



LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL

Reference Number		CA18/3/2/1517					
Classification	Serious Incident	Date	23 November 2025		Time	0950Z	
Type of Operation	Commercial Air Transport (Part 121)						
Location							
Place of Departure ZS-TCE	O.R. Tambo International Airport (FAOR), Gauteng Province		Place of Intended Landing	Skukuza Airport (FASZ), Mpumalanga Province			
Place of Departure ZS-YAM	Skukuza Airport (FASZ), Mpumalanga Province		Place of Intended Landing	O.R. Tambo International Airport (FAOR), Gauteng Province			
Place of Occurrence	Overhead Ehlanzeni Municipal District near UTREX Waypoint						
GPS Co-ordinates	Latitude	24°46'31.01"S	Longitude	031°29'44.12"E	Elevation	1 139ft	
Aircraft Information							
Registration	ZS-TCE and ZS-YAM						
Make; Model; S/N (ZS-TCE)	Embraer; EMB-ERJ-135MP (Serial Number: 145356)						
Make; Model; S/N (ZS-YAM)	Embraer; EMB-E190-100IGW (Serial Number: 19000187)						
Damage to Aircraft (ZS-TCE)	None		Total Aircraft Hours	37 089.27			
Damage to Aircraft (ZS-YAM)	None		Total Aircraft Hours	33 275.08			
Pilot-in-command							
Licence Type (ZS-TCE)	Airline Transport Pilot Licence (ATPL)		Gender	Female	Age	34	
Licence Type (ZS-YAM)	Airline Transport Pilot Licence (ATPL)		Gender	Male	Age	38	
Licence Valid (ZS-TCE)	Yes	Total Hours	4 834.4		Total Hours on Type	2 300.1	
Licence Valid (ZS-YAM)	Yes	Total Hours	8 955.9		Total Hours on Type	1 074.9	
Total Hours 30 Days (ZS-TCE)	37.7		Total Flying on Type Past 90 Days			113.2	
Total Hours 30 Days (ZS-YAM)	41.8		Total Flying on Type Past 90 Days			87.8	
People On-board (ZS-TCE)	2+2+16	Injuries	0	Fatalities	0	Other (on ground)	0
People On-board (ZS-YAM)	2+2+47	Injuries	0	Fatalities	0	Other (on ground)	0
What Happened							
<p>On Sunday, 23 November 2025, a flight crew comprising two pilots and two cabin crew members, as well as 16 passengers on-board an Embraer EMB-135MP aircraft registered ZS-TCE and operating as LNK865Q took off on a commercial scheduled flight from O.R. Tambo International Airport in Gauteng province to Skukuza Airport (FASZ) in Mpumalanga province. Meanwhile, an Embraer EMB-E190-100IGW aircraft registered ZS-YAM and operating as LNK865P with two pilots, two cabin crew members and 47 passengers on-board departed on a scheduled commercial flight from FASZ to FAOR. Both flights were conducted under instrument flight rules (IFR) by day in accordance with (IAW) the provisions of Part 121 of the Civil Aviation Regulations (CAR) 2011, as amended.</p>							

According to the captain (CPT) of ZS-TCE, their aircraft was approximately 5 nautical miles (nm) from UTREX Waypoint and inbound FASZ when the crew was in communication with Lowveld Airspace Control Sector (LACS) on very high frequency (VHF) 119.0-Megahertz (MHz), operated by Air Force Base Hoedspruit Air Traffic Control (FAHS-ATC). The ZS-TCE captain stated that her aircraft was cleared to descend to flight level (FL) 100 and was instructed to report when passing FL150. At the same time, ZS-YAM was departing from FASZ and was on its third sector of the day. The ZS-YAM intended to route via the same UTREX Waypoint and was also in communication with FAHS-ATC on the same frequency.

