

**FINAL
AIRCRAFT ACCIDENT REPORT
19 APRIL 2016**

**AIRBUS 330 9M-MUC
HITS LAMP POST DURING TAXI AT ASTANA
ASTANA INTERNATIONAL AIRPORT
29 JUNE 2014**



**AIR ACCIDENT INVESTIGATION BUREAU OF MALAYSIA
MINISTRY OF TRANSPORT
MALAYSIA**

**AIR ACCIDENT INVESTIGATION BUREAU
MALAYSIA**

ACCIDENT REPORT NO.: 07/2014

OPERATOR : MALAYSIA AIRLINES
AIRCRAFT TYPE : AIRBUS 330
NATIONALITY : MALAYSIAN
REGISTRATION : 9M-MUC
**PLACE OF ACCIDENT : ASTANA INTERNATIONAL AIRPORT
KAZAKHTAN**
DATE AND TIME : 29 JUNE 2014 AT 1046 HOURS LOCAL TIME

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INTRODUCTION

The Air Accident Investigation Bureau of Malaysia

The Air Accident Investigation Bureau (AAIB) is the air accidents and incidents investigation authority in Malaysia and is responsible to the Ministry of Transport. Its mission is to promote aviation safety through the conduct of independent and objective investigations into air accidents and incidents.

The AAIB conducts the investigations in accordance with Annex 13 to the Chicago Convention and Civil Aviation Regulations of Malaysia 1996.

In carrying out the investigations, the AAIB will adhere to ICAO's stated objective, which is as follows:

"The sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability."

Accordingly, it is inappropriate that AAIB reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

SYNOPSIS

On 29 June 2014, Malaysia Airlines Airbus 330-200F with call-sign TK 6490 operating from Istanbul (IST) to Astana (TSE) landed on Runway 04 TSE at 0753 UTC. Astana Air Traffic Controller (ATC) cleared the crew to vacate the runway via Taxiway 'C', then to taxi via the apron to Gate 2. Entering the Apron from Taxiway 'C', there was an inner and outer taxi lane. The crew decided to taxi on the outer taxi lane to keep clear of the aircraft that was parked on the terminal. As the aircraft was taxiing on the centre line of the outer taxi lane, the left wing of the aircraft hit a lamp-post and caused it to topple. This resulted in the number 6 slat leading edge damaged.

FACTUAL INFORMATION

1.1 History of the flight

1.1.1 On 29 Jun 2014, Malaysia Airlines Airbus 330-200F, registration number 9M-MUC, flew from Istanbul (IST) to Astana (TSE) with a flight time of 5 hours. The aircraft was wet leased to Turkish Airlines and operated under the call-sign TK 6490. Aircraft departed IST approximately 2 hours behind schedule due to delay that was caused by cargo loading and landed at TSE at 0753 UTC. The flight was conducted during daylight hours.

1.1.2 The sector was flown by the First Officer and he completed his briefing for the arrival before the Top of Descent point. From Astana International Airport Automated Terminal Information Service (ATIS), they received information that Runway 04 was in use at Astana International Airport. In his briefing, the First Officer mentioned that the expected taxi routing after landing would be to vacate the runway either using Taxiway 'C', 'B' or even 'A', taxi along the parallel Taxiway 'P', making a right turn to Taxiway 'H' and then proceed to the parking bay, or subject to Air Traffic instruction. The crew stated that based on prior experience and knowledge operating into this airport on previous occasions, this taxi route was commonly used by ATC TSE to guide aircrafts to the parking bays at or around Gate 2.

- 1.1.3 However, upon landing on Runway 04, Astana ATC cleared the crew to vacate the runway via taxiway 'C', then taxi on the apron to Gate 2. Figure 1 below shows the routing that was taken by the flight ((in green) after landing RW04 TSE and entering the apron taxiway. The parking Gate 2 also indicated (green arrow).

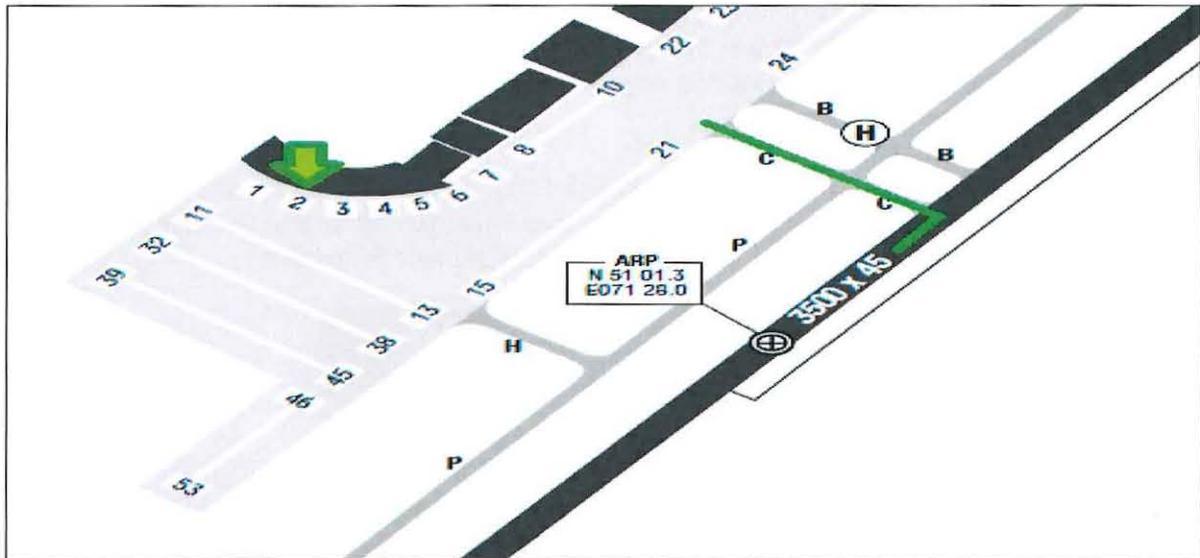


Figure 1: Section of Lido AGC of Astana Airport 24 April 2014

Note: LIDO Airport Ground Chart (AGC) did not depict the outer and inner lines on the apron.

- 1.1.4 Upon entering the Apron area, the crew observed that there were 2 separate taxi lanes adjoining Taxiway 'C'; one leading towards the main terminal and the other towards the opens bays across the terminal. These taxi lanes were not given any specific designation (name), either on the ground or on the airport charts that were provided. (see Figure 3).

Note: For the purpose of this report, the taxi lane that runs along the southern side of bays 15-21 (refer Figure 1) will be called the 'outer' apron taxi lane, while the taxi lane that runs between the Main Terminal bays (1-10) and the open bays 15-21 will be known as the 'inner' apron taxi lane.

- 1.1.5 As the crew were approaching the intersection between Taxiway 'C' and the 2 unnamed taxiways, they had noticed a wide bodied aircraft located at around Gate 10 being pushed back. This appeared to pose as a potential obstruction should the crew proceed to taxi along the inner taxi lane. Incidentally, there were no aircrafts parked in any of the bays between 15 and 21, thus giving the crew a perception of clear taxi path along the outer taxi lane.
- 1.1.6 The crew had not attempted to clarify with ATC Ground Controller on which taxi lane to use.
- 1.1.7 Since there was no specific instruction from ATC on which taxi lane to use, and considering that there is no restrictions listed on the Airport Operational Information (AOI) with regards to ground movement of A330 aircraft on the apron taxi lanes, the crew decided to follow the outer taxi lane in order to keep clear of the aircraft at Gate 10.
- 1.1.8 During the interview, the crew mentioned that as they were turning into the outer lane, they saw the light pole on the left hand side of aircraft but were sure that there was sufficient clearance to clear the pole.

- 1.1.9 As the aircraft was taxiing on the centre line of the outer taxi lane, they felt a jolt and immediately stopped the aircraft.
- 1.1.10 The left wing of the aircraft had hit a lamp-post and caused it to topple. Apart from the light pole, the aircraft wing also came into contact with another smaller pole with a CCTV mounted. The CCTV was knocked off and the pole scratched the underside of the wing. The impact resulted in the number 6 slat leading edge being damaged. Refer Figure 2 below for view of the Apron area that was involved.
- 1.1.11 At this point, the crew were told by the Astana Ground Control to hold position and wait for a 'Follow-me' car to assist in the taxi. The crew then shutdown the engine and disembarked the plane and proceeded to the hotel after having their statement being taken.

