

Carpatair ATR crash probe highlights pilots' experience gap

(Summary by FlightGlobal)

Investigators have disclosed that a Carpatair ATR 72-500 captain breached operating procedures while attempting an approach to Rome in strong gusting crosswinds, before a bounced landing which badly damaged the aircraft.

It had been operating a service to Rome Fiumicino on behalf of Alitalia on 2 February 2013. The crew had been informed of 22kt winds gusting to 37kt. These gusts exceeded the operating limits for the aircraft. But cockpit-voice recorder information shows the crew did not carry out a landing briefing – during which the pilots would normally have discussed the weather situation at the destination and alternate airports.

The night-time approach to runway 16L was flown at 130kt which, says investigation authority ANSV, was “significantly” higher than the 118kt normally expected.

But ANSV points out that the first officer – with less than 15h on type – was far less experienced than the captain, who had over 9,600h on ATRs.

This huge difference probably “inhibited” the first officer’s ability to speak out about the situation and she accepted uncritically the airspeeds communicated by the captain, who was flying.

ANSV says the captain had “conviction” about his ability to land the aircraft safely, despite the weather situation, and the pilots’ experience gap rendered crew-resource management techniques “ineffective”.

The turboprop struck the runway with 2.6° nose-down pitch, some 560m from the threshold, and bounced off its nose-gear.

Its crew did not attempt a go-around after the impact. ANSV says the pilots made opposite control inputs after the bounce – the captain pushing down while the first officer pulled up – which decoupled the flight controls.

The aircraft contacted the runway a second time, badly damaging the nose-gear and interrupting the power to the engines as a result of impact forces on the cockpit control levers.

ANSV says this second impact compromised “any possibility of recovery” for the landing. The decoupling led the aircraft to roll slightly left and it bounced off each main landing-gear, damaging both. The aircraft subsequently slid on its fuselage underside for some 400m and rotated nearly 180° as it veered off the runway and came to a halt on grass.

None of the 50 occupants was seriously injured. The investigators have cited “improper” operation of the aircraft by the captain w “not consistent” with the carrier’s procedures in critical conditions.

The following is an entirely unofficial translation of section 3 of the official report.

3. GENERAL

This chapter describes the facts established during the investigation into the causes of the event.

3.1. EVIDENCE

- The crew members were in possession of the necessary licenses and aeronautical qualified for the operation of the flight concerned.
- During the investigation did not reveal any elements which could cast doubt on the good psycho-physical condition of the crew members.
- The aircraft was properly equipped with documents required being validi and maintenance had been carried out in accordance with applicable law and the approved procedures.
- There was no evidence to suggest that before the event have occurred damage to the aircraft.
- The radio aids present on the airport of Fiumicino, in particular those necessary for approach and landing precision (ILS) for runway 16L. They were working properly.
- Radio communications occurred between the aircraft YR-ATS. operating the flight AZ1670. and the competent bodies of air traffic control were held regularly and did not present critical elements.
- The accident occurred in conditions of night during the landing on runway 16L at Rome Fiumicino.
- At 19.30'50 " the Tower of Rome Fiumicino, after giving permission for landing, again provided the crew of the YR-ATS direction and wind speed: 250 degrees origin, intensity 22 knots, with gusts up to 37 knots. The evidence obtained shows that the TWR in communications to all landing aircraft, tended to highlight the value of the gusts, since the value was significant. Upon landing the weather conditions were characterized by the presence of gusty crosswind on runway 16L of a value higher than allowed for the aircraft in question.
- The aircraft contacted the runway in a violent manner with the nose gear first and with a trim for an approach speed exceeding that expected by the operations manual. In particular, at the moment of first contact with the runway, the angle of pitch was -2.6 degrees, the speed was 125 KIAS and there was no detection of opposing inputs from the controls of the two crew members. The above data indicate that the aircraft touched the runway in controlled flight.
- From traces on the ground and the additional evidence obtained shows that the aircraft has

touched the runway at Rome Fiumicino airport at 19:32 hour 03 , near the centre line of the runway 16L. at a distance of about 560 m from the threshold.

After the first contact with the runway, the aircraft made three successive touchdowns, in the course of which the failure first of the front landing gear and subsequently also the failure of the main landing gear. After the last contact with the runway the aircraft finally resting on the belly of the fuselage, sliding around an additional 400 m to its eventual stopping place. In the course of this slide the aircraft trajectory diverted to the right, stopping on the grass by the runway, about 30 m from the edge, close to the position referred to as "DE". In the course of this slide the aircraft turned the right by in a rotation of about 170 ° on its axis, stopping with the nose oriented 330 ° magnetic.

- During the second touchdown engines were stopped as a result of damage to the mechanical transmissions of its control levers (in particular CLA) produced by the collapse of gear

- Following the incident it did not develop any fire.

- There is no evidence, the analysis of the CVR. the execution, by the crew, the "landing briefing", as required provided by operating company.

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The commander (PF) has decided to maintain an approach speed (130 KIAS) more higher than that provided for in that situation by Ops Manual (Computed at 118 KIAS maximum): the first officer (PNF) has behaved unassertively and uncritically, twice accepting the quoted value of speed communicated by the Captain.

- The commander (PF) caused the aircraft to touchdown nosewheel first at a pitch angle of -2.6 degrees, a value not consistent with the pilot technique applicable for a landing, nor compliant with the provisions of the company by Operations Manual.

- The captain and first officer had both hands on the controls before and after first contact: having made simultaneously opposite inputs to the flight controls caused decoupling of the interconnection between the commands themselves.

- After the first contact with the runway, the crew not carry out the procedure for a baulked landing expected by the Ops Manual.

- The evacuation took place without major problems, coordinated by the flight attendants assisted by airline personnel CMG to other company on board.

- The search and rescue operations were carried out in good visibility conditions at night.

- Rescuers reached the place where the aircraft was involved in an accident 10 minutes after activation of the state of emergency.

- Communications between the TWR and firefighters were not properly effective and they did use in the GRID-MAP provided the Rome Fiumicino airport.

3.2. CAUSES

The accident was due to human factors. In particular, it was caused by the improper conduct of the aircraft by the PF (commander) during the landing phase, which was not consistent with the provisions of the operator's manuals, in an environment characterized by the presence of significant wind and the presence of crosswind with values to the limit in excess of those permitted for the ATR 72) and in the absence of an effective CRM.

The event may have contributed to the following factors.

- The failure to effect "landing briefing", which, besides being expected by the company, would have been an important time to setup common understandings of the factors involved and acceptance of information fundamental for the safety of operations.

- Maintaining a VAPP significantly superior to that expected.

- The conviction of the commander (PF) resulting from his considerable experience both generally and specifically of the aircraft type in question, that he was able to conduct a safe landing despite the presence of wind conditions critical for the type of aircraft.

- A considerable gap in experience between the captain and first officer, which inhibited the latter from expressing any criticism or comment, thus rendering ineffective the CRM techniques.

After the incident, the investigation of the PEA highlighted critical issues, which prevented a timely and effective activity of search and rescue aircraft and its occupants.