

AIRCRAFT ACCIDENT FINAL REPORT

A 04/19

Air Accidents Investigation Bureau (AAIB) Ministry of Transport

Accident Involving a Tecnam P2002 JF Registration 9M-MZC at Kuala Klawang, Negeri Sembilan on the 29 June 2019



Air Accidents Investigation Bureau Ministry of Transport No. 26, Jalan Tun Hussein, Precinct 4 Federal Government Administrative Centre 62100 PUTRAJAYA Phone: +603-8892 1072 Fax: +603-8888 0163 E-mail: aaib@mot.gov.my Website: <u>http://www.mot.gov.my/en</u> Issued on 11 December 2019

AIR ACCIDENTS INVESTIGATION BUREAU (AAIB) MALAYSIA

ACCIDENT REPORT NO.: A 04/19

OPERATOR	:	SUPERCAR RESORT SDN. BHD.
AIRCRAFT TYPE	:	TECNAM P2002 JF
NATIONALITY	:	MALAYSIA
REGISTRATION	:	9M-MZC
PLACE OF OCCURRENCE	:	KUALA KLAWANG, N. SEMBILAN
DATE AND TIME	:	29 JUNE 2019 AT 1445 LT

This investigation is carried out to determine the circumstances and causes of the accident with a view to the preservation of life and the avoidance of accidents in the future. It is not for the purpose of apportioning blame or liability (Annex 13 to the Chicago Convention and Civil Aviation Regulations 2016).

All times in this report are Local Time (LT) unless stated otherwise. LT is UTC +8 hours.

INTRODUCTION

The Air Accidents Investigation Bureau Malaysia

The Air Accidents Investigation Bureau (AAIB) is the air accident and serious incident investigation authority in Malaysia and is accountable to the Minister of Transport. Its mission is to promote aviation safety through the conduct of independent and objective investigations into air accidents and serious incidents.

The AAIB conducts the investigations in accordance with Annex 13 to the Chicago Convention, the Civil Aviation Act of Malaysia 1969 and the Civil Aviation Regulations of Malaysia 2016.

It is inappropriate that AAIB reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting processes has been undertaken for that purpose.

Unless otherwise indicated, recommendations in this report are addressed to the investigating or regulatory authorities of the State having responsibility for the matters with which the recommendations are concerned. It is for those authorities to decide what action is to be taken.

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SYNOPSIS

On 29 June 2019, a Tecnam P2002 JF (registration 9M-MZC) crashed on takeoff from a private airstrip near Kuala Klawang, Negeri Sembilan. Both the pilot and passenger survived but they were seriously injured in the subsequent post-crash fire.

AAIB was notified by Subang ATC and the investigation begun by interviewing both the pilot and passenger at Prince Court Medical Centre on 1 July 2019.

1.0 FACTUAL INFORMATION

1.1 **History of the Flight**

On 29 June 2019, both the pilot and passenger flew out from Sultan Abdul Aziz Shah Airport in Subang for Kuala Klawang at 1000 LT. They were in a Pipistrel Sinus (registration HA-TAM) and according to the flight plan they were to be on ground at Kuala Klawang for approximately three hours before returning to Subang.

On reaching a private airstrip nearby Kuala Klawang the aircraft landed safely and shut down uneventfully. The pilot then proceeded for a flight on 9M-MZB, one of two Tecnam P2002 JFs which were parked in a hangar there. The passenger meanwhile went about his personal business on ground as he was the owner of the airstrip and its facilities.

After a few circuits the pilot landed and broke for lunch. After lunch, he then flew in the other Tecnam (registration 9M-MZC). His first circuit was uneventful and upon landing he called on the passenger to follow him for his next one. During take-off, the Tecnam hardly reached a height of 200 feet before the pilot got into difficulties and crashed the aircraft 700 meters from the end of Runway 04.

According to the pilot, the aircraft had difficulty in performing a climb before it experienced what he described as wind-shear and tail-wind effect. The aircraft was violently buffeted left and right leading to a total loss of airspeed before it crashed. Subsequent examination of the crash site revealed that the aircraft went through some brush and long grass before impacting an embankment nose first.

Both the pilot and passenger did not sustain any serious injury due to the impact. The passenger managed to free himself and egress safely from the aircraft but the pilot however had difficulty in freeing himself from his harness. To make matters worse the aircraft and the surrounding brush were beginning to catch fire.

