

GOVERNMENT OF ROMANIA



**MINISTRY OF TRANSPORT
DIRECTORATE GENERAL FOR TRANSPORT ACCIDENTS INVESTIGATIONS**

**AIR TRANSPORT INVESTIGATIONS DIRECTORATE Bucharest 19/02/2008
No. 152**

FINAL REPORT

Of The

TECHNICAL INVESTIGATION

Of the Accident

Occurred at the

“Henri Coandă” International
Airport Bucharest

AIRCRAFT	Boeing 737-300
REGISTRATION	YR-BGC
DATE AND TIME	12/30/2007 / 11:27 LT (09:27UTC)

ACKNOWLEDGEMENT

This report presents data, analysis conclusions and flight safety recommendations issued by the technical investigation commission appointed by the Ministry of Transport, Construction and Tourism, to investigate the circumstances and causes of this occurrence.

The technical investigation was conducted according to the provisions of the Romanian Government Ordinance No. 51/1991, concerning the technical investigation of civil aviation accidents and incidents, approved with changes and updates by the Law No. 794/2001 and the provisions of Annex 13 to Convention on International Civil Aviation, signed in Chicago in 1944.

The sole objective of this investigation is the prevention of accidents and incidents by determining the real causes and circumstances leading to this occurrence and generating necessary flight safety recommendations (OG 51/1999 Ch. II Art. 5 phrase 1) and HAD NOT THE PURPOSE to blame, establishing individual or collective responsibilities (OG 51/1999 Ch. II Art. 5 phrase 2).

Consequently, the use of this report for other purposes than the prevention of accidents or incidents, might lead to misinterpretations.

CONTENT

1. Preliminary Information	5
1.1 History of the Accident	5
1.2 Events Succession	5
1.2.1 Information about the Activities Performed on the Runway	7
1.3 Injuries to Persons	8
1.4 Damages.....	8
1.5 Personnel Information:.....	9
1.5.1 Air Traffic Staff in the Control Tower.....	9
1.5.2 Aircraft Crew	9
1.5.3 Lighting Maintenance Staff	10
1.6 Meteorological Information:	10
1.7 Communications.	11
1.8 Aerodrome Data.....	11
1.9 Organizational and Management Information	12
1.10 Flight Recorders.....	13
1.11 Wreckage and Impact Information.....	13
1.12 Fire	13
1.13 Survival Aspects.	13
1.14 Investigation Techniques	14
2. ANALYSIS	14
2.1 Air Traffic Services.....	14
2.2 Aircraft and Crew	18
2.3 Activities Performed on the Runway	19
2.4 Human Factors	21
3. CONCLUSIONS.....	23
4. SAFETY RECOMMENDATIONS	24

SYNOPSIS

Classification:	Accident
Report No.:	_____
Aircraft:	Boeing 737-300
Registration:	YR-BGC
Date and time:	12/30/2007 / 11:27 LT (09:27UTC)
Location:	“Henri Coandă” International Airport Bucharest

The accident was notified to the Air Accidents Investigation Branch, being registered with No. 1040/31.12.2007. The investigation was conducted according to the provisions of O.G. 51/1999, concerning the technical investigation of civil aviation accidents and incidents.

1. Preliminary Information

1.1 History of the Accident

On December 30th, 2007 the aircraft typ B 737-300, registered YR-BGC was scheduled for the flight ROT 3107 Bucharest – Sharm el Sheik. At 09:27 UTC, during the take-off procedure from runway 08R at “Henri Coandă” International Airport Bucharest, the aircraft collided with a vehicle used by the runway lighting maintenance team. As consequence of the impact the aircraft was damaged and went out from the runway, stopping about 137 m left side from the runaway centre line and about 950 m from the threshold. After the aircraft stopped the emergency evacuation was initiated.

1.2 Events Succession

At the moment of the occurrence there were following 4 air traffic controllers (ATC) in the Otopeni control tower (TWR Otopeni):

- One air traffic controller on the control position TAXI/GND further referred as CTA GND/ TAXI,
- One air traffic controller on the control position EXE further referred as CTA EXE TWR,
- One air traffic controller on the control position PLN further referred as CTA PLN TWR
- The team supervisor of Otopeni TWR.

The aircraft crew was consisting of two pilots and 4 flight attendants.

The aerodrome lighting maintenance team was consisting of 4 workers.

At 07:53:40 UTC, the team supervisor of of Otopeni TWR, was called by telephone by the “lighting” team asking at what hour the runway would be longer free, because they had to clean the centre line lights. The answer was that he will contact them as soon as the first free period will be known. Following that discussion the shift supervisor informs the air traffic controllers in the tower about this request.

At 08:49 UTC, CTA GND/TAXI establishes the details of the lighting cleaning activity he head of the “LIGHTING” team, while calling on the “general use” frequency.

At 08:56 UTC, the CTA GND/TAXI controller announces the “lighting” team about the availability of runway 08R and authorizes it to enter on runway 08R.

At 08:57 UTC the “lighting” team announces the tower that it entered runway 08R to work.

At 08:59 UTC, CTA GND/TAXI announces the “lighting” team that a take - off should follow and they should prepare to leave the runway,

At 09:02 UTC, the control tower is requesting the clearing of the runway and this is completed at **09:04 UTC**.

At 09:06 UTC, the CTA GND/TAXI controller cleared PUSH BACK, de-icing and engines start for the flight ROT 3107,

At 09:08 UTC, the CTA GND/TAXI position transfer (rotation on the working positions) process is performed.

At 09:08:48 UTC, “lighting” team requested and was cleared to entry the runway, (after the CTA GND/TAXI required the agreement of the CTA EXE /TWR).

At 09:09 UTC, after acknowledgement from the CTA GND/TAXI, the CTA EXE /TWR controller asked “- *What’s on the runway?*” and received the CTA GND/TAXI’s answer “*Lighting... I’ve just admitted them, yes!*”

At 09:23 UTC, ROT 3107 asked for clearance to taxi, approval granted by the CTA GND/TAXI, with attendance of the FOLLOW – ME car, until the holding position for runway 08R, without checking that the runway is free.

After ROT 3107 announced that it was approaching the holding position, it was transferred by the CTA GND/TAXI to the CTA EXE/TWR, on the TWR Otopeni frequency of 120.9 MHz.

La 09:25:13 UTC, the aircraft called on Otopeni TWR frequency and announced approaching the holding point for runway 08R.

The CTA EXE/TWR controller, approved the alignment on the runway and required to be acknowledged when the aircraft is ready for take-off, without assuring himself that the runway is free.

At 09:26 UTC, ROT 3107 called that it is clear for take-off, and the CTA EXE/TWR provided the wind information and **authorized the take-off from runway 08R, without assuring himself that the runway is free.**

At 09:26:41 UTC, the CTA GND/TAXI is trying to contact the lighting team: “Lighting I am TAXI”. About 10 seconds later, the call is repeated.

At 09:26:50 UTC the lighting team answers on radio frequency: “I am listening” and the CTA GND/TAXI controller is asking: “The runway is free, yes?” the lighting team pushes the mobile radio station emission button, but it is not communicating anything.

