

Brief of Accident (Continued)

File No. - 0641

5/28/90

DELAND, FL

A/C Reg. No. N4973V

Time (Lcl) - 0803 EDT

Occurrence #1 AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation APPROACH - MISSED APPROACH (IFR)

Finding(s)

1. ELECTRICAL SYSTEM, ELECTRIC WIRING - CHAFED
2. ELECTRICAL SYSTEM, ELECTRIC WIRING - SHORTED
3. ELECTRICAL SYSTEM, CIRCUIT BREAKER - OPEN
4. FIRE WARNING SYSTEM, POWERPLANT - FALSE INDICATION
5. PROPELLER FEATHERING - PERFORMED - PILOT IN COMMAND (CFI)
6. GEAR RETRACTION - NOT POSSIBLE -

Occurrence #2 FORCED LANDING
Phase of Operation DESCENT - EMERGENCY

Occurrence #3 NOSE OVER
Phase of Operation LANDING - ROLL

Finding(s)

7. TERRAIN CONDITION - SOFT

----Probable Cause----

The National Transportation Safety Board determines that the Probable Cause(s) of this accident was:
THE CHAFED AND SHORTED ELECTRICAL WIRING BETWEEN BUS BARS, WHICH CAUSED A PARTIAL ELECTRICAL FAILURE, RESULTED IN A FALSE FIRE WARNING INDICATION, AND PREVENTED THE RESTART OF THE RIGHT ENGINE.

National Transportation Safety Board PRELIMINARY REPORT AVIATION						2 NTSB Accident/Incident No. M I A 9 0 F A 1 3 5																																															
						3 Investigation By 1 <input checked="" type="checkbox"/> NTSB 2 <input type="checkbox"/> FAA delegated																																															
						4 I.C.A.O. Preliminary Report Submitted (NTSB only) 1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No						5 Report Status 1 <input type="checkbox"/> Initial report 2 <input checked="" type="checkbox"/> Preliminary Report																																									
1 <input checked="" type="checkbox"/> Accident 2 <input type="checkbox"/> Incident																																																					
Location/Date 6 Nearest City/Place DELAND						7 State FL		8 Zip Code (First 5 Nos.) 32720		9 Date (Nos. for M,D,Y) 5/28/90		10 Local time (24 hour clock) 0803		11 Time Zone EDT																																							
Aircraft Information 12 Registration No. N4973V														13 Aircraft Manufacturer CESSNA				14 Model/Serial No. T-303																																			
15 Type of Aircraft 1 <input checked="" type="checkbox"/> Airplane 3 <input type="checkbox"/> Glider 5 <input type="checkbox"/> Blimp/Dirigible 7 <input type="checkbox"/> Gyroplane 2 <input type="checkbox"/> Helicopter 4 <input type="checkbox"/> Balloon 6 <input type="checkbox"/> Ultralight A Specify														16 Home Built 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No																																							
Other Aircraft-Collision Between Aircraft 17 Registration No.														18 Aircraft Manufacturer				19 Model/Serial No.																																			
Accident Information 20 Aircraft Damage 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Minor 3 <input checked="" type="checkbox"/> Substantial 4 <input type="checkbox"/> Destroyed														21 Property Damage (Multiple entry) 1 <input checked="" type="checkbox"/> None 2 <input type="checkbox"/> Residence 3 <input type="checkbox"/> Residential area 4 <input type="checkbox"/> Commercial Bldg. 5 <input type="checkbox"/> Vehicle 6 <input type="checkbox"/> Airport Facility 7 <input type="checkbox"/> Trees 8 <input type="checkbox"/> Crops 9 <input type="checkbox"/> Wires, Poles 10 <input type="checkbox"/> Other property						22 Accident/Incident Phase of Operation 1 <input type="checkbox"/> Standing 2 <input type="checkbox"/> Taxi 3 <input type="checkbox"/> Takeoff 4 <input type="checkbox"/> Climb 5 <input type="checkbox"/> Cruise 6 <input type="checkbox"/> Descent 7 <input type="checkbox"/> Approach 8 <input checked="" type="checkbox"/> Landing 9 <input type="checkbox"/> Maneuvering 10 <input type="checkbox"/> Hover A Specify				23 Injury Index (Most critical injury) 1 <input type="checkbox"/> None 2 <input checked="" type="checkbox"/> Minor 3 <input type="checkbox"/> Serious 4 <input type="checkbox"/> Fatal																													
Injury Summary				24 Fatal				25 Serious				26 Minor 2				27 None																																					
Crew <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">A Name</th> <th style="width: 25%;">B Address (City, State only)</th> <th style="width: 25%;">C Certificate No.</th> <th style="width: 25%;">D Injury Code</th> </tr> </thead> <tbody> <tr> <td>RAPUANO, MICHAEL J.</td> <td>DAYTONA BEACH, FL</td> <td>136524361</td> <td>2</td> </tr> <tr> <td>FOLKERTS, DARWIN L.</td> <td>DAYTONA BEACH, FL</td> <td>512783201</td> <td>2</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>														A Name	B Address (City, State only)	C Certificate No.	D Injury Code	RAPUANO, MICHAEL J.	DAYTONA BEACH, FL	136524361	2	FOLKERTS, DARWIN L.	DAYTONA BEACH, FL	512783201	2													Passenger <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">A Name</th> <th style="width: 25%;">B Injury Code</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>				A Name	B Injury Code										
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Operator Information 42 Name EMERY-RIDDLE AERONAUTICAL UNIT														43 Operator Designator Code				44 Doing Business as (dba)																																			
45 Street Address REGIONAL AIRPORT						46 City DAYTONA BEACH						47 State FL		48 Zip Code 32014																																							
Type of Certificate(s) Held 50 Air Carrier Operating Certificate 1 <input type="checkbox"/> Flag carrier/domestic(121) 2 <input type="checkbox"/> Supplemental 3 <input type="checkbox"/> All cargo (418) 4 <input type="checkbox"/> Large helicopter(127) 5 <input type="checkbox"/> Commuter air carrier 6 <input type="checkbox"/> On-demand air taxi														51 Operating Certificate <input type="checkbox"/> Other operator of large aircraft				52 Operator Certificate 1 <input type="checkbox"/> Rotorcraft external load operator (133) 2 <input type="checkbox"/> Agricultural aircraft operator (137)																																			
Regulation Flight Conducted Under 53 1 <input checked="" type="checkbox"/> 14 CFR 91 (only) 4 <input type="checkbox"/> 14 CFR 105 7 <input type="checkbox"/> 14 CFR 127 10 <input type="checkbox"/> 14 CFR 137 A Specify 2 <input type="checkbox"/> 14 CFR 91D 5 <input type="checkbox"/> 14 CFR 121 8 <input type="checkbox"/> 14 CFR 133 11 <input type="checkbox"/> 14 CFR 129 3 <input type="checkbox"/> 14 CFR 103 6 <input type="checkbox"/> 14 CFR 125 9 <input type="checkbox"/> 14 CFR 135 (Foreign flag)																																																					
PRELIMINARY INFORMATION - SUBJECT TO CHANGE																																																					

National Transportation Safety Board PRELIMINARY REPORT AVIATION ACCIDENT/INCIDENT				NTSB Accident/Incident Number <div style="border: 1px solid black; padding: 2px; display: flex; justify-content: space-around;"> M I A 9 0 F A 1 3 5 </div>	
Type of flight Operation conducted (Complete 54, 55, 56, Only if flight was a revenue operation conducted under 121, 125, 127, 129, 135)					
54 1 <input type="checkbox"/> Scheduled 2 <input type="checkbox"/> Non-scheduled		55 1 <input type="checkbox"/> Domestic 2 <input type="checkbox"/> International		56 1 <input type="checkbox"/> Passenger 2 <input type="checkbox"/> Cargo 3 <input type="checkbox"/> Passenger/cargo 4 <input type="checkbox"/> Mail contract ONLY	
(Complete 57 ONLY if 54, 55, 56 not applicable)					
57 1 <input type="checkbox"/> Personal 2 <input type="checkbox"/> Business 3 <input checked="" type="checkbox"/> Instruction (Including air carrier training)					
		4 <input type="checkbox"/> Executive/corporate 5 <input type="checkbox"/> Aerial application 6 <input type="checkbox"/> Aerial observation		7 <input type="checkbox"/> Other work use 8 <input type="checkbox"/> Public use 9 <input type="checkbox"/> Ferry 10 <input type="checkbox"/> Positioning A Specify _____	
Flight Plan/Itinerary					
58 Flight Plan filed 1 <input type="checkbox"/> None 2 <input type="checkbox"/> VFR 3 <input checked="" type="checkbox"/> IFR 4 <input type="checkbox"/> IFR/VFR 5 <input type="checkbox"/> Company(VFR) 6 <input type="checkbox"/> Military(VFR)					
59 Itinerary-Last Departure Point 1 <input type="checkbox"/> Same as accident/incident location Nearest city/place A DAYTONA BEACH		60 State FL		61 Airport I.D. DAB	
		62 Destination (If "local", mark X here 1 <input checked="" type="checkbox"/>) Nearest city/place A _____		63 State _____	
				64 Airport I.D. _____	
Weather Information					
65 Source 1 <input type="checkbox"/> Accident site (Pilot/witness) 2 <input checked="" type="checkbox"/> Weather Observation Facility A Facility Identifier DAB		67 Sky/Lowest Cloud Condition 1 <input checked="" type="checkbox"/> Clear 2 <input type="checkbox"/> Scattered 3 <input type="checkbox"/> Thin broken 4 <input type="checkbox"/> Thin overcast 5 <input type="checkbox"/> Partial obscuration A _____ Ft. AGL		68 Lowest Ceiling 1 <input checked="" type="checkbox"/> None 2 <input type="checkbox"/> Broken 3 <input type="checkbox"/> Overcast 4 <input type="checkbox"/> Obscured A _____ Ft. AGL	
66 Time of Weather Observation 0831 (local)				69 Visibility (decimals) 12.00 SM	
				70 Temperature 79 Fahr.	
				71 Dew Point 73 Fahr.	
72 Wind Direction 150 Degrees(Mag.)		73 Wind Speed 3 Kts.		74 Gusts _____ Kts.	
		75 Altimeter 29.76 "Hg		76 Weather Conditions (at accident site) 1 <input type="checkbox"/> VMC 2 <input checked="" type="checkbox"/> IMC	
				77 Precipitation 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No	
Narrative					
78 (Brief resume of facts. The information shall not contain opinion, conjecture, or statements reflecting on the character or integrity of the persons involved.) <p style="margin-left: 40px;"> On May 28, 1990, at 0803 eastern daylight time, a Cessna T-303, N4973V, registered to Embry-Riddle Aeronautical University nosed over while making a forced landing, following shutdown of the right engine due to a fire warning. Instrument meteorological conditions prevailed at the time and an instrument flight rules clearance had been received. The airplane received substantial damage and the commercial rated flight instructor and private rated dual student received minor injuries. The flight originated at Daytona Beach, Florida, on May 28, 1990 at 0730. ***** The instructor pilot stated that after departure the right alternator fail light illuminated, and the alternator was turned off. The flight was continued. After performing </p>					
(Please continue to next page.)					
PRELIMINARY INFORMATION - SUBJECT TO CHANGE					

National Transportation Safety Board

PRELIMINARY REPORT

AVIATION

ACCIDENT/INCIDENT

NTSB Accident Incident Number

M | I | A | 9 | 0 | F | A | 1 | 3 | 5 |

Narrative (continued)

an NDB approach a missed approach was initiated. Shortly after power was applied for the missed approach the right engine fire warning activated. The right engine was shut down, per the pilot's checklist. At this time, it was also noted that the low voltage light was illuminated. The airplane would not climb after the right engine was shut down, and he verified that he had "cleaned up the airplane." The airplane would not maintain level flight, and while descending through 600 feet they entered the clouds. They broke out of the clouds at 150 to 170 feet and flew toward a field. The student asked if he should extend the gear and the instructor stated no. Touchdown in the field was made and the airplane nosed over. A small postcrash fire occurred in the left engine compartment.

Examination of the airplane after the accident by FAA inspectors indicated the landing gear was extended and locked at touchdown. The landing gear handle was in the up position and the flaps were extended to 10 degrees. The right propeller was in the feathered position and the left propeller was in the normal flight position with no rotational damage. The investigation continues.

(Attach additional pages if necessary.)

Administrative Data

79 Notification From

CROCKETT, FAA, FSDO ORLANDO, FL

80 Date (Nos. for M, D, Y)

5/28/90

81 Local Time (24 hour clock)

0930

82 Time Zone

EDT

83 FAA District Office/Coordinator

CROCKETT, FSDO ORLANDO, FL

84 Other Federal Agencies Involved In Investigation

1

☐

FBI

3

☐

DEA

5

☐

Customs

2

☐

USCG

4

☐

DOD

A

Specify _____

Investigator(s) Assigned

85 Investigator-In-Charge

JEFFREY L KENNEDY

86 Form Preparation Date (Nos. for M, D, Y)

5/30/90

87 Form Receipt Date (For NTSB use only)

5/31/90

88 Other NTSB Personnel Assigned

A

D

G

B

E

H

C

F

I

PRELIMINARY INFORMATION - SUBJECT TO CHANGE

National Transportation Safety Board ACCIDENT FILE CONTENTS		PAGE <u>2</u> OF <u>2</u> PAGE	
Transportation Mode <input checked="" type="checkbox"/> AVIATION <input type="checkbox"/> HIGHWAY <input type="checkbox"/> PIPELINE <input type="checkbox"/> INTERMODAL <input type="checkbox"/> MARINE <input type="checkbox"/> RAILROAD		NTSB FILE NO. <u>26</u>	
IDENTIFICATION OF ACCIDENT DELAND, FLORIDA CESSNA T303; N4973V 5-28-90 MIA-90-F-A135			
ITEM NO.	DESCRIPTION OF ITEM	NO. OF PAGES	
		Doc	BSA COLOR PHOTO
1.	Accident File Contents, NTSB Form 6120.3	2	
2.	Factual Report, Aviation Accident/Incident, NTSB Form 6120.4 w/Supplements "A, B, E, I, M, and S"	30	
3.	Pilot/Operator Aircraft Accident Reports, NTSB Form 6120.1/2w/Attachments	26	
4.	Sheriff's Department Report	4	
5.	Airplane Maintenance Records	24	
6.	Excerpts from Cessna T303 Information Manual	6	
7.	Telephone Conversation Slip - Cessna Aircraft	2	
8.	Postaccident Fire Warning Tests	5	
9.	Release of Aircraft Wreckage, NTSB Form 6120.15	1	
10.	Statement of Party Representatives to NTSB Investigation	2	
11.	Photographs (14) w/Negatives (4)	2	7
TOTAL NUMBER OF PAGES			



**FACTUAL REPORT
AVIATION
ACCIDENT/INCIDENT**

**National Transportation Safety Board
Washington, D.C. 20594**

NTSB Form 6120.4

Instructions

Unless otherwise stated in the instructions or on the form, all data fields must be completed. Each data field requires either a direct entry or the entry of one or more x's in appropriate blocks that best describe the mishap circumstances. Multiple entry fields may require two or more responses. Enter all applicable responses in multiple entry fields. When the selections offered are inappropriate, a two digit "other" code shall be entered in the space that follows the word "other." Do not make additional remarks in the margins as the automated data processor is not programmed to accept them. Any information which is needed to outline the sequence of events which preceded the occurrence, to support probable cause determination or which is pertinent to crashworthiness studies should be addressed in the narrative report.

"Other" Codes

- | | |
|----|--|
| 01 | Limited access to and/or limited time available at site. |
| 02 | Aircraft not recovered/missing. |
| 03 | Part/component not recovered/not located. |
| 04 | Aircraft too badly damaged to determine. |
| 05 | Part/component too badly damaged to determine. |
| 06 | Information not pertinent to accident/incident. |
| 07 | Applicable personnel could not provide information or information not available to applicable personnel. |
| 08 | Applicable personnel would not provide information. |
| 09 | Not installed. |
| 10 | Records not located/not available. |
| 11 | Information not entered on NTSB Form 6120.1. |
| 12 | See narrative report. |

Supplements

The following accident scenarios are provided to assist investigators in selecting the report forms which should supplement the basic NTSB Form 6120.4.

1. A Cessna 172 collided with a snowbank during landing goaround at an airport. Weather was not a factor. The pilot said there was no powerplant or control malfunction. The pilot and one passenger received minor injuries. The pilot had recently been certificated as a private pilot.

Complete supplemental forms F (Training and Proficiency), Q (Airport) and S (Occupant list). A "Limited" investigation should be completed.

2. A PA-31, being operated by two pilots under FAR 135, crashed into a tower while being vectored to intercept the localizer at the destination airport. The PA-31 struck the tower while being operated at an assigned altitude. Flight was in IMC. There were two fatal injuries and three serious injuries. CFR personnel responded and treated the injured.

This accident requires an onscene investigation. Thus supplement A (Wreckage documentation), B (Cockpit documentation) and I (Crash kinematics) are required. Supplements E (Second pilot), F (Training and Proficiency) and U are required because of the two pilot FAR 135 operation (even though proficiency may not be at issue). S is needed to list the occupants; T, to document the CFR activity and P, to cover the possible ATC involvement. R (Meteorology) is required to document the weather conditions. Copies of supplements K and L would be required to document injury/toxicology and seat/restraint damage information, respectively.

FACTUAL REPORT AVIATION

M I A 9 10 F A 11 12 13 14

2

2	-	
-	X	Accident
2		Incident

3 Investigation

1. X. TSE
2. F.A.C. 100-100-100

7 Flight Number

A. C. 1941

11 Accident Site Elevation

80

Feet MSL

15 Time Zone

EDT

HISTORY OF THE FLIGHT

On May 28, 1990, at 0803 (all times eastern daylight time), a Cessna T303, N4973V, registered to and operated by Embry-Riddle Aeronautical University, nosed over while making a forced landing near Deland, Florida, following loss of electrical power and shutdown of the right engine due to a fire warning. Instrument meteorological conditions prevailed at the time and an instrument flight rules clearance had been received. The airplane was destroyed, and the commercial-rated flight instructor and private-rated dual student received minor injuries. The flight originated at Daytona Beach, Florida, on May 28, 1990 at 0715.

The flight was a dual instructional flight conducted in accordance with Federal Aviation Regulation 14 CFR Part 141. The instructor pilot stated that during taxi to take off at Daytona Beach, the right alternator fail light illuminated. He noted electrical system load was below 30 amps. During pre-takeoff checks, the light went out and remained out. The flight departed with the dual student flying the airplane. They received radar vectors to the Deland non directional beacon (NDB). The right alternator fail light again illuminated. The instructor noticed that no circuit breakers were open and that total electrical system load was less than 30 amperes. They shut down the right alternator by turning off the control switch.

The flight entered holding at the Deland NDB and after four complete holding patterns, performed the NDB approach to runway 30 at the Deland Municipal Airport. Upon reaching the missed approach point, the dual student applied climb power and initiated a missed approach. The right engine fire warning activated at this time and the electrical system low voltage light was

Ken Crockett, FAA, FSDO, Orlando, FL
Dale Carter, Continental Engines, Mobile, AL
Rick Basco, Cessna Aircraft, Wichita, KS
Lyle Sunderland, ERAU, Daytona, FL
James Teski, ERAU, Daytona, FL

Jack Haun, ERAU, Daytona, FL
Joe Foole, ERAU, Daytona, FL
A.C. Tucker, ERAU, Daytona, FL

Investigated By:

19 Name/Signature

NTSB (MIA)

JEFFREY L. KENNEDY

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

M 1 A 9 0 F A 1 3 5

16 Narrative Statement of Facts, Conditions and Circumstances Pertinent to the Accident/Incident (continued)

also noted to be illuminated. The instructor pilot took control of the airplane. Upon climbing to 700 feet, the right engine was shut down and secured per the emergency checklist.

The airplane would not climb or maintain altitude after the right engine shut down even though full power was applied on the left engine. The instructor verified that they had placed the landing gear and wing flap handles to the retracted position. He did not remember hearing the landing gear retract or noticing what the landing gear light indications were. They broadcast a mayday call on the Deland unicom frequency, Daytona Beach Approach frequency, and on the emergency frequency 121.5. They also placed emergency code 7700 in the transponder.

As the flight descended through 600 feet, it entered a local area of low clouds. The student was asked to restart the right engine at this time. All controls were set for the start; however, when the starter switch was engaged the engine would not turn over. As the flight descended through 150 feet, the ground became visible and the instructor flew toward a field in preparation for a forced landing. The student asked if the landing gear should be lowered and the instructor said no due to the low airspeed. As the airplane touched down in the field, they realized the landing gear was down. As the airplane rolled out, the nose landing gear bogged down in the soft dirt and the airplane nosed over.

The occupants exited the airplane through the left rear cabin door. As they exited, they noted that the right engine fire warning was still sounding and that a small fire had begun in the area of the left engine. After approximately 20 minutes, a sheriff's department helicopter arrived at the scene. The helicopter had been launched by the Daytona Beach Approach Control after receiving the emergency code 7700 on radar.

PERSONNEL INFORMATION

The pilot-in-command flight instructor holds a commercial pilot certificate with airplane single engine land, airplane multiengine land, and instrument airplane ratings. This pilot holds a flight instructor certificate with airplane single engine land, airplane multiengine land, and instrument airplane ratings. Information furnished by the operator indicates this pilot had accumulated 1,520 total flight hours, 100 flight hours in the Cessna T303, and 930 flight hours as a flight instructor. This pilot holds a second-class medical certificate, issued on February 23, 1990, with the limitation that correcting lenses be worn while exercising the privileges of the certificate. This pilot received a biennial flight review in accordance with Federal aviation regulations on September 20, 1989.

Attach additional pages as necessary (Page 2a, 2b, 2c, etc.)

National Transportation Safety Board

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16 Narrative Statement of Facts, Conditions and Circumstances Pertinent to the Accident/Incident (continued)

The dual student holds a private pilot certificate with airplane single engine land and airplane multiengine land ratings. Information furnished by the operator indicated this pilot has accumulated 183 total flight hours, with 48 flight hours in the Cessna T303. This pilot holds a first-class medical certificate, issued on April 24, 1990, with no limitations. This pilot received a biennial flight review in accordance with Federal aviation regulations on August 21, 1989. For additional personnel information, see data fields 87 through 145 of this report, Supplement E, and attachments.

AIRCRAFT INFORMATION

The airplane was a Cessna Aircraft Company model T303, serial No. T30300285, registration No. N4973V, manufactured on June 15, 1984. The airplane was equipped with Teledyne Continental TS10-520-AE, 250-horsepower engines. Logbook records indicated the airplane had accumulated 2,542 total flight hours. The airplane received a phase six inspection in accordance with the Embry-Riddle Aeronautical University approved airplane inspection program on May 17, 1990, 42 flight hours before the accident. The left and right engines had accumulated 4,352 total hours, with 445 flight hours since overhaul. For additional airplane information see data fields 39 through 70 of this report.

WEIGHT AND BALANCE INFORMATION

Postaccident calculations indicated the airplane weighed 4,848 pounds at the time of the accident. The center of gravity was located at 151.0 inches aft of the datum. The weight and balance condition was within allowable limits for the airplane.

METEOROLOGICAL INFORMATION

The Daytona Beach Regional Airport 0831 surface weather observation was: clear skies, visibility 12 miles, temperature 79° F, dewpoint temperature 73° F, winds 150 degrees at 6 knots, and altimeter 29.76 inHg. Daytona Beach is located 15 miles east of the accident site.

The pilot-in-command stated that at the time of the accident a low cloud layer which extended from 150 feet to 600 feet above the surface was present in the area around the Deland Municipal Airport.

COMMUNICATIONS

The flightcrew stated that during the descent for the forced landing they attempted to transmit a mayday call on the Deland Airport unicom frequency, Daytona Beach Approach Control Frequency, and the emergency frequency 121.5.

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16 Narrative Statement of Facts, Conditions and Circumstances Pertinent to the Accident/Incident (continued)

They also put the emergency code 7700 in the air traffic control transponder. None of the voice calls were received by ground stations. The code 7700 from the transponder was received by the Daytona Beach Approach Control, which notified search and rescue.

After the accident, the No. 1 communications radio was found set to frequency 122.8, the Deland unicom frequency. The No. 2 communications radio was found set to frequency 125.35, the Daytona Approach frequency. The transmit selector was set to the No. 2 communications radio.

WRECKAGE AND IMPACT INFORMATION

The airplane came to rest inverted in a field approximately 3 miles east of the Deland Municipal Airplane. On site examination of the crash site was conducted by a Federal Aviation Administration airworthiness inspector. Tracks caused by the three main landing gears of the airplane extended from west to east for approximately 50 feet. At this point the airplane was lying inverted with the nose pointing to the west. All components of the airplane were found attached or lying adjacent to the airplane. The airplane structure and flight control systems were intact with no evidence of failure or malfunction.

The left propeller was found in a low pitch setting with chordwise scratches across the face of the blades. Each blade was bent aft slightly at the outboard ends. The right propeller was found in the feathered position. One blade was free to rotate in the hub.

The right engine showed no evidence to indicate the occurrence of a fire in the engine area or of excessive heating which would have caused activation of the right engine fire warning. The left engine had sustained minor fire damage to the accessory area as a result of a postcrash fire.

The main circuit breaker panel had five circuit breakers open after the accident. They were, the left bus isolation, right bus isolation, bus tie, landing gear indicator, and air conditioning compressor breakers. The landing gear handle was found in the landing gear retracted position after the accident. The landing gears were found extended and locked. The flap control handle was found in the flaps 10° position and the wing flaps were found in the 10° position. The flap handle was damaged during the accident.

Detailed examination of the airplane, systems, and engines, was accomplished by the NTSB after recovery of the airplane. Examination of the engine assemblies, ignition systems, and fuel systems, revealed no evidence to indicate precrash failure or malfunction. The left and right starter motors operated normally and rotated their respective engines. The wiring circuits for the starters had normal continuity after the accident.

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M I A 9 0 F A 1 3 5

15 Narrative Statement of Facts, Conditions and Circumstances Pertinent to the Accident/Incident (continued)

The right engine fire warning loop within the engine compartment was separated in the accident. The wiring for the system tested normal after the accident. The left engine fire warning system wiring tested normal after the accident.

The left and right alternators were tested on a test bench after the accident. The left alternator was intact and had normal output of 28 volts and 95 amperes. The right alternator case was cracked and the drive shaft was bent as a result of impact damage. This alternator put out normal voltage and 50 amperes before the test drive belt slipping off the bent drive shaft. All alternator circuitry was tested and found to have continuity after the accident. The alternator control units were tested by installation on another airplane and were found to operate normally.

Examination of the aft side of the main circuit breaker panel revealed that an electrical power supply jumper wire between two strips of the left bus was burned. This wire was found to have been caught between the breaker panel chassis and the protective liner on the airplane structure. Further examination revealed a chaffing mark on the wire insulation in which wiring with arching damage was exposed. Arching damage was present on the grounded metal chassis of the breaker panel at the point the damaged wire was found to rest on the panel. The left pilot arm rest also had slight soot damage in an area that is adjacent to the burned wire on the panel.

The flap operating motor was tested after the accident and found to draw 2 amperes with no load on it. The flap motor and flap control circuitry had continuity after the accident. The gear operating motor was found to draw 5 amperes unloaded. The gear motor and control circuitry was found to have continuity after the accident. The left bus isolation, right bus isolation, and bus tie circuit breakers were tested after the accident. Each was found to open when a load of between 50 and 60 amperes were placed on them. The battery was found to have leaked all electrolyte after the accident and could not be tested.

MEDICAL AND PATHOLOGICAL INFORMATION

The flight instructor and dual student received minor injuries as a result of the accident.

FIRE

A postcrash fire erupted in the area of the left engine turbocharger which was resting in dry grass after the accident. This fire caused damage to the engine accessory area of the left engine.

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

N I A 9 0 F A 1 5 5

16 Narrative Statement of Facts, Conditions and Circumstances Pertinent to the Accident/Incident (continued)

TESTS AND RESEARCH

The Pilot's Operating Handbook for the Cessna T303 states under section 3, emergency procedures, electrical power supply malfunctions, that:

"due to component tolerances and low signal levels, it may be normal for one ALT OFF light to be illuminated when the total load on both alternators is less than 30 amps."

The handbook states in section 7, airplane and system descriptions, that:

"a 50 amp main bus tie and 60 amp isolation circuit breakers are incorporated into the electrical system to automatically isolate the main bus bars from the battery supply current in the event of a fault of one or the other of the main buses. In such a case, the bus tie circuit breaker, labeled bus tie, would first become overloaded and open the circuit connecting the main bus bars together. If the fault remained uncorrected, the isolation circuit breaker of the affected bus bar would open, disconnecting that bus from battery supply. Without battery current, the ACU of the affected main bus shuts down the respective alternator, preventing further damage to the main bus system until correction of the fault."

Wiring diagrams for the Cessna T303 indicate that power for the engine starter motors, flap operating motor, and landing gear motor, are supplied by the left and right main bus system. As described above if the bus isolation breaker is open, no electrical power is supplied to the main bus system. This would prevent electrical power from reaching the engine starter motors, flap operating motor, and landing gear operating motor.

Performance charts contained in the Cessna T303 information manual indicated that for the conditions present at the time of the accident, the airplane should have a rate of climb of 170 feet per minute with one engine shut down, landing gear retracted, and flaps retracted. The charts do not give figures for rate of climb degradation do to extended landing gear and flaps. The instructor on N4973V stated after the right engine was shutdown, the airplane descended at approximately 200 feet per minute. (See attached excerpts from the Cessna T303 information manual.)

After the accident Embry-Riddle Aeronautical University personnel reported that on two previous occasions Cessna T303 airplanes operated by the university experienced false fire warnings due to electrical system malfunctions. They stated, in occurrences in which the bus tie circuit breaker opens and a bus isolation circuit breaker opens the engine fire warning for

Attach additional pages as necessary (Page 2a, 2b, 2c, etc.)

National Transportation Safety Board

**FACTUAL REPORT
AVIATION**

NTSB Accident/Incident Number

M I A 9 0 F A 1 3 5

15 Narrative Statement of Facts, Conditions and Circumstances Pertinent to the Accident/Incident (continued)

the respective side of the airplane (that is left bus, left engine fire warning) will activate. After the accident, this was simulated on three other Cessna T303 airplanes. (See attached report on Post Accident Fire Warning Tests and statements from flightcrews on the two previous occurrences.)

Cessna Aircraft Company engineers were notified of this false fire warning occurrence. They were able to simulate the false fire warning occurrence using a Cessna T303 airplane at the factory. They further identified the cause of the false warning and the need for a diode to be installed in the fire warning system to prevent the occurrence during times of electrical system malfunction.

Examination of the maintenance records for N4973V revealed that the last recorded time the main circuit breaker panel was pulled loose from the airplane side wall was on January 4, 1990, 443 flight hours before the accident.

