

NATIONAL TRANSPORTATION SAFETY BOARD

NTSB Form 6120.1

PILOT/OPERATOR AIRCRAFT ACCIDENT/INCIDENT REPORT

The pilot/operator aircraft accident/incident report may be filed by mailing in this form, per instructions on the last page. Copies of this form may be obtained from the NTSB Web site <<http://www.nts.gov>>, the National Transportation Safety Board Regional Offices, and the Federal Aviation Administration Flight Standards District Offices.

Rules pertaining to aircraft accidents/incidents, overdue aircraft, and safety issues are contained in Part 830 of the National Transportation Safety Board's Regulations, 49CFR. These rules state the authority of the Board, define accidents, incidents, injuries, and other terms, and provide procedures for initial and immediate notification by aircraft pilots/operators.

A. APPLICABILITY

The pilot/operator of an aircraft shall file a report with the Regional Office of the National Transportation Safety Board nearest the accident or incident for which immediate notification is required by section 830.5(a). **The report shall be filed within ten (10) days after an accident for which notification is required by Section 830.5 or when, after seven (7) days, an overdue aircraft is still missing.** An aircraft accident, as defined in 49CFR 830.2, is determined as an occurrence that involves a fatality, serious injury, or substantial damage. 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, National Transportation Safety Board, 490 L'Enfant Plaza, S.W., Washington, D.C. 20594.

The Pilot/Operator Aircraft Accident/Incident Report Form is used in determining the facts, conditions, and circumstances for aircraft accident prevention activities and for statistical purposes. It is necessary that **ALL** questions be answered completely and accurately to serve the above purposes.

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.**

Nearest City/Place: Use the name of the nearest community that has a Post Office 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 manufacturer of the kit or plans when appropriate.

Max Gross Weight: Enter the certificated max 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.

Airworthiness Certificate: For light sport aircraft, if aircraft certificated as "Light Sport - Experimental", check both the "Light Sport" and "Experimental" check boxes.

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,

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 C.F.R. 830.2.

2. "Substantial Damage" means damage or failure which adversely affects the structural strength, performance or flight characteristics of the aircraft, and which 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.

cargo/baggage compartment fire suppression system, or airport emergency ground equipment.

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

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 FAR Part 91 at the time of the accident.

Public Use: 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. Military operations should not be included under public use. If public use, also indicate whether the flight was conducted by Federal, State, or Local government.

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

Purpose of Flight (FAR 91, 103, 133, 137): Indicate the type of operation that was being conducted at the time of the occurrence using the following definitions:

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.

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.

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

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.

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

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

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—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.

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.

PUBLIC USE—See definition above.

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, takeoff, or within 3 miles of an airport. Please refer to the FAA Airport/Facility Directory or other official source for airport information.

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

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 site.

Sky/Lowest Cloud Condition: Indicate the height above ground level of the lowest cloud condition present at the time of the accident 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 (reported as broken or overcast).

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

Pilot Information: Indicate the category that best describes the capacity served by this flight crewmember at the time of the accident. The designators “Pilot A” and “Pilot B” 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 Crew Members: Complete this section if there were more than two required flight crew members 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: Please enter identification and injury severity information for all passengers and other personnel involved in the accident. See page 1 of the instructions for the official definition of injury levels. Occupants are considered “Revenue” passengers if they were being carried for compensation or hire. The option “FAA” refers to any FAA personnel performing a flight related function, including flight check, airman practical test, etc.

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 the NTSB Form 6120.1 Pilot/Operator Aircraft Accident/Incident Report. For additional definitions of questions and responses, please refer to <<http://www.nts.gov>>.

