

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: Matthews State: VA

ZIP: 23109 Country: USA

Latitude: 37-22.3N Longitude: 076-13.7W

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

Accident/Incident Date/Time

Date: 06/14/2021 Local Time: 1231

mm/dd/yyyy

Time Zone: EDT

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

AIRCRAFT INFORMATION

Registration Number: N458MA

Manufacturer: Diamond

Model: DA20-C1

Serial Number: C0340

Year of Manufacture: 2005

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

☒ IFR-Equipped and Certified

☐ Commercial Space Flight

☐ Unmanned Aircraft

Maximum Gross Weight: 1764.0 lbs

Weight at Time of Accident/Incident: 1661.0 lbs

Number of Seats: Two (2) Flight Crew Seats: Two (2)

Cabin Crew Seats: Zero (0) Passenger Seats: Zero (0)

Number of Engines: One (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

- ☐ Amphibian
- ☐ Emergency Float
- ☐ Float
- ☐ Hull

☐ Tailwheel

- ☐ High Skid
- ☐ Skid
- ☐ Ski
- ☐ Ski/Wheel

☐ Other Launch/Recovery System

☐ None

☐ Unknown

Engine Type (Select one)

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

Fuel System Type (Reciprocating)

☐ Carburetor ☒ Fuel-Injected

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 (hours)	Time Since: Inspection (hours)	Overhaul (hours)
Eng. 1	Continental	IO-240-B	650136		125	2676.8	5.3	
Eng. 2								
Eng. 3								
Eng. 4								

Last Inspection Type

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

Date Last Inspection: 06/09/2021
mm/dd/yyyy

Airframe Total Time: 6133.6 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: Portable Extinguisher, not needed.

Propeller 1

- ☒ Fixed Pitch
- ☐ Controllable Pitch
- ☐ Ground Adjustable

Manufacturer: Sensenich

Model: W69EK7-63G

Propeller 2

- ☐ Fixed Pitch
- ☐ Controllable Pitch
- ☐ Ground Adjustable

Manufacturer: _____

Model: _____

ELT Installed: ☒ Yes ☐ No

If Yes:

ELT Manufacturer: EBC

Model or Part No.: 502

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: John Bender (Magrahen Air LLC)Fractional Ownership Aircraft: ☐ Yes ☒ NoCity: HaymarketState: VAZIP: 20169Country: USA**Operator of Aircraft**☐ Same As Registered Owner☐ Same Address as Registered OwnerName: American AviationCity: 10503 Wakeman Drive ManassasDoing Business As: Flight SchoolState: VAZIP: 20110

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

Country: USA**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: _____

Airport Identifier: _____

Proximity to Airport: ☐ Off Airport/Airstrip ☐ On Airport/Airstrip ☐ N/A

Distance From Airport Center: _____ sm

Direction From Airport: _____ degrees true

Airport Elevation: _____ ft. msl

Runway Information

Runway ID: _____ (L/R/C) Length: _____ ft Width: _____ 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																																																																																																				
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"Flight Crewmember 1" was pilot flying ☐ Yes ☒ No																																																																																																				
"Flight Crewmember 1" Identification First Name: <u>Justin</u> Middle Initial: <u>L</u> Last Name: <u>Harts</u> City of Residence: <u>Fairfax</u> State: <u>VA</u> ZIP: <u>22033</u> Country: <u>USA</u> Age at time of Accident/Incident: <u>46</u> Date of Birth: <u> </u> mm/dd/yyyy Certificate Number: <u> CFI FEB22</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																																																																																											
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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			Date of Last Medical <u>09042020</u> mm/dd/yyyy																																																																																															
Medical Certificate Limitations None																																																																																																				
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Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks: <u>09/01/2019</u> mm/dd/yyyy				Flight Review Aircraft Make: <u>Cessna</u> Model: <u>C-172</u>																																																																																																
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																																																																																														
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<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2" style="text-align: left; padding: 5px;">Flight Time (Enter appropriate number of hours in each box)</th> <th rowspan="2" style="padding: 5px;">All Aircraft</th> <th rowspan="2" style="padding: 5px;">This Make & Model</th> <th rowspan="2" style="padding: 5px;">Airplane Single Engine</th> <th rowspan="2" style="padding: 5px;">Airplane Multiengine</th> <th rowspan="2" style="padding: 5px;">Night</th> <th colspan="2" style="padding: 5px;">Instrument</th> <th rowspan="2" style="padding: 5px;">Rotorcraft</th> <th rowspan="2" style="padding: 5px;">Glider</th> <th rowspan="2" style="padding: 5px;">Lighter Than Air</th> </tr> <tr> <th style="padding: 5px;">Actual</th> <th style="padding: 5px;">Simulated</th> </tr> </thead> <tbody> <tr> <td style="text-align: left; padding: 5px;">Total Time</td> <td>997</td> <td>96</td> <td>834</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Pilot in Command (PIC)</td> <td>783</td> <td>96</td> <td>834</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Time as Instructor</td> <td>257</td> <td>85</td> <td>257</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">This Make/Model</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Last 90 Days</td> <td>32</td> <td>12</td> <td>32</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Last 30 Days</td> <td>9</td> <td>7</td> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Last 24 Hours</td> <td>4</td> <td>4</td> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>											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	997	96	834								Pilot in Command (PIC)	783	96	834								Time as Instructor	257	85	257								This Make/Model											Last 90 Days	32	12	32								Last 30 Days	9	7	9								Last 24 Hours	4	4	4							
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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: Stephan

