



"Flight" photographs.

The shapely underslung Nene nacelles blend well with the lines of the Viking. (Right) Mr. J. Summers, chief test pilot, jacketless, and Mr. G. Edwards, chief designer, who took the aircraft to Paris.

## FIRST JET TRANSPORT

### *The Nene-Viking's Debut and Commemorative Flight to Paris*

**A** MOST creditable and encouraging achievement by a British commercial aircraft was the flight from London to Paris and return made last Sunday by the Nene-Viking to coincide with and commemorate the pioneer Channel crossing successfully completed by M. Bleriot 39 years earlier. Let no mistake be made about the significance of this flight; both the Vickers Viking and the two Rolls-Royce Nenes with which it is powered, are standard, well-tried products which have been combined for the first time to give this country an all-jet passenger transport. This particular aircraft, sponsored by the Ministry of Supply, has been produced for development work, but has now been flying for some months and is no freakish prototype. The Nenes produce much more power than can be safely utilized by the airframe, which was originally designed for operation with medium-sized piston engines at quite low altitudes. The Nene-Viking is, therefore, not an economical proposition for the airline operator. From other points of view it would be a serious commercial product.

Captain J. Summers accompanied by Mr. G. Edwards, the designer, took off from London at about 10.15 a.m. on July 25 and reached Villacoublay in 34 min 7 sec. They returned in the afternoon in 36 min 30 sec. The distance is 222 miles, and the greatest speed reached at the top height of 12,000ft was 415 m.p.h. The average speed was 394 m.p.h.

At Paris, newspaper cuttings concerning the Channel flight in 1909, and letters from the Royal Aero Club, were handed to M. Bleriot's widow, to his son, M. Jean Bleriot, secretary-general of the F.A.I., and to the secretary-general of the French Aero Club. After a luncheon, letters in answer were carried back to Air Marshal Sir Alec Coryton.

Other important Paris-London flights which may be mentioned for comparison have been made recently by S/L. Waterton, who flew a Gloster Meteor over in 20 min 11 sec, averaging 618½ m.p.h., and Capt. Shepherd in the Merlin/Nene Lancastrian which took 41 min and averaged 322 m.p.h.

With the exception of the power plants and main undercarriage, the Nene-Viking differs very little from the standard Mark 1B. The gauge of mainplane and tailplane skin has been increased and the elevators are metal covered. All other alterations are concerned with the engines, their controls and test equipment. They include a rearrangement of fuel and oil systems, the installation of test equipment and tanks for jet-tisonable water ballast in place of the 24 passenger seats.

The new engine nacelles are mounted completely below the wing surface, and this enables the jet efflux to be directed below the standard tailplane. The engine mountings are very simple and consist of three pairs of Vee-tubes attached by quick-release pins and bushes to the wing leading edge member and



the undercarriage suspension frames. Like the cowlings, they are specially designed for quick removal and replacement.

The main undercarriage units are entirely different from the standard Viking, and are in the form of pairs of small landing wheels carried on a twin leg assembly with two oleo pneumatic shock absorber legs, and further supported by knee-joint articulating links. One double-acting hydraulic jack on each side causes the wheels to retract and take up their positions astride the jet pipe.

This is the first occasion on which turbojets have been mounted close in beside the fuselage of a transport aircraft, and for the first time it will be possible to accumulate valuable data concerning high and low-frequency vibration and general noise level which will be of great importance in the development of later pure-jet airliners.

Fuel for the Nenes is carried in two pairs of flexible bag tanks of 734 gallons total capacity, installed in the outer wings.

The handling characteristics of the aircraft are reported to be very satisfactory, and it has been discovered that there is a saving in profile drag of 15 per cent over the standard Viking.

Due to airframe strength factor limitations, the maximum speed of the Nene-Viking must be limited, and weather conditions have a considerable bearing on the safety limit selected. In smooth air (gusts up to 25ft/sec), the permissible top speed exceeds that in rough air by more than 60 m.p.h.

#### Data for the Nene-Viking

Track (and nacelle centres) .....	22ft 10in
Take-off weight .....	34,000 lb
Wing loading (at take-off weight) .....	38.5 lb/sq ft
Max. speed (smooth air) .....	409 m.p.h.
Max. speed (rough air) .....	338 m.p.h.
Cruising speed (smooth air) .....	395 m.p.h.
Landing speed (touch-down) .....	92 m.p.h.
Climb to 10,000ft (at 34,000 lb) .....	3 min
Service ceiling (both engines) .....	44,000 ft
Service ceiling (one engine) .....	30,000 ft
Take-off distance to 50 ft (at 34,000 lb., I.C.A.N.) ..	1,100 yd
Still-air range at 10,000 ft (395 m.p.h., 734 gal) ..	311 miles
Still-air range at 5,000 ft (371 m.p.h., 498 gal) ....	242 miles