Aviation Investigation Final Report

Location:	Jamestown, New York	**Incident Number:**	ERA13IA294
Date & Time:	June 20, 2013, 14:10 Local	**Registration:**	N500AG
Aircraft:	IAI GULFSTREAM200	**Aircraft Damage:**	Minor
Defining Event:	Runway excursion	**Injuries:**	5 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The pilot flying (PF) and the pilot monitoring (PM) were completing an airman competency check under the observation of a Federal Aviation Administration inspector. Following an uneventful flight, the pilots configured the turbofan-powered, transport-category airplane for landing on the 5,299-ft-long, dry runway. A review of the cockpit recorder (CVR) transcript revealed that, during the practice instrument landing system approach, the PM warned the PF that the airplane was approaching the runway at an airspeed 15 knots higher than its specified approach speed (Vref) as it descended to within 100 ft of the ground. The PM also warned the PF not to allow the airplane's airspeed to increase because the runway was "short." The airplane subsequently touched down within the airplane's touchdown zone about 1,000 ft beyond the runway threshold. The PM reported that he attempted to slow the airplane by applying the brakes and deploying the thrust reversers, but the airplane continued off the departure end of the runway and came to rest about 40 ft beyond its pavement.

The runway distance required for the landing was calculated using the airplane manufacturer's Airplane Flight Manual. It was determined that, given the airplane's loading and configuration and the weather and runway conditions, sufficient runway was available for the landing. The landing distance calculations were predicated on the airplane crossing the runway threshold at Vref and did not account for the use of reverse thrust during the landing roll. Postincident examination of the airplane's braking and thrust reverser systems revealed no evidence of any mechanical anomalies that would have precluded normal operation.

Although the PF reported in postincident statements that the braking action during the landing was "nil," a review of the CVR transcript showed that neither of the pilots mentioned poor braking performance during the landing roll nor did they attempt to activate the emergency braking system. Additionally, the operator's chief pilot, who had been seated in the cabin during the flight, reported that the braking system cycled several times during the landing roll and that, although the reverse thrust system appeared to activate, he did not "feel or hear" a pronounced application of reverse thrust. Although the electronic engine control system recorded a limited set of parametric data during the landing, airspeed was not a

recorded parameter. Analysis of the recorded data revealed that, about 3 seconds after touchdown, the throttle lever angles (TLA) were positioned for deployment of the thrust reversers and that the thrust reversers subsequently deployed; however, the TLAs remained at an idle-thrust position. The TLAs did not increase to the maximum reverse thrust position until about 17 seconds later, at which time, both engines increased power for about 8 seconds.

Although the use of reverse thrust was not required for the landing, nor was the airplane's computed landing distance reflective of the use of reverse thrust, the PF's apparent delayed application of reverse thrust suggested that he may not have used maximum effort in his attempts to decelerate the airplane during the landing roll even after the outcome was in doubt. Additionally, although an exact account of the airplane's airspeed was not available for postincident analysis, the PM's airspeed callouts suggested that the airplane's airspeed while on final approach to the runway, and potentially throughout the touchdown, increased the total required landing distance. If the pilots had recognized this earlier in the approach, they could have conducted a go-around and avoided the possibility of a runway overrun. Alternatively, upon realizing that the airplane was not decelerating as desired, the pilots could have used all available means to slow the airplane during the landing roll, including the timely and complete activation of the airplane's thrust reversers, and if necessary, activation of the emergency braking system.

Probable Cause and Findings

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

The pilots' failure to effectively use the airplane's primary (brakes), secondary (thrust reversers), and emergency braking systems to decelerate the airplane, which resulted in a runway excursion. Contributing to the accident was the pilots' failure to conduct a go-around maneuver upon recognizing that the airplane had excessive airspeed while on final approach to the runway.

