Aviation Investigation Final Report

Location:	Farmingdale, New York	**Accident Number:**	ERA21LA083
Date & Time:	December 20, 2020, 20:35 Local	**Registration:**	N412JA
Aircraft:	Raytheon Hawker	**Aircraft Damage:**	Substantial
Defining Event:	Abnormal runway contact	**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Executive/Corporate		

Analysis

The flight crew were conducting an instrument landing system (ILS) approach in night instrument meteorological conditions when they were advised by the tower controller that the weather had deteriorated below minimums. The captain was the pilot monitoring, and the first officer was the pilot flying during the approach. Since the airplane was inside the final approach fix and stabilized, both pilots agreed to continue with the approach. Both pilots stated that they had visual contact with the runway approach lighting system at the 200 ft above ground level (agl) decision altitude, and they decided to continue the approach. The first officer said he then returned to flying the airplane via instruments.

As the first officer continued the approach, the captain told him the airplane was drifting right of the runway centerline. The first officer said that he looked outside, saw that the weather had deteriorated, and was no longer comfortable with the approach. The first officer said he pressed the takeoff and go-around switch, while at the same time, the captain called for a go-around. The captain said that he called for the go-around because the airplane was not aligned with the runway.

Although both pilots stated that the go-around was initiated when the airplane was about 50 to 100 ft agl, the cockpit voice recorder (CVR) recording revealed that the first officer flew an autopilot-coupled approach to 50 ft agl (per the approach procedure, a coupled approach was not authorized below 240 ft agl). As the airplane descended from 30 to 20 ft agl, the captain told the first officer three times to “flare” then informed him that the airplane was drifting to right and he needed to make a left correction to get realigned with the runway centerline. Three seconds passed before the first officer reacted by trying to initiate transfer control of the airplane to the captain. The captain did not take control of the airplane and called for a go-around. The first officer then added full power and called for the flaps to be retracted to 15°; however, the airplane impacted the ground about 5 seconds later, resulting in substantial damage to the fuselage.

Data downloaded from both engines' digital electronic engine control units revealed no anomalies. No mechanical issues with the airplane or engines were reported by either crew member or the operator.

The sequence of events identified in the CVR recording revealed that the approach most likely became unstabilized after the autopilot was disconnected and when the first officer lost visual contact with the runway environment. The captain, who had the runway in sight, delayed calling for a go-around after the approach became unstabilized, and the airplane was too low to recover.

Probable Cause and Findings

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

The flight crew's delayed decision to initiate a go-around after the approach had become unstabilized, which resulted in a hard landing.

Findings

Personnel issues	Decision making/judgment - Flight crew
Personnel issues	Delayed action - Flight crew
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Approach-IFR missed approach	Abnormal runway contact (Defining event)
Landing	Runway excursion
Landing-flare/touchdown	Hard landing

HISTORY OF FLIGHT

On December 20, 2020, about 2035 eastern standard time, a Raytheon Aircraft Company Hawker 800XP, N412JA, was substantially damaged when it was involved in an accident near Farmingdale, New York. The captain sustained minor injuries and the first officer was seriously injured. The airplane was operated by Talon Air, LLC as a Title 14 *Code of Federal Regulations (CFR)* Part 91 business flight.

The captain was the pilot monitoring (PM), and the first officer was the pilot flying (PF) at the time of the accident. The captain and first officer stated that the flight was normal. As they approached the destination airport, they were vectored for the instrument landing system (ILS) runway 14 approach. The weather was at minimums (overcast at 200 ft above ground level [agl] and ¾-mile visibility) for the approach. The pilots briefed the approach, and the airplane was fully configured to land upon reaching the final approach fix (FAF). Both pilots said that, after passing the FAF, the tower controller reported that weather conditions had deteriorated to 200 ft agl and ¼-mile visibility. The captain asked the first officer if he wanted to continue with the approach, and he said he did. The first officer said that he was using the autopilot on the approach, the airplane was stabilized, and he felt they could safely descend to minimums.

