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## No. S 502

### AIR NAVIGATION ACT (CHAPTER 6)

### AIR NAVIGATION (137 — AERIAL WORK) REGULATIONS 2018

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In exercise of the powers conferred by section 3A of the Air Navigation Act, the Civil Aviation Authority of Singapore, with the approval of the Minister for Transport, makes the following Regulations:

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PART 1  
PRELIMINARY

**Citation and commencement**

1. These Regulations are the Air Navigation (137 — Aerial Work) Regulations 2018 and come into operation on 1 October 2018.

**Definitions**

2.—(1) Any term in these Regulations that is defined in the First Schedule to the Air Navigation (91 — General Operating Rules) Regulations 2018 (G.N. No. S 441/2018) has the meaning given to that term in that Schedule unless the term is otherwise defined in the First Schedule to these Regulations.

(2) In these Regulations, “relevant aircraft” means an aircraft that may be operated by an AWC holder for an aerial work operation.

**Application of these Regulations**

3.—(1) These Regulations apply to every flight of a person, whose principal place of business is in Singapore, that is engaged in, or is intending to engage in, aerial work operations.

(2) To avoid doubt, these Regulations apply in addition to the provisions of the Air Navigation (91 — General Operating Rules) Regulations 2018 unless expressly stated otherwise.

PART 2

*Division 1 — General*

**Requirement for aerial work certificate**

4. A person, whose principal place of business is in Singapore, must not engage in any aerial work operation except under and in accordance with an aerial work certificate granted under these Regulations.

**Application for, or to renew, aerial work certificate**

5.—(1) A person applying for an aerial work certificate (called in these Regulations an applicant) must —

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- (a) provide the Authority with the particulars, information and documents specified in paragraph (2); and
  - (b) pay to the Authority a non-refundable application fee, if specified in the Second Schedule.

(2) The particulars, information and documents required for an application mentioned in paragraph (1) are —

- (a) the name of the applicant;
- (b) the address of the applicant in Singapore;
- (c) the type of intended aerial work operations, including details such as the aircraft type involved;
- (d) the applicant's —
  - (i) Operations Manual;
  - (ii) Maintenance Control Manual;
  - (iii) aircraft flight manual and aircraft performance data; and
  - (iv) documents describing its Safety Management System; and
- (e) any other manuals, documents or further particulars relating to the applicant as may be required by the Authority to decide the application.

(3) The Operations Manual and Maintenance Control Manual must comply with the requirements of these Regulations and are subject to the approval of the Director-General of Civil Aviation.

*[S 215/2020 wef 01/04/2020]*

(4) The application mentioned in paragraph (1) must be made to the Authority at least 90 days before the intended date of commencement of the applicant's aerial work operations (or such shorter period as the Authority may specify in any particular case).

(5) The holder of an aerial work certificate (called in these Regulations an AWC holder) applying to renew the aerial work certificate must —

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- (a) provide the Authority with the particulars, information and documents mentioned in paragraph (2) that differ from the AWC holder's existing aerial work certificate; and
  - (b) make the application to the Authority at least 30 days before the date of expiry of the existing aerial work certificate.

### **Grant of aerial work certificate**

6.—(1) Upon receiving an application under regulation 5, the Authority may —

- (a) refuse the application; or
- (b) grant or renew (as the case may be) an aerial work certificate subject to such conditions as the Authority considers fit.

(2) For the purposes of section 4A(2)(b)(iii) of the Act, the other relevant requirements for the grant or renewal of an aerial work certificate are as follows:

- (a) the principal place of business of the applicant or the AWC holder (as the case may be) is in Singapore;
- (b) the applicant or the AWC holder (as the case may be) is able to meet, or continue to meet, the obligations of an AWC holder as specified in these Regulations;
- (c) the applicant or the AWC holder (as the case may be) is competent to safely operate aircraft of the type or types specified in the application under regulation 5 on flights of the description and for the purposes so specified, having regard to the applicant's or AWC holder's (as the case may be) previous conduct and experience in particular.

### **Validity of aerial work certificate**

7. An aerial work certificate that is granted or renewed under regulation 6 remains in force for the period specified in the certificate unless the period is shortened upon application or the certificate is earlier suspended or revoked by the Authority.

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**Privileges of aerial work certificate holder**

8. An AWC holder is authorised to perform —
- (a) any aerial work operation listed in its aerial work certificate in or over Singapore, or outside Singapore in a location which cannot be definitely established as being in the territory of another country or territory;
  - (b) any ground or flight training appropriate to the aircraft operated or intended to be operated for such aerial work operations;
  - (c) any flights to assess the competence of any person to be assigned as a flight crew member to such aerial work operations; and
  - (d) any test or check necessary to assess the competence of any other person providing a service or performing a function as part of any operation listed in the aerial work certificate.

**Operations specifications**

9.—(1) When granting or renewing an aerial work certificate under regulation 6, the Authority must issue an operations specifications that sets out the scope of the authorisation under the aerial work certificate.

(2) An AWC holder must comply with the operations specifications associated with the aerial work certificate.

(3) The Authority may vary the operations specifications associated with an aerial work certificate at the following times:

- (a) when the aerial work certificate is varied under regulation 10(3);
- (b) when the Authority is satisfied that such variation is necessary for the safety of air navigation or public safety, or both.

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**Variation to existing aerial work certificate**

**10.**—(1) An AWC holder must obtain the approval of the Authority to vary its aerial work certificate, including the associated operations specifications.

(2) An AWC holder must apply to the Authority for the approval required under paragraph (1) at least 30 days before the date of intended implementation of the variation.

(3) An application made under paragraph (2) to the Authority —

(a) must be in the form and manner required by the Authority; and

(b) must provide sufficient detail of the variation sought.

**Notification of ceasing operations**

**11.**—(1) If an AWC holder intends to cease its aerial work operations, the AWC holder must notify the Authority in writing of such intention as soon as reasonably practicable.

(2) An AWC holder must return its aerial works certificate to the Authority immediately upon the cessation of its operations.

