AIRCRAFT ACCIDENT FINAL REPORT

A 01/18

Air Accident Investigation Bureau (AAIB)

Ministry of Transport, Malaysia

Final Report on the Accident involving

Fixed wing aircraft Cirrus SR20 Registration 9M-ZWR

In Pulau Tioman, Pahang, Malaysia

On the 1 February 2018

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INTRODUCTION

The Air Accident Investigation Bureau of Malaysia

The Air Accident Investigation Bureau of Malaysia (AAIB) is the air accidents and incidents investigation authority in Malaysia and is responsible to the Ministry of Transport. Its mission is to promote aviation safety through the conduct of independent and objective investigation into air accidents and serious incidents.

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

In carrying out the investigations, the AAIB will adhere to ICAO's stated objective, which is as follows:

> *"The sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability."*

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

AIRCRAFT ACCIDENT/SERIOUS INCIDENT REPORT

Aircraft Type	:	**CIRRUS**
Model	:	**SR20 G3**
Owner	:	**Twin Turbo Enterprise**
Nationality	:	**Malaysia**
Year of Manufacture	:	**2008**
Aircraft Registration	:	**9M-ZWR**
Serial Number	:	**1894**
State of Registration	:	**Malaysia**
State of Operator	:	**Malaysia**
Place and State of Occurrence	:	**Tioman Airport, Pahang, Malaysia**
Date and Time of Occurrence	:	**01.02.2018 1251hrs (LT)**

All times in this report are Local Time (LT) (UTC +8 hours)

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SYNOPSIS

At approximately 1251hrs (LT) on the 1 February 2018, a fixed wing aircraft Cirrus SR20 bearing registration 9M-ZWR with 04 POB was on final into Tioman Airport, Pahang. The wind at the landing point reported as windy with North Westerly wind from 330^0 gusting up to 10 knots.

At touchdown point the aircraft was floating and the pilot unable to get the aircraft on ground. At this instant the aircraft suddenly veered to the right whilst still in the air. Pilot applied left rudder to get the aircraft parallel with the runway.

Upon touchdown, the pilot lost control of the aircraft resulting the aircraft to veered off to the right side of the runway, went through the airport parameter fence and stopped aft.er hitting the drain outside of the airport parameter. The wreckage was moved to the apron area for further investigation.

1.0 FACTUAL INFORMATION

1.1 History of the flight

On Thursday of 1 February 2018, a fixed wing aircraft Cirrus SR20 bearing registration 9M-ZWR which belongs to a private company with 04 Persons on Board (POB) originated from Senai Airport, Johor Bahru, departed at 1201hrs (LT) for Tioman Airport, Pahang.

Upon reaching Tioman, Air Traffic Controller (ATC) gave the wind condition and cleared the aircraft to land at pilot discretion. The weather was clear and visibility was more than 10km.

According to the aircraft's Captain, the approach was stabilised until the flare phase, there was a sudden high westerly crosswind. The wind pushed the aircraft to the left and caused it to float. Captain tried to counter the crosswind which caused the aircraft went off to the right of the centreline. At this instant, the aircraft banking to the left with right wing up.

The Captain applied the left rudder in order to bring the aircraft back to the centreline as well as keeping both wings levelled. At the same time he was committed to land because 'Go Round' is not possible due to the high terrain on the upwind and the high buildings to the west of the runway.

On the first touchdown, the left main wheel touched the runway and the aircraft bounced and floated for approximately 200 ft. ahead of the first touchdown. Pilot successfully brought down the aircraft on the second attempt however the aircraft touchdown to the right of the centre and very close to the runway edge.

Unable to bring the aircraft back to the centre of the runway, aircraft continue to rolled on to the grass area and heading towards the airport parameter fence. Realising that the aircraft will hit the fence, the Captain immediately cut off the throttle while applying the brakes.

After the impact, the Captain immediately shutdown all electrical power switches and avionics as well as switched off the fuel valve. Emergency evacuation was carried out without any injuries.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	Nil	Nil	Nil
Serious	Nil	Nil	Nil
Minor	Nil	Nil	Nil
None	01	03	Nil

1.3 Damage to aircraft

Aircraft skidded to the right and hit the fence. The aircraft sustained substantial structural damage. Damages are as below:

Picture 1 – Nose wheel collapsed

Picture 2 – Port wheel collapsed and starboard wheel damaged

Picture 3 – Starboard side wing leading edge damaged

Picture 4 – Port side wing leading edge damaged

Picture 5 – Propeller spinner dented

Picture 6 – Propeller Strike

Picture 7 – Dented and minor scratches on the fuselage

Picture 8 – Scratches on the windscreen

1.4 Other Damages

The aircraft veered off to the right of runway 20 causing it to hit the parameter fencing.

