

NATIONAL TRANSPORTATION SAFETY BOARD

NTSB Form 6120.1

PILOT/OPERATOR AIRCRAFT ACCIDENT/INCIDENT REPORT

Email the pilot/operator aircraft accident/incident report to the investigator-in-charge of your accident/incident. If email is not available, mail the report per the instructions below.

If your accident/incident occurred in Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, Florida, the District of Columbia, Puerto Rico, or the US Virgin Islands, send the form to: NTSB, ERA, 45065 Riverside Parkway, Ashburn, VA 20147.

If your accident/incident occurred in Ohio, Michigan, Indiana, Wisconsin, Illinois, Minnesota, Iowa, Missouri, Arkansas, Louisiana, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Colorado, or New Mexico, send the form to: NTSB, CEN, 4760 Oakland Street, Suite 500, Denver, CO 80239.

If your accident/incident occurred in Montana, Wyoming, Idaho, Utah, Arizona, Nevada, Washington, Oregon, California, Hawaii, or the territories of Guam or American Samoa, send the form to: NTSB, WPR, 505 South 336th Street, Suite 540, Federal Way, WA 98003.

If your accident/incident occurred in Alaska, send the form to: NTSB, ANC, 222 West 7th Avenue, Room 216, Box 11, Anchorage, AK 99513.

Rules pertaining to notification of aircraft accidents and incidents, as well as overdue aircraft are found in 49 *Code of Federal Regulations* (CFR) Part 830 http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title49/49cfr830_main_02.tpl. These rules state the authority of the NTSB, define accidents, incidents, injuries, and other terms, and provide procedures for initial and immediate notification of accidents and incidents by aircraft pilots/operators.

A. APPLICABILITY

The pilot/operator of an aircraft shall send a report to the office listed above, based on accident/incident location; immediate notification is required by 49 CFR 830.5(a). **The report shall be filed within 10 days after an accident for which notification is required by Section 830.5, or after 7 days if an overdue aircraft is still missing.**

An aircraft accident, as defined in 49 CFR 830.2, is determined as an occurrence that involves a fatality or serious injury, or substantial damage to the aircraft. For occurrences that do not involve a fatality, the determination that the occurrence is an accident can be appealed by writing to the Director, Office of Aviation Safety, NTSB, 490 L'Enfant Plaza, S.W., Washington, D.C. 20594.

INSTRUCTIONS TO PILOTS/OPERATORS FOR COMPLETING THIS FORM

It is necessary that ALL questions on this report be answered completely and accurately.

If more space is needed, continue on a blank sheet of paper.

Nearest City/Place: Use the name of the nearest community in the state where the accident/incident occurred.

Date/Time: Indicate the date and local time of the event. Be sure to indicate the time zone.

Phase of Operation: Indicate the phase of operation during which the accident/incident occurred.

Aircraft Information: Enter aircraft make and model information as indicated on the aircraft registration certificate, including series. If the involved aircraft is certified as "amateur-built," include the name of the producer of the kit or plans, unless an NTSB employee instructs otherwise.

Maximum Gross Weight: Enter the certificated maximum gross weight for the aircraft involved in the occurrence. This should be the same as the maximum gross weight indicated on the aircraft weight and balance documents.

Engine: Enter engine make and model information as indicated on the engine data plate.

The NTSB uses this form for aircraft accident prevention activities and for statistical purposes. NTSB regulations (49 CFR Part 830) require that **ALL** questions be answered completely and accurately. Completion of this form will take approximately 60 minutes. The NTSB does not guarantee the privacy of any information provided in this form. You need not complete this form unless it displays a valid OMB control number, in accordance with 5 C.F.R. § 1320.5(b), which applies to this collection of information.

B. DEFINITIONS

1. "Aircraft Accident" means an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death, or serious injury, or in which the aircraft receives substantial damage. For purposes of this form, the definition of "aircraft accident" includes "unmanned aircraft accident," as defined at 49 CFR 830.2.

2. "Substantial Damage" means damage or failure that adversely affects the structural strength, performance or flight characteristics of the aircraft, and that would normally require major repair or replacement of the affected component. NOTE: Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairing or cowlings, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wing tips are not considered "substantial damage" for purposes of this report.

3. "Operator" means any person who causes or authorizes the operation of an aircraft, such as the owner, lessee, or bailee of an aircraft.

4. "Fatal Injury" means any injury that results in death within thirty (30) days of the accident.

5. "Serious Injury" means any injury that (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fracture of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves injury to any internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

Type of Fire Extinguishing System: If a fire extinguishing system was used to fight an aircraft fire, specify the type(s) of extinguishing system(s) used. Examples include handheld extinguisher, engine fire bottle, cargo/baggage compartment fire suppression system, or airport emergency ground equipment.

Owner/Operator Information: Enter the owner information as shown on the registration certificate. Commercial operators, enter the operator information, including "doing business as" when applicable, as shown on the operator certificate.

Revenue Sightseeing Flight: Indicate whether the accident aircraft was conducting revenue sightseeing operations under 14 CFR Part 91 at the time of the accident.

Air Medical Flight: Indicate whether the accident flight was being conducted for the purpose of carrying medical personnel, patient(s), or organs.

Public Aircraft: Federal, state or local government flight operations such as official travel, law-enforcement, low-level observation, aerial application, firefighting, search and rescue, biological or geological resource management, or aeronautical research. Indicate whether the flight was conducted by the armed forces, federal, state, or local government.

Purpose of Flight: 14 CFR Parts 91, 103, 133, 136, and 137: Indicate the type of operation that was being conducted at the time of the occurrence using the following definitions:

AERIAL APPLICATION--Operations using an aircraft to perform aerial application or dispersion of any substance. Examples include agricultural, health, forestry, cloud seeding, firefighting, insect control, etc.

AERIAL OBSERVATION--These flights include aerial mapping/photography, patrol, search and rescue, hunting, highway traffic advisory, ranching, surveillance, oil and mineral exploration, criminal pursuit, fish spotting, etc.

AIR DROP--Aerial operations, other than aerial application, that are intended to release items in flight.

AIR RACE/SHOW--Includes any flight operations conducted as part of an organized air race or public demonstration.

BUSINESS--includes all personal flying without a paid professional crew for reasons associated with furthering a business, including transportation to and from business meetings or work. This does not include corporate/executive operations, air taxi, or commuter operations.

EXECUTIVE/CORPORATE--Company flying with a paid, professional crew.

FERRY--Non-revenue flight under a special flight or "ferry" permit. Refer to 14 CFR 21.197 for details of special flight permit issuance.

FLIGHT TEST--Flight for the purpose of investigating the flight characteristics of an aircraft/aircraft component or evaluating an applicant for a pilot certificate or rating.

INSTRUCTIONAL--Flying while under the supervision of a flight instructor or receiving air carrier training. Personal proficiency flight operations and personal flight reviews, as required by federal air regulations, are excluded.

OTHER WORK USE--Miscellaneous flight operations conducted for compensation or hire such as construction work (not 14 CFR Part 135 operation), parachuting, aerial advertising, towing gliders, etc.

PERSONAL--Flying for personal reasons (excludes business transportation) including pleasure or personal transportation. This also includes practice or proficiency flights performed under flight instructor supervision and not part of an approved flight training program.

POSITIONING--Non-revenue flight conducted for the primary purpose of relocating the aircraft. Examples include moving the aircraft to a maintenance facility or to load passengers or cargo etc.

UNKNOWN--Use only if the primary purpose of flight is not known.

Other Aircraft--Collision: For all accidents involving a collision with another aircraft, including parked aircraft, check "Collision with other aircraft" under Basic Information and complete this section indicating details about the OTHER aircraft involved in the collision.

Airport Information: Complete this section if the accident/incident occurred on approach, landing, takeoff, departure, or within 3 statute miles of an airport. Please refer to the FAA Airport/Facility Directory or other official source for airport information.

Airport Identifier: Provide the official 3 or 4 character airport identifier number.

Runway: Indicate the number of the runway used, including L, R, or C if applicable.

Runway/Landing Surface: Indicate the type of intended runway/landing surface (do not indicate surface conditions). If the surface type was mixed, check all that apply.

Condition of Runway/Landing Surface: Indicate the condition of the intended runway/landing surface. If multiple conditions existed at the time of the accident, check all that apply.

Weather Information at the Accident/Incident Site: Indicate the weather conditions reported at the accident/incident site at the time of occurrence. If no weather reporting was available for the accident/incident site, indicate the reported conditions at the nearest reporting site. Specify the weather reporting site identifier, the observation time, and distance from the accident/incident.

Sky/Lowest Cloud Condition: Indicate the height above ground level of the lowest cloud condition present at the time of the accident/incident and whether coverage was reported as few, scattered, broken or overcast. Also indicate the height above ground level and coverage of the lowest cloud ceiling present at the time of the accident/incident (reported as broken or overcast).

NOTAMs (D and FDC), AIRMETs, SIGMETs, PIREPs: Describe all NOTAMs (distant (D) or Flight Data Center (FDC), if known), AIRMETs, SIGMETs, and PIREPs in effect near the accident/incident.

Flight Crewmember Information: Indicate the category that best describes the capacity served by this flight crewmember at the time of the accident. The designators "Flight Crewmember 1" and "Flight Crewmember 2" do not refer to a specific pilot position or responsibility. If more than one pilot is aboard, they may be entered in any order and their capacity entered as appropriate.

Degree of Injury: See Definitions on the top half of Page 1 of the instructions. Minor injury is not defined. If an injury does not meet the criteria for another injury category, select Minor.

Date of Last Flight Review or Equivalent: Enter the date of the most recent flight review, or equivalent, completed by this pilot. Refer to 14 CFR 61.56 for accepted equivalents.

Type Ratings: List all type ratings on the pilot certificate. If the pilot holds no type ratings indicate "none." If the pilot holds a pilot certificate other than student and was flying an aircraft requiring an endorsement, enter the type and date of any logbook endorsement(s) for that aircraft. See 14 CFR 61 for examples of required endorsements.

Student Endorsements: If the pilot holds a student pilot certificate, enter all solo endorsements and dates on the student pilot certificate.

Flight Time: Complete the flight time matrix. Solo flight time should be included as "Pilot-in-Command (PIC)" and all dual flight instruction given should be included as "Time as Instructor."

Additional Flight Crewmembers: Complete this section if there were more than two required flight crewmembers on the aircraft. This also includes a check airman performing official duties but does not include cabin crew. State the capacity served by each included crewmember at the time of the accident.

Passenger(s)/Other Personnel: Enter identification and injury severity information for all passengers, cabin crew, and other personnel involved in the accident. See Page 1 of the instructions for the official definition of injury levels.

Several questions throughout the form allow for multiple responses; when appropriate, choose all responses that apply.

These instructions only pertain to major issue areas covered by NTSB Form 6120.1 Pilot/Operator Aircraft Accident/Incident Report. For additional definitions of questions and responses, please refer to www.ntsb.gov.

NATIONAL TRANSPORTATION SAFETY BOARD PILOT/OPERATOR AIRCRAFT ACCIDENT/INCIDENT REPORT

This form to be used for reporting civil and public aircraft accidents and incidents

BASIC INFORMATION

Accident/Incident Location Nearest City/Place: <u>North Las Vegas Airport</u> State: <u>NV</u> ZIP: <u>89032</u> Country: <u>USA</u> Latitude: <u>N36.205220</u> Longitude: <u>W115.192337</u> <i>(Enter in decimal degrees or degrees:minutes:seconds)</i>	Accident/Incident Date/Time Date: <u>06/13/2018</u> Local Time: <u>11am</u> <i>mm/dd/yyyy</i> Time Zone: <u>PDT</u> Collision with Other Aircraft: ☐ Midair ☐ On-ground ☒ None
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AIRCRAFT INFORMATION

Registration Number: <u>N557DC</u> Manufacturer: <u>Schweizer</u> Model: <u>269C</u> Serial Number: <u>S1630</u> Year of Manufacture: <u>1993</u> Amateur-Built: ☐ Yes ☒ No <i>If Yes:</i> ☐ Kit/Plans ☐ Original Design Make: _____	☐ IFR-Equipped and Certified ☐ Commercial Space Flight ☐ Unmanned Aircraft Maximum Gross Weight: <u>2050</u> lbs Weight at Time of Accident/Incident: <u>1653</u> lbs Number of Seats: <u>2</u> Flight Crew Seats: <u>2</u> Cabin Crew Seats: <u>0</u> Passenger Seats: <u>0</u> Number of Engines: <u>1</u>
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Category of Aircraft ☐ Airplane ☐ Balloon ☐ Blimp/Dirigible ☐ Glider ☐ Gyroplane ☒ Helicopter ☐ Powered Lift ☐ Rocket ☐ Ultralight ☐ Unknown	Type of Airworthiness Certificate <i>(Check all that apply)</i> <table style="width: 100%;"> <tr> <th style="text-align: left;">Standard</th> <th style="text-align: left;">Special</th> </tr> <tr> <td>☒ Normal</td> <td>☐ Restricted</td> </tr> <tr> <td>☐ Aerobatic</td> <td>☐ Limited</td> </tr> <tr> <td>☐ Balloon</td> <td>☐ Provisional</td> </tr> <tr> <td>☐ Commuter</td> <td>☐ Special Flight</td> </tr> <tr> <td>☐ Transport</td> <td>☐ Experimental</td> </tr> <tr> <td>☐ Utility</td> <td>☐ Special Light-Sport</td> </tr> <tr> <td></td> <td>☐ Experimental Light-Sport</td> </tr> </table> ☐ Certificate of Authorization or Waiver (COA) ☐ None ☐ Unknown	Standard	Special	☒ Normal	☐ Restricted	☐ Aerobatic	☐ Limited	☐ Balloon	☐ Provisional	☐ Commuter	☐ Special Flight	☐ Transport	☐ Experimental	☐ Utility	☐ Special Light-Sport		☐ Experimental Light-Sport	Landing Gear <i>(Check all that apply)</i> ☐ Retractable ☐ Tricycle ☐ Tailwheel ☐ Amphibian ☐ High Skid ☐ Emergency Float ☒ Skid ☐ Float ☐ Ski ☐ Hull ☐ Ski/Wheel ☐ Other Launch/Recovery System ☐ None ☐ Unknown	Engine Type <i>(Select one)</i> ☒ Reciprocating ☐ Liquid Rocket ☐ Turbo Shaft ☐ Solid Rocket ☐ Turbo Prop ☐ Hybrid Rocket ☐ Turbo Jet ☐ None ☐ Turbo Fan ☐ Unknown ☐ Electric Fuel System Type <i>(Reciprocating)</i> ☐ Carburetor ☒ Fuel-Injected
Standard	Special																		
☒ Normal	☐ Restricted																		
☐ Aerobatic	☐ Limited																		
☐ Balloon	☐ Provisional																		
☐ Commuter	☐ Special Flight																		
☐ Transport	☐ Experimental																		
☐ Utility	☐ Special Light-Sport																		
	☐ Experimental Light-Sport																		

Engine	Engine Manufacturer	Engine Model/Series	Manufacturer's Serial Number	Date of Mfg. <i>mm/dd/yyyy</i>	Rated Power ☒ Horsepower or ☐ lbs of Thrust	Total Time <i>(hours)</i>	Time Since: Inspection <i>(hours)</i>	Overhaul <i>(hours)</i>
Eng. 1	Lycoming	H10-360-D1A	I-26836-51A	Unkown	190	Unknown	6.3	683.7
Eng. 2								
Eng. 3								
Eng. 4								

Last Inspection Type ☐ 100-Hour ☐ Continuous Airworthiness ☐ AAIP ☐ Conditional Inspection ☒ Annual ☐ Unknown Date Last Inspection: <u>06/04/2018</u> <i>mm/dd/yyyy</i> Airframe Total Time: <u>5208.4</u> hrs hours measured at <i>(Select one)</i> ☐ Last Inspection ☒ Time of Accident/Incident	Propeller 1 ☐ Fixed Pitch ☒ Controllable Pitch ☐ Ground Adjustable Manufacturer: <u>Main Rotor - Schweizer</u> Model: <u>269A1185-1</u> Propeller 2 ☐ Fixed Pitch ☒ Controllable Pitch ☐ Ground Adjustable Manufacturer: <u>Tail Rotor - Schweizer</u> Model: <u>269A6035-23</u>	ELT Installed: ☐ Yes ☒ No <i>If Yes:</i> ELT Manufacturer: <u>None</u> Model or Part No.: _____ TSO No.: ☐ C91 (121.5 MHz) ☐ C91a (121.5 MHz) ☐ C126 (406 MHz) Was ELT still mounted in aircraft? ☐ Yes ☒ No Was ELT still connected to antenna? ☐ Yes ☐ No Did ELT Activate? ☐ Yes ☐ No <i>If activated:</i> Did ELT Aid in Locating Aircraft? ☐ Yes ☒ No <i>If not activated:</i> Indicate Reason: ☐ Impact Damage ☐ Fire Damage ☐ Battery Expired/Damaged ☐ Unknown
Type of Maintenance Program <i>(Select one)</i> ☐ Annual ☐ Conditional (Amateur-built only) ☐ Manufacturer's Inspection Program ☐ Other Approved Inspection Program (AAIP) ☐ Continuous Airworthiness ☒ Other, specify: <u>annual & manufacturer</u>	Additional Equipment <i>(Check all that apply)</i> ☐ ADS-B ☐ Airframe Parachute ☐ Angle of Attack Indicator ☐ Autopilot ☐ Data Recorder ☒ Electronic Flight Bag or Handheld Device ☐ Electronic Multifunction Display ☐ Electronic Primary Flight Display ☒ Handheld GPS ☐ Heads Up Display ☐ Onboard Weather ☐ Satellite Tracking Device ☐ Stall Warning System ☐ Video Recording Device ☐ Other, Specify: _____	
Description of Fire Extinguishing System ☒ None ☐ Specify: _____		

OWNER/OPERATOR INFORMATION			
Registered Aircraft Owner Name: <u>Larry Joslyn</u> Fractional Ownership Aircraft: ☐ Yes ☐ No		City: <u>Las Vegas</u> State: <u>NV</u> ZIP: <u>89145</u> Country: <u>USA</u>	
Operator of Aircraft ☐ Same As Registered Owner Name: <u>Airwork Las Vegas Inc</u> Doing Business As: _____ Air Carrier/Operator Designator (4 Character Code): _____		☐ Same Address as Registered Owner City: <u>North Las Vegas</u> State: <u>NV</u> ZIP: <u>89032</u> Country: <u>USA</u>	
Operating Certificates Held <i>(Check all that apply)</i> ☒ None ☐ Flag Carrier Operating Certificate (FAR 121) ☐ Supplemental ☐ Air Cargo ☐ Foreign Air Carriers (FAR 129) ☐ Rotorcraft External Load (FAR 133) ☐ Commuter Air Carrier (FAR 135) ☐ On-Demand Air Taxi (FAR 135) ☐ Commercial Air Tour (FAR 136) ☐ Agricultural Aircraft (FAR 137) ☐ Pilot School (FAR 141) ☐ Certificate of Authorization or Waiver (COA) ☐ Commercial Space Transportation Experimental Permit ☐ Commercial Space Transportation License ☐ Other Operator of Large Aircraft	Regulation Flight Conducted Under ☒ FAR 91 ☐ FAR 103 ☐ FAR 121 ☐ FAR 125 ☐ FAR 129 ☐ FAR 133 ☐ FAR 135 ☐ FAR 137 ☐ FAR 415 ☐ FAR 431 ☐ FAR 435 ☐ FAR 437 ☐ FAR 91 Special Flight ☐ Non-US, Commercial ☐ Non-US, Non-commercial ☐ Public Aircraft <i>(Select one)</i> ☐ Armed Forces ☐ Federal ☐ State ☐ Local ☐ Unknown		Revenue Operation for FAR 121, 125, 129, 135 <i>(Select one for each group)</i> ☐ Scheduled or Commuter ☐ Non-Scheduled or Air Taxi ☐ Domestic ☐ International ☐ Passenger ☐ Cargo ☐ Mail Contract Only
Revenue Sightseeing Flight ☐ Yes ☒ No	Air Medical Flight ☐ Yes ☒ No		Purpose of Flight for FAR 91, 103, 133, 137 <i>(Select one)</i> ☐ Aerial Application ☐ Aerial Observation ☐ Air Drop ☐ Air Race/Show ☐ Banner Tow ☐ Business ☐ Executive/Corporate ☐ External Load ☐ Ferry ☐ Firefighting ☐ Flight Test ☐ Glider Tow ☐ Instructional ☐ Other Work Use ☒ Personal ☐ Positioning ☐ Skydiving ☐ Unknown
AIRPORT INFORMATION <i>(Fill in if accident/incident occurred on approach, landing, takeoff, departure, or within 3 miles of an airport)</i>			
Airport Name: <u>North Las Vegas</u> Airport Identifier: <u>KVGT</u> Proximity to Airport: ☐ Off Airport/Airstrip ☒ On Airport/Airstrip ☐ N/A		Distance From Airport Center: <u>0.6</u> sm Direction From Airport: <u>160</u> degrees true Airport Elevation: <u>2205</u> ft. msl	
Runway Information Runway ID: <u>NONE</u> (L/R/C) Length: <u>NA</u> ft Width: <u>NA</u> ft		Condition of Runway/Landing Surface <i>(Check all that apply)</i> ☒ Dry ☐ Holes ☐ Ice Covered ☐ Rough ☐ Rubber Deposits ☐ Slush-Covered ☐ Snow-Compacted ☐ Snow-Crusted ☐ Snow-Dry ☐ Snow-Wet ☐ Soft ☐ Vegetation ☐ Water-Calm ☐ Water-Choppy ☐ Water-Glassy ☐ Wet ☐ Unknown	
Runway/Landing Surface <i>(Check all that apply)</i> ☒ Asphalt ☐ Concrete ☐ Dirt ☐ Grass/Turf ☐ Gravel ☐ Ice ☐ Macadam ☐ Metal/Wood ☐ Snow ☐ Water ☐ Unknown		Approach/Departure Segment <i>(Select one)</i> ☐ Taxi ☐ Takeoff ☐ Initial Climb ☐ VFR Departure ☐ IFR Departure Procedure/Clearance ☐ On Instrument Approach ☐ Landing ☐ Downwind ☐ Base ☐ Final ☐ Crosswind ☐ Low Approach ☐ Go Around ☐ Aborted Landing (after touchdown) ☐ Unknown	
IFR Approach <i>(Check all that apply)</i> ☒ None ☐ ADF/NDB ☐ SDF ☐ VOR/TVOR ☐ VOR/DME ☐ TACAN ☐ PAR ☐ Sidestep ☐ ILS ☐ Localizer Only ☐ LOC-back course ☐ RNAV ☐ MLS ☐ LDA ☐ ASR ☐ Visual ☐ Contact ☐ Circling ☐ Practice ☐ GPS ☐ Unknown			
VFR Approach <i>(Check all that apply)</i> ☒ None ☐ Traffic Pattern ☐ Straight-In ☐ Valley/Terrain Following ☐ Go Around ☐ Full Stop ☐ Stop and Go ☐ Touch and Go ☐ Simulated Forced Landing ☐ Forced Landing ☐ Precautionary Landing ☐ Unknown			

“FLIGHT CREWMEMBER 1” INFORMATION																																																																																																				
“Flight Crewmember 1” Responsibilities at the Time of Accident/Incident ☒ Pilot ☐ Co-Pilot ☐ Student Pilot ☐ Flight Instructor ☐ Check Pilot ☐ Flight Engineer ☐ Other Flight Crew																																																																																																				
“Flight Crewmember 1” was pilot flying ☒ Yes ☐ No																																																																																																				
“Flight Crewmember 1” Identification First Name: <u>John</u> Middle Initial: <u>nmi</u> Last Name: <u>McCall</u> City of Residence: <u>Calgary</u> State: <u>Alberta</u> ZIP: <u>T3G 0C2</u> Country: <u>Canada</u> Age at time of Accident/Incident: <u>59</u> Date of Birth: <u> </u> / <u>1959</u> <i>mm/dd/yyyy</i> Certificate Number: <u> </u>																																																																																																				
Degree of Injury ☐ None ☐ Fatal ☒ Minor ☐ Unknown ☐ Serious		Seat Occupied ☒ Left ☐ Front ☐ Unknown ☐ Right ☐ Rear ☐ Center ☐ Single		Restraint Type Available ☐ None ☐ Lap only ☐ 3-point ☒ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap only ☐ 3-point ☒ 4-point ☐ 5-point ☐ Unknown			Inflatable Restraints ☒ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown																																																																																													
Pilot Certificate(s) <i>(Check all that apply)</i> ☐ None ☐ Flight Instructor ☐ Commercial ☐ US Military ☒ Private ☐ Recreational ☐ Airline Transport ☐ Foreign ☐ Student ☐ Sport ☐ Flight Engineer					Medical Certificate Validity ☐ Without limitations/waivers ☐ Unknown ☒ With limitations/waivers ☐ N/A ☐ Special Issuance			Date of Last Medical <u>10/27/2016</u> <i>mm/dd/yyyy</i>																																																																																												
Principal Occupation ☐ Pilot ☒ Other ☐ Unknown		Medical Certificate ☐ None ☐ Class 3 ☐ Class 1 ☐ Driver's License (Sport Pilot only) ☒ Class 2 ☐ Unknown			Medical Certificate Limitations <u>Must wear corrective lenses</u>																																																																																															
Medical Certificate Special Issuance																																																																																																				
Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks: <u>05/09/2017</u> <i>mm/dd/yyyy</i>					Flight Review Aircraft Make: <u>Schweizer</u> Model: <u>269C</u>																																																																																															
Airplane Rating(s) <i>(Check all that apply)</i> ☐ None ☐ Single-Engine Land ☐ Single-Engine Sea ☒ Multiengine Land ☐ Multiengine Sea		Other Aircraft Rating(s) <i>(Check all that apply)</i> ☐ None ☐ Airship ☐ Balloon ☒ Glider ☐ Gyroplane ☒ Helicopter ☐ Powered Lift		Instrument Rating(s) <i>(Check all that apply)</i> ☐ None ☒ Airplane ☐ Helicopter ☐ Powered Lift		Instructor Rating(s) <i>(Check all that apply)</i> ☒ None ☐ Airplane Single-Engine ☐ Airplane Multi-Engine ☐ Gyroplane ☐ Powered Lift ☐ Instrument Airplane ☐ Instrument Helicopter ☐ Helicopter ☐ Glider ☐ Sport																																																																																														
Type Ratings						Student Endorsements <i>(Include dates)</i>																																																																																														
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“FLIGHT CREWMEMBER 2” INFORMATION																																																																																																				
“Flight Crewmember 2” Responsibilities at the Time of Accident/Incident ☐ Pilot ☐ Co-Pilot ☐ Student Pilot ☐ Flight Instructor ☐ Check Pilot ☐ Flight Engineer ☐ Other Flight Crew																																																																																																				
“Flight Crewmember 2” was pilot flying ☐ Yes ☐ No																																																																																																				
“Flight Crewmember 2” Identification First Name: <u>None</u> Middle Initial: _____ Last Name: _____ City of Residence: _____ State: _____ ZIP: _____ Country: _____ Age at time of Accident/Incident: _____ Date of Birth: _____ <i>mm/dd/yyyy</i> Certificate Number: _____																																																																																																				
Degree of Injury ☐ None ☐ Fatal ☐ Minor ☐ Unknown ☐ Serious		Seat Occupied ☐ Left ☐ Front ☐ Unknown ☐ Right ☐ Rear ☐ Center ☐ Single			Restraint Type Available ☐ None ☐ Lap only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown				Inflatable Restraints ☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown																																																																																											
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Principal Occupation ☐ Pilot ☐ Other ☐ Unknown																																																																																																				
Medical Certificate ☐ None ☐ Class 3 ☐ Class 1 ☐ Driver's License (Sport Pilot only) ☐ Class 2 ☐ Unknown																																																																																																				
Medical Certificate Limitations 																																																																																																				
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Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks: _____ <i>mm/dd/yyyy</i>					Flight Review Aircraft Make: _____ Model: _____																																																																																															
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ADDITIONAL FLIGHT CREWMEMBERS (Exclusive of cabin crew, complete the following information)					
Crew Name and Address First Name: <u>None</u> City of Residence: _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____		Seat Occupied ☐ Left ☐ Front ☐ Center ☐ Rear ☐ Right ☐ Single ☐ Unknown		Injury ☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	
Pilot Certificate(s) (Check all that apply) ☐ None ☐ Flight Instructor ☐ Commercial ☐ US Military ☐ Private ☐ Recreational ☐ Airline Transport ☐ Foreign ☐ Student ☐ Sport ☐ Flight Engineer		Restraint Type: Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown		Inflatable Restraints ☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	
Type Rating/Endorsement for Accident/Incident Aircraft? ☐ Yes ☐ No		Total Flight Time at the Time of this Accident/Incident: _____ hrs			
Crew Name and Address First Name: _____ City of Residence: _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____		Seat Occupied ☐ Left ☐ Front ☐ Center ☐ Rear ☐ Right ☐ Single ☐ Unknown		Injury ☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	
Pilot Certificate(s) (Check all that apply) ☐ None ☐ Flight Instructor ☐ Commercial ☐ US Military ☐ Private ☐ Recreational ☐ Airline Transport ☐ Foreign ☐ Student ☐ Sport ☐ Flight Engineer		Restraint Type: Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown		Inflatable Restraints ☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	
Type Rating/Endorsement for Accident/Incident Aircraft? ☐ Yes ☐ No		Total Flight Time at the Time of this Accident/Incident: _____ hrs			
PASSENGER(S) / OTHER PERSONNEL (Include cabin crew; continue on separate sheet if necessary)					
Name and Address	Seat	Injury	Restraint Type	Inflatable Restraints	Age
First Name: <u>None</u> City : _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____ ☐ Crew ☐ Passenger ☐ Other	☐ Left ☐ Center ☐ Right ☐ Unknown Row: ____	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	☐ Under 5 years <i>If Under 5,</i> ☐ Child Restraint ☐ Lap-Held ☐ Unknown
First Name: _____ City : _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____ ☐ Crew ☐ Passenger ☐ Other	☐ Left ☐ Center ☐ Right ☐ Unknown Row: ____	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	☐ Under 5 years <i>If Under 5,</i> ☐ Child Restraint ☐ Lap-Held ☐ Unknown
First Name: _____ City : _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____ ☐ Crew ☐ Passenger ☐ Other	☐ Left ☐ Center ☐ Right ☐ Unknown Row: ____	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	☐ Under 5 years <i>If Under 5,</i> ☐ Child Restraint ☐ Lap-Held ☐ Unknown
First Name: _____ City : _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____ ☐ Crew ☐ Passenger ☐ Other	☐ Left ☐ Center ☐ Right ☐ Unknown Row: ____	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown	Available ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown Used ☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown	☐ Under 5 years <i>If Under 5,</i> ☐ Child Restraint ☐ Lap-Held ☐ Unknown

FLIGHT ITINERARY INFORMATION						
Last Departure Point Airport ID: <u>KVGT</u> City: <u>North Las Vegas</u> State: <u>NV</u> Country: <u>USA</u>		Time of Departure Time: <u>11 am</u> Time Zone: <u>PST</u>		Destination Airport ID: <u>U08</u> City: <u>Overton</u> State: <u>NV</u> Country: <u>USA</u>		Type Flight Plan Filed ☐ None ☐ VFR/IFR ☐ Company VFR ☐ IFR ☐ Military VFR ☐ Unknown ☒ VFR Activated? ☐ Yes ☒ No ☐ Unknown
Type of ATC Clearance/Service (Check all that apply) ☐ None ☐ Special VFR ☐ Special IFR ☐ VFR Flight Following ☐ Cruise ☒ VFR ☐ IFR ☐ VFR On Top ☐ Traffic Advisory ☐ Unknown / NA						
Airspace where the accident/incident occurred (Check all that apply) ☐ Class A ☐ Class G ☐ Military Operations Area (MOA) ☐ Special ☐ Class B ☐ Demo Area ☐ Airport Advisory Area ☐ Air Traffic Control Area ☐ Class C ☐ Warning Area ☐ Jet Training Area ☐ Unknown ☒ Class D ☐ Prohibited Area ☐ TRSA ☐ Class E ☐ Restricted Area ☐ FAR 93					Altitude of In-Flight Occurrence: <u>0</u> ft msl	
WEATHER INFORMATION AT THE ACCIDENT/INCIDENT SITE						
Source of Pilot Weather Information (Check all that apply) ☐ National Weather Service ☐ Company ☒ Flight Service Station ☐ Military ☐ TV/Radio ☒ Internet ☒ Automated Report ☐ None ☐ Commercial Weather Service (DUATS) ☐ Unknown ☐ On-Board Weather			Weather Observation Facility Facility ID: <u>VGT</u> Observation Time: <u>1753Z / 10:53 local</u> Time Zone: <u>PDT</u> Distance from Accident Site: <u>0.4</u> nm Direction from Accident Site: <u>340</u> degrees true			
Basic Conditions ☒ VMC ☐ IMC ☐ Unknown		Light Condition ☐ Dawn ☐ Dusk ☐ Dark Night ☐ Unknown ☒ Day ☐ Night ☐ Bright Night				
Sky/Lowest Cloud Condition ☒ Clear ☐ Thin Broken ☐ Few ☐ Thin Overcast ☐ Partial Obscuration ☐ Unknown ☐ Scattered Lowest Cloud Condition Height _____ ft agl		Ceiling ☒ None (Clear) ☐ Obscured ☐ Broken ☐ Indefinite ☐ Overcast ☐ Unknown Ceiling Height _____ ft agl		Temperature: <u>36</u> (C) or _____ (F) Dew Point: <u>M02</u> (C) or _____ (F) Altimeter Setting: <u>29.82</u> in. Hg or _____ MB		
Wind Direction ☐ Variable -or- Direction: <u>130</u> degrees true	Wind Speed ☐ Calm ☐ Light and Variable -or- Speed: <u>9</u> kts	Wind Gusts ☒ Not Gusting -or- Speed: _____ kts	Visibility <u>10</u> miles RVR: _____ feet RVV: _____ miles Density Altitude: <u>5200</u> ft			
Intensity of Precipitation ☐ Light ☐ Moderate ☐ Heavy ☒ N/A ☐ Unknown	Type of Precipitation (Check all that apply) ☒ None ☐ Drizzle ☐ Freezing Rain ☐ Rain ☐ Ice Pellets ☐ Snow Shower ☐ Snow ☐ Snow Pellets ☐ Ice Pellets Shower ☐ Hail ☐ Snow Grains ☐ Freezing Drizzle ☐ Rain Showers ☐ Ice Crystals		Restriction to Visibility (Check all that apply) ☒ None ☐ Fog ☐ Blowing Dust ☐ Ground Fog ☐ Blowing Sand ☐ Haze ☐ Blowing Snow ☐ Ice Fog ☐ Blowing Spray ☐ Smoke ☐ Dust ☐ Unknown			
Icing Forecast Amount ☒ None ☐ Trace ☐ Light ☐ Moderate ☐ Severe ☐ Unknown Type ☒ N/A ☐ Rime ☐ Clear ☐ Mixed ☐ Unknown		Icing Actual Amount ☒ None ☐ Trace ☐ Light ☐ Moderate ☐ Severe ☐ Unknown Type ☒ N/A ☐ Rime ☐ Clear ☐ Mixed ☐ Unknown		Turbulence Type (Check all that apply) ☒ None ☐ Clear Air ☐ Terrain-Induced ☐ Convective Turbulence Severity ☐ Light ☐ Moderate ☐ Severe ☐ Extreme		
NOTAMs (D and FDC), AIRMETs, SIGMETs, PIREPs in effect at the time of the accident/incident: <u>NOTAM FOR VGT; #09/015 obstruction; #04/002 ARFF Vehicle; #06/001 obstruction; #LTA L30 7 IAP Service; LTA-OSGW-15 LTA #LTA-LAS-4 LTA</u> <u>No Airmet; No Sigmet</u>						

DAMAGE TO AIRCRAFT AND OTHER PROPERTY		
Aircraft Damage ☐ None ☐ Substantial ☐ Minor ☒ Destroyed ☐ Unknown	Aircraft Fire ☒ None ☐ Both Ground and In-Flight ☐ In-Flight ☐ Fire at Unknown Time ☐ On-Ground ☐ Unknown	Aircraft Explosion ☒ None ☐ Both Ground and In-Flight ☐ In-Flight ☐ Explosion at Unknown Time ☐ On-Ground ☐ Unknown
Description of Damage to Aircraft and Other Property <i>(Use additional sheet if necessary)</i> Aircraft integrity lost due to vibration. Engine and rotor mast separated from frame. Rotor blades damaged. No damage to other property.		
NARRATIVE HISTORY OF FLIGHT <i>(Please type or print in ink)</i>		
Describe what occurred in chronological order, including circumstances leading to and nature of accident/incident. Describe terrain and include wreckage distribution sketch if pertinent. Attach extra sheets if needed. State departure time and and location, services obtained, and intended destination. Provide as much detail as possible. The planned helicopter flight was to travel from KVG T (North Las Vegas) to U08 (Overton), conduct pattern work at U08 and return to KVG T. The aircraft in the incident (N557DC) was rented from Airwork, a flight school located on KVG T. This was to be a solo flight. I arrived at Airwork around 9am. I retrieved the aircraft from hanger B26 and positioned it on the South ramp, northmost heli circle. This was the first flight of the day for the aircraft. This area on the South ramp is level and paved. It is a normal departure / arrival point for helicopters at this airport. I completed the pre-flight inspection. About 1/2 qt oil was added to the engine (6 1/2 total). A fuel truck service was used to add 24 gallons of 100 LL fuel (44 gallons total). I then returned to Airwork for headphones and to extend the rental duration. When I returned to the aircraft, I filed a flight plan by phone and obtained weather / Notam updates. The helicopter engine was started and the rotor was engaged per normal procedure. I completed all startup and preflight checks. The aircraft runup was normal with indications in acceptable ranges. I picked up the KVG T ATIS. I then called KVG T ground and obtained a squawk code for Bravo airspace clearance which was along my route of flight, and received initial departure instructions. At around 11am local time, I increased the engine/rotor rpm prior to lifting into hover. The helicopter had not yet become light on the skids. The tail rotor and cyclic controls had not yet been verified as appropriate for a hover. With engine/rotor rpm at very bottom of green range and about 17" manifold pressure, the aircraft started to vibrate. The aircraft was still on the ground, not moving beyond the vibration. The vibration initially felt normal. In a few seconds, the vibrations became worse. The aircraft was not yet at the point where I had been trained it was appropriate to proceed to hover. This normally requires getting the aircraft light on the skids to verify tail controls and lifting gradually to ensure cyclic control/trim is appropriate. The engine/rotor rpm should be in the top half of the range. So I lowered the collective and rolled off throttle. The aircraft vibrations became increasingly severe. The total time the aircraft continued to move is unknown. I estimate from initial onset of vibration to rotor stopping was approximately 20 seconds. When the main rotor and engine stopped, the aircraft was turned approximately 60 degrees to the west. It was still at the starting position. There was fuel leaking from the tank behind the pilot seat. I egressed from the aircraft through the normal pilot door. The vibrations had significantly damaged the aircraft. There was no damage to other aircraft, equipment or buildings in the area. The incident was reported immediately to airport management, the flight school, the FAA and the NTSB. I met with FAA personnel and provided a preliminary incident report to the flight school and FAA before leaving the field.		

ADDITIONAL INFORMATION (Please type or print in ink)

Use this space if additional space is needed for any answers.

Pilot safety recommendation

There are no procedures in the aircraft manufacturer's POH for dealing with ground resonance on startup. The training I received was focused on ground resonance that occurs during the transition from flight to hover and that is the result of skid to ground hard contact. Similarly the FAA provides guidance in the "Helicopter Flying Handbook" #FAA-H-8083-21A page 11-11. The contents of this section are also focused on resonance occurring on skid to ground hard contact when the aircraft is already in the air.

The discussion with the FAA and other pilots post incident included consideration of attempting to lift the aircraft into a hover. This would have been the only other pilot option to resolve the resonance once it developed. Given the status of control positions and rpm, a positive outcome is not certain. In certain scenarios such as subsequent hard contact in attempting to achieve hover, the outcome could have been worse. The FAA guidance in 8083-21A states: "If the rpm is low, the only corrective action to stop ground resonance is to close the throttle immediately and fully lower the collective to place the blades in low pitch". The guidance provides no indication that this procedure has any probability of a poor outcome.

I had not anticipated that ground resonance could develop so easily without lifting the aircraft. So part of my thinking in electing to lower the collective vs lifting the aircraft was that there was something fundamentally wrong and the aircraft should not be lifted. In electing to lower the collective and roll off the throttle, I expected a positive outcome.

RECOMMENDATIONS

- 1) As part of NTSB investigation, identify controllable factors in the aircraft operation, condition, or maintenance that led to ground resonance on startup. Avoiding ground resonance would avoid this outcome without the need for inherently risky pilot maneuvers to resolve resonance.
- 2) Provide clear pilot guidance on the amount of deviation from normal flight procedure that is appropriate to attempt hover in order to resolve ground resonance on startup.
- 3) Update documentation, including H-8083-21A and pilot procedures, to properly cover the scenario of ground resonance on startup. Identify pre-cursors, procedures to mitigate, response to resonance development, operating envelope to attempt a hover, etc. In documentation identify risks and probable outcomes of both pilot options
- 4) Provide training accordingly.

Note: On page 3: Last Inspection Type - was Annual and 1200 hour.

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE**Date of this Report**07/15/2018*mm/dd/yyyy***Name of Pilot/Operator:** John McCall**Signature:** _____*-- or --*☒ Check here to electronically sign this document**If a Person Other than Pilot/Operator is Filing Report****Name:** _____**Title:** _____**Signature:** _____*-- or --*☐ Check here to electronically sign this document**FOR NTSB USE ONLY****NTSB Accident/Incident No.**

WPR18LA170

Reviewed by NTSB Regional Office

WPR-AS

Name of Investigator

Albert Nixon

Date Report Received

07/15/2018