National Transportation Safety Board
Aviation Accident Final Report

Location:	ALICE, TX	**Accident Number:**	CHI97FA256
Date & Time:	08/12/1997, 1153 CDT	**Registration:**	N41VC
Aircraft:	Beech BE-65-A90	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	4 Fatal
Flight Conducted Under:	Part 91: General Aviation - Business		

Analysis

The flight was part of a pre-buy inspection of the airplane. Witnesses reported the airplane did not climb more than 200 feet above ground level (agl) after takeoff. The airplane entered a shallow left turn and completed about 210 degrees of heading change before it impacted a flat field near the approach end of runway 26. Witnesses reported that the landing gear were retracted and that the engines sounded like they running at high power, but the airplane did not accelerate or climb normally. The airspeed was slow and 'mushy.' The engines' gas generator sections exhibited strong rotational scoring. The engines' power sections exhibited light rotational signatures. The left and right propellers exhibited minimal leading edge damage. Both propellers exhibited high blade angles. The secondary low pitch stops (SLPS) had been installed on the aircraft four days prior to the accident. A ground check, but no flight check, had been conducted. The SLPS sensors were found in the full aft position on the mounting bracket, not in the normal mid-range position. The SLPS control box installed on the aircraft was an updated box and was incompatible with the existing wiring.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: loss of control due to the pilot's improper in-flight decision. A factor was the improper installation of the secondary low pitch stop system by the mechanic.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

Findings
1. (F) PROPELLER SYSTEM/ACCESSORIES,ELECTRIC PITCH CTL - SHORTED
2. (F) MAINTENANCE,INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (C) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

History of Flight

On August 12, 1997, at 1153 central daylight time, a Beech BE-65-A90, N41VC, operated by South Texas Aircraft, Inc., was destroyed when it impacted terrain 1/4 mile from the Alice International Airport, Alice, Texas. Witnesses reported that that airplane departed runway 13 but did not climb more than 200 feet above ground level (agl). The airplane entered a shallow left turn and completed about 210 degrees of heading change before it impacted a field near the approach end of runway 26. The pilot, copilot, and two passengers were fatally injured. The 14 CFR Part 91 flight departed Alice, Texas, on a local flight as part of aircraft sales pre-buy flight. Visual meteorological conditions prevailed and no flight plan had been filed.

A service lineman at the airport reported seeing the pilot in the left seat of the aircraft as it taxied from the aircraft ramp to the run-up area of runway 13.

A witness who was performing a pre-flight on an aircraft located at the aircraft ramp reported that he observed the airplane during takeoff until it impacted the ground. He reported that the airplane was in the run-up area of runway 13 for 10 to 15 minutes doing its ground checks. He reported that the airplane lifted off the ground about 400 feet prior to the intersection of runway 13 and runway 17 (A ground roll of about 2,800 feet). He reported that the landing gear were retracted between 20 to 50 feet agl. He reported that the engines sounded like they were running at high power, but the airplane did not accelerate or climb normally. He reported the airplane did not climb more than 200 feet agl and the airspeed was slow and "mushy." He reported the airplane entered a shallow left turn at the end of runway 13. He described the turn as a pedal turn with the wings level, and not a coordinated 5 degree angle of bank turn. He watched the airplane continue the left turn when the right wing went up and the nose of the airplane dropped to a 20 to 30 degrees nose down attitude. The airplane went behind a line of 20 foot trees and then impacted the ground.

A cropduster pilot who was located about 1,200 feet from the approach end of runway 26 reported he had seen the accident. He reported that he observed the airplane in a left turn coming toward runway 26. He reported the airplane was about 40 to 50 feet agl. He reported that he thought the pilot was making a low pass over runway 26 because the landing gear were up. He reported that the engine noise was steady and normal. He reported that he saw the airplane suddenly turn with the right wing going straight up. He reported that the nose went up higher than the tail, and then the airplane went straight down impacting the ground with the left wingtip. He reported that a ball of fire went straight up after the airplane impacted the ground.

Personnel Information

The pilot held a commercial pilot certificate with single engine land, multi-engine land, and airplane instrument ratings. The total flight hours reported to the Federal Aviation Administration on November 11, 1995, was 17,710 hours. The pilot's logbook was not recovered and no records were produced that indicated the pilot's recent flight history. Witnesses reported that he was current and flew often during the course of operating his business, South Texas Aircraft, Inc. In 1992 the pilot had obtained an Airframe and Powerplants mechanic rating.

