Defence Safety Authority

# Defence Aerodrome Manual (DAM)

# RAF Marham

## Annex AA – Civil Air System Usage – Terms and Conditions

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## 1ST PARTY ASSURANCE

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## AMENDMENT TABLE

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| | | | | |

# ANNEX AA: CIVIL AIR SYSTEM USAGE – TERMS AND CONDITIONS

**AA.1 Civil Air System Usage**

Orders for the civil use of MOD aerodromes is available within the Use of Military Aerodromes by British & Foreign Civil Air system document (formerly the JSP360). Civilian operators unable to access this document are to contact Station Operations for further information. All Civilian Users are to operate iaw extant Department for Transport National Aviation Security Programme and wider Air Transport Security protocols. The attention of civil pilots is also drawn to the CAA Safety Sense Leaflet 26 – 'Visiting Military Aerodromes' accessible on the CAA web site.

Civil air system operators should note the strict requirement for a minimum of 24 Prior Permission Required (PPR) to use RAF Marham. Visiting air systems may be booked through RAF Marham Station Operations on 01760 446240 from civilian telephone networks or 95951 6240 from military networks or by email via MRM-OpsDOOGroup@mod.gov.uk.

**AA.2 Opening Hours for Civilian Users**

Airfield operating hours for civilian users are predominantly 0800-1700 Mon-Fri, with generally no acceptance on weekends and public holidays. However, the operating hours may vary in line with the station flying window. More information can be found by contacting Station Operations.

**AA.3 Terms and Conditions**

The Terms and Conditions may be varied at any time by the Aerodrome Operator to reflect any changes, amendments or additions to working practices at the specific aerodrome. Factors may include some, or all of the following:

a. Winter operations
b. Operational support
c. Passenger handling
d. Animal handling
e. Refueling services
f. Catering
g. Air system maintenance
h. Security
i. Flight safety
j. Air system handling
k. Airworthiness

Whilst the AO will use all reasonable endeavors to advise Civilian Users of any changes to the Terms and Conditions, it will be for the Civilian Users to ensure that they are aware of extant Terms and Conditions. The AO will not be liable for any loss or damage (whether direct or indirect) arising out of any change in the Terms and Conditions.

**AA.4 Charter Airlines**

Charter (airline) operations and Scheduled Air System operations are not permitted to operate from RAF Marham.

**AA.5 Port of Entry**

RAF Marham is not a designated Port of Entry and has no permanent HMRC/UKBA presence. Any flight arriving/departing from overseas must be with prior approval from HMRC/UKBA as agreed with RAFP, and a General Aviation Report must be submitted by the Aircraft captain.

**AA.6 Local or National Emergency**

In the event of a Local or National Emergency whether declared or not the aerodrome may be closed to civilian operators. A non-exhaustive list of potential circumstances includes:

a. Loss of appropriate Fire or Crash cover.
b. Repatriation of troops.
c. Loss of power to all, or parts, of the aerodrome.
d. Interruptions in communications both within the aerodrome and with external agencies.
e. Unforeseen natural disaster (flooding etc.)
f. Unforeseen national epidemics (e.g., Swine Flu / Covid-19).

Note: In the event of such closure all access to the aerodrome for any reason whatsoever may be restricted and no liability is accepted for any loss or damage (whether direct or indirect) arising.

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## Annex A – Aerodrome Operator Letter of Delegation

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# ANNEX A: AERODROME OPERATORS LETTER OF DELEGATION

**A.1 Letter of Delegation**

Wg Cdr D Clark
OC Ops Wg
RAF Marham
Upper Marham
Kings Lynn
PE33 9NP

**Terms of Reference – RAF Marham Aerodrome Operator's Principal Responsibilities**

1. The Secretary of State (SofS) for Defence set out the requirement for an assurance process to ensure that his policy on safety in Defence is being promoted and implemented in the conduct of Defence activities. In my role as the Head of Establishment (HoE) for RAF Marham I hereby appoint you to be the Aerodrome Operator for RAF Marham. Your primary responsibility is the provision of overarching assurance of the appropriate safety, coherence, risk identification and management of operations at RAF Marham. You are to develop mechanisms and procedures which evidentially will provide me, as the HoE, with the necessary assurance that operations at RAF Marham meet the required Departmental (MAA informed) requirements.

2. In discharging your responsibilities to me for the self-regulation and internal assurance of Air Safety activity, specifically operating procedures, standards and Air Safety, you are to develop, populate and maintain the Defence Aerodrome Manual (DAM) for RAF Marham to include the Defence Aerodrome Assurance Framework (DAAF) which will consolidate existing information on aerodrome facilities and assure appropriate standards are being met in the delivery of Air Safety to all air systems, airborne equipment and systems operating from the aerodrome. In the discharge of your responsibilities, you are to consider the direction set by the MAA.

3. Specifically, you are responsible for:

   a. Supporting me by actively managing the aerodrome environment to accommodate the safe operation of air systems.

   b. Establishing formal mechanisms to ensure robust communication of any hazards and/or issues relevant to me as HoE and/or those ADHs faced by RAF Marham.

   c. Establishing a formal relationship with me, the unit HoE, and other key personalities to ensure any decisions made are cognisant of the impact on Air Safety. These areas for consideration shall include, but are not limited to, facilities, personnel, equipment, and material.

   d. Establishing formal mechanisms to ensure monitoring and assurance of activities, operating procedures, standards and air safety within and interfacing with your AoR.

   e. Ensuring that the RAF Marham DAM is developed according to the output of the aerodrome and in compliance with MAA regulations.

   f. Always ensuring the accuracy of aerodrome data and notification of all aerodrome hazards.

4. In particular, you are to:

a. Provide me with evidence-based assurance of the air safety, operating support and operating aspects of the aerodrome under command. This should include a formal 6-monthly assurance report to me.

b. Ensure that personnel responsible for conducting key roles in implementing the assurance strategy are sufficiently qualified, competent, and trained.

5. If you or your staff become aware of any practice, procedure, or circumstance which casts doubt upon the delivery of air safety at the aerodrome you are to draw the matter to my attention immediately.

6. You are to demonstrate and maintain compliance with the MAA SQEP requirements for Aerodrome Operator.

7. You are to confirm in writing that you have read and understood these Terms of Reference. Your confirmation should evidence the SQEP requirements detailed at para 6 above and set out any constraints and limitations inherent in executing the above duties.

<Original Signed>

P Marr
Gp Capt
Stn Cdr

| A.2 Record of Previous Aerodrome Operators | | | | |
|---|---|---|---|---|
| Date From | Date To | AO | Post | HoE on appointment |
| Aug 12 | Aug 14 | Wg Cdr R O'Connor | OC Ops Wg | Gp Capt C James |
| Aug 14 | Aug 16 | Wg Cdr A Challen | OC Ops Wg | Gp Capt C James |
| Aug 16 | Aug 18 | Wg Cdr P Marr | OC Ops Wg | Gp Capt I Townsend |
| Aug 18 | Jul 20 | Wg Cdr G Prendergast | OC Ops Wg | Gp Capt I Townsend |
| Jul 20 | Aug 20 | Sqn Ldr K Needham | Sqn Ldr Ops Wg | Gp Capt J Beck |
| Aug 20 | Present | Wg Cdr D Clark | OC Ops Wg | Gp Capt P Marr |
| | | | | |
| | | | | |

Note: Renewed on a re-issue. New appointments to be included as above.

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## Annex BB – Safeguarding Requirements, Waivers and Exemptions

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| Version 21-1 | Jul 21 | Re-Issue | Sqn Ldr Steventon | Electronically Signed |
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# ANNEX BB: SAFEGUARDING REQUIREMENTS, WAIVERS AND EXEMPTIONS

## BB.1 Safeguarding Requirements, Waivers and Exemptions

RAF Marham will ensure that aerodrome safeguarding is conducted in accordance with RA 3501-3529. All waivers and exemptions are detailed at Annex F.

