United Arab Emirates

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

Air Accident Investigation Sector

Serious Incident
- Final Report -
AAIS Case Nº AIFN/0010/2014

Aircraft Attempted Takeoff from Taxiway

Operator: Bahria Town Aviation
Type: Hawker Beechcraft 400XP
Registration: AP-RBA
Location: Al Maktoum International Airport, Dubai
State of Occurrence: The United Arab Emirates
Date of Occurrence: 23 May 2014

Air Accident Investigation Sector
General Civil Aviation Authority
The United Arab Emirate

Incident Brief

GCAA AAI Report No.:	AIFN/0010/2014
Operator:	Bahria Town Aviation
Aircraft Type and Registration:	Hawker Beechcraft 400X, AP-RBA
MSN	RK-583
Number and Type of Engines:	Two, Turbofan engines
Date and Time (UTC):	23 May 2014, 11:22
Location:	Dubai, OMDW
Type of Flight:	General
Persons Onboard:	09
Injuries:	None

Investigation Objective

This Investigation is performed pursuant to the United Arab Emirates (UAE) Federal Act 20 of 1991, promulgating the Civil Aviation Law, Chapter VII, Aircraft Accidents, Article 48. It complies with Part VI, Chapter 3 of the UAE Civil Aviation Regulations, in conformity with Annex 13 to the Convention on International Civil Aviation and in adherence to the Air Accidents and Incidents Investigation Manual.

The sole objective of this Investigation is to prevent aircraft accidents and incidents. It is not the purpose of this activity to apportion blame or liability.

Investigation Process

The occurrence involved a Hawker Beechcraft 400X Aircraft, registration AP-RBA, and was notified to the General Civil Aviation Authority (GCAA) by phone call to the Duty Investigator (DI) Hotline Number +971 50 641 4667.

After the Initial Investigation phase, the occurrence was classified as a 'Serious Incident'.

An Investigation Team was formed in line with the ICAO Annex 13 obligations of the United Arab Emirates (UAE) being the State of Occurrence.

The Investigation into this Serious Incident is limited to the events leading up to the occurrence; no in-depth analysis of non-contributing factors was undertaken.

Notes:

1 Whenever the following words are mentioned in this Report with the first letter Capitalized, it shall mean:

- (Aircraft) - the aircraft involved in this serious incident.
- (Investigation) - the investigation into this Incident
- (Incident) - this investigated Serious Incident
- (Report) - this Incident Report

2 Unless otherwise mentioned, all times in this Report are Coordinated Universal Time (UTC), (UAE Local Time minus 4).

3 In this Report, the word 'Cockpit' and 'Flight Deck' are synonyms.

Abbreviations

AAIS	Air Accident Investigation Sector
ATS	Air Traffic Service
ICAO	The International Civil Aviation Organization
IFR	instrument Flight Rules
GCAA	General Civil Aviation Authority of the United Arab Emirates
UAE	The United Arab Emirates
UTC	Coordinated Universal Time
VFR	Visual Flight Rules

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Synopsis

On 23 May 2014, A Hawker Beechcraft, Registration AP-RBA, operated by Bahria Town Aviation, Pakistani operator, was planned to operate On-Demand flight number BTP555 to transport seven passengers from Dubai to Karachi.

The Aircraft departed Benazir Bhutto International Airport, Islamabad at 0245 UTC, and landed Jinnah International Airport, Karachi, Pakistan at 0550 UTC. Then at 0645 UTC the Aircraft departed Karachi and landed Al Maktoum International Airport, Dubai, UAE at 0850 UTC.

Following the refueling, the crew completed the brief, which included the likely taxi, line-up and takeoff instructions. At about 1122 UTC, Air Traffic Control (ATC) cleared BTP555 to start engines and taxi along taxiway Whiskey for departure from runway 30. The air traffic controller issued the clearance, which was “BTP555, taxi via Whisky 8, Whisky, Victor 21 and hold short of runway 30”. When the Aircraft was taxiing out on taxiway Whiskey, the ATC offered the junction with taxiway Victor 16 for line-up and a rolling takeoff from runway 30 and the crew accepted this.