The co-pilot held an airline transport pilot (ATP) certificate with ATP rating in multi-engine

land and a commercial rating in single engine land aircraft. He held ATP type ratings in five jet aircraft. The total flight hours reported to the Federal Aviation Administration on October 17, 1996, was 35,000 hours. The pilot's logbook was not recovered. Recent records indicated he was current and qualified in a Cessna Citation 500 and a Beech Baron.

Aircraft Information

The airplane was a twin engine Beech BE-65-A90, King Air, serial number 242. The airplane seated 11 and had a gross weight of 9,300 pounds. The engines were 550 horsepower Pratt and Whitney PT6A-20 engines. The airplane was on an Approved Inspection Program (AIP) and was last inspected on January 24, 1997. The total airframe time was 7,249.6 hours, and had flown 5.1 hours since the last inspection.

The owner of the airplane, Allegro Aviation, had purchased the airplane in 1993.

On January 15, 1994, the airplane was put on an AIP maintenance inspection program. The airplane was operated and maintained by South Texas Aircraft, which was owned and operated by the pilot.

On May 3, 1994, the airplane underwent a 150 hour maintenance inspection. The total time on the aircraft was 7235.5 hours. The airplane flew 14.1 hours from May 3, 1994, until the day of the accident on August 12, 1997.

On November 15, 1995, the airplane was inspected as part of the AIP inspection program. The total time on the aircraft was 7243.4. It had flown 7.9 hours since the previous inspection.

The president of Allegro Aviation reported that in May of 1996, a decision was made that the airplane was no longer needed and that it should be sold. He reported that he and the owner of South Texas Aircraft agreed to swap engines on their respective airplanes before the airplane was sold.

On June 4, 1996, the left and right engines from the pilot owned Beech B90, King Air, N14V, serial number 411 (s/n 411), were removed from s/n 411 for installation on the Beech A90, King Air, N41VC, serial number 242 (s/n 242). The engines on s/n 411 were PT6A-20 (-20) engines, which were the model engines originally equipped on the aircraft. The engines on s/n 242 were PT6A-28 engines. The -28 engines were newer and more powerful engines. They had been installed on s/n 242 in 1992.

On December 13, 1996, the -20 engines were installed on s/n 242. The total time on the airframe was 7,244.3 hours. The left and right -20 engines had 3,438 hours since new, and 206 hours since a hot section inspection had been performed. The engines scheduled TBO was 3,500 hours.

The left and right propellers were overhauled in April 1996 and installed on the -20 engines on December 13, 1996. At the time of the accident, the propellers had 5.1 hours since major overhaul.

On January 24, 1997, the aircraft underwent an AIP maintenance inspection. The total time on the aircraft was 7,244.5 hours. It had not flown since the engines and propellers had been installed on December 13, 1996.

On January 25, 1997, the aircraft logbook entry stated, "Removed engine mounted secondary low pitch stop hardware for parts replacement."

On May 28, 1997, the airplane underwent maintenance for its five year maintenance items, which included:

1. Landing gear, drag braces, actuators.
2. Gear motor and clutch assembly.
3. Flap actuators.
4. Governors: left and right primary and overspeed governors.
5. Heater, Stewart-Werner, overhauled.
6. Oxygen bottle, certification.
7. Oxygen regulator, overhauled.

On May 28, 1997, the airplane also received maintenance for its IFR Certification which included the altimeters, encoders, and static system.

The total aircraft time on May 28, 1997, was 7,246.8 hours. It had flown 2.3 hours since the last inspection on January 24, 1997.

On June 24, 1997, the heater was repaired. The total time on the aircraft was 7,247.7 hours. It had flown 0.9 hours since May 28, 1997.

On July 28, 2997, the mechanic had sent a fax to a Technical Service Representative from Raytheon Aircraft's Technical Support. The faxed transmission contained the following information concerning s/n 242:

"11-6-92 -20 engines removed, -28 engines installed, engine mounted secondary low pitch stop hardware removed, all other wiring and components left intact.

CURRENT -20 engines reinstalled, trying to determine what we need to reactivate secondary low pitch stop system, if possible using existing installation."

