

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: Alamogordo State: NM
 ZIP: 88310 Country: United States
 Latitude: N32.784799 Longitude: W105.961425
 (Enter in decimal degrees or degrees:minutes:seconds)

Accident/Incident Date/Time

Date: 06/24/2016 Local Time: 1015L
 mm/dd/yyyy Time Zone: Mountain

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

AIRCRAFT INFORMATION

Registration Number: N91137
 Manufacturer: North American Aviation
 Model: Navion "A" Model
 Serial Number: NAV4-31
 Year of Manufacture: 1946
 Amateur-Built: ☐ Yes If Yes: ☐ Kit/Plans Make: _____
 ☒ No ☐ Original Design

☒ IFR-Equipped and Certified
☐ Commercial Space Flight
☐ Unmanned Aircraft

Maximum Gross Weight: 3150 lbs
 Weight at Time of Accident/Incident: 2600 lbs

Number of Seats: 4 Flight Crew Seats: 2
 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 | Special |
| ☒ Normal | ☐ Restricted |
| ☐ Aerobatic | ☐ Limited |
| ☐ Balloon | ☐ Provisional |
| ☐ Commuter | ☐ Special Flight |
| ☐ Transport | ☐ Experimental |
| ☐ Utility | ☐ 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	Teledyne Continental	IO-520B	234760-R	11/13/1986	285	1099	20	1099
Eng. 2								
Eng. 3								
Eng. 4								

Last Inspection Type

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

Date Last Inspection: 03/23/2016
 mm/dd/yyyy

Airframe Total Time: (Est) 3600 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 Halon Extinguisher

Propeller 1

- ☐ Fixed Pitch
☒ Controllable Pitch
☐ Ground Adjustable

Manufacturer: McCauley
 Model: D3A32C90-MNO

Propeller 2

- ☐ Fixed Pitch
☐ Controllable Pitch
☐ Ground Adjustable

Manufacturer: _____
 Model: _____

ELT Installed: ☒ Yes ☐ No

If Yes:

ELT Manufacturer: Ameri-King
 Model or Part No.: AK-450

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: Marion Lee HolmesCity: HoustonState: TXZIP: 77021Fractional 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: N/A

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 ☐ Crosswind ☐ Aborted Landing (after touchdown)
☐ 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: <u>Marion</u> Middle Initial: <u>L.</u> Last Name: <u>Holmes</u> City of Residence: <u>Houston</u> State: <u>TX</u> ZIP: <u>77021</u> Country: <u>United States</u> Age at time of Accident/Incident: <u>53</u> Date of Birth: [REDACTED] mm/dd/yyyy Certificate Number: [REDACTED]																																																																																																				
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 ☐ Private ☐ Student ☐ Flight Instructor ☐ Recreational ☐ Sport ☒ Commercial ☐ Airline Transport ☐ Flight Engineer ☐ US Military ☐ Foreign					Medical Certificate Validity ☐ Without limitations/waivers ☐ Unknown ☒ With limitations/waivers ☐ N/A ☐ Special Issuance			Date of Last Medical <u>05/13/2015</u> mm/dd/yyyy																																																																																												
Principal Occupation ☐ Pilot ☒ Other ☐ Unknown		Medical Certificate ☐ None ☐ Class 3 ☐ Class 1 ☐ Driver's License (Sport Pilot only) ☒ Class 2 ☐ Unknown			Medical Certificate Limitations Must wear corrective lenses																																																																																															
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Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks: <u>03/04/2016</u> mm/dd/yyyy					Flight Review Aircraft Make: <u>North American NAVion</u> Model: <u>"A" Model (incident aircraft)</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>1,193</td> <td>1,061</td> <td>1,128</td> <td>65</td> <td>183</td> <td>95</td> <td>63</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Pilot in Command (PIC)</td> <td>1,061</td> <td>1,018</td> <td>1,052</td> <td>9</td> <td>176</td> <td>95</td> <td>43</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Time as Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr style="background-color: #cccccc;"> <td style="text-align: left; padding: 5px;">This Make/Model</td> <td></td> <td></td> <td></td> <td></td> <td>178</td> <td>95</td> <td>46</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Last 90 Days</td> <td>42</td> <td>42</td> <td>42</td> <td></td> <td>6</td> <td>3</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Last 30 Days</td> <td>17</td> <td>17</td> <td>17</td> <td></td> <td>0</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">Last 24 Hours</td> <td>1</td> <td>1</td> <td>1</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	1,193	1,061	1,128	65	183	95	63				Pilot in Command (PIC)	1,061	1,018	1,052	9	176	95	43				Time as Instructor											This Make/Model					178	95	46				Last 90 Days	42	42	42		6	3					Last 30 Days	17	17	17		0	2					Last 24 Hours	1	1	1							
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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: N/A 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**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