Findings

Personnel issues	Use of equip/system - Pilot
Aircraft	Landing distance - Not attained/maintained
Aircraft	Brake - Incorrect use/operation
Personnel issues	Understanding/comprehension - Flight crew
Aircraft	Surface speed/braking - Incorrect use/operation

Factual Information

History of Flight

Landing-landing roll	Runway excursion (Defining event)

HISTORY OF FLIGHT

On June 20, 2013, about 1410 eastern daylight time, an Israel Aircraft Industries Gulfstream 200, N500AG, overran the paved portion of the runway during landing at the Chautauqua County/Jamestown Airport (JHW), Jamestown, New York. The two airline transport pilots, two Federal Aviation Administration (FAA) inspectors, and the aircraft operator's chief pilot were not injured. The airplane sustained minor damage to the trailing edge of the left wing flap. The airplane was registered to a private individual and operated by Taughannock Aviation under the provision of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed for the instructional flight, which originated from the Greater Rochester International Airport (ROC), Rochester, New York, about 1350.

According to written statements by the pilots, earlier in the day the airplane flew to ROC with the operator's chief pilot in the jumpseat for the purpose of conducting a Part 135.299 checkride. After landing at ROC, the two pilots completed an oral examination with the FAA inspectors, and completed weight and balance and performance calculations for the practical test portion of the examination. The pilot flying stated that during the incident flight, the airplane landed within the touchdown zone of runway 25, about 1,000 feet past the threshold, following a "normal stabilized approach." After touchdown, the pilot flying deployed the engine thrust reversers and applied steady brake pressure; however, the "braking/stopping ability was nil."

According to a written statement provided by the operator's chief pilot, seated in the cabin section of the airplane, during landing rollout, that "noticeable yawing and a perception of the Braking and/or Anti-skid cycling and releasing separately three times as the aircraft slowed down." He further reported that he did not "hear or feel" a pronounced application of reverse thrust, and in the later part of the rollout he noted a "hard pull to the right just prior to a low speed exiting of the end of the runway."

The FAA inspector seated in the cockpit jumpseat reported in a written statement, "the touchdown was normal and within the 1000 foot markers, the PIC [pilot in command] activated the thrust reversers, but no power increase was noted. The braking action or deceleration was noted as 'smooth.' The second-in-command [SIC] was calling out the airspeeds and runway remaining and was noted to be alarmed by the last 2000 foot markers, it was also noted that the SIC, attempted to stand on the brakes just prior to the end of the runway. The PIC was noted as alarmed and applying maximum braking pressure and attempted to steer the aircraft to the right towards the taxiway at the end of the runway, but then straighten the aircraft out just prior to the end of the runway."

DAMAGE TO THE AIRPLANE

According to an FAA inspector, the airplane came to rest about 40 feet from the end of the paved portion of the runway. During the overrun, the nose landing gear and the trailing edge of the left wing flap made contact with two runway end lights, which resulted in minor damage to the flap. According to photographs provided by an FAA inspector, the airplane created a furrow in the soft turf a few inches in depth.

PERSONNEL INFORMATION

Pilot In Command (PIC)

The PIC, age 48, held an airline transport pilot certificate for airplane multiengine land, a commercial pilot certificate for airplane single-engine land, and several type ratings, including a type rating in the incident aircraft make and model. He also held an FAA first-class medical certificate issued April 30, 2013, with a limitation of "must wear corrective lenses." No flight time information was provided by the pilot or company.

Pilot Monitoring

The pilot monitoring, age 45, held an airline transport pilot certificate for airplane multiengine land, a commercial pilot certificate for airplane single-engine land, a flight instructor certificate for airplane single-engine and multiengine land, and instrument airplane, as well as several type ratings including a type rating in the incident airplane make and model. He also held a FAA first-class medical certificate issued May 7, 2013, with no restrictions. No flight time information was provided by the pilot or company.

AIRCRAFT INFORMATION

The airplane, an Israel Aircraft Industries Gulfstream 200 model, serial number 158, was a low-wing, twin-engine, tail-mounted turbojet airplane certificated in the transport category. According to FAA records, the airplane was issued an airworthiness certificate on March 13, 2007, and was registered to a private individual on January 25, 2013, as N818TS and re-registered on March 22, 2013, as N500AG. It was equipped with two Pratt and Whitney PW306A turbojet engines. The most recent logbook entry dated June 4, 2013, indicated a total time of 1,321.9 hours.

