

# Advisory Circular

## UNMANNED AIRCRAFT PILOT LICENCE (UAPL)

GENERAL.....	1
PURPOSE .....	1
APPLICABILITY.....	1
RELATED REGULATIONS .....	1
RELATED ADVISORY CIRCULARS.....	1
CANCELLATION.....	1
EFFECTIVE DATE.....	1
OTHER REFERENCES .....	1
1 APPLICABILITY OF UAPL.....	2
2 UAPL CLASSES, CATEGORIES AND RATINGS .....	2
3 PROCESS OF OBTAINING A CLASS A UAPL.....	3
4 UAPL VARIATION .....	4
APPENDIX 1 UAPL THEORY TEST LEARNING OUTCOMES .....	7
APPENDIX 2 UAPL PRACTICAL ASSESSMENT REQUIREMENTS .....	14
APPENDIX 3 CLASS B TRAINING PROGRAMME SCOPE .....	16
APPENDIX 4 UAPL FEES.....	17
APPENDIX 5 FREQUENTLY ASKED QUESTIONS .....	18

### GENERAL

Advisory Circulars (ACs) are issued by the Director-General of Civil Aviation (DGCA) from time to time to provide practical guidance or certainty in respect of the statutory requirements for aviation safety. ACs contain information about standards, practices and procedures acceptable to CAAS. An AC may be used, in accordance with section 11 of the Air Navigation Act 1966 (ANA), to show that compliance with a statutory requirement has been achieved. The revision number of the AC is indicated in parenthesis in the suffix of the AC number.

### PURPOSE

This Advisory Circular provides guidance to obtain an Unmanned Aircraft Pilot Licence (UAPL) pursuant to the Air Navigation (101 – Unmanned Aircraft Operations) Regulations 2019 (“ANR-101”).

### APPLICABILITY

This AC is applicable to persons interested in obtaining a UAPL.

### RELATED REGULATIONS

This AC relates specifically to Part 4 of the ANR-101

### RELATED ADVISORY CIRCULARS

AC 101-2-1 Permits for Unmanned Aircraft Operations

### CANCELLATION

Revision (5) of this AC supersedes revision (4). This revision updates the fee for a UAPL theory test.

### EFFECTIVE DATE

This AC is effective from 9 January 2026.

### OTHER REFERENCES

Nil.

## **1      APPLICABILITY OF UAPL**

- 1.1    Except as provided in paragraphs 1.2 and 1.3, a person must not act as an unmanned aircraft (UA) pilot of:
  - (a)    a UA of any total mass in the course of business or for a purpose that is neither a recreation purpose nor an education purpose; or
  - (b)    a UA of a total mass exceeding 7 kg for any purpose.

unless the person holds a UAPL that is in force and authorises the person to fly a UA of the class and category corresponding to that UA.
- 1.2    Paragraph 1.1 does not apply to a UA pilot operating a UA (called in this paragraph the first UA pilot) under the supervision of another person who is the holder of a UA pilot licence, where the first UA pilot is operating a UA in the course of or as part of —
  - (a)    the UAPL training conducted by a UA training and assessment organisation (UATO); or
  - (b)    a practical assessment or proficiency check conducted by an Authorised Flight Examiner (AFE) or the Authority.
- 1.3    A person is not required to hold a UAPL before acting as a UA pilot, or supervising a UA pilot, of a UA to fly indoors for any purpose —
  - (a)    within a private residence;
  - (b)    at an experimental site in connection with the construction or testing of that UA; or
  - (c)    within a place that is not publicly accessible, unless it is a purpose connected with any of the following:
    - (i)    a sporting activity that forms part of an organised group activity or organised competition, race or tournament;
    - (ii)    an event that is attended by more than 50 individuals at any time during the event;
    - (iii)    a flying display.
- 1.4    “Publicly accessible”, in relation to a place, means that the public or a section of the public has access to the place as of right, or by virtue of any express or implied permission with or without payment of a fee.
- 1.5    The UA pilot must be at least 16 years old to hold a UAPL.