At 09:26:57 UTC one of the pilots says: „What’s flashing forward?”

At 09:27:00 UTC the aircraft ROT 3107 collides on runway 08R with the lighting team maintenance vehicle.

At 09:28:08 UTC, the pilot calls the CTA EXE /TWR, stating that he hit a car on the runway, that he is evacuating and the aircraft exceeded the runway.

At 09:28:25 UTC, somebody else from the „lighting” team calls that the runway is not free and that there is still a car on the runway. In the same time, on the “general use” frequency it is heard somebody else is asking “whose car is this, because...we and.... we are outside the runway”.

1.2.1 Information about the Activities Performed on the Runway

The lighting maintenance personnel were on the runway to provide the cleaning of lighting axial lamps, as required by the aerodrome operator. The approval to work on the runway was granted by the control tower around 08.49 UTC. The team consisting of 4 workers with two vehicles entered the runway and started the work. It was requested to stop the work to enable a take-off. The vehicles cleared the runway moving to taxiway G. From here the maintenance staff requested, after that take-off, the approval to reentry the runway and the approval was granted by the control tower.

After receiving the approval the two vehicles moved one in the direction of threshold 08R (auto 1), to finish the cleaning of the lamps on the runway section between the threshold 08R and the crossing with taxiway G, and the second vehicle (auto 2) started to clean the lamps between the crossing with runway G and the crossing with taxiway F.

The precise structure of the team (number of vehicles and persons) is not clearly resulting from the transcription of the radio communications between the “Lighting” team and TWR.

The head of the lighting team, who was working on the runway section between threshold 08R and the crossing with taxiway G, closed to the crossing, saw the aircraft approaching in the moment when he intended to drive the car away. He shouted to his colleague to run away and both run from the runway.

Hearing the unusual question from TWR - TAXI, “The runway is free, yes?” the driver of the second car (auto 2) and his colleague left the runway, the driver moving the car on taxiway F.

In the accident there was involved the vehicle nr. 1 that was completely destroyed.

1.3 Injuries to Persons

Following the occurrence no person was injured.

Injuries	Flight Crew	Passengers	Others
Fatal	-	-	-
Serious	-	-	-
Minor	-	-	-
None	2 pilots + 4 flight attendants	117	4
TOTAL	6	117	4

1.4 Damages

1.4.1 Damages to the Aircraft

The impact determined following damages of the aircraft:

- a. Landing gear: main left landing gear smashed away;

- b. Fuselage damaged by the impact between the main landing gear compartment and the left rear access door;
 - c. Engine no.1 completely damaged due to impact with the car and the ground;
 - d. Left wing affected over its entire span.
 - e. Structural deformation also in other sections of the aircraft.
- The aircraft was declared „total loss” - completely damaged.

1.4.2. Damages to the Vehicle

The vehicle no. 1 was completely destroyed in the impact with the aircraft.

1.5 Personnel Information:

1.5.1 Air Traffic Staff in the Control Tower

In the control tower TWR Otopeni between 09:00 – 10:00 (UTC) there were 4 air traffic controllers (CTA), as follows:

Controlling position	CTA-GND	CTA-EXE	CTA-PLN	SUP-TWR
Gender and age	Male, 28 years	Female, 52 years	Male 22, years	Male, 53 years
License, validity term	13871 06/30/2008	9340 06/01/2008	11831 09/15/2008	25335 12/14/2008
Medical approval, Validity term	Class III, 12/11/2009	Class III, 01/15/2008	Class III, 09/15/2008	Class III, 02/26/2008
ATC experience	5 years	26 years	6 month	30 years

1.5.2 Aircraft Crew

Pilots

Position	Captain	First officer
Gender and age	male, 53 years	male, 34 years
License, validity	RO/ATP/000/501/A, 05/15/2008	RO/CPL/001689/A, 08/15/2008
Medical approval	Class I, 08/01/2008	Class I, 07/24/2008
Flight experience (as pilot)	13497 FH	2260 FH
Experience on Boeing 737 300-900	5671 FH	1531 FH

Flight attendants (females)

	Flight attendant 1	Flight attendant 2	Flight attendant 3	Flight attendant 4
Age	47 years	37 years	33 years	31 years
License validity until	06/02/2008	09/02/2008	10/31/2008	08/23/2008
Medical approval validity	02/06/2008	09/09/2008	02/04/2008	07/23/2008

1.5.3 Lighting Maintenance Staff

The team consisted of 4 persons, moving on the runway with two cars.

Maintenance staff	Working tome in the airport	Maneuvering surface driving license valid until	Radio communications certificate valid until	Groups
Head of the team	32 years	06/12/2008	06/12/2008	AUTO 1
Electrician 1	15 years	-	-	
Electrician 2	15 years	06/12/2008	06/12/2008	AUTO 2
Electrician 3	36 years	-	-	

1.6 Meteorological Information:

The METAR message provided by the automatic meteorological system AWOS on 12/30/2007, at 09.00 UTC

**METAR: LROP 3000900Z VRB01MPS 0100 R08R/0250N R08L/0250V0374N
FZFG VV0000 M05/M05 Q1026 NOSIG 8819//95=**

According to the METAR the meteorological conditions at the airport were:

- Ground wind with variable direction, medium speed on ground 1m/sec;
- **Horizontal visibility 100m;**
- **Runway visibility range (RVR) on runway 08R – 26L: 250m, with no changes;**
- Freezing fog;
- Vertical visibility 30m or less;
- Air temperature -5° C;
- Dew point -5°C;
- Atmospheric pressure at the airports altitude (QNH) 1026 HPa (mbar)

- with no changes in the following 2 hours;
- Runway condition: affected by contamination, wet, contamination degree between 50% and 100%, thickness of the deposit insignificant or not measurable, very good breaking coefficient.

Airport operations were conducted under low visibility conditions, declared already on 12/29/2007 at 22.18 UTC, respectively 12/30/2007 at 00.18 LT.

1.7 Communications.

Ground to air and ground to ground communications operated normally.

The transcript of the communications between the cockpit crew and the air traffic services, between the air traffic control service and the lighting maintenance team and, as well, of the environment record in the control tower are attached in the investigation documents.

1.8 Aerodrome Data.

“Henri Coandă” Bucharest International Airport is certified by the Romanian CAA, according to the Romanian civil aviation regulation RACR-AD-AADC, issuing the certificate no. AP 05/2007, authorizing following operation conditions (Annex b to the certificate): commercial air transportation, general aviation, aerial work, day and night, VFR, IFR.

The service supplier providing lighting maintenance work at the airport is an association of two aeronautical agents certified by the Romanian CAA according to the Romanian civil aviation regulation RACR – AD – AACDA, for “managing and execution of repairing and maintenance works for runways, taxiways and aprons lighting”, being issued the certifications no. AAS 11/2007 and no. AAS 07/2007, valid at the occurrences date.

The runway maintenance staff and the air traffic services staff were communicating through the airport’s communication system, within the TAXI group.

1.9 Organizational and Management Information

At the moment of the occurrence there were in power the “Local Low Visibility Operations (LVO) Procedures” of the air traffic services serving the airport and of the aerodrome operator, code ROM-LVPDSNAIHCB-2.0, edition 3.0.

