



National Transportation Safety Board Aviation Accident Final Report

Location:	LEWISTON, ID	Accident Number:	CHI00FA070
Date & Time:	02/11/2000, 0815 PST	Registration:	N152BK
Aircraft:	Mitsubishi MU-2B-60	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The airplane impacted a ridgeline about 1.5 miles from the runway and approximately 7 to 14 seconds after the pilot reported a dual engine flameout. The airplane's altitude was about 400 feet agl when the pilot reported the flameout. The inspection of the airplane revealed no pre-existing anomalies. Icing conditions were forecast and PIREPS indicated that light to moderate rime/mixed icing conditions existed along the route of flight. The Continuous Ignition switches were found in the OFF position. The Approach procedures listed in the Airplane's Flight Manual stated, 'CONTINUOUS IGNITION SHALL BE SELECTED TO ON DURING APPROACH AND LANDING WHILE IN OR SHORTLY FOLLOWING FLIGHT IN ACTUAL OR POTENTIAL ICING CONDITIONS.' The aircraft manufacturer had issued a Service Bulletin in 1995 for the installation of an auto-ignition system to '... reduce the possibility of engine flame-out when icing conditions are encountered and the continuous ignition is not selected.' The operator had not installed the non-mandatory service bulletin. On May 5, 2000, the FAA issued an Airworthiness Directive that required the installation of an auto-ignition system. The toxicology test detected extremely high levels of dihydrocodeine in the pilot's blood. The pilot received a special issuance second-class medical certificate on August 22, 1995, after receiving treatment for a self disclosed history of drug abuse. The drug testing that this pilot underwent as a consequence of his previous self disclosed history of drug abuse would not have detected these substances.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot failed to follow the flight manual procedures and did not engage the Continuous Ignition system resulting in both engines flaming out when the air induction system was blocked with ice. Additional factors to the accident included the hilly terrain, the icing conditions, and the operator not complying with a Service Bulletin for the installation of an auto-ignition system.

Findings

Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: APPROACH

Findings

1. (C) INDUCTION AIR DUCTING - BLOCKED(TOTAL)
2. (C) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
3. (C) INDUCTION AIR DUCTING - ICE
4. (C) IGNITION SYSTEM,CONTINUOUS IGNITION - NOT ENGAGED
5. IMPAIRMENT(DRUGS) - PILOT IN COMMAND
6. INADEQUATE SUBSTANTIATION PROCESS - FAA(ORGANIZATION)
7. (F) WEATHER CONDITION - ICING CONDITIONS
8. (F) IGNITION SYSTEM,AUTO RE-LIGHT SYSTEM - NOT INSTALLED
9. (F) MAINTENANCE,SERVICE BULLETIN/LETTER - NOT COMPLIED WITH - COMPANY/OPERATOR MANAGEMENT

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

10. (F) TERRAIN CONDITION - MOUNTAINOUS/HILLY

Factual Information

HISTORY OF FLIGHT

On February 11, 2000, at 0815 pacific standard time, a Mitsubishi MU-2B-60, N152BK, operated by American Check Transport, was destroyed when it impacted terrain approximately 1.5 nautical miles east of the Lewiston Nez-Perce County Airport (LWS), Lewiston, Idaho. The 14 CFR Part 135 non-scheduled domestic cargo flight had departed Boise Air Terminal Airport (BOI), Boise, Idaho, at 0723 and was en route to the Lewiston airport. The airplane was cleared for the ILS Rwy 26 approach to the airport. The Lewiston Air Traffic Control (ATC) tower controller reported the airplane in sight approximately four miles from the airport. The pilot was given the option of landing on runway 26 or runway 29, and he chose to land on runway 29. At 0815, the winds were 300 degrees at 13 knots, gusting to 21 knots. At approximately two miles east of the airport, the pilot reported a dual engine flameout. The airplane impacted the ground near the top of a ridgeline. The airline transport pilot was fatally injured. Visual meteorological conditions prevailed and an IFR flight plan had been filed.