The passenger then re-entered the burning aircraft and assisted the pilot in releasing his harness. They finally managed to escape and move some safe distance away but both of them suffered serious burns to their bodies. Both of them were later rescued by workers from the airstrip itself and sent for medical attention. The aircraft was totally consumed by the fire.

1.2 Injuries to Persons

Both the pilot and passenger sufferred burns which required hospitalisation of more than 48 hours. The passenger being worse off with up to 3rd degree burns on 30% of his body whilst the pilot had 2nd degree burns on less than 10% of his.

Injuries	Crew	Passengers
Fatal	-	-
Serious	1	1
Minor / None	-	-

1.3 Damage to Aircraft

The aircraft was a total write-off due to the post-accident fire. Please refer to **APPENDIX A** for some images taken on-site for the damage assessment.

1.4 **Other Damages**

No other damages were reported as the aircraft crashed onto undeveloped land which had been gazetted for agriculture.

1.5 **Personal Information**

Status	P1
Nationality	Hungary
Age	60
Gender	Male
License Type	PPL No. 7872
License Validity	31 August 2019
Medical Examination	3 September 2018
Aircraft Rating	Petrel LS
Instructor Rating	Nil
Certificate of Test Done	23 April 2019
Flying Hours	Total: 2,200 Hrs
	Type: 4 Hrs (500 Hrs on similar LSA)

Pilot-in-Command

Passenger

Status	Pax
Nationality	Malaysia
Age	56
Gender	Male

1.6 Aircraft Information

The Tecnam P2002 JF is a twin seat, single engine aircraft with a tapered low wing. It is equipped with fixed main landing gears and a steerable nose wheel. Fully constructed from aluminium and powered by a single 100 hp (75 kW) Rotax 912 S2 engine, the aircraft also features a sliding canopy which can be opened in flight.

Aircraft	Tecnam P2002 JF
Owner	Supercar Resort Sdn. Bhd.
Registration	9M-MZC
Serial No.	121
C of A Category	CS-VLA Normal Category
C of A Expiry	2 April 2020
C of R No.	AR/18/008
C of R Expiry	23 January 2021
Year of Manufacture	2010
Manufacturer	Costruzioni Aeronautiche Tecnam
Fuel used	AvGas 100LL

1.7 Meteorological Information

According to the weather report **(APPENDIX B)** prepared by the National Aviation Meteorological Centre (NAMC), there was a Thunderstorm Warning issued at 1340 LT. Weather radar images also indicate the development of CB clouds between 1430 and 1500 LT moving slowly to the northeast with increasing intensity.

This concurs with a statement by the pilot that prior to take-off before the crash he saw a 'wall of rain' from the south accompanied by some tail-wind. The airstrip orientation is 04/22.

1.8 Aids to Navigation

Not applicable.

1.9 **Communications**

The last communication between the pilot and Subang was before his first landing at Kuala Klawang. There were no communications on subsequent flights in Kuala Klawang itself.

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1.10 Aerodrome Information

The airstrip is actually situated in the District of Titi, Negeri Sembilan with the nearest major town being Kuala Klawang **(APPENDIX C)**. It is a grass strip approximately 900 meters in length with a sizeable hangar capable of accomodating at least ten light aircraft. During the investigation it was noticed that construction of chalets was ongoing. There were also two lakes with gazebos around the airstrip. It is privately owned.

Upon consultation with CAAM, it was discovered that CAAM had no knowledge of the existence of the airstrip in Kuala Klawang. No approval whatsoever had ever been given nor was there any knowledge of the flying activities being carried out there. Although flight plans had been filed indicating that fixed winged aircraft aircraft were going to and shutting down in Kuala Klawang it was never questioned where these aircraft were actually landing.

According to the pilot of the ill-fated aircraft, flying operations at Kuala Klawang were carried out below 500 feet and within a 5 nautical mile radius and thus, to his understanding, did not necessitate the requirement for flight plans to be filed. Therefore flying activities have been carried out for the past few months at the airstrip without the knowledge of ATC.

1.11 Flight Recorders

There were no flight recorders installed on the aircraft.

1.12 Wreckage and Impact Information

On landing, the aircraft went through some brush and long grass before impacting an embankment nose first. At this point the fuel cells most probably ruptured with the fuel igniting on contact with the hot surfaces of the engine. The subsequent fire totally consumed the aircraft.

1.13 Medical and Pathological Information

As per Para 1.2. The duration of hospitalisation for both the pilot and passenger was in excess of 1 and 2 weeks respectively.

1.14 Fire

As per Para 1.12.

