National Transportation Safety Board
Aviation Accident Final Report

Location:	Marathon, FL	**Accident Number:**	MIA03LA064
Date & Time:	02/20/2003, 1220 EST	**Registration:**	N554AE
Aircraft:	Cessna 402B	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Analysis

The fuel tanks were filled the day before the accident date, and on the day of the accident, the airplane was flown from that airport to the Miami International Airport, where the pilot picked up 2 passengers and flew uneventfully to Cuba. He performed a preflight inspection of the airplane in Cuba and noted both auxiliary fuel tanks were more than half full and both main tanks were half full. The flight departed, climbed to 8,000 feet; and was normal while in Cuban airspace. When the flight arrived at TADPO intersection, he smelled strong/fumes of fuel in the cabin. The engine instruments were OK at that time. The flight continued and when it was 10-12 miles from Marathon, he smelled something burning in the cabin like plastic material/paper; engine indications at that time were normal. He declared "PAN" three times with the controller, and shortly thereafter the right engine began missing and surging. He then observed fire on top of the right engine cowling near the louvers. He secured the right engine however the odor of fuel and fumes got worse to the point of irritating his eyes. He declared an emergency with the controller, began descending at blue line airspeed, and the fumes/odor got worse. Approximately 5 minutes after the right engine began missing and surging, the left engine began acting the same way. He secured the left engine but the propeller did not completely feather. At 400 feet he lowered full flaps and (contrary to the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual) the landing gear in preparation for ditching. He intentionally stalled the airplane when it was 5-7 feet above the water, evacuated the airplane with a life vest, donned then inflated it. The airplane sank within seconds and he was rescued approximately 20 minutes later. The pilot first reported 4 months and 19 days after the accident that his passport which was in the airplane at the time of the accident had burned pages. He was repeatedly asked for a signed, dated statement that explained where it was specifically located in the airplane, and that it was not burned before the accident flight; he did not provide a statement. Examination of the airplane by FAA and NTSB revealed no evidence of an in-flight fire to any portion of the airplane, including the right engine or engine compartment area, or upper right engine cowling. Examination of the left engine revealed no evidence of preimpact failure or malfunction. The left magneto operated satisfactorily on a test bench, while the right magneto had a broken distributor block; and the electrode tang which fits in a hole of the distributor gear; no determination was made as to when the distributor block fractured or the electrode tang became bent. The left propeller blades were in the

feathered position. Examination of the right engine revealed no evidence or preimpact failure or malfunction. The right hand stack assembly was fractured due to overload; no fatigue or through wall thickness erosion was noted. Both magnetos operated satisfactorily on a test bench. The right propeller was in the feathered position. An aluminum fuel line that was located in the cockpit that had been replaced the day before the accident was examined with no evidence or failure or malfunction; no fuel leakage was noted.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power to both engines for undetermined reasons.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: CRUISE - NORMAL

Findings
1. 1 ENGINE
2. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: LOSS OF ENGINE POWER
Phase of Operation: DESCENT - EMERGENCY

Findings
3. 1 ENGINE
4. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #3: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #4: DITCHING
Phase of Operation: EMERGENCY LANDING

Findings
5. GEAR EXTENSION - PERFORMED - PILOT IN COMMAND
6. CHECKLIST - NOT FOLLOWED - PILOT IN COMMAND
7. (C) STALL - INTENTIONAL - PILOT IN COMMAND

Factual Information

On February 20, 2003, about 1220 eastern standard time, a Cessna 402B, N554AE, registered to Johan-Pat, Inc., operated by Bel Air Transport, dba Airways Express, was ditched in the Atlantic Ocean approximately 10 nautical miles south-southwest of Marathon Airport, Marathon, Florida. Visual meteorological conditions prevailed at the time and an instrument flight rules flight plan was filed for the 14 CFR Part 91 positioning flight from Havana, Cuba, to the Miami International Airport, Miami, Florida. The airplane was substantially damaged and the airline transport-rated pilot, the sole occupant, sustained minor injuries. The flight originated about 1115, from Jose Marti International Airport, Havana, Cuba.