**Oversight activities by Authority**

**12.**—(1) Subject to paragraph (2), where it is necessary for an applicant or an AWC holder (as the case may be) to undergo any audit, assessment, examination, test, inspection or investigation (called in this regulation a function) for any purpose of these Regulations, as a result of which it is necessary for a safety inspector of the Authority to travel outside Singapore to perform a function, the applicant or AWC holder (as the case may be) must pay —

(a) the fee for that function, if specified in the Second Schedule;

(b) the daily fee specified in the Second Schedule for each day or part of a day that the safety inspector is outside Singapore performing a function; and

(c) a charge equal to any additional expense reasonably incurred by the Authority.



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(2) An applicant is not required to pay the daily fee mentioned in paragraph (1)(b) in respect of a safety inspector's conduct of any function if the applicant is required to pay a fee under regulation 5(1)(b).

### **Personnel requirements**

**13.**—(1) An AWC holder must employ or otherwise engage a fit and proper person as an accountable manager who has the authority within the AWC holder's organisation to ensure that all activities undertaken by the organisation are financed and carried out in accordance with —

- (a) the aerial work certificate and its associated operations specifications;
- (b) these Regulations;
- (c) the Air Navigation (91 — General Operating Rules) Regulations 2018; and
- (d) the Air Navigation (98 — Special Operations) Regulations 2018 (G.N. No. S 442/2018), if applicable.

(2) The accountable manager appointed under paragraph (1) is responsible for ensuring that —

- (a) the staffing, procedures and practices of the AWC holder's organisation are such that aerial work operations can be conducted safely; and
- (b) the AWC holder's organisation complies with the applicable requirements of —
  - (i) these Regulations;
  - (ii) the Air Navigation (91 — General Operating Rules) Regulations 2018; and
  - (iii) the Air Navigation (98 — Special Operations) Regulations 2018, if applicable.

(3) An AWC holder must employ or otherwise engage other fit and proper persons who —

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- (a) are responsible for ensuring that the AWC holder's organisation complies with its Operations Manual, and other procedures or manuals, as approved by the Director-General of Civil Aviation; and
  - (b) are responsible to the accountable manager.
- (4) An AWC holder must employ or otherwise engage sufficient personnel to plan, perform, supervise, inspect, and certify the operations listed in the AWC holder's Operations Manual.

### **Safety management system**

**14.**—(1) An AWC holder must establish a safety management system —

- (a) that consists of all the components and elements set out in the Third Schedule; and
  - (b) that is commensurate to the size of the AWC holder's organisation and the complexity of the AWC holder's operations.
- (2) An AWC holder must describe the safety management system in such documents as the Director-General of Civil Aviation may require.
- (3) An AWC holder must obtain the Director-General of Civil Aviation's acceptance for —
- (a) the safety management system mentioned in paragraph (1);
  - (b) the documents mentioned in paragraph (2); and
  - (c) any change or amendment to the AWC holder's safety management system, before making that change or amendment.

### **Responsibility to ensure compliance with Air Navigation (91 — General Operating Rules) Regulations 2018**

**15.** An AWC holder must establish and implement systems, policies and procedures to ensure, support and facilitate the compliance, by the pilot-in-command of an aircraft operated by the AWC holder, with every regulation in the Air Navigation (91 —

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General Operating Rules) Regulations 2018 that requires the pilot-in-command's compliance.

### **Documents to be carried on board**

**16.—**(1) For every flight of a relevant aircraft, the AWC holder must ensure that all the following documents are carried on board:

- (a) its Certificate of Registration;
- (b) its Certificate of Airworthiness;
- (c) the appropriate licence for each flight crew member;
- (d) the aircraft radio station licence;
- (e) the journey log book or equivalent record;
- (f) a noise certificate, if applicable;
- (g) a certified true copy of the AWC holder's aerial work certificate, including the associated operations specifications and any other document containing the relevant approvals, authorisations, conditions and limitations, as the Director-General of Civil Aviation may require;
- (h) a certified true copy of any transfer agreement under Article 83 *bis* of the Chicago Convention, if applicable;
- (i) a certified true copy of the agreement for the lease, charter, or interchange or similar arrangement for the aircraft, if applicable;
- (j) in the case of a Singapore registered aircraft, a copy of each certificate of maintenance review in force in respect of the aircraft;
- (k) the English translation of any document required in sub-paragraph (a), (b) or (f) that is written in a language other than English.

(2) Before commencing any flight of a relevant aircraft, the AWC holder must ensure that the documents listed in paragraph (1) are in force and remain in force for the duration of the flight.

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(3) Despite paragraph (1), the documents listed in that paragraph may be kept at the aerodrome of departure if it is a flight —

- (a) that is intended to begin and end at the same aerodrome in Singapore; and
- (b) that does not include passage over the territory of any other State in its planned flight path.

### **Manuals to be carried**

17. For every flight of a relevant aircraft, the AWC holder must ensure that the following manuals are carried on board:

- (a) the aircraft's flight manual or equivalent;
- (b) the Operations Manual, or those parts of it that pertain to flight operations.

### **Operational information and forms to be carried**

18.—(1) For every flight of a relevant aircraft, the AWC holder must ensure that the following additional documents are carried on board:

- (a) the technical log;
- (b) the operational flight plan;
- (c) a copy of the ATS flight plan;
- (d) the route-specific NOTAM and AIS briefing documentation;
- (e) the meteorological information appropriate to the flight;
- (f) the current and suitable aeronautical charts to cover the route of the proposed flight and any route along which it is reasonable to expect that the flight may be diverted;
- (g) information on search and rescue services covering the route of the proposed flight.

(2) Where an aerial work operation involves passage over the territory of another State, the AWC holder must ensure the following documents are carried on board the aircraft operated for that operation:

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- (a) the passenger and cargo manifests;
  - (b) a copy of the procedures to be followed by the pilot-in-command of an intercepted aircraft, as published in an official publication by the AIS provider (such as an AIC, AIP or NOTAM);
  - (c) a copy of the published visual signals for use by intercepting and intercepted aircraft, as published in an official publication by the AIS provider (such as an AIC, AIP or NOTAM).