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## Annex B – Safety Meeting Structure

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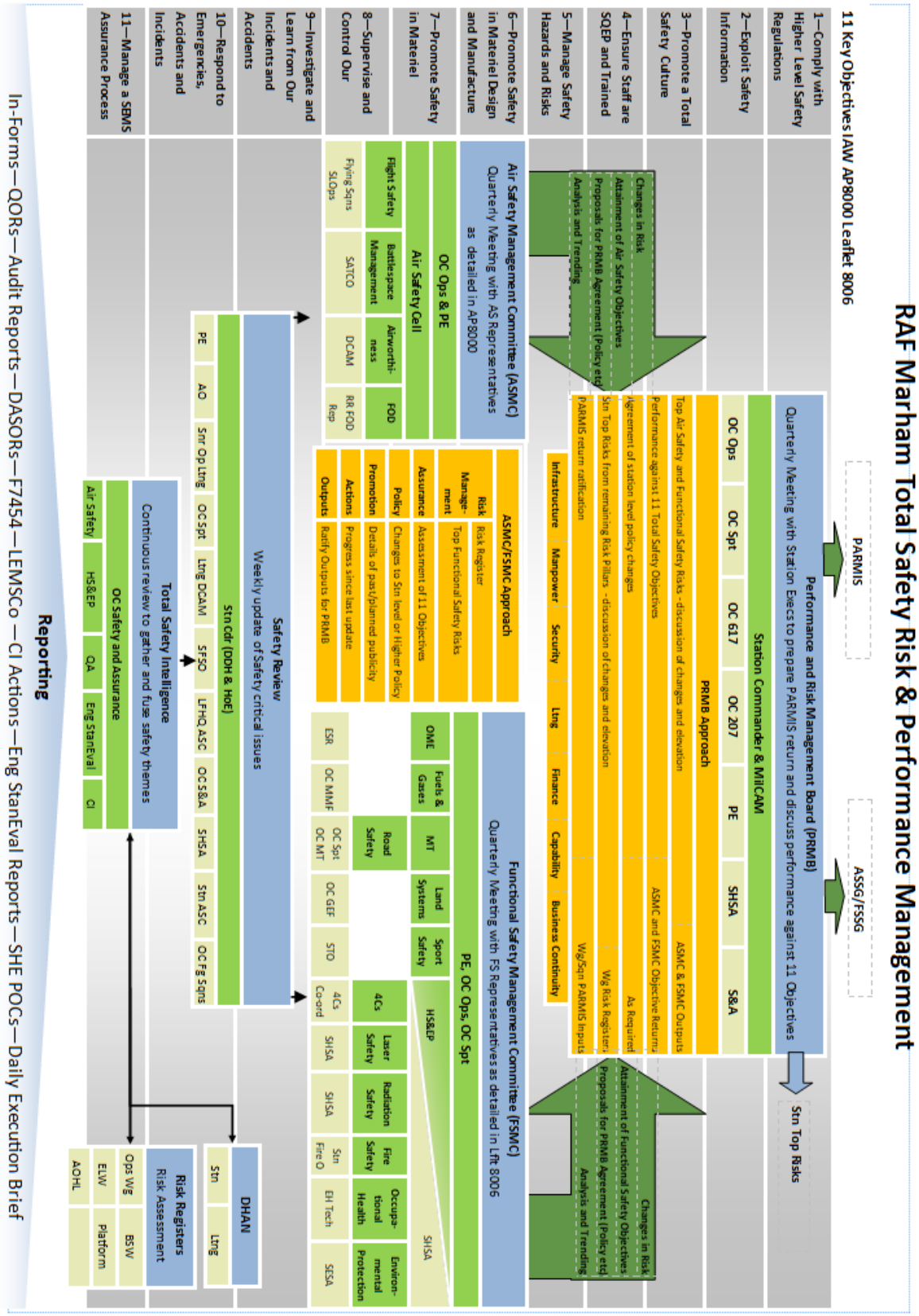
# ANNEX B: SAFETY MEETING STRUCTURE

## B.1 Safety Meeting Structure



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## Annex C – Aerodrome Key Stakeholders

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# ANNEX C: AERODROME KEY STAKEHOLDERS

## C.1 Key Stake Holders

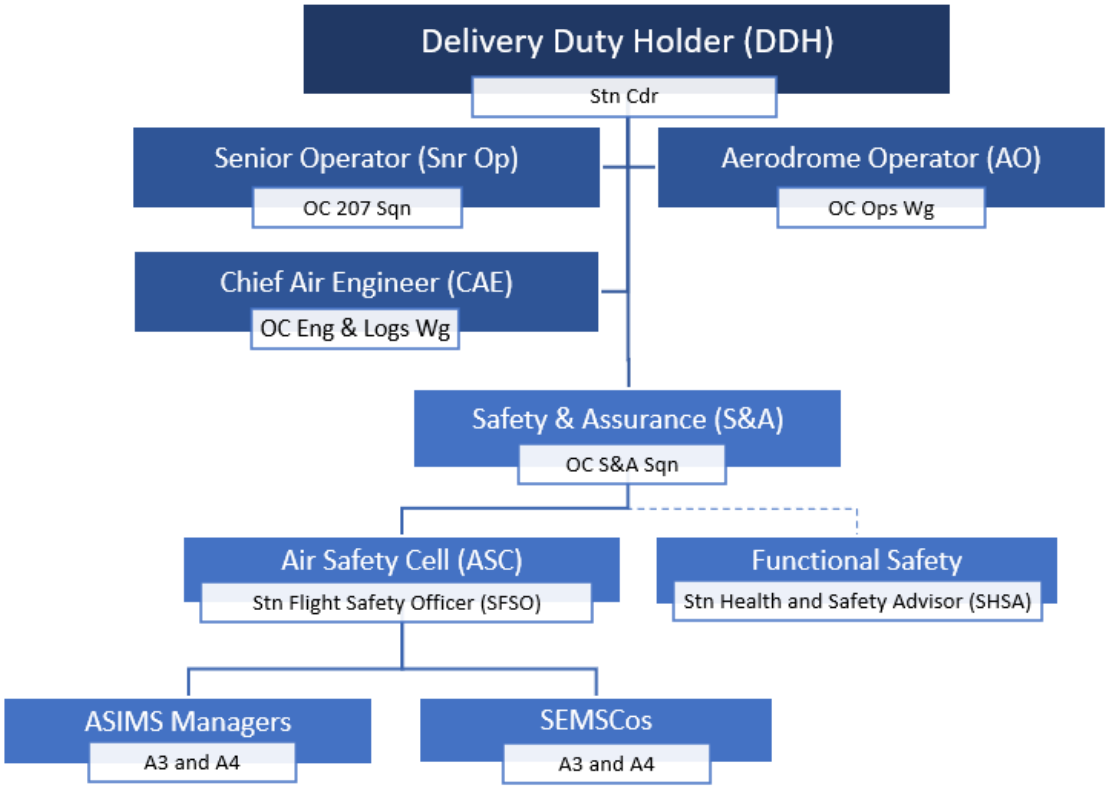
**Head of Establishment:**
Station Commander RAF Marham
Group Captain P Marr
Tel: 01760 337261 [redacted]
Mil: 95951 [redacted]

**Aerodrome Operator:**
OC Operations Wing
Wing Commander D Clark
Tel: 01760 337261 [redacted]
Mil: 95951 [redacted]

**OC Operations Squadron:**
Squadron Leader S Atkinson
Tel: 01760 337261 x [redacted]
Mil: 95951 [redacted]

**Senior Air Traffic Control Officer:**
Squadron Leader A Steventon
Tel: 01760 337261 x [redacted]
Mil: 95951 [redacted]

## C.2 Safety Organisational Structure


Delivery Duty Holder (DDH)
Stn Cdr
Senior Operator (Snr Op)
OC 207 Sqn
Aerodrome Operator (AO)
OC Ops Wg
Chief Air Engineer (CAE)
OC Eng & Logs Wg
Safety & Assurance (S&A)
OC S&A Sqn
Air Safety Cell (ASC)
Stn Flight Safety Officer (SFSO)
Functional Safety
Stn Health and Safety Advisor (SHSA)
ASIMS Managers
A3 and A4
SEMSCos
A3 and A4

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## Annex CC – Electrical Ground Power Procedures

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# ANNEX CC: ELECTRICAL GROUND POWER PROCEDURES

## CC.1 Electrical Ground Power Procedures

This order is applicable to all military and civilian personnel involved with Air Systems maintenance at RAF Marham.

Application of electrical ground power carries the risk of electrical shock to personnel and damage to Air Systems.

## CC.2 Application of power to the Lightning Fleet.

Power only to be applied by personnel holding the correct auth. The correct ground power unit as appropriate for starting or ground servicing is to be used.

## CC.3 Visiting Air Systems

The Captain of an incoming/outgoing visiting Air System is to request the appropriate power set to be deployed by the visiting air system handling team. Connection of the power set and application of power to the Air System is to be carried out under the supervision of the Air System Captain.

Any requests for further information on this subject should be made, in the first instance, to RAF Lightning A4 DEOC Tel 01760 446247/8 from civilian telephone networks or 95951 6247/8 from military networks or email: Air-1GP-LightningA4DEOC@mod.gov.uk

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## Annex DD – Aviation Fuel Management Procedures

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# ANNEX DD: AVIATION FUEL MANAGEMENT PROCEDURES

## DD.1 Management of Bulk Fuel Installations

The safe and proper operation of all fuel installations rests with the HoE and is sub delegated to suitably qualified nominated individuals as the Operating Authority and Deputy Operating Authority for the Station. The OA are responsible for the management of the following:

a. Ensuring that all personnel employed on the unit fuels installations hold the correct formal training competencies, are correctly trained on all installations they are expected to operate and hold a valid Certificate of Competence.

b. Ensuring that all accounting procedures for Fuel and Lubricant products are fully implemented. This includes mandated physical dips and end of month stock accounting and adjustment action.

c. Ensuring that all fuel infrastructure has an in-date Professional Inspection Report, containing a valid Certificate of Continued Use, which is produced annually by a DIO appointed Inspector along with an in-date electrical test certificate graded 'satisfactory'. Any lapse in this documentation should render the Installation not safe for use until resolution.

d. Ensuring the co-ordination of FGSR activity at the unit, including the progression of non-compliances and act as the liaison with A4 Fuels and FGSR.

e. Ensuring there is a robust Quality Assurance and husbandry regime to ensure that fuel contained with Installations is fully fit for intended use.

f. Ensuring OA requested works are submitted on identification of infrastructure/equipment failure.

g. Ensuring no work covered by a Safety Programme can commence until a Permit To Work has been issued and signed by AP Pet and the OA. The restrictions may render areas of installations OOB to Fuel Operators. This is to be made clear on Fuels State Boards, restriction signage and access to keys being controlled.

