

“In the name of God”



**Islamic Republic Of Iran**  
**Civil Aviation Organization**  
**Aircraft Accident Investigation Board**

**Final Report**

**Basic Information:**

State File Number: I980226PUS

Type of occurrence: Incident

Date of occurrence: 16 May 2019

Place of occurrence: Republic of Armenia

Aircraft Model: IL-76TD

Registration: EP-PUS

Operator: POUYA AIR

Date of Issue: 10 Jul 2019

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Mehrabad International Airport

Tehran/Iran

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## **SYNOPSIS:**

On Sunday, 16 May 2019, the Aircraft Accident Investigation Board (AAIB) of I.R of Iran was notified that an IL76, EP-PUS, operated by POUYA Air with flight No; PYA2395 from the Mehrabad International Airport (OIII) to the Zvartnots International Airport (UDYZ) /Republic of Armenia was involved runway excursion which landed on RWY09 and over run from defined displaced Runway.

The Civil Aviation Committee of the Republic of Armenia has initiated the investigation and According to Annex 13, chapter 5, the Notification was sent to the CAO IRI as State of Registry& Operator. Due to request of the State of Occurrence, the investigation was delegated to Iranian Aircraft Accident Investigation Board (AAIB).

The Flight Data Recorder has been removed from the aircraft. Downloading of FDR was performed in Pars Aviation Service Company as approved Maintenance organization (Part-145) with the supervision of CAO.IRI representatives.

As a safety action, the operational note was issued for the airlines to make "Remedial Actions" for the crew to prevent similar events.

### **1.1 History of the flight:**

On May 16, 2019, at 02:30 UTC, the IL-76 aircraft belonged to the POUYA Air took off from Tehran Mehrabad International Airport destination to Yerevan Zvartnots International Airport; as a nonscheduled cargo flight. The pilot-in-command on left cockpit seat was the Pilot Flying (PF). According to the flight plan, aircraft climbed to FL300 via flight plan route and at 03:54 UTC exited from Tehran FIR via FIR boundary "MAGRI".

At 04:18 UTC, the flight was cleared to descend to altitude 5100 ft for ILS RWY 09.

At 04:25 about 6 NM on the final, the flight was cleared to land by the tower controller. The aircraft landed on RWY 09 and crossed defined new temporary RWY END marking so aircraft main wheels have collided with the runway end lights.

At 04:29 UTC tower controller instructed the pilot to stop, and in his response, the pilot acknowledged" Stopping".



## **1.2 Injuries to persons:**

9 crew members were on board. No injuries were reported.

## **1.3 Damage to aircraft:**

No damages to the aircraft.

## **1.4 Other Damages:**

One elevated RWY end lights was damaged by the wheels of the aircraft.

## **1.5 Personnel Information:**

Pilot Flying (Left hand seat): Male, 51 years old, Iranian Nationality, holder of ATPL (A) No; 1906 Class 1 with valid LPR and Medical certificate, Proficiency check and type rating on IL76. Total flight time about 7800 hours including 3210 hr on this type.

Pilot Monitoring: (Right hand seat) Male, 55 years old, Iranian Nationality, holder of ATPL (A) No.2206 Class 1 with valid LPR, Medical certificate, Proficiency check and type rating IL76. Total flight time 4955 hours including about 3000h on this type.

## **1.6 Aircraft information:**

The IL-76 aircraft, S/N.09321 with registration EP-PUS was manufactured in 1991. Airworthiness Certificate No. 91318 is valid up to 23 Oct 2019, reviewing the recent records of the aircraft revealed no significant malfunctions.

According to Quick Reference Handbook (QRH) of this type aircraft with mass 151 tones, 2100 m length is required for landing on the dry RWY with full engine reverse & brakes with 43 degrees flap configuration. Regarding the NOTAM 0058, the declared distance for LDA RWY09 was reported 2400m and normal landing should have been expected.

### **1.7 Meteorological Information:**

Issued METAR for UDYZ was 160400Z 12003kt 080V160 9999 NSC 19/06 Q1016

The weather condition had no effect on this event.

### **1.8 Aids to Navigation:**

According to the NOTAM A0058/19 & A0060/19 at the time of occurrence:

PAPAI for RWY 27 in Zvartnots International Airport is out of service;

ILS RWY09 in Zvartnots International Airport is out of service.