1.15 Survival Aspects

Both the pilot and passenger egressed through the starboard door of the aircraft as the port door was blocked. The pilot however was unable to initially free himself from his seat harness and this compelled the passenger who had already cleared the aircraft to re-enter and assist the pilot even though the aircraft was by now on fire, hence their injuries.

1.16 **Tests and Research**

Not applicable.

1.17 Organisational and Management Information

Investigators were at the crash site only four days after the crash occurred. This was due to transportation problems. During those four

days the wreckage was exposed to the elements and most probably subject to tampering as the site was left unsecured. A delay of four days to reach the crash site which is at the most is an hour's drive away is indeed regrettable.

1.18 Additional Information

Although there was a wind-sock available at the airstrip, its positioning was not really suitable for flight operations as it was quite a distance away from the point of take-off or landing. More importantly, it was in a really bad state of disrepair.

There was no distress call made by the pilot as there were no communications whatsoever during the flights in Kuala Klawang itself. Although the aircraft is equipped with an Emergency Locator Transmitter, no transmission was picked up. ATC were not aware of any emergency situation because they only relied on the last transmission that the aircraft was safely on ground.

1.19 Useful or Effective Investigation Techniques

The usage of Google Earth assists tremendously the job of an investigator. For more accurate map data it is recommended that the paid version for the software be acquired.

2.0 ANALYSIS

2.1 **Aircraft:** The Tecnam P2002 JF certification specification by EASA is as a 'Very Light Aeroplane' (CS-VLA). It is powered by a single 100 hp (75 kW) Rotax 912 S2 engine. The pilot did say that compared to other aircraft that he had flown, mostly aerobatic, seaplanes and other Rotax powered CS-LSA (Light Sport Aeroplanes), this aircraft felt underpowered.

2.2 **Weather:** Just before take-off the pilot did notice a 'wall of rain' approaching from his '4 to 5 o'clock' accompanied by a slight tail-wind. This was corroborated by the weather report. Additionally he also stated that he experienced wind-shear during the take-off.

3.0 CONCLUSIONS

A lapse in decision making by the pilot as to the direction of take-off and the combination of the two factors above in para 2.1 & 2.2 most probably led to the aircraft losing airspeed and experiencing partial stall conditions leading to the crash.

4.0 SAFETY RECOMMENDATIONS

4.1. CAAM is to review the pilot's rating test.

4.2. CAAM is to take a more critical look into the operations of unapproved non-licensed aerodromes and prevent any flying activities until the necessary approvals are obtained.

INVESTIGATOR-IN-CHARGE Air Accidents Investigation Bureau Ministry of Transport 11 December 2019

APPENDIX A

DAMAGE ASSESSMENT (IMAGES ON-SITE)

9M-MZC











APPENDIX C



UNAPPROVED & UNLICENSED AERODROME











WEATHER REPORT ON AIR ACCIDENT IN KUALA KLAWANG, JELEBU FROM 0600 UTC UNTIL 0700 UTC ON 29TH JUNE 2019

PREPARED BY NATIONAL AVIATION METEOROLOGICAL CENTRE (NAMC) MALAYSIAN METEOROLOGICAL DEPARTMENT (MET MALAYSIA) MINISTRY OF ENERGY, SCIENCE, TECHNOLOGY, ENVIRONMENT, AND CLIMATE CHANGE (MESTECC)

1.0 INTRODUCTION

This weather report is prepared as requested by Air Accident Investigation Bureau, Ministry of Transport Malaysia which carried out an investigation on the air accident that involved a light aircraft in Kuala Klawang, Jelebu, Negeri Sembilan (N3.02072 E102.11417) on Saturday, 29th June 2019.

All information in this report are based on aerodrome routine/special meteorological report (METAR/SPECI), Terminal Aerodrome Forecast (TAF), *Automatic Weather Station* (AWS), en-route weather phenomena information of aircraft operation (AIRMET & SIGMET), radar and satellite images, and thunderstorm warning issued by MET Malaysia.

Below are the list of meteorological stations and airports located near the incident area:

- I. Kuala Lumpur International Airport, Subang (ICAO: WMKK)
- II. Sultan Abdul Aziz Shah Airport, Sepang (ICAO: WMSA)
- III. Sepang Meteorological Station
- IV. Subang Meteorological Station

2.0 WEATHER REPORT AND WARNING ISSUED ON 29 JUNE 2019

Referring to TAF WMKK and WMSA issued on 29th June 2019 at 0600UTC in

Table 1 APPENDIX A, there was no significant weather forecasted at WMKK while moderate thunderstorm with rain, causing a drop in visibility to 4000 meters, was expected to occur at WMSA within 0600UTC to 1000UTC.

