



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Kennesaw, Georgia	Accident Number:	ERA21LA246
Date & Time:	June 4, 2021, 15:50 Local	Registration:	N10XN
Aircraft:	HONDA AIRCRAFT CO LLC HA-420	Aircraft Damage:	Substantial
Defining Event:	Part(s) separation from AC	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The accident flight and approach to the airport were normal. After the airplane touched down on the runway, the pilot applied the brakes; however, there was no braking action. The pilot called out that they had “no brakes” and elected to pull the emergency brake. The airplane began to skid, continued off the left side of the runway, completed a 180° turn, and came to rest in the grass. During the accident sequence, the right main landing gear collapsed, which resulted in substantial damage to the right wing.

The left main landing gear wheel was located about 225 ft from the main wreckage. Examination of the axle revealed that there was damage to the bottom threads of the axle and partial thread damage on the nut that secured the wheel to the axle. The individual parts of the left wheel retention stack (axle nut, retention key, and hubcap) were found intact inside the wheel hubcap. The retention key, which contained the locking tabs, was still safety wired to the axle nut. The airplane discrepancy log indicated that the left main landing gear wheel assembly was replaced the morning of the accident due to a discrepancy the pilot wrote up the day before the accident.

The mechanic who performed the work reported that during the installation of the left wheel assembly, the locking tab did not engage into the axle, so he removed and reinstalled the wheel assembly, which then “slid into place much easier.” In addition, the mechanic reported the jack he used to perform the maintenance was not the jack specified in the maintenance manual for the procedure. Although the mechanic stated the left main wheel assembly was installed correctly, it likely was not installed properly as indicated by the minimal damage to the securing nut and to the axle, which likely occurred when the axle contacted the runway surface after the wheel departed the airplane. Additionally, a study performed comparing the jack the mechanic used to the jack specified in the maintenance procedure indicated that it was possible for the unapproved jack to interfere with the proper reseating of the wheel

assembly on the axle during installation. Further, the mechanic who performed the maintenance had not received specific training on the airframe. In summary, given the limited damage to the wheel assembly, the mechanic’s lack of airplane specific maintenance training, and his use of an improper jack for the maintenance, it is likely the mechanic installed the wheel assembly improperly, which resulted in the wheel separating from the airplane.

Probable Cause and Findings

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

The mechanic’s improper installation of the left main wheel assembly.

Findings	
Personnel issues	Replacement - Maintenance personnel
Aircraft	Main gear strut/axle/truck - Incorrect service/maintenance
Aircraft	Wheel/ski/float - Incorrect service/maintenance

Factual Information

History of Flight

Landing-landing roll	Part(s) separation from AC (Defining event)
Landing-landing roll	Landing gear collapse
Landing-landing roll	Runway excursion

On June 4, 2021, about 1550 eastern daylight time, a Honda Aircraft HA-420, N10XN, was substantially damaged when it was involved in an accident at Cobb County International Airport-McCollum Field (RYY), Atlanta, Georgia. Both airline transport pilots were not injured. The airplane was operated as a Title 14 Code of Federal Regulations Part 91 positioning flight.

According to the pilot in command, the flight and approach to the airport were normal. After the airplane touched down on the runway, he applied the brakes; however, there was no braking action from the airplane, and there was no compression of the brake pedals. The pilot called out that they had “no brakes” and elected to pull the emergency brake. The airplane began to skid, and the pilot released the emergency brake and noted that the airplane was about 45° off centerline and turning to the left. The airplane struck the grass apron next to the runway, completed a 180° turn, and came to rest heading in the opposite direction of travel in the grass to the left side of the runway.

Examination of the wreckage by a Federal Aviation Administration inspector revealed that the right main landing gear collapsed, which resulted in substantial damage to the right wing. The left main landing gear wheel assembly was located about 225 ft from the main wreckage. Examination of runway skid marks indicated that their orientation were consistent with a separation of the left wheel while the airplane was still on the runway and skidding to the left. Examination of the axle revealed that there was damage to the bottom threads of the axle and partial thread damage on the nut that secured the wheel to the axle. The individual parts of the left wheel retention stack (axle nut, retention key, and hubcap) were found intact inside the wheel hubcap. The retention key, which contained the locking tabs, was still safety wired to the axle nut.

Examination of the airplane discrepancy log revealed that the accident flight was the first flight after maintenance. The left main landing gear wheel assembly was replaced the morning of the accident due to a discrepancy the pilot wrote up the day before the accident, which stated the left main landing gear tire was “worn beyond [the] thread cords.”