The airplane was equipped with a cockpit voice recorder (CVR). Review of the recording revealed that, at 2034:56, when the airplane reached the decision altitude of 200 ft agl (as indicated by the recording's capture of an aural minimums callout from the airplane's radio altimeter), the captain declared that he had runway environment lights in sight. The first officer responded that he would continue with the approach. At 2035:01, the captain saw the flashing sequence lights for the approach lighting system and the red terminating bars and asked the first officer if he could see them. The first officer responded that he was prepared to land the airplane and continued with the approach. At 2035:08, the captain stated he had the runway in sight. At 2035:11, as the airplane reached 50 ft agl, a sound consistent with the autopilot disconnecting was heard.

Between 2035:16 and 2035:18, as the airplane descended from 30 to 20 ft agl, the captain told the first officer three times to flare the airplane, and noted that the airplane was moving to the right of the runway centerline. Three seconds later, the first officer told the captain to take control of the airplane, while the captain simultaneously called for a go-around. The first

officer responded by adding full power and called for the flaps to be retracted to 15°. About 5 seconds later, the airplane impacted the ground.

The first officer stated that, as the airplane approached 200 ft agl, the captain announced "minimums, lights." He looked outside, saw the "lead-in" lights, and announced, "continuing," and returned to flying the airplane via instruments. He said that, as the airplane descended to 100 ft agl, the captain told him the runway was to the left. He looked out and saw that the weather was worse than he expected, as if a "black cloud" was sitting at the end of the runway. He said the conditions were not "good enough for him," and he hit the takeoff/go-around (TOGA) switch while, at the same time, the captain called for a go-around. The first officer said that he added full power and called for flaps 15 degrees, but just as he started to pull up, the airplane landed on the runway "on the hard side."

The captain stated that, when the airplane was between 50 and 100 ft, it began drifting to the right, and he told the first officer to make a correction. The captain said that the correction was not sufficient to realign the airplane with the runway centerline, and he called for a go-around. The captain said the airplane pitched up in response to the TOGA switch, and he heard both engines spool up as he retracted the flaps, but the airplane did not climb. The airplane then impacted the ground, veered right, and spun before coming to a stop. When asked about first officer's request to initiate a transfer control of the airplane, the captain said, "I believe the request was made with the intent of salvaging the landing. If memory serves me right, just after the request I ordered the go around. I did not place my hands on the controls."

PERSONNEL INFORMATION

The captain held an airline transport pilot certificate and was type-rated in the Hawker 800/900. He reported a total flight experience of 4,188 hours, of which 2,060 hours were in the accident airplane make and model. The captain held a current Federal Aviation Administration (FAA) first-class medical certificate with no restrictions or limitations.

The first officer held an airline transport pilot certificate and was type-rated in the Hawker 800/900. He reported a total flight experience of 10,000 hours, of which 4,100 hours were in the accident airplane make and model. The first officer held a current FAA first-class medical certificate with no restrictions or limitations.

Both pilots stated that they had flown the ILS runway 14 approach numerous times and were familiar with the approach. A review of both the captain's and first officer's company training records revealed that they each received and successfully passed training on missed approaches from a precision approach and also rejected landings, which were initiated from 50 ft agl.

AIRPORT INFORMATION

Runway 14 was a 6,833-foot-long by 150-foot-wide asphalt runway. It was equipped with a medium intensity approach lighting system with sequence flashers (MALSF). There were no runway centerline lights.

A review of the remarks section of the ILS or LOC runway 14 approach plate revealed that an autopilot-coupled approach was not authorized below 310 ft msl (240 agl). In a postaccident interview, the first officer mentioned that he used the autopilot for the approach but did not recall when he turned it off.

METEOROLOGICAL INFORMATION

A special weather update at 2033 reported wind from 080° at 3 knots, visibility ¼-mile, fog, vertical visibility 200 ft, temperature 1° C, dewpoint -1° C, with a barometric pressure setting of 30.02 inches-Hg.

According to an FAA inspector who spoke with two first responders to the accident, the fog had "quickly" and "unexpectedly" developed on the airport around the time of the accident.

WRECKAGE INFORMATION

An FAA inspector who responded to the accident site stated that the airplane impacted the right side of the runway, about 2,000 ft down, then veered right of the runway about 1,500 ft before coming to rest. The nose wheel and both main landing gear departed the airplane and were found on the runway. There was no postimpact fire. The airplane sustained substantial damage to the fuselage.

