

4 RECOMMENDATIONS

- 4.1 Redesign the B747 pylon structure including attachment to engine and wing. All SB's and AD's should be terminated after the redesign.
- 4.2 The redesign program for the pylon should include a full scale fatigue and failsafe test.
- 4.3 A large scale inflight fleet-wide fatigue load measurement program should be carried out, both on wing, fuselage, and fin mounted engines in order to establish more realistic load spectra for fatigue evaluations.
- 4.4 Review present methods of controlling structural integrity, such as non destructive inspection techniques and airworthiness directive requirements, in the current design B747 pylon assembly.
- 4.5 If a structural design concept is used as the basis for the certification of another design, in-service safety problems for both designs should be cross-referenced.
- 4.6 Evaluate and where necessary improve the training and knowledge of flight crews concerning factors affecting aircraft control when flying in asymmetrical conditions such as with one or more engines inoperative including:
 - advantages and disadvantages of direction of turn
 - limitation of bank;
 - use of thrust in order to maintain controllability;
- 4.7 Evaluate and where necessary improve the training and knowledge of flight crews in cockpit resource management in order to prepare them for multiple systems failures, conflicting checklist requirements and other beyond abnormal situations.
- 4.8 Expand the information on inflight emergencies in appropriate guidance material to include advice how to insure that pilots and air traffic controllers are aware of the importance to exchange information in case of inflight emergencies. The use of standard phraseology should be emphasized.
- 4.9 Evaluate and where necessary develop common guidelines on emergency procedures and phraseology to be used between ATC, Fire Brigade, Airport Authorities and RCC.
- 4.10 Expand the training of pilots and ATC personnel to include the awareness that in the handling of emergency situations not only the safety of airplane/passengers but also the risk to third parties especially residential areas should be considered.

- 4.11 Review design philosophy of fire warning systems, to preclude false warnings upon engine separation.
- 4.12 Review flight control design to ensure that flight control surfaces do not contribute adversely to airplane control in case of loss of power to a control surface.
- 4.13 Fire resistance of DFDR and CVR should be improved.
- 4.14 Investigate the advantages of installation cameras for external inspection of the airplane from the flightdeck.