Aviation Investigation Final Report

Location:	TOPEKA, Kansas	**Accident Number:**	CHI00GA160
Date & Time:	June 13, 2000, 00:07 Local	**Registration:**	N9488F
Aircraft:	Schweizer 269C	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Public aircraft		

Analysis

The police helicopter was providing night airborne surveillance support to a Topeka, Kansas, Police ground unit, which had responded to an alarm at a building materials supply store. Witnesses on the ground said the helicopter was heading northwest when it "started spinning" and "the nose went straight down." An examination of the wreckage revealed no anomalies. The pilot had 148.9 total hours in helicopters, all within the 84 days preceding of the accident. The winds reported at Phillip Billard Airport, 8 miles east of the accident site were 180 degrees at 12 knots. Federal Aviation Administration Advisory Circular (AC) 90-95 states that loss of tail rotor effectiveness (LTE) is a critical, low-speed aerodynamic flight characteristic which can result in an uncommanded rapid yaw rate which does not subside of its own accord and, if not corrected, can result in a loss of aircraft control. Helicopters are subjected to constantly changing wind directions and velocity. The required tail rotor thrust ... is modified by the effects of the wind. If an uncommanded yaw occurs in flight, it may be because the wind reduced the tail rotor effective thrust. "There is greater susceptibility for LTE in right turns. This is especially true during flight at low airspeed since the pilot may not be able to stop rotation." The loss of translational lift is a flight characteristic that can create an LTE conducive environment capable of adversely affecting aircraft controllability. The loss of translational lift results in increased power demand and additional anti-torque requirements. When operating at or near maximum power, this increased power demand could result in a decrease in rotor rpm.

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 translational lift while maneuvering, and the loss of tail rotor effectiveness. Factors relating to this accident were the tailwind, low airspeed, low rotor rpm,

and the pilot's lack of overall experience in helicopters.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. (C) TRANSLATIONAL LIFT - NOT MAINTAINED - PILOT IN COMMAND
2. (C) LOSS OF TAIL ROTOR EFFECTIVENESS - ENCOUNTERED - PILOT IN COMMAND
3. (F) LACK OF TOTAL EXPERIENCE IN KIND OF AIRCRAFT - PILOT IN COMMAND
4. (F) WEATHER CONDITION - TAILWIND
5. (F) ROTOR RPM - LOW - PILOT IN COMMAND
6. (F) AIRSPEED - LOW - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On June 13, 2000, at 0007 central daylight time, a Schweizer 269C helicopter, N9488F, operated by the City of Topeka, Kansas, Police Department, was destroyed when it departed controlled flight and impacted the terrain. A post crash fire ensued. Night visual meteorological conditions prevailed at the time of the accident. The flight was being conducted as public use under 14 CFR Part 91. No flight plan was on file. The police pilot and observer on board the helicopter were fatally injured. The local flight originated at the Phillip Billard Municipal Airport, Topeka, Kansas, on June 12, 2000, at 2300.

At the time of the accident, the helicopter, Topeka Police Department Unit 400, was providing airborne surveillance support to a Topeka police officer ground unit, Unit 448, which had responded to an alarm at Lowe's, a building materials supply store located at 1622 Southwest (SW) Arvonia Place.

The Officer-in-Charge of the Police Helicopter Unit said that for a call as this, the pilot would push the speed up en route to get there as soon as possible. The altitude en route would be 500 feet above ground level (agl). As the helicopter approached the area, the pilot would descend to approximately 200 feet agl. On arrival, the helicopter would enter a right-hand turning orbit, so that the observer in the right seat could position the bottom-mounted forward looking infrared camera (FLIR) so as to observe parts of the building where a suspect might be, on his monitor. On entering the orbit, the pilot would reduce his airspeed to 50 knots.

At 0004:09, Unit 448, in the Lowe's, contacted Unit 400, orbiting overhead. "48, 400." Unit 400 responded, "Go ahead." Unit 448, "Yeah ... sir, if you could check this garden area ... they did leave this door open again."

At 0004:28, Unit 400 to Unit 448, "Yeah, we've been checking it ever since, ah, we've been here, ah, we haven't seen anybody moving."

