



SUA Operations Manual Template Guide

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Purpose

The purpose of the Operations Manual Template Guide is to describe what should be included in each field of the BCAA Operations Manual Template. The primary goal of the SUA Operations Manuals is to provide a template for operators applying for an Aerial Work Permission for commercial use of their SUA. The scope of this manual is to increase safety of SUA operations by providing detailed guidance to the general public on the applicability and legality of SUA, better known as drones. This manual is one of the requirements needed to demonstrate to the Bermuda Civil Aviation Authority (BCAA) of safe and legal operating practices. The BCAA has direct jurisdiction over the airspace in and around Bermuda and regulates this airspace using the authority granted by Air Navigation Overseas Territories Order as amended.

SUA have become easily available to the public, but education hasn't quite evolved with the industry fast enough. Information about proper use of these aircraft all over the world has lagged behind the rapidly developing industry. Safety and legality are the top priorities at the BCAA and this guidance will be aimed at Operators who wish to use their SUA for Aerial Work. However, recreational operators may be educated greatly by the information provided. This information will be particularly useful to recreational operators to better understand applicable regulations, proper safety procedures for use and communication outlets for emergency situations.

This operations manual guide hopes to provide a clear outline of what is expected of operators through a document specifying requirements for an operation with SUA of less than 20kg. Special emphasis will be places on safety at particular locations within Bermuda. Certain areas of the island possess more to risks and legal issues than others. Some examples of areas where guidance will be provided by this manual are:

- Common SUA and relevant aviation terminology
- SUA restrictions on private operations

- Operations near the L F Wade International airport and relevant procedures
- When personal drones are used for surveillance, media, or commercial use
- “Aerial work” definition and steps to complete this permit process
- Details for persons and companies to become Approved SUA Operators or Aerial Work Permission Holders and receive a Special Operators Certificate (SOC)
- Regulation and recommended operational procedures for companies utilizing SUAs in Bermuda’s Airspace

Definitions

AGL – Above Ground Level

AM – Accountable Manager

AME – Aviation Medical Examiner

AN(OT)O – Air Navigation (Overseas Territories) Order 2013

AOO – Area of Operations

ARP – Aerodrome Reference Point

ARTCC – Air Route Traffic Control Center

ATC – Air Traffic Control

ATS – Air Traffic Services

AV- Air Vehicle

BCAA – Bermuda Civil Aviation Authority

CAA – Civil Aviation Authority (United Kingdom)

CIC – Controller In Command

CTA – Control Area

CTR – Control Zone

DO – Designated Observer

ECP – Emergency Contingency Plan

FAA – Federal Aviation Administration

FAQ – Frequently Asked Questions

FPV – First Person View

GCS – Ground Control Station

GPS – Global Positioning System

ICAO – International Civil Aviation Organisation

LOS – Line of Sight

MB – Millibars

MSL – Mean Sea Level

NOTAM – Notice to Airmen

OTARs – Overseas Territories Aviation Requirements

PIC – Pilot in Command

RMA – Risk Management Analysis

RTH – Return to Home

SM – Statute Miles

SOC – Special Operator’s Certificate

SUA – Small Unmanned Aircraft

SUSA – Small Unmanned Surveillance Aircraft TXKF – ICAO Airport Identifier for L F Wade International Airport

UAS – Unmanned Aerial System

UAV – Unmanned Aerial Vehicle

UTC – Universal Time Coordinated

VFR – Visual Flight Rules

VLOS – Visual Line of Sight

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Section 1

About this Manual

This manual should provide an outline which SUA operators may use to build a detailed yet concise Operations Manual. It shall contain the procedures and policies that govern SUA operations. The company should use this manual as a guide for operational procedures and not just to complete regulatory requirements.

A copy of this manual must be available to each member of the company's SUA operations staff at all times once it is accepted by the BCAA. This manual shall be updated with any pertinent changes such as Operational Control personnel, SUA, regulatory and company scope adjustments. Version numbers are suggested and any updates to the manual shall be sent to the BCAA.

In this space, the company shall also have a compliance statement explaining that company personnel will adhere to the manual. It is management's responsibility that all operational instructions contained shall be understood by the staff.

1.1 Regulatory Guidance

- 1) AN(OT)O 2013 Article 73 is in Appendix B section B.1.
- 2) AN(OT)O 2013 Schedule 4 – Rules of the Air is available as a link in Appendix B section B.2
- 3) The United Kingdom CAP 722 “Unmanned Aircraft Systems Operations in UK Airspace - Guidance” is available as a link in Appendix B section B.3.
- 4) AN(OT)O 2013 Article 126&127 “Aerial Work” is in Appendix C sections C.1 and C.2
- 5) AN(OT)O 2013 Article 174 is in Appendix E.