## DD.2 Fuel storage, quality and delivery

RAF Marham has three operational BFIs that store AVTUR F-34 FSII, these are supplied via the Pipeline Receipt Enclosure from Exolum UK Pipeline.

To ensure quality assurance of AVTUR F-34 FSII, a composite sample is to be taken using the following method with an Any Level Bottom Sampler (6695-99-255-0244) in the following order:

a. Upper sample to be taken at one sixth depth of the fuel in the tank.

b. Middle sample to be taken at approximately half of the depth of fuel in the tank.

c. Lower sample to be taken at five sixths depth of the fuel in the tank.

Fuel held in bulk storage is tested before issue, receipt or if stock has become dormant. The following checks are carried out by an F&L Operator in each instance:

a. Visual assessment for of free water, suspended water, slime, solid or intergrade/cross contamination of fuel. This is carried out be decanting the composite sample in a clean, dry sample jar with sufficient light to identify any of the listed contaminants.

b. Water detection tests are to be carried out to test for undissolved suspended water. This is carried out using a water detection capsule and syringe. The F&L Operator is to ensure the equipment is clean, dry and detection capsules are in life. The Operator is to immerse the capsule and syringe to approximately half the syringe length into the fuel sample and draw 5ml of the fuel sample into the syringe through the capsule. The Operator is to observe for colour change. If there is no colour change the fuel is fit for usage, if the colour changes to blue a second retest is to be conducted. If there is a second colour change to blue the fuel is not to be issued and quarantined.

c. Determination of density requires an aviation fuel hydrometer (6630-99-436-0895), hydrometer jar (6640-99-452-6724) and thermometer (6685-99-620-0081). The hydrometer is to be lowered into the fuel spinning the hydrometer. A reading is to be taken at eye level when stationary. The reading is to be corrected to 15°C, using table 2.3.1.G.2 in the figure is to be compared to the acceptable parameters for AVTUR.

d. Determination of Fuels System Icing Inhibitor (FSII) is to be carried out using a complete FSII B/2 Kit (6630-01-1657133). 500ml of fuel sample should be decanted and mixed with 2ml of distilled water in separating funnel. This is to be vigorously shaken for 5 minutes and left to settle for a further 5 minutes. The refractometer is to be calibrated and a few drops from the funnel are to be collected into the refractometer. FSII content is to be in the parameters of 0.10%-0.15%.

e. Determination of conductivity of aviation fuel is be taken using an EMCEE conductivity meter (6630-01-1152398). The meter is to have the probe affixed and calibrated before measuring the sample. Conductivity is to be in the parameters of 100-600 pS/M.

Fuel is to be delivered to Marham via the Exolum UK Pipeline. Before any pipeline receipt can commence the OA is to ensure the following:

a. The designated OA has Q-SUP-F Manager and a valid CoC for operating the PRE.

b. Type, grade and quantity of fuel to be transferred are to be confirmed.

c. There is sufficient ullage available in the receiving tank.

d. The Readiness to Receive Plan has been issued to the Exolum PSD and Aldermaston HQ.

e. Pumping rate to be agreed between PSD and OA, flow rate is not to exceed more than 1m/s.

f. All Fuel Operators involved in the receipt operation receive a brief for individual duties.

g. Line is to be walked prior to commencing the receipt, checking all valves for correct position. The final valves are to be opened on the command of the OA.

h. Duty Log is to be opened and all readings and measurements are to be recorded and log all official occurrences during the receipt.

During a receipt the OA is to ensure the following:

a. Tank reconciliation is to take place at half intervals using ATGs.

b. Take a receipt sample at 30 minutes before and end of the parcel, specifically for FSII content. If the fuel is out of spec A4 Fuels and DFTA are to be notified at the earliest opportunity.

Post receipt when fuel has ceased flowing the following actions are to be taken by the OA:

a. All valves are to be closed.

b. ATGs are to be checked and compared to figures from the PSD.

c. Settling time of 24 hours (2 Hours operational) should be allowed before wet dipping and full sampling and acceptance tests are to be carried out.

Bulk fuel stocks are checked for water in storage tanks; this is carried out weekly.

Dispensing of AVTUR F-34 FSII from all three BFIs to BFCVs.

Defueling of AVTUR F-34 FSII from BFCVs into all three BFIs.

## DD.3 Fuelling Operations for Aircraft on the Ground

When conducting Aircraft fuelling operations, the following precautions apply:

a. Before fuelling operations commence, appropriately authorised personnel are to ensure the fuelling equipment is Serviceable.

b. Before fuelling operations commence, appropriately authorized personnel are to ensure the Aircraft is prepared to receive fuel in accordance with the Technical Instruction (TI).

c. Aircraft and fuelling equipment is to be electrically bonded.

d. The fuelling point and fuelling equipment is to be manned by Competent personnel at all times during the fuelling operation.

e. Before fuelling operations commence, appropriately authorised personnel are to ensure the fuel dispenser contains the correct fuel, iaw JSP 317 and TI.

f. Fuelling equipment is to be sited outside the Aircraft fire hazard areas.

g. Appropriate first aid fire-fighting equipment is to be suitably located to enable immediate use.

h. Personnel in the immediate vicinity of the Aircraft are to be advised that fuelling is taking place.

i. Fuelling operations are to cease in the event of a spillage and are not to recommence until the spillage has been cleaned up.

j. Liquid oxygen (LOX) systems are not to be replenished during fuelling operations but, when necessary, LOX packs may be changed during operational re-arm servicing iaw the appropriate TI.

k. Before fuelling operations commence, supervisors are to ensure that Personal Protective Equipment (PPE) is provided and worn by all personnel involved in Air System fuelling. As a minimum iaw JSP 317, the following PPE appropriate for fuelling operations is to be worn:

i. Safety Boots.

ii. Coveralls.

iii. Gloves.

iv. Goggles or visor.

l. Locally produced Risk Assessments for Aircraft refuelling are to include any additional PPE in accordance with JSP 317 to suit the task/conditions/environment.

m. Personnel are not to wear studded or metal tipped footwear.

n. Radiation Hazard (RADHAZ) precautions are be followed iaw the TI.

o. When a thunderstorm Risk/level high warning has been issued, or thunderstorm activity is apparent in the vicinity of an Aircraft, fuelling operations are to cease.

## DD.4 Bonding Procedures

The following procedures are to be adhered to during fuelling operations on land:

a. Ensure that the fuel bowser earth mechanism is touching the ground.

b. Connect the bowser bonding lead to an appropriate earth point on the Aircraft.

c. Connect the hose bonding mechanism to a conducting part of the Aircraft or specific bonding point, if available.

d. Connect the fuelling hose and commence fuelling.

e. When fuelling is complete, firstly disconnect the fuelling hose, then the bowser bonding lead and the hose bonding mechanism.

## DD.5 Fuelling Procedures in Specific Environments

A fuelling operation is only to take place in a hangar when:

a. It has been authorised.

b. There is adequate ventilation and egress capability.

c. There is a high-volume fire-fighting vehicle in attendance ashore or high-volume fire-fighting equipment immediately accessible at all times during fuelling operations afloat.

d. There are suitable towing vehicles / equipment and trained personnel immediately available to remove any/all Aircraft in the event of an incident.

e. When ashore the fuel bowser is to be located outside the hangar. Where entry of the bowser into the hangar is unavoidable, there is to be a clearly defined obstruction-free escape route.

## DD.6 Hot Pit Refuelling Process

Hot Pit refuelling is to be carried out iaw MRM AV Refuelling AESO.

## DD.7 Fuelling Operations with Passengers On-board

Fuelling operations with Passengers on-board are to be authorized by the appropriate Air System Commander, Local Operational Commander or Delivery Duty Holder (DDH).

Procedures to be Followed:

a. Passengers are to be advised that fuelling is taking place and that smoking and the use of portable electrical equipment, including mobile phones, is prohibited.

b. NO SMOKING and EXIT signs, where fitted, are to be illuminated throughout the fuelling operation and are not to be switched off until fuelling has been completed.

c. The minimum of internal lighting is to be switched on before fuelling commences and is not to be switched off until fuelling has been completed.

d. Aircraft main exit doors adjacent to a refuelling point are to be closed. All other main exit doors are to be open, unobstructed, and steps in place where required.

e. Standard precautions for emplaning/deplaning are to be enforced.

f. If carrying casualties, the following extra precautions are to be adhered to:

i. The Aircraft is to be parked on a heading where fuel fumes are carried away from the main Aircraft door.

ii. Extra staff/specialist equipment is to be positioned to ensure rapid evacuation of casualties.

iii. Where possible, a high-volume fire-fighting vehicle is to be positioned by the Aircraft.

iv. Electrical equipment required for medical purposes may remain switched on.

v. Where possible, the aero-medical team leader is to ensure that stretchers are unlocked and that medical staffs are ready to remove patients.

