FINAL REPORT

ACCIDENT OF SAUDI ARABIAN AIRLINES FLIGHT SV-781, BOEING 747-368, REGISTRATION HZ-AIP, ON 08TH SEPTEMBER 2005 AT BANDARANAIKE INTERNATIONAL AIRPORT, KATUNAYAKE – SRI LANKA

Released by the Director General of Civil Aviation Sri Lanka

CONTENTS

LIST OF ABBREVIATIONS

AASL	–	Airport and Aviation Services (Sri Lanka) Limited.
ATC	–	Air Traffic Controller.
ATPL	–	Air Transport Pilot Licence.
BIA	–	Bandaranaike International Airport.
CAASL	–	Civil Aviation Authority of Sri Lanka.
CVR	–	Cockpit Voice Recorder.
Hpa	–	Hectopascal
ICAO	–	International Civil Aviation Organization.
Km	–	Kilo meters.
Kts	–	Knots.
L1	–	Left hand side number one door.
L2	–	Left hand side number two door.
L3	–	Left hand side number three door.
L4	–	Left hand side number four door.
L5	–	Left hand side number five door.
MHz	–	Mega Hertz.
N	–	North
NTSB	–	National Transport Safety Board.
NW	–	North West
R1	–	Right hand side number one door.
R2	–	Right hand side number two door.
R3	–	Right hand side number three door.
R4	–	Right hand side number four door.
R5	–	Right hand side number five door.
SARPS	–	Standards and Recommended Practices
SLA	–	SriLankan Airlines.
SVA	–	Saudi Air.
UTC	–	Universal Time Constant
USA	–	United State of America.
VHF	–	Very High Frequency.
W	–	West

FINAL REPORT

SYNOPSIS:

Operator	-	Saudi Arabian Airlines P.O.Box 167 Jeddah 21231 Saudi Arabia
Registered Owner	-	Saudi Arabian Airlines P.O.Box 167 Jeddah 21231 Saudi Arabia
Aircraft Type	-	Boeing 747-368
Aircraft Nationality	-	Saudi Arabia
Aircraft Registration	-	HZ-AIP
Place of Accident	-	Isolated Parking Position at Bandaranaike International Airport (BIA) Colombo, Katunayake, Sri Lanka
Date and Time	-	08th September 2005 at 0753 UTC (1353 Hrs local time)

On 08th September 2005 at 1353 hrs local time (07.53 UTC), B 747- 368 passenger aircraft registered in the Kingdom of Saudi Arabia as HZ-AIP owned and operated by Saudi Arabian Airlines was taxing for Runway 22 for the scheduled flight from BIA Colombo to Jeddah via Riyadh as flight SV-781. While the aircraft was taxing on parallel taxiway towards Runway 22, the Captain was informed of a bomb threat to his aircraft by the Air Traffic Controller, and was directed to taxi his aircraft to an isolated parking position and passengers were evacuated through slides. Few passengers were injured in the evacuation process and one female passenger succumbed to her injuries later. There was no significant disruption to airport operations due to the accident.

The Director General of Civil Aviation of Sri Lanka, by virtue of the powers vested in him under the Air Navigation Regulations 1955, appointed a team of investigators to investigate into the accident and report. Immediate notifications were sent to the Kingdom of Saudi Arabia being the State of Operator and State of Registration and to the Federal Aviation Administration USA being the State of Design and State of Manufacture and to the NTSB, with a copy to ICAO in conformance with ICAO SARPS in Annex 13.

1. FACTUAL INFORMATION:

1.1 History of Flight:

On the 08th of September 2005, Saudi Arabian Airlines flight SV-781 was cleared by air traffic control for its scheduled passenger flight from Bandaranaike International Airport, Colombo – Sri Lanka to Jeddah via Riyadh, Saudi Arabia. The aircraft started Engines at 0731 UTC. While the aircraft was taxing on parallel taxiway towards Runway 22 for take-off, an anonymous call was received by the Aerodrome Control Tower stating that the aircraft had a bomb on board. The Tower Controller advised the Captain to taxi the aircraft to the isolated parking position on the parallel taxiway near taxiway 'Bravo'. Subsequently the Captain was informed of a "bomb threat" to his aircraft. The captain then requested the stepladders to deplane the passengers. As he realized that there was some delay in receiving the stepladders, he decided to evacuate passengers utilizing the aircraft slides.

On board, there were 455 passengers, including three technical crew and nineteen flight attendants.

During the evacuation process the L1 slide was not operative; the L2 and L4 slides were twisted due to high surface wind. Therefore L1, L2 and L4 doors were unusable for passenger evacuation. Except for the upper deck exits and the R3 over wing exit, the remaining doors were used during the evacuation.