As the Aircraft approached the end of taxiway Whisky, it turned left at junction Whisky 16, and then, mistakenly, made a premature left turn and lined up on taxiway Victor instead of continuing straight ahead on taxiway Whisky 16 to Runway 30. (Figure 1, airport layout).

The air traffic controller did not observe that the Aircraft was lined up on taxiway Victor. The Aircraft commenced the takeoff roll on taxiway Victor and continued accelerating along the taxiway without any awareness on the part of the air traffic controller.

When the Aircraft reached approximately 50 knots (kt) ground speed, the air traffic controller observed the abnormal amount of dust being blown up behind the aircraft. The Air traffic Controller realized that the Aircraft was mistakenly taking off from taxiway Victor, and he immediately called the captain and instructed him to cancel takeoff and the captain immediately rejected the takeoff and stopped the Aircraft.

The Air Accident Investigation Sector concluded that the cause of this Incident was flight crew tiredness due to operational factors and exposure to elevated temperature conditions leading to the crew paying inadequate attention to positively verifying that they had lined up on the designated runway

The Air Accident Investigation Sector determines that the contributing factor of this Incident was that the Tower Controller did not maintain a continuous visual watch on the Aircraft ground movement.

A total of three safety recommendations are included in this report, which are addressed to the GCAA, Operator and Aerodrome air traffic controllers.

1. Factual Information

1.1 History of the Flight

On 23 May 2014, A Hawker Beechcraft, Registration Mark AP-RBA, operated by Bahria Town Aviation, was planned to operate On-Demand flight number BTP555 to transport seven passengers from Dubai to Karachi. The Aircraft departed Benazir Bhutto International Airport (OPRN), Islamabad, Pakistan at 0245 UTC, and landed Jinnah International Airport (OPKC), Karachi, Pakistan at 0550 UTC.

At 0645 UTC, the Aircraft departed from Karachi and at 0850 UTC landed at Al Maktoum International Airport (OMDW), Dubai, UAE.

BTP555 required the Aircraft to uplift fuel. The first fuel bowser, which attended the Aircraft, had a pressure system which was not compatible with the Hawker 400X aircraft type. A compatible fuel bowser arrived at the Aircraft after 1 hour 20 minutes. At the same time, the passenger's luggage arrived at the Aircraft. The weather was hot with a temperature of between 36 and 39 °C and the crew were required, personally, to be present at various times around the Aircraft in order to manage ground operations activities.

Following the refueling, the crew completed the brief, which included the likely taxi, line-up and takeoff instructions. At about 1122 UTC, Air Traffic Control (ATC) cleared BTP555 to start engines and taxi along taxiway Whiskey for departure from runway 30. The air traffic controller issued the clearance, which was "BTP555, taxi via Whisky 8, Whisky, Victor 21 and hold short of runway 30". When the Aircraft was taxiing on taxiway Whiskey, the ATC offered the junction with taxiway Victor 16 for line-up and a rolling takeoff from runway 30 and the crew accepted this.

As the Aircraft approached the end of taxiway Whisky, it turned left at junction Whisky 16, and then, mistakenly, made a premature left turn and lined up on taxiway Victor instead of continuing straight ahead on taxiway Whisky 16 to Runway 30(See Figure 01, airport layout).

The air traffic controller did not observe that the Aircraft was lined up on taxiway Victor. The Aircraft commenced the takeoff roll on taxiway Victor and continued accelerating along the taxiway without any awareness on the part of the air traffic controller.

When the Aircraft reached approximately 50 knots (kt) ground speed, the air traffic controller observed the abnormal amount of dust being blown up behind the aircraft. The Air Traffic Controller realized that the Aircraft was mistakenly taking off from taxiway Victor, and he immediately called the captain and instructed him to stop the takeoff.

The captain immediately rejected the takeoff and stopped the Aircraft.

After the Aircraft stopped on taxiway Victor, BTP555 requested a left turn. The air traffic controller accepted the requested turn and instructed the crew to resume taxiing and take exit Whisky 15 then turn left onto taxiway Whisky and continue to runway 30 via the initially instructed route.

The Aircraft reached runway 30 via junction Whisky 16 and then Victor 16, entered the runway 30, and took off uneventfully.

