ELECTRONICS

Radar for Safety

Experimentation is aimed at the perfection of two devices, one for airport use, and the other, a collision warning device, for use in the plane itself.

➤ RADAR will help to make postwar air travel even more safe as the result of research started by the Civil Aeronautics Administration, which is expected to increase the safety factors of flying in fog, snow, rain or when the ground is obscured by clouds, called "instrument weather" by pilots.

Experimentation now under way at the CAA Experimental Station at Indianapolis is aimed at the perfection of two radar devices, one for airport use, and the other, a collision warning device, for use in the airplane itself. About 10 carloads of radar equipment has been loaned to the CAA for this research.

A radar tower controller for airports will permit the control tower operators to visualize on a screen the actual positions of all aircraft within a radius of about 25 miles. This would detect immediately any hazardous condition that might occur because of pilot's error, or some mechanical failure in the radio landing system. The operator could adjust the control of outbound traffic at a fogbound airfield with complete knowledge of the exact position of all incoming planes. Today, the only way an operator can determine the position of planes near his field is through position reports which are radioed in by pilots. Only one of these pilots' reports can be handled at a time, and the estimates are not always accurate.

The collision warning device is designed to be mounted on the instrument panel of the airplane. Not just another gadget to clutter up the already jammed instrument boards in most planes, the radar screen will be extremely valuable. It will report to the pilot his position in the air relative to other aircraft, and to obstacles in his path, such as radio towers, beacons, water towers and similar objects that may be hidden from his sight when the ceiling is low.

In actual operation of the collision radar instrument, pilots would be responsible for maintaining the proper distance from other aircraft while climbing to assigned altitudes, and while approaching an airport for a landing. The complete landing approach could be handled by the pilot with the control tower acting as a monitoring agent through its radar screen. This would speed up landings and take-offs in bad weather.

A radar collision warning device was developed several years ago by the CAA, but it was too heavy and too expensive for general use. Wartime demands have speeded up the refinement and practical application of this device.

Science News Letter, March 31, 1945

AERONAUTICS

Auxiliary Wing Tanks Carry Men, Medicine

➤ HOBOES who believed their traveling was forever limited to bumming rides on the undercarriages of freight trains have a chance to hitch-hike through the sky in cargo cocoons slung under the wings of Army Air Force fighter planes, it appears from a report in the magazine, *Air Force,* (March).

Although they look like giant-size cocoons mounted under the wings of a P-38 Lightning fighter plane, they are actually auxiliary wing tanks specially fitted to carry human beings comfortably, or medicines, repair parts, ammunition and supplies. In the Pacific and China-Burma-India theaters wounded men have been carried to rear bases in makeshift tanks of a similar type. Each tank has an 1,800-pound capacity.

When men are to be carried, the tanks are modified by inserting a mattress for comfort, a clear plastic nose and a tail cone which can be jettisoned so the occupant can get out in an emergency and easily parachute to earth. An intercommunications system links the pilot of the fighter with his passengers under each wing.

To prove the reliability of carrying personnel, Chief Warrant Officer George L. Singleton emerged from a wing tank cocoon at 7,000 feet while the plane was flying at 170 miles an hour and parachuted to earth.

Enough supplies can be carried to fly operational missions lasting several weeks. Each cocoon tank will hold enough mechanical supplies for minor repairs of an entire squadron of planes for five days plus enough ammunition for more than three days as well as four extra machine guns and enough food rations for 24 men for three and a half days.

Science News Letter, March 31, 1945

Asbestos, used extensively in the United States, is obtained principally from Canada, although some is mined in this country and some is obtained from Africa, India, Australia and Russia.

Two pounds of flaked *calcium chloride* added to a bag of cement used in making concrete gives a mixture that is risk-free from freezing and permits concrete construction during cold weather.

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