1.2 Injuries to Persons:

Injuries	Crew	Passengers	Others	Total
Fatal	Nil	One	Nil	One
Serious	Nil	Nineteen	Nil	Nineteen
Minor	Nil	Seventy-five	Nil	Seventy-five

After evacuation one passenger succumbed to injuries.

Nineteen identified initially as seriously injured were admitted for treatment at Negombo and Colombo general hospitals. On admission medical personnel determined that only three were seriously injured, one female passenger with limb fracture, another with shoulder fracture and the third with suspected internal head injuries and were later released after treatment. Others suffered minor injuries and were released after treatment.

Seventy-five more were treated for minor injuries at the airport medical unit and the Negombo and Colombo general hospitals.

1.3 Damage to Aircraft:

There was no damage to the aircraft.

1.4 Other Damages

None.

1.5 Personnel Information

Pilot-In-Command	-	Isam Abdelmuti Mustafa Nasser, Male, Aged 52 years.
Licence	-	Valid Airline Transport Pilot's Licence (Airman Certificate No. AT-002061) issued by the Presidency of Civil Aviation, Saudi Arabia.
Aircraft Ratings	-	B 747
Flying Experience	-	Total as Pilot In Command: 10641hrs. Total on type: 3392.hrs as at 08.09.2005.
First Officer	-	Bakheet S. Aljuhani
Licence	-	Valid Commercial Pilot's Licence CP-003171
Aircraft Ratings	-	B747, Second in Command only
Flying Experience	-	Total: 2522. hrs Total on type: 1460. hrs
Ground Engineer	-	P.S.A. Cooray
Licence	-	The Presidency of Civil Aviation Saudi Arabia issued Airman Certificate (ME-003491)
Aircraft Ratings	-	Maintenance Authorization Limitations and Certifications No.A004260 issued for maintenance of B747-300 airframe/ RB 211- 524D4 engines
Experience	-	B747 rating endorsed in 1998 September.

1.6 Aircraft Information:

Type and Model	-	Boeing 747-368
Customer's Serial Number	-	23267
Date of Manufacture	-	12th April 1985.
Certificate of Registration	-	Registered in Presidency of Civil Aviation in. Saudi Arabia Civil Aircraft Register

Certificate of Airworthiness	-	Valid till 31 January 2008.
Total Airframe Hours	-	58630.
Total Cycles	-	16888.
Engines	-	04 numbers, RB 211-524D4 Turbo Fan Engines

1.7 Meteorological Information:

The Met Report (METAR) at Bandaranaike International Airport at 0740UTC on 08th of September 2005 was;

Weather	-	Nil
Cloud	-	Few 1000 broken 1600 few CB 2000 N/NW/W
QNH	-	1007 hpa
Visibility	-	9Km
Surface Wind	-	270^0 /18 Kts.

1.8 Aids to Navigation:

Not significant to the incident

1.9 Communications:

Transcripts were made available for communication between the Aerodrome Controller and the aircraft, the Aerodrome Controller and the Fire Station. Publication is withheld in compliance with Chapter 5 Paragraph 5.12 of ICAO Annex 13 to the Convention.

1.10 Aerodrome Information:

The condition of the surface of both runway and taxiway including the apron was dry up to and during the evacuation.
The isolated parking position is marked on parallel taxiway, in accordance with the ICAO Standards contained in Annex 14.

1.11 Flight Recorder:

The aircraft was fitted with a Honeywell type 980-6022-001 (S.No. CVR 120-04059) Cockpit Voice Recorder (CVR) and Allied Signal 5283T0031-1 (S.No.2463) Flight Data Recorder (FDR). Both recorders were replayed by the accredited representative of the Presidency of Civil Aviation of Saudi Arabia and submitted for further analysis.

The CVR recording showed that the crew had complied fully with the ATC clearance to proceed along parallel taxiway to the isolated parking position to deplane the aircraft.

1.12 Wreckage and Impact Information:.

Not pertinent

1.13 Medical and Pathological Information:

The post-mortem examination revealed that the female passenger died due to fatal injuries caused by evacuation.

1.14 Fire:

There was no fire.

1.15 Survival Aspect:

Fire and Rescue Services took prompt action to identify the status of passenger injuries and transport them for treatment to Negombo and Colombo general hospitals. Passengers, those who had minor injuries, were treated at the airport medical centre.

1.16 Test and Research:

Not pertinent

1.17 Additional Information:

The Bandaranayake International Airport has a documented Emergency Plan, which covers and explains pertinent measures that are required to be taken by ATC, Fire & Security & Ground handling personnel during bomb threats.