City of Residence: Herndon

Middle Initial: D

State: VA ZIP: 20171

Last Name: Herrick

Country: USA

Age at time of Accident/Incident: 22 Date of Birth: 1999 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**

☐ 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) (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

N/A
mm/dd/yyyy

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: _____

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 ☐ Instrument Airplane
☐ Airplane Single-Engine ☐ Instrument Helicopter
☐ Airplane Multi-Engine ☐ Helicopter
☐ Gyroplane ☐ Glider
☐ Powered Lift ☐ 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	7	7	7							
Pilot in Command (PIC)	0	0	0							
Time as Instructor	0	0	0							
This Make/Model										
Last 90 Days	7	7	7							
Last 30 Days	7	7	7							
Last 24 Hours	4	4	4							

ADDITIONAL FLIGHT CREWMEMBERS (Exclusive of cabin crew, complete the following information)						
Crew Name and Address			Seat Occupied		Injury	
First Name: _____ City of Residence: _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____			☐ Left ☐ Front ☐ Center ☐ Rear ☐ Right ☐ Single ☐ Unknown		☐ 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			Seat Occupied		Injury	
First Name: _____ City of Residence: _____ Middle Initial: _____ State: _____ ZIP: _____ Last Name: _____ Country: _____			☐ Left ☐ Front ☐ Center ☐ Rear ☐ Right ☐ Single ☐ Unknown		☐ 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	Available	Used	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	☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ 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	☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ 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	☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ 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	☐ None ☐ Lap Only ☐ 3-point ☐ 4-point ☐ 5-point ☐ Unknown	☐ 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: KHEF
City: Manassas
State: VA
Country: USA

Time of Departure

Time: 1100
Time Zone: EDT (-4)

Destination

Airport ID: KTGI
City: Tangier Island
State: VA
Country: USA

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: 2500 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: _____
Observation Time: _____
Time Zone: _____
Distance from Accident Site: _____ nm
Direction from Accident Site: _____ 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

Ceiling

☒ None (Clear) ☐ Obscured
☐ Broken ☐ Indefinite
☐ Overcast ☐ Unknown

Temperature: _____ (C) or 70 (F)

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

Altimeter Setting: _____ in. Hg
or _____ MB

Lowest Cloud Condition Height

ft agl

Ceiling Height

ft agl

Wind Direction

☐ Variable

Wind Speed

☐ Calm
☐ Light and Variable

Wind Gusts

☒ Not Gusting

Visibility 10+ 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 ☒ None ☐ Type ☒ N/A
☐ Trace ☐ Rime
☐ Light ☐ Clear
☐ Moderate ☐ Mixed
☐ Severe ☐ Unknown
☐ Unknown

Icing Actual

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

Turbulence

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

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

There were no NOTAMS in effect for KTGI. NOTAMS for departure, route, and destination, along with weather and altimeter settings were recorded on CFI's kneeboard, which was removed and stowed in the luggage compartment prior to water impact in effort to remove possible obstructions to egress and missile hazards. CFI has provided weather data to the best of his recollection. Altimeter setting was updated by Norfolk Approach within 20 minutes of accident. PIC had attempted to receive KTIG's AWOS prior to leaving 5,500'MSL without success and had AWOS active in COMM2 on the radio panel at the time of the incident.