ADDITIONAL INFORMATION

The airplane wreckage was released to:

Embry-Riddle Aeronautical University
Regional Airport
Daytona Beach, Florida 32014

Attach additional pages as necessary (Page 2a, 2b, 2c, etc.)

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

M71A19101FA11351

Airport/Approach/Landing Information

24 ☐ Not applicable (Go to block 39)

25 Airport Name A Other	26 Airport Identifier 	27 Accident Location 1 <input checked="" type="checkbox"/> Off airport/airstrip 2 <input type="checkbox"/> On airport 3 <input type="checkbox"/> On airstrip A Other	28 Distance From Airport Center (Nearest SM) SM A Other	29 Direction From Airport mag A Other
30 VFR Approach/Landing (Multiple entry) 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Traffic pattern 3 <input type="checkbox"/> Straight-in 4 <input type="checkbox"/> Valley/terrain following 5 <input type="checkbox"/> Go around 6 <input type="checkbox"/> Touch and go 7 <input type="checkbox"/> Full stop 8 <input type="checkbox"/> Stop and go 9 <input type="checkbox"/> Simulated forced landing 10 <input checked="" type="checkbox"/> Forced landing 11 <input type="checkbox"/> Precautionary landing A Other		31 Type Instrument Approach Flown (Multiple entry) 1 <input type="checkbox"/> None 2 <input checked="" type="checkbox"/> ADF/NDB 3 <input type="checkbox"/> SDF 4 <input type="checkbox"/> VOR/TVOR 5 <input type="checkbox"/> VOR/DME 6 <input type="checkbox"/> TACAN 7 <input type="checkbox"/> ILS-complete 8 <input type="checkbox"/> ILS-localizer 9 <input type="checkbox"/> ILS-backcourse 10 <input type="checkbox"/> RNAV 11 <input type="checkbox"/> MLS 12 <input type="checkbox"/> LDA 13 <input type="checkbox"/> ASR 14 <input type="checkbox"/> PAR 15 <input type="checkbox"/> Sidestep 16 <input type="checkbox"/> Visual 17 <input type="checkbox"/> Contact 18 <input type="checkbox"/> Circling 19 <input type="checkbox"/> Practice A Other		32 Runway Used Identifier <u>30</u> A Other
				33 Runway Length <u>6003</u> Feet A Other
				34 Runway Width <u>100</u> Feet A Other
				35 Airport Elevation <u>80</u> Ft. MSL A Other
36 Runway/Landing Surface 1 <input type="checkbox"/> Macadam 2 <input type="checkbox"/> Asphalt 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Gravel 5 <input type="checkbox"/> Dirt 6 <input checked="" type="checkbox"/> Grass/turf 7 <input type="checkbox"/> Snow 8 <input type="checkbox"/> Ice 9 <input type="checkbox"/> Water 10 <input type="checkbox"/> Metal/wood A Other		37 Runway/Landing Surface Condition 1 <input checked="" type="checkbox"/> Dry 2 <input type="checkbox"/> Wet 3 <input type="checkbox"/> Ice covered 4 <input type="checkbox"/> Snow—dry 5 <input type="checkbox"/> Snow—wet 6 <input type="checkbox"/> Snow—crusted 7 <input type="checkbox"/> Snow—compacted 8 <input type="checkbox"/> Vegetation 9 <input type="checkbox"/> Water—calm 10 <input type="checkbox"/> Water—choppy 11 <input type="checkbox"/> Water—glassy 12 <input type="checkbox"/> Rubber deposits 13 <input type="checkbox"/> Soft 14 <input type="checkbox"/> Rough 15 <input type="checkbox"/> Slush covered 16 <input type="checkbox"/> Holes A Other		

If accident occurred during approach, departure or on airport, see instructions for completing Supplement Q.

Aircraft Information

39 Aircraft Manufacturer CESSNA	40 Aircraft Model/Series T 303	41 Serial No. T30300285 A Other	42 Certificate Maximum Gross Weight 5175 A Other
43 Type of Aircraft 1 <input checked="" type="checkbox"/> Airplane 2 <input type="checkbox"/> Helicopter 3 <input type="checkbox"/> Glider 4 <input type="checkbox"/> Balloon 5 <input type="checkbox"/> Blimp/dirigible 6 <input type="checkbox"/> Ultralight 7 <input type="checkbox"/> Gyroplane A Specify		44 Type Airworthiness Certificate (Multiple entry) Standard 1 <input checked="" type="checkbox"/> Normal 2 <input type="checkbox"/> Utility 3 <input type="checkbox"/> Acrobatic 4 <input type="checkbox"/> Transport Special 5 <input type="checkbox"/> Restricted 6 <input type="checkbox"/> Limited 7 <input type="checkbox"/> Provisional 8 <input type="checkbox"/> Special flight 9 <input type="checkbox"/> Experimental A Other	
		45 Home Built 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other	

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident Incident Number

MIA 910 FAI 1351

Aircraft Information (continued)

46 Landing Gear (Multiple entry)

- | | | | | |
|--|--|---|---------------------------------------|---------------------------------------|
| 1 <input type="checkbox"/> Tricycle—fixed | 4 <input type="checkbox"/> Tailwheel—all retractable | 7 <input type="checkbox"/> Hull | 10 <input type="checkbox"/> Ski | 13 <input type="checkbox"/> High Skid |
| 2 <input checked="" type="checkbox"/> Tricycle—retractable | 5 <input type="checkbox"/> Tailwheel—retractable mains | 8 <input type="checkbox"/> Float | 11 <input type="checkbox"/> Ski/wheel | |
| 3 <input type="checkbox"/> Tailwheel—all fixed | 6 <input type="checkbox"/> Amphibian | 9 <input type="checkbox"/> Emerg. float | 12 <input type="checkbox"/> Skid | A Other |

48 No. of Seats

6

A Other

49 Stall Warning System

Installed

- 1 ☒ Yes
2 ☐ No
A Other

50 IFR Equipped

- 1 ☒ Yes
2 ☐ No
A Other

51 Icing Certification/Equipped

(Multiple entry)

- 1 ☒ Certified
2 ☐ Not Certified
3 ☒ Equipped
4 ☐ Not Equipped
A Other

52 Engine Type

- 1 ☐ Reciprocating—carburetor
2 ☒ Reciprocating—fuel injected
3 ☐ Turbo prop
4 ☐ Turbo jet
5 ☐ Turbo fan
6 ☐ Turbo shaft A Other

If no
Engine
powered.
go to
block 59

53 Engine Manufacturer

CONTINENTAL

54 Engine Model and Series

LTS10-520-AE
TSL0-520-AE

55 Engine Rated Power

- A 250 Horsepower
B _____ Lbs. Thrust
C Other

56 Number of Engines

2

A Other

If 3 or more
engines
enter
times in
Supp. C

Engine Time
(Hours)

A Total Time

B Time Since Inspection

C Time Since Major
Overhaul

D Other

57 Engine No. 1

4352

42

445

58 Engine No. 2

4352

-42

445

59 Type Maintenance Program

- 1 ☐ Annual
2 ☐ Manufacturer's Inspection Program
3 ☒ Other approved inspection program (AAIP)
4 ☐ Continuous airworthiness
A Other

60 Type of Last Inspection

- 1 ☐ Annual
2 ☐ 100 hour
3 ☒ AAIP
4 ☐ Continuous airworthiness
A Other

61 Date Last Inspection
Performed

(Nos. for M. D. Y)

5-17-90

A Other

62 Time Since inspection

42 Hours
A Other

63 Airframe Total Time

2542 Hours
A Other

64 Source of Maintenance Information

- | | |
|-----------------------------------|---|
| 1 <input type="checkbox"/> Tach | 4 <input type="checkbox"/> Logbooks Records |
| 2 <input type="checkbox"/> Flight | 5 <input type="checkbox"/> Estimate |
| 3 <input type="checkbox"/> Hobbs | 6 <input checked="" type="checkbox"/> Pilot Operator Report |
| | A Other |

65 Hazardous Materials
on Aircraft

- 1 ☒ No
A (Type) _____
B Other

Emergency Locator
Transmitter (ELT)

1	2	A
Yes	No	Other

67 Installed

☒

68 Required

☒

69 Operated

☒70 Aided in location
of accident site☒

66 Hazardous Material Spill/Factor

- 1 ☐ Yes
2 ☒ No
A Other

Owner/Operator Information

71 Registered Aircraft Owner

Name EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

72 Address

REGIONAL AIRPORT
DAYTONA BEACH, FL. 3201473 Operator of Aircraft ☒ Same as registered owner

- A Name:
B dba
C Other

74 Address

- A _____
B Other

75 Operator Certificate No.

06

A Other
76 Operator Designator Code

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MIA 910VFA/1315

Owner/Operator Information (continued)

77 Operator Status of This Aircraft

- 1 ☒ Owner
2 ☐ Lessee
3 ☐ Renter
4 ☐ Borrower
5 ☐ Unauthorized
A Other

78 Pilot Status of This Aircraft

- 1 ☐ Owner
2 ☐ Lessee
3 ☐ Renter
4 ☐ Borrower
5 ☐ Unauthorized
6 ☒ Employee
A Other

Type of Certificate(s) Held

79 None ☒ (Go to block 83)

80 Air Carrier Operating Certificate (Check all applicable)

- 1 ☐ Flag carrier/domestic (121)
2 ☐ Supplemental
3 ☐ All cargo (418)
4 ☐ Large helicopter (127)
5 ☐ Commuter air carrier
6 ☐ On-demand air taxi

81 Operating Certificate

- ☐ Other operator of
large aircraft

82 Operator Certificate

- 1 ☐ Rotorcraft—external load operator (133)
2 ☐ Agricultural aircraft (137)

Regulation Flight Conducted Under

83 Regulation Flight Conducted Under

- 1 ☒ 14 CFR 91 (only)
2 ☐ 14 CFR 91D
3 ☐ 14 CFR 103
4 ☐ 14 CFR 105
5 ☐ 14 CFR 121
6 ☐ 14 CFR 125
7 ☐ 14 CFR 127
8 ☐ 14 CFR 133
9 ☐ 14 CFR 135
10 ☐ 14 CFR 137
11 ☐ 14 CFR 129 (Foreign flag)
A Specify

Type of Flight Operation Conducted

(Complete 84a, b, c ONLY if flight was a revenue operation conducted under 121, 125, 127, 129, 135)

- 84a ☐ Scheduled
2 ☐ Non-scheduled
84b ☐ Domestic
2 ☐ International
84c ☐ Passenger
2 ☐ Cargo
3 ☐ Passenger/cargo
4 ☐ Mail contract ONLY

(Complete 86 ONLY if 84a, b, c is not applicable)

- 86 ☐ Personal
2 ☐ Business
3 ☒ Instructional (Including air carrier training)
4 ☐ Executive/corporate
5 ☐ Aerial application
6 ☐ Aerial observation
7 ☐ Other work use
8 ☐ Public use
9 ☐ Ferry
10 ☐ Positioning
A Specify

First Pilot Information

- 87 Name (Last, First, Initial)
RAPUANO, MICHAEL J.
A Other
88 Pilot Certificate No.
136524361
A Other
89 Street Address
P.O. Box 10167
A Other
90 City
DAYTONA BEACH
A Other
91 State
FL
92 Date of Birth (Nos. for M, D, Y)
9-7-66
A Other
93 Age
23 Yrs.
A Other
94 Sex
1 ☒ Male
2 ☐ Female
95 Seat Occupied
1 ☐ Left
2 ☒ Right
3 ☐ Center
4 ☐ Front
5 ☐ Rear
A Other
96 Principal Profession
1 ☒ Pilot—civilian
2 ☐ Pilot—military
3 ☐ Other—military
4 ☐ Aircraft mechanic
5 ☐ Business
6 ☐ Lawyer
7 ☐ Doctor/dentist
8 ☐ Police
9 ☐ Student
10 ☐ Clergy
11 ☐ Teacher
12 ☐ Engineer
13 ☐ Farmer/rancher
14 ☐ Retired
A Other
97 Certificate(s) (Multiple entry)
1 ☐ Student
2 ☐ Private
3 ☒ Commercial
4 ☐ Airline Transport
5 ☒ Flight Instructor
6 ☐ Flight Engineer
7 ☐ Military
8 ☐ None
9 ☐ Foreign
A Other

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident Incident Number

MZA90FA/SE

First Pilot Information (continued) (Multiple entry - blocks 96-102)

98 Ratings—Airplane 1 None 2 <input checked="" type="checkbox"/> Single engine land 3 <input checked="" type="checkbox"/> Multiengine land 4 Single engine sea 5 Multiengine sea		99 Rotorcraft/Glider/LTA 1 <input checked="" type="checkbox"/> None 2 Helicopter 3 Gyroplane 4 Airship 5 Free balloon 6 Glider		100 Instrument Rating 1 None 2 <input checked="" type="checkbox"/> Airplane 3 Helicopter		101 Instructor Rating(s) 1 None 2 <input checked="" type="checkbox"/> Airplane SE 3 <input checked="" type="checkbox"/> Airplane ME 4 Helicopter 5 Gyroplane		6 Glider 7 <input checked="" type="checkbox"/> Instrument plane 8 Instrument helicopter													
102 Ground instructor 1 None 2 <input checked="" type="checkbox"/> Basic 3 <input checked="" type="checkbox"/> Advanced 4 <input checked="" type="checkbox"/> Instructor		103 Type Rating Endorsement This Aircraft 1 Yes 2 <input checked="" type="checkbox"/> No (Go to block 105) A Other		104 Months Since Check/Endorsement This Aircraft Months A Other		105 Biennial Flight Review 1 <input checked="" type="checkbox"/> Equivalent 2 Yes 3 No A Other															
106 Months Since Last BFR 8 Months A Other		107 BFR (or equivalent) Aircraft Make/Model A Make PIPER B Model PA 44-180 C Other		108 Medical Certificate 1 None 2 Class 1 3 <input checked="" type="checkbox"/> Class 2 4 Class 3 A Other		109 Medical Certificate Validity 1 Valid medical—no waivers/limit 2 <input checked="" type="checkbox"/> Valid medical—with waivers/limit 3 Non valid medical for flight 4 Expired 5 No medical certificate A Other															
110 Date of Last Medical (Nos. for M, D, Y) 2-23-90 A Other		111 Medical limitation 1 None 2 <input checked="" type="checkbox"/> Vision A Specify B Other		112 Medical waiver 1 <input checked="" type="checkbox"/> None 2 Vision 3 Hearing A Specify B Other		113 Statement of Competency 1 Ability 2 <input checked="" type="checkbox"/> Yes 3 No A Other															
114 Correcting Lenses (Multiple entry) 1 Not required 2 Required to be in possession 3 Required, not in possession 4 <input checked="" type="checkbox"/> Required to be worn 5 Required, not worn 6 Worn at time of accident A Other				115 Source of Pilot Flight Time (Multiple entry) 1 Pilot log 2 Company 3 FAA 4 <input checked="" type="checkbox"/> Pilot Operator Report 5 Investigator's Esti 6 Relative 7 Other Person A Other																	
Flight Time		A All A/C		B This Make & Model		C Airplane Single Engine		D Airplane Multiengine		E Night		F Instrument Actual		G Instrument Simulated		H Rotorcraft		I Glider		J Other	
125 Total Time		1520		100		1390		130		75		26		200							
125 Pilot in Command (PIC)		1340		80		1230		110													
127 Instructor		930		80		850		80		65		5									
128 This Make/Model																					
129 Last 90 Days		270		50		220		50													
130 Last 30 Days		100		20		80		20				2		1							
131 Last 24 Hours		1		1		1		1													
132 Landings—Last 90 Days All Aircraft Day A Other //				133 Landings—Last 90 Days All Aircraft Night A Other //				134 Landings—Last 90 Days This Make/Model Day A Other //				135 Landings—Last 90 Days This Make/Model Night A Other //									
136 Seatbelt Available 1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other				137 Seatbelt Used 1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other				138 Shoulder Harness Available 1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other													
139 Shoulder Harness Used 1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other				140 Autopsy Performed (This pilot) 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other				141 Toxicology Performed (This pilot) 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other													

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MIZIA90VFAV351

Pilot Information (continued)

142 Person at Controls

- 1 ☒ Pilot in command
2 ☐ Second pilot
3 ☐ Both pilots
4 ☐ Non-pilot
5 ☐ No one
A Other

143 Simulated Instrument Flight

- 1 ☐ Yes
2 ☒ No
A Other

144 Vision Restricting Device Used

- 1 ☐ Yes
2 ☒ No
A Other

145 Second Pilot

- 1 ☒ Yes (Concurrent second pilot/observer)
2 ☐ No

Flight Itinerary Information

155 Last Departure Point (Multiple entry)

- 1 ☐ Same as accident/incident location or
A Airport identifier DAB
B City/Place DAYTONA BEACH
C State FL D Other

157 Destination (Multiple entry)

- 1 ☐ Same as accident/incident location or
2 ☒ Local flight
A Airport Identifier
B City/Place
C State
D Other

158 Flight Plan Filed (Multiple entry)

- 1 ☐ None
2 ☐ Visual Flight Rules (VFR)
3 ☒ Instrument Flight Rules (IFR)
4 ☐ VFR/IFR
5 ☐ Company (VFR)
6 ☐ Military (VFR)
A Other

156 Time of Departure

- A Time 0715 C Other
B Time Zone EDT

159 Type of Clearance

- 1 ☐ None
2 ☐ VFR
3 ☐ Special VFR
4 ☒ IFR
5 ☐ Special IFR
6 ☐ VFR on top
7 ☐ Cruise
8 ☐ Traffic Advisory
9 ☐ VFR Flight Following
A Other

160 Airspace

- 1 ☒ Uncontrolled
2 ☐ Controlled
3 ☐ Airport traffic area
4 ☐ Control zone
5 ☐ Airport advisory area
6 ☐ Positive control area
7 ☐ Terminal control area
8 ☐ Stage II TRSA
9 ☐ Stage III TRSA
10 ☐ Prohibited area
11 ☐ Restricted area
12 ☐ Military Operating Area (MOA)
13 ☐ Student Jet Training Area
14 ☐ Demo Area
15 ☐ Warning area
16 ☐ FAR 93
A Other

161 Control Area

- 1 ☒ None
2 ☐ Victor airway
3 ☐ Jet airway
4 ☐ Control airway
5 ☐ Colored airway
A Other

162 Route

- 1 ☒ None
2 ☐ Standard instrument departure
3 ☐ Standard terminal arrival
4 ☐ RNAV/OMEGA/LCRAN INJ
5 ☐ Direct
6 ☐ Profile Descent
7 ☐ VR route (military)
8 ☐ IR route (military)
9 ☐ SR route (military)
10 ☐ Refueling route (military)
A Other

163 Last Two Way Communications Established

- 1 ☐ None
2 ☒ Yes
A Facility Identifier DAB TOWER
B Other

Aircraft Loading Information

164 Fuel on Board at Takeoff (Multiple entry)

- 1 ☒ Estimated
2 ☐ Verified
A 700 Gallons or
B Pounds
C Other

165 Fuel Types (Multiple entry)

- 1 ☐ 80/87
2 ☒ 100 low lead
3 ☐ 100/130
4 ☐ 115/145
5 ☐ Kerosene
6 ☐ JP 3, 4, 5, 6
7 ☐ Jet A
8 ☐ Jet B
9 ☐ Mixture
10 ☐ Automotive
11 ☐ Antifreeze additive (not known)
A Other

166 Aircraft Weight at Takeoff (Multiple entry)

- 1 ☒ At or below max cert. gross takeoff weight
2 ☐ Above max certified gross takeoff weight
3 ☒ Estimated
4 ☐ Verified A Other

167 Aircraft CG at Takeoff (Multiple entry)

- 1 ☒ Within limits
2 ☐ Exceeded fwd limit
3 ☐ Exceeded aft limit
4 ☐ Exceeded lateral limit
5 ☒ Estimated
6 ☐ Verified
A Other

168 Aircraft Weight at Accident (Multiple entry)

- 1 ☐ Same as takeoff
2 ☒ At or below max cert. gross takeoff weight
3 ☐ Above max certified gross takeoff weight
4 ☒ Estimated
5 ☐ Verified
A Other

169 Aircraft CG at Accident (Multiple entry)

- 1 ☐ Same as takeoff
2 ☒ Within limits
3 ☐ Exceeded fwd limit
4 ☐ Exceeded aft limit
5 ☐ Exceeded lateral limit
6 ☒ Estimated
7 ☐ Verified
A Other

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MZA90FA135

Aircraft Loading Information (continued)

170 Load Description (Multiple entry)

- | | | | | | |
|--|--|---|---|---------------------------------------|---|
| 1 <input checked="" type="checkbox"/> None | 3 <input type="checkbox"/> Cargo | 5 <input type="checkbox"/> Towing banner | 7 <input type="checkbox"/> Parachutists | 9 <input type="checkbox"/> Chemical | 11 <input type="checkbox"/> Illegal cargo |
| 2 <input type="checkbox"/> Passengers | 4 <input type="checkbox"/> Towing glider | 6 <input type="checkbox"/> Other external | 8 <input type="checkbox"/> Water | 10 <input type="checkbox"/> Livestock | A <input type="checkbox"/> Other |

Weather Information

180 Source of Weather Briefing (Multiple entry)

- | | |
|--|--|
| 1 <input type="checkbox"/> No record of briefing (Go to block 183) | 6 <input type="checkbox"/> Company |
| 2 <input type="checkbox"/> National Weather Service (NWS) | 7 <input checked="" type="checkbox"/> Commercial weather service |
| 3 <input type="checkbox"/> Flight Service Station | 8 <input type="checkbox"/> TV radio weather |
| 4 <input type="checkbox"/> PATWAS (Pilot Automated Tel WX Answering Svc) | 9 <input type="checkbox"/> Military |
| 5 <input type="checkbox"/> VRS (Voice Response System) | A <input type="checkbox"/> Other |

181 Method of Briefing

(Multiple entry)

- | |
|--|
| 1 <input type="checkbox"/> In person |
| 2 <input checked="" type="checkbox"/> Teletype |
| 3 <input type="checkbox"/> Telephone |
| 4 <input checked="" type="checkbox"/> Aircraft radio |
| 5 <input type="checkbox"/> TV radio |
| A <input type="checkbox"/> Other |

182 Completeness of Weather briefing

- | |
|--|
| 1 <input type="checkbox"/> Weather not pertinent |
| 2 <input checked="" type="checkbox"/> Full |
| 3 <input type="checkbox"/> Partial—limited by pilot |
| 4 <input type="checkbox"/> Partial—limited by briefer/forecaster |
| A <input type="checkbox"/> Other |

183 Investigator's Source of Weather Information

- | |
|--|
| 1 <input type="checkbox"/> Pilot (Go to block 185) |
| 2 <input type="checkbox"/> Witness (Go to block 185) |
| 3 <input checked="" type="checkbox"/> Weather observation facility |

184 Weather Observation Facility

- | | |
|--------------------------------|-------------|
| A Identifier | DAB |
| B Time of observation | 0231 E0 |
| C Elevation | 10 feet MSL |
| D Distance from accident site | 15 mi |
| E Direction from accident site | 023 magm |

185 Basic Weather Conditions at Accident Site

- | |
|--|
| 1 <input type="checkbox"/> Visual Meteorological Conditions (VMC) |
| 2 <input checked="" type="checkbox"/> Instrument Meteorological Conditions (IMC) |
| A <input type="checkbox"/> Other |

186 Conditions of Light

- | |
|--|
| 1 <input type="checkbox"/> Dawn |
| 2 <input checked="" type="checkbox"/> Daylight |
| 3 <input type="checkbox"/> Night (Dark) |
| 4 <input type="checkbox"/> Night (Bright) |
| 5 <input type="checkbox"/> Dusk |
| A <input type="checkbox"/> Other |

187 Sky/Lowest/Cloud Condition

- | |
|--|
| 1 <input checked="" type="checkbox"/> Clear |
| 2 <input type="checkbox"/> Scattered |
| 3 <input type="checkbox"/> Thin broken |
| 4 <input type="checkbox"/> Thin overcast |
| 5 <input type="checkbox"/> Partial obscuration |
| A <input type="checkbox"/> _____ Feet AGL |
| B <input type="checkbox"/> Other |

188 Lowest Ceiling

- | |
|--|
| 1 <input checked="" type="checkbox"/> None |
| 2 <input type="checkbox"/> Broken |
| 3 <input type="checkbox"/> Overcast |
| 4 <input type="checkbox"/> Obscured |
| A <input type="checkbox"/> _____ Feet A |
| B <input type="checkbox"/> Other |

189 Visibility (decimals)

- | |
|------------------|
| A 12 SM |
| B RVR _____ Feet |
| C RVV _____ SM |
| D Other |

190 Temperature

79 F

A Other

191 Dew Point

73 F

A Other

192 Wind (From)

- | |
|-------------------------------------|
| 1 <input type="checkbox"/> Variable |
| A 150 Magnetic |
| B Other |

193 Wind Speed

- | |
|---|
| 1 <input type="checkbox"/> Calm |
| 2 <input type="checkbox"/> Light and Variable |
| A 6 Kts |
| B Other |

194 Gusts

- | |
|--|
| 1 <input checked="" type="checkbox"/> None |
| A _____ Kts |
| B Other |

195 Altimeter Setting

29.5 Hg

A Other

196 Density Altitude

1650 Feet

A Other

197 Restrictions to Visibility

- | |
|---|
| 1 <input checked="" type="checkbox"/> None |
| 2 <input type="checkbox"/> Haze (H) |
| 3 <input type="checkbox"/> Dust (D) |
| 4 <input type="checkbox"/> Smoke (K) |
| 5 <input type="checkbox"/> Fog (F) |
| 6 <input type="checkbox"/> Ice fog (IF) |
| 7 <input type="checkbox"/> Ground fog (GF) |
| 8 <input type="checkbox"/> Blowing spray (BY) |
| 9 <input type="checkbox"/> Blowing dust (BD) |
| 10 <input type="checkbox"/> Blowing snow (BS) |
| 11 <input type="checkbox"/> Blowing sand (BN) |
| A <input type="checkbox"/> Other |

198 Type of Precipitation

- | | |
|--|---|
| 1 <input checked="" type="checkbox"/> None (Go to block 200) | 10 <input type="checkbox"/> Snow pellets (SP) |
| 2 <input type="checkbox"/> Rain (R) | 11 <input type="checkbox"/> Snow grains (SG) |
| 3 <input type="checkbox"/> Snow (S) | 12 <input type="checkbox"/> Freezing drizzle (ZL) |
| 4 <input type="checkbox"/> Hail (A) | 13 <input type="checkbox"/> Ice crystals (IC) |
| 5 <input type="checkbox"/> Rain showers (RW) | 14 <input type="checkbox"/> Ice pellet shower (IPW) |
| 6 <input type="checkbox"/> Freezing rain (ZR) | A <input type="checkbox"/> Other |
| 7 <input type="checkbox"/> Snow shower (SW) | |
| 8 <input type="checkbox"/> Drizzle (L) | |
| 9 <input type="checkbox"/> Ice pellets (IP) | |

199 Intensity of Precipitation

- | |
|-------------------------------------|
| 1 <input type="checkbox"/> Light |
| 2 <input type="checkbox"/> Moderate |
| 3 <input type="checkbox"/> Heavy |
| A <input type="checkbox"/> Other |

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident Incident Number

MIA90FA11351

Accident Information

200 Aircraft Damage 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Minor 3 <input type="checkbox"/> Substantial 4 <input checked="" type="checkbox"/> Destroyed	201 Aircraft Fire 1 <input type="checkbox"/> None 2 <input type="checkbox"/> In-flight 3 <input checked="" type="checkbox"/> On ground A Other	202 Explosion 1 <input checked="" type="checkbox"/> None 2 <input type="checkbox"/> In-flight 3 <input type="checkbox"/> On ground A Other	203 Damage to Property 1 <input checked="" type="checkbox"/> None 2 <input type="checkbox"/> Residence 3 <input type="checkbox"/> Residential area 4 <input type="checkbox"/> Commercial bldg 5 <input type="checkbox"/> Vehicle(s)	6 <input type="checkbox"/> Airport facility 7 <input type="checkbox"/> Tree 8 <input type="checkbox"/> Crops 9 <input type="checkbox"/> Fence 10 <input type="checkbox"/> Wires poles 11 <input type="checkbox"/> Other property
--	---	---	---	---

204 Injury Index (Most critical injury)

1 ☐ None 2 ☒ Minor 3 ☐ Serious 4 ☐ Fatal

Injury Summary (Enter only one digit per block)	A Fatal	B Serious	C Minor	D None	E Total
205 First Pilot				1	1
205 Co-pilot					
207 Dual Student			1		1
208 Check Pilot					
209 Flight Engineer					
210 Cabin Attendants					
211 Other Crew					
212 Passengers					
213 TOTAL ABOARD			2		2
214 Other Aircraft					
215 Other Ground					
216 GRAND TOTAL			2		2

217 Classification

- 1 ☒ U.S. Registered Aircraft on U.S. Soil, Territories and Possessions, or International Waters
2 ☐ U.S. Registered Aircraft on Foreign Soil
3 ☐ U.S. Registered Aircraft operated by a Foreign Operator
4 ☐ Foreign Registered Aircraft on U.S. Soil, Territories or Possessions
5 ☐ Military Aircraft
6 ☐ Aircraft not Registered

Part Failure/Incorrect Part

220 Part Failure/Malfunction (Multiple entry) 1 <input type="checkbox"/> None 2 <input checked="" type="checkbox"/> Part component #1 3 <input type="checkbox"/> Part component #2 4 <input type="checkbox"/> Part component #3 A Other		221 Incorrect Part (Multiple entry) 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Part component #1 3 <input type="checkbox"/> Part component #2 4 <input type="checkbox"/> Part component #3 A Other	
	A Part/Component #1	B Part/Component #2	C Part/Component #3
222 Part Name	JUMPER WIRE		
223 ATA Code	2450		
224 Manufacturer	CESSNA		
225 Mfg. Part #	N/A		
226 Mfg. Model #	N/A		
227 Serial #	N/A		
228 Part Condition	CHAFFED / GROUNDED		
229 Total Time	2542		
230 TSO	N/A		
231 TSI	443		
232 Cycles Total	UNK		
233 Cycles Since Overhaul	N/A		
234 Cycles Since Inspection	UNK		
235 Service Difficulty Report or Malfunction/Defect Report Submitted	1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No
236 Bogus Part	1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MIA 901FA135

Supplement A

—Wreckage Documentation, Single and Twin Reciprocating Engine and Unpowered Aircraft