Picture 9 – Tioman Airport parameter fence

1.5 Personal Information

1.5.1 Captain

Status	Commander
Nationality	Malaysian
Age	35 Years old
Gender	Male
Licence Type	CPL 1/R
Licence Validity	Valid until 31 October 2018
Initial Date of Operating SR20	9 November 2010
Total Operating Hours on SR20	139:3hrs
Flying Hours	Total hours : 139:3hrs
Rest Period Since Last Flight	60hrs
Last Instrument Rating Check	7 September 2010 (PA34)
Medical Validity	31 October 2018
Radio License expiry	26 November 2023

1.6 Aircraft Information

CofA No.	M.1222
CofR No.	AR/16/294
CofA expiry	9 February 2018
CofR expiry	1 January 2021

1.7 Meteorological Information

TAF WMBT 012300Z 0200/0300 02010KT 9999 FEW017CB SCT020 BKN280

TEMPO 0200/0204 4000 TSRA FEW015CB SCT015=

TAF WMBT 011700Z 0118/0218KT 02010KT 9999 FEW017CB SCT020 BKN280

TEMPO 0122/0202 4000 TSRA FEW015CB SCT018=

TAF WMBT 011100Z 0112/0212 02010KT 9999 FEW018 SCT020=

TAF WMBT 010500Z 0106/0206 01010KT 9999 FEW017CB SCT035=

Visibility was more than 10km with a fine weather. Windy condition with north westerly wind at 10 knots. No meteorology station in Tioman. The 6 hourly Terminal Area Forecast (TAF) broadcasted by Met Headquarters from Kuala Lumpur.

Northeast Monsoon from the month of October through to March every year affecting weather in Tioman with more rainfall and stronger wind.

Visala System installed at Tioman Airport which give a local weather information to the air traffic controller such as wind direction and velocity, temperature, dew point, humidity, and atmospheric pressure (QNH). The sensors for Visala are installed on top of the control tower.

1.8 Aids to navigation

There is no aid to navigation for landing into the airport as pilots are advice to land upon visual with the runway and at their own discretion.

1.9 Communications

Not applicable

1.10 Aerodrome information

Aerodrome is located by the beach and surrounded by high terrain on the east and North-East including on the upwind of runway 20. High concentration of tall trees approximately 1600 ft. away from the beginning of RWY 20 and on the eastern side of the approaches. Numbers of coconut and palm trees approximately 50 ft.-80 ft. high along the eastern side of flight strips.

A building and a mosque with cluster of fruit trees situated approximately 20 ft. away on the approach RWY 20.

Concentration of bird in the vicinity of the airport throughout the year.

As stated in the Aeronautical Information Publication (AIP) Malaysia in regard to Pulau Tioman aerodrome, in the Remarks Column of WMBT AD 2.2 Aerodrome Geographical and Administrative Data, "*Pilot operating into Pulau Tioman for the first time should be checked out by a qualified Flying Instructor prior to solo OPS into the airstrip*". (Refer Appendix A)

1.11 Flight Recorders

The aircraft is not fitted with Flight Data Recorder (FDR) nor Cockpit Voice Recorder (CVR).

1.12 Wreckage and impact information

When the aircraft touched the runway for the second time as depicted in Picture 10 below, it swerved towards the grass area on the right hand side of the runway and ran through the airport parameter fence, out of the airport parameter and stopped upon hitting the drain.

Aircraft fully intact after the impact but suffer substantial damage. Damages to aircraft are as per paragraph 1.3.

Picture 10: Illustration of the aircraft path prior impact.

1.13 Medical and Pathological Information

Nil.

1.14 Fire

Nil.

1.15 Survival Aspects

Not Applicable.

1.16 Test and Research

Not Applicable.

1.17 Organisational and Management Information

Nil.

1.18 Additional Information

Nil.