According to the CPT of ZS-YAM, after departing from FASZ and routing towards UTREX Waypoint, he checked in with FAHS-ATC on frequency 119.0-MHz and was instructed to climb and level off at FL120 and, thereafter, climb to FL140 after passing UTREX Waypoint. Anticipating unfavourable weather conditions along the planned route, the ZS-YAM crew requested to maintain a heading of 280° from UTREX Waypoint, which the controller approved. Whilst listening in on the same VHF frequency, the crew became aware of another aircraft, ZS-TCE, which was inbound FASZ and approaching from the opposite direction via UTREX Waypoint; this prompted a heightened situational awareness for the ZS-YAM cockpit crew.

As the potential for conflict became apparent, the ZS-YAM crew selected vertical speed (VS) mode on the flight guidance system and initiated a high rate of climb of approximately 1 000 feet (ft) per minute to increase vertical separation. During this period, the crew overheard the controller's transmission in which advise was given to inbound and departing traffic, as well as a request to ZS-TCE (which was descending through approximately FL131 at the time) to maintain FL150. The ZS-TCE crew responded, "Negative, descending through FL131," and they immediately began to comply by climbing to FL150.

At that time, ZS-YAM TCAS "TRAFFIC" alert activated, followed by a "DESCEND" resolution advisory. Meanwhile, the ZS-TCE TCAS "TRAFFIC" alert also activated, followed by a "CLIMB" resolution advisory. Both aircraft flight crew responded promptly by executing the commanded manoeuvres in accordance with their training. Once clear of the conflicting traffic, both crew informed the controller that the TCAS event had been resolved. The TCAS event occurred whilst both aircraft were overhead Ehlanzeni Municipal District.

The co-ordinated TCAS responses successfully prevented a potential airborne collision. With the conflict resolved, ZS-TCE continued with the approach without further incident and landed safely at FASZ; ZS-YAM continued with the flight and landed safely at FAOR. None of the aircraft was damaged, and no person was injured on both aircraft.

ATC Recordings

At 09:44:24Z, ZS-YAM contacted LACS to inform them about their intended departure from FASZ to FAOR whilst still conducting flight preparation. The crew advised LACS ATC that they were intending to depart shortly from Runway (RWY) 35 and further requested FL380 for FAOR as the final destination. The crew also advised the ATC that they were going to communicate their take-off.

At 09:47:53Z, ZS-TCE crew contacted LACS ATC and requested a descent whilst heading towards UTREX Waypoint. The LACS ATC advised the crew to descend to FL150 and to report when passing FL160. At 09:48:05, the crew read back: *ZS-TCE to descend to FL150, corrections FL100, and to report reaching 130 and to report when passing FL150.*

At 09:48:14, ZS-YAM contacted LACS ATC to advise about their departure whilst passing through FL98 and climbing to FL180 to position for the UTREX Waypoint; at this point they were 8nm from the UTREX Waypoint. In turn, the LACS ATC informed ZS-YAM to recycle to Squawk 2721 and to climb to FL140 initially, until the UTREX Waypoint. The ZS-YAM acknowledged climbing to FL140; furthermore, they requested a heading of 280° past UTREX Waypoint to avoid unfavourable weather conditions along their planned route. LACS ATC acknowledged the request to 280° heading past UTREX Waypoint.

At approximately 09:49:35, LACS ATC contacted ZS-TCE and advised about the conflicting traffic (ZS-YAM), which departed from FASZ and was about 12nm in their direction at 2 o'clock position, climbing through FL120 for FL140. The ZS-TCE responded to ATC: *"We have got the TCAS RA passing FL140 now"*.

LACS ATC enquired from ZS-TCE if they had maintained FL150 as traffic (ZS-YAM) was climbing to FL140. ZS-TCE crew responded that they were passing FL131 for FL100.