The flight was one leg of a regularly scheduled cargo flight that originated in Salt Lake City, Utah, where the airplane was based. The routine flight plan, which the pilot had regularly flown during the past 12 months, was to fly in the morning from Salt Lake City to Boise, Idaho; then to Lewiston, Idaho; and then to Coeur d'Alene, Idaho. At approximately 1800, the pilot would return to Salt Lake City via Lewiston and Boise. The flight logbook maintained by the pilot indicated that the entire flight required about 5.2 hours of flight time. The logbook indicated the flight schedule provided the pilot 9 hours of rest.

On February 11, 2000, N152BK had departed Salt Lake City and arrived in Boise without incident. Fuel logs maintained at the Boise Executive Terminal, Inc., showed that N152BK was fueled with 100 gallons of jet fuel.

N152BK departed Boise at approximately 0723 en route to Lewiston. The Lewiston ATC Tower manager reported that N152BK was in contact with Seattle Center prior to being "handed off" to Lewiston Tower. N152BK was required to hold prior to executing the ILS Runway 26 approach to Lewiston Airport since it could not commence an instrument approach until another airplane, a Cessna Caravan operated by Federal Express, had landed at Lewiston. After the Caravan landed, N152BK was cleared for the ILS Rwy 26 approach.

Radar data indicated that N152BK's en route altitude from BOI to LEW was 16,000 feet mean sea level (msl). At approximately 0756, N152BK started a descent to 6,000 feet msl. The last radar contact at 0809:01 indicated N152BK was at 6,000 feet msl and 7.75 nautical miles on a 081 degree bearing from the Perce VOR.

The LEW ATC Tower manager reported the normal lowest holding altitude for airplanes waiting to make an approach into LEW is 6,000 to 7,000 feet msl. The approach plate for the LEW ILS RWY 26 approach indicates the minimum altitude for the Procedure Turn is 5,300 feet msl. The ILS glide slope intercept altitude is 4,700 feet msl. The distance from the outer marker to the runway is 5.9 nautical miles, and the inbound course is 259 degrees magnetic. The airport elevation is 1,438 feet msl.

At 0810:37, N152BK reported to Lewiston Tower that it was inbound on the ILS approach.

The ATC Tower controller reported that he saw N152BK come out of the clouds approximately

four miles from the airport. The tower controller reported he gave N152BK the option of landing on runway 29.

At 0815:25, N152BK reported, "Let's see, I'll take 29."

The tower controller reported observing N152BK turn left and then turn back to the right to line up on runway 29 centerline.

At 0815:25, N152BK reported, "I just had two flameouts. I'm goin in."

At 0815:30, N152BK reported, "I'm gonna pick out ah, ah...."

At 0815:32, N152BK reported, "Pickin out, ah, I'll go as far as I..." No further transmissions were made by N152BK.

At 0815:39, an unintelligible sound was made.

At 0815:48, the sound of an Emergency Locator Transmitter (ELT) was heard.

The tower controller reported that N152BK's location, when the pilot reported the dual flameout, was over a residential subdivision located about 2 miles east of the airport. He reported that N152BK's altitude was approximately 400 feet above ground level (agl). He reported observing N152BK descend in altitude until it was blocked from his sight by the rolling terrain.

Two witnesses observed N152BK as it over flew the residential area. One witness reported hearing, "... two noises (one followed by another)..." that sounded like, "... skidding in slush." He reported seeing two vapor trails from the airplane. He reported the airplane increased its descent after it crossed 10th street. He did not hear or see the impact.

Another witness reported seeing the airplane flying west in front of her house. She reported hearing a whining type of noise. She reported the airplane was, "... just barely over the power lines." She reported seeing white smoke coming from the left engine. She lost sight of the airplane as it flew down the canyon. She did not see the impact.

N152BK impacted the terrain about 20 feet from the top of a ridgeline. N152BK came to rest on top of the ridgeline in a plowed field located approximately 1.5 miles east of the airport. The accident site could not be observed from the airport tower due to hilly terrain. Rescue personnel arrived at the accident site at approximately 0826.

