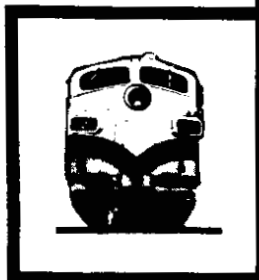
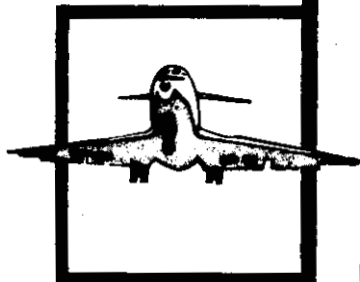


PB82-910412

PB82-910412



NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

AIRCRAFT ACCIDENT REPORT

ASHLAND PROPERTIES, INC.
CESSNA 414A, N2620L
NEAR HANOVER COUNTY AIRPORT
ASHLAND, VIRGINIA
JANUARY 3, 1982

NTSB-AAR-82-12

UNITED STATES GOVERNMENT

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA 22161

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. NTSB-AAR-82-12	2. Government Accession No. PB82-910412	3. Recipient's Catalog No.
4. Title and Subtitle Aircraft Accident Report: Ashland Properties, Inc., Cessna 414A, N2620L, near Hanover County Airport, Ashland, Virginia, January 3, 1982.		5. Report Date October 14, 1982
Author(s)		6. Performing Organization Code
7. Performing Organization Name and Address National Transportation Safety Board Bureau of Accident Investigation Washington, DC 20594		8. Performing Organization Report No.
12. Sponsoring Agency Name and Address NATIONAL TRANSPORTATION SAFETY BOARD Washington, D. C. 20594		10. Work Unit No. 3606
		11. Contract or Grant No.
		13. Type of Report and Period Covered Aircraft Accident Report January 3, 1982
		14. Sponsoring Agency Code
15. Supplementary Notes		
<p>6. Abstract At 5:04 p.m. eastern standard time on January 3, 1982, a Cessna 414A, N2620L, owned and operated by Ashland Properties, Incorporated, Ashland, Virginia, crashed in a wooded area adjacent to the Hanover County Municipal Airport, Ashland, Virginia. The airplane crashed following an attempted VOR 16 nonprecision approach to runway 16 in instrument meteorological conditions (IMC). There was a light drizzle with varying ceilings of 200 feet or less and varying visibility of not more than 1 mile. The eight persons aboard, including the pilot, were killed; the aircraft was destroyed.</p> <p>The National Transportation Safety Board determines that the probable cause of this accident was the pilot's attempt to maneuver the airplane by visual references when well below the approach minimum descent altitude in limited visibility conditions. The airplane collided with trees during the low altitude maneuvering.</p>		
17. Key words Alternate airport; VOR approach; below minimums; maneuvering at low altitude; instrument flight rules; collided with trees; limited visibility conditions.	18. Distribution Statement This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161	
19. Security Classification (of this report) UNCLASSIFIED	20. Security Classification (of this page) UNCLASSIFIED	21. No. of Pages 10
		22. Price

CONTENTS

SYNOPSIS	1
INVESTIGATION	1
History of Flight	1
Meteorological Information	3
Aids to Navigation and Airport Information	3
Wreckage	5
Medical and Pathological Information	5
Pilot Information	6
ANALYSIS AND CONCLUSIONS	6
PROBABLE CAUSE	8

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594

AIRCRAFT ACCIDENT REPORT

Adopted: October 14 1982

ASHLAND PROPERTIES, INC.
CESSNA 414A, N2620L
NEAR HANOVER COUNTY AIRPORT
ASHLAND, VIRGINIA
JANUARY 3, 1982

SYNOPSIS

At 5:04 pm. eastern standard time on January 3, 1982, a Cessna 414A, N2620L, owned and operated by Ashland Properties, Incorporated, Ashland, Virginia, crashed in a wooded area adjacent to the Hanover County Municipal Airport, Ashland, Virginia. The airplane crashed following an attempted VOR 16 nonprecision approach to runway 16 in instrument meteorological conditions (IMC). There was a light drizzle with varying ceilings of 200 feet or less and varying visibility of not more than 1 mile. The eight persons aboard, including the pilot, were killed; the aircraft was destroyed.