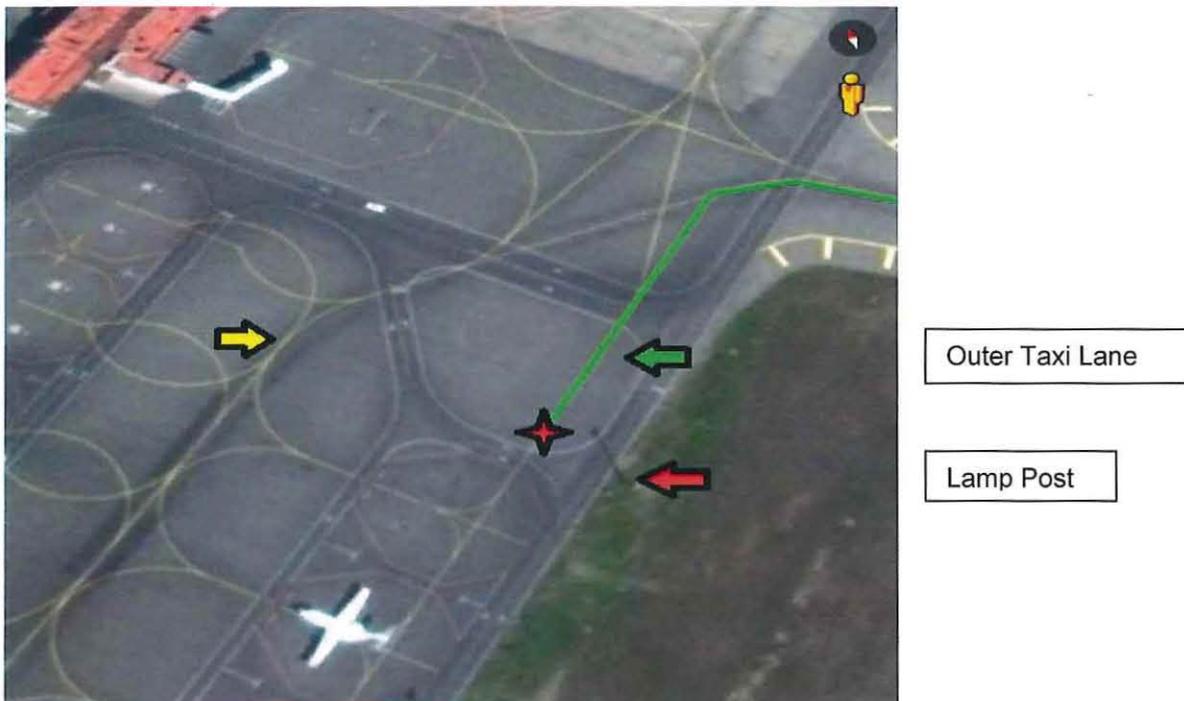


Figure 2: Map of Astana Airport's Apron sourced on 30 June 2014

<https://www.google.com.my/maps/place/Astana+International+Airport/@51.0254155,71.4689103,354m/data=!3m1!1e3!4m2!3m1!1s0x42459b1fa3f11835:0x8c2612e465f13ae7?hl=en>



Figure 3: Ground level view of taxiways branching out and inner

1.2 Injuries To Persons

NIL

1.3 Damage To Aircraft

9M-MUC Number 6 slats damage



Figure 4: Left Wing No. 6 Slat Damage

1.3.1.2 Left underwing scratched by 2nd post (CCTV post)



Figure 5: Scratch marks on underside of left wing

1.4 Other Damages

1.4.1. Light Pole is being knocked down

1.4.2. CCTV knocked off 2nd shorter pole



Figure 6: Light pole lying on floor and CCTV pole slanted

1.5 Personnel Information

1.5.1. Captain

1.5.1.1	TK Posting started on	: 03rd February 2014.
1.5.1.2.	Age	: 43 Years Old
1.5.1.3	Medical Certificate validity	: 31/10/2014
1.5.1.4	A330 Operational Date	: 22/03/2012
1.5.1.5	Total Flying Hours	: 11617:44 (As of 29/05/2014)
1.5.1.6.	Total Command on Type	: 1441:59
1.5.1.7.	Last Base Check	: 21/01/2014
1.5.1.8	Last Line Check	: 08/02/2014
1.5.1.9	Instrument Rating Test	: 24/07/2013
1.5.1.10	Appointment as Instructor Pilot	: NIL
1.5.1.11	Hours Flown Last 28 Days	: 48:56
1.5.1.12	Rest Period Prior to Incident	: 35 HRS 45 MIN

1.5.2. First Officer

1.5.2.1	TK Posting started on	: 05th February 2014
1.5.2.2	Age	: 29 Years Old
1.5.2.3	Medical Certificate Validity	: 30/11/2014
1.5.2.4	A330 Operational Date	: 06/09/2012
1.5.2.5	Total Flying Hours	: 2748:19
1.5.2.6	Total on Type	: 927:46
1.5.2.7	Last Base Check	: 12/01/2104
1.5.2.8	Last Line Check	: 19/09/2013
1.5.2.9	Instrument Rating Test	: 14/07/2013
1.5.2.10	Appointment as Instructor Pilot	: NIL
1.5.2.11	Hours Flown Last 28 Days	: 48:56
1.5.2.12	Rest Period Prior to Incident	: 35 HRS 45 MIN

1.5.3. Both crews were well rested before the incident; more than 24 hours at base (IST) and had operated into TSE prior to the incident.

1.6 Aircraft Information

1.6.1 Aircraft

Type	: Airbus 330-200F
Registration	: 9M-MUC

1.7 Meteorological Information

```
UACC 290800Z 13004MPS 050V170 9999 SCT040 BKN230 26/12 Q1013 R04/0/0070 NOSIG RMK QFE728/0971
UACC 290700Z 10005MPS 9999 SCT033 BKN230 24/14 Q1013 R04/0/0070 NOSIG RMK QFE728/0971
UACC 290600Z 09002MPS 050V150 9999 FEW040 SCT140 23/16 Q1014 R04/0/0070 NOSIG RMK QFE729/0972
UACC 290500Z 05003MPS 9999 FEW043CB BKN110 20/16 Q1013 R04/2/0060 NOSIG RMK QFE729/0972
UACC 290400Z 03003MPS 9999 FEW046CB BKN080 19/15 Q1013 R04/2/0550 NOSIG RMK QFE729/0972
```

Figure 7: METAR/ Weather at Astana Airport

Visibility was more than 10 kilometres in daylight and no significant adverse weather at the time.

1.8 Navigation Aids

NIL

1.9 Communication

VHF Radio with Astana Ground Control

1.10 Aerodrome Information

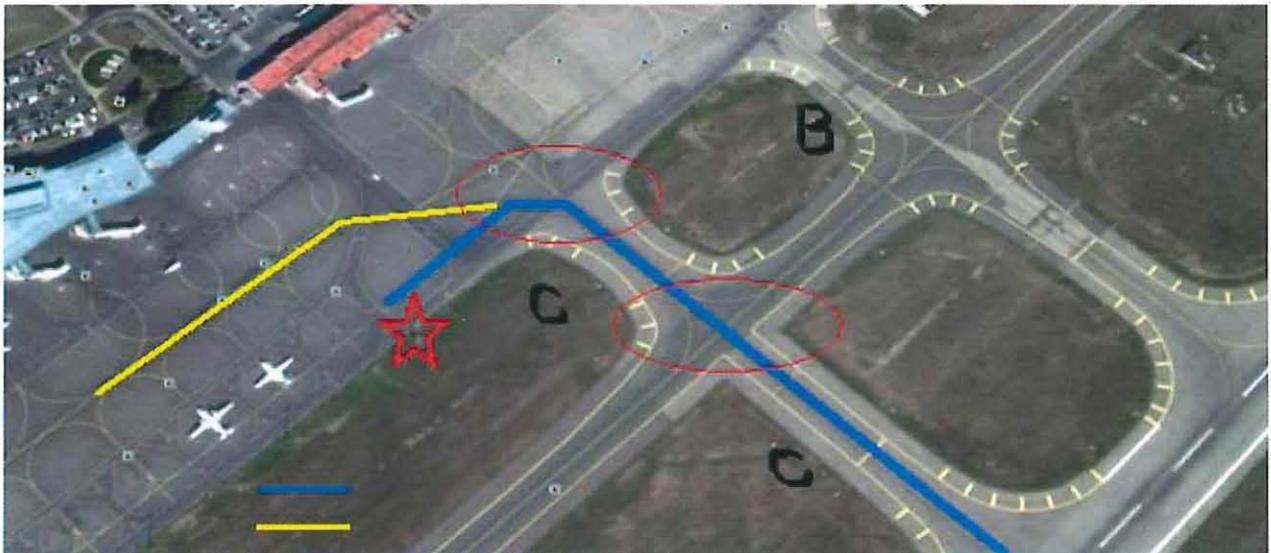


Figure 8: Google Earth View of Apron Area sourced on 30 June 2014

<https://www.google.com.my/maps/place/Astana+International+Airport/@51.0254155,71.4689103,354m/data=!3m1!1e3!4m2!3m1!1s0x42459b1fa3f11835:0x8c2612e465f13ae7?hl=en>

