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**AIC for Malaysia**

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04/2008  
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to PERM  
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# UNMANNED AERIAL VEHICLE (UAV) OPERATIONS INMALAYSIAN AIRSPACE

## 1 INTRODUCTION

1.1 This AIC is issued in the exercise of the powers conferred under Section 24[O] of the Civil Aviation Act 1969.

## 2 POLICY

2.1 It is the policy of the Department of Civil Aviation, Malaysia (DCA) that UAVs operating in Malaysia must meet or exceed the safety and operational standards as those for manned aircraft. Thus, UAV operations must be safe as manned aircraft insofar so they must not present or create a hazard to persons or property in the air or on the ground greater than that attributable to the operations of manned aircraft of equivalent class or category.

2.2 UAVs shall not be flown without obtaining prior relevant DCA approval.

## 3 DEFINITION

3.1 For the purposes of this AIC a UAV is defined as:

'An aircraft which is designed to operate with no human pilot on board'

## 4 LEGAL CONSIDERATION

### 4.1 The Chicago Convention

4.1.1 As a signatory to the Chicago Convention (the Convention) and a member of the International Civil Aviation Organization (ICAO), Malaysia undertakes to comply with the provisions of the Convention and Standards contained in the Annexes to the Convention.

4.1.2 Article 3 of the Convention provides that the Convention applies only to civil aircraft and not to State aircraft. State aircraft are defined as being aircraft used in military, customs and police services. No State aircraft may fly over the territory of another State without authorization. Contracting States, when issuing Regulations, undertake that State aircraft will have due regard for the safety of navigation of civil aircraft.

4.1.3 Article 8 of the Convention provides that no aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a Contracting State without special authorization by that State.

### 4.2 Civil Aviation Regulations 1996 (CAR 1996)

4.2.1 For purposes of licensing requirements, UAV operators shall refer to CAR 1996 REG 41 (Eight Schedule – Part 2, (2)) and for purposes of ATC compliance, UAV operators shall refer to CAR 1996 REG 89 (Eleventh Schedule).

## 5 REQUIREMENTS

5.1 Any civil UAV of more than 20 kg (MTOW) will be required to undergo a DCA Airworthiness certification process.

5.2 Any civil UAV shall, under Malaysia aviation safety legislation, comply with civil requirements. This does not apply to police, customs or other similar services.

5.3 A civil UAV registered in Malaysia must have either a certificate of airworthiness or a permit to fly issued by DCA Malaysia.

5.4 An exception to this requirement is small aircraft. For the purposes of this AIC, a small aircraft is defined as any unmanned aircraft weighing not more than 20 kg. However, the small aircraft has a prohibition on flight in controlled airspace or within an aerodrome traffic zone, unless in either case the permission of the air traffic control unit has been obtained, a normal maximum height of 400 feet above the surface and a prohibition on flight for the purposes of aerial work.

5.5 These rules for 'small aircraft' have been principally developed for the purpose of regulating recreational model aircraft flying.

5.6 Operators of aircraft, irrespective of the purposes for which they fly, are required to hold adequate levels of insurance in order to meet their liabilities in the event of accident.

## 6 CERTIFICATION & REGISTRATION

6.1 Applications or enquiries relating to the certification of UAVs within the scope of DCA should be addressed directly to Airworthiness Division, DCA Malaysia.

6.2 The registration requirements for UAVs are the same as for any other powered aircraft. Exceptions are made for aircraft weighing not more than 20 kg.

## 7 OPERATOR QUALIFICATIONS

7.1 In anticipation of wider operations of UAVs, the word 'crew' is used to mean flight crew, that is, the UAV Commander (UAV – c) and the UAV Pilot (UAV – p), each of whom is a crew member.

7.1.1 UAV Commander. Every flight of a UAV must be under the command of a UAV – c. The UAV – c is a qualified person (minimum qualification – hold a valid Private Pilot's License (PPL) Malaysia) who is overall in charge of, and responsible for, a particular UAV flight or flights. The UAV-c must meet the training, qualifications, proficiency and currency requirements stated in the approved Flight Operations Manual of the operating organization.

The UAV Commander can:

- a. be in direct control of the vehicle by remote controls; or
- b. co-located with the UAV-p; or
- c. monitoring the state and progress of the vehicle at the flight deck location in the Ground Control Station (GCS).