## **2      UAPL CLASSES, CATEGORIES AND RATINGS**

- 2.1    A UAPL authorises a UA pilot to fly a UA of the class and category corresponding to that UA. There are two classes of UAPL and 4 categories of UA within each class.
- 2.2    A Class A UAPL allows a UA pilot to operate any UA in the corresponding category with total mass that does not exceed 25 kg.
- 2.3    A Class B UAPL allows a UA pilot to operate specific UA model(s), also referred to as rating, with total mass that exceeds 25 kg. An applicant applying for a Class B UAPL must hold a valid Class A UAPL in the corresponding category without any mass

limitations as a prerequisite. For example, a person applying for a Class B UAPL to operate a 40kg rotorcraft must hold a valid Class A UAPL in the rotorcraft category first.

2.4 There are 4 categories of UA within each class of UAPL. The categories are:

- (a) Aeroplane
- (b) Rotorcraft
- (c) Powered-lift
- (d) Airship

Note: Rotorcraft category includes helicopters and multi-rotors (e.g. quadcopters, octocopters, etc.).

### **3 PROCESS OF OBTAINING A CLASS A UAPL**

3.1 The process to obtaining a Class A UAPL is as follows:

(1) Attend training (optional)

The applicant is encouraged to attend a training course conducted by any CAAS-approved UATOs before attempting the theory test and practical assessment. The list of UATOs is published at <https://go.gov.sg/list-of-uatos>.

(2) Register for a CAPELS account

The applicant must register for an account at <https://capels.caas.gov.sg> to obtain the unique CAPELS PID number. The PID number is required for theory test and practical assessment for identification purposes.

There are two categories of account holders available in CAPELS:

- (i) SingPass account holder will register for an account by logging in with his SingPass.
- (ii) Non-SingPass account holder will register for an account using his email address. Upon registration, the applicant will receive an email containing a link for email verification to complete the account set-up.

(3) Pass UAPL theory test

The applicant needs to achieve a minimum of 75% test score to pass the theory test. The applicant is not allowed to attempt the theory test for more than 2 times within a period of one month. A pass in the theory test is valid for 24 months. Refer to **Appendix 1** for the theory test learning outcomes.

The theory test can be booked through <https://caas.studyworks.com.sg>. Refer to **Appendix 4** for the fees payable.

(4) Pass practical assessment

A pass in the theory test is required before attempting the practical assessment. The applicant then needs to pass the practical assessment relating to the desired UAPL's class and category, which is conducted by an AFE under a CAAS-approved UATO, or by the Authority. Refer to **Appendix 2** for the scope of the practical assessment.

The practical assessment can be registered directly with any of the CAAS-approved UATOs. Please note that the assessment fees are made payable directly to the UATOs, and they may vary across different UATOs.

(5) Submit UAPL application

The UAPL application must be submitted at <https://capels.caas.gov.sg>. The applicant is required to upload his theory test results and make payment. Refer to **Appendix 4** for the fees payable. As the practical assessment results will be uploaded by the AFE, no further upload is required from the applicant. The applicant must be at least 16 years old.

Complete applications with all required documents and fees are typically processed within 10 working days. Incomplete submissions or complex applications may require additional processing time. CAAS may contact the applicant for further clarifications. Regardless of the outcome of the application, fees paid are not refundable or transferrable.

(6) View digital licence

Upon grant of the UAPL, the applicant will receive an e-mail that contains instructions to view his digital licences via the SGFlight mobile application. The mobile application can be downloaded at <http://onelink.to/4ar6va>.

#### 4 UAPL VARIATION

- 4.1 A holder of a valid UAPL may at any time apply to the Authority to vary its licence to:
  - (a) add or remove a category to the UAPL; or
  - (b) add or remove a rating to the UAPL; or
  - (c) modify a condition of the UAPL (e.g. removal of limitation, extension of validity).
- 4.2 An application to vary a UAPL must be submitted at <https://capels.caas.gov.sg>, and be accompanied by the prescribed application fee (refer to **Appendix 4**) and the relevant information as described in the following paragraphs. Complete applications with all required documents and relevant fees are typically processed within 10 working days. Incomplete submissions or complex applications may require additional processing time.