At 0007:17, a voice identified as the observer on board Unit 400 exclaimed, "Other way, other way, other way!" Topeka Police Department dispatch responded, "400?" At 0007:21, Unit 400 made an unintelligible call over the radio. This was the last radio transmission from the helicopter.

Several witnesses on the ground observed the helicopter as it was orbiting in the area, and when it went down.

One witness said that the helicopter was heading "in a northwest direction" when it "started

spinning, going down on the ground, over by Lowe's." The witness described the helicopter going down as making three, counter-clockwise descending turns. "I thought they might get it under control, but it was going down pretty quick. After that, I heard a thud."

Another witness said that the bright lights from the helicopter caught her attention. When she noticed, she saw the helicopter spinning. The witness said that it seemed like the helicopter stopped. "It sounded funny ... like it was choking, like it was running out of power. It started going down, and we heard the crash."

A third witness said that the helicopter had been flying around the area for about half-an-hour. "I heard the helicopter making a noise as if the power was going out, like stopping and starting, stopping and starting. I looked up, and he was out of control." The witness described a counter-clockwise turn. "He went ... the nose went straight down. I heard a big crunch, crash."

Several other witnesses provided similar accounts of the accident. Their statements are provided as an addendum to this report.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with ratings for single-engine land airplane, and rotorcraft.

According to the pilot's logbook and records provided by the City of Topeka Police Department, the pilot had 378.2 total flying hours. Of that total, 229.3 hours were in single-engine land airplanes, and 148.9 hours were in helicopters. All of the pilot's helicopter time was in the Schweizer 269C-model helicopter. The pilot's logbook also showed that 66.5 hours of the pilot's total helicopter time was at night.

The pilot's last activity in airplanes was a biennial flight review, conducted on August 12, 1989. Federal Aviation Administration (FAA) airman records and the pilot's personal records reflect no flying activity between August 12, 1989, and March 22, 2000, when the pilot began helicopter training for the department.

The pilot joined the Topeka Police Department in 1992, where he performed patrol officer duties. The pilot was selected to the helicopter unit as a promotion. He began helicopter training on March 22, 2000.

The pilot successfully passed a flight check for his rotorcraft rating on April 22, 2000. The pilot had logged 57.8 hours on completion of his training and flight check. The pilot began flying routine patrol on April 25, 2000.

According to the department's policy on student pilot supervision, new pilots were paired with another experienced helicopter pilot, until logging a total of 105 hours, minimum, helicopter time, "before being permitted to fly solo police operations in make and model insured herein."

On May 29, 2000, the pilot began flying with his non-rated observer. According to his pilot logbook, prior to his routine patrol flights on May 29, 2000, the pilot had logged 105.0 total helicopter hours.

AIRCRAFT INFORMATION

The helicopter was owned and operated by the City of Topeka Police Department, and was used for conducting routine airborne patrol in support of police ground vehicle units, between the hours of 1800 and 0400.

The helicopter was certified for single-pilot operations from the left seat. The control pedals, collective and cyclic were not installed in the right side of the helicopter. Instead, a FLIR camera monitor was installed at the right seat. The FLIR camera unit was mounted on a swivel mast, on the bottom, right front side of the helicopter. The camera's position was controlled manually, by the observer. A push-to-talk intercom/radio rocker-switch was installed on the floor, at the observer's right foot.

The helicopter was being maintained under a continuous maintenance program run by the Topeka Police Department's Uniform Division, Helicopter Unit. The helicopter had undergone a 100-hour inspection on June 7, 2000. The airframe time recorded at the 100-hour inspection was 5,559.6 hours.

The airframe time determined at the time of the accident was 5627.0 hours.

METEOROLOGICAL INFORMATION

At 0018, the routine aviation weather report for Phillip Billard Airport, located 8 statute miles from the accident site on a 075 degree magnetic heading, was clear skies, visibility 10 statute miles, temperature 81 degrees F, dew point 70 degrees F, winds 180 degrees at 12 knots, and altimeter 29.88 inches of Mercury (Hg).