The National Transportation Safety Board determines that the probable cause of this accident was the pilot's attempt to maneuver the airplane by visual references when well below the approach minimum descent altitude in limited visibility conditions. The airplane collided with trees during the low altitude maneuvering.

INVESTIGATION

History of the Flight

The flight was planned for the purpose of transporting the pilot, who was president of Ashland Properties, Inc., his family, and several friends from Boca Raton, Florida, to Hanover County Municipal Airport, Ashland, Virginia, where the pilot resided.

At 1824 e.s.t. 1/ on January 2, 1982, the evening before the flight, the pilot obtained a telephone weather briefing from the Miami, Florida, Flight Service Station (FSS). That briefing included a forecast for the following day of a warm front moving northward through the southeastern coastal States, with instrument flight conditions extending into Pennsylvania. He was told by the briefer: "As the day goes on, the front will be through West Virginia, Maryland, and southern New Jersey into the ocean. Looks like you would probably be in mostly IPR conditions from about southern Georgia all the way to Richmond."

The pilot then filed an instrument flight rules (IFR) flight plan and requested a general aviation reservation (GAR) for a 1300 departure on January 3, 1982, from Boca Raton, Florida, to Hanover County Airport, Ashland, Virginia. The flight plan listed fuel on board for 5 hours 45 minutes of flight and an estimated time en route of 4 hours. Contrary to the requirements of 14 CFR 91.83(a)(9), that an alternate airport be listed

1/ All times herein are eastern standard time based on the 24-hour clock.

if the weather forecast indicates the destination airport will have ceilings less than 2,000 feet and visibility less than 3 miles for at least 1 hour before and 1 hour after the estimated time of arrival, no alternate was designated despite the nature of the terminal forecast.

At 1009 on January 3, 1982, the pilot obtained another telephone weather briefing from the Miami FSS. In this briefing, he was given the current weather conditions for his route and destination, which were in agreement with the previous forecast. Also included was a SIGMET 2/ for moderate, occasionally severe icing in clouds with multiple freezing levels. He also received the terminal forecast for Richmond, Virginia, which was: " . . . starting at 1700 Z(1200 e.s.t.) ceiling is at 800 feet overcast, 3 miles visibility in light rain and fog with occasional ceilings of 400 feet overcast, 1 mile visibility in light rain and fog."

The airplane had been refueled to capacity at Boca Raton before departure. The fuel on board at takeoff was 206 gallons. N2620L departed Boca Raton at 1257 January 3. The flight was uneventful en route and all communications were normal. At 1604:56, while under the control of Washington Air Route Traffic Control Center, the pilot requested and was authorized to leave the frequency for about 2 minutes. Normal communications were reestablished at 1606:54. On arrival in the Richmond area, Richmond approach control cleared the airplane to descend and vectored N2620L to intercept the Richmond VOR 3/ 342° radial, which provides course guidance for the VOR runway 16 approach to Hanover County Airport. The pilot also was given the Richmond altimeter setting. He did not request any other weather information from the controller. At 1647:27, when N2620L was 12 miles northwest of the Hanover County Airport, the approach controller issued a clearance for the approach, and because Hanover County Airport is an uncontrolled airport, he cleared the pilot to change to the advisory frequency (UNICOM). He also issued missed approach instructions -- to climb to 2,000 feet and proceed direct to Flat Rock VOR, 22 nmi southwest of the airport. The last radio transmission from N2620L was the pilot's acknowledgment of the change to the advisory frequency.

The approach controller continued to observe N2620L on his radarscope. He watched the target, with altitude readout, continue to 800 feet, where the altitude display was lost. He continued to monitor the primary target and observed one more altitude readout of 400 feet. The target crossed over the airport, turned northerly, then passed the airport from northeast to southwest. The target then turned again toward the northeast and disappeared from the radarscope.