Following working position configuration was active at TWR Otopeni, starting from 05:00 UTC, the time when the shift on duty was entering service: EXE TWR,GND/TAXI, and PLANNER. The team on duty was coordinated by the team supervisor.

Due to the second medical vacancy announced in the evening of December 29th, 2007, instead of minimum 5 persons on duty there were provided only 4 with the agreement of the shift supervisor.

The phraseology used when providing the air traffic services was according to the Air Traffic and Air Traffic Services Regulation, edition 1984, with applicable amendments.

The movement of persons and vehicles on the maneuvering surface is performed according to the requirements of the “Circulation regulation for vehicles and persons”, R - SIG 001, issued by the aerodrome operator. This document is available to all involved organizations, respectively the aerodrome operator, the aeronautical agent supplying lighting maintenance services and the involved air traffic services.

The communications involving the aeronautical agent supplying the lighting maintenance and the involved air traffic services is performed according to the “Regulation on organization and performing radio communication in multiple access radio systems”, R – SIG – 007, issued by the aerodrome operator and the air traffic services serving the airport. This document is available to all involved organizations, respectively the aerodrome operator, the aeronautical agent supplying lighting maintenance services and the involved air traffic services.

The lighting maintenance staff was on the runway 08R-26L due to its professional duty, being previously programmed by telephone and than approved by the air traffic control and management unit on the aerodrome. The activity performed by the lighting maintenance team members, i.e. cleaning of the centre line lighting lamps of runway 08R-26L was required through Note – report issued by the Technical Dispatcher Office of the aerodrome from 12/29/2007 where it is stated: “*Nonconformities (New): Dirty prisms at the center line lamps*”

on runway 1 in the contact area on a section of around 700 m from 08R to 26L. Due to dirty prisms the lamps have a reduced brightness in that section. There were acknowledged the AUG and, as well... head of the Lighting Workshop. Following, the prisms will be cleaned during traffic brakes. “

The lighting team conducted its work as follows: They split in to groups of two workers. The first worker was washing the lamp with cleaning solution and the second worker, who was also the driver of the car, was wiping the prisms.

1.10 Flight Recorders

The flight recorders were not damaged during the impact and were encoded by the investigation commission.

During the investigation, in order to analyze the action of the aircraft crew and to establish the correct succession of the events there were decoded the voice records in the cockpit, the calls between the aircraft and the air traffic services, the flight data records and there were produced transcripts of the communications and main flight data. There was also produced a correlation table between the calls, the parameters' variations and the action on the aircraft controls.

1.11 Wreckage and Impact Information.

Following the impact the aircraft was damaged and exceeded the runway stopping around 137 m left of the centre line and around 950 m from the threshold 08R.

1.12 Fire

The impact occurred in the area of the engine no. 1 and the left main landing gear, there were no fuel leaks and there was no fire.

1.13 Survival Aspects.

During take-off, aborting take-off and passenger emergency evacuation the aircraft crew acted according to the standard procedures of the air operator, with the final result that no

person was injured. The passengers were evacuated using the emergency exists and the inflating slides.

1.14 Investigation Techniques

On site analysis, analysis of aircraft and car wreckage, listening and transcription of the magnetic records, interviewing all people involved in the accident, processing and transcription of CVR/FDR records, analysis of the documents and procedures for the airport operational activities.

2. ANALYSIS

There is shown the whole evolution of activities of each working position in TWR Otopeni, of the lighting maintenance team and of the crew of flight ROT 3107, in order to identify the ATS specific causes that determined the accident.

2.1 Air Traffic Services

The chronological description of events starts at 07:53:40 UTC, the moment when the lighting team primarily contacts by telephone the Otopeni TWR, to coordinate the program and the working area for that specific day and concludes at 09:32:00 UTC, the moment when we appreciate that the ROT 3107 aircraft evacuation was completed.

The timing resulted after the commission was listening to the copies of the digital records of the calls between the involved persons and the environmental records, using as reference the Universal time Coordinated (UTC):

At 07:53:40 UTC, the team supervisor was contacted by telephone by the “lighting” team asking between which hours the runway will be longer free, because they want to enter to clean the centre line lights. The answer was that he will call them when he will know the first period when the runway would be free. Following this discussion the team supervisor is informing the air traffic controllers in the tower about this request.

At 08:49 UTC, the CTA GND/TAXI coordinates on «general use» frequency with the person in charge to supervise the “lighting” team, the details concerning the issue as follows:

- Estimated working time: between 1 and 3 hours;

- Activity: cleaning dirty centre line lamps on runway 08R;
- Estimated runway clearing time: 30 sec;

The head of the “lighting” team did not exactly inform which is the precise zone where they intend to conduct their work, as prescribed in R-SIG 001, Para. 5.2.11-2. The area where the team’s intervention was required is precisely stated in the duty transfer protocol of the “Lighting: Dept.

From the analysis of the radio communications there is no evidence that the missing of these information would have been an impediment in air traffic management.

At 08:56 UTC, GND/TAXI controller is calling the “lighting” team about the availability of runway 08R and clears the team to enter runway 08R.

At 08:57 UTC, the “lighting” calls the control tower that it entered to work on runway 08R.

At 08:59 UTC, CTA GND/TAXI is calling the “lighting” acknowledging that a take-off will follow and it should prepare to leave the runway,

At 09:02 UTC, the control tower requires the clearing of the runway, which is completed at 09:04 UTC.

The entering on / exiting from the runway of the “lighting” team was highlighted by the GND/TAXI controller on a white paper strip, contrary to the requirements in the internal letter no. 12411 dated 10/03.2000 issued by the Operational Director, stating that these progressive evidence strips should be yellow.

The commission has found out that these strips are not stored according to the procedures to store the progressive record strips and they are disposed.

Additionally the statements of the interviewed air traffic controllers revealed that yellow progressive record strips dedicated to record vehicle movement on the maneuvering surface were unavailable in the control tower.

From the team supervisor’s statement it appears that these strips were unavailable since longer time, missing from the stocks of the DSNA (ANS Directorate) Bucharest sub-unit.

At 09:06 UTC, the GND/TAXI controller cleared PUSH BACK, de-icing and engine start for the flight ROT 3107, omitting to assure himself if the aircrew has received the ATIS information and not providing the aircraft with information as required by the LVO Procedure - chap. 4A.

At 09:08 UTC started the duties transfer process for the working position GND/TAXI. The duty was transferred with both runways free and the progressive record strip for the activity to be performed by the “lighting” team with the inscription „LIGHTING 08R - 26L”.

At 09:08:48 UTC, the “lighting” team required and it was granted the clearance to enter the runway, (after the CTA GND/TAXI asked for the agreement of the CTA EXE TWR).

The CTA GND/TAXI cleared the “lighting” team to enter the runway, informed the CTA EXE TWR controller about and, according to his own statement, he placed the progressive record strip on a desk between the two working positions.

If there was not identified in any procedure / regulation a requirement of the progressive record strips positioning, the commission appreciates as inadequate the aleatory location of the strip on the desk between the two working positions.

