NAVIGATION

Rival Air Location Methods

➤ TWO OPPOSING methods of letting a pilot know where he is in the air and giving him a course to follow will be presented at the European Mediterranean regional meeting of the International Civil Aviation Organization in Paris, beginning Feb. 26.

The United States is the chief proponent for one system—the Omnirange. Britain is the champion of the other—the Decca. Omnirange has already been approved by ICAO, but the British think that Decca is an improvement.

Omnirange uses very high frequency radio signals, transmitted from stations not more than 90 miles apart. Decca uses low frequency radio signals and its stations can be farther apart. Omnirange requires that the plane be on a "line of sight" from the station, while Decca signals can curve around the earth.

There are already more than 300 Omnirange stations in this country. Decca stations now almost completely cover Europe.

Decca is acknowledged to be more accurate than Omnirange. However, American experts say, Omnirange, being very high frequency, is almost 100% weatherproof while Decca is subject to static from thunderstorms and other atmospheric conditions.

Extreme accuracy, American representatives say, is not so important until the plane comes close to the airfield. Then, it is pointed out, other means of bringing in a plane are available.

Omnirange information appears on the pilot's instrument panel in the form of two needles. The British have developed the Decca Flight Log which consists of a strip map and stylus. The course of the plane is drawn by the stylus on the map.

This flight log is being installed on the jet airliner, the Comet, which will go into service this spring between London and Cairo.

U. S. experts are working on similar devices to translate the information provided by the radio signal to the pilot, but none has yet reached the operational stage. The strip map and stylus method can be adapted for use with both systems.

Science News Letter, February 23, 1952

TECHNOLOGY

Ceramics in Jet Research

➤ RECENT EXPERIMENTATION with metals, metal-ceramics and ceramics seems to indicate that man is licking some of the problems associated with high-temperature jet engines, rocket motors and gas turbines.

Scientists already have discovered that molybdenum—encased in another metal such as nickel—can resist temperatures up to 2,000 degrees Fahrenheit, which is 400 degrees higher than temperatures existing in present-day jet engines.

Individual programs of research already are underway. Dr. Clyde Williams, director of the Battelle Institute, Columbus, Ohio, explained how melting points and characteristics of carbon, silicon and metal-ceramic mixtures were being studied with an eye toward high-temperature engines.

Titanium, having a melting point of 3,137 degrees Fahrenheit, although of a lower melting point than molybdenum (4,760 degrees) probably will be preferred to molybdenum where strength is not too important or where the joint properties of lightness and strength are required. Aluminum, which is used by airplane manufacturers, melts at 1,200 degrees Fahrenheit.

In addition to metals and mixtures of metals and ceramics, an all-ceramic turbine blade is being investigated for high-temperature engines. Ceramic linings in rocket motors already have been produced, and they have withstood the rigors of test-stand firings.

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