### **Common language**

**19.** An AWC holder must ensure that every person to be assigned duty as a crew member, or as any other member of its operations personnel, for an aerial work operation is able to communicate effectively in the English language.

### **Use and preservation of flight recorders and records**

**20.** An AWC holder must establish appropriate procedures to ensure that the requirements of regulation 21 of the Air Navigation (91 — General Operating Rules) Regulations 2018 are complied with.

### *Division 2 — Operational procedures*

#### **Use of Operations Manual**

**21.—(1)** An AWC holder must carry out its aerial work operations in accordance with the procedures and limitations specified in an Operations Manual that has been approved by the Director-General of Civil Aviation under these Regulations.

(2) Before an Operations Manual, or an amendment to the Operations Manual, is relied on for any of the AWC holder's operations, the AWC holder must obtain the approval of the Director-General of Civil Aviation for the Operations Manual or the amendment, as applicable.

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- (3) An AWC holder must —
- (a) provide every member of its operations personnel with a copy of the approved Operations Manual containing all the instructions and information necessary for the performance of that member's duties; and
  - (b) ensure that every member of its operations personnel has ready access to a copy of the Operations Manual, or to those parts of the Operations Manual that relate to that member's duties.

### **Remote base operations**

**22.**—(1) If, for any period of at least 14 consecutive days, an AWC holder uses a location which is not —

- (a) the AWC holder's main base; or
- (b) a sub-base identified on the aerial work certificate,

as a base to carry out its aerial work operations, the AWC holder must designate a person to be responsible for the management of operations at that location (called in this regulation a remote base).

(2) An AWC holder's Operations Manual must include appropriate procedures for operations at a remote base.

### **Briefings of persons other than flight crew members**

**23.**—(1) For every flight of a relevant aircraft, the AWC holder must ensure that a safety briefing is conducted for the following persons carried on board:

- (a) any person assigned duty as a task specialist;
- (b) any other person who is essential to the aerial work operation and who is not a flight crew member.

(2) A safety briefing provided in accordance with paragraph (1) —

- (a) must consist of an oral briefing provided by a flight crew member or by audio or audiovisual means; and

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- (b) must include the following information (as applicable to the aircraft, aircraft configuration, equipment and operation):
- (i) before boarding, the procedures for embarking and disembarking when engines or rotors, or both, are running;
  - (ii) when and how carry-on baggage and cargo are to be loaded, secured and unloaded;
  - (iii) the fastening, unfastening and use of safety belts and safety harnesses, including when such belts and harnesses must be fastened;
  - (iv) the proper positioning of seats for take-off and landing;
  - (v) the location of normal and emergency exits, the markings for such exits and the operation of such exits;
  - (vi) the requirement to comply with instructions from the flight crew;
  - (vii) the location, access to and use of emergency equipment, including the emergency locator transmitter, fire extinguisher, life preservers, life rafts, survival equipment and first-aid kit;
  - (viii) aircraft evacuation procedures and water ditching procedures.

(3) Despite paragraph (1), the AWC holder may omit the safety briefing for the second or subsequent aerial work operation in a single day using the same aircraft if —

- (a) every person on board the aircraft has been briefed for a previous operation on that day; and
- (b) a crew member has verified that —
  - (i) all carry-on baggage and cargo are properly stowed;
  - (ii) all safety belts and harnesses are properly fastened;and

(iii) all seats are properly positioned.

### **Reporting of reportable safety matters**

**24.**—(1) An AWC holder must obtain the acceptance of the Director-General of Civil Aviation for the procedures established and maintained by the AWC holder —

- (a) to report any reportable safety matter to the Authority, as required under regulation 50 of the Air Navigation (91 — General Operating Rules) Regulations 2018;
  - (b) to report maintenance-related occurrences to the Authority, as specified in the Singapore Airworthiness Requirements;
  - (c) to ensure that the relevant design organisation of an aircraft type, or for each modification of an aircraft type, used by the AWC holder for aerial work operations, receives adequate reports of any occurrence involving that aircraft type for the design organisation to issue appropriate service instructions or recommendations, if necessary; and
  - (d) to conduct the necessary investigations after a reportable safety matter or maintenance-related occurrence occurs.
- (2) The procedures required under paragraph (1) must specify the roles and responsibilities of all personnel who are involved in —
- (a) coordinating action for the reporting of reportable safety matters or maintenance-related occurrences;
  - (b) overseeing the necessary investigations; and
  - (c) communicating with the Director-General of Civil Aviation.

### *Division 3 — Operating limitations*

#### **General operating limitations**

**25.** An AWC holder must, by establishing and maintaining the appropriate processes and training, ensure that —

- (a) its aerial works operations are performed without creating a hazard to any person or property;



- (b) the altitude and distance for all approaches, turnarounds, and departures necessary for any of its aerial works operations are adhered to; and
- (c) its aerial works operations are performed in accordance with conditions and limitations specified in the aerial work certificate.

### **Operations over congested areas**

**26.**—(1) An AWC holder must not operate a relevant aircraft over a congested area of any city, town or settlement except in accordance with the circumstances prescribed in the Rules of the Air.

(2) If a relevant aircraft is being flown over a congested area of a city, town or settlement in accordance with any of the circumstances specified in the Rules of the Air, the AWC holder must ensure that the aircraft is not flown below the minimum altitude prescribed in the Rules of the Air for flight in those circumstances unless —

- (a) the manoeuvre is necessary for the proper accomplishment of the operation;
- (b) the flight is performed in accordance with conditions and limitations approved by the Director-General of Civil Aviation; and
- (c) the operation is conducted in accordance with the requirements of regulation 27.