According to the METAR report released by the Sepang Meteorological Office and Subang Meteorological Office (refer to **Appendix A**), active clouds carrying rain were observed as early as 0500UTC. There is the recorded rain count. Here are the readings of rainfall was recorded.

Time (UTC)	Subang Meteorological Station (WMSA)	Sepang Meteorological Station (WMKK)	Kuala Pilah Meteorological Station	Kuala Klawang Auxiliary Station
	Rainfall amount (mm)			
0600	0.0	0.0	0.0	0.0
0700	0.0	0.0	1.8	0.0
0800	1.2	0.0	3.2	2.9
0900	Т	0.0	1.8	1.1
1000	0.0	0.0	15.2	0.0

T: The amount of rain is less than 0.1mm

Table 2 : Rainfall was recorded at the Sepang Meteorological Station, Subang MeteorologicalStation, Kuala Pilah Meteorological Station, and Kuala Klawang Auxiliary Station from 0600UTCto 1000UTC on 29th June 2019

Based on KLIA radar CAPPI images (refer **APPENDIX B**) captured on 29th June 2019 from 0630UTC to 0700UTC, isolated CB cloud was actively developed over the inland area covering the accident scene, moving slowly towards northeast with increasing intensity starting at 0630UTC and continuing until 0700UTC. According to radar echoes, it was found that the cloud was not high-intensity after 0700UTC.

From the satellite image in **APPENDIX C**, it shows the low intensity of clouds in the state of Selangor and WP Kuala Lumpur at 0550UTC, 0610UTC and 0650UTC, while the intensity of cloud is seen to be higher in the southern part of Peninsular Malaysia covering Johor State.

Figure 1 shows the en-route weather phenomena information for low level aircraft operation (AIRMET) issued by WMKK on 29th June 2019.



Figure 1: AIRMET issued by National Aviation Meteorological Centre at 0549UTC

3.0 THUNDERSTORM WARNING OVER LAND

Thunderstorm Warning has been issued by National Weather and Earthquake Operation Centre of MET Malaysia at 0540UTC and valid until 0900UTC (refer Figure 2 and Figure 3).



JABATAN METEOROLOGI MALAYSIA KEMENTERIAN TENAGA, SAINS, TEKNOLOGI, ALAM SEKITAR & PERUBAHAN IKLIM

jalan Sultan, 46667 Petaling Jaya, Selangor Darul Ehsan, Malaysia
 Tel:
 +603-79678000

 Faks:
 +603-79578052

 Emel:
 pcn@met.gov.my

 Laman web:
 www.met.gov.my



JMM/POCGN(O)/BK-07

Our Ref: JMM.RML29/701/16 JLD23(87)

Amaran Ribut Petir

Dikeluarkan pada: 1:40 tengah hari, 29 Jun 2019

AMARAN RIBUT PETIR

Ribut petir, hujan lebat dan angin kencang dijangka di negeri **Perak** (Kinta, Kampar, Batang Padang dan Muallim) • **Pahang** (Tanah Tinggi Cameron, Lipis, Raub, Bentong, Temerloh, Bera dan Rompin) • **Selangor** (Hulu Selangor, Gombak, Petaling dan Hulu Langat) • **WP Kuala Lumpur • Negeri Sembilan** (Jelebu, Kuala Pilah, Jempol dan Tampin) • Johor (Tangkak, Segamat, Muar, Kluang, Mersing, Kulai, Kota Tinggi dan Johor Bahru) sehingga 5:00 petang; Sabtu, 29 Jun 2019.

Thunderstorms Warning

Issued at: 1:40PM, 29 June 2019

THUNDERSTORMS WARNING

Thunderstorms, heavy rain and strong winds are expected over the states of **Perak** (Kinta, Kampar, Batang Padang and Muallim) • **Pahang** (Cameron Highlands, Lipis, Raub, Bentong, Temerloh, Bera and Rompin) • **Selangor** (Hulu Selangor, Gombak, Petaling and Hulu Langat) • **FT Kuala Lumpur** • **Negeri Sembilan** (Jelebu, Kuala Pilah, Jempol and Tampin) • **Johore** (Tangkak, Segamat, Muar, Kluang, Mersing, Kulai, Kota Tinggi and Johor Bahru) until 5:00PM; Saturday, 29 June 2019.