1.19 Useful or Effective Investigation Techniques

Nil.

2.0 ANALYSIS

2.1 Weather. Monsoon season in the east coast of Peninsula Malaysia normally will start at the end of the year and lasted in February or March of the following year. This accident happened in February 2018 which is during the monsoon season. The effect of the monsoon includes strong wind with an unpredictable direction, low cloud and heavy rain.

2.2 Qualification.

2.2.1 Despite the remarks in the AIP Malaysia where all pilot need to be check by qualified Flying Instructor prior to solo OPS into the airstrip, this flight is the aircraft captain's first solo flight into Tioman without being checked by Qualified Flying Instructor.

2.2.2 The pilot Certificate of Test has lapsed for almost 8 years since his last test on 7 September 2010.

2.3 Wind Sensors. The wind sensor for Visala system installed on top of the Tioman Control Tower which is approximately 900ft. from the touchdown zone an at a difference altitude. As recommended by ICAO in Doc 9837 Manual on Automatic Meteorological Observing Systems at Aerodromes, in Chapter 3, paragraph 3.1.2 stated *recommends that wind observations for local reports be representative of the touchdown zone (for arriving aircraft) and of conditions along the runway (for departing aircraft) which sometimes leads to the installation of multiple sensors.*

3.0 CONCLUSIONS

3.1 Findings

3.1.1 The aircraft was properly maintained and airworthy to fly in accordance to Visual Flight Rules (VFR) flight from Senai to Tioman.

3.1.2 Aircraft's captain was properly licenced however at the time of accident, his Certificate of Test has lapse since the year of 2010.

3.1.3 Aircraft's Captain admitted that he flown to Tioman without any previous experience of landing there and have not been check by qualified flying instructor.

3.1.4 The Aircraft's captain admitted that he was unable to get the aircraft down at the runway touchdown zone.

3.1.5 Sensors for Visala were installed at the place which is not a recommended location as to give a more accurate reading.

3.2 Cause

The cause of the accident is due to the Aircraft Captain inability to control the flight at the most critical phase of flight on final with an unexpected change of wind direction.

4.0 SAFETY RECOMMENDATIONS

4.1 Operator/Owner is to adhere to the recommendation stated in the AIP Malaysia where all pilot who is operating into Tioman for the first time should be checked by a qualified Flying Instructor prior to solo Operation into the airstrip.

4.2 CAAM is to restudy the suitability of the sensor's location as to give as accurate as possible wind condition on final path and at the touchdown zone.

4.3 CAAM is recommended to reconsider publishing NOTAM on the monsoon season as to warn all aviators of the unpredictable weather especially the strong wind which very much affecting light aircraft operating in and out of Tioman.

4.4 CAAM is to ensure pilot adhering to FCL requirement in maintaining their license current.

4.5 CAAM is to have a workable approach as to do more frequent Ramp Check at various departure points in order to identify violation of safety compliance by operators especially the GA.

APPENDIX A

WMBT — PULAU TIOMAN

WMBT AD 2.1 AERODROME LOCATION INDICATOR AND NAME

WMBT AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA

1	ARP coordinates and site at AD	024909N 1040936E Site: 34.4M from RWY 20 Centreline and 1.6M from AFRS emergency access road
2	Direction and distance from (city)	0.25KM (0.13NM). Bearing 89°12'36" from Jeti Kampung Tekek
3	Elevation/Reference temperature	6.13 M(20.11FT) / 31°C
4	Geoid undulation at AD ELEV PSN	+7.970 M
5	MAG VAR/Annual change	0 2017 / 0 decreasing
6	AD operator, address, telephone, telefax, e-mail address, AFS and website address	Operator: Post: Malaysia Airport Sdn Bhd Padang Terbang Pulau Tioman 86800 RompinPahang Darul Makmur Tel: +609 - 4191606 Fax: +609 - 4191395 ATC Services: Post: Civil Aviation Authority Of Malaysia Padang Terbang Pulau Tioman 86800 Rompin Pahang Darul Makmur Malaysia Tel: +609 - 4191727 (Office) Tel: +609 - 4191790 (Tower) Fax: +609 - 4191790 (Tower) AFS: WMBTZTZX
7	Types of traffic permitted (IFR/VFR)	IFR / VFR - approved under class G airspace
8	Remarks	Pilot operating into Pulau Tioman for the first time should be checked out by a qualified Flying Instructor prior to solo OPS into the airstrip.