## DD.8 Fuelling zone Procedures

Fuelling operations are only permitted when undertaken by authorised personnel. All personnel involved or responsible are to be fully conversant before commencing any fuelling operations. Particular attention is to be paid to the details at paras 4-6 of this AESO. Aircraft fuelling activities may only take place at the following locations:

a. Alpha and Bravo dispersals.

b. Sqn HAS / Line sites.

c. The Visiting Aircraft Pan.

d. Other sites that have been specifically authorised and meet earthing and drainage regulations.

## DD.9 Fuel spillage procedures

Where there is a risk that ground or water course contamination is likely to occur as a result of a spillage, it is the responsibility of all who take part in the transfer of fuel or the operation of equipment related to oil-based products to reduce that risk and deal with spillages. The most probable cause of a spillage is as a direct result of an accident, the malfunction of equipment or procedural malpractice associated with the operation of installations, aircraft, equipment or vehicles.

This plan may be used as part of RAF Marham’s response to a Major Accident. When this is the case, this plan and the elements called upon become subordinate to Part 1 of the RAF Marham Major Accident Plan and the C2 structures detailed therein.

Execution of the USRP is conducted as a sequence of staged actions. The person discovering the spillage will normally initiate this sequence. The immediate actions are to isolate and contain the spillage and summon assistance. Immediate Action (IA) posters are to be prominently positioned at all Pollution Control Points (PCP) and locations where Fuels and Lubricants (F&L) are stored. During normal working hours the Pollution

Control Officer (PCO) will be called to attend all spillages at RAF Marham. During silent hours, the person discovering the spillage is to inform A4 ILOC DEOC or the Guardroom who will activate the unit Spillage Response Team (SRT).

The person discovering the spillage or the senior person at the scene is to adopt the role of Incident Commander and is responsible for coordinating the immediate response to the spillage, using any manpower and materiel at their disposal, until relieved by the PCO, Deputy PCO or the SRT leader (must have the Q-SUP-F(O), PPPT and IEP qualifications). OC Material Management Flight (MMF) or a nominated deputy, as the Unit PCO, is required to attend any spillage that necessitates the activation of the Spillage Response Plan. This is in order to assess the severity of the spill and coordinate initial actions of the Pollution Control Team. The PCO must remain at the scene of the spill in order to co-ordinate the clean-up effort and liaise with outside agencies when required.

If all attempts to contain the spillage fail, the PCO or their deputy is to make the decision as to whether the MOD Emergency Pollution Response Service contractor would be called. Upon their arrival, command and control is to be passed from the PCO to the authorized MOD contractor's representative.

If the spill is sufficiently severe to stand up the Emergency Control Centre (ECC), or the spill is part of a Major Accident, the PCO will then brief the ECC to provide relevant advice to the RAF Silver Commander for the duration of the emergency.

In some instances, a spillage may not be contained to an isolated location and may cover an extended area of ground. For example, a spill caused by a leak on a vehicle could be found throughout road areas of the station. In this instance, the SRT is to initially identify the extent of the spill, and where the clean-up could have an impact on Station operations, consider the call out of the ECC through A4 ILOC DEOC. The duties of the SRT can be found at the USRP.

The Spillage Report (SPILLREP) procedure requires a report in 2 parts. An initial (MOD Form 7772 – MOD Spill Report Part 1) report is issued by signal, fax or email is used to alert staffs that an incident has, or is occurring. Part 1 reports should be submitted to F&L Control MRM-LSSFandLGroup@mod.gov.uk within **12 hours** of an incident to enable support staffs to provide and co-ordinate assistance where necessary.

A follow up (MOD Form 7773 - MOD Spill Report Part 2) report provides staff with information, which will be used to support equipment and training requirements and quantify the financial expense of pollution spills. Part 2 reports are to be issued at the conclusion of the spillage incident or at convenient parts during an extended clean-up process; any number of successive Part 2 reports may be submitted. Once clean-up is complete a final SPILLREP Part 2 is to be submitted to F&L Control MRM-LSSFandLGroup@mod.gov.uk detailing closure action and all costs.

Should the spill be enough to be classed as a Major Accident, the MACR Coordinator is to be informed and a Major Accident Incident Report Form is to be completed.

The unit is to maintain First Aid response packs readily available for immediate use. The response packs are to be located at all areas where there is a risk of a spillage occurring, these areas are to be designated as Pollution Control Points (PCP).

Any sorbents used during clean-up operations are to be treated as hazardous waste and disposed of via the existing hazardous waste disposal contract, operated by the Hazardous Waste Manager.

The unit PCO is to be informed of any spillage that occurs, in order that a register of spillages can be maintained.

On notification of a fuel spillage, OC EMS and Station Environmental and Safety Advisor (SESA) are to report to the spill site and provide the PCO with details of interceptors, drainage, electrical cables (if earth removal is required) and the call out of civilian agencies such as the Environment Agency if required.

The Incident Commander is to control the use of communications around the incident area, ensuring that anything used in the vicinity of spilt F&L product is ATEX 100-A compliant (intrinsically safe). Any communications equipment not complying with the ATEX 100-A European standard/EPS 96 UK standard (including mobile telephones) may only be used subject to the limitations and restrictions laid down in Part 2 Chapter 5 Section 3 and Part 3 Chapter 4 Section 65 of JSP 317.

The code word for this operation is Op FUEL SPILL. While the MAP is protectively marked OFFICIAL SENSITIVE due to the nature of some of the content of the Plan, the use and meaning of the code word FUEL SPILL is OFFICIAL.

To protect the clean-up operation and to protect the individuals/members the public it is essential that the perimeter of the spillage site be secured at the earliest opportunity. This will be executed through the establishment of a cordon and an Incident Control Point (ICP). The ICP will be under the command of the Incident Officer (IO) or PCO.

The preservation of human life is of the utmost importance. Response to a spillage incident could require personnel to enter a hazardous area and carry out the clean-up of hazardous material. In addition to the obvious dangers associated with fire and explosion, there are a number of other hazards associated with direct or indirect contact with F&L products. Direct contact with fuel can lead to burns or dermatitis and prolonged exposure to vapour can result in breathing difficulties/dizziness.

The IO is to ensure that all personnel are aware of the hazards and enforce the use of correct Personal Protective Equipment (PPE) and barrier creams. Furthermore, all Health & Safety processes, shall be complied with in the course of spill response activities. Supplementary PPE may be contained within Pollution Control Points (PCP) at the discretion of the PCP custodian.

Individual Wgs, Sqns, Flts and Sects are responsible for clean-up of a fuel spillage caused by themselves, or originating from property, equipment, vehicles, or aircraft which fall within their area of responsibility, irrespective of its location on the Station. Upon arrival of F&L representation, on-scene personnel are to maintain clean-up activities with the specialist advice and support (if necessary) of the PCO.

If there is an aircraft incident involving an RAF Marham aircraft on the runway or taxiways, then it is the relevant Sqn's responsibility to undertake Immediate Action for any spill. Should it involve a visiting aircraft then VASS have responsibility; in the event they need assistance the Duty Sqn is to provide support. In all instances, F&L staff will be on hand to offer specialist advice.

All the recovered spilt product, the Pollution Control Sorbents (PCS), sand and soil that have absorbed the spilt product and those items of PPE or personal clothing that has been contaminated with the spilt product, are to be treated as hazardous waste. This waste is to be disposed of via the existing hazardous waste disposal contract managed on site by F&L.

If the MOD Emergency Pollution Response Service (EPRS) contract is activated and the contractor is called in to dispose of the hazardous waste then the contactor is required to provide safe disposal to a Licensed Disposal Site of all hazardous waste items generated during the clean-up operation, in accordance with current Hazardous Waste Legislation.

All personnel involved in the storage, handling and transportation of hazardous products on

RAF Marham are to be suitably trained in pollution prevention and control. In addition, training is to be undertaken to ensure all staff are adequately trained in the use of the PCS.

RAF Marham will practice or exercise a Tier 2 practical incident on an annual basis. Tier 3 incidents will also be practised annually as an exercise/key player desktop exercise with the involvement of the local outside agencies where possible. The practice or exercise should involve all departments and sections to ensure its effectiveness. The arrangement for the practice will be published separately.

A4 Fuels Role Office (95221 5920) and Exolum Thetford Petroleum Supply Depot (PSD) (01842 754135 or [redacted] Mon 0600-Sat 0600) and Exolum Control Room (0118 9712022 or 0118 9712021) are to be informed before the start of any exercise.