Several witnesses at and near the airport either saw or heard the airplane. They all described the airplane as crossing the runway from the west side to the east. Those who saw it described it to be about 150 to 200 feet above the field and in and out of the clouds. One witness who saw it cross the airport stated that the landing gear was down and the flaps were partially extended. He also stated that he observed both the airplane's anti-collision strobe lights and the airport's runway lights to be illuminated at the time. He described the airplane as circling to the east of the airport, with the engines at high power and out of synchronization. Other witnesses near the south end of the airport saw the airplane moving in and out of the clouds heading southwest just above trees. Some described the airplane as climbing and descending in and out of the clouds while others said it was level but appeared and disappeared in the ragged overcast. All agreed it was

2/ significant Meteorological Information-a weather advisory concerning weather significant to the safety of all aircraft.

3/ Very high frequency omnidirectional radio range.

just above the tops of the trees. Witnesses watched it turn abruptly to the right, and then saw a flash near the right wingtip. The airplane then rolled sharply to the right and went straight down into the trees. The airplane crashed at $37^{\circ} 42'$ N, $77^{\circ} 26'$ W, during the hours of twilight.

Meteorological Information

There are no weather reporting facilities at Hanover County Airport. The nearest weather observation and reporting facilities are at Richmond's Byrd Field, 14 miles southeast of Hanover County Airport.

The 1653 surface weather observation at Byrd Field was: measured ceiling 300 feet, variable overcast, visibility-- 1 mile in light drizzle and fog, temperature-- 4° F, wind from 00° at 8 knots, altimeter 30.17 inHg, ceiling-- 200 feet variable to 400 feet. Local sunset on January 3 was at 1704.

Several witnesses at the Hanover County Airport, some of whom were pilots, described the weather conditions generally as light drizzle with a ragged ceiling about 200 feet and not more than 1 mile visibility.

Upper air soundings of winds aloft, measured by the National Weather Service (NWS) at Wallops Island, Virginia, Sterling, Virginia, Greensboro, North Carolina, and Cape Hatteras, North Carolina, indicated that for the entire area winds at the surface were generally easterly at 4 to 15 knots varying to southerly about 4,000 feet m.s.l.

Aids to Navigation and Airport Information

The field elevation at Hanover County Airport is 205 feet. The approach chart for the nonprecision approach to runway 16 at Hanover County Airport depicts an inbound heading of 162° using the Richmond VOR 32° radial. The final approach fix, ANNA intersection, is defined as the intersection of that inbound track and the 02° radial from the Flat Rock VOR or the 19-mile distance measuring equipment (DME) point from the Richmond VOR. This intersection is 5.2 nmi northwest of the airport and 19 nmi northwest of the Richmond VOR. (See figure 1.) The approach chart specifies a crossing altitude of 1,800 feet at the final approach fix after which the pilot may descend to, but not below, the specified minimum descent altitude of 800 feet (595 feet above ground level). The minimum visibility specified on the approach chart for the approach is 1 mile.

The Hanover County Airport is equipped with one northwest-southeast paved runway, 4,650 feet long and 80 feet wide. The runway is equipped with low intensity runway lights, but there are no approach lights. The airport is equipped with a rotating beacon.

The day after the accident, the Federal Aviation Administration (FAA) conducted a flight check of the Richmond VOR, including the Hanover County Airport runway 16 approach. The facility was found to be operating properly and the procedures for the approach were confirmed to be satisfactory.

The Federal Aviation Regulations applicable to this flight, 14 CFR 91.116, do not prohibit a pilot from making an instrument approach when the weather conditions are below the minimum conditions for landing prescribed in the published instrument approach procedure. However, they do prohibit descent below the minimum descent altitude unless the airplane is continuously in a position from which a normal descent to the runway of intended landing can be made, the flight visibility is not less than the prescribed minimum