1 Engine #1 Serial No. <u>523302</u> A Other		2 Engine #2 Serial No. <u>524310</u> A Other		3 Supercharger Installed 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other		4 Turbocharger Installed 1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other		5 Propeller Manufacturer <u>McCaughey</u> A Other		6 Propeller Model Series <u>3AF33C50</u> A Other	
7 Propeller Type (Multiple entry) 1 <input type="checkbox"/> Wood 2 <input checked="" type="checkbox"/> Metal 3 <input type="checkbox"/> Composite 4 <input checked="" type="checkbox"/> Constant speed-controllable pitch				5 <input type="checkbox"/> Ground Adjustable/variable pitch 6 <input type="checkbox"/> Reversible 7 <input type="checkbox"/> Full automatic feathering 8 <input checked="" type="checkbox"/> Full manual feathering A Other				8 Aircraft STOL Modification Installed 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other			
Landing Gear Positions (If fixed gear, go to block 12)		9 Nose/Tail 1 <input type="checkbox"/> Up 2 <input checked="" type="checkbox"/> Down 3 <input type="checkbox"/> Intermediate A Other		10 Left Main 1 <input type="checkbox"/> Up 2 <input checked="" type="checkbox"/> Down 3 <input type="checkbox"/> Intermediate A Other		11 Right Main 1 <input type="checkbox"/> Up 2 <input checked="" type="checkbox"/> Down 3 <input type="checkbox"/> Intermediate A Other		For Rotorcraft or Balloon accidents go to block 20.			
Control Surface Positions		12 Left Trailing Edge Flap 1 <input type="checkbox"/> Up A Extended <u>10</u> deg. B Other		13 Right Trailing Edge Flap 1 <input type="checkbox"/> Up A Extended <u>10</u> deg. B Other		14 Speed Brake 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Stowed 3 <input type="checkbox"/> Deployed A Other		15 Spoiler 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Stowed 3 <input type="checkbox"/> Deployed 4 <input type="checkbox"/> Deployed asymmetric A Other			
Trim Tab Positions (Multiple entry)		16 Left Aileron 1 <input type="checkbox"/> Not installed 2 <input checked="" type="checkbox"/> Neutral 3 <input type="checkbox"/> Up 4 <input type="checkbox"/> Down A _____ deg. B Other		17 Right Aileron 1 <input type="checkbox"/> Not installed 2 <input checked="" type="checkbox"/> Neutral 3 <input type="checkbox"/> Up 4 <input type="checkbox"/> Down A _____ deg. B Other		18 Rudder 1 <input type="checkbox"/> Not installed 2 <input checked="" type="checkbox"/> Neutral 3 <input type="checkbox"/> Left 4 <input type="checkbox"/> Right A _____ deg. B Other		19 Elevator/Stabilizer Ruddervator 1 <input checked="" type="checkbox"/> Neutral 2 <input type="checkbox"/> Up 3 <input type="checkbox"/> Down A _____ deg. B Other			
Cargo Restraint System		20 Cargo Restraint Installed (Multiple entry) 1 <input checked="" type="checkbox"/> None (Go to block 26) 2 <input type="checkbox"/> Cargo net 3 <input type="checkbox"/> Straps/tie down A Other		21 Cargo Restraint Used (Multiple entry) 1 <input type="checkbox"/> None (Go to block 26) 2 <input type="checkbox"/> Cargo net 3 <input type="checkbox"/> Straps/tie down A Other		22 Cargo Restraint Failed (Multiple entry) 1 <input type="checkbox"/> None 2 <input type="checkbox"/> Cargo net 3 <input type="checkbox"/> Straps/tie down A Other					
Computed Weight and Balance Information—						Complete when weight and/or center of gravity limitations are exceeded accident flight. (Otherwise go to block 32)					
Takeoff											
26 Weight ____ Lbs		27 Center of Gravity A _____ % MAC or B _____ Inches		28 CG Range (Multiple entry) 1 <input type="checkbox"/> At takeoff weight 2 <input type="checkbox"/> At max gross weight		A _____ % MAC to _____ % MAC or B _____ Inches to _____ Inches					
Accident										32 Fuel On Board At Accident 1 <input type="checkbox"/> Estimated 2 <input type="checkbox"/> Verified A Total gallons _____ B Other	
29 Weight ____ Lbs		30 Center of Gravity A _____ % MAC or B _____ Inches		31 CG Range (Multiple entry) 1 <input type="checkbox"/> At takeoff weight 2 <input type="checkbox"/> At max gross weight		A _____ % MAC to _____ % MAC or B _____ Inches to _____ Inches					

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

M71A9101FA11351

Supplement A—Wreckage Documentation, Single and Twin Reciprocating Engine and Unpowered Aircraft (continued)

Fuel Tanks	Fuel on Board at Accident			D Tank Construction				F Spill-safe Fittings			H Fuel Leakage/Rupture				
	A Gallons Estimated	B Gallons Verified	C Other	1 Wet Wing	2 Bladder	3 Metal	E Other	1 Yes	2 No	G Other	1 None	2 Line	3 Fitting	4 Tank	I Other
33 Left Wing	50			X					X		X				
34 Right Wing	50			X					X		X				
35 Left Tip															
36 Right Tip															
37 Fuselage															
38 (Specify)															

41 Fuel Found In #1 Engine (Multiple entry) 1 <input type="checkbox"/> None 2 <input checked="" type="checkbox"/> Lines 3 <input checked="" type="checkbox"/> Gascolator/strainer 4 <input checked="" type="checkbox"/> Carburetor/fuel injector 5 <input checked="" type="checkbox"/> Engine driven pump 6 <input checked="" type="checkbox"/> Auxiliary fuel pump 7 <input checked="" type="checkbox"/> Filter(s) 8 <input checked="" type="checkbox"/> Selector valve 9 <input checked="" type="checkbox"/> Fuel manifold/spider 10 <input type="checkbox"/> Accumulator tank A Other		42 Fuel Found In #2 Engine (Multiple entry) 1 <input type="checkbox"/> None 2 <input checked="" type="checkbox"/> Lines 3 <input type="checkbox"/> Gascolator/strainer 4 <input type="checkbox"/> Carburetor/fuel injector 5 <input type="checkbox"/> Engine driven pump 6 <input type="checkbox"/> Auxiliary fuel pump 7 <input type="checkbox"/> Filter(s) 8 <input checked="" type="checkbox"/> Selector valve 9 <input type="checkbox"/> Fuel manifold/spider 10 <input type="checkbox"/> Accumulator tank A Other	
43 Flight Controls, Evidence or Operational Failure or Malfunction (Multiple entry) 1 <input checked="" type="checkbox"/> None 2 <input type="checkbox"/> Pitch control 3 <input type="checkbox"/> Roll control 4 <input type="checkbox"/> Yaw control A Other	44 Airframe/Structure, Evidence of In-Flight Separation/Failure (Multiple entry) 1 <input checked="" type="checkbox"/> None 2 <input type="checkbox"/> Helicopter (Complete Supp. G) 3 <input type="checkbox"/> General disintegration 4 <input type="checkbox"/> Left wing 5 <input type="checkbox"/> Right wing 6 <input type="checkbox"/> Left stab/elevator 7 <input type="checkbox"/> Right stab/elevator 8 <input type="checkbox"/> Vertical fin/rudder 9 <input type="checkbox"/> Canard 10 <input type="checkbox"/> Powerplant 11 <input type="checkbox"/> Cabin/cargo door A Other	45 Propeller, Evidence of In-Flight Separation/Failure 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other	46 Powerplant, Evidence of In-Flight Mechanical Malfunction 1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other
47 Fuel, Evidence of Improper Grade or Contamination (Multiple entry) 1 <input checked="" type="checkbox"/> None 2 <input type="checkbox"/> Improper grade 3 <input type="checkbox"/> Contamination A Other		48 Oil, Evidence of Improper Grade or Contamination (Multiple entry) 1 <input checked="" type="checkbox"/> None 2 <input type="checkbox"/> Improper grade 3 <input type="checkbox"/> Contamination A Other	

Emergency Locator Transmitter (ELT) Information

51 ELT Manufacturer <u>DORNE MAGOLIN</u> A Other	52 ELT Model No. <u>DM ELT 8-1</u> A Other	55 Preimpact ELT Location(s) (Multiple entry) 1 <input type="checkbox"/> Cockpit 2 <input type="checkbox"/> Cabin 3 <input type="checkbox"/> Tailcone 4 <input checked="" type="checkbox"/> Empennage 5 <input type="checkbox"/> Raft 6 <input type="checkbox"/> Survival Kit A Other
53 ELT Battery Type 1 <input checked="" type="checkbox"/> Alkaline 2 <input type="checkbox"/> Cadmium 3 <input type="checkbox"/> Nicad 4 <input type="checkbox"/> Nickel 5 <input type="checkbox"/> Lithium A Other	54 ELT Battery Expiration Date (Nos. for M. D. Y.) <u>6-30-90</u> A Other	
56 ELT-Reason for Noneffectiveness/Failure (Multiple entry) 1 <input checked="" type="checkbox"/> Operated effectively 2 <input type="checkbox"/> Insufficient G's 3 <input type="checkbox"/> Improper installation 4 <input type="checkbox"/> Battery dead 5 <input type="checkbox"/> Battery corroded 6 <input type="checkbox"/> Battery installation incorrect 7 <input type="checkbox"/> Incorrect battery 8 <input type="checkbox"/> Fire damage 9 <input type="checkbox"/> Impact damage 10 <input type="checkbox"/> Antenna broken/disconnected 11 <input type="checkbox"/> Water submersion 12 <input type="checkbox"/> Unit not armed 13 <input type="checkbox"/> Shielded by wreckage 14 <input type="checkbox"/> Shielded by terrain 15 <input type="checkbox"/> Internal failure 16 <input type="checkbox"/> Test satisfactory after accident 17 <input type="checkbox"/> Signal direction altered by terrain 18 <input type="checkbox"/> Packing device still installed 19 <input type="checkbox"/> Remote switch off A Other		

**FACTUAL REPORT
AVIATION**

MI A 90 FA 135

1 Cockpit Secured, Readings Not Pertinent 1 **Yes (Go to block 3)**

2 Cockpit/Instrument Panel Destroyed 1 ☐ Yes (Go to block 3)

Flight Instruments

Item

Item

Comm/Nav Equipment

Item

Item.

Remark.

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident Incident Number

MIA 910 FA 13 E

Supplement B—Cockpit Documentation, Single and Twin Reciprocating Engine and Unpowered Aircraft (continued)

3 Navigational Equipment/Displays Installed (Multiple entry)

- 1 ☒ OMNI Head(s) 7 ☐ LORAN Omega INS
 2 ☒ Glide slope 8 ☒ DME
 3 ☒ HSI 9 ☒ ADF
 4 ☐ Flight director 10 ☒ Marker beacons
 5 ☐ RMI A Other
 6 ☒ RNAV

4 Autopilot

- 1 ☐ Not installed
 2 ☐ Engaged
 3 ☒ Not engaged
 A Other

5 Digital Electronic/
Nav/Com Displays

- 1 ☐ Not installed
 2 ☒ Installed
 A Other

6 Primary Altimeter Type

- 1 ☐ Counter-pointer
 2 ☐ Drum-pointer
 3 ☒ 3-pointer
 4 ☐ 2-pointer
 A Other

7 Standby Altimeter Installed

- 1 ☒ Yes
 2 ☐ No
 A Other

8 Radar Altimeter Installed

- 1 ☐ Yes
 2 ☒ No
 A Other

9 Transponder

- 1 ☐ Not installed
 2 ☐ Installed-not used
 3 ☐ Installed-used
 4 ☒ Installed-used-Altitude encoding
 A Other

10 Altitude Indicator Installed

- 1 ☒ Yes
 2 ☐ No
 A Other

11 Altitude Indicator Power Source (Multiple entry)

- 1 ☒ Pressure vacuum system
 2 ☐ Pressure vacuum system-with backup power source
 3 ☐ Electrical
 4 ☐ Standby indicator with alternate power source
 A Other

12 Type of Stall Warning Indicator

- 1 ☐ None
 2 ☐ Visual light
 3 ☐ Visual-gauge
 4 ☒ Aural
 5 ☐ Stickshaker
 A Other

13 Weather Radar/Detection Equipment

- 1 ☐ Not installed
 2 ☐ Installed-on
 3 ☒ Installed-off
 4 ☐ Installed, on/off unknown
 A Other

14 Type Weather Radar/Detection Equipment (Multiple entry)

- 1 ☐ Storm scope 2 ☐ Black and white radar 3 ☒ Color radar A Other

Electrical/System Switches

18 ☐ Switches Destroyed/Inaccessible (Go to block 56)19 ☐ Switch Positions Not Pertinent (Go to block 56)

Switch/Item	Not 1 Installed	2 On	3 Off	A Other	Pertinent Setting Remark
20 Electrical Master		X			
21 Battery		X			
22 #1 Gen/Alternator		X			
23 #2 Gen/Alternator			X		
24 Inverter	X				
25 Avionics Master		X			
28 Pilot Heat			X		
29 Ice Detection	X				
30 Propeller Deice/Anti-Ice			X		
31 Windshield Deice			X		
32 Windshield Anti-Ice			X		
33 Airframe Deice			X		
36 Cabin Air/Fan			X		
37 Cabin Heater			X		
38 Air Conditioning			X		
39 Cabin Pressure Altitude	X				
40 Cabin Pressure Temperature	X				
41 Crew Oxygen	X				
42 Cabin/Passenger Oxygen	X				
45 Taxi Lights			X		
46 Landing Lights		X			
47 Rotating Beacon		X			

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FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

M71A19101FW113151

Supplement B—Cockpit Documentation, Single and Twin Reciprocating Engine and Unpowered Aircraft* (continued)

Electrical/System Switches (continued)

Switch/Item	1 Not Installed	2 On	3 Off	A Other	Pertinent Setting Remark
48 Strokes		<input checked="" type="checkbox"/>			
49 Navigation Lights		<input checked="" type="checkbox"/>			
50 Instrument Panel Lights		<input checked="" type="checkbox"/>			
51 Cockpit/Storm Lights			<input checked="" type="checkbox"/>		
52 Cabin Lights			<input checked="" type="checkbox"/>		
53 ELT Remote	<input checked="" type="checkbox"/>				

Engine Controls-No. 1 Engine

56 ☐ Engine Control Positions Not Pertinent (Go to block 55)

57 Throttle Position 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Full forward 3 <input type="checkbox"/> Midrange 4 <input checked="" type="checkbox"/> Idle A Other	58 Propeller 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Full increase (Low pitch) 3 <input type="checkbox"/> Midrange 4 <input type="checkbox"/> Full decrease (High pitch) 5 <input checked="" type="checkbox"/> Feather A Other	59 Mixture 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Full rich 3 <input type="checkbox"/> Midrange 4 <input checked="" type="checkbox"/> Idle cutoff A Other	60 Carburetor Heat 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Full on 3 <input type="checkbox"/> Partial 4 <input type="checkbox"/> Off A Other
61 Alternate Air 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Open 3 <input checked="" type="checkbox"/> Closed 4 <input type="checkbox"/> Midrange A Other	62 Cowl Flaps 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Open 3 <input checked="" type="checkbox"/> Closed 4 <input type="checkbox"/> Midrange A Other	63 Magneto Switch Position 1 <input type="checkbox"/> Not installed 2 <input checked="" type="checkbox"/> Both 3 <input type="checkbox"/> Left 4 <input type="checkbox"/> Right 5 <input type="checkbox"/> Off 6 <input type="checkbox"/> Start A Other	64 Throttle Friction 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Tight 3 <input checked="" type="checkbox"/> Loose A Other

Engine Controls-No. 2 Engine

65 ☐ Engine Control Positions Not Pertinent (Go to block 74)

66 Throttle Position 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Full forward 3 <input type="checkbox"/> Midrange 4 <input checked="" type="checkbox"/> Idle A Other	67 Propeller 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Full increase (Low pitch) 3 <input type="checkbox"/> Midrange 4 <input type="checkbox"/> Full decrease (High pitch) 5 <input checked="" type="checkbox"/> Feather A Other	68 Mixture 1 <input type="checkbox"/> Not installed 2 <input checked="" type="checkbox"/> Full rich 3 <input type="checkbox"/> Midrange 4 <input type="checkbox"/> Idle cutoff A Other	69 Carburetor Heat 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Full on 3 <input type="checkbox"/> Partial 4 <input type="checkbox"/> Off A Other
70 Alternate Air 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Open 3 <input checked="" type="checkbox"/> Closed 4 <input type="checkbox"/> Midrange A Other	71 Cowl Flaps 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Open 3 <input checked="" type="checkbox"/> Closed 4 <input type="checkbox"/> Midrange A Other	72 Magneto Switch Position 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Both 3 <input type="checkbox"/> Left 4 <input type="checkbox"/> Right 5 <input checked="" type="checkbox"/> Off 6 <input type="checkbox"/> Start A Other	73 Throttle Friction 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Tight 3 <input checked="" type="checkbox"/> Loose A Other

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FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MIA 1910 FIA 11351

Supplement B—Cockpit Documentation, Single and Twin Reciprocating Engine and Unpowered Aircraft (continued)

Landing Gear Controls/Indicators, Flight Controls/Indicators, and Fuel Selectors/Pumps

74 Landing Gear Control 1 <input type="checkbox"/> Not installed 2 <input checked="" type="checkbox"/> Up 3 <input type="checkbox"/> Down 4 <input type="checkbox"/> Off A Other	75 Landing Gear Indicator 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Up 3 <input checked="" type="checkbox"/> Down 4 <input type="checkbox"/> Transit/unsafe A Other	76 Trailing Edge Flap System 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Manual 3 <input checked="" type="checkbox"/> Electric 4 <input type="checkbox"/> Hydraulic A Other	77 Trailing Edge Flap Control 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Up A Down <u>10</u> neg B Other	78 Trailing Edge Flap Indicator 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Up A Down <u>10</u> neg B Other
79 Speed Brake Control 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Stowed 3 <input type="checkbox"/> Deployed A Other	80 Spoiler Control 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Stowed 3 <input type="checkbox"/> Deployed A Other	81 Dual Controls 1 <input type="checkbox"/> Not installed 2 <input checked="" type="checkbox"/> Installed A Other	82 Throwover Control Yoke/Position 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Left 3 <input type="checkbox"/> Right 4 <input type="checkbox"/> Intermediate A Other	
83 Elev/Stab Trim Control <i>(Multiple entry)</i> 1 <input type="checkbox"/> Not installed 2 <input checked="" type="checkbox"/> Manual 3 <input checked="" type="checkbox"/> Electric A Other	84 Elev/Stab Trim Indicator 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Up 3 <input type="checkbox"/> Down 4 <input checked="" type="checkbox"/> Neutral A Other	85 Aileron Trim Control <i>(Multiple entry)</i> 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Manual 3 <input type="checkbox"/> Electric A Other	86 Aileron Trim Indicator 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Left 3 <input type="checkbox"/> Right 4 <input checked="" type="checkbox"/> Neutral A Other	87 Rudder Trim Indicator 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> Left 3 <input type="checkbox"/> Right 4 <input checked="" type="checkbox"/> Neutral A Other
88 Fuel Selector Position(s) (Multiple entry) 1 <input type="checkbox"/> Left main 2 <input type="checkbox"/> Right main 3 <input type="checkbox"/> Both 4 <input type="checkbox"/> Left auxiliary 5 <input type="checkbox"/> Right auxiliary 6 <input type="checkbox"/> Center 7 <input type="checkbox"/> Forward 8 <input type="checkbox"/> Aft 9 <input type="checkbox"/> External tank 10 <input type="checkbox"/> Between tanks 11 <input type="checkbox"/> X-feed left to right 12 <input type="checkbox"/> X-feed right to left			13 <input checked="" type="checkbox"/> On-engine #1 14 <input type="checkbox"/> Off-engine #1 15 <input type="checkbox"/> On-engine #2 16 <input checked="" type="checkbox"/> Off-engine #2 A Other	
89 Fuel Boost Pump, Engine #1 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> On 3 <input type="checkbox"/> High 4 <input type="checkbox"/> Low 5 <input checked="" type="checkbox"/> Off A Other				
90 Fuel Boost Pump, Engine #2 1 <input type="checkbox"/> Not installed 2 <input type="checkbox"/> On 3 <input type="checkbox"/> High 4 <input type="checkbox"/> Low 5 <input checked="" type="checkbox"/> Off A Other	91 Fuel Transfer Pump 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Off A On (___ tank to ___ tank) B Other	92 Primer, Engine #1 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Locked 3 <input type="checkbox"/> Unlocked A Other	93 Primer Engine #2 1 <input checked="" type="checkbox"/> Not installed 2 <input type="checkbox"/> Locked 3 <input type="checkbox"/> Unlocked A Other	

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MIA90FA1351

Supplement E -- Second Pilot Information

1 Second Pilot Responsibilities

1 ☐ Copilot 2 ☒ Dual student 3 ☐ Safety pilot 4 ☐ Check pilot 5 ☐ None (Pilot-Rated Passenger) A Other

2 Name (Last, First, Initial)

FOLKERTS, DARWEN L.

A Other

3 Pilot Certificate No.

512783201

A Other

4 Street Address

601 BILL FRANCE BLVD.

A Other

5 City

DAYTONA BEACH

A Other

6 State

FL

7 Date of Birth (Nos. for M, D, Y)

10-24-61

A Other

8 Age

28

A Other

9 Sex

1 ☒ Male2 ☐ Female

10 Seat Occupied (Multiple entry)

1 ☒ Left 4 ☐ Front
2 ☐ Right 5 ☐ Rear
3 ☐ Center A Other

11 Principal Profession

1 ☐ Pilot-civilian 4 ☐ Aircraft mechanic 7 ☐ Doctor/dentist 10 ☐ Clergy 13 ☐ Farmer/Rancher
2 ☐ Pilot-military 5 ☐ Business 8 ☐ Police 11 ☐ Teacher 14 ☐ Retired
3 ☐ Other-military 6 ☐ Lawyer 9 ☒ Student 12 ☐ Engineer A Other

12 Certificate(s) (Multiple entry)

1 ☐ Student 7 ☐ Military
2 ☒ Private 8 ☐ None
3 ☐ Commercial 9 ☐ Foreign
4 ☐ Airline Transport A Other
5 ☐ Flight Instructor
6 ☐ Flight Engineer

13 Ratings—Airplane (Multiple entry)

1 ☐ None
2 ☒ Single engine land
3 ☒ Multiengine land
4 ☐ Single engine sea
5 ☐ Multiengine sea

14 Rotorcraft/Glider/LTA (Multiple entry)

1 ☒ None
2 ☐ Helicopter
3 ☐ Gyroplane
4 ☐ Airship
5 ☐ Free balloon
6 ☐ Glider15 Instrument Rating
(Multiple entry)1 ☒ None
2 ☐ Airplane
3 ☐ Helicopter

16 Instructor Rating(s) (Multiple entry)

1 ☒ None 5 ☐ Gyroplane
2 ☐ Airplane SE 6 ☐ Glider
3 ☐ Airplane ME 7 ☐ Instrument airplane
4 ☐ Helicopter 8 ☐ Instrument helicopter

17 Ground Instructor

1 ☐ Basic
2 ☐ Advanced
3 ☐ Instrument
4 ☒ None

18 Type Rating/Endorsement This Aircraft

1 ☐ Yes
2 ☒ No (Go to block 20)
A Other19 Months Since Check/Endorsement
This Aircraft

A Other

20 Biennial Flight Review

1 ☒ Yes
2 ☐ No
A Other

21 Months Since Last BFR

9 Months
A Other

22 BFR (or equivalent) Aircraft Make/Model

A Make CESSNA
B Model 172
C Other

23 Medical Certificate

1 ☐ None
2 ☒ Class 1
3 ☐ Class 2
4 ☐ Class 3
A Other

24 Medical Certificate Validity

1 ☒ Valid medical-no waivers/limitations 5 ☐ No medical certificate
2 ☐ Valid medical-with waivers/limitations A Other
3 ☐ Non valid medical for this flight
4 ☐ Expired

25 Date of Last Medical (Nos. for D, M, Y)

4-24-90
A Other

26 Medical Limitation

1 ☒ None
2 ☐ Vision
A Specify _____
B Other

27 Medical Waiver

1 ☒ None
2 ☐ Vision
3 ☐ Hearing
A Specify _____
B Other

28 Statement of Demonstrated Ability

1 ☐ Yes
2 ☒ No
A Other

29 Correcting Lenses (Multiple entry)

1 ☒ Not required
2 ☐ Required to be in possession
3 ☐ Required, not in possession
4 ☐ Required to be worn
5 ☐ Required, not worn
6 ☐ Worn at time of accident
A Other

33 Source of Pilot Time

1 ☐ Pilot Log 3 ☐ FAA 5 ☐ Investigator's Estimate 7 ☐ Other Person
2 ☐ Company 4 ☒ Pilot/Operator Report 6 ☐ Relative A Other

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

M I A 9 0 F A 1 3 5 1 0

Supplement E — Second Pilot Information (continued)

Flight Time	A All A/C	B This Make & Model	C Airplane Single Engine	D Airplane Multi Engine	E Night	F Instrument		G Simulated	H Rotorcraft	I Glider	J Lighter Than Air	K Other Code
35 Total Time	183	48	135	48	19	4	60					
36 Pilot in Command (PIC)	79	5	74	5	5							
37 Instructor												
38 This Make/Model												
39 Last 90 Days	21	21		21	2	1	12					
40 Last 30 Days	13	13		13		1	2					
41 Last 24 Hours	1	1		1								
42 Landings—Last 30 Days— All Aircraft—Day			43 Landings—Last 90 Days—All Aircraft—Night				44 Landings—Last 90 Days—This Make/Model—Day					
A Other //			A Other //				A Other //					
45 Landings—Last 90 Days— This Make/Model—Night			46 Seatbelt Available				47 Seatbelt Used					
A Other //			1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other				1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other					
48 Shoulder Harness Available		49 Shoulder Harness Used		50 Autopsy Performed — (This Pilot)				51 Toxicology Performed — (This Pilot)				
1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other		1 <input checked="" type="checkbox"/> Yes 2 <input type="checkbox"/> No A Other		1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other				1 <input type="checkbox"/> Yes 2 <input checked="" type="checkbox"/> No A Other				

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MIA 90FA135

Supplement I—Crash Kinematics

1 Accident Site Geographic Coordinates—Latitude (Multiple entry)

- 1 ☒ North A 29 deg. 04 minutes
2 ☐ South B Other

2 Accident Site Geographic Coordinates—Longitude (Multiple entry)

- 1 ☐ East A 081 deg. 17 minutes
2 ☒ West B Other

3 Impact Sequence—(Number in sequence. Multiple entry.)

- | | | | |
|--|--|--|--|
| 1 <input type="checkbox"/> None | 7 <input checked="" type="checkbox"/> 1 Ground | 13 <input type="checkbox"/> Trees/limbs 12" diam. and up | 19 <input type="checkbox"/> Runway light |
| 2 <input type="checkbox"/> Rock face | 8 <input type="checkbox"/> Dirt bank | 14 <input type="checkbox"/> Frangible approach aid | 20 <input type="checkbox"/> Water |
| 3 <input type="checkbox"/> Rigid structure | 9 <input type="checkbox"/> Scrub tree | 15 <input type="checkbox"/> Non-frangible approach aid | 21 <input type="checkbox"/> Wire |
| 4 <input type="checkbox"/> Rocks to 1' diam | 10 <input type="checkbox"/> Trees/limbs to 6" diam. | 16 <input type="checkbox"/> Submerged obstacle | 22 <input type="checkbox"/> Pole |
| 5 <input type="checkbox"/> Rocks 1'-2' diam. | 11 <input type="checkbox"/> Trees/limbs 6"-9" diam. | 17 <input type="checkbox"/> Vehicle | 23 <input type="checkbox"/> Snow bank |
| 6 <input type="checkbox"/> Rocks > 2' diam | 12 <input type="checkbox"/> Trees/limbs 9"-12" diam. | 18 <input type="checkbox"/> Aircraft | A Other |

4 Terrain at Principal Impact Point (Multiple entry)

- | | | | |
|--|--|--|----------------------------------|
| 1 <input type="checkbox"/> None | 6 <input type="checkbox"/> Packed snow | 11 <input type="checkbox"/> Dry sod | 16 <input type="checkbox"/> Rock |
| 2 <input type="checkbox"/> Wet cultivated soil | 7 <input type="checkbox"/> Loose snow | 12 <input checked="" type="checkbox"/> Wet sod | 17 <input type="checkbox"/> Ice |
| 3 <input type="checkbox"/> Dry cultivated soil | 8 <input type="checkbox"/> Concrete | 13 <input type="checkbox"/> Water | 18 <input type="checkbox"/> Mud |
| 4 <input type="checkbox"/> Dry packed clay | 9 <input type="checkbox"/> Asphalt | 14 <input type="checkbox"/> Tundra | 19 <input type="checkbox"/> Sand |
| 5 <input type="checkbox"/> Boggy swampy | 10 <input type="checkbox"/> Loose rock | 15 <input type="checkbox"/> Dirt | A Other |

Principal Impact Kinematics

5 Airspeed At Impact (Enter direct or mark estimated range)

- | | | |
|---|-------------------------------------|--|
| 1 <input type="checkbox"/> 0-15 | 6 <input type="checkbox"/> 75-95 | 11 <input type="checkbox"/> 210 plus knots |
| 2 <input type="checkbox"/> 15-30 | 7 <input type="checkbox"/> 90-120 | A _____ Knots |
| 3 <input checked="" type="checkbox"/> 30-45 | 8 <input type="checkbox"/> 120-150 | B Other |
| 4 <input checked="" type="checkbox"/> 45-60 | 9 <input type="checkbox"/> 150-180 | |
| 5 <input type="checkbox"/> 60-75 | 10 <input type="checkbox"/> 180-210 | |

6 Flight Path Angle (Enter direct or mark estimated range)

- | | | |
|--|-----------------------------------|-----------------------------------|
| 1 <input type="checkbox"/> Up | 6 <input type="checkbox"/> 15-20 | 11 <input type="checkbox"/> 60-90 |
| 2 <input checked="" type="checkbox"/> Down | 7 <input type="checkbox"/> 20-25 | A _____ Degrees |
| 3 <input checked="" type="checkbox"/> 0-5 | 8 <input type="checkbox"/> 25-30 | B Other |
| 4 <input type="checkbox"/> 5-10 | 9 <input type="checkbox"/> 30-45 | |
| 5 <input type="checkbox"/> 10-15 | 10 <input type="checkbox"/> 45-60 | |

7 Pitch Attitude At Impact (Enter direct or mark estimated range.)

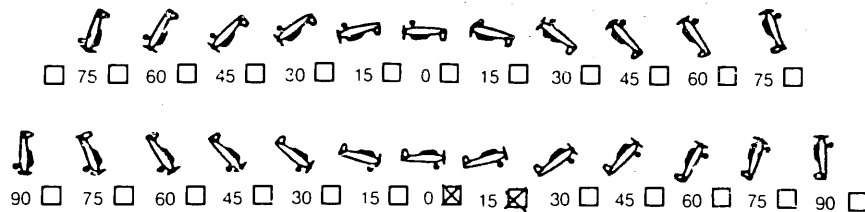
Pitch Attitude

Nose Down Angle With Horizon

Nose Up Angle With Horizon

- 1 ☐ Down
2 ☐ Up

A _____ Deg.