3All requests for further information are to be directed, in the first instance, to RAF Marham Eng Ops Control Tel 01760 446247/8 from civilian telephone networks or 95951 6247/8 from military networks or email: Air-1GP-LightningA4DEOC@mod.gov.uk

Defence Safety Authority

# Defence Aerodrome Manual (DAM)

# RAF Marham

## Annex EE – Hazardous Materials Spillage Plan

Issue 9

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## 1ST PARTY ASSURANCE

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## AMENDMENT TABLE

| Amendment No. | Amendment Date | Date of Incorporation | Name | Signature |
|---|---|---|---|---|
| Version 21-1 | Jul 21 | Re-Issue | Sqn Ldr Manley | Electronically Signed |
| | | | | |

# ANNEX EE: HAZARDOUS MATERIALS SPILLAGE PLAN

## EE.1 Initial Actions

Initial actions for any personnel discovering a spillage are detailed in Flow diagram below.

## EE.2 Response

This Unit Spillage Response Plan (USRP) serves 2 purposes. In the majority of cases, it is the guidance for RAF Marham personnel on what to do in the event of a fuel spill as a discrete incident. However, in some cases, the spill will either be part of a larger incident or, in extremis, will constitute a Major Accident in its own right.

In the case of a Major Accident involving a fuel spill, the regulations and guidance found within JSP 498: Major Accident Control Regulations (MACR) is the primary resource. This spill plan is a supporting document to the RAF Marham MAP Part 2, and should be read in conjunction with the guidance found there.

The document links can be accessed on the Defence Intranet on the RAF Marham site. Anyone who requires access but is unable to view this link should contact RAF Marham Eng Ops Control on 01760 446247/8 from civilian telephone networks or 95951 6247/8 from military networks or email: Air-1GP-LightningA4DEOC@mod.gov.uk.

**Locate the Spill.**

↓

**Attempt to prevent the flow of the spillage by locating and deploying the nearest Spill Kit.**

↓

**Evacuate the immediate area.**

↓

**Contact A4 iLOC DEOC on 6247/6248 or [redacted] OOH giving the following information:**

↓

1. **Rank, Name, and Contact Number.**
2. **The location of the spillage (Bdg No etc).**
3. **Type of product.**
4. **The approximate amount of product spilt.**
5. **Any container markings (UN No. etc).**
6. **Type of surface (grass, road, taxi-way etc).**
7. **Contained: YES/NO.**

**Give other relevant information:**

**Any injuries / risk of fire / other hazards.**

**NOTE:**

**Consider if Emergency Services are required at earliest opportunity.**

↓

**Adopt the role of Incident Commander until relieved by either the Spillage Response Team or Pollution Control Officer.**

↓

**Cordon off the area around the spillage and control access.**

↓

**Await further assistance**

**NOTE:**

**The individual discovering the spill or the Incident Commander is to raise the SPILLREP Pt 1 within 12 hrs. It is to be emailed to MRM-LSS FandL Group (MULTIUSER)**

**At any point during the incident a Safety Data Sheet can be obtained from the JSP 515.**

Defence Safety Authority

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# RAF Marham

## Annex E – Formal Aerodrome Related Agreements

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|---|---|---|---|---|
| Version 21-1 | Jul 21 | Re-Issue | Sqn Ldr Steventon | Electronically Signed |
| | | | | |

# ANNEX E: FORMAL AERODROME RELATED AGREEMENTS

| E.1 Formal Aerodrome Related Agreements | | | | |
|---|---|---|---|---|
| ID | Date of Implementation | Last Reviewed | Agreement With | Link |
| 1 | 3 Sep 13 | 7 Sep 18 | Boughton (North) Airfield | Link |
| 2 | 3 Sep 13 | 7 Sep 18 | Boughton (South) Airfield | Link |
| 3 | 3 Sep 13 | 18 Sep 20 | East Winch Landing Site | Link |
| 4 | 3 Sep 13 | 7 Sep 18 | Great Massingham Airfield | Link |
| 5 | 3 Sep 13 | 7 Sep 18 | Rookery Farm | Link |
| 6 | 3 Sep 13 | 7 Sep 18 | Southery Airfield | Link |
| 7 | 22 Feb 16 | 22 Feb 16 | RAF Lakenheath (Under Review) | Link |
| 8 | 8 Mar 12 | 1 Mar 19 | Norwich Airport | Link |
| 9 | | | | |

Defence Safety Authority

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# RAF Marham

## Annex F – Aerodrome Waivers, Exemptions and Alternative Acceptable Means of Compliance

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|---|---|---|---|---|
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| | | | | |

# ANNEX F: AERODROME WAIVERS, EXEMPTIONS AND ALTERNATIVE ACCEPTABLE MEANS OF COMPLIANCE

| F.1 Aerodrome Waivers | | | | |
|---|---|---|---|---|
| ID | Dated | Expires | Name | Link |
| 1 | 3 Apr 19 | 30 Apr 29 | MAA_AWE_2019_044-Non-Compliance with AGL Characteristics | Included |
| 2 | 28 Mar 19 | 31 Mar 29 | MAA_AWE_2019_040-Infringement of Obstacle Free Zone | Included |
| 3 | 14 Aug 19 | 1 Dec 30 | MAA_AWE_2019_107-Permanent Fixed Wing Aerodrome: Markings and Lighting | Included |
| 4 | 7 Nov 19 | 31 Dec 24 | MAA_AWE_2019_131-Proximity of Test Oscillator to Taxiway Golf | Included |
| 5 | 4 Mar 19 | 31 Jul 22 | MAA_AWE_2019_015-Truck Runway Control (TRC) Requirements | Included |

# MAA_AWE_2019_044-Non Compliance with AGL Characteristics

Military Aviation Authority

MAA

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

**Military Aviation Authority**
Abbey Wood (North)
Juniper (Wing 4) Mail Point #5104
MOD Abbey Wood
BRISTOL
BS34 8QW

Military Network: 9679 84232
Telephone: 030679842322
Email: DSA-MAA-Reg-DepHd@mod.gov.uk
www.gov.uk/maa

Gp Capt I Townsend ADC MA RAF
RAF Marham
Kings Lynn
Norfolk
PE33 9NP

Reference: 20190402-MAA_AWE_2019_044

3 Apr 19

Dear Ian,

**MAA FORMAL AUTHORIZATION OF WAIVER APPLICATION MAA_AWE_2019_044 – NON-COMPLIANCE WITH AERONAUTICAL GROUND LIGHT CHARACTERISTICS – CONSTRUCTION**

1. RAF Marham sought[1] approval of a Waiver to meet the published regulatory requirement whereby HoEs and ADH Facing organizations shall ensure that all AGL fittings are of construction and height that their presence does not endanger Air Systems. The height of the runway edge lights on 01/19 and 06/24 is greater than the regulation specification[2].

2. I note that your team have conducted a hazard analysis and you have accepted that any additional Risk to Life due to the elevation of the runway edge lights being contrary to the regulation is mitigated and your operation remains ALARP and Tolerable. Therefore, I am content to approve Waiver MAA_AWE_2019_044.

3. The Waiver will be until 30 Apr 2029 or until the runway edge lights are made complaint, whichever is sooner. Details of the Waiver must be published and promulgated as appropriate, including within the RAF Marham Defence Aerodrome Manual, and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

AOC 1 Gp
MAA Op Assure Op Dep Hd
Air BM A35 SO1

[1] Email: 20190329-Request for a Regulatory Waiver - RAF Marham-OS.
[2] RA3515 – AMC 3515(28) Para 122(d).

# MAA_AWE_2019_040-Infringement of Obstacle Free Zone

Military Aviation Authority

MAA

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

**Military Aviation Authority**
Abbey Wood (North)
Juniper (Wing 4) Mail Point #5104
MOD Abbey Wood
BRISTOL
BS34 8QW

Military Network: 9679 84232
Telephone: 030679842322
Email: DSA-MAA-Reg-DepHd@mod.gov.uk
www.gov.uk/maa

Gp Capt I Townsend ADC MA RAF
RAF Marham
Kings Lynn
Norfolk
PE33 9NP

Reference: 20190326-MAA_AWE_2019_040

28 Mar 19

Dear Ian

**MAA FORMAL AUTHORIZATION OF WAIVER APPLICATION MAA_AWE_2019_040 – INFRINGEMENT OF OBSTACLE FREE ZONE**

1. RAF Marham sought[1] approval of a Waiver to meet the published regulatory requirement whereby organizations shall ensure that the Obstacle Free Zone is established[2].

2. I note that your team have conducted a hazard analysis and you have accepted that any additional Risk to Life due to the infringement of the Obstacle Free Zone is mitigated and your operation remains ALARP and Tolerable.. Therefore, I am content to approve Waiver MAA_AWE_2019_040.

3. The Waiver will be until 31 Mar 2029 or until the fence is made complaint, whichever is sooner. Details of the Waiver must be published and promulgated as appropriate, including within the RAF Marham Defence Aerodrome Manual, and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

AOC 1 Gp
MAA Op Assure Op Dep Hd
Air BM A35 SO1

[1] Email: 2019025-Request for a Regulatory Waiver - RAF Marham-OS.
[2] RA3512 – AMC 3512(2) Para 15.

