Aviation Investigation Final Report

Location:	Telluride, Colorado	**Accident Number:**	CEN16LA067
Date & Time:	December 23, 2015, 14:15 Local	**Registration:**	XA-MEX
Aircraft:	Hawker 400	**Aircraft Damage:**	Substantial
Defining Event:	Ground collision	**Injuries:**	7 None
Flight Conducted Under:	Part 129: Foreign		

Analysis

The pilots were conducting an international chartered flight in the small, twin-engine jet with five passengers onboard. Since the weather at the destination was marginal, the flight crew had discussed an alternate airport in case weather conditions required a missed approach at their destination. As the airplane neared the non-towered destination airport, the flight crew received updated weather information, which indicated that conditions had improved. Upon contacting the center controller, the crew was asked if they had the weather and NOTAMS for the destination airport. The crew reported that they received the current weather information, but did not state if they had NOTAM information. The controller responded by giving the flight a heading for the descent and sequence into the airport. The controller did not provide NOTAM information to the pilots. About 2 minutes later, airport personnel entered a NOTAM via computer closing the runway, effective immediately, for snow removal.

Although the NOTAM was electronically routed to the controller, the controller's system was not designed to automatically alert the controller of a new NOTAM; the controller needed to select a display screen on the equipment that contained the information. At the time of the accident, the controller's workload was considered heavy.

About 8 minutes after the runway closure NOTAM was issued, the controller cleared the airplane for the approach. The flight crew then canceled their instrument flight plan with the airport in sight, but did not subsequently transmit on or monitor the airport's common traffic advisory frequency, which was reportedly being monitored by airport personnel and the snow removal equipment operator. The airplane landed on the runway and collided with a snow removal vehicle about halfway down the runway. The flight crew reported they did not see the snow removal equipment.

The accident scenario is consistent with the controllers not recognizing new NOTAM information in a timely manner due to equipment limitations, and the pilots not transmitting or monitoring the common traffic advisory frequency. Additionally, the accident identifies a potential problem for flight crews

when information critical to inflight decision-making changes while en route, and problems when controller workload interferes with information monitoring and dissemination.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The limitations of the air traffic control equipment that prevented the controller's timely recognition of NOTAM information that was effective immediately and resulted in the issuance of an approach clearance to a closed runway. Also causal was the pilots' omission to monitor and transmit their intentions on the airport common frequency. Contributing to the accident was the controller's heavy workload and the limitations of the NOTAM system to distribute information in a timely manner.

Findings

Personnel issues	(general) - ATC personnel
Environmental issues	(general) - Availability of related info
Environmental issues	(general) - Effect on operation
Environmental issues	Approach control procedure - Effect on operation
Environmental issues	VHF/HF radio - Compliance w/ procedure
Personnel issues	Lack of action - Pilot
Personnel issues	Lack of communication - Pilot
Environmental issues	Low visibility - Effect on personnel
Personnel issues	(general) - ATC personnel
Environmental issues	(general) - Availability of related info

Factual Information

History of Flight

Approach	Air traffic event
Landing-landing roll	Ground collision (Defining event)

On December 23, 2015, about 1415 mountain standard time, a Hawker Beechcraft 400XP airplane, XA-MEX, collided with a snowplow while landing at the Telluride Regional Airport (KTEX) Telluride, Colorado. The pilot, co-pilot, five passengers, and the snowplow operator were not injured and the airplane was substantially damaged during the accident. The airplane was registered to and operated by Aerolineas Ejecutivas, Toluca, Mexico, under the provisions of 14 Code of Federal Regulations Part 129 as an air taxi flight. Instrument meteorological conditions prevailed at the time. The flight departed Monterrey, Mexico, with a planned stop in El Paso, Texas, en route to Telluride, Colorado.

Prior to departure from Monterrey, the crew obtained preflight information, including Notice to Airmen (NOTAMs) for the planned route of flight. The NOTAMs for KTEX noted several runway closure times; however, none of the closures were valid for the period during which the flight would arrive at KTEX.

The flight departed El Paso at 1220 MST and the flight crew discussed the weather conditions at their destination airport, including concern that the weather maybe below minimums and may not allow for a landing. The Montrose Regional Airport (KMTJ), Montrose, Colorado, was discussed as an alternate destination. As the flight neared their destination, the crew was in contact with a Denver en-route/center controller. The crew also listened to the Telluride's airport automated weather station.

At 1348, the controller asked the pilots to advise him when they had the weather and NOTAMS for KTEX, adding that another airplane just attempted an approach into KTEX, but had to execute a missed approach. The pilot reported that they received the weather information and planned to make the approach. The controller responded by giving the flight a heading, saying this would be for the descent and sequence into the airport.