### **1.9 Communications:**

The flight crew has not reported any technical communication problems. Also, whole transcript of recorded communication of the air traffic control units were delivered to CAO IRI and used for the incident analysis.

At 04:00:55 UTC:

ACC: PYA2395 expect radar vectoring for ILS RWY 09 via GOSIS 3A

P: Radar vectoring for ILS RWY 09 GOSIS 3A PYA2395 thank you

At 04:13:18 UTC:

APP: PYA2395 conform information R

P: Copied information R thank you

APP: PYA2395 for your information threshold of RWY 27 is displaced to aerodrome

reference point by 1450rn

P: We copied that thank you very much

At 04:17:12 UTC:

APP: PYA2395 it's radar vectoring for ILS RWY 09 tum left heading 265

P: Left heading 265 PYA 2395 thank you for ILS thank you

At 04:25:23 UTC:

P: Yerevan Tower hello good morning PYA2395 full established ILS RWY 09

TWR: Good morning PYA2395 Yerevan Tower cleared to land RWY 09 wind 190° 4 kt.

P: RWY 09 cleared to land PYA2395

At 04:25:54 UTC:

TWR: PYA2395 expect vacate via B

P: Via B thank you

At 04:28:34 UTC:

TWR: PYA2395 stop

P: Stopping

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ACC: Area Control center

APP: Approach unit

TWR: Tower unit

P: Pilot

### **1.10 Airport Information:**

ZVARTNOTS International Airport (UDYZ/EVN) located 10 km west from city of Yerevan. RWY Dimension is 3850×56 m/ Asphalt.

At the time of incident, the available RWY length was 2400m (3850 meters excluding displaced threshold 1450m). There was white arrow marking as well as lined threshold sign marking with elevated lights on the displaced threshold.

In accordance with NOTAM A0058/19 RWY declared distance are as below:

**RWY 09:**

TORA 2400M TODA 2850M ASDA 2850M LDA 2400M

**RWY 27:**

TORA 2400M TODA 2850M ASDA 2800M LDA 2400M

; And NOTAM A0060/19:

ILS RWY 09 is out of service

### **1.11 Flight Recorders:**

This aircraft has been equipped with digital flight data recorder (DFDR) and CVR. The DFDR was downloaded and analyzed in the Tehran, the Recorder (CVR) was serviceable with no damage, while the incident has happened, the CVR was engaged and at the time of readout, cockpit voices regarding incident were lost.

The DFDR was serviceable and without damage. The download of the DFDR was accomplished successfully. The initial evaluation of the flight data revealed that the aircraft landed normally and the pilot action was based on normal runway (3850M) without consideration of new LDA 2400m. The evaluation of FDR data was sampled with data regarding previous landing on the RWY with about 4000 m. the pilot did not use full engine reverse based on calculation LDA 3850 m which caused to over run on the displaced runway.

### **1.12 Wreckage and Impact Information:**

After landing of aircraft in the destination, the aircraft and RWY threshold was visually inspected with the following results:

- There was not any deflection on the airframe and control surfaces.
- There was sign of impact of elevated threshold light on the main landing gear tire.

### **1.13 Medical and Pathological Information:**

The Alcohol tests were done for both pilot and Pilot Monitoring by request of Armenian Authority immediately after the occurrence and the result of analysis were negative.

### **1.14 Fire:**

No fire occurred for the aircraft.

### **1.15 Survival Aspects:**

Nobody was injured in this incident.

### **1.16 Organizational and Management Information:**

POUYA AIR is an Iranian airline that offers civil passenger and cargo services, including domestic and international flights.

## **2. ANALYSIS:**

On 16 May 2019, before the flight, both pilots attended in Dispatch office in POUYA Air in MEHRABAD International Airport. The dispatcher delivered flight document folder to the pilots and briefed them about EVN NOTAM. The crew briefing has been done in the dispatch, the pilot had paid attention to the available NOTAM in flight documents and coordination between him and his first officer was done but due to insufficient and ineffective pre-flight briefing between flight crew and flight dispatcher, adequate attention to the declared distances (LDA2400 m) of both runways was not drawn based on the NOTAM A0058/19. The crew imagined that displaced threshold of RWY 27 does not effect on available LDA for RWY 09 due to wrong perception of NOTAM and 3850 meters LDA was available for landing on RWY 09.