APPENDIX B

Chapter 3

WIND

3.1 INTRODUCTION

3.1.1 Wind has a direct impact on aircraft. The direction of the prevailing wind is taken into account when planning a new runway. Headwind components determine the direction of take-off and landing and crosswinds force the pilot to compensate for the drift.

3.1.2 An important characteristic of wind is its temporal and spatial variability. Pilots need to be aware of local wind conditions at the airport, especially during approach and departure. Temporal variability makes it necessary to define multiple parameters related to wind: mean, minimum and maximum values. Spatial variability is mostly related to temporal variability and can, for example, lead to a relative movement of gusts (like ripples on a body of water). It can also be related to terrain effects of the aerodrome or its surroundings, or to the presence of obstacles. For these reasons, Annex 3 — *Meteorological Service for International Air Navigation* recommends that wind observations for local reports be representative of the touchdown zone (for arriving aircraft) and of conditions along the runway (for departing aircraft), which sometimes leads to the installation of multiple sensors.

3.2 MEASUREMENT METHODS

3.2.1 Wind measurements in support of aerodrome operations are carried out using anemometers. The most common of the rotating anemometers are cup or propeller anemometers, whose rotating speed is synchronous with wind speed; they are associated with wind vanes. The characteristics of such instruments are well defined in the *Guide to Meteorological Instruments and Methods of Observation* (WMO – No. 8). For these instruments, the time constant is equal to the distance constant, a characteristic of the anemometer, divided by the wind speed. For a classic distance constant of 5 m, the time constant for a speed of 20 kt is 0.25 seconds. Extreme wind speed values calculated over 3 seconds, as recommended by Annex 3 and the WMO – No. 8, can therefore be easily measured with a cup or propeller anemometer.

3.2.2 There are also static hot-film sensors and ultrasonic sensors. The availability of ultrasonic anemometers on the market is, however, increasing because they do not have moving mechanical parts but are more technically complex and they can de-ice themselves better than most rotating sensors. Ultrasonic sensors also have a short time constant and are able to provide many measurement samples per second. It is, however, important to integrate these measurements over a 3-second period for speed and direction extremes to keep these extreme values from depending on the sampling rate of measurements.

3.3 ALGORITHMS AND REPORTING

3.3.1 Mean speed values

3.3.1.1 There are several methods of calculating mean wind speed. At each instant, a wind vector is available and characterized by its speed and direction.

3.4.1.3 Another significant source of error with mechanical sensors is the accumulation of freezing or frozen precipitation on the moving parts. If wet snow clings to the surface of the rotating cups, a marked reduction in wind speed will be reported. Such conditions may also induce wind direction errors by greatly increasing the mass of the vane, reducing its sensitivity to changes. Similarly, freezing precipitation may disable both the wind speed and wind direction by immobilizing the moving parts. Some methods that have been employed to offset this include heating of various components of the instrument and the suppression or flagging of data when errors are likely or suspected.

3.4.1.4 Static sensors can be monitored in a zero wind chamber (in which the sensors are sometimes packaged), available through the sensor manufacturers' catalogue.

3.4.2 Siting of sensors

3.4.2.1 Anemometers should be sited to provide representative wind measurements at an aerodrome. Guidance on siting of anemometers can be found in:

a) *Manual of Aeronautical Meteorological Practice* (Doc 8896), Appendix 5;

b) *Guide to Meteorological Instruments and Methods of Observation* (WMO-No. 8), Part I, Chapter 5; and

c) *Guide on Meteorological Observing and Information Distribution Systems for Aviation Weather Services* (WMO-No. 731), Chapter 2.

3.4.2.2 In siting an anemometer within an aerodrome, consideration of obstacle clearance rules should be taken into account (see 3.6).

3.4.2.3 The ICAO recommendation for the measurement of height (approximately 10 m) is a compromise between being high enough to avoid surface effects (such as friction) and an installation height that is practical and safe in the aerodrome environment. It is very important to install a sensor in the clearest location possible. As a minimum, it is recommended that any wind-measuring instrument be installed at a distance equal to at least 10 times the height of surrounding obstacles.