##### Additional of Category/Rating

- 4.3 An application to add a category or rating to the UAPL must be accompanied by the following information:
  - (a) practical assessment results of the applicant (uploaded by the AFE) if the application is to add a Class A category to the UAPL; or
  - (b) documents (see paragraph 4.5) evidencing that the applicant has satisfied all requirements for the corresponding category in Class A if the application is to add a rating in Class B.
- 4.4 An applicant can apply to add specific UA model(s) in Class B if he holds a valid Class A UAPL in the corresponding category(s). As an illustration, the holder of a Class A UAPL which qualifies him to operate rotorcraft only is not allowed to vary his licence to add a rating in Class B to include – Aeroplanes, Powered-lift, or Airship categories as he has not satisfied the requirements for the corresponding category in Class A.

4.5 In addition, before applying for a Class B UAPL, the applicant should ensure that the specific UA model(s) is/are already listed in a valid Operator Permit. The applicant must also provide supporting evidence of competency in operating the specific UA model(s) through CAPELS. Evidence of pilot competency includes, but not limited to, relevant training from the original equipment manufacturer (OEM) or Operator Permit holder whom the applicant is being engaged or employed. Such training programme should also be described within the operations procedures (or equivalent) under the scope of the Operator Permit.

#### Removal of Limitations

4.6 Based on the practical assessment result, limitation(s) may be imposed on the UAPL (e.g. restricted to Multi-rotor UA only, restricted to Multi-rotor UA less than 7kg only, etc.). Limitation(s) can be removed by undergoing a “removal of limitations” practical assessment with the UATOs.

4.7 Upon passing the practical assessment, the holder of the UAPL may apply to the Authority to remove limitation(s) imposed on its licence.

4.8 An application to remove limitation(s) imposed on a UAPL must be accompanied by the practical assessment results of the applicant (uploaded by the AFE).

Note: An application to remove limitation(s) does not extend the validity of the UAPL. To extend the validity of the UAPL, see paragraphs 4.9 to 4.13.

#### Proficiency Check (Extension of Licence Validity)

4.9 All UAPL holders must pass a proficiency check conducted by an AFE from an approved UATO. The check must be completed at least once every 4 years from the date on which the category was specified on the UAPL.

4.10 A failure to complete the proficiency check in time will lead to the expiry of the Class A category specified in the UAPL. All UAPL holders are encouraged to contact any approved UATO to arrange for a proficiency check 3 months before the UAPL expires.

4.11 In addition to the proficiency check, Class B UAPL holders are required to complete a refresher training, in respect of each rating stated in Class B, at least once a year. The refresher training can be conducted by a UATO or an Operator Permit holder by whom the holder of the UAPL is employed or engaged. The training programme for Class B UAPL refresher training should be described within the operations procedures (or equivalent) of the Operator Permit. Failure to complete the refresher training yearly will lead to the expiry of the Class B rating specified in the UAPL. See **Appendix 3** for scope of refresher training.

4.12 If all Class A categories and Class B ratings within the UAPL have expired, the UAPL will become invalid. Variations and proficiency checks will not be applicable. The applicant will need to submit an initial UAPL application with a valid theory test and the relevant practical assessments.

4.13 An application for the extension of licence validity (i.e. proficiency check) must be accompanied by the following information:

(a) results of proficiency check of the applicant (uploaded by the AFE) if the application is to extend the validity of a Class A category in the UAPL; and

- (b) if applicable, documents evidencing completion of Class B refresher training if the application is to also extend the validity of a Class B rating in the UAPL.

## APPENDIX 1 UAPL THEORY TEST LEARNING OUTCOMES

---

The table below shows the knowledge areas, number of questions and duration of theory test.

Knowledge Area	Duration	No. of Questions	Passing Mark
General UAS Knowledge	1.5 hrs	50	75%
Principles of Flight			
Air Law			
Navigation and Meteorology			
Human Factors			
Safety and Operations			

The following table shows the recommended study guides to prepare for the theory test.

Recommended Study Guides
<ol style="list-style-type: none"><li>1. Air Navigation Act 1966 (ANA)</li><li>2. Air Navigation (101 – Unmanned Aircraft Operations) Regulations 2019 (ANR-101)</li><li>3. All ANR-101 Advisory Circulars</li><li>4. The Complete Remote Pilot – Aviation Supplies &amp; Academy (ASA) <i>By: Bob Gardner and David Ison</i></li><li>5. The Droner's Manual – Aviation Supplies &amp; Academy (ASA) <i>By: Kevin Jenkins</i></li><li>6. Remote Pilot – Small Unmanned Aircraft Systems Study Guide (FAA-G-8082-22) <i>By: Federal Aviation Administration</i></li></ol>

The following tables detail the learning outcomes for each knowledge area.