### **Operations over congested areas — procedures and notification**

**27.**—(1) An AWC holder that intends to fly a relevant aircraft over a congested area of a city, town or settlement —

- (a) must document a plan for the intended operation in conjunction with, and for the briefing of, every person and organisation involved in the operation;
- (b) must ensure that every person and organisation involved in the intended operation is briefed on the plan that is required under sub-paragraph (a); and

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- (c) must give effective notice of the intended operation to the public and public authorities.
- (2) The plan mentioned in paragraph (1)(a) must contain the following information:
- (a) information on any obstruction to flight;
  - (b) details of the emergency landing capability of the aircraft used;
  - (c) details of any coordination that may be necessary with the appropriate air traffic control service.
- (3) The pilot-in-command of a relevant aircraft that is being flown over a congested area of a city, town or settlement, must comply with the plan mentioned in paragraph (1)(a).
- (4) An AWC holder must retain the plan mentioned in paragraph (1)(a) for a period of at least 2 years after the date on which the operation is completed.

#### *Division 4 — Mass and balance*

##### **Aircraft load limitations**

**28.** An AWC holder must comply with all the limitations contained in the aircraft's flight manual, or an equivalent document acceptable to the Director-General of Civil Aviation, relating to the mass and balance of a relevant aircraft.

#### *Division 5 — Performance*

##### **Performance planning — aeroplanes**

**29.—**(1) Where the relevant aircraft is an aeroplane, the AWC holder must take into account the following factors when developing procedures for the safe operation of the aeroplane:

- (a) the mass of the aeroplane;
- (b) the aeroplane configuration;
- (c) the aeroplane operating techniques;

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- (d) the operation of systems which may have an adverse effect on performance;
  - (e) the runway gradient;
  - (f) the condition of runway;
  - (g) the water surface state, where relevant;
  - (h) the pressure altitude and temperature;
  - (i) any wind;
  - (j) any other environmental conditions which may have an adverse effect on performance;
  - (k) the accuracy of the charts and other data used.

(2) When developing procedures for obstacle avoidance during take-off, landing and balked landing for an aeroplane mentioned in paragraph (1), an AWC holder must take into account aerodrome obstacle data.

### **Performance planning — helicopters**

**30.**—(1) Where the relevant aircraft is a helicopter, the AWC holder must take into account the following factors when developing procedures for the safe operation of the helicopter:

- (a) the mass limitations prescribed in regulation 37;
- (b) the helicopter configuration;
- (c) the helicopter operating technique;
- (d) the operation of systems which may have an adverse effect on performance;
- (e) the pressure altitude and temperature;
- (f) any wind;
- (g) any environmental conditions which may have an adverse effect on performance;
- (h) the accuracy of the charts and other data used.

(2) When developing procedures for obstacle avoidance during take-off, landing and balked landing for a helicopter mentioned in

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paragraph (1), an AWC holder must take into account surrounding obstacle data.

### **Performance data**

**31.** An AWC holder must ensure that the performance data for a relevant aircraft —

- (a) is contained in the aircraft's flight manual or an equivalent document acceptable to the Director-General of Civil Aviation; and
- (b) is available to every person who is a flight crew member, or who is responsible for flight planning or aircraft dispatch.

### **Runway friction coefficient**

**32.** An AWC holder must ensure that, where performance data for a relevant aircraft that is an aeroplane is determined using the measured coefficient of runway friction, the pilot-in-command complies with a procedure that correlates the measured coefficient of runway friction and the effective braking coefficient of friction for that aeroplane type, over the required speed range for the existing runway conditions.

### **Runway surface conditions**

**33.** For every flight of an aeroplane that may be used for aerial work operations, the AWC holder must ensure that —

- (a) all performance calculations made under regulation 29 take into account the surface conditions of the runway; and
- (b) before a runway is used for take-off, the surface conditions of the runway would allow the aeroplane to take-off safely.

### **Wet and contaminated runway surfaces**

**34.** Where it is necessary for an aeroplane, that may be used for aerial work operations, to take off from a contaminated or wet runway, the AWC holder must ensure that the following factors are taken into account:

- (a) the runway overrun area;

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- (b) the local wind conditions, including any element of tailwind or crosswind;
  - (c) the height of any snow banks adjacent to the runway.

### **Runway factors**

**35.** When calculating the distance required for an aeroplane, that may be used for aerial work operations, to take-off or land from a runway that is not a paved, dry and flat surface, the AWC holder must take into account all factors that would affect the performance of the aeroplane.

### **Runway length**

**36.** When calculating the distance of a runway that is available for take-off by an aeroplane that may be used for aerial work operations, the AWC holder must take into account any length of the runway which will necessarily be used to line up the aeroplane in the direction of take-off.

### **Performance — mass limitation**

**37.—(1)** An AWC holder must ensure that the mass of a relevant aircraft at the start of its take-off does not exceed any of the following limits:

- (a) the mass at which the requirements of the applicable Performance Class can be complied with for the planned flight;
- (b) the maximum take-off mass specified in the aircraft's flight manual for the pressure altitude appropriate to the aerodrome elevation and any other local atmospheric condition that is used as a parameter to determine the maximum take-off mass;
- (c) the maximum mass specified in the applicable noise certificate has been granted in respect of the aircraft, unless otherwise authorised by the Director-General of Civil Aviation.

(2) In the event of in-flight re-planning for any flight of a relevant aircraft, the AWC holder must ensure that the mass of the aircraft at the point from which the revised operational flight plan applies does not exceed the mass at which the requirements of the applicable Performance Class can be complied with for the planned flight.

(3) For every flight of a relevant aircraft, the AWC holder must ensure that the estimated mass of the aircraft it operates at the planned destination aerodrome, and at any destination alternate aerodrome, does not exceed any of the following limits:

- (a) the maximum landing mass specified in the aircraft flight manual for the pressure altitude appropriate to the aerodrome elevation and any other local atmospheric condition that is used as a parameter to determine the maximum landing mass;
- (b) the maximum mass specified in the applicable noise certificate has been granted in respect of the aircraft, unless otherwise authorised by the competent authority of the State of the Aerodrome.