The airframe logbook from s/n 411 indicated that on August 5, 1997, the secondary low pitch stop components were removed from the aircraft. The removed components that were listed in the logbook entry included the control box, relay board, and engine mounted hardware. The mechanic wrote, "System is inoperative" at the end of the logbook entry for s/n 411.

On August 9, 1997, the left and right engine logbooks for s/n 242 indicated that the propeller low pitch stops and the propeller reversing function were rigged in accordance with applicable King Air 90 maintenance instructions. Also, the Airworthiness Directive (AD) 80-04-02, which required that the reverse clevis thread engagement be checked, was complied with. The total time on the aircraft was 7,249.6 hours. It had flown 1.9 hours since June 24, 1997.

The August 9, 1997, s/n 242's logbook entry read, "Rigged prop low pitch and reverse in accorance with applicable instructions in King Air 90 Maintenance Manual Chapter 76. Complied with AD 80-04-02. Reverse control clevis thread engagement. Ran up, function tested satisfactorily.".

On August 9, 1997, the mechanic completed a FAA Form 337 for Major Repair and Alteration. The description of work accomplished stated the following information:

"8-9-98, N41VC, LJ-242, 7249.6TT. Replaced existing propeller secondary low pitch stop system with updated system removed from LJ-411. The following components were installed:

1. 50-329015-1	Switch bracket, 2 ea, engine mounted.
2. 50-329025	Switch carriage, 2 ea, engine mounted.
3. 50-329019	Arm swivel pin, 2 ea, engine mounted.
4. 50-329017	Arm assembly, 2 ea, engine mounted.
5. 1-899-15	Proximity switch, 2 ea, engine mounted.
6. 50-364431-611	Control box, fuselage mounted, C/L FS 146.00
7. No number	Relay panel, fuselage mounted, C/L FS 149.00
8. MS3106A10SL4S	Connector plug, prop gov, 2 ea, engine mounted.
9. M12P-LS12N	Connector plug, control box

Existing wiring, circuit breaker, and power lever switch were retained. Control box and relay panel were mounted with brackets to belly stringers under center isle floorboard between front and rear spar. Installed system is the same as shown for OEM systems s/n's LJ-365 thru LJ-501, See attached wiring diagram. This installation constitutes the same change as Beech Kit 90-3086-1 as referenced in Beech Service Instruction 0805-247R1. No change in system function or test procedure, no flight manual revision required."

The mechanic reported that the technical information that he used for modifying the secondary low pitch stop system was the manufacturer's manuals and the Beechcraft Service Instruction No. 0805-247 Rev. 1 which was available on microfiche.

The Beech Service Instruction No. 0805-247 Rev. 1 required the use of Beech Kit No. 90-3086-1 S for the parts required to accomplish the Service Instruction. The Service Instruction stated that upon its completion, a maintenance record entry must be made specifying the kit identification number and the kit serial number. There was no record that the Beech Kit 90-3086-1S was used. A kit serial number was not recorded in the aircraft's logbook.

The mechanic wrote on the FAA Form 337 that, "No change in system function or test procedure, no flight manual revision required." The Beech Service Instruction No. 0-805-247 Rev. 1 stated that the FAA approved Flight Manual Supplement p/n 131543 dated February, 1979, was applicable to the modification being accomplished by the Service Instruction, and was required to be installed in the aircraft flight manual for compliance with the Service Instruction.

The mechanic reported that on January 25, 1997, he had removed the secondary low pitch stop sensors and mounting brackets from the left and right -20 engines from s/n 242 and put them back on the -28 engines installed on s/n 411. The mechanic reported that the change was made in order that s/n 411 would have a complete system. However, -28 engines did not use the same secondary low pitch stop system that are required by the -20 engines. The -28 engines did not use the proximity switches used by the -20 engines to control secondary low pitch stop solenoid valves located on the propeller governor.

S/N 242 flew 5.1 hours with an inoperative secondary low pitch stop system between January 25, 1997, and August 9, 1997.

The mechanic reported that the secondary low stop switches needed only minor adjustments after they had been removed from s/n 411 and installed in s/n 242 on August 9, 1997.

