine weather report (METAR) at MSY reported winds 330 degrees at 11 knots, visibility 10 statute miles, scattered clouds at 2,000 feet, broken clouds at 25,000 feet, temperature 33 degrees Celsius, dew point 26 degrees Celsius, and an altimeter setting of 29.97 inches of Mercury.

C. DETAILS OF THE INVESTIGATION

The information provided in this report was compiled using the following resources: Federal Aviation Administration (FAA) audio/video recordings via Systematic Air Traffic Operations Research Initiative (SATORI), a computer program that allows play back of select radar positions and targets; radar data from the Citronelle, Alabama Air Route Surveillance Radar (ARSR); and flight tracking information via Flight Aware, an on-line flight tracking service.

1.0 HISTORY OF FLIGHT

TCF7630, with four crewmember and 70 passengers, departed Chicago O'Hare International Airport (ORD), Chicago, Illinois at 10:02 on August 9, 2010 for a regularly scheduled 14 CFR part 121 instrument flight rules (IFR) flight to the Louis Armstrong International Airport (MSY), New Orleans, Louisiana.

FAST13, with a crew of two, departed Campbell Army Airfield (HOP), Fort Campbell/Hopkinsville, Kentucky at 1042 on August 9, 2010 for an instrument training flight. FAST13 was on an IFR flight plan to Chennault International Airport (CWF), Lake Charles Louisiana.

At 1134:17, TCF7630 was southbound at flight level (FL) 290 and FAST13 was southwest bound at FL280. The aircraft were on a converging course. (see figure 1) The Citronelle, Alabama Air Route Surveillance raw radar data indicates that at 1134:27 FAST 13 began a brief climb to FL286 before returning to FL280 at 1134:57. During this 30 second period, TCF7630 and FAST 13 courses converged momentarily before diverging after the aircraft passed each other. During FAST13's ascent to FL286, TCF7630 received a Traffic Alert and Collision Avoidance System (TCAS) warning resolution advisory (RA). The TCAS RA, of which pilots are required to comply with, directed the pilot to climb. The pilot of TCF7630 complied with the TCAS RA and immediately climbed to FL296 before returning to the previously assigned altitude of FL290 once the conflict was clear. (see figure 2)

During the maneuver in response to the TCAS, a passenger in the aft lavatory of TCF7630, was injured and had suffered a compound fracture of his leg. The flight attendants and two passengers that were medical doctors on board provided basic first aid to the injured passenger until TCF7630 landed at MSY where medical personnel met the aircraft and transported the injured patient to the hospital.

Review of the air traffic control replay via SATORI of the event revealed that the altitude change by FAST13 was not displayed on the ATC radar nor observed by the air traffic controller. ATC was made aware of the TCAS event by TCF7630.

FAA Orders state that a controller must apply merging target procedures when the radar targets of turbojet aircraft merge when the aircraft involved are operating at minimum separation. TCF7630 and FAST13 were vertically separated by the minimum criteria of 1000 feet. Merging target procedures called for TCF7630 and FAST13 to be advised of each other's presence via a traffic call. The air traffic controller did not issue traffic as required.



Figure 1

Flight track of TCF7630 displayed in blue and FAST13 displayed in red

2.0 Air Traffic Control

The air traffic controller providing ATC service to TCF7530 and FAST13 did not observe FAST13 climb above the assigned altitude of FL280. The controller did not receive a conflict alert from the radar system nor issue a safety alert as would have been required if a conflict alert has been present. However, according to FAA orders, the controller was required to issue traffic as part of the FAA merging target procedures requirement. This requirement mandates that traffic be issued to all radar identified aircraft at 10,000 feet and above and all turbojet aircraft regardless of altitude whose targets appear likely to merge unless the aircraft are separated by more than the appropriate vertical separation minima. TCF7630 and FAST13 were separated by

the minimum vertical separation minima of 1000 feet when operating at assigned altitudes of FL280 and FL290. The controller did not apply merging target procedures. As a result of this incident, the Houston ARTCC front line manager met with the air traffic controller and reviewed the requirements of merging target procedures.