# MAA_AWE_2019_107-Permanent Fixed Wing Aerodrome: Markings and Lighting

Military Aviation Authority

MAA

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

**Military Aviation Authority**
Abbey Wood (North)
Juniper (Wing 4) Mail Point #5104
MOD Abbey Wood
BRISTOL
BS34 8QW

Military Network: 9679 84232
Telephone: 030679842322
Email: DSA-MAA-Reg-DepHd@mod.gov.uk
www.gov.uk/maa

Gp Capt J Beck OBE RAF
RAF Marham
Kings Lynn
Norfolk
PE33 9NP

Reference: 20190813-MAA_AWE_2019_107

14 Aug 19

Dear James,

**MAA FORMAL AUTHORIZATION OF WAIVER APPLICATION MAA_AWE_2019_107 – PERMANENT FIXED WING AERODROME: MARKINGS AND LIGHTING**

1. RAF Marham sought[1] approval of a Waiver to meet the published regulatory requirement for runway markings[2] and lighting[3] whereby the surface of the 01/19 runway will have additional dedicated STOL markings and lighting.

2. I note that your team have conducted a hazard analysis and you as the ADH have accepted that any additional Risk to Life, due to non-compliant markings and lighting on the 01/19 runway to support STOL activities, is mitigated and that your operation remains ALARP and Tolerable. Therefore, I am content to approve Waiver MAA_AWE_2019_107.

3. The Waiver will be until 1 Dec 2030, to enable a review of requirements, hazards and mitigations. Details of the Waiver must be published and promulgated as appropriate, including within the RAF Marham Defence Aerodrome Manual, and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

ACNS (A&C)
AOC 1 Gp
Navy CSAV SO1 Ops Spt
Air BM A35 SO1
MAA Dep Hd Op Assure

[1] Email: Waiver Application – RAF Marham STOL Markings dated 5 Aug 19.
[2] Refer to RA 3514 – AMC 3514(2).
[3] Refer to RA 3515 – AMC 3515(9) and (10).

# MAA_AWE_2019_131-Proximity of Test Oscillator to Taxiway Golf

Military Aviation Authority

MAA

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

**Military Aviation Authority**
Abbey Wood North
Juniper Wing 4 Mailpoint 5104
MOD Abbey Wood,
Bristol
BS34 8QW

Military Network: 9679 84232
Telephone: 0306 679 84232
Email: DSA-MAA-Reg-DepHd@mod.gov.uk

Gp Capt J A Beck MA BEng(Hons) OBE RAF
Station Commander
RAF Marham
Marham
Norfolk
PE33 9NP

Reference:
MAA_AWE_2019_131

7 Nov 19

Dear James,

**MAA AUTHORISATION OF WAIVER MAA_AWE_2019_131**

1. RAF Marham sought[1] approval for a Waiver against the published regulatory requirement[2] whereby HoEs and ADH Facing organizations shall ensure that obstacles should not be permitted on runways, taxiways or hard standings.

2. I note that your team have conducted a Safety Assessment and you have accepted that any additional Risk to Life due to the mast adjacent to Taxiway Golf is mitigated for F35B operations, and your operation remains ALARP and Tolerable.

3. I am content with your intentions to only allow station-based F35B pilots to use this taxiway, and that they will have been comprehensively briefed that no off-centre formation taxying is to take place on taxiway Golf. This brief is to be explicitly referenced in the Flying Order book and ATC orders. I also note that RAF Marham intend to provide temporary lighting until permanent lighting is installed as part of Project Anvil 2 upgrades.

4. I am content to approve the Waiver until 31 Dec 2024. This will allow for a reassessment of the feasibility of repositioning the mast.

5. This Waiver must be published and promulgated as appropriate, including within the RAF Marham Defence Aerodrome Manual and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

AOC 1 Gp
BM Fce Cdr

[1] 20190923-SAofC 04-19 Taxiway Golf

[2] RA 3590(10)-Aeronautical Ground Lighting Characteristics - Construction

# MAA_AWE_2019_015-Truck Runway Control (TRC) Requirements

Military Aviation Authority

MAA

Gp Capt B Duncan MA RAF
MAA Regulations Deputy Head

**Military Aviation Authority**
Abbey Wood (North)
Juniper (Wing 4) Mail Point #5104
MOD Abbey Wood
BRISTOL
BS34 8QW

Military Network: 9679 84232
Telephone: 030679842322
Email: DSA-MAA-Reg-DepHd@mod.gov.uk
www.gov.uk/maa

Gp Capt I Townsend ADC MA RAF
RAF Marham
Kings Lynn
Norfolk
PE33 9NP

Reference: 20190301-MAA_AWE_2019_015

4 Mar 19

Dear Ian,

**MAA FORMAL AUTHORIZATION OF WAIVER APPLICATION MAA_AWE_2019_015 – TRUCK RUNWAY CONTROL (TRC) REQUIREMENTS**

1. RAF Marham sought[1] approval of a Waiver to meet the published regulatory requirement whereby when ATC is not manned, the TRC should be removed from its operating position[2].

2. I note that your team have conducted a hazard analysis and engaged with all stakeholders who have accepted that there is no additional Risk to Life due to the TRC remaining in its operating position when ATC is not manned. Therefore, I am content to approve Waiver MAA_AWE_2019_015.

3. The Waiver is until 31 Jul 2022, in order to enable the Programme MARSHALL infrastructure changes to be enacted before a thorough review. Details of this Waiver must be published and promulgated as appropriate, including in the Defence Aerodrome Manual, and reviewed regularly and at least one month prior to expiry. Any changes to the circumstances concerning this Waiver must be immediately notified to the MAA.

Yours

Copy to:

AOC 1 Gp
BM Fce Cdr
MAA OpAssure AirOps

[1] Email: MAA Waiver request – Safety Assessment TRC dated 28 Jan 19.
[2] RA3276 – AMC 3576(2) Para 4.

| F.2 Aerodrome Exemptions | | | | |
|---|---|---|---|---|
| ID | Dated | Expires | Name | Link |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

| F.3 Aerodrome Alternative Acceptable Means of Compliance (AAMC) | | | | |
|---|---|---|---|---|
| ID | Dated | Expires | Name | Link |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

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# Defence Aerodrome Manual (DAM)

# RAF Marham

## Annex FF – Jettison and Fuel Dumping Area

## Issue 9

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## 1ST PARTY ASSURANCE

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## AMENDMENT TABLE

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|---|---|---|---|---|
| Version 21-1 | Jul 21 | Re-Issue | Sqn Ldr Atkinson | Electronically Signed |
| | | | | |

# ANNEX FF: JETTISON AND FUEL DUMPING AREA

## FF.1 Jettison and Fuel Dumping

While RAF Marham has no dedicated Jettison Area, due to the close proximity of both the coastline and RAF Holbeach Air Weapons Range, jettison procedures are included as additional information.

## FF.2 Emergency Jettison

Following an airborne emergency, there may be a requirement to jettison stores. In extreme circumstances, as a result of a major emergency, the Selective or Emergency Jettison of stores may be actioned at any time.

## FF.3 Use of an Active AWR for Stores Jettison

When time and circumstances permit, it is preferable that stores are jettisoned on an active AWR that is open with an RSO present. Release of stores should, where possible, follow the instructions of the RSO and stores should not be dropped without clearance. Ultimately, aircraft captains are responsible for ensuring the impact areas are clear either visually or by use of the GMR to ensure any stores will fall away from any surface shipping or fixed structures. Ideally stores should be released on a published LOA, close to, but not on, a published target and on a LOA that would limit any collateral damage in event of a weapon or store skipping upon impact. These actions will aid EOD team recovery of equipment that is jettisoned and minimize damage to the AWR targets.

## FF.4 Use of Clear Range Procedures or Inactive AWR

Since closed/inactive AWRs are regularly visited by civilians, it is preferable to jettison stores over the sea using visual clear range procedures to ensure no damage to any vessel or structure. If time permits, crews should attempt to jettison more than 10nm off the coast pointing out to sea and clear of any vessels or structures. If crews have to revert to using an inactive (closed) AWR, then crews are to treat it in exactly the same way as clear range procedures noting there is an increase risk that civilians may be on the range.

## FF.5 ATC Procedure Following Jettison of Stores

If practicable, upon jettison of stores, crews are to advise ATC the time, position and type of stores jettisoned. When crews divert to another airfield, they are to ensure the parent unit DCF is informed at the earliest opportunity of any stores jettison.

## FF.6 Live Stores

When live stores are jettisoned this must be done with the Late Arm set to ‘Safe’.

All requests for further information are to be directed, in the first instance, to RAF Marham Air Traffic Control Tel 01760  337261 ext 3559 or email MRM-ATCSUP@mod.gov.uk.