Figure 2: Thunderstorm Warning issued by National Weather and Earthquake Operation Centre through MET Malaysia website.



Figure 3: Thunderstorm Warning issued by National Weather and Earthquake Operation Centre through MET Malaysia social media.

4.0 CONCLUSION

Based on the analysis of the weather information, it can be concluded that a cloud formation is detected over inland areas covering the incident site with the cloud moving towards northeast with increasing intensity until 0700UTC. Large, high-density cumulative clouds appear to be concentrated in the inland areas of Perak, Negeri Sembilan, Johor, WP Kuala Lumpur and other parts of Selangor such as Hulu Selangor, Gombak, Petaling and Hulu Langat Districts.

APPENDIX A

Table 1. FORECASTED AND OBSERVED WEATHER ON 29 JUNE 2019

Forecast (282300UTC)	TAF WMKK 282300Z 2900/3006 16007KT 9999 FEW017CB SCT020 BECMG 2902/2903 10005KT FEW018 BECMG 2904/2905 14005KT FEW030 BECMG 2908/2910 16010KT FEW017CB =
Forecast (290600UTC	TAF WMKK 290500Z 2906/3012 14007KT 9999 FEW017CB SCT018 BECMG 2911/2913 FEW030 PROB30 TEMPO 2921/3001 15010KT 4000 TSRA FEW017CB SCT018=
Forecast (282300UTC)	TAF WMSA 282300Z 2900/3000 VRB01KT 9999 FEW017CB TEMPO 2904/2908 16010KT 4000 TSRA FEW016CB SCT018 BECMG 2910/2912 VRB02KT FEW018=
Forecast (290600UTC)	TAF WMSA 290500Z 2906/3006 16008KT 9999 FEW017CB TEMPO 2906/2910 15010G20KT 4000 TSRA FEW016CB SCT018 BECMG 2911/2912 VRB02KT FEW026=
	METAR WMKK 290500Z 16008KT 110V210 9999 FEW017CB SCT140 BKN280 31/26 Q1009 NOSIG=
Observed	METAR WMKK 290530Z 17007KT 090V230 9999 FEW017CB SCT140 BKN280 32/25 Q1009 NOSIG=
Weather and Trend Forecast	METAR COR WMKK 290600Z 17008KT 060V230 9999 FEW017CB SCT140 BKN280 32/25 Q1008 NOSIG=
(WMKK)	METAR WMKK 290630Z 16007KT 100V250 9999 FEW017CB BKN140 BKN280 32/26 Q1008 NOSIG=
	METAR WMKK 290700Z 15006KT 100V220 9999 FEW017CB BKN140 BKN280 31/26 Q1007 NOSIG=
Observed Weather (WMSA)	METAR COR WMSA 290500Z 16007KT 100V190 9999 FEW017CB SCT140 BKN270 31/25 Q1009=
	METAR COR WMSA 290600Z 05004KT 330V120 9999 FEW017CB SCT140 BKN270 29/26 Q1008=
	METAR WMSA 290700Z VRB04KT 9999 FEW017CB SCT140 BKN270 28/26 Q1008=

	SPECI WMSA 290710Z VRB05KT 9999 FEW017CB SCT140 BKN270 28/25 Q1008= METAR COR WMSA 290800Z VRB02KT 9999 -RA FEW017CB SCT140 BKN270 28/26 Q1007=
Aerodrome Warning	NIL
Wind Shear Warning	NIL as the wind shear observed was not significant.
AIRMET	WAMS31 WMKK 290549 WMFC AIRMET 3 VALID 290549/290850 WMKK- WMFC KUALA LUMPUR FIR ISOL TS OBS WI N0333 E10202 - N0248 E10214 - N0243 E10134 - N0326 E10125 - N0333 E10202 MOV NE NC=
SIGMET	NIL



RADAR IMAGE (CAPPI) FROM KLIA DOPPLER (0620UTC TO 0710UTC)

1. Radar image at 0620UTC



2. Radar image at 0630UTC



3. Radar image at 0640UTC



4. Radar image at 0645UTC



5. Radar image at 0650UTC



6. Radar image at 0655UTC



7. Radar image at 0700UTC



8. Radar image at 0710UTC

APPENDIX C

HIMAWARI-8 SATELLITE IMAGE ON 29 JUNE 2019, FROM 0550UTC UNTIL 0650UTC



1. Satellite Image on 29 June 2019 (0550UTC)



2. Satellite Image on 29 June 2019 (0610UTC)



3. Satellite Image on 29 June 2019 (0650UTC)