2. ANALYSIS

2.1 General

The ATC had instructed the Captain to taxi the aircraft to an isolated parking area due to receipt of a telephone call with information of a bomb onboard the aircraft. The Captain stopped the aircraft at isolated parking position and requested stepladders to deplane the aircraft passengers. Due to a considerable delay in receiving the stepladders, the Captain ordered an evacuation through slides.

The captain communicated with ATC to obtain stepladders at the aircraft for the passengers to deplane, in compliance with Standard Operating Procedures of Saudi Air relating to the B747 Flight Operations Manual Volume 1, under the Emergency/Abnormal procedures.

2.2 Communication

2.2.1 The Aerodrome Control Tower is facilitated with intercom and direct communication equipment located on the aerodrome control desk. While direct dialing communication equipment are provided with caller identification facility, intercom devices are not provided with caller identification facility. The bomb threat call was received on the intercom line, which was on the control desk.

2.2.2 The Aerodrome Controller who received the anonymous bomb threat call at 0739UTC, did not prolong the conversation with the caller long enough to possibly determine the callers identification.

2.2.3 The Control Tower has two specific communication channels (channel 900 and 901) to use in emergencies. These channels are capable of communicating with eight points simultaneously. If more than eight are involved, the system goes to standby mode and extensive communication is blocked temporarily.
It was this factor that caused a failure in the communication between Fire and Rescue services and ATC during the emergency.

2.2.4 After receiving the bomb threat call, the Ground Handler (SriLankan airline) attempted to contact ATC through VHF linkage (hot line) but failed due to equipment malfunction.

2.3 Evacuation

2.3.1 The Cabin Crew supervisor of flight SV 781 stated that the aircraft captain nominated the doors to be opened for evacuation, although the transcript of CVR sent by accredited representative of the ‘Presidency of Civil Aviation’ in the Kingdom of Saudi Arabia does not contain any evidence supporting this statement.

2.3.2 Inspection of the aircraft after the emergency evacuation revealed the following:
The L1 door opened with out the Girt bar engagement. Therefore, it was blocked by one of the cabin crew during the evacuation.

The L2 door was opened but the slide became twisted due to high surface wind, consequently the slide was unusable.
The L3, over wing door was opened and the slide deployed. The passengers who evacuated through L3 door stated that the cabin attendant who was at the L3 exit failed to control the evacuation. There were few who suffered serious injuries and one was fatally injured during the evacuation through the L3 door.
The L4 door was opened but the slide became twisted due to high surface wind. Consequently the slide was unusable.
The L5 door was opened and the slide deployed for passenger evacuation. Some passengers evacuated with their hand baggage. This was contrary to the emergency evacuation instructions provided by the Captain.

2.3.3 The air traffic controller received the bomb threat call at 0739 UTC. At 0740 UTC the fire and rescue station were instructed to be on local standby. From 0739 UTC to 0742 UTC the Captain and the Aerodrome Controller communicated on VHF – 121.9 MHz about the parking of the aircraft at the Isolated Parking position. At 0742 UTC the Aerodrome Controller notified the Captain of a bomb threat to the aircraft. There was a delay of more than two minutes before informing the Captain of the bomb threat.

2.3.4 The Aerodrome Controller failed to upgrade the alert status from 'Local Standby' to 'Aircraft Ground Emergency', to comply with Airport Emergency Plan until evacuation was completed.

2.3.5 The Aerodrome Controller confirmed to the Captain at 0747 UTC that he had advised the Srilankan airline Ground Handling to send the stepladders to the aircraft in order to deplane. En-route to the aircraft the Grounder Handlers with the stepladders found Fire and Rescue Services parked at "Delta", awaiting ATC clearance to proceed along the parallel taxiway to the aircraft. The officer who commanded the stepladders also stopped at 'Delta' as he also had not received ATC clearance to proceed on the airside. Neither did he ask for a clearance. This was due to the lack of adequate communication.

2.3.6 The Fire and Rescue team noted that the evacuation began at 0754 UTC and rushed to the aircraft for rescue operations without any instructions from the ATC. The senior officer of the fire department took the leading role. The On-scene commander reached the place after the completion of the evacuation.

3. CONCLUSION

3.1 Findings

3.1.1 The aircraft was holding a valid certificate of airworthiness.

3.1.2 The aircraft was holding a valid certificate of registration.

3.1.3 The Ground Engineers were in possession of relevant authorization to carry out maintenance and to certify the Aircraft and Engines.

3.1.4 The flight crew was in possession of valid licenses, and were experienced, medically fit and adequately rested to operate the flight.