1.2 Injuries to Persons

There was no injury to persons involved in the flight or to any third party

Table 1. Injuries to persons

Injuries	Flight Crew	Cabin Crew	Other Crew Onboard	Passengers	Total Onboard	Others
Fatal	0	0	0	0	0	0
Serious	0	0	0	0	0	0
Minor	0	0	0	0	0	0
None	2	0	0	7	9	0
TOTAL	**2**	**0**	**0**	**7**	**9**	**0**

1.3 Damage to Aircraft

There was no damage to the Aircraft.

1.4 Other Damage

There was no other damage to property and/or the environment.

1.5 Personnel Information

Table 2 illustrates the captain and co-pilot information current at the time of the Incident.

Table 2. Qualifications of the flight crew

Crewmember	captain	Co-pilot
Age	**57 years 5 months**	63 years 6 months
Gender	Male	Male
Type of license	ATPL	ATPL
Valid to	November 2014	August 2015
Rating	P1 – BE400	P1 – BE400
Issuing State	Pakistan	Pakistan
Medical class	Class one	Class one
Valid to	Sep2014	Sep2014
Total flying time (hours)	4590:00	16000:00
Total on type	60:00	250:00
Experience at this Airport	First flight to DWC	Second flight to DWC

1.6 Aircraft Information

Aircraft particulars

Table 3 illustrates information about the Aircraft as of the date of the Incident.

Table 3. Aircraft data

Manufacturer:	Beechcraft
Model:	Hawker Beechcraft 400XP
MSN:	RK - 583
Date of manufacture:	10 June 2009
Nationality and registration mark:	AP-RBA
Name of the owner:	Kingcrete Associate (PVT) Limited
Name of the operator:	Bahria Town Aviation
Certificate of Airworthiness (CoA) Number: Issue date: Valid to:	 737/2 07 April 2011 19 Nov 2014
Certificate of Registration (CoR) Number: Issue date: Valid to:	 785/1 06 November 2009 Open
Total hours since new (TSN)	1220.4
Total cycles since new (CSN)	1328
Total hours since last inspection:	1220.4
Total cycles since last inspection:	1328

1.7 Meteorological Information

The meteorology report (METAR) at Al Maktoum International Airport, from 1000 UTC to 1400 UTC of 23 May 2014 revealed that:

MET Report: METAR OMDW 231000Z 31011KT CAVOK 39/10 Q1006 NOSIG
MET Report: METAR OMDW 231030Z 30011KT CAVOK 38/14 Q1006 NOSIG
MET Report: METAR OMDW 231100Z 30013KT CAVOK 38/13 Q1006 NOSIG
MET Report: METAR OMDW 231130Z 31014KT CAVOK 38/12 Q1005 NOSIG
MET Report: METAR OMDW 231200Z 30012KT CAVOK 38/13 Q1005 NOSIG
MET Report: METAR OMDW 231230Z 30013KT CAVOK 37/16 Q1005 NOSIG
MET Report: METAR OMDW 231300Z 31014KT CAVOK 36/15 Q1005 NOSIG
MET Report: METAR OMDW 231330Z 30012KT CAVOK 35/18 Q1005 NOSIG

MET Report: METAR OMDW 231400Z 30011KT CAVOK 34/20 Q1005 NOSIG

As per the weather report for OMDW from 1000 UTC to 1400 UTC of 23rd May 2014, the prevailing meteorological conditions were not a factor in this occurrence.

1.8 Aids to Navigation

None of the ground-based navigation aids, on-board navigation aids, and aerodrome visual ground aids, or their serviceability, was a factor in this Incident.

1.9 Communications

The Tower Control communications equipment was serviceable and there was no report of any defect in the Aircraft radio communication system.

Table 04 shows an extract of the ATC to Aircraft communication.

Table 04. Extract from the ATC to Aircraft communication

Time	Station	R/T
11:02:48	BTP555	Maktoum bravo tango papa 555 we are ready to start engines
11:02:56	Tower	Bravo tango papa 555 are you ready to copy your clearance first?
11:03:00	BTP555	go ahead
11:03:01	Tower	555 you are cleared to Karachi via the runway 30, after departure climb straight ahead maintain through 3000 feet and your squawk is 0506.
11:03:14	BTP555	Clear destination Karachi, maintain runway heading 3000 ft. squawk is 0506
11:03:23	Tower	Bravo tango papa 555 read back correct and report parking stand please
11:03:28	BTP555	0309
11:03:30	Tower	309 copied, information YANKI, QNH is1006 confirm you ready for push and start.
11:03:36	BTP555	We will start one engine here and then he will push us and start the other one
11:03:41	Tower	Roger that. Startup is approved with provider powers and report ready for push 555.
11:03:46	BTP555	Thank you. We will call you back
11:04:53	BTP555	Bravo tango papa 555 is ready for the push.
11:04:55	Tower	Bravo tango papa 555 push and start approved. Face to the north
11:05:00	BTP555	Face to the north, thank you clear for the push
11:10:52	BTP555	Bravo tango papa 555 request for taxi
11:10:56	Tower	Bravo tango papa 555 taxi straight ahead right via Whisky then Victor 21 holding point hold short of runway 30
11:11:06	BTP555	Whiskey, Victor 21, hold short of runway 30, holding point, bravo tango papa 555
11:11:10	Tower	Bravo tango papa 555 when ready contact tower 118 decimal 625 ……
11:11:15	BTP555	18625……
11:19:12	BTP555	Bravo tango papa 555 whisky
11:19:16	Tower	Bahria Town 555Maktoum, Tower good afternoon pass your message
11:19:21	BTP555	Maktoum, good afternoon to you
11:19:29	Tower	Calls Maktoum radar
11:19:30	BTP555	Maktoum tower request to release Bahria Town 555
11:19:32	Tower	Released *(tower confirms release)*
11:19:34	BTP555	oh, really thanks
11:19:44	Tower	Bahria Town 555 can you accept Victor 16 for departure, take-off from available 3995 meters?
11:19:51	BTP555	Okay, we will take 16, no problem
11:19:53	Tower	Bahria Town 555 turn left Victor 16, hold short runway 30
11:19:58	BTP555	Hold short on runway 30, and Victor 16, clear
11:21:22	Tower	Bahria Town 555 Victor 16 surface wind 320 degrees 13 knots runway 30 clear for takeoff
11:21:30	BTP555	Roger. Victor 16 and clear for take-off bravo tango papa 555 thank you
11:22:21	Tower	Bahria Town 555 hold position, cancel take-off, cancel take-off you are not on the runway.
11:22:27	BTP555	Oh, sorry, cancel take-off, Bravo Tango 555. Can we turn left now?
11:22:40	Tower	Bravo tango 5555 roger you can turn left on whiskey 15 and then left again whisky
11:22:46	BTP555	Thank you very much. God bless you sir
11:23:13	BTP555	And can we take once again 16
11:23:17	Tower	Bahria Town triple five from Victor 16
11:23:20	BTP555	Thank you very much

11:24:08	Tower	Bahria Town 555 line up via Victor 16
11:24:12	BTP555	Roger. Clear to line up runway30, bravo tango papa 555
11:24:26	Tower	Bahria, Town 555 surface wind 320 degrees, 11-knots runway 30, clear for take-off.
11:24:32	BTP555	wind copied, thank you clear to take-off, runway 30 bravo tango papa 555

1.10 Aerodrome Information

1.10.1 Aerodrome layout:

Al Maktoum Airport is a GCAA certificated aerodrome under Part IX of the UAE Civil Aviation Regulations- Aerodromes Regulations.

The Airport is located at Jebel Ali, 20 NM southwest of Dubai city, UAE. It is capable of IFR and VFR operations.

The Airport has one asphalt runway 12/30, 4,500 m long and 60 m wide. The slope of runway 12 is +0.11% (first 1,762.5 m) and +0.5% (next 2737.5 m). The slope of runway 30 is -0.5% (first 2,737.5 m) and -0.11% (next 1,762.5 m). The TORA, TODA, ASDA and LDA for both sides of the runway are 4,500 m.[1]

The ATS communication facilities of the Airport are Approach, Tower, and Ground.