The mechanic reported that the secondary low pitch stop connector box, relays, wire connectors, and engine hardware from s/n 411 were installed in s/n 242. He reported that the original numbered wiring for the system was still in s/n -242. He reported that he installed the secondary low pitch stop connector box at FS 146 in the centerline compartment of the aircraft behind the main wing spar. He reported that he took the existing wiring that was originally installed in the aircraft and connected the wires to a connector taken from s/n 411.

The aircraft, s/n 242, was reportedly ground tested after the installation of the secondary low pitch stop system. It was not flight tested prior to the accident flight on August 12, 1997.

A witness reported that on the morning of the accident the nacelle fuel tanks had about 60 gallons of fuel in each tank. The wing tanks were not fueled. It was uncertain how much fuel was in the wing tanks, but they were not full.

Meteorological Conditions

At 1150, weather conditions reported at the Alice International Airport were VFR. The sky was clear with 15 miles visibility. The temperature was 93 degrees Fahrenheit with the dew point at 69 degrees Fahrenheit. The winds were 180 degrees at 11 knots. The altimeter was 30.06.

Wreckage and Impact Information

The airplane wreckage was located about 2,000 feet southeast of the approach end of runway 26 at Alice International Airport, Alice, Texas. The airplane impacted in a flat, harvested farm field on about a 280 degree heading. The main wreckage was located about 220 feet from the first impact mark, and the furthest piece of wreckage was about 280 feet from the first impact mark.

The wreckage path indicated that the airplane hit the ground, left wingtip first with the airplane approximately perpendicular to the ground. Ground scars indicated that the left propeller and engine impacted the ground at about 50 to 65 feet in the wreckage path. The nose landing gear light was found 80 feet in the wreckage trail. The ground scar indicated that the right propeller and engine impacted the ground at about 80 to 95 feet in the wreckage path.

The airplane skidded on it belly from about 100 feet in the wreckage path to where it came to rest in an upright position about 220 feet from initial impact. The aircraft shed parts as it slid to a stop. The aircraft sustained a post impact fire upon ground impact which burned an area from about 100 to 150 feet in the wreckage path. The left and right engines separated from the wings. The left engine and propeller were found at about 215 feet. The right engine and propeller were found at about 250 feet in the wreckage path.

The majority of the fuselage and empennage were destroyed by fire. The right wing remained attached to the fuselage. The inboard half of the right wing was destroyed by fire. The left wing was destroyed by impact and had partially separated from the fuselage. The rudder and both horizontal stabilizers and elevator assemblies had separated from the empennage during the impact.

Both landing gear actuators exhibited fully retracted (up) positions. The left inboard flap actuator exhibited a fully retracted (up) position. The left aileron trim tab actuator and the other three flap actuators were consumed by the fire.

The cockpit instrumentation and controls were consumed by fire. The instrument panel and the right and left subpanels were consumed by fire. The remains of both power levers,

propeller control levers, and condition levers exhibited full forward positions. The flap position indicator needle exhibited an UP indication.

Medical and Pathological Conditions

Autopsies were performed on the pilot and copilot at the Nueces county Medical Examiner's Office, Corpus Christi, Texas.

Forensic Toxicology Fatal Accident Reports were prepared by the FAA Civil Aeromedical Institute. The report concerning the pilot indicated Negative results.

The toxicology report on the copilot indicated the following results:

15.0 (%) Carboxyhemoglobin detected in blood.

No Cyanide detected in blood.

No Ethanol detected in blood.

18.0 (mg/dL, mg/hg) Ethanol detected in urine.

23.00 (mg/dL, mg/hg) Acetaldehyde detected in blood.

Nicotine metabolite was detected in urine.

Tests and Research

The left and right PT6A-20 engines were examined at the Pratt & Whitney Canada Service Investigation Facilities at St. Hubert, Quebec, Canada.

The left hand engine displayed moderate impact damage and post impact fire damage, including deformation of the exhaust duct. Severe circumferential rubs were displayed by the centrifugal impeller and shroud, the compressor turbine guide vane and compressor turbine, and the compressor turbine and power turbine guide vane, due to axial contact. The compressor 1st stage blades and shroud, and the compressor turbine blades and shroud displayed strong circumferential rubbing and scoring due to radial contact. The power turbine guide vane displayed light circumferential rubbing, with concurrent static imprint marks, due to axial contact with the power turbine.

