



CASABLANCA 21 FEBRUARY 2012

SAFETY MANAGER
QUALITY SAFETY SECURITY DEPARTMENT
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TO THE ATTENTION OF Project manager

SUBJECT: ROYAL AIR MAROC plan of action after publication final report
“emergency landing after bird strike” Boeing 737-4B6, Amsterdam Schipol Airport,
6 June 2010

Dear Sir

Shortly after receiving the DSB final report regarding the serious incident
« emergency landing after multiple bird strike » that has occurred the 06 JUNE 2010
just after liftoff on runway 18L and for which the following safety recommendations
have been issued towards our organization:

“Royal Air Maroc

The Safety Board recommends that Royal Air Maroc demonstrate to the Moroccan
Ministry of Transport that:

1. the procedures for communication and crew resource management between crew members have been harmonised with the international standard for airline pilots.
2. pilot training has been expanded to include simulations of multiple unexpected failures.”

...a steering committee has been set up to review the following areas of our operation:

- **Human factors ground courses**– more precisely the entire flight crew syllabi, to determine whether some enhancement are desirable, with particular attention to the communication, teamwork, leadership, decision making & managerial skills section and based on the UK CAA publication “CAP 737 CRM reference material” versus the Dédale's publication "Briefings" and associated videos that our training department is currently using to elaborate our Human factor ground courses.
- **Flight simulator recurrent training program**– to determine how to enhance the training and assessment of our pilots CRM skills. They have reviewed the way we elaborate our LOFT scenario, how they should be presented on the flight crew's recurrent training leaflet, whether LOFT exercises should be coupled with a video feedback during the debrief and finally consider whether we should change the behavioral markers we are currently using and adopt the 4 categories JAA research committee on Human Factors NOTECHs behavioral markers as well as changing our rating scale.
- Consider launching a **Line Oriented Safety Audit** during our line operations with a precise set of objectives to assess and then refine the need of even further enhancement to our behavioral markers and focus on threat and error management to provide empirical criteria against which to pit the markers.

APPROVED PLAN OF ACTION

The working group has identified areas where CRM training could be enhanced and has come up the following plan of action:

- 1) **GROUND COURSES** : Human Factor ground courses modules are to be enhanced to make sure the following concepts are adequately covered and fully understood:
 1. **Cognitive skills** – Situation awareness & Planning and decision making
 2. **Interpersonal skills** – Communication & teamwork
 3. **Factors influencing individual performance** – Emotional climate; managing stress ; managing distraction; commercial, organizational pressures and morale; fatigue management and incapacitation.

For that 3 modules should be added to the current recurrent three yearly cycle for CRM refresher training namely:

- Fatigue management
- Distraction management.
- Facilitation and examination skills modules for all of Type Rating Examinators

An external consultancy company is expected to be engaged to assist 4 or 5 designated TREs with the adequate profile in the enhancements & construction of the CRM ground courses.

All enhancements are to be complete by 31 DECEMBRE 2012.

II) FLIGHT SIMULATOR RECURRENT TRAINING PROGRAM:

1. Every crew member will be briefed on the CRM aspect of this serious incident emphasizing the highest standards of professional behavior with special attention to the need of mutual support through standardized and effective communication as an essential prerequisite for good CRM most importantly when addressing abnormal situations.

In effect since 01 JANUARY 2012

2. Replacement of the 5 behavioral markers we were using with the 4 categories JAA research committee on Human Factors NOTECHs behavioral markers and change of our rating scale (from 2 to 3 as POOR; ACCEPTABLE & GOOD).

We decided to keep the "COMMUNICATION" 5th behavioral marker with its four sub-categories we were using on top of the NOTECHs four markers.

To be completed by 30 JUNE 2012

3. Facilitation and examination skills of our Type Rating Examinators are to be enhanced through an adequate training program to be designed by the training department (additional ground course module for TRE section I here above).

To be completed by 31 DECEMBER 2012

4. With regard to the LOFT scenario, flight crew members will be given a separate leaflet (in effect since 1st NOVEMBER 2011) in which we will make sure that they are familiar with those maneuvers and/or malfunctions that might be presented during the evaluation, but are not given information that reveals the exact sequence and the circumstances under which such maneuvers or malfunctions will be presented. Only city pairs, weather and generic title of the abnormal malfunctions (Engine malfunction, electric

malfunctions etc...) will be presented to them. These exercises will include multiple unexpected failures on a regular basis.

More precisely the safety committee has approved the following operational scenarios our crew should be trained to address in order to mitigate the safety risk of severe bird strike during our line operations:

- Gear indication unsafe + engine severe damage
- Gear severe damage + flaps asymmetry during retraction
- Engine severe damage + Engine stall other engine
- Engine stall both engines (50 % power loss) followed by ditching
- Airspeed unreliable + engine severe damage (VMC)

In effect since 01 JANUARY 2012

5. LOFT exercises will be coupled with a video feedback to be used during the debrief to support any CRM critique.

– To be implemented by 31 DECEMBER 2012

III) Finally we will start preparing our 2nd Line Oriented Safety Audit

(previous one was conducted in 2007) starting 15 FEBRUARY 2012 (expected duration 8 months). The specific of such program has yet to be elaborated.

I wish to ask you to please feel free to contact me for any further clarification you may need.

Yours sincerely