At 1350, the airport operator entered a NOTAM via computer closing the runway (effective 1350) for snow removal, and the airport operator proceeded onto the runway.

At 1358, the controller cleared the accident airplane for the approach to the airport. The pilot then canceled his flight plan at 1402 with the airport in sight. The crew did not change radio frequency to the airport's common traffic advisory frequency (CTAF) for traffic advisories.

During the landing, the crew did not see the snowplow on the runway until it was too late to avoid a collision.

Pilot Information

Certificate:	Airline transport	**Age:**	39
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	December 16, 2015
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	October 8, 2015
Flight Time:	7113 hours (Total, all aircraft), 1919 hours (Total, this make and model), 2360 hours (Pilot In Command, all aircraft)		

Co-pilot Information

Certificate:	Airline transport	**Age:**	42
Airplane Rating(s):	Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	July 9, 2015
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	August 31, 2015
Flight Time:	8238 hours (Total, all aircraft), 1412 hours (Total, this make and model), 1816 hours (Pilot In Command, all aircraft)		

The pilot sitting in the left seat held a Mexican Airline Transport License with a rating for airplane multi-engine land. The pilot held a class one medical certificate issued on July 09, 2015, with no restrictions or limitations. The pilot had 8,238 hours total flight time, with 1,412 in the accident make and model.

The pilot sitting in the right seat held a Mexican Airline Transport License with a rating for airplane multi-engine land. His class one medical certificate was issued on December 16, 2015, with no restrictions or limitations. The pilot had 7,113 hours total flight time, with 1,919 in the accident make and model.

Aircraft and Owner/Operator Information

Aircraft Make:	Hawker	**Registration:**	XA-MEX
Model/Series:	400 XP	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	RK396
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:	July 25, 2015 Continuous airworthiness	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	Turbo fan
Airframe Total Time:	5744.25 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	C126 installed, not activated	**Engine Model/Series:**	JT15D
Registered Owner:	Aerolineas Ejecutivas S A De CV	**Rated Power:**	2965 Lbs thrust
Operator:	Aerolineas Ejecutivas S A De CV	**Operating Certificate(s) Held:**	Foreign air carrier (129)

The accident airplane was a Hawker Beechcraft 400XP (BE40), which is a low wing, twin-engine business jet, powered by two Pratt & Whitney JT15D turbofan engines. The airplane was under a continuous airworthiness maintenance program, with the last inspection dated July 25, 2015. At the time of the accident, the airplane had accumulated 5,744.25 flight hours.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KTEX	**Distance from Accident Site:**	
Observation Time:	14:15 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	1100 ft AGL	**Visibility**	1.75 miles
Lowest Ceiling:	Overcast / 2200 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	100°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.5 inches Hg	**Temperature/Dew Point:**	-5°C / -8°C
Precipitation and Obscuration:	Light - None - Snow		
Departure Point:	El Paso, TX (KELP)	**Type of Flight Plan Filed:**	IFR
Destination:	Telluride, CO (KTEX)	**Type of Clearance:**	IFR
Departure Time:		**Type of Airspace:**	

At 1415, the Telluride AWOS recorded; wind 010 degrees at 3 knots, 1 and ¾ mile visibility with light

snow, broken clouds at 1,100 ft, and overcast sky at 2,200 ft, temperature 23 degrees Fahrenheit (F), dew point 18 F, and a barometric pressure of 29.50 inches of mercury.

Airport Information

Airport:	Telluride KTEX	**Runway Surface Type:**	Asphalt
Airport Elevation:	9069 ft msl	**Runway Surface Condition:**	Snow
Runway Used:	9	**IFR Approach:**	Localizer only
Runway Length/Width:	7111 ft / 150 ft	**VFR Approach/Landing:**	None

The Telluride Regional Airport (KTEX) is a public-use, non towered airport, located 5 miles west of Telluride, Colorado. The airport has a single asphalt runway 9/27, that is 7,111 ft long by 100 ft wide. Pilots are to use the CTAF for communications. There is an Automated Weather Observation Station (AWOS) station located on the airfield for weather information. The AWOS recording typically has a reminder for pilots about noise abatement procedures. Due to the surrounding terrain, runway 27 is recommended for takeoff, and 09 for landing.

Authorized airport personnel manage the NOTAMs online via the FAA NOTAM Manager.