1.2 Control and Amendment

In this section the operator shall outline who will be responsible for:

- authorizing changes to the manual
- maintaining currency and updating revisions of the manual
- taking suggestions for updates of the manual
- distribution of the manual to the company's SUA staff

Examples of roles which these responsibilities may fall are the Operations Manager (OM), Chief Pilot, Accountability Manager (AM), Director of Operations, Media Manager, etc. All changes made to this manual must be sent and accepted by BCAA before being distributed to the company's SUA operations staff members.

1.3 List of Effective Pages

Table 1.1: List of Effective Pages

Page	Section	Revision	Page	Section	Revision
Page 1	Title	Issue 1 Rev. 0	Page 36	Section 7	Issue 1 Rev. 0
Page 2	Purpose	Issue 1 Rev. 0	Page 37	Section 7	Issue 1 Rev. 0
Page 3	Purpose	Issue 1 Rev. 0	Page 38	Section 7	Issue 1 Rev. 0
Page 4	Definitions	Issue 1 Rev. 0	Page 39	Section 7/8	Issue 1 Rev. 0
Page 5	Definitions	Issue 1 Rev. 0	Page 40	Section 8	Issue 1 Rev. 0
Page 6	Contents	Issue 1 Rev. 0	Page 41	Section 8	Issue 1 Rev. 0
Page 7	Contents	Issue 1 Rev. 0	Page 42	Section 8	Issue 1 Rev. 0
Page 8	Contents	Issue 1 Rev. 0	Page 43	Section 8	Issue 1 Rev. 0
Page 9	Section 1	Issue 1 Rev. 0	Page 44	Section 8/9	Issue 1 Rev. 0
Page 10	Section 1	Issue 1 Rev. 0	Page 45	Section 9	Issue 1 Rev. 0
Page 11	Preliminaries	Issue 1 Rev. 0	Page 46	Appendix A	Issue 1 Rev. 0
Page 12	Section 2	Issue 1 Rev. 0	Page 47	Appendix A	Issue 1 Rev. 0
Page 13	Section 2	Issue 1 Rev. 0	Page 48	Appendix B	Issue 1 Rev. 0
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Page 15	Section 2	Issue 1 Rev. 0	Page 50	Appendix C	Issue 1 Rev. 0
Page 16	Section 2	Issue 1 Rev. 0	Page 51	Appendix D	Issue 1 Rev. 0
Page 17	Section 2	Issue 1 Rev. 0	Page 52	Appendix D	Issue 1 Rev. 0
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Page 19	Section 2	Issue 1 Rev. 0	Page 54	Appendix E	Issue 1 Rev. 0
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Page 27	Section 4	Issue 1 Rev. 0	Page 62	Sources	Issue 1 Rev. 0
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Page 31	Section 4	Issue 1 Rev. 0			
Page 32	Section 4/5	Issue 1 Rev. 0			
Page 33	Section 5	Issue 1 Rev. 0			
Page 34	Section 6	Issue 1 Rev. 0			
Page 35	Section 6/7	Issue 1 Rev. 0			

