



# Aviation Investigation Final Report

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<b>Location:</b>	Houston, Texas	<b>Accident Number:</b>	CEN23LA112
<b>Date &amp; Time:</b>	February 17, 2023, 11:16 Local	<b>Registration:</b>	N14QB
<b>Aircraft:</b>	HONDA AIRCRAFT CO LLC HA-420	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Loss of control on ground	<b>Injuries:</b>	6 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

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## Analysis

The pilot was landing at the destination airport with a gusting crosswind. Upon touchdown, he established the aileron controls for the crosswind and applied the brakes; however, no braking action was observed. The airplane subsequently drifted left and departed the runway pavement. It came to rest upright in the grass infield area adjacent to the runway. The outboard portion of the right wing separated which resulted in substantial damage.

Data indicated that the airplane was 14 knots or more above the published landing reference speed when it crossed the runway threshold, and it touched down about 2,000 ft from the threshold. The left and right weight-on-wheels (WOW) parameters transitioned from air to ground consistent with initial touchdown; however, the left WOW parameter transitioned back to air about 2 seconds later. The right WOW parameter remained on ground until the airplane departed the runway pavement.

A detailed review of the Central Maintenance Function (CMF) data files did not reveal any record of airplane system anomalies from the time the airplane lifted off until it touched down. Multiple system anomalies were recorded after the runway excursion consistent with airframe damage sustained during the accident sequence.

The brake system touchdown protection is designed to prevent brake application until wheel spin-up occurs to avoid the possibility of inadvertently landing with a locked wheel due to brake application. After weight-on-wheels has been true for three seconds, power braking is enabled. It is likely that the lack of positive weight-on-wheel parameters inhibited brake application due to the touchdown protection function and resulted in the pilot not observing any braking action.

The excess airspeed, extended touchdown, and transient weight-on-wheels parameters were consistent with the airplane floating during the landing flare and with the application of aileron controls for the crosswind conditions. The airplane was not equipped with wing-mounted speed brakes which would have assisted in maintaining weight-on-wheels during the initial portion of the landing.

The most recent wind report, transmitted by the tower controller when the airplane was on a 3-mile final, presented a 70° crosswind at 15 knots, gusting to 25 knots. The corresponding crosswind gust component was about 24 knots. The airplane flight manual specified a crosswind limitation of 20 kts for takeoff and landing; therefore, the crosswind at the time of the accident exceeded the airframe crosswind limitation and would have made control during touchdown difficult.

The pilot reported that he had made two requests with the approach controller to land on a different runway, but those requests were denied. The investigation was unable to make any determination regarding a pilot request for an alternate runway. Federal Aviation Regulations stated that the pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft. The regulations also stated that no person may operate a civil aircraft without complying with the operating limitations. The pilot's ultimate acceptance of the runway assignment which likely exceeded the crosswind limitation of the airplane was contrary to the regulations and to the safe operation of the airplane.

## Probable Cause and Findings

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

The pilot's loss of directional control during landing which resulted in a runway excursion. Contributing to the accident was the pilot's decision to land with a crosswind that exceeded the limitation for the airplane.

### Findings

<b>Personnel issues</b>	Aircraft control - Pilot
<b>Aircraft</b>	Directional control - Not attained/maintained
<b>Environmental issues</b>	Crosswind - Effect on operation
<b>Personnel issues</b>	Decision making/judgment - Pilot

## Factual Information

### History of Flight

Landing	Loss of control on ground (Defining event)
Landing	Runway excursion

On February 17, 2023, at 1116 central standard time, a Honda Aircraft HA-420 airplane, N14QB, was substantially damaged when it was involved in an accident at William P. Hobby Airport (HOU), Houston, Texas. The pilot and five passengers were not injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

Automated Dependent Surveillance – Broadcast (ADS-B) data obtained from the Federal Aviation Administration (FAA) and data recovered from the onboard avionics provided airplane position, altitude, and speed information. Data downloaded from the airplane Central Maintenance Function (CMF) system provided information regarding the status of the onboard systems.

The flight departed Miami Executive Airport (TMB) at 0905 eastern standard time. Upon arrival into the Houston area, the pilot was provided radar vectors for an instrument landing system (ILS) approach to runway 4. The pilot was initially cleared to land; however, the tower controller instructed the pilot to execute a go around due to another airplane on the runway. Following radar vectors for a second ILS approach to runway 4, the pilot was cleared to land and provided the current wind of 340° at 15 kts. About 2 minutes later, the tower controller issued the current wind information of 330° at 15 kts, gusting to 25 kts, to a departing airplane. The accident airplane was on a 3-mile final at that time.

As the airplane crossed the runway arrival threshold, the onboard avionics recorded an altitude of 86 ft mean sea level (msl) and 125 knots indicated airspeed (IAS). The published runway 4 threshold elevation was 42 ft. The corresponding landing reference speeds published in the airplane flight manual ranged from 100 knots IAS at a landing weight of 7,500 lbs to 111 knots IAS at a landing weight of 9,500 lbs. The exact landing weight for the accident airplane was not available.

The left and right weight-on-wheels (WOW) parameters transitioned from air to ground about 1116:02 consistent with initial touchdown. At that time, the airplane was about 2,000 ft from the runway arrival threshold. According to the onboard avionics, the indicated airspeed was about 108 knots, and the corresponding groundspeed was about 96 knots. The airplane tracked the runway centerline for about 4 seconds. Afterward, it drifted left and departed the pavement about 1116:09 at a groundspeed of about 75 knots. The airplane came to rest upright in the grass infield area about 150 ft north of the runway 4/runway 31L intersection.