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

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

BASIC INFORMATION

Accident/Incident Location

Nearest City/Place: Denver State: CO
 ZIP: 80249 Country: USA
 Latitude: 39-51-42.00 (dd:mm:ss N/S) Longitude: 104-40-23.40 (ddd:mm:ss E/W)

Date/Time

Date: 08/12/2013 Local Time: 1615
 mm/dd/yyyy Time Zone: Mountain Daylight

Phase of Operation

☐ Standing ☐ Takeoff (incl. initial climb) ☐ Cruise ☐ Hover
☐ Taxi ☐ Climb ☐ Maneuvering ☐ Other
☒ Descent ☐ Landing ☐ Approach ☐ Unknown

Collision with Other Aircraft

☐ Midair
☐ On-ground
☒ None

Altitude of In-Flight Occurrence

23,500 ft MSL

AIRCRAFT INFORMATION

Manufacturer: Airbus

Model: A320-214

Serial Number: 4562

Registration Number: N208FR

Amateur-built: ☐ Yes ☒ No

Max Gross Weight: 169,754 lbs

Weight at Time of Accident/Incident: 138,425 lbs

Location of Center of Gravity at Time of Accident/Incident:

174.75 inches from ☐ nose or ☒ datum
 -or- Percent Mean Aerodynamic Cord (% MAC)

Category of Aircraft

☒ Airplane
☐ Balloon
☐ Blimp/Dirigible
☐ Glider
☐ Gyrocraft
☐ Helicopter
☐ Powered lift
☐ Ultralight
☐ Unknown

Type of Airworthiness Certificate (Check all that apply)

Standard

☒ Normal
☐ Utility
☐ Acrobatic
☐ Transport

Special

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

Number of Seats: 178

If Large Aircraft, how many seats for:

Flight Crew: 4

Cabin Crew: 6

Passengers: 168

Landing Gear ☒ Retractable

Check any additional landing gear configuration that applies:

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

Type of Maintenance Program

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

Last Inspection Type

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

Date Last Inspection: 8/12/2013

mm/dd/yyyy

Airframe Total Time: 8,592 hrs

hours measured at (check one)

☐ Last Inspection ☒ Time of Accident/Incident

IFR Equipped

☒ Yes ☐ No ☐ Unknown

Stall Warning System Installed

☒ Yes ☐ No ☐ Unknown

Type of Fire Extinguishing System

☐ None
☒ Specify Halon

ELT Installed

☒ Yes ☐ No

ELT Activated

☐ Yes ☒ No

ELT Aided in Locating Accident/Incident

☐ Yes ☒ No

ELT Manufacturer: _____

Model/Series: _____

Serial Number: _____

Battery Type: _____ Battery Exp. Date: _____

Engine Type

☐ Reciprocating ☐ Turbo Jet
☐ Turbo Shaft ☒ Turbo Fan
☐ Turbo Prop ☐ Unknown

Reciprocating Fuel System Type

☐ Carburetor
☒ Fuel Injected

Propeller

☐ Fixed Pitch
☐ Controllable Pitch

Manufacturer: _____

Model: _____

Engine	Engine Manufacturer	Engine Model/Series	Manufacturer's Serial Number	Date of Mfg. mm/dd/yyyy	Engine Rated Power Measured as (check one) ☐ Horsepower or ☒ lbs of Thrust	Total Time (hours)	Time Since Inspection (hours)	Time Since Overhaul (hours)
Eng. 1	CFM International	CFM56-5B4	643295	06/12/2010	27000	8,662	8,662	8,662
Eng. 2	CFM International	CFM56-5B4	643305	03/12/2010	2700	8,662	8,662	8,662
Eng. 3								
Eng. 4								