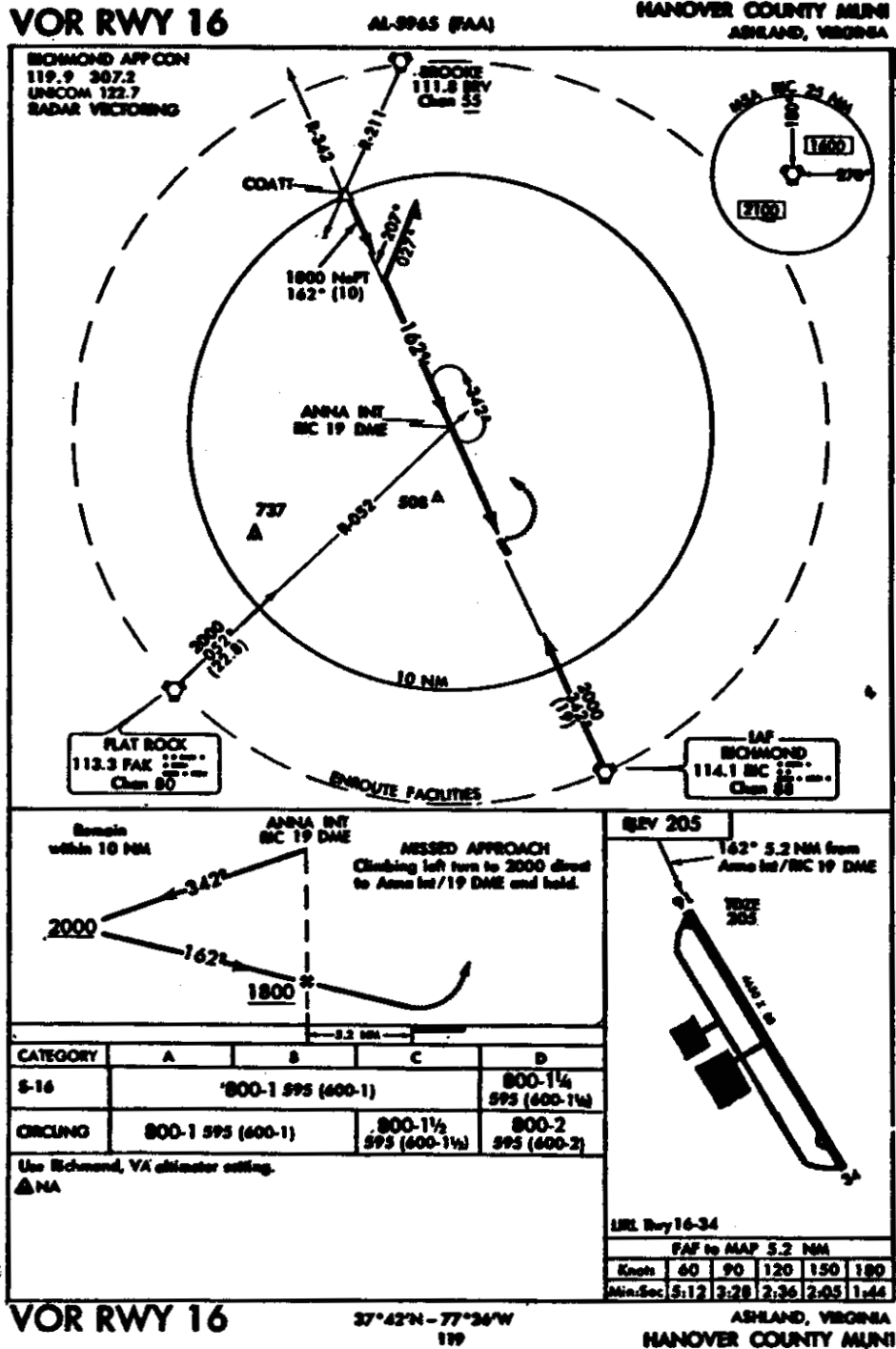


Figure 1.--Approach chart for Runway 16, Hanover County Municipal Airport, Ashland, Virginia.