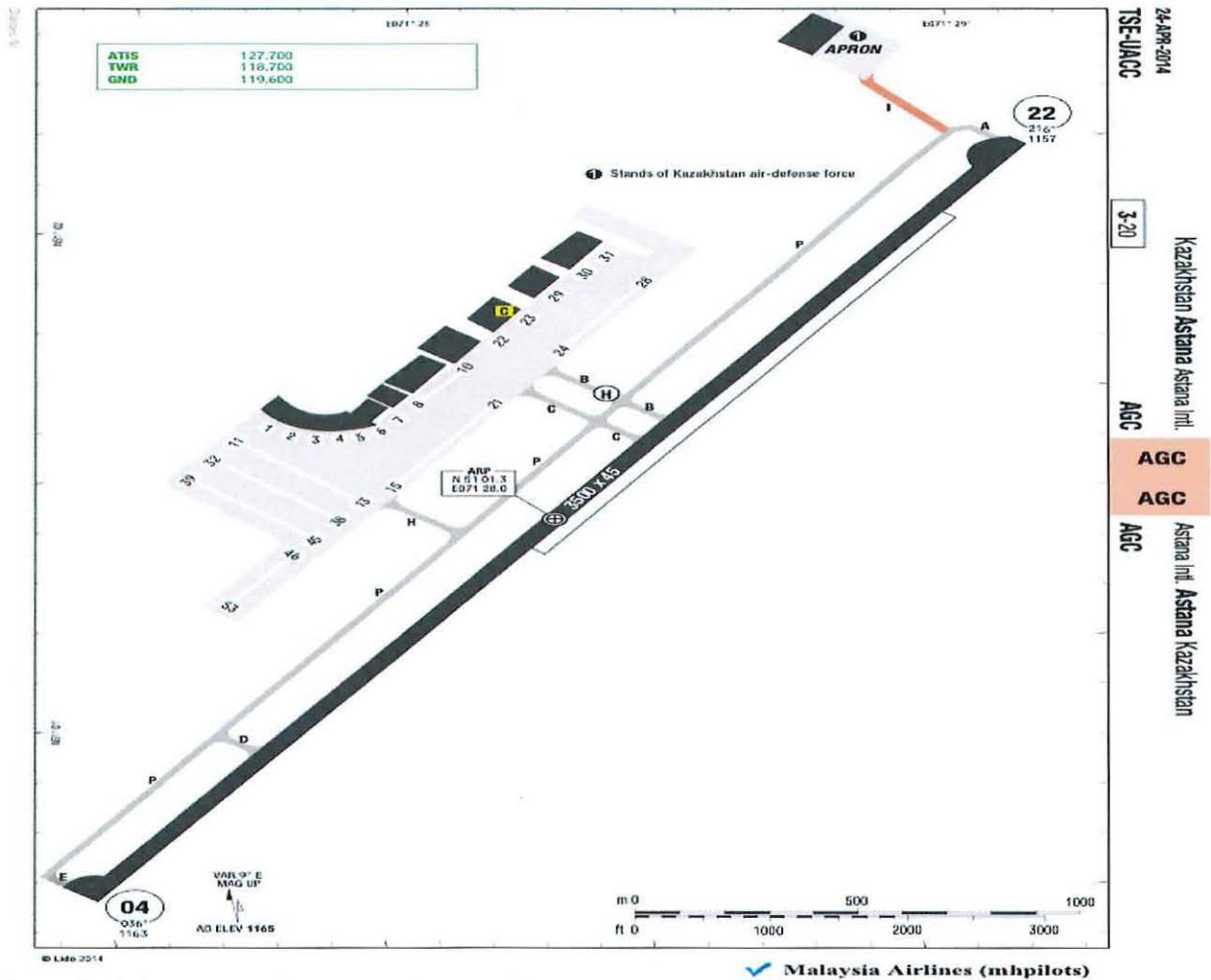


Figure 9: Astana Aerodrome Ground Chart 24 Apr 2014

- 1.10.1 The Aeronautical Information Publication (AIP) and aerodrome chart for Astana International Airport did not depict sufficient information when compared to the actual layout of the airport.
- 1.10.2 Based on the satellite image, the intersection between Taxiway 'C' and 'P' has no shoulder on the runway side and does not allow turning onto Taxiway 'P' when vacating the runway. LIDO chart however indicates that the taxiway shoulders are avail at this intersection and the prohibition of turns from Taxiway C towards Taxiway P is not highlighted.
- 1.10.3 As Taxiway 'C' joins the apron, there are multiple branches of taxiways that were not depicted on the charts. These taxiways are not named or labelled on the charts and on the ground. There is also no information provided with regards to taxiway limitations on the apron area.
- 1.10.4 The LIDO AOI section mentions that aircrafts parking at Bays 15-21 need to be towed in and the parking bay is limited to aircraft with a wingspan of 29 meters or less.
- 1.10.5 Astana International Airport is equipped with Ground Radar and also facilities for 'Follow-Me' car but both are only activated whenever the weather is below Approach Category 1 weather criteria.

1.11 Flight Recorders

Both channels of the aircraft Voice Recorder extract were extracted and listened to. From the recordings, it was evident that both crews were in the midst of performing the After Landing Checklist when the collision occurred. There was no evidence to indicate that either crew saw the light pole. The ATC Ground Controller issued the instruction to "Hold Position" after the collision had occurred.

In addition, ATC transcript from ATC TSE was also provided for further analysis and conclusion. In this ATC transcript, the instruction by ATC TSE Ground Controller to "Hold position" was only given after the aircraft had contacted the lamp post.

However, ATC TSE issued a printed statement saying that the ATC controller had issued a "Hold Position" instruction to the pilots on recognizing that the aircraft was deviating from the cleared taxi route, prior to contacting the lamp post (Refer Appendix G).

1.12 Wreckage and Impact Information

Aircraft left wing came into contact with the light pole approximately 7.3 meters from the left wingtip. The aircraft continued forward approximately another 7 meters before coming to a stop.

The light pole is located 4.2 meters from the edge of the taxiway. The CCTV pole is located 5 meters after the light pole.

1.13 Medical and Pathological Information

Both crew Medical certifications in their licenses are current. Both of the crew were questioned if they were well after the incident by the Astana Authority. No urine or drug test was carried out while the crew were in Astana.

1.14 Fire

NIL

1.15 Survival Aspects

Not applicable

1.16 Tests and Research

NIL

1.17 Organizational and Management Information

The Operations Route manuals only had a write-up about landing on Runway 22 at Astana International Airport. There was no information on Landing on Runway 04.

The lack of information on the AIP and LIDO charts were not detected.

1.18 Additional Information

NIL

1.19 Useful or Effective Investigation Techniques

Google Earth was used and it provided detailed view of the taxiway lines as the maps were fairly recent. The image provided by Google Earth is consistent with the actual taxiway layout at the time of occurrence, based on the new information inserted on the LIDO chart for Astana UACC AGC dated 31March 2016. Refer Appendix D

Malaysia Airlines Root Cause Analysis Technique (MARCAT) was used as a Root Cause Analysis tool to determine the Root Cause of the accident. Refer appendix.