At 09:09 UTC, after acknowledgement from the CTA GND/TAXI, the CTA EXE TWR controller asked „- *What's on the runway?*” and received the CTA GND/TAXI's answer *”Lighting... I've just admitted them, yes!”*

At 09:09:40 UTC, the team supervisor has left the operations' room of Otopeni TWR.

At 09:23 UTC, ROT 3107 required clearance to taxi, clearance granted by the CTA GND/TAXI, with FOLLOW – ME car leading , until the holding point 08R.

At this moment the GND/TAXI controller had the compulsory duty to order the clearing of runway 08R by the “lighting” team, based on coordination with the CTA EXE TWR, before clearing the aircraft to enter taxiway A, (LVO Procedure – section O.35 and Job Description). Following the call from ROT 3107 approaching the holding point, the aircraft was transferred by the CTA GND/TAXI to the CTA TWR EXE, on TWR Otopeni' frequency 120,9 MHz.

At 09:25:13 UTC, the aircraft on Otopeni TWR frequency and announced approaching the holding point of runway 08R.

The EXE TWR ATC clears runway alignment and requires to be called when the aircraft is ready for take-off. At this moment CTA TWR EXE asked his colleagues if somebody is seeing ROT3107. He received the response of the CTA GND/TAXI: *”...yeah, you should know that it's on A (taxiway Alpha), because so he told me”*.

At 09:26 UTC, ROT 3107 calls that it is ready for take-off, and CTA EXE TWR transmitted the wind information and **cleared take-off from runway 08R without assuring himself that the runway was free**, contrary to the provisions of RCASTA (Regulation of Air Traffic and Air

Traffic Services) Ch. 5, section 5.10.3. and the “Local Low Visibility Operations (LVO) Procedure”, code ROM-LVPDSNAIHCBC-2.0, edition 3.0 – Chap. 4A.

The interview with the CTA EXE TWR showed that he heard “free” on the “general use” frequency in the moment he was coordinating the take-off with APP Bucharest, this „free” he considered to be the runway clearing confirmation from the “lighting” team, **even if he did not made previously a requirement to / coordination with the CTA GND/TAXI to clear the runway.**

The analysis of data available to the commission revealed that the CTA EXE TWR had a longer activity break due to personal problems (husband’s death), professional training courses, medical vacancy and holidays accumulated in the last months of 2007.

This error, to clear flight ROT 3107 take-off, was possible on the background of wrong perception of the runway availability situation cumulated with missing coordination between CTA EXE TWR and CTA GND/TAXI in order to clear the runway.

The interview of the CTA GND/TAXI revealed that:

- *“He expected a spoken request from the CTA EXE TWR to clear the runway, motivating that in such meteorological conditions, the time until the take-off clearance issued by the EXE TWR ATC is often long, not once happening that aircraft returns to initial position on the apron to repeat de-icing.*
- *He took also in to account the “lighting” team’s commitment to clear the runway in 30 sec, a commitment that would have enabled a quick runway clearance.”*

Probably due to the application of a vehicle, (according to the “general use” frequency transcript) to receive clearance to cross over from apron 1 to apron 2, and, possible, due to a habituation contradicting valid regulations, to reassure himself that the runway is free **after** issuing the take-off clearance (according to the statement of CTA EXE TWR as well as of CTA GND/TAXI), the CTA TWR EXE recognizes that there’s possible that the “lighting” could be still on the runway and asks CTA GND/TAXI if the “lighting” team left the runway.

Following this one’s negative answer he requires him to get the “lighting” team immediately out from the runway.

The commission appreciates that one of the immediately measures to be taken in order to correct the initial clearance and to minimize the risk of an accident was

immediate issue of the take-off abortion clearance, according to RCASTA, point 9.3.4.12, letter g..

At 09:26:41 UTC, the CTA GND/TAXI tries to contact the “lighting” team: “Lighting, I’m TAXI”. After about 10 sec the call is repeated.

At 09:26:50 UTC, the “lighting” team is calling on the frequency: “I am listening”, and the CTA GND/TAXI is asking: “Free runway, yes?”, The “lighting” pushes the emission key of the mobile radio station, but it isn’t communicating nothing, probably running to leave the runway.

At 09:26:57 UTC, one of the pilot’s remarks: “What’s flashing forward?” According to the FDR record, the aircraft crew used the aircraft controls trying to avoid the collision. At this moment the aircraft’ speed was 75 knots.

At 09:27:00 UTC, the aircraft ROT 3107 collides on runway 08R the “lighting” car.

At 09:27:56 UTC, the pilot calls EXE TWR ATC, stating that he collided with a car on the runway, he is evacuating and that he exceeded the runway.

At 09:28:25 UTC, the head of the LIGHTING team answered the CTA GND/TAXI announcing that the runway isn’t free and there is still a car on the runway. In the same time, on the “general use’ frequency a member of the “lighting” team from the second car (auto 2) is asking: “Whose car is this, because...we and.... we are outside the runway”. The head of the team answers: "It’s our car".

The Commission identified multiple broadcasts on the general use frequency answering the call sign "lighting", as answers from different stations, used by the “Lighting” team members.

Analyzing the available data the commission also found the absence of the team supervisor as well as the fact that he accepted to work with in a four ATC team (according to his interview) and contradicting the provisions of the DSNA Director No. 15611 from 11/02/2007.

2.2 Aircraft and Crew

The aircraft registered YR-BGC that should complete the flight ROT 3107 was maintained according to the maintenance program developed by the air operator and approved by the Romanian CAA.

The aircraft was operated according the air operator’s operations’ manual.

The crew followed and acted accordingly the instructions received from the control tower.

During take-off, aborting take-off and passenger emergency evacuation the aircraft crew acted according to the standard procedures of the air operator, with the final result that no person was injured.

2.3 Activities Performed on the Runway

During the take-off of flight ROT 3107 on runway 08R there were 4 workers and two vehicles belonging to the lighting maintenance service, being there with air traffic services' permission, the entrance, for work, being cleared by TWR – TAXI. The vehicles of the "lighting" team were equipped with flashing lights. The flashing lights were in operation during the activity on runway 08R-26L, as revealed by the statements of the workers from the lighting maintenance service and the audio records of the discussions in the cockpit.

During the interview with the investigation commission and in their declarations, the workers who were on the runway during the occurrence, stated:

- When taking-over the service in the morning of 12/30/2007, they were informed that the cleaning of centre line lighting lamps on runway 08R has to be concluded, according to the attached protocol.
- Following this information, the head of the team contacted by telephone (transcript attached to this report) the team supervisor from the control tower, requiring that the access of the "lighting" team on the runway should be allowed when a longer brake within the traffic would be available. The access clearance was transmitted through the radio communication station. The presence of the lighting maintenance staff on runway 08R-26L was determined by the requirement to fulfill the jobs duties, being previously programmed by telephone and than approved by the aerodrome traffic control and management unit. The available information reveals that it was required and granted a clearance to enter the runway for work.

From the communications' transcript it follows that there was not required and granted a clearance for each person and vehicle, according to "Circulation regulation for vehicles and persons", R - SIG 001 in Para. 5.2.1., but it follows the observing of the requirements in Para. 5.2.11, which shows a lack of correlation between the paragraphs of the same regulation.