"ILLUSTRATION ONLY - NOT TO BE USED FOR NAVIGATIONAL PURPOSES"

visibility, and at least one of several prescribed visual references associated with the runway—such as runway lights or runway markings—is distinctly visible to and identifiable by the pilot. If the pilot does not have visual contact with the runway upon reaching the designated missed approach point, as determined by elapsed time measurement from the final approach fix, he must execute the appropriate missed approach procedure.

Wreckage

Examination of the wreckage and the crash site disclosed that the airplane struck the ground about 85° nosedown in a heavily wooded area. Scars and propeller slash marks on a large tree about 80 feet behind the wreckage indicated the airplane descended vertically after striking the trees. The airplane was supported in a nosedown position by these trees. The nose section and cockpit area were destroyed; the two engines were imbedded in the dirt and the left wing leading edge came to rest on the ground. Part of the right outboard wing aft of the front spar, and the right engine nacelle and accessory section had been damaged by ground fire. All the passenger seats had separated from their structural attachments and were found in the cockpit area. The left wing was crushed aft and fragmented, and the fuel tank area split open. Rescue personnel stated there was a strong odor of gasoline at the site when they arrived. The outboard portion of the right wing and fuel tank, inboard from the wing closure rib, had been severely damaged by fire. The right inboard fuel tank contained fuel. The gear and flaps were retracted. Numerous tree branches and a large tree trunk showed evidence of propeller cuts. Examination of the engines disclosed no preimpact failure. The turbocharger impellers showed evidence of high rotational speed at impact.

The right wingtip assembly, outboard of the wing closure rib, was found about 15 feet behind the wreckage. It was buckled and crushed rearward toward the trailing edge, which was split open. It showed no evidence of fire damage. The wingtip strobe light assembly was missing.

Examination of the airplane's communication and navigation radios revealed that the VOR receiver had frequency 114.1 MHz selected for use and 113.5 MHz selected as standby. The Richmond VOR frequency is 114.1 MHz. The Flat Rock VOR frequency is 113.3 MHz. The No. 1 communication radio had 122.7 MHz selected for use and 126.8 MHz selected for standby. These are the respective frequencies for Hanover County UNICOM and Richmond approach control.

The Safety Board weighed all the baggage recovered from the nose baggage compartment and the cabin. The nose baggage weighed 193 pounds; the cabin baggage weighed 87 pounds. Using actual passenger weights and the airplane maintenance record weight and balance data, the takeoff gross weight was calculated to be 7,622.5 pounds and the center of gravity at 160.59 inches. The certificated maximum allowable gross weight is 6,750 pounds and the aft limit for the center of gravity is 140.04 inches. The weight and center of gravity at the time of the accident were estimated to be 6,806 pounds and 159.95 inches, respectively. Federal Aviation Regulation 14 CFR 91.31 requires that the airplane must be operated in compliance with the operating limitations as prescribed by the certificating authority. Maximum gross weight and center of gravity limitations are prescribed limitations for certificated airplanes.

Medical and Pathological Information

Postmortem and toxicological examinations of the pilot disclosed no evidence of factors which would have detracted from his ability to operate the airplane. The cause of

his death was trauma from impact. His third-class medical certificate required that he have in his possession corrective lenses for near vision. Two pairs of glasses, identified as the pilot's, were found in the cockpit wreckage.

Postmortem examination of the passengers disclosed that all died as a result of trauma from impact.

Pilot Information

The pilot held private pilot certificate No. 2077266 with airplane single and multi-engine land and instrument ratings. His certificate was issued May 11, 1974. The only record of flying time and experience which could be found was a logbook; the last entry date was June 15, 1976, and indicated the pilot had successfully completed a biennial flight review on that date. No records of more recent flying time and experience could be found. An airplane insurance application, dated December 1981, listed the pilot's total flying time as 1,809 hours with 250 hours in the Cessna 414A. It listed his most recent biennial flight review as September 1979. However, these times and dates could not be verified. On his last previous application for an airman medical certificate, dated September 25, 1981, he listed his total flight time as 1,500 hours with 70 hours in the previous 6 months.

