BUREAU OF AIR ACCIDENT INVESTIGATION

AIRCRAFT ACCIDENT REPORT (Ref. N0 1/2017)

Report on the Accident of Aircraft Reg. No. 9H-SEP. *Crash Landing*.

This investigation has been conducted in accordance with *Annex 13 to the ICAO Convention on International Civil Aviation, EU Regulation No 996/2010* and *The Civil Aviation (Investigation of Air Accidents and Incidents) Regulation; Legal Notice 16 of 2013.*

Under these Regulations, the sole objective of the investigation of an accident or incident is the prevention of accidents and incidents in the future. It is not the purpose of this investigation to assign fault or blame, and the reporting process should not be used to determine liability.

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Introduction.

(0.1) The accident was reported to BAAI by the MIA Duty Officer at approximately 15.40 *(LT)* hrs. At Security Gate 1 Luqa Airport, BAAI was provided with transport, assistance and a brief description of the accident by MIA personnel. In accordance with the provisions of ICAO Annex 13, there was no need for other SIAs to be informed of the accident since the aircraft's weight is less than 2250kgs (Ref. ICAO Annex 2)

(0.2) MIA authorities and the Airport Emergency services had taken all the necessary steps to properly secure the area and provide primary assistance to the two persons on board the aircraft.

Summary

A two-seater single engine aircraft of the type P2002JF-TECNAM *(Reg. No. 9H-SEP)* crashed while landing on RWY 23. The aircraft impacted the runway on the threshold and skidded for approximately 60 meters to the left and finally came to rest on the grass between TWY Juliet and the TWY Zulu about 5 meters from the TWY Juliet and RWY23. (*Abeam TWY Juliet)*

Fig 1

There was no noticeable damage to the RWY, RWY lights, vehicles or any structure at the Airport. No fatalities or injuries were reported but the damage to the aircraft was significant.

(1.0) On Site Investigation

(1.1) The investigation started by surveying the area and the aircraft wreck; including skid marks and fragments of the aircraft which might have detached from the aircraft on impact with the RWY. It was determined that the Aircraft came in touch with the RWY in the mid-section of the painted area (*threshold markings*) of the RWY threshold.

Fig2
The arrow indicates a piece of glass form the right wingtip lights on the RWY threshold.

(1.2) The pilot and his passenger were still visibly under shock but had sustained no physical injuries. In a preliminary interview at the site of the accident the pilot said that he lost control of the aircraft while trying to perform a *go-around*. This was confirmed by his passenger who is also a licensed pilot but was not involved or responsible for flying the aircraft.

(1.3) When asked if the go-around was a planned manoeuvre, the pilot answered that the reason for the *"go-around"* was to avoid a flock of birds that were flying towards the aircraft from left to right. The pilot determined that the only way to avoid this apparent danger was to discontinue the landing manoeuvre by applying full thrust to initiate a *"go-around"*. An inspection of the flight-deck revealed that the throttle was slightly below the halfway mark which is not consistent with the full-thrust position.

Fig3

(1.4) The aircraft was inspected on-site to determine the extent of the damage sustained as a result of the accident and to gather other evidence which could assist the BAAI in its investigation. It was immediately clear that the aircraft could not move under its own power, therefore in accordance with SL 499.22, the Aircraft Operator was requested to provide assistance for the removal of the wreck.

Fig4

(1.5) After the initial (on-site) inspection, the Aircraft Wreck was thoroughly inspected in the hanger where it was stored for repair. The investigation revealed that at the time of the accident, the aircraft was technically safe and that no part of the aircraft fuselage/control surfaces or any of its electronic or pneumatically operated instruments contributed to the accident. All aircraft documentation, permits and licenses were found to be correct and current.

Fig5.

(2.0)Further Investigation and History of the flight.

(2.1) Malta Air Traffic Services provided BAAI with a copy of the CCTV footage plus the ATC recording of the accident, and metrological information was provided by MIA.

METAR: LMML 041515Z 25008KT 220V280 9999 FEW015 16/13 Q1022 NOSIG=
METAR: LMML 041545Z 25008KT 220V300 9999 FEW009 16/13 Q1022 TEMPO007=

TAF: LMML 041100Z 0412/0512 23010KT 9999 FEW014 PROB40 0503/0509 6000 BKN010 PROB30 0503/0506 0800 BCFG BECMG 0509/0512 22015G28KT.