The outboard portion of the right wing was separated near midspan, and the landing gear collapsed.

The pilot reported that upon touchdown, he established the aileron controls into the wind and applied the brakes. However, no braking action was observed, and the airplane drifted off the left side of the runway. He also noted that the crosswind component was near the limitation for the airplane and that he made two requests with the approach controller to land on runway 31L. He stated that those requests were denied and was instructed to expect runway 4.

A detailed review of the CMF data files did not reveal any record of airplane system anomalies from the time the airplane lifted off until it touched down. Multiple system anomalies were recorded after the runway excursion consistent with airframe damage sustained during the accident sequence.

Further review of CMF data revealed that, after initial touchdown, the left WOW parameter transitioned from ground back to air about 2 seconds later. It then returned to ground about 1116:16 for the remainder of the data set. The right WOW parameter remained on ground until about 1116:10 when it returned to air for the remainder of the data set.

The airplane flight manual specified a crosswind limitation of 20 kts for takeoff and landing. Based on the most current wind information provided by the tower controller, the runway 4 crosswind component at the time of the accident was about 24 kts.

The airplane Pilot's Operating Manual (POM) noted that the brake system touchdown protection is intended to inhibit brake application until wheel spin-up occurs. This is to prevent a pilot from inadvertently touching down with the brakes applied and the wheels locked. After weight-on-wheels has been true for three seconds, power braking is enabled with or without a wheel speed signal.

The airframe manufacturer noted that in addition to the weight-on-wheels condition, the touchdown protection will also be deactivated within one second if the average of the left and right wheel speed is at least 60 knots.

Additionally, the POM noted the brake system anti-skid protection and locked wheel crossover protection are available once touchdown protection is no longer active. The airplane is not equipped with engine thrust reversers or wing-mounted speed brakes. An aft fuselage-mounted speed brake is available; although, it is not automatically deployed on touchdown.

Air traffic control (ATC) tower (local control position) communications with the pilot were routine until the accident occurred. At the time, airplanes were landing on runway 4 and departing from runway 31L. A recording of communications between the pilot and terminal radar (TRACON) controller from a third-party source included multiple frequencies and some transmissions were not clearly recorded. As a result, no determination regarding any pilot request for an alternate runway due to the crosswind condition could be made.

FAA regulations stated that the pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft (14 CFR 91.3). Furthermore, the regulations state that no person may operate a civil aircraft without complying with the operating limitations specified in the approved Airplane Flight Manual (14 CFR 91.9).

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	58, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	4-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 3 With waivers/limitations	<b>Last FAA Medical Exam:</b>	December 17, 2022
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	May 26, 2022
<b>Flight Time:</b>	(Estimated) 1134 hours (Total, all aircraft), 287 hours (Total, this make and model), 1120 hours (Pilot In Command, all aircraft), 61 hours (Last 90 days, all aircraft), 29 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	HONDA AIRCRAFT CO LLC	<b>Registration:</b>	N14QB
<b>Model/Series:</b>	HA-420	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2018	<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	42000107
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	7
<b>Date/Type of Last Inspection:</b>	December 15, 2022 Continuous airworthiness	<b>Certified Max Gross Wt.:</b>	10700 lbs
<b>Time Since Last Inspection:</b>	57 Hrs	<b>Engines:</b>	2 Turbo fan
<b>Airframe Total Time:</b>	644 Hrs at time of accident	<b>Engine Manufacturer:</b>	GE Honda
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	HF-120-H1A
<b>Registered Owner:</b>	HAEDO AIR LLC	<b>Rated Power:</b>	2050 Lbs thrust
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>	N/A	<b>Operator Designator Code:</b>	N/A

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KHOU,43 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	10:53 Local	<b>Direction from Accident Site:</b>	272°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Broken / 25000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	17 knots / 26 knots	<b>Turbulence Type Forecast/Actual:</b>	None / None
<b>Wind Direction:</b>	350°	<b>Turbulence Severity Forecast/Actual:</b>	N/A / N/A
<b>Altimeter Setting:</b>	30.47 inches Hg	<b>Temperature/Dew Point:</b>	7°C / -4°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Miami, FL (KTMB)	<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	KHOU, TX (KHOU)	<b>Type of Clearance:</b>	IFR
<b>Departure Time:</b>	09:05 Local	<b>Type of Airspace:</b>	Class B

## Airport Information

<b>Airport:</b>	William Hobby Airport HOU	<b>Runway Surface Type:</b>	Concrete
<b>Airport Elevation:</b>	46 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	4/22	<b>IFR Approach:</b>	ILS
<b>Runway Length/Width:</b>	7602 ft / 150 ft	<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	5 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	6 None	<b>Latitude, Longitude:</b>	29.645984,-95.278587

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Otterstrom, Kevin
<b>Additional Participating Persons:</b>	Tom Fowles ; FAA FSDO Houston; Houston, TX Thomas Sully; Honda Aircraft Company; Greensboro, NC
<b>Original Publish Date:</b>	March 13, 2024
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=106750">https://data.ntsb.gov/Docket?ProjectID=106750</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).