PERSONNEL INFORMATION

The pilot was an airline transport pilot with single engine and multi-engine land ratings. He held a Second Class medical certificate. He was a Certified Flight Instructor in single engine land airplanes and instruments. He had retired from a major airline where he had obtained airplane type ratings in the following airplanes: B-337, B-727, B-737, B-747, B-747-4, BA-111, DC-9, and L-188's. He had a total of about 21,100 hours of flight time. 19,700 flight hours were in multi-engine airplanes. In the last 13 months, the pilot had flown approximately 1,100 hours in the make and model of the accident airplane.

The pilot was employed by the aircraft operator in November 1998. The pilot was qualified to fly in the company's Mitsubishi MU-2's and Piper PA-31's. The pilot had completed an annual check ride in the MU-2 on November 26, 1999. In the last 90 days, the pilot had logged about 321 hours of flight time.

AIRCRAFT INFORMATION

The airplane was a twin engine Mitsubishi MU-2B-60, serial number 1537SA. The airplane was configured for cargo operations and seated two. Its maximum gross weight was 11,575 pounds. The engines were Garrett TPE-331-10 engines flat rated to 715 shaft horsepower. The last 100 hour continuous airworthiness inspection was conducted on February 10, 2000. The airplane had flown approximately 2 hours since the last inspection and had a total time of 5,460 hours.

METEOROLOGICAL CONDITIONS

The observed weather at LWS at 0716 was: winds 290 degrees at 8 knots; visibility 10 miles; ceiling 3,400 feet overcast; temperature 1 degree C; dew point 0 degree C; altimeter setting 29.76 inches of Hg.; unknown precipitation (UP) ended 0713; 0.00 inch (trace) precipitation from 0656.

The observed weather at LWS at 0756 was: winds 300 degrees at 14 knots gusts to 19 knots; visibility 10 miles; ceiling 3,600 feet overcast; temperature 2 degrees C; dew point -1 degree C; altimeter setting 29.78 inches of Hg.; UP ended 0713; 0.00 inch (trace) precipitation from 0656.

The observed weather at LWS at 0815 was: winds 300 degrees at 13 knots, gusting to 21 knots; sky condition 3,200 feet broken, 4,000 feet overcast; visibility 10 miles; temperature 2 degrees C; dew point -1 degrees C; altimeter 29.80.

Pilot Weather Reports (PIREPs) for the BOI and LWS areas indicated light to moderate mixed and rime icing was present.

At 0644, a PIREP indicated moderate mixed icing between 10,000 to 12,000 feet mean sea level (msl) over the Perce VOR (MQG) located about 3 nautical miles east of LWS.

At 0730, a PIREP indicated moderate rime icing at 13,000 feet msl, 40 nautical miles southeast of BOI.

At 0849, a PIREP indicated light mixed icing at 7,000 feet msl, 20 nautical miles north-northeast of LWS.

At 0905, a PIREP indicated light rime icing at 11,500 to 13,700 feet msl, at 20 nautical miles east of BOI.

At 0916, a PIREP indicated light to moderate rime icing 10,000 to 15,000 feet msl, 25 nautical miles northwest of BOI.

The Upper Air Data for Spokane, Washington, located 82 nautical miles north-northwest of LEW, indicated that at 0400 on February 11, 2000, the temperature at 3,000 feet msl was -2.17 degrees C. At 1600, the temperature at 3,000 feet msl was -0.85 degrees C.

The National Weather Service issued the AIRMET Zulu Update 2 for Ice (SLCZ WA 111445) on February 11, 2000 at 0645, and it was valid until February 11, 2000 at 1300. The forecast was for occasional moderate rime/mixed icing in clouds and in precipitation below 15,000 feet. The area covered by this AIRMET included the route from BOI to LWS.