(2.2) The two persons involved in the accident gave a different version to MIA than what they told the BAAI investigator. The MIA was told that the PIC tried to turn away from the approaching flock of birds while the BAAI investigator was told that PIC initiated a "go-around". A plausible reason for this inconsistency is that the PIC is not a Maltese National and English is not his native language. Another reason is that when BAAI interviewed the PIC, he was still under shock and deeply upset by the accident.

(2.3) **History of the flight**: The pilot, who is a prospective commercial pilot, was performing circuit work and practicing *"touch-and-goes"*. He reported that the touchdown on all previous landings were smooth and uneventful but noticed that the sun was becoming an annoyance during the final phase of the approach and landing. Consequently, he decided to do one final approach before terminating the training session. For this approach, the PIC decided to practice a *"short field landing*" which is by no means a dangerous procedure, but one has to be quite competent in flying and involves careful planning of the approach procedure and a special technique so as to stop the aircraft on the landing distance available.

SHORT--FIELD APPROACH AND LANDING

1. Enter and fly traffic pattern per standard procedures.
2. Complete "Before Landing Checklist."
3. At Mid--Field-- GEAR down (not applicable for fixed gear aircrafts)
4. Apply carburetor heat and reduce power to 12 inches MP, lower flaps to 10o, maintain altitude, and decelerate to 85 KIAS abeam intended point of touchdown.
5. Turn base when intended point of touchdown is approximately 45o behind wing.
6. Extend flaps to 20o.
7. Turn final and maintain proper ground track, extend flaps to 30o
8. Below 100 knots, PROP full forward (not applicable for fixed pitch propeller aircraft)
9. Reduce airspeed to 63 KIAS. (or type recommended speed)
10. Adjust pitch and power as necessary to maintain airspeed and descent angle that will ensure safe obstacle clearance.
11. Reduce airspeed to recommended airspeed +10/--5 KIAS on short final.
12. Transition from approach to landing altitude approximately 10 to 15 feet above runway by applying back elevator pressure and crosswind correction as necessary.
13. Touchdown beyond and within 100 feet of intended touchdown point, with minimum float and no appreciable drift, and airplane's longitudinal axis aligned with and over runway centerline.
14. Maintain directional control after landing on ground roll by increasing aileron deflection into the wind as necessary. 15. Retract flaps, apply brakes and "up" elevator to stop in shortest distance consistent with safety. * *GEAR configuration checks will be made during the Downwind, base and Final legs**

Recommended FAA procedure.

(2.4) The PIC stated that he started the approach by intercepting the *"papies"* at the correct height and distance from the RWY. After that, the approach was continued by aiming for the "threshold" rather than the correct aiming point on the RWY.
Note. The aircraft was correctly configured for landing during the approach.

