Aviation Investigation Final Report

Location:	SAN DIEGO, California	**Accident Number:**	LAX97FA049
Date & Time:	November 21, 1996, 16:36 Local	**Registration:**	N3774Q
Aircraft:	Beech 95-C55	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot (plt) got 2 weather (wx) briefings & was advised of deteriorating IFR wx in the destination area. When he filed an IFR flight plan, he told the briefer that he did not have his charts; the briefer looked up the airway designations & fixes for the plt. Near the destination, TRACON told the plt the airport (arpt) was below minimums, & that 3 aircraft (acft) had made missed approaches without seeing the ground. The controller then suggested nearby arpts that were above approach minimums as alternates. The plt said his car was parked at the arpt, & he wanted to make the approach. Radar data disclosed the acft flew the approach segments at least 1,000 higher than the charted altitudes at speeds between 180 & 155 kts. The acft overflew the missed approach point & arpt, then crossed the adjacent US/Mexico border before ATC could instruct the plt to make an immediate missed approach. The plt responded on the radio 'I guess I don't know where I am.' Radar data showed the acft climbing & descending rapidly as it reversed course, then descend to 300 ft agl as it neared the west arpt boundary. The plt transmitted that he thought he had the arpt in sight. Four seconds later, the acft impacted the departure end of the runway. Ground witnesses observed the acft in cloud bases, & they noted that it narrowly missed a building; it then turned sharply toward the runway before descending steeply to ground impact. The pilot's logbook did not show that he had met instrument currency requirements of 14 CFR 91.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's lack of situational awareness (becoming lost/disoriented during the approach), his failure to fly the approach as charted, and his failure to maintain aircraft control, while attempting an abrupt turn toward the airport, which led to an inadvertent stall/spin. The pilot's lack of recent instrument experience was a related factor.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MISSED APPROACH (IFR)

Findings
1. WEATHER CONDITION - LOW CEILING
2. WEATHER CONDITION - BELOW APPROACH/LANDING MINIMUMS
3. (C) IFR PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND
4. (F) LACK OF RECENT INSTRUMENT TIME - PILOT IN COMMAND
5. (C) BECAME LOST/DISORIENTED - PILOT IN COMMAND
6. MANEUVER - ATTEMPTED - PILOT IN COMMAND
7. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
8. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND

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

Factual Information

HISTORY OF FLIGHT

On November 21, 1996, at 1636 hours Pacific standard time, a Beech 95-C55, N3774Q, collided with the approach end of runway 8L at Brown Field, San Diego, California, while attempting a circling instrument approach to runway 26R. The aircraft was owned and operated by the pilot. Instrument meteorological conditions prevailed and an IFR flight plan was filed for the personal cross-country flight. The aircraft was demolished in the impact sequence and postcrash fire. The instrument rated private pilot, the sole occupant, sustained fatal injuries. The flight originated at Imperial, California, on the day of the accident at 1545 as a flight to San Diego.

Records maintained at the San Diego AFSS disclosed that the pilot (using the aircraft registration number) contacted the facility twice for weather information.

In the first morning call, the pilot requested an outlook briefing for a flight in the afternoon. Recordings of the telephone conversation note that the pilot was given the outlook that IFR conditions prevailed, VFR flight was not recommended, and that the forecast conditions in the San Diego area were expected to be 500 scattered with ceilings 1,000 feet. The pilot was advised to call after 1300 when an updated forecast would be available.

At 1538, the pilot telephoned San Diego AFSS, filed an instrument flight rules flight plan and requested a full weather briefing for the proposed flight. Review of the recorded conversation disclosed that he was advised that the current Brown Field weather included a visibility of 2 miles, with a 900-foot broken ceiling and the expectation that conditions would deteriorate (the VOR-A approach is the only one at Brown Field and the minimums are a visibility of 2 3/4 mile). At the conclusion of the full briefing, the specialists noted that the visibility at the San Diego area airports varied from 5/8 mile to less than 3, and ceilings were from 200 feet at the lowest to the 900-foot report from Brown, which was the highest. The briefing specialists also noted that it was "raining like crazy all over."