The Safety Board interviewed several pilots who had flown with the pilot of the accident airplane, including the FAA-designated examiner who issued the pilot's instrument rating. They stated that the pilot sometimes had difficulties with instrument flying when his workload increased because of the necessity to implement procedures and perform communications tasks. They also stated he was lax in his use of procedures and did not adequately use the airplane checklist. They characterized the pilot as minimally qualified as an instrument pilot.

ANALYSIS AND CONCLUSIONS

There was no evidence of failure or malfunction of the airplane's airframe or powerplants before impact. Witness statements confirm that the engines were running at high power. An unsynchronized sound is normal when power is advanced for level-off. Evidence indicates that the fire erupted during the crash sequence, confirming that sufficient fuel remained on board for normal engine operations. Ropeller slash marks on trees and branches and the condition of the turbocharger impellers indicate that the engines were operating when they struck the trees and the ground. The accident was not survivable for either the pilot or passengers because the cockpit was completely destroyed and the seats separated from the structure.

Even though the airplane departed Boca Raton about 872 pounds heavier than the maximum allowable gross weight and with a center of gravity aft of the allowable aft limit, there is no evidence that this condition created any problems while the airplane was en route. Although the airplane center of gravity was within allowable limits during the approach to Hanover County Airport and, therefore, was not causal to this accident, the Safety Board believes that the fact that the airplane departed Boca Raton over maximum allowable gross weight and with a center of gravity aft of the allowable aft limit illustrates the pilot's disregard for safe operating practices and compliance with the Federal Aviation Regulations.

The last weather forecast received by the pilot before departing Boca Raton warned of icing conditions en route and at the destination airport. However, an analysis of the actual weather conditions in the general area of Richmond at the time of the accident

indicates that the freezing level would have been about 10,000 feet and that, therefore, icing would not have been a factor below that altitude. Further analysis of the upper winds indicate that during the approach to Hanover County Airport, the pilot would have encountered winds varying from 156° and 20 knots at 2,500 feet to 57° and 8 knots at the surface. Therefore, during the instrument approach he would have had to contend with an increase in right drift and a decreasing headwind.

The last weather observation known to have been received by the pilot was the 0955 observation given to him in the briefing before departure from Boca Raton, 7 hours before his arrival at his destination. The Richmond forecast, which he received at the same time, indicated that conditions would worsen --lower ceilings and reduced visibility--near his time of arrival at Hanover County Airport. Because he was based at Hanover County Airport, he should have been familiar with the local weather characteristics. Based on the forecast and his own experience, he should have expected to encounter essentially the same weather conditions at Hanover County Airport as those predicted for Richmond, since Richmond is only 14 nmi away. He should have considered that the ceiling and visibility would be lower than the prescribed minimums for the approach available at Hanover County, but adequate for a precision approach at Richmond's Byrd Field. Therefore, he should have planned to divert to an alternate airport such as Byrd Field or he should have made Byrd Field his destination airport, selected another suitable alternate airport, and filed a flight plan accordingly. The Safety Board believes that the fact that he did not do so is another indication of the pilot's disregard for regulations and for safe operating practices.

Although it could not be verified, the Safety Board considers that the pilot most probably left the center frequency about an hour before he arrived over Hanover County in order to contact flight service for the current Richmond weather. Also, when he arrived in the Richmond area, he should have received the current Richmond automatic terminal information service (ATIS) broadcast and likely did, which would have provided the most recent weather observations. Therefore, he should have been aware that the Hanover County Airport weather was most likely also below the approach minimums. Based on the observations of the air traffic controller and the other witnesses, the Safety Board concludes that the pilot descended below the minimum descent altitude and at the missed approach point did not execute the missed approach procedure. The airplane crossed the airport from the west, which was to the right of the approach course. The pilot probably failed to compensate properly for the increasing right drift as he descended, and when he did gain visual contact with the airport below the overcast, he found that he was not aligned with the runway and therefore not in a position to land on runway 16.

The pilot was familiar with the terrain and landmarks on and adjacent to the airport. Therefore, once he could see the lights and the ground, he probably attempted to maneuver for a landing by reference to these visual cues alone. Based on the flightpath described by several witnesses and witness observations that the airplane was below the overcast at several points along that flightpath, the Safety Board concludes that the pilot intentionally descended below the minimum descent altitude to land at Hanover County Airport and did not attempt to execute a missed approach.