The right hand engine displayed moderate impact damage and post impact fire damage, including deformation of the exhaust duct. Strong circumferential rubs were displayed by the centrifugal impeller and shroud, the compressor turbine guide vane and compressor turbine, and the compressor turbine and power turbine guide vane, due to axial contact. The compressor 1st stage blades and shroud, and the compressor turbine blades and shroud displayed strong circimferential rubbing and scoring due to radial contact. The power turbine guide vane displayed light circumferential rubbing, with concurrent static imprint marks, due to axial contact with the power turbine.

The engine related controls and accessories were examined at the Pratt & Whitney Canada Controls and Accessories Overhaul Center. The left and right engine propeller governors were functionally tested and revealed no indications of any anomalies affecting normal operation. Operation of the left and right propeller secondary low pitch stop valves was satisfactory. There were no indications of any pre-existing anomalies to any of the engine components examined.

The left and right Hartzell propellers were examined at the Pratt & Whitney Canada Service

Investigation Facilities at St. Hubert, Quebec, Canada.

No torsional twist was indicated on either of the power turbine cases.

The left propeller blades exhibited minimal leading edge damage, and no obvious impact related twist was noted on any of the blades. Considerable paint abrasion was noted on the face sides of all the blades.

The L1 blade had blade butt end and hub arm markings that indicated the blade was about 10 to 15 degrees from feather, or a blade angle of about 72 to 77 degrees. The L2 blade was bent sharply forward at the mid-deice boot location. A slight forward directed bend was at the tip end. Total forward bend was about 90 degrees. The L2 had blade butt end and hub arm markings indicated that the blade angle was greater than the feather position. The L3 blade angle could not be determined.

The right propeller blades exhibited minimal leading blade edge damage, and no obvious impact related twist was noted on any of the blades. Some paint abrasion was noted on the face side of all three blades, but not to the extent found on the left blades.

There were no markings that could be correlated to an impact blade angle. The R1 blade bent forward about 80 degrees at the outboard end of the deice boot. The R2 blade was "s" bent; slightly forward at the tip end, slightly rearward at the outboard end of the deice boot. The tip end, towards the trailing edge side, was curled towards the face side of the blade. The R3 blade was "double s" bent about 10 to 15 degrees; forward at the tip end, rearward at the mid-blade location, and forward at the mid-deice boot location.

The fuel was tested for contaminants. The examination indicated that the fuel sample was bright and clear and visually free of undissolved water, sediment, and suspended matter.

The following is a description of the secondary low pitch stop system from the manufacturer's maintenance manual:

"A secondary low pitch stop system prevents the propeller from reversing should the normal low pitch stop system malfunction. On airplanes prior to LJ0356, except those with Kit 90-3086, 90-3035-S, or 90-9035-1S installed, this is accomplished by means of a mechanically actuated switch in conjunction with a relay and solenoid valve.

A slide block assembly that rides on the propeller slip ring closes the switch, mounted in a bracket on front of engine, when the blade angle of the propeller reaches approximately the 12 degree position. The switch closes to complete the circuit through the secondary stop relay mounted beneath the RH cabin seat deck adjacent to the first cabin window. The current, through the relay contacts, then illuminates the annunciator panel light and actuates the governor solenoid valve that shuts off oil pressure to the propeller to prevent the blades from reversing. The circuit is protected by a 5 ampere circuit breaker in the RH subpanel [Right of the copilot's control yoke] that provides power to the other components of the secondary low pitch stop system through power switches in the pedestal, which are actuated by the movement of the power levers. A test switch in the LH subpanel provides a means of bypassing the pedestal switches to provide power for an operational check of the secondary low pitch stop system. On LJ0-356 thru LJ-571 and earlier airplanes equipped with Kit 90-9035 S or 90-9035-1 S, the mechanically actuated switch had been replaced by a solid state switch and proximity sensors. The carbon block on the arm assembly for the proximity sensors, mounted in a bracket in front of the engine, rides on the propeller slip ring. When the blade angle of the

propeller is at approximately the 12 degree position, the slip ring moves the target area of the arm assembly through the magnetic lines of flux emitted by the sensors. This actuates a solid state switch mounted beneath the RH cabin seat deck parallel with the third cabin window. The remainder of the system and the way in which it functions is identical to that in which the mechanically actuated switches were utilized."