OWNER/OPERATOR INFORMATION			
Registered Aircraft Owner Name: <u>AWAS 4562 Trust</u> Fractional Ownership Aircraft: ☐ Yes ☐ No		Owner Address City: <u>New York</u> State: <u>New York</u> ZIP: <u>10022-6979</u> Country: <u>USA</u>	
Operator of Aircraft ☐ Same As Registered Owner Name: <u>Frontier Airlines, Inc</u> Doing Business As: _____ Air Carrier/Operator Designator (4 Character Code): <u>F3LA</u>		Operator Address ☐ Same As Registered Owner City: <u>Denver</u> State: <u>Colorado</u> ZIP: <u>80249</u> Country: <u>USA</u>	
Regulation Flight Conducted Under ☐ FAR 91 ☐ FAR 129 ☐ FAR 91 Special Flight ☐ Public Use (select type) ☐ FAR 103 ☐ FAR 133 ☐ Non-US, Commercial ☐ Federal ☐ State ☐ Local ☒ FAR 121 ☐ FAR 135 ☐ Non-US, Non-commercial ☐ Unknown ☐ FAR 125 ☐ FAR 137 ☐ Armed Forces		Revenue Sightseeing Flight ☐ Yes ☒ No Air Medical Flight ☐ Yes ☒ No	
Purpose of Flight for FAR 91, 103, 133, 137 (Select one) ☐ Personal ☒ Business ☐ Executive/Corporate ☐ Other Work Use ☐ Instructional ☐ Ferry ☐ Positioning ☐ Aerial Application ☐ Aerial Observation ☐ Air Drop ☐ Air Race / Show ☐ Flight Test ☐ Public Use ☐ Unknown	Revenue Operation for FAR 121, 125, 129, 135 (Select one) ☒ Scheduled or Commuter ☐ Non-Scheduled or Air Taxi Domestic or International ☒ Domestic ☐ International	Type of Commercial Operating Certificate Held (Select all that apply) ☐ None ☒ Flag Carrier Operating Certificate (121) ☒ Supplemental ☐ Air Cargo ☐ Foreign Air Carriers (129) ☐ Commuter Air Carrier (135) ☐ On-Demand Air Taxi (135) ☐ Large Helicopter (127) ☐ Rotorcraft External Load (133) - or - ☐ Agricultural Aircraft (137) ☐ Other Operator of Large Aircraft	
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 First Name: _____ Middle Initial: _____ Last Name: _____ City: _____ State: _____ ZIP: _____ Country: _____			
Pilot of Other Aircraft First Name: _____ Middle Initial: _____ Last Name: _____ City: _____ State: _____ ZIP: _____ Country: _____			
MECHANICAL MALFUNCTION/FAILURE (If more space is needed, continue on separate sheet)			
Was there Mechanical Malfunction/Failure? ☐ Yes ☐ No ☐ Unknown (If yes, list the name of the part, manufacturer, part no., serial no., and describe the failure.) 			Total Time/Cycles On Part ____ Hours ____ Cycles Time Since This Part Inspected/Overhauled ____ Hours
DAMAGE TO AIRCRAFT AND OTHER PROPERTY			
Aircraft Damage ☐ None ☐ Substantial ☐ Minor ☐ Destroyed	Aircraft Fire ☐ None ☐ Both Ground and In-Flight ☐ In-Flight ☐ Unknown Origin ☐ On-Ground		Aircraft Explosion ☐ None ☐ Both Ground and In-Flight ☐ In-Flight ☐ Unknown Origin ☐ On-Ground

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

AIRPORT INFORMATION (If the accident/incident occurred on approach, takeoff or within 3 miles of an airport, complete this section)

Airport Identifier: _____ **Distance From Airport Center:** _____ SM

Airport Name: _____ **Direction From Airport:** _____ degrees MAG

Proximity to Airport ☐ Off Airport/Airstrip ☐ On Airport ☐ On Airstrip **Airport Elevation:** _____ ft. MSL

Approach Segment (Select one)

☐ On Instrument Approach ☐ Landing ☐ Base leg ☐ Final ☐ Go Around
☐ Crosswind ☐ Downwind ☐ Low Approach ☐ Aborted Landing (after touchdown)

IFR Approach (Check all that apply)

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

VFR Approach (Check all that apply)

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

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 ☐ Unknown
☐ Dirt ☐ Ice ☐ Snow

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 ☐ Unknown
☐ Slush Covered ☐ Vegetation

FLIGHT ITINERARY INFORMATION

Last Departure Point

Airport ID: KSTL
City: St. Louis
State: Missouri
Country: USA

Time of Departure

Time: 1505
Time Zone: Central

Destination

Airport ID: KDEN
City: Denver
State: Colorado
Country: USA

Type Flight Plan Filed

☐ None ☐ VFR/IFR
☐ Company VFR ☒ IFR
☐ Military VFR ☐ Unknown
☐ VFR
Activated? ☒ Yes ☐ No

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 E ☐ Prohibited Area ☐ Jet Training Area ☐ Special
☐ Class B ☐ Class G ☐ Restricted Area ☐ TRSA ☐ Air Traffic Control Area
☐ Class C ☐ Demo Area ☐ Military Operations Area (MOA) ☐ FAR 93 ☐ Unknown
☐ Class D ☐ Warning Area ☐ Airport Advisory Area