B
or Other

8 Roll Attitude At Impact (Enter direct or mark estimated range.)

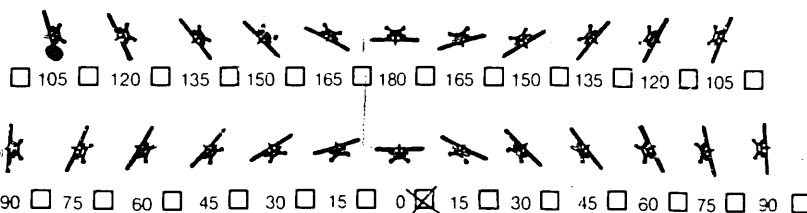
Roll

Aircraft Rolled Left

Aircraft Rolled Right

- 1 ☐ Left
2 ☐ Right

A _____ Deg.



B
or Other

National Transportation Safety Board

FACTUAL REPORT
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NTSB Accident/Incident Number

ML1A9IC1FA113151

Supplement I—Crash Kinematics (continued)

9 Yaw Attitude at Impact (Enter direct or mark estimated range.)

- 1 ☐ Nose left
2 ☐ Nose right
A Deg

Aircraft Yawed Left

Aircraft Yawed Right

or

B Other

90 ☐ 75 ☐ 60 ☐ 45 ☐ 30 ☐ 15 ☐ 0 ☒ 15 ☐ 30 ☐ 45 ☐ 60 ☐ 75 ☐ 90 ☐

10 Terrain Angle

- 1 ☒ Level
A Up deg
B Down deg
C Other

11 Principal Impact Ground Scar Length

- 1 ☒ None
A feet
B Other

12 Principal Impact Ground Scar Depth

- 1 ☒ None
A inches
B Other

13 Fuselage Totally Destroyed

- 1 ☐ Yes (Go to block 36)
2 ☒ No
A Other

14 Cockpit Damage (Multiple entry)

- 1 ☐ Destroyed
2 ☐ Collapsed
3 ☒ Part collapsed
4 ☐ Distorted
5 ☐ Burnt
6 ☐ Intact
7 ☐ None
A Other

15 FWD Cabin Damage (Multiple entry)

- 1 ☐ Destroyed
2 ☐ Collapsed
3 ☐ Part collapsed
4 ☐ Distorted
5 ☐ Burnt
6 ☐ Intact
7 ☒ None
A Other

16 AFT Cabin Damage (Multiple entry)

- 1 ☐ Destroyed
2 ☐ Collapsed
3 ☐ Part collapsed
4 ☐ Distorted
5 ☐ Burnt
6 ☐ Intact
7 ☒ None
A Other

17 Fuselage Split

- 1 ☒ No (Go to block 19)
2 ☐ Longitudinal
3 ☐ Circumferential
A Other

18 Fuselage Split Behind Seat

A Other

19 Fuselage Collapse (Estimated)

- 1 ☒ None
A Horizontal inches
B Vertical inches
C Other

20 Fuselage Crush

- 1 ☒ None
A Horizontal inches
B Vertical inches
C Other

Approved Exit Data

Exit Location	A Type of Exit				C Operable			E Fire Damage			G Impact Damage		
	1 Door	2 Window	3 Hatch	B Other	1 Yes	2 No	D Other	1 Yes	2 No	F Other	1 Yes	2 No	H Other
21 Cockpit-Left				09									
22 Cockpit-Right				09									
23 1L	X				X				X			X	
24 1R			X		X				X			X	
25 2L													
26 2R													
27 3L													
28 3R													
29 4L													
30 4R													
31 5L													
32 5R													
33 6L													
34 6R													

National Transportation Safety Board

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AVIATION

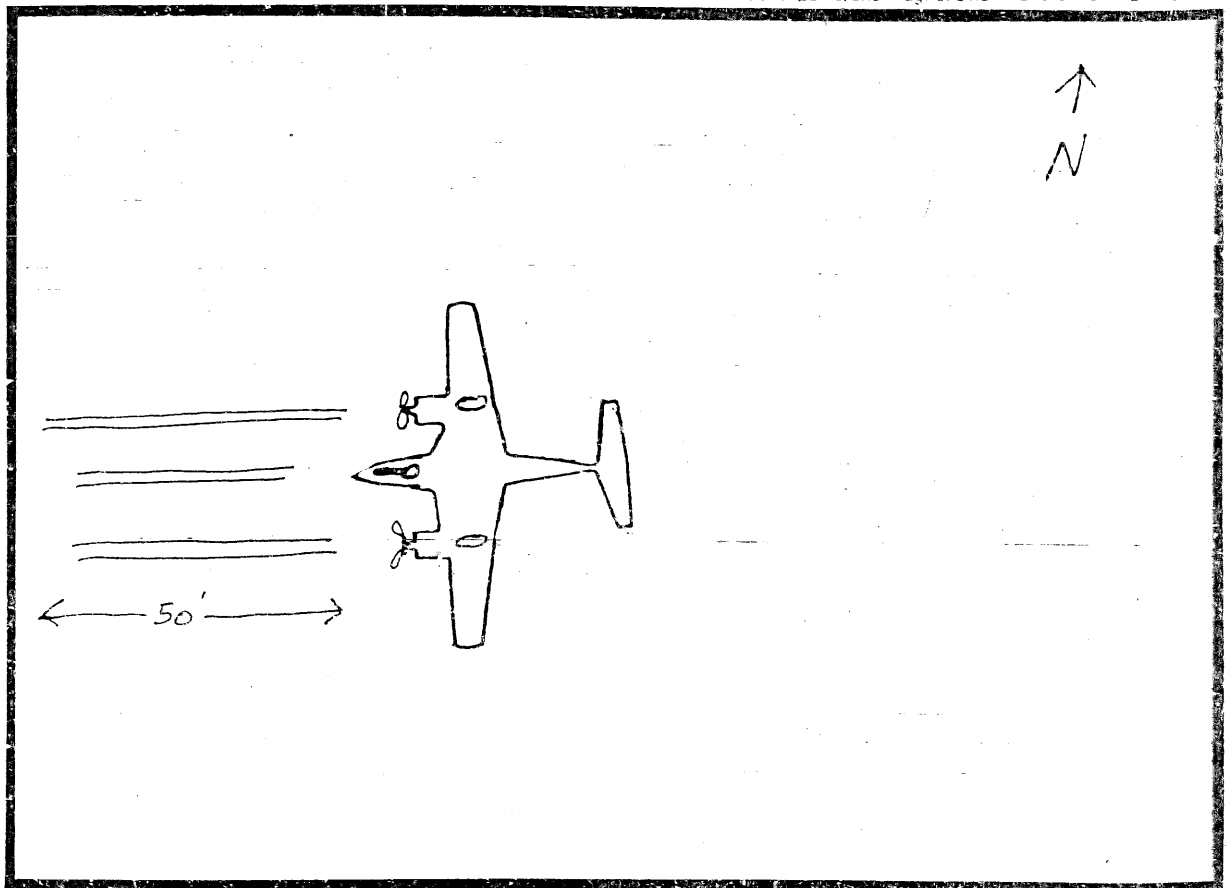
NTSB Accident/Incident Number

MITA 910141/351

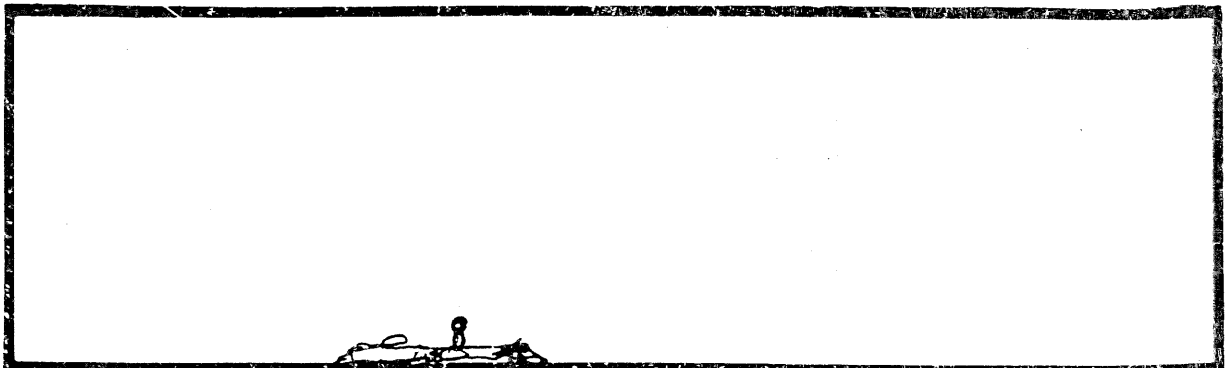
Supplement I—Crash Kinematics (continued)

Crash Site Plan/Elevation

35 Sketch of Crash Site—Show distribution of major components, fire area, obstacles struck, occupants, and magnetic north. Sketch is NOT TO SCALE



Plan View



Elevation View

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MIA 90 FA 135

Supplement M—Search/Rescue/Firefighting/Medical Treatment

Search and Rescue

1 ☐ None Conducted (Go to block 16)

2 Type of Search Conducted (Multiple entry)

- 1 ☒ Air
2 ☐ Ground
3 ☐ Sea
4 ☐ Informal
A Other

4 Search Agency Notified

- A 5-28-90 (Nos. for M. D. Y.)
B 0806 Local time
C Other

5 Aircraft/Occupants Located

- A 5-28-90 (Nos. for M. D. Y.)
B 0826 Local time
C Other

7 Civil Air Patrol Involved in Search

- 1 ☐ Yes
2 ☒ No
A Other

9 Military or Coast Guard Personnel Involved

- 1 ☐ Yes
2 ☒ No
A Other

9 Distress Call Transmitted
(Multiple entry)

- 1 ☐ None transmitted
2 ☒ Prior to accident
3 ☐ After impact accident
A Other

10 Distress Call Received
(Multiple entry)

- 1 ☐ None received
2 ☒ Prior to accident
3 ☐ After impact accident
A Other

11 Method of Locating Accident Site (Multiple entry)

- 1 ☐ ELT
2 ☐ HF radio
3 ☐ VHF radio
4 ☐ UHF radio
5 ☒ Visual sighting of wreckage
6 ☒ Visual sighting of occupants
7 ☐ Visual sighting of signal
smoke/tire
8 ☐ SAR satellite
9 ☒ ATC computer generate
A Other

12 Condition of Aircraft Occupants at Rescue (Multiple entry)

- 1 ☒ Located alive
2 ☐ Located deceased
3 ☐ Located alive—died later
4 ☐ Died awaiting rescue
5 ☐ Located alive—trapped
6 ☐ Able to assist with locating
7 ☐ Left scene—successfully located
8 ☐ Left scene—unsuccessful in finding aid
9 ☐ Left scene—unsuccessful in finding aid—died later
A Other

13 Weather Conditions—indicate
Most Severe Temperature/Wind
Chill Condition During Search

- A Temperature 70 F
B Wind chill factor 0 F
C Other

Fire Fighting 16 ☒ None Conducted (Go to block 31)17 Firefighting Unit Notified
(Nos. for M. D. Y.)

- A _____
B _____ Local time
C Other

18 First Firefighting Unit
Arrived

- _____ Local time
A Other

19 Firefighting Units
Responding
(Multiple entry)

- 1 ☐ Airport
2 ☐ Municipal
3 ☐ Military
A Other

20 Firefighting Units Assisted
Evacuation

- 1 ☐ Yes
2 ☐ No
A Other

21 Fire Extinguished

- _____ Local time
A Other

Firefighting Agents

A Available

C Used

1 Yes

2 No

B Other

1 Yes

2 No

D Other

22 Protein Foam

23 Dry Chemical

24 Carbon Dioxide

25 AFFF (Lit. Water)

26 Water

26 (Specify) _____

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MJA1901FA11351

Supplement M—Search/Rescue/Firefighting/Medical Treatment (continued)

Search and Rescue, Firefighting, Medical Treatment

31 Medical Units Responding (Doctor or paramedic) (Multiple entry)

- 1 ☐ None provided
2 ☐ Airport
3 ☒ Municipal
4 ☐ Other paramedics
5 ☐ Military
A Other

35 Search and Rescue, Firefighting, Medical Treatment Units Hampered

- 1 ☐ Yes (Complete items 36-51)
2 ☒ No
A Other

Search and Rescue, Firefighting, Medical Treatment Units Hampered by	1 Search and Rescue	2 Firefighting	3 Medical Treatment
36 Weather/Visibility			
37 Terrain			
38 Darkness			
39 Unfamiliarity With Terrain			
40 Maps Inadequate/Inaccurate			
41 Obstacles			
42 Training of Personnel			
43 Other Vehicles			
44 Traffic			
45 Coordination Problem			
46 Inadequate Emergency Plan/Planning			
47 Command Problem			
48 Communication Problem			
49 Equipment Unable on Terrain			
50 Did Not Adhere to Emergency Plan			
51 (Specify) _____			

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB Accident/Incident Number

MI A90 FA 135

Supplement S—Aircraft Occupant and Injured Ground Personnel

Other Occupants A Name	B Seat No.	C Address (City & State)	D Crew	E Passenger	F Non- Occupant	G FAA	H Degree of Injury			
							4 Fatal	3 Serious	2 Minor	1 None
1 FOLKERTS, DARWIN	Ø1	DAYTONA BEACH, FL	X						X	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										

**NATIONAL TRANSPORTATION SAFETY BOARD
PILOT/OPERATOR AIRCRAFT ACCIDENT REPORT**
This Form To Be Used For Reporting Civil Aircraft Accidents
Involving Commercial and General Aviation Aircraft

Nearest City/Place, State, Zip Code DE Land, FLORIDA		Date of Accident 05-28-90	Local Time (24 HOUR CLOCK) 0800	Zone EDT	Elevation At Accident Site 80 Feet MSL ____ Feet MSL
If The Accident Occurred On Approach, Takeoff Or Within 3 Miles Of An Airport, Complete The Following Information					
Proximity To Airport:					
1. <input type="checkbox"/> On Airport	3. <input type="checkbox"/> Within 1/2 Mile	5. <input type="checkbox"/> Within 1 Mile	7. <input type="checkbox"/> Within 3 Miles		
2. <input type="checkbox"/> Within 1/4 Mile	4. <input type="checkbox"/> Within 3/4 Mile	6. <input type="checkbox"/> Within 2 Miles	8. <input checked="" type="checkbox"/> Beyond 3 Miles		
Airport Name DE Land MUN-Taylor		Airport Ident DEO		Runway/Landing Surface And Conditions: Accident occurred off Airport	
		1. Direction: 30		3. Width: 100'	
		2. Length: 6003'		4. Surface: Hard	
				5. Condition: Good	
Phase Of Operation:					
1. <input type="checkbox"/> Standing	3. <input type="checkbox"/> Takeoff	5. <input type="checkbox"/> Cruise	7. <input checked="" type="checkbox"/> Approach	8. <input type="checkbox"/> Hover/Maneuver	
2. <input type="checkbox"/> Taxi	4. <input type="checkbox"/> Climb	6. <input type="checkbox"/> Descent	8. <input type="checkbox"/> Landing	10. Altitude Of In-Flight Occurrence: 600 Feet M	
Aircraft Information					
Registration Mark N4973V		Aircraft Manufacturer CESSNA		Aircraft Type/Model T303	
				Serial Number 00285	
				Cert Max Gross 5175	
Type Of Aircraft		Type Of Airworthiness Certificate		Aircraft Built	
1. <input checked="" type="checkbox"/> Airplane		1. <input checked="" type="checkbox"/> Normal		1. <input type="checkbox"/> Yes	
2. <input type="checkbox"/> Helicopter		2. <input type="checkbox"/> Utility		2. <input checked="" type="checkbox"/> No	
3. <input type="checkbox"/> Glider		3. <input type="checkbox"/> Acrobatic			
4. <input type="checkbox"/> Balloon		4. <input type="checkbox"/> Transport			
5. <input type="checkbox"/> Blimp/Dirigible		5. <input type="checkbox"/> Restricted			
6. <input type="checkbox"/> Ultralight		6. <input type="checkbox"/> Limited			
7. <input type="checkbox"/> Gyroplane		7. <input type="checkbox"/> Experimental			
8. Specify _____		8. Specify _____			
Landing Gear				No. Of Seats	
1. <input type="checkbox"/> Tricycle—Fixed		4. <input type="checkbox"/> Tailwheel—Retractable		Flight Cabin	
2. <input checked="" type="checkbox"/> Tricycle—Retractable		5. <input type="checkbox"/> Tailwheel—Retractable Mains		Crew 2	
3. <input type="checkbox"/> Tailwheel—Fixed		6. <input type="checkbox"/> Amphibian		Pass 4	
		7. <input type="checkbox"/> Skid			
		8. <input type="checkbox"/> Ski Wheel			
		9. Specify _____			
Stall Warning System Installed		IFR Equipped		Engine Type	
1. <input checked="" type="checkbox"/> Yes		1. <input checked="" type="checkbox"/> Yes		1. <input type="checkbox"/> Reciprocating—Carburetor	
2. <input type="checkbox"/> No		2. <input type="checkbox"/> No		2. <input checked="" type="checkbox"/> Reciprocating—Fuel Injected	
				3. <input type="checkbox"/> Turbo Prop	
				4. <input type="checkbox"/> Turbo Jet	
				5. <input type="checkbox"/> Turbo Fan	
				6. <input type="checkbox"/> Turbo Shaft	
Engine Manufacturer Teledyne Continental		Engine Model/Series TS10-520-AE (Left) LTS10-520-AE (Right)		Engine Rated Power 1. 250 Horsepower 2. _____ Lbs Thrust	
				Type Of Fire Extinguishing System Used 1. <input checked="" type="checkbox"/> None 2. Specify _____	
Engine(s)	Date of Mfg	Mfg Serial No.	Total Time	Time Since Inspection	Time Since Overhaul
Engine No. 1	03-09-84	523302	4351.7 Hours	42-0 Hours	445-3 Hrs
Engine No. 2	04-09-84	524310	4471.4 Hours	42-0 Hours	445-3 Hrs
Engine No. 3			Hours	Hours	Hrs
Engine No. 4			Hours	Hours	Hrs
Type Of Maintenance Program			Type Of Last Inspection		Date Last Inspection Performed
1. <input type="checkbox"/> Annual			1. <input type="checkbox"/> Annual		05-17-90 (M/D)
2. <input type="checkbox"/> Manufacturer's Inspection Program			2. <input type="checkbox"/> 100 Hour		Time Since Last Inspection
3. <input type="checkbox"/> Other Approved Inspection Program (AAIP)			3. <input type="checkbox"/> AAIP		42-0 Hrs
4. <input checked="" type="checkbox"/> Continuous Airworthiness			4. <input checked="" type="checkbox"/> Continuous Airworthiness		Airframe Total Time
5. Specify _____					2542.2 Hrs
Emergency Locator Transmitter (ELT)	ELT Manufacturer DORNE MORGAN	Model/Series C589512-0103	Serial Number 2168	Battery Date (M/D/Y) 6-90	
	Switch 1. <input type="checkbox"/> On 2. <input type="checkbox"/> Off 3. <input checked="" type="checkbox"/> Armed	Operated 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No		Aided In Accident Location 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No	
Registered Aircraft Owner Embry Riddle Aeronautical University, Inc			Address Regional Airport Daytona Beach, Florida 32214		
Operator Of Aircraft 1. <input checked="" type="checkbox"/> Same As Registered Owner 2. Name 3. DBS			Address 1. <input checked="" type="checkbox"/> Same As Registered Owner 2. _____		

Operator (Certificate Number)		Operator Designator (4 Letter Designator)								
Purpose Of Flight And Type Of Operation										
Regulation Flight Conductor Under 1. <input type="checkbox"/> FAR 91 (only) 4. <input type="checkbox"/> FAR 121 7. <input type="checkbox"/> FAR 133 2. <input type="checkbox"/> FAR 91D 5. <input type="checkbox"/> FAR 125 8. <input type="checkbox"/> FAR 135 3. <input type="checkbox"/> FAR 103 6. <input type="checkbox"/> FAR 129 9. <input type="checkbox"/> FAR 137		Operator Authority FAR 121 FAR 133 1. <input type="checkbox"/> Domestic 6. <input type="checkbox"/> Rotorcraft 2. <input type="checkbox"/> Flag External Load 3. <input type="checkbox"/> Supplemental FAR 125 7. <input type="checkbox"/> Large Aircraft FAR 135 FAR 129 4. <input type="checkbox"/> On Demand 8. <input type="checkbox"/> Foreign 5. <input type="checkbox"/> Commuter								
Purpose Of Flight 1. <input type="checkbox"/> Personal 6. <input type="checkbox"/> Aerial Observation 2. <input type="checkbox"/> Business 7. <input type="checkbox"/> Other Work Use 3. <input checked="" type="checkbox"/> Instructional 8. <input type="checkbox"/> Public Use 4. <input type="checkbox"/> Executive/Corporate 9. <input type="checkbox"/> Ferry 5. <input type="checkbox"/> Aerial Application 10. <input type="checkbox"/> Positioning		FAR 121, 125, 127, 129, 13 Revenue Operations 1. <input type="checkbox"/> Scheduled 2. <input type="checkbox"/> Non Scheduled 3. <input type="checkbox"/> Domestic 4. <input type="checkbox"/> International 5. <input type="checkbox"/> Passenger 6. <input type="checkbox"/> Cargo 7. Specify _____								
Pilot Information										
Pilot Name <u>Michael J. Rapano</u>		Pilot Certificate No. <u>136524361</u>	Address <u>PO Box 10167</u> <u>Daytona Bch, FL 32120</u> Nationality <u>USA</u>							
Certificate(s) 1. <input type="checkbox"/> Student 3. <input checked="" type="checkbox"/> Commercial 5. <input checked="" type="checkbox"/> Flight Instructor 7. <input type="checkbox"/> Military 9. <input type="checkbox"/> None 2. <input type="checkbox"/> Private 4. <input type="checkbox"/> Airline Transport 6. <input type="checkbox"/> Flight Engineer 8. <input type="checkbox"/> Foreign 10. Specify _____										
Rating(s) 1. <input type="checkbox"/> None 6. <input type="checkbox"/> Helicopter 2. <input checked="" type="checkbox"/> Single Engine Land 7. <input type="checkbox"/> Glider 3. <input type="checkbox"/> Single Engine Sea 8. <input type="checkbox"/> Free Balloon 4. <input checked="" type="checkbox"/> Multiengine Land 9. <input type="checkbox"/> Airship 5. <input type="checkbox"/> Multiengine Sea 10. <input type="checkbox"/> Gyroplane		Instrument Rating(s) 1. <input type="checkbox"/> None 2. <input checked="" type="checkbox"/> Airplane 3. <input type="checkbox"/> Helicopter								
Type Ratings/Student Endorsements <u>NONE</u>		Instructor Rating(s) 1. <input type="checkbox"/> None 6. <input checked="" type="checkbox"/> Instrument Airplane 2. <input checked="" type="checkbox"/> Airplane S E 7. <input type="checkbox"/> Instrument Helicopter 3. <input checked="" type="checkbox"/> Airplane M E 8. <input checked="" type="checkbox"/> Ground Instructor 4. <input type="checkbox"/> Helicopter 9. Specify _____ 5. <input type="checkbox"/> Glider								
Date Of Biennial Flight Review Or Equivalent (M/D/Y) <u>09/20/89</u>		BFR Aircraft 1. Make <u>Piper Seminole</u> 2. Model <u>PA44-180</u>								
Medical Certificate 1. <input type="checkbox"/> None 3. <input checked="" type="checkbox"/> Class 2 2. <input type="checkbox"/> Class 1 4. <input type="checkbox"/> Class 3		Date Of Last Medical (M/D/Y) <u>02/23/90</u>								
Limitations <u>Corrective lenses</u>		Date Of Birth (M/D/Y) <u>09/07/66</u>								
Waivers		Person At Controls At Time Of Accident 1. <input checked="" type="checkbox"/> Pilot In Command 3. <input type="checkbox"/> Both Pilots 5. <input type="checkbox"/> No One 2. <input type="checkbox"/> Second Pilot 4. <input type="checkbox"/> Non-Pilot								
Seat Belt Available 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No		Seat Belt Used 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No								
Shoulder Harness Available 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No		Shoulder Harness Used 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No								
Source Of Pilot Flight Time Information 1. <input checked="" type="checkbox"/> Pilot Logbook 4. <input type="checkbox"/> Company 2. <input type="checkbox"/> Operators Estimate 5. Specify _____ 3. <input type="checkbox"/> FAA Records		Degree Of Injury 1. <input type="checkbox"/> None 2. <input checked="" type="checkbox"/> Minor 3. <input type="checkbox"/> Serious 4. <input type="checkbox"/> Fatal								
Seat Occupied 1. <input type="checkbox"/> Left 4. <input type="checkbox"/> Front 2. <input checked="" type="checkbox"/> Right 5. <input type="checkbox"/> Rear 3. <input type="checkbox"/> Center		Seat Belt Available 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No								
Flight Time All AC This Make & Model Airplane Single Engine Airplane Multiengine Night		Instrument Actual Simulated Rotorcraft Glider Lighter Than Air								
Total Time	1520	100	1390	130	75	26	200			
Pilot In Command (PIC)	1340	80	1230	110	0					
Instructor	930	80	1850	80	65	5	-			
This Make/Model										
Last 90 Days	270	50	220	50	0					
Last 30 Days	100	30	80	20	0	2.0	1.0			
Last 24 Hours	0	0	0	0	0					
Second Pilot Information										
Second Pilot Responsibilities At The Time Of Accident 1. <input type="checkbox"/> Co-Pilot 2. <input checked="" type="checkbox"/> Dual Student 3. <input type="checkbox"/> Safety Pilot 4. <input type="checkbox"/> Check Pilot 5. <input type="checkbox"/> None (Pilot-Rated Passenger)										
Pilot Name <u>Dorwin Folkerts</u>		Pilot Certificate No. <u>512783201</u>		Address <u>601 Bill France Blvd</u> <u>Apt #405 Daytona Beach, FL</u>		Nationality <u>USA</u>				
Certificate(s) 1. <input type="checkbox"/> Student 3. <input type="checkbox"/> Commercial 5. <input type="checkbox"/> Flight Instructor 7. <input type="checkbox"/> Military 9. None 2. <input checked="" type="checkbox"/> Private 4. <input type="checkbox"/> Airline Transport 6. <input type="checkbox"/> Flight Engineer 8. <input type="checkbox"/> Foreign 10. Specify _____										

Rating(s) 1. <input type="checkbox"/> None 2. <input checked="" type="checkbox"/> Single Engine Land 3. <input type="checkbox"/> Single Engine Sea 4. <input checked="" type="checkbox"/> Multiengine Land 5. <input type="checkbox"/> Multiengine Sea		6. <input type="checkbox"/> Helicopter 7. <input type="checkbox"/> Glider 8. <input type="checkbox"/> Free Balloon 9. <input type="checkbox"/> Airship 10. <input type="checkbox"/> Gyroplane		Instrument Rating(s) 1. <input checked="" type="checkbox"/> None 2. <input type="checkbox"/> Airplane 3. <input type="checkbox"/> Helicopter		Instructor Rating(s) 1. <input checked="" type="checkbox"/> None 2. <input type="checkbox"/> Airplane S.E. 3. <input type="checkbox"/> Airplane M.E. 4. <input type="checkbox"/> Helicopter 5. <input type="checkbox"/> Glider		6. <input type="checkbox"/> Instrument Airplane 7. <input type="checkbox"/> Instrument Helicopter 8. <input type="checkbox"/> Ground Instructor 9. Specify _____	
--	--	---	--	--	--	--	--	---	--

Type Ratings/Student Endorsements None		Date Of Biennial Flight Review Or Equivalent (M/D/Y) 8/21/89		BFR Aircraft 1. Make <u>Cessna</u> 2. Model <u>C172</u>	
--	--	--	--	--	--

Medical Certificate 1. <input type="checkbox"/> None 2. <input checked="" type="checkbox"/> Class 1		Date Of Last Medical (M/D/Y) 4/24/90		Limitations None		Date Of Birth 10/24/61	
--	--	--	--	----------------------------	--	----------------------------------	--

Degree Of Injury 1. <input checked="" type="checkbox"/> None 2. <input type="checkbox"/> Minor		3. <input type="checkbox"/> Serious 4. <input type="checkbox"/> Fatal		Seat Occupied 1. <input checked="" type="checkbox"/> Left 2. <input type="checkbox"/> Right		3. <input type="checkbox"/> Center 4. <input type="checkbox"/> Front 5. <input type="checkbox"/> Rear		Seat Belt Available 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No	
---	--	--	--	--	--	---	--	--	--

Seat Belt Used 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No		Shoulder Harness Available 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No		Shoulder Harness Used 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No		Source Of Pilot Flight Time Information 1. <input checked="" type="checkbox"/> Pilot Logbook 2. <input type="checkbox"/> Operators Estimate 3. <input type="checkbox"/> FAA Records 4. <input type="checkbox"/> Company 5. Specify _____			
---	--	---	--	--	--	--	--	--	--

Flight Time	All A/C	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
Total Time	183.3	48.3	135	48.3	18.9	3.6	59.0	0	0	0
Pilot In Command (PIC)	79.5	5.0	74.5	5.0	5.1	0	0	0	0	0
Instructor	0	0	6	0	0	0	0	0	0	0
This Make/Model										
Last 90 Days	21.3	21.3	0	21.3	1.5	0.8	11.5	0	0	0
Last 30 Days	12.7	12.7	0	12.7	0	0.6	2.1	0	0	0
Last 24 Hours	0	0	0	0	0	0	0	0	0	0

Other Personnel		Passenger		Non-Occupant		Degree Of Injury	
Name	Seat	Address (City & State)	Crew	Non-Revenue	Revenue	Fatal	Series Minor No.
1. NONE							
2.							
3.							
4.							
5.							
6.							