According to maintenance records, the left inboard main landing gear tire was replaced due to "tire wear" on December 8, 2012, with a recorded time of 1,206.5 hours and total cycles of 523. The remaining tires were also removed, inspected, and reinstalled. Both left and right brake assemblies, wheel speed transducers, emergency brake accumulator, and power brake valve were installed new during manufacture on March 13, 2007.

The airplane was equipped with hydraulically actuated, retractable, tricycle landing gear; each main landing wheel was equipped with full powered multiple segmented brakes operated by toe action of the pilot's or co-pilot's rudder pedals. Application of the brake pedals at either seat position delivered pressure to the directly connected master cylinder, which transferred it to a power brake valve through mixing valves. The power brake amplified the master cylinder pressure, thereby increasing the pressure to the respective main landing gear brake. An electrically-controlled anti-skid system was also incorporated in the power brake system. A stationary wheel speed transducer was mounted inside each main gear axle, and it electronically sensed any change in wheel rotation speed. By design, with the

system "ON," as a skid is detected by the stationary wheel speed transducer, an electrical signal was supplied to the system, which released brake pressure. The system would continue to operate as long as the brake pressure was sufficient to result in the skidding condition, but not below approximately 10 knots.

A ground safety system was also installed, which allowed for safe operation of several systems either in flight or on the ground, including thrust reverser application for ground use only. Control was accomplished by the activation of the left, right, and nosewheel squat switches, which removed an electrical ground from the coils of ground safety relays. That, in turn, enabled or disabled their respective systems according to the position of the safety switches. Following the incident, the brake pins were examined, were of proper length, and the serial number for the brakes were, at the time of the incident, not affected by any manufacturer service bulletins. The thrust reverser system and weight on wheel system operated normally and no abnormalities were noted.

METEOROLOGICAL INFORMATION

The 1415 recorded weather observation at JHW, included calm wind, 10 miles visibility, clear skies, temperature 23 degrees C, dew point 09 degrees C; barometric altimeter 30.25 inches of mercury.

AIRPORT INFORMATION

The airport was a publicly-owned airport and at the time of the incident did not have an operating control tower. The airport was equipped with two runways designated as 7/25 and 13/31. The runways were reported as "in good condition" at the time of the incident. Runway 7/25 was a 5,299-feet-long by 100-feet-wide, and runway 13/31 was 4,500-feet-long by 100-feet-wide. The airport was 1,723 feet above mean sea level. Runway 25 was equipped with and instrument landing system (ILS) approach, GPS approach, and a VOR approach.

FLIGHT RECORDER

Honeywell Mark V Enhanced Ground Proximity Warning System (EGPWS)

The EGPWS was sent to the NTSB Vehicle Records Laboratory for data download. The unit provided aural and visual alerts and warnings of terrain proximity and low altitude windshear conditions. It received inputs from airplane sensors and systems such as the Air Data Inertial Reference Unity (ADIRU), GPS, and radio altimeter. The unit was designed to record events triggered by exceeding predetermined limits. Once a limit was exceeded, the unit would record one sample per second for the twenty seconds prior and 10 seconds after the exceedance. The unit recorded 640 flights with the incident flight being the last recorded flight, NO EGPWS warnings were logged for the incident flight.

Pratt & Whitney Engine Electronic Controls (EEC)

The EEC was designed to provide control of the engines installed on the incident airplane. Certain events were designed to trigger a five-minute recording, which included 4 minutes of recording prior to and 1 minute after the triggering event. The recording began approximately 96 seconds before weight-on-wheels. According to the recording, the airplane touched down at 1410:00 and 3 seconds later the thrust reversers were first deployed at a Throttle Lever Angle (TLA) of 16 degrees, which corresponded to a thrust reverser idle power lever selection. Then 20 seconds after touchdown, a TLA of 20 degrees

was recorded, which corresponded to maximum thrust reverser power lever selection. 24 seconds after touchdown, the N1 (engine fan speed) increased to the maximum recorded value of 55 percent. Finally, 32 seconds after touchdown, N1 began to decrease, an indication consistent with the thrust reversers being stowed. Pratt & Whitney confirmed that under certain circumstances with certain versions of the EEC software, a normal engine shutdown may trigger a logically unwanted recording event, which was what resulted in the recording on the incident flight. Thrust reverser obtainable power was a function of the indicated airspeed, which could provide at least 78 percent N1.