During the telephone conversation in which the pilot filed his flight plan, he told the FSS briefing specialists that he did not have his charts with him. The FSS specialists had to look up all the airway and fix designations for the pilot's route as he described it.

After completing the en route portion of the instrument flight, the pilot was cleared for the VOR-A approach to Brown Field, circle to land runway 26R by the Southern California TRACON. According to the approach chart, the minimums for the approach are a minimum descent altitude of 1,220 feet (700 agl) and a visibility of 2 3/4 miles. Just prior to issuing the approach clearance, the controller told the pilot that the last three aircraft that tried the approach into

Brown executed missed approaches without ever seeing the ground. The controller then asked the pilot "where do you want to go after the missed." The pilot responded that he didn't know where to go. In the subsequent exchange, the pilot said that his car was parked at Brown. The controller then gave the pilot the weather at the surrounding airports, noting which ones were below minimums. The pilot selected Lindbergh Field as his alternate choice, but also told the controller that he could not reach his charts and might need some help to get on the approach. The controller reassured the pilot that they would get him set up.

Review of the recorded air-to-ground communications tapes revealed that at initial contact with the Brown Field Air Traffic Control Tower (ATCT), the local controller instructed the pilot to report the Poggi VOR (missed approach point), and reminded the pilot that the airport weather was "measured ceiling 300 feet, visibility less than a mile." The pilot responded "how far down can I go." The local controller said that he did not know how far down the pilot could go and restated that the weather was 300 overcast. In response, the pilot said "oh I got it I'll go down to about eight."

At 1633:07, the pilot called the tower and stated he was about 2 miles north of Poggi, to which the controller responded that the pilot should report Poggi and executing the missed approach. One minute later, the TRACON facility called the ATCT on the land line and told the local controller that radar showed the aircraft 5 miles south of the airport in Mexican airspace (the airport is on the international border), and to instruct the aircraft to make a missed approach. The local controller immediately advised the pilot of his location and to make an immediate right turn. The pilot responded with "I guess I don't know where I am." Fifty seconds later the pilot stated "I think I'm over the field." The aircraft impacted the end of the runway 4 seconds later. The engines were found buried 18 inches into the asphalt at a 35-degree angle.

Ground witnesses reported that the aircraft nearly collided with the top of a convenience store located just off the southwestern corner of the airport as it flew northward at very low altitude. A second witness located in a junk yard about 300 yards off the departure end of runway 26R stated he heard the aircraft fly over "very low and very loud," then caught a glimpse of a "shadow airplane shape in the clouds" as it turned "very steeply on a wing tip" toward the runway. A few seconds later the aircraft hit the ground and exploded.

Recorded radar data was obtained from the Southern California Terminal Radar Approach Control (TRACON) and plotted using the commercial computer software Radar View. Both the raw data and the plotted charts are appended to this report, in addition to the VOR-A approach chart for Brown Field. The aircraft's position and mode C reported altitude versus time were compared to the approach chart. The following table illustrates the aircraft's reported altitude at the various fixes in comparison to the minimum charted values for the identified segment (it should be noted that the VOR is the missed approach point):

		(5.9nm)	(4.4nm)	(2.3nm)		IAF to
FAF to VOR to AIRPORT Min Charted Alt					/------2,400------/--------1,220--	
----/--------1,220----------/ A/C Mode C Alt		3,200	3,000	2,700		

2,300

Detailed review of the radar data from the point the aircraft crossed over the airport at 1634:39 until the last return at 1636:09 disclosed the following mode C altitude reports (dashed line indicates no altitude return):

TIME	ALTITUDE	REMARKS
1634:39	2,100	Over airport
1634:41	2,100	
1634:46	2,000	G/S averages 155kts
1634:50	1,900	
1634:55	2,200	Told entering Mexico by ATC and to execute missed approach
1635:00	------	
1635:04	------	G/S computed at 75kts
1635:09	3,100	Told to turn right by ATC
1635:13	------	
1635:18	3,100	
1635:23	------	
1635:28	------	
1635:32	------	
1635:35	1,600	A/C has reversed course 180 degrees in a 0.2nm radius right turn from the last return to this.
1635:37	1,600	
1635:39	2,300	
1635:41	------	
1635:46	2,800	
1635:51	------	
1635:55	2,100	
1636:00	1,100	
1636:02	800	Target is just south of the runway 26R departure end.
1636:04	800	Transmits "I think I'm over the field."
1636:09	1,000	Last mode C return. Time on transcript that Ground Controller announces crash.

PERSONNEL INFORMATION

The pilot was a 63 year-old retired physician, who had been an FAA designated Aviation Medical Examiner. Review of the FAA airman records file for the pilot disclosed that he held a private pilot certificate with airplane ratings for single engine land, multiengine land and instruments. The file revealed that his original private certificate was issued in 1965, with the instrument rating added in 1968, and the multiengine rating in 1983.

A copy of the pilot's FAA medical file was obtained from the FAA Aeromedical Certification Division in Oklahoma City. The last medical certificate of record was a third class, issued without limitation on February 8, 1996. On the application form for the medical certificate, the pilot answered "yes" to the question concerning current use of medications. The pilot reported using Cardizem 60mg b.i.d. for control of blood pressure. Under total pilot time, he reported 1,000 total hours, with 12 flown in the last 6 months.

The pilot's logbook was recovered from the aircraft and examined. The entries were consistent and covered the period from the pilot's first flight in 1965 to the last entry on October 1, 1996. The logged hours totaled 547.4, with 319.1 in multiengine airplanes. The instrument hours totaled 48.1. Detailed review of all entries disclosed that following issuance of his instrument rating in 1968, no further instrument flights were logged until June 1987, when 1 hour of instrument work was recorded in a dual flight in the accident aircraft. The next instrument activity found in the log was 2.9 hours of dual instruction in 1991. No further instrument activity was recorded until August 1995, when the pilot completed a combined BFR and instrument recurrency check in 12 total flight hours, 8.2 of which were listed as instrument time. The pilot logged instrument flights on April 17 and September 15, 1996, which totaled 2.5 hours. An additional 2.5 hours of instrument time was recorded in the last log entry on October 1, 1996.

The pilot's logbook was compared to the aircraft maintenance records and the recent activity was consistent in both records.

AIRCRAFT INFORMATION

Partially burned maintenance records were recovered from the wreckage and examined. The surviving airframe logbook began with an entry dated February 13, 1989. In addition, the aircraft file maintained by the FAA Aircraft Registry in Oklahoma City was reviewed.

The 1967 year model Beech 95-C55 was purchased by the pilot in 1987. Review of the surviving records disclosed that the airframe had accumulated about 1,398 total hours as of the accident date. The most recent annual inspection was completed on February 1, 1996, about 30 hours prior to the accident. The last maintenance entry was on August 24, 1996, and noted compliance with Beech Service Bulletin 2460 and the installation of overhauled landing gear and flap motors.

Two Continental IO-520-C engines were installed in the airframe; serial number 231630-H in the left position, and 173004-H in the right. Annual inspection entries for both engines were dated the same as the airframe. The left engine had accumulated 1,930 total hours, with 230 since major overhaul. The right engine had accumulated a total time of 800 hours.

The record review noted that a Northstar GPS-600 was installed in the aircraft on July 12, 1993. The FAA Form 337 for the installation stated that the unit was for VFR navigation only and was not approved for instrument approaches. The form also noted: "Steering outputs have not been connected to any other navigation indicators or autopilot/flight director system.

The destruction to the aircraft precluded determination of the amount of fuel onboard at the accident. When the pilot filed his instrument flight plan he stated that the aircraft had 4 hours of fuel on board. Fueling records for both Brown Field and the Imperial, California, airport were reviewed. The last fueling of record for the aircraft at Brown was dated November 17 and

noted that 10.6 gallons of 100LL was loaded on the aircraft. Imperial Flying Service fueling records disclosed that 30.7 gallons of 100LL were loaded on the aircraft at 1535 on the day of the accident.

AIDS TO NAVIGATION

FAA facility records detailed that all ground-based navigation aids associated with the VOR-A approach at Brown Field were operational at the time of the accident.

AERODROME INFORMATION

Brown Field is 1.75 miles north of the United States/Mexico international border. The Tijuana International Airport is directly south of Brown Field and about 1 mile on the Mexico side of the border.

With a 524-foot msl elevation, the airport has two hard surfaced runways on a 080 - 260 magnetic orientation. Runway 26R is 7,999 feet long by 200 feet wide and is equipped with Runway End Identifier Lights and a V2L Visual Approach Slope Indicator. Air traffic services are provided by an FAA Air Traffic Control Tower. The VOR-A, circle to land, is the only instrument approach authorized for the airport.

COMMUNICATIONS

Review of recorded air-ground communications tapes disclosed that the aircraft successfully and successively communicated with Los Angeles ARTCC, Southern California Terminal Radar Approach Control, and the local control position at Brown Field Air Traffic Control Tower. No communications difficulties were noted during review of the tapes.

METEOROLOGICAL INFORMATION

The Brown Field ATCT is an official aviation weather observation station which records and forwards weather observations to the National Weather Service. The recorded weather observations before and after the accident were reviewed.

At 1450, the station weather conditions were recorded as visibility 3 miles in fog and haze, broken clouds at 1,300, overcast clouds at 2,700, and a temperature/dew point of 67 and 63 degrees, respectively. During a special observation at 1517, the ground visibility decreased to 2 miles in mist, the broken clouds had lowered to 900 feet, and the overcast layer had descended to 1,300 feet.

In the 1550 observation, the visibility remained at 2 miles in mist; however, the ceiling changed to 300 overcast. During the special observation immediately after the accident at 1646, the visibility was recorded as 1/2 mile in mist and fog with a 100 foot ceiling. These conditions remained for the next 2 hours.

At the time of the accident, the Automatic Terminal Information Service was broadcasting information Lima, which consisted of the 1550 METAR observation noted above.

WRECKAGE AND IMPACT INFORMATION

The aircraft wreckage was located on the south asphalt shoulder about 300 feet from the approach end of runway 8 at the Brown Field airport. All of the aircraft was present within the wreckage distribution area surrounding the final resting point of the fuselage.

The fuselage was oriented on a magnetic bearing of 052 degrees, and, with the exception of the left wing tip and the empennage, was destroyed by fire. Both engines were buried halfway into the asphalt at an angle measured at 37 degrees to the horizontal. Nose sheet metal fragments, the cockpit door, the oxygen bottle and plexiglass windscreen fragments were distributed on a fan shaped arc out to 80 feet in front of the fuselage. The right main tire and wheel was found about 60 feet behind the aircraft.

Both propeller hubs were broken and found at the bottom of their respective engine craters. One blade, subsequently identified as from the left propeller, was located about 100 feet southeast of the fuselage. All blades exhibited chordwise striations, leading edge damage, and tip end twist deformation.

The bolts, hinges, hooks, and pins for both the cockpit and the baggage doors were deformed.

The landing gear and flap actuators were found in the extended positions. The trim tab actuators for aileron, elevator, and rudder were found very close to their neutral positions at respective inch measurements of 1.25, 3.875, and 1.43.

The extent of the destruction to the airframe precluded control system continuity determination; however, all cables were observed to be continuous and routed within the fuselage/wing structures in their normal approximate geometry. No unusual operating signatures were observed to any surviving limit stop.

TESTS AND RESEARCH

The engines and propellers were removed from the airframe following recovery of the wreckage and taken to an engine overhaul facility for detailed examination.

Right Engine, serial number 173004-R

Overall view of the engine revealed external thermal distress from the ground fire and the engine case was noted to be fractured. The crankshaft flange was severed and missing about 3/4 of the flange with one prop attach stud still in the fractured flange part. The gear driven alternator was broken from the mounting flange at the right front end of the engine; however,

the drive end bearing was intact.

The upper spark plugs were removed and were observed to be in very good condition with no sooting evident.

The oil filter was cut open for examination and the filter element was clean. The engine oil pump exhibited normal wear patterns internally.

The engine driven fuel pump drive coupling was found sheared at it's shear point, with a compressive impact to the housing, which broke the pump from the mounting pad. The small end of the drive coupling was driven into the pump end and was stuck inside. The shear point was sheared in compression at an angle of about 30 degrees. The fuel control thimble fuel screen was removed and found clean. The flow divider was opened and found with a clean screen and a good diaphragm.

The vacuum pump was of the wet type and the drive coupling was intact.