A Topeka Police Department officer, assigned to the Helicopter Unit, stated that earlier that evening (June 12, 2000), while he was in downtown Topeka, he noticed the wind. "The wind usually diminishes as the sun does down." The officer estimated the winds to be from the south, "maybe favoring the southeast", at approximately 20 knots. At the accident site, the officer said that the winds were strong out of the south. He estimated that on the ground, they were at least 15 knots.

WRECKAGE AND IMPACT INFORMATION

The Safety Board's on scene investigation began on June 13, 2000, at 1540.

The accident site was located in a field on top of a mesa, approximately 1/2 mile northwest of a "Lowe's" building supply warehouse and lumberyard, located at 1622 SW Arvonia Place, and

approximately 1 mile west-northwest of Wanamaker Road, a main north-south thoroughfare on the west side of the city of Topeka, Kansas.

The accident site began with a 48-inch wide and 56-inch long ground scar running east to west. The ground scar was 13 inches at its deepest point on the south edge. Within the ground scar were numerous pieces of clear and gray-tinted Plexiglas, small pieces of white-colored fiberglass, an area of shattered silver-reflective and clear glass, a notepad, the FLIR camera, small pieces of the center part of the helicopter's left skid, and a 39-inch front section of the right skid. Grass within the area of the ground scar was covered with oil. A spray of oil fanned outward for 10 feet from the northwest edge of the ground scar, in a 40-degree arc.

Approximately 36 inches southeast of the ground scar was the front section of the left skid and a 40-inch long section of a control tube.

On the north edge of the ground scar rested a 51-inch long aft section of the helicopter's right skid.

Approximately 10 feet west of the ground scar were two parallel-running slash-scars in the ground. The first of these scars extended northwestward for 6 feet. This scar was 11 inches wide, 3 inches deep, and cut into the dirt at a 40-degree angle to horizontal. The second slash-scar was 30 inches long and abruptly stopped at a 7-inch deep hole, with dirt and grass pushed up on the northwest end.

Resting 28 feet west of the west edge of the ground scar were several pieces of the cabin frame, large pieces of Plexiglas, a fire extinguisher, and the lower belt-drive idler pulley.

The helicopter main wreckage was located 10 feet northwest of the ground scar on a 295-degree magnetic heading. The main wreckage consisted of the remaining cabin, main rotor mast, rotor head and main rotor blades, the engine, transmission, tail boom, tail rotor, and support structure for the engine, cabin, main rotor system and tail boom. The main wreckage rested predominately on its left side and was oriented such that the remaining cabin, main rotor mast, and tail boom fell on a 245-degree magnetic heading.

The helicopter main wreckage rested on the south edge of an area of charred grass and dirt, approximately 18 feet long, running east to west, and extending northward from the helicopter for 15 feet.

The helicopter's cabin area was broken open, bent rearward, and twisted left, counter-clockwise, approximately 270 degrees. The majority of the cabin was charred. Most of the floor deck was consumed by fire. Cabin seat backs were broken out, charred and consumed by fire. The instrument center console was broken outward at the floor. Most of the console was charred and melted. The cyclic and collective were broken out, charred, and melted. The FLIR display and frame-mount were broken out, charred, melted, and consumed by fire.

Support tube structure for the cabin deck and seat wall, upper belt-drive idler pulley, transmission, and tail boom, and the helicopter's firewall, engine mounts, and skids' cross-members, were crushed upward and aft, twisted counter-clockwise, and showed heavy charring.

The helicopter's transmission and main rotor shaft were intact. They were broken aft from the support tube structure and showed minor skin surface soot and paint blisters. The majority of the control tubes to the main rotor swash plate were present. One tube had a 2-foot section broken out. The remaining tubes were bent and showed minor charring. Control continuity was confirmed from the cyclic and collective to the main rotor system.

The engine was broken out, charred and melted, and found resting on top of the main rotor mast and transmission. The bottom crankcase was broken out. Rear case components were charred, melted and consumed. The exhaust manifold and tail pipe were crushed inward, charred, and melted. The cooling fan disk, coming immediately off the engine crankshaft, aft of the ring gear, showed 3/4 of the blades broken off at their bases. The fiberglass housing surrounding the cooling fan disk and making up the cooling manifold was broken out and consumed by fire. The short-shaft, running out of the cooling fan disk was bent upward 20 degrees.