Syllabus Reference	Learning Outcome
<b>010 00 00</b>	<b>General UAS Knowledge</b>
<b>010 01 00</b>	<b>Introduction to UAS</b>
010 01 01	Define what is an Unmanned Aircraft System (UAS) and Unmanned Aircraft (UA)
010 01 02	<p>Describe the different categories of UA and its operating principles:</p> <ul style="list-style-type: none"> <li>- Aeroplane</li> <li>- Rotorcraft <ul style="list-style-type: none"> <li>• Multi-rotor</li> <li>• Helicopter</li> </ul> </li> <li>- Powered-Lift</li> <li>- Airship</li> </ul>
010 01 03	Examine the various applications of UAS (e.g. building inspection, agriculture, aerial mapping, surveillance etc.) and compare the suitability of each UA category for the different applications
<b>010 02 00</b>	<b>UAS Components and Systems</b>
010 02 01	<p>Identify the major systems of UAS and explain how the systems integrate with each other:</p> <ul style="list-style-type: none"> <li>- Power and Electrical System</li> <li>- Propulsion System</li> <li>- Flight Control and Navigation System</li> <li>- Command and Control (C2) System</li> <li>- Ground Control System (including different remote controller modes)</li> </ul>
010 02 02	Describe the functions of the different UAS components under each major system and compare the differences across the different categories of UA
010 02 03	<p>Describe the operation of the UAS C2 link:</p> <ul style="list-style-type: none"> <li>- Understand the importance of radio-line-of-sight</li> <li>- Identify the causes of radio interference and loss link</li> </ul>
010 02 04	Identify failed/damaged components (e.g. failed servo, propeller damage, bloated battery etc.)

Syllabus Reference	Learning Outcome
<b>020 00 00</b>	<b>Principles of Flight</b>
<b>020 01 00</b>	<b>Aerodynamics</b>
020 01 01	<p>Identify the four forces of flight:</p> <ul style="list-style-type: none"> <li>- Lift</li> <li>- Weight</li> <li>- Thrust</li> <li>- Drag</li> </ul>
020 01 02	<p>Describe aerofoil interaction with airflow</p> <ul style="list-style-type: none"> <li>- Lift generation / aerodynamic force</li> <li>- Angle of attack (AOA)</li> <li>- Ground effect</li> </ul>
020 01 03	<p>Describe aerodynamic stall:</p> <ul style="list-style-type: none"> <li>- Causes of stalls</li> <li>- Symptoms of stalls</li> <li>- Stall recovery</li> </ul>
020 01 04	<p>Describe aerodynamic spin:</p> <ul style="list-style-type: none"> <li>- Stages of spins</li> <li>- Spin recovery</li> </ul>
020 01 05	<p>Describe aerodynamic stability:</p> <ul style="list-style-type: none"> <li>- Centre of Gravity and Centre of Pressure, and how they affect stability</li> <li>- Static and dynamic stability</li> </ul>
<b>020 02 00</b>	<b>Control of Motion (Aeroplane / Rotorcraft / Powered-lift / Airship)</b>
020 02 01	<p>List the axes of motion and describe how an aircraft changes its attitude:</p> <ul style="list-style-type: none"> <li>- Lateral axis (pitch)</li> <li>- Longitudinal axis (roll)</li> <li>- Vertical axis (yaw)</li> </ul>
020 02 02	<p>Describe the function of the main control surfaces and the directions of deflection with respect to the axes of motion:</p> <ul style="list-style-type: none"> <li>- Ailerons</li> <li>- Elevator</li> <li>- Rudder</li> </ul>
020 02 03	Explain the purpose of trimming the aircraft

<b>Syllabus Reference</b>	<b>Learning Outcome</b>
<b>030 00 00</b>	<b>Air Law</b>
<b>030 01 00</b>	<b>Air Navigation Act (ANA)</b>
030 01 01	<p>Identify the provisions stated in the ANA that are relevant to UAS operations, including but not limited to:</p> <ul style="list-style-type: none"> <li>- Applicability of UAS provisions within the Act</li> <li>- Permit needed for certain overflight by unmanned aircraft</li> <li>- Absolute prohibition of carriage of dangerous materials on unmanned aircraft</li> <li>- Discharge from unmanned aircraft</li> <li>- Dangerous activity involving aircraft</li> <li>- Flying without satisfying safety requirements</li> <li>- Trespassing at aerodromes</li> <li>- Penalty for dangerous flying</li> </ul>
030 01 02	State the penalties upon contravening provisions relating to UAS operations of the ANA
<b>030 02 00</b>	<b>Air Navigation (101 – Unmanned Aircraft Operations) Regulations</b>
030 02 01	<p>Summarise the provisions stated in the ANR-101, including but not limited to:</p> <ul style="list-style-type: none"> <li>- Applicability of UAS provisions within the Regulations</li> <li>- Different purposes of UAS operations (recreation, education and non-recreation / non-education purposes)</li> <li>- State who requires UA registration</li> <li>- State who requires an Operator Permit, Class 1 Activity Permit, Class 2 Activity Permit and other permits</li> <li>- State who requires UA Pilot Licence</li> <li>- State who requires UA Basic Training</li> </ul>
030 02 02	State the penalties upon contravening provisions relating to UAS operations of the ANR-101
<b>030 03 00</b>	<b>Airspace</b>
030 03 01	<p>Identify the different airspace restrictions in Singapore using OneMap and compare the regulatory requirements associated with them:</p> <ul style="list-style-type: none"> <li>- Areas within 5km of aerodromes</li> <li>- Danger Areas</li> <li>- Protected Areas under Air Navigation Act</li> <li>- Prohibited Areas</li> <li>- Restricted Areas</li> <li>- Temporary Restricted Areas</li> </ul>
<b>030 04 00</b>	<b>UA Registration</b>
030 04 01	Describe the UA registration and de-registration processes
<b>030 05 00</b>	<b>Permits</b>
030 05 01	Describe the permit application process
030 05 02	Identify the UA Operator Permit and Activity Permit conditions that are applicable to the UA pilot
<b>030 06 00</b>	<b>Pilot Competency</b>
030 06 01	State the requirements for the issuance and maintenance of a UAPL
030 06 02	State the associated UAPL classes, categories and ratings
030 06 03	State the responsibilities of a UAPL holder
030 06 04	State the requirements for the issuance of UA Basic Training Certificate

<b>Syllabus Reference</b>	<b>Learning Outcome</b>
<b>040 00 00</b>	<b>Navigation &amp; Meteorology</b>
<b>040 01 00</b>	<b>Navigation</b>
040 01 01	Describe the following systems used in basic navigation: <ul style="list-style-type: none"> <li>- UTM map projection</li> <li>- Latitude and longitude</li> </ul>
040 01 02	Describe the concept of Global Navigation Satellite System: <ul style="list-style-type: none"> <li>- Basic principles of operation and common errors</li> <li>- Factors affecting accuracy of satellite navigation systems</li> </ul>
040 01 03	Explain the different navigation systems and methods of improving position accuracy: <ul style="list-style-type: none"> <li>- Global Navigation Satellite System <ul style="list-style-type: none"> <li>• Global Positioning System (GPS)</li> <li>• Global Orbiting Navigation Satellite System (GLONASS)</li> <li>• BeiDou</li> <li>• Galileo</li> </ul> </li> <li>- Methods to improve position accuracy <ul style="list-style-type: none"> <li>• Local area differential GNSS (LADGNSS)</li> <li>• Classical DGNSS</li> <li>• Real Time Kinematics (RTK)</li> <li>• Wide Area Kinematics (WARTK)</li> </ul> </li> </ul>
040 01 04	Describe other forms of guidance systems, their operating principles and pros/cons: <ul style="list-style-type: none"> <li>- Infra-red (IR) system</li> <li>- Vision-based system</li> <li>- Ultrasound system</li> <li>- Light Detection and Ranging (LIDAR) system</li> </ul>
<b>040 02 00</b>	<b>Meteorology</b>
040 02 01	State atmospheric properties and describe their effects on UA performance: <ul style="list-style-type: none"> <li>- Pressure</li> <li>- Temperature</li> <li>- Density</li> <li>- Humidity</li> </ul>
040 02 02	Define basic altimetry terms: <ul style="list-style-type: none"> <li>- Height</li> <li>- Elevation</li> <li>- Altitude</li> <li>- Above Mean Sea Level (AMSL)</li> <li>- Above Ground Level (AGL)</li> </ul>
040 02 03	Describe the characteristics of the cloud types: <ul style="list-style-type: none"> <li>- Cumulus (CU)</li> <li>- Cumulonimbus (CB)</li> </ul>
040 02 04	Describe the different types of winds and their impact on UA ground speeds during operations: <ul style="list-style-type: none"> <li>- Headwind</li> <li>- Tailwind</li> <li>- Crosswind</li> </ul>
040 02 05	State the different means to obtain reliable weather information: <ul style="list-style-type: none"> <li>- Meteorological Services Singapore (non-aviation)</li> <li>- Meteorological Terminal Air Report (METAR)</li> </ul>