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	5 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	7 None	**Latitude, Longitude:**	37.953334,-107.909446(est)

The airplane's right wing collided with the rear of the snow removal equipment, about halfway down the runway. The impact separated the right wing from the fuselage near the wing root. The airplane same to rest just off the snow covered runway surface. Minor damage was reported to the snow removal equipment.

Communications

After departing El Paso, Texas, the crew was in radio contract with Air Route Traffic Control Center (ARTCC) controllers along their route of flight. After the crew changed from the Albuquerque Center

controller to the Denver Center controller, the crew asked and received the latest weather for KTEX. The flight changed section controllers a couple times, before contacting the final sector controller responsible for the KTEX airport.

The controller's workload was described as heavy, working multiple air traffic arrival and departures from other airports in the sector, including Montrose and Aspen.

Prior to XA-MEX approach to KTEX, the controller was in contact with a Beechcraft KingAir (call sign Foothills (FH) 122), who made an approach to the Telluride airport. About 1313, the controller asked FH122 to let him know when he had the weather and NOTAMs, adding that the weather was down [below minimum] at times. The pilot reported that he had the weather and NOTAMs, and the weather appeared good enough for an approach. About 1330, the controller cleared FH122 for the localizer-DME runway 9 approach to KTEX. Shortly afterwards the pilot acknowledged a handoff to the advisory frequency and said he would report landing. About 1340, the pilot (FH122) reported a missed approach to the controller. The controller advised the pilot to fly the published missed approach procedure, before working a clearance to the Montrose airport.

During a follow-up telephone conversation with the NTSB Investigator in Charge, the pilot of FH122 stated that he had talked on CTAF to a lady at the airport and the weather did not look that good. He then decided to do a missed approach before getting to the runway.

After the accident, the accident airplane's cockpit voice recorder (CVR) was shipped to the vehicle recorder lab in Washington, DC for download. A CVR group was convened and the recording was auditioned by a CVR group consisting of representatives from the NTSB, FAA, Mexican Dirección General de Aeronáutica Civil (DGAC), and a technical representative from the operator. Excerpts of communications are listed in the CVR Specialist Factual Report, which is located in the official docket for this investigation.

Additional Information

The Denver center controller (sector 12) position was initially staffed with a radar controller and a radar-associate controller. Facility Operating Procedure requires controllers to issue appropriate NOTAMs to pilots. The facility added that in the past, they received a phone call from an airport operator notifying them of an upcoming NOTAM that closed the airport or a runway; however, currently, airport operators enter NOTAMs directly into the system and they do not receive the telephone calls.

When a NOTAM is entered into the Aeronautical Information System Replacement system (AISR),

center automatically receives the NOTAM in the En Route Information Display System (ERIDS) at the controller's position. However, the controller is not alerted of a new NOTAM, and if the controller is on a different page on ERIDS, the NOTAM will not be visible.

One minute prior to XA-MEX being cleared for the approach, the radar associate controller moved over to the radar position. There was not a record of a position relief briefing and it was not known if a relief checklist was used.

A review of information contained in the FAA Aeronautical Information Manual (AIM),

4−1−9, Traffic Advisory Practices at Airports Without Operating Control Towers,

c. Recommended Traffic Advisory Practices

1. Pilots of inbound traffic should monitor and communicate as appropriate on the designated CTAF from 10 miles to landing. Pilots of departing aircraft should monitor/communicate on the appropriate frequency from start-up, during taxi, and until 10 miles from the airport unless the CFRs or local procedures require otherwise.

4−1−10. IFR Approaches/Ground Vehicle Operations

a. IFR Approaches. When operating in accordance with an IFR clearance and ATC approves a change to the advisory frequency, make an expeditious change to the CTAF and employ the recommended traffic advisory procedures.

b. Ground Vehicle Operation. Airport ground vehicles equipped with radios should monitor the CTAF frequency when operating on the airport movement area and remain clear of runways/taxiways being used by aircraft. Radio transmissions from ground vehicles should be confined to safety-related matters.

The airport manager reported that the snowplow was equipped with radios; the snowplow operator and the customer service representative inside the airport terminal both monitor the advisory frequency on the radio. He added that they also review a flight tracker program and reservations for potential inbound aircraft. He added that reservations are not required, nor will the flight tracker program show all traffic, but it does give them an idea of potential arrivals and departures. XA-MEX was not on the flight tracker and did not have a reservation at the airport.

Administrative Information

Investigator In Charge (IIC):	Hatch, Craig
Additional Participating Persons:	Scott Hartley; FAA FSDO; Salt Lake City, UT Oscar Roberto Chapa Rivera; DGAC Arturo Alcala; Aerolineas Ejecutivas
Original Publish Date:	April 17, 2018
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=92493