AIRCRAFT SERIOUS INCIDENT REPORT AND EXECUTIVE SUMMARY

			Reference:	CA18/3/2/1401		
Aircraft Registration	ET-ANN	**Date of Incident**	19 October 2022	**Time of Incident**	1154Z	
Type of Aircraft	Boeing 777-260LR		**Type of Operation**	Air Transport (Part 121)		
Pilot-in-command Licence Type	Airline Transport Pilot		**Age**	36	**Licence Valid**	Yes
Pilot-in-command Flying Experience		**Total Flying Hours**	9 900.0	**Hours on Type**	2 100.0	
Last Point of Departure	Addis Ababa Bole International Aerodrome (HAAB), Ethiopia					
Next Point of Intended Landing	Cape Town International Aerodrome (FACT), South Africa					
Damage to Aircraft	Minor					

Location of the incident site with reference to easily defined geographical points (GPS readings if possible)

Parking bay A3 at FACT (GPS position: 33°57’59.45” South 018°35’48.95” East), elevation 154 feet (ft)

Meteorological Information	Surface wind: 330°/14 knots; temperature: 22°C; visibility: CAVOK						
Number of People On-board	13 + 305	**Number of People Injured**	0	**Number of People Killed**	0	**Other (On Ground)**	0

Synopsis

On Wednesday, 19 October 2022, a Boeing 777-260LR with registration ET-ANN – a scheduled international flight ET847 – departed Addis Ababa Bole International Aerodrome (HAAB) in Ethiopia to Cape Town International Aerodrome (FACT) in South Africa. On-board the aircraft were thirteen (13) crew members and three hundred and five (305) passengers. The aircraft landed at FACT on Runway 01 at 1148Z. The apron office (AO) had allocated parking bay Alpha 3 (A3) for the aircraft.

A marshaller and a trainee marshaller were dispatched to the parking bay (A3) by the AO. On arrival at the parking bay, a ramp agent who was also waiting for the aircraft informed them that the information displayed on the Advance Visual Docking Guidance System (AVDGS) was for a Boeing 787-900 and that the aircraft that had just landed was a Boeing 777-200. He stated that the information on the AVDGS system needs to be corrected by the AO. However, the AVDGS system was not corrected. The marshaller opted to marshal the aircraft (Boeing 777-200) to the nose wheel docking marker for a Boeing 777-300. *The B777-300 is 10.2 metres (m) or 33.5 feet (ft) longer than the Boeing 777-200.* Prior to the Boeing 777-200 coming to a stop, the number one (No.1) engine inlet cowling top section of the aircraft impacted the passenger airbridge which was parked in parking circle 2.

No person was injured during this serious incident. The Boeing 777-200 was grounded so that inspection and repairs could be carried out, and the passenger airbridge was put out of service as several motion sensors were damaged and needed to be replaced.

Probable Cause

The Boeing 777-200 was marshalled to the incorrect nose wheel docking marking, which led to the aircraft's No.1 engine inlet cowling top section impacting the passenger airbridge.

Contributory Factors

(i) The movement message sent by the Ethiopian Airline to the AO at 0621Z contained conflicting information with two different aircraft registrations mentioned, one in the subject line and the other in the body of the email message.

(ii) The AVGDS was setup for a B787-900, which was incorrect.

(iii) Neither the marshaller nor the trainee noticed that the aircraft they were marshalling was a B777-200. They were informed by a ramp agent who was at the parking bay that the aircraft that had landed was a B777-200. The marshaller contacted the AO who confirmed that the aircraft type is a B787-900 (ET-AUP). The marshaller proceeded to marshal the aircraft to the nose wheel marker for a B777-300, which was approximately 10m longer (further in) than that of the B777-200.

(iv) The passenger airbridge was parked in parking circle 2, which resulted in safety clearance being compromised as the aircraft (B777-200) was taxiing into the parking bay.

(v) Before the aircraft was instructed by the marshaller to stop, the aircraft's No.1 engine inlet cowling top section impacted the passenger airbridge.

(vi) It was not possible for the airbridge operator to warn the marshaller about the impending collision as he was not in radio contact with him. Moreover, the service door of the passenger bridge is on the right-side. As the aircraft was taxiing into the parking bay, the operator was unable to open the door. Also, there was no window on the left-side of the passenger airbridge that he would have used to alert the marshaller.

SRP date	14 February 2023	Publication date	17 February 2023

Occurrence Details

Reference Number	**:** CA18/3/2/1401
Occurrence Category	**:** Serious Incident (Category 2)
Type of Operation	**:** Air Transport Operations (Part 121)
Name of Operator	**:** Ethiopian Airlines
Aircraft Registrations	**:** ET-ANN
Aircraft Make and Model	**:** Boeing 777-260LR
Nationality	**:** Ethiopian
Place	**:** Cape Town International Aerodrome (FACT)
Date and Time	**:** 19 October 2022 at 1154Z
Injuries	**:** None
Damage	**:** Minor

Purpose of the Investigation

In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.

All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.

Investigation Process

The Accident and Incident Investigations Division (AIID) of the South African Civil Aviation Authority (SACAA) was notified of the occurrence on 19 October 2022 at 1723Z. The occurrence was categorised as a serious incident according to Part 12 of CAR 2011 and ICAO STD Annex 13 definitions. The notifications were sent to the State of Registry/Operator in accordance with CAR 2011 Part 12 and ICAO Annex 13 Chapter 4. The State of Registry/Operator appointed an accredited representative. The investigator did not dispatch to the serious incident site.

Notes:

1. *Whenever the following words are mentioned in this report, they shall mean the following:*
   Serious incident — this investigated serious incident
   Aircraft — the Boeing 777-260LR involved in this serious incident
   Investigation — the investigation into the circumstances of this serious incident
   Pilot — the pilot involved in this serious incident
   Report — this serious incident report

2. *Photos and figures used in this report were taken from different sources and may have been adjusted from the original for the sole purpose of improving clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression; or enhancement of colour, brightness, contrast; or addition of text boxes, arrows, or lines.*

Disclaimer

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Abbreviation	Description
°	Degrees
°C	Degrees Celsius
A	Alpha
ACSA	Airports Company South Africa
AIID	Accident and Incident Investigations Division
AIP	Aeronautical Information Publication
AO	Apron Office
ATC	Air Traffic Control
AVDGS	Advance Visual Docking Guidance System
B	Bravo
CAVOK	Ceiling and Visibility OK
CCTV	Close Circuit Television
C of A	Certificate of Airworthiness
C of R	Certificate of Registration
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
DTG	Date Time Group
DOF	Date of Flight
FACT	Cape Town International Aerodrome
FDR	Flight Data Recorder
FO	First Officer
FPL	Flight Plan
Ft	Feet (dimensional unit)
HAAB	Addis Ababa Bole International Aerodrome
hPa	Hectopascal
ICAO	International Civil Aviation Organisation
Kt	Knots
LED	Light-emitting diode
M	Metres (dimensional unit)
METAR	Meteorological Aerodrome Report
MHz	Megahertz
MTOW	Maximum Take-off Weight
NOSIG	No Significant Change within 2 hours
PAPI	Precision Approach Path Indicators
PIC	Pilot-in-Command
SACAA	South African Civil Aviation Authority
SAWS	South African Weather Service
QNH	Barometric pressure adjusted to sea level
UTC	Universal Co-ordinated Time
Z	Zulu (Term for Universal Co-ordinated Time - Zero Hours Greenwich)

1. FACTUAL INFORMATION

1.1. History of Flight

1.1.1 The Boeing 777-260LR aircraft with registration ET-ANN – a scheduled international passenger flight ET847 – departed Addis Ababa Bole International Aerodrome (HAAB) to Cape Town International Aerodrome (FACT) in South Africa. On-board the aircraft were thirteen (13) crewmembers and three hundred and five (305) passengers. The aircraft landed on Runway 01 at FACT at 1148Z on 19 October 2022.