The aircraft took off from RWY 29L Tehran Mehrabad International Airport to the destination Yerevan as nonscheduled flight to transfer cargo from Yerevan to Kuwait airport. On the whole time of flight, the pilot-in-command on the left cockpit seat was the Pilot Flying (PF). The cruise flight level was FL300 and the flight has entered to Yerevan FIR via point MAGRI. Subsequently, the Yerevan ACC controller informed the pilot about radar vectoring for ILS RWY09 for the approach and was acknowledged by the pilot.

When the aircraft was under control of APP RDR unit, according to the NOTAM A0058/19 the pilot was informed of the displacement of threshold RWY27 by 1450m to the aerodrome reference point by Approach controller. Then the flight was vectored and descended to altitude 5100ft for ILS RWY09. The flight was vectored for ILS RWY 09 opposing to the NOTAM A0060/19 that has mentioned that ILS RWY09 is us serviceable (U/S). Finally, the flight was cleared to land on RWY09.

Although issued NOTAM has pointed LDA for RWY09 is reduced to 2400m but pursuant to attachment A item 3-5 of annex 14 which clearly indicate that:

***“A displaced threshold affects only the LDA for approaches made to that threshold; all declared distances for operations in the reciprocal direction are unaffected.”***

It should be better to define clearly the reason of reduction in LDA RWY09 and RWY threshold displacement in the context of NOTAM for better understanding.

According to ICAO PANS/AIM 10066 ***“Each NOTAM shall be as brief as possible and so compiled that its meaning is clear without the need to refer to another document.”***

After receiving ATC clearance for landing on the RWY09, the pilot landed normally on the runway with the assumption of LDA is 3850m, so he lost beginning area of RWY 09 and during run on the runway suddenly encountered with a row of elevated lights across the runway but there was not enough information about type of elevated lights that installed on the RWY as a runway end lights. In accordance with ICAO DOC8126 6.1.5 (e), NOTAM shall be originated and issued concerning the ***“interruption of or return to operation of major components of aerodrome lighting systems”***. Also there was not any information about elevated lights in standard separated NOTAM.

In the spite of existence of obstacles, he decided to continue without braking as immediate action to avoid sustaining of damages to landing gear system and collided with lights and passed RWY end marking. Finally tower controller instructed the pilot to stop and he acknowledged by "Stopping".

There were some minor damages on the aircraft tires which corrective actions had been done to continue planned flight to Kuwait.

### **3. Conclusion:**

#### **3.1 Findings:**

- The flight crew was properly certified and qualified in accordance with applicable regulations to conduct the flight.
- There was no evidence of an aircraft structural or system failure that would have either been causal or contributing to the incident.
- The crew was received NOTAM of destination airport and briefed about that. Related briefing was ineffective, adequate attention to the declared distances (LDA2400 m) of both runways was not focused based on the available NOTAM.
- The flight was vectored for ILS RWY 09 against the NOTAM A0060/19 that has clearly mentioned that ILS RWY09 is us serviceable (U/S).
- The flight crew did not pay attention to available LDA and landing configuration was based on LDA 3850 Meters.
- The crew has not information about elevated lights at end of runway via standard NOTAM so encountered to the lights in insufficient time for braking action.
- The reason(s) of threshold displacement and reduction of LDA for RWY09 in the NOTAM was not expressed directly without the need to refer to another part of NOTAM or interpreting it.

#### **3.2 Probable causes:**

The investigation of available evidences such as; crew statements, ATC communication, FDR data, site visit and airport CCTV observation; the **Main Cause** incident was wrong perception of the flight crew regarding issued NOTAMs of displaced threshold of RWY27.