3.1.5 The Aerodrome Controllers were in possession of valid licenses, and were experienced, medically fit and adequately rested to work at the control tower.

3.1.6 The anonymous call was received by the aerodrome controller on the intercom which was not provided with the function of caller identification and conversation recording facility.

3.1.7 The Aerodrome Controller had not received training relating to the handling of spurious calls, messages etc. which pose a threat to Civil Aviation.

3.1.8 The communication facilities available at control tower (Channel 900 and 901) are confined to eight communication points which are activated simultaneously and in real emergencies they become in-effective due to over loading.

3.1.9 The VHF link available at the control tower to contact Ground Handling Service provider (SriLankan) was not utilized by ATC for direct communications.

3.1.10 There was an appreciable delay on part of the Air Traffic controller during the communication with the pilot.

3.1.11 The pilot request for additional information with regard to the bomb threat was not adequately provided by the Aerodrome Controller (nature of the call weather overseas/local/internal)

3.1.12 There is no recorded evidence in the Aerodrome Tower showing that the recommended actions in the Airport Emergency plan had been followed sequentially after receiving of the bomb threat.

3.1.13 The Air Traffic Controller did not upgrade the “Local Standby” status to “Aircraft Ground Incident” appropriately as required in the Emergency Plan.

3.1.14 The female passenger who died and three others who sustained serious injuries, all had evacuated through L3 over wing door.

3.1.15 The high surface wind speed was the factor which twisted L2 and L4 slides.

3.1.16 The slides were deployed without considering the surface wind direction and speed.

3.1.17 The CVR transcript does not give evidence to support the Captain's statement on the nomination of evacuation doors.

3.1.18 The FDR data reveals that the aircraft flaps were in the take-off configuration at the time of emergency evacuation.

3.1.19 There was a delay of approximately 45minutes before the commencement of the bomb search operation following the evacuation of the aircraft.

3.1.20 The Aerodrome Controller confirmed to the Captain at 0747 UTC that he had advised the SriLankan airline Ground Handling to send the stepladders to the aircraft in order to deplane.

3.1.21 As no 'aircraft ground incident' had been declared on time, the Fire and Rescue units were unable to proceed to the aircraft for assistance before the start of the evacuation.

3.1.22 The delay caused to send stepladders led to evacuation of the aircraft instead of deplaning. If the stepladders reached on time for deplane the accident could have been avoided.

3.1.23 The Cabin Crew Supervisor stated that the captain nominated the doors to be used for evacuation but this statement is not supported by the cock-pit communication in the CVR.

3.1.24 Evidence indicates that the cabin crew was not fully prepared for this evacuation.

3.1.25 The cabin attendant who was at L3 door failed to control passenger evacuation.

3.1.26 The Airport Emergency Response plan was not effectively implemented due to lack of effective communication procedures and understanding of the nature of the emergency situation among parties involved.

3.2 Probable Cause.

Breakdown of timely and effective communication amongst Aerodrome Controller and Ground Handling (SriLankan Airlines) personnel had prevented a timely dispatch of the stepladders to the aircraft to deplane the passengers in a timely manner, which resulted in the Pilot-In-Command to order an emergency evacuation of the passengers through slides after being alarmed by the bomb threat.

4. SAFETY RECOMMENDATIONS

4.1 The CAA shall ensure that the training syllabus of Air Traffic Controllers include all identified emergencies encountered by aircraft and the procedures to handle them, both in theory and practice.

4.2 All the telephones installed at the Air Traffic Control Tower at BIA be provided with caller identification and recording capability and no un-identified call should be channeled through the exchange to the Controller Tower.

4.3 The CAA-SL should carry out both periodic and random inspections on all activities of the Air Traffic Control Tower at BIA. All reports and findings filed must be forwarded to AASL for corrective action.

4.4 Each air traffic controller must possess thorough knowledge of the Emergency Plan at BIA and his role in relation to the implementation of the plan and this knowledge must be manifested at the rating and assessments. It shall also be incorporated in the training syllabus both in theory and practical.

4.5 A Bomb Threat Emergency exercise should be carried out at least once a year and overseen by CAA-SL Inspectors. The recommendations made in these exercises based on findings shall be implemented.

4.6 Communication via the trunk net for emergencies must be re-evaluated and the limit on communication should be increased in this system or new equipment be installed to avoid overloading the system.

4.7 The Airport Security Contingency Plan shall be established to handle such matters as Unlawful interferences, unruly passengers and Bomb threats etc.

4.8 Airport Contingency plan should be activated as the first step during a security related contingency measure, which should be supplemented by the airport emergency plan subsequently or simultaneously if the need arises.

