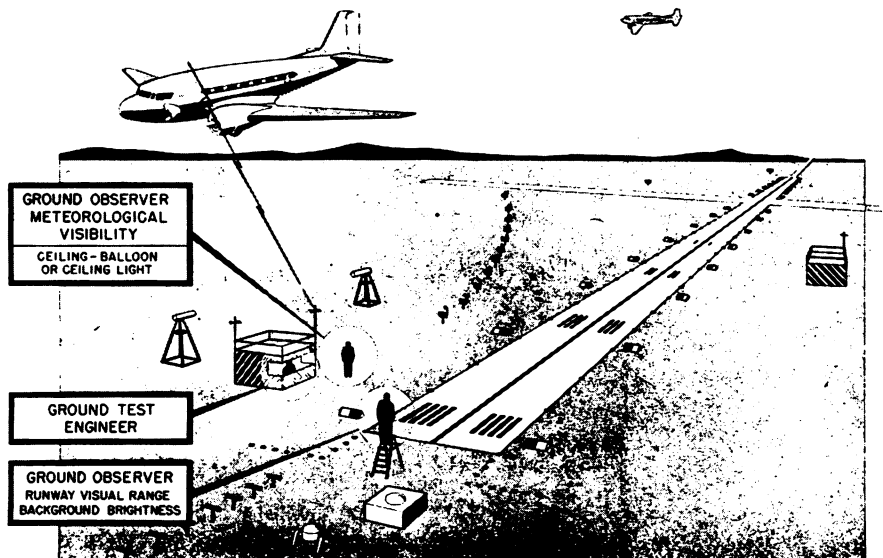


ANDB-SPERRY-USWB LOW CEILING/VISIBILITY PROJECT
GROUND TEST CREW STATIONS PRIOR TO START OF
INSTRUMENT APPROACH



VISIBILITY INSTRUMENT LAYOUT—In addition to the instruments that measure visibility for landing aircraft, a weather observer climbs a step-ladder to approximate the cockpit height at "touchdown." He records the number of "targets" he can see along, and to the left side, of the runway.

METEOROLOGY

Bad Weather Landings

► WEATHER AND aeronautical experts at MacArthur Field on Long Island, N. Y., are seeking a better way of predicting visibility conditions along airport approach paths.

The cause of many landing accidents has been traced to disagreement of visibility reported to the pilot by ground observers and the visibility the pilot actually encounters as he lands his plane, the Air Navigation Development Board reports. Rapidly changing weather and weather which changed after the last official observation have, in particular, been blamed for landing mishaps.

Working with the ANDB are the U. S. Weather Bureau and the Civil Aeronautics Administration. The project is being carried out under contract by the Sperry Gyroscope Co.

Special instruments were developed with the help of National Bureau of Standards scientists to measure visibility and have been installed at MacArthur Field. A ceilometer sweeps the skies every 12 seconds and determines the cloud ceiling near the approach end of the runway. (See SNL, May 9, p. 292.) A transmissometer measures the visibility on the ground continuously.

The transmissometer beams light to a receiving cell 750 feet away. The intensity

of the received light is translated into "percentage visibility."

Cameras in a test plane click pictures showing how the airport appears to the landing pilot. Ground-based tape recorders take down the comments made by the test plane's crew during the experimental runs.

To date, 151 foul weather air field test approaches have been made to gather data. Another 400 are scheduled to be made at weather ceilings of less than 500 feet.

Experts hope an analysis of the data will permit them to work out ways of giving pilots visibility information they need up to eight minutes before the landings are made. They also are considering the growing need of jet pilots who must have this information flashed to them as much as 20 minutes ahead.

The specialized equipment developed for the weather project already has proved valuable in helping to bring planes in to safe landings during bad weather. As a result, Idlewild, LaGuardia and Newark airports serving the New York area are to get similar instruments soon. Prototype equipment initially was put to work in December, 1952, at the Washington National Airport. During the following months it has helped reduce "overshoots" from eight to three percent on the instrument runway often used when visibility is less than a mile.

Science News Letter, September 12, 1953

TECHNOLOGY

Jet Pilot Clothing Tested for Suitability

► CLOTHING FOR jet pilots, who at one minute may be sweltering in 160-degree cockpit heat and dunked into near-freezing waters of the Arctic Ocean the next, is being tested at the University of California at Los Angeles.

The project, supervised by Dr. Craig Taylor and Vincent Blockley of U.C.L.A.'s engineering department, is sponsored by the U. S. Air Force.

"The heat of friction and other factors in experimental jets have created a problem in the cockpit, where temperatures sometimes reach 160 degrees," pointed out Dr. Taylor. "Add to this the fact that many jet interceptors may be maneuvering over Arctic areas where their pilots must be protected from the eventuality of bailing out over icy waters or frigid wastes, and you have the problem."

The Air Force has suits for such eventualities: permeable, intermediate suits for the cold, and impermeable, heavy clothing to protect against prolonged immersion in water. The question is: can pilots operate efficiently in the suits in extreme cockpit heat?

U.C.L.A. engineers are testing such clothing in heated laboratory cockpits. Special heat meters wired in the suits measure such important factors as the amount of heat penetrating the suit from the outside, and how much clothing interferes with temperature regulating mechanisms of the body.

"Specially ventilated suits through which a stream of fresh, cool air is pumped, may be the answer to the problem," Dr. Taylor says.

Science News Letter, September 12, 1953

ENGINEERING

Remote Controls Give Orders to Power Plant

► A CANADIAN power plant that works at the flick of a switch 72 miles away now is getting its finishing touches.

With its controls in Vancouver and its generators 72 miles away, the completed hydroplant will develop 82,000 horsepower for the British Electric Co., Ltd.

Although it can be operated at the plant, the Wahleach power station, as it is called, is designed to work with no attendants. "Automatic watchman" instruments carefully monitor the plant and are designed to shut it down if something goes wrong. Otherwise the plant takes its orders by remote control from engineers in Vancouver.

Technical details of the plant were described to the American Institute of Electrical Engineers meeting in Vancouver, B. C., by T. Ingledow and J. H. Steede, both of the British Electric Company.

Science News Letter, September 12, 1953