All three propeller blades were broken from the propeller hub. Chordwise striations and leading edge damage was noted to 2 blades. One blade was partially melted from postcrash fire damage.

All valves along with the springs, keepers, and rocker arms were in place. Rotation of the engine was not possible due to the crank and case damage. Both magnetos were fire damaged to the point of destroying internal plastics and could not be operationally tested.

Left Engine, serial number 231630-H

Overall view of the engine revealed external thermal distress from the ground fire. The engine nose case was fractured and open. The crankshaft flange was missing with torsional shear evident. The propeller dome spring was driven into the hollow portion of the crankshaft.

The upper spark plugs were removed and noted to be in very good condition with normal operating signatures and sooting observed on the No. 6 plug.

The oil filter was opened and was found clean and normal. The engine oil pump was removed and examined, with no unusual operating signatures noted. Rotational distortion of the shaft splines was noted. The vacuum pump was of the wet type with an intact drive coupling.

The engine driven fuel pump was fire and impact damaged. The drive coupling was intact and in position. The flow divider was opened and examined, with a clean screen and intact diaphragm noted. The fuel control was missing with the exception of the control arm and the butterfly door.

The magnetos sustained thermal damage and could not be operationally tested. All valves,

their springs, keepers, and rocker arms were in place. Rotation of the gear train was not performed due to the case and crankshaft damage.

All three propeller blades were broken from the prop hubs. Extensive leading edge damage, chordwise striations and torsional twisting was noted to all three.

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot sustained fatal injuries in the accident and an autopsy was performed by the San Diego County Medical Examiner, with specimens retained for toxicological examination. According to the pathologist who performed the procedure, the pilot had an enlarged heart with fibrosis evident. The athersclerosis was described as "massive," with occlusions noted at greater than 95 percent in all arteries.

Toxicological examinations were conducted by the FAA Civil Aeromedical Institute at Oklahoma City. The results were negative for all screened drug substances. 10.0 mg/dl ethanol was detected in the pilot's muscle fluid along with 1.0 mg/dl acetaldehyde. No ethanol was detected in the kidney fluid specimen. The report notes that the ethanol "may be the result of postmortem ethanol production."

The following prescription medications were found in the pilot's shaving kit: 1) Minocycline, 50 mg capsules; 2) Cardizem CD 180 mg capsules; 3) nitroglycerin 0.2 mg/hr transdermal patches; and 4) nitroglycerin tablets.

ADDITIONAL INFORMATION

The wreckage was released to Loss Management Services represent the pilot/owner at the conclusion of the engine examinations. All components were located at Aircraft Recovery Services, Compton, California, when released.

Pilot Information

Certificate:	Private	**Age:**	63,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	February 8, 1996
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	547 hours (Total, all aircraft), 265 hours (Total, this make and model), 464 hours (Pilot In Command, all aircraft), 9 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N3774Q
Model/Series:	95-C55 95-C55	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	TC-320
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	February 1, 1996 Annual	**Certified Max Gross Wt.:**	5300 lbs
Time Since Last Inspection:	12 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	1398 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-520-C
Registered Owner:	EARL A. BAUER, MD, INC.	**Rated Power:**	285 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SDM ,524 ft msl	**Distance from Accident Site:**	
Observation Time:	16:38 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Unknown	**Visibility**	0.5 miles
Lowest Ceiling:	Overcast / 300 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	24°C / 23°C
Precipitation and Obscuration:	N/A - None - Fog		
Departure Point:	IMPERIAL , CA (IMP)	**Type of Flight Plan Filed:**	IFR
Destination:	(SDM)	**Type of Clearance:**	IFR
Departure Time:	15:45 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	BROWN FIELD SDM	**Runway Surface Type:**	Concrete
Airport Elevation:	524 ft msl	**Runway Surface Condition:**	Wet
Runway Used:	26R	**IFR Approach:**	Circling;VOR/DME
Runway Length/Width:	7999 ft / 200 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	32.549789,-117.040779(est)

Administrative Information

Investigator In Charge (IIC):	Rich, Jeff
Additional Participating Persons:	JEFF REYNOLDS; SAN DIEGO , CA
Original Publish Date:	March 31, 1998
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=29592