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)

Engine failure in flight resulting in waterborne landing. Aircraft sank in position 37-22.3N, 076-13.68W, in about 25' of water. No damage to other property.

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.

OVERVIEW: CFI/PIC (active duty Navy Captain/part time CFI at American Aviation in Manassas, VA) and Student Pilot (USAF ROTC Cadet at Virginia Tech) in DA-20 (N458MA) conducting familiarization flight in support of USAF student pilot application, suffered engine failure over Chesapeake Bay, ditching in water. Aircraft sank in position 37-22.32N, 076-13.6W, in approx. 25' of water. Minor injuries. CFI and Student rescued by research vessel immediately following entry into water.

DETAIL: Training flight briefed by CFI focused on intro to VFR Flight Following and National Airspace System. Route of flight intended - KHEF-FLUKY-GVE-RIC-HCM-CCV with request for RNAV-B approach into KTGI. CFI obtained weather for route, NOTAMS, and conducted weight and balance prior to flight. Maintenance logs were reviewed while checking-out A/C from dispatcher. Of note, accident aircraft had flown approx. six (6) hours since a 100 Hour Maintenance Inspection. All inspection requirements were current. CFI determined A/C airworthy for flight. CFI and Student were rested and fit for flight.

- PREFLIGHT: Preflight inspection was routine with exception of oil level. Aircraft had approx. four (4) quarts of oil. Normal oil level for this A/C is between 4-6 quarts. Because flight was expected to last 3-3.5 hours, instructor added one quart of oil. Oil was clean and level reflected five (5) quarts following second reading. No visible indication of oil leak noticed on A/C or ground. Fuel sample was clear and bright, with blue tint, and no visible indication of water. Fuel level determined by use of dip stick, which reflected amount indicated by fuel level indicator in cockpit.

- EN ROUTE: SFRA Flight Plans were filed with ATC for both entry and exit of the Washington, DC SFRA prior to departure. VFR Flight Following to KTGI was requested, and approved, after checking in with Potomac Approach between KHEF and the FLUKY SFRA Gate shortly after departing KHEF. VFR Flight following was maintained throughout the flight with Potomac Approach and Norfolk Approach. Flight from KHEF to RIC was routine at 4,500MSL on westbound legs and 5,500MSL on eastbound legs. VMC maintained throughout flight. After crossing RIC at approx. 1210 local, CFI requested VFR practice RNAV-B approach into KTGI with Norfolk Approach. Norfolk Approach then cleared A/C direct to CCV (initial approach fix for KTGI). While en route to CCV, Norfolk Approach reported that the PAX River MOAs were in use and directed a VFR descent to 2,500MSL. Student pilot then began a slow descent from 5,500MSL to 2,500MSL while CFI conducted descent checklist and approach brief for RNAV-B into KTGI. All engine instruments and flight instruments were within normal parameters for flight during the descent checklist. (OF NOTE: American Aviation Flight School had recently stressed the use of the "Cruise Checklist" for new students. CFI estimates they conducted this checklist four (4) times throughout the flight and all flight and engine instruments were within normal operating limits.)

- INCIDENT: After leveling off at 2,500MSL CFI noticed slight vibration/engine roughness. CFI verified mixture was "full rich" following descent from cruise flight and noticed that student set approx. 1,900 engine RPM, slightly lower than normal cruise power. CFI advanced throttle to between 2,100 and 2,200RPM for normal cruise and vibration disappeared. All engine instruments were within normal readings and consistent with temps and pressures observed throughout the flight. While verifying AWOS frequency for KTGI on his iPad, CFI noticed several aircraft in the vicinity of CCV via ADS-B display from Foreflight and was in the process of instructing the student not to get so fixated on a VFR practice approach to forget to clear the area visually for traffic when the aircraft started to shake violently.