Medical Certificate Validity

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

Date of Last Medical

____ mm/dd/yyyy

Principal Occupation

☐ Pilot
☒ Other
☐ Unknown

Medical Certificate

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

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

Actual

Simulated

Rotorcraft

Glider

**Lighter
Than Air**

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: <u>N/A</u> 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	Restraint Type	Inflatable Restraints	Age
First Name: <u>Dwight</u> City: <u>Spencerport</u> Middle Initial: <u>E.</u> State: <u>NY</u> ZIP: <u>14559</u> Last Name: <u>Myers</u> Country: <u>United States</u> ☐ 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: <u>KSRR</u> City: <u>Ruidoso</u> State: <u>New Mexico</u> Country: <u>United States</u>		Time of Departure Time: <u>0938L</u> Time Zone: <u>MTN</u>		Destination Airport ID: <u>KSRR</u> City: <u>Ruidoso</u> State: <u>New Mexico</u> Country: <u>United States</u>		Type Flight Plan Filed ☒ None ☐ VFR/IFR ☐ Company VFR ☐ IFR ☐ Military VFR ☐ Unknown ☐ VFR Activated? ☐ Yes ☒ No ☐ Unknown
Type of ATC Clearance/Service (Check all that apply) ☒ None ☐ Special VFR ☐ Special IFR ☐ VFR Flight Following ☐ Cruise ☐ VFR ☐ IFR ☐ VFR On Top ☐ Traffic Advisory ☐ Unknown / NA						
Airspace where the accident/incident occurred (Check all that apply) ☐ Class A ☐ Class G ☐ Military Operations Area (MOA) ☐ Special ☐ Class B ☐ Demo Area ☐ Airport Advisory Area ☐ Air Traffic Control Area ☐ Class C ☐ Warning Area ☐ Jet Training Area ☐ Unknown ☐ Class D ☐ Prohibited Area ☐ TRSA ☐ FAR 93 ☒ Class E ☐ Restricted Area					Altitude of In-Flight Occurrence: _____ ft msl	
WEATHER INFORMATION AT THE ACCIDENT/INCIDENT SITE						
Source of Pilot Weather Information (Check all that apply) ☐ National Weather Service ☐ Company ☐ Flight Service Station ☐ Military ☐ TV/Radio ☒ Internet ☒ Automated Report ☐ None ☐ Commercial Weather Service (DUATS) ☐ Unknown ☐ On-Board Weather			Weather Observation Facility Facility ID: <u>KSRR</u> Observation Time: <u>0745L</u> Time Zone: <u>MTN</u> Distance from Accident Site: <u>48</u> nm Direction from Accident Site: <u>025</u> degrees true			
Basic Conditions ☒ VMC ☐ IMC ☐ Unknown		Light Condition ☐ Dawn ☐ Dusk ☐ Dark Night ☐ Unknown ☒ Day ☐ Night ☐ Bright Night				
Sky/Lowest Cloud Condition ☐ Clear ☐ Thin Broken ☒ Few ☐ Thin Overcast ☐ Partial Obscuration ☐ Unknown ☐ Scattered Lowest Cloud Condition Height <u>8000</u> ft agl		Ceiling ☒ None (Clear) ☐ Obscured ☐ Broken ☐ Indefinite ☐ Overcast ☐ Unknown Ceiling Height _____ ft agl		Temperature: _____ (C) or <u>85</u> (F) Dew Point: _____ (C) or <u>48</u> (F) Altimeter Setting: <u>30.02</u> in. Hg or _____ MB		
Wind Direction ☐ Variable -or- Direction: <u>200</u> degrees true	Wind Speed ☐ Calm ☐ Light and Variable -or- Speed: <u>10</u> kts	Wind Gusts ☒ Not Gusting -or- Speed: _____ kts	Visibility <u>10</u> miles RVR: _____ feet RVV: _____ miles Density Altitude: <u>8500</u> ft			
Intensity of Precipitation ☐ Light ☐ Moderate ☐ Heavy ☐ N/A ☐ Unknown	Type of Precipitation (Check all that apply) ☒ None ☐ Drizzle ☐ Freezing Rain ☐ Rain ☐ Ice Pellets ☐ Snow Shower ☐ Snow ☐ Snow Pellets ☐ Ice Pellets Shower ☐ Hail ☐ Snow Grains ☐ Freezing Drizzle ☐ Rain Showers ☐ Ice Crystals		Restriction to Visibility (Check all that apply) ☒ None ☐ Fog ☐ Blowing Dust ☐ Ground Fog ☐ Blowing Sand ☐ Haze ☐ Blowing Snow ☐ Ice Fog ☐ Blowing Spray ☐ Smoke ☐ Dust ☐ Unknown			
Icing Forecast Amount ☒ None ☐ Trace ☐ Light ☐ Moderate ☐ Severe ☐ Unknown Type ☐ N/A ☐ Rime ☐ Clear ☐ Mixed ☐ Unknown		Icing Actual Amount ☒ None ☐ Trace ☐ Light ☐ Moderate ☐ Severe ☐ Unknown Type ☐ N/A ☐ Rime ☐ Clear ☐ Mixed ☐ Unknown		Turbulence Type (Check all that apply) ☒ None ☐ Clear Air ☐ Terrain-Induced ☐ Convective Turbulence Severity ☐ Light ☐ Moderate ☐ Severe ☐ Extreme		
NOTAMs (D and FDC), AIRMETs, SIGMETs, PIREPs in effect at the time of the accident/incident: Checked but not retained. No directly applicable NOTAMS that impacted route of flight or airport surface area.						