1.1.2 According to the aerodrome licence holder, all airlines must, one day prior to arrival, forward the registration and aircraft type they will be flying to FACT apron office (AO). According to the 'next day operational plan' (NDOP) that was compiled on 18 October 2022 by the aerodrome licence holder, the aircraft type for flight ET847 was entered as a 77W (Boeing 777-300); no aircraft registration was entered on the document. This document was forwarded to the AO for the attention of the marshallers who would be on duty the following day – 19 October 2022 (see Appendix A).

1.1.3 On the morning of 19 October 2022 at 0448Z, the Airport Management Solutions (AMS) system was updated after the AO received a telephone call at 0444Z from a representative of the Ethiopian Airline, indicating that the aircraft for flight ET847 would be a B77L (Boeing 777-200) with registration ET-ANN. At 0621Z, the Ethiopian Airline sent a movement message to the AO which confirmed the aircraft type, registration and the estimated time of arrival (ETA). At 0640Z, the AO updated the AMS system with the aircraft registration ET-AUP, which is a Boeing 787-900 (B787-900), as per the information on the movement message that was sent at 0621Z. The movement message, which is in email format, contained the following text in the subject line: ***MVT … 19 OCT … 847 … ADD … CPT … ANN … 77L (B777-200)***. The body of the message contained the following text: ***MVT ET847 / 19. ET-AUP. ADD AD0520 / 0542 / EA 1200 OB // 305*** (see Appendix B). At 1137Z, the marshallers on duty (of which one was a trainee) were advised to make their way to the parking bay Alpha 3 (A3) for the arrival of flight ET847.

1.1.4 Parking bay A3 was allocated to the arriving aircraft (see Figure 1). During the marshallers' parking bay inspection prior to the arrival of the aircraft, they were advised by a ramp agent, who was also waiting for the aircraft, that the aircraft that had landed was a B777-200 and not a B787-900 as displayed on the Advance Visual Docking Guidance System (AVDGS). The ramp agent stated that the information on the AVDGS should be updated by the AO. The marshallers then told the ramp agent that they were already advised that the aircraft is a B777-200. Therefore, the AVDGS was not updated.

1.1.5 According to the marshaller, there was a B787-900 parked at parking bay A5 at the time. He stated that he had noticed that the aircraft that was taxiing to the parking bay A3 looked 'different'. According to the aerodrome licence holder, the AVDGS system was not activated

for this specific docking and would have remained on “STOP WAIT” on the AVDGS display.

1.1.6 Although the marshaller had noticed that the aircraft was ‘different’, he decided to continue to marshal the aircraft into the parking bay A3. *It should be noted that the passenger airbridge was stationed at parking circle 2 at the time. There are two white parking cycles (demarcated areas) painted on the apron for the passenger airbridge – parking circle 1 and 2 (see Figures 7 and 8).*

1.1.7 The marshaller then climbed up the marshalling stand and continued to marshal the aircraft into the parking bay in line with the nose wheel docking position for a B777-300. *Several nose wheel markers are painted on the apron next to the nose wheel taxi line (see Figure 6).* The marshaller stated that the moment he realised that the left engine inlet cowling top section had impacted the passenger airbridge, he signalled the aircraft to stop. At that time, the aircraft had already slightly gone over the nose wheel docking marker for a B777-300. He then climbed down from the marshalling stand and made his way to the service vehicle to inform the AO that the aircraft was not a B787-900. The AO then requested the aircraft registration from the marshaller, who responded that the aircraft, a B777-200, was parked at a B777-300 nose wheel docking position, and that the aircraft had collided with the passenger airbridge (parked at parking circle 2).

1.1.8 The passenger airbridge operator stated that he realised that the aircraft was getting closer to the airbridge, but he was unable to warn the marshaller as the service door to the airbridge was on the right-side (when standing in the passenger airbridge behind the control panel and looking forward) and the marshaller was on the marshalling stand, which was to his left-side of the passenger airbridge. There is no window on the left-side of the passenger airbridge that the operator could have used to get the attention of the marshaller. The trainee marshaller, who was standing at the apron watching, did not intervene with the marshaller.

1.1.9 Following the collision, the pilot-in-command (PIC) of the B777-200 refused the request to pushed back the aircraft to the correct nose wheel docking position. This delayed the passengers and crew from disembarking from the aircraft. Before the passengers and crew could disembark from the aircraft, it was decided that the left main gear oleo strut be partially deflated to allow sufficient clearance between the top of the engine inlet cowling and the airbridge to prevent any further damage.

1.1.10 The B777-200 was then grounded. After all the role players had conducted their respective on-site investigations, the aircraft was moved to a parking bay in the Bravo (B) apron. A team of engineers from the Ethiopian Airline maintenance organisation was flown in from Addis Ababa to inspect the aircraft and to perform the required repairs, whereafter the aircraft was returned to service.

1.1.11 Several of the motion sensors on the passenger airbridge were damaged during the impact sequence, and thus, it was put out of service until the sensors were replaced.

1.1.12 The incident was captured on closed circuit television (CCTV), which was impounded by the aerodrome licence holder.

1.1.13 The marshaller was current on aircraft recognition. According to the information received from the aerodrome licence holder, the marshallers are trained on aircraft recognition every 90 days.

1.1.14 The flight plan (FPL) that was filed on the date and time group (DTG) on 19 October 2022 at 0303Z showed that the aircraft type was entered as a B77L with registration ET-ANN. This was the same information that was entered in the subject line of the movement message that was emailed by the Ethiopian Airline to the AO at 0621Z. The same information was communicated during a telephone call at 0444Z by the Ethiopian Airline representative to the AO personnel. At 0640Z, the system was updated by the AO with the registration ET-AUP (aircraft type B787-900), which was in line with the movement message data received from the Ethiopian Airline.

1.1.15 The serious incident occurred during daylight at parking bay A3 at FACT at GPS position 33°57’59.45” South 018°35’48.95” East, and at an elevation of 154 feet (ft).