After the authorized returning on the runway, the workers were not requested to clear the runway for the take-off of flight ROT 3107. One of the workers of vehicle 1 has seen the approaching aircraft, and a worker from the vehicle 2 heard in the radio communication

station in the vehicle an unusual question of the air traffic controller and, therefore each one announced his nearby colleague, all workers of the lighting maintenance team leaving the runway. There was no time to take out from the runway the vehicle that was closer to the aircraft.

To clean the centre line lighting lamps (prisms) the team used two vehicles, driven by a team member who had a maneuvering surface driving license issued by HCBIA. Each vehicle was equipped with a radio communication station, and the head of the team, which was simultaneously the driver of one of the vehicles, had also a portable radio communication station. In order to listen permanently the radio communication stations the vehicle drivers did not leave the vehicles, moving the vehicle to each lamp.

Three of the four lighting workers had no portable radio communication stations. There were available only the radio communication stations on the vehicles and the portable station carried by the driver of the vehicle (auto 1), the head of the team.

All calls to obtain necessary movement clearance on the maneuvering surface of airport and to start the work on the runway were performed by the head of the lighting team.

The records of radio and telephone calls between the lighting maintenance team and the control tower staff reveal only the use of the call sign “lighting” and do not show that the TWR staff was aware about the number of vehicles and personnel on the runway.

Even if the maintenance team’s presence was approved, the air traffic services did not required the runway to be freed before clearing the aircraft for take-off, either by radio communication means or by repeated lighting switching off and on.

The previous description shows certain difficulties in the rigorous follow-up of the “Circulation regulation for vehicles and persons”, R - SIG 001, and of “Regulation on organization and performing radio communication in multiple access radio systems”, R – SIG – 007. Also the study of those regulations allows observing also other aspects which, during the daily activity, generate problems in their rigorous application, such as:

According to the “Circulation regulation for vehicles and persons”, R - SIG 001, section 5.2.1 *“All vehicles and persons moving on the maneuvering surface (runways, taxiways) or in the attached safety areas will keep compulsory a bilateral radio connection with the Traffic Control and Management Unit on the aerodrome (TWR - TAXI Otopeni) and to request its approval to move on the maneuvering area”*. This means that each worker on the maneuvering area must carry and use a radio communication station.

Provision O.35 in the section “Movement On The Maneuvering Surface In Low Visibility Conditions” of then document “Local Low Visibility Operations (LVO) Procedures”, code ROM-LVPDSNAAIHCB-2.0, edition 3.0 states “*From the moment the aircraft starts taxiing on the maneuvering surface (DEP / ARR) the movement of any aircraft / vehicle on that specific surface is interdicted *. NOTE* For this purpose are defined: ✎maneuvering surface 1: corresponding to runway 08R-26L which includes the runway, TWY A, TWY F, TWY H, TWY G, TWY D;....*”. This provision means that during an operation (take-off), the staff and vehicles have to leave the runway and the referred taxiways, involving complete leaving the area, i.e. on other aprons or outside the maneuvering area.

In the “Regulation on organization and performing radio communication in multiple access radio systems”, R – SIG – 007, in section6.1 is required “*each working radiotelephone used in communications has to be identified by a call sign, even if it has on ID enabling the access to the group*”

For investigation purposes there was necessary to identify some of those stations just on that ID and not with the call sign, provision that is contradicting section5.2.11 in R - SIG 001, stating “*in case of controls or current maintenance works for the aerodrome infrastructure...., the staff involved in these works has to communicate the Aerodrome Traffic Control and Management Unit following:*

- the radio call sign of each person providing the work supervision.....”

There are not rigorously observed the requirements of Para. 5.1.1 in R-SIG 001, concerning the marking of vehicles moving on the maneuvering surface. During the amendment process for R-SIG 001 there will be analyzed the opportunity to rule the colors of these vehicles.

In the “Circulation regulation for vehicles and persons”, R - SIG 001, in Para. 3 certain interferences are not more valid since, in the mean time, there were issued new editions and/or amendments of those references.

2.4 Human Factors

The interviews conducted on 01/07/2008 have revealed following Human Factors details:

- The air traffic controller who was on the CTA TWR EXE position was returning to work after a family occurrence with a high emotional negative stress (unexpected illness, relatively long suffering and the husband's death);

- The control activity performed during the last 6 month by this air traffic controller, marked by the previously stated occurrence, was sporadic, with long interruption (holidays, psychological recover holidays - according to legal requirements, medical vacancies);
- The resuming of professional activity was not proceeded by involvement in a post – traumatic therapy program conducted by a specialist. Even if not stipulated by a regulation, attentive monitoring of the personnel involved in air traffic control activities would be benefic, in order to reveal and improve the “human factor” problems with a negative impact of flight safety;
- The air traffic controller on the CTA TWR EXE position was still branded by the family occurrence (reference *EUROCONTROL – EATCHIP HUMAN RESOURCES DOMAIN, REPORTS, GUIDELINES AND STANDARDS* vol. 1 Ed. 1: *HUMAN FACTORS MODULE – STRESS*) and, taking into account the discontinuous control activity during the last six month and the lack of any psychological therapy she was unable to assess correctly her own capacity to comply with the professional duties as well as her own psychological limits;
- The numerical capacity of the traffic controllers team on duty in the occurrence day and a deficient human resources management have disabled the possibility to provide a succession in the controlling positions, allowing the traffic controller who was in a special condition, a more relaxed work load and a step by step resuming of optimal professional activity conditions. Even more, this traffic controller was not replaced immediately after the accident and continued to work nearly one hour;
- The team work (mainly from the point of view of the communications between its members) was not sufficiently adapted to the reintegration and reenrollment to professional stress of a traffic controller that recently suffered an emotional trauma. For this reason the traffic controllers’ team did not operate as unit able to correct its own performance. (reference *EUROCONTROL – EATCHIP HUMAN RESOURCES DOMAIN, REPORTS, GUIDELINES AND STANDARDS* vol. 1 Ed. 1: *AWARENESS OF HUMAN ASPECTS IN AIR TRAFFIC SERVICES*);
- The time between 09 -11 UTC was anticipated as a lower traffic intensity period, so that it is possible that this determined a traffic controllers’ relaxation and a reduced watchfulness of these controllers;

- The statements about the occurrence they were involved in were characterized for all four employees, by precision coherence and self confidence. There was not revealed individual inconsequence in showing the succession of the performed operations, the tasks fulfilled by each or the applied procedures. (The last two phrases do not refer to truth or false of the statements). Minor differences occurred in the way they perceived the collision between the aircraft and the vehicle, determined by the different runway location of the two groups. All admitted surprise and fear;
- During the interview, none of them claimed post / traumatic disturbances.

3. CONCLUSIONS

3.1. The accident occurred due to incorrect taxi and take-off clearance for the aircraft ROT 3107, without ensuring the runway clearing.

3.2. The error to clear the take-off of flight ROT 3107, was possible on the background of a long activity interruption of the CTA EXE TWR, incorrect perceiving of the runway clearance status together with the lack of coordination between the CTA EXE TWR and the CTA GND/TAXI to clear the runway.