The airplane was not equipped with a flight data recorder (FDR); however, each engine was equipped with a digital electronic engine control unit. Data downloaded from both units revealed that there was a go-around attempt and both engines responded simultaneously to power lever inputs. Both engines achieved 90-95% N1 speed in about 5 to 6 seconds. No mechanical issues with the airplane or engines were reported by either crew member or the operator.

ADDITIONAL INFORMATION

The Talon Air General Operations Manual (GOM) (section 19.2.- STABILIZED ON PROFILE) stated:

The airplane must be in the proper landing configuration, on the correct track, on the correct lateral track, the correct vertical track and the airspeed within the acceptable range specified in the AFM [airplane flight manual] or POH [pilot's operating handbook], as applicable. It should be noted, as it applies to stabilized approaches, that following lateral and vertical tracks should require only normal bracketing corrections. An approach that requires abnormal bracketing does not meet the stabilized approach concept, and a go-around should be initiated.

The Standard Operating Procedures section of the GOM (section 2.5. - POSITIVE TRANSFER OF CONTROLS), stated:

If the primary responsibility for controlling the aircraft is transferred from one pilot to the other once airborne, the person designated as the PF will brief the PM with the following basic information prior to initiating positive transfer of controls.

1. Aircraft altitude instructions.

2. Navigation instructions.

3. Pertinent information regarding aircraft configuration or ATC clearance.

To initiate positive transfer of controls the PF will state, "you have the controls". The pilot receiving aircraft control will then confirm transfer of control by stating, "I have the controls", which indicates that he/she understands and has control of the aircraft.

Pilot Information

Certificate:	Airline transport	**Age:**	37,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	5-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	November 2, 2020
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	November 1, 2020
Flight Time:	4188 hours (Total, all aircraft), 2060 hours (Total, this make and model), 2063 hours (Pilot In Command, all aircraft), 60 hours (Last 90 days, all aircraft), 40 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Airline transport	**Age:**	63,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	5-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	July 23, 2020
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	December 11, 2020
Flight Time:	10000 hours (Total, all aircraft), 4100 hours (Total, this make and model), 6800 hours (Pilot In Command, all aircraft), 47 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Raytheon	**Registration:**	N412JA
Model/Series:	Hawker 800XP	**Aircraft Category:**	Airplane
Year of Manufacture:	2001	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	258516
Landing Gear Type:	Retractable - Tricycle	**Seats:**	8
Date/Type of Last Inspection:	June 8, 2020 Continuous airworthiness	**Certified Max Gross Wt.:**	28000 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo fan
Airframe Total Time:	12731.5 Hrs at time of accident	**Engine Manufacturer:**	ALLIEDSIGN
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	TFE731-5BR1H
Registered Owner:	N412JA LLC	**Rated Power:**	4634 Lbs thrust
Operator:	Talon Air Jets	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:	Talon Air	**Operator Designator Code:**	OZTA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	KFRG,81 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	20:33 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:		**Visibility**	0.25 miles
Lowest Ceiling:	Indefinite (V V) / 200 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:	80°	**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	1°C / -1°C
Precipitation and Obscuration:	Moderate - None - Fog		
Departure Point:	Opa Locka, FL (OPF)	**Type of Flight Plan Filed:**	IFR
Destination:	Farmingdale, NY	**Type of Clearance:**	IFR
Departure Time:	18:00 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	REPUBLIC FRG	**Runway Surface Type:**	Asphalt
Airport Elevation:	80 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	14	**IFR Approach:**	ILS
Runway Length/Width:	6833 ft / 150 ft	**VFR Approach/Landing:**	Full stop;Go around

Wreckage and Impact Information

Crew Injuries:	1 Serious, 1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	40.7268,-73.410425(est)

Administrative Information

Investigator In Charge (IIC):	Read, Leah
Additional Participating Persons:	Katherine Adrada; FAA/FSDO; Farmingdale, NY Knut Finnevolden; Talon Air; Farmingdale, NY David Studtmann; Honeywell; Phoenix, AZ
Original Publish Date:	November 4, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=102437