DAMAGE TO AIRCRAFT AND OTHER PROPERTY**Aircraft Damage**

- ☐ None
☐ Minor
☒ Substantial
☐ Destroyed
☐ Unknown

Aircraft Fire

- ☒ None
☐ In-Flight
☐ On-Ground
☐ Both Ground and In-Flight
☐ Fire at Unknown Time
☐ Unknown

Aircraft Explosion

- ☒ None
☐ In-Flight
☐ On-Ground
☐ Both Ground and In-Flight
☐ Explosion at Unknown Time
☐ Unknown

Description of Damage to Aircraft and Other Property (Use additional sheet if necessary)

Powerplant mounting system structure broken at firewall. Engine mechanical/structural failure- engine block cracked. Propeller destroyed by ground impact. All landing gear broken off aircraft. Fuel system damaged in multiple locations. Wing structural damage including spars, ribs and sheet metal in multiple locations on both left and right wings. Engine cowling and fuselage sheet metal and supporting longerons bent and broken in numerous locations. Cockpit and empennage

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.

I was pilot in command of North American Aviation Navion, Model "A", N91137, Serial Number NAV 4-31 on June 24, 2016. During this flight, I was accompanied by a passenger, Mr. Dwight Myers, acting as an observer, not as a pilot.

We were in Ruidoso as part of the American Navion Society annual convention, having arrived the previous Sunday, June 19, 2016. We were one of several planes that departed Sierra Blanca Regional Airport for a preplanned 4-leg route, roughly around the Lincoln National Park mountain range. The pilots met at 0730L at Ruidoso Airport for a pilot briefing that included weather, conditions and routing for a "proficiency competition" wherein the objective is to predict a time enroute and fuel consumption and then fly the route as close as possible to the predicted time and fuel use. Weather was VFR with southerly winds 10-15 kts at 6,000'-9,000' and scattered clouds 12,000'-15,000' with no hazards. The route originated at KSSR then to F37/Carrizozo, to KALM/Alamogordo, east to the Pinion VOR/PIO then north back to KSSR. I took off at 0938L and leveled off at 7,500' MSL, flying the route as planned without incident, however I noted that the engine seemed to be running a bit rough. At 20 minutes into the flight I ran an instrument scan and noted in my knee-pad that cylinders #1 & #5 were running substantially cooler than the other four cylinders with #1 at a 990 EGT and 350 CHT while #5 was running at 1320 EGT and 305 CHT, almost 100 degrees cooler than the hottest cylinder #6 which was at 398.

