



FLIGHT OPERATIONS INFORMATION MESSAGE

Ref: FOIM 2016/06 Issue 1

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Pages: 2

Applicability: All ATR 42/72 models

SUBJECT: Crosswind landing

Purpose

This FOIM aims to remind operators on the good practices for crosswind landing.

Introduction

We highlight that the ATR fleet has encountered 4 runway excursions in recent months (no injuries were reported during the emergency evacuation). In each case there was a crosswind component (Refer to AFM / Performance / 6.01 General). Each event occurred during landing roll at approximately 70 knots with over-correction of heading deviation associated with rudder inputs up to the mechanical stop.

A Safety note "Be prepared for crosswind landing" has been published on the subject and is available as Annex of this FOIM. It is also available on the ATRactive website.

<https://www.atractive.com/FlightOperations/Safety/SafetyLibrary/Pages/ViewSafetyLibrary.aspx>

Recommendations

Aircraft handling during landing roll and deceleration:

- During the landing roll, the pilot flying holds the control column in nose down position to increase directional efficiency, maintaining aileron input into the wind.
- In case of insufficient aileron input, crosswind will lift the upwind wing and make the aircraft turn (accentuated by weather cock effect). To avoid that, the pilot flying must gradually increase the aileron input into the wind (up to maximum deflection if necessary).
- Rudder pedals shall be initially used to keep the airplane on runway axis and **any heading deviation must be corrected smoothly....** Over-corrections may lead to pilot induced oscillations
- Rudder efficiency decreases with airspeed.
- Below 70 kt, the Captain controls airplane alignment with nose wheel steering and the First Officer maintains aileron input into the wind with nose down input, until the aircraft comes to a complete stop.

We recommend this FOIM is cascaded to all ATR flight crew to prevent further occurrences.



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All FOIM are available on ATRactive website in AOM / OIM / FOIM library.

May you need additional information and / or support, please contact ATR flight operations support (ops.support@atr-aircraft.com).

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BE PREPARED FOR CROSSWIND LANDING



When crosswind conditions are reported on arrival airport, it is essential to anticipate by reviewing the landing technique and to prepare an action plan before starting the approach. This “Be prepared for crosswind landing” provides an overview of operational factors involved in planning and conducting the approach and flare under crosswind conditions, as well as some recommendations regarding handling techniques.

Key points for a safe and successful crosswind landing

- Review and brief crosswind landing technique.
- Strictly adhere to computed Vapp.
- Ensure strengthened crew cooperation.
- Be prepared for a go-around.
- Look for a reduced air/ground transition.
- Keep aileron into wind during landing roll.

MAXIMUM RECOMMENDED CROSSWIND

The crosswind value given in the AFM performance section (6-01) as maximum demonstrated crosswind shall be understood as the maximum crosswind under which the capacity of the ATR aircraft for landing was demonstrated during flight tests. It shall be considered as the maximum recommended crosswind.

The operators may consider establishing operating conditions, based on crews experience or airfields specificities, for which the maximum crosswind would be reduced.

During the approach briefing the pilot flying shall evaluate his/her own ability to land in announced crosswind condition and get prepared for a go-around and/or a diversion.

The AFM 6-01 also provides maximum recommended crosswind applicable in case of contaminated runway.

APPROACH SPEED

The FCOM (3.08.02) defines the approach speed as $V_{app} = V_{mHB} + \text{wind factor}$ where the wind factor is the maximum of either 1/3 of the headwind velocity or the gust in full (to be understood as the difference between the maximum

reported wind and the steady wind, without considering wind direction). **In any case the wind factor to be added is limited to 15 kt.**

For example, when landing in Toulouse Blagnac airport on runway 14R, with a wind reported as $200^\circ / 18 \text{ kt}$ gusting at 30 kt , 1/3 of headwind component is 3 kt while the gust in full is 12 kt (30-18). Hence the wind factor to be considered for the approach speed computation will be 12 kt.

The wind factor shall not be increased further, even in strong crosswind conditions. An excessive approach speed increases the duration of the flare (while under crosswind conditions, it is preferable to shorten the transition from air to ground), it also increases the risk of landing with nose landing gear first and it increases the landing distance. Long flare and “greased” landings are not recommended by ATR.

PREPARING THE APPROACH

The best defence against crosswind conditions is anticipation through a reminder of the landing technique before starting the approach. While preparing for the approach, the crew shall check the applicable maximum demonstrated crosswind, calculate the estimated drift on final, the approach speed and associated preset values (pitch and torque). The pilot flying shall evaluate his/her own ability to land in forecasted conditions and the crew shall review the available means to timely detect any change in wind conditions, and how changes will be communicated. **It is of utmost importance that the crew organizes their resources in order to build and maintain proper situational awareness on final approach.**

ATR

CONDUCTING THE APPROACH

ATR recommends performing a crabbed approach. : wings level and drift correction.

ATR recommends disconnecting the autopilot and yaw damper at the latest at 500 ft in order to have time to establish manual control.

Crosswind conditions are often associated with turbulence. In any case, the crew shall strictly adhere to the stabilized approach criteria in force within the applicable operator Standard Operating Procedures. Any deviation shall be called out and corrected. Performing a go-around is an option that shall be considered at any time until a safe landing is ensured.

During final approach, the crew shall pay particular attention to changes in wind direction and strength and maintain a high level of cooperation.

DECRAB AND FLARE TECHNIQUES

ATR recommends the standard decrabbing technique: the pilot flying decrabs the aircraft by coordinating downwind rudder input, with into wind aileron input. These actions enable to align the aircraft with runway axis.

This manoeuvre shall be initiated at the latest at 20 ft but could be started earlier. The resulting aircraft position must be maintained up to the touchdown. Correction of flight path deviation, if necessary, will be performed around this new position.

Power reduction shall be initiated passing 20 ft. **The touchdown shall occur with power levers at Flight Idle.** In coordination with power reduction, the pilot flying progressively adjusts aircraft pitch to flare the aircraft, until upwind main landing gear contacts with the runway.

As wind intensity increases, manoeuvres dynamic should be implemented toward a faster executed set of simultaneous actions.

AIRCRAFT HANDLING DURING LANDING ROLL AND DECELERATION

The upwind main wheels contact the ground first, followed by downwind main wheels. After both main landing gears contact, the pilot flying assists the nose landing gear towards the ground and selects the power levers to Ground Idle. Selecting power levers on Ground Idle causes an effective reduction of energy. If further deceleration is needed the crew could use reverse or brake to minimize landing roll.

During the landing roll, the pilot flying holds the control column in nose down position to increase directional efficiency, maintaining aileron input into the wind. In case of insufficient aileron input, crosswind gusts will lift the upwind wing and make the aircraft turn (accentuated by weather

Crabbed Approach



Proper correction



No correction



cock effect). To avoid that, the pilot flying must gradually increase the aileron input into the wind (up to maximum deflection if necessary). In addition, rudder pedals shall be used to keep the airplane on runway axis and **any heading deviation must be corrected smoothly, especially in upwind direction.**

In case of lateral deviation tendency, reverse shall be released and the pilot shall primarily use rudder pedals to regain lateral control. Asymmetrical braking can also be used to assist lateral control as rudder efficiency decreases with airspeed.

Below 70 kt, The Captain controls airplane alignment with nose wheel steering and the First Officer maintains aileron input into the wind until the aircraft comes to a complete stop.

Note: the use of reverse is more efficient at high speed and brake at low speed. Reverse shall be selected only after pilot monitoring has checked and announced the 2 low pitch green lights.

Any comment or question on this document can be sent to flight-ops-support@atr.fr

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