7.1.2 UAV Pilot. The UAV-p is a qualified person (**minimum qualification – hold a valid Private Pilot's License (PPL) Malaysia**) who is actively exercising remote control of the non-autonomous UAV flight, or monitoring an autonomous UAV flight. The UAV-p may or may not be the UAV – c. **The UAV-p must meet the training, qualifications, proficiency and currency requirements stated in the approved Flight Operations Manual of the operating organization.**

7.2 The UAV – c is tasked with overall responsibility for the operation and safety of the vehicle in flight and must be fully trained and qualified to assume these responsibilities. The UAV – c therefore assumes the same operational and safety responsibilities as those of the captain or pilot-in-command of a piloted aircraft performing a similar mission in similar airspace.

7.3 For all flights, the UAV – c must be licensed (minimum - PPL) and appropriately rated according to airspace qualification and meteorological conditions/flight rules.

7.4 The Flight Operations Manual of the UAV Operating Organization must specify the required qualifications and levels of training and proficiency for flight crew members, that is, for the UAV Commander and UAV-p. The following aspects shall be addressed:

- a. Aeronautical knowledge;
- b. Knowledge of critical systems of the relevant UAV;
- c. Manned aircraft pilot qualifications;
- d. Communications procedure;
- e. UAV flight training levels;
- f. Flight proficiency and currency with the relevant UAV; and
- g. Meteorology.

## 8 FLYING OPERATIONS

8.1 Malaysia's legislation is designed to enable manned aircraft to fly safely in various classes of airspace and UAV operators should seek to operate within existing arrangements.

8.2 UAVs will not have an automatic right to airspace use if safety provisions cannot be met.

8.3 In order to intergrate with other airspace users, UAV operators must ensure that their aircraft show an equivalent level of compliance with their rules and procedure that apply to manned aircraft.

8.4 UAV operators should recognize the expectations of other airspace users, which are

- a. that the routine flight for any UAV outside Malaysia's danger area will not increase the risk to existing users: and
- b. existing users are not denied the use of such airspace.

8.5 The provision of an Air Traffic Services (ATS) to a UAV must be transparent to the ATC controller. In other words, the controller must not have to do anything different using radiotelephony that he would with other aircraft under his control. Nor should he have to apply different rules or work to different criteria. UAVs must be able to comply with ATC instructions and with equipment requirements applicable to the class of airspace within which they intend to operate.

## 9 GENERAL PRINCIPLES FOR UAV OPERATIONS IN MALAYSIA AIRSPACE

9.1 For all flights outside Danger Areas or reserved (exclusive use) airspace, the vehicle performance and all communications with ATC must be continuously monitored by the UAV-p. The UAV-p must be capable of taking immediate active control of the UAV at all times, and comply with ATC instructions.

9.2 Special equipment (e.g. SSR) mandated for manned aircraft in certain classifications of airspace shall also be fitted to UAVs intended for use in such airspace. Such equipment should be regarded as a minimum.

9.3 Standard Operating Procedures are required and will include:

- a. Take-off and landing procedure;
- b. Loss of control data link; and
- c. Abort procedure following critical system failure.

## 10 CROSS BORDER OPERATIONS

10.1 10.1 Article 8 of the Convention on International Civil Aviation ('Chicago Convention') states that:

"No aircraft capable of being flown without a pilot shall be flown over the territory of a contracting State without special authorization by that State and in accordance with the terms of such authorization. Each contracting State undertakes to insure that the flight of such an aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft"

10.2 For the purposes of the Convention the territory of a State shall be deemed to be the land areas and territorial waters adjacent thereto under sovereignty, suzerainty, protection or mandate of such state (Chicago Convention Article 2).

## 11 AIR TRAFFIC MANAGEMENT (ATM) PROCEDURES

11.1 Individual Air Traffic Services (ATS) units may provide services within clearly defined geographic boundaries (such as a specific portion of airspace) or may provide services within a general area (for example, in the vicinity of an aerodrome).

11.2 The rules pertaining to aircraft flight and to the air traffic service provided will be determined by a number of factors (including airspace categorization, weather conditions, aircraft flight rules and type of air traffic rules and type of aircraft service unit).

11.3 Not all aircraft within the same geographic area will necessarily be in communication with the same ATS unit or operating under the same rules.

11.4 It is important that those managing UAV operations shall be familiar with the relevant rules and procedures applicable within any airspace through which the aircraft will be flown.

11.5 UAV operation is expected to be transparent to ATS providers. The UAV-p will be required to comply with any air traffic control instruction or a request for information made by an ATS unit in the same way and within the same time frame that the pilot of a manned aircraft would. These instructions may take a variety of forms and, for example, may be to follow another aircraft or to confirm that another aircraft is in sight.

