



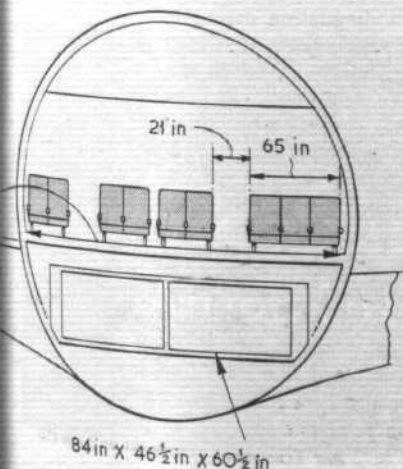
MORE BOEING 747 DETAILS

VISITING London last week on the first call of a tour to present key European airlines with firm 747 proposals, was a Boeing sales team headed by Mr J. B. Connelly, vice-president of the company, and including Mr J. F. Sutter, chief engineer on the 747 programme. The overall size and shape of the basic 490-seat 747, and of the mixed-traffic and all-cargo versions, have been fixed (*Flight* last week page 655). The engineers at Seattle are now proceeding with detail design and preparation of the type specification, while the commercial department is conducting sales negotiations with airlines in the hope of phasing deliveries to permit several transatlantic carriers to have the aircraft in service during the summer of 1970. From London the team were to visit France, Germany, Belgium, Italy and Scandinavia. From the programme management and feasibility angle, the next few weeks will also be critical as the company seeks to raise more equity capital—the sole reason, it appears, for the break-clause in the contract with Pan American whereby Boeing may decline to proceed with the 747 at any time up to August 1 upon payment of minor compensation. At a London press conference, Mr J. B. Connelly and his team gave the following information on the 747 and its programme.

Programme Detail structural design of the 747 has begun with basis of five years aerodynamic and structural research in connection with the C-5A military heavy logistics transport aircraft proposal (the contract was won by Lockheed last summer). Systems and flight equipment philosophies and specifications will be drafted and issued for tender within a few months. The first prototype will fly late in 1968. Development and airworthiness certification is expected to take only a year (the ARB will be involved at an early stage to assure simultaneous ARB/FAA certification).

The first deliveries to Pan American will be made in late 1969/early 1970, and most of the 25 aircraft in the initial order will be in service by summer 1970—the exact date depending upon the phasing-in of orders from other airlines. If the Pan American option on a further ten 747s is taken up, delivery would begin in early 1970. Anticipating a healthy

The fuselage cross-section of the 747 was the last major layout decision to be made. Freight carrying considerations dictated the size (in particular the ability to carry American 8ft wide x 8ft 6in high standard road/rail containers)



demand for the aircraft, Boeing are planning to achieve a maximum production rate of seven aircraft per month within two years of first deliveries. By December 1972 some 200 aircraft should be in service and by the end of 1975 the forecast number is 400.

Where will the aircraft be built? According to Mr Connelly, that has not been finally decided—the answer depends to a certain extent on future 707 production-space requirements and on the company's plans for expansion. However, there are other very big production facilities within the Boeing group, including the former B-52 bomber factory at Wichita, Kansas, which could well be the centre of production for this latest giant from the home of giants.

Asked whether Boeing would be prepared to enter sub-contract agreements with other manufacturers involving perhaps even major shares in the airframe, Mr Connelly indicated that there was every opportunity for that sort of agreement. The principal criteria was quoted as being "only if it helps the production programme"—sub-contracting would not be entertained to boost sales in a particular country. The guidelines for judging potential sub-contracts were: delivery, price and quality.

The Boeing Commercial Airplane Division workforce is now between 30,000 and 35,000, and the separate SST proposal group employs 2,000 engineers at present.

Financing The "non-recurring" costs of the 747 programme (design, development, tooling design and initial tooling investment) were said by Mr Connelly to be estimated at \$500 million (£180 million). By the time the 747 reached airworthiness certification on the eve of delivery to the airlines, Boeing will have invested \$1 billion (£357 million). Boeing hope to raise all of this capital from private sources, and a big new issue of equity shares will be launched within the next few weeks. There has been no indication of any intention to seek Government financial support for the programme. It may be noted that the capital to be raised for this subsonic project is considerably more than the company has ever been prepared to try to raise for the proposed SST programme.

Commercial Boeing are currently offering three basic versions of the 747, each powered by the 41,000lb-thrust P&W JT9D-1 high by-pass turbofan: an all-passenger aircraft for up to 490-seats for summer 1970 services and selling for \$18.5 million (£6.6 million); a mixed-traffic version with a hinged nose to permit straight-in freight-loading, which type could be delivered in late 1970 at a basic price of \$19 million (£6.78 million); and an all-cargo aircraft without cabin windows at a basic price of \$18 million (£6.43 million) for late 1970 delivery.

Although Boeing expect the 747 to lessen the demand for 707s, the company are aware that the 747 is very big for many routes and in consequence are already looking into smaller versions of the aircraft (rather as the 720 series grew out of the 707). There is also a possibility that the smaller-aircraft demand might be met by a version of the 707 incorporating "C-5A technology advances." Mr Connelly did not think the 747 was a nail in the coffin of the American SST—