- ENGINE FAILURE: Approx. half-way across the Chesapeake Bay at 2,500MSL the whole A/C started to shake violently (feeling similar to a shimmy dampener failure on Cessna C-152 - C-172 aircraft). CFI's first thought was that they had a bird strike and took control of the A/C. CFI advanced throttle to full power and established a climb attitude. The throttle movement did not change the engine RPM and the vibrations continued as before. CFI noted that the east coast of the Bay (in front of the A/C) was outside the glide distance displayed on his iPad (configured for N458MA in Foreflight) but that the shoreline behind the A/C was within glide range. CFI executed a 180 degree turn, declared an emergency with Norfolk Approach, and set the transponder to 7700. While pitching for best glide, CFI instructed the student to pull the checklist to verify procedures. At about this time the engine stopped abruptly - the propeller locked in place and all vibration stopped with the engine. PIC believed he had full control authority over aircraft with no noticeable loss of maneuverability in power-off glide. The Fuel level verified at over 1/2 tank, fuel pump was on, fuel valve was on/open (normal), voltage was normal, but all restart attempts failed. Propeller did not move. As A/C completed 180 turn towards nearest point of land it was clear to CFI that the altitude was insufficient to reach the shoreline. Even if they had reached the shore, the land area appeared wooded with no obvious safe landing areas. The CFI decided to set up for a water landing and reported to Norfolk Approach his intentions to ditch near a fishing trawler off the left side of the page. Norfolk Approach reported bearings and ranges to nearest airports but the CFI deemed them all beyond aid.

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

Greater altitude would have provided PIC with more time and perhaps more options, however given wooded terrain a water entry may have been preferable to emergency landing ashore. The RNAV-B approach to KTGI includes several minutes of low altitude over water flight, but we don't typically think of the Chesapeake Bay as a "large body of water" with the same respect as when flying over the ocean. In hindsight, PIC would have requested a higher altitude, and carried life preservers onboard.

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.)*

PIC (CFI) describes symptoms associated with engine failure (seized - propeller suddenly locked in place following approx. 30 seconds of intense heavy vibrations in flight).

**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)*24 (fully topped off) 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**

A/C refueled by APP Jet Center KHEF just prior to incident flight. Fuel level and quality checked during preflight. One (1) quart of oil added by PIC prior to flight indicating five (5) quarts total. Oil was clean. No signs of oil leak on A/C or ground in vicinity of A/C.

NOTE: Fuel sample taken from fuel truck after accident reported. 100LL fuel sample tested satisfactory. +

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

A/C canopy was jettisoned in flight just prior to water entry. CFI and student followed Navy egress procedures for aircraft entry to water. Harnesses tightened, all loose objects stowed, kneeboards and unneeded flight gear removed and stowed. Student instructed to hold harness tight as a reference point until all violent motion stopped, then unbuckle and move/swim to exit (which was directly away from a/c once canopy was jettisoned. CFI and Student swam out of A/C within seconds of water impact and submersion. CFI and student +

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.

Aircraft Information: CFI was unable to determine Time Since Overhaul based on review of A/C maintenance records. Engine and Airframe Logbook entries indicate engine was overhauled on 1SEP19, but Tachometer appears to have been replaced at some point, changing logbook numbers. Seeking clarification from Maintenance.

ELT Data: PIC is unsure if ELT was still connected to antenna after water impact, if the ELT activated, or if ELT activation would have aided in recovery had the A/C not ditched in front of a vessel. The A/C sank within several minutes of water impact, along with the ELT. This particular A/C does not have an instrument panel mounted ELT activation switch and its mounting location (several feet behind the right sea) would make manual activation very difficult.

VFR Approach: Engine failure occurred shortly after initial descent, direct to CCV (Initial Approach Fix), for VFR practice RNAVB approach into KTGI. Practice approach not yet officially commenced but was reason for decent from 5,500' to 2,500' given active status of PAX River MOA.

Flight Crewmember 2: Student is USAF ROTC Cadet from Virginia Tech Corps of Cadets seeking voluntary flight experience needed to improve his application to become a USAF Student Pilot upon graduation next year. Flight training was based on a selection of Private Pilot training syllabus events to provide student with practical exposure to certain aspects of flight to better prepare him for future military flight school. Student did NOT seek to pursue Private Pilot License or intend to solo civil aircraft at this time. Based on these factors, the CFI built an informal training plan to meet student desires. Flight 1 and 2 focused on basic airmanship, Flight 3 introduced stalls and emergency procedures, with CFI demonstration of soft/short field takeoff and landings, Flight 4 (incident flight) was intended to be an introduction to National Airspace System and basic VOR/GPS navigation. Future flights would have built on these basics to provide student with frame of reference for future USAF classroom study.