ATC Transcripts (note: LNK865Q is ZS-TCE, and LNK862P is ZS-YAM)

Time	From	To	Message
09:44:24	LNK862P	LACS	Lowveld LNK862 correction LNK862P good day
09:44:25	LACS	LNK862P	LNK862P Lowveld, good day, go-ahead
09:44:33	LNK862P	LACS	LNK862P, we started up shortly to Skukuza FL 280 on request for a flight to Johannesburg
09:44:35	LACS	LNK862P	LNK862P just say again
09:44:53	LNK862P	LACS	LNK862P ZS-YAM on RWY09 starting up shortly here in Skukuza, expecting departure RWY35 FL 380 on request to Johannesburg, we will call you as we climb out.
09:44:59	LACS	LNK862P	LNK862P copied, speak to you later QNH1013
09:45:03	LNK862P	LACS	COPIED QNH1013 chat to you shortly LNK862P
09:45:09	LACS	All	Traffic in LACS airspace is now manned
09:45:23	FDR290	LACS	Lowveld FDR290
09:45:28	LACS	FDR290	FDR290 go ahead
09:45:30	FDR290	LACS	Thank you, Sir. Sir, Maintaining FL110, we are right off track due to weather routing for Thorny bush FDR290 squawk code 7411
09:45:32	LACS	FDR290	FDR 290 identified on the squawk no reported traffic, FL110 left of track due to the weather report, clear of the weather.
09:45:41	FDR290	LACS	Report clear of the weather
09:45:49	LNK872U	ALL	Traffic 119.0 Lowveld LNK862U now 50nm inbound to FAHS from the west, descending to FL90 now currently descending through FL187, estimating FAHS at time 1155Z to join on the left base RWY33 in FAHS LNK872U
09:46:43	LACS	LNK872U	LNK872U copied confirm squawking 2706?
09:47:15	LNK872U	LACS	Affirm squawk 2706 LNK872U
09:47:22	LACS	LNK872U	No reported traffic for your descent to 9000 feet and your QNH 1011 continue with FAHS 126.4
09:47:26	LNK872U	LACS	Thank you, no reported traffic. QNH1011 will continue with FAHS, now good day to you, LNK872U
09:47:53	LNK865Q	LACS	Lowveld LNK865Q, good day, request descent
09:47:57	LACS	LNK865Q	LNK865Q, good day. Identified on the squawk 2722, no reported traffic for your descent, Fl150 report pass FL160

009:48:05	LNK865Q	LACS	No reported traffic for the descend to FL150, correction FL100 report passing FL150 LNK865Q
09:48:14	LNK862P	LACS	Lowveld, good day LNK862P passing FL98 climbing to FL180 to position UTREX currently 8nm to UTREX WAYPOINT
09:48:28	LACS	LNK862P	LNK862P, good day to you. Recycle squawk to 7421 no reported climb for your climb to FL140 initially.
09:48:37	LNK862P	LACS	No reported traffic, climb initially to F1140 squawk 7421LNK862P
09:49:06	LNK862P	LACS	LNK862P after position FUTLIX request a heading of 280° due weather avoidance
09:49:12	LACS	LNK862P	LNK862P once passing FUTLIX no reported traffic FL140 heading 280°
09:49:18	LNK862P	LACS	No reported traffic FL140 heading 280° from UPLIX LNK862P
09:49:24	LACS	LNK862P	LNK862P you are identified on the squawk 7421
09:49:33	LNK862P	LACS	LNK862P
09:49:35	LACS	LNK865Q	LNK865Q traffic affecting your descent into Skukuza is company traffic LNK 862P now on your right, correction twelve o'clock position about 12nm climbing through FL120 for FL140
09:49:42	LNK865Q	LACS	Copied, we've got them on TCAS passing FL140 now for us LNK865Q
0949:57	LACS	LNK865Q	Confirm maintaining FL150 traffic is climbing to FL140
09:50:06	LNK865Q	LACS	We are currently FL131 for FL150
09:50:15	LACS	LNK862P	LNK862P traffic affecting your climb is LNK865Q on your right 2 o'clock position FL130
09:50:51	LNK862P	LACS	Lowveld LNK862P TCAS RA
09:50:54	LACS	LNK862P	LNK862P report completed
09:50:59	LNK862P	LACS	We are clear now
09:51:00	LACS	LNK862P	LNK862P no reported traffic for the further climb to FL 180 report passing FL150
09:51:11	LNK862P	LACS	FL180 report passing FL150 LNK862P
009:51:15	LNK865Q	LACS	Lowveld LNK865Q TCAS RA clear now we are now descending to FL105
09:51:20	LACS	LNK865Q	LNK865Q copied no reported traffic for the further descend to 6000 ft QNH1011
09:51:27	LNK865Q	LACS	No reported traffic for the descend to 6000ft on a QNH of 1011 LNK865Q
09:51:35	FDR290	LACS	FDR290 ready for descend
09:51:37	LACS	FDR290	FDR290 Contact FAHS approach 126.6 for your further descend
09:51:41	FDR290	LACS	FAHS for descend FDR290

Skukuza Airport

Skukuza Airport (IATA: SZK, ICAO: FASZ) is the only commercial airport in the Kruger National Park, located near Skukuza in Mpumalanga province. The airport elevation is 1 020 feet (311m) above mean sea level (AMSL). It has one asphalt surface runway designated 17/35 and measuring 1 550 (length) and 30 metres width (5 085 ft × 98 ft). The runway is sloped with the north-west end at 1 034 ft (315m) elevation and south-east end at 992 ft (302 m). Landing permission is managed by Skukuza AP management company.

All traffic operating in the Lowveld is controlled via FAHS ATC (LACS). All traffic to FASZ must pass via the UTREX Waypoint for both landing and departure.

Findings

1. Man

ZS-TCE

1.1 The CPT of ZS-TCE had an Airline Transport Pilot Licence (ATPL) that was initially issued by the Regulator (SACAA) on 10 September 2019. The licence was reissued on 13 February 2025 with an expiry

date of 28 February 2026. The CPT had a total of 4 834.4 flight hours of which 2 300.1 hours were acquired on the aircraft type.

1.2 The CPT Class 1 aviation medical certificate was issued on 8 October 2025 with an expiry date of 31 October 2026 with no restrictions.

1.3 The first officer (FO) had a Commercial Pilot Licence (CPL) that was initially issued by the Regulator on 19 April 2016. The licence was reissued on 4 August 2025 with an expiry date of 31 August 2026. The FO had a total of 279.7 hours on the aircraft type.

1.4 The FO's Class 1 aviation medical certificate was issued on 3 July 2025 with an expiry date of 31 July 2026, with the following limitations: *VDL (Valid only with correction for defective distance vision), and VML (Valid only with correction for defective distance, intermediate and near vision).*

ZS-YAM

1.5 The CPT had an ATPL that was initially issued by the Regulator on 15 December 2010. The licence was reissued on 14 October 2025 with an expiry date of 31 December 2025. The CPT had a total of 8 955.9 flight hours, of which 1 074.9 were acquired on the aircraft type.

1.6 The CPT's Class 1 aviation medical certificate was issued on 11 September 2025 with an expiry date of 30 September 2026 with no restrictions.

1.7 The FO had a Commercial Pilot Licence (CPL) that was initially issued by the Regulator on 19 April 2016. The licence was reissued on 4 August 2025 with an expiry date of 31 August 2026. The FO had a total of 279.7 hours on the aircraft type.

1.8 The FO's Class 1 aviation medical certificate was issued on 3 July 2025 with an expiry date of 31 July 2026 with the following restriction: *VDL (Valid only with correction for defective distance vision), and VML (Valid only with correction for defective distance, intermediate and near vision).*

1.9 Both aircraft flight crew members (pilots) were properly licensed, medically fit and qualified for the flight.

2 Machine

ZS-TCE

2.1. The aircraft had a valid Certificate of Airworthiness (C of A) that was issued by the Regulator on 10 February 2025 with an expiry date of 31 March 2026.

2.2. The aircraft Certificate of Registration (C of R) was issued to the present owner on 7 September 2017.

2.3. The latest A-Check inspection of the aircraft was conducted and certified on 17 December 2024 at 35 552.47 airframe hours after which a Certificate of Release to Service (CRS) was issued with an expiry date of 18 January 2026 or at 36 048.25 airframe hours, whichever occurs first. The aircraft had a total of

37 089.27 hours at the time of the serious incident. The aircraft had accumulated 150.27 airframe hours since the last A-Check inspection.

ZS-YAM

- 2.4. The aircraft had a valid C of A that was issued by the Regulator on 10 December 2024 with an expiry date of 31 January 2026.
- 2.5. The aircraft C of R was issued to the present owner on 2 December 2020.
- 2.6. The latest A-Check inspection of the aircraft was conducted and certified on 20 October 2025 at 33 222.20 airframe hours after which a CRS was issued with an expiry date of 18 November 2027 or at 33 972.2 airframe hours, whichever occurs first. The aircraft had a total of 33 275.08 hours at the time of the serious incident. It had accumulated 52.88 since the last A-Check inspection.
- 2.7. Both aircraft were maintained by an aircraft maintenance organisation (AMO) with an AMO Certificate that was issued on 2 April 2024 with an expiry date of 31 March 2025. The aircraft types were endorsed on the AMO's operational specifications.
- 2.8. The operator of both aircraft had an approved Air Operator Certificate (AOC) that was issued by the Regulator on 21 April 2025 with an expiry date of 30 April 2026. The aircraft were endorsed in the operator's operational specifications under the provisions of Part 121 of the CAR 2011, as amended.
- 2.9. Both aircraft were airworthy, properly maintained and operated in accordance with applicable regulatory requirements at the time of the serious incident.

3. Environment

- 3.1. Clear weather conditions prevailed in the vicinity and at the time of the serious incident.

4. Mission

- 4.1. The clearance readback by the crew of ZS-TCE contained conflicting altitude and reporting information, creating uncertainty about the cleared level.
- 4.2. The ZS-TCE descended past the required reporting level without reporting to LACS ATC.
- 4.3. The ZS-YAM aircraft was climbing towards UTREX Waypoint on a converging track whilst ZS-TCE was descending toward the same waypoint.
- 4.4. The opposing climb and descent of both aircraft towards the same waypoint reduced vertical separation and triggered TCAS resolution advisories.

Probable Cause(s)
Inadequate vertical separation between ZS-TCE (inbound) and ZS-YAM (outbound) which were routing via the same waypoint (UTREX); the air traffic control clearances resulted in converging climb and descent profiles in a congested airspace.
Contributing Factor(s)
<ol style="list-style-type: none"> 1. ATC workload and airspace complexity as an inaccurate readback of instruction, was not corrected. 2. Reliance on pilot self-separation awareness. 3. Communication breakdown.
Safety Action(s)
Situational awareness.
Safety Message and/or Safety Recommendation/s
<ol style="list-style-type: none"> 1. It is recommended that the Air Navigation Service Provider reviews and, where necessary, revises the arrival and departure procedures for Skukuza Airport (FASZ), with specific emphasis on the use of the UTREX Waypoint, to ensure that sufficient vertical separation is maintained between inbound and outbound instrument flight rules (IFR) traffic under all traffic density conditions. 2. It is recommended that the Lowveld Airspace Control Sector (LACS) reviews controller workload and traffic complexity in Skukuza with an aim to identify opportunities to reduce task saturation and improve management of aircraft with limited vertical and lateral manoeuvring options. 3. It is recommended that operators conducting IFR operations into and out of Skukuza Airport continue to emphasise crew awareness of common routing constraints and limited separation margins, reinforcing the importance of early anticipation and correct responses to TCAS alerts.
About this Report
<p><i>The decision to conduct a limited investigation is based on factors including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.</i></p> <p><i>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.</i></p>
Purpose
<i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, 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.</i>
Disclaimer
<i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i>

This report is issued by:

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