4.9 Procedures to be followed during a bomb threat situation shall be developed by AASL based on the guidance provided in Appendix 10, 11, 18 to the ICAO Document 8973 – 'Security Manual for safe guarding civil aviation against acts of unlawful interference', and be approved by CAA.

4.10 The Isolated Aircraft Parking Area (IAPA) position shall be established as recommended by chapter 5.2.15 of ICAO document 8973 –'Security Manual for safe guarding civil aviation against acts of unlawful interference' at a minimum distance of 400 meters from other aircraft parking positions, taxiway, runway, building, public area, fuel farm, or storage area for explosive or incendiary material.

4.11 Additional Air Traffic Controllers should be deployed during emergency and contingency situations.

4.12 Air Traffic Control should develop and display conspicuously action list for contingency and emergency situations at respective control centers.

4.13 The Air Traffic Control centers should not be equipped with extra communication devices outside the approved systems except with the explicit approval from the CAA.

4.14 The CAA Flight Safety Division should obtain and review procedures pertaining to handling of emergencies of all airlines operating to BIA.

4.15 The operator should review the adequacy of flight attendant emergency evacuation training.

(Sgd.).....
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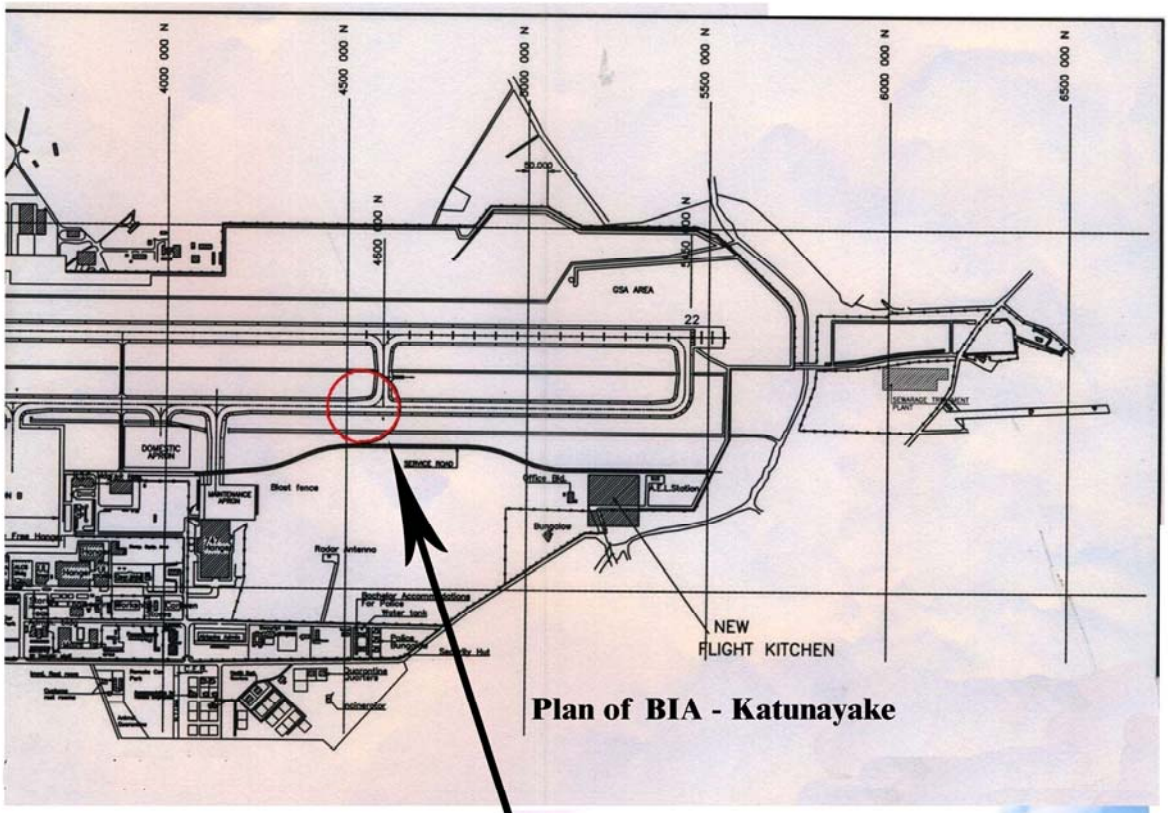
APPENDIX 1



Plan of BIA - Katunayake

Aircraft Parked at Isolation Parking Position

APPENDIX 2

Publication of the Appendices 2, 3 and 4 withheld in compliance with Chapter 5 Paragraph 5.12 of ICAO Annex 13 to the convention.