At thirty-two minutes into the flight and approximately seven minutes after passing over the 2nd checkpoint of KALM airport we were overflying the Lincoln National Park/Sacramento mountain range and 4nm north of R-5103C and had just finished climbing to 8,000' MSL to ensure clearance over upcoming terrain. At around 10:10L both myself and my passenger noted an acrid smell that we interpreted as either chemical or metallic heating/burning. Looking around, there was severe mountainous terrain with steep canyon walls and no apparent emergency landing sites. I executed an immediate right turn of approximately 90 degrees toward the closest avenue off the mountainous terrain. I made a distress call, both over our coordinated interplane frequency and also over KALM CTAF 122.8. Other Navion pilots responded and one turned to try and find us, so I didn't attempt further calls to approach or ABQ Center since I didn't have their frequencies dialed-up. As soon as we cleared the edge of the escarpment, I turned northwest toward KALM. At that point we were 13nm from the airport and the engine started running very rough with a clear metallic cycling clanking, so I reduced power to try and avoid catastrophic failure of the engine. As we were losing altitude, I established best glide of 80 mph and was adjusting mixture and throttle settings to try and keep the engine running which it did, but not at sufficient power to produce lift as the oil pressure started to drop. At 5-6nm from KALM the oil pressure dropped to zero, the engine continued running slowly, but without any notable power and I was unable to remain airborne. We had been scanning for emergency landing sites but in that location there were no roads or open fields. The average height of terrain is 4250' and is rocky arid desert with nearly continuous 2'-5' variations in terrain- generally unsuitable for landing. We spotted a short section of residential road and I set up for a base turn to land. At around 200'-300' AGL I extended the landing gear and we landed approximately 100 yards short of the road, having run out of gliding altitude. Following a very hard landing, the plane continued forward until a slight drainage wash and culvert sheared off the nose wheel and left main landing gear. The right main strut was pushed through the top of the wing and collapsed. We came to a stop 50' further- actually up on the road-bed. I switched off the master switch/switches, moved the Fuel select switch to "OFF" and we egressed the aircraft. I ensured my passenger and myself were uninjured and then called 911 after noting the closest street address. One of my fellow Navion pilots had established an overhead orbit and also called in emergency services via KALM CTAF. With surface temperatures over 90 degrees, I returned to the aircraft to retrieve my emergency supply kit and water after ascertaining there was no danger of fire. Emergency services arrived about 10-15 minutes later. Both myself and my passenger spoke to EMS- neither of us had any injuries and we both refused treatment. We then awaited calls from NTSB and FAA Albuquerque FSDO to determine their subsequent guidance. Upon the arrival of the FAA Safety Inspector, Mr. Geary Monckton at 1630L, I provided my written and verbal statement and we conducted a walk-around of the site and inspection of the aircraft. There was visual evidence of substantial inflight oil loss as indicated by wind-blown oil down the side of the aircraft- mostly the right side, but also some on the left. At his direction, firefighters provided some tools and we opened the damaged cowlings. Upon visual inspection, the number 5 cylinder had two holes of approx. 1" and 1/2" respectively. Mr. Monckton removed the cylinder rocker arm cover and noted that the exhaust valve was missing, presumed ingested into the cylinder. The rocker arm, spring and related hardware were severely damaged and the engine block was cracked at the spot immediately above the cylinder base. Review of my maintenance records shows that my A&P replaced cylinder #5 in 2006 with a reconditioned cylinder which had just over 770 hours at the time of failure. All records and yellow-tags were sent to the FAA for subsequent review. No damage to other aircraft or any other property was incurred.

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

This accident was preceded by only a slightly noticeable roughness in the engine operation and was, in the operator/owner's opinion, not a predictable event. The aircraft had been regularly flown by the owner and maintained by the same A&P for the preceding 13 years. The required annual inspection had just been completed three months prior. No issues were identified with the engine and all cylinder pressures were measured in the normal operating range of 64-74.

In attempting to reach KALM airport, between the original site of malfunction to the landing site, we saw no suitable alternative landing sites which would have resulted in a better outcome.

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.)

Cylinder #5, Exhaust valve: apparent failure of valve stem retaining clip caused valve to come loose and enter combustion chamber of cylinder with subsequent impact with cylinder on upstroke causing multiple impact failures of cylinder, valve cover and cracked engine case. Loss of engine oil caused subsequent loss of lubrication, cooling and engine failure.

**Total Time/Cycles
On Part**

771 _____ Hours

_____ Cycles

**Time Since This Part
Inspected/Overhauled**

771 _____ Hours

FUEL & SERVICES INFORMATION**Fuel on Board at Last Takeoff**

(Convert from pounds, as necessary)

39.5 _____ Gallons

Fuel Type

☐ 80/87

☒ 100 Low Lead

☐ 100/130

☐ 115/145

☐ Jet A

☐ Jet A-1

☐ Jet B

☐ JP8

☐ Automotive

☐ Other, specify _____

Other Services, if Any, Prior to Departure

Added 1 quart of 100+ aviation oil.

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

Manually pushed back sliding canopy and both pilot and passenger exited over the fuselage railing (normal point of exit) and onto the wing then walked onto the ground.

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

07/21/2016

mm/dd/yyyy

Name of Pilot/Operator: Marion Lee Holmes

Signature: HOLMES.MARION.L.1131338020

Digitally signed by HOLMES.MARION.L.1131338020
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USAF,
cn=HOLMES.MARION.L.1131338020
Date: 2016.07.21 17:55:57 -05'00'

-- 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.
CEN16LA234

Reviewed by NTSB Regional Office
CEN-DALLAS

Name of Investigator
LINDBERG

Date Report Received
7/21/2016