The pilot reported that the fuel tanks of the airplane were topped off the day before the accident at the Tamiami Airport, and he flew the airplane the next day (accident date) from there to the Miami International Airport where two passengers boarded the airplane for a 14 CFR Part 135 non-scheduled, international passenger flight to Havana, Cuba. The flight departed the Miami International Airport, proceeded to Havana, Cuba, landed, secured the airplane and cleared customs. No fuel was purchased in Cuba. Before departure he performed a preflight inspection of the airplane and noted both auxiliary fuel tanks were "more than half full" while both main fuel tanks were "half full." The flight departed between 1100 and 1130, and climbed to 8,000 feet. He reported the flight was normal when in Cuban airspace. The flight continued and when the flight arrived at TADPO, he, "...smelled a strong odor/fumes of AVGAS in the cabin." The engine instruments checked normal at that time and the flight continued. When the flight was approximately 10-12 miles from Marathon, "I smelled something burning in the cabin--like plastic material/paper or something." He reported the engine power indications were still normal at that time.

He declared "PAN" three times with the controller he was in contact with, and reported shortly thereafter the right engine began missing and surging. After a few seconds, "I observed what appeared to be fire on top of the right engine cowling near the louvers." He then immediately secured the right engine however the odor of fuel and fumes got worse to the point of irritating his eyes. He noted that the right engine manifold pressure and rpm indications were surging. He then declared an emergency with air traffic control, and started descending at blue line airspeed. The fumes/odor became worse and within 5 to 10 minutes of the right engine missing/sputtering, the left engine began, "...missing and sputtering." The rpm and manifold pressure indications of the left engine were also erratic. He "secured" the engine but reported the propeller did not completely feather; the propeller continued to windmill. He further reported that while descending the fumes/odor of aviation fuel became worse. At approximately 800 feet, he lost contact with the controller, and at 400 feet, he lowered full flaps and the landing gear. He slowed the airplane, tightened his seatbelt and shoulder harness, and intentionally stalled the airplane when it was 5 to 7 feet above the water. After touchdown on the water, he hit his head on the dashboard or windshield, and his chest and left shoulder contacted the control yoke. He released his restraint, evacuated the airplane from the passenger door, and took a life vest with him. He donned then inflated it, and sat on one of the wings but the airplane sank within seconds. He was rescued by a local fisherman 20 minutes later, and believed he briefly lost consciousness after being rescued.

The airplane was recovered and was examined by an FAA airworthiness inspector immediately following recovery. The inspector noted that there was no evidence of fire in either engine compartment area. Examination of the left propeller revealed it appeared to be in the

feathered position, and the left turbocharger was seized. Fuel was noted at the left distributor valve, while water was noted at the servo fuel injector (servo). Examination of the right propeller revealed it appeared to be in the feathered position, and fuel was noted at the servo and distributor valve. A loose fuel injector line was noted at the No. 5 cylinder. The inspector did note that the inboard exhaust segment of the right engine from the header assembly was fractured.

The pilot first verbally reported to the National Transportation Safety Board (NTSB) on July 9, 2003, (4 months and 19 days after the accident), that his passport which was on the airplane at the time of the accident had burned pages. He also reported that information in writing, along with color and black and white copies of his passport showing the burned pages. He was repeatedly asked to provide a signed, dated statement which indicated where his passport was located in the airplane during the flight, and that the pages had not been burned before the flight. He did not comply with the request.

According to the director of maintenance for JV Air, the day before the accident the accident pilot brought the accident airplane to his facility stating that he smelled fuel in the cockpit during priming of the engines before starting. Troubleshooting revealed a pin hole in a fuel line for the boost pump; the fuel line was located in the cockpit area. The damaged line was removed, a new line fabricated and pressure tested outside the airplane, installed in the airplane and again pressure tested. The airplane was returned to service.

Examination of the airplane by the NTSB revealed no evidence of in-flight fire to any portion of the airplane including the right engine or engine compartment area, or upper right engine cowling which contains the louvers. Additionally, examination of the aluminum fuel line that had been manufactured and installed the day before the accident revealed no evidence of failure or fuel leakage. The fractured exhaust (right hand stack assembly) was retained for further examination by the NTSB Materials Laboratory. Additionally, both propellers, engines, and propeller governors were retained for further examination.

Examination of the fractured right hand stack assembly (P/N 9910301-5) was performed by the NTSB Materials Laboratory in Washington, D.C. The examination revealed the fracture surface did not contain fatigue or through wall thickness erosion.