2.0 Analysis

- 2.1.1 Both the flight crew held valid licenses and were familiar with the A330-200F operation into and out of TSE airport.
- 2.1.2 There were no evidence that the pilots were under any undue pressure or suffering from fatigue or stress related issues.
- 2.1.3 The visibility at the airport was reported to be more than 10km. Further more, it was a daylight operation.
- 2.1.4 During the interview, both the crew mentioned that they had sighted the light pole during the turn into the outer taxiway. It was mentioned that they had verbalized the area to the left and right of the aircraft was clear of any obstacles. However, based on the CVR recordings, there was no specific mention of the light post made by either crew.
- 2.1.5 Both the crew could not confirm if they had received the required training on assessing wingtip clearances during the initial A330 conversion course in 2012. There was no evidence of training being conducted on this. In addition, no recurrent training or assessment is currently done on avoiding wing tip collision during taxi. These could have contributed towards flight crew's misjudgement on wingtip clearance resulting in contact with the light post.
- 2.1.6 LIDO charts that were provided did not outline the actual layout of apron taxi lanes on the AGC. There were numerous undesignated (unnamed) taxiways in the apron area that were not charted.
- 2.1.7 Reference to Figure 10 below, (box 1), there are no taxiway lines for turns onto Taxiway 'P' at the intersection of Taxiway 'C' and Taxiway 'P' on the side closest to the runway. The taxiway markings also do not allow left turn into Taxiway 'P'. This means that all aircraft vacating the runway using Taxiway 'C' will have to route via the apron. Aircraft vacating using Taxiway 'B' has the option of either turning left on

Taxiway 'P' or continuing via the apron. (Box 2). This information is not shown on the LIDO AGC chart that was developed based on information from AIP for Astana International Airport.



Figure 10: Google Earth picture of taxiway B and C with taxi markings sourced on 30 June 2014

<https://www.google.com.my/maps/place/Astana+International+Airport/@51.0254155,71.4689103,354m/data=!3m1!1e3!4m2!3m1!1s0x42459b1fa3f11835:0x8c2612e465f13ae7?hl=en>

- 2.1.8 LIDO AOI section did not highlight any restrictions on the use of either the Inner or Outer apron taxi lane in relation to the specific aircraft types. Only the parking bay wingspan limitations were specified for Bays 15-21.
- 2.1.9 Route manual only mentions landing on Runway 22. There is also no mention of any possible area of ambiguity or 'Hotspot'. According to Air Astana personnel, RW 22 is used for landings at TSE approximately 70% of the time, while at the remaining period, RW04 would be used.
- 2.1.10 Communication between the pilots and ATC ground controllers were not sufficient to preclude any ambiguities or unclear instructions during taxi maneuvers.
- 2.1.11 Adequate monitoring of aircraft ground movement by ATC was not achieved to prevent inadvertent taxiway incursion. The printed statement provided by ATC TSE indicated that the ATC controller recognized the aircraft's deviation from the cleared taxi route and issued immediate instruction to the crew to "Hold Position". This however could not be corroborated against the CVR recording and ATC transcript, which clearly indicated that the ATC instruction to "Hold Position" was only issued after the aircraft had contacted the lamp post, based on the timings recorded on both the CVR and ATC transcript.
- 2.1.12 Based on the recordings captured on CVR, the incident took place as the crew were performing After landing Checklist. This suggests that the flight crew may have been distracted from the task of ensuring sufficient vigilance during ground movement at safety critical areas (hot spots) around the airport. This includes avoiding taxiway incursions attributed by performing non-essential tasks such as after landing procedures/checklist at inappropriate times.

2.1.13 There was a believe among the flight crew that were invlolved that maintaining the centerline during taxi manuever would assure clearance from all fixed objects, unless it was documented that the taxiway is not suitable for use by specific aircraft types. This was an improtant factor in the crew's decision to continue taxiing along the outer taxiway, as highlighted in the CVR recording.

3.0 CONCLUSION

3.1 Findings

3.1.1 Taxiway restrictions were not considered based on available information on aerodrome charts.

3.1.2 Flight crew proceeded on taxiway not suitable for aircraft type.

3.1.3 Wingtip clearance misjudge.

3.1.4 Flight crew accepted ambiguous taxi clearance without proper confirmation or clarification.

3.2 Probable Cause

3.0.1 There was no taxiway restriction prescribed on either the Astana AIP or the Aerodrome charts. Maximum wingspan limitation was stated only for the remote parking bay.

3.0.2 There was a lack of information on LIDO AGC which resulted in ambiguity.

3.0.3 There are numerous unnamed taxiways at Astana International Airport.

3.0.4 There was a mistaken belief by the flight crew that the aircraft will have enough separation from stationary object as long as they are on the taxiway centerline.

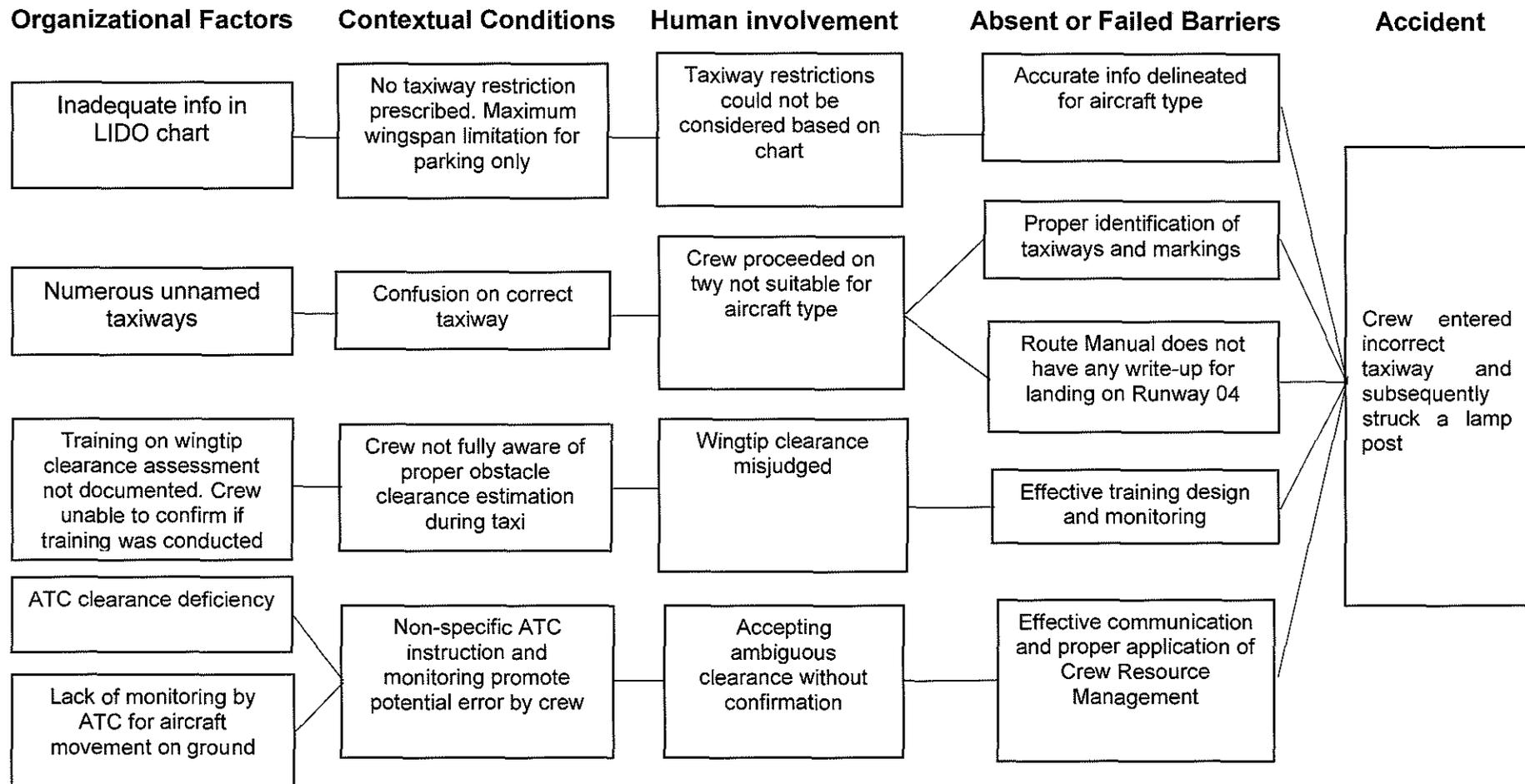
3.0.5 The flight crew was not fully aware of the proper obstacle clearance estimation during taxi.