3.3. The requirements of RCASTA and LVO procedures were not fully applied by the involved traffic controllers. The team supervisor, who had the duty to directly observe the application of this procedure did not recognized this fact and did not undertake corrective measures.

3.4. Progressive record strips were not in accordance with the valid procedures and regulations.

3.5 When they realized that the runway isn't free, the CTA EXE TWR and the CTA GND/TAXI concentrated on radio calling the "lighting" team instead to immediately initiate the abortion of the take-off by:

- Issuing immediately to the crew of a take-off abort instruction;
- repeated switching off and on the lighting.

3.6. The previous conclusions underline gaps in the training process of ATC staff, i.e. knowledge and complete and correct follow-up of applicable procedures.

3.7. Deficient management of human resources at TWR OTP, that resulted in an insufficient number of ATCs in the shift team, as well as the absence of the team supervisor from the operations room at the accident occurrence hour in the conditions when he accepted a team with 4 ATCs.

3.8 The “Circulation regulation for vehicles and persons”, R - SIG 001, and of “Regulation on organization and performing radio communication in multiple access radio systems”, R – SIG – 007, and the “Local Low Visibility Operations (LVO) Procedures” were not rigorously observed. These regulations include uncorrelated or unclear provisions that might be wrong understood and make difficult their rigorous application.

4. SAFETY RECOMMENDATIONS

Recommendation 1

Subject	Installing of a movement supervision system
Responsibility	ROMATSA in cooperation with “Henri Coandă” Bucharest International Airport.
Details	<i>Purchasing and installing during the shortest time possible of a maneuvering surfaces movements’ supervision radar, to enable the air traffic controllers to identify easily vehicles and aircraft on the maneuvering surfaces of “Henri Coandă” Bucharest International Airport.</i>
Implementation time	The purchase procedures will be initiated as soon this report will be available to all involved parties, taking into account that the Investigation Commission will have to be regularly updated about the implementation stage and the operation of this equipment.

Recommendation 2

Subject	Implementation of a VTS (Vehicle Tracking System)
Responsibility	“Henri Coandă” Bucharest International Airport in cooperation with ROMATSA
Details	<i>The VTS (Vehicle Tracking System) is currently used by aeronautical agents to monitor the movement of vehicles and equipment on the maneuvering surfaces of “Henri Coandă” Bucharest International Airport. Until Recommendation 1 will be implemented the Commission recommends the implementation of this system also at TWR Otopeni, the operational testing of it and adjustment of the system to the operational requirements of TWR Otopeni.</i>
Implementation time	3 month

Recommendation 3

Subject	Amending of the licensing regulation for control and management staff: RACMR-ESARR5 and PIAC-LCTA and PIAC-EXAM
Responsibility	Romanian CAA
Details	<p><i>The Romanian CAA will perform an analysis of ROMATSA’ internal processes and practices concerning:</i></p> <ul style="list-style-type: none"> - <i>The way to perform theoretical and practical training at units level;</i> - <i>The internal scheme of ROMATSA to assess / examine / maintain the competence of air traffic controllers.</i> - <i>Other significant elements of training and competence maintenance processes.</i> <p><i>This analysis will result in amending the previously stated regulations, observing following:</i></p> <ul style="list-style-type: none"> - <i>Involvement of specialized Romanian CAA inspectors in the assessment / examination / maintenance process of air traffic controllers’ competence;</i> - <i>Implementing within the air traffic controllers’ competence maintenance process of examination sessions for theoretical knowledge and ATC human factors concerning the understanding of regulations and procedures currently used by air traffic control units.</i> <p><i>The amendments of these procedures will be evaluated together with the Air Transport Investigations Directorate, before being implemented.</i></p>
Implementation time	6 month

Recommendation 4

Subject	Ergonomic location of the working positions at TWR Otopeni,
Responsibility	ROMATSA
Details	<p><i>ROMATSA will perform an internal analysis concerning the ergonomic relocation of the working positions in TWR Otopeni taking into account following::</i></p> <ul style="list-style-type: none"> - <i>The possibility that yellow progressive record strips, showing the runway availability, should be visible placed for working positions EXE TWR and TAXI;</i> - <i>The possibility to install a visual awareness system for the working position CTA TWR EXE displaying the runway clearance status.</i> <p><i>The results of this analysis will be evaluated together with the Air Transport Investigations Directorate, before being implemented.</i></p>
Implementation time	60 days

Recommendation 5

Subject	Organizing the air traffic controllers TRM (Team Resource Management) training
Responsibility	ROMATSA
Details	<p><i>The human resources management concept within the air traffic management and control team (TRM) was developed by EUROCONTROL in cooperation with the member states in form of a training course which should be attended by all air traffic controllers at least once during their career. The most important benefits of the TRM course are following:</i></p> <ul style="list-style-type: none"> - <i>Reducing incidents determined by team work;</i> - <i>Improvement of task efficiency allocation within the team.</i> <p><i>Taking into account the previous shown, the Commission recommends decision makers within ROMATSA to initiate this training on an internal base, using own human resources, for all air traffic controllers.</i></p> <p><i>The control staff training program as well as its planning will be communicated to the Air Transport Investigations Directorate and the Romanian CAA.</i></p>
Implementation time	3 month

Recommendation 6

Subject	Inspections at air traffic units of ROMATSA
Responsibility	Romanian CAA
Details	<p><i>The Romanian CAA and DITA (Air Transport Investigations Directorate) will extend the inspection activities by performing unscheduled supervision inspections of the air traffic units, observing also following :</i></p> <ul style="list-style-type: none"> - <i>Fulfillment of coordination of traffic within the control team (repeating / confirming essential elements of the messages, requiring to complete coordination messages, etc) ;</i> - <i>Fulfillment of supervision tasks (real performing of them and visible results within the control activity) ;</i> - <i>Organizing of human resources planning for the working shifts and the follow-up of specific procedures as well at changing of the working shift and at transfer of control.</i> - <i>Training organization within the air traffic unit;</i> - <i>Availability of staff at the working place</i>
Implementation time	Permanently

Recommendation 7

Subject	Procedures amendment
Responsibility	ROMATSA in cooperation with “Henri Coandă” Bucharest International Airport under Romanian CAA supervision
Details	<p><i>There will be updated cooperation procedures between the involved parties and regulations applicable at “Henri Coandă” Bucharest International Airport, to provide precision and clearness in order to enable their rigorous application.</i></p> <p><i>Within the auditing process for certification / extension of the certification of the airport, air traffic services and aeronautical agents, conducting their activity at the airport, according to applicable civil aviation regulations there will be performed an exigent check of the content and implementation of safety procedures and regulations.</i></p> <p><i>The amendments of these procedures will be evaluated together with the Air Transport Investigations Directorate, before being implemented.</i></p>
Implementation time	6 month

Recommendation 8

Subject	Applying the “doubtful competence” procedure
Responsibility	ROMATSA, Romanian CAA
Details	<i>ROMATSA will apply the “doubtful competence” procedure „for the air traffic controllers involved in this accident i.e.: CTA GND TWR, CTA EXE TWR and the TWR team supervisor, requiring this controllers should complete a theoretical training concerning the issues mentioned within this Report. Concluding the training will follow a theoretical testing performed by the Romanian CAA, and the resuming of the professional activity will be conditioned by completion of this test.</i>
Implementation time	From the date when this report will be received.