Aircraft Load Description (Check all that apply)

☐ None ☐ Towing Glider ☐ Parachutists ☐ Livestock
☒ Passengers ☐ Towing Banner ☐ Water ☐ Unknown
☐ Cargo ☐ Other External ☐ Chemical/Fertilizer/Seeds

FUEL & SERVICES INFORMATION

Fuel on Board at Last Takeoff

(convert from pounds, as necessary)

3,171 Gallons

Fuel Type

☐ 80/87 ☐ 115/145 ☐ JP3
☐ 100 Low Lead ☒ Jet A ☐ JP4
☐ 100/130 ☐ Automotive ☐ JP5
☐ Other, specify _____

Other Services, if Any, Prior to Departure

None

EVACUATION OF AIRCRAFTWas an emergency evacuation of the aircraft performed? ☐ Yes ☒ No

Method of Exit – Describe how the occupants exited and how many occupants evacuated each location

WEATHER INFORMATION AT THE ACCIDENT/INCIDENT SITE**Weather Observation Facility**Facility ID: KDENObservation Time: 2153ZTime Zone: MountainDistance from Accident Site: 40 NMDirection from Accident Site: 40 degrees MAG**Source of Weather Information**

(Check all that apply)

☒ National Weather Service☐ Flight Service Station☐ TV/Radio☒ Automated Report☐ Commercial Weather Service (DUATS)☐ Company☐ Military☐ Internet☐ Unknown**Method of Briefing**

(Check all that apply)

☐ In Person☐ Teletype☐ Telephone/Computer☐ Aircraft Radio☐ TV/Radio☐ Unknown**Briefing Type/Completeness**☐ Full☐ Partial / Limited By Pilot☐ Partial / Limited By Briefer☐ Abbreviated☐ Unknown☐ Not Pertinent**Light Condition**☐ Dawn☒ Day☐ Dusk☐ Night☐ Dark Night☐ Bright Night☐ Not Reported**Visibility**10 miles**Sky/Lowest Cloud Condition**☐ Clear☐ Few☐ Partial Obscuration☒ Scattered☐ Thin Broken☐ Thin Overcast☐ Unknown**Ceiling**☐ None (clear)☒ Broken☐ Overcast☐ Obscured☐ Indefinite☐ Unknown**Restriction to Visibility (Check all that apply)**☒ None☐ Blowing Dust☐ Blowing Sand☐ Blowing Snow☐ Blowing Spray☐ Dust☐ Fog☐ Ground Fog☐ Haze☐ Ice Fog☐ Smoke☐ Unknown**Lowest Cloud Condition Height**6,000 ft AGL**Ceiling Height**9,000 ft AGL**Wind Direction**☒ Indicated:
170 degrees MAG☐ Variable**Wind Speed**Velocity: 14 KTS

-or-

☐ Calm☐ Light and Variable**Wind Gusts**Velocity: 23 KTS☒ Gusting☐ Not Gusting**Type of Turbulence (Check all that apply)**☐ None☐ Clear Air☐ In Clouds☒ Vicinity of Thunderstorm**Severity of Turbulence**☐ Extreme☒ Severe☐ Moderate☐ Moderate Chop☐ Light

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

Temperature: 22 (C)
or _____ (F)Altimeter Setting: 30.19 in. HG
or _____ MBDensity Altitude: 7,366 ftDew Point: 10 (C)
or _____ (F)**Icing Forecast****Amount**☒ None ☐ Moderate
☐ Trace ☐ Severe
☐ Light**Type**☐ Rime
☐ Clear
☐ Mixed**Icing Actual****Amount**☒ None ☐ Moderate
☐ Trace ☐ Severe
☐ Light**Type**☐ Rime
☐ Clear
☐ Mixed**Type of Precipitation (Check all that apply)**☒ None☐ Rain☐ Snow☐ Hail☐ Rain Showers☐ Freezing Rain☐ Snow Shower☐ Drizzle☐ Ice Pellets☐ Snow Pellets☐ Snow Grains☐ Ice Crystals☐ Ice Pellets Shower☐ Freezing Drizzle**Intensity of Precipitation**☐ Light☐ Moderate☐ Heavy

