

FREDERICK J. HOOVEN
910 SUNNINGDALE DRIVE
BLOOMFIELD HILLS, MICHIGAN

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Mr. Frederick Goerner
Doubleday
277 Park Avenue
New York City, N. Y. 10017

Dear Mr. Goerner:

I just finished reading your book on Amelia Earhart. I started the book with a good deal of skepticism, but now that I have finished it I find that I share your conviction that this whole matter must be clarified and honor rendered to those to whom it is due. I can add a small and perhaps interesting sidelight to the Amelia Earhart story. My contribution does nothing either to strengthen or weaken your conclusions, but I believe if my story had been different, Miss Earhart would not have been lost.

I installed on Miss Earhart's Lockheed one of the first prototypes of the modern aircraft radio direction-finder. Before she embarked on her flight, however, this was removed, and installed in its place was the old-fashioned null-type direction-finder that she carried with her. The modern instrument would have given her a heading on the transmitter of the cutter Itasca at Howland Island even under poor reception conditions and it would have shown her without ambiguity that her destination was still ahead.

The modern direction finder that I invented in 1935 had some important points of superiority over the old simple null-type that had been used ever since before 1920. We called it a radio-compass then. It is always called the ADF today. It uses a conventional antenna in addition to the directional loop, the result being that it is possible to listen to the station at the same time a bearing is being taken. It is so much more sensitive that it is possible to use a much smaller loop, contained in the familiar streamlined cigar-shaped housing that is still to be seen on all but the very latest models of commercial and military aircraft. Most importantly, by using the signal from the non-directional antenna as a point of reference, the modern instrument is able to indicate the true direction of the transmitter from the receiver whereas the null-type indicator could do no more than tell that the transmitting station was somewhere along a line that passed through the center of the loop-antenna. Obviously, to obtain a useable null with the old system the signal must be several times louder than the background noise. With the radio compass, a useable bearing may be taken on a station that is not readable through the noise. All of these things combine to convince me that Miss Earhart would have reached Howland Island if the radio compass had still been installed in her airplane.

Mr. Frederick Goerner

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We built six of these prototypes. I was at that time vice president and chief engineer of the Radio Products Division of Bendix Aviation, which was one of the small companies later combined into Bendix Radio. Vincent Bendix had retained Harry Bruno as his personal public relations counsel and he distributed these prototypes where he thought they were most likely to get his name into the papers. One of them went to Dick Merrill and Harry Richman, and we installed it on the Northrup Alpha³ they flew across the Atlantic and landed in Ireland. They both told me they owed their lives to the radio compass. Harry had broadcast to his public over their 50 watt transmitter until the airplane's battery was flat, so when they reached England they were able to use only their receiving equipment. It was foggy and they flew around for 24 hours before they found a hole they could get down through. They said they surely would have been back over the ocean if they had not had the radio compass on board. Just to bear out your contention about the transmitting range of the 50 watt transmitter I listened to Harry on my receiver in Dayton, Ohio on 3100 kilocycles until he was about halfway across the Atlantic.

Another prototype was turned over to the United States Army Air Corps at Wright Field. We installed it in a B-10 and connected the output to the directional control of the automatic pilot. I rode in this airplane on a nonstop flight from Dayton to Dallas, Texas and back. During the entire flight the pilot never touched the controls of the airplane. It was guided over the entire distance by the radio compass, which was tuned in to local broadcast stations and radio beacons along the way. The pilot of that airplane was a very close friend of mine, George Holloman, who lost his life in the South Pacific during the war and who gave his name to Holloman Field. Later on, the same radio compass was installed in an ancient Fokker C-15, which made the first completely automatic takeoff and landing at Wright Field in 1937. Later the same year at Muroc Airforce Base, that airplane made the first completely automatic unmanned takeoff and landing.

Another of these prototypes went to the Department of Commerce and one I personally installed for American Airlines on the first DC-3 to go into commercial passenger service.

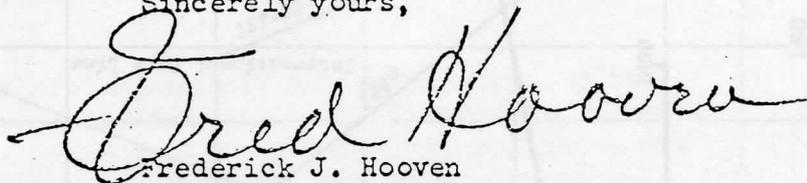
Miss Earhart brought her airplane to Wright Field in Dayton where I made the installation of our equipment.¹ I spent most of the day with her and I concur with your description of her. She was attractive, charming, gracious - a real lady. She had with her a pretty young girl straight from the sticks, named Jacqueline Cochrane. We had lunch together in the cafeteria at the Field. So far as I know Miss Cochrane is still living and should be able to verify this part of the story.

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I don't remember when I learned that the radio compass had been removed from Miss Earhart's plane before she took off on her world flight. The Radio Research Company of Washington, D. C. was another Bendix division. Its' vice president was Laurence A. Hyland, who is now, or was until very recently, vice president and general manager of Hughes Aircraft. Hyland had been a Navy man and his company manufactured the standard Navy aircraft direction finder. As I understood it, Hyland convinced Miss Earhart that she should not trust such a new-fangled device as my radio compass and that she would be much safer with the good old reliable instead. From what you say about the Navy's involvement in the affair, it could well have been that the Navy persuaded her to take out this piece of equipment that had been developed in connection with the Army Air Corps.²

You can see why I read your book with more than casual interest and would like to see such a grand lady take her proper place in history.

Sincerely yours,


Frederick J. Hoover

Notes, 1979

1. My recollection was at fault with respect to my participation in the actual installation of my df in the Earhart plane as well as in the American Air lines DC-3. The installation of the Earhart df was made in LaFayette INdiana, at Purdue University, and that in the American Airlines machine at a date later than that of my initial visit to discuss the installation. I was present for neither installation.

2. Mr. Hyland denies any connection with the switch of the Earhart df from mine to his. I think it is quite likely that the difference in weight would have persuaded Miss Earhart to make the switch just to make it possible to carry that much more fuel for the flight. She did not know that the small streamlined loop of the later df would save more gas than the reduced weight of the older model would have permitted her to carry.

Note, 1983

3. The airplane flown by Dick Merrill and Harry Richman was a Vultee, not a Northrup. It had a single G-type Wright Cyclone engine of 1000 hp. It had the first small-diameter streamlined housing for the radio-compass loop ever installed. (Aug. 1936)