3.4.2.4 Sensors must never be installed on the roof of a building, such as a control tower, because the building itself affects the wind flow, which is accelerated at roof level or at the top of the building. For a sensor installed 2 or 3 m above a control tower, speed can by overestimated by 30 per cent. The overestimate will depend on the wind direction and the relative position of the sensor in relation to the edge and shape of the roof.

3.4.2.5 Whilst wind sensors should be located close to the runway(s) to achieve representative wind measurement, every effort should be made to site the sensors to minimize the effect from artificial gusts, e.g. due to jet efflux or wake vortices (see 3.3.7.3).

3.4.3 Orientation of the sensor

3.4.3.1 A wind measurement sensor must be oriented to True North to indicate the direction correctly. The sensor's design plays a part in determining how easily it can be oriented north. The stability of the fastener must also be checked to keep the sensor from rotating over time.

3.4.3.2 For the sensors to be accessible, the fastening mast can often be folded. The mast should have a mark, which must be positioned correctly towards the north. This can be checked with a magnetic compass aligned with the marker and installed in the same place as the sensor or wind vane. Without proper precautions, it is quite possible for alignment errors to exceed 10°.

APPENDIX C

SUBPART H - CLASS AND TYPE RATINGS

SECTION 1 - Common requirements

FCL.700 Circumstances in which class or type ratings are required

(a) Holders of a pilot licence shall not act in any capacity as pilots of an aircraft unless they have a valid and appropriate class or type rating, except in any of the following cases:

1) for LAPL, SPL and BPL;

2) when undergoing skill tests, or proficiency checks for renewal of class or type ratings;

3) when receiving flight instruction;

4) when they hold a flight test rating issued in accordance with FCL.820.

(b) Notwithstanding paragraph (a), in the case of flights related to the introduction or modification of aircraft types, pilots may hold a special certificate given by the CAAM, authorising them to perform the flights. This authorisation shall have its validity limited to the specific flights.

FCL.705 Privileges of the holder of a class or type rating

(a) The privileges of the holder of a class or type rating are to act as pilot on the class or type of aircraft specified in the rating.

FCL.710 Class and type ratings — variants

(a) In order to extend his privileges to another variant of aircraft within one class or type rating, the pilot shall undertake differences or familiarisation training at an ATO. In the case of variants within a type rating, the differences or familiarisation training shall include the relevant elements defined in the operational suitability data established in accordance with Initial Airworthiness.

(b) If the variant has not been flown within a period of 2 years following the differences training, further differences training or a proficiency check in that variant shall be required to maintain the privileges, except for types or variants within the single-engine piston class ratings.

(c) The differences training shall be entered in the pilot’s logbook or equivalent record and signed by the instructor as appropriate.

FCL.725 Requirements for the issue of class and type ratings

(a) Training course. An applicant for a class or type rating shall complete a training course at an ATO. The class or type rating training course shall include the mandatory training elements for the relevant type as defined in the operational suitability data established in accordance with Initial Airworthiness.

(b) Theoretical knowledge examination. The applicant for a class or type rating shall pass a theoretical knowledge examination organised by the ATO to demonstrate the level of theoretical knowledge required for the safe operation of the applicable aircraft class or type.

(1) For multi-pilot aircraft, the theoretical knowledge examination shall be written and comprise at least 100 multiple-choice questions distributed appropriately across the main subjects of the syllabus.

(2) For single-pilot multi-engine aircraft, the theoretical knowledge examination shall be written and the number of multiple-choice questions shall depend on the complexity of the aircraft.

(3) For single-engine aircraft, the theoretical knowledge examination shall be written and the number of multiple-choice questions shall depend on the complexity of the aircraft.

(4) For single-pilot aeroplanes that are classified as high performance aeroplanes, the examination shall be written and comprise at least 100 multiple-choice questions distributed appropriately across the subjects of the syllabus.

(c) The applicant for type rating shall passed the ATPL theoretical knowledge examination.

(d) Skill test.

(1) An applicant for a class or type rating shall pass a skill test in accordance with Appendix 9 to these Directives to demonstrate the skill required for the safe operation of the applicable class or type of aircraft.

(2) The applicant shall pass the skill test within a period of 6 months after commencement of the class or type rating training course and within a period of 6 months preceding the application for the issue of the class or type rating.