1.10.2 Visual Aids

ATC cleared the Aircraft to taxi and the Aircraft taxied via taxiway Whisky 8, Whisky and Victor 21. As the Aircraft proceeded on taxiway Whiskey, ATC offered the junction of Victor 16 for line-up and takeoff on runway 30.

As the Aircraft approached the end of taxiway Whisky it turned left via junction Whisky16, and then mistakenly made another left turn and lined up on taxiway Victor instead of continuing straight on Whisky16 to Victor 16, crossing taxiway Victor, and then turning left to enter runway 30.

This premature left turn and line up on taxiway Victor was not observed by ATC until the aircraft commenced the takeoff roll.

All taxiways at the Airport are marked in accordance with ICAO standards. The runway is also marked according to ICAO standard threshold marking, runway designation marking, touch down zone marking, runway side stripe marking and with white inset centerline lights, and white elevated edge lights.

1.11 Flight Recorders

As a Flight Data Recorder or Cockpit Voice Recorder were not required by Pakistan Civil aviation Regulation, no recorders were fitted to the aircraft.

[1] TORA: Takeoff Run Available
TODA: Take Of Distance Available
ASDA: Accelerate Stop Distance Available
LDA: Landing Distance Available

1.12 Wreckage and Impact Information

The Aircraft was undamaged.

1.13 Medical and Pathological Information

No medical or pathological investigations were conducted as a result of this Incident.

1.14 Fire

There were no signs of fire.

1.15 Survival Aspects

Not required to be conducted for this investigation.

1.16 Tests and Researches

No tests or research were required to be conducted for this investigation.

1.17 Organizational and Management Information

The Operator holds an Air Operator Certificate (AOC) issued by the Pakistan Civil Aviation Authority to operate several aircraft types, including the Hawker Beechcraft 400X type. The company's Operations Manual is the responsibility of the Operations Department. Checklists, charts and airport briefings are provided by the Operations Department.

1.18 Additional Information

1.18.1 Crew Duty Time:

On the day of the Incident, the flight crew reported for duty at Islamabad at 0100 UTC. They operated their first flight of the day of the incident, departing Islamabad at 02:45 UTC, and landing at Karachi at 0550 UTC. and the flight then departed Karachi at 0645, arriving at Al Maktoum Airport at 0850 UTC. The Incident flight was scheduled to depart Al Maktoum Airport at 1125 UTC.

The captain stated that once the Aircraft landed at Al Maktoum Airport, the crew had to wait for fuel, and the fuel bowser which attended the Aircraft had a pressure refuelling system which was not compatible with the Hawker 400X. A replacement bowser arrived at the Aircraft one hour and 20 minutes later.

1.18.2 Watching Airside from the Aerodrome Control Tower

ICAO *document 4444, section 7.1- Functions of Aerodrome Control Towers,* states that:

> "Aerodrome controllers shall maintain a continuous watch on all flight operations on and in the vicinity of an aerodrome as well as vehicles and personnel on the maneuvering area. Watch shall be maintained by visual observation, augmented in low visibility conditions by an ATS surveillance system when available. Traffic shall be controlled in accordance with the procedures set forth herein and all applicable traffic rules specified by the appropriate ATS authority, if there are other aerodromes within a control zone, traffic at all, aerodromes within such a zone shall be coordinated so that traffic circuits do not conflict."

Reviewing CAR Part VIII - Air Navigation Regulation - the Investigation could not find a similar requirement, but CAR 4.12 mentions ICAO Annexes and Documents as references in case a certain provision is not explicitly mentioned in the regulation.

CAR 4.12- *documentation*, states that:

"(c) The order of precedence of publications is as follows:

1. UAE Civil Aviation Law,
2. UAE Civil aviation Regulation,
3. Other regulatory material published by the GCAA,
4. ICAO Annexes,
5. ICAO Documents.