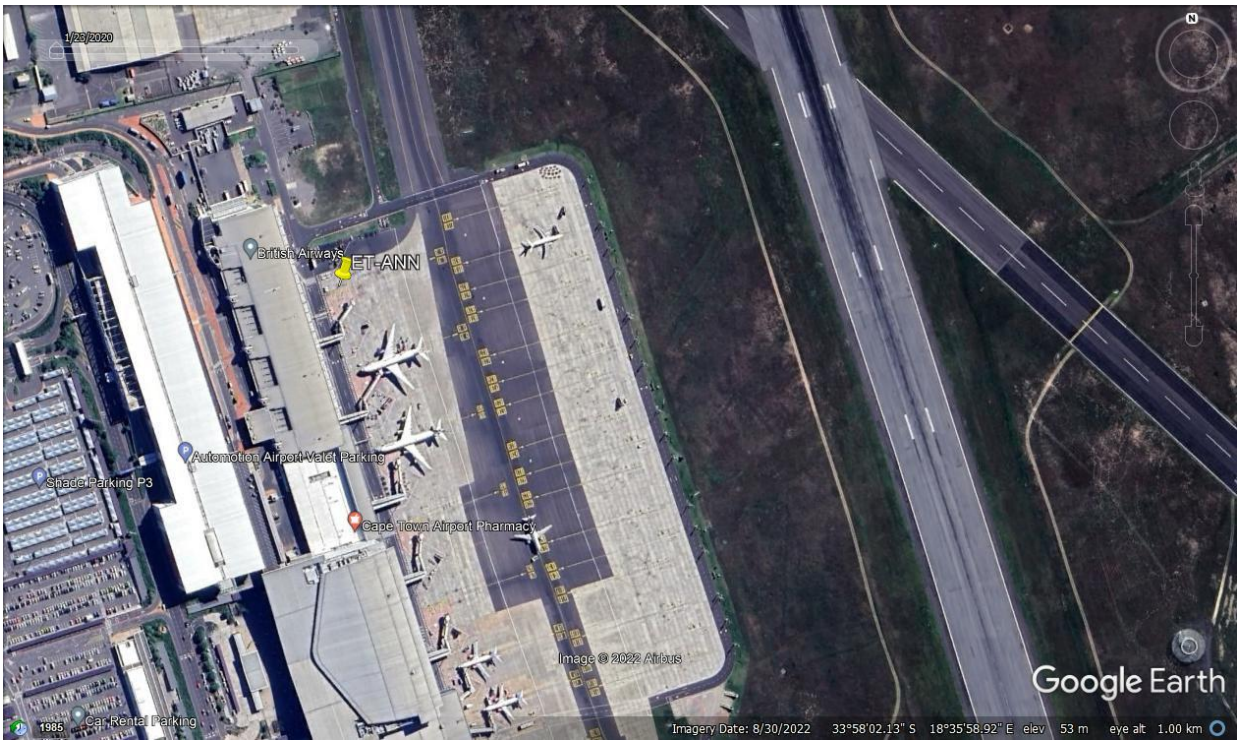

Figure 1: Parking bay A3 at FACT, indicated by the yellow pin ET-ANN. (Source: Google Earth)

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	-	-	-	-	-
Serious	-	-	-	-	-
Minor	-	-	-	-	-
None	2	11	305	318	-
Total	**2**	**11**	**305**	**318**	**-**

Note: Other means people on the ground.

1.3 Damage to Aircraft

1.3.1 The top panel of the inlet cowling of the No.1 engine (left-side) was damaged during impact with the passenger airbridge.

Figure 2: The damage to the No.1 engine inlet cowling.

1.4 Other Damage

1.4.1 Several motion sensors on the passenger airbridge were also damaged; the unit was put out of service to allow time for the sensors to be replaced.

1.5 Personnel Information

1.5.1 Pilot-in-command (PIC)

Nationality	Ethiopian	Gender	Male	Age	36
Licence Type	Airline Transport Pilot Licence				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instrument				
Previous Incidents	Unknown				

Note: Previous serious incidents refer to past serious incidents the pilot was involved in, when relevant to this incident.

Flying Experience:

Total Hours	9 900.0
Total Past 90 Days	210.0
Total on Type Past 90 Days	180.0
Total on Type	2 100.0

1.5.2 First Officer (FO)

Nationality	Ethiopian	Gender	Male	Age	30
Licence Type	Airline Transport Pilot Licence				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Instrument				
Previous Incidents	Unknown				

Note: Previous serious incidents refer to past serious incidents the pilot was involved in, when relevant to this incident.

Flying Experience:

Total Hours	4 001.1
Total Past 90 Days	93.4
Total on Type Past 90 Days	46.7
Total on Type	1 800.8

1.5.3 The Marshaller

According to the information obtained from the aerodrome licence holder, the marshaller had attended the official Marshalling Course over the period 6 and 7 October 2021 on which a certificate No. MARS/1056 was issued with the validity of 6 October 2023. On 12 May 2022, he attended a Marshalling Refresher Course and was issued certificate No. MARSREF/758, with an expiry date of 11 May 2024.

The marshaller was accompanied by a trainee at the time of this serious incident. The trainee dispatched with the marshaller for observation purposes only.

1.6 Aircraft Information

1.6.1 Boeing 777-200LR

On 12 December 2011, Boeing received Extended-range Twin-engine Operational Performance Standard (ETOPS) 330 approval for the Boeing 777 200LR, Boeing 777 300ER, Boeing 777F and Boeing 777 200ER equipped with General Electric engines. This means that these aircraft are certified to fly over water, provided they can fly to the nearest available suitable landing spot in under 330 minutes, flying on one engine only.

Source: https://modernairliners.com/boeing-777/boeing-777-specs/

Figure 3: The ET-ANN aircraft. (Source: Jetphotos.com – Jeremy Denton)

Airframe:

Manufacturer/Model	Boeing 777-260LR	
Serial Number	40770	
Year of Manufacture	2010	
Total Airframe Hours (at time of serious incident)	54 870.44	
Last Inspection (hours & date)	54 752.82	17 October 2022
Airframe Hours Since Last Inspection	117.62	
C of A (issue date) (expiry date)	17 November 2010	4 October 2023
C of R (issue date) (Present Owner)	15 August 2022	
Operating Category	Air Transport Passengers	
Type of Fuel Used	Jet A1	
MTOW	223 167kg	

Engine No. 1:

Manufacturer/Model	General Electric GE90-115B1L
Serial Number	906-896
Hours Since New	51 061.25
Hours Since Overhaul	This is a modular engine

Engine No. 2:

Manufacturer/Model	General Electric GE90-115B1L
Serial Number	901-361
Hours Since New	17 330.00
Hours Since Overhaul	This is a modular engine

1.7 Meteorological Information

1.7.1 The weather information below was obtained from the Meteorological Aerodrome Report (METAR) that was issued by the South African Weather Service (SAWS) for FACT on 19 October 2022 at 1200Z.

FACT 191200Z 33014KT 310V010 CAVOK 22/15 Q1013 NOSIG=

Wind Direction	330°	Wind Speed	14kt	Visibility	+ 10 km
Temperature	22°C	Cloud Cover	Nil	Cloud Base	Nil
Dew Point	15°C	QNH	1013hPa		

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as approved by the Regulator (SACAA). There were no records indicating that the navigation equipment was unserviceable prior to the serious incident.

1.8.2 The aids to navigation had no impact on this serious incident.

1.9 Communication

1.9.1 The aircraft was equipped with a standard communication system as approved by the Regulator. There were no recorded defects with the communication system prior to or during the serious incident.

1.9.2 A flight plan (FPL) was filed for this flight, which displayed B77L as the aircraft type with registration ET-ANN. The DTG was filed according to the flight plan on 19 October 2022 at 0303Z, which was approximately eight (9) hours before the aircraft landed at FACT.

1.9.3 Radio communication did not have any impact on this serious incident.

1.10 Aerodrome Information

Aerodrome Location	Cape Town, South Africa
ICAO Designation	FACT
Aerodrome Status	Licensed
Aerodrome Licence Category	9
Period of Validity	1 October 2022 to 30 September 2023
Aerodrome GPS coordinates	33°58'16.93" South, 018°36'15.45" East
Aerodrome Elevation	151ft
Runway Headings	01/19 06/24
Dimensions of Runways	3 201m x 61m 1 701m x 46m
Runway Used	01
Runway Surface	Asphalt
Approach Facilities	Runway lights, PAPI, ILS Localiser (CTI and KSI), VOR/DME
Radio Frequency	Tower: 118.10 MHz Apron: 122.65 MHz

The aircraft landed on Runway 01, which is 3 201 metres (m) long, 61m wide and covered with asphalt. The average altitude from the sea level is 151ft.

Parking bay A3 was allocated by the AO (see Figure 1). It featured an AVDGS system and CCTV surveillance cameras at the time of the serious incident. A passenger airbridge was parked nearby at the time of the serious incident.

Important information and arrangements of the aerodrome is published for pilots through the Aeronautical Information Publication (AIP). In addition, foreign pilots receive comparable information such as the Jeppesen Route Manual. The Aeronautical Information Services of Air Navigation Services Department of the SACAA communicates changes to foreign route manual editors.

1.11 Flight Recorders

1.11.1 The aircraft was equipped with a flight data recorder (FDR) and a cockpit voice recorder (CVR), the units were not removed from the aircraft for this investigation.