3.0.6 The non-specific ATC instruction and lack of monitoring promotes the potential for error by flight crew.

4.0 Safety Recommendations

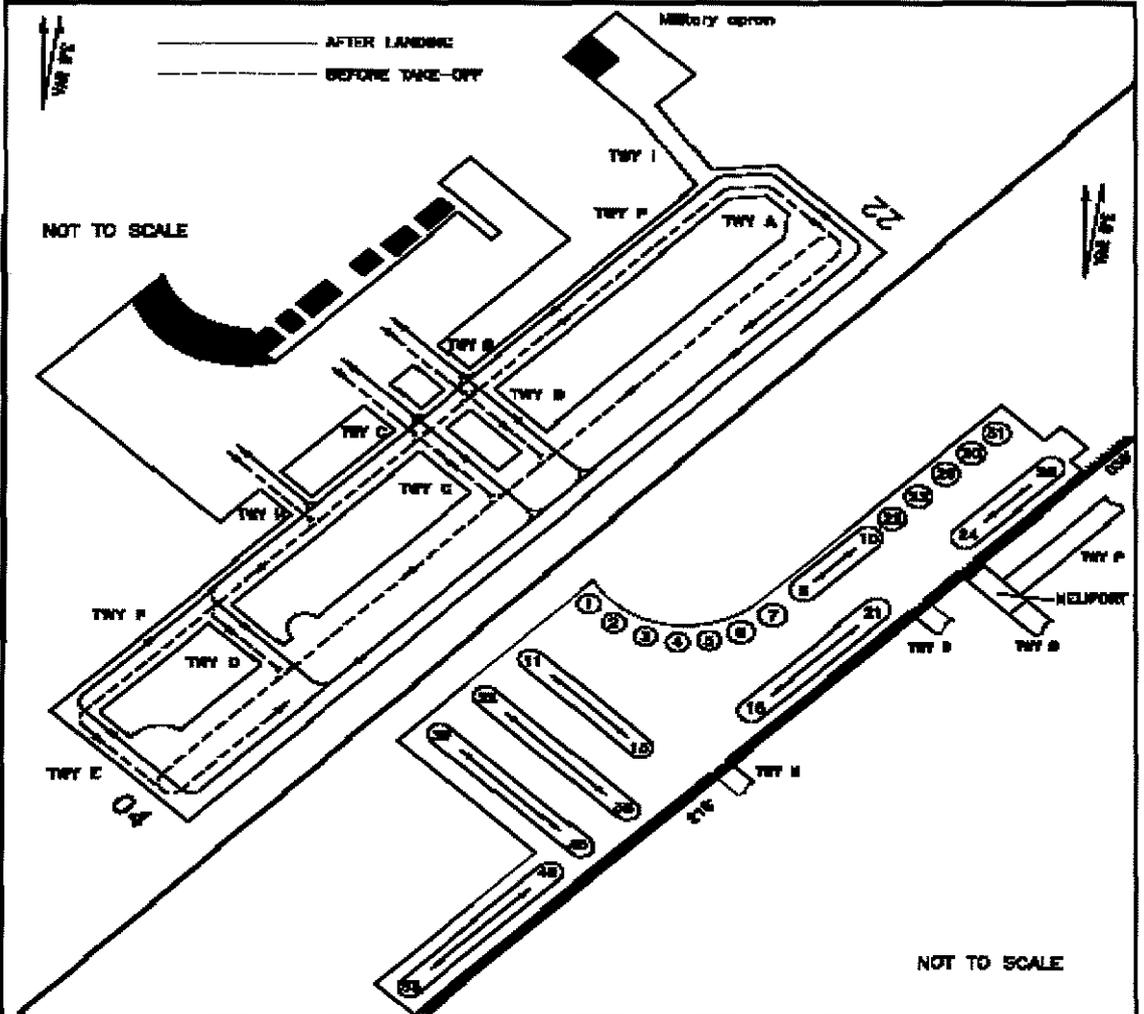
- 4.1 It is recommended that the LIDO chart provider to amend the TSE AGC chart to reflect the restriction on the taxiway.
- 4.2 It is recommended that the Kazakhstan Authority is to update the Astana International Airport AIP with the relevant taxiways and routings.
- 4.3 It is recommended that the Kazakhstan Authority is to look at naming the various taxiways.
- 4.4 It is recommended that Malaysia Airlines is to update the information in the route manual to reflect the restriction on the apron taxiways.
- 4.5 It is recommended that Malaysia Airlines flight crew training is to include demonstration of position of the wingtip in relation to the pilot seat during the Initial Operating Experience during the conversion training. The training conducted must be documented to enable proper monitoring and assessment.
- 4.6 It is recommended that Malaysia Airlines Training Department is to emphasize wingtip clearance technique to all flight crew.
- 4.7 It is recommended that Malaysia Airlines Training Department is to ensure effective communication and proper application of Crew Resource Management during the Base Checks.
- 4.8 It is recommended that the Astana International Airport Air Traffic Control to enhance monitoring of aircraft ground movement.

Appendix A – Root Cause Analysis Technique



Appendix B – Astana UACC AIP extracts 18 Nov 2010

AIP Kazakhstan
AERODROME GROUND MOVEMENT AND AIRCRAFT PARKING CHART
 TOWER GND 118.7 118.0
 UACC AD 2.24.3 18 NOV 2010
ASTANA



CHARLES STANIS PCN, TWY, STANDS, B.C.D.H.E. AND STANDS 31-44, 48-55.

TAXIWAYS:		
Width:	A,B,C,D,E,H,P	-23m
	I	-20m
Surface:	A,B,G,D,E,H,P	-Asphalt-Concrete
	I	-Concrete
Strength:	A,P	-PCN 57/F/C/N/T
	B	-PCN 56/F/C/N/T
	G,D,H	-PCN 73/F/C/N/T
	E	-PCN 69/F/C/N/T

STANDS:		
1-10, 22, 23	-by towing	
11-21, 24-25	-by towing	
18-21	only used for MFT with open net exceeding 20m.	
STANDS:		
Strength:	1,4,5,6,13	-PCN 71/F/C/N/T
	2,3,11,12	-PCN 70/F/C/N/T
	7,8,9,10	-PCN 69/F/C/N/T
	15-21	-PCN 72/F/C/N/T
	22-28	-PCN 54/F/C/N/T
	29,31-33	-PCN 55/F/C/N/T
Stand:	2,3,11-13	-B717-100
	1,4,5	-B737-300
	6-9,16-21	-B737-700
	8,10	-E-95
	22,23	-TU-154M
	29-30	-E-750
	24-28	-B737-300
	27-28	-B737-300
	29-31,4	-B737-300, B737-400, B737-500, A320-130, COM-200
	30-31	-B737-300, B737-400, B737-500, A320-130, COM-200
	32-33	-B737-300, B737-400, B737-500, A320-130, COM-200
	34-35	-B737-300, B737-400, B737-500, A320-130, COM-200
	36-37	-B737-300, B737-400, B737-500, A320-130, COM-200

Kazeroonaviatsia AIRAC AMDT 03/10

Appendix C - Astana UACC AGC Lido Chart at time of Accident

Kazakhstan **Astana** Astana Intl.