Recommendation 9

Subject	Installing a video monitoring system
Responsibility	ROMATSA
Details	<i>Installing of a video monitoring system in the operation rooms to complete the environment audio monitoring as an effective and absolutely objective mean to supervise discipline in operational positions.</i> <i>The implementation program of this system will be communicated to the Air Transport Investigations Directorate and the Romanian CAA.</i>
Implementation time	2 month

Recommendation 10

Subject	Planning of runway maintenance work
Responsibility	ROMATSA and “Henri Coandă” Bucharest International Airport
Details	<i>During the repairing and maintenance activities on the runway, when the radio communication between the maintenance team and the ATC was not established for as period of 15-20 minute, a radio control message will be broadcasted on the working radio frequency.</i>
Implementation time	From the date when this report will be received.

Recommendation 11

Subject	Planning of runway maintenance work
Responsibility	ROMATSA and “Henri Coandă” Bucharest International Airport and the Romanian CAA
Details	<p><i>“Henri Coandă” Bucharest International Airport together with the repairing and maintenance service suppliers operating on the maneuvering surface, ROMATSA and the Romanian CAA will analyze the runway maintenance activities accordingly to their nature, working time of the maintenance teams to support issuing of NOTAM messages and introducing this information to ATIS.</i></p> <p><i>The amendments of procedures and regulation will be evaluated together with the Air Transport Investigations Directorate, before being implemented.</i></p>
Implementation time	2 month

ANNEXES

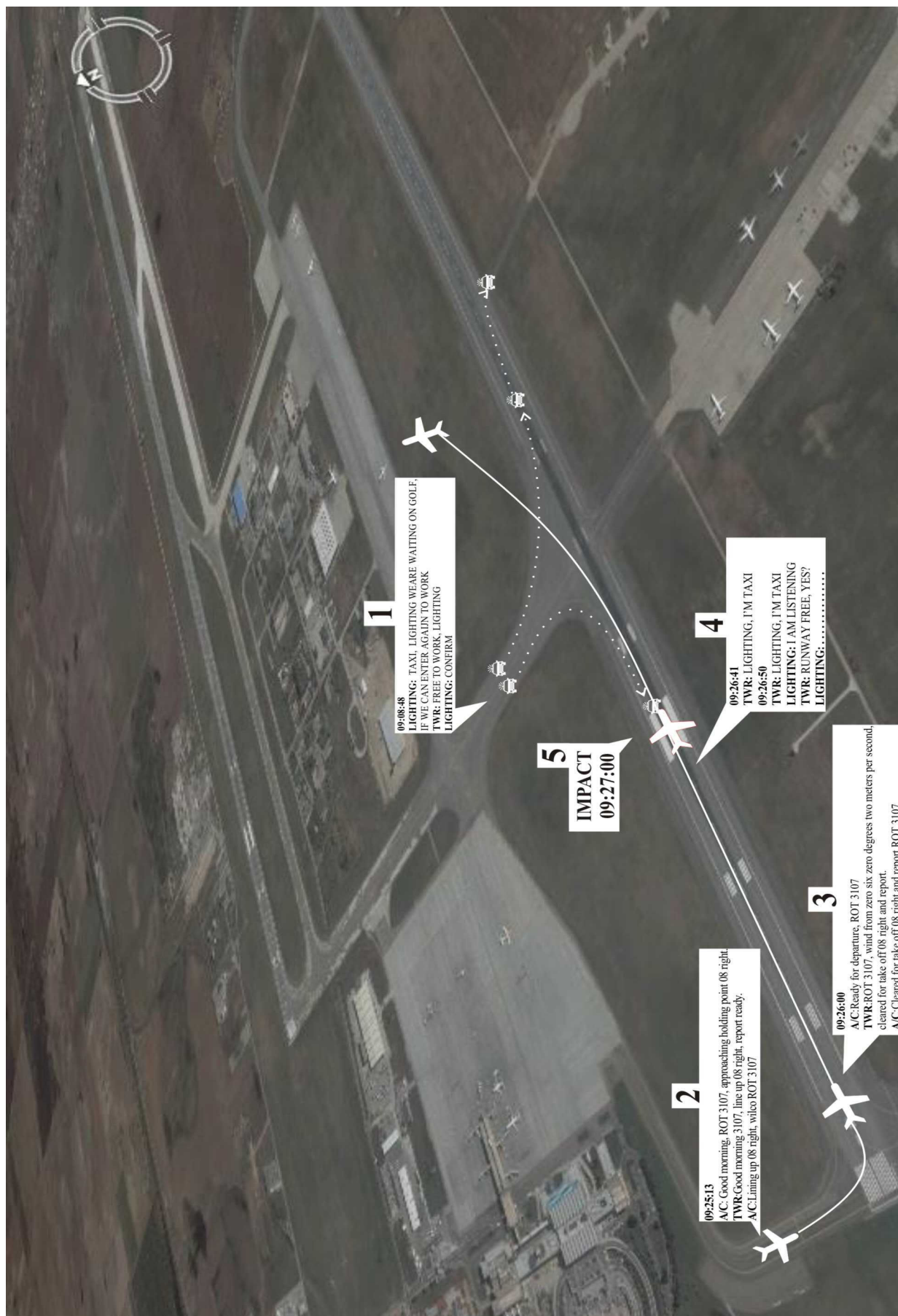
1. Sketch of the Accident Development
2. Photos of the Aircraft
3. Photos of the Vehicle
4. Air Safety Report
5. ATS Operational Occurrence Report

The Chairman of the Technical Investigation Commission

Alexandru Mircea CIUCĂ

ANEXA 1

Sketch of the Accident Development



ANEXA 2

Photos of the Aircraft





ANEXA 3

Photos of the Vehicle





ANEXA 4

Air Safety Report

AIR SAFETY REPORT

Complete all sections where information is relevant. For multi-choice boxes, indicate which entry is appropriate.

Date received by I.S.Av.C. / RCAA

I.S.Av.C. / RCAA Air Safety Report No.

REPORT TYPE:

Mandatory ☒

Voluntary ☐

If you check voluntary report the information on this form will only be used for the purpose for which you have provided it. We will not use this information for any other purpose, and will not disclose it without your consent.

