

FLIGHT REFUELLING SECRET REVEALED

REFUELLING THREE FIGHTERS FROM ONE TANKER

Photographs just released reveal the successful accomplishment of simultaneous probe-and-drogue refuelling of three fighters by one triple-feed air tanker. The probe-and-drogue refuelling system used was invented by a British company, Flight Refuelling Limited, whose Chairman is Sir Alan Cobham, the famous pioneer airman. The three-point tanker was developed at Tarrant Rushton Airfield, Dorset, for the U.S. Air Force, and is now undergoing trials in America.

Three separate refuelling units are located one in the fuselage and each wing tip. Each is operable individually from a central control station in the tanker, so that one, two or three aircraft can be refuelled as required in a single operation.

In Korea, the United States Air Force and Navy chiefs have seen remarkable confirmation of the value of flight refuelling. The trials of the new tanker have further demonstrated its advantages.

"The United States are leading the world in the development and use of flight refuelling", said Sir Alan Cobham, who has recently returned from America. "The only three-point tanker in existence at the moment is in the United States. The Americans are pressing forward full speed with probe-and-drogue refuelling.

"American aircraft designers are turning to flight refuelling as the only immediate answer to the demand for higher speed and longer range. The multi-point tanker has convinced them that probe-and-drogue refuelling can overcome many design problems with jet aircraft. The same system can be used with complete interchangeability by all aircraft, whether R.A.F., U.S.A.F. or civil.

"The system is so simple that it can be applied at small cost in weight and money to any aircraft which is equipped for pressure refuelling on the ground. A fighter can have a probe fitted in a few minutes if a connection is provided in the fuel system. Ninety per cent of the equipment required for flight refuelling is already installed in a pressure-refuelled aircraft.

"The tanker equipment can be designed as a "pack" installation which can be slung in the bomb-bay or bolted on as a "pod". Given the right engineering approach, a bomber can be converted into a tanker in half-an-hour. This has actually been done in the U.S.A.

"The big advantage of flight refuelling is economy in aircraft. Counting in the tankers, less, not more, aircraft are required when flight refuelling is employed. Our technical studies show that a combined force of 100 flight-refuelled bombers and tankers could do the job of 200 un-refuelled bombers. To cover the North Atlantic gap with air patrols would take only half as many aircraft refuelled as un-refuelled."

Pilots who have tried probe-and-drogue refuelling say that it is easier than going down and landing to refuel. The tanker trails a fuel hose terminating in a drogue which keeps the fuel line steady. Within the drogue is a simple and robust coupling. The receiver aircraft is fitted with a probe whose nozzle fits this coupling.

To make connection the pilot of the receiving aircraft merely flies up behind and below the tanker, aims his probe into the drogue, whereit is automatically locked in place. The receiving pilot controls the fuel flow into his aircraft by opening a valve in the nose of his probe, which automatically opens a corresponding valve in the coupling. By this method fighters can refill their main tanks in three minutes.

When his tanks are full, the receiving pilot reduces speed. When the load on the fuel line reaches about 800 lb the probe is released from the coupling, and the fighter (or bomber) is free to continue its mission.

Using the probe-and-drogue system, fighters that previously could fly for no more than one hour and a half can now remain airborne indefinitely in accordance with operational requirements. Fighters can shear days off transit time from U.S.A. bases to operational zones in Western Europe and the Far East by spanning the Atlantic and Pacific non-stop. Escort protection for bombers can be given by fighters refuelling from tankers flying with a combined air fleet.

The probe-and-drogue is the only flight refuelling system which is under the control of the receiver pilot first, last and all the time. No other system permits more than one aircraft to be refuelled from a single tanker. These unique features of probe-and-drogue refuelling loomed largely in the American decision to adopt this British invention.

- - - - -