### **Performance applicability — aeroplanes**

**38.**—(1) For every relevant aircraft that corresponds to one of the following aeroplane descriptions, the AWC holder must ensure that the aeroplane is operated in accordance with the specified Performance Class:

- (a) a multi-engine aeroplane powered by turbo-propeller engines with an MAPSC 9 must be operated in accordance with Performance Class A;
- (b) a multi-engine turbine-powered aeroplane must be operated in accordance with Performance Class A;
- (c) a propeller driven aeroplane with an MAPSC not exceeding 9 and an MCTOM not exceeding 5,700 kg must be operated in accordance with Performance Class B.

(2) Despite paragraph (1), where full compliance with paragraph (1) cannot be shown due to specific design

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characteristics of the aeroplane operated, the AWC holder may apply performance standards —

- (a) that ensure a level of safety equivalent to the appropriate Performance Class; and
- (b) that are approved by the Director-General of Civil Aviation.

### **Performance applicability — helicopters**

**39.**—(1) Subject to paragraphs (2) and (3), an AWC holder must ensure that every relevant aircraft corresponding to one of the following helicopter descriptions operated in accordance with the specified Performance Class:

- (a) a helicopter with an MAPSC exceeding 19 must be operated in Performance Class 1;
- (b) a helicopter with an MAPSC of 9 or more but not exceeding 19 must be operated in Performance Class 1 or 2;
- (c) a helicopter with an MAPSC not exceeding 9 must be operated in Performance Class 1, 2 or 3.

(2) An AWC holder must ensure that a helicopter mentioned in paragraph (1)(c) is not operated in Performance Class 3 under any of the following circumstances:

- (a) when the surface is not in sight;
- (b) at night;
- (c) when the cloud ceiling is less than 180 m (600 ft);
- (d) when the visibility is less than 1500 m;
- (e) over an open sea area.

(3) Where a helicopter is to be operated to or from a heliport in a congested and hostile environment, the AWC holder must ensure that the helicopter is operated in accordance with Performance Class 1.

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*Division 6 — Instrument and equipment requirements*

**Aircraft to be equipped in accordance with Air Navigation (121 — Commercial Air Transport by Large Aeroplanes) Regulations 2018 or Air Navigation (135 — Commercial Air Transport by Helicopters and Small Aeroplanes) Regulations 2018**

**40.** For every relevant aircraft in an AWC holder's fleet, the AWC holder must equip the aircraft in accordance with the instrument and equipment requirements specified for an aircraft of that description in the relevant provisions in —

- (a) Division 6 of Part 2 of the Air Navigation (121 — Commercial Air Transport by Large Aeroplanes) Regulations 2018 (G.N. No. S 444/2018); or
- (b) Division 6 of Part 2 of the Air Navigation (135 — Commercial Air Transport by Helicopters and Small Aeroplanes) Regulations 2018 (G.N. No. S 445/2018).

*Division 7 — Maintenance*

**Maintenance responsibilities**

**41.—(1)** An AWC holder must ensure that every relevant aircraft that is registered in Singapore is maintained by —

- (a) the AWC holder's own maintenance organisation that is approved by the Director-General of Civil Aviation in accordance with the Air Navigation Order (O 2); or
- (b) an external organisation contracted under a formal maintenance support contract acceptable to the Director-General of Civil Aviation.

(2) An AWC holder that, as described in paragraph (1)(b), contracts an external organisation to perform all or part of the maintenance of its Singapore registered aircraft must ensure that the external organisation complies with maintenance requirements of the Air Navigation Order.

(3) An AWC holder must ensure that every relevant aircraft that is not registered in Singapore is maintained under an arrangement



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acceptable to both the Director-General of Civil Aviation and the aircraft's State of Registry.

(4) An AWC holder must not operate a relevant aircraft that is not registered in Singapore unless the aircraft has been maintained and released to service under a system acceptable to the aircraft's State of Registry.

### **Continuing airworthiness information**

**42.** For every relevant aircraft that is an aeroplane with an MCTOM exceeding 5,700 kg or a helicopter with an MCTOM exceeding 3,175 kg, the AWC holder must —

- (a) obtain and assess airworthiness information from the organisation responsible for the type design of the aeroplane or helicopter; and
- (b) implement such measures or actions arising from the information as considered necessary.

### **Use of Maintenance Control Manual**

**43.—**(1) An AWC holder must maintain the airworthiness of each relevant aircraft in accordance with a Maintenance Control Manual that is approved by the Director-General of Civil Aviation under these Regulations.

(2) Before the Maintenance Control Manual, or an amendment to the Maintenance Control Manual, is relied on for the maintenance of a relevant aircraft, the AWC holder must obtain the approval of the Director-General of Civil Aviation for the Maintenance Control Manual or the amendment, as applicable.

(3) An AWC holder must —

- (a) provide every member of its maintenance and operations personnel concerned with the maintenance of an aircraft used for complex general aviation operations with the approved Maintenance Control Manual containing all the instructions and information necessary for the member to perform the member's duties; and

- (b) ensure that the approved Maintenance Control Manual is readily available to all personnel concerned with the maintenance or operation of an aircraft for complex general aviation operations.

*Division 8 — Crew requirements*

**Flight crew qualifications**

**44.** An AWC holder must ensure that every person assigned flight crew member duty as a pilot for a relevant aircraft is qualified as a commercial pilot or an air transport pilot (as applicable) in accordance with the Air Navigation Order.

**Flight crew recency**

**45.—(1)** An AWC holder must not assign any person to flight crew member duty as a pilot operating the flight controls during take-off and landing of a relevant aircraft unless the person has, in the 90 days immediately preceding the flight —

- (a) operated the flight controls during at least 3 take-offs and landings of an aircraft of the same type or variant to be used for the flight, or in an approved flight simulation training device that is representative of that aircraft type or variant; and

*[S 682/2018 wef 09/10/2018]*

- (b) if the aircraft is to be flown in accordance with the Instrument Flight Rules, flown at least 3 instrument approaches or otherwise demonstrated competence through a flight check with a check pilot.