PILOT "A" INFORMATION

Pilot "A" Responsibilities at the Time of Accident/Incident

☒ Pilot ☐ Co-Pilot ☐ Student Pilot ☐ Flight Instructor ☐ Check Pilot ☐ Flight Engineer ☐ Other Flight Crew

Pilot "A" Identification

First Name: Thomas
 Middle Initial: R
 Last Name: Smith

City: [REDACTED]
 State: Colorado ZIP: [REDACTED]
 Country: USA

Age at time of Accident/Incident: 56 Date of Birth: [REDACTED] Certificate Number: [REDACTED]
 mm/dd/yyyy

Degree of Injury ☒ None ☐ Fatal ☐ Minor ☐ Unknown ☐ Serious	Seat Occupied ☒ Left ☐ Front ☐ Unknown ☐ Right ☐ Rear ☐ Center ☐ Single	Seat Belt Used ☒ Yes ☐ No Available ☒ Yes ☐ No	Shoulder Harness Used ☐ Yes ☒ No Available ☒ Yes ☐ No
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Pilot Certificate(s) (Check all that apply)

☐ None ☐ Student ☐ Recreational ☐ Commercial ☐ Flight Engineer ☐ Foreign
☐ Private ☐ Flight Instructor ☐ Sport ☒ Airline Transport ☐ U.S. Military

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 ☐ With limitations/waivers ☐ Unknown	Date of Last Medical <u>06/14/2013</u> mm/dd/yyyy
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Medical Certificate Limitations

None

Medical Certificate Waivers

None

Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks:

07/02/2013
 mm/dd/yyyy

Flight Review Aircraft

Make: Airbus
 Model: A320

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 ☐ Free 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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Type Ratings

A-320, B-737, BA-3100, EMB-110, EMB-120

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		8,766								
Pilot in Command (PIC)		7,197								
Time as Instructor										
This Make/Model										
Last 90 Days		171								
Last 30 Days		43								
Last 24 Hours		9								

PILOT "B" INFORMATION

Pilot "B" Responsibilities at the Time of Accident/Incident

☐ Pilot
 ☒ Co-Pilot
 ☐ Student Pilot
 ☐ Flight Instructor
 ☐ Check Pilot
 ☐ Flight Engineer
 ☐ Other Flight Crew

Pilot "B" Identification

First Name: Douglas "Chad"

Middle Initial: C

Last Name: Whittington

City: [REDACTED]

State: [REDACTED]

ZIP: [REDACTED]

Country: USA

Age at time of Accident/Incident: 36

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

Seat Belt

Used ☒ Yes ☐ No
 Available ☒ Yes ☐ No

Shoulder Harness

Used ☐ Yes ☒ No
 Available ☒ Yes ☐ No

Pilot Certificate(s) (Check all that apply)

☐ None
 ☐ Student
 ☐ Recreational
 ☐ Commercial
 ☐ Flight Engineer
 ☐ Foreign
☐ Private
 ☐ Flight Instructor
 ☐ Sport
 ☒ Airline Transport
 ☐ U.S. Military

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
☐ With limitations/waivers
☐ Unknown

Date of Last Medical

11/27/2012

mm/dd/yyyy

Medical Certificate Limitations

None

Medical Certificate Waivers

None

Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks:

07/20/2013

mm/dd/yyyy

Flight Review Aircraft

Make: Airbus

Model: A320

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
☐ Free 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

LR-45, SA-227

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		3,616								
Pilot in Command (PIC)		0								
Time as Instructor										
This Make/Model										
Last 90 Days		184								
Last 30 Days		65								
Last 24 Hours		2								