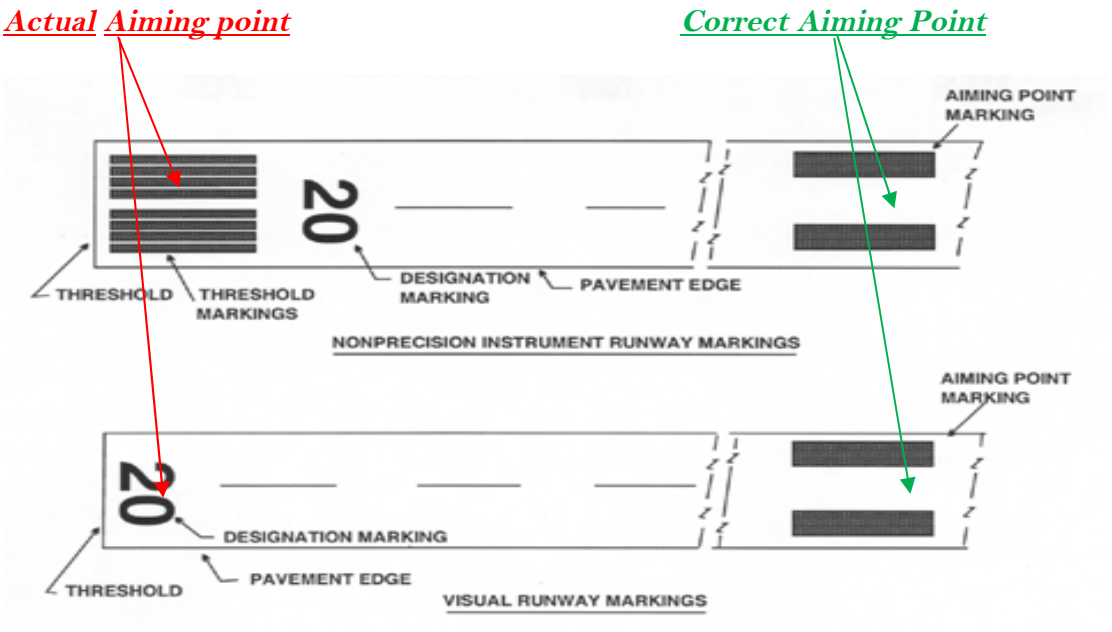


Fig6

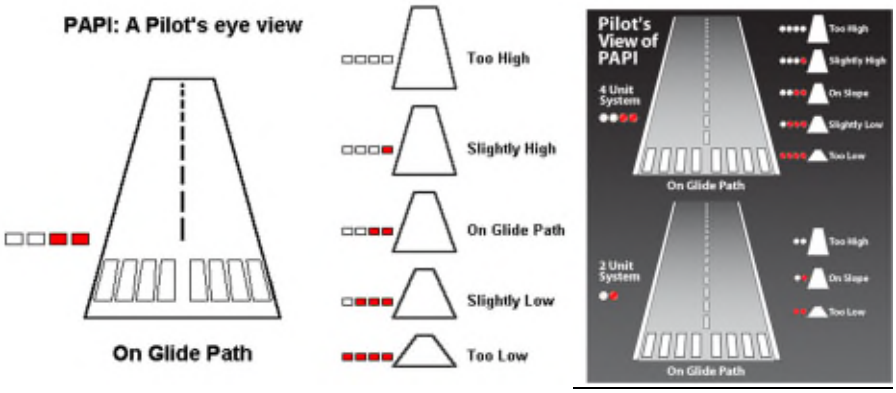


Fig7

The decision to aim for the threshold rather than the correct aiming point on the RWY resulted in the following;

- The rest of the approach was flown below the glide slope thus increasing the rate of decent which would have required a reduction in power to maintain the correct approach speed.
- The established VFR procedure was not being followed thus considerably reducing safety for the persons on board the aircraft as well as third persons living beneath the *"glide-path"* (*glide-slope)*, motorists and pedestrians using the adjacent road.

- Putting in danger other aircrafts and airport vehicles that could have be standing-by on TWY Juliet.

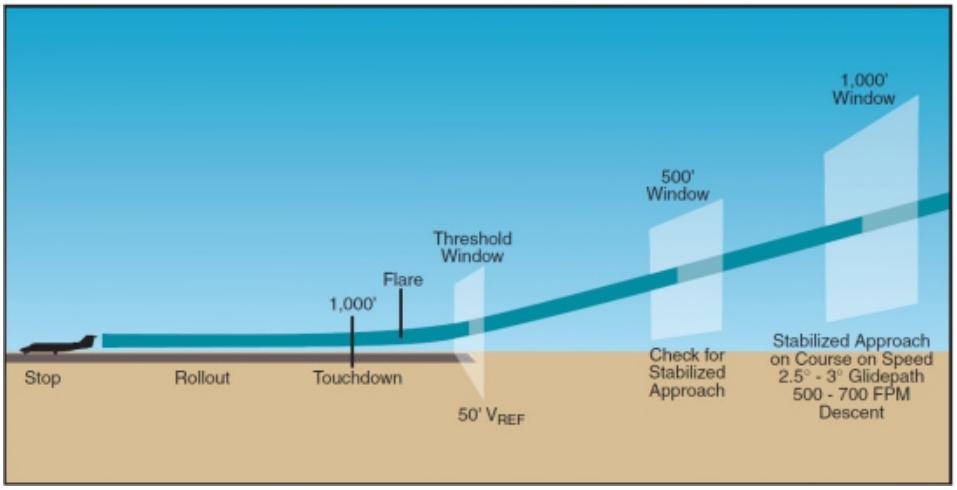
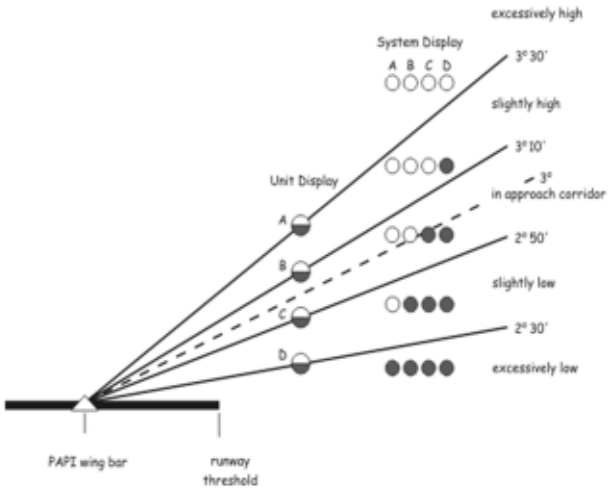


Fig8



(2.5) Misconceptions of what is, and how to fly a short field approach and landing, led the PIC to believe that it is acceptable to fly the approach below the correct approach speed.

(2.6) The PIC acknowledged that he ignored the *"stall warning"* because someone told him that the operator has increased the stall warning by about 10KTS. The operator was questioned about this and said that in an effort to increase safety, the school decided to increase the speed at which the stall warning sounded in the flight deck. He said that the speed was increased by about 4KTS which is 6KTS less than what the PIC was told. This precaution should have indeed increased safety as it would give the pilot advanced warning of an impending stall.

(2.7) The fact that on this day, the pilot deliberately ignored the stall warning is both curious and disturbing. To add to this, the PIC also ignored other

information which was available to him in the flight deck. *The Airspeed Indicator* provides visual information to the pilot that a stall is imminent and therefore could be used to compare the validity of an audio warning.

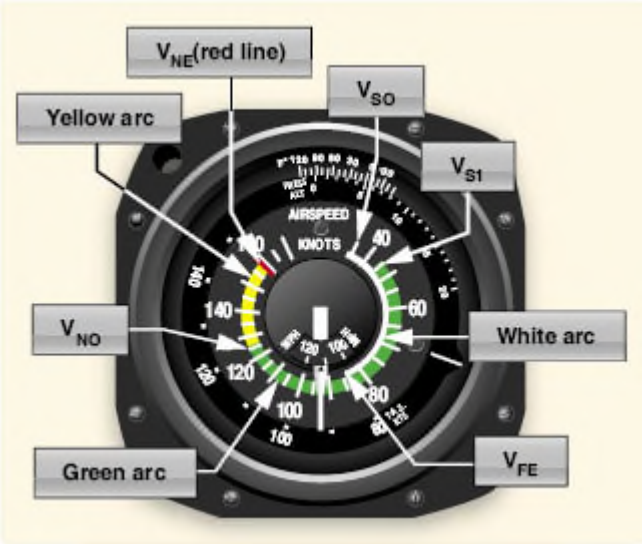


Fig9

• *White arc—commonly referred to as the flap operating range since its lower limit represents the full flap stall speed and its upper limit provides the maximum flap speed. Approaches and landings are usually flown at speeds within the white arc.*

• *Lower limit of white arc (VS0)—the stalling speed or the minimum steady flight speed in the landing configuration. In small aircraft, this is the power-off stall speed at the maximum landing weight in the landing configuration (gear and flaps down).*

• *Upper limit of the white arc (VFE)—the maximum speed with the flaps extended.*

(2.8) CCTV footage provided by MATS, shows the aircraft approaching the RWY at a steeper than the normal angle for landing. Just before stalling, the nose was slightly drawn up, the aircraft turned to the right by approximately 60-80 degrees as it fell roughly 30ft to the ground; violently hitting the nose and right wing, turned and continued to slide off the RWY. The impact broke the propeller *(fig. 4 and 5)*, folded the nose-gear up against the skin of the aircraft, whereas the left main landing assembly detached completely from the aircraft. The Engine cowling and the right wing suffered severe damage while there was also some damage along the left wing and elevator assembly.

Fig.10

(2.9) The PIC and his passenger attended two interviews at the BAAI's office in Valletta. During the interview, the two individuals concerned were asked to recount the sequence of events without adding or leaving out any details. After the initial part of the interview, they were asked to watch the CCTV footage of accident where it was pointed out that the footage does not show any birds interfering with the flight or flying in the vicinity of the RWY. Their reaction indicated that there could have been a perception of birds flying towards the aircraft. The cause for this optical illusion could be due to the sun illuminating the flight-deck canopy which may have caused dirt and imperfection on the flying-deck canopy to appear as birds flying in the vicinity of the aircraft.