Examination of the left engine revealed crankshaft, camshaft, and valve train continuity. The engine driven fuel pump drive coupling was not failed. The distributor valve screen was clean, and the oil filter did not contain any ferrous particles. The oil pump gears were in place with slight scoring of the housing noted. Bench testing of the left magneto revealed spark at all ignition towers. The contact gap was noted to be .018 inch (specification is .018 inch plus or minus .006 inch). No discrepancies were noted with the left magneto. Examination of the right magneto revealed the distributor block bushing was fractured. The electrode tang was displaced on the distributor gear shaft. No damage was noted to the distributor block by contact with the electrode. No evidence of overheat or lack of lubrication was noted to the distributor gear shaft, and no teeth of the distributor gear were damaged. Carbon tracking was noted in the area of the broken distributor block. The coil from the right magneto checked within specified limits. Bench testing of the condensor from the right magneto revealed evidence of an internal short. No determination was made when the distributor block fractured. Bench testing of the left propeller governor revealed the high rpm, dump pressure, and relief valve pressure were greater than specified limits. Examination of the left propeller revealed no evidence of preimpact failure or malfunction. All propeller blades were in the

feathered position and within established limits. Propeller blade No. 2 exhibited slight bend damage.

Examination of the right engine revealed crankshaft, camshaft, and valve train continuity. The engine driven fuel pump drive coupling was not failed; no unusual wear was noted on the coupling. Impact damage was noted to the inboard exhaust pipe aft of the No. 2 cylinder at the 7 and 9 o'clock positions. The oil pump gears were in place with slight scoring noted in the housing. The oil filter element did not contain any ferrous particles, and the distributor valve screen was clean. All fuel injector nozzles were clear with the exception of the No. 6 cylinder. No erosion damage was noted to the sides of the No. 6 cylinder piston. Bench testing of the left and right magnetos revealed both sparked at all ignition towers. The retard points broke during examination of the magneto. Examination of the right propeller governor revealed impact damage to the rpm stop collar. Bench testing of the governor revealed the high rpm was set within limits, the dump pressure, and relief valve pressure were greater than specified limits. Examination of the right propeller revealed no evidence of preimpact failure or malfunction. All the propeller blades were in the feathered position; two of the three propeller blades exhibited impact damage. Examination of the blade that did not have any damage indicated it was within established feather limit.

Review of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual revealed that with respect to ditching procedures, the landing gear is listed to be "up", which is contrary to what the pilot performed in that he reported lowering the landing gear when the flight was at 400 feet.

The airplane was released to Steven M. Homenda, Regional Manager of CTC Services Aviation (LAD, Inc.), on November 5, 2003. All retained components were released to Steven M. Homenda on May 26, 2004.

Pilot Information

Certificate:	Airline Transport; Commercial	**Age:**	47, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	02/10/2003
Occupational Pilot:		**Last Flight Review or Equivalent:**	12/03/2001
Flight Time:	4000 hours (Total, all aircraft), 817 hours (Total, this make and model), 3049 hours (Pilot In Command, all aircraft), 371 hours (Last 90 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N554AE
Model/Series:	402B	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	402B1308
Landing Gear Type:	Retractable - Tricycle	**Seats:**	9
Date/Type of Last Inspection:	12/05/2002, AAIP	**Certified Max Gross Wt.:**	6300 lbs
Time Since Last Inspection:	47.7 Hours	**Engines:**	2 Reciprocating
Airframe Total Time:	11303.6 Hours at time of accident	**Engine Manufacturer:**	Teledyne Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	TSIO-520-E
Registered Owner:	Johan-Pat, Inc.	**Rated Power:**	300 hp
Operator:	Bel Air Transport	**Operating Certificate(s) Held:**	On-demand Air Taxi (135)
Operator Does Business As:	Airways Express	**Operator Designator Code:**	MJNA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	KMTH, 7 ft msl	**Distance from Accident Site:**	
Observation Time:	1153 EST	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 1800 ft agl	**Visibility**	10 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	80°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.13 inches Hg	**Temperature/Dew Point:**	28°C / 22°C
Precipitation and Obscuration:			
Departure Point:	Havana (MUHA)	**Type of Flight Plan Filed:**	IFR
Destination:	Miami, FL (KMIA)	**Type of Clearance:**	IFR
Departure Time:	1015 EST	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	24.616667, -81.158333

Administrative Information

Investigator In Charge (IIC):	Timothy W Monville	**Report Date:**	09/01/2004
Additional Participating Persons:	David Avery; FAA Flight Standards District Office; Miami, FL Ralph K Wetherell; Teledyne Continental Motors; Mobile, AL Tommy L Moody; Cessna Aircraft Company; Wichita, KS		
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.ntsb.gov/pubdms/.		