SO WHY BUILD IT?

By Richard Mogford

fast as the 747 or 707 and is clearly an answer to the increasing demand for air travel and the problem of crowding; fewer will be needed. This argument is strong but the predicted advantages of the SST must be balanced against the possible harm it may do and in this case, though it may be hard to accept, we may have reached a point where further increases in speed and carrying capacity are not worth the sacrifice. In this area technology may have finally reached a dead end.

In the United States there is pressure to go ahead with the Boeing SST because it will keep the U.S. ahead in aircraft development and production, allow a favourable balance of payments and create many new jobs. The American aircraft industry has since the mid-1950's held 80 per cent of the world aircraft market and many fear that if a competitor for the British-French Concord is not developed much money and prestige will be lost. However, the Boeing SST is larger and faster that the Concord and may not compete with as much as be a supplement to the smaller jet, especially since it will appear years after the Concord is operating. The Concord, from present indications may not even be economical to operate commercially and may soon be abandoned.

Many support the American SST because it can be sold overseas at a gain to the U.S. economy whereas a drain could result if the Concord is bought by U.S. airlines. This may not happen though if this national profit is eaten away by increased spending overseas as more and more Americans travel on SST's to points outside the U.S. and pay fares on foreign owned SST's. The end result may be a net loss to the economy.

Promises of up to 100,000 new jobs in the presently sagging aerospace industries may come to be but some economists warn that these jobs will be mainly for highly skilled technical and managerial personnel and not for unskilled workers. There is a danger that once development, testing and initial production have been completed many of these people trained to meet the SST demand may find themselves out of work and looking for a new project. These warnings mostly emanate from within the Nixon Administration in The President's Ad Hoc Review Committee though Nixon ignored its recommendations in 1969.

A major factor propelling the super-sonic aircraft programme is that the governments involved have already invested huge amounts of capital which will be lost if the SST is stopped. In the U.S. the idea for an American supersonic airplane first gained momentum in 1961 when the first $16 million was provided for research which led to the design of the Boeing "swing-wing" SST in 1967. But in early 1968 Boeing surprised everyone by announcing that this aircraft would be impractical and frantically started design of the more conventional Boeing 2702-300 delta winged SST which unfortunately would make a stronger boom and carry fewer passengers. To date nearly $750 million has been spent on the SST project and the total cost may run from $4 to $8 billion, most of which the government would put up. In order to return the investment 300 airplanes must be sold and a $1 billion return will be made with the sale of 500. At $52 million or more per aircraft there are doubts as to how many could be sold, especially to small airlines, and whether the government would ever recover its money.

In the Concord project the prototype has already been built putting the British and French $1.8 billion over the edge and there are already many indications that the project may fail and that money will be lost even if it does sell. The Concord only carries 128 passengers who may have to pay 35 per cent more for the advantages of faster travel. Only 74 orders have been taken though the manufacturers are hoping to sell 250. The airlines are mostly reserving their decisions until more has been found out in the flight tests and attitudes from government, science and the public have been assessed.

The SST will fly faster and higher than any commercial aircraft today; in this lies its major advantages but also many complications.

As passenger flow increases through air terminals with the advent of the jumbo jet and eventually the SST, airports and transportation links will have to develop at a great rate. Otherwise there will be long delays at departure and arrival points which will minimize the time saved by the more efficient aircraft. With a reduction of 4 hours in the transatlantic route there may be a more marked difficulty in making the biological adjustment to the new surroundings. As it is the FAA advises after long flights to, ". . .allow one or two days acclimatization before taking part in demanding activities. . ."

The SST will incorporate a lot of new technology which will be new to commercial aviation. Because of its cruising height and speed this aircraft will need many new devices to make travel practical and safe although there are also new dangers as a result.

The outer skin of the Boeing SST may reach a temperature over 400 degrees F. due to air friction; this means that the cabin will have to be cooled with refrigeration equipment and that the passengers and crew would be in danger of baking if the cooling system failed. The cabin would also have to be pressurized and a puncture or tear would result in all aboard losing consciousness within 15 seconds due to the low air pressure in the stratosphere. (Dangerous concentrations of ozone are present at this altitude as well.) There are indications that supersonic travellers would receive much heavier doses of cosmic radiation than normal and would have to restrict the number of flights they made each year. The crew could be classified as radiation workers with limited flying time and higher chances of physical damage and genetic problems.

The Boeing SST will cover a mile every 2 seconds with the result that the distance the pilot is able to see ahead, visually or with radar, will be covered more quickly with the added complication that the aircraft is less manoeuverable. Such hazards as hail, lightning storms, air turbulence and other aircraft would approach more rapidly and be more difficult to avoid. Turbulence and hailstones would also be much more dangerous because of the SST's great speed.

The SST's passengers will be exposed to new hazards coming not only directly from the conditions of height and speed but also because they must depend much more heavily on automated devices and machinery for survival.

At present in the United States there is much resistance to continuing the Boeing SST project though President Nixon seems to be supporting it. The question to be decided in the near future is whether the government will vote more money to the programme or will scrap it. On March 18, the House of Representatives voted 215-204 to withhold further funds; the Senate still has to confirm this, but Nixon hopes to recoupe in the Senate. In Britain and France, tests of the Concord are still being made. Some are optimistic about the results so far, while others are very doubtful about the aircraft, its noise and sonic boom, and its possible economic viability.

In Canada, Canadian Pacific Airlines has reserved, but not bought, three Boeing SST's while Air Canada has reserved places on the production line for four Concords and six Boeing 2707's, ". . .subject to cancellation in the event the aircraft do not meet specifications."

The Federal Government is surprising in its policy on supersonic aircraft. Canadian Air Regulation 512-2, "No aircraft shall be flown in such a manner as to create a shock wave, the effect of which is to create or likely to create a hazard to other aircraft or to persons or property on the ground." This seems to count out supersonic corridors over populated areas in Canada, at least, though we have many "unoccupied" regions ripe for exploitation.

On February 3, 1971, Bill C-222 was read in the Commons "1. (1) Notwithstanding anything contained in any Act of Parliament or regulation thereunder, no commercial aircraft capable of travelling at supersonic speed shall use the air space over Canada. (2) Subsection (1) does not apply in the event of an emergency requiring the use of Canadian airspace and ground facilities."

This bill prohibits the use of Canadian airspace to commercial aircraft capable of flying at supersonic speed.

Its purpose is to reduce the threat of air pollution, to reduce the danger of ground damage by supersonic booms and to rule out the possibility of the Canadian airline industry bankrupting itself on behalf of the technical community's totally irrational passion for speed and gadgetry."

This was passed in the Commons this month and goes to the Senate for approval very soon. Legislation such as this will not only protect Canada, but also will discourage the production of supersonic aircraft in other countries which would be unable to use our airspace. For Canada this may be an answer to the SST threat though it is not the end for the earth and its already beseiged environment.