Last Departure Point 1. Airport ID <u>DAB</u> 2. City/Place <u>Daytona Beach</u> 3. State <u>FL</u>		Time Of Departure 1. Time <u>0700</u> 2. Time Zone <u>Eastern</u>		Destination 1. Airport ID <u>DAB</u> 2. City/Place <u>Daytona</u> 3. State <u>FL</u>		Flight Plan Filed 1. <input type="checkbox"/> None 2. <input type="checkbox"/> VFR 3. <input checked="" type="checkbox"/> IFR 4. <input type="checkbox"/> VFR 5. <input type="checkbox"/> Company (VFR) 6. <input type="checkbox"/> Military (VFR)	
---	--	--	--	--	--	---	--

If Weather Was Involved, State If Weather Briefing Was Obtained Or If Weather Reports Were Checked And How It Was Accomplished

Computer WX, ATIS

Fuel On Board At Last Takeoff Gallons _____ or _____ Pounds <u>700</u>		Fuel Type 1. <input type="checkbox"/> 80/87 2. <input checked="" type="checkbox"/> 100 Low Lead 3. <input type="checkbox"/> 100 130 4. <input type="checkbox"/> 115/145 5. <input type="checkbox"/> Jet A 6. <input type="checkbox"/> Automotive		7. Specify _____	
--	--	---	--	------------------	--

Other Services, If Any, Prior To Departure

None

Source Of Weather Information (Pilot/Operator, Weather Observation) Pilot in Command		Light Condition 1. <input type="checkbox"/> Dawn 2. <input checked="" type="checkbox"/> Daylight 3. <input type="checkbox"/> Dusk 4. <input type="checkbox"/> Bright Night 5. <input type="checkbox"/> Dark Night		Visibility 1 Miles		Temp (F) 72	
--	--	---	--	------------------------------	--	-----------------------	--

Dew Point N/A	Altimeter Setting N/A "Hg	Sky/Lowest Cloud Condition 1. <input type="checkbox"/> Clear 2. <input type="checkbox"/> Scattered _____ Feet AGL 3. <input type="checkbox"/> Broken _____ Feet AGL		4. <input checked="" type="checkbox"/> Overcast <u>150</u> Feet AGL 5. <input type="checkbox"/> Partial Obscuration 6. <input type="checkbox"/> Obscured
Wind Information 1. Direction <u>Calm</u> 2. Velocity _____ KTS 3. Gusts _____ KTS		Restriction To Visibility <u>Fog</u>	Type Precipitation _____	Intensity Of Precipitation 1. <input type="checkbox"/> Light 2. <input type="checkbox"/> Moderate 3. <input type="checkbox"/> Heavy 4. <input type="checkbox"/> Specify _____
Turbulence (Multiple entry) 1. <input checked="" type="checkbox"/> None 2. <input type="checkbox"/> Light 3. <input type="checkbox"/> Moderate 4. <input type="checkbox"/> Severe 5. <input type="checkbox"/> Extreme 6. <input type="checkbox"/> Clear Air 7. <input type="checkbox"/> In Clouds				
Degree Of Aircraft Damage 1. <input type="checkbox"/> None 2. <input type="checkbox"/> Minor 3. <input type="checkbox"/> Substantial 4. <input checked="" type="checkbox"/> Destroyed			Fire 1. <input checked="" type="checkbox"/> Yes 2. <input type="checkbox"/> No 3. <input type="checkbox"/> In-Flight 4. <input checked="" type="checkbox"/> On Ground	
Description Of Damage To Aircraft And Other Property <u>NOISE</u>				
Mechanical Malfunction/Failure 1. <input type="checkbox"/> No 2. <input checked="" type="checkbox"/> Yes List The Name Of The Part, Manufacturer, Part No., Serial No. And Describe The Failure <u>See Pilot Statements</u>				
			Total Time	
			On Part _____ Hours	At Overhaul _____ Hours
Collision Accident If Collision Accident Occurred, Complete The Information For Other Aircraft				
Registration mark	Aircraft Manufacturer	Aircraft Type/Model	Degree Of Aircraft Damage 1. <input type="checkbox"/> Destroyed 3. <input type="checkbox"/> Minor 2. <input type="checkbox"/> Substantial 4. <input type="checkbox"/> None	
Registered Aircraft Owner		Address		
Pilot Name	Address		Pilot Certificate No.	
Evacuation Of Aircraft Assistance Received 1. <input type="checkbox"/> Outside Person(s) 3. <input type="checkbox"/> Slide 5. <input type="checkbox"/> Ladder 2. <input type="checkbox"/> Auxiliary Lighting 4. <input type="checkbox"/> Rope 6. <input checked="" type="checkbox"/> Specify <u>Pilot/Student</u>				
Method Of Exit (State Approximate Number Of Persons Using Each Of The Following) 1. Main Door <u>X</u> 2. Auxiliary Door _____ 3. Emergency Exit _____				
Recommendation (How Could This Accident Have Been Prevented) Operator/Owner Safety Recommendation (Optional Entry)				

For Each Additional Flight Crew Member, Exclusive Of Cabin Attendants Complete The Following Information:

Name	FAA Certificate No.	Address	Title

Certificate(s)

1. ☐ Student
2. ☐ Private

3. ☐ Commercial
4. ☐ Airline Transport

5. ☐ Flight Instructor
6. ☐ Flight Engineer

7. ☐ Foreign
8. Specify _____

Ratings/Endorsements

Total Flight Time

Flight Time This Accident

Name	FAA Certificate No.	Address	Title

Certificate(s)

1. ☐ Student
2. ☐ Private

3. ☐ Commercial
4. ☐ Airline Transport

5. ☐ Flight Instructor
6. ☐ Flight Engineer

7. ☐ Foreign
8. Specify _____

Ratings/Endorsements

Total Flight Time

Flight Time This Accident

Name	FAA Certificate No.	Address	Title

Certificate(s)

1. ☐ Student
2. ☐ Private

3. ☐ Commercial
4. ☐ Airline Transport

5. ☐ Flight Instructor
6. ☐ Flight Engineer

7. ☐ Foreign
8. Specify _____

Ratings/Endorsements

Total Flight Time

Flight Time This Aircraft

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Describe What Occurred In Chronological Order, The Circumstances Leading To The Accident And The Nature Of The Accident. Describe The Terrain And Include A Sketch Of Wreckage Distribution If Pertinent. Attach Extra Sheets If More Space Is Needed. State Point Of Departure, Time Of Departure, Intended Destination And Services Obtained.

SEE ATTACHED STATEMENT

Hereby Certify That The Above Information Is Complete And Accurate To The Best Of My Knowledge

Date Of This Report

06-08-90

Signature Of Pilot/Operator

Signature Of Person Filing Report Other Than Pilot/Operator

1. Signature

2. Type Or Print Name Joe C. Poole

3. Title (Assistant) AVIATION SAFETY ENGINEER

NTSB Accident No.

MIA 90 FA 135

Reviewed By NTSB Office Located At

MIAMI, FLORIDA

Name Of Investigator

William L. K... ..

Date Report Received

6-15-90 7:17

FULL NAME Michael John Rapiano DATE OF BIRTH 09/07/66
ADDRESS PO Box 10167 Daytona Beach, FL 32120
TELEPHONE 904-767-0734 PILOT CERTIFICATE Commercial, Flight Instructor
PILOT CERT.# 136-524361 RATINGS ASMEI-IA (Both)
BIENNIAL FLIGHT REVIEW DATE 9/20/89 (Rating)
DATE & CLASS OF LAST MEDICAL 02/23/90 (2nd) EXAMINER Cook (17585-1)
OCCUPATION Flight Instructor
TOTAL FLIGHT TIME 1500 TOTAL PIC/OR SOLO 1300 PAST 90 DAYS 150 (approx)
INTEREST IN AVIATION, SUCH AS BUSINESS, PLEASURE, COMMERCIAL Commercial
TYPE OF AIRCRAFT FLOWN 172, 172RG, M20J, PA28140 through 181, PA44-180, CT303, AC680
IF YOU ARE A STUDENT PILOT, GIVE INSTRUCTOR'S NAME AND ADDRESS _____

AIRCRAFT INFORMATION

IDENTIFICATION NUMBER N473V MAKE Cessna
MODEL Crusader 303 YOUR TOTAL FLIGHT TIME IN THIS MAKE/MODEL 120 hrs
OWNER'S NAME Embry - Riddle Aeronaut University Inc
OWNER'S ADDRESS Regional Airport, Daytona Beach, 32014

REMARKS PERTAINING TO OCCURRENCE (Continue on reverse)

See attached written report

DATE 05/29/90 SIGNATURE Michael J Rapiano

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Michael J. Repusano

On May 28th at approx. 6:55 am I walked through the gate onto the ramp to do a extra-training flight in the Cessnas. On this flight we were to do a NDB approach and a single-engine approach. As I approach the aircraft I did my preflight. I climbed into the cockpit and my student and I briefed about the flight. We were going to do holding at the NDB followed by a ILS. When listening to atis we learned of a westerly operation and decided to hold at Deland followed by the NDB 30 DEL then radar vectors to the back course. Before entering the cockpit I noticed some problem with the previous flight (power loss) and checked the MEL items (heater vent fan inop - ARC as number 2 new inop). We had no trouble during engine start and everything was normal. The student completed the instrument cockpit checks and called clearance, after clearance readback (which I did) we ramped out and taxied to end of the ramp. Called ground control and proceeded to November six intersection. During the taxi the right alternator light came on. We noted alternator output on the left was below 30 amps. During the engine system and alternator check the light extinguished itself. After the runup we turned to face traffic and called for our take off clearance. We were cleared for takeoff and during the roll I noted engine indications being normal. We proceeded with an

early turn to avoid wake turbulence from a departed Eastern DC-9, contacted departure and we were then getting vectors to the Deland radio beacon. During this time the right alternator light illuminated and we followed the checklist no breakers were popped at the time and the only procedure was to turn off the alternator. We then placed the volt-ammeter to the left alternator and output was normal - we continued. We entered holding at Deland and held for approx. four circuits we asked for the NDB 30 and we were cleared for the approach. My student asked if this would be single-engine, I replied no due to the chance of entering IMC. At the MDA the student brought up the throttles when we got the fire warning light on the right engine - I immediately took control of the aircraft and executed the missed approach. At an altitude of approximately 700 MSL we started to shut down the right engine per the checklist. This is also when I noticed the low voltage light. I felt that the engine fire was the most critical emergency after executing the securing checklist the aircraft would not climb - verify that it did in fact climb up the aircraft, I checked my procedures. During this time I also made a mayday call on 122.8 MHz, then on 125.35 MHz and finally on 121.5 MHz. During this time the student was told to squawk 7700 on the transponder. During the time of the go-around

I was at the controls of the aircraft and the student was on the checklist. We entered the clouds at approximately 600 MSL at this time I was primarily flying the aircraft and also telling the student to look outside for visual information as well as procedures that I wanted him to complete. Such as pulling the emergency crossfeed and tightening his safety belt. At approximately 200' he spotted trees it was not until about 170-150' we started to get below the fog. We saw a field to our left and it was not possible to make. Up ahead we were heading for power lines, then we saw a field and went for it. The student asked if I wanted the gear down and I said "no" at this time the aircraft was starting to roll because of our airspeed and I then retarded the throttle (gooding) and then impact. As we skidded across the field the aircraft turned up side down. I felt the window break and the dirt in my face. As we stopped I noticed that there was a fire. Darwin asked if I was ok, I said, "yes" and he said he was ok. We crawled off of the aircraft and ran towards the center of the field worried about a fire. Approx. ten minutes later we heard the sheriffs helicopter ---

After the crash I also noted that the fire warning horn was still blowing and that the fire lights including low voltage and night alt off were

illuminated throughout the incident. When I
made my radio calls I used the #2 comm
and the last frequency put in was 121.5
not sure which preset that was. I used
#2 because it was closest to my hand
while I was flying the A/C.

Statement Given by
Michael J. Rapuano
CFI, Multiengine & Instrument Airplane

About 0655 was when I went through the gate on the ramp maybe a little bit after 0700. It was around that time frame. Walked out to the aircraft and started my pre-flight of the airplane, checking all you usually cover on a preflight, fuel, oil, gear, the control surfaces and the overall view of the airplane to make sure its untied, unchocked. Then when I crawled through the cabin I could only get the discrepancy board since it was right there saw that over the weekend it had a problem with the power of the aircraft, powerloss on both engines. Made note of it, crawled in the airplane, noted the MEL item of the aircraft, none of them having to do with situation that was going to occur. We, uh, me and my student were talking about the activities we had to go through that day, with some extra training flights on a failed pre-prog and there was one incomplete item that was done and that was an NDB approach and he failed the single-engine landing. Told the student what we would probably do is go out to, uh, we were talking about going to New Smyrna and hold and that was when I called Operations to find out if they still had that car show or the airplane show down in New Smyrna, we decided to go to DeLand and that was also when we found that they were using a westerly operation. When we arrived at the airport there was some fog over the west side of the field but that was moving west, ATIS was calling it to be about a mile visibility out toward the west but it was clearing up in Daytona so we were just going to do an NDB approach both engines at DeLand and then come back and do the back course. Do that single engine. We finished our briefing, started the aircraft up, that was when we called clearance the way we get our clearance for a local IFR flight. Everything was OK, we ramped out, called ground control. As we were taxiing out the right open air light came on. Checked the voltage, checked the power of the left alternator and found out that they were both were indicating less than 30 amps total and according to the Cessna manual that was normal and during the runup that cleared up. When we checked the alternators they still weren't paralleling correctly, again a good parallel in both the alternators but we were still less than 30 amps total amperage on the system the right alternator light came on. During the check it went out. Proceeded normal takeoff, contacted departure control, we were going to radar vectors to the NDB and then finally got cleared for holding. During that time the right alternator went out again the open air light came on. Checked the amperage on both alternators and decided to shut down the right alternator and just work off the left cause the left was still under 30 amps. At that time no breakers were popped an average run. Went through the procedures with that, I think it was the second or third paragraph or section down on the checklist in the airplane. We continued to fly, went through about four circuits in the holding pattern got clearance for the approach, started our descent out of 3,000 down to 2,000, leveled off, did the procedure turn, coming back inbound started descent. Started to level off at the NBA to

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get above it at around 600 feet. As the student brought the power up the at the same what happened is the right fire warning light came on. Immediately I took control of the aircraft and executed a missed approach going through my procedures making sure bringing the flaps and gear up and to make sure that the propellers and the forward going around. At that time also the low voltage light came on. Somehow we had the right alternator off low voltage and the engine fire light. I felt that the most critical emergency at that time was the engine fire. So we went to the right engine we went to the fire checklist and went through our procedures then we went to securing the engine checklist and secured the right engine. At this time went to BYSE, the airplane was not climbing. Due to the fact that we were not climbing and we were just at the top of the cloud layer 600 feet top to bottom and it was solid fog. I also gave a PIREP to the university that it was solid dense fog west of I-95 and that was earlier in the flight. As we secured the engine we did not get a climb out of the aircraft, wondering why we weren't getting climb out of the aircraft due to the only two passengers on board and we only had roughly 700 lbs. of fuel on board, but the aircraft was not climbing. I went through and I checked the gear handle and the flap handle to make sure that the gear and flaps were up. At this time we entered the soup, we entered the clouds. I was flying the aircraft now, the student was doing the checklist. We, at that time made two mayday calls, mayday, mayday, mayday with the aircraft number 4973 Victor on the Unicom hoping that somebody would hear us or find us nearby. Could not receive anybody. Immediately went to 2535, made two calls on that frequency. Did not hear anybody. I checked the volume and the switch position and they were both normal. Went to 21.5 and made two calls on that using the same calls as previous. I told the student to squawk 7700 on the transponder. At this time I was still flying the aircraft and we were coming up about 200 feet. About 200 feet I had to start the student start looking outside. He started to see trees just below us but we could still not see ahead of us. I had the student tighten his restraints and pull the emergency crossfeed shutoff. We broke out of the clouds approximately 170-150 feet, noticed a field to our left. We were too low to make that field, to make a turn towards that field. Then looking in front of us we saw powerlines and we knew we weren't going to clear the powerlines. I say about another, I'd say about a quarter mile ahead of us was when we noticed the field was directly in front of us. The student asked if I wanted the gear down and I said no. I did not know what type of field it was, all I know is it was a field. I had to turn to avoid the tree. During that turn the aircraft started to roll so I had to retard the throttle on the good engine to go ahead and maintain and control the aircraft. It was at that time we didn't have enough time. I remember pulling the throttles back. This time I couldn't remember if I pulled the mixtures back nor I can't remember if I put the flaps down also. I had my hands on the throttles and I had my hands, my left hand on the throttles and my right hand on the yoke during the impact. I remember the impact hitting. We slid I couldn't tell you how long. The aircraft flipped over on its back and the cabin windshield broke allowing dirt and glass to fly

into the cockpit. We came to a rest in the field and the student asked me if I was OK. I replied yes I was OK and I asked him if he was OK and he said he was OK. AT this time I saw fire. Could not determine which side of the aircraft the fire was on, but I remember seeing the fire. Told the student that we were going to have to get out of the airplane. I unlatched my seatbelt, got out of the aircraft. I remember using the instrument panel to help me push myself through. Crawled on the cabin. The student was following me. Due to the fire we did not grab the first aid equipment. Felt that we should just leave the aircraft. Opened the cabin door, crawled out, and went to the center of the field away from the aircraft. At that time we sat down, we talked about we were both OK, we both walked out of the airplane. My neck was starting to stiffen up on me and I had cuts to my head. They were bleeding, so I took off my shirt and used that as a bandage around my head. About ten minutes later we noticed the sheriff's department helicopter was circling to the south of us about a half mile and then immediately either they saw or they directed in on our ELT is what they said. They came right to the field and found us and that is where the incident's at.

Can you back up a little bit, Mike? Before you started to have the problems, what all did you have on, landing lights, perhaps?

Negative, what we had on were our strobes and beacons. That was it. As far as external lighting the rest there was just the did not have radar on, no need for that because of the weather that day. Both number one radios and number one radio and number one com, I mean nav, number two radio and number two nav and transponder.

?

I went, my first thing was to do was to get full power in the engine so I went to the mixtures, props, and throttles and I brought the flaps and gear up at that time.

?

My hand was blocking the red transition light. Could not remember if I the gear or if I felt the gear hit the wells. But I remember when I did bring the handle up and I raised my hand did not see unsafe indication nor the green lights.

?

Technically.

Flown the aircraft before ... that low...?

Crusader 5 has been written up including myself on numerous occasions about the right alternator going out. I flew it twice before with similar situations and had not had this happen.

4/

? ...had a situation like that before where... similar ..
aircraft perform ...?

When working out the performance we should have gotten around 170
in a climb. Other situations where we weren't able to climb
was when we had three students on board and full fuel. Or trying
to say meaning myself and two students with full fuel and aircraft
did have airconditioning which depletes fuel.

?

No, no, going through the checklists there was nothing in there of
a fire checklist or securing of a ...

PILOT ADVISORY

FULL NAME Darwin Folkerts DATE OF BIRTH 10-24-61
ADDRESS 601 Bill France Blvd. Apt #405 Daytona Beach, FL 32114
TELEPHONE 316-697-4755 PILOT CERTIFICATE 512-78-3201 Private
PILOT CERT. # 512-78-3201 RATINGS Airplane Single & Multi engine land
BIENNIAL FLIGHT REVIEW DATE ~~8-21-89~~ 8-21-89
DATE & CLASS OF LAST MEDICAL 4-24-90 1st class EXAMINER Dr Langford
OCCUPATION Student
TOTAL FLIGHT TIME 183.3 TOTAL PIC/OR SOLO _____ PAST 90 DAYS _____
INTEREST IN AVIATION, SUCH AS BUSINESS, PLEASURE, COMMERCIAL Student
TYPE OF AIRCRAFT FLOWN T-303 Crusader
IF YOU ARE A STUDENT PILOT, GIVE INSTRUCTOR'S NAME AND ADDRESS _____
Michael Capuano

AIRCRAFT INFORMATION

IDENTIFICATION NUMBER N-4973V MAKE Cessna T-303 crusader
MODEL T-303 Crusader YOUR TOTAL FLIGHT TIME IN THIS MAKE/MODEL 50 hrs
OWNER'S NAME Embry Riddle Aeronaut University Inc
OWNER'S ADDRESS Regional Airport Daytona Beach, FL 32014

REMARKS PERTAINING TO OCCURRENCE (Continue on reverse)

see attached written report

DATE 5-29-90 SIGNATURE Darwin L. Folkerts

Statement of Darwin Folkerts
May 28, 1990 @ 1030

I arrived at ERAH at 6:10am May 28, 1990 for a FA 315 Dual. The Dual was on X-18 dual. I checked the wx for the local and surrounding area conditions. The flight was able to be made with the current wx conditions. I checked in at the flight desk, and chose C-5 because all the avionics were working. I went out to the airplane and did a complete preflight inspection. I found nothing wrong with the airplane, and I was ready to go at 7:00am. My Instructor came out to the airplane, and he checked the oil and fuel supply. I wanted to go to New Smyrna Beach, but due to the fly-in there, it was decided that it would be better to go to Deland instead. I called Daytona Clearances and received a local JFR clearance to land at Deland, to be followed by the NDB 30 approach. Our original clearance was cleared to the Deland airport, via radar vectors, then after departure turn left to a heading of 230, and climb and maintain 2000 MSL, our departure frequency was 123.35 and squawk 0244 I believe. I then called riddle flight data and ramped out level. our departure was 0900. I then talked to tower 1 and called before ground. Ground control cleared us to runway 25R. I then talked to runway 25R. I stopped at Newkirk to complete my ground runup. When I was doing my engine runup, I noticed the Right alternator light was on, but the amp meter showed that the right alternator was working properly. Before takeoff the Right alternator light went out.

We were given clearance by Daytona Tower for takeoff. We were told to turn to a heading of 210° after departure. The takeoff was normal and we turned to a heading of 210° climbing through 500' we turned to a heading of 210° and tower told us to contact Daytona departure on 125.35. We contacted Daytona departure. My instructor also called FRA flight operations to call in a PIRP. While climbing to 2000', Daytona Departure told us to proceed direct to Deland NDB when able, and to continue our climb to 3000' MS. Our holding instructions were to hold with east on the 316 course to with left turn and to EFC at 1200 Z. We proceeded direct to the Deland NDB. The entry for holding would be a direct entry. I reached the Deland NDB and turned to my outland heading of 136° . We did several laps of holding. The WX conditions were great at our altitude. We then decided to do the approach into Deland. We were cleared for the approach, and told to descend down to 2000' before turning to our outland track on the approach we crossed the NDB at 2000' and turned to our outland heading. We continued the outland leg for 3 minutes and we did a 90° , 270° procedure turn. I started the descent and lowered the landing gear. We descended down to our MDA of 600'. While in holding we saw the R alt light come on, and my instructor told me to turn the right alternator off. We monitored the left alternator on the amp meter.

I leveled off at the MDA at 600'. We were
right on top of the fog layer. We had not
reached the missed approach point yet, when the
right engine fire light came on and the horn came
on. My instructor took control of the airplane. He
executed the engine out procedures. I took the
emergency checklist out and started reading it to
my instructor. Right engine throttle was at idle.
propeller was feathered, the mixture was at idle
cutoff. The cowl flap was closed. The night altitude
was put to off. The right mag was brought to
off. The right fuel selector was placed in off.
With all of this done, we could not climb, and
we were slowly losing altitude. My instructor called
the director's departure critical on 125.35, he called
mayday, mayday, mayday. We got no response
from director. He then called on 121.5 and declared an
emergency. Still no response. My instructor told me to
put the transponder on 7700 which I did. We were
still going down, so my instructor turned to the
east so that we could get away from island.
We slowly descended into the layer of clouds. I
noticed a field but we were passed it and couldn't
make it to that field. We went back into the
clouds, and my instructor told me to try and start
the right engine. I turned the master on, fuel on
mixture full rich, and unfeathered the prop. I
hit the starter button but it wouldn't turn the engine.
at this point, my instructor saw a field and decided
to land in the field.

We hit the ground in a steep land, good high altitude. When we hit, the plane flipped over and landed on its top. We were both able to get out unscathed on our power. There was a small fire on the left side of the plane. We both got out and away from the plane. We waited in the field until the sheriff's helicopter spotted us. My instructor was given medical attention and taken to the hospital in the ambulance. I was checked and rode with my instructor to the hospital. I then called FRAH to let them know what was going on.



EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

Daytona Beach, FL 32114 904-239-6000, FAX 904-239-6459, Telex: 258052 SAND UR

STATEMENT

05-28-90

When I arrived at the site with A.C. Tacker, the aircraft had been righted by the Fire Department, the windshield was broken out and the circuit breaker panel and electrical switch panel were intact and clearly visible. The following conditions were noted:

1. Both left and right isolation circuit breakers were in the tripped/pulled (off) position.
2. The buss tie circuit breaker was in the tripped/pulled (off) position.
3. The landing gear selector handle was in the up position.
4. The landing gear was down.
5. The right prop was feathered.

The following electrical system characteristics are presented for your consideration.

The system is a "split" type design meaning there are two independent main busses powered by the left engine alternator and the right engine alternator. The electrical loads are divided up equally between the two busses. Normally, both busses are tied together in parallel via the left and right isolation breakers and the battery buss and via the buss tie breaker. This arrangement allows for load and source sharing from one side to the other. Based on the position of the circuit breakers, if the right alternator had failed, there would be no electrical power on the right main buss. When the engine is feathered, it can not rotate the alternator, thus the result would be a failed alternator.

With no power on the right main buss, any electrical item attached to that buss would be useless due to lack of power. Some key items that would be without power are:

1. Right fire detection system - no power gives a fire alarm; power is necessary to keep the alarm in silence.
2. Landing gear pump relay and power. No power will not allow the gear to be retracted. It will go down due to gravity but not up.
3. Right starter motor contactor - no power. Will not be able to energize the contactor, thus unable to get power to the starter motor.

In conclusion, based on the above, with the right engine feathered and the gear down, there was no way the gear could be retracted and/or the engine started without resetting those circuit breakers.

G. J. Nelli

G.J. Nelli
Flight Standards

52

HAZARD & MISHAP WORKSHEET

CASE # _____

- 1) Date 5/27 Time (LCL) 1645
2) Location Local Practice Area - Sector A
3) Aircraft Type and "N" Number T303 N4973V
4) Solo/PIC Dual Observer (Circle One); Name JOHN KIRK
Stdnt. #/Ph. #/Box # 157-564073, 756-4427 ¹⁶⁰⁷⁷ Course 315Z
Student's Instructor WENDY L. RICHTER I.P. # 097

- 5) Describe Hazard or What Happened
Experienced dual engine roughness, both engines wanted to die. We called DAB approach and requested straight in landing for Runway 16. Approach asked if we wanted to declare an emergency, we replied negative. Aircraft was landed without incident.

(Use Additional Paper if Necessary)

- 6) Brief Description of Aircraft Damage None noted

Reported by Wes O. Richter 097

FOR MAINTENANCE USE

- 7) Describe Mechanical Defect/Maintenance Factor/Damage _____

- 8) Describe Action Taken _____

Signature _____

May 27, 1990

Dear Mr. Joe Poole:

On May 26th, 1990, I encountered engine problems in N4973V. I was on a FA315 training flight with my student John Kirk practicing traffic pattern operations and VMC demonstration. After approximately 1.5 hours of flight, difficulties occurred.

We were at 3500 feet, 2.5 miles east of Flagler County Airport when we noticed poor aircraft performance in the clean configuration. I increased power to 24"MP and checked the position of the gear and flaps. The aircraft was still performing poorly with no increase in airspeed above 120 kts. It felt as if heavy drag was acting upon the aircraft. All engine instruments were operating normally, with no other discrepancies found. At that time, I increased the mixtures, propellers, and throttles to full power and both engines abruptly wanted to quit. I immediately turned directly to Flagler airport and told my student to turn the auxillary fuel pumps on the high position. Both engines responded favorably and aircraft performance increased with minor misfiring. We contacted Daytona Approach and requested runway 16 at Daytona Beach Regional Airport, and advised them we were experiencing dual engine roughness. Daytona Approach asked if we wanted to declare an emergency, and we replied negative. I landed the aircraft at DAB without incident.

Due to high altitude, I was permitted to land at either Daytona, Ormond, or Flagler at all times. This condition, and the availability of emergency equipment made Daytona Beach Airport a more favorable choice for landing.

I hope this letter will help answer any questions you may have concerning the engine problems I encountered in N4973V on Saturday afternoon, May 26, 1990.

Sincerely,

Wendy L. Richter

Wendy L. Richter

HAZARD & MISHAP WORKSHEET

CASE #

- 1) Date 9/30/89 Time (LCL) 1300
2) Location Flagler
3) Aircraft Type and "N" Number 4973 V
4) Solo/PIC, Dual, Observer (Circle One); Name Robert A. Alness
Stdnt. #/Ph. #/Box # _____ Course _____
Student's Instructor _____ I.P. # 055

- 5) Describe Hazard or What Happened _____

An alternator failed while doing stalls. We then proceeded to Flagler. On a go around at about 400 ft the right fire warning horn came on and I shut down the right engine. I circled for Runway 11 and declared an emergency and landed the aircraft with no further incidence.

Upon visual inspection on the ground the bus tie and Right Isolation circuit breaker were popped. The right Alternator belt came off of the pulley.

Noted Louis M. Huff 10-9-89

(Use Additional Paper if Necessary)

- 6) Brief Description of Aircraft Damage _____

Reported by _____

FOR MAINTENANCE USE

- 7) Describe Mechanical Defect/Maintenance Factor/Damage Drive pulley off
REAR OF ENGINE BAD.

- 8) Describe Action Taken Replaced STARTER ADAPTER
ASSY.

Signature

Rob Alness
Jan J. Hicks O' 55

HAZARD & MISHAP WORKSHEET

CASE # _____

- 1) Date 8/19/86 Time (LCL) 1300
- 2) Location 10 mile SW of DAB, 1600 FT / Terminated at Deland
- 3) Aircraft Type and "N" Number C-1303 / 5529V
- 4) Solo/PIC, (Dual), Observer (Circle One); Name _____
Stdnt. #/Ph. #/Box # _____ Course 207-1
Student's Instructor M. LREN I.P. # 075
- 5) Describe Hazard or What Happened The flight departed DAB VFR and proceeded toward the southeast on a "220" departure. Approximately 5 min (10 miles) into the flight the left engine fire warning light illuminated and the fire warning horn sounded. The left engine was secured in accordance with the "Engine Fire in Flight" check list. The transponder was set to 7700 and Departure control was advised that the flight was deviating to Deland. Deland unicon was contacted and requested to contact the Deland Fire Department. As the final descent into Deland was started the landing gear was extended. However the gear down indicating lights did not illuminate. The nose gear was verified in the arrow but pulling the throttles toward idle caused the gear horn to sound. I attempted to pump the gear down but the resistance to pumping the gear handle indicated that there was pressure in the system. Due to the single engine engine fire the aircraft was landed despite the gear problem. The landing was without incident (however fire warning + gear warning still sounding) and arrested. (Use Additional Paper if Necessary)
- 6) Brief Description of Aircraft Damage _____

Reported by _____

FOR MAINTENANCE USE

- 7) Describe Mechanical Defect/Maintenance Factor/Damage Troubleshoot A/C replaced the bus - tie all brushes and the battery.
- 8) Describe Action Taken EP's checked aircraft no further defects noted

Signature _____

INVESTIGATION

- 1) Summary of Investigation: Incident occurred as described.
No evidence of fire or gear malfunction. Investigation
by Flight Standards personnel and subsequent duplication
of situation on ground, indicated electrical malfunction.
Condition has been closely identified and all
C-303 IP's briefed. A/C returned to service
after replacing loose tie breakers and batteries.

- 2) Recommended Action: No additional action required

Lawrence M. Cuffu 9/2/73
Investigator (Please Print) Date

- 3) Action Taken if Appropriate

Lawrence M. Cuffu 9/2/73
Signature of Action Agency Date

Distribution: Student's File () Flight Standards ()
Instructor's File () Other (✓) Secretary's Initial _____

Yellow Copy Forward to Safety Engineer ✓
White Copy Forward to Chairman

5.

