

Mr. KORNEGAY. Well, that was some 3 minutes before the collision.

Mr. ALLEN. Yes, sir; the collision occurred at 1601 and approximately 15 seconds. We know that the Piedmont flight 22 departed Asheville airport approximately 1558, and 40 seconds, and shortly thereafter, was observed by two control towers about 5, approximately 5 miles south on the southeast heading.

Now, after impact, the aircraft came to rest on the ground at a point approximately 10 miles southwest of the Asheville VOR or about 10 miles out on the 230° radial of the VOR.

Now, after collision, your aircraft becomes a free-falling object. We do not know at this time whether impact occurred precisely over the impact spot or not. I think that during the course of the investigation, we will run a trajectory analysis, and this will tell us more precisely at what point displaced from the VOR, such as the case where the actual midair collision occurred.

Mr. KORNEGAY. Thank you very much.

The CHAIRMAN. Mr. Broyhill.

Mr. BROYHILL. Thank you, Mr. Chairman.

General McKee, has the FAA considered, and if so, would it be practical to require that all aircraft who operate under IFR conditions be equipped with transponders?

General McKee. I don't think so. I would like to ask Mr. Thomas. He has been into this at some length. I asked him the same question.

Mr. THOMAS. No, sir; we do not. In the so-called positive control air space, air space high altitudes occupied by the fast aircraft and the heavy aircraft, we do require it.

At the present time, we do not find it necessary for all aircraft operating IFR to be so equipped. The cheapest installed version now is about \$5,500, and much of the IFR operation occurs in areas where it would not normally be considered necessary.

We may at some time require this for operations in very high density areas, but we have come to no such conclusion yet.

Mr. BROYHILL. I want to ask one other question, concerning the procedures of your controller. Now, Mr. Allen, read the transcript. I don't remember which controller it was, gave the pilot of 3121 Sierra an instruction, and then said "Correction," and made a correction in this instruction, and as I recall in reading this transcript, the pilot acknowledged that with his number.

Now, is it usually the procedure followed that he acknowledges his instruction this way, or would he be required to repeat this instruction, or make sure that he has it correctly?

Mr. THOMAS. He normally would read it back.

Mr. BROYHILL. But there is no—

Mr. THOMAS. They are encouraged to read back. There is no absolute requirement to read back.

Mr. BROYHILL. Would this—

Mr. THOMAS. That is, repeat the clearance instruction he has been given.

Mr. BROYHILL. Would this be something that could be done, to require that they read such instructions back, clearances?

Mr. THOMAS. Mr. Broyhill, the problem that we have had, and we have discussed this at quite some length, in the very busy locations, such as Chicago, or New York, we could completely congest the radio