Although the 747 quickly proved itself in service, demand for new aircraft had collapsed with the economic recession, and Boeing's earnings dropped by $73 million in one year. Boeing's board decided that only radical surgery could save the company. The Seattle workforce was reduced from 104,000 to 38,500 over 18 months. On the edge of Seattle a billboard appeared, asking the last person leaving the city to turn out the lights.
Sutter, by this time vice-president in charge of the Everett division, saw his work-force cut from 25,000 to 4,000. "Nobody wanted to fly," he says. If the recession had gone on six more months the programme could have gone down the tubes, and it could have wiped out Boeing."
Stamper says: "The troubles we had then have been misread. The 747 was not the problem for Boeing at all. . . The problem was that the economy was bad, and the airlines had stopped buying aeroplanes. "We were paying about $ 100 million a year in interest on our debts. But we stopped haemorrhaging in terms of cashflow after we took some dramatic actions to trim the work-force and improve productivity. We oozed our way out of the situation."

RETHINKING THE FUTURE

In March 1971 the US Congress voted to stop funding the SST programme, in response to economic and environmental pressures. Ironically, the loss of the programme proved a blessing in disguise for Boeing. The 2707 cancellation forced airlines to review their strategy for long-term fleet acquisitions. "When the marvellous SST was 'deep-sixed'," says Sutter, "it re-oriented the think-ing of a lot of people that the 747 was going to be the front-line aeroplane from now on." Boeing began to recapture orders from major overseas carriers against new widebody competition from the McDonnell Douglas DC-10 and the Lockheed L-1011. The two newcomers divided large long-haul fleet orders from four major US carriers between them, however, prompting speculation that the 747 was simply too big for the economic climate of the time.
Stamper says: "People don't buy aero-planes to fill them as soon as they come out. It's a long-term investment. We were build-ing 747s to have a break-even of 100 pass-engers on the North Atlantic. People thought that the aeroplanes were too big, but they forgot that every passenger over 100, and every bit of cargo, was profit for the airlines." A 747B with heavier gross weight and more powerful engines had been introduced at the end of 1970, and Sutter's engineering team started to develop new versions. The 747SR (short range) was developed for Japan's domestic market. "The Japanese wanted a short-haul aircraft," says Sutter, "and it was the engineers who told the marketing people that we would build the 747SR. They wanted to sell them 727s."
The 550-seat 747SR, adopted for short-range, high-cycle operations, was launched in October 1972 with orders from Japan Air Lines, and entered service a year later. Another version, the 747SP (special

How today's 74 7 design evolved

performance) was launched in September 1973 with a 47ft-shorter fuselage for use on low-density, long-distance routes.
The first dedicated 747 freighter was deliv-ered to Lufthansa in March 1972, and Boeing also developed a "convertible" which could be reconfigured overnight from passenger to cargo operations. Another version was the Combi, which combined cargo and passengers on the main deck.
Sutter says: "That was another terrific idea developed by the engineers for me to save two aeroplanes at Sabena. When they lost the Congo and only had the North Atlantic left, the 747s were too big for them, although they still needed the freight capacity. I went to Sabena and showed them sketches for putting a cargo door in the side, and putting freight in the back and passengers up front. Altogether, 13 different commercial versions of the 747 have been developed. The most recent model, the 747-400, was launched in October 1985, and entered service with Northwest Airlines in January this year. Orders for the 747 now total 924, with a backlog of 206 to be delivered. Boeing is working on a 747-400 freighter, and a possible stretched or reconfigured

Boeing is now looking towards a 747-500

development which could take up to 650 passengers. The 747-400F will probably be launched this summer, to be available in late 1992/early 1993.
Further ahead is a 747-500, which would have either a fuselage stretch or a double deck running the aircraft's length. Sutter says that a stretched -400 is "a natural". Fuselage plugs fore and aft of the wing would add 50-100ft, and the aircraft would require a new 230-240ft-span wing.
"Studies have been done on it," says Sutter, "using wing technology developed for the 767, with a thicker wingfoil and engines which are being developed for the new big twins, like the 767-X. It would probably fly a bit faster than the 747-400. I think we will see 747s cruising at about Mach 0-9 before we are done with it."

Recalling the crisis which Boeing survived
in 1970, Sutter says: "The interesting thing was that a lot of people said that, if we had delayed the 747, we would never have got
into that pickle. But I think the money would
never have been spent. If the programme had
been delayed a year, it would never have
happened. I think Bill Allen made the right
choice, looking back 20 years." •

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