

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY



Accident

— Summary Report —

AAIS Case N° AIFN/0008/2020

Nose Gear Impact During Landing

| | |
|-------------------------------|----------------------------------|
| Operator: | Fujairah Aviation Academy |
| Make and Model: | Diamond-DA-40 |
| Nationality and Registration: | The United Arab Emirates, A6-FAG |
| Place of Occurrence: | Fujairah- Fujairah Airport |
| State of Occurrence: | The United Arab Emirates |
| Date of Occurrence: | 12 June 2020 |



This Investigation was conducted by the Air Accident Investigation Sector of the United Arab Emirates pursuant to Civil Aviation Law No. 20 of 1991, in compliance with Air Accident and Incident Investigation Regulation, and in conformance with the provisions of Annex 13 to the Convention on International Civil Aviation.

This Investigation was conducted independently and without prejudice. The sole objective of the investigation is to prevent future aircraft accidents and incidents. It is not the purpose of this activity to apportion blame or liability.

The Air Accident Investigation Sector issued this Summary Report in accordance with national and international standards and best practices. Consultation with applicable stakeholders, and consideration of their comments, took place prior to the publication of this Report.

The Summary Report is publicly available at:

<http://www.gcaa.gov.ae/en/epublication/pages/investigationReport.aspx>

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Investigation Process

The Accident involved a Diamond DA-40, registration A6-FAG, and was notified to the Air Accident Investigation Sector (AAIS) Duty Investigator (DI) by phone to the hotline number (+971 50 641 4667) on 12 June 2020.

After the Initial/On-Site Investigation phase, the occurrence was classified as an Accident.

The scope of this Investigation is limited to the events leading up to the occurrence; no in-depth analysis of non-contributing factors was undertaken.

Notes:

1. Whenever the following words are mentioned in this Report with first capital letter, they shall mean the following:
 - (Accident) - the investigated accident that is the subject of this Report
 - (Aircraft) - the aircraft involved in this accident
 - (Flight Academy) - Fujairah Aviation Academy
 - (Investigation) - the investigation into the circumstances of this accident
 - (Report) - this accident Summary Report
 - (Trainee Pilot) - the trainee pilot of the accident flight.
2. Photos and figures used in this Report are taken from different sources and are adjusted from the original for the sole purpose to improve the clarity of the Report. Modifications to images used in this Report are limited to cropping, magnification, file compression, or enhancement of color, brightness, contrast, or addition of text boxes, arrows, or lines.

This Summary Report is adapted from the Final Report structure as depicted in *Annex 13* Final Report format.

Factual Information

History of the Flight

On 12 June 2020, a Trainee Pilot from Fujairah Aviation Academy departed Fujairah International Airport at 0950 local time United

Arab Emirates for a training flight in the designated training area.

The flight was the fourth one in a sequence of four flights. As per the training flight records, the Trainee Pilot had conducted solo flights on 9, 10, and 11 June 2020 before the Accident flight.

However, before these four solo flights, the Investigation noticed from the training records that the Trainee Pilot had conducted a dual flight with an instructor as a refresher since he had not flown for a period of 72 days. This was due to the restrictions imposed on flying activities at the Academy in response to the COVID-19 pandemic in compliance with the authorities' requirements. According to the training flight records, the Trainee Pilot's flight prior to the break caused by the pandemic was on 25 March 2020, and she made her first dual flight after the COVID-19 restrictions were eased on 6 June 2020.

As per the training report of the flight conducted on 6 June 2020, the flight was planned as an extra flight to refresh the Trainee Pilot flying skills after a long pause. She completed this training flight to a satisfactory level with some items debriefed, such as: Paying attention to coolant temperature during climb; landings need to be consistent; and backpressure application needs to be paid attention to during flare for landing. On 8 June 2020, the Trainee Pilot conducted another dual flight which covered basic instrument flight rule (IFR) maneuvering skills, which was completed to a satisfactory level as shown by the training records.

On 12 June, the Accident flight was the first solo flight for the Trainee Pilot after the two dual flights post COVID-19 lockdown. As stated in her interview, the Trainee Pilot flew to the training area to practice some maneuvers. According to her statement, she had successfully completed all the tasks required during the flight.

The Trainee Pilot stated that upon her return, she noticed engine control unit (ECU) B fault light illuminating on the cockpit display accompanied by a beep. She proceeded normally without declaring an emergency. The air traffic control (ATC) at Fujairah International Airport advised the Trainee Pilot about the availability of runway 29 and runway 11 for landing. The wind data as per the weather report provided to the Trainee Pilot was indicating 6 knots wind speed, blowing from 60 degrees. In her interview, the Trainee Pilot mentioned that the wind was at 90 degrees

but she was unsure of the wind speed during the flight. However, after the review of wind data based on ATC transcript, the wind component reported for the Accident flight before commencing the approach was 50 degrees, at 5 knots.

As per the Trainee Pilot statement, she chose to land on runway 11 for a more stable descent and to extend the downwind leg in preparation for landing. The Trainee Pilot stated that she did not note any abnormalities after detecting the ECU B fault indication and she felt that the Aircraft was normally functioning. She also stated that she did not declare an emergency requesting landing as soon as possible and she did not apply the respective checklist for such failure.

The Trainee Pilot stated that during the first approach, the airspeed was about 75 knots and the Aircraft was fully configured for landing. She stated that she felt that the Aircraft was low on the approach and this was reflected by noticing three red precision approach path indicator (PAPI) lights confirming that she was below the approach profile. She added power to ascend and return to the approach profile and align the Aircraft with the aiming point on the runway. In order to touch down on the runway, she brought the power to idle and flared the Aircraft for touchdown. However, she stated that she did not know what happened at this moment as the Aircraft bounced instead of firmly touching down on the runway. She applied power for a go-around after the bounce and felt that she is under stress due to the nature of the maneuver.

The Trainee Pilot stated that during the second approach in the circuit, she "felt that there was something wrong with the Aircraft performance and felt tired because of the heat and humidity." She flew the second approach in a similar manner to the first approach and to the same runway (runway 11). When approaching the aiming point, she brought the power back to idle and flared for the touchdown. The Aircraft bounced in the same manner as during the first touchdown. The Trainee Pilot considered that she had no choice but to fly another go-around.

During the third approach, the Trainee Pilot felt that she was under pressure coming back for the final approach aligning herself for runway 11, and the third approach was flown in the same manner of the previous two approaches. She stated that the Aircraft was behaving abnormally during this approach. She added that she did not know what happened during the flare, but realized that the Aircraft had impacted the runway

in such an attitude that the propeller had been damaged. (Figures 1 and 3)

The Trainee Pilot contacted the Tower informing them that the Aircraft had suffered damage.

Damage to Aircraft and Property

Because of impact with the runway, the nose gear detached and was found 20 meters away from the Aircraft (figure 2). In addition, the propeller blades were bent and fractured. The propeller paint was peeled off due to the impact. The Aircraft was found in a forward leaning position.



Figure 1. Aircraft position at rest



Figure 2. Detached nose gear

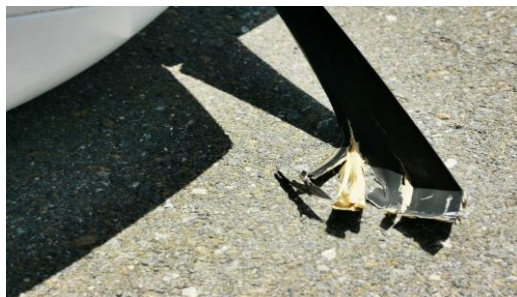


Figure 3. Damage to Aircraft propeller



The propeller contact with the runway surface caused slashes. (Figure 4)

Personnel Information



Figure 4. Slashes left by the propeller on the runway

Training record

The Trainee Pilot enrolled integrated training program for air transport pilot license (ATPL) that consisted of theoretical and flying parts.

The theoretical part comprised of 14 subjects, which were:

1. Air Law
2. Aircraft General Knowledge - Airframe/Systems/Power plant
3. Aircraft General Knowledge Instrumentation
4. Mass and Balance
5. Performance
6. Flight Planning and Monitoring
7. Human Performance
8. Meteorology
9. General Navigation
10. Radio Navigation
11. Operational Procedures
12. Principles of Flight
13. VFR Communications
14. IFR Communications.

The training records indicated that the Trainee Pilot had completed the theoretical part successfully. She then progressed to the flying part, which consisted of five phases in the DA-40 aircraft. She completed phase 1 (basic aircraft maneuvers) of the flying training satisfactorily. She proceeded to phase 2 after being authorized for solo flying and

demonstrated the ability to fly a solo flight in a circuit pattern safely. The Trainee Pilot was granted a solo endorsement which was valid for 90 days in accordance with Part 2 of the United Arab Emirates *Civil Aviation Regulations – Flight Crew Licensing (CAR-FCL II)*.

The Accident occurred while the Trainee Pilot was undertaking phase 2, which was encompassing consolidation of solo flying skills, solo flights in the training area, and preparing the trainee for cross-country solo flights. The training records showed that she had stopped flying on 25 of March 2020 due the COVID-19 lockdown. She resumed flying 72 days later in a dual flight to refresh her flying skills.

During the Investigation review of the training records of the Trainee Pilot, it was found that she had encountered some challenges in maintaining consistent landings and situation awareness level. Also, the level of two-way communication between the Trainee Pilot and ATC was inconsistent. Her instructor stated that she was prone to becoming fixated at the aiming point on the runway during landing as the aircraft approaching the touchdown zone.

The instructor also stated that the Trainee Pilot had shown difficulty in transitioning her sight to judge her height correctly during landings. The instructor attempted to improve the skills of the Trainee Pilot in this area by explanation and practicing. He stated that she also received training on undershoots and overshoots during landing before her solo flying.

The Trainee Pilot held a valid Class 1 medical certificate issued by the General Civil Aviation Authority of the United Arab Emirates (GCAA) at the time of the Accident.

The Investigation reviewed the syllabus of the ATPL program of the Flight Academy, and it was noticed that exercise 13 was the one dedicated to handling emergencies such as: Engine Failure After Takeoff; Engine Failure in the Downwind Leg of the Circuit; and Circuit Emergencies. Reviewing the Trainee Pilot training report for this specific exercise showed an instructor's comment on the trainee performance stating that: "She was struggling with flaring, landing, and radio communication."

The Trainee Pilot had conducted exercise 13 for the first time on 2 January 2020 and the instructor commented that "She needs her flaring, landing, and radio communication to be improved."



The Trainee Pilot conducted exercise 13 on 6 January 2020 for the second time, and she still struggled with the normal procedures, hence the session did not cover emergency procedures.

On 7 January 2020, the Trainee Pilot conducted exercise 13 for the third time, and her struggle with approaches, flare, and landing continued.

On 8 January 2020, exercise 13 was repeated for the fourth time. However, the Trainee Pilot requested to discontinue the flight due to her uncomfortable feeling from turbulence in the circuit pattern.

On 14 January 2020, exercise 13 was conducted again, the Trainee Pilot showed improvement in speed control as per the training report. However, radio calls were missed and situation awareness needed to be improved. The Trainee Pilot completed this exercise and met its objectives as per the instructor's evaluation, but with some comments.

Later on during the day, the Trainee Pilot conducted exercise 14, which was the one before her solo check. The instructor commented that she lacked consistency in her landing and tended to balloon the Aircraft in the flare. In addition, the instructor commented that she needed to make better decision for go-around. Radio calls were missed by the Trainee Pilot.

On 21 January 2020, exercise 14 was repeated. The instructor commented that "the flight needed to be cut short due strong winds. He added that "the Trainee Pilot was high during the approach which was undesirable." According to him. Rudder and aileron (yaw and bank) inputs were missing during the landing. The Aircraft was not aligned with the centerline of the runway. He commented that "she needed more work to achieve safe landings."

On 27 January 2020, exercise 14 was repeated with similar comments to the above ones. In addition, the instructor stressed on maintaining directional control during ballooning.

On 28 January 2020, flight for exercise 14 was cancelled due to strong winds as requested by the Trainee Pilot.

On 2 February 2020, exercise 14 report showed that the Trainee Pilot achieved improvement from the last lessons but still inconsistent. Similar comments for approach, flare, landing and go-around were stated. Moreover, the instructor commented that the

Trainee Pilot had a tendency to leave the aircraft control just after touchdown.

On 5 February 2020, exercise 14 was repeated. The instructor commented that the go-around decision was poor and he had to conduct the go-around most of the time. He added that the Trainee Pilot still has the tendency to leave the flight controls after landing, and inconsistent landing.

On 16 February 2020, exercise 14 was repeated and same comments to the above were made.

On 18 February 2020, exercise 14 was completed to satisfactory level and the Trainee Pilot was released for her first solo check. However, the exercise report showed that the only emergency item the Trainee Pilot had practiced was engine failure in the traffic pattern.

On 23 February 2020, the Trainee Pilot went for a solo check (exercise 15) and she completed the flight within acceptable standard. However, the instructor stated that the Trainee Pilot was not sent for her first solo flight as visibility was marginal. She practiced simulated engine failure after takeoff to fulfill the emergency procedure part of the check.

On 1 March 2020, the Trainee Pilot conducted exercise 15 again – seemingly as a consolidation- with chief flight instructor (CFI) in order to be released for her first solo flight. The instructor commented that handling of aircraft in the circuit and emergency procedures were satisfactory, and the Trainee Pilot was released for her first solo flight. Exercise 16, which was the trainee first solo, was conducted successfully on 1 March 2020.

On 3 March 2020, exercise 20 was conducted instead of 17 (which was a solo consolidation exercise). The instructor stated in the training report that solo consolidation exercise was skipped due to cross-wind. In exercise 20 flight, the Trainee Pilot was introduced to steep turn and practice forced landing (PFL) as a part of exercise 20. Exercises 17 and 18 were meant to be solo consolidation exercises, while exercise 19 was a solo flight in the circuit.

Exercise 17 was planned to be conducted on 10 March 2020. The dual part of the exercise was completed, whereas the solo part was not conducted due to wind limit exceedance as mentioned in the training report.



On 11 March 2020, exercise 17 was repeated to a satisfactory level. However, the instructor stated that the Trainee Pilot needs to be consistent with her landings. In addition, he stated that porpoise landing¹ is a result of flying too fast during the touchdown. He stated in the training report that she needed to initiate a go-around.

On 12 March 2020, exercise 18 was conducted and was completed to a satisfactory level. The instructor commented on the training report that the Trainee Pilot needs to judge the right altitude before flaring. Noticeable improvement in her approaches and landings was noted. She was released for solo in the circuit.

On 14 March 2020, the solo consolidation exercise 19 was conducted and was completed satisfactorily.

On 17 March 2020, exercise 21 was conducted and was completed to a satisfactory level. The exercise was about PFL.

On 19 March 2020, exercise 22 was planned to be conducted. This exercise was a solo flight to the training area in which the trainee should demonstrate the ability to fly to the training area and return to the aerodrome safely. However, this exercise was not conducted on this date. Instead, exercise 24 was conducted on the virtual Flight Navigation and Performance Trainer (FNPT). Exercise 24 was dedicated to introduce the trainee to basic IFR flying skills, and it was completed satisfactorily. There was no justification in the training record for not following the sequential order of the exercises as depicted in the Flight Academy's syllabus.

On 23 March 2020, exercise 28 was conducted on the FNPT. The Investigation noticed that the sequential order of the exercises continued to not be followed by the instructor, and there was no justification for that mentioned in the training record. However, as per the instructor's comment, exercise 28 revolved around IFR skills and it was completed to a satisfactory level by the Trainee Pilot.

On 25 March 2020, the Trainee Pilot conducted exercise 25 with instructor on the FNPT as per the Flight Academy's syllabus. The exercise was about IFR skills. It was completed to a satisfactory level.

The Investigation found that the last solo flight conducted by the Trainee Pilot was on 14 March 2020, the last dual flight on aircraft was on 17 March 2020, and the last dual training session conducted on the FNPT was on 25 March 2020, after which the Trainee Pilot stopped flying due to COVID-19 restrictions.

On 6 June 2020, the Trainee Pilot resumed flying after 72 days of pause, after the restrictions were eased. The Trainee Pilot conducted a dual flight annotated as "extra flight" in the training record. The instructor commented that the Trainee Pilot needs to maintain a constant landing, and a correct back pressure needs to be applied during flare. It was noted that there was no training conducted for emergency procedures as a refresher after a long period of not flying. Despite her inconsistent landings, the instructor stated that this session was completed to a satisfactory level.

On 8 June 2020, exercise 29 was conducted. As per the Flight Academy's syllabus, and was dedicated for IFR skills. The Trainee Pilot completed this exercise to a satisfactory level as per the training record.

On 9, 10, and 11 June 2020, exercises 22, 23, and 26 were conducted. The three exercises were solo flights to the training area, in which the Trainee Pilot should demonstrate the ability to fly to the training area and return to the aerodrome safely. As per the training record, the Trainee Pilot completed these exercises satisfactorily.

On 12 June 2020, the Accident, which is the subject of this Report, occurred during exercise 27.

The Trainee Pilot rest pattern before flight

In her interview, the Investigation asked the Trainee Pilot whether she had sufficient sleep before reporting to duty, and she replied that she: "went to sleep at 00:30 early morning of the

¹ Porpoise Landing: is a bounced landing that is improperly recovered, the airplane comes in nose first, setting off a series of motions that imitate the jumps and dives of a porpoise. [Source: <https://www.faasafety.gov>]

Accident day and she woke up at 05:30.” She added that she felt that her sleep was “Not that good before flight.” The Investigation asked: “How did you feel that morning? Fatigued?” The Trainee Pilot answered: “Not fatigued, I felt like I feel every morning. Yes, I did not have enough sleep but... I don’t know it is maybe about the heat.”

The Investigation asked: “to which altitude you climbed?”, and the Trainee Pilot answered: “I climbed to 8000 feet, but it feels good up there. You start feeling good at 2000 feet.”

Flight Academy Information

Fujairah Aviation Academy, formerly known as Fujairah Aviation Center, was originally founded in 1986. The organization provides professional aviation education for trainees for private pilot license (PPL), commercial pilot license (CPL), and air transport pilot license (ATPL). The Flight Academy used Fujairah International Airport for its flying activities.

Aircraft Information

Overview

The Diamond DA-40 is Austrian-manufactured four-seat, single-engine, light aircraft constructed using composite materials. The Aircraft was constructed in both Austria and Canada and was equipped with Thielert TAE125 Engines. (Figure 5)



Figure 5. DA-40 aircraft

[Source: Fujairah Flight Academy website]

Engines and engine control unit (ECU)

According to the *Aircraft Flight Manual (AFM)*, the TAE125 engine performance is controlled by the power lever, situated on the large center console. 'Front' and 'rear' are defined in relation to the direction of flight. The ECU controls manifold pressure, injected fuel quantity, and propeller speed according to the desired engine power preselected with the power lever.

The engine was equipped with two ECUs: ECU A and ECU B. One ECU controls the engine at a time and the other is engaged should the operating one fail.

According to the *AFM*, if an ECU B caution appears during the flight (figure 6), the following actions should be followed:

“Press the ECU Test Button for more than 2 seconds to reset the caution message.

1. If the ECU B caution re-appears, or cannot be reset:
 - Land on the nearest suitable airfield.
 - The engine must be serviced after landing.
2. If ECU B caution can be reset:
 - Continue flight.
 - The engine must be serviced after landing.”



Figure 6. ECU B failure caution

Weather Information

The weather report at the time of the Accident flight was as follows in Fujairah Airport:

OMFJ 1200600z 06008 040V090 8000
NSC 36/27 Q0999 RML A29552=

At 0600 UTC (1000 Local Time), the wind was north easterly to easterly at 8 knots. The visibility was 8,000 meters. The temperature was 36 degrees Celsius with a dew point of 27 degrees Celsius. Barometric pressure on airfield surface was QNH 999, and no significant change on weather.

As per the statement of the Trainee Pilot and her instructor, it is usual for ATC to offer runway 11 during the mid-day as the wind changes to easterly winds. However, if wind is light and

variable, ATC tends to offer both runways for landing.

Aircraft maintenance records

The Aircraft maintenance records showed that no maintenance action was done on the Aircraft's engine or the ECUs in the last 30 days.

Aerodrome Information

Fujairah International Airport (OMFJ) is a GCAA certified airport located 1.9 km south of central Fujairah City, the United Arab Emirates. The airport is equipped with one asphalt runway as outlined in red in figure 7.

The airport lies close to the coastline of Fujairah facing Gulf of Oman, and it is surrounded by mountains of a height of approximately 1,500 meters. These mountains are part of AlHajar mountains that extends through United Arab Emirates and Oman. (Figure 7)

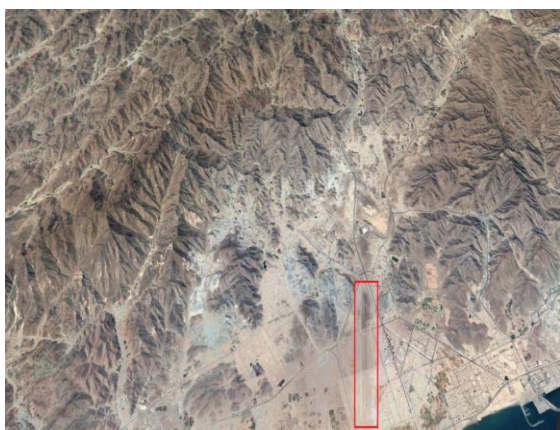


Figure 7. Fujairah International Airport runway

Training areas

The Flight Academy had two designated training areas (north training area and south training area) as highlighted in figure 8. These two areas were used for practicing maneuvers. The Trainee Pilot was conducting training in the northern training area.

Organizational and Management Information

The Flight Academy was an approved organization by the GCAA to offer pilot training programs for PPL, CPL, and ATPL. The Academy utilized different types of glass cockpit aircraft (depending on the trainee's training phase) for training flights. These types included: Cessna 172, Diamond D-40, Diamond DA-42, and Cessna Caravan 208.

Safety management system (SMS)

The Flight Academy applied a dedicated *SMS manual*. The manual addressed different topic about maintaining safety standards within the organization. The *SMS manual* stated that the Flight Academy had an appointed Accountable Manager who "oversees the safety organization."

As per the *SMS manual*, the SMS Manager is appointed by and reports to the Accountable Manager.

Communication

The Flight Academy utilized Very High Frequency (VHF) radio communication device to communicate with the trainees in the vicinity of the airport and in the training area. However, the instructor stated that due to VHF line of sight limitation caused by the surrounding terrains, communication could not be established with the Trainee Pilot while she was in the training area.

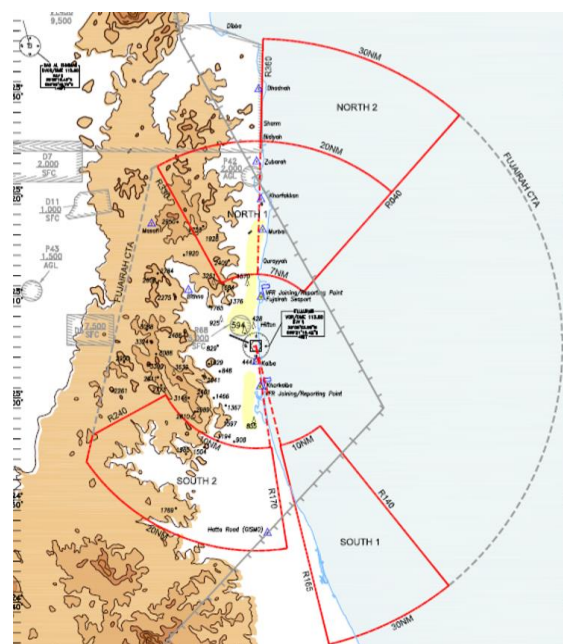


Figure 8. Training areas used by the Flight Academy (highlighted in red)

Analysis

Pilot Training: Pre-solo Stage

The analysis of the training record of the Trainee Pilot revealed that she was released for solo flight after 128 days from the date of her first training flight, which was considered longer than the average.



In addition, the time elapsed between a flight and another before the COVID-19 was long in some, and had reached up to ten days. The Trainee Pilot needed more assertive and coherent training sessions for basic flying skills to be able to acquire the skills on aircraft controls and understand it and to get confident with aircraft. The Investigation believes that these interruptions have contributed to her inconsistency in flare, landing, and go-around.

The comments made by the instructor and included in the training records, did not exhibit a well-defined action plan on how to overcome the persisting problem of the Trainee Pilot in landing technique. Other than classical repetition of sessions or discontinuing them, there was no accurate diagnoses of the inadequate landing skills stemming from human factors perspective. That shortage in defining the problem did not enable the training system of the Flight Academy nor the instructor to develop a remedial training measures for mitigating such flying risk.

Emergency Procedures Training

The Trainee Pilot had stopped her flying for 74 days because of COVID-19 lockdown. This flight freeze had affected the performance which was not paid the adequate attention by the Academy's training system before the commencement of solo flying.

There was one flight conducted with the instructor for the purpose of solo skills consolidation. However, in that single flight, the Trainee Pilot had only performed three landings and they were inconsistent.

The Investigation could not determine the reason of releasing the Trainee Pilot for solo flight although her landing was inconsistent. As the instructor must ensure that a trainee is standing on a solid foundation especially for landing before releasing him/her for a solo flight.

However, the Trainee Pilot performed two solo flights to the training area after the solo consolidation flight and returned uneventfully. The Investigation sees that the challenge of the trainee is related to stress management during flight. This stress stemmed from not being

refreshed on emergency training procedures especially after her return from COVID-19 lockdown during solo consolidation flight.

Upon her return after lockdown have eased, the Trainee Pilot did not go through the emergency procedures training as a part of her solo consolidation. There was no evidence how the instructor was able to authorize the Trainee Pilot for a solo flight while he did not have a clear standpoint on the Trainee Pilot's level in handling an aircraft in emergency situations.

In flight training, the training on emergency procedures enables a trainee pilot to control the aircraft properly in abnormal or emergency situation on the same level of handling it in normal flying condition. In the Accident subject to this Investigation, the combination of inadequate refreshing on emergency procedures and the inadequate landing skills that the Trainee Pilot was struggling for before her first solo flight, put her in startle state when the ECU B fault light illuminated. The Trainee Pilot got panicked. The Investigation believes that Trainee Pilot could have reacted appropriately to the emergency procedures if she was provided with adequate refresher training on topics related to engine failure or electric failure. Accordingly, handling of the Aircraft during the approach would have been less physiologically and psychologically stressful.

Communication

The line-of-sight² limitation of the VHF obstructed the instructor communication with the trainees. Having an uninterruptable means of communication could have enabled the instructor to intervene and guide the Trainee Pilot to appropriate flare and land. In addition, the Pilot Trainee, if was unsure of the message displayed about a system malfunction, could have reached the instructor on the frequency to advise her on how to deal with such a message. This could have reduced her stress and would have enabled her to manage the flight effectively.

The Investigation sees that risk-assessment needs to be done to verify the severity and the

² VHF Line of Sight: is a characteristic of electromagnetic radiation or acoustic wave

propagation which means waves travel in a direct path from the source to the receiver. [Source: Wikipedia]



probability of being unable to communicate the trainees who are flying in the mountainous side of the training areas where line of sight is an issue. This can determine a calculated risk for such operations, and to explore potential hazards of the Academy's trainers not being able to communicate with the trainee pilots. Two-way communication can reduce the element of stress in case a trainee faces unfamiliar situation. For this Accident, the Trainee Pilot could have been guided through the frequency to reset the ECU B failure which will lead to removing the stressor.

Rest Pattern before the Flight

Although the Trainee Pilot stated that her sleep time was about five hours, there were no indications that she was fatigued at the time of the interview which took place 1 hour 30 minutes after the Accident. In addition, she performed the exercises at the training area normally. Except for her statement during the interview of not having a good sleep, the Investigation could not determine that rest pattern was directly related to her performance in flight.

Given that the Accident took place during approach, landing, and go around phases of flight, and the Trainee Pilot had already issues in these maneuvers as described in her training file, the Investigation believes the degraded performance was more about training rather than rest pattern. In addition, the Pilot was able to conduct her solo flight and complete her exercises normally in the training area. There were no issues with these maneuvers and they were completed successfully by the Pilot as per her statement in the interview.

Conclusions

Findings

- (a) The Flight Academy was appropriately certificated by the GCAA in accordance with Part 2 of the United Arab Emirates Civil Aviation Regulations – *Flight Crew Licensing (CAR-FCL II)*.
- (b) The Aircraft was airworthy for the flight.
- (c) The Trainee Pilot possessed a valid Class 1 medical certificate issued by the GCAA, and her drug and alcohol test post-Accident showed negative results.
- (d) The Trainee Pilot enrolled in ATPL training program.

- (e) As the training records showed, the Trainee Pilot performance in approach, flare and landing was less than adequate before she commenced the solo flying stage.
- (f) The landing technique weakness, that the Trainee Pilot struggled, stemmed from her being not standing on a solid foundation due to interruptions she had faced during her pre-solo training.
- (g) The Trainee Pilot was engaged in her first solo flight after relatively long time from her first training flight (128 days).
- (h) The Trainee Pilot did not practice flying for 72 days due to COVID-19 lockdown.
- (i) The Trainee Pilot went through a single solo consolidation flight after her return to flying when COVID-19 restrictions were eased. She conducted three landings.
- (j) Emergency procedures refreshers were not practiced after the return from COVID-19 lockdown.
- (k) After several landing attempts, the Trainee Pilot landed the Aircraft on the nose first leading to nose landing gear damage and propeller contact with the runway surface.

Causes

The Air Accident Investigation Sector determines that the cause of the Accident was the inappropriate landing technique performed by the Trainee Pilot, which led to Aircraft bounce and subsequent forced touchdown. The nose landing gear detached and the propeller contacted the runway surface causing substantial damage to the Aircraft.

Contributing Factors

The Air Accident Investigation Sector determines that the following factors had contributed to the Accident:

- (a) The inconsistent training and long lapse times between flights during the pre-solo training stage which could not maintain consistent level of the Trainee Pilot performance.
- (b) The solo consolidation after resuming flying after COVID-19 lockdown easement, included a low number of landings which was initially a challenging phase for the Trainee Pilot as proven by



the training records and the instructor's comments.

- (c) The lack of adequate training on emergency procedure training. That topic was handled in one solo consolidation flight conducted after return from COVID-19.

Safety Recommendations

The Air Accident Investigation Sector recommends that Fujairah Aviation Academy:

SR34/2021

Plan specific remedial training sessions that clearly address the trainee challenges with a focus on improving the trainee performance in that area to prevent similar occurrences in the future.

SR35/2021

Conduct risk-assessment for starting new training topics by flight instructors without having the trainee reaching the required standard of proficiency in the current topic.

SR36/2021

Conduct risk-assessment for the consequences of the currently used radio communication device limitations especially in a mountainous area like the one the airport is located in.

**This Report is issued by:
Air Accident Investigation Sector
General Civil Aviation Authority
The United Arab Emirates**

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