10-APR-2014

TSE-UACC

1-10

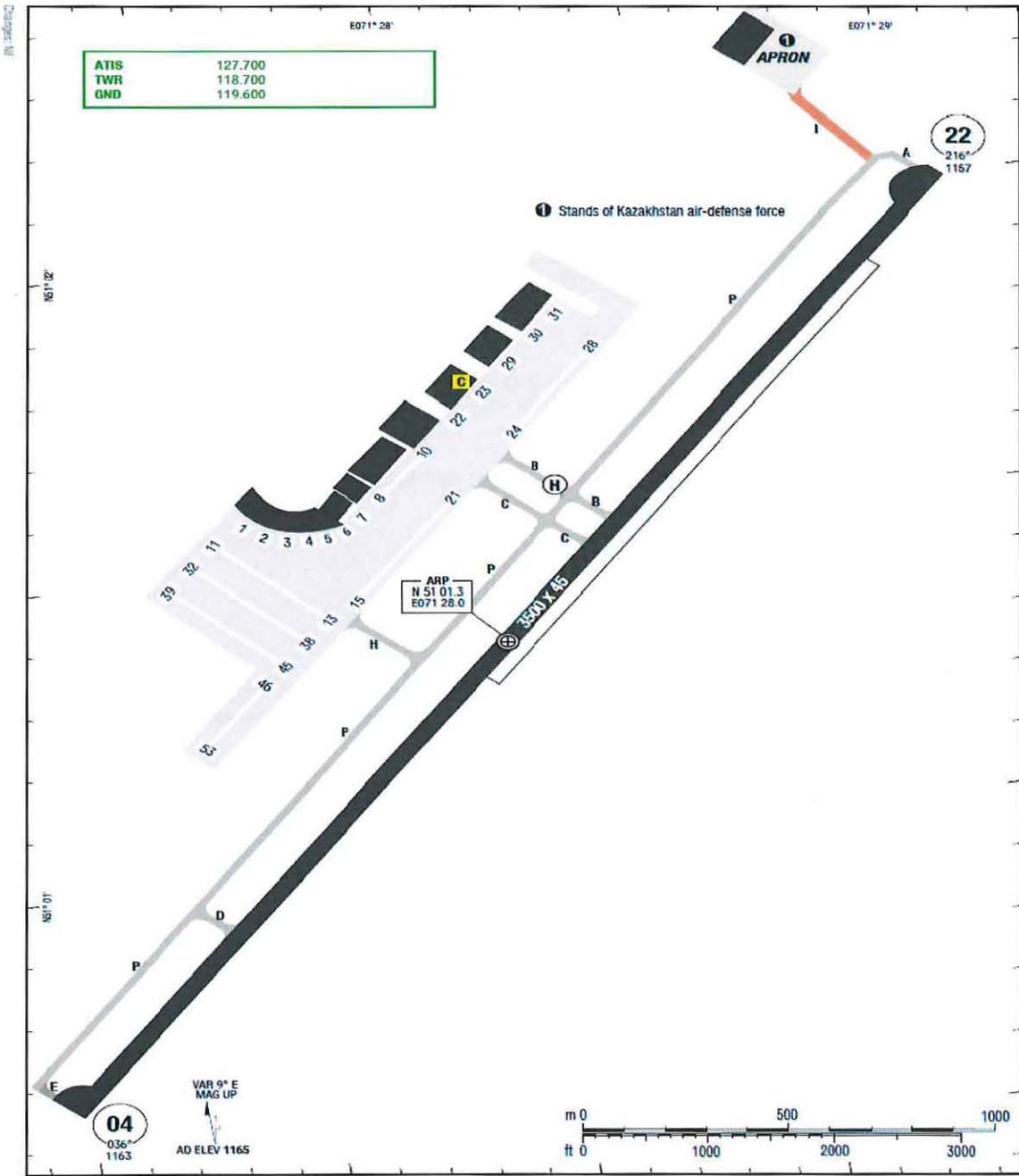
AOI

AOI

GENERAL	
ATS Hours	
H24	
Airport Information	
RFF:	CAT 9
Fuel:	TS-1 (equivalent to Jet A1)
PCN:	RWY 04/22: 79/F/C/W/T
Operation	
Low Visibility Procedures	
LVP in use when TDZ RVR below 550m and/or ceiling below 200ft.	
ARR	
<ul style="list-style-type: none"> - Use phrase "REQ CAT 2 APCH" on initial contact with Astana APCH. - Report "RWY vacated" after having passed light indicator for ILS LLZ sensitive area. - Taxi to APN with follow-me only. 	
DEP	
<ul style="list-style-type: none"> - Taxi to HLDG PSN with follow-me only. ACFT shall stop before light indicator for ILS LLZ sensitive area. 	
TWY Restriction	
TWY I width 20m / 65ft.	
Parking	
Stand 15-21 MAX wingspan 29m / 95ft.	
Entry to stands 11-21, 24-28 by towing.	
Exit from stands 1-10, 22, 23 by towing.	
Warnings	
Caution advised in winter during snow COND.	
Birds in vicinity of AD.	
ARRIVAL	
Speed	
During descent within TMA the following speed restrictions are established:	
<ul style="list-style-type: none"> - from FL98 (3000m) to transition level: MAX IAS 250KT. - from transition LVL to HLDG ALT or 15NM from TDZ: 210KT ±10KT. - from 15NM from TDZ to FAP: 185KT ±10KT. 	
Communication	
COM Failure: See CRAR Central Asian Republics/Kazakhstan/UA and in addition;	
By MISAP	
RWY 04/22 ILS/DME Z, VOR/DME	
In case of COM Failure climb to FL60 to AST and join to HLDG pattern.	