The primary governor of the propeller system on s/n -242 had a primary low pitch stop blade angle of 15 degrees. To provide protection against inadvertent reversing of the propeller due to a malfunction of the primary low pitch stop, the propeller was equipped with a secondary low pitch stop. Like the primary low pitch stop, the secondary low pitch stop blocked the flow of oil to the propeller dome. The primary stop was mechanically activated, but the secondary stop was electric. The secondary low pitch stop was set at a blade angle of 12 degrees.

Whenever the electric power triggers the secondary low pitch stop, a red annunciator panel light should illuminate. When the secondary low pitch stop is triggered, electric power is sent to the secondary low pitch stop solenoid which then closes a normally open valve to prevent any oil from entering the propeller dome. However, the oil already in the dome will slowly leak out around the transfer gland, which allows the propeller to slowly move toward higher pitch.

If the secondary stop fails due to an electrical short, power will be locked onto the secondary low pitch stop solenoid, and the normally open valve will go to its closed position. In this malfunction, the secondary low pitch stop solenoid valve cannot cycle like it should, and the leak around the transfer gland will slowly send the blade angle to high pitch, eventually reaching the feathered position if allowed to continue for a sufficient amount of time. If this type of failure occurs in flight, the pilot will notice the illumination of the red "Secondary Flight Idle Stop" annunciator panel light accompanied by a slow, steady decrease of propeller RPM as the propeller feathers. (See "Understanding the Propeller System on Beechcraft PT6 - Powered Aircraft" - received from the San Antonio FSDO staff)

The left and right secondary low pitch stop proximity switch assemblies from s/n -242 were examined. The left secondary low pitch stop proximity sensor and lever assemblies remained attached to its support bracket with the carbon block disengaged from its propeller feedback ring. The sensor and lever assembly support bracket was not fractured and exhibited aft displacement. The proximity sensor remained intact and secured on the sensor mounting bracket. Both mounting bolts were tight. The bracket exhibited the most aft possible position on its adjustment slot. The forward portion of the slot exposed 7/16 inches and the aft portion of the slot exposed 1/16 inch. The metal surface around the perimeter of the adjustment slot did not exhibit any apparent scratches or scoring marks consistent with movement of the proximity sensor during impact. The proximity sensor lever exhibited deformation from the impact, with the arm positioned forward of the sensor. The lower aft corner of the proximity sensor's face exhibited light scoring. The remaining sides of the sensor did not exhibit any outstanding impact marks.

The right secondary low pitch stop proximity sensor and lever assembly remained attached and secured to its support bracket, with the carbon block disengaged from its propeller feedback ring. The paint and attaching wire insulation was consumed by the post impact fire. The lower attachment of the proximity sensor and lever assembly support bracket had been fractured during the impact, with the bracket displaced aft and radially outward. The proximity sensor remained intact and secured on the sensor mounting bracket. Both mounting bolts were tight. The bracket exhibited a position close to the most aft possible adjustment on its slot. The

forward portion of the slot exposed 15/32 inches and the aft portion of the slot exposed 1/8 inch. The metal surface around the perimeter of the adjustment slot did not exhibit any apparent scratches or scoring marks consistent with movement of the proximity sensor during impact. The proximity sensor lever arm exhibited deformation from the impact, with the arm positioned forward of the sensor. The proximity sensor exhibited light scoring marks oriented logitudinally across the lower third of the sensor's face. The remaining sides of the sensor did not exhibit any outstanding impact marks. The sensor was similar to the left one, but the make and serial number were undetermined.

The manufacturer's safety representative reported that in order for the proximity sensor lever arm to make alignment with the secondary low pitch stop sensors, when the sensors were positioned at the full aft position, the blade angle of the propeller blade would be negative in pitch, and not at the normal 12 degree blade angle position. (See Raytheon Letter dtd February 6, 1998)

The secondary low pitch stop control box, p/n 50-364431-611, was removed from s/n -411 and was installed on s/n -242 on August 9, 1997. The control box was the common component that received electrical signals from the secondary low pitch control proximity sensors on the left and right engine, and was electrically tied in with the relay switches, the annunciator lights, the left and right propeller governor solenoid valves, the 5 ampere circuit breaker, and the power levers.