The tail boom was broken at the support tube structure. The boom was predominately intact. The skin surface showed charring and soot at the inboard end, outward to mid-span. The rear half of the tail boom showed minor damage. The tail rotor shaft and push-pull tube to the tail rotor transmission were broken at the inboard end of the tail boom. The bottom vertical fin was bent and wrinkled. The horizontal fin (at the right two o'clock position when looking from the tail forward) was bent slightly upward at the base and showed skin wrinkles. The tail rotor gearbox showed no damage. One of the two tail rotor blades (labeled blade A, see photograph) was broken at the hub and turned 180 degrees. Both blades showed chordwise scratches beginning at the blades' leading edges and running aft across the outboard blade faces. Control continuity was confirmed from the control pedals to the tail rotor system.

The three main rotor blades remained attached to the rotor head, and were stacked parallel together, running northward out from the rotor head. The rotor blades described below for reference are assigned letters: A, B, and C.

Main rotor blade A was bent downward beginning 12 inches outboard of the blade lag-lead bolt. The remaining 12 feet of the blade was bent upward, into a "C" shape. The trailing edge of the blade was bent and wrinkled across the entire span. The blade was charred and showed chordwise scratches and dirt smears along the leading outboard edge.

Main rotor blade B was turned forward 90 degrees at the blade lag-lead bolt. Approximately two feet outboard of the hub bolt, the blade was twisted forward 70 degrees and bent into an S-shape. The blade was charred and showed chordwise scratches and dirt smears along the leading outboard edge. The outboard two feet of the white-colored top of the blade tip showed

chordwise scratches running aft from the leading edge.

Main rotor blade C was bent down and back upon itself approximately 3 inches outboard of the blade lag-lead bolt, and was resting on the charred ground, north of the main wreckage. The blade was bent progressively aft along the entire span, and was charred and melted. A 36-inch section of the trailing edge of the blade, near mid-span, was melted and consumed. The outboard 15 inches of the blade tip showed chordwise scratches, beginning at the leading edge and running aft.

The main fuel tank was broken out of the frame and found resting on main rotor blade C, next to and just north of the helicopter's main wreckage. A 15-inch long, 6-inch wide upper corner of the fuel tank was broken out. The tank showed several dents and was charred. Approximately 20 gallons of fuel was removed from the tank.

The helicopter's belt-drive idler pulley was located 25 feet northwest of the main wreckage on a 300-degree magnetic heading. Several of the severed belts remained with the pulley.

A piece of gray-tinted Plexiglas was found 16 feet of the main wreckage on a 280-degree magnetic heading.

An 18-inch long piece of the cabin's top right front door post was located 11 feet west-southwest of the main wreckage on a 248-degree magnetic heading.

The helicopter's tailskid was found 59 feet due north of the main wreckage.

Examination of the engine, engine controls, and transmission revealed no anomalies.

The helicopter's belt-drive clutch control spring assembly (part number 269A5590) was retained for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was conducted by the Shawnee County Medical Examiner, at Topeka, Kansas, on June 14, 2000.

The results of FAA toxicology testing of specimens received from the pilot were negative for all tests conducted.

FIRE

Witnesses on the ground and Topeka Police units responded to the accident site within minutes of the helicopter's impact. One witness, who saw the helicopter fall to the ground, stated as he crested the hill, he saw the helicopter resting on the ground, on its left side. It was on fire. The Topeka Police officer from unit 448, who was at the Lowe's at the time of the

accident, was directed by police dispatch to look for the helicopter. As the officer crested the hill, he saw the cockpit of the helicopter engulfed in flames. The Topeka Fire Department arrived shortly after and extinguished the fire.

TESTS AND RESEARCH

The helicopter's belt-drive clutch control spring assembly (part number 269A5590) cable sections and sleeve were examined at the Safety Board's Materials Laboratory, Washington, DC, on July 6, 2000. All of the wires examined from the cable sections "separated on a 45-degree angle or in a cup-cone manner, typical of overstress separations." A few of the individual wires were found to contain mechanical damage adjacent to the separation. A large majority of the wires did not contain any type of damage. No significant wear was found on the cable. No evidence of fatigue cracking was noted on any of the separated wire ends. The Materials Laboratory Factual Report is provided as an addendum to this report.