Changes: Nil

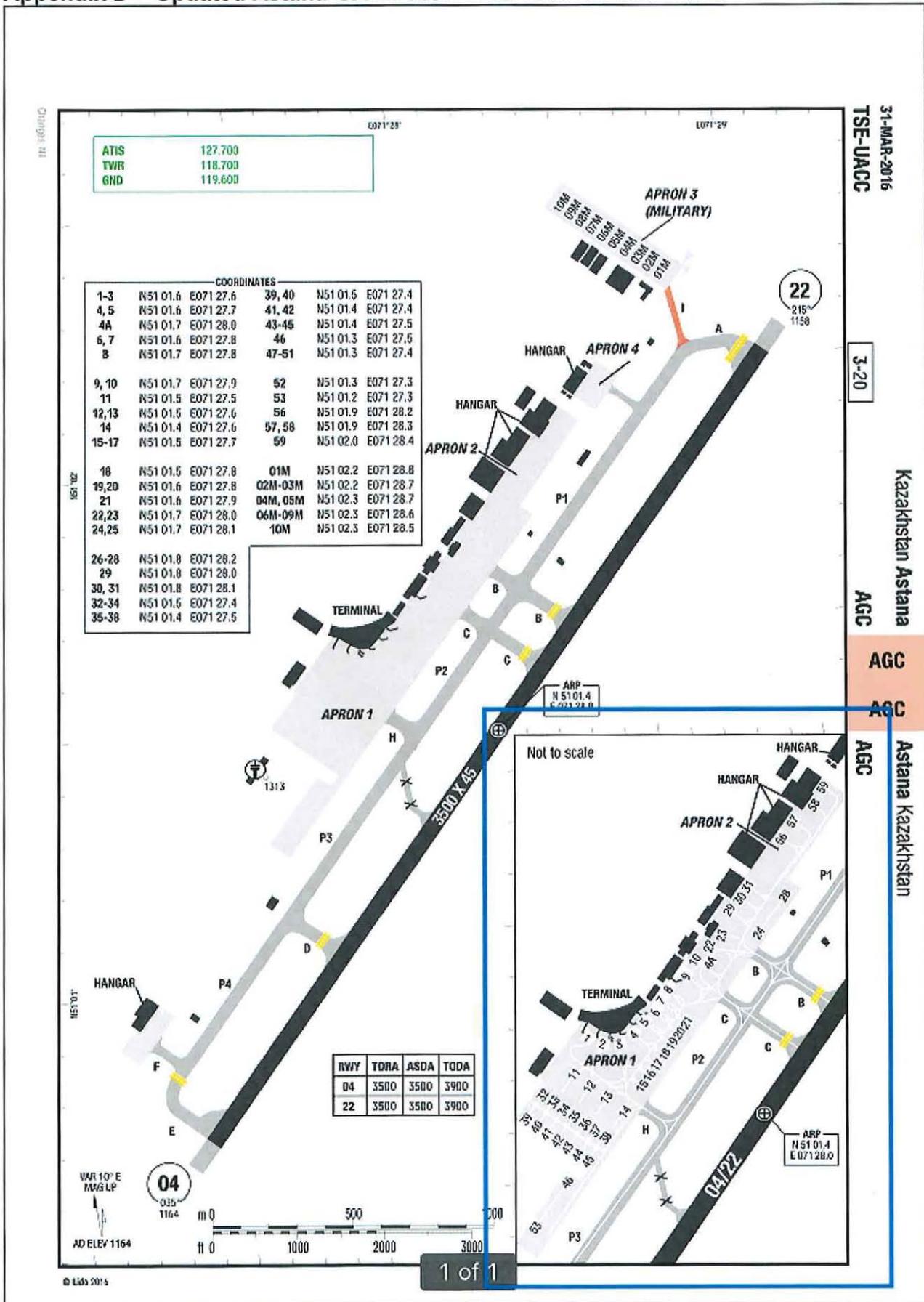
© Lido 2014



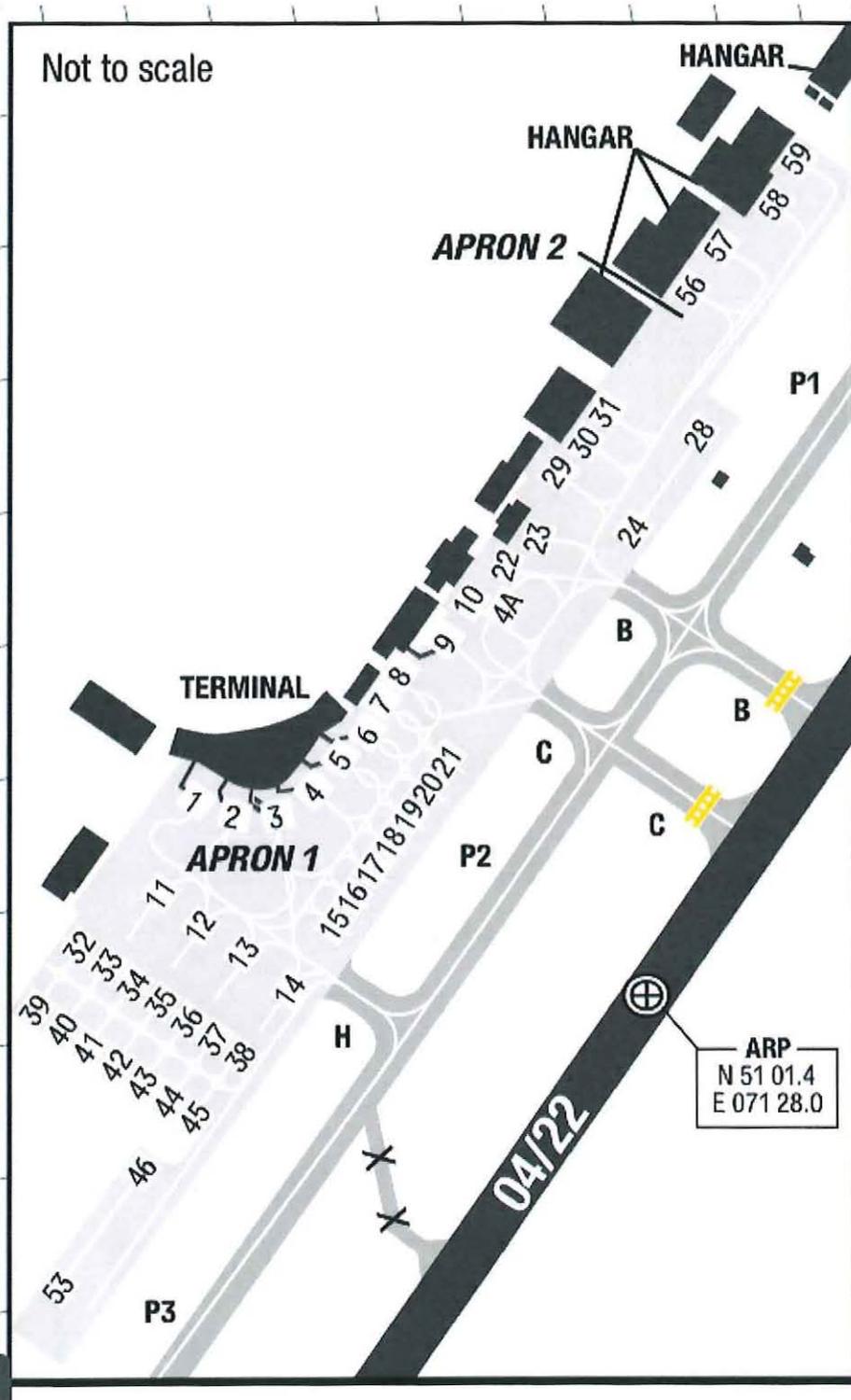
© Lido 2014

Malaysia Airlines (mhublots)

Appendix D – Updated Astana UACC AGC Lido Chart 31 MAR 2016



Not to scale



Appendix E – Supplementary Operations Manual – Part C

Supplementary Operations Manual – Part C



3.3.13 ASTANA, KASAKHSTAN – UACC

AERODROME CATEGORY: B

LOCAL TIME: UTC +06

Cautions:

Limited information, lack of accurate NOTAM information with unique local procedures. Metric system is used and exercise attention for conversion of units below transition level. Kazakhstan is not WGS-84 compliant. FMC coordinates may not be accurate – verify LNAV tracking with raw data.

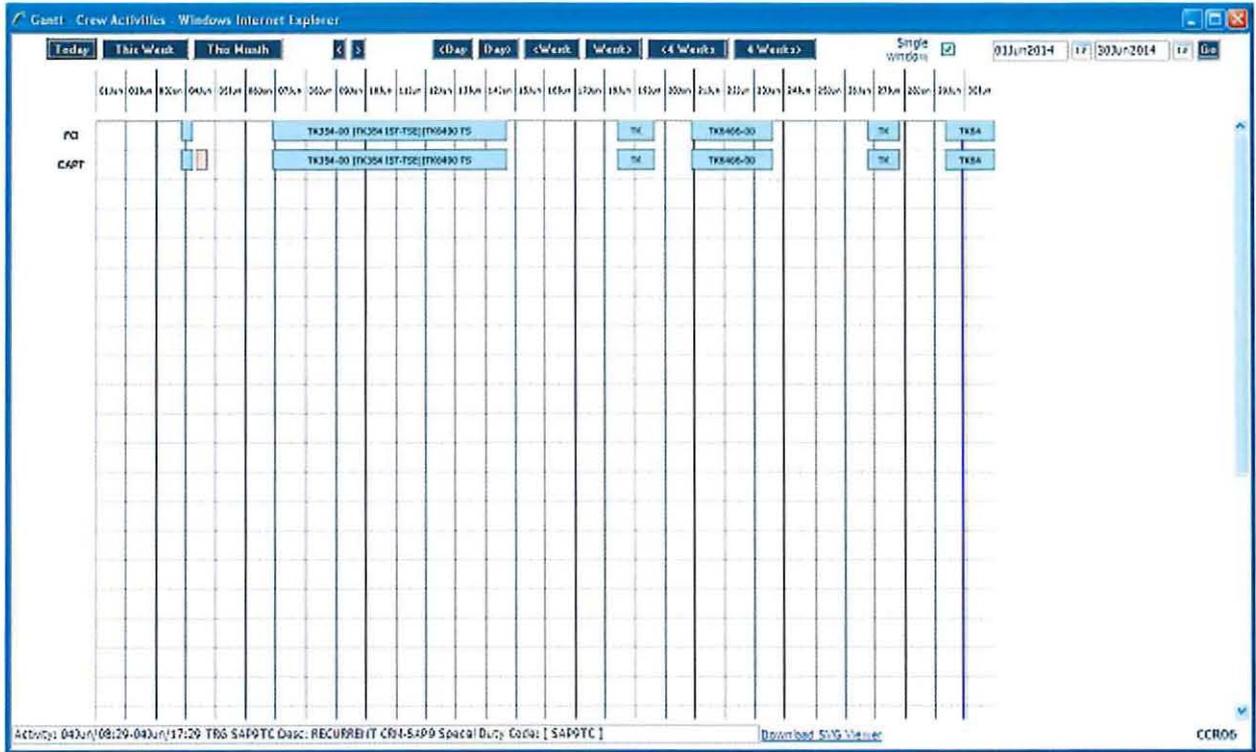
Procedures arriving into Astana is quite straight forward. Flight plan leg is until position VETUB, then arrival ILS DME Z 22. After Astana VOR follow offset entry pattern. Transition level was FL 60 and QNH and meter altitude after transition level. (Take note the meter to ft conversion on the approach chart doesn't apply as it's from QFE m to QNH ft). Cleared to descent to 1200m and cleared for the approach. It's a long runway and simple taxi to bay number 2 aero bridge bay. No follow me car.

Proceed to the hotel together with the LM and engineer. In our case we we walk outside on the Tarmac to the VIP terminal for passport and pick up to hotel (according to turkish cargo rep transport will be provided next time). There is a turkish cargo representative when we landed.

Departure

The hotel made a last minute arrangement to cater 2 vans because initially only 1 van was seen outside the lobby waiting. Make sure same GD with other crew is available before proceed with CIQ process even for paxing crew.

Appendix F – Crew Roster



Crew Roster for the month of June 2014

Appendix G – CVR Extract

Note: Timings are referenced to the beginning of the CVR recording not actual time.

