AERONAUTICS

Jet-Noise Problem

➤NO SOLUTION of the noise nuisance created by jet-propelled aircraft is yet in sight, but the problem is being tackled by aviation scientists both in government organizations and in the airplane manufacturing industry. Hopes are high that a successful method of decreasing the noise may soon be found.

The primary use of jet propulsion is now in military bombers and fighters, and the take-off noise is confined largely to military airfields. But jet propulsion is already in use in airliners, particularly those built in England, and jet noise will soon become a problem at many of the major commercial airports.

It is at take-off and landings that the jet planes creates the greatest noise nuisance. Unlike the conventional plane driven by reciprocating engines, from which much of the noise comes from the whirling propellors, the noises from the jet plane are generated inside the turbo-jet engine, with the primary noise coming from the gas discharge to the rear.

Shorter propeller blades, and the use of a larger number of blades than usual, lessen propeller noises. Mufflers somewhat similar to those employed on automobiles lessen exhaust noises.

Important in solving the jet-noise problem are recent experimental studies carried out at the Langley Aeronautical Laboratory, Langley Field, Va., by the National Advisory Committee for Aeronautics. A report of the studies has been issued by the NACA. Entitled "Experimental Studies of Noises from Subsonic Jets in Still Air," it was prepared by Leslie W. Lassiter and Harvey H. Hubbard of the Langley Laboratory staff.

In general, they state, continuous-type jet engines are prolific generators of a random-noise spectrum that includes essentially all frequencies from the subaudible to the ultrasonic. The intensities in some parts of the spectrum are of such magnitude as to produce adverse physiological effects on man.

The noise field is directional, with the bulk of the sound energy radiated to the rear of the engine. The exhaust gas jet is found to be an intense source of noise as it mixes with the surrounding air.

Science News Letter, October 18, 1952

METEOROLOGY

Low Ceiling Forecasts

➤ FORECASTING WITH 95% accuracy what the weather over an airport will be in the next eight minutes is a goal the Weather Bureau has set for itself, it was learned.

If achieved, the predictions should result in more and safer bad weather landings at crowded airports. The eight-minute forecasts of slant range visibility are the goal of the Final Approach Visibility Studies project of the Weather Bureau, conducted for the Air Navigation Development Board.

The tremendous variability of weather conditions when there is a fog or a low ceiling over an airport is the problem the Weather Bureau has to lick. The bottom of a cloud ceiling is not smooth and flat, it is rough and jagged. From minute to minute, the ceiling may raise or lower 100 to 200 feet as the cloud moves across the airport. The density of fog is variable too, a measurement taken at one moment in one spot will usually not agree with a measurement taken the next moment at another spot on the same airfield.

The studies, under B. C. Haynes of the Weather Bureau, are aimed at being able to tell the pilot, as he leaves the stack of planes above an airport, just where and when he will be able to break through the overcast and see the airport and his landing runway.

New instruments, including a "light radar," may provide some of the answers to this problem. The light radar sends a pulsed beam of light upward. Its reflections from the bottom of the cloud are caught by a receiver and indicated on a cathode ray tube, just as reflections of radio signals are caught by regular radar.

More and faster measurements of the cloud base with this and other instruments may lick the problem of the extreme variability of the base.

Science News Letter, October 18, 1952

TECHNOLOGY

Infrared Lamp Made With LP-Gas and Mantle

➤ INFRARED LIGHT will soon be available in a new lamp that uses "bottled" liquid petroleum gas, LP-gas for short, and a special mantle of treated rayon.

Infrared radiation was used in wartime for beacon lights, to control road blocks, for taking secret photographs of enemy installations, and in the "sniperscope" that enables sentries to pick off enemy prowlers in the dark.

The new infrared lamp was developed by Armour Research Foundation of the Illinois Institute of Technology, Chicago. The five-to-ten-pound device is lighter in weight than the types presently used, electric lamps powered by storage batteries, but just as bright, and promises to be cheaper.

The lamp will operate in tropical temperatures, or at minus 65 degrees Fahrenheit, the temperature sometimes encountered by high-flying planes photographing enemy installations on the ground below, or at military installations in the far North.

Substitution of bottled gas for storage batteries gives the weight-saving. The problem of making a satisfactory gas mantle to emit infrared light was solved by making the mantle of knitted rayon mesh impregnated with salts of chromium and aluminum. When lighted, the rayon burns, leaving oxides of the two metals in the familiar form of a mantle. A flint lighter, hidden from view, is used to ignite the rayon.

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Persons without *TV* sets see video programs almost as often as those who own sets, a survey shows.

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