11.6 Further information about classification of airspace and flight rule can be found in CAR 1996, REG. 89 (Eleventh Schedule) and AIP Malaysia.

## **12 INCIDENT/ACCIDENT REPORTING PROCEDURES**

12.1 Reportable occurrence is prescribed in CAR 1996, REG 195 and Thirteenth Schedule paragraph 13.

12.2 Reports shall be dispatched within 48 hours of the occurrence coming to the knowledge of the person making the report. Should this report be incomplete, a further report containing this information must be made within 48 hours of the information becoming available.

12.3 Report forms are as follows:

- a. Occurrence Report - see attachment A; and
- b. Air Traffic Incident Report Procedure – refer AIP Malaysia ENR 1.14

12.4 Occurrence Report Forms are to be sent to the:

Post:

Chief Inspector for Air Accidents  
Department of Civil Aviation, Malaysia  
No. 27, Persiaran Perdana  
Level 2, Podium Block, Precint 4  
62618 Putrajaya.

Tel: +603 8871 4000  
Fax: +603 8871 4069

and copy to Flight Operation Division

Fax: +603 8871 4334

## **13 CONCLUSION**

13.1 This Circular is issued to highlight that all UAV Operators flying in Malaysia must strictly adhere to the requirements set above and comply with the rules and regulations in the CAR 1996.

**DATO' AZHARUDDIN ABDUL RAHMAN**

**Director General**

**Department of Civil Aviation**

**Malaysia**

**OCCURRENCE REPORT**

Department of Civil Aviation  
Malaysia

Attachment 'A'  
(DCA Borang 9-OR)

To be sent to: Flight Operation Division  
Fax No: 03-8871 4334  
**PLEASE COMPLETE IN BLACK INK**

Complete all sections where information is relevant. For multi-choice boxes, indicate which entry is appropriate.				Date received by DCA		DCA Occurrence No.			
Aircraft Type and Series		Registration		Operator		Date of Occurrence	Flight Phase	Nature of Flight	
1		2		3		4	22	23	
<b>FLIGHT AND WEATHER DETAILS</b>							PARKED	PAX	
							TAXIING	FREIGHT	
							TAKE-OFF	SURVEY	
Flight No.	DAY	Wind	Runway Used	Precipitation		Icing	Turbulence	INIT CLIMB	PLEASURE
5	NIGHT	12	16	18	19	20	CLIMB	AGRICULTURAL	
From	TWILIGHT	IAS	State	RAIN	LIGHT	LIGHT	CRUISE	BUSINESS	
6	9	13	16	SNOW	MOD	MOD	DESCENT	CLUB/GROUP	
To	Time	HT/ALT/FL	17	FLEET	HEAVY	MOD	SEVERE	HOLDING	PRIVATE
7	10	14	17	HAIL	HEAVY	HEAVY	EXTREME	APPROACH	POSITIONING
Geog. Position	Visibility	OAT	ICE	Cloud Type Height/ft Amount/ths				LANDING	FERRY
8	11	15	15					SNOW	SLUSH
<b>NARRATIVE</b>							ARROBATICS	TRAINING	
							HOVER	PARACHUTING	
								TOWING	
Continue on back									
ENGINEERING DETAILS		Aircraft Constructor's No.		Engine Type & Series		Ground Phase			
		25		26		Maintenance			
						Ground Handling			
						Taxi			
						Unattended			
						27			
Component/Part		Location on aircraft		Manual Reference		Maintenance Organisation		33 Mainte Prog	
						31		O.C.	C.M.
						Tel. No.		H.I.	
						32			
Manufacturer		Part No.		Serial No.		HOURS/ CYCLES/ LANDINGS	TOTAL	Since O/H or repair	Since Inspection
34		29		30		37	38	39	40
									Manufacturer Advised
									YES
									NO
									41
Is there any published Airworthiness information or control procedures (e.g. AD, SB etc) relevant to occurrence		Reference No. and Compliance Status of Aircraft or Equipment:							
42 YES NO									
Report ORIGINAL SUPPL.		If report is submitted Voluntarily (i.e. not subject to mandatory requirements)		Organisation		Address and Tel. No. (If reporter wishes to be contacted privately)			
43				48					
Reporter's investigation NIL OPEN CLOSED		46		Position					
44				49					
Flight Date Record Held		Can the information be disseminated in the interest of safety		Reference No.		Date		Name	
45 YES NO		47 YES NO		50		51		53	
								Signature	