ADDITIONAL FLIGHT CREW MEMBERS (Exclusive of cabin attendants, complete the following information)														
Pilot Name and Address						Degree of Injury								
First Name: _____		City: _____				☐ None		☐ Fatal						
Middle Initial: _____		State: _____		ZIP: _____		☐ Minor		☐ Unknown						
Last Name: _____		Country: _____				☐ Serious								
Pilot Certificate(s) (Check all that apply)						Seat Occupied								
☐ None		☐ Student		☐ Recreational		☐ Commercial		☐ Flight Engineer						
☐ Private		☐ Flight Instructor		☐ Sport		☐ Airline Transport		☐ U.S. Military						
☐ Foreign														
Type Rating/Endorsement for Accident/Incident Aircraft? ☐ Yes ☐ No				Total Flight Time at the Time of this Accident/Incident: _____ hrs										
Pilot Name and Address						Degree of Injury								
First Name: _____		City: _____				☐ None		☐ Fatal						
Middle Initial: _____		State: _____		ZIP: _____		☐ Minor		☐ Unknown						
Last Name: _____		Country: _____				☐ Serious								
Pilot Certificate(s) (Check all that apply)						Seat Occupied								
☐ None		☐ Student		☐ Recreational		☐ Commercial		☐ Flight Engineer						
☐ Private		☐ Flight Instructor		☐ Sport		☐ Airline Transport		☐ U.S. Military						
☐ Foreign														
Type Rating/Endorsement for Accident/Incident Aircraft? ☐ Yes ☐ No				Total Flight Time at the Time of this Accident/Incident: _____ hrs										
Pilot Name and Address						Degree of Injury								
First Name: _____		City: _____				☐ None		☐ Fatal						
Middle Initial: _____		State: _____		ZIP: _____		☐ Minor		☐ Unknown						
Last Name: _____		Country: _____				☐ Serious								
Pilot Certificate(s) (Check all that apply)						Seat Occupied								
☐ None		☐ Student		☐ Recreational		☐ Commercial		☐ Flight Engineer						
☐ Private		☐ Flight Instructor		☐ Sport		☐ Airline Transport		☐ U.S. Military						
☐ Foreign														
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 flight attendants; continue on separate sheet if necessary)														
Name and Address				Seat	Crew	Non-Revenue	Revenue	Non-Occupant	FAA	Fatal	Serious Injury	Minor Injury	No Injury	Unknown
First Name: <u>Anita</u>				_____	4	□	□	□	□	□	□	4	□	□
Middle Initial: <u>K</u>														
Last Name: <u>Watkins</u>														
City: _____														
State: _____														
ZIP: _____														
Country: <u>USA</u>														
First Name: <u>Jill</u>				_____	4	□	□	□	□	□	□	4	□	□
Middle Initial: _____														
Last Name: <u>Danish</u>														
City: _____														
State: _____														
ZIP: _____														
Country: _____														
First Name: <u>Bruce</u>				_____	4	□	□	□	□	□	□	4	□	□
Middle Initial: <u>L</u>														
Last Name: <u>Woods</u>														
City: _____														
State: _____														
ZIP: _____														
Country: <u>USA</u>														
First Name: <u>Christy</u>				_____	4	□	□	□	□	□	□	4	□	□
Middle Initial: <u>L</u>														
Last Name: <u>Garrison Ordway</u>														
City: _____														
State: _____														
ZIP: _____														
Country: <u>USA</u>														
First Name: _____				_____										
Middle Initial: _____														
Last Name: _____														
City: _____														
State: _____														
ZIP: _____														
Country: _____														
First Name: _____				_____										
Middle Initial: _____														
Last Name: _____														
City: _____														
State: _____														
ZIP: _____														
Country: _____														

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 time and point of departure, intended destination, and services obtained.

Frontier Flight 283 departed STL and experienced a routine flight until beginning descent into DEN. The flight was cleared for the PURRL ONE and thunderstorm activity was visible NE through NW of DEN and was building. The crew discussed the position of the weather in relation to the cleared routing. The crew determined that they would need to navigate around the weather that was being observed. Weather radar was on and functioning normally. The DEN ATIS and "Specials" were obtained prior to the top of descent. The captain made a routine PA advising the passengers and cabin crew of the latest DEN weather and an estimated arrival time, as well as telling them that the fasten seat belt sign would be turned on in ten minutes. ATC rerouted the flight direct PUFFR, and the KOHOE TWO arrival. ATC again rerouted the flight direct to CTFSH and the ANCHR TWO arrival. As light turbulence was encountered, the seat belt sign was turned on. The flight crew requested deviation around cells northeast of DEN and subsequently requested further deviation that kept the flight clear of weather. DEN ARTCC began giving aircraft vectors off the arrival. Light turbulence continued, but the ride was acceptable. The captain called the flight attendants on the interphone and advised them to finish cleaning the cabin (including performing final compliance checks of seat belts, tray tables, and turning off personal electronic devices) and then take their seats. They were advised that the ride ahead was going to be bumpy.