(d) ICAO Standards & Recommended practices and procedures for Air Navigation Services have the following regulatory status:

1. Standards: Mandatory unless specifically modified in the applicable parts of supplements to annexes or in the Civil Aviation Regulations.
2. Recommended Practices: Mandatory unless the organization has obtained GCAA approval of an alternative provision, resulting in level of safety equal to or greater than that achieved by application of the recommended practice.
3. PANS: Procedures for Air Navigation Services (PANS) shall be applied, with similar Mandatory status as for the SARPs, except where specifically deleted or modified in the Civil Aviation Regulations.
4. Definitions, tables, figures and appendices contained in ICAO Annexes are to be considered as standards and therefore mandatory.
5. Attachments to ICAO Annexes are supplementary to SARPs or included as general guidance material. Where specific or general applications are considered necessary for additional safety levels, these are included in the Civil Aviation Regulations and carry Mandatory status."

1.19 Useful or Effective Investigation Techniques

No new investigation techniques were used during this Investigation.

2. Analysis

2.1 General

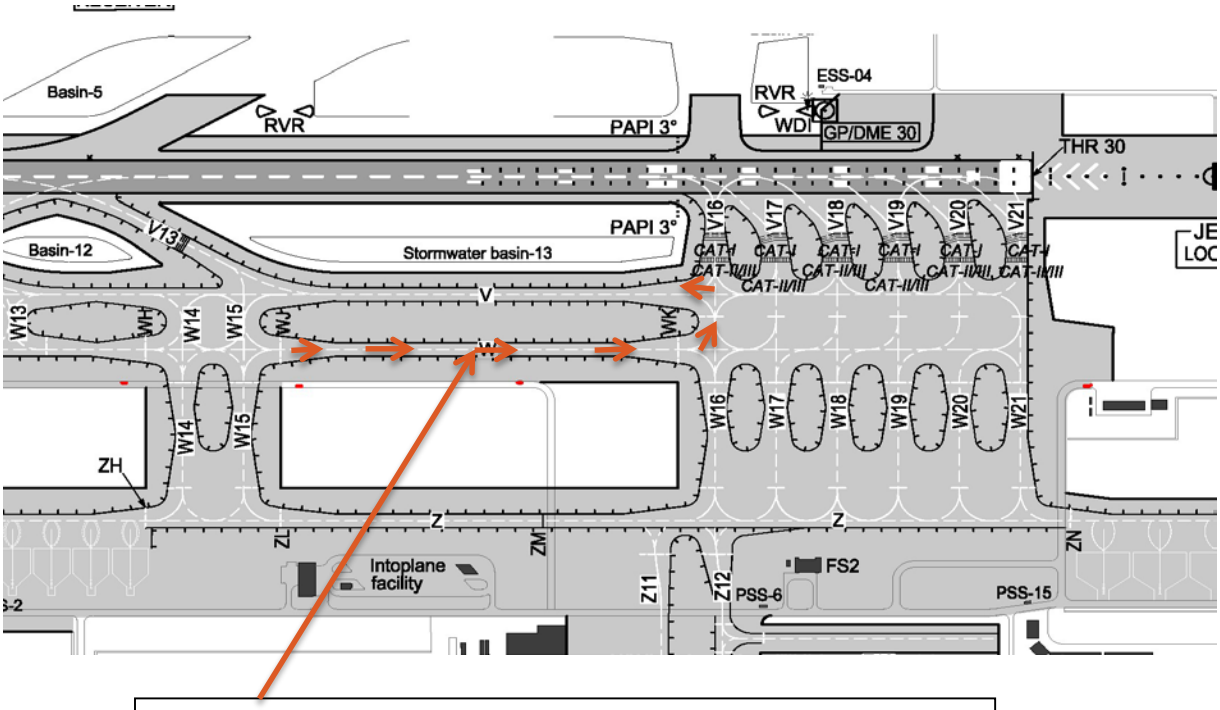
The Investigation collected data from various sources for the purpose of determining the causes and contributing factors.

The 'Analysis' contains safety issues that may not be contributory to the Incident but are significant in adversely affecting safety.

2.2 Communications

The recordings of communications between Air Traffic Control, and the Aircraft, indicate that all taxi and takeoff instructions issued by ATC were correctly transmitted, and were acknowledged correctly by the pilots.

