

feet below, 1,000 feet above, and 2,000 feet horizontally for VFR operations within controlled airspace.

The Board is aware that, without a point of reference, a reasonable estimate of in-flight visibilities is difficult, particularly when a pilot is conducting local operations based on surface visibilities which are obviously well in excess of VFR minimums.

The weather observer at Newark airport reported the cloud ceiling as it was measured by the ceilometer at the time of the observation. Considering the broken cloud condition there could have been a significant variation between the cloud ceiling over the weather station and the cloud ceiling over the accident site some 18 statute miles distant.

Because of these factors, as well as the disparity in the weather assessments by those individuals from whom statements were obtained subsequent to the accident, the Board is unable either to ascribe a specific figure to the flight visibility at the collision altitude or to ascertain the specific distance the Cessna pilot was maintaining from clouds when the collision occurred.

Examination of the altitude trace on the flight data recorder graph of the Boeing 707, indicated that the collision occurred at an altitude of approximately 2,700 feet. Post-accident examination of the Pitot static systems for the flight data recorder and the cockpit instruments showed that both systems are accurate within ± 100 feet. This indicates that the Boeing 707 crew deviated from the assigned altitude of 3,000 feet.

Although the New York Approach Control facility is programmed to display alpha- numerics, the Boeing 707 did not have automatic altitude reporting capability. Consequently, the approach controller was unaware that the assigned altitude of 3,000 feet was not being maintained by the Boeing 707.

The presence of hair and blood on the Cessna 150's instrument flying hood which matched those of the student pilot suggests the probability that he was operating under the hood at

the time of the collision. The current integrated method of flight instruction introduces the student pilot to flight by instrument references beginning with his initial training flight. The attention of the instructor was probably divided between monitoring the performance of the student and scanning for other traffic. The instructor's forward visibility would not have been obstructed by the instrument flying visor worn by the student.

Whereas some FAA General Aviation District Office personnel were aware of the existence and location of the student training area, as designated by Linden Flight Service, Inc., Air Traffic Service personnel had not received notification of those facts prior to the accident. The Board considers that establishment of a student training area in an approach path to a major airport is not commensurate with safe operating practices.

The weakness of the see-and-avoid concept of collision avoidance has been illustrated once again by this accident. The collision hazard between IFR and VFR traffic operating in controlled airspace was critical in this instance as a result of marginal flight visibility.

PROBABLE CAUSE

The National Transportation Safety Board determines that the probable cause of this accident was the inability of the crews of both aircraft to see and avoid each other while operating in a system which permits VFR aircraft to operate up to 3,000 feet on random headings and altitudes in a congested area under conditions of reduced visibility. Other causal factors were the deviation of the air carrier airplane from its clearance altitude and the conducting of student flight training in a congested control area under marginal flight visibility conditions.

RECOMMENDATIONS

The Board on November 16, 1971, recommended that the FAA establish procedures

whereby all operators of civil flying training schools will formally advise appropriate FAA personnel of the locations and dimensions of their designated practice areas and, additionally, that such information be disseminated to all affected services within the FAA. (See Attachment 2.)

The Safety Board further recommends to all pilots that:

1. assigned altitudes should be maintained as precisely as possible, and
2. visibility and separation from cloud distances should be assessed conservatively in VFR operations, and that VFR flight should be continued only when visibility is unquestionable.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/JOHN H. REED

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/s/OSCAR M. LAUREL

Member

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/s/ISABEL A. BURGESS

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Francis H. McAdams, withholding.

May 10, 1972.