The National Weather Service issued the AIRMET Sierra Update 5 for IFR (SLCS WA 111605 AMD) on February 11, 2000 at 0805, and it was valid until February 11, 2000 at 1300. The forecast was for occasional ceilings below 1,000 feet/visibility below 3 miles in

clouds/precipitation/mist. The northeastern extent of this AIRMET area was just south of LWS. (See NTSB Meteorological Factual Report)

WRECKAGE AND IMPACT INFORMATION

The airplane impacted the slope of a ridgeline and the wreckage path was oriented on a heading of 240 degrees. The main wreckage came to rest about 64 feet from the initial impact mark and was on top of the ridgeline in a muddy plowed field. The nose and longitudinal axis of the airplane was on a heading of 165 degrees.

Numerous aircraft parts from the left side of the airplane were found in the wreckage path from the initial impact mark to the main wreckage. The parts included the left landing gear, left forward gear door, left forward main door, a blade from the left propeller, the left elevator counterweight, and a section from the left elevator.

The left propeller was located on top of the ridgeline and about 20 feet from the main wreckage. One of the four propeller blades had separated from the hub.

The left tip tank was found 162 feet from the initial impact mark. The tip tank exhibited crushing along the lower surface of the tank. The front tip of the fuel tank did not exhibit any crushing.

The radome separated from the fuselage and was found 1.5 feet from the right wing tip tank.

The lower surface of the fuselage exhibited crushing from the forward pressure bulkhead, Fuselage Station (FS) 1275, to the aft side of the main cabin door, FS 7250. The roof of the fuselage cabin was crushed from approximately FS 4025 to FS 5890 where the high wing crushed down into the cabin area. The nose landing gear had separated from the fuselage and the nose gear trunion was found against the left side of the fuselage. The right main landing gear remained attached to the fuselage fitting; the drag strut was broken.

The two upper fuselage-to-empennage attach fittings failed at FS 8995, resulting in the separation of the empennage from the fuselage. The vertical tail, right horizontal tail, and right elevator exhibited minor damage and no crushing. The left horizontal tail was bent upward about 10 degrees at approximately Horizontal Station 1790. The fuselage strakes were deformed.

The left wing remained attached to the fuselage. The left engine remained attached to the left wing. The left wing was broken and separated outboard of the engine at approximately Wing Station (WS) 2550. The left outer wing was broken upward about 10 degrees at approximately WS 3800. The left wing flaps, ailerons, and trim ailerons remained attached to their respective wing sections.

The right wing-to-fuselage fittings were broken and the wing separated from the fuselage. The right engine and propeller remained attached to the right wing. The right wing was broken inboard of the right engine at approximately WS 1950. The right outer wing panel was bent up about 5 degrees at approximately WS 3800. The right tip tank wing-to-tip tank fittings were deformed, but the tip tank remained attached to the right wing. The right inboard flap was separated from the wing and was found 34 feet in back of the right wing. The right outboard flap and trim aileron remained attached to the wing.

Control cable continuity for the elevator, rudder, and trim tabs was established from the aft pressure bulkhead to the elevator and rudder bellcrank and trim actuators.

Fuel tanks and fuel lines were ruptured and no fuel was found in the tanks. Fuel was leaking from the lines when the wreckage was removed from the site. Rescue personnel reported that they smelled fuel when they arrived at the accident scene. The main fuel gauge read approximately 1040 pounds.

The on-site examination of the cockpit switches revealed the switches were found in the following positions:

Main Fuel Valves	OPEN
L & R Pitot Heat	ON
L & R Engine Inlet Heat	OFF
Propeller Anti-Ice	Left OFF, Right ON
Oil Cooler Inlet Anti-ice	Left ON, Right OFF
L & R Continuous Ignition	OFF

Examination of the pilot's seat belt and shoulder harness revealed that the seat belt buckle was still engaged and the seat belt was fastened around the pilot. But the two shoulder harness straps were hanging loose and not attached to the seat belt buckle. Fire department personnel reported they had found the seat belt engaged and the shoulder harness not in use when they arrived at the accident site.

A MU-2B-60 Airplane Flight Manual was recovered from the airplane wreckage. The manual was current with the latest revisions incorporated.

MEDICAL AND PATHOLOGICAL INFORMATION

The autopsy on the pilot was performed at the Pathologists' Regional Laboratory in Lewiston, Idaho.

A Forensic Toxicology Fatal Accident Report was prepared by the FAA Civil Aeromedical Institute. The report indicated the following results:

No Carbon Monoxide detected in blood.

No Cyanide detected in blood.

No Ethanol detected in urine.

0.054 (ug/ml, ug/g) Hydrocodone detected in blood.

Hydrocodone present in urine.

2.665 (ug/mL, ug/g) Dihydrocodeine detected in blood.

Dihydrocodeine present in urine.

0.806 (ug/ml, ug/g) Diphenhydramine detected in blood.

Diphenhydramine present in urine.

Dihydrocodeine is a prescription narcotic painkiller used for the control of moderate to severe pain. Hydrocodone is a prescription narcotic painkiller that can also be produced by the metabolism of dihydrocodeine. Diphenhydramine is an over-the-counter sedating antihistamine.

Clark's Isolation and Identification of Drugs, Senior consulting editor A.C. Moffat, second edition, London, The Pharmaceutical Press, 1986, contained the following information concerning the therapeutic concentrations of dihydrocodeine:

"Following single doses of 30 mg and 60 mg to 7 subjects, mean peak plasma concentrations of 0.072 to 0.146 ug/ml were attained in 1.7 hours; the corresponding peak plasma concentrations of acidic metabolites were 0.56 and 1.48 ug/ml."

The therapeutic concentrations for diphenhydramine were described as follows:

"In plasma, usually in the range of 0.1 to 1.0 ug/ml."

The pilot's medical records indicated that in December 1994 the pilot had become a habitual user of dihydrocodeine, and had self disclosed this fact to the medical personnel at the major airline where he was employed. The toxicologist for the laboratory that performed the drug screen for the airline reported that the laboratory's routine drug screen would not have detected nor reported dihydrocodeine. The laboratory performed testing under DOT guidelines that required the identification of opiates only for the presence of codeine and morphine. On August 22, 1995, the pilot was found eligible for and received a special issuance of a second-class medical certificate.

On February 10, 1998, the results of a required pre-employment drug test that was given to the pilot indicated negative use. The test screened for marijuana, cocaine, opiates, phencyclidine, and amphetamines. The medical director of the toxicology laboratory which performed the drug testing reported that the laboratory's routine screen would not have detected dihydrocodeine, as the commercially available immunoassay screens focus on identifying codeine and morphine.

On March 12, 1998, the pilot was found eligible and received a second-class medical certificate. (See NTSB Medical Officer Report)

On September 30, 1999, the pilot took a random drug test as required by the operator. The test results were negative.

TESTS AND RESEARCH

The left and right Garrett TPE-331-10 engines were examined at Honeywell, Engines and Systems, in Phoenix, Arizona. The inspection of the engines revealed neither engine exhibited pre-existing deficiencies.

The fuel pumps, fuel controls, and propeller governors from the left and right engines were functionally tested. The components were found to be operable.

Fuel samples taken from the fuel pump interstage fuel filters from the left and right engines were examined. The fuel sample appeared clean and free of any water contamination. The fuel test revealed the fuel was jet fuel and no anomalies were found. (See Honeywell Engine Teardown Report)

The inspection of the left and right propellers revealed no pre-existing anomalies that would have precluded normal propeller operation. There were no impact marks exhibited on the left and right propeller feather stops or reverse stops.

The propeller teardown report indicated that all four blades from the left propeller had relatively mild bends with little leading edge damage and little paint abrasion. Blade L1 was

bent aft slightly. Blade L2 had almost no damage and no bending. Blade L3 was bent aft about 30 degrees at 1/3 radius. Blade L4 had broken out of the blade clamp. A portion of the blade butt retention lip remained in the clamp. The blade was bent aft at about 1/3 radius and was twisted toward low pitch.