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## Annex G – Aerodrome Location and Control of Entry

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| | | | | |

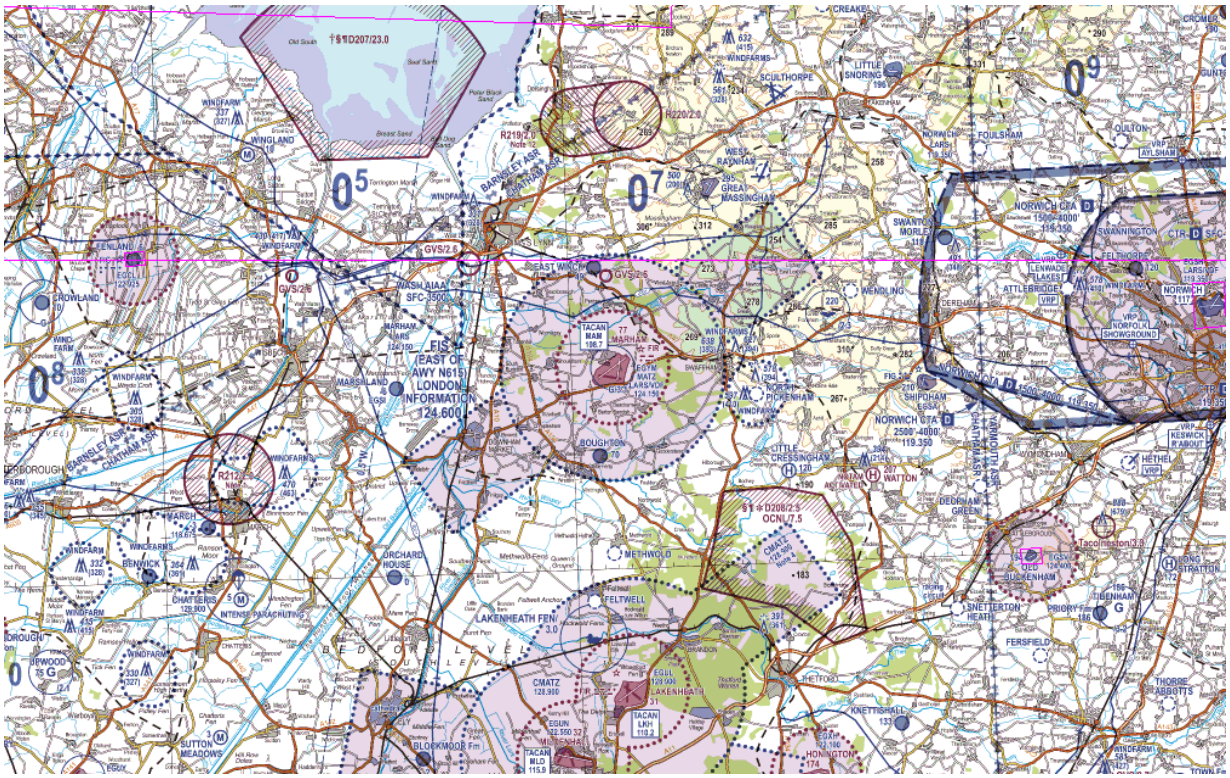
# ANNEX G: AERODROME LOCATION AND CONTROL OF ENTRY AND ACCESS

## G.1 Aerodrome Location

RAF Marham is in West Norfolk located between the market towns of Downham Market and Swaffham. To the North, the A47 runs from King's Lynn around Swaffham towards Norwich and to the West, the A10 runs from King's Lynn past Downham Market and towards Ely. King's Lynn and Downham Market have main line train stations that go direct to/from London with connections to Norwich, Peterborough and beyond.

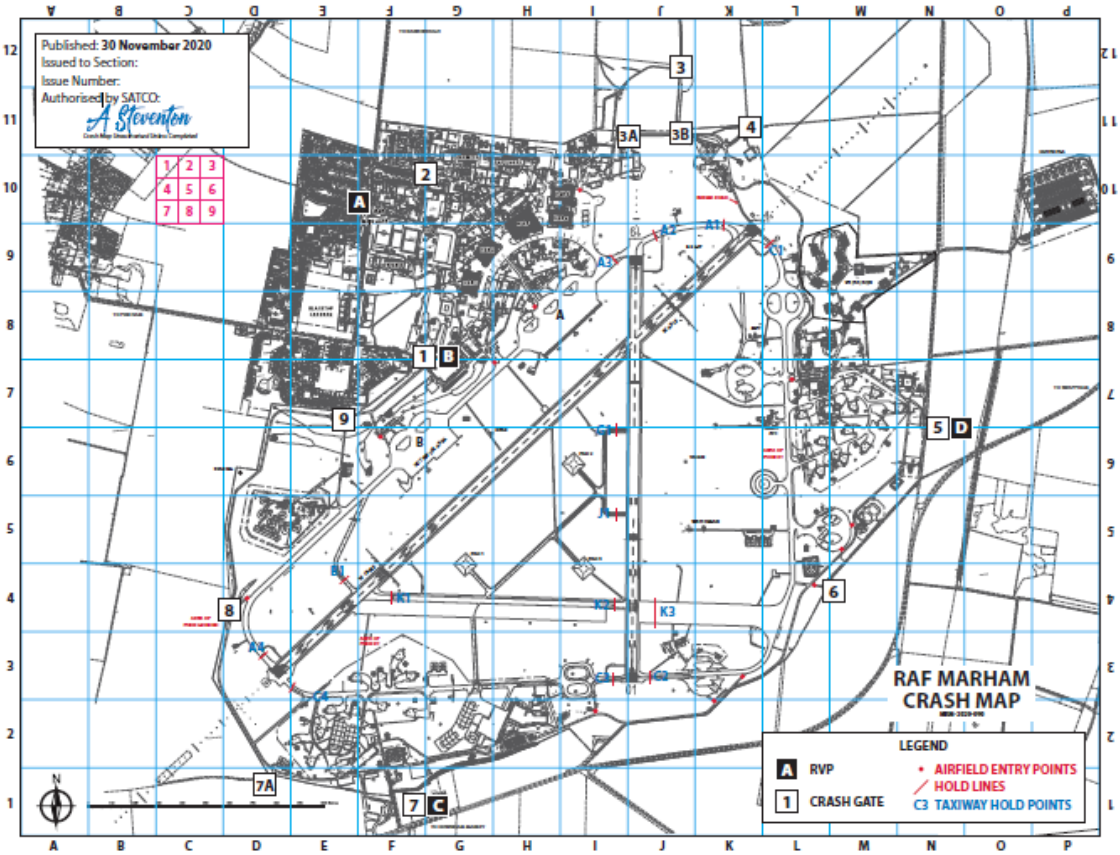
All visitors must report to the RAF Marham Guardroom on arrival. Parking is available at the side of the Guardroom to enable you to do this. All visitors to RAF Marham should be booked in by their host on Station prior to arrival. Photographic ID (Passport or Driving Licence) must be provided to enable the issue of a pass which must be displayed at all times whilst on the Station. Details of vehicle(s) must be provided to enable the issue of a vehicle pass which must be displayed on the dashboard(s) whilst the vehicle(s) are on the unit.

## G.2 Local Area Maps




Marham Rd
Marham Rd
Marham Rd
The St
Chalk Ln
Marham
RAF Marham
Upper Marham
Shouldham Rd
Chalk Ln
A1122
Chalk Ln
Swaffham Rd
Swaffham Rd
Swaffham Rd
White Rd
Narborough Hill
A1122
Fincham Rd

## G.3 Crash Map


Published: 30 November 2020
Issued to Section:
Issue Number:
Authorised by SATCO:
A Steventon
RAF MARHAM
CRASH MAP
LEGEND
RVP
CRASH GATE
AIRFIELD ENTRY POINTS
HOLD LINES
C3 TAXIWAY HOLD POINTS

## G.4 Control of Entry and Access

For this Order, RAF Marham comprises of the following:

a. The areas contained by the perimeter fences surrounding RAF Marham.

b. All other areas, buildings and installations used for official RAF purposes including non-public, sporting and welfare activities outside the areas defined at paragraph above.

c. Further details can be found within Station Standing Orders Part 3 Ch3

Within the areas defined above, the following are out of bounds to all Service and civilian personnel, unless they are required to have access during the normal course of their duties:

a. All aircraft manoeuvring areas.

b. All tech sites and installations.

c. Domestic accommodation, messes, and their surrounds.

d. All contractors' sites, offices, accommodation, and all buildings and works under construction.

e. All Bulk Fuel Installations.

Vehicular access to the aerodrome is only available for personnel holding a valid Airfield Access Permit (FMT600A), IAW RAF Marham DAM, Annex U.

Pedestrian access to the aerodrome is only available with prior authorisation of Air Traffic Control, IAW RAF Marham DAM, Annex U.

Further guidance can be obtained by contact RAF Marham ATC on Ext 4949.

Defence Safety Authority

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# RAF Marham

## Annex GG – Compass Swing Area

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| | | | | |

# ANNEX GG: COMPASS SWING AREA

## GG.1 Compass Swing Area

Compass swings are carried out on the Class 1 Compass Calibration Base, (CCB), at RAF Marham. Use of, and access to, the CCB is to be co-ordinated through Air Traffic Control.

## GG.2 Calibration

The CCB is subject to a magnetic survey every 5 years, which is carried out by QinetiQ, MOD Portland Bill, iaw RA 3521(3) – Perm FW Aerodrome – Facilities.

The Certificate of Compass Base Calibration is held and managed by OC Operations Support Flight.