2.3 Aerodrome Ground Markings and Signs



The Red Arrows showing the taxiing phase on taxiway Whiskey and premature turn left on taxiway Victor to commence the take-off roll mistakenly from taxiway Victor.

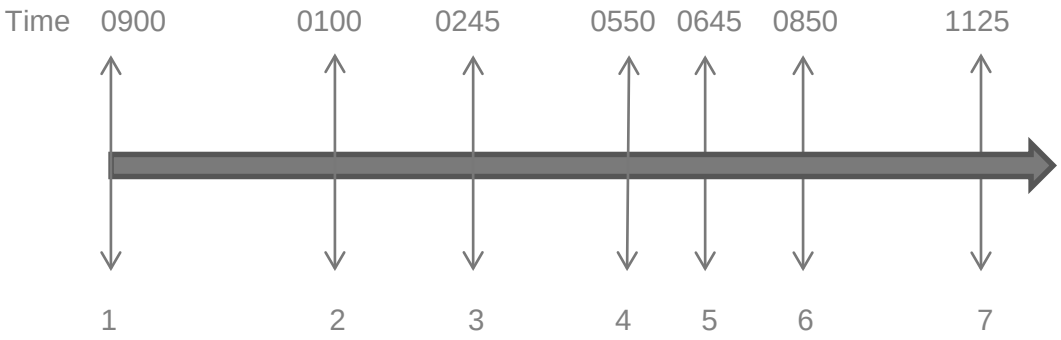
Figure 01. Airport layout

The Investigation visually checked the ground markings and signs along the taxi route taken by the Aircraft. All taxiway and runway markings and signs complied with ICAO requirements. The Investigation also confirmed that the taxiway markings and signs provided

good visual guidance to pilots as they taxied via Whisky16 to Victor 16, crossing taxiway Victor and then turning left to enter runway 30.

2.4 Crew Duty Time:

The flight crew started their duty time at approximately 0100 UTC. They flew two sectors before the Incident flight. Their duty time duration was 10 hours 25 minutes, including the additional waiting time for refueling at Al Maktoum Airport, as is shown below:



1. End of duty time on the day before the incident day, (16 hours rest).
2. Start duty time in the day of incident
3. Takeoff from Islamabad
4. Landed Karachi
5. Takeoff from Karachi
6. Landed Al Maktoum
7. Incident takeoff

The crew awoke at midnight to operate the flight from Islamabad to Karachi. They operated two sectors from Islamabad to Karachi, and then from Karachi to Dubai.

During the stop over at Al Maktoum Airport, problems arose related to refueling of the Aircraft. This resulted in a delay of four hours. The weather on the day of the Incident was very hot with temperatures of 40 °C, and during the delay the crew had to leave the Aircraft on many occasions to manage ground operations issues.

The cumulative effect of awakening in the early morning, operating two sectors before the Incident flight during a time when the crew's Circadian rhythm was low, and then managing the problems during the delay, while exposed to elevated temperatures and high humidity, caused the crew to become tired and degraded their situational awareness.

2.5 Crew Resource Management (CRM)

The crew obtained the airport layout information from Jeppesen charts.

Both of the crewmembers had Jeppesen charts which incorporated the latest revision, dated 28 March 2014. The charts gave them a complete and clear layout of the Airport taxiways

and runway. Neither of the crewmembers looked outside the Aircraft to orientate themselves during the briefing. Both pilots were concentrating their attention on the charts.

The Investigation believes that at this time the crew were suffering from tiredness, which affected their concentration and attention. This resulted in the crew becoming confused and mistaking the taxiway for the nominated runway and they turned left onto taxiway Victor, instead of continuing straight ahead to the nominated runway. . They then attempted to takeoff from taxiway Victor 16, instead of the nominated Runway.

2.6 Watching Airside from the Aerodrome Control Tower

ATC operating procedures allowed for takeoff clearance to be issued prior to the aircraft lining up on the runway, and the controller did not observe that the Aircraft had lined up on the Victor 16 Taxiway.

The Incident could have been avoided if the takeoff clearance had been withheld until ATC was sure that the Aircraft had already crossed taxiway Victor.