Around five minutes later, ATC provided a vector and then cleared the aircraft direct LANDR for the ANCHR TWO arrival. This course would take the flight into a broken green band of precipitation on the weather radar. Entering the band of weather, the flight continued to encounter only light turbulence. Other aircraft had transited the area in front of this flight and there had been no reports of any unusual turbulence. About three fourths of the way through the broken green band, the flight encountered two or three closely spaced moderate jolts followed by one jolt that the captain described as severe. That jolt lasted approximately two seconds and went from +1.5g to -0.4g, followed by smooth air.

Three of the four flight attendants were not yet strapped into their seats. Two were up in the rear galley and one was starting to get strapped in. The captain called the cabin crew on the interphone to ensure they were okay. They replied that they were not and that two flight attendants injured. One of the flight attendants was strapped in, one was in the process of strapping in and was able to hold on to her seat belt, while two were thrown in the air, contacted the cabin ceiling and then hit the cabin floor. One flight attendant bruised her hip when thrown against the seat during the turbulence, one (who was strapped in) also suffered bruising, one contacted the jumpseat on the way down, cutting his leg, and the final flight attendant injured her neck and head in the fall. All passengers were in their seats with seat belts fastened and there were no reports of passenger injuries. All flight attendants were able to return to jumpseats for landing. Because of the turbulence, the flight attendant in back who was to sit in the forward jumpseat did not want to risk going forward, so a deadheading pilot occupied that jumpseat for landing to assist if needed.

The captain reported the turbulence encounter to ATC and advised them to have paramedics meet the aircraft to treat the injured. Paramedics met the aircraft and transported three of the four flight attendants to the emergency room at University Hospital in Aurora. Two were treated and released and one was kept for observation. The following day, it was confirmed that she had a fracture to her L2 vertebrae. At that point, initial notification was made to the NTSB of an aircraft accident.

The captain entered the turbulence encounter in the aircraft logbook, and maintenance personnel performed required inspections before returning the aircraft to service.

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

Interviews were conducted by the Safety Department with all members of the flight and cabin crew. The following actions are recommended based on what was learned in these interviews:

-- Flight attendant training needs to be enhanced to explain turbulence hazards, the inability of the pilots to make an accurate determination of the intensity and duration of turbulence, and the potential for injury during a turbulence encounter. There appears to be a belief among flight attendants that when advised of pending turbulence, they can wait until they feel the first jolt to get strapped in their seats. The time from the first small bumps to the major jolt was less than 20 seconds.

-- Turbulence encountered in this incident was moderate. Pilots and flight attendants need to be trained that moderate turbulence can cause injury.

-- Communication between the cockpit and cabin needs to be clarified and refined. The cabin crew thought they had more time than they did to complete their duties and take their seats. The captain thought that he had been clear in telling them to take their seats. Language needs to be standardized in the Flight Operations Manual and the Flight Attendant Manual so that standard phraseology is used. This should include direction from the flight crew to either be seated immediately, or to be seated in XX minutes. Before encountering any area of anticipated turbulence, the flight crew should check that the cabin crew is in their seats with belts and harnesses fastened.

-- Frontier personnel involved in the critical incident response program should be notified of an incident such as this immediately. There was a delay in helping both flight and cabin crew in dealing with the stress this accident caused.

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 Report08/30/2013*mm/dd/yyyy***Signature and Name of Pilot/Operator**

Signature: _____

Type or Print Name: _____

Signature and Name of Person Filing Report if Other than Pilot/Operator

Signature: _____

Type or Print Name: Douglas W. DiehlTitle: Director of Safety**FOR NTSB USE ONLY****NTSB Accident/Incident No.****Reviewed by NTSB Regional Office****Name of Investigator****Date Report Received**