AIRCRAFT ACCIDENT REPORT NO 6/89

REPORT ON THE ACCIDENT TO CONCORDE 102 G-BOAF, OVER THE TASMAN SEA, ABOUT 140 NM EAST OF SYDNEY, AUSTRALIA ON 12 APRIL 1989

The Inspector's report on this accident was submitted to the Secretary of State for Transport on 16 November 1989. He has agreed to its publication and the report is now available from HMSO Bookshops and accredited agents.

The Concorde had been chartered for a world tour with 100 passengers. En-route from Christchurch to Sydney, as the aircraft was accelerating through Mach 1.7 and climbing through FL 440, a "thud" was heard by the crew and passengers. Subsequent analysis suggests that this was a mild engine surge not connected with the accident sequence. However, as the aircraft was descending through about FL 400 and decelerating through Mach 1.3, moderate vibration occurred, lasting two to three minutes. Although the crew were unaware of the source of the vibration, portions of the upper rudder were almost certainly separating from the aircraft at this time. Eventually almost all of the top wedge of the upper rudder aft of the main spar, and above the Power Flying Control Unit attachment structure, separated but the aircraft handling was unaffected and an uneventful approach and landing was carried out at Sydney Airport.

The following causal factors were identified:

(i) The in-flight breakup of the bonded honeycomb structure of the upper wedge of the upper rudder occurred as a result of extensive prior delamination of the skin from the honeycomb core.

(ii) Moisture ingress past the rivets in the trailing edge lead to corrosion between the honeycomb structure and the skin of the upper wedge, and to deterioration of the adhesive bond strength.

(iii) There was incomplete compliance by production staff with the drawing requirements relating to the modification of the rudder trailing edge.

(iv) The rudder trailing edge extension modification, as specified in the relevant drawings, placed requirements on production and inspection personnel which were difficult to attain.

Shortly after the accident a requirement for a "Special Check" was issued. The check contained inspections for delamination of the rudders and elevons. The British and French airworthiness authorities, manufacturers and operators have recently established the details of new inspection requirements calling for regular inspections for delamination of the rudder and elevons.

No Safety Recommendations were made.