According to the mechanic who installed the wheel assembly, he used a TRONAIR 02-7813C0100 jack to perform the wheel change. Once he received the airplane maintenance manual excerpts to perform the maintenance, he began to install the overhauled main wheel

assembly. After “installing the wheel and torquing it the locking plate would not engage into the axle.” He removed and reinstalled the wheel assembly. It seemed to “slide into place much easier this time,” and the locking plate did engage “this time.” The mechanic then completed the maintenance paperwork and returned the airplane to service. The maintenance logbook entry indicated that all maintenance was performed in accordance with the HA-420 Maintenance Manual.

In a follow-up interview with an FAA inspector, the mechanic stated that he was positive that the locking tabs were engaged to secure the left main landing wheel onto the axle.

A review of the maintenance paperwork revealed that the mechanic signed off the maintenance rather than the repair station signing it off as the Honda HA-420 was not on the repair station’s certificate. Further, the mechanic indicated that the operator needed to send the maintenance manual excerpts since he “did not have access” to the HA-420 maintenance manuals.

Honda Aircraft Company searched their database of mechanics who received HA-420 specific maintenance training, and the mechanic who performed the maintenance on the airplane had not received the approved Flight Safety International maintenance training.

Section 32-441-11-401 of the Honda HA-420 Maintenance Manual described the procedure for the removal and installation of the main landing gear tire and wheel assembly. This procedure referenced another procedure (AMM 07-11-10-201), which was “Lifting the Airplane with One Jack.” Under “Special Tools and Materials,” the lifting procedure specified item number 07-10-06 as the axle jack required. The specific TRONAIR part number (02-7924C0100) for the approved jack was in the HA-420 Tool and Equipment Manual.

Honda Aircraft Company performed a study comparing the jack the mechanic used (TRONAIR 02-7813C0100) and the Honda specific jack listed in the maintenance manual (TRONAIR 02-7924C0100). The results of the study indicated that it was possible for the jack used in the maintenance procedure on the accident airplane to interfere with the proper reseating of the wheel assembly on the axle during installation.

Pilot Information

Certificate:	Airline transport; Commercial	Age:	49, Male
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):	Airplane multi-engine; Airplane single-engine; Instrument airplane	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	December 14, 2020
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	February 10, 2021
Flight Time:	13778 hours (Total, all aircraft), 48 hours (Total, this make and model), 9987 hours (Pilot In Command, all aircraft)		

Co-pilot Information

Certificate:	Airline transport; Commercial	Age:	48, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
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 With waivers/limitations	Last FAA Medical Exam:	March 1, 2021
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	11000 hours (Total, all aircraft), 90 hours (Total, this make and model), 47 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	HONDA AIRCRAFT CO LLC	Registration:	N10XN
Model/Series:	HA-420	Aircraft Category:	Airplane
Year of Manufacture:	2016	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	42000038
Landing Gear Type:	Retractable - Tricycle	Seats:	8
Date/Type of Last Inspection:	AAIP	Certified Max Gross Wt.:	10600 lbs
Time Since Last Inspection:		Engines:	2 Turbo jet
Airframe Total Time:	641 Hrs at time of accident	Engine Manufacturer:	General Electric
ELT:	Installed, not activated	Engine Model/Series:	HF120
Registered Owner:	GF AVIATION LLC	Rated Power:	2000 Lbs thrust
Operator:	FlightWorks	Operating Certificate(s) Held:	Commuter air carrier (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	RYY,1040 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	15:50 Local	Direction from Accident Site:	264°
Lowest Cloud Condition:	Few / 4700 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	7 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	280°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.05 inches Hg	Temperature/Dew Point:	29°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Orlando, FL (ISM)	Type of Flight Plan Filed:	IFR
Destination:	Kennesaw, GA	Type of Clearance:	IFR
Departure Time:	14:15 Local	Type of Airspace:	Class D

Airport Information

Airport:	COBB COUNTY INTL-MCCOLLUM FLD RYY	Runway Surface Type:	Concrete
Airport Elevation:	1040 ft msl	Runway Surface Condition:	Dry
Runway Used:	27	IFR Approach:	Visual
Runway Length/Width:	6295 ft / 100 ft	VFR Approach/Landing:	Full stop

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	34.013167,-84.597028(est)

Administrative Information

Investigator In Charge (IIC):	Kemner, Heidi
Additional Participating Persons:	Danny Cox; FAA/FSDO; Atlanta, GA Thomas Sully; Honda Aircraft Company; Greensboro, NC
Original Publish Date:	March 1, 2023
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=103242

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](#).