Section 2

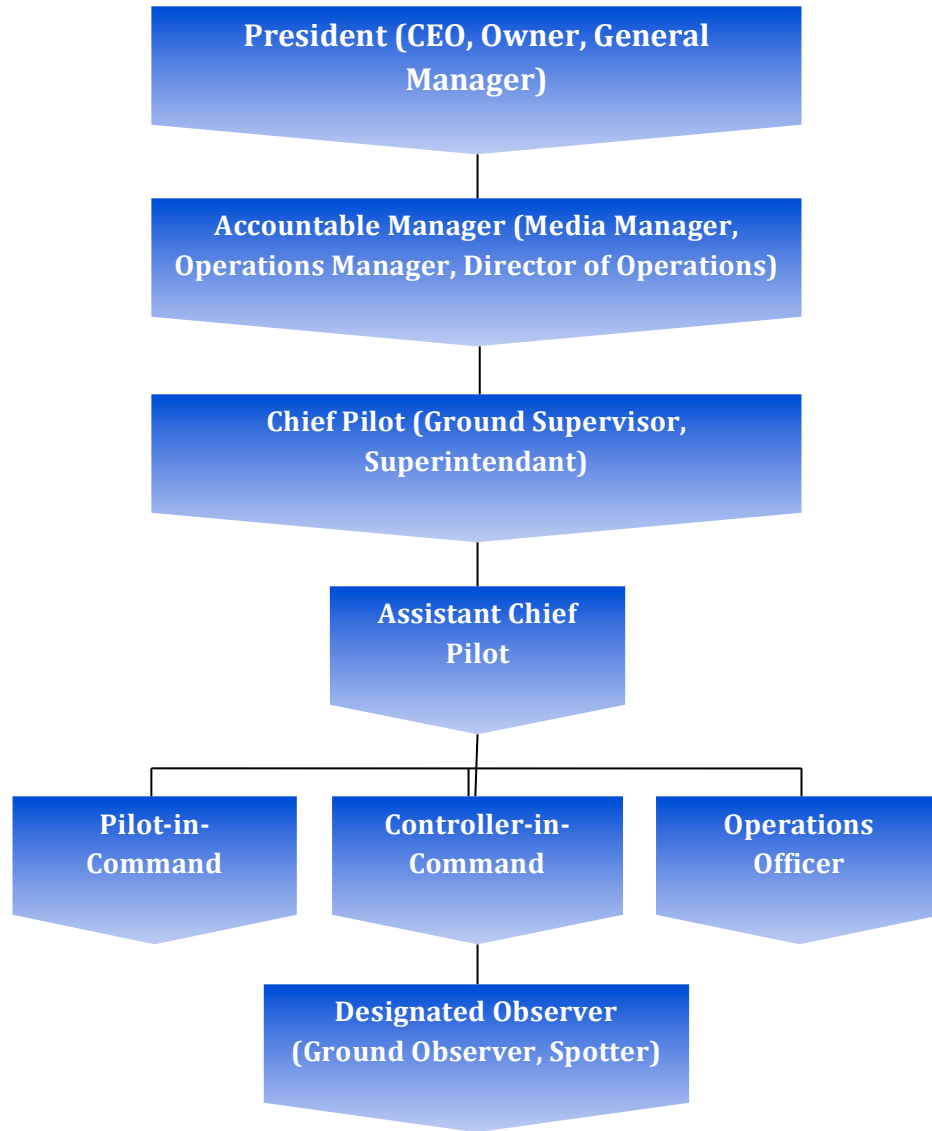
Company Structure and Overview

2.1 Company Structure and Overview

In this section the operator should show and/or explain the company structure. It should show which position is the manager or supervisor and which positions report to the supervisory role(s). As in [Figure 2.1](#), larger organisations may show multiple layers of the department and how it may branch off from its main business. The organisation structure does not have to show a representation of the entire company. The structure should however show the area of the company which pertinent nominated personnel for SUA operations and accountability reside. For example, a media company does not have to show all members of the staff but only the members which the SUA department reports to.

Smaller companies comprised of a 1-3 people will not have to provide a graphic but a brief explanation will suffice. Figures are not required but can provide a better understanding for the BCAA to provide oversight. Figures may also allow increased efficiency for communication in the future for legislation changes and renewal purposes. [Figure 2.1](#) shows an example of a large SUA operational structure and can be modified for your company's scale and roles. Roles in brackets are other examples of the position stated.

Figure 2.1: Example Organisation Chart



2.2 Company Address

In this section the operator should show the address which mail correspondence can be accomplished with the BCAA. Example address provided below.

Drone Ltd.
ATTN: John Doe
101 Front Street,
P.O. Box HM 101,
Hamilton HM DX,
Bermuda

2.3 Company Contact Information

This area should provide information on how the BCAA can contact the company through various means of communication. Information should include company email, website, telephone number, and fax (if applicable). Table 2.1 shows a sample company and its contact information.

Table 2.1 Sample Company Contact Information

Drone LTD. Contact Information	
Email:	ops@droneltd.bm
Website:	www.droneltd.bm
Phone:	1 (441) 123-1234
Fax:	1 (441) 123-1235

2.4 Forms

This area should be reserved for any applicable forms the operator will use for general operations. Examples of such forms are pre-flight checklists, pre-flight survey, incident/accident reporting, and flight logs. [Table 2.2](#) show's BCAA's recommended SUA

Flight Log form. This form may be utilized to gather data from the field which then can be used to optimize operations. This data may also allow the company to be more efficient and identify trends to increase safety and produce improved operational procedures.

[Table 2.3](#) is a sample Incident Log which can be used in the event of incident which presents a danger to persons or property. It can be a useful tool to gather data to be analysed later to prevent similar events reoccurring. [Table 2.4](#) shows a suitable SUA checklist for most operations. This ensures most factors have been taken into account. Similarly, [Table 2.5](#) exhibits a survey approach to the pre-flight to ensure influential factors are taken into account. The BCAA suggests either the use of Table's 2.4 or 2.5 for pre-flight action taken by the part of the PIC or CIC. A PDF form version is available for Table 2.2, 2.3 and 2.5 to use electronically in the field and can be found on the BCAA website.