(2) An AWC holder must not assign any person to flight crew member duty as a pilot-in-command of a relevant aircraft unless the person has, in the 35 days immediately preceding the flight, made at least one take-off and one landing in an aircraft of the same type or variant to be used for the flight, or in an approved flight simulation training device that is representative of that aircraft type or variant.

*[S 682/2018 wef 09/10/2018]*

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**Flight crew duty assignment**

**46.**—(1) For every flight of a relevant aircraft, the AWC holder must designate —

- (a) a flight crew member as the pilot-in-command; and
- (b) the number of persons required as additional flight crew members to augment the minimum flight crew specified in the aircraft's flight manual (or such other documentation associated with the aircraft's Certificate of Airworthiness) due to —
  - (i) the type of aircraft being operated;
  - (ii) the type of operation being performed; and
  - (iii) the duration of the flight.

(2) For every person assigned duty on a relevant aircraft as a flight crew member or a task specialist, the AWC holder must ensure that the person is assigned, in writing, to the operational and safety functions that the person is to perform for the flight, including those functions required in the event of an emergency.

*Division 9 — Training*

**Training programmes — general**

**47.**—(1) An AWC holder must have a training programme for its operations personnel that is approved by the Director-General of Civil Aviation.

(2) The training programme established and maintained for the purposes of paragraph (1) must ensure that every person who is assigned duties in relation to the safe operation of a relevant aircraft is adequately trained and competent to perform the person's assigned duties.

(3) An AWC holder must include the training programme in its Operations Manual either directly or by reference to a training manual.

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**Flight crew training**

**48.**—(1) In accordance with regulation 47(1), an AWC holder must have a training programme for every person that may be assigned duty on a relevant aircraft as a flight crew member.

(2) The training programme established and maintained for the purposes of paragraph (1) must consist of ground and flight training on every type of aircraft that the person may be assigned duty as a flight crew member.

(3) The training programme mentioned in paragraph (1) must include training in —

- (a) the procedures for all types of normal, abnormal and emergency situations;
- (b) the use of the AWC holder's standard operating procedures; and
- (c) the required competency for all equipment installed on a relevant aircraft, whether installed on a permanent or temporary basis or for the purpose of carrying out a specific task.

(4) An AWC holder must not assign a person to duty on a relevant aircraft as a flight crew member unless the person has satisfactorily completed the training programme mentioned in paragraph (1).

(5) To avoid doubt, the pilot training mentioned in these Regulations does not include any training that leads to an endorsement of new ratings for the pilot.

**Task specialists**

**49.**—(1) In accordance with regulation 47(1), an AWC holder must have a training programme for every person that may be assigned duty on a relevant aircraft as a task specialist.

(2) The training programme mentioned in paragraph (1) must include training in the procedures to be used in all types of normal, abnormal and emergency situations (including the emergency evacuation of the aircraft).

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(3) An AWC holder must not assign a person to duty on a relevant aircraft as a task specialist unless the person has satisfactorily completed the training programme mentioned in paragraph (1).

*Division 10 — Crew member competency requirements*

**Operator Proficiency Check (OPC)**

**50.** An AWC holder must ensure that every person who is on the AWC holder's roster to be assigned duty on a relevant aircraft as a pilot is evaluated by a check pilot for competency in the following areas at least once in every 12 months:

- (a) piloting technique;
- (b) use of the AWC holder's standard operating procedures;
- (c) ability to execute emergency procedures.

*Division 11 — Fatigue of crew*

**Fatigue management programme**

**51.—**(1) An AWC holder must have a fatigue management programme for its aerial work operations to ensure that no member of its operations personnel for those operations is fatigued when carrying out the member's assigned duties.

(2) The fatigue management programme established and maintained in accordance with paragraph (1) must specify the flight and duty times for flight crew members.

(3) An AWC holder must include details of the fatigue management programme in its Operations Manual.

*Division 12 — Manuals, logs and records*

**Operations Manual**

**52.—**(1) An AWC holder must have an Operations Manual that is approved by the Director-General of Civil Aviation.

- (2) The Operations Manual mentioned in paragraph (1) —
- (a) must be in English;

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- (b) must be developed taking into account human factors principles; and
    - (c) must be structured in a format acceptable to the Director-General of Civil Aviation.
  - (3) An AWC holder must ensure that its Operations Manual —
    - (a) comprises the elements specified in the Fourth Schedule; and
    - (b) includes —
      - (i) a statement signed by the accountable manager on behalf of the AWC holder’s organisation confirming that the material submitted —
        - (A) accurately defines the AWC holder’s organisation and the operating procedures that its personnel are required to comply with at all times; and
        - (B) demonstrates the organisation’s means and methods for ensuring ongoing compliance with these Regulations and the applicable requirements of the Act at all times;
      - (ii) the titles and names of the accountable manager and any other person mentioned in regulation 13(1) and (3);
      - (iii) the duties and responsibilities of the persons mentioned in regulation 13(3) and (4), including matters for which any of those persons is responsible for dealing directly with the Director-General of Civil Aviation on behalf of the AWC holder’s organisation;
      - (iv) the standard operating procedures, for every aircraft type operated for its operations, to be used by crew members and operations personnel;
      - (v) the details of the following procedures, when applicable to the AWC holder’s operations:

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- (A) carriage of external loads;
  - (B) low level flight;
  - (C) towing, pick-up and release procedures;
  - (D) dropping of articles or people, including parachute operations;
  - (E) spraying operations;
  - (F) helicopter external load procedures, including flight and ground crew signals and briefing procedures, steps to be taken before starting an external load operation, hazards of oscillating loads, low density loads and unfamiliar load configurations;
  - (G) firefighting operations;
  - (H) operation and safety procedures applicable to specialist equipment installed or used on board the aircraft in support of an aerial work operation;
  - (I) operational restrictions related to an aerial work operation; and
- (vi) the aircraft flight manual or equivalent document approved by the Director-General of Civil Aviation.
- (4) The standard operating procedures mentioned in paragraph (3)(b)(iv) —
- (a) must be consistent with the aircraft's flight manual and the aircraft checklists to be used; and
  - (b) must include procedures relating to the operation of aircraft during all types of normal, abnormal and emergency circumstances.
- (5) An AWC holder must update its approved Operations Manual in a timely manner, except that no amendment or revision may be made to the Operations Manual unless the Director-General of Civil Aviation —

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- (a) requests that the amendment or revision be made to the Operations Manual; or
  - (b) approves the amendment or revision to be made to the Operations Manual.
- (6) An AWC holder must establish procedures to ensure that the Operations Manual being used by its personnel contains current information.

