

SERIOUS INCIDENT

Aircraft Type and Registration:	Cessna 525A, Citationjet CJ2, G-TBEA	
No & Type of Engines:	2 Williams International FJ44-2C turbofan engines	
Year of Manufacture:	2003 (Serial no: 525A-0191)	
Date & Time (UTC):	9 January 2016 at 1807 hrs	
Location:	Norwich International Airport	
Type of Flight:	Commercial Air Transport (Passenger)	
Persons on Board:	Crew - 2	Passengers - 3
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Landing gear, landing gear doors and under side of aircraft	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	41 years	
Commander's Flying Experience:	4,190 hours (of which 732 were on type) Last 90 days - 87 hours Last 28 days - 22 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Having backtracked the runway the aircraft turned and lined up for takeoff. The crew believed that the lights they could see ahead were the runway centreline lights. Soon after beginning the takeoff run the left wheel departed the paved surface and onto grass with the aircraft then veering left. The takeoff was rejected.

The aircraft had been lined up with the runway's left edge lights, having not followed the green turning circle taxiway lights to their conclusion.

History of the flight

The aircraft was on a chartered flight from Norwich International Airport to Manchester International Airport. On board were two flight crew and three passengers. The commander was the PF and taxied the aircraft. At the time Runway 27 was in use and was wet. The wind was from 170° at 15 kt, the visibility was in excess of 10 km and it was dark.

After an uneventful start the aircraft was cleared by ATC to taxi from the SaxonAir Apron via Taxiways Echo and Tango to Holding Point Alpha 2. As the aircraft passed Tango the commander incorrectly turned onto Taxiway Charlie. Realising the mistake he stopped the aircraft and the co-pilot informed ATC that they had taken the wrong turning. The aircraft was then re-cleared to Holding Point Charlie Two and then to enter, backtrack, and line up

and wait on Runway 27. As the aircraft entered the runway the commander initially followed the runway centreline lights and then the green turning circle taxiway lights on the threshold of Runway 27, to the right (see Figure 1). The aircraft then turned to the left to line up on what the crew believed was the runway centreline, and was cleared for takeoff.

Soon after the aircraft started accelerating it veered rapidly to the left. The commander tried to keep it straight by applying right rudder and differential braking. However, he quickly realised the left wheel was on the grass and aborted the takeoff. As the aircraft decelerated and came to rest it slewed around to the right due to the application of right rudder and wheel brakes.

After the aircraft had stopped the commander shutdown the engines and the co-pilot informed ATC that the aircraft had gone onto the grass. The commander determined that the passengers had not sustained injuries. He then opened the cabin entry door to check for any sign of smoke or fire. As there were none he elected to remain on the aircraft until the RFFS arrived, which they did shortly thereafter.

Aerodrome information

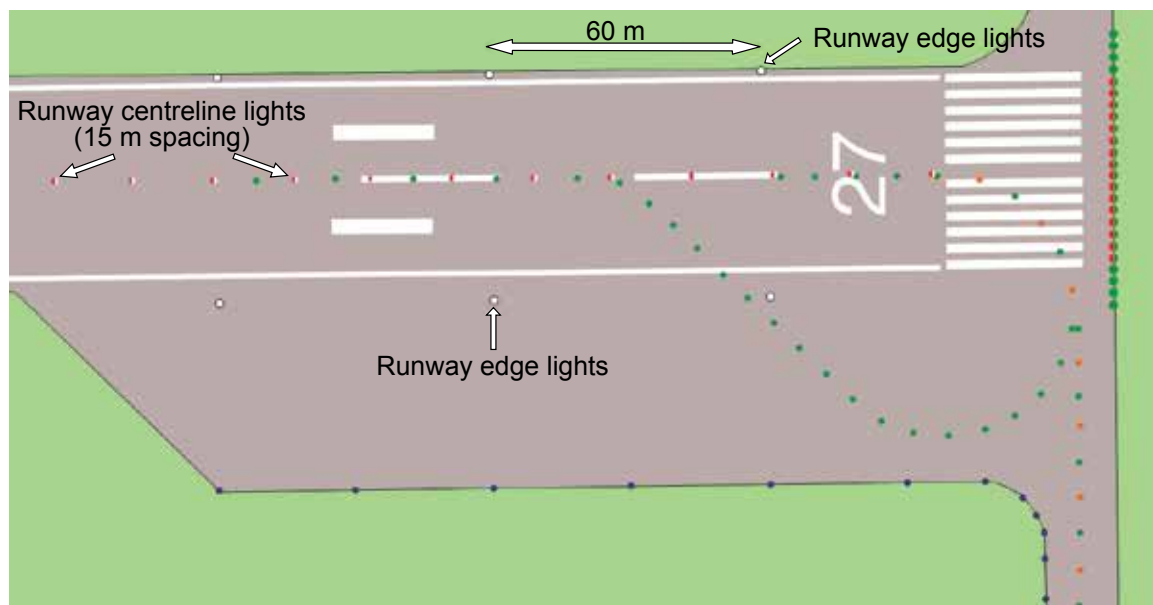


Figure 1

Runway 27 turning circle lights

The incident occurred at night. All lighting on Runway 27 was subsequently checked and found to be functioning normally.

The commercially available chart used by the crew stated the following:

'WARNING

At both ends of rwy 09/27 its width is twice that of the associated edge lights due to extra pavement at one side.'

Crew's comments

The commander stated that he lined the aircraft up with white lights ahead and to the right of the aircraft, believing these were the runway's centreline and right edge lights respectively, thus confirming he was properly aligned with the runway centreline. He does not recall looking deliberately to the left. However at the time he believed "the picture" looked correct.

He believes that he lined the aircraft up with the runway's left edge lights having not followed the green turning circle taxiway lights all the way around, but having "undercut them". Due to the extra pavement parallel to the runway, he did not realise he was lined up on the left edge prior to takeoff.

He added that he always includes the taxi chart in his briefing to the other pilot before requesting taxi clearance, but on this occasion he did not highlight the warning printed on the chart. Additionally he believes that, had he correctly followed the original taxi clearance and lined up via Holding Point Alpha Two, this event is unlikely to have happened.

The co-pilot commented that his attention may have been inside the cockpit too much during the line up and setting of engine thrust. He added that had he been more "heads up" he may have spotted the mistake.

Previous events

The CAA MOR database contained 14 recorded events involving misidentification of runway edge lights as centreline lights. This covered a period from 1982 to 2015 and involved 12 different aircraft types and ten different airfields. Four were investigated by the AAIB:

1. ATR42-300, G-TAWE, at Prestwick on 22/1/2006.
AAIB reference EW/G2006/01/16
2. Piper PA-34-200T, G-MAIR, at Bristol on 12 December 1996,
AAIB reference EW/C96/12/3
3. Fokker F27 Mk 200, G-BHMX, at Teeside on 7 December 1990,
AAIB reference EW/C1186
4. Gulfstream III (G-1159A), N103CD, Biggin Hill Airport, Kent on 24 November 2014,
AAIB reference EW/C2014/10/01, published in AAIB Bulletin: 12/2015

The report into the accident involving N103CD included the following Safety Recommendation:

Safety Recommendation 2015-038

It is recommended that the International Civil Aviation Organisation [ICAO] initiate the process to develop within Annex 14 Volume 1, '*Aerodrome Design and Operations*', a standard for runway edge lights that would allow pilots to identify them specifically, without reference to other lights or other airfield features.

ICAO responded that Safety Recommendation 2015-038 will be referred to the Aerodrome Design and Operations Panel (ADOP) within ICAO for further study. The next meeting of the relevant ADOP Working Group is scheduled for the first quarter of 2016.

Safety actions

The operator issued an Information Notice, on 15 January 2016, to all its pilots, reminding them that taxiing is a critical part of the flight. It stated in part:

‘...’

4. *When cleared to line up brief on what you expect to see.*
5. *Once lined up, carry out a gross error and sense check:*
 - a) *Confirm heading indications against runway orientation*
 - b) *Confirm lined up on the centreline ie a dashed and not a solid line.*
 - c) *If at night, compare centreline lights (if applicable), edgeway lights, taxi light etc are what you expect to see in accordance with the plate.*

...’