According to the Topeka Police Department Uniform Division, the department operates a shift of one-man police cars. The helicopter is there to back up the officers on the ground. "The helicopter lets the people know that the officer on the ground is not alone." The helicopter unit keeps a helicopter in the air on routine patrol from 1800 to 0400. Some of the missions the helicopter supports are searches for missing persons, kids, the elderly, and criminals. An officer for the unit said, "We are there for the officer on the ground. We go up on routine patrol. We are the only unit in the state that does."

The helicopter unit was formed in 1971. A senior pilot for the helicopter unit said that when the unit was formed, all of the officers selected for the unit had to possess a fixed-wing pilot certificate. The first pilots who came into the unit had pilot certificates. "The selection of officers to the unit has changed over the years and differs with who is in the administration. They regard selection to the helicopter unit as a promotion. There are selection guidelines established by the administration and the FOP (Fraternal Order of Police) [Union]. The guy goes before a board for selection. It's good for the department, but I'm not sure it's good for the unit. A good street officer may not make a good helicopter pilot. We like to see people who have an interest in aviation. That's not always the case." The pilot said that they have had officers come to the unit with no previous flight experience. He said that they train the new officer as an observer. There is no set time to how long the officer will be an observer. When a pilot position open's up, they will train the officer to be a pilot.

At the time of the accident, the helicopter unit had one person, who trained all of its pilots, including the accident pilot. This person is also the officer-in-charge of the unit, and performs all of the routine maintenance on the unit's three helicopters. The officer-in-charge said that he got his instructor rating in helicopters in 1982. Regarding the accident pilot's training, the instructor said that they spent a lot of time discussing helicopter aerodynamics and the potential problems that he could get into.

Helicopter weight and balance was determined by the Schweizer Aircraft Corporation on June

20, 2000. Helicopter and components weights, and weights of the pilot and observer were provided by the City of Topeka Police, Uniform Division, Helicopter Unit. Fuel weight is based on 6 pounds (lbs) per gallon for 100 low lead aviation fuel.

Item	Weight (lbs)	CG	Moment				
Basic Helicopter							
Serial No. S1689	1249	99.5	124275.5	FLIR Imager		22	59
1298	28V Converter	1.5	83.7	125.5	Controller		1.5
54	81	FLIR Monitor	8.8	54	475.2		
Empty W&B							
1282.8	98.4	126255.2					
Pilot	260	83.2	21632	Observer		190	83.2
15808	Fuel (15 gallons)	90	107.0	9630			
Totals	1822.8						
95.1	173325.2						

According to the Model 269C Helicopter Pilot's Flight Manual, the maximum gross weight is 2050 pounds (serial number 210 and subsequent). The forward center of gravity limit with no fuel is 95.0 inches.

FAA Advisory Circular (AC) 90-95 "Unanticipated Right Yaw in Helicopters", states that loss of tail rotor effectiveness (LTE) is a critical, low-speed aerodynamic flight characteristic which can result in an uncommanded rapid yaw rate which does not subside of its own accord and, if not corrected, can result in a loss of aircraft control. The AC also states, "Helicopters are subjected to constantly changing wind directions and velocity. The required tail rotor thrust ... is modified by the effects of the wind. If an uncommanded ... yaw occurs in flight, it may be because the wind reduced the tail rotor effective thrust. The wind can also add to the anti-torque system thrust."

Regarding conditions under which LTE may occur, "There is greater susceptibility for LTE in right turns. This is especially true during flight at low airspeed since the pilot may not be able to stop rotation."

Regarding flight characteristics, the AC describes "four relative wind azimuth regions and resultant aircraft characteristics that can, whether singularly or in combination, create an LTE conducive environment capable of adversely affecting aircraft controllability." The fourth characteristic, loss of translational lift, applies in all azimuths.

(a) The loss of translational lift results in increased power demand and additional anti-torque requirements.

(b) This characteristic is most significant when operating at or near maximum power and is associated with LTE for two reasons. First, if the pilot's attention is diverted as a result of an

increasing right yaw rate, the pilot may not recognize that relative headwind is being lost ... translational lift is reduced. Second, if the pilot does not maintain airspeed while making a right downwind turn, the aircraft can experience an accelerated right yaw rate as the power demand increases and the aircraft develops a sink rate. Insufficient pilot attention to wind direction and velocity can lead to an unexpected loss of translational lift. When operating at or near maximum power, this increased power demand could result in a decrease in rotor rpm.

(c) ... Any reduction in the translational lift will result in an increased power demand and anti-torque requirements.

The AC further states:

The following factors can significantly influence the severity of the onset of LTE.

(a) Gross Weight and Density Altitude. An increase in either of these factors will decrease the power margin between the maximum power available and the power required to hover. The pilot should conduct low-level, low speed maneuvers with minimum weight.

(b) Low Indicated Airspeed. At airspeeds below translational lift, the tail rotor is required to produce nearly 100 percent of the directional control. If the required amount of tail rotor thrust is not available for any reason, the aircraft will yaw to the right.

(c) Power Droop. A rapid power application may cause a transient power droop to occur. Any decrease in main rotor rpm will cause a corresponding decrease in tail rotor thrust. The pilot must anticipate this and apply additional left pedal to counter the main rotor torque. All power demands should be made as smoothly as possible to minimize the effect of power droop.

A copy of FAA AC 90-95 is provided as an addendum to this report.

FAA Publication H-8083-21, "Rotorcraft Flying Handbook", under the "Assessing Risk" section states, the accident rate decreases by nearly 50 percent (from just over 40 accidents per 100,000 hours to approximately 25 accidents per 100,000 hours) once a pilot obtains 100 hours, and continues to decrease until the 1,000 hour level (to just under 10 accidents per 100,000 hours). The data (taken from examining NTSB reports and other accident research) suggests that for the first 500 hours, pilots flying VFR at night should establish higher personal limitations than are required by the regulations and, if applicable, apply instrument flying skills in this environment.

Studies also indicate the types of flight activities that are most likely to result in the most serious accidents. The majority of fatal general aviation accidents causes fall under the categories of maneuvering flight, approaches, takeoff/initial climb, and weather. For example, maneuvering flight is one of the largest producers of fatal accidents.

The publication, under the "Night Flight" section also states, "The night flying environment and

the techniques you use when flying at night, depend on outside conditions. Your options are also limited in the event of an emergency, as it is more difficult to find a place to land and determine wind direction and speed. At night, you have to rely more heavily on the aircraft systems, such as lights, flight instruments, and navigation equipment."

Extractions covering these sections of FAA publication H-8083-21 are provided as an addendum to this report.

ADDITIONAL INFORMATION

Parties to the investigation were the FAA Flight Standards District Office, Wichita, Kansas, Schweizer Aircraft Corporation, Textron Lycoming, and the City of Topeka Police.

All of the helicopter wreckage was released and returned to the City of Topeka Police.

Pilot Information

Certificate:	Private	**Age:**	37,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	February 25, 2000
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	378 hours (Total, all aircraft), 149 hours (Total, this make and model), 149 hours (Last 90 days, all aircraft), 74 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Schweizer	**Registration:**	N9488F
Model/Series:	269C 269C	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	S1689
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	June 7, 2000 100 hour	**Certified Max Gross Wt.:**	2050 lbs
Time Since Last Inspection:	72 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5627 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	HIO-360-D1A
Registered Owner:	CITY OF TOPEKA POLICE	**Rated Power:**	190 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/bright
Observation Facility, Elevation:	TOP ,881 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	00:18 Local	**Direction from Accident Site:**	75°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	81°C / 70°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(TOP)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	23:00 Local	**Type of Airspace:**	Military operation area;Class E

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	39.020919,-95.700767(est)

Administrative Information

Investigator In Charge (IIC):	Bowling, David
Additional Participating Persons:	JACK G WILLIAMS; WICHITA , KS STEVE GLEASON; ELMIRA , NY EDWARD G ROGALSKI; BELLEVIEW , FL JAMES E AUSTIN; TOPEKA , KS
Original Publish Date:	September 19, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49409