The right wingtip which had separated from the main wreckage was not damaged by fire, indicating that it separated before the fire erupted; all damage to the right wingtip is consistent with impact with a tree. Witness observations of an abrupt right turn accompanied by a bright flash on the right wingtip are further evidence that the right wing struck a tree. Based on this evidence, the Safety Board concludes that, in an attempt to maintain Visual contact with ground references while maneuvering at low

altitude, the pilot allowed the airplane to descend to a point where the right wingtip hit the tree, making recovery impossible. Further, the Safety Board believes that this accident was the direct result of the imprudent actions of a pilot who disregarded safe operating practices and safety regulations in an attempt to complete a flight to his home base. The pilot's decision to attempt a landing at Hanover County Airport, given the weather forecasts and the pilot's limited skills in instrument flight, was imprudent. The pilot should have made Richmond's Byrd Field his destination, where a precision approach with appropriate minimums, approach lights, and a longer, well lighted runway were available. Alternatively, he could have made Richmond's Byrd Field his alternate airport and proceeded there when he found the weather conditions during the approach at Hanover County Airport to be below the prescribed minimums. His persistence in continuing the approach to below the ceiling and in attempting to maneuver at that low altitude in poor visibility conditions was hazardous.

While the Safety Board concludes that the main causal areas of this accident involve the pilot's intentional descent below minimum descent altitude and his continued attempt to maintain visual contact in limited visibility conditions, it also believes that this accident again demonstrates the problems encountered by pilots who are either inexperienced or not proficient for the conditions they encounter during flight. The Safety Board is especially concerned that minimally proficient or trained pilots have placed too much confidence in the sophisticated equipment on many new airplanes rather than on their own levels of competence. The pilot of N2620L was recognized as a minimally proficient instrument flier by other pilots who had flown with him. Despite this, he flew a sophisticated multiengine airplane into instrument conditions which would challenge a far more experienced and proficient pilot.

PROBABLE CAUSE

The National Transportation Safety Board determines that the probable cause of this accident was the pilot's attempt to maneuver the airplane by visual references when well below the approach minimum descent altitude in limited visibility conditions. The airplane collided with trees during the low altitude maneuvering.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ JIM BURNETT
Chairman

/s/ PATRICIA A. GOLDMAN
Vice Chairman

/s/ FRANCIS H. McADAMS
Member

/s/ G. H. PATRICK BURSLEY
Member

/s/ DONALD D. ENGEN
Member

October 14, 1982

NTIS does not permit return of items for credit or refund. A replacement will be provided if an error is made in filling your order, if the item was received in damaged condition, or if the item is defective.

Reproduced by NTIS
National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22161

This report was printed specifically for your order from our collection of more than 2 million technical reports.

For economy and efficiency, NTIS does not maintain stock of its vast collection of technical reports. Rather, most documents are printed for each order. Your copy is the best possible reproduction available from our master archive. If you have any questions concerning this document or any order you placed with NTIS, please call our Customer Services Department at (703)487-4660.

Always think of NTIS when you want:

- Access to the technical, scientific, and engineering results generated by the ongoing multibillion dollar R&D program of the U.S. Government.
- R&D results from Japan, West Germany, Great Britain, and some 20 other countries, most of it reported in English.

NTIS also operates two centers that can provide you with valuable information:

- The Federal Computer Products Center * offers software and datafiles produced by Federal agencies.
- The Center for the Utilization of Federal Technology * gives you access to the best of Federal technologies and laboratory resources.

For more information about NTIS, send for our FREE *NTIS Products and Services Catalog* which describes how you can access this U.S. and Foreign Government technology. Call (703)487-4650 or send this sheet to NTIS, U.S. Department of Commerce, Springfield, VA 22161. Ask for catalog, PR-827.

Name _____

Address _____

Telephone _____

- Your Source to U.S. and Foreign Government
Research and Technology.