

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 cowling, 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.ntsbt.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: Douglas State: WY

ZIP: 82633 Country: United States

Latitude: 42°44'39.95"N Longitude: 105°24'09.43"W

(Enter in decimal degrees or degrees:minutes:seconds)

Accident/Incident Date/Time

Date: 06/22/2024 Local Time: 08:35am

mm/dd/yyyy

Time Zone: Mountain

Collision with Other Aircraft: ☐ Midair ☐ On-ground ☒ None

AIRCRAFT INFORMATION

Registration Number: N406Z

Manufacturer: Replica

Model: PA-12 Replica

Serial Number: MB 1201

Year of Manufacture: 2009

Amateur-Built: ☒ Yes ☐ No If Yes: ☒ Kit/Plans ☐ Original Design Make: Replica

☐ IFR-Equipped and Certified

☐ Commercial Space Flight

☐ Unmanned Aircraft

Maximum Gross Weight: 2400 lbs

Weight at Time of Accident/Incident: 1680 lbs

Number of Seats: 3 Flight Crew Seats: 1

Cabin Crew Seats: 2 Passenger Seats: 2

Number of Engines: 1

Category of Aircraft

- ☒ Airplane
☐ Balloon
☐ Blimp/Dirigible
☐ Glider
☐ Gyroplane
☐ Helicopter
☐ Powered Lift
☐ Rocket
☐ Ultralight
☐ Unknown

Type of Airworthiness Certificate

(Check all that apply)

Standard

- ☐ Normal
☐ Aerobatic
☐ Balloon
☐ Commuter
☐ Transport
☐ Utility

Special

- ☐ Restricted
☐ Limited
☐ Provisional
☐ Special Flight
☒ Experimental
☐ Special Light-Sport
☐ Experimental Light-Sport

☐ Certificate of Authorization or Waiver (COA)
☐ None ☐ Unknown

Landing Gear

(Check all that apply)

☐ Retractable

- ☐ Tricycle ☒ Tailwheel
☐ Amphibian ☐ High Skid
☐ Emergency Float ☐ Skid
☐ Float ☐ Ski
☐ Hull ☐ Ski/Wheel

☐ Other Launch/Recovery System

☒ None ☐ Unknown

Engine Type (Select one)

- ☒ Reciprocating ☐ Liquid Rocket
☐ Turbo Shaft ☐ Solid Rocket
☐ Turbo Prop ☐ Hybrid Rocket
☐ Turbo Jet ☐ None
☐ Turbo Fan ☐ Unknown
☐ Electric

Fuel System Type (Reciprocating)

☐ Carburetor ☒ Fuel-Injected

Engine	Engine Manufacturer	Engine Model/Series	Manufacturer's Serial Number	Date of Mfg. mm/dd/yyyy	Rated Power ☒ Horsepower or ☐ lbs of Thrust	Total Time (hours)	Time Since: Inspection (hours)	Overhaul (hours)
Eng. 1	AeroSport Power	IO-375 EXP	1936-SP	11/22/2023	200	4.2		
Eng. 2								
Eng. 3								
Eng. 4								

Last Inspection Type

- ☐ 100-Hour ☐ Continuous Airworthiness
☐ AAIP ☒ Conditional Inspection
☐ Annual ☐ Unknown

Date Last Inspection: 03/20/23

mm/dd/yyyy

Airframe Total Time: 493.1 hrs

hours measured at (Select one)

☐ Last Inspection ☒ Time of Accident/Incident

Type of Maintenance Program (Select one)

- ☐ Annual
☒ Conditional (Amateur-built only)
☐ Manufacturer's Inspection Program
☐ Other Approved Inspection Program (AAIP)
☐ Continuous Airworthiness
☐ Other, specify: _____

Description of Fire Extinguishing System

- ☐ None
☒ Specify: HalGuard Clean Agent Car Fire Extinguisher - 1.4

Propeller 1

- ☐ Fixed Pitch
☒ Controllable Pitch
☐ Ground Adjustable

Manufacturer: Whirlwind Propellers

Model: Aero 330-2B. Blades - 78G

Propeller 2

- ☐ Fixed Pitch
☐ Controllable Pitch
☐ Ground Adjustable

Manufacturer: _____

Model: _____

ELT Installed: ☒ Yes ☐ No

If Yes:

ELT Manufacturer: Kannad

Model or Part No.: S1840501-01

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

If activated:

Did ELT Aid in Locating Aircraft: ☐ Yes ☒ No

If not activated:

- Indicate Reason: ☐ Impact Damage
☐ Fire Damage
☐ Battery Expired/Damaged
☐ Unknown

Additional Equipment (Check all that apply)

- ☒ 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: _____

OWNER/OPERATOR INFORMATION**Registered Aircraft Owner**Name: Jeffrey Michael ShapiroCity: South BeachState: ORZIP: 97366Fractional Ownership Aircraft: ☐ Yes ☒ NoCountry: United States**Operator of Aircraft**☒ Same As Registered Owner☒ Same Address as Registered Owner

Name: _____

City: _____

Doing Business As: _____

State: _____ ZIP: _____

Air Carrier/Operator Designator (4 Character Code): _____

Country: _____

Operating Certificates Held

(Check all that apply)

- ☒ 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 129 ☐ FAR 415
☐ FAR 103 ☐ FAR 133 ☐ FAR 431
☐ FAR 121 ☐ FAR 135 ☐ FAR 435
☐ FAR 125 ☐ FAR 137 ☐ FAR 437
- ☐ FAR 91 Special Flight
☐ Non-US, Commercial
☐ Non-US, Non-commercial
- ☐ Public Aircraft (Select one)
☐ Armed Forces
☐ Federal
☐ State
☐ Local
☐ Unknown

Revenue Operation for FAR 121, 125, 129, 135

(Select one for each group)

- ☐ Scheduled or Commuter ☐ Domestic
☐ Non-Scheduled or Air Taxi ☐ International
- ☐ Passenger
☐ Cargo
☐ Mail Contract Only

Purpose of Flight for FAR 91, 103, 133, 137

(Select one)

- ☐ Aerial Application ☐ Firefighting ☐ Unknown
☐ Aerial Observation ☒ Flight Test
☐ Air Drop ☐ Glider Tow
☐ Air Race/Show ☐ Instructional
☐ Banner Tow ☐ Other Work Use
☐ Business ☐ Personal
☐ Executive/Corporate ☐ Positioning
☐ External Load ☐ Skydiving
☐ Ferry

Revenue Sightseeing Flight☐ Yes ☒ No**Air Medical Flight**☐ Yes ☒ No**AIRPORT INFORMATION** (Fill in if accident/incident occurred on approach, landing, takeoff, departure, or within 3 miles of an airport)Airport Name: Backcountry Supercubs private airstrip (grass)

Distance From Airport Center: _____ sm

Airport Identifier: _____

Direction From Airport: _____ degrees true

Proximity to Airport: ☒ Off Airport/Airstrip ☐ On Airport/Airstrip ☐ N/AAirport Elevation: 4808 ft. msl**Runway Information**Runway ID: _____ (L/R/C) Length: 1350 ft Width: 125 ft**Runway/Landing Surface** (Check all that apply)

- ☐ Asphalt ☒ Grass/Turf ☐ Macadam ☐ Water
☐ Concrete ☐ Gravel ☐ Metal/Wood
☐ Dirt ☐ Ice ☐ Snow ☐ Unknown

Condition of Runway/Landing Surface (Check all that apply)

- ☒ Dry ☐ Snow-Compacted ☐ Water-Calm
☐ Holes ☐ Snow-Crusted ☐ Water-Choppy
☐ Ice Covered ☐ Snow-Dry ☐ Water-Glassy
☐ Rough ☐ Snow-Wet ☐ Wet
☐ Rubber Deposits ☐ Soft
☐ Slush-Covered ☐ Vegetation ☐ Unknown

Approach/Departure Segment (Select one)

- ☐ Taxi ☐ VFR Departure ☐ On Instrument Approach ☐ Downwind ☐ Low Approach
☐ Takeoff ☐ IFR Departure Procedure/Clearance ☒ Landing ☐ Base ☐ Go Around
☐ Initial Climb ☐ Final ☐ Aborted Landing (after touchdown)
☐ Crosswind ☐ Unknown

IFR Approach (Check all that apply)

- ☒ None
- ☐ ADF/NDB ☐ PAR ☐ MLS ☐ Practice
☐ SDF ☐ Sidestep ☐ LDA ☐ GPS
☐ VOR/TVOR ☐ ILS ☐ ASR
☐ VOR/DME ☐ Localizer Only ☐ Visual
☐ TACAN ☐ LOC-back course ☐ Contact
☐ RNAV ☐ Circling
☐ Unknown