The propeller teardown report on the right propeller indicated that Blade R1 was bent aft about 45 degrees at 1/3 radius. It was twisted slightly toward low pitch. This blade had some rotational scoring in the paint on the camber side, within 1 inch of the leading edge. Blade R2 was bent forward at mid-blade. It had deep gouges in the leading edge at 6", 8", and 10" from the tip. Blade R3 had damage on the leading edge about 8" long. Blades number R3 and R4 had very little bending, but both were slightly bent forward. (See Hartzell Propeller Teardown Report)

ADDITIONAL INFORMATION

The Mitsubishi MU-2B-60 Airplane Flight Manual (AFM), Section 5, Normal Procedure states the following information concerning the use of the Engine Continuous Ignition System:

"The continuous ignition system, which operates engine ignition manually, shall be selected to ON during takeoff, landing or flight in severe weather conditions especially all operations in actual or potential icing conditions described herein and where there is water, slush or snow on the runway.

CONTINUOUS IGNITION SWITCHES SHOULD BE ON:

1. During takeoff and climb out in actual or potential icing conditions.
2. When ice is visible on, or shedding from propellers(s), spinner(s), or leading edge(s).
3. Before selecting ANTI-ICE, when ice has accumulated.
4. Immediately, anytime engine flameout occurs as a possible result of ice ingestion.
5. During approach and landing while in or shortly following flight in actual or potential icing conditions or where there is water, slush or snow on the runway."

The APPROACH procedures listed in the Normal Procedure section of the AFM state:

1. Cabin Altitude Differential Pressure Indicator ... Check for ZERO
2. Condition Levers ... TAKEOFF LAND
3. Ignition Switches ... AUTO (If Auto-ignition installed) (Ignition Annunciator Lights Extinguished)

Or ... As Required (If Auto-Ignition not installed)

CAUTION

CONTINUOUS IGNITION SHALL BE SELECTED TO ON DURING APPROACH AND LANDING WHILE IN OR SHORTLY FOLLOWING FLIGHT IN ACTUAL OR POTENTIAL ICING CONDITIONS.

4. Anti-Ice/Deice Systems ... As Required
5. Power ... As Required
6. Flaps ... 5 degrees (below 175 KCAS)

7. Landing Gear ... DOWN (below 175 KCAS)
8. Airspeed ... 140 KCAS Minimum
9. Landing Lights ... As Required (below 175 KCAS)

A Pilot Advisory Letter was issued by Allied Signal Aerospace (Honeywell) on December 2, 1998, concerning operations in icing conditions. It stated the following:

"Regardless of whether icing condition presently exist, IGNITION should be ON at any time ice is observed to be shedding from the propeller or propeller spinner. Moreover, depending upon the ignition system configuration or possible duty cycle limits, the IGNITION should be left ON, or set to AUTOMATIC (when so equipped), if ice is visible on the propeller spinner or wing leading edges. Note, ice accumulation can, under some conditions, be hard to see.

In any case, keep IGNITION ON during takeoff, approach, and landing, when takeoff or landing is being made during or shortly after operation in icing conditions."

An Operation Information (OI) Letter was issued by Allied Signal Aerospace on November 20, 1998, concerning operations in icing conditions. Its stated purpose was, "To emphasize proper use of engine inlet anti-ice and provide additional information on the use of engine ignition in icing conditions."

The Discussion section of the OI stated, "There have been incidents in which TPE engines have flamed out during or following operation in icing conditions. Several dual engine flameouts have occurred. Typically, flameout events have occurred after departing icing conditions into clear air and especially after descending out of icing conditions into warmer air."

It further stated the following:

"In all cases where takeoff or landing is being conducted during and after operation in icing conditions, it is recommended that IGNITION be ON or AUTOMATIC during takeoff, approach and landing."

The OI stated the following concerning the incorporation of an automatic ignition system being equipped on TPE-331 engines:

"AlliedSignal strongly recommends that operators incorporate automatic ignition systems on their aircraft. Operators should contact the aircraft manufacturer to determine the availability of such systems for their aircraft."

N152BK was not equipped with, nor was it required to be equipped with, an automatic ignition system.