Neither the Civil Aviation Regulation nor the Al Maktoum International Manual of Air Traffic Service contained an explicit requirement for the controller to maintain a continuous watch on the maneuvering area by visual observation. The investigation believes that the good practice mentioned in paragraph 7.1.1.2 of ICAO document 4444, was not taken into account during the drafting of the Civil Aviation Regulation and the airport Manual of Air Traffic Service.

3. Conclusions

3.1 General

From the evidence available, the following findings, causes, and contributing factors were determined with respect to this Incident. These should not be read as apportioning blame or liability to any particular organisation or individual.

To serve the objective of this Investigation, the following sections are included in the conclusions heading:

- **Findings-** are statements of all significant conditions, events or circumstances in this Serious Incident. The findings are significant steps in this Serious Incident sequence but they are not always causal or indicate deficiencies.
- **Causes-** are actions, omissions, events, conditions, or a combination thereof, which led to this Serious Incident.
- **Contributing factors** - are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

3.2 Findings

3.2.1 The Aircraft was certified, equipped and maintained in accordance with the existing requirements of the Pakistan Civil Aviation Authority.

3.2.2 The Aircraft was airworthy when dispatched for the Incident flight.

3.2.3 The flight crewmembers were licensed and qualified for the flight in accordance with the existing requirements of the Pakistan Civil Aviation Authority.

3.2.4 The crew rest time prior to the Incident flight was 16 hours.

3.2.5 The crew reported for duty at 0100 UTC.

3.2.6 The flight was delayed for four hours during the stopover at Al Maktoum Airport due to a refueling problem. During this time, the crew loaded the passenger's luggage in high temperature and humidity conditions.

3.2.7 The crew performance was adversely affected by degraded situational awareness due to tiredness.

3.2.8 ATC routed the Aircraft along taxiway Victor 16, for line up and takeoff from runway 30.

3.2.9 A complete before-departure brief was conducted by the two pilots covering the taxi, line up and takeoff instructions.

3.2.10 The crew mistook taxiway Victor for the runway and they lined up for takeoff on taxiway Victor.

3.2.11 The Jeppesen charts used by the crew incorporated the latest revision.

3.2.12 The takeoff clearance issued by ATC was for a rolling takeoff.

3.2.13 The Tower Controller noticed that the Aircraft was taking off from taxiway Victor.

3.2.14 The Tower Controller instructed the crew to stop the takeoff.

3.2.15 The captain immediately rejected the takeoff.

3.2.16 The Aircraft subsequently took off safely from runway 30.

3.2.17 Neither the Civil Aviation Regulation nor the aerodrome manual contained a requirement for the Tower Controller to watch the maneuvering area.

3.3 Causes

The Air Accident Investigation Sector determines that the cause of this Incident was:

Flight crew tiredness due to operational factors and exposure to elevated temperature and humidity conditions leading to the crew paying inadequate attention to positively verifying that they had lined up on the designated runway.

3.4 Contributing Factor

The Air Accident Investigation Sector determines that the contributing factor of this Incident was that the Tower Controller did not maintain a continuous visual watch on the Aircraft ground movement.

4. Safety Recommendations

4.1 General

The safety recommendations listed in this Report are proposed according to paragraph 6.8 of *Annex 13 to the Convention on International Civil Aviation* and are based on the conclusions listed in heading 3 of this Report, the GCAA expects that all safety issues identified by the Investigation are addressed by the receiving States and organizations.

4.2 Final Report Safety Recommendations

The Air Accident Investigation Sector recommends that:

4.2.1 The Operator, should:

SR 36/2015

Enhance standards to assure that crew members are provided with comfortable accommodation before commencing a flight.

4.2.2 Aerodrome Controllers, Al Maktoum International Airport should:

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Maintain a continuous watch on all flight operations on and in the vicinity of an aerodrome as well as vehicles and personnel on the maneuvering area.

4.2.3 The General Civil Aviation Authority of the United Arab Emirates, should:

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Examine CAR regulations to ensure conformity with ICAO document 4444, paragraph 7.1.1.2 in requiring controller's visual watch on aircraft moving on the airfield.

This Report is issued by:

Air Accident Investigation Sector
General Civil Aviation Authority
The United Arab Emirates