

Forum

'Air Navigation Systems. Heading References 1909-1959'

Keith R. Greenaway

In accepting Mr Williams's invitation to comment on his excellent paper,¹ I wish to draw attention to omission of the Kearfott-USAF Type N₁ compass system.

The Kearfott N₁, as it was known in the United States and Canada, was the premier heading reference system for high-latitude flying in North America throughout the early nineteen fifties. Its origins began in 1945 through a request by the USAAF for a directional gyroscope specifically for polar flying, followed by discussions between Kearfott engineers and members of the USAF/RCAF LF Loran Flight Test Unit involved in polar flying out of Edmonton, Canada, between 1946 and 1950. Kearfott began producing the N₁ in quantity in late 1950. It was the forerunner of the Bendix Polar Path and Sperry CL 11 mentioned in the paper.

The N₁ system departed in principle from compasses such as the Gyrosyn in that the gyro always remained 'free'; only the indications were slaved. It combined several features of the Magnesyn G2 Compass used by the US Navy and the Pioneer Fluxgate.

In addition to its reliability, features of the Kearfott system most popular with polar fliers of the time were:

- (i) The ability to disconnect the magnetic slaving signals of the C₂ Fluxvalve.
- (ii) The provision of a controller to precess the heading indication at sine lat. $\times 15^\circ$ per hour to correct for apparent drift due to the Earth's rotation.
- (iii) The specification of 1° per hour random error when in the directional gyro mode, and seldom reached, was a pleasant experience for aircrews conditioned to gyros of World War II vintage.

REFERENCE

¹ Williams, J. E. D. (1990). Air navigation systems. Heading references 1909-1959. *This Journal*, 43, 58.

KEY WORDS

1. History.
2. Air navigation.
3. Compass.