VOLUSIA COUNTY SHERIFF'S OFFICE
SUPPLEMENTARY REPORT

ORIGINAL REPORT YES ☒ NO ☐
ZONE 23

Incident Type: Embry Riddle Aero Univ. Acft Accident
Incident Number: 9006093

Investment ☒ Narrative ☐ Stolen/Recovered Property Listing ☐ Investigative Leads ☐
Claims ☐ Evidence/Property Release ☐ Vehicle Release ☐ Other ☐

Code Narrative - Descriptions - Circumstances Station Feature

V1 Embry Riddle Aeronautical Univ. Daytona Bch, FL 32014
V2 ☒ Rappano, Michael John 2110 Oak Mullen Cir. Se. Daytona, FL
DOB 090766 SSAN 136-52-4361
Comm Pilot - Sgt. Multi Eng. Land - Instrument
CFI/II/MEI
Medical - Second Class 022390 Dr. E. Cook
13 ☒ Falkerts, Darwin Lynn 401 Bill France Blvd #405 Daytona Bch, FL 32111
DOB 102461 SSAN 512-78-3201
Private Pilot - Sgt. Multi Engine Land
Medical First Class 042490 Dr. G Langford

At approx 0806 alerted by Central of possible downed acft in vicinity of Deland Acp. Air Crew responded while this writer spoke w/ Daytona Control Tower and ERAU. Tower confirmed emergency down approx 3 east of Deland then lost radar contact. ERAU Flight deck advised that N4973V was operating in that area on a local IFR training flight. (Two on board)

Air Crew located acft @ 0826 in field west of megawatt lines east of Deland. This writer and Lt. Mullen responded to scene arriving at approx 0850. Upon arrival found EVAC crew loading pilot (V2) who was complaining of head/neck pain & lacerations. This writer spoke w/ Falkerts (V3) who declined a statement. Falkerts was told that I would interview him @ hospital. Both occupants transported to Halifax Med Ctr. by EVAC.

Acft, a Cessna Crusader T303 twin engine acft was observed inverted in a field west of the power lines. Acft was pointing west, north west.

This writer entered acft to retrieve records, shut down EIT and secure master switch. Due to crash damage master was not

NCIC Entry Date: By/ Cases: ☐ Not Assigned ☐ Inactive ☐ Exc. Cleared ☒ Closed
NCIC Cancelled Date: By/ Status: ☐ Continued ☐ Unfounded ☐ Cleared/Arrest ☐

Reporting Officer

Reviewed by

Sgt. J. Spuders
Lt. M. Mullen

Date

Date

05/29/90

05/30/90

0. 2093

0. 2055

VOLUSIA COUNTY SHERIFF'S OFFICE
 SUPPLEMENTARY REPORT

ORIGINAL REPORT YES ☐ NO ☐

ZONE

Victim

Incident Type

Incident Number

Embry Riddle Aere Univ

Acht. Accident

9006093

Supplement ☒ Narrative ☐ Stolen/Recovered Property Listing ☐ Investigative Leads

Contains ☐ Evidence/Property Release ☐ Vehicle Release ☐ Other

Code

Narrative - Descriptions - Circumstances

Stolen

Recover

readily accessible. Power Quadrant & radice obsd as follows:

Both throttles retarded

Lft engine in idle/cutoff

Both prop levers aft (feather)

Come #1 132.80

#2 125.35

Exterior of acht - Gear down & locked (Nose buckled)

Flaps - none

Rt Eng. Feathered

Lf. Eng Normal prop config.

Scene - Tricycle runs 50 feet (approx) running west to east ~~and to east~~ terminating @ acht.

Flight case of student, Discrep log & regist/radio license removed from
acht. Returned to ERAU via Inv. Johnson w/ prop sheet.
Following scene review this writer responded to Halifax Med Ctr
and interviewed pilot VZ Bapnane.

Bapnane states the following: On runup the rt alternator came
offline. AH recycled per Cp. manual. Normal takeoff; direct to
Deland for holding over NDB. Enroute Rt. Alternator again came off
line. Would not recycle so it was shutdown & left aft. monitored for
load. Following holding student entered NDB 30 approach. On approx
Rt. Engine fire warning activated. Bapnane states that he assumed
command of acht and secured & feathered right engine per cps manual
Bapnane states that acht would not climb even though left engine was
developing full power according to sound & instruments. Bapnane stb.
that he turned east to avoid houses near Deland and to try to
locate suitable forced landing area. Bapnane states that acht engine

☐ NCIC ☐ Entry Date

By/

Cases: ☐ Not Assigned ☐ Inactive ☐ Exc. Cleared ☒ Closed

☐ NCIC ☐ Cancelled Date

By/

Status: ☐ Continued ☐ Unfounded ☐ Cleared/Arrest ☐

Reporting Officer:

Sgt. J. Sanders

Date: 5/29/90

I.D. #: 2093

Approved by:

Lt. J. Mollen

Date: 5/30/90

I.D. #: 2055

ORIGINAL REPORT YES ☒ NO ☐

ZONE

23

VOLUSIA COUNTY SHERIFF'S OFFICE
SUPPLEMENTARY REPORT

ICLIM

Incident Type

Incident Number

Embry Riddle Aeronautical Univ.

Aircraft Accident

90 0 6093

Implement: ☒ Narrative ☐ Stolen/Recovered Property Listing ☐ Investigative LeadsInitials: ☐ Evidence/Property Release ☐ Vehicle Release ☐ Other:

Code

Narrative - Descriptions - Circumstances

Stolen

Remarks

was secured at approx 800 feet and he descended into cloud/bay bank emerging at 200 ft agl. Rapuano states that he saw power lines in front of the a/c and a field nearby. As Rapuano maneuvered towards the field the a/c began to roll necessitating a power reduction to reduce roll. A/c touched down west to east, flipped, and came to rest. Rapuano and Folkert then exited aircraft and moved to a safe distance since a small fire was observed in the left engine area. Rapuano did not extend gear nor did he instruct Folkert to lower gear.

Folkert was interviewed at ERAU at approx 11AM. Folkert was the student occupying the left seat of the aircraft. Folkert states the following: He observed the same problems on run up w/ the alternator. Folkert states that during the NDB 30 approach the Right engine fire warning activated and Rapuano took control of the aircraft. Folkert states that he handled the emergency checklist for the engine shutdown. Folkert adds that he was directed to try an air start of the right engine after the a/c had turned eastward but the engine would not turn over. Folkert confirms that the left engine was developing full power however a positive rate of climb was not possible as they flew east. Folkert states that prior to impact Rapuano directed him to pull the Emergency cross feed. Folkert states that he did not put the gear down and does remember Rapuano "cleaning" up the a/c (Flaps + gear) when the fire warning light illuminated.

Folkert states that after touchdown/impact he had some trouble freeing himself of the seatbelt but exited the a/c after a few seconds. Folkert noticed a small fire in the left engine area upon exit.

Maint. Discrep logs indicate previous write up for engines not developing full power. (Copies attached.)

All logs, registration cert. & flight case turned over to Inv. I.R.

IC = NCIC = Entry Date:

By/

Cases: ☐ Not Assigned ☐ Inactive ☐ Exc Cleared ☒ Closed

IC = NCIC = Cancelled Date:

By/

Status: ☐ Continued ☐ Unfounded ☐ Cleared/Arrest ☐

Reporting Officer:

Sgt. T. Sanders

Date: 05/29/90

I.D. #: 2093

Approved By:

Lt. M. Mellon

Date: 05/30/90

I.D. #: 2035

ORIGINAL REPORT YES ☒ NO ☐

ZONE 23

VOLUSIA COUNTY SHERIFF'S OFFICE
SUPPLEMENTARY REPORT

Victim: Embry Riddle Aeronautical Univ. Incident Type: Aircraft Accident Incident Number: 90 0 6093

Incident: ☒ Narrative ☐ Stolen/Recovered Property Listing ☐ Investigative Leads
Contains: ☐ Evidence/Property Release ☐ Vehicle Release ☐ Other

Code: Narrative - Descriptions - Circumstances Stolen Recovered

for delivery to FAA Inspector Cerkett

Followup to be conducted by Ins. Johnson, FAA - NTSB

Copies of report package to:

William A. Martin
Embry Riddle Aeronautical Univ.
Daytona Bch, FL 32114

5-31-90

William A. Martin
Dean
College of Aviation Technology



EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

Daytona Beach, FL 32014
Telephone 904/239-6821
Telex: 258052 SAND UR

Reporting Officer: Sgt. T. Sanders Date: 05/29/90 I.D. # 2093
Approved by: Lt. M. Nelson Date: 05/30/90 I.D. # 2035

NCIC Entry Date: By/ Status: ☐ Not Assigned ☐ Inactive ☐ Exp. Cleared ☒ Closed
NCIC Cancelled Date: By/ Status: ☐ Continued ☐ Unfounded ☐ Cleared/Arrest

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5/17/90</u>	Parking Spot#: _____	Number of Landings DAB <u>1</u> OMN _____
Time Out: <u>0740</u>	Fuel Load: <u>1/2</u>	FLG _____ NSB _____
Time In: <u>0900</u>	Tach Time: <u>1259.0</u>	DED <u>2</u> SFB _____
		OTHER _____ TOTAL <u>3</u>

AIRCRAFT STATUS ↑ ↓	DISCREPANCY: <u>OK</u> <u>Mark Hight</u> IP/STUDENT NAME & IP NUMBER
---------------------------	---

MAY 17 1990

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: <u>5/17</u>	Parking Spot#: <u>44</u>	Number of Landings DAB _____ OMN _____
Time Out: <u>13400</u>	Fuel Load: <u>3/4</u>	FLG _____ NSB _____
Time In: <u>1400</u>	Tach Time: <u>1760.2</u>	DED _____ SFB _____
		OTHER _____ TOTAL _____

AIRCRAFT STATUS ↑ ↓	DISCREPANCY: <u>OK</u> <u>DM 024</u> IP/STUDENT NAME & NUMBER
---------------------------	--

MAY 17 1990

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

62

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: 5/17 Parking Spot#: 43 Number of Landings
 DAB 1 OMN 1
 Time Out: 1130 Fuel Load: 500 FLG 1 NSB 1
 Time In: 1230 Tach Time: 161.0 DED 1 SFB 1
 OTHER 1 TOTAL 1

AIRCRAFT
STATUS

DISCREPANCY:



O.K

86
PR

Pin. Gun 023

IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

1263.1 / 45

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: 5-17 Parking Spot#: 43 Number of Landings
 DAB 1 OMN 1
 Time Out: 1200 Fuel Load: 1/2 FLG 1 NSB 1
 Time In: 1430 Tach Time: 1262.1 DED 1 SFB 1
 OTHER 1 TOTAL 1

AIRCRAFT
STATUS

DISCREPANCY:



OK

MAY 17 1960

WICKER

IP/STUDENT NAME & NUMBER



CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

13



AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5/17/90</u>	Parking Spot#: _____	Number of Landings DAB <u>1</u> OMN _____
Time Out: <u>1500</u>	Fuel Load: _____	FLG <u>2</u> NSB _____
Time In: <u>1640</u>	Tach Time: <u>1263.1</u>	DED _____ SFB _____
		OTHER _____ TOTAL <u>3</u>

AIRCRAFT STATUS  	DISCREPANCY: <u>OK</u>
	MAY 17 1990 <u>Mark Patterson 006</u> IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC		
Date: <u>5-17-90</u>	Parking Spot#: <u>43</u>	Number of Landings DAB <u>1</u> OMN _____
Time Out: <u>1700</u>	Fuel Load: <u>34</u>	FLG _____ NSB _____
Time In: <u>1830</u>	Tach Time: <u>1264.0</u>	DED _____ SFB _____
		OTHER _____ TOTAL <u>1</u>

AIRCRAFT STATUS  	DISCREPANCY: <u>OK</u>
	MAY 17 1990 <u>D. H. Hester 061</u> IP/STUDENT NAME & NUMBER

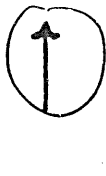
CORRECTIVE ACTION:

64

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: 5/17 Parking Spot#: 44 Number of Landings
 Time Out: 1830 Fuel Load: 1/2 DAB 1 OMN
 Time In: 2028 Tach Time: 1265.0 FLG NSB
 DED SFB
 OTHER 1 TOTAL 1

AIRCRAFT
STATUS



DISCREPANCY:

OK

Sidatke 12030
 IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: 5/18/90 Parking Spot#: 47 Number of Landings
 Time Out: 0830 Fuel Load: 600# DAB 1 OMN
 Time In: 1230 Tach Time: 1267.5 FLG NSB
 DED SFB
 OTHER 1 TOTAL 2

AIRCRAFT
STATUS



DISCREPANCY:

OK

Jim Carr 047
 IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

105

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5-18</u>	Parking Spot#: <u>47</u>	Number of Landings DAB <u>1</u> OMN <u>1</u>
Time Out: <u>1230</u>	Fuel Load: <u>1/2</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1400</u>	Tach Time: <u>271.0</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>1</u>

AIRCRAFT
STATUS

DISCREPANCY:

MAY 18 RECD

IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: <u>5-18</u>	Parking Spot#: <u> </u>	Number of Landings DAB <u>1</u> OMN <u>1</u>
Time Out: <u>1500</u>	Fuel Load: <u>< 1/2</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1700</u>	Tach Time: <u>272.0</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>2</u>

AIRCRAFT
STATUS

DISCREPANCY:



none

IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

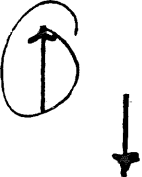

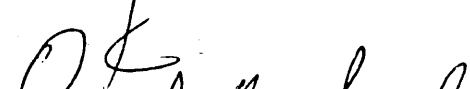
MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date:	<u>5-18</u>	Parking Spot#:	<u>48</u>	Number of Landings	
				DAB	OMN
Time Out:	<u>700</u>	Fuel Load:	<u>4/2</u>	FLG	NSR
Time In:	<u>800</u>	Tach Time:	<u>68.2</u>	DED	SFB
				OTHER	TOTAL

AIRCRAFT STATUS	DISCREPANCY:		
<div>↑</div> <div></div>	<div>0.1K</div> <div></div> <div>Ran Gun 023</div> <tr><td>IP/STUDENT</td><td>NAME & IP NUMBER</td></tr>	IP/STUDENT	NAME & IP NUMBER
IP/STUDENT	NAME & IP NUMBER		

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: <u>5/18</u>	Parking Spot#: <u>675</u>	Number of Landings DAB <u>1</u> OMN <u> </u>
Time Out: <u>900</u>	Fuel Load: <u>3/4</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1115</u>	Tach Time: <u>1270.0</u>	DED <u> </u> SFB <u> </u>
		OTHER <u>3</u> TOTAL <u> </u>

AIRCRAFT STATUS	DISCREPANCY:
	 
	STUDENT NAME & NUMBER

~~MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC~~

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: 5-18

Parking Spot#:

Number of Landings
DAB 1 OMN

Time Out: 1700

Fuel Load: below 1/2

FLG 1 NSS

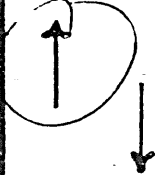
Time In: 1900

Tach Time: 273.5

DED SFB

OTHER TOTAL 2

AIRCRAFT
STATUS



DISCREPANCY:

OK

MAY 18 REC'D

Philip Lee 061

IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: 5-19-90

Parking Spot#:

Number of Landings
DAB 1 OMN

Time Out: 0730

Fuel Load: 3/4 +

FLG NSS

Time In: 1005

Tach Time: 1775.5

DED SFB

OTHER 2 TOTAL 3

AIRCRAFT
STATUS



DISCREPANCY:

1. RT OIL PRESSURE RUNS ON LOW
SIDE OF GREEN ARC.

Chris Chung 088

IP/STUDENT NAME & NUMBER

CORRECTIVE ACTION:

PLEASE RECHECK & REMARK

68

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5/20/90</u>	Parking Spot#: <u>44</u>	Number of Landings DAB <u>1</u> OMN <u> </u>
Time Out: <u>0800</u>	Fuel Load: <u>3/4</u>	FLG <u>4</u> NSB <u> </u>
Time In: <u>0930</u>	Tach Time: <u>1276.3</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>5</u>

AIRCRAFT
STATUS

DISCREPANCY:



OK

MAY 20 RECD

Carl Walker 111
IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: <u>5/20/90</u>	Parking Spot#: <u>45</u>	Number of Landings DAB <u>1</u> OMN <u>4</u>
Time Out: <u>1200</u>	Fuel Load: <u>1/2</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1330</u>	Tach Time: <u>1277.1</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>5</u>

AIRCRAFT
STATUS

DISCREPANCY:



OK

MAY 20 RECD

Carl Walker
IP/STUDENT NAME & NUMBER

CORRECTIVE ACTION:

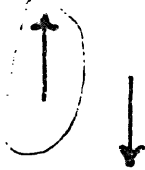
MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

69

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5/21/90</u>	Parking Spot#: <u>46</u>	Number of Landings DAB <u>1</u> OMN <u>1</u>
Time Out: <u>8:00</u>	Fuel Load: <u>1/4 tank</u>	FLG <u>1</u> NSB <u>1</u>
Time In: <u>10:40</u>	Tach Time: <u>1280.0</u>	DED <u>1</u> SFB <u>1</u>
		OTHER <u>1</u> TOTAL <u>1</u>

AIRCRAFT
STATUS



DISCREPANCY:

OK

OK. JH

Mark Hernandez

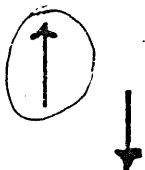
IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: <u>5-21-90</u>	Parking Spot#: <u>46</u>	Number of Landings DAB <u>1</u> OMN <u>1</u>
Time Out: <u>11:00</u>	Fuel Load: <u>3/4 3/4</u>	FLG <u>1</u> NSB <u>1</u>
Time In: <u>1240</u>	Hobbs Tach Time: <u>1280.9</u>	DED <u>1</u> SFB <u>1</u>
		OTHER <u>1</u> TOTAL <u>1</u>

AIRCRAFT
STATUS



DISCREPANCY:

OK

m. m. m. l. l. l.

MAY 21 1990

IP/STUDENT NAME & NUMBER

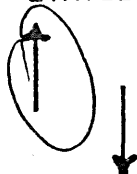
CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5/20</u>	Parking Spot#: _____	Number of Landings DAB <u>1</u> OMN _____
Time Out: <u>1400</u>	Fuel Load: _____	FLG _____ NSB _____
Time In: <u>1530</u>	Tach Time: _____	DED _____ SFB _____
		OTHER _____ TOTAL <u>1</u>

AIRCRAFT
STATUS



DISCREPANCY:

OK

J. Markham / 072

IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAY 20 RECD

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: <u>5/20/90</u>	Parking Spot#: <u>44</u>	Number of Landings DAB <u>1</u> OMN _____
Time Out: <u>1630</u>	Fuel Load: <u>600#</u>	FLG _____ NSB _____
Time In: <u>1800</u>	Tach Time: <u>1278.7</u>	DED _____ SFB _____
		OTHER _____ TOTAL <u>1</u>

AIRCRAFT
STATUS



DISCREPANCY:

OK

Ann Carr 047

IP/STUDENT NAME & NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

71

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5/21/90</u>	Parking Spot#: _____	Number of Landings DAS <u>1</u> CMN _____
Time Out: <u>1930</u>	Fuel Load: <u>700#</u>	FLG _____ NSB _____
Time In: <u>2100</u>	Tach Time: <u>1283.6</u>	DED _____ SFB _____
		OTHER _____ TOTAL <u>1</u>

AIRCRAFT STATUS <u>↑</u> ↓	DISCREPANCY: <u>OK</u> <u>Jim Crow 047</u> IP/STUDENT NAME & IP NUMBER	MAY 21 RECD
----------------------------------	---	-------------

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC		
Date: <u>5/22/90</u>	Parking Spot#: _____	Number of Landings DAB <u>1</u> CMN _____
Time Out: <u>0810</u>	Fuel Load: <u>1/2</u>	FLG _____ NSB _____
Time In: <u>0920</u>	Tach Time: <u>1284.4</u>	DED <u>5</u> SFB _____
		OTHER _____ TOTAL <u>6</u>

AIRCRAFT STATUS <u>↑</u> ↓	DISCREPANCY: <u>OK</u> <u>Mark Hiltner 015</u> IP/STUDENT NAME & NUMBER	MAY 22 RECD
----------------------------------	--	-------------

CORRECTIVE ACTION:

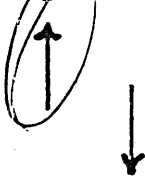
MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

77

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: 5-21-90 Parking Spot#: _____ Number of Landings
 DAB _____ OMN _____
 Time Out: 1330 Fuel Load: 1/2t FLG _____ NSB _____
 Time In: 1530 Tach Time: 1281.5 DED 1 SFB _____
 OTHER _____ TOTAL _____

AIRCRAFT
STATUS



DISCREPANCY:

OK
Chris Chig.

IP/STUDENT NAME & IP NUMBER

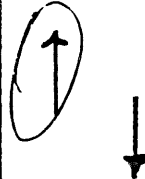
CORRECTIVE ACTION:

MAY 21 RECD

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: 5/21/90 Parking Spot#: 46 Number of Landings
 DAB 1 OMN 1
 Time Out: 1630 Fuel Load: FULL FLG _____ NSB _____
 Time In: 1730 Tach Time: 1282.6 DED _____ SFB _____
 OTHER _____ TOTAL 2

AIRCRAFT
STATUS



DISCREPANCY:

OK

MAY 21 RECD

M. B. 097

IP/STUDENT NAME & NUMBER

CORRECTIVE ACTION:

73

3/4 45 1285.6

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: 5/22 Parking Spot#: 45 Number of Landings
 DAB 1 OMN 5
 Time Out: 0930 Fuel Load: 3/4 FLG 5 NSB 5
 Time In: 1130 Tach Time: 1285.6 DED 5 SFB 5
 OTHER 6 TOTAL 6

AIRCRAFT
STATUS



DISCREPANCY:

OK

S. H. Koin 030

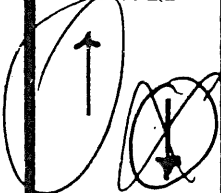
IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: 5/22 Parking Spot#: 44 Number of Landings
 DAB 1 OMN 5
 Time Out: 1200 Fuel Load: 3/4 FLG 5 NSB 5
 Time In: 1285.7 Tach Time: 1285.7 DED 5 SFB 5
 OTHER 6 TOTAL 6

AIRCRAFT
STATUS



DISCREPANCY:

*Did not fly
Right fuel flow inop*

Repiano 011

IP/STUDENT NAME & NUMBER

CORRECTIVE ACTION:



Repaired transducer connection - ops OK

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

74

AIRCRAFT FLIGHT/DISCREPANCY RECORD



Date: <u>5/22/90</u>	Parking Spot#: <u>47</u>	Number of Landings DAB <u>1</u> OMN <u> </u>
Time Out: <u>1600</u>	Fuel Load: <u>1/2</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1700</u>	Tach Time: <u>1286.2</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>1</u>

AIRCRAFT STATUS  	DISCREPANCY:
	<u>OK.</u> <u>Steve J. Jones</u> 004
IP/STUDENT NAME & IP NUMBER	

CORRECTIVE ACTION:

OK

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC		
Date: <u>5/22</u>	Parking Spot#: <u>43</u>	Number of Landings DAB <u>1</u> OMN <u> </u>
Time Out: <u>1730</u>	Fuel Load: <u>2/3</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1930</u>	Tach Time: <u>1287.8</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>1</u>

AIRCRAFT STATUS  	DISCREPANCY:
	<u>OK</u> <u>(R) FF gauge still intermittent</u> <u>Scott Kern 030</u> <u>Noted</u>
IP/STUDENT NAME & IP NUMBER	

CORRECTIVE ACTION:

75

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: 5/24 Parking Spot#: 417 Number of Landings
 DAB _____ OMN _____
 Time Out: 1530 Fuel Load: 5/4 FLG _____ NSB _____
 Time In: 1730 Tach Time: 4240.2 DED _____ SFB _____
 OTHER _____ TOTAL 2

AIRCRAFT
STATUS



DISCREPANCY:

OK

OK

IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

Noted

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: 5-24 Parking Spot#: 43 Number of Landings
 DAB 1 OMN 6
 Time Out: 1730 Fuel Load: 400 FLG _____ NSB _____
 Time In: 2000 Tach Time: 1291.7 DED _____ SFB _____
 OTHER _____ TOTAL 7

AIRCRAFT
STATUS



DISCREPANCY:

OK

Rowe 022

IP/STUDENT NAME & NUMBER

MAY 24 1970

1292.6

42

3/4

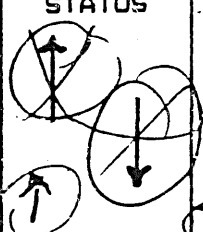
CORRECTIVE ACTION:

70

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5-27-80</u>	Parking Spot#: <u>43</u>	Number of Landings DAB <u>1</u> OMN <u> </u>
Time Out: <u>2030</u>	Fuel Load: <u>600</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>2100</u>	Tach Time: <u>1286.3</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>1</u>

AIRCRAFT STATUS 	DISCREPANCY: <u>RIGHT FUEL FLOW INOP DURING FLIGHT EVERY ONCE IN AWHILE IT WOULD INDICATE, NO POWER LOSS</u> <u>M. J. SOYE</u>
IP/STUDENT NAME & IP NUMBER	

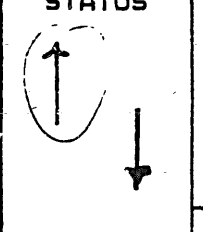
CORRECTIVE ACTION:

REPLACED TRANSDUCER

(LSP)

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: <u>5-24</u>	Parking Spot#: <u>44</u>	Number of Landings DAB <u>1</u> OMN <u> </u>
Time Out: <u>1330</u>	Fuel Load: <u>650 LBS</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1445</u>	Tach Time: <u>1244.2</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>1</u>

AIRCRAFT STATUS 	DISCREPANCY: <u>OK</u> <u>Test Successful 49</u>
IP/STUDENT NAME & NUMBER	

CORRECTIVE ACTION:

051177

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: 5/25/90 Parking Spot#: _____ Number of Landings
 DAB 1 OMN _____
 Time Out: 1720 Fuel Load: 1/4 FLG _____ NSB 7
 Time In: 1900 Tach Time: 1294.9 DED _____ SFB _____
 OTHER _____ TOTAL 8

AIRCRAFT
STATUS



DISCREPANCY:

OK

MAY 25 RECD

Mike R. Wright 015

IP/STUDENT NAME & IP NUMBER

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: 5/26/90 Parking Spot#: _____ Number of Landings
 DAB 1 OMN _____
 Time Out: 1530 Fuel Load: 1/4 FLG 2 NSB _____
 Time In: 1700 Tach Time: _____ DED _____ SFB _____
 OTHER _____ TOTAL 3

AIRCRAFT
STATUS



DISCREPANCY:

After airwork aircraft performance was very poor - felt as if the gear; Flaps were down - lot of drag but a/c was clean. Then increase throttles to try to get performance - both engines felt as if they were going to quit. Turned aux pumps on high - better performance, but still really rough. ~~all inst.~~ all engs - inst. read fine MP, tach, fuel flow normal - no fluctuation in levels. *R. Wright 017*

IP/STUDENT NAME & NUMBER

CORRECTIVE ACTION:



Ran engs & cleaned plugs - mag drops & static smooth & in limits - all inst. in green at static - no loss of power noted

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

78

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5-25-90</u>	Parking Spot#: <u>43</u>	Number of Landings DAB <u>1</u> OMN <u> </u>
Time Out: <u>0900</u>	Fuel Load: <u>3/4</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1030</u>	Tach Time: <u>1292.6</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>1</u>

AIRCRAFT STATUS  	DISCREPANCY:
	Right Alt. Light Illuminated Several Times During Flight <u>BH031</u> IP/STUDENT NAME & IP NUMBER



CORRECTIVE ACTION:

Sewered wires at Rt Alt - replaced resistor & screw.

[Signature]

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: <u>5-25-90</u>	Parking Spot#: <u>44</u>	Number of Landings DAB <u>1</u> OMN <u> </u>
Time Out: <u>1500</u>	Fuel Load: <u>1/2</u>	FLG <u> </u> NSB <u> </u>
Time In: <u>1645</u>	Tach Time: <u>12939</u>	DED <u> </u> SFB <u> </u>
		OTHER <u> </u> TOTAL <u>1</u>

AIRCRAFT STATUS  	DISCREPANCY:
	SAME AS ABOVE. <i>[Signature]</i> For C14 IP/STUDENT NAME & NUMBER

CORRECTIVE ACTION:

[Blank]

79

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

AIRCRAFT FLIGHT/DISCREPANCY RECORD

Date: <u>5/27</u>	Parking Spot#: _____	Number of Landings DAB <u>1</u> OMN _____
Time Out: <u>1500</u>	Fuel Load: <u>3/4 Full</u>	FLG _____ NSB _____
Time In: <u>1700</u>	Tach Time: <u>1298.4</u>	DED _____ SFB _____
		OTHER _____ TOTAL _____

AIRCRAFT STATUS <div style="text-align: center;"> ↑ ↓ </div>	DISCREPANCY: <div style="text-align: center; font-size: 2em;">OK</div> <div style="text-align: center; margin-top: 20px;"> </div>
IP/STUDENT NAME & IP NUMBER	

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

Date: _____	Parking Spot#: _____	Number of Landings DAB _____ OMN _____
Time Out: _____	Fuel Load: _____	FLG _____ NSB _____
Time In: _____	Tach Time: _____	DED _____ SFB _____
		OTHER _____ TOTAL _____

AIRCRAFT STATUS <div style="text-align: center;"> ↑ ↓ </div>	DISCREPANCY:
IP/STUDENT NAME & NUMBER	

CORRECTIVE ACTION:

MAINTENANCE SUPERVISOR/MAINTENANCE COORDINATOR/MECHANIC

86

AIRFRAME MAINTENANCE LOG

LMO

DATE	TACH/HOBBS METER TIME	Description of Work Performed
12/28/89	Hobbs time 854.7	① Replaced left MAIN GEAR Tire & disc ② replaced Brake pads ③ Repacked wheel Bearings ④ Installed RT side Right Pedal links Night Pedal - AEP 30589478
2/28/90	RSA.7	Installed new RT. brake pads & disc, reinstalled original RT landing gear door Michael J. Mysick AEP 228250327

(CS)
1/2/90 A/C 2098.9 Hobbs time 854.7 REMOVED R/H ENGINE FROM N 4973V
S/N 524281 & INSTALLED S/N 524310. REMOVED L/H ENGINE FROM N 4973V
S/N 523278 & INSTALLED S/N 523302 BOTH ENGINES INSTALLED USING NEW
ENGINE MOUNTS & HARDWARE AS NEEDED. ALL FLUID LINES REPAIRED WITH NEW THE FOLLOWING
ACCESSORIES WERE INSTALLED: CONT'D NEXT PAGE REMOVED

ITEM	QUANTITY	REMARKS	DATE	TIME	BY
ENGINE	1	2098.9	2098.9	2098.9	NEW
PROP.	1	2098.9	2098.9	2098.9	NEW
SE	1	2098.9	2098.9	2098.9	NEW
PA	1	2098.9	2098.9	2098.9	NEW
REGISTRATION NUMBER	2098.9	2098.9	2098.9	2098.9	NEW
Eng. Total Time	2098.9	2098.9	2098.9	2098.9	NEW
Eng. T.S.M.O.H.	2098.9	2098.9	2098.9	2098.9	NEW
Tach. Time	2098.9	2098.9	2098.9	2098.9	NEW
Prop. T.S.M.O.H.	2098.9	2098.9	2098.9	2098.9	NEW
ITEM	QUANTITY	REMARKS	DATE	TIME	BY
ENGINE	1	2098.9	2098.9	2098.9	NEW
PROP.	1	2098.9	2098.9	2098.9	NEW
SE	1	2098.9	2098.9	2098.9	NEW
PA	1	2098.9	2098.9	2098.9	NEW
REGISTRATION NUMBER	2098.9	2098.9	2098.9	2098.9	NEW
Eng. Total Time	2098.9	2098.9	2098.9	2098.9	NEW
Eng. T.S.M.O.H.	2098.9	2098.9	2098.9	2098.9	NEW
Tach. Time	2098.9	2098.9	2098.9	2098.9	NEW
Prop. T.S.M.O.H.	2098.9	2098.9	2098.9	2098.9	NEW

82

TIS-67.3 HRS.