Syllabus Reference	Learning Outcome
<b>050 00 00</b>	<b>Human Factors</b>
<b>050 01 00</b>	<b>Human Factors in Aviation</b>
050 01 01	Understand the International Civil Aviation Organisation (ICAO) SHELL model
<b>050 02 00</b>	<b>Physiology – Vision</b>
050 02 01	Identify the effects of the following phenomena during UAS operations and describe how to overcome them: - Autokinesis - Disorientation - Spatial Disorientation - Sun-blindness
050 02 02	Describe correct visual scanning techniques
<b>050 03 00</b>	<b>Physiology – Medications and Psychoactive Substances</b>
050 03 01	Know the prohibition of use of psychoactive substances during UAS operations
050 03 02	Describe the effects of intoxication on UAS operations
050 03 03	Describe the effects of medications on UAS operations
<b>050 04 00</b>	<b>Psychology – Fatigue</b>
050 04 01	Identify the causes of fatigue
050 04 02	Describe the effects of fatigue on UAS operations
050 04 03	Describe fatigue management techniques
<b>050 05 00</b>	<b>Psychology – Stress</b>
050 05 01	Identify the causes of stress
050 05 02	Describe the effects of stress on UAS operations
050 05 03	Describe stress management techniques

Syllabus Reference	Learning Outcome
<b>060 00 00</b>	<b>Safety &amp; Operations</b>
<b>060 01 00</b>	<b>Operational Risks and Hazards</b>
060 01 01	Describe risk and hazard
060 01 02	Identify risk and hazards using the following models: <ul style="list-style-type: none"> <li>- 5 risk elements (pilot, aircraft, environment, operation, situation)</li> <li>- PAVE model</li> <li>- IMSAFE checklist</li> </ul>
060 01 03	Apply the general steps to perform risk assessment
<b>060 02 00</b>	<b>Situation Awareness, Decision Making and Communication</b>
060 02 01	Describe importance of maintaining situation awareness
060 02 02	Describe the importance of making sound aeronautical decisions using: <ul style="list-style-type: none"> <li>- 5 decision-making subject areas (pilot, aircraft, environment, operation, situation)</li> <li>- DECIDE model</li> <li>- Three P's</li> </ul>
060 02 03	Describe the dangers of Get-Home-Itis and Completion Bias mindsets on UAS operations
060 02 04	Describe crew resource management (CRM) and how it can contribute to safety of UAS operations
060 02 05	Identify the 5 hazardous attitudes that may impact the safety of UAS operations: <ul style="list-style-type: none"> <li>- Anti-authority</li> <li>- Impulsivity</li> <li>- Invulnerability</li> <li>- Macho</li> <li>- Resignation</li> </ul>
<b>060 03 00</b>	<b>UAS Operations</b>
060 03 01	List the common phases of flight and describe the checks conducted and/or considerations for each phase: <ul style="list-style-type: none"> <li>- Flight planning and management considerations</li> <li>- Contingency/Emergency planning considerations</li> <li>- Pre-flight phase</li> <li>- In-flight phase</li> <li>- Post-flight phase</li> </ul>
060 03 02	Explain the importance of contingency/emergency procedures and describe the common handling procedures: <ul style="list-style-type: none"> <li>- Loss of GNSS</li> <li>- Low power</li> <li>- Loss of C2 link</li> <li>- Loss of orientation/control</li> <li>- Stall (aeroplane)</li> <li>- Fly-away</li> </ul>
060 03 03	Explain the importance of maintenance: <ul style="list-style-type: none"> <li>- Describe the difference between maintenance and flight checks</li> <li>- Describe the importance of following original equipment manufacturer (OEM) guidelines when repairing UAS</li> <li>- Describe the importance of keeping a maintenance log</li> </ul>

## APPENDIX 2 UAPL PRACTICAL ASSESSMENT REQUIREMENTS

Knowledge Area	Learning Outcome
<b>General Knowledge of UAS Functions</b>	<p>The candidate should have adequate knowledge of the operating UAS as a whole which includes:</p> <ul style="list-style-type: none"> <li>- Be able to provide an overview of the UAS in general;</li> <li>- Be able to identify major components and explain its functions; and</li> <li>- Be able to identify and explain different indication lights / sounds and flight modes / abnormal conditions.</li> </ul>
<b>UAS Checks</b>	<p>The candidate should be proficient with the pre-flight (including assembly) and post-flight checks of the UA, making reference to the Original Equipment Manufacturer (OEM) documents and UATO's training manual (if required).</p>
<b>Flight Manoeuvres via Manual Controls</b>	<p><u>For rotorcraft (multi-rotors) UA:</u></p> <p>The candidate should be able to demonstrate smooth and controlled flying while performing the following manoeuvres without GNSS assistance or assistance from any stabilisation systems:</p> <ul style="list-style-type: none"> <li>- Precision hovering at different orientations</li> <li>- Climbing and descending circuits</li> <li>- Figure of '8'</li> <li>- Precision landing</li> </ul>
	<p><u>For rotorcraft (helicopter) UA:</u></p> <p>The candidate should be able to demonstrate smooth and controlled flying while performing the following manoeuvres without GNSS assistance or assistance from any stabilisation systems:</p> <ul style="list-style-type: none"> <li>- Precision hovering at different orientations</li> <li>- Straight and level circuits</li> <li>- Precision landing</li> </ul>
	<p><u>For aeroplane UA:</u></p> <p>The candidate should be able to demonstrate smooth and controlled flying while performing the following manoeuvres without GNSS assistance or assistance from any stabilisation systems:</p> <ul style="list-style-type: none"> <li>- Take-off</li> <li>- Straight and upright level flights</li> <li>- Straight and inverted level flights</li> <li>- Figure of '8'</li> <li>- Vertical loop</li> <li>- Precision landing</li> </ul>
	<p><u>For powered-lift UA:</u></p> <p>The candidate should be able to demonstrate smooth and controlled flying while performing the following manoeuvres without GNSS assistance or assistance from any stabilisation systems:</p> <ul style="list-style-type: none"> <li>- Precision hovering at different orientations</li> <li>- Transition from hover to forward flight and vice versa</li> <li>- Figure of '8'</li> <li>- Precision landing</li> </ul>

Knowledge Area	Learning Outcome
	<p><u>For airship UA:</u></p> <p>The candidate should be able to demonstrate smooth and controlled flying while performing the following manoeuvres without GNSS assistance or assistance from any stabilisation systems:</p> <ul style="list-style-type: none"> <li>- Precision hovering at different orientations</li> <li>- Climbing and descending circuits</li> <li>- Figure of '8'</li> <li>- Precision landing</li> </ul>
<b>Mission Planning and Execution</b>	<p>The candidate should be proficient with mission planning procedures via ground control system and able to execute / modify the mission during flight.</p>
<b>Emergency Procedures</b>	<p><u>For rotorcraft UA:</u></p> <p>The candidate should be able to demonstrate procedures leading to the following manoeuvres in the event of emergencies:</p> <ul style="list-style-type: none"> <li>- Immediate landing</li> <li>- Abort landing</li> <li>- Emergency stop</li> <li>- Return to home</li> </ul>
	<p><u>For aeroplane UA:</u></p> <p>The candidate should be able to demonstrate procedures leading to the following manoeuvres in the event of emergencies:</p> <ul style="list-style-type: none"> <li>- Abort take-off</li> <li>- Abort landing</li> <li>- Stall recovery</li> <li>- Immediate landing</li> </ul>
	<p><u>For powered-lift UA:</u></p> <p>The candidate should be able to demonstrate procedures leading to the following manoeuvres in the event of emergencies:</p> <ul style="list-style-type: none"> <li>- Immediate landing</li> <li>- Abort landing</li> <li>- Emergency stop</li> <li>- Return to home</li> </ul>
	<p><u>For airship UA:</u></p> <p>The candidate should be able to demonstrate procedures leading to the following manoeuvres in the event of emergencies:</p> <ul style="list-style-type: none"> <li>- Immediate landing</li> <li>- Abort landing</li> <li>- Emergency stop</li> <li>- Return to home</li> </ul>

### APPENDIX 3 CLASS B REFRESHER TRAINING SCOPE

---

The minimum scope of the refresher training is described in the following table.

S/N	Scope	Modality
1	<u>System Knowledge</u>  This refers to the revision on UAS-specific knowledge such as visual and audio indicators, failsafe behaviours, operating specifications and limitations etc..	Theory via classroom training
2	<u>Ground Handling</u>  This refers to the setting up and tearing down of UA, including any other systems required to support the flight operations.	Practical via flight sortie
3	<u>General Handling</u>  This refers to take-off and landing, basic flight manoeuvres, and emergency flight handling.	Practical via flight sortie
4	<u>Mission Planning and Execution</u>  This should include all possible types of operations the UAS is intended to be operated for. Training on the handling of all available payloads should also be included.	Practical via simulator or flight sortie

Refresher training conducted should be witnessed, recorded and signed off by another personnel in the organisation in a supervisory role (e.g. accountable manager, quality manager) or another UA pilot current on the same UA. This is to ensure that the refresher training is conducted in accordance with the approved training programme.

## APPENDIX 4 UAPL FEES

---

### **UAPL Application**

- 1) The total of the following fees must be paid for an application of a UAPL:
  - a) for the first category specified in the application is \$500\*.
  - b) for each additional category specified in the application is \$200\*.
  - c) for each rating in Class B specified in the application is \$200\*.
- 2) The fee for an application to vary the UAPL to include an additional category/rating is \$200\* each.

### **UAPL Theory Test**

- 1) The fee for the UAPL theory test or re-test is \$136.25\* (inclusive of 9% GST).
- 2) There may be an administrative fee chargeable by the examination service provider for the re-scheduling or cancellation of the UAPL theory test. Please contact the service provider for more details.

### **UAPL Practical Assessment / Proficiency Check**

- 1) There is an assessment fee chargeable by the UATOs for the conduct of the practical assessment and proficiency check. Please contact the UATOs for more details.

*\* As specified in the second schedule of ANR-101.*

## APPENDIX 5 FREQUENTLY ASKED QUESTIONS

---

S/N	Question	Answer
1	I have a UA pilot licence / qualification issued by foreign authorities. Is it possible for a conversion?	No, the conversion of a foreign UA pilot licence is not allowed.
2	Do I need to attend any training course before taking the theory test or practical assessment?	No, it is not mandatory. However, you are strongly encouraged to complete a training programme with any CAAS-approved UATOs to acquire the relevant theoretical knowledge and practical experience before attempting the theory test and practical assessment. The list of UATOs is published on CAAS website <a href="#">here</a> .
3	Can I attempt the practical assessment first before passing my theory test?	No, you are required to pass your theory test before attempting any practical assessments. A pass in the theory test is valid for 24 months.
4	When should I apply for my UAPL after I passed both my theory test and practical assessment?	You can submit your UAPL application via CAPELS ( <a href="https://capels.caas.gov.sg">https://capels.caas.gov.sg</a> ) three days after you have passed your practical assessment. However, please note that your theory test results must still be valid at the point of your UAPL application. A pass in the theory test is valid for 24 months.
5	When should I go for my proficiency check to renew my UAPL?	You are required to pass your proficiency check every 4 years. You should contact any of the CAAS-approved UATOs to arrange for a proficiency check 3 months before your UAPL expires.
6	The QR code in my SGFlight mobile app has expired. What do I do?	As the QR code will expire after 30 days as a security feature, please log in to your CAPELS account and request for a resend of the QR code.