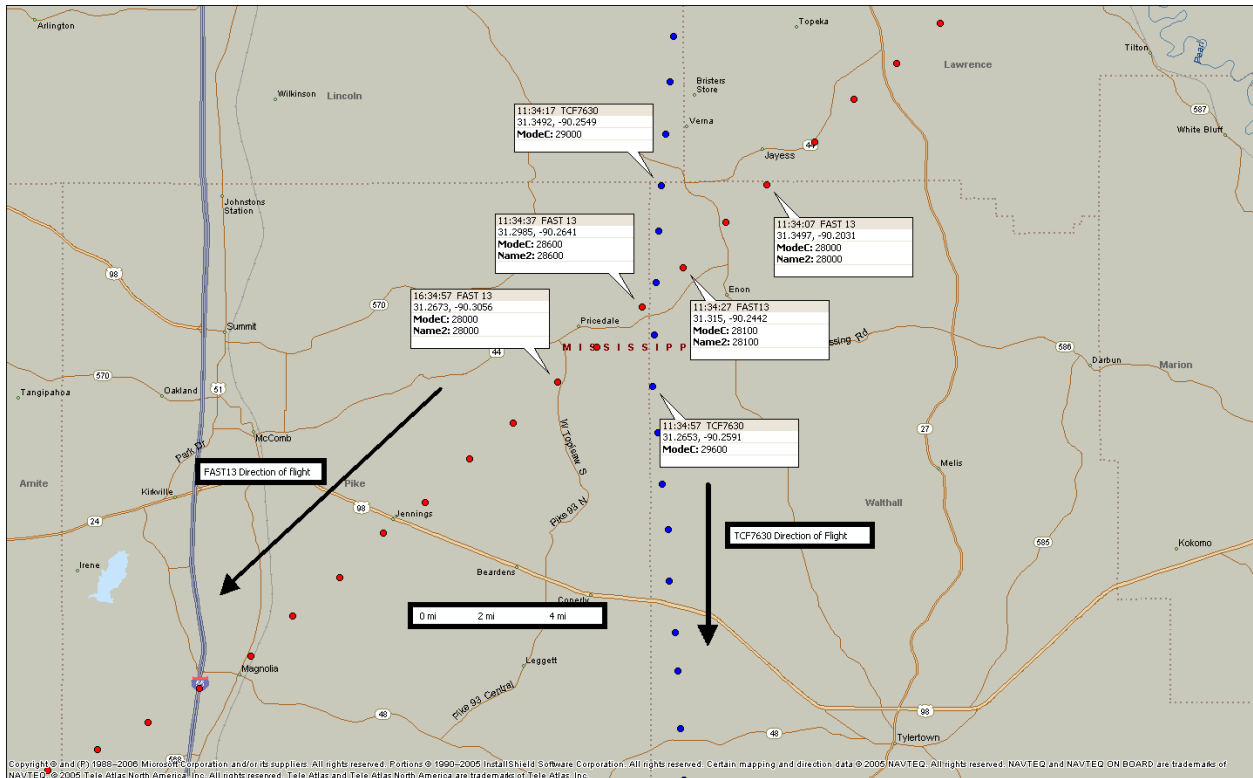


Figure 2

Flight track of TCF7630 shown via blue dots and FAST13 shown in red dots

2.1 Air Traffic Control Radar

Radar presentation update rates are based on the revolutions per minute of the radar system providing the radar data. In the case the Houston Air Route Traffic Control Center (ARTCC), the air traffic control facility providing ATC service to TCF7630 and FAST13, the radar source data was provided by ARSR commonly referred to as long range radar. ARSR antennae rotate at 5 revolutions per minute (RPM) and provide primary radar returns on targets out to 200 miles. At 5 RPM, the radar data update rate, as observed by an air traffic controller, is 12 seconds.

The radar system employed by ATC has a predictive capability to provide for a continuous presentation of target data. The predictive capability of the radar will continue to present to predicted path of a radar track based on previous radar history. When a radar target is no longer sensed by the radar system the target will continue to be presented on the radar scope until a pre-determined amount of time has elapsed. This predictive capability allows for variations and

occasional disruptions in the radar return generated by radar targets while still providing for continuous tracking data to be displayed on the radar indicator.

In the case of TCF7630 and FAST13, the rapid climb and descent of FAST 13 within 30 seconds exceeded the radar systems capability to accurately track and display the altitude changes. Accordingly, the radar did not detect and alarm when the conflict occurred.

3.0 Summary

After reviewing of multiple radar sources covering the airspace and the time period of the event, it was determined that FAST 13 climbed and descended in a short period of time while in close proximity to TCF7630. This fact was not presented to nor observed by the air traffic controller providing ATC services to FAST 13 and TCF7630. The rapid climb by the pilot of FAST 13 generated the TCAS alert and associated RA requiring TCF7630 to climb rapidly. The abrupt maneuvers by TCF7630, due to the TCAS RA, resulted in serious injury of one of the passengers aboard TCF7630. The reason for FAST 13's deviation from assigned altitude has not been determined.

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AS-30