DATE 03/09/90

FORM 1

EMERY AERONAUTICAL UNIVERSITY
DAYTONA BEACH, FLORIDA

9-26-91 B

PART NAME ALTERNATOR

PART NO. CHINOS-0102 W/O NO. 90-140

SERIAL NO. 645 MODEL 28V/95A

REMARKS REMOVED AND BENCH TESTED I.A.W.

CESSNA MANUAL DISCO-13 14 MAR 1986

INSPECTOR
KUNARAIRWORTHY
(Serviceable Part)NEW AND
SERVICEABLE
PARTS TAGSLM5
RM5
NG

DATE	TACH/ HOBBS METER TIME	Description of Work Performed
All data must be endorsed with Repair Station number or Signature & Certificate No. of person performing work		
I CERTIFY THAT THIS ACFT (N4973V) HAS BEEN INSPECTED		A/C Total Time 2403.1
IN ACCORDANCE WITH AN APPROVED PROGRESSIVE INSPECTION		Eng Total Time 4210.6
SCHEDULE PHASE NO. 4 AND WAS DETERMINED TO BE IN AN		Eng T S M O H 304.2
AIRWORTHY CONDITION.		Tach Time 1158.9
1) Lubed all trim actuators ① DR & R C/O Int		Prop T S M O H 354.2
② R & R Lft & Rt. Vac. Relief Filters ③ Replaced Rt		A/C Total Time 2403.1
Landing Light ④ Replaced Rt. main tire, cleaned, Insp, Repacked Rt main wheel		Eng. Total Time 4330.3
bearings. T.A. Repacked nose bearings, replaced LMA tire		Eng. T.S.M.O.H. 304.2
overpacked wheel bearings, secured door seal on lower		Tach Time 1158.9
half of fus. door, secured brakes, hyd. sys. & battery		Prop. T.S.M.O.H. 354.2
cyl. & L.H.T. (due 6/90)		
The Aircraft N4973V Identified above		
Inspected and Inspected in accordance		
with the provisions of the Federal Aviation		
Regulations		
4/16/90 [Signature] 1827		
[Signature] 0819		
Daytona Beach Regional Airport		
Daytona Beach, Florida		
1/22-90 1158.9 F.H.M. [Signature] 12611505-010-2 [Signature] 645		
DETAILS OF WORK ORDER UNDER 1845 TIS-67.3 hrs		
DAYTONA BEACH, FLORIDA 32014		
SIGNED: [Signature] DATE 4-22-90		

84-2600 21127

NEW AND
SERVICEABLE
PARTS TAGS

DATE	TACH/ HOBBS METER TIME	Description of Work Performed
I CERTIFY THAT THIS <u>07/20/1973</u> HAS BEEN INSPECTED		A/C Total Time <u>2502.2</u>
IN ACCORDANCE WITH AN APPROVED PROGRESSIVE INSPECTION		Eng. Total Time <u>74109.76-4429.9</u>
SCHEDULE PHASE NO. <u>6</u> AND WAS DETERMINED TO BE IN AN		Eng. T.S.M.O.H. <u>74109.76-4429.9</u>
AIRWORTHY CONDITION.		Tach Time <u>1258.0</u>
		Prop. T.S.M.O.H. <u>74109.76-4429.9</u>
<p>① SERVICED Hydraulic ② Resealed RT Brake caliper ③ SERVICED TIRES w/ RZ Lane RT up 594120085 ④ INSPECTED ELT 6490 Vol ⑤ SERVICED 2 system 100 ⑥ REPLACED LA AND RT BRAKE PADS Vol ⑦ HANDLEBAR AND REPLACED LA LANDING LIGHT BULB Vol ⑧ ASSISTED w/ INSPECTION 2 LIT ⑨ REPLACED RT ENG. MAINFOLD DRAIN LINE, LOWER INTAKE HOSE Clamps (Walter M) Drew APP 437904867 ⑩ W/ AD 94-16-22 by replacing twist on 2 LIT ⑪ DISASSEMBLED 14 ENG ⑫ REPAIRED oil cooler support bracket and C/W 4044-36-02 2-ENG in W. M. ⑬ REPAIRED Fire bottle clamp APP 231276000 (CS)</p>		
<p>The Aircraft <u>N4973V</u> Identified above was inspected and inspected in Accordance with the requirements of the Federal Aviation Regulations and is returned to Service. The inspection report is on file at</p>		
<p>5/17/90 <u>[Signature]</u> <u>2050</u> <u>WALDAM</u> [Signature] [Signature]</p>		

SECTION 3 EMERGENCY PROCEDURES

CESSNA
MODEL T300

CESSNA
MODEL T303

SECTION 3 EMERGENCY PROCEDURES

4. Emergency Crossfeed Shutoff -- PULL TO CLOSE.
5. Auxiliary Fuel Pumps -- OFF.
6. Approach -- NORMAL with full flaps.
7. Touchdown -- NOSE HIGH. Hold nose off as long as possible during roll.
8. Mixture Controls -- IDLE CUT-OFF.
9. Fuel Selectors -- OFF.
10. Battery and Alternator Switches -- OFF.
11. Magneto Switches -- OFF.
12. Airplane -- EVACUATE.

LANDING WITH FLAT MAIN TIRE.

1. Landing Gear -- DO NOT RETRACT.
2. Fuel Selectors -- POSITION BOTH TO TANK ON SIDE OF FLAT TIRE.
3. Airplane -- FLY as desired to lighten fuel load on side of flat tire.
4. Before Landing Checklist -- COMPLETE.
5. Approach -- NORMAL with full flaps.
6. Landing -- WING LOW TOWARDS GOOD TIRE. Lower nose immediately for steering.
7. Ailerons -- AWAY FROM FLAT TIRE to lighten load on tire.
8. Brakes -- APPLY ONLY ON GOOD TIRE.

LANDING WITH FLAT NOSE TIRE

1. Landing Gear -- DO NOT RETRACT.
2. Passengers and Baggage -- MOVE AFT if practical.
3. Before Landing Checklist -- COMPLETE.
4. Approach -- NORMAL with full flaps.
5. Touchdown -- NOSE HIGH. Hold nose wheel off as long as possible during roll.
6. Brakes -- MINIMUM necessary.

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

L ALT OFF OR R ALT OFF ANNUNCIATOR LIGHT (AMBER) ILLUMINATED

NOTE

Due to component tolerances and low signal levels, it may be normal for one ALT OFF light to be illuminated when the total load on both alternators is less than 30 amps.

1. Affected Alternator -- OFF.
2. Electrical Load -- REDUCE as required to extinguish LOW V (low volt) annunciator light. Significant nonessential loads are the combustion heater, vent fan, or external lights.

If alternator circuit breaker is tripped:

3. Bus Tie Circuit Breaker and Affected Isolation Circuit Breaker -- CHECK and RESET if tripped.
4. Select affected alternator on volt-ammeter, and turn on alternator while monitoring output.
5. If output is indicated on ammeter, turn off alternator and continue or terminate flight with electrical load reduced to capacity of single alternator.
6. If no output is indicated on ammeter, turn off alternator, reset circuit breaker, and turn alternator on again.
7. If circuit breaker trips again, turn off alternator and continue or terminate flight with electrical load reduced to capacity of single alternator.
8. If circuit breaker does not trip and ammeter indicates within 30 amps of other alternator output, disregard ALT OFF light and have system checked prior to next flight.

If bus tie circuit breaker and affected isolation circuit breaker are tripped:

3. Pull affected alternator circuit breaker and reset bus tie and affected isolation circuit breakers.
4. If circuit breakers trip again, terminate flight as soon as practical. Equipment powered from the affected main bus will be inoperative (see figure 7-12, Electrical System).
5. If circuit breakers do not trip, perform steps 3 through 8 outlined in the preceding "alternator circuit breaker tripped" procedure.

If alternator circuit breaker, bus tie circuit breaker and left or right isolation circuit breaker are not tripped:

3. Verify alternator field circuit breaker is not tripped; reset if tripped.
4. Select affected alternator on volt-ammeter, and turn on alternator.
5. If ammeter indicates within 30 amps of other alternator, disregard ALT OFF light and have system checked prior to next flight.
6. If ammeter indicates zero amps with other alternator loaded to capacity, turn off alternator and continue or terminate flight with electrical load reduced to capacity of single alternator.

SECTION 3 EMERGENCY PROCEDURES

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MODEL T303

LANDING WITH A FLAT TIRE

In the event of a blowout on takeoff, do not attempt to retract the landing gear. The tire may be distorted enough to bind the gear within the wheel well and prevent later extension. Accomplish the landing in accordance with the appropriate checklist.

PRACTICE MANUAL GEAR EXTENSION

To perform a practice manual gear extension, it is necessary to first pull the LDG GEAR, PUMP circuit breaker prior to performing the Landing Gear Fails to Extend checklist.

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

Malfunctions in the electrical power supply system can be detected by periodic monitoring of warning lights, volt-ammeter, and circuit breakers; however, the cause of these malfunctions may be difficult to determine in flight. A broken alternator drive belt, defective wiring, malfunctioning equipment, defective battery, or a combination of these is most likely the cause of an electrical system failure. The electrical system is designed to be as fail-safe as practical, making in-flight failures improbable. However, an electrical system malfunction should be dealt with expeditiously to avoid an in-flight emergency.

LEFT OR RIGHT ALTERNATOR OR MAIN BUS MALFUNCTIONS

The ALT OFF light circuitry in the alternator control units monitors the output of each alternator and will cause an amber L ALT OFF or R ALT OFF light in the annunciator panel to illuminate when the alternator output is insufficient to supply power to the associated main bus. It should be noted that due to component tolerances and low electrical load, one alternator may be carrying all of the load and the other ALT OFF annunciator light will be illuminated when the total load on the system is less than 30 amps. Either alternator output can be monitored by selecting L ALT or R ALT on the volt-ammeter.

In the event the L ALT OFF or R ALT OFF light illuminates with an electrical load of more than 30 amps, the probable cause is an alternator drive belt failure or malfunctioning alternator control unit. However, since a ground fault (short to airframe) on the alternator output wires or main bus could result in illumination of one of the ALT OFF lights, the procedure specified in the checklist portion of this section should be followed to isolate the problem (see L ALT OFF or R ALT OFF Annunciator

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SECTION 3 EMERGENCY PROCEDURES

Light (Amber) Illuminated checklist). Other indications such as sudden light dimming, audible arcing, or momentary power interruption followed by ALT OUTPUT, BUS TIE, or ISOL (L or R) circuit breakers tripping should provide for immediate detection of a ground fault requiring immediate action.

Illumination of the red LOW V light in the annunciator panel warning that the battery bus voltage level is low enough for power to be drained from the battery. The LOW V light can be used as a quick reference for electrical load adjustments to prevent battery discharge. Battery charge rate can also be monitored by selecting BATT on the volt-ammeter.

In the event it is necessary to terminate a flight with electrical power on only one of the main busses, it should be noted that the wing flaps are powered from the left main bus and the landing gear is powered from the right main bus; therefore, either a flaps-up landing or an emergency gear extension procedure will be required.

LOSS OF ALL ELECTRICAL POWER

The possibility of the loss of all electrical power is extremely improbable due to the dual bus design and fail-safe features. However, in the unlikely event of this occurring, a procedure is available in the checklist portion of this section which provides a means to restore electrical power by utilizing the EM AL FIELD switch. This switch bypasses the battery contactor, bus and supply cables to provide excitation voltage directly to the alternator field switches from the battery. The battery switch should be turned off immediately and remain off to conserve battery power for emergency alternator excitation in case there has been a partial battery failure or a battery bus fault. During operation with the battery switch off, the electrical noise level on the bus will increase and can cause degradation in the performance of avionics equipment. If an increase in electrical noise is detected, the battery supply system should be checked prior to the next flight.

PARTIAL AVIONICS POWER FAILURE

Primary power is supplied to the left and right avionics busses from the battery bus to optimize battery filtering action for avionics equipment. Circuit breakers protecting the supply cables are located in the left nacelle electrical compartment and cannot be reset in flight. In the event of an avionics power failure, there is a procedure in the checklist portion of this section which provides a means to restore electrical power to each avionics bus by utilizing the red-guarded EMER AVN (L or R) switch located in the left sidewall switch and circuit breaker panel.

DESCRIPTIONS

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MODEL T303

atic pressure alternate source valve, parking
ing controls, and the landing gear lever with
he center of the lower instrument panel incor-
emperature, oil temperature, and oil pressure
e right side of the switch and control panel
with position indicator, the cabin heating/de-
o compartment A control pedestal, extending
nent panel to the floor, contains propeller
(installed), throttles, propeller and mixture
rudder and aileron trim controls with position
e. The lower portion of the pedestal contains
fuel selector valve handles, fuel crossfeed
and the cowl flap controls. An oxygen shutoff
s located on the right side of the pedestal.

e instruments, switches, and controls on this
the description of the systems to which these

NT PANEL

strument group may be installed directly in
ger or copilot. Like the pilot's flight instru-
nel groups the attitude and directional indi-
eed indicator to the left and the altimeter to
arrangement. The remainder of the instru-
r and vertical speed indicator) are grouped
t flight instruments require a second, inde-
stem for operation.

ND CIRCUIT BREAKER PANEL

al equipment switches and circuit breakers
mounted on the left cabin sidewall adjacent
ols on this panel are illustrated in figure 7-3.

Figure 7-4) is located at the top edge of the
nt of the pilot. The panel contains 12 sepa-
nate green, amber or red when a specific
d airplane system. A green colored lamp is
or safe condition in the system. However,
cates that a cautionary condition exists,
diate corrective action. When a hazardous
diate corrective action, a red lamp illumi-

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SECTION
AIRPLANE & SYSTEMS DESCRIPTION

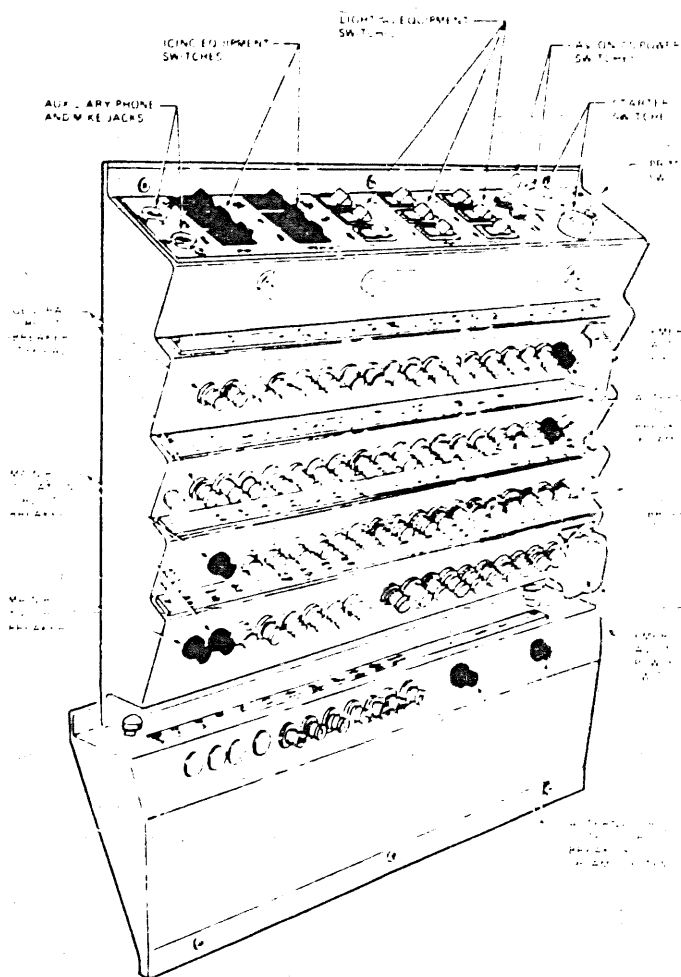


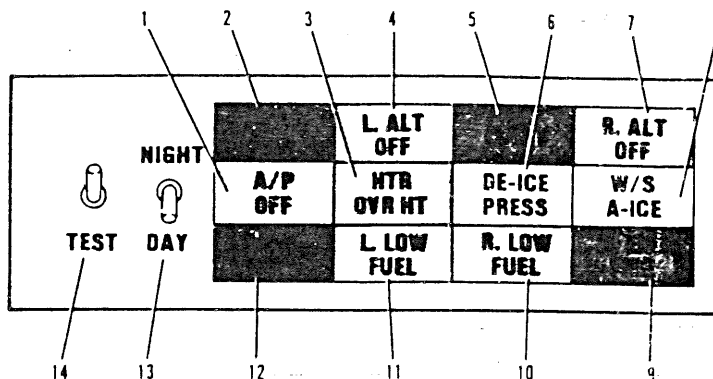
Figure 7-3. Left Sidewall Switch and Circuit Breaker Panel

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SECTION 7
AIRPLANE & SYSTEMS DESCRIPTIONS

CESSNA
MODEL T303



1. AUTOPILOT OFF LIGHT (AMBER) - Indicates the autopilot has disengaged.
2. DOOR OPEN LIGHT (RED) - Indicates that the forward baggage compartment door, the cabin entry door and or the emergency exit door are not secured safely for flight.
3. HEATER OVERHEAT LIGHT (AMBER) - Indicates an abnormally high temperature has occurred in the combustion heater and it has been automatically shut off. Once the light illuminates, the heater will not operate until the overheat switch in the right forward nose section (accessible in nosewheel well) has been reset.
4. LEFT ALTERNATOR OFF LIGHT (AMBER) - Indicates the left alternator is not supplying electrical current.
5. LOW VOLTAGE LIGHT (RED) - Indicates electrical system bus voltage is less than 24.5 volts.
6. WING AND STABILIZER DE-ICE SYSTEM PRESSURE LIGHT (GREEN) - Indicates pressure is being applied to the surface de-ice boots to inflate them.
7. RIGHT ALTERNATOR OFF LIGHT (AMBER) - Indicates the right alternator is not supplying electrical current.
8. WINDSHIELD ANTI-ICE SYSTEM LIGHT (GREEN) - Indicates that heating elements in the windshield anti-ice system are operating.

Figure 7-4. Annunciator Panel (Sheet 1 of 2)

CESSNA
MODEL T303

9. RIGHT ENGINE FIRE - Indicates fire or over temperature condition or pressure condition in right engine compartment.
10. RIGHT LOW FUEL LIGHT (RED) - Indicates right main fuel tank is low on fuel.
11. LEFT LOW FUEL LIGHT (RED) - Indicates left main fuel tank is low on fuel.
12. LEFT ENGINE FIRE LIGHT (RED) - Indicates fire or over temperature condition or pressure condition in left engine compartment.
13. DAY NIGHT SWITCH - Indicator lamps for day and night.
14. TEST SWITCH - Tests landing gear system position of landing gear, fire and stall warning tone.

Figure 7-4. Annunciator Panel (Sheet 2 of 2)

The annunciator panel also includes TEST and DAY/NIGHT. When the TEST switch is pushed, all annunciator lights, providing a function, also sounds the warning horn. The horn is a stall warning system. If desired, the horn can be silenced by turning the DAY/NIGHT switch to the NIGHT position. This allows two warning lamps appropriate to either day or night.

GROUND CONTROL

Effective ground control is achieved by using the rudder pedal to steer right. When the rudder pedal is pushed, the loaded steering bungees (which turn the rudder bars) will turn the nose of the aircraft. A 10 degree turn may be increased by increasing differential power, and nose wheel steering.

SECTION 3
EMERGENCY PROCEDURES

CESSNA
MODEL T303

4. Battery Switch -- OFF.
5. Magneto Switches -- OFF.
6. Airplane -- EVACUATE.
7. Fire -- EXTINGUISH.
8. Fire Damage -- INSPECT, repair damage or replace damaged components or wiring before conducting another flight.

ENGINE FIRE IN FLIGHT (RED ENG FIRE ANNUNCIATOR LIGHT ON)

1. Auxiliary Fuel Pumps -- OFF.
2. Affected Engine:
 - a. Throttle -- IDLE.
 - b. Propeller Control -- FEATHER.
 - c. Mixture Control -- IDLE CUT-OFF.
 - d. Fuel Selector -- OFF.
 - e. Cowl Flap -- OPEN.
 - f. Alternator Switch -- OFF.
 - g. Magneto Switches -- OFF.
3. Emergency Crossfeed Shutoff -- PULL TO CLOSE.
4. Cabin Heater -- OFF.
5. Operating Engine -- ADJUST POWER as required.
6. Airspeed -- ACCELERATE as required to find speed which will provide an incombustible mixture until fire is extinguished.
7. Electrical Load -- REDUCE as required.
8. Land airplane as soon as practical.

NOTE

Refer to engine-out operational procedures and to Single-Engine Approach checklist in this section for further details.

ELECTRICAL FIRE IN FLIGHT

1. Battery and Alternator Switches -- OFF.
2. Vents -- CLOSED (to avoid drafts).
3. Cabin Heater -- OFF.
4. Fire Extinguisher -- ACTIVATE (if available).

WARNING

If an oxygen system is available, occupants should use oxygen masks until smoke and discharged dry powder clears. After discharging an extinguisher within a closed cabin, ventilate the cabin.

5. Avionics Power Switches -- OFF.

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6. All Other Electricals

If fire appears out and light:

7. Battery and Alternator
8. Circuit Breakers --
9. Radio Switches --
10. Avionics Power Switch
11. Radio Electrical Switch until short circuit
12. Vents -- OPEN when extinguished.
13. Cabin Heater -- OFF

CABIN FIRE

1. Battery and Alternator
2. Vents -- CLOSED
3. Cabin Heater -- OFF
4. Fire Extinguisher

If an oxygen system is available, occupants should use oxygen masks until smoke and discharged dry powder clears. After discharging an extinguisher within a closed cabin, ventilate the cabin.

5. Land the airplane

WING FIRE

1. Pitot Heat Switch
2. Strobe Light Switch
3. Navigation Light
4. Landing Light Switch

Perform a sideslip to clear the cabin.

5. Land airplane as

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SECTION 7

AIRPLANE & SYSTEMS DESCRIPTIONS

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MODEL T303

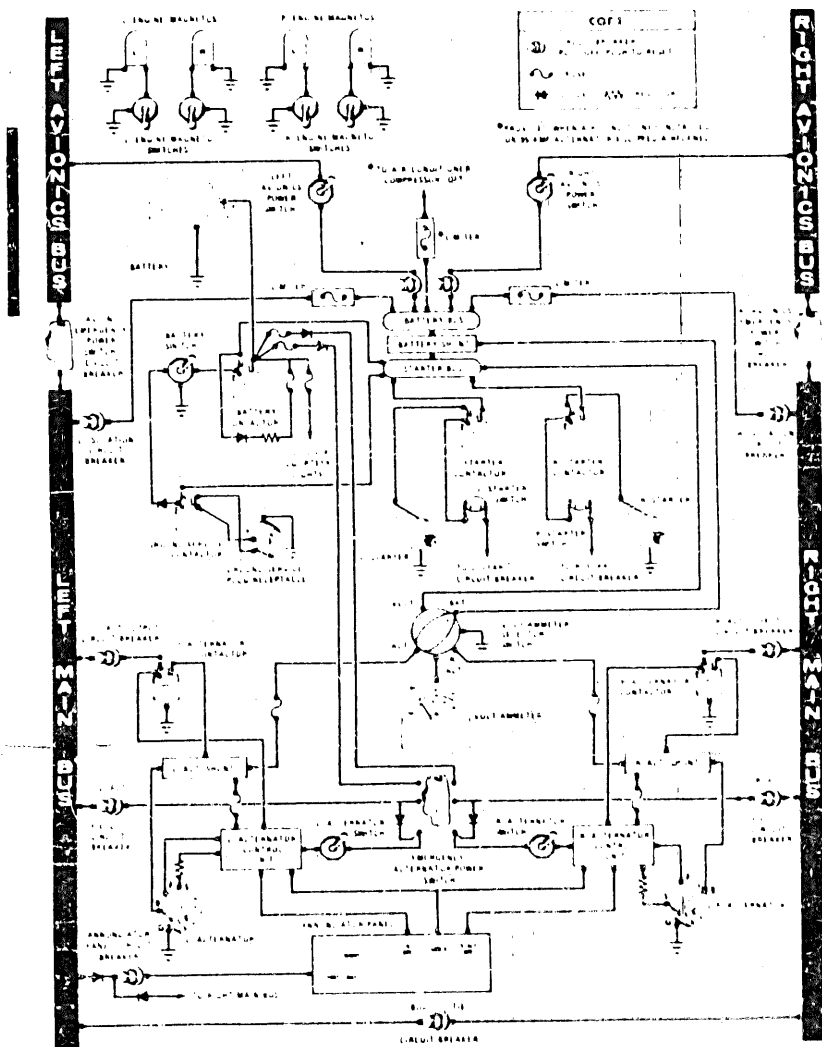


Figure 7-12 Electrical System (Sheet 1 of 2)

Original Issue - 21 July 1983
Revision 1 - 10 January 1984

CESSNA
MODEL T303

SECTION 7

AIRPLANE & SYSTEMS DESCRIPTIONS

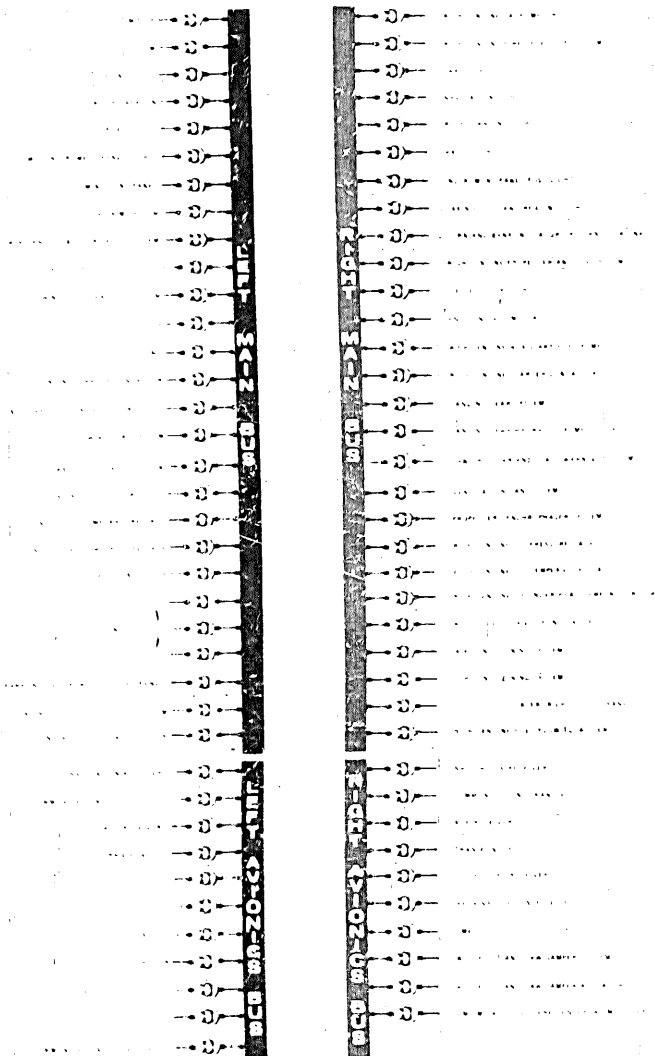
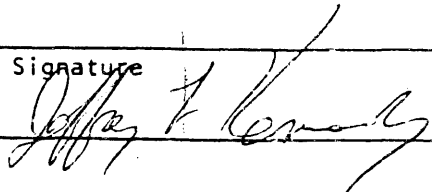


Figure 7-12 Electrical System (Sheet 2 of 2)

(Original Issue)

NATIONAL TRANSPORTATION SAFETY BOARD		Time	Date
RECORD OF [] VISIT [] CONFERENCE OR <input checked="" type="checkbox"/> TELEPHONE CALL		1400	6-28-90
Name(s) of Person(s) contacted or in conference and location		Routing	
		Symbol	Initials
ED HEIBE			
CESSNA AIRCRAFT COMPANY			
WICHITA, KS.			
Subject			
N4973V			
Digest			
HE IS WITH THE CESSNA ENGINEERING DEPARTMENT			
HIS ELECTRICAL ENGINEERING GROUP HAS EXAMINED			
A CESSNA T303 WHICH HAS JUST BEEN RETURNED			
TO CESSNA. THEY WERE ABLE TO SIMULATE THE			
ACTIVATION OF THE ENGINE FIRE WARNING			
WHEN A BUS ISOLATION CIRCUIT BREAKER AND			
A CRUISER RELAY CIRCUIT BREAKER ARE OPENED.			
THEY HAVE IDENTIFIED THE CAUSE OF THE			
FALSE FIRE WARNING IN THE ABOVE SCENARIO.			
AND HAVE DEVELOPED A FIX WHICH CALLS FOR			
INSTALLATION OF A DIODE IN THE CIRCUIT. THEY			
PLAN TO ISSUE A SERVICE LETTER AND SERVICE			
KIT TO ALL OWNERS OF T303 AIRPLANES.			
Conclusions, Action Taken, or Required			
FOR REPORT			
Date	Title	Signature	
6-28-90	ASI		

Jet Center

DAYTONA BEACH

FACSIMILE COVER SHEET:

TO: Jeff Kennedy WTSB 305-536-5380
 FROM: Jim Teski

NUMBER OF PAGES INCLUDING THIS PAGE 5

MESSAGE: RE T 303

IF ALL PAGES ARE NOT RECEIVED, PLEASE CALL ME AT 904-_____

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ALTERNATOR SWITCHES - OFF (ENGINES NOT RUNNING)
BUSS TIE BREAKER - PULLED

LEFT ISOLATION BREAKER - PULLED

1. THROTTLES - UP
2. THROTTLES - BACK
3. LEFT FIRE DETECTION BREAKER - PULLED
4. RIGHT FIRE DETECTION BREAKER - PULLED

RIGHT ISOLATION BREAKER - PULLED

5. THROTTLES - UP
6. THROTTLES - BACK
7. LEFT FIRE DETECTION BREAKER - PULLED
8. RIGHT FIRE DETECTION BREAKER - PULLED

ANNUNCIATOR TEST - (BUSS TIE & ISOLATION BREAKERS - IN)

9. BOTH FIRE DETECTION BREAKERS - IN
10. LEFT " " " - OUT
11. RIGHT " " " - OUT
12. BOTH " " " - OUT

TEST
SEQUENCE

N 212LR

S/N T303-00239

	LEFT FIRE LIGHT	RIGHT FIRE LIGHT	FIRE HORN	GEAR HORN
1	ON	OFF	STEADY - ON - HIGH PITCH	OFF
2	ON	OFF	STEADY - ON - HIGH PITCH	LOW BACK ON - GROUND NO.
3	OFF	OFF	OFF	OFF
4	ON	OFF	OFF	(WITH THROTTLE) - ON - NORMAL
5	OFF	ON	ON - NORMAL	OFF
6	OFF	ON	ON - NORMAL	OFF
7	OFF	ON	OFF	-
8	OFF	OFF	OFF	-
9	ON	ON	ON - NORMAL	-
10	OFF	ON	ON - NORMAL	
11	ON	OFF	ON - NORMAL	
12	OFF	OFF	OFF	

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S/N T303-00011

	LEFT FIRE LIGHT	RIGHT FIRE LIGHT	FIRE HORN	GEN. HORN
1	ON	OFF	ON - VERY DISTORTED	OFF
2	ON	OFF	ON - VERY DISTORTED	ON
3	OFF	OFF	OFF	-
4	ON	OFF	OFF	-
5	OFF	ON	ON - VERY DISTORTED	OFF
6	OFF	ON	ON - VERY DISTORTED	OFF
7	OFF	ON	OFF	-
8	OFF	OFF	OFF	-
9	ON	ON	ON - NORMAL	-
10	OFF	ON	ON - DISTORTED	-
11	ON	OFF	ON - NORMAL	-
12	OFF	OFF	OFF	-

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08

S/N T303-00137

	LEFT FIRE LIGHT	RIGHT FIRE LIGHT	FIRE HORN	GEAR HORN
1.	ON	OFF	OFF	OFF
2.	ON	OFF	OFF	ON
3.	OFF	OFF	OFF	-
4.	ON	OFF	OFF	-
5.	OFF	ON	ON-DISTORTED	OFF
6.	OFF	ON	ON-DISTORTED	OFF
7.	OFF	ON	OFF	-
8.	OFF	OFF	OFF	-
9.	ON	ON	ON-NORMAL	-
10.	OFF	ON	OFF	-
11.	ON	OFF	ON-NORMAL	-
12.	OFF	OFF	OFF	-

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NATIONAL TRANSPORTATION SAFETY BOARD
RELEASE OF AIRCRAFT WRECKAGE

ACCIDENT IDENTIFICATION
NUMBER

MIA95FA 37

PART I - RELEASE OF AIRCRAFT WRECKAGE

REGISTERED OWNER (name and address)

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
REGIONAL AIRPORT
DAYTONA BEACH, FL. 32014

REGISTRATION NUMBER - N

N4973V

MAKE

CESSNA

MODEL

T303

DATE OF ACCIDENT

5-28-90

LOCATION

DELAND, FLORIDA

The National Transportation Safety Board has ~~not~~ completed its investigation of the aircraft wreckage described above. If wreckage except that listed on the reverse side is hereby released to the registered owner, or owner's representative, for appropriate disposition. (If parts are retained, insert NONE.)

