

CIVIL AERONAUTICS BOARD

AIRCRAFT ACCIDENT REPORT

ADOPTED: August 22, 1960

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MIDAIR COLLISION
PIPER PA-22, N 9609D, AND OHIO AIR NATIONAL GUARD F-84F,
NEAR MANSFIELD, OHIO, NOVEMBER 7, 1959

SYNOPSIS

On November 7, 1959, at 1416 e s.t , a Piper PA-22, N 9609D, and an Ohio Air National Guard F-84F, 519360, collided in the air about two miles south-southeast of the Mansfield Municipal Airport, Mansfield, Ohio. The two pilots of the PA-22 received fatal injuries. The pilot of the F-84F ejected from his aircraft and parachuted to the ground uninjured. Both aircraft were totally destroyed.

The F-84F was the No. 4 aircraft in a flight of four jets making a low-altitude pass in close show formation across the Mansfield Airport from north to south. The PA-22 was on a cross-country flight from Akron to Mansfield and return nonstop. At the time of the collision it was in the Mansfield control zone proceeding in a north-easterly direction. The pilot of the PA-22 did not contact the Mansfield tower. The tower controllers cleared the jets for the low pass after scanning the entire area for possible conflicting traffic but failed to see the PA-22. Weather conditions were good and visibility was approximately 12 miles.

Under the circumstances primary responsibility for aircraft separation rested with the pilots of each aircraft. The tower operators also had a responsibility to make certain there was no conflicting traffic before clearing the jet flight. It is clear that none of the personnel concerned were exercising the proper degree of vigilance although there was adequate opportunity to do so.

As a result of this accident the Board has recommended to the Administrator of the Federal Aviation Agency that all formation flights except those involving simulated instrument low approaches and using an observer aircraft be prohibited in control zones and/or in the vicinity of joint-use civil airports. It has also been recommended that all aircraft that are equipped with radio be required to notify the appropriate communications facility when operating in a control zone.

Investigation

N 9609D was being operated under a lease-purchase agreement by Stadvec Aviation, Inc., of Akron, Ohio. The flight of November 7 was for the purpose of giving cross-country flight training to Mr. Clyde A. Parsons, a student pilot. The flight instructor was Mr. Arthur L. Stanley, an employee of Stadvec Aviation. The flight was planned to be from Akron to Mansfield and return nonstop. It was to be conducted according to VFR (visual flight rules) and no flight plan was filed. N 9609D departed

Akron about 1345 ^{1/} and no radio contacts were made with any communications facility thereafter.

F-84F, 519360, was an Ohio Air National Guard single-place jet fighter attached to the 164th Tactical Fighter Squadron, Mansfield, Ohio. The aircraft piloted by First Lieutenant John A. Walter, was one of a four-ship formation training flight.

The four-ship formation, led by Captain Emerson E. Lewis, departed the Mansfield Airport about 1330 on a local VFR flight plan. In accordance with an Air Force training syllabus it was to perform various formation tactics and training at high altitude, followed by a formation jet penetration and simulated instrument approach.

After the high altitude portion of the training was completed a descent was made in close snow formation. Cloud coverage in the area made it impossible to conduct a practice jet penetration and remain VFR so Captain Lewis made the descent in an area of scattered clouds approximately 15 miles northwest of the airport. Captain Lewis then led the flight underneath the overcast back to the field.

About ten miles northwest of the field Captain Lewis called the Mansfield tower requesting permission to make a low approach across the field with the formation and also requesting landing instructions. Captain Lewis stated the primary reason for making the low approach was for the benefit of the pilot flying the No. 2 position, Captain Neel D. Fauber, who was being requalified in the F-84F. Captain Lewis said the low approach was required as a part of the instrument training and this pass was to give Captain Fauber experience in flying close formation at slow speed.

At this time the formation was on a heading of 170 degrees at 3,500 feet. The airspeed was 300 knots and the four airplanes were in close fingertip formation with the element (aircraft Nos 3 and 4) on the right.

Captain Lewis stated that after permission for the pass was received he descended to 2,600 feet. When the flight was about one mile from the field he called the tower once more, giving his position and altitude, and again was cleared for the approach. He said he took the formation across the field at 2,600 feet (1,300 feet above field elevation), still on the 170 degree heading and at a speed of 300 knots.

After passing the southern boundary of the airport Captain Lewis said he started a gentle climb and left turn to avoid an area of reduced visibility over the city of Mansfield. About this time his No 2 man, who was flying on the left, called him and said the No 4 man had had a collision. No other members of the flight saw the other aircraft at any time. According to Captain Lewis, the flight was then at an altitude of 2,800 feet, indicating 280 knots, and in a left bank of about 30 degrees.

Captain Lewis said that in a formation flight the leader was responsible for maintaining an adequate lookout for other aircraft. He said the other members of the flight did not have much opportunity to look around in close formation and had to depend on the leader for separation from other aircraft.

Personnel on duty in the control tower stated that they recalled only one transmission from Tennis Romeo, which was the F-84F flight radio identification. They said this call was when the flight was approximately two miles north of the field. The

said that they saw the flight north of the field and before clearing it both controllers scanned the entire area for other traffic. Seeing none, the flight was cleared. The minimum altitude for an ADF instrument approach is 1,900 feet (600 feet above the ground). The controllers said that, based on previous observations of simulated instrument approaches, the flight appeared to be at this minimum altitude but that the speed was considerably faster than would be normal. They said the normal ADF instrument approach is on runway 13, heading 130 degrees, but that this pass was made from north to south across the airport and not aligned with any runway.

Several other witnesses, who were pilots, were in substantial agreement that the F-84's crossed the field at the same approximate altitude as most other aircraft on simulated instrument approaches.

All the witnesses to the accident said that the formation flight proceeded from north to south and after passing the south edge of the field began a turn to the left. The witnesses, some of whom were in the vicinity of the control tower, said the PA-22 appeared to be in straight and level flight on an easterly heading until the collision.

The collision occurred approximately two miles south of the Mansfield Airport, well within the control zone. The PA-22 was proceeding in a northeasterly direction and the F-84F in a southerly direction. The angle formed by the intersection of the flight paths was approximately 78 degrees. (See Attachment "A"). In addition, the F-84F was in an angle of left bank approximately 30 degrees relative to the longitudinal axis of the PA-22. These relative angles of impact were determined by evidence of deformation and damage to the PA-22 wings, cabin area, engine, and engine mounts, and the F-84F right wing, pylon tank, aft fuselage, and empennage.

A review of the records of both aircraft indicates that they had been maintained in airworthy condition. There were no discrepancies or carryover items affecting the airworthiness of either.

The weather conditions at the time of the collision were Broken to overcast clouds at 3,500 feet; visibility 12 miles; wind southeast at 4 knots.

Analysis

In VFR weather conditions, primary responsibility for collision avoidance rests with each pilot. In addition, it is expected that pilots will exercise extreme caution when operating in a control zone or in the vicinity of an airport. In this instance the pilot of the PA-22 should have notified the Mansfield tower of his position in the control zone. While this is not required by Civil Air Regulations, it is, in the exercise of sound judgment, a good operating practice to follow in an area of traffic concentration.

A study of the angle at which these airplanes approached one another revealed that both of the pilots of the PA-22 and the leader of the F-84F formation had ample opportunity to see and avoid each other. It is assumed that the PA-22 was on a straight and level course for at least a minute prior to the collision. (See Attachment "A"). The sighting angle from the lead F-84F to the PA-22 was approximately 19 degrees to the right of the nose. The sighting angle from the PA-22 to the F-84F formation was approximately 74-1/2 degrees to the left of its nose. These computations are based on relative speeds and the angle of impact and the sighting angle

from either aircraft would be constant up to approximately five seconds before impact.

The Board recognizes that each wingman in a formation flight must direct his attention to the flight leader and cannot, therefore, maintain a lookout for other traffic. Because of this, it is the responsibility of the flight leader to see and avoid other aircraft and effect proper separation for his entire flight.

The Board cannot accept the reasons given for the low pass by the F-84F formation. First, the Board does not believe that practice in slow flight in close formation can be given at speeds of 300 knots.

Second, the low pass described by the pilots of the flight could not in any way be considered simulated instrument approach training.

Third, the Board believes that the flight descended to the usual altitude at which a simulated instrument approach is discontinued, i.e., 1,900 feet, and not the 2,600 feet alleged by the F-84F pilots.

Another factor considered in this accident was the responsibility of the control tower operators. The controllers testified that before the formation flight was cleared for a low approach the entire area was scanned for unreported aircraft. They said this was required to prevent conflict with other aircraft which might be in the vicinity of the airport. No traffic was noted during this visual search and the flight was cleared.

Comparison of the relative speeds of the F-84F's and the Piper indicates that approximately one minute prior to the collision the Piper was approximately three miles from the tower in a southwesterly direction. At that time the formation flight was about 3-1/2 miles north of the tower.

Conclusions

The Board concludes that the weather conditions were not a factor in this accident. Visibility was very good and the line of sight from each aircraft to the other was forward in the directions of flight. The F-84F flight leader and both pilots of the Piper had a responsibility to maintain a strict lookout for other aircraft. Although closure speed was high, adequate opportunity existed to see and avoid one another. For these reasons the Board concludes that neither pilot was exercising the proper degree of care expected for collision avoidance.

The Board also concludes that the F-84F low pass was a close show formation demonstration at excessive speed and was not an essential part of the mission being performed and, in fact, served no useful purpose in the training curriculum.

Further, it is concluded that National Guard supervisory personnel at least tacitly were aware of and condoned the practice of the low pass. This is evident in that corrective action initiated after this accident does not prohibit the maneuver. In fact, part of the corrective action is to require that all low passes across the field be made in the landing direction over the active runway.

The Board also concludes that the pilot of the PA-22 should have informed the tower controller when he penetrated the control zone and operated in the vicinity of an airport where a concentration of traffic should be expected.

Finally, the Board concludes that the tower controllers did not conduct a thorough or effective scan of the area for conflicting traffic before they issued a clearance to the formation flight. The Board believes that had they done so they could have seen the PA-22 and been able to inform either it, or the formation, or both, of the presence of traffic.

As a result of this accident the Board recommended to the Administrator of the Federal Aviation Agency that all formation flights, except those involving simulated instrument low approaches and using an observer aircraft, be prohibited in control zones and/or in the vicinity of joint-use airports. In addition, it has been recommended that all aircraft equipped with two-way radio be required to contact the control tower or other communications facility when entering a control zone.

Probable Cause

The Board determines that the probable cause of this accident was the failure of the jet formation flight leader and the pilots of the PA-22 to see and avoid one another.

A contributing factor was the failure of the tower personnel to see the PA-22 and take appropriate action.

BY THE CIVIL AERONAUTICS BOARD:

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