(2.10) As stated in paragraph 1.3 Fig 3, the throttle position was found just under the halfway mark, meaning that the trust selected was not consistent with either the "go-around" position (full thrust) or the landing position (idle thrust).

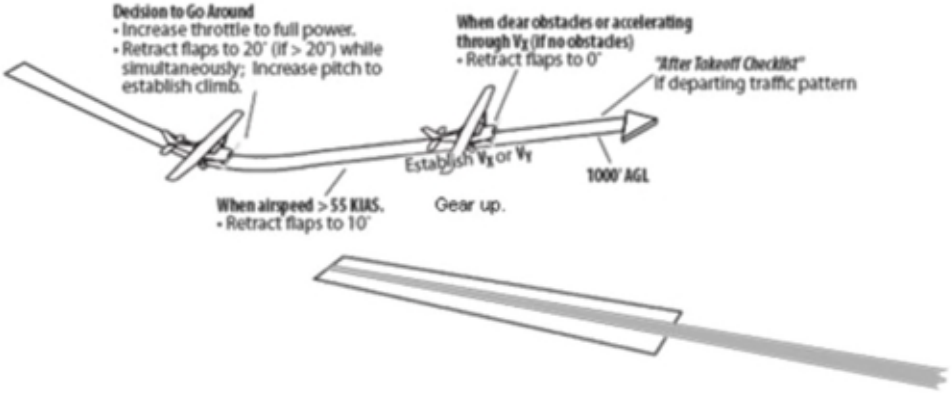


Fig11

(2.11) According to the pilot, during the last few seconds of the flight, the pilot became disorientated and as a consequence lost control of the aircraft. In other words, the pilot flew himself into a situation that was above and beyond his level of experience and handling capability.

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Conclusion.

In General. pilots remain the most critical element in flying and how a person flies is a demonstration of character, attitude towards safety and self-discipline. "*Airmanship*" can be defined as dealing responsibly and intelligently with the overall flight environment and its potential threats.

This investigation and other investigations, revealed that some pilots are not being made aware of the importance of flying the approach according to the stipulated procedures, of knowing how to read RWY markings and the importance of applying the knowledge they acquire during training

In aviation one must remain focused on safety and safety should never be compromised or traded for something of lesser importance. The chart below gives a pictorial statistic of which phase of flight present the biggest challenge for pilots. Clearly the landing phase and the take-off phase is where most concentration is required and it is these two phases that determine the handling capabilities of a pilot.

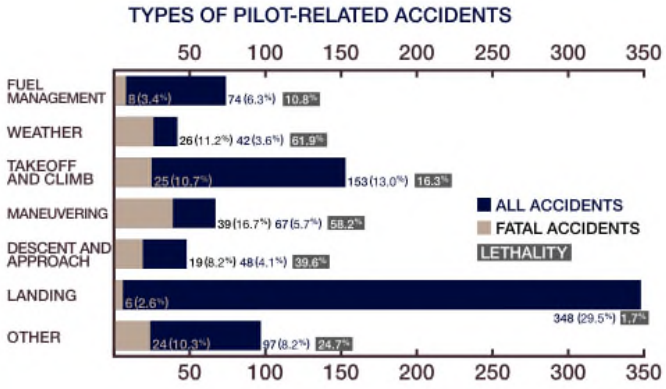

Fig12

Pilots should not fly themselves into a situation which is beyond their level of experience and proficiency. Misconception and lack of knowledge (*due to inexperience*) will also contribute to the creation of a unique set of circumstances which normally would not result in an accident.

Glossary of Abbreviations.

ATC.....,,.....Air Traffic Control.

CAVOC.....Ceiling and Visibility OK.

CCTV..... Closed-circuit television.

ENEMED.....Aircraft Fuel provider.

ICAO..... International Civil Aviation Organization.

LMML..... ICAO-code for Malta.

MATS..... Malta Air Traffic Services

MIA.....Malta International Airport

METAR.....Aviation Routine Weather Report.

NOSIG.....No Significant Change.

OMAS..... Office of the Manager Airport Security.

PIC.....Pilot in Command.

QNH.....Atmospheric pressure adjusted to sea level

SID.....Standard Instrument Departure

SOP.....Standard Operating Procedures