Cockpit Voice Recorder (CVR)

A CVR summary report was developed by the NTSB Vehicle Recorders Laboratory, Washington, D.C. Data was successfully downloaded and a partial transcript of the incident flight was prepared. Following a power cycle to the CVR, the CVR recording resumed about 1306 EDT. At 1310, the PIC received the IFR clearance to JHW. The PIC and pilot monitoring then discussed the flight to JHW, including: the winds at JHW being from 270 at 6 knots, favoring runway 25; the short distance of the flight; and the width of the runway at JHW. After performing checklists and a crew briefing, the airplane departed ROC, runway 22, about 1344 EDT.

About 1352, the PIC called for the descent checklist and the pilot monitoring responded by stating two speeds, 133 and 143 knots.

Between 1406:36 and 1408:04 the before landing checklist was verbalized and the IFR flight plan was cancelled with Erie Approach Control.

At 1409:23 the PIC stated "autopilot is away before landing checklist complete." A sound of the cavalry charge similar to the autopilot disconnect was recorded.

1409:25 the pilot monitoring stated "autopilot's off"

1409:26 the PIC stated "all lights on"

1409:28 the pilot monitoring stated "autopilot's off all lights on runway's clear"

1409:31 the PIC stated "before landing checklist complete"

1409:33 the pilot monitoring stated "before landing checklist complete and you're ref plus ten"

1409:37 the PIC stated "correcting"

1409:40 the PIC asked "everybody sitting down"

1409:41 the pilot monitoring stated "everybody's sitting down everybody's ready"

1409:44 the pilot monitoring stated "runway's clear ref plus fifteen don't let it increase it's a short runway"

1409:47 the PIC stated "ahh great correcting"

1409:49 the EGPWS alerted "one hundred"

1409:51 the EGPWS alerted "fifty"

1409:52 the EGPWS alerted "thirty"

1409:53 the EGPWS alerted "twenty"

1409:55 the EGPWS alerted "ten"

1410:00 the airplane touched down on runway 25 at JHW

1410:00 the PIC stated "your tops"

1410:01 the pilot monitoring stated "my tops"

1410:02 the pilot monitoring stated "one twenty"

1410:04 the pilot monitoring stated "one fifteen two thousand remaining"

1410:06 the pilot monitoring stated "more brakes"

1410:08 the pilot monitoring stated "one hundred"

1410:09 the pilot monitoring stated "a little to the right"

1410:10 the pilot monitoring stated "ninety knots one thousand remaining"

1410:13 the pilot monitoring stated "eighty knots"

1410:15 the pilot monitoring stated "seventy knots"

1410:17 the pilot monitoring stated "sixty knots"

About 1410:33 the airplane came to a stop. The crew shut down the airplane as they discussed evacuation and the recording ended at 1412.

ADDITIONAL INFORMATION

According to the G200 Airplane Flight Manual (AFM), the thrust reversers (T/R) were hydraulically-actuated, electrically-controlled, four-bar linkage, target-type reversers, mounted on the aft end of the engine outer fan duct. The thrust reverser for each engine was controlled by a separate thrust lever on the throttle quadrant. The thrust reverser hydraulic system was supplied with hydraulic fluid at 3000 psi from the aircraft hydraulic system.

Documentation provided by Gulfstream Aerospace Corporation stated that the "selection of reverse thrust by the thrust lever requires two separate and distinct operations, lift the reverse lock trigger and pull the lever back. In addition the ARM must be selected, this selection is normally Off in flight and indicated when in ARM. In addition both main and nose landing gear weight on wheel [WOW] – WOW switches must be in ground position. Any gear WOW in air position will prevent the T/R to deploy." The maximum reverse thrust N1 setting is a function of take-off rating and indicated airspeed in order to

limit sonic fatigue damage to the reverse thrust mechanism. According to the chart provided by the manufacturer, the range varied from 51.9 to 80 percent. According to the CVR, the last speed announced by the pilot monitoring was 60 knots about 16 seconds prior to airplane stop, at that reported speed about 67.5 percent of takeoff power would have been available.

According to the AFM, the airplane was equipped with "normal" and "emergency" hydraulic wheel brake systems, which were controlled by dual "tip-toe" brake pedals. During "normal" operation, the brakes on each main landing gear strut were controlled by an anti-skid valve. During "emergency" operation of the brake system, the "PARK/EMERG" lever would be placed in the EMERG position, which would provide accumulator pressure for six applications of the emergency brakes for an accumulated total of 50 seconds, or one thrust reverser deployment. During "emergency" braking the "anti-skid system is inoperative." There was no indication that the crew utilized the emergency braking system. In addition, the FAA inspector on the jumpseat reported debriefing the flight crew on the emergency brake system and that it "was not used by the flight crew."

According to the Gulfstream 200 AFM, Section VII "Performance" chart titled "LANDING DISTANCE FACTORED BY 100/60," for a 26,000 pound airplane, with flaps at 40 degrees, gear down, and the anti-skid and ground A/B – on, would have been about 5,300 feet for a dry runway. The chart was utilized for Part 135 operations, which required the airplane to be able to land and slow to a taxi sped within 60 percent of the available runway. The landing distance was not predicated on the use of reverse thrust The landing distance was also predicated on the airplane being over the runway threshold at an approach speed of Vref. According to the "UNFACTORED LANDING DISTANCE" chart, which would be utilized for Part 91 operations, the uncorrelated landing distance required was 3,151 feet.

Airplane Flying Handbook (FAA-H-8083)

According to Chapter 15, "Transition to Jet Powered Airplanes," stated in part "The performance charts and the limitations contained in the FAA-approved Airplane Flight Manual are predicated on momentum values that result from programmed speeds and weights…Performance figures also assume that once through the target threshold window, the airplane will touch down in a target touchdown zone approximately 1,000 feet down the runway, after which maximum stopping capability will be used. There are five basic elements to the stabilized approach…indicated airspeed should be within 10 knots of the target airspeed…Every approach should be evaluated at 500 feet. In a typical jet airplane, this is approximately 1 minute from touchdown. If the approach is not stabilized at that height, a go-around should be initiated." The chapter went on further to state "A common error in the performance of approaches in jet airplanes is excess approach speed. Excess approach speed carried through the threshold window and onto the runway will increase the minimum stopping distance required by 20-30 feet per knot of excess speed for a dry runway… worse yet, the excess speed will increase the chances of an extended flare, which will increase the distance to touchdown by approximately 250 feet for each excess knot in speed."

Advisory Circular (AC) 91-79, "Runway Overrun Prevention"

According to AC 91-79, the purpose was to "provide ways for pilots and operators of turbine-powered airplanes to identify, understand, and mitigate risks associated with runway overruns during the landing phase of flight. It also provides operators with detailed information that may be used to develop company standard operating procedures (SOP's) to mitigate those risks." Item 6, "Hazards Associated

with Runway Overruns" references a study of FAA and NTSB data associated with runway overruns and indicated that in part "…that the following hazards may increase the risk of a runway overrun:
• nonstabilized approach
• excess airspeed
• landing beyond the intended touchdown point
• failure to assess required landing distance to account for slippery or contaminated runway conditions or any changed conditions existing at the time of landing."

In Appendix 1 of AC 91-79, Item 4, "Landing Performance and Standard Operating Procedures" stated in part "…Landing performance is influenced by a multitude of variable. Airplane weight and configuration, use of deceleration devices, airport elevation, atmospheric temperature, wind, runway length, runway slope, and runway surface condition (i.e. dry, wet, contaminated, improved, unimproved, grass, etc.) are all factors in determining landing performance… landing distances determined during certification tests are aimed at demonstrating the shortest landing distances for a given airplane weight with a test pilot at the controls and are established with full awareness that operational rules for normal operations require the addition of factors to determine minimum operational field length…Therefore, the landing distances determined under § 23.75 and 25.125 are much shorter than the landing distances achieved in normal operations…"

Table 2, "Rule of Thumb" on Landing Distance Calculations of the AC 91-79 indicated in part that "a Non-stabilized approach is unpredictable on determining the landing distance…that for every 10 knots of excessive airspeed add 500 feet of landing distance for a wet runway… to add an additional 2,500 feet per 10 knots of excessive airspeed to account for floating during an extended flare."

Advisory Circular (AC) 120-51E "Crew Resource Management Training"

According to AC 120-51E, "CRM [Crew Resource Management] training focuses on situation awareness, communication skills, teamwork, task allocation, and decision making within a comprehensive framework of standard operating procedures (SOP)." Paragraph 7 "Background" stated in part that "investigations into the causes of air carrier accidents have shown that human error is a contributing factor in 60 to 80 percent of all air carrier accidents and incidents. Many problems encountered by flightcrews had very little to do with the technical aspect of operating in a multi-person cockpit, rather, problems are associated with poor group decision making, ineffective communication, inadequate leadership, and poor task or resource management." Paragraph 16(a) "Crew Monitoring and Cross-Checking" stated in part "Several studies of crew performance, incidents, and accidents have identified inadequate flightcrew monitoring and cross-checking as a problem for aviation safety. Therefore to ensure the highest levels of safety, each flight crewmember must carefully monitor the aircraft's flight path and systems and actively cross-check the actions of other crewmembers. Effective monitoring and cross-checking can be the last line of defense that prevents an accident because detecting an error or unsafe situation may break the chain of events leading to an accident. This monitoring function is always essential, and particularly so during approach and landing…."

FAA Order 8900.1 "Flight Standards Information Management System"

According to Order 8900.1 Volume 6 "Surveillance" Chapter 2, Section 9, "Safety Assurance System: Cockpit En Route Inspections" 6-373 "Objective of En Route Inspections" states in part that "these inspections provide the FAA with an opportunity to assess elements of the aviation system that are both

internal and external to an operator." It continues to provide a list of elements that would be internal operator which in part consist of crewmembers, use of checklists, approved procedures, and safe operating practices, crew coordination/cockpit resource management, etc. Furthermore in section 6-377 "Specific Cockpit En Route Inspection Practices and Procedures" stated in part in subsection "F. The Inspector's In-Flight Responsibilities…During cockpit en route inspections, inspectors must try to avoid diverting the attention of flightcrew members performing their duties during 'critical phases of flight.' Inspectors must be alert and point out to the flightcrew any apparent hazards, such as conflicting traffic…"

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer	**Age:**	48
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	April 30, 2013
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Co-pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	45
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 None	**Last FAA Medical Exam:**	May 7, 2013
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	IAI	**Registration:**	N500AG
Model/Series:	GULFSTREAM200	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	158
Landing Gear Type:	Retractable - Tricycle	**Seats:**	10
Date/Type of Last Inspection:	May 23, 2013 Continuous airworthiness	**Certified Max Gross Wt.:**	35450 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo fan
Airframe Total Time:	1321.9 Hrs as of last inspection	**Engine Manufacturer:**	Pratt & Whitney Canada
ELT:	Installed, not activated	**Engine Model/Series:**	PW306A
Registered Owner:	Michael Burton LLC	**Rated Power:**	
Operator:	Taughannock Aviation	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	BJYA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	JHW,1723 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	14:15 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.25 inches Hg	**Temperature/Dew Point:**	22°C / 9°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Rochester, NY (ROC)	**Type of Flight Plan Filed:**	IFR
Destination:	Jamestown, NY (JHW)	**Type of Clearance:**	IFR
Departure Time:		**Type of Airspace:**	

Airport Information

Airport:	Chataqua County / Jamestown JHW	**Runway Surface Type:**	Asphalt
Airport Elevation:	1723 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	25	**IFR Approach:**	ILS;Visual
Runway Length/Width:	5299 ft / 100 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	3 None	**Aircraft Damage:**	Minor
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	5 None	**Latitude, Longitude:**	42.148056,-79.251388(est)

Administrative Information

Investigator In Charge (IIC):	Etcher, Shawn
Additional Participating Persons:	David Keenan; FAA AVP-100; Washington, DC Kimberly Lascell; Gulfsteam Aerospace Corporation; Savannah, GA Marc Hamilton; Transportation Safety Board of Canada; Gatineau Marc Gratton; Pratt & Whitney Canada Corp. ; Longueuil
Original Publish Date:	January 21, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this incident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=87247