1.12 Wreckage and Impact Information

1.12.1 The aircraft was marshalled into parking bay A3 (Figure 4) to the nose wheel docking marker for a B777-300. Prior to bringing the aircraft to a stop, the No.1 engine inlet cowling top section impacted the passenger airbridge that was stationary in parking circle 2. The marshaller did not notice the potential hazard until after the engine inlet cowling had impacted the airbridge; soon after, he signalled the aircraft to a stop.

Figure 4: A still image of the aircraft being marshalled into parking bay A3.
(Source: Aerodrome Licence Holder)

Figure 5: The No.1 engine inlet cowling top sections after impacting the passenger airbridge.

Figure 6: The aircraft as it came to a stop in parking bay A3.

Figure 7: The nose wheel docking marker on the apron for the B777-300.

Figure 8: The nose wheel docking marker painted on the apron for the Boeing 777-200.

Figure 9: The position of the airbridge in the demarcated parking circle No.2 (see yellow window).

Figure 10: The aircraft in parking bay A3, with the impact area in the red window.
(Source: Aerodrome Licence Holder)

1.13 Medical and Pathological Information

1.13.1 Not applicable.

1.14 Fire

1.14.1 There was no evidence of a pre- or post-impact fire.

1.15 Survival Aspects

1.15.1 The serious incident was survivable. All the occupants as well as all the crew members were strapped in at the time.

1.16 Tests and Research

1.16.1 None.

1.17 Organisational and Management Information

1.17.1 The operator was issued an Air Operating Certificate (AOC) number 17 with an expiry date of 30 October 2023 by the Ethiopian Civil Aviation Authority. The incident aircraft was duly authorised to operate under the AOC.

1.17.2 FACT was issued a Category 9 aerodrome licence with a validity date from 1 October 2022 to 30 September 2023.

1.18 Additional Information

1.18.1 Aeronautical Information Publication (AIP) 2-FACT-5, dated 15 April 20:

Flight Number, Aircraft Type and Registration Required for Parking Bay Allocation at FACT

For the aerodrome licence holder to ensure their parking system function optimally they require that all airlines (domestic and international) arriving at the aerodrome supply the Apron Office (AO) with the correct aircraft type, registration, estimated time of arrival (ETA), number of people on board (POB) and aerodrome of departure, which is as per AIP 2-FACT-5 (see a copy of the applicable AIP page attached to this report as Appendix C).

1.18.2 Aircraft Recognition

The marshaller was trained in aircraft recognition, according to the aerodrome licence holder. All marshallers receive recurring training every 90 days. The marshaller was informed by a ramp agent at the gate that the B777-200 was taxiing and that the AVDGS display was incorrect as it displayed B787-900 information.

The marshaller had several sources of information at his disposal to seek clarity: (i) the Next Day Operation Plan (NDOP) also referred to as a Baylist, indicated the aircraft type as a 77W, which is a B777-300, (ii) information provided by the AO indicated the aircraft as a B787-900. As with most aircraft, the aircraft type is written above the aircraft registration (ET-ANN) on the aft fuselage on both sides (seen Figure 10). The aircraft type is captured in the red window in Figure 11.

Figure 11: The aircraft type is written on the aft fuselage, above the registration.

1.18.3 ICAO Doc 8643 (Aircraft Type Designators)

According to the ICAO Doc 8643 with reference to the aircraft type 77W, indicated the aircraft model to be that of a Boeing 777-300 series.

ICAO Doc 8643 Part 2, page 10 was also referenced to check the aircraft type designation, and it indicated that the designation 77W is that of a Boeing 777-300 series aircraft.

The flight plan that was filed for this flight indicated the aircraft type to be a B77L, which is a Boeing 777-200 series aircraft as per ICAO Doc 8643.

1.18.4 Aircraft Dimensions

The dimensions of the Boeing 777-200LR and the 777-300ER are the same except for the length of the fuselage, with the 777-300ER being 10.2m (33.5ft) longer than the 777-200LR, which makes a substantial difference when it comes to parking the aircraft. The wingspan is the same at 64.8m (212ft). (Source: www.boeing.com)

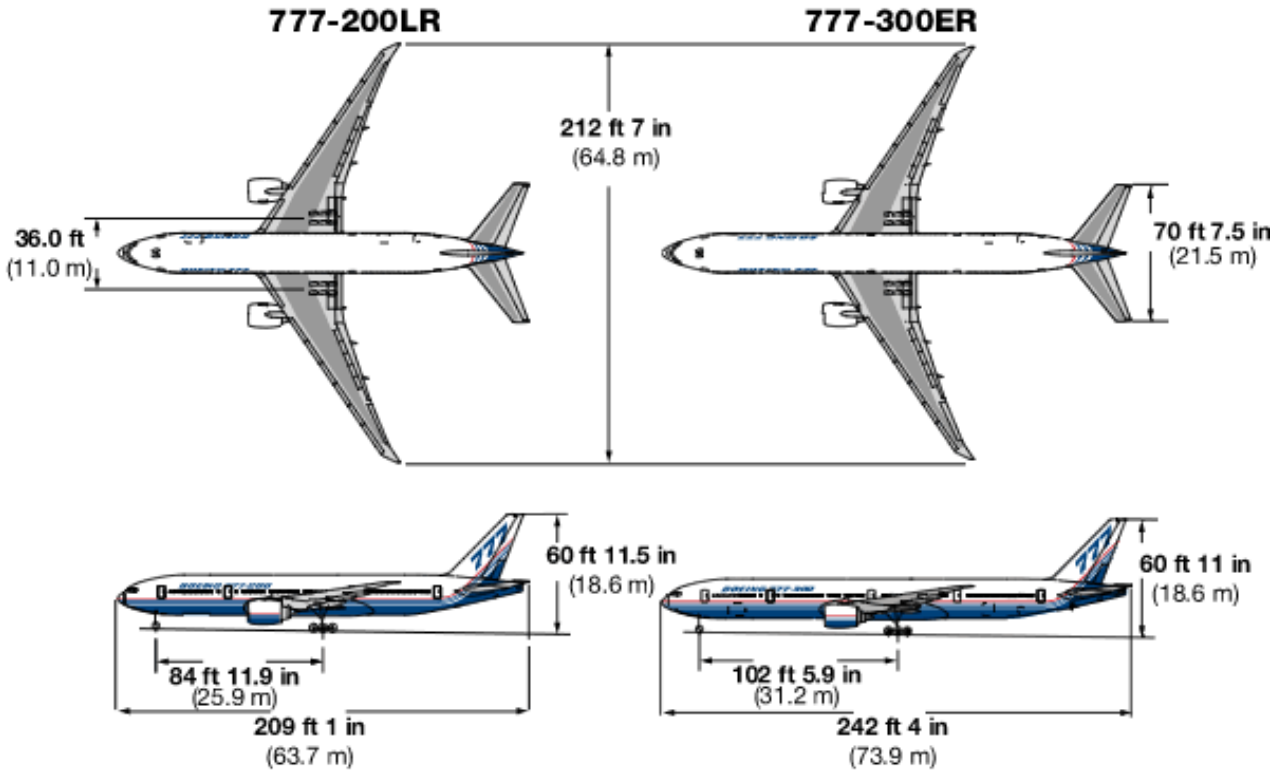

Diagram 1: Dimensional differences between B777-200 and B777-300.

(Source: https://modernairliners.com/boeing-777/boeing-777-specs/)

1.18.5 Airbridge Operator Training Manual (Revision Number: 03.0)

The aerodrome licence holder had provided the investigator with the Airbridge Operator Training Manual.

On page 31, under sub-heading 8, Operation of the Aprondrive Bridge 8.1 Pre-Checks, the following is stated under bullet point 3: *"Check parking position – bridge must be completely retracted with the bogie wheels inside the marked parking circle. The bridge will normally be parked in circle 2, furthest from the service road."*

On page 34, under sub-heading 9, Return Bridge to Parking Position, 9.4 Retract and Park Bridge, the following is stated under bullet point 3: *"Move the bridge towards the main parking circle (circle 2, furthest from service road) as marked on the apron."*

The manual does not mention as to when parking circle 1 should be used.

1.18.6 AVDGS Display Screen

During the investigator's visit to the apron area on 2 November 2022, he witnessed the arrival of an aircraft at parking bay A3. It was noted that the AVDGS display was not very clear. The photographic evidence was taken during daylight in rainy conditions. Rainy conditions (overcast conditions) allowed for better visibility than what one would experience on a clear day with the sun reflected on the display unit whilst the crew is taxiing into the parking bay. Some of the display unit content (letters and numbers) had faded. Although the display unit did not contribute to the serious incident or caused it, it posed a safety risk.

Figure 12: Close-up view of the display unit at parking bay A4.

Figure 13: Close-up view of the display unit at parking bay A3.

Figure 14: A view of the display unit as seen in Figure 12, taken further away.

Figure 15: A view of the active display unit taken while an aircraft was taxiing into the parking bay.

Figure 16: A view of the ADS panel at parking bay A3. (Source: Aerodrome Licence Holder)

The message displayed on the panel in Figure 16 is as follow: *"AMMS INFORMATION ET847 FROM ADD B787-9 OFF CANCEL ACKN".* It should be noted that this photograph was taken after the serious incident and was provided by the aerodrome licence holder.

1.19 Useful or Effective Investigation Techniques

1.19.1 No new methods were used.

2. ANALYSIS

2.1 General

From the available evidence, the following analysis was made with respect to this serious incident. This shall not be read as apportioning blame or liability to any organisation or individual.

2.2 Analysis

2.2.1 The Crew

The cockpit crew of the aircraft had the required licences, and they were qualified to carry out their duties.

2.2.2 The Marshaller

The marshaller was trained to perform his duties. His last refresher course he attended was on 12 May 2022. He was also trained on aircraft recognition but was unable to correctly identify the aircraft type that was taxiing to the parking bay as a B777-200 on the day. The marshaller and the trainee were informed by a ramp agent that the aircraft that had landed was a B777-200 and not a B787-900 as was displayed on the AVDGS. The marshaller then opted to marshal the aircraft manually into the parking bay, but without verifying his facts. He marshalled the aircraft to the nose wheel marker of a B777-300 as per the NDOP, which indicated the aircraft type to be a 77W (B777-300) and which is 10.2m (33.5ft) longer than the B777-200. Due to the difference in length between the two models, the No. 1 engine inlet cowling impacted the passenger airbridge, which was parked at parking circle 2.

2.2.3 The Aircraft

There were no reported defects with the aircraft that would have contributed or have caused the serious incident. The registration and airworthiness certificates of the aircraft were valid. The damage was limited to the No.1 engine inlet cowling top section. The aircraft was inspected, and the repairs were carried out by the engineering team that was flown in from Addis Ababa.

2.2.4 Airbridge Parking Position

According to the Airbridge Operator Training Manual that was provided by the aerodrome licence holder, reference to parking the passenger airbridge is presented under two sub-headings on pages 31 and 34, respectively.

On page 31 it states the following, *"Check parking position – bridge must be completely retracted with the bogie wheels inside the marked parking circle. The bridge will normally be parked in circle 2, furthest from the service road."*

On page 34 it states the following, *"Move the bridge towards the main parking circle (circle 2, furthest from service road) as marked on the apron."*

The manual only makes reference to parking the passenger airbridge in parking circle 2, with a note stating, "*furthest from the service road".* Nowhere in the manual does it mention when parking circle 1 should be used.

On the CCTV footage and on several figures under sub-heading 1.13 of this report, the passenger airbridge is parked in parking circle 2. If it was parked in parking circle 1, there

would have been additional clearance available between the airbridge and the engine inlet cowling even if the aircraft was parked on the nose wheel docking marker for a Boeing 777-300.

The reason as to why there are two parking circles for the airbridge at parking bays A3 and A4 is not clear to the investigator as it does not show good judgement to have two parking circles of which there is only reference to one of the parking circles in the Airbridge Operator Training Manual. The phrase "*furthest from the service road"* is confusing as the emphasis would appear to be for road traffic (vehicles, trucks, etc.) on the apron/service road and not the aircraft traffic. Both these passenger airbridges are supported by what the manual refers to as a *Rotunda*, which is a fixed cylindrical structure that connects the fixed part of the passenger airbridge from the terminal building with the swivelling part of the bridge. In Figure 9, two of these fixed structures (Rotunda) are visible, and they are much closer to the service road than the Bogie structure of the passenger airbridge, yet the Airbridge Operator Training Manual is silent on this aspect.

During a visit to the apron on 2 November 2022, the investigator noted that the passenger airbridges at parking bay A3 as well as A4 were parked in parking circle 1. It is clear from the photographic evidence that when the airbridge is parked in parking circle 1, there is additional clearance available between the passenger airbridge and the No.1 engine cowling or even the wing of the aircraft (see Figure 16). Another observation with reference to the passenger airbridge at these two parking bays was that the service door was located on the right-side via a stairway, which already resulted in the safety margin being compromised.

Figure 17: A view of the airbridge parked in parking circle 1, with an aircraft taxiing into A3. (This photograph was taken on 2 November 2022 by the investigator)

2.2.5 Environment

It was a clear sunny day in Cape Town, and the prevailing weather conditions had no bearing to this serious incident.

2.2.6 Flight Plan

A flight plan was filed for this flight with air traffic services and contained the correct information on the aircraft type and registration. The date time group (DTG) on the flight plan indicated that it was filed on 19 October 2022 at 0303Z. It is clear from the evidence available that the AO was not privy to this information from air traffic services. The flight plan was filed approximately nine (9) hours before the aircraft landed at FACT.

2.2.7 Conclusion

This serious incident occurred because of various shortcomings in the system, which could be primarily attributed to conflicting information and the interpretation thereof.

(i) The marshallers' office, through the AO, was provided with what the aerodrome licence holder refers to as a 'next day operational plan' (NDOP) on 18 October 2022. In this document, the aircraft type that was expected for flight ET847 the following day was entered as a 77W (B777-300), no aircraft registration was entered on the NDOP document (see Appendix A). This document contained all the movements for the day, including arrivals and departures.

(ii) On the morning of 19 October 2022, the AO at FACT received a telephone call from the Ethiopian Airline employee at 0444Z, who informed them that the aircraft for flight ET847 is a B77L (B777-200) with registration ET-ANN. This was followed up by a movement message from the Ethiopian Airline to the AO at 0621Z.

(iii) At 0640Z, the AMS system was updated by the AO, which indicated the aircraft registration as ET-AUP, and which was a B787-900. When evaluating the movement message, which is in an email format, the information was conflicting as the Subject Line contained the following information: ***MVT … 19 OCT … 847 … ADD … CPT … ANN … 77L (B777-200)***, which was in line with the information that was provided to the AO at 0444Z over the telephone. However, it would appear that the confusion arose when the AO read the text in the movement message (body of the email) as displayed below, which indicated the aircraft registration as ET-AUP (B787-900), which was erroneous as it should have been ET-ANN.

(iv) It could not be established as to why the AO office changed the aircraft type to a (B787-900) as the correct information was provided to them verbally unless they regarded the text in the movement message as primary and, therefore, overrode the verbal information and the content in the subject line. The AO had also set up the AVDGS for a B787-900 (see Figure 15), which was erroneous as the aircraft that landed was indeed a B777-200, with registration ET-ANN.

(v) After the marshallers arrived at parking bay A3, they were informed by a ramp agent who was also waiting for the aircraft to taxi that the aircraft that had landed was not a B787-900 as displayed on the AVDGS system, but a B777-200. The marshallers then replied that they were already informed that it was a B777-200.

(vi) The qualified marshaller ascended the marshalling stand from where he marshalled the aircraft into the parking bay. The marshaller failed to recognise that the aircraft that was approaching the parking bay was a B777-200 and proceeded to marshal the aircraft to the nose wheel docking marker of a B777-300. The aircraft type was written on the aft section fuselage on both sides (see Figure 11). The difference in size between the two aircraft is notable as the 300 series is 10.2m (33.5ft) longer than that of the 200 series. This resulted in the aircraft taxiing approximately 10m over the nose wheel docking marker on the apron for a B777-200.

(vii) Another significant factor that was found to have contributed to this serious incident was the fact that the passenger airbridge was parked on parking circle 2. The investigator could not determine why there were two parking circles at these parking bays. The Airbridge Operator Training Manual did not provide any information that could provide guidance on this matter. The only reference made in the manual was that the passenger airbridge should be parked in parking circle 2, *"which was the furthest from the service road".* The vehicle traffic that was making use of the service road (airside) would appear to be the aerodrome licence holder's primary safety concern, and not the safety of aircraft if this was their rational behind it.

(viii) It was further noted that not a single person waiting at the parking bay for the aircraft (of which there were several) at any stage warned the marshaller that the aircraft was approaching the passenger airbridge, and that there could be a potential collision. The airbridge operator stated that the service door to the passenger airbridge was on the right-side, and with the aircraft taxiing into the parking bay, he was unable to open

the service door to warn the marshaller to stop the aircraft prior to impact. There was also no window that he would have used on the left-side of the airbridge to alert the marshaller.

(ix) The Ethiopian Airline crew had indicated in an email to the investigator that the crew have called the AO on 122.65-Megahertz (MHz) after landing at FACT and provided the official with the correct aircraft information as required by AIP 2-FACT-5, dated 15 April 20 (see Appendix A). The aerodrome licence holder indicated that they generally record communication on this channel, but due to a technical glitch, the information was not available for this flight and could, therefore, not be verified.

(x) The marshaller did not identify the aircraft type correctly even though he was informed of the correct aircraft type by the ramp agent at the parking bay. The marshaller marshalled the aircraft as per the information entered on the NDOP (77W – B777-300) to the incorrect nose wheel marking, which resulted in the No.1 engine inlet top cowling being damaged when it impacted the passenger airbridge.

(xi) The aerodrome licence holder AO communicated with the aircraft crew after the aircraft had landed at FACT. The aircraft type and registration were communicated to the AO, but the AVGDS was not accordingly updated. Therefore, to the marshaller, it would appear that he was provided with the correct information. And if that were the case, he did not marshal the aircraft to the correct nose wheel marking.

(xii) The fact that the flight plan contained the correct information on the aircraft type and registration confirm the breakdown in communication as neither of the systems/service providers interacted or engaged with one another. It is not out of the norm for airlines to change an aircraft on a specific route at short notice as aircraft serviceability and many other factors could affect planning, rostering and dispatching.

(xiii) According to the aerodrome licence holder, this is not part of their formal process as the AO works on communication and correspondence received from the respective airlines.

(xiv) The marshaller who was the last safety link in the chain of events marshalled the aircraft to the incorrect nose wheel marking, which resulted in the engine inlet cowling top section impacting the passenger airbridge, which was stationary in parking circle 2 at the time.

3. CONCLUSION

3.1 General

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

To serve the objective of this investigation, the following sections are included in the conclusion heading:

- **Findings —** are statements of all significant conditions, events, or circumstances in this incident. The findings are significant steps in this 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 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 incident occurring, or would have mitigated the severity of the consequences of the 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 cockpit crew of the aircraft had the required licences and were qualified to carry out their duties.

3.2.2 The aircraft Certificate of Airworthiness (C of A) was issued on 17 February 2010 with an expiry date of 4 October 2023.

3.2.3 The aircraft had no technical malfunctions prior to the damage.

3.2.4 Neither the CVR nor FDR were preserved for the investigation of this serious incident.

3.2.5 The marshaller had a Marshalling Certificate which he acquired after he had completed the course on 6 and 7 October 2021. He attended a refresher course on 12 May 2022, with a validity date of 11 May 2024.

3.2.6 The information that was displayed on the AVDGS at parking bay A3 at the time was for the B787-900, which was erroneous.

3.2.7 The marshaller and the trainee were informed by a ramp agent at the parking bay that the aircraft that landed was not a B787-900 as displayed on the AVDGS, but a B777-200.

3.2.8 The marshaller was not allowed to follow verbal information/instructions from other sources (outside of the aerodrome licence holder procedures) as referenced in 3.1.7.

3.2.9 The crew followed the instructions of the marshaller who marshalled the aircraft into the parking bay.

3.2.10 The marshaller marshalled the aircraft, which was a B777-200, to the nose wheel marking reserved for B777-300 aircraft.

3.2.11 The marshaller did not regard the position of the passenger airbridge could be a hazard at the time and continued to marshal the aircraft into the parking bay until the aircraft collided with it.

3.2.12 The passenger airbridge was parked on parking circle 2 (white circle painted on the apron), which resulted in additional safety clearance being compromised between the aircraft and the passenger airbridge when parked in parking circle 1.

3.2.13 The service door to the passenger airbridge was located on the right-side (see access stairway to service door in Figure 17). The passenger airbridge operator was unable to open the door to warn the marshaller of the impending collision. There was also no window he could have used on the left-side of the airbridge to do the same; neither was he in radio contact with the marshaller.

3.2.14 There was no intervention or warning given to the marshaller by any persons who were in the vicinity of the parking bay, including the trainee marshaller.

3.2.15 The flight plan that was filed on 19 October 2022 at 0303Z reflected the aircraft type as a B77L which, according to ICAO Doc 8643, is a Boeing 777-200 series aircraft.

3.2.16 Fine weather conditions prevailed at the time of the serious incident; the weather had no bearing to this incident.

3.2.17 FACT had a Category 9 aerodrome licence with a validity date of 30 September 2023.

3.2.18 The aircraft was grounded after the incident and a team of engineers was flown in from Addis Ababa to inspect the aircraft. The engine inlet cowling top panel was replaced in accordance with maintenance manual reference 71-11-01/401 Revision 96.

3.2.19 No person was injured during this serious incident.

3.3. Probable Cause

3.3.1 The aircraft was marshalled to the incorrect nose wheel marking, which led to the No.1 engine inlet cowling top section impacting the passenger airbridge.

3.4. Contributory Factors

3.4.1 The movement message that was sent by the Ethiopian Airline to the AO at 0621Z contained conflicting information with two different aircraft registrations mentioned, one in the subject line and the other in the body of the email.

3.4.2 The AVGDS was setup for a B787-900, which was incorrect.

3.4.3 The marshaller did not recognise the aircraft type that was taxiing to the parking bay as a B777-200. He was informed by a ramp agent who was waiting at the parking bay that the aircraft that had landed was a B777-200. The marshaller contacted the AO who confirmed the aircraft type as B787-900 (ET-AUP) before it got to the gate, however the marshaller proceeded to marshal the aircraft to the nose wheel marker for the B777-300, which was approximately 10m further in than the B777-200.

3.4.4 The passenger airbridge was parked in parking circle 2, which resulted in additional safety clearance being compromised as the aircraft was taxiing into the parking bay.

3.4.5 Before the aircraft was instructed by the marshaller to stop, the No. 1 engine inlet cowling top section impacted the passenger airbridge.

3.4.6 It was not possible for the airbridge operator to warn the marshaller of the impending collision as he was not in radio contact with him. As the service door was on the right-side and with the aircraft taxiing into the parking bay, the operator was unable to open the door to warn the marshaller. Furthermore, there was no window on the left-side of the passenger airbridge that the operator would have used to alert the marshaller.

