



Artist's impression of the Piaggio-Douglas PD-808 light jet transport

Commercial Aircraft of the World . . .

floor area (less flight deck), 169 sq ft; dimensions of largest door, 68in × 45in; max number of seats, 23 at 30in pitch.

Fuel capacity: 459 Imp gal.

Performance: Opt-cost (i.e., typical) cruising speed at 10,000ft and 21,380lb, 205kt; corres s.f.c., 0.68lb/hr/s.h.p.; take-off field length, max take-off weight, ISA, 3,900ft; landing field length, max landing weight, ISA, 3,715ft; range A (max payload), 300 n.m.; range B (max fuel), 1,050 n.m.; corres payload, 5,500 lb; VNE, 242kt IAS; VNO, 208kt IAS; Vso, at max landing weight, full flaps, 65kt IAS.

MH-262 Super Broussard This is the pressurized version of the MH-260, the prototype of which is said to be due to fly before the year's end. Last June it was expected that the first aircraft would fly in mid-1962 and be certificated and delivered in July 1963. Basic cost would be about £120,000.

MH-280 Super Broussard This is the designation of the MH-260 or MH-262 with Lycoming T53s of similar power to that of the Bastan.

MH-350 Broussard Major Resembling in appearance a scaled-down Super Broussard, this is a twin-engined "big brother" of the successful single-engined Broussard, of which some 400 have now been built. The first prototype is being built at Rheims and is due to fly in March 1962.

Powerplant: Two Continental GIO-470A piston engines of 310 h.p. each.

Dimensions: Span, 50ft; length, 35ft; wing area, 301 sq ft.

Weights: Max take-off (freight version), 6,950lb; weight empty, 4,380lb; capacity payload, 2,000lb.

Performance: Max cruising speed, 159 m.p.h.; take-off distance, max weight, to 50ft, 1,530ft; landing distance, over 50ft, 985ft; range A (max payload, with allowances), 100 n.m.; range B (max fuel, with allowances), 350 n.m.; corres payload, 1,500lb.

NAMC Nihon Aeroplane Manufacturing Co Ltd, Daido Building, No 46, 1-chome, Minami-Sakumacho, Shiba, Minato-ku, Tokyo, Japan.

YS-11 The manufacture of the YS-11 turboprop airliner was first proposed by the Japanese Ministry of International Trade and Industry in 1956. The major aircraft manufacturers set to work on project studies, and in the following year, with a government subsidy, the six largest aircraft manufacturing companies combined forces to launch the basic design work. These six companies were: Mitsubishi Heavy-Industries, Reorganized Ltd; Kawasaki Aircraft Co Ltd; Fuji Heavy Industries Ltd; Shin Meiwa Industry Co Ltd; Japan Aircraft Manufacturing Co Ltd; and Showa Aircraft Industry Co Ltd.

In May 1957 these companies formed the Transport Aircraft Development Association, with the object of co-ordinating their efforts in design work, preparation of specifications, wind tunnel tests and construction of a full-size mockup. In June 1959, the Nihon Aeroplane Manufacturing Co was established under the Aircraft Industries Promotion Law with capital jointly provided by the Government and the private companies concerned to succeed the Transport Aircraft Development Association and to be responsible for the production and sales of the YS-11. The board of directors is composed of representatives of the Government and of the "big three"—Mitsubishi, Fuji and Kawasaki.

The paid up capital of the company was 3,750 million yen (about £3.75m) in October 1961, of which 2,050 million yen (£2.05m) was subscribed by the Government and 1,700 million yen (£1.7m) by the private companies. The capital is to be raised to reach a total of 4,700 million yen (£4.7m) in 1962. Production of the YS-11 is carried out with the close co-operation of the six companies, as follows:—

NAMC are responsible for design, production, quality control and sale of the YS-11. Others concerned are: *Mitsubishi*, fuselage and final assembly; *Kawasaki*, wings and engine nacelles; *Fuji*, tail unit; *Shin Meiwa*, rear fuselage; *Japan Aircraft*, ailerons and flaps; *Showa Aircraft*, honeycomb structural components.