(e) An applicant who already holds a type rating for an aircraft type, with the privilege for either single- pilot or multi-pilot operations, shall be considered to have already fulfilled the theoretical requirements when applying to add the privilege for the other form of operation on the same aircraft type.

(f) Notwithstanding the paragraphs above, pilots holding a flight test rating issued in accordance with FCL.820 who were involved in development, certification or production flight tests for an aircraft type, and have completed either 50 hours of total flight time or 10 hours of flight time as PIC on test flights in that type, shall be entitled to apply for the issue of the relevant type rating, provided that they comply with the experience requirements and the prerequisites for the issue of that type rating, as established in this Subpart for the relevant aircraft category.

(g) Type rating shall be established for:

(1) Aircraft certificated for operation with minimum crew of at least 2 pilot;

(2) Helicopter and powered-lift certificated for single pilot operation except where a class rating has been issued; and

Appendix 9 - Training, skill test and proficiency check for MPL, ATPL, type and class ratings, and proficiency check for IRs

A. General

1. An applicant for a skill test shall have received instruction on the same class or type of aircraft to be used in the test.
The training for MPA and PL type ratings shall be conducted in an FFS or in a combination of FSTD(s) and FFS. The skill test or proficiency check for MPA and PL type ratings and the issue of an ATPL and an MPL, shall be conducted in an FFS, if available.

The training, skill test or proficiency check for class or type ratings for SPA and helicopters shall be conducted in:

(a) an available and accessible FFS, or

(b) a combination of FSTD(s) and the aircraft if an FFS is not available or accessible; or

(c) the aircraft if no FSTD is available or accessible.

If FSTDs are used during training, testing or checking, the suitability of the FSTDs used shall be verified against the applicable 'Table of functions and subjective tests' and the applicable 'Table of FSTD validation tests' contained in the primary reference document applicable for the device used. All restrictions and limitations indicated on the device's qualification certificate shall be considered.

2. Failure to achieve a pass in all sections of the test in two attempts will require further training.

3. There is no limit to the number of skill tests that may be attempted.

CONTENT OF THE TRAINING, SKILL TEST/PROFICIENCY CHECK

4. Unless otherwise determined in the operational suitability data established in accordance with Initial Airworthiness, the syllabus of flight instruction, the skill test and the proficiency check shall comply with this Appendix. The syllabus, skill test and proficiency check may be reduced to give credit for previous experience on similar aircraft types, as determined in the operational suitability data established in accordance with Initial Airworthiness.

5. Except in the case of skill tests for the issue of an ATPL, when so defined in the operational suitability data established in accordance with Initial Airworthiness for the specific aircraft, credit may be given for skill test items common to other types or variants where the pilot is qualified.

CONDUCT OF THE TEST OR CHECK

6. The examiner may choose between different skill test or proficiency check scenarios containing simulated relevant operations developed and approved by the CAAM. Full flight simulators and other training devices, when available, shall be used, as established in these Directives.

7. During the proficiency check, the examiner shall verify that the holder of the class or type rating maintains an adequate level of theoretical knowledge.

8. Should the applicant choose to terminate a skill test for reasons considered inadequate by the examiner, the applicant shall retake the entire skill test. If the test is terminated for reasons considered adequate by the examiner, only those sections not completed shall be tested in a further flight.

9. At the discretion of the examiner, any manoeuvre or procedure of the test may be repeated once by the applicant. The examiner may stop the test at any stage if it is considered that the applicant's demonstration of flying skill requires a complete re-test.

10. An applicant shall be required to fly the aircraft from a position where the PIC or co-pilot functions, as relevant, can be performed and to carry out the test as if there is no other crew member if taking the test/check under single- pilot conditions. Responsibility for the flight shall be allocated in accordance with national regulations.

11. During pre-flight preparation for the test the applicant is required to determine power settings and speeds. The applicant shall indicate to the examiner the checks and duties carried out, including the identification of radio facilities. Checks shall be completed in accordance with the check-list for the aircraft on which the test is being taken and, if applicable, with the MCC concept. Performance data for take-off, approach and landing shall be calculated by the applicant in compliance with the operations manual or flight manual for the aircraft used. Decision heights/altitude, minimum descent heights/altitudes and missed approach point shall be agreed upon with the examiner.

12. The examiner shall take no part in the operation of the aircraft except where intervention is necessary in the interests of safety or to avoid unacceptable delay to other traffic.