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 AIID expects that all safety issues identified by the investigation are addressed by the receiving States and organisations.

4.2 Safety Recommendations

4.2.1 It is recommended to the Ethiopian Airline to comply with AIP 2-FACT-5, dated 15 April 20, to provide accurate information timeously to the respective aerodromes (Apron Offices) regarding their aircraft type and registration to eliminate confusion and to prevent a recurrence of this serious incident.

4.2.2 The Airbridge Operator Training Manual of the aerodrome licence holder states on pages 31 and 34 that the passenger airbridge should be parked in parking circle 2 *(furthest from the service road)*. Nowhere in the manual is there any reference of when parking circle 1 should be used.

It is recommended that the aerodrome licence holder reviews the content in the manual to allow optimal clearance/space when an aircraft is taxiing into the parking bay.

4.2.3 It is recommended that the aerodrome licence holder remove both marshallers from marshalling duties with immediate effect. The aerodrome licence holder should consider revalidating the marshallers to ensure that they are fit and proficient to proceed with marshalling duties. It is recommended that should the marshallers be found proficient to continue with their functions, they should be retested on a regular basis on 'Aircraft Recognition' as both failed to correctly identify the aircraft that was approaching the parking bay.

4.2.4 It is recommended to the aerodrome licence holder that the AVDGS apron display units be upgraded to light-emitting diode (LED) system as the investigator found the display to be illegible. During the investigator's visit to the apron area on 2 November 2022, it was raining, and the conditions were most favourable for the crew as they had a better view of the AVDGS display unit used to guide the aircraft into parking bay A3. On a clear sunny day, the sun reflects on the display (from the east) and critical information might be difficult to read for the crew. It should be noted that this recommendation was based on observations made at parking bay A3 and A4 during daylight but should be applicable to all parking bays at the airport.

5. APPENDICES

5.1 Appendix A (Copy of the applicable page of the NDOP)
5.2 Appendix B (Movement Message send at 0621Z on 19 October 2022)
5.3 Appendix C (Aeronautical Information Publication (AIP) 2-FACT-5, dated 15 April 20)
5.4 Appendix D (Copy of the flight plan)

This report is issued by:

Accident and Incident Investigations Division
South African Civil Aviation Authority
Republic of South Africa

Appendix A

Wednesday 19/10/2022																		
ARRIVALS									DEPARTURES									
FLT No	ROUTE TYPE	STA	REG	AC TYPE	ROUTE	APRON	CAROUSEL	NOTES	FLT No	ROUTE TYPE	STD	REG	AC TYPE	ROUTE	APRON	CHECK IN	BOARDING	NOTES
BRH753	Domestic	02:45	ZSTGG	733	JNB	F4	-	FRT	BRH724	Domestic	03:30	ZSTGG	733	PLZ	F4	-	-	FRT
BRH751	Domestic	03:00	ZSTIH	73Y	JNB	F2	-	FRT	FA100	Domestic	05:45	ZSSJO	738	JNB	A10	A 91-A100	A10	SCH
BRH749	Domestic	04:15	ZSTGX	73F	JNB	F4	-	FRT	FA128	Domestic	05:50	ZSSJU	738	JNB	A12	A 91-A100	A12	SCH
346184	Domestic	07:00	ZSCBR	BEC	QRA	Z9	-	NON-SCH	4Z600	Domestic	06:00	ZSALP	ERD	BFN	C3	A 41-A 46	C4	SCH
BRH661	Domestic	07:00	ZSTGN	73Y	WKF	B30	-	FRT	5Z990	Domestic	06:00	ZSCMP	CR9	DUR	B1	A 08-A 10	C2	SCH
FA200	Domestic	08:10	ZSSJG	738	JNB	A7	3.5	SCH	FA160	Domestic	06:00	ZSFGD	738	DUR	A15	A 91-A100	C6	SCH
SA303	Domestic	08:15	ZSSFJ	319	JNB	A8	3.3	SCH	SA302	Domestic	06:00	ZSSFK	319	JNB	A7	A 86-A 90	A7	SCH
DE2290	International	08:15	-	332	FRA	A4	1.3	SCH	3462845	International	06:10	MADAM	ER3	WDH	B25	-	-	NON-SCH
5Z810	Domestic	08:25	ZSCMF	CR9	JNB	B1	3.1	SCH	6431846	International	06:10	OHWIX	DF7	QET	B22	-	-	NON-SCH
4Z893	Domestic	08:30	ZSYAF	E90	JNB	A10	3.4	SCH	FA310	Domestic	06:20	ZSFGA	738	HLA	A11	A 91-A100	A11	SCH
WV912	International	08:50	-	ER4	WDH	B19	1.4	SCH	4Z320	International	06:20	ZSOTN	ER3	WDH	C4	A 41-A 46	B1	SCH
GE101	Domestic	09:00	ZSGAL	320	JNB	A11	3.2	SCH	GE110	Domestic	06:30	ZSGAR	320	JNB	A8	A 17-A 20	A8	SCH
BP233	International	09:00	-	E70	GBE	B22	1.1	SCH	4Z611	Domestic	06:30	ZSTFL	ER3	KIM	B7	A 41-A 46	C3	SCH
5Z848	Domestic	09:15	ZSCRJ	CR1	JNB	B15	3.6	SCH	4Z671	Domestic	06:35	ZSYAM	E90	PLZ	B10	A 41-A 46	C5	SCH
SQ478	International	09:25	-	359	SIN	A5	1.2	SCH	FA150	Domestic	06:40	ZSJRM	734	ELS	A16	A 91-A100	C10	SCH
FA298	Domestic	09:30	ZSFGE	738	JNB	A7	3.3	SCH	4Z645	Domestic	06:45	ZSTFK	ER3	UTN	C1	A 41-A 46	C12	SCH
FA462	Domestic	09:35	ZSOAF	734	DUR	A8	3.5	SCH	4Z892	Domestic	06:50	ZSYAL	E90	JNB	B9	A 41-A 46	C8	SCH
4Z622	Domestic	09:40	ZSYAH	E90	GRJ	A12	3.4	SCH	FA293	Domestic	07:15	ZSSJH	738	JNB	A13	A 91-A100	C6	SCH
4Z672	Domestic	09:40	ZSYAM	E90	PLZ	A13	3.2	SCH	4Z621	Domestic	07:15	ZSYAH	E90	GRJ	B12	A 41-A 46	C2	SCH
4Z646	Domestic	09:50	ZSTFK	ER3	UTN	C1	3.1	SCH	1175011	Domestic	07:30	ZSAJD	L45	CPT	Z9	-	-	NON-SCH
4Z601	Domestic	09:55	ZSALP	ERD	BFN	C3	3.6	SCH	FA176	Domestic	08:00	ZSSJT	738	DUR	A14	A 91-A100	C10	SCH
4Z612	Domestic	10:00	ZSTFL	ER3	KIM	C4	3.3	SCH	643861	International	08:45	9HVJN	GLX	MAD	B28	-	-	NON-SCH
LH576	International	10:00	-	343	FRA	A3	1.3	SCH	FA201	Domestic	08:50	ZSSJG	738	JNB	A7	A 91-A100	A7	SCH
SA317	Domestic	10:15	ZSSZJ	320	JNB	A10	3.5	SCH	5Z811	Domestic	08:55	ZSCMR	CR9	JNB	B1	A 08-A 10	C6	SCH
FA151	Domestic	10:30	ZSJRM	734	ELS	A14	3.4	SCH	SA316	Domestic	08:55	ZSSFJ	319	JNB	A8	A 86-A 90	A8	SCH
FA101	Domestic	10:40	ZSSJO	738	JNB	A11	3.3	SCH	4Z902	Domestic	09:20	ZSYAF	E90	JNB	A10	A 41-A 46	A10	SCH
QR1369	International	10:45	-	77W	DOH	B23	1.4	SCH	5Z1812	Domestic	09:30	ZSCMB	CR1	HDS	B13	A 08-A 10	C2	SCH
FA129	Domestic	10:50	ZSSJU	738	JNB	A7	3.2	SCH	BP232	International	09:30	-	E70	GBE	B22	A 61-A 63	B2	SCH
5Z991	Domestic	10:55	ZSCMF	CR9	DUR	B1	3.1	SCH	4Z390	International	09:45	ZSALO	ERD	VFA	C5	A 41-A 46	B4	SCH
BA059	International	11:05	-	772	LHR	A4	1.2	SCH	5Z849	Domestic	09:45	ZSCRJ	CR1	JNB	B15	A 08-A 10	C8	SCH
TK044	International	11:05	-	789	IST	A5	1.1	SCH	GE102	Domestic	09:50	ZSGAL	320	JNB	A11	A 17-A 20	A11	SCH
5Z846	Domestic	11:15	ZSCME	CR1	JNB	B13	3.6	SCH	WV913	International	09:50	-	ER4	WDH	B19	A 24-A 26	B1	SCH
FA311	Domestic	11:20	ZSFGA	738	HLA	A8	3.4	SCH	FA299	Domestic	10:10	ZSFGE	738	JNB	A7	A 91-A100	A7	SCH
FA466	Domestic	11:30	ZSSJR	738	DUR	A9	3.5	SCH	FA463	Domestic	10:15	ZSOAF	734	DUR	A8	A 91-A100	A8	SCH
4Z321	International	11:35	ZSOTN	ER3	WDH	C5	1.1	SCH	4Z663	Domestic	10:25	ZSYAH	E90	MQP	A12	A 41-A 46	A12	SCH
EK772	International	11:35	-	77W	DXB	A3	1.3	SCH	4Z382	International	10:30	ZSYAN	E90	HRE	A17	A 41-A 46	B3	SCH
GE111	Domestic	11:40	ZSGAR	320	JNB	A12	3.2	SCH	4Z604	Domestic	10:35	ZSALP	ERD	BFN	C3	A 41-A 46	C4	SCH
FA292	Domestic	12:20	ZSSJH	738	JNB	A10	3.5	SCH	4Z314	International	10:35	ZSTFK	ER3	MUB	C1	A 41-A 46	B5	SCH
4Z905	Domestic	12:35	ZSYAL	E90	JNB	A11	3.1	SCH	4Z651	Domestic	10:35	ZSTFL	ER3	SZK	C4	A 41-A 46	C10	SCH
FA294	Domestic	13:00	ZSZWM	738	JNB	A7	3.4	SCH	4Z657	Domestic	10:40	ZSYAA	E90	HDS	A9	A 41-A 46	A9	SCH
FA171	Domestic	13:10	ZSSJV	738	DUR	A8	3.2	SCH	SQ479	International	10:40	-	359	SIN	A5	A 47-A 53	A5	SCH
5Z812	Domestic	13:45	ZSCMF	CR9	JNB	B1	3.1	SCH	4Z326	International	10:45	ZSYAM	E90	WDH	A13	A 41-A 46	B2	SCH
ET847	International	13:45	-	77W	ADD	A3	1.2	SCH	SA332	Domestic	10:55	ZSSZJ	320	JNB	A10	A 86-A 90	A10	SCH