VFR Approach (Check all that apply)

- ☐ None
- ☒ Traffic Pattern ☐ Stop and Go
☐ Straight-In ☐ Touch and Go
☐ Valley/Terrain Following ☐ Simulated Forced Landing
☐ Go Around ☒ Forced Landing
☐ Full Stop ☐ 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: Jeffrey

City of Residence: South Beach

Middle Initial: M

State: OR ZIP: 97366

Last Name: Shapiro

Country: United States

Age at time of Accident/Incident: 48 Date of Birth: mm/dd/yyyy

Certificate Number:

Degree of Injury

☐ None ☐ Fatal
☒ Minor ☐ Unknown
☐ Serious

Seat Occupied

☐ Left ☒ Front ☐ Unknown
☐ Right ☐ Rear
☐ Center ☐ Single

Restraint Type

Available	Used
☐ None	☐ None
☐ Lap only	☐ Lap only
☐ 3-point	☐ 3-point
☒ 4-point	☒ 4-point
☐ 5-point	☐ 5-point
☐ Unknown	☐ Unknown

Inflatable Restraints

☒ Not Installed
☐ Installed
☐ Not Deployed
☐ Deployed
☐ Unknown

Pilot Certificate(s) (Check all that apply)

☐ None	☐ Flight Instructor	☐ Commercial	☐ US Military
☒ Private	☐ Recreational	☐ Airline Transport	☐ Foreign
☐ Student	☐ Sport	☐ Flight Engineer	

Principal Occupation

☐ Pilot
☒ Other
☐ Unknown

Medical Certificate

☐ None ☐ Class 3
☐ Class 1 ☐ Driver's License (Sport Pilot only)
☒ Class 2 ☐ Unknown

Medical Certificate Validity

☐ Without limitations/waivers ☐ Unknown
☒ With limitations/waivers ☐ N/A
☐ Special Issuance

Date of Last Medical

07/07/2023
mm/dd/yyyy

Medical Certificate Limitations

Must use corrective lens(es) to meet vision standards at all required distances.

Medical Certificate Special Issuance**Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks:**

10/05/2023
mm/dd/yyyy

Flight Review Aircraft

Make: Replica

Model: PA 12 Replica

Airplane Rating(s)

(Check all that apply)

☐ None
☒ Single-Engine Land
☐ Single-Engine Sea
☐ Multiengine Land
☐ Multiengine Sea

Other Aircraft Rating(s)

(Check all that apply)

☒ None
☐ Airship
☐ Balloon
☐ Glider
☐ Gyroplane
☐ Helicopter
☐ Powered Lift

Instrument Rating(s)

(Check all that apply)

☒ None
☐ Airplane
☐ Helicopter
☐ Powered Lift

Instructor Rating(s)

(Check all that apply)

☒ None
☐ Airplane Single-Engine
☐ Airplane Multi-Engine
☐ Gyroplane
☐ Powered Lift

☐ Instrument Airplane
☐ Instrument Helicopter
☐ Helicopter
☐ Glider
☐ Sport

Type Ratings**Student Endorsements** (Include dates)

Flight Time (Enter appropriate number of hours in each box)	All Aircraft	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	307	305	307		3		3			
Pilot in Command (PIC)	247	247	247							
Time as Instructor										
This Make/Model					3		3			
Last 90 Days	4	4	4							
Last 30 Days	4	4	4							
Last 24 Hours										

"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: _____ City of Residence: _____
 Middle Initial: _____ State: _____ ZIP: _____
 Last Name: _____ Country: _____
 Age at time of Accident/Incident: _____ Date of Birth: _____ mm/dd/yyyy
 Certificate Number: _____

Degree of Injury ☐ None ☐ Fatal ☐ Minor ☐ Unknown ☐ Serious	Seat Occupied ☐ Left ☐ Front ☐ Unknown ☐ Right ☐ Rear ☐ Center ☐ Single	Restraint Type <table style="width: 100%;"> <tr> <th style="text-align: left;">Available</th> <th style="text-align: left;">Used</th> </tr> <tr> <td>☐ None</td> <td>☐ None</td> </tr> <tr> <td>☐ Lap only</td> <td>☐ Lap only</td> </tr> <tr> <td>☐ 3-point</td> <td>☐ 3-point</td> </tr> <tr> <td>☐ 4-point</td> <td>☐ 4-point</td> </tr> <tr> <td>☐ 5-point</td> <td>☐ 5-point</td> </tr> <tr> <td>☐ Unknown</td> <td>☐ Unknown</td> </tr> </table>	Available	Used	☐ None	☐ None	☐ Lap only	☐ Lap only	☐ 3-point	☐ 3-point	☐ 4-point	☐ 4-point	☐ 5-point	☐ 5-point	☐ Unknown	☐ Unknown	Inflatable Restraints ☐ Not Installed ☐ Installed ☐ Not Deployed ☐ Deployed ☐ Unknown
Available	Used																
☐ None	☐ None																
☐ Lap only	☐ Lap only																
☐ 3-point	☐ 3-point																
☐ 4-point	☐ 4-point																
☐ 5-point	☐ 5-point																
☐ Unknown	☐ Unknown																
Pilot Certificate(s) (Check all that apply) <table style="width: 100%;"> <tr> <td>☐ None</td> <td>☐ Flight Instructor</td> <td>☐ Commercial</td> <td>☐ US Military</td> </tr> <tr> <td>☐ Private</td> <td>☐ Recreational</td> <td>☐ Airline Transport</td> <td>☐ Foreign</td> </tr> <tr> <td>☐ Student</td> <td>☐ Sport</td> <td>☐ Flight Engineer</td> <td></td> </tr> </table>		☐ None	☐ Flight Instructor	☐ Commercial	☐ US Military	☐ Private	☐ Recreational	☐ Airline Transport	☐ Foreign	☐ Student	☐ Sport	☐ Flight Engineer					
☐ None	☐ Flight Instructor	☐ Commercial	☐ US Military														
☐ Private	☐ Recreational	☐ Airline Transport	☐ Foreign														
☐ Student	☐ Sport	☐ Flight Engineer															

Principal Occupation ☐ Pilot ☐ Other ☐ Unknown	Medical Certificate ☐ None ☐ Class 3 ☐ Class 1 ☐ Driver's License (Sport Pilot only) ☐ Class 2 ☐ Unknown	Medical Certificate Validity ☐ Without limitations/waivers ☐ Unknown ☐ With limitations/waivers ☐ N/A ☐ Special Issuance	Date of Last Medical _____ mm/dd/yyyy
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Medical Certificate Limitations

Medical Certificate Special Issuance

Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks: _____ mm/dd/yyyy	Flight Review Aircraft Make: _____ Model: _____
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Airplane Rating(s) (Check all that apply) ☐ None ☐ Single-Engine Land ☐ Single-Engine Sea ☐ Multiengine Land ☐ Multiengine Sea	Other Aircraft Rating(s) (Check all that apply) ☐ None ☐ Airship ☐ Balloon ☐ Glider ☐ Gyroplane ☐ Helicopter ☐ Powered Lift	Instrument Rating(s) (Check all that apply) ☐ None ☐ Airplane ☐ Helicopter ☐ Powered Lift	Instructor Rating(s) (Check all that apply) <table style="width: 100%;"> <tr> <td> ☐ None ☐ Airplane Single-Engine ☐ Airplane Multi-Engine ☐ Gyroplane ☐ Powered Lift </td> <td> ☐ Instrument Airplane ☐ Instrument Helicopter ☐ Helicopter ☐ Glider ☐ Sport </td> </tr> </table>	☐ None ☐ Airplane Single-Engine ☐ Airplane Multi-Engine ☐ Gyroplane ☐ Powered Lift	☐ Instrument Airplane ☐ Instrument Helicopter ☐ Helicopter ☐ Glider ☐ Sport
☐ None ☐ Airplane Single-Engine ☐ Airplane Multi-Engine ☐ Gyroplane ☐ Powered Lift	☐ Instrument Airplane ☐ Instrument Helicopter ☐ Helicopter ☐ Glider ☐ Sport				

Type Ratings	Student Endorsements (Include dates)
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Flight Time (Enter appropriate number of hours in each box)	All Aircraft	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time										
Pilot in Command (PIC)										
Time as Instructor										
This Make/Model										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

ADDITIONAL FLIGHT CREWMEMBERS (Exclusive of cabin crew, complete the following information)

Crew Name and Address		Seat Occupied	Injury
First Name: _____	City of Residence: _____	☐ Left ☐ Front ☐ Center ☐ Rear ☐ Right ☐ Single ☐ Unknown ☐ Unknown	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown
Middle Initial: _____	State: _____ ZIP: _____		
Last Name: _____	Country: _____		
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		Seat Occupied	Injury
First Name: _____	City of Residence: _____	☐ Left ☐ Front ☐ Center ☐ Rear ☐ Right ☐ Single ☐ Unknown ☐ Unknown	☐ None ☐ Minor ☐ Serious ☐ Fatal ☐ Unknown
Middle Initial: _____	State: _____ ZIP: _____		
Last Name: _____	Country: _____		
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: _____ 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 If Under 5, ☐ 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 If Under 5, ☐ 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 If Under 5, ☐ 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 If Under 5, ☐ Child Restraint ☐ Lap-Held ☐ Unknown

FLIGHT ITINERARY INFORMATION

Last Departure Point

Airport ID: KDGW
 City: Douglas
 State: Wyoming
 Country: United States

Time of Departure

Time: 06:35
 Time Zone: Mountain

Destination

Airport ID: BCSC Grass Aistr
 City: Douglas
 State: Wyoming
 Country: United States

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:
approx 5200 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: KDGW
 Observation Time: _____
 Time Zone: Mountain
 Distance from Accident Site: 3 nm
 Direction from Accident Site: 14 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

unlimited ft agl

Temperature: _____ (C) or 62 (F)

Dew Point: _____ (C) or _____ (F)

Altimeter Setting: 30.00 in. Hg
 or _____ MB

Wind Direction

☒ Variable

-or-
 Direction: _____ degrees true

Wind Speed

☐ Calm
☒ Light and Variable

-or-
 Speed: _____ kts

Wind Gusts

☒ Not Gusting

-or-
 Speed: _____ kts

Visibility unlimited miles

RVR: _____ feet

RVV: _____ miles

Density Altitude: _____ 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 **Type**
☒ None ☐ N/A
☐ Trace ☐ Rime
☐ Light ☐ Clear
☐ Moderate ☐ Mixed
☐ Severe ☐ Unknown
☐ Unknown

Icing Actual

Amount **Type**
☒ None ☐ N/A
☐ Trace ☐ Rime
☐ Light ☐ Clear
☐ Moderate ☐ Mixed
☐ Severe ☐ Unknown
☐ Unknown

Turbulence

Type (Check all that apply) **Severity**
☐ None ☒ Light
☐ Clear Air ☐ Moderate
☐ Terrain-Induced ☐ Severe
☒ Convective Turbulence ☐ Extreme

NOTAMs (D and FDC), AIRMETs, SIGMETs, PIREPs in effect at the time of the accident/incident:

N/A

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 *(Use additional sheet if necessary)*

To my knowledge: Two broken gear axles. Damage to flanges on gear legs (where axles attach). Broken Propeller blades and damaged spinner. Damaged composite cowling. Damaged air filter. Broken windshield. At least (1) bent/broken main lift strut. Damaged mid-span wing ribs on Left wing. Flattened/deformed stall fences on top surface of both wings. Damage to top of vertical stabilizer and rudder control surface. Bent knob on Garmin G3X flight instrument. Damage brake lines.

All listed above is only from a brief visual inspection by me (with a head injury), and in no way represents accurately the limits to the damage to the airframe, power plant or any other component of the airplane involved. For a complete damage list, please refer to the

NARRATIVE HISTORY OF FLIGHT *(Please type or print in ink)*

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 location, services obtained, and intended destination. Provide as much detail as possible.

6/22/24 N406Z - Approx 40 gallons of 100 LL on board (20 gal in each wing tank)

After starting engine and during run up at KDGW at approximately 06:25 am MST, I increased throttle to achieve 1500 RPM, and per recommended run up procedure, cycled ECU 1 and ECU 2 mag switches.

ECU 1 Off ran smooth and normal; ECU 2 Off ran rough and dropped 2-300 RPM.

Switched both ECUs to ON (smooth operation again) and increased RPM to 1700 for 60 seconds (thinking rough operation was likely caused by a fouled spark plug from running the engine with mixture rich, because of high fuel trim percentage on manual fuel tuner). I was running rich to keep CHT's within acceptable range for break in period of engine flight testing and the extra fuel helped to cool the Cylinders during high RPM and MAP's used for engine break in.

Cycled both again with the same results: ECU 1 Off ran smooth, ECU 2... rough but only dropped only 150 RPM.

Felt good about flying after both ECU1&2 equaled smooth operation and because I'd be closely orbiting KDGW with the airstrip on glide as necessary.

Normal flight for next two hours, 37-40% fuel trim to keep CHTs to 380-412 degrees. Manually switched fuel tanks on fuel selector valve from left to right tank at the 1 hour mark.

Everything was in the green (Oil approx 202, MAP 22-23", RPM 2500, Oil Pressure 72 (I think). Fuel selector 1 green, 2 yellow. ECU 1 blue, ECU 2 green (backup) on EFII display screen.

G3X Screen started flickering during the last 15-20 mins of flight. Wondered if there might be a connection or ground interruption, so I took video of it with my iPhone.

At the 2 hour mark of the flight, I flew over to the Backcountry Supercubs grass strip, at approx. 700 AGL to land, knowing that the shop contained tools to possibly analyze and fix any squawks noted. Approaching the airstrip, I very gradually decreased the throttle (so as to not "shock cool" the engine, and at around 65 mph indicated, turned the trim wheel to approx half way to nose-high trim. Flying southeast bound, downwind, and decreasing altitude, I increased AoA, decreased MP, and pulled 2 notches of flaps. The engine quit on downwind correlating with the decreased manifold pressure. Initial scan of the panel revealed that ECU 1 indicator was red, ECU 2 was grey. The Fuel selector icons showed PMP1 green and PMP2 yellow. Voltage meter was still reading battery strength at or above 14 volts with no low power alarms.

Turned onto base with my eyes out the cockpit to maintain orientation with the airstrip and my altitude. I quickly cycled ECU switches off/on. ECU1 went from red to gray, and back to red. ECU 2 briefly turned yellow and with an advancement of the throttle, the engine sputtered briefly but then quit again. I looked back at the EFII monitor and confirmed that the ECU 1 & 2 were again showing red and gray.

Made base to final turn. Cycled fuel pump selector switch, which operated properly (correlating colors were as expected, switching from green to yellow and back to green when toggle was cycled). Cycled ECU switches again, but this time with no change. ECU 2 may have been in yellow briefly, but things were happening fast at this point. Engine sputtered a little but my eyes were on my approach to focus on flying the airplane safely. One quick glance revealed ECU 1 was still red.

RECOMMENDATION (How could this accident/incident have been prevented?)**Operator/Owner Safety Recommendation**

When I go through the sequence of this incident/accident, and analyze without emotion and only logic (to the best of my abilities), I feel strongly that I was following protocols and risk mitigation practices to fly during phase one test flight hours of an unfamiliar engine, fuel injection, fuel delivery and ignition system, propeller and less consequentially, new wheels, brakes, landing gear legs and axles, as safely and with the most room for error that I could have. I was always within glide of a place to land with very few exceptions, I was diligent in attention to detail relative to keeping the engine and operation metrics within acceptable limits and was prepared with checklists and emergency procedures on laminated cards within quick reach in the airplane (which were also committed to memory). Although I read all literature provided, and spoke to the designer of the EFII System 32 components of my power plant, I think being even more familiar with it's function and perhaps more importantly, more experienced with the finest points of it's operation might have prevented the engine troubles I experienced. But, I will stand behind the facts of my accident, which are that the engine interruption was a link in the chain of events that caused the damage to the airplane and to my personal injury. When the engine stumbled and quit, I was in a position to responsibly fly and land the airplane in a safe manner. In my opinion, the axles provided for the 10" Beringer wheels were grossly under built and not even close to satisfactory for the airplane they were installed on. I didn't even bottom out my Acme Aero shocks, damage my gear legs or the gear leg attachments before those axles thoroughly sheered/failed, and caused the 35" bushwheels to detach from my airplane. In my opinion, although the mag failure (or any factors that may or may not have caused the low altitude engine failure) was a significant factor in this event, it would have been a non-event ending in a normal and safe landing in a designated landing strip if it were not for the obviously insufficient 1" diameter axles. It should be noted that Bruce Reed, owner of Backcountry Supercubs verbally warned

MECHANICAL MALFUNCTION/FAILURE (If more space is needed, continue on separate sheet)**Was there Mechanical Malfunction/Failure?** ☒ Yes ☐ No*(If yes, list the name of the part, manufacturer, part no., serial no., and describe the failure.)*

EFII System 32 electronic ignition system (failure described in detail above)

Beringer wheel axles (1" diameter). Both were bolted on to Acme gear legs with (4) AN4 bolts at flange. Gear legs did not fail and show no deformation other than where the flange contacted the ground after the axles complete failure. The Beringer axles sheered completely and bilaterally resulting in the bushwheels detaching from the airplane.

**Total Time/Cycles
On Part**

_____ Hours

_____ Cycles

**Time Since This Part
Inspected/Overhauled**

_____ Hours

FUEL & SERVICES INFORMATION**Fuel on Board at Last Takeoff***(Convert from pounds, as necessary)*

Approx 40 Gallons

Fuel Type☐ 80/87☐ 115/145☐ Jet B☐ Other, specify _____☒ 100 Low Lead☐ Jet A☐ JP8☐ 100/130☐ Jet A-1☐ Automotive**Other Services, if Any, Prior to Departure**

Oil was checked and observed to be between 6.5 and 7 quarts. 8 quarts had been added before the initial test flight and it was observed that some of that was discharged from the engine's breather, so it was determined that the oil consumption was normal and we would not add addition oil before the 2nd test flight.

EVACUATION OF AIRCRAFT**Was an emergency evacuation of the aircraft performed?** ☒ Yes ☐ No**Method of Exit** – Describe how the occupants exited and how many occupants evacuated each location

I self-extricated by unclipping my seatbelt, resulting in my falling upside down a few inches into the skylight, as the airplane was on it's top and upside down. I crawled out from the open door and was found sitting on my inverted wing (but I have very little clear memory of this).

OTHER AIRCRAFT – COLLISION (If air or ground collision occurred, complete this section for other aircraft)**Aircraft Registration Number****Manufacturer:** _____**Model:** _____**Damage to Other Aircraft**☐ Destroyed☐ Minor☐ Substantial☐ None**Registered Owner of Other Aircraft**

Name: _____

City: _____

State: _____ ZIP: _____

Country: _____

Pilot of Other Aircraft

Name: _____

City: _____

State: _____ ZIP: _____

Country: _____

ADDITIONAL INFORMATION (Please type or print in ink)

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

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Date of this Report

06/27/2024

mm/dd/yyyy

Name of Pilot/Operator: Jeffrey M Shapiro

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.
WPR24LA205

Reviewed by NTSB Regional Office
WPR - Federal Way

Name of Investigator
S. Stein

Date Report Received
June 27, 2024

Pilot narrative excerpt from 6120

6/22/24 N406Z - Approx 40 gallons of 100 LL on board (20 gal in each wing tank) After starting engine and during run up at KDGW at approximately 06:25 am MST, I increased throttle to achieve 1500 RPM, and per recommended run up procedure, cycled ECU 1 and ECU 2 mag switches. ECU 1 Off ran smooth and normal; ECU 2 Off ran rough and dropped 2-300 RPM. Switched both ECUs to ON (smooth operation again) and increased RPM to 1700 for 60 seconds (thinking rough operation was likely caused by a fouled spark plug from running the engine with mixture rich, because of high fuel trim percentage on manual fuel tuner). I was running rich to keep CHT's within acceptable range for break in period of engine flight testing and the extra fuel helped to cool the Cylinders during high RPM and MAP's used for engine break in. Cycled both again with the same results: ECU 1 Off ran smooth, ECU 2... rough but only dropped only 150 RPM. Felt good about flying after both ECU1&2 equaled smooth operation and because I'd be closely orbiting KDGW with the airstrip on glide as necessary. Normal flight for next two hours, 37-40% fuel trim to keep CHTs to 380-412 degrees. Manually switched fuel tanks on fuel selector valve from left to right tank at the 1 hour mark. Everything was in the green (Oil approx 202, MAP 22-23", RPM 2500, Oil Pressure 72 (I think). Fuel selector 1 green, 2 yellow. ECU 1 blue, ECU 2 green (backup) on EFII display screen. G3X Screen started flickering during the last 15-20 mins of flight. Wondered if there might be a connection or ground interruption, so I took video of it with my I Phone. At the 2 hour mark of the flight, I flew over to the Backcountry Supercubs grass strip, at approx. 700 AGL to land, knowing that the shop contained tools to possibly analyze and fix any squawks noted. Approaching the airstrip, I very gradually decreased the throttle (so as to not "shock cool" the engine, and at around 65 mph indicated, turned the trim wheel to approx half way to nose-high trim. Flying southeast bound, downwind, and decreasing altitude, I increased AoA, decreased MP, and pulled 2 notches of flaps. The engine quit on downwind correlating with the decreased manifold pressure. Initial scan of the panel revealed that ECU 1 indicator was red, ECU 2 was grey. The Fuel selector icons showed PMP1 green and PMP2 yellow. Voltage meter was still reading battery strength at or above 14 volts with no low power alarms. Turned onto base with my eyes out the cockpit to maintain orientation with the airstrip and my altitude. I quickly cycled ECU switches off/on. ECU1 went from red to gray, and back to red. ECU 2 briefly turned yellow and with an advancement of the throttle, the engine sputtered briefly but then quit again. I looked back at the EFII monitor and confirmed that the ECU 1 & 2 were again showing red and gray. Made base to final turn. Cycled fuel pump selector switch, which operated properly (correlating colors were as expected, switching from green to yellow and back to green when toggle was cycled). Cycled ECU switches again, but this time with no change. ECU 2 may have been in yellow briefly, but things were happening fast at this point. Engine

sputtered a little but my eyes were on my approach to focus on flying the airplane safely. One quick glance revealed ECU 1 was still red. At that point, I was committed entirely to landing. I slipped over the power lines to be "on altitude" without gaining or losing airspeed. Once the landing point was made, I exited the slip into a wings level, 3 point attitude. Rounded out to flare, glanced at my airspeed and remember it dropping through 47-45 mph, and noted less elevator authority than this airplane's consistent flight characteristics before engine and prop upgrade. I remember making mental note that the extra weight installed on the nose with the new engine and propeller was likely the cause. I landed in a wings level, 3 point attitude with full stick-back input, and the airplane's trim set to approx half way to nose-high trim (which had been set before the decrease in MAP and just before my initial downwind leg of my landing approach). What resulted was a moderately hard touchdown, but a landing I was confident would be a non-event. Without pause, the plane flipped over on its nose and onto it's top (apparently caused by the axles sheering at the inner wheel on both sides of the airplane). Although my memory is very clear up to this point, I only have flashes of memories after this point. One when I unclipped my 4 point seat belt and fell upside down onto roof/skylight, and exited airplane fearing of fire. I don't remember much after that, until speaking with the medic on the transfer from Douglas hospital to Casper hospital.

Operator safety recommendation

When I go through the sequence of this incident/accident, and analyze without emotion and only logic (to the best of my abilities), I feel strongly that I was following protocols and risk mitigation practices to fly during phase one test flight hours of an unfamiliar engine, fuel injection, fuel delivery and ignition system, propeller and less consequentially, new wheels, brakes, landing gear legs and axles, as safely and with the most room for error that I could have. I was always within glide of a place to land with very few exceptions, I was diligent in attention to detail relative to keeping the engine and operation metrics within acceptable limits and was prepared with checklists and emergency procedures on laminated cards within quick reach in the airplane (which were also committed to memory). Although I read all literature provided, and spoke to the designer of the EFII System 32 components of my power plant, I think being even more familiar with it's function and perhaps more importantly, more experienced with the finest points of it's operation might have prevented the engine troubles I experienced. But, I will stand behind the facts of my accident, which are that the engine interruption was a link in the chain of events that caused the damage to the airplane and

to my personal injury. When the engine stumbled and quit, I was in a position to responsibly fly and land the airplane in a safe manner. In my opinion, the axles provided for the 10" Beringer wheels were grossly under built and not even close to satisfactory for the airplane they were installed on. I didn't even bottom out my Acme Aero shocks, damage my gear legs or the gear leg attachments before those axles thoroughly sheered/failed, and caused the 35" bushwheels to detach from my airplane. In my opinion, although the mag failure (or any factors that may or may not have caused the low altitude engine failure) was a significant factor in this event, it would have been a non-event ending in a normal and safe landing in a designated landing strip if it were not for the obviously insufficient 1" diameter axles. It should be noted that Bruce Reed, owner of Backcountry Supercubs verbally warned me prior to installing those axles that they were, in his opinion, not up to the loads of normal operation in my airplane. Being that Beringer is a reputable company, and one I trusted, I instructed him to go ahead and install them with the caveat that I'd "keep a close eye on them". There are many lessons to learn from this event. But for me, not listening to Bruce is haunting. In the future for System 32 users, I hope pilots can learn and realize that using high fuel trim percentages to keep cylinder temps reasonable during the rigorous break in period is a good strategy, but it's my guess that it's potentially important to reduce the fuel trim back to 0% before pulling MAP so that the engine doesn't receive too much fuel (possible flooding) or doesn't foul the spark plugs. Again, those are assumptions and are yet to be determined, but I think worth mentioning in this context.