The Federal Aviation Administration issued a Fact Finding Focused Special Certification Review of the Mitsubishi Heavy Industries MU-2B Series Airplane (FFFSCR) on June 27, 1997. The FFFSCR contained 10 Airworthiness Directive (AD) Recommendations. Recommendation No. 9 stated the following:

"Require an AD to incorporate the Auto Re-light ignition system per the manufacturers Service Bulletin, and require both engines to be modified with the Auto Re-light ignition system."

Mitsubishi Heavy Industries, Ltd. issued a mandatory Service Bulletin No. 086/74-002 on November 15, 1995, concerning the installation of an Auto-Ignition System. The purpose of the SB was:

"An Auto-Ignition System shall be installed, in addition to the existing Continuous Ignition System, to reduce the possibility of engine flame-out when icing conditions are encountered and the continuous ignition is not selected."

The Japanese Civil Aviation Bureau (JCAB) issued TCD 2679A-97 (JCAB equivalent of the FAA Airworthiness Directive) on February 6, 1997, to mandate the installation of the Auto-Ignition System on A2PC certified MU-2B aircraft.

N152BK was not manufactured under A2PC certification requirements, but under A10SW certification requirements regulated by the FAA. N152BK was not required to have the Auto-Ignition System installed.

On May 13, 1998, the FAA issued a Notice of Proposed Rulemaking (NPRMS) that proposed an auto-ignition (re-light) system be installed in all MU-2B airplanes.

On May 5, 2000, the FAA issued an Airworthiness Directive (AD) 2000-09-15 that required the installation of an auto-ignition (re-light) system on MU-2B series airplanes per the manufacturer's instructions. Mitsubishi Heavy Industries, Ltd. Issued SB No. 226B dated October 27, 1997, and SB 086/74-001 dated November 15, 1995, to install the auto-ignition (re-light) system.

Parties to the investigation included the Federal Aviation Administration, Mitsubishi Heavy Industries America, Inc., Honeywell, Hartzell Propellers Inc., and American Check Transport.

The airplane wreckage and airplane logbooks were released to Kern and Wooly, Los Angeles, California.

Pilot Information

Certificate:	Airline Transport; Flight Engineer	Age:	67, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	02/11/1999
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	21100 hours (Total, all aircraft), 1100 hours (Total, this make and model), 16600 hours (Pilot In Command, all aircraft), 321 hours (Last 90 days, all aircraft), 76 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Mitsubishi	Registration:	N152BK
Model/Series:	MU-2B-60 MU-2B-60	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	1537SA
Landing Gear Type:	Retractable - Tricycle	Seats:	2
Date/Type of Last Inspection:	02/10/2000, Continuous Airworthiness	Certified Max Gross Wt.:	11575 lbs
Time Since Last Inspection:	2 Hours	Engines:	2 Turbo Prop
Airframe Total Time:	5460 Hours	Engine Manufacturer:	Garrett
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	TPE-331-10
Registered Owner:	BARKEN INTERNATIONAL	Rated Power:	715 hp
Operator:	AMERICAN CHECK TRANSPORT	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:		Operator Designator Code:	VOXA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	LEW, 1438 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	0815 PST	Direction from Accident Site:	100°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 32 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	13 knots / 21 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	300°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	2° C / -1° C
Precipitation and Obscuration:			
Departure Point:	BOISE, ID (BOI)	Type of Flight Plan Filed:	IFR
Destination:	(LEW)	Type of Clearance:	IFR
Departure Time:	0723 PST	Type of Airspace:	Class D

Airport Information

Airport:	LEWISTON NEZ PERCE COUNTY (LWS)	Runway Surface Type:	Asphalt
Airport Elevation:	1438 ft	Runway Surface Condition:	Slush covered; Snow--wet
Runway Used:	29	IFR Approach:	ILS
Runway Length/Width:	5001 ft / 100 ft	VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	JIM SILLIMAN	Report Date:	05/08/2001
Additional Participating Persons:	JOHN PHILLIPS; SPOKANE, WA RALPH SORRELLS; ADDISON, TX DAVE LOOPER; PHOENIX, AZ ORVIE HOUGH; SALT LAKE CITY, UT		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).