### **Maintenance Control Manual**

**53.**—(1) An AWC holder must have a Maintenance Control Manual that is approved by the Director-General of Civil Aviation.

(2) The Maintenance Control Manual mentioned in paragraph (1) —

- (a) must be in English;
  - (b) must be developed taking into account human factors principles; and
  - (c) must contain the details listed in paragraph (3), organised in a manner acceptable to the Director-General of Civil Aviation.
- (3) An AWC holder must ensure that its Maintenance Control Manual contains the following details:
- (a) the means for complying with the procedures required by Division 7 of Part 2 of the Air Navigation (91 — General Operating Rules) Regulations 2018;
  - (b) the means of recording the names and duties of any person assigned by the AWC holder to ensure that maintenance is carried out in accordance with the Maintenance Control Manual;
  - (c) the maintenance programme;
  - (d) the methods used for the completion and retention of the AWC holder's maintenance records;
  - (e) the procedures for complying with the service information reporting requirements;



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- (f) the procedures for implementing action resulting from mandatory continuing airworthiness information;
  - (g) a system of analysis and continued monitoring of the performance and efficiency of the maintenance programme, in order to correct any deficiency in that programme;
  - (h) the aircraft types and models to which the manual applies;
  - (i) the procedures for ensuring that unserviceabilities affecting airworthiness are recorded and rectified;
  - (j) procedures for advising the Director-General of Civil Aviation, or relevant State of Registry as applicable, of any significant in-service occurrences.

(4) An AWC holder must update its approved Maintenance Control Manual in a timely manner, except that no amendment or revision may be made to the Maintenance Control Manual unless the Director-General of Civil Aviation —

- (a) requests that the amendment or revision be made to the Maintenance Control Manual; or
- (b) approves the amendment or revision to be made to the Maintenance Control Manual.

(5) An AWC holder must establish procedures to ensure that the Maintenance Control Manual being used by its personnel contains current information.

### **Document retention period**

**54.** An AWC holder must ensure that the documents, information or records listed in the Sixth Schedule to the Air Navigation (91 — General Operating Rules) Regulations 2018 are stored for their respective retention periods prescribed in that Schedule.

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PART 3  
MISCELLANEOUS

**Fees**

**55.**—(1) The Second Schedule sets out the fees for the following:

- (a) the issue, validation, renewal, extension or variation of a certificate, licence or other document (including an application for, or the issue of a copy of, any such document) under these Regulations;
- (b) the undergoing of any audit, inspection or investigation required by these Regulations;
- (c) the grant of any permission or approval required by, or for the purpose of, these Regulations.

(2) The Director-General of Civil Aviation may, in any particular case, waive or refund in whole or in part any fee payable under these Regulations on such terms and conditions as the Director-General of Civil Aviation thinks fit.

**Penalties**

**56.**—(1) Subject to paragraphs (2) and (3), where the Authority is of the opinion that an AWC holder is contravening, has contravened or has failed to comply with any provision in Part 2 being a contravention that is not an offence under the Act, the Authority may direct the AWC holder to pay a financial penalty not exceeding the higher of the following:

- (a) \$500,000;
- (b) 5% of the AWC holder's annual revenue derived from the regulated activity.

(2) Before exercising any power under paragraph (1), the Authority must give written notice to the AWC holder concerned —

- (a) stating that the Authority intends to impose on the AWC holder a financial penalty under this regulation;
- (b) specifying each instance of non-compliance that is the subject of the financial penalty; and

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(c) specifying the time (being not less than 14 days after the service of notice on the AWC holder) within which written representation may be made to the Authority with respect to the non-compliance that is the subject of the financial penalty.

(3) The Authority may, after considering any written representations under paragraph (2)(c), decide to impose such financial penalty under paragraph (1) as the Authority considers appropriate.

(4) Where the Authority has made any decision under paragraph (3) against any AWC holder, the Authority must serve on the AWC holder concerned a notice of its decision.

(5) To avoid doubt, this regulation does not affect the operation of section 4C, 4D or 4E of the Act.

(6) In this regulation —

“annual revenue” means the total amount of money received by an AWC holder in the calendar year during which the AWC holder contravened or failed to comply with a provision in Part 2 being a contravention that is not an offence under the Act;

“regulated activity” means the flights or operations under these Regulations which an AWC holder has the requisite approval to conduct.

### **Grant of approvals or acceptances**

**57.—**(1) To avoid doubt, other than an aerial work certificate granted or renewed by the Authority under regulation 6, an approval or acceptance that is granted by the Director-General of Civil Aviation when an Operations Manual, Maintenance Control Manual or any other manual or document is approved is not an aviation safety instrument.

(2) Where an application is made for an approval or acceptance to be granted by the Director-General of Civil Aviation under these Regulations, the application must —

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- (a) be made by the relevant person in such form and manner as the Director-General of Civil Aviation may specify; and
- (b) provide such information as the Director-General of Civil Aviation may require.
- (3) The Director-General of Civil Aviation may grant an approval or acceptance under these Regulations subject to such conditions as the Director-General of Civil Aviation considers necessary or expedient.
- (4) The Director-General of Civil Aviation may withdraw an approval or acceptance, or impose, add, delete, substitute or modify conditions in respect of any such approval or acceptance if —
- (a) the Director-General of Civil Aviation considers such action necessary to ensure compliance with these Regulations or any other applicable aviation safety subsidiary legislation; or
- (b) the Director-General of Civil Aviation is satisfied that there is or is likely to be a failure to comply with these Regulations or any other applicable aviation safety legislation.
- (5) In this regulation, “relevant person” means the employee of the AWC holder’s organisation who is responsible for applying to the Authority for a specific approval or acceptance under these Regulations.