The aircraft is powered by the most-developed Rolls-Royce Dart (RDa.10/1) engines, and the fuselage accommodates 52-60 passengers. The company estimate a demand for more than 150 aircraft between 1963-70 for domestic routes and export. The Japan Self-Defence Agency included 10 YS-11Ms (military version of the YS-11) in its five-year defence programme commencing fiscal year 1962, and All Nippon Airways announced their intention to purchase more than 25 YS-11s. Japan Maritime Safety Agency may also have two YS-11s for search and rescue.

The first prototype YS-11 is due to fly in the middle of March 1962, and the first production aircraft is scheduled to go into operation on Japanese domestic routes during the second half of 1963.

Basic price: 360 million yen (£360,000) approximately, excluding radio, autopilot, radar, etc.

Powerplant: Two Rolls-Royce Dart RDa.10/1 Mk 542 turboprops of 3,060 e.h.p. driving Dowty Rotol 14ft 6in propellers.

Dimensions: Span, 105ft; length, 86ft 3in; height empty, 30ft; wing area, 1,020 sq ft.

Weights: Max take-off, 50,265lb; max landing, 48,047lb; zero fuel, 44,092lb; capacity payload, 12,130lb; weight less fuel and payload, 31,988lb.

Payload accommodation: Cabin volume, 2,125 cu ft; baggage and freight volume, 390 cu ft; cabin length, 44ft 1in; max internal width,

8ft 10in; max height, 6ft 6 in; max usable floor area, 340 sq ft; dimensions of largest doors, 33in by 66in; max seats, 60 at 34in pitch.

Fuel capacity: 1,560 Imp gal (1,870 US gal).

Water-methanol capacity: 106 Imp gal (127 US gal).

Performance: Opt-cost (i.e., typical) cruising speed at 20,000ft and 48,047lb, 257kt; corres s.f.c., 0.633lb/s.h.p./hr; take-off field length, ISA, SL, max take-off weight, 2,890ft; landing field length, SL, 3,790ft; range A (max payload), 710 n.m.; range B (max fuel), 1,680 n.m.; corres payload, 5,400lb; VNE, 275kt EAS below 13,000ft, 245kt EAS below 13,000ft; Vso 72kt EAS.

Operators' drawing of YS-11: page 823

NORD AVIATION Société Nationale de Constructions Aéronautiques du Nord, 12 bis Avenue Bosquet, Paris 7e, France.

Nord 2502 Noratlas The Nord 2502 is a development of the Nord 2500 transport designed for the French Air Force, which was the basis for a series of variations. The prototype 2500, the 2501 powered by two Bristol Siddeley Hercules 758s of 2,040 b.h.p. each, first flew on September 10, 1949. By 1951 a civil 45-seater (or cargo) version of the 2501 had also been designed and orders placed by UAT and by an operator in Israel.

The 2502 differs from its predecessor in that it is equipped with two Turbomeca Maborés in wing-tip nacelles to improve take-off performance. UAT, who operate six 2052s, introduced the type into service on their African routes in 1954. Other operators are Arkia (two) and Air Algérie (two).

Other developments, not in quantity production, are: **Nord 2503** (Pratt & Whitney R-2800-CB17s); **Nord 2506** (as 2502 but with air-brakes, re-designed flaps and landing gear adjustable for height, now cancelled) and **Nord 2508** (as 2501 but with Pratt & Whitney R-2800-CB17s of 2,500 h.p. and two-stage supercharging).

Powerplant: Two Bristol Siddeley Hercules 758/759 of 2,040 b.h.p. each, built under licence by SNECMA, driving Rotol R.108 propellers. (Optional: two 880lb Turbomeca Maboré turbojets.)

