Boeing 747 SP-94, YK-AHB, 14 April 1996

AAIB Bulletin No: 8/96 Ref: EW/C96/4/2 Category: 1.1

Aircraft Type and Registration: Boeing 747 SP-94, YK-AHB

No & Type of Engines: 4 Pratt & Whitney JT9D-7turbofan engines

Year of Manufacture: 1976

Date & Time (UTC): 14 April 1996 at 0840 hrs

Location: Stand R36R, London Heathrow Airport

Type of Flight: Public Transport

Persons on Board: Crew - 13 Passengers - 155

Injuries: Crew - None Passengers - None

Others - 1 (minor)

Nature of Damage: Damage to No 4 engine intake cowl

Commander's Licence: Airline Transport Pilot's Licence(Syria)

Commander's Age: N/K

Commander's Flying Experience: 21,147 hours (of which 3,504were on type)

Last 90 days - 109 hours

Last 28 days - 13 hours

Information Source: AAIB Field Investigation

The aircraft was operating a scheduled service route Damascus-Munich-Heathrow,landing on Heathrow's Runway 09L at 0836 hrs. Heathrow GroundControl instructed it to taxy via the outer taxiway, changingto the inner taxiway at block 21 and to park on stand R36, whichwas only a short distance away from the landing runway. The taxyinginstructions were acknowledged by the flight crew. The handlingagent's dispatcher had not arrived at Stand R36 by the time theaircraft was ready to enter the stand. The electronic Stand EntryGuidance System (SEGS) was thus not switched on.

The aircraft proceeded onto the stand, but was positioned towardsthe right side of the stand area. During the parking process,the outboard section of the number 4 engine intake cowl contactedthe upper front part of a catering loader vehicle which was correctlylocated within the inter-stand clearway area. The impact pushedthe vehicle until it came into contact with a second

cateringvehicle positioned behind the first. The accident was observedby an Airside Operational Support Unit officer, who passed a radiomessage to ATC to advise the aircraft to shut down its enginesimmediately. The two occupants of the vehicles had been transferringcatering items. They made a rapid egress during which one ofthem sustained minor laceration injuries. The aircraft's engineswere shut down and the passengers deplaned normally.

Examination of the position of the aircraft after the accidentshowed that the nose landing gear was on the centreline for standR36R, instead of the correct R36 centreline. The aircraft's wingtip and number 4 engine thus encroached across the inter-standclearway between stands R36R and R38. The main landing gearswere not equally straddled across the R36R centreline, being biasedtoward the central R36 stand.

The commander was familiar with operations into Heathrow Airportand the available SEGS, but R36 was not one of the stands normallyused by the airline.

Stand Description, Identification and SEGS

Stand R36 is configured as a Multiple Aircraft Ramp System (MARS)stand, such that the central (main) stand may be occupied by onelarge aircraft, such as the B747. Alternatively, if required,two smaller aircraft may occupy the same stand area by use ofadditional centrelines provided at appropriate distances eitherside of the main stand centre. These additional centrelines areidentified by the alpha-numerics R36 Left (R36L) and R36 Right(R36R).

The main centreline is marked with a continuous yellow paint line. The additional Left and Right centrelines are each painted witha continuous line, alternating white and yellow in colour. Onlythe central stand has an identifier plate at the head of the stand(marked R36).

The three centrelines (R36L, R36 and R36R) are identified by meansof yellow identifiers painted on the taxiway surface. They arelocated adjacent to arrows pointing from the taxiway centre towardsthe appropriate stand centreline. The stand centrelines commenceat the stand/taxiway boundary. There is thus a gap between thetaxiway arrow and the start of the centreline. Repeater identifiersare painted on the surface at the start of the centrelines forR36L and R36R only.

Visibility from the flight deck of the Boeing 747 is such thatthe stand identifier markings on the taxiway and stand entrancewould not have been visible once the aircraft had begun to enterthe stand.

Centreline manoeuvring guidance is provided only for the central(main) stand by means of the Azimuth Guidance Nose-In Stands (AGNIS)light system. Stopping guidance is provided only for the mainstand by means of a Parallax Aircraft Parking Aid (PAPA) board,located to the right side of the head of the stand. These systemsare operated through an electronic timer, such that a ground handlingagent is required to activate the system prior to the aircraftarriving to park on the stand. The substands haveno electronic parking guidance systems available in the case ofR36L/R.

Aerodrome Information and Navigation Charts

During this investigation, four sets of documentation relatingto the layout and nature of the parking stands at Heathrow wasexamined, namely:

UK CAA Aeronautical Information Publication (AIP), Aerodromes(AGA) Section

Heathrow Airport Limited, Operational Safety Instructions (OSI)

Aerad Flight Guide, aerodrome charts for London Heathrow

Jeppesen Airway Manual, airport charts for London Heathrow

None of the documents examined contained any diagram indicatingwhich stands are configured for the MARS system. The AIP entry,while making vague reference to the MARS concept, did not describethe layout of such stands in any detail. The current HeathrowOSI's did not contain any references or decriptions of the MARSsystem, although other aspects of SEGS were covered in detail.

The Aerad charts contained the most comprehensive descriptionof the MARS system, correctly defining the centreline paint coloursand AGNIS provision. The Jeppesen charts did not mention thepresence of MARS stands at all and there were conflicting statementson different pages regarding the paint colour of the "normal"stand centrelines. However, Jeppesen correctly conveyed the contentof a Heathrow OSI and highlighted the fact (in bold type) that***'on no account should aircrew attempt to self-park if theStand Entry Guidance is Unserviceable, Uncalibrated or Not SwitchedOn'.*** The chart library available to the flight crew involvedin this accident included the Jeppesen chart containing this statement.

The commercial chart producers rely on information published inthe AIP as a basis for the production of navigation charts. Inturn, the information presented in the AIP is gathered from specificairport data. As a result of the apparent inconsistencies andomissions found during this investigation, both Heathrow AirportLimited and the CAA were advised by AAIB of the anomalies. Theneed for a comprehensive, accurate description to be made availablefor flight crews was also highlighted.

Heathrow Airport Limited indicated that a comprehensive OSI relatingto all aspects of parking stands was in preparation and that itsproduction would now be expedited. The CAA indicated that theapproporiate aerodrome inspector would liaise with Heathrow AirportLimited to agree a suitable AIP revision. With these two improvementsin hand, it was not deemed necessary to issue a formal SafetyRecommendation.