The manufacturer's safety representative reported that the secondary low pitch control box from LJ-411 would not have the same relays that were on in the original control box installed on LJ-242. He reported that due to the lack of information concerning the maintenance performed on the LJ-411 and LJ-242, it was not possible to determine if the control box could be installed using the existing wiring on LJ-242, or what changes would be required to make the system operate properly. (See Raytheon Letter dtd November 12, 1998)

Additional Information

The chief mechanic of Dude, Inc., the company that intended to purchase the airplane, reported the following information concerning the pre-buy inspection. He reported that he, the chief pilot, the copilot of the accident aircraft, and the copilot's wife, had flown to Alice, Texas, from Fort Smith, Arkansas, on the morning of August 12, 1997. They had flown in the company's Westwind jet.

He reported that the accident copilot and the copilot's wife were going to be flying s/n 242 back to Arkansas after the pre-buy inspection was completed. He reported that the co-pilot was an ex-airlines captain, and the copilot's wife was also a pilot with about 2,100 total flight hours. He reported that the co-pilot had not flown a King Air in about four years, and that the wife had five to six hours of flight time in a King Air. The chief pilot was reported to have had about 200 to 300 flight hours in a King Air. The chief mechanic reported that he had about 200 hours of flight time in a King Air, but had not flown one in about six years.

He reported that he conducted a pre-flight inspection of the aircraft while the chief pilot examined the logbooks during the pre-buy inspection. The chief mechanic reported that he did an inspection of the aircraft by opening up panels and looked for signs of proper maintenance and corrosion. He reported that the airplane looked like it had been well maintained.

He reported that normally pre-buy inspections were conducted at their hangar in Fort Smith, Arkansas. Instead the pre-buy inspection was conducted in Alice, Texas.

The chief mechanic reported that normally in a pre-buy flight, the pilot/owner of the airplane would sit in the left seat, the chief pilot would sit in the right seat, and he would be sitting behind the pedestal. His duties included observing the gauges and checking for proper systems operation. During the accident flight, the copilot was in the right seat, and the chief pilot and the copilot's wife were in the cabin seats.

He reported that he and the chief pilot were experienced in operating Garrett turboprop engines, but had limited experience with Pratt & Whitney PT-6 engines. He reported that he had no knowledge of how the secondary low pitch stop system worked.

The insurance company which insured the aircraft reported that the aircraft was covered with liability insurance, but it did not have hull insurance.

Parties to the investigation included the Federal Aviation Administration, Raytheon Aircraft Company, Pratt & Whitney, and Hartzell Propeller Company, and Dallas Aircraft Propeller and Accessories, Inc.

The wreckage and logbooks were released to Loss Management Services.

Pilot Information

Certificate:	Airline Transport	**Age:**	67, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	**Last FAA Medical Exam:**	11/07/1995
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	17710 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N41VC
Model/Series:	BE-65-A90 BE-65-A90	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	LJ-242
Landing Gear Type:	Retractable - Tricycle	**Seats:**	11
Date/Type of Last Inspection:	01/24/1997, AAIP	**Certified Max Gross Wt.:**	9300 lbs
Time Since Last Inspection:	5 Hours	**Engines:**	2 Turbo Prop
Airframe Total Time:	7250 Hours	**Engine Manufacturer:**	P&W
ELT:	Installed, not activated	**Engine Model/Series:**	PT6-A-20
Registered Owner:	ALLEGRO AVIATION INC.	**Rated Power:**	550 hp
Operator:	SOUTH TEXAS AIRCRAFT, INC.	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	ALI, 178 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	1150 CDT	**Direction from Accident Site:**	280°
Lowest Cloud Condition:	Scattered / 5000 ft agl	**Visibility**	15 Miles
Lowest Ceiling:	None / 0 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	11 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	35°C / 21°C
Precipitation and Obscuration:			
Departure Point:	(ALI)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	1150 CDT	**Type of Airspace:**	Class E

Airport Information

Airport:	ALICE INTERNATIONAL (ALI)	**Runway Surface Type:**	
Airport Elevation:	178 ft	**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 Fatal	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	JAMES P SILLIMAN	**Report Date:**	04/15/1999
Additional Participating Persons:	GARY WORTHY; SAN ANTONIO, TX DON KNUTSON; WICHITA, KS THOMAS BERTHE; S. BURLINGTON, VT ROGER STALLKAMP; PIQUA, OH		
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/.		

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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.