NONE

SIGNATURE OF NTSB REPRESENTATIVE

TITLE

DATE

Jeffrey L. Kemech

ASI

6-2-90

(This section may be signed by a person, not the owner or owner's representative, who has knowledge of the disposition of the aircraft wreckage and its parts. Such signature does not place a responsibility for disposition of the wreckage upon that person.)

I HEREBY ACKNOWLEDGE:

☒ Receipt of the above described aircraft wreckage.

☐ Removal of the parts, if any, listed on the reverse side of this form.

SIGNATURE

TITLE

DATE

VERBAL TO MICHAEL BARRETT

INSURANCE ADJUSTER

6-2-90

REMARKS:

NATIONAL TRANSPORTATION SAFETY BOARD
RECEIPT OF AIRCRAFT PARTS

ACCIDENT IDENTIFICATION
NUMBER

PART II—RELEASE OF AIRCRAFT PARTS

REGISTRATION NUMBER

MAKE

MODEL

DATE OF ACCIDENT

LOCATION

The National Transportation Safety Board has retained, for further examination, those parts, pieces, or components listed below. When the examination is complete, they will be returned to:

OWNER OR OWNER'S REPRESENTATIVE—

ADDRESS

PARTS, PIECES, OR COMPONENTS RETAINED:

SIGNATURE OF NTSB REPRESENTATIVE

TITLE

DATE

The registered owner or owner's representative will acknowledge receipt of the materials by signing this form in the spaces designated below.

SIGNATURE OF OWNER OR OWNER'S REPRESENTATIVE

TITLE

DATE

ADDRESS

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STATEMENT OF PARTY REPRESENTATIVES
TO NTSB INVESTIGATION

Aircraft Identification:

Registration Number N 49731
Make and Model CESSNA 7-300
Location DELAND FLORIDA
Date 5-28-90

The undersigned hereby acknowledge that they are participating in the above-referenced aircraft accident field investigation (including any component tests and teardowns or simulator testing) on behalf of the party indicated adjacent to their name, for the purpose of providing technical assistance to the National Transportation Safety Board.

The undersigned further acknowledge that they have read the attached copy of 49 CFR Part 831 and have familiarized themselves with 49 CFR 8831.11, which governs participation in NTSB investigations and agree to abide by the provisions of this regulation.

It is understood that a party representative to an investigation may not be a person who also represents claimants or insurers. The placement of a signature hereon constitutes a representation that participation in this investigation is not on behalf of either claimants or insurers and that, while any information obtained may ultimately be used in litigation, participation is not for the purposes of preparing for litigation.

By placing their signatures hereon all participants agree that they will neither assert nor permit to be asserted on their behalf, any privilege in litigation, with respect to information or documents obtained during the course of and as a result of participation in the NTSB investigation as described above. It is understood, however, that this form is not intended to prevent the undersigned from participating in litigation arising out of the accident referred to above or to require disclosure of the undersigned's communications with counsel.

<u>SIGNATURE</u>	<u>NAME (Printed)</u>	<u>PARTY</u>	<u>DATE</u>
<u>[Signature]</u>	<u>Rale Carter</u>	<u>Teledyne</u>	<u>5 June</u>
<u>[Signature]</u>	<u>Edna R. [unclear]</u>	<u>CEMRA R.</u>	<u>5-29</u>
<u>[Signature]</u>	<u>LYLE SUNDERLAND</u>	<u>ERMA</u>	<u>6-5-90</u>

Continued on reverse

DATE _____

6-590

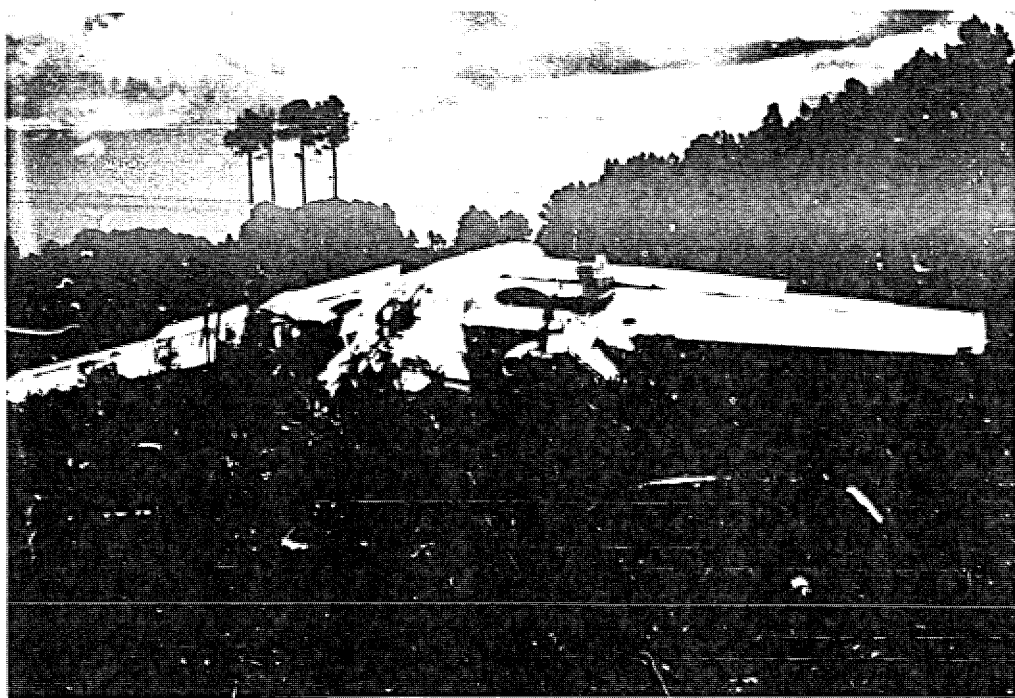
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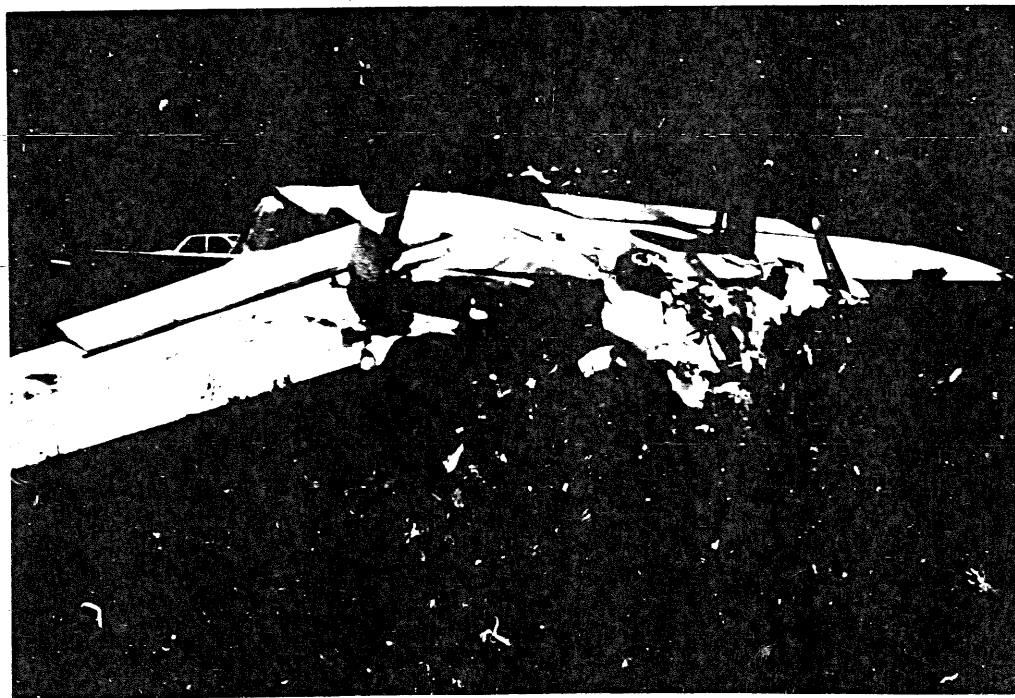
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PHOTOGRAPHS - MIA-90-F-A135

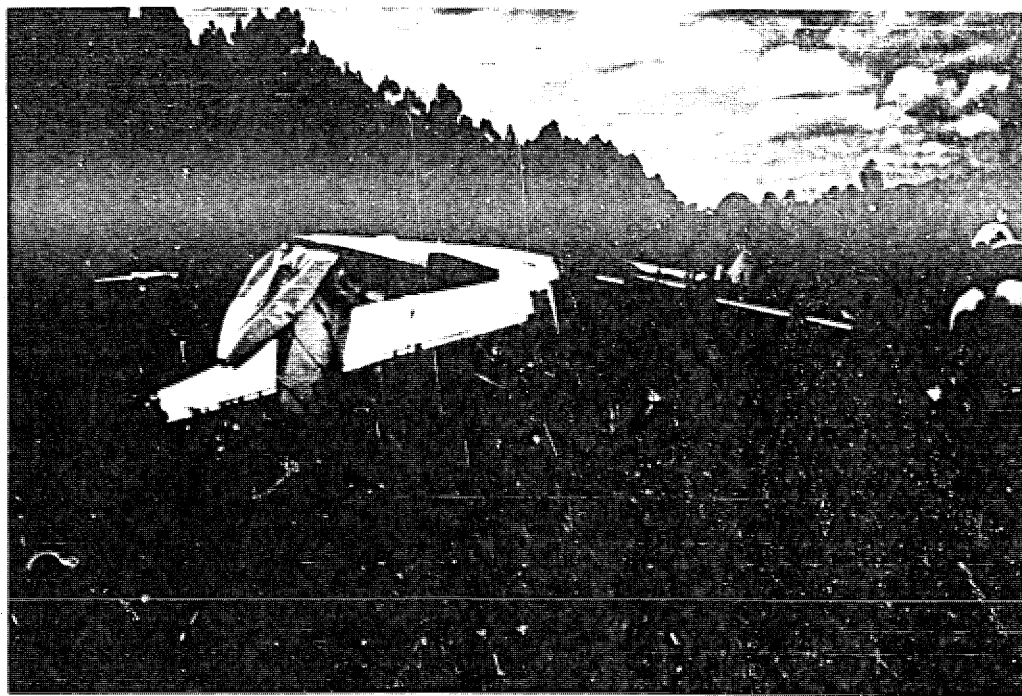


1. View of N4973V as it came to rest. (No negative)



2. Another view of N4973V as it came to rest. (No negative)

PHOTOGRAPHS - MIA-90-F-A135



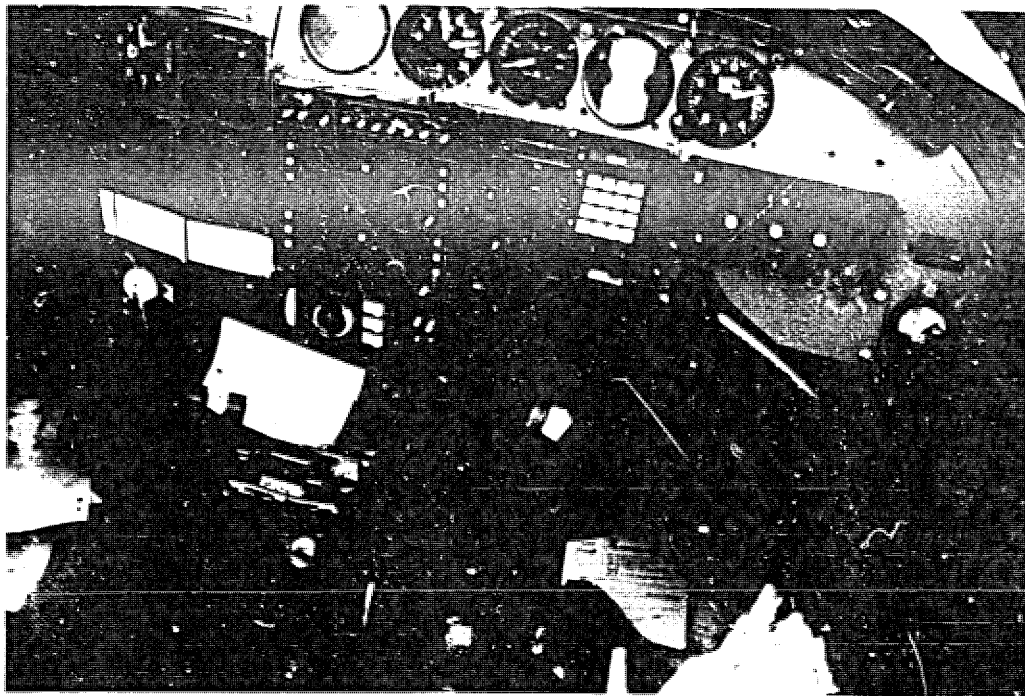
3. Another view of N4973V as it came to rest. (No negative)



4. View of N4973V after it was uprighted. Note crush damage to cockpit, roof, and windshield. (No negative)

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PHOTOGRAPHS - MIA-90-F-A135



5. View of cockpit of N4973V after the accident. Note position of gear handle, flap handle, and engine controls. (No negative)

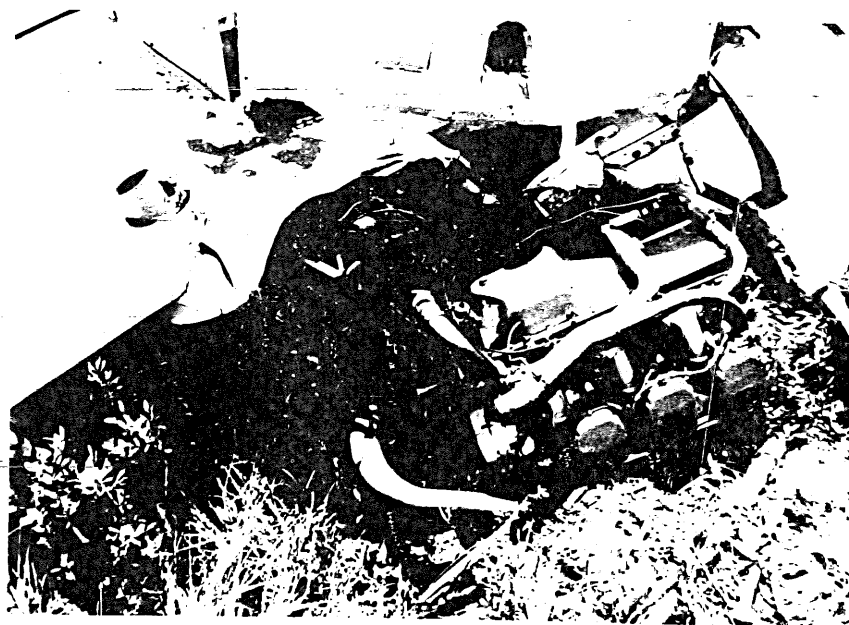


6. Right engine and propeller from N4973V. Note propeller in feathered position. (No negative)

PHOTOGRAPHS - MIA-90-F-A135



7. Left engine and propeller from N4973V. Note propeller in flat pitch with chordwise scratches on face. (No negative)

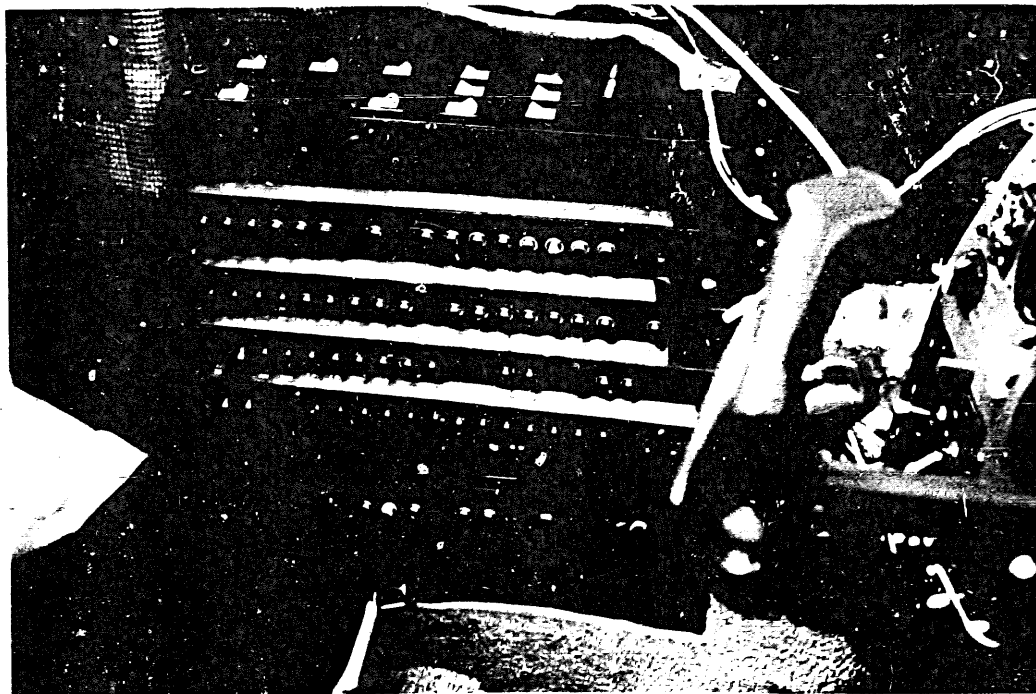


8. Left engine from N4973V. Note fire damage in area of turbo-charger. (No negative)

PHOTOGRAPHS - MIA-90-F-A135



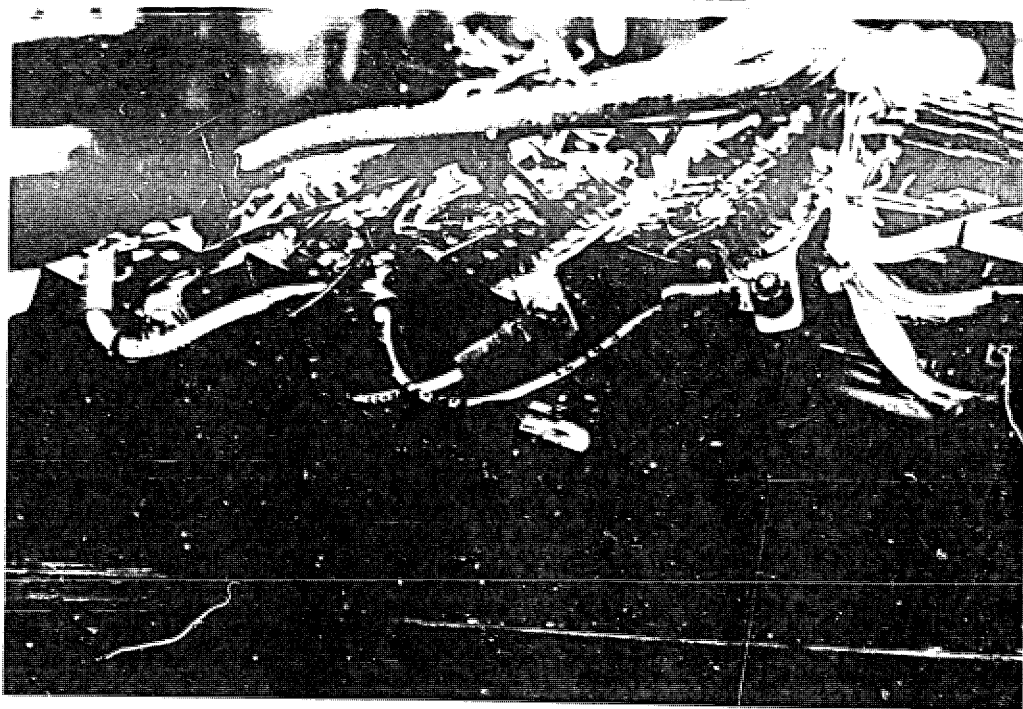
9. Another view of fire damage in turbocharger area of left engine from N4973V. (No negative)



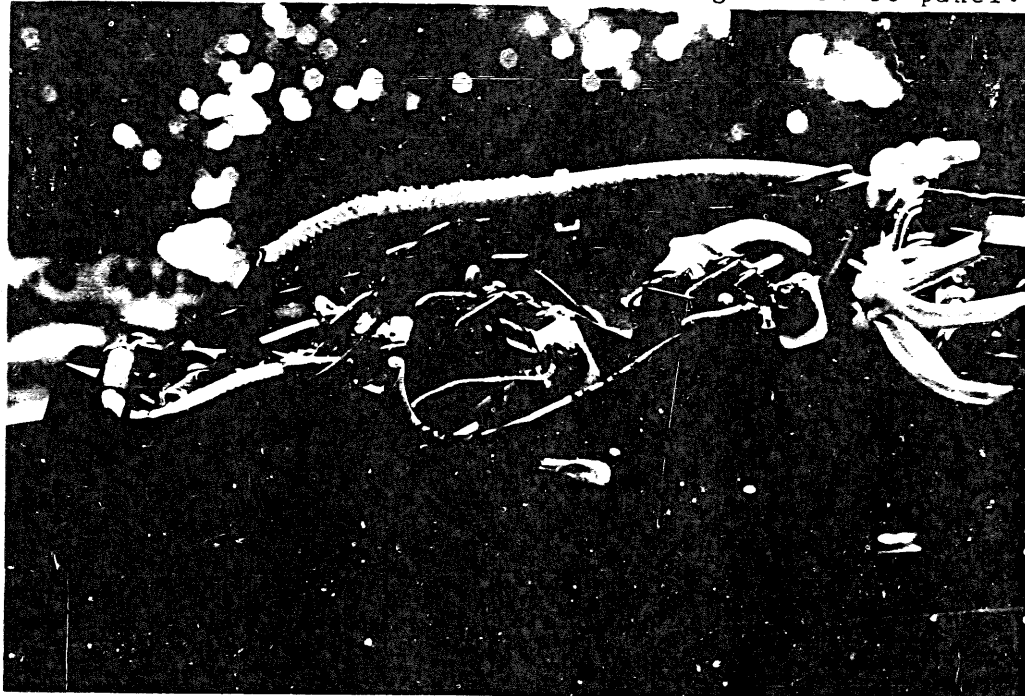
10. Circuit breaker panel from N4973V as found after accident. Note left bus isolation, right bus isolation, bus tie, landing gear indicator and air conditioning compressor breakers are open. (No negative)

10-1

PHOTOGRAPHS - MIA-90-F-A135



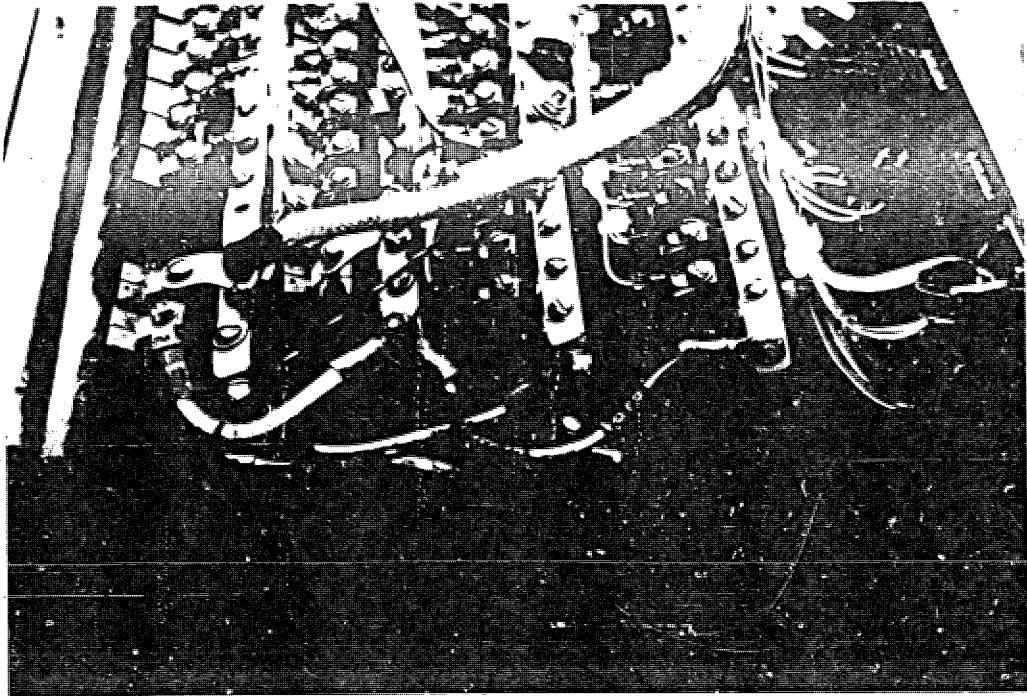
11. Aft area of circuit breaker panel from N4973V. Arrow indicates burned wire which connects left bus strips together and point on metal that wire was chafed and grounded to panel.



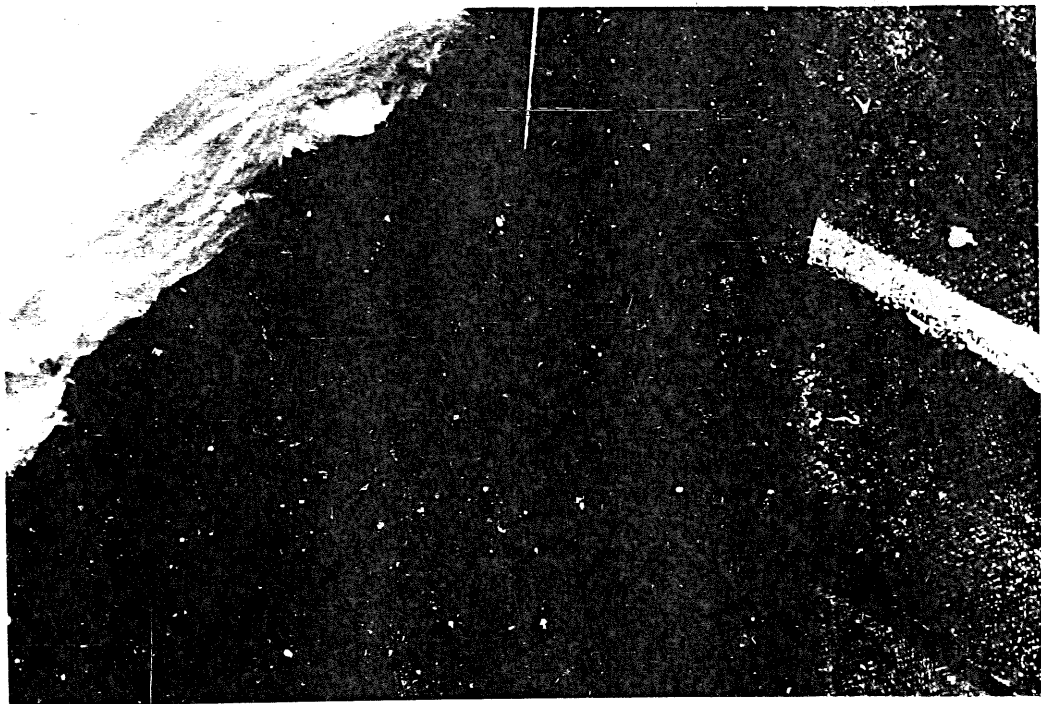
12. Another view of burned wire. Arrow indicates chaff mark.

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PHOTOGRAPHS - MIA-90-F-A135



13. Another view of burned wire.



14. Arrow indicates burn mark on arm rest, adjacent to burned wire in circuit breaker panel.

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