## PART 4

### SAVING AND TRANSITIONAL PROVISIONS

#### **Saving and transitional provisions**

**58.**—(1) Every approval to an operator to conduct any aerial work operations, which is granted under paragraph 87 of the Air Navigation Order as part of an air operator certificate and in force immediately before 1 October 2018 is, so far as it is not inconsistent with the provisions of these Regulations, to continue as if it is an aerial work certificate granted under regulation 6.

(2) Where —

- (a) an application is made for an approval to conduct aerial work operations as part of an application under paragraph 87(2) of the Air Navigation Order for the grant or approval of an air operator certificate; and
- (b) the application mentioned in sub-paragraph (a) is pending before the Chief Executive on 1 October 2018,

the part of the application pertaining to the approval to conduct aerial work operations is to be treated as if the application was made to the Director-General of Civil Aviation under regulation 5.

## FIRST SCHEDULE

Regulation 2

### DEFINITIONS

“Aerial work certificate” means an aviation safety instrument issued by the Authority under the Regulations which authorises the holder of the certificate to carry out an aerial work operation that is stated in the certificate.

“Approved flight simulation training device” means a flight simulation training device which the AWC holder has a specific approval, granted in accordance with paragraph 23A of the Air Navigation Order, to use for the purpose that it is being used for in these Regulations.

*[S 682/2018 wef 09/10/2018]*

“Contaminated”, in relation to a runway, means the runway has more than 25% of the runway surface area (whether isolated or not) within the required length and width of the runway surface being used covered by the following:

- (a) surface water or slush more than 3 mm (0.125") deep;
- (b) loose snow, equivalent to more than 20 mm (0.75") of water;
- (c) compacted snow or ice, including wet ice.

“Dry”, in relation to a runway, means a runway that is clear of contaminants and visible moisture within the required length and width of the runway surface being used.

FIRST SCHEDULE — *continued*

“Human factors principles” means the principles which —

- (a) apply to aeronautical design, certification, training, operations and maintenance; and
- (b) seek safe interface between the human and other system components by giving proper consideration to human performance.

“Maintenance Control Manual” means a manual of that name, or an equivalent document, which describes an AWC holder’s procedures to ensure that all scheduled and unscheduled maintenance is performed on the AWC holder’s aircraft on time and in a controlled and satisfactory manner.

“Operations Manual” means a manual of that name, or an equivalent document, that contains the procedures, instructions and guidance for use by operations personnel in the execution of their duties.

“Safety management system” means a systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies and procedures of an AWC holder.

“Task specialist” means a crew member who is not a member of the flight crew or cabin crew and who carries out duties on board the aircraft which are essential to the purpose of the flight.

“Wet”, in relation to a runway, means a runway that is neither dry nor contaminated.

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 SECOND SCHEDULE

Regulations 5(1)(b), 12(1) and 55

## FEES

<i>Item</i>	<i>Fee payable</i>
1. Fee for the evaluation of a person's competency in order to grant an aerial work certificate	\$66,000
2. Daily fee for a function carried out by a safety inspector —	
(a) where the function is performed on or after 1 April 2018 but before 1 April 2019 —	
(i) by a flight operations safety inspector;	\$1,400
(ii) by any other safety inspector;	\$700
(b) where the function is performed on or after 1 April 2019 but before 1 April 2020 —	
(i) by a flight operations safety inspector;	\$1,700
(ii) by any other safety inspector;	\$900
(c) where the function is performed on or after 1 April 2020 but before 1 April 2021 —	
(i) by a flight operations safety inspector;	\$2,000
(ii) by any other safety inspector;	\$1,200
(d) where the function is performed on or after 1 April 2021 —	
(i) by a flight operations safety inspector;	\$2,400
(ii) by any other safety inspector.	\$1,500
3. Issue of a copy or a replacement of any document issued under these Regulations.	\$33 per copy

[S 215/2020 wef 01/04/2020]

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## THIRD SCHEDULE

Regulation 14

### SAFETY MANAGEMENT SYSTEM

1. The safety management system required under regulation 14 must comprise the following 4 components:

- (a) safety policy and objectives:
  - (i) the management's commitment to safety;
  - (ii) the responsibilities of safety personnel, and their safety accountability;
  - (iii) the appointment of key safety personnel;
  - (iv) the coordination for emergency response planning;
  - (v) the documentation of the safety management system;
- (b) safety risk assessment:
  - (i) the identification of hazards;
  - (ii) the safety risk assessment and mitigation;
- (c) safety assurance:
  - (i) the measuring and monitoring of safety performance;
  - (ii) the details of change management;
  - (iii) the continuous improvement of the safety management system;
- (d) safety promotion:
  - (i) the training and education regarding safety management;
  - (ii) the communication on safety.



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## FOURTH SCHEDULE

Regulation 52

### CONTENTS OF OPERATIONS MANUAL

1. The Operations Manual established and maintained under regulation 52 must include the following elements:

- (a) a table of contents;
- (b) the duties, responsibilities and succession of management and operating personnel;
- (c) the details of the AWC holder's safety management system;
- (d) the AWC holder's system of operational control;
- (e) the minimum equipment list procedures, where applicable;
- (f) the procedures for normal, abnormal and emergency situations;
- (g) the standard operating procedures;
- (h) the weather limitations;
- (i) the AWC holder's fatigue management programme;
- (j) the procedures on managing an accident or incident;
- (k) personnel qualifications and training;
- (l) the details of record keeping;
- (m) a description of the AWC holder's maintenance control system;
- (n) the details for operations over a hostile environment.

Made on 16 August 2018.

EDMUND CHENG WAI WING  
*Chairman,*  
*Civil Aviation Authority of*  
*Singapore.*

[LE/LGN/A1.8; AG/LLRD/SL/6/2010/17 Vol. 1]

(To be presented to Parliament under section 3A(8) of the Air Navigation Act).