Appendix B

[CAUTION: External Email!] RE: MVT ... 19OCT 847 ADD CPT ANN 77L

Content with all the e-mail addresses were removed

MVT
ET847/19.ET-AUP.ADD
AD0520/0542 EA 1200
OB// 305

Appendix C

AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

1	*Use of aircraft stand ID signs, TWY guide lines and visual docking / parking guidance system of aircraft stands.*	1) Allocation of parking i) ACFT landing to CTC apron office on FREQ 122.65 MHz prior to top of descent or when within VHF range for parking bay allocation. Parking bays to be confirmed upon landing. ACFT to give the following INFO, ACFT type, REG, ETA, POB and last AP of DEP ii) Parking bay INFO and REG is to be transmitted to SMC on FREQ 121.9 MHz on vacating RWY for TAX instructions iii) Before entering the apron ACFT are to contact ACSA Apron office on FREQ 122.65 MHz to verify if their gate is still available. Pilots are not to enter into discussion with SMC with reference to bay allocation as this is not their function. iv) TWY G2 access into South African Police Service Airwing unavailable. 2) Operators of non-scheduled flights requiring use of the main apron must inform ACSA apron office on email address CIAApron@airports.co.za not later than 24 hours prior for parking bay allocation. The notification must contain the following information: date and time of arrival, date and time of departure, long term parking arrangements (i.e. main apron or general aviation area), Name of aircraft operator and contact details, Name of ground handler and contact details. 3) A docking system is installed on parking bays A3-A17. The system works as FLW: i. The system will display the ACFT type which means that is the type of ACFT that will park in that stand. ii. The pilot must follow the arrows displayed by the azimuth for this will guide the ACFT on the centreline of the PRKG bay. iii. The system will also display speed of ACFT. ACFT must approach at a speed of not more than 5.40 knots. iv. If it is too fast it will display slow down. v. The system will also display distance from stopping position in meters and will count down in meters as it approaches. vi. As the ACFT moves closer than 3M stopping position it will count down in 0.2 of a meter. vii. Should system be inoperative then marshalling will be as normal. 4) Pushback Procedures i) Pilots leaving AD must advise the Airport Manager, via the Apron Office of destination and the number of PAX and crew on board. Apron Office FREQ 122,65MHz, call sign "CAPE TOWN APRON". Operators and companies may pass the above INFO by telephone to (021) 9371280 or by FAX *(021) 9340932.

Appendix D

Aftn Priority:	FF
DTG:	190303
From:	C=XX; A=ICAO; P=FA; O=AFTN; OU1=FAORZPZX
To:	[C=XX;A=ICAO;P=FA;O=AFTN;OU1=FACTZPZX;, C=XX;A=ICAO;P=FA;O=AFTN; OU1=FACTZTZX;, C=XX;A=ICAO;P=FA;O=AFTN;OU1=FAORYCYA;, C=XX;A=ICAO; P=FA;O=AFTN;OU1=FAORZTZX;, C=XX;A=ICAO;P=FA;O=AFTN;OU1=FAUPZTZX;, C=XX;A=ICAO;P=FA;O=AFTN;OU1=FAJOZIZX;, C=XX;A=ICAO;P=HA;O=AFTN; OU1=HAAAZQZX;, C=XX;A=ICAO;P=HA;O=AFTN;OU1=HAABZTZX;, C=XX;A=ICAO; P=HK;O=AFTN;OU1=HKNAZQZX;, C=XX;A=ICAO;P=FA;O=AFTN;OU1=FAORVSAT;]

(FPL-ETH847-IS
-B77L/H-SDE1E3FGHIJ2J3J4J5J7M1P1P2P3RWXYZ/B1D1H
-HAAB0515
-N0492F360 SHALA2A SHALA M308 RUDOL UN554 AKUMU UT146 MV UR784 XALEM UA409 IBVIG UT969 ESPUV UQ59 SSV UQ60 NEXIT UQ23 CSV UZ26 ERDAS DCT
-FACT0600 FAOR
-PBN/A1B1C1D1L1O1S2 DAT/CPDLCX SUR/RSP180 TCAS DOF/221019 REG/ETANN EET/HKNA0041 HTDC0125 FZZA0221 FLFI0242 FVHF0332 FBGR0356 FAJA0442 FACA0528 SEL/JSEF RVR/075 OPR/ETHIOPIAN AIRLINES PER/C RMK/EGPWS REFID191000046)