Defence Safety Authority

# Defence Aerodrome Manual (DAM)

# RAF Marham

## Annex H – Noise Abatement Procedure Orders

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| | | | | |

# ANNEX H: NOISE ABATEMENT PROCEDURE ORDERS

## H.1 Engine ground Runs

Engine Ground Runs (EGR) are permitted to take place by an authorised EGR team iaw MAM-P, Chapter 2.1 & 5.1. All personnel involved in, or responsible for tasking EGRs are to be conversant with all relevant documentation including DAP101B-8600-2(N/R) part 1 Lflt 34 [redacted] Noise from EGRs can be a considerable nuisance to residents, and every effort is to be made to minimise the effects of such noise.

[redacted]

## H.3 Time Restrictions

Between 2300(L) and 2359(L) Mon – Fri, except for EGRs on a detuner, only essential EGRs are to be carried out, and only with the specific approval of the DOO. Approval is to be sought through Eng Ops Control.

After 2359(L) or before 0700(L), no EGRs are to be carried out other than when an operational necessity exists, and only with the specific approval of the DOO. Approval is to be sought through Eng Ops Control before 2359(L).

Arrangements for carrying out EGRs on Saturdays, Sundays and any day that the airfield is closed are to be made with the DOO through Eng Ops Control prior to cease work on the preceding working day where possible.

## H.4 Visiting Aircraft

EGRs of visiting aircraft may be carried out on Alpha or Bravo Dispersals, as appropriate, under the prior notification of Eng Ops Control and the DOO.

## H.5 Embargos

No EGRs are to be carried out during specific noise embargoes directed by Eng Ops Control/Air Ops.

## H.6 Exceptions

Specific requirements of visiting aircraft, Station work services and temporary changes in Station Operating Procedures may require deviation from the above. In all cases, such deviations are to be authorised by the Principal Engineer and are to be sought through Eng Ops Control.

Defence
Safety
Authority

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# RAF Marham

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## 1ST PARTY ASSURANCE

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## AMENDMENT TABLE

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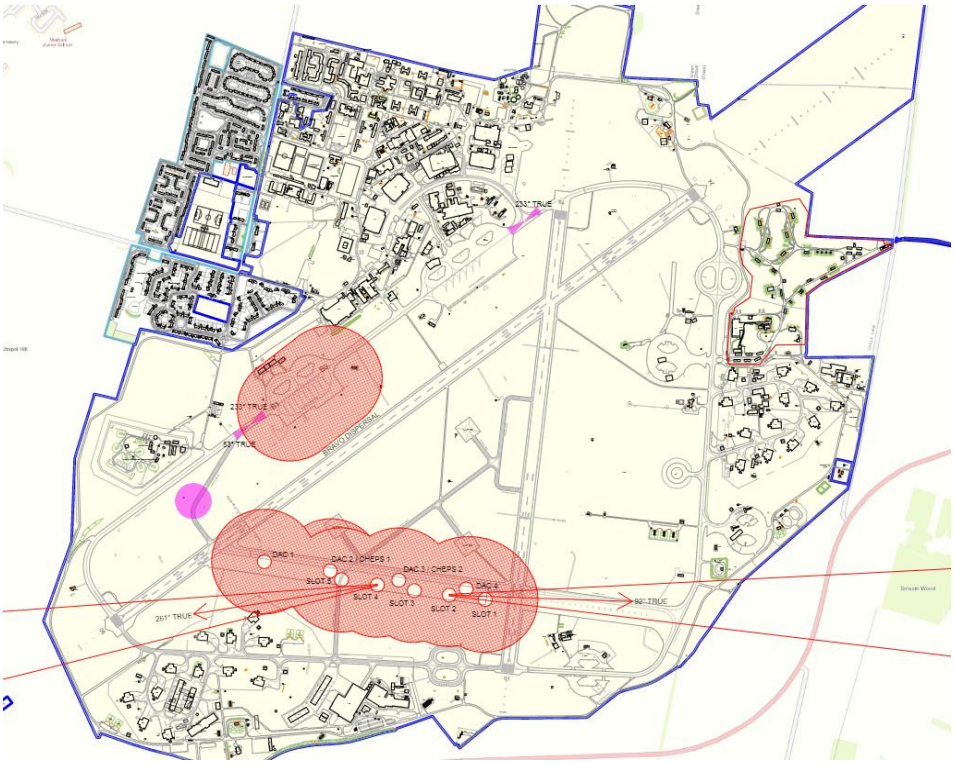
# ANNEX II: DANGEROUS GOODS PROCEDURES

## II.1 Loading/Unloading of Dangerous Goods

Loading and unloading procedures for DAC Air Systems are to be carried out in accordance with Reference DSA03 DLSR - Movement and Transport Safety Regulations - Dangerous Goods Manual (DGM) Version 2, DSA 03 OME Pt 2 – In-Service Management of Ordnance, Munitions and Explosives, MRM AESO Ch 3 Order 7 and RAF Marham Mobility Section procedures.

## II.2 Dangerous Goods Allocated Parking

RAF Marham has 4 allocated parking slots for Air Systems carrying DG. These are Dangerous Air Cargo (DAC) slots 1, 2, 3 and 4, located on Kilo taxiway. There are also 2 Cargo Handling and Explosives Palletisation Slots, CHEPS 1 and 2. These facilities hold MOD Form 1658 Explosives Licence which are controlled by the Small Arms & Explosive Safety (SA&ES) Team.




## II.3 Dangerous Goods Notification

Details of the cargo including the Net Explosive Quality (NEQ) of the DG is to be confirmed and advice is to be sought from Flight Operations on ext 6240.

All requests for further information are to be directed, in the first instance, to RAF Marham A4 iLOC DEOC Tel 01760 446247/8, 95951 6247/8 or via e-mail: Air-1GP-LightningA4DEOC@mod.gov.uk.

The Explosives Safety Representative (ESR) for RAF Marham is WO SA&ES. The SA&ES Team are available to advise on the parking of DAC aircraft through extension 6685 or 6315.

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## Annex I – Temporary Obstructions Orders

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# ANNEX I: TEMPORARY OBSTRUCTIONS ORDERS

## I.1 Identification Markers

All temporary aerodrome and approach obstructions are indicated by illuminated red markers. The markers are arranged to indicate the full dimensions of the obstructions, both horizontally and vertically. Red lights must be placed at airfield obstructions so that they give taxiing air systems and moving vehicles adequate distance to manoeuvre well clear of the obstruction. Vehicles regularly operating on AS movement areas carry flashing amber beacons. Emergency services, fire, ambulance etc, carry occulting blue lights.

## I.2 Area of Unserviceability – Day Operations

Wherever any portion of a taxiway, apron or holding bay is unfit, for the movement of AS but it is still possible for an AS to bypass the area safely, unserviceability markers should be displayed. Unserviceability markers should be placed at intervals sufficiently close to delineate the unserviceable area. An unserviceability marker should consist of a marker board of at least 0.5m in height, 1m in length and Day-Glo orange in colour. ATC will be responsible for ensuring marker boards are positioned accordingly.

## I.3 Area of Unserviceability – Night Operations

On a movement area used at night, unserviceability lights should be used. An Unserviceability light should consist of a red fixed light. The light should be of a sufficient intensity to ensure perceptibility considering the intensity of the adjacent lights and the general level of illumination against which it would normally be viewed. In no case is the intensity to be less than 10cds of red light. ATC will be responsible for ensuring lighting is positioned accordingly.

## I.4 NOTAM Action

ATC staff will issue a NOTAM if the aerodrome or any substantial part of it becomes unserviceable, or if any temporary obstruction, not clearly discernible from the air, cannot be effectively indicated by the standard methods. The report should state:

a. Nature and position of the unserviceable area or obstruction.

b. Nature of markings by day and night.

c. Approximate period for which the area will remain unserviceable.

## I.5 Informing Pilot

ATC is responsible for informing the AS captain of any unserviceability on the aerodrome that will affect an AS' taxi pattern. For outbound AS, the captain will be informed on start. For inbound AS, the captain will be informed after landing and prior to taxi. ATC will initiate alternate taxi patterns, "follow me" vehicles or request wing walkers where appropriate.

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## Annex J – Aerodrome Arresting System Orders

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# ANNEX J: AERODROME ARRESTING SYSTEM ORDERS

## J.1 Aerodrome Arresting Systems

The type of Air System Arresting System employed at RAF Marham is the Rotary Hydraulic Arresting Gear (RHAG) Mk1.

Orders for the safe operation of the RHAG (including standard operating configurations) are available iaw extant policy guidance in the DAP 119J-1405-12 (Formerly AP 119J-1405-12).

## J.2 Aerodrome Arresting System Maintenance

Ground Engineering Flight (GEF) is responsible for daily maintenance of the RHAG prior to the airfield opening, night flying and following airfield closure.

The RHAG (Type Code DDT) are maintained by suitably qualified and trained personnel within GEF.

RHAG maintenance schedules are as follows:

a. Before use servicing (Gen Mech E)

b. 3 monthly Maintenance (Gen Tech (M)

c. 3 monthly Maintenance (Gen Tech E)

d. 12 monthly Maintenance (Gen Tech (M))

e. Restoration Maintenance (Gen Tech (M)/E)

Tape-DDT:

a. 24 Monthly or 50 Arrests Maintenance (Gen Tech (M))

b. 48 Monthly or 100 Arrests Maintenance (