



National Transportation Safety Board Aviation Accident Final Report

Location:	Ocala, FL	Accident Number:	ERA14LA180
Date & Time:	04/04/2014, 1620 EDT	Registration:	N599WT
Aircraft:	HELPLING HELEN C TANGO 2	Aircraft Damage:	Destroyed
Defining Event:	Loss of control in flight	Injuries:	1 Serious
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

Witnesses reported that the engine sounded smooth and continuous at “full” power throughout the takeoff. After the airplane climbed to about 20 ft above the runway, the left canopy suddenly “popped open” and began “flapping up and down.” The pilot reported that, in response, she reduced the engine power. The airplane then began “porpoising” before it entered a steep left bank and subsequently impacted grass on the left side of the runway in a left-wing-low attitude. The pilot egressed and then crawled away from the airplane and awaited assistance. The airplane was consumed by a postcrash fire.

The left canopy was found separated from the airplane outside the fire area. The handle was found in the “open” position. The pilot reported no mechanical deficiencies with the airplane that would have precluded normal operation. She stated that, although she had used a checklist during her preflight and pretakeoff activities, which included a checklist item to ensure the security of the canopy, she “could never know” if she had failed to secure the canopy latch or if the latch had somehow malfunctioned. Fire damage to the canopy frame and latch point in the fuselage precluded a determination of what caused the left canopy to open in flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain airplane control after the left cockpit canopy opened during takeoff for reasons that could not be determined due to fire damage.

Findings

Aircraft	Passenger/crew doors - Unintentional use/operation (Cause)
Personnel issues	Aircraft control - Pilot (Cause)
Not determined	Not determined - Unknown/Not determined

Factual Information

On April 4, 2014, about 1620 eastern daylight time, an experimental amateur-built Helping Tango 2, N599WT, was destroyed during collision with terrain and a subsequent post-crash fire after takeoff from Ocala International Airport (OCF), Ocala, Florida. The private pilot/owner/builder was seriously injured. Visual meteorological conditions prevailed, and no flight plan was filed for the personal flight, which was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

Several witnesses provided statements to the police, and their statements were consistent throughout. Some said that their attention was drawn to the sound of the airplane's engine during its pre-takeoff run-up due to a "popping" sound; but reported that the engine sound was smooth and continuous at "full" power throughout the takeoff.

After takeoff, the airplane climbed about 20 feet above the runway when the left canopy opened "suddenly" and began "flapping up and down." The airplane began "porpoising" before it entered a steep left bank and subsequently impacted the ground in a left-wing-low attitude and a postcrash fire ensued.

The pilot's fiancé did not witness the accident, but responded immediately to the accident site where the pilot was found some distance from the airplane. He reported to both police and an NTSB investigator that the pilot stated the canopy opened unexpectedly.

Approximately three weeks after the accident, and while still recovering from her injuries, the pilot prepared a statement with the assistance of a friend. She reported that the canopy "popped open" at low altitude and she responded by reducing engine power. The airplane then impacted the grass on the left side of the runway and caught fire. The pilot egressed the airplane, crawled some distance away, and awaited assistance. She reported there were no mechanical deficiencies with the airplane that would have precluded normal operation.

Examination of photographs taken by the Ocala Police Department (OPD) revealed that the airplane came to rest upright. The engine compartment, instrument panel, cockpit, cabin area, and both wings were consumed by fire. The empennage appeared largely intact.

The pilot held a private pilot certificate with ratings for airplane single engine land. Her most recent Federal Aviation Administration (FAA) third class medical certificate was issued on September 27, 2012. The pilot reported 675 total hours of flight experience, of which 22 hours were in the accident airplane make and model.

According to FAA records, the airplane's airworthiness certificate was issued February 15, 2013. The airplane had accrued 12.5 total aircraft hours at the time of the accident.

According to the chief test pilot for the airplane kit manufacturer, incidents of the left canopy opening in flight had been reported to the company on three occasions, and all were on takeoff. None of the three events resulted in an accident. On one occasion, the canopy completely separated from the airplane. The pilot continued the takeoff, completed a traffic pattern, and subsequently landed without incident. The airplane was described as "easily controllable throughout the flight and landing." In the other two events, the takeoffs were aborted. According to the reports, in two of the events, the canopy was left unlatched prior to takeoff, and on the other occasion, the canopy was latched "improperly."

In a telephone interview, the manufacturer's vice president was asked if the company

published a checklist for the Tango 2 airplane. He explained that the company offered a template, or outline checklist, but that it was impossible to produce a checklist appropriate to all individual airplanes, due to the variations in equipment selected by each owner/builder.

FAA Advisory Circular 90-89A, Amateur-Built Aircraft and Ultralight Flight Testing Handbook, Section 9: Paperwork; stated,

"Checklists: In addition to the assembly/airworthiness checklist previously discussed in section 7, the builder should prepare the following checklists: preflight; take-off/cruise; before starting; descent/before landing; starting the engine; after landing; before takeoff; securing the aircraft; and emergency procedures. A checklist to cover the above procedures may seem a tedious task, but it will only be the size of a 5x8 card -- similar to a checklist for a Cessna 150 or a Piper PA-28-140. NOTE: The amateur-builder should anticipate several revisions to the checklists."

In a telephone interview, the pilot/owner/builder explained that she did develop a checklist for the airplane, had it with her, and consulted it prior to the accident flight. She stated that one item on the checklist was to ensure the security of the canopy, but stated she "could never know" if she had neglected to secure the canopy, or if the latch had somehow malfunctioned.

During the accident the left canopy separated from the airplane and was found outside the fire area. The handle was found in the open position. The canopy frame and latch point in the fuselage were fire damaged.

History of Flight

Taxi	Miscellaneous/other
Initial climb	Miscellaneous/other Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

Pilot Information

Certificate:	Private	Age:	59
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With Waivers/Limitations	Last Medical Exam:	09/27/2012
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	675 hours (Total, all aircraft), 22 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	HELPLING HELEN C	Registration:	N599WT
Model/Series:	TANGO 2	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	T021
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	02/15/2013, Conditional	Certified Max Gross Wt.:	2000 lbs
Time Since Last Inspection:	12 Hours	Engines:	1 Reciprocating
Airframe Total Time:	12.5 Hours	Engine Manufacturer:	LYCOMING
ELT:	Not installed	Engine Model/Series:	IO-360
Registered Owner:	HELPLING HELEN C	Rated Power:	180 hp
Operator:	HELPLING HELEN C	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	OCF, 90 ft msl	Observation Time:	1620 EDT
Distance from Accident Site:		Condition of Light:	Day
Direction from Accident Site:		Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Few / 4100 ft agl	Temperature/Dew Point:	28° C / 17° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	9 knots, 280°	Visibility (RVR):	
Altimeter Setting:	30.04 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Precipitation		
Departure Point:	Ocala, FL (OCF)	Type of Flight Plan Filed:	None
Destination:	Ocala, FL (OCF)	Type of Clearance:	VFR
Departure Time:	1620 EDT	Type of Airspace:	Class D

Airport Information

Airport:	Ocala International Airport (OCF)	Runway Surface Type:	Asphalt
Airport Elevation:	90 ft	Runway Surface Condition:	Unknown
Runway Used:	26	IFR Approach:	None
Runway Length/Width:	7467 ft / 150 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious		

Administrative Information

Investigator In Charge (IIC): Brian C Rayner **Adopted Date:** 03/17/2015

Additional Participating Persons:

Publish Date: 03/17/2015

Investigation Docket: <http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=89009>

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