ACCIDENT ☒

INCIDENT ☐

HAZARD ☐

Appropriate name of occurrence (Title):

IMPACT AERONAVĂ CU MAȘINĂ PE RWY 02R/28L

Aircraft Type and Series

B737-300

Registration

YR-BGC

Operator

Owner

TAROM

Date of Occurrence

30.12.2007

FLIGHT AND WEATHER DETAILS

Flight No.:

ROT 3107

DAY ☒

NIGHT ☐

TWILIGHT ☐

VMC ☐

IMC ☐

Wind

VRBC2

IAS

Kts

Runway Used

02R

Status

DRY ☐

AMP ☒

WET ☐

FLOODED ☐

ICE ☐

SNOW ☐

SLUSH ☐

Precipitation

RAIN ☐

SNOW ☐

SLEET ☐

HAIL ☐

LIGHT ☐

MOD ☐

HEAVY ☐

Icing

LIGHT ☐

MOD ☐

HEAVY ☐

Turbulence

LIGHT ☐

MOD ☐

SEVERE ☐

EXTREME ☐

From:

OTP

To:

SHARH-EL-SHEIKH

Time

09:34 GMT

Ht / Alt / FL

Geop. Position

02R

Visibility

100

OAT

-5 °C

Cloud Type

Height / ft

Amount / 8ths

FLIGHT PHASE

PARKED ☐

TOWING ☐

TAXYING ☐

TAKE-OFF ☒

INIT CLIMB ☐

CLIMB ☐

CRUISE ☐

DESCENT ☐

HOLDING ☐

APPROACH ☐

LANDING ☐

CIRCUIT ☐

AEROBATICS ☐

HOVER ☐

NATURE OF FLIGHT

SCHED PAX ☒

NON-SCHED PAX ☐

SCHED FREIGHT ☐

NON-SCHED FREIGHT ☐

SURVEY ☐

PLEASURE ☐

AGRICULTURAL ☐

BUSINESS ☐

CLUB / GROUP ☐

PRIVATE ☐

POSITIONING ☐

FERRY ☐

TEST ☐

TRAINING ☐

TYPE OF EVENT (TICK ALL THAT APPLY)

Aircraft operation (except B,C,D,E,F) ☒

Technical Malfunction / Failure ☐

Airmiss / ATC Incident ☐

TCAS RA ☐

Wake Turbulence / Wind Shear ☐

Bird Strike ☐

Dangerous Goods ☐

Complete this report on section

A

Complete this report on section

B

Complete this report on section

C

Complete this report on section

C

Complete this report on section

D

Complete this report on section

E

Complete this report on section

F

ANEXA 5

Ats Operational Occurrence Report


DGR - DSC - PIN1211 - OCC REP		Anexa 6a	
FORMULAR ROMATSA REAC-02 pagina 1 din 2 ATS OPERATIONAL OCCURENCE REPORT			
ATS Unit Reference Number Nr. înregistrare unitate trafic aerian 94		Date received by IAVG/RCAA Data de primire la IAVG/AACP	
Date/Time of occurrence (UTC): Data/Ora evenimentului (UTC) 30.12.2007 ORA 09.28		3. Geographical location of occurrence: Locul evenimentului LROP/RWY 08R/26L	
4. Aircraft involved - Aeronave implicate:			
Operator	Cal sign and/or registration	Type	ADEP ADES
	ROT 3107	B733	LROP HESH
5. RTF frequency/ Communication equipment and Surveillance equipment used - Frecvențe de comunicații și echipamentul de supraveghere folosit: 120.9 MHz		6. Class of ATS airspace: Clasa spațiului ATS <input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G	
7. Type of Air Traffic Services: Tipul Serviciului DIRIGARE TWR NON-RADAR		8. Automated Warning Systems - Sisteme Automate de Avertizare: Ground-based - La sol (STCA, MTCD, APWS) <input type="checkbox"/> Airborne - La bord (TCAS, GPWS) <input type="checkbox"/>	
9. Estimated vertical distance: Distanță verticală estimată Estimated horizontal distance: Distanță orizontală estimată N/A		10. Traffic information given - Informații de trafic date: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
11. Have you reviewed relevant RTF and/or surveillance recordings? - S-au revăzut înregistrările comunicațiilor și/sau radar? <input type="checkbox"/> YES <input type="checkbox"/> NO		12. Was Weather considered relevant? (if YES, include details in Box 13) - Sunt considerate relevante condițiile meteo? (dacă sunt, detaliați în pct. 13) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
13. Description of occurrence (use additional forms as necessary) - Descrierea evenimentului (folosiți coli suplimentare dacă este necesar): Am primit pe telefon de la dispecer la ora 09.28 UTC în condiții de vizibilitate 20-30 m, vânt blând 200m. Am anunțat pe ROT 3107 să decoleze pe pista 08R în jurul orei 09.28 UTC. După câteva momente, am chemat pe ROT 3107 pe frecvența 120.9 pentru ca mi-a raportat decolarea. După 2 încercări de stabilire a legăturii de către pilot, acesta a raportat că "a ieșit pe pista 08R" și a ieșit pe pista 08R în jurul orei 09.28 UTC. Am fost luată în considerare că de timpuriu în acest timp, pilotul a ieșit pe pista 08R, chemat pe pista 08R, etc.			
14. Assessment of ATCO's workload: Evaluarea încălzirii CTA <input type="checkbox"/> very <input type="checkbox"/> heavy <input checked="" type="checkbox"/> medium <input type="checkbox"/> light		15. Time since last break: Timpul de la ultima pauză: -	
16. Start time of shift: Ora de început a lucrului (UTC): 09.00 UTC		17. Name of ATS Unit - Unitatea de trafic TWR OTOPENI Sector:	
18. On duty as - Funcția: CTA EXE TWR			
19. Your Name, Signature and Date - Numele, semnătura și data: - 30.12.2007			
20. Shift Supervisor Name and Signature - Numele și semnătura Supervisorului de valuri: [Signature]			

Section A:

AIRCRAFT OPERATION

DESCRIPTION OF OCCURRENCE:

Ora 11.34. LT TWR OTP solicita pe frecventa uz general, asistenta de urgenta pe runway, pe partea stanga a pistei in zona dintre intersectia cu runway intersectia cu TWY D. Aeromav YR-661 / B737-300 pentru shah-e-shaikh in zborul la decolare pe pista 08R a lovit oava a avert in afara pistei. Spandindu-se la 150-175 m fata de locul pistei in stanga. S-a intrat de urgenta cu autospeciale de pompieri, pompieri antiteroristi, ambulanta cu personal medical. La locul accidentului s-a deschis parul 1-35. Nu au fost folosite nici o camera de no existenta, nici sau inalti nici la aeromav. Nici din partea echipaj de boala. - continut

ORGANISATION:	NAME:	POSITION:	SIGNATURE:	DATE:
AIHCB		I.S.S.		30.12.2007
IF REPORT IS VOLUNTARY (I.E., NOT SUBJECT TO MANDATORY REQUIREMENTS) CAN THE INFORMATION BE PUBLISHED IN THE INTEREST OF SAFETY?	YES	ADDRESS AND/OR TEL. NUMBER, IF REPORTER WISHES TO BE CONTACTED PRIVATELY	NOTE 1: if additional information, as below, is available please provide. NOTE 2: if the occurrence is related to a design or manufacturing deficiency, the manufacturer should be also be advised promptly. NOTE 3: where applicable, a report of this incident should be forwarded directly to other agencies involved, e.g. Aerodrome Authority, ATC Agency.	
	NO			

REPORTING ORGANISATION - REPORT:

Reported Investigation	Organization	Address and Tel. No.:	
NIL			
OPEN			
CLOSE			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Flight Data:	Position:		
Record Held:	Date:	Name:	Signature: