Piper PA-34-200T Seneca, G-RVRB

AAIB Bulletin No: 5/2001 Ref: EW/G2001/01/08 Category: 1.3

INCIDENT

Aircraft Type and Registration:	Piper PA-34-200T Seneca, G-RVRB
No & Type of Engines:	2 Continental TSIO-360-EB piston engines
Year of Manufacture:	1979
Date & Time (UTC):	11 January 2001 at 1354 hrs
Type of Flight:	Public Transport (Positioning)
Persons on Board:	Crew - 1 - Passengers - None
Injuries:	Crew - None - Passengers - N/A
Nature of Damage:	None
Commander's Licence:	Commercial Pilot's Licence with Instrument Rating
Commander's Age:	32 years
Commander's Flying Experience:	706 hours (of which 111 were on type) Last 90 days - 105 hours Last 28 days - 28 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries by AAIB

The newly constructed parallel second runway at Manchester International Airport (designated 06R/24L) opened for use on 5 February 2001. This incident took place during the month prior to its official inauguration. The new runway is displaced laterally by some 390 metres, with the 06R threshold being some 1,850 metres further west than that of 06L.

The aircraft was routing from Newcastle to Manchester International Airport. The pilot contacted the Manchester Approach controller on frequency 119.4 MHz at 1337 hrs, indicating that he was heading 185° and advised that he had copied the ATIS Information coded 'X'. The controller indicated that the pilot should expect radar vectoring for a VOR/DME approach, or a visual approach, to land on Runway 06L, and indicated that the aircraft was number five in the landing sequence at that time.

ATIS Information 'X' was being broadcast on frequency 128.175 MHz. The rather prolonged broadcast, of some 83 seconds duration, contained the following information:

'Manchester information X-ray, time One Two Five Zero, runway in use Zero Six Left, radar vectors to a VOR DME approach, surface wind Zero Seven Zero degrees Twenty Six knots, gusting Thirty Seven knots, visibility Five Zero kilometres in nil weather, cloud few Three Thousand Five Hundred, air temperature plus Five, dew point minus Three, QNH One Zero Two Four, QFE threshold runway Zero Six Left One Zero One Six millibars. Be advised the Zero Six Right ILS is radiating for test purposes only. Links Bravo Golf and Hotel are closed, taxiway Quebec is closed. Windshear has been reported on final approach by an arriving MD Eighty aircraft giving minus Fifteen knots at Five Hundred feet. Runway Zero Six lighting is on for test purposes only. Various Stop Bars are illuminated for test purposes and can be disregarded. Be advised the runway surface is damp, damp, damp. Please report aircraft type and information X-ray received on contact with Manchester, out'

The radar vectoring of traffic proceeded normally and G-RVRB turned onto a left base leg behind an Airbus 321 aircraft which was on an 8 nm final approach. At 1347 hrs, once the preceding aircraft had been sighted, G-RVRB was cleared to position visually behind it and was advised that the required spacing for wake vortex avoidance was 5 nm. At 1349 hrs, the Approach controller advised G-RVRB that the Tower controller planned to depart a Boeing 757 from Runway 06L after the Airbus 321 had landed. G-RVRB was then requested to extend the base leg to pass through the runway centreline to the east. The pilot flew on a heading of about 160°, which took him to the south east of the town of Knutsford. The aircraft was then re-cleared for a visual approach and advised to turn left towards Knutsford for final for Runway 06L The pilot turned the aircraft left and noted that Knutsford was on the extended centreline of a runway, which had its edge lighting clearly visible and which he mistakenly identified as Runway 06L. The aircraft turned onto the final approach track, and was requested to maintain an approach speed of 150 kt to 4 nm from touchdown, which the pilot acknowledged. Control of the aircraft was then passed to the Tower controller on 118.625 MHz.

The pilot reported on a visual final approach at 1350 hrs and was cleared to land on Runway 06L at 1353 hrs. In the event, the aircraft landed on the newly constructed Runway 06R, which was still undergoing lighting and ILS calibration checks. A vehicle was situated on the threshold of Runway 06R and G-RVRB overflew this before touching down further along the runway. The approach lighting system and the PAPI for Runway 06R were not illuminated at the time, but were operational for Runway 06L.

A controller handover was taking place at about this time. The oncoming controller had been briefed that G-RVRB had already been cleared to land on Runway 06L and observed the aircraft through binoculars to assess its range from touchdown. At that stage, it appeared as though the aircraft was lined up for Runway 06L. The controller did not then observe the imminent touchdown on Runway 06R. After locating the aircraft on the wrong runway, the controller enquired if G-RVRB had intended to land on Runway 06R, to which the pilot replied *'negative'*. A leader vehicle was dispatched in order to guide G-RVRB onto the operational manoeuvring area of the airfield.

At the time of the incident, a NOTAM was in effect regarding Runway 06R/24L which stated:

'TIL 05 FEB 0600, NOT AVBL TO TRAFFIC REQUIRING A LICENSED AD. RWY IN USE FOR TEST FLIGHTS ONLY UNDER ATC INSTRUCTION. RWY AND APPROACH LIGHTING MAY BE DISPLAYED FOR TEST PURPOSES. RWY 06R ILS/DME 111.55 RADIATING AT TIMES FOR TEST PURPOSES ONLY. CAUTION: CLOSE PARALLEL RWY, PILOTS INBOUND TO MANCHESTER SHOULD ENSURE RWY 06L/24R HAS BEEN IDENTIFIED FOR LANDING'

Subsequent to this incident, a further NOTAM was issued, regarding Runway 06L, which stated:

'VISUAL APCH BY IFR EQUIPPED ACFT NOT PERMITTED'

The pilot attributed his misidentification of the runway to the fact that he was under a high workload (single pilot operation) alternating between a high speed approach and delaying manoeuvres, with a strong gusting wind on short final. This was compounded by the lack of a radiating ILS which could have drawn attention to the incorrect alignment of the aircraft. Probably the most significant factor was the positioning of the aircraft to the east of the final approach track for Runway 06L, towards the town of Knutsford, which is situated on the extended centreline of Runway 06R.

In later discussion with the pilot, it was ascertained that most of his previous experience of operating into Manchester International had involved operations onto Runway 24R. From the human factors perspective, the 'normal situation' visual model that had been built up while positioning for 24R was that of 'closest threshold, on the right side of the airfield'. Transposing this model to the easterly approach, the pilot did again choose the 'closest threshold, on the right side of the airfield'. Thus the apparently 'correct' visual model presented nothing unusual to alert the pilot to his situation.

Manchester International Airport Procedures

The new Runway 06R/24L was subsequently commissioned into service on 5 February 2001. The new runway is initially planned to be operational for 12 hours per day, from 0600 to 1200 hrs, then from 1500 to 2100 hrs.

During these times, the planned traffic distribution for normal operations will be, for westerly prevailing surface winds - departures from Runway 24L, arrivals on Runway 24R. For easterly prevailing surface winds - departures from Runway 06L, arrivals on Runway 06R. Runways 06L and 24R have Category 3 ILS. Runway 06R has Category 1 ILS. Outside the published times of operation, single runway operations will resume on Runway 06L/24R only.

A procedure is in place which will ensure that, normally, only one set of approach lighting is illuminated at any one time. Normally, only one ILS will be radiating at any one time.

Two significant approach safety issues relate to aircraft runway crossing procedures for Runways 06L/24R and to the execution of non-precision approaches in poor visibility/low cloud base conditions at times when the ILS systems are out of service.

In the cases of non-precision approaches to Runway 24L (aligned VOR/DME, the only instrument approach available for this runway) or Runway 06L (offset VOR/DME or offset NDB/DME), there exists the potential for an approaching aircraft to visually acquire the threshold of the parallel runway BEFORE that of the correct landing runway in use. Diligent monitoring procedures will therefore be required by ATC in these (somewhat unusual) circumstances.

The Tower Visual Control Room is situated above the eastern end of Terminal 1. From this location, the runway thresholds of Runway 06L and Runway 06R are visually in line. It is therefore difficult to judge with which of the two runways an approaching aircraft is aligned. To assist in this function, a new Aerodrome Traffic Monitor with an Approach Monitoring Aid (based upon secondary surveillance radar data) is currently being installed. Until installation and testing of the

new ATM with AMA is completed, the Aerodrome Surface Movement Radar is available with an Approach window facility to a range of 10 nm. This can be used to assist monitoring of track keeping on final approach.