Contributing factors to the incident were:

- 1) Insufficient risk assessment for destination airport about available NOTAMS by the airline
- 2) Lack of supportive information on Issued NOTAM by airport operator.
- 3) Ineffective crew training about NOTAM and related arrival briefing

#### **4. SAFETY RECOMMENDATIONS:**

As a result of the investigation of this incident, Accident Investigation Department of I.R of Iran Civil Aviation Organization (AAIB) issues the following recommendations:

##### **SR 980226PUS;**

##### ***To I.R of Iran Civil Aviation Organization:***

1. To ensure that risk assessment on new routes for none scheduled flights are kept/focused on airline operations manuals.
2. To Require all operators to accomplish arrival landing distance assessments before every landing based on standardized methodology involving approved performance data, actual arrival conditions, a means of correlating the airplane's braking ability with runway conditions and be confirmed on before landing check list.
3. To review airline training programs and manuals to ensure they incorporate the revised guidelines concerning "Runway Overrun Prevention".

##### ***To General Civil Aviation Authority of Armenia***

4. To consider the findings of this report to assure implementation of Annex 15 standards for NOTAM issuance, in order to improve levels of safety in the airports in territory of Armenia.

##### ***To Pouya Air:***

5. to review flight crew training programs and manuals to ensure training in landing on displaced Runway as (1) Dispatch Briefing; (2) take off/ Landing distance (3) Engine reverser/Brake limitation.
6. To revise arrival /landing check list for crew to confirm /review condition of planned landing airport.

❖ Appendices:

Related NOTAM

**UDYZ - YEREVAN**

- + THRESHOLD RWY 27 REPLACED TO THE CENTER OF THE RWY BY 1450M  
AT THAT TIME CENTRE LINE, TDZ LIGHTING SYSTEM AND PAPI FOR  
RWY 27 OUT OF SERVICE  
AT THAT TIME 180 DEGREE TURN OF THE AIRCRAFT ON THE RWY 09/27 IS  
APPROVED FOR TAKE OFF RWY 27 AND LANDING RWY 09  
FOR RWY 09 TORA(M)-2400, TODA(M)-2850, ASDA(M)-2850, LDA(M)-2400  
FOR RWY 27 TORA(M)-2400, TODA(M)-2850, ASDA(M)-2800, LDA(M)-2400  
CAT 2 AND CAT 1 OUT OF SERVICE

FROM: 15 MAY 2019 05:00 TO: 16 JUN 2019 16:00

A0058/19

- + REGARDING TO THE PUBLISHED NOTAMN A0058/19 ABOUT RWY27 THRESHOLD  
REPLACEMENT BY 1450 METERS TO THE CENTER OF THE RWY  
A) NEW TEMPORARY RWY27 THRESHOLD COORDINATES ARE THE FOLLOWING  
LATITUDE: N400850.28, LONGITUDE: E0442405.22  
B) ILS RWY09 IS OUT OF SERVICE  
C) ONLY NON-PRECISION APPROACHES ARE AVAILABLE  
D) RNP Z (LNAV ONLY) APPROACH RWY27 GRADIENT IS 5.78 PERCENT  
(3.31 DEG)  
E) RNP Y (LNAV ONLY) APPROACH RWY27 GRADIENT IS 5.44 PERCENT  
(3.11 DEG)

FROM: 15 MAY 2019 05:00 TO: 16 JUN 2019 16:00

A0060/19

Comments from Armenia to the final report:

Item 4<sup>th</sup> findings: *The information that ILS system was out of service was released to NOTAM 0060/19 taking into consideration the intention that in renovation of the runway such construction equipment would be used that its scale (height) could effect on the operations of ILS system. However, other technical equipment (smaller scale was used than previously was planned) was used during the renovation, which could not be considered as an obstacle or could obstruct the regular operation for above mentioned system. Based on the above mentioned, in order to improve flight safety, it was decided to vector the aircraft for ILS RWY 09 and steps were undertaken to reissue NOTAM 0060/19, which was subsequently done. During those days, we didn't receive any report concerning ILS system, not even from Iranian aircraft crew. The system worked uninterrupted, so it could not be considered as a contributing factor to the incident.*

In provided report you mentioned the paragraph 6. 1. 5 (e) of ICAO document 8126. It says that NOTAM should be originated and issued concerning the «interruption of or return to operation of major components of aerodrome lighting systems». We would to acknowledge you that the requirements of this paragraph were fully in line with 0058/19 NOTAM, in particular the NOTAM contained information that center line and TDZ lighting system and PAPI for RWY27 were out of service. So with the above mentioned information you see that NOTAM 0058/19 contains all data about interruption and return to operation of major components of aerodrome lighting systems.