

This works pretty good, within very short ranges, but it is a complicated sort of device. We had a Presidential committee look at this whole problem, about 5 or 6 years ago, its name was Project Beacon, and they came up with a contrary recommendation, and we have been embarked on its recommendation since.

And that is, we would like a rather constant measurement of altitude, and not dependent upon a fraction of a degree resolution of radar, which is not available either in military or civil. And the simplest thing would be, since the altimeter measures altitude regardless of its distance from an antenna, is simply to have it broadcast what that altitude information is.

We had another fortuitous circumstance going for us, because we were then using, as was mentioned earlier, the grandson of the old World War II IFF in the radar beacon, which would reinforce the target.

This was susceptible of giving out quite a number of codes, so each one could positively identify itself, so we went the route of having the radar sweep the target. This would trigger off a beacon on the airplane. It then would give up two bits of information, one a positive and discrete identify, "I am American 376," "I am Piedmont flight 22" and read the altimeter, and say "I am at 6,100."

Then this has no angular deviations in it. It gives us a constant vertical separation device that we can use, and is infinitely cheaper.

If we put in enough 3-D radar to cover the whole country, I did know at one time what it would cost, we would have to put them at 40-, 50-mile intervals in order to get the accuracy that is usable.

Now, the military have quite a different problem. We are dealing with a cooperative environment, one where you want to avoid a collision, one that wants to cooperate with us, so we don't need either the expense or the relative inaccuracies of the other.

It is much more interesting to know that an enemy bomber is coming in plus or minus some distance from—the actual distance is classified, but let us say, plus or minus 1,000 feet, and then a missile or an interceptor could precisely determine that altitude, and go in and get the kill.

But that is of no interest at all to us, because plus or minus 1,000 feet would involve collisions, so we have to know it much more precisely.

Mr. OTTINGER. Can I continue?

The CHAIRMAN. Yes, go ahead.

Mr. OTTINGER. I understand from the people that I have talked to around these small airports that a great many of the private aircraft equipment is very expensive, and not very reliable, and that a large percentage of the time your small private planes don't have radios functioning, for instance.

Is the FAA planning any action to tighten up these requirements? How does it view this situation in terms of safety?

Mr. THOMAS. It obviously has a bearing on safety, because if you have a transmitter that is difficult to read, or doesn't operate at all, obviously, you can't have communication. An altimeter that gives the wrong information is a lot worse than none at all. Our approach is to write technical standards on the type of equipment being employed; as a matter of fact, there has been more progress in the elec-