CVR Extract from after landing until first contact with ground engineer after incident.			
08:18	Auto callout	:	100..... 50... 40.. 30.. 20.. RETARD.. 10.. 5..
08:29		:	"Sound of aircraft landing firmly"
08:31	Capt	:	Spoilers
08:31	FO	:	Checked
08:34	Capt	:	Reverse Green, Decel
08:35	FO	:	Check
08:49	FO	:	Manual braking
08:50	TWR	:	Turkish six four niner zero, vacate left via taxiway Charlie
08:53	Capt	:	Vacate left via taxiway Charlie
08:56	FO	:	Vacate left..... Bravo?
08:57	Capt	:	My controls, huh.
08:59	FO	:	You have control
09:07	TWR	:	Turkish Six four niner zero, contact Astana Ground one one niner decimal six
09:11	FO	:	one one nine decimal six Turkish six four niner zero, bye bye.
09:16	Capt	:	Alamak, lupa beritahu wak...
09:18	Capt	:	On touchdown, had about six knots tailwind
09:23	FO	:	Ground, Turkish six four niner zero, Good Afternoon.
09:27	GND	:	Turkish six four niner zero, Astana Ground, Good afternoon, via taxiway Charlie, Apron, gate number two.
09:35	FO	:	Charlie, apron, gate number two, Turkish six four niner zero
09:42	FO	:	Continue, second left huh
09:43	Capt	:	Okay brother, all the way. Gate number two, after landing
09:51		:	"Whirring sound"
09:55	FO	:	Clear right side
09:57	Capt	:	Clear left side
10:00	Capt	:	I think this is where they will send us-lah. Eh, sini ke sana?
10:03	FO	:	Er, sini mmm..
10:04	Capt	:	Yang V.I.P punya
10:05	FO	:	V.I.P punya

10:06	Capt	:	Ooo.. Kay
10:11	FO	:	Clear right side.
10:14	FO	:	Speed
10:20	FO	:	After landing checklist
10:22	FO	:	Flaps?
10:23	Capt	:	Flaps is config one plus F
10:26	:	:	<i>"indistinct conversation confirming outside temperature as 30 degrees"</i>
10:30	FO	:	Flaps?
10:32	Capt	:	Retracting
10:34	FO	:	Spoilers?
10:35	Capt	:	Disarmed
10:36	FO	:	APU?
10:37	Capt	:	Start
10:38	FO	:	Errr...Weather radar?
10:42	Capt	:	Off
10:43	FO	:	Windshear predictive system?
10:45	Capt	:	Off
10:46	:	:	<i>"Crumpling sound"</i>
10:47	:	:	Apa tu?
10:48	Capt	:	What the hell was that?
10:49	Capt	:	Oh shit!
10:51	GND	:	Turkish six four niner zero, Astana Ground
10:54	Capt	:	Hail .. Hit the side lights lar.
10:57	FO	:	Go ahead, Turkish six four nine zero
10:59	GND	:	Turkish six four nine zero, hold position and wait for Follow Me car
11:02	Capt	:	Arggh! Shit Man!
11:03	FO	:	Holding position, Turkish six four nine zero
11:05	Capt	:	Kena wingtip
11:08	Capt	:	Hah, to the side lights.. the spotlights... dekat field
11:11	FO	:	Serious?

11:12	Capt	:	But I am on the centerline, what!
11:15	FO	:	Centerline..
11:17	Capt	:	Hah! On the centerline!
11:18		:	Narrowbody or widebody?
11:20	Capt	:	Dia takda cakap pun! Dia centerline je
11:23	Capt	:	Shit...
11:24	FO	:	Turkish six four nine zero, holding present position
11:30	Capt	:	Damn!
11:33	Capt	:	Adoi!.. Kena lahl!
11:34	GND	:	Six four nine zero, hold position
11:40	FO	:	<i>"Indistinct chatter"</i>
11:40	Capt	:	I am on the centerline
11:42	FO	:	Betul-lahl!
11:43	Capt	:	What else to do?
11:46	Capt	:	Shit...
11:47		:	<i>"Background conversation: 'How come so close?... Relax...Park there..'"</i>
11:51	Capt	:	Itulah!
11:55		:	<i>"Background conversation: 'So close..'"</i>
11:58	Capt	:	Arrrrghhh! Damn! Aircraft grounded lah, ni.
12:04	Capt	:	Ah. Shit!
12:05		:	<i>Background voice "Itu taxiway ar?"</i>
12:10	Capt	:	This is where we always taxi, what!
12:13	FO	:	Huh!
12:14	FO	:	<i>"undecipherable..." sana</i>
12:15	Capt	:	Tak! Masuk sana.. Tapi this is where is the centerline of the taxiway
12:20	FO	:	<i>"undecipherable..."</i>
12:25	Capt	:	Adoi!!! Quite bad-lar
12:34	FO	:	Aduh! <i>"undecipherable..."</i>
12:29		:	<i>"Background cursing"</i>
12:42		:	<i>"Background chatter"</i>

12:44	Capt	:	Huh No! Huh? Isit ar? Not
12:51	Capt	:	This tyre marks ar?
13:11	Capt	:	The high pole ar?
13:12		:	Yup
13:20	Capt	:	Centerline pun kena macam ni ke?
13:28	Capt	:	Sigh!
12:38		:	<i>"Background chatter suggestion shutting down engines"</i>
12:38	Capt	:	Shut down huh?
12:39		:	<i>"More background chatter"</i>
14:03	Capt	:	This is not accident report huh?
14:05	FO	:	Accident
14:06	Capt	:	Accident huh?
14:19	GND	:	<i>multiple conversation</i>
14:24	Capt	:	Ground, Turkish six four nine zero?
14:29	GND	:	Turkish six four nine zero, Astana Ground, Hold position.
14:33	Capt	:	Okay, we are holding position. Do you want us to shut down the engines?
14:36	GND	:	Turkish six four nine zero, errr... Shut down engines
14:40	FO	:	Okay, wait
14:41	Capt	:	Standby, I think the marshaller is coming to us
14:49	Capt	:	Sigh!
14:56	Capt	:	<i>"Background chatter lamenting the situation"</i>
15:04	Capt	:	Ground?
15:06	GndEngr:		Good afternoon. How are you?

CVR Extract from after landing until first contact with ground engineer after incident.

Appendix H – Astana ATC Statement and Transcript

From: Air Traffic Controller
Mr. Khegay D. **Date:** 04 July 2014
To: Head of Flight Safety Inspection of Astana International Airport
Mr. Abuov S.G.
Re: Statement

I, Khegay D., was ATC "Ground" of the flight THY 6490 performed with A330 type of aircraft. During the initial radio communication on taxiway "C" it was instructed to taxi along taxiway "C" via apron gate #2. The flight crew confirmed the information. During the taxiing I noticed that the aircraft deviated from the cleared route and I gave the instruction: "Hold position", which means "I prohibit taxiing" according to the Rules of Radiotelephony Phraseology of the Republic of Kazakhstan, par. 38. 2). After the instruction: "Hold position" was given, the aircraft still taxied for some time and then stopped.

Statement from Astana Airport Air Traffic Control

ВЫПИСКА

из магнитофонной записи радиообмена между экипажами
и диспетчером

Диспетчер: **ВС А-330** Номер рейса **ТНУ 6490**
Руленне (Херай Д.Н.) **Вышка (Турдиева М.Р.)**
 «29» июня 2014 г. с 07.55 UTC. до 08.20 UTC.

КТО ГОВОРИТ	Время	Фактический р/обмен.
Э	07.55.28	Astana Tower, Turkish 6490. Good afternoon! Established localizer RW04.
Д		Turkish 6490, Astana Tower. Good afternoon! Continue approach.
Э		Continue approach. Turkish 6490.
Д	07.56.31	Turkish 6490, surface wind 050 degrees 3 gust 6 m/s.
		Cleared to land,
Э		Cleared to land RW04. Turkish 6490
Д	07.59.49	Turkish 6490, vacate to the left. via TW-C
Э		Vacate left. Turkish 6490
Д	08.00.06	Turkish 6490, contact Astana Ground 119.6
Э		119.6. Turkish 6490.
Э	08.00.22	Ground, Turkish 6490. Good afternoon!
Д		Turkish 6490, Astana Tower. Good afternoon! Via TW-C, apron. Gate number two.
Э		"C", apron. Gate number two. Turkish 6490.
Д	08.01.50	Turkish 6490, Astana Ground.
Э		Turkish 6490
Д		Turkish 6490, hold position. Wait "follow me" car
Э		Hold position. Turkish 6490
Э	08.02.22	Turkish 6490. Holding present position..
Д	08.02.33	6490, hold position.
Э	08.05.24	Ground, Turkish 6490.
Д		6490, Astana Ground. Hold position
Э		Okay! We holding position. Do you want us to shut down engines?
Д		Turkish 6490, shut down engines.
Э		Stand by. There I see Marshaller coming to us.

		Выписку произвёл:
		Диспетчер средств объективного контроля Игнатченко Д.М.

Transcript from Astana ATC.

- End of Report -