

File No. 2791-43

Docket No. SA-80

Adopted December 18, 1943

Released December 21, 1943

REPORT OF THE CIVIL AERONAUTICS BOARD

On the investigation of a mid-air collision between a War Training Service aircraft and an Army Air Forces aircraft, both engaged in local instruction flights, which occurred near Adel, Georgia, on June 22, 1943.

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Investigation of a Mid-Air Collision Between a
War Training Service Aircraft and an Army Air Forces Aircraft
Both Engaged in Local Instruction Flights

A mid-air collision involving a U. S. Army aircraft, Type AT-10, and an aircraft of United States registry, NC 29335, occurred about 5 miles southeast of Adel, Georgia at approximately 3:45 p.m. EDT on June 22, 1943. The occupants of the AT-10, Lieutenant Robert E. Penfield and Air Cadet Joseph R. Leonardo, both student pilots in the U. S. Army Air Forces, were fatally injured. The occupants of NC 29335, War Training Service Flight Instructor James Lamon Williams and War Training Service Trainee Dorsey Lee Sproles, parachuted to the ground uninjured. Both aircraft were completely destroyed.

CONDUCT OF INVESTIGATION

The Washington Office of the Civil Aeronautics Board (hereinafter referred to as the Board) was notified of the accident and immediately initiated an investigation in accordance with the provisions of Section 702 (1) (2) of the Civil Aeronautics Act of 1938, as amended. Air Safety Investigator Julian F. Wagy from the Atlanta Branch Office, Safety Bureau of the Board, was dispatched to the scene and arrived there on June 23, 1943. In connection with this investigation a public hearing was held on July 2 and 3 at Woody Field, a U. S. Army Training Base, near Valdosta, Georgia. Allen P. Fourdon, Chief, Investigation Division, Safety Bureau of the Board served as presiding officer and the following personnel

of the Safety Bureau participated in the hearing: Fred G. Powell, Senior Air Safety Investigator, Julian R. Nagy, Air Safety Investigator, and Victor M. Clark, Senior Reports Editor. The transcript and exhibits of the hearing have been docketed as SA-80 and are filed in the Docket Section of the Board.

Upon the basis of all the evidence resulting from the investigation and hearing, the Board now makes its report in accordance with the provisions of the Civil Aeronautics Act of 1938, as amended.

SUMMARY AND ANALYSIS OF THE EVIDENCE

Flight Personnel

Air Cadet Leonardo had completed 163.3 hours of primary and secondary flight time, slightly over 3 hours of which were dual instruction in the type of aircraft involved.

Student Officer Lieut. Benfield had completed 164.5 hours of primary and secondary flight time, 6 hours of which were dual instruction in formation flying in the type of aircraft involved.

WTS Flight Instructor Williams, age 22, held a commercial pilot certificate with single-engine land, 0-330 h.p., and flight instructor ratings. He had accumulated approximately 675 hours of flight time, of which 266 hours were in the type of aircraft involved. He was employed as a flight instructor by the Carson Chalk Flying School, operating a War Training Service contract at the Adel Airport, Adel, Georgia.

WTS Student Sproles held a student pilot certificate and had completed about 22 hours of dual instruction.

Captain E. B. Wallace, USAAF instructor, had flown approximately 1425 hours and his student, Air Cadet Harold Leslie Barry, had completed approximately 160 hours of primary and secondary flight time. Wallace was the instructor in command of the Army two-plane formation flight involved in the subject accident.

The Aircraft

The WTS aircraft, a Waco UPF7, NC 29335, manufacturer's serial No. 5362, had been in service approximately 2 years and 10 months, and had been flown about 2576 hours, approximately 374 hours of which had been accumulated since the last major overhaul. It was owned by the Defense Plant Corporation, Washington, D. C. and had been assigned to the Carson Chalk Flying Service for use in the WTS program. It was powered by a Continental engine, equipped with a Curtiss-Reed two-bladed propeller.

The Army aircraft was a twin-engine advanced trainer, manufactured by the Beechcraft Aircraft Company and identified by the Army as an AT-10.

History of the Flights

WTS Instructor Williams and his student, Sproles, took off in the Waco from the Adel Airport shortly after 3:00 p.m. and proceeded to local Practice Area No. 2 adjoining the town of Adel. Within this area is a smaller triangular area which, upwards to 3500 feet, is reserved for acrobatic practice for WTS trainees operating out of the Adel Airport. The boundaries of this triangular area, previously outlined by officials of Mody Field (U. S. Army), were understood and agreed to by the management of the Chalk Flying Service and are described approximately as follows: From Cecil,

Georgia, which is the lower apex of the triangle, it follows the Southern Railroad in a northwesterly direction to Sparks, Georgia, thence east-northeast along the Georgia-Florida Railroad to Masee, Georgia, thence south by west along a straight imaginary line back to Cecil.

After approximately 30 minutes of instruction in a series of turns in Practice Area #2, Williams and Sproles proceeded to an altitude of between 2300 and 2500 feet to practice power-on and power-off stalls in the restricted triangular area.

Shortly before 3:30 p.m. the same afternoon, Captain Wallace and Student Barry in an AT-10, and Students Leonardo and Benfield in a similar aircraft, took off from Moody Field to practice formation flying. Barry was at the controls of the lead plane and Leonardo was the pilot of the No. 2 or wing plane of the two-ship formation. At about 3:45 p.m., the Army formation encountered the Waco at an altitude of between 2300 and 2500 feet in an area 5 miles southeast of Adel, over the approximate easterly boundary line of the 'TS restricted area.

According to the description by observers from the ground, the maneuver which followed can best be described as having all the appearances of a simulated dog fight. After a series of complete circles by all three planes, variously estimated by witnesses to have been from one to six, the No. 2 or wing ship of the Army formation overtook the Waco. The left wing of the AT-10 struck the lower right wing of the Waco from the rear and both planes fell separately out of control to the ground. Williams and Sproles

parachuted safely from the Waco. Benfield and Leonardo were both equipped with parachutes but no reason was found as to why neither had even attempted to use them.

Witnesses

From the evidence accumulated at the hearing, it appears that such exhibitions between aircraft of the Army and the WTS were apparently not a rare sight in this vicinity. Members of the commissioned officer flight instruction personnel testified that they had had experiences in the neighborhood of Moody Field wherein WTS planes had molested their flights by diving at their formations. They denied, however, that they had instigated or participated in any maneuvers with these ships. Two WTS flight instructors from the Adel Field testified that they had been "attacked" many times by Army planes and freely admitted that they had engaged in playful maneuvers in the air with Army pilots.

Four witnesses, farmers, apparently observed the three aircraft during the maneuvers which continued approximately two or three minutes before the accident occurred. However, none of the witnesses agreed as to how the three airplanes approached one another, which indicates that none of them first observed these maneuvers simultaneously. All agreed fairly well, however, that the Army formation was circling to the right and that the Waco was also circling to the right inside of the circular course being followed by the Army formation. The witnesses were not experienced in aviation and although they gave their testimony willingly and sincerely, it failed to reveal a clear picture of the actual collision or any reliable details of the maneuvers of the three planes involved just prior thereto.

The testimony of Captain Wallace, who was in the lead ship and in command of the Army formation, was not entirely corroborated by his student, Barry, nor did it agree in scarcely any detail with the testimony of Instructor Williams and Student Sproles in the Waco. Captain Wallace testified that his formation had left Moody Field and proceeded to an area over Nashville, making shallow dives and moderate turns to the right and left en route. According to Wallace the flight turned left (west) at Nashville, flew low over New River Field, an emergency Army air field about 4 miles southwest of Nashville, turned left again, climbed back up to an altitude of from 2300 to 2500 feet and proceeded southeast in the general direction of Moody Field. He testified that it was during the approach to the area over which the accident occurred that his student, Barry, had leveled off and was flying on a heading of between 135° and 150° , when he, Wallace, observed the Waco off to his left, slightly higher, flying toward them from the southeast. He stated that the Waco then made a descending left turn and passed over the wing ship of the Army formation and that he then instructed Barry to make a right turn which continued through slightly in excess of 360° . He stated that meanwhile the Waco continued its turn in the opposite direction (to the left) inside of the right turn of the Army flight and that just about the time the Waco completed its 360° turn, it crossed over the path of the Army flight between the lead and wing ships and all three planes were then very close together headed slightly west of south. He stated that as the Waco then started a right turn, the collision occurred. When questioned as to who was flying the lead ship, he

answered, "I do not remember. I might have taken over, and given the controls back to him. I do not know. There is a dual set of controls. We both could have been flying." Captain Wallace testified further that he had originally intended to lead the flight directly over Moody Field and had not planned to make this 360° turn, but that when the Waco flew over his formation he instructed Barry to turn to the right in order that he, Wallace, could get the number of the Waco. He stated that he observed the actual collision but was not sure whether the left wing of the AT-10 contacted the lower right wing or the side of the Waco, and added that it might have been the propeller of the AT-10 that made the contact.

Student Barry testified that when he first observed the Waco he was piloting the lead ship of the Army formation and the Waco was approaching them "a little right and south at an angle of approximately 45°." Barry stated that upon instruction from Captain Wallace, he then signaled the wing or trailing ship of their formation (the one which collided with the Waco) to change its position from the lead ship's right rear to their left rear which, according to the testimony of Wallace and Barry, was accomplished during the execution of the subsequent turn or turns. When questioned regarding the turns he executed, Barry stated, "Captain Wallace had me make some right turns and the other ship was having a little bit of trouble keeping its position, so we rolled out and slowed up to let him catch up, and when we made another turn to the right there, at that time I looked back and saw the Waco pass between the two ships." In this part of his testimony he mentioned only making right turns.

Later, however, when asked if he had made turns to the right and left, he answered in the affirmative and when requested to estimate the number of turns he made, he stated, "I would judge we didn't make over three or four, possibly four." He stated that immediately prior to the collision "Captain Wallace asked me where the Waco was. I glanced back. He asked me where the AT-10 was and I glanced back and saw the Waco pass between the two planes."

Instructor Williams' testimony agreed with the testimony of Wallace and Barry only as to the area over which the accident occurred. He testified that his student, Sproles, was flying the Waco in a northwesterly direction at an altitude between 2000 and 2500 feet. He stated that his attention was centered at that time on grading his student's air work and was making notations in his log book, and that his attention to this detail was distracted when he felt the Waco go into "a pretty good dive." Sensing that this was unusual, he said he looked up to see the Army formation heading in a northeasterly direction approaching the Waco on his left and from the rear. Williams stated it was then he took over the controls from his student. The Army formation, he stated, passed over the Waco to within about "20 feet" in a "slight dive" and started a 360° turn to the right. He said that he then also started a right turn banked up to about 45 or 50 degrees, tightening up the turn as he continued around inside the Army's circle and that after he had completed 180° of his turn he lost sight of the trailing ship of the Army formation and did not see it again. He stated that he continued his turn, completing almost 360° and that he observed only the lead ship of the

Army, which had completed its 360° turn, then slightly ahead, above and to his left. It was at this point, he said, while he was flying the Waco in a northwesterly direction, that his plane "was struck from behind" and that after "I felt the collision and I looked out, and I didn't have any right lower wing." He said he tried for a while to keep control but that when his plane went up into a steep spiral, which he could not control, he "told the boy to jump and we proceeded to bail out." Williams further explained his action in making a tight turn to the right, inside the right turn of the Army formation, as a defense measure and on account of the greater speed of the Army AT-10s. He stated it was common practice of other WTS instructors to turn inside the faster planes in order to get out of a similar situation. (The cruising speed of the AT-10 is 30 to 40 n.p.h. faster than the cruising speed of the Waco.)

Student Sproles, who was flying with Williams, testified that he first observed the Army planes off to his right approaching almost head-on, that he was at the controls and headed, he thought, southwest and that as they approached he started to dive the Waco. This dive, he stated, attracted the attention of Instructor Williams who, at the time, was engaged in grading his (Sproles) air work and was making notations in his book. According to Sproles, Williams looked up, observed the oncoming Army planes and took over the controls. Beyond this information, Sproles was unable to recall their altitude as compared to the Army formation at the time they first met, the direction of any turns made thereafter by either the Army planes or the one in which he was flying, or any further details which would add to the sequence of events up to the time of the collision.

From the testimony of all four witnesses from the air, it will be noted that none of them is in accord as to the direction, manner of approach or their relative positions when the two flights encountered one another. It is apparent, as well, that none of them agree as to the maneuvers just preceding the collision.

Description of the Wreckage

Examination of the wreckage of the Jaco failed to disclose any mechanical failure of the aircraft prior to the collision. The lower right wing panel, which was not recovered from the marshy wooded terrain over which the accident occurred, had been completely torn away and the front and rear spars had broken off about one foot outboard from the fuselage attachment fittings. The right lower aileron was still attached to the wreckage by the torque tube. A portion of the right lower wing tip was found about 150 yards from the wreckage. This wing tip bore scratches and aluminum paint marks on the upper surface from the trailing edge forward to the top of the wing curve (about 10 inches back of the leading edge), and these marks indicated clearly that the wing had been struck a glancing blow on the upper surface from the rear. The rear member of the interplane N struts bore marks indicating that it also had been struck from the rear.

At the time of the investigation the wreckage of the AT-10 had already been removed by the Army from the scene of the accident. However, portions of the left wing and aileron of the AT-10 were recovered at some distance from the point of impact indicating that they had been torn from the airplane by the collision. The lower side of

these portions of the left wing and aileron bore definite marks of yellow dope or paint similar to the color of the wing of the Waco.

After a careful and detailed examination of the recovered portions of the right lower wing and other parts of the Waco and the recovered portions of the left wing of the AT-10, it became evident that there were at least five indications that the lower right wing of the Waco was struck by the left wing of the AT-10 with considerable force downward and from the rear forward.

The Restricted Area

The major portion of the wreckage of both planes was found within a mile just outside the eastern boundary line of the so-called restricted area set aside for WTS acrobatics. This is an imaginary diagonal line running approximately 10 miles from Masseur to Cecil with no definite ground markings, such as a highway or railroad, and since the airplanes collided at an altitude of approximately 2500 feet, it is impossible to determine (and is not too important) whether the collision occurred just inside or just outside of this area. The known fact remains that the pilots and students of at least two of the three planes were aware of and maneuvering with or around each other.

Weather

The weather was ceiling and visibility unlimited, wind northeast, 4 m.p.h. It had no bearing on the accident.

Findings

1. The collision which occurred at approximately 3:45 p.m. on June 22, 1943 between an Army AT-10 and a WTS Waco, NC 29335, resulted in fatal injuries to two Army trainees, while the occupants of the

WTS airplane landed by parachute and were uninjured. Both aircraft were completely destroyed.

2. The collision occurred at an altitude of about 2500 feet approximately 5 miles southeast of Adel, Georgia.

3 There was no evidence of mechanical failure of either aircraft prior to the collision. The wreckage of the Army plane, with the exception of a portion of the left wing and aileron, had been removed and was not examined by investigators of the Board.

4. The weather conditions in the area were satisfactory for the flights and did not contribute to the accident.

5. The Army two-plane formation and the WTS Waco met in mid-air and although the evidence as to who started the encounter was contradictory, it is evident that the three aircraft engaged in circling maneuvers around and with one another until the collision occurred.

6. There is evidence that such unnecessary and unauthorized maneuvers between Army and WTS ships had frequently occurred around these two flight training centers and it is apparent that the responsibility for this reckless type of flying is fairly equally divided between the pilots of both groups.

7. It is apparent that Student Pilots Leonardo and Benfield were the innocent victims of this accident, as they were carrying out their flight orders in following the lead plane which was in command of Captain Wallace, their flight instructor, who was the formation leader and as such led them into the circumstances which brought about the collision.

CONCLUSIONS

It might appear significant that the testimony of Williams and Sproles coincided in that both agreed that Williams was busily engaged in the cockpit writing in his log book and was not aware of the presence in the vicinity of the Army formation until Sproles had dived the Maco to get away from the Army formation. This could indicate that the initial encounter was made by Wallace. However, regardless of who initiated the encounter it appears from the evidence that Wallace and Williams participated in the resultant maneuvers which led up to the collision. If, as Wallace testified, Williams made a descending left turn over the trailing ship of the Army formation, there was no reason why Wallace, who, as the formation flight instructor carried the responsibility of two airplanes and crews, should not have continued leading his formation on its straight course toward Moody Field as he testified he had planned to do. The same argument might hold good for Williams. If, as Williams testified, Wallace dived his formation over the Maco, there was no reason why Williams should not have continued his straight course and proceeded with the instruction of his student.

The training of pilots for combat entails the practice of violent maneuvers, simulated surprise attacks, and other exercises which may at times inevitably entail special hazards. Such exercises normally involve only military aircraft. Participation in them either in active maneuvers or as passive objectives, should not be forced upon pilots who are not in any military status.