Dimensions: Span, 110ft 3in; length, 72ft 0½in; height, empty, 19ft 10½in; wing area, 1,089 sq ft.

Weights: Max take-off, 50,700lb; max landing, 48,500lb; zero fuel, 46,720lb; capacity payload, 16,640lb; weight less fuel and payload, 30,080lb.

Payload accommodation: Cabin, baggage or freight volume, 1,800 cu ft; cabin length, 32ft 4½in; max width, 9ft; max height, 6ft 7in; max usable floor area, 233.6 sq ft; dimensions of largest door, 7ft 2½in; max number of seats, 45.

Fuel capacity: 1,120 Imp gal (1,345 US gal).

Performance: Cont cruising speed, 170kt (195 m.p.h.) at 9,840ft and 50,000lb; corres fuel consumption, 0.244 st.m./lb; balanced field length, sea level, ISA, 2,085ft; at sea level, ISA + 15°C, 2,340ft; at 5,000ft, ISA, 2,565ft; landing distance from 50ft, 2,625ft; range A (max payload), 686 n.m. (790 st.m.); range B (max fuel), 1,480 n.m. (1,710 st.m.) corres payload, 12,710lb; corres cruise speed, 161kt (186 m.p.h.).

Transall C.160 Planned as a first co-operative venture between the French and German industries (although Nord 2501s have been built in Germany in quantity) is the Rolls-Royce Tyne-powered C.160. Primarily a military freighter for NATO, the C.160 is also offered for commercial use. Participants, grouped under the name Transall, are Nord Aviation for France, and Hamburger Flugzeugbau, Weser Flugzeugbau and Blume-Leichtbau und Flugtechnik for Germany. The project is a freighter with rear ramp-loading and an undercarriage retracting into twin pods on the fuselage. Agreement was reached in March 1960 to build three prototypes plus two further airframes for static and fatigue testing. The first three prototypes will be built by Nord in France and first flight was originally scheduled for July 1962. The second and third aircraft should fly respectively six and eight months later. Basic price is stated to be about £650,000.

Powerplant: Two Rolls-Royce Tyne RTy.20 turboprops of 6,100 e.h.p. driving de Havilland 18ft propellers, and two RB.153 booster jets.

Dimensions: 131ft 3in; length, 103ft 6in; height empty, 36ft 7in; wing area, 1,722.23 sq ft.

Weights: Max take-off, 106,925lb; max landing, 100,970lb; zero fuel, 90,057lb; capacity payload, 33,069lb.

Payload accommodation: Cabin volume, 4,800 cu ft; cabin length, 42ft 8in; max internal width, 10ft 4in; max height, 9ft 9in; max usable floor area, 602.8 sq ft; dimensions of largest door, 70.8in × 78.7in; max seats, 80.

Performance: Opt-cost (i.e., typical) cruising speed, 275kt at 25,000ft; corres fuel consumption, 0.087 n.m./lb; take-off distance, 1,970ft; landing distance, 1,970ft; range B (max fuel), 2,430 n.m. with fuel allowances.

PEKING AERONAUTICAL INSTITUTE Peking, Chinese People's Republic.

Peking NR.1 First flown on September 4, 1958, the Peking NR.1 is believed to be the first aeroplane designed and built in Communist China. It appears to be similar in purpose to the Dove; it carries eight passengers on rather more power—two 520 h.p. piston engines. A general arrangement drawing appeared in *Flight* of April 24, 1959, page 587. Span is approximately 57ft 10in and length 42ft 7in. Cruising speed is given as 162kt (186 m.p.h.) and range as 665 n.m. (670 st.m.). Cruising height is quoted as 15,750ft.

PIAGGIO Via Antonio Cecchi 6, Genova, Italy.

Piaggio P.166 The first of three prototypes of the Piaggio P.166 flew on November 26, 1957, and production deliveries started at the end of April 1959. About 20 aeroplanes have now been delivered and 21 are to be supplied as executive VIP transports to the Aeronautica Militare.