Source of Pilot Weather Information: In addition to methods listed on Page 8, CFI tried unsuccessfully to pick up KTGI AWOS on COMM2 (in receive only) since passing RIC. KTGI AWOS was dialed in on COMM2 at time of accident.

Decision to Jettison Canopy: A/C checklist does not call for jettisoning canopy in an emergency landing, however, given anticipated water entry, CFI believed he and the student might have a difficult time opening the canopy underwater until water pressure equalized inside the cockpit. Given the possibility of the A/C flipping inverted after impact, sinking rapidly, or coming to rest on the seafloor with the canopy in place, CFI made the decision to jettison the canopy just prior to water impact. Loss of canopy did not noticeably effect flight characteristics of A/C in the few seconds of flight remaining prior to the main wheels contact with surface of water.

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

Date of this Report

06/18/2021

mm/dd/yyyy

Name of Pilot/Operator: Justin L. Harts

Sig

-- 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.
ERA21LA250

Reviewed by NTSB Regional Office
ERA

Name of Investigator
Gretz

Date Report Received
6/18/21

Statement Supplement, Justin Harts, PIC (CFI) N458MA.

NARRATIVE HISTORY OF FLIGHT - PAGE 9:

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Justin Harts

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- **EMERGENCY LANDING:** CFI initiated the emergency landing checklist, but given altitude and assumed time to impact, briefed student to prepare for water landing based on prior Navy training. Seatbelts were tightened, flight bags, knee boards and loose items were secured in the luggage area. The CFI instructed the student to hold the buckle of his harness tight but not to release until after all motion had stopped following water impact. The CFI overflowed the trawler from its port to starboard side at about 200'AGL then turned to fly parallel to the ship's course just off its starboard bow. At about 100'AGL the CFI jettisoned the canopy and instructed the student to brace for impact. The aircraft entered ground effect for a few seconds, slowing, then touched down main mounts first with full back-stick pressure applied somewhere between an estimated 40-50 knots (CFI applied "Soft Field Approach" procedure but elected to keep the flaps in the cruise position to increase glide distance). Upon main wheel impact with water the A/C pitched nose down violently in a wings level attitude. Almost instantly the aircraft pitched 45-50 degrees nose down and began to sink, with the cockpit going under water. The CFI undid his harness and reached for his student's harness, grabbing the student's hand and shirt as the plane continued to sink. Both CFI and Student swam free of the aircraft, verified that each other was safe then, as the plane continued to pitch to about 90 degrees nose down, swam back to hold on to the wing as the trawler approached.

- **RESCUE:** CFI and student were recovered by William and Mary VIMS research vessel within minutes of ditching. The A/C sank and was out of sight below the water by the time the CFI and Student were recovered by the vessel. Research Vessel took CFI and Student to their base in Gloucester, VA and notified USCG and local law enforcement. CFI called FAA Emergency Reporting to file initial report, the Flight School Operator, and his family. Student called his family. Ambulance EMTs met the vessel upon arrival and cleared both CFI and Student - each with just a few minor cuts and bruises. CFI and Student provided independent statements to the VA State Police. The vessels' log records the time of N458MA's impact as 1231 PM local.

 12/3/21

FUEL AND SERVICES INFORMATION – PAGE 10

A/C refueled by APP Jet Center KHEF just prior to incident flight. Fuel level and quality checked during preflight. One (1) quart of oil added by PIC prior to flight indicating five (5) quarts total. Oil was clean. No signs of oil leak on A/C or ground in vicinity of A/C.

NOTE: Fuel sample taken from fuel truck after accident reported. 100LL fuel sample tested satisfactory.

EVACUATION OF AIRCRAFT – PAGE 10

A/C canopy was jettisoned in flight just prior to water entry. CFI and student followed Navy egress procedures for aircraft entry to water. Harnesses tightened, all loose objects stowed, kneeboards and unneeded flight gear removed and stowed. Student instructed to hold harness tight as a reference point until all violent motion stopped, then unbuckle and move/swim to exit (which was directly away from a/c once canopy was jettisoned). CFI and Student swam out of A/C within seconds of water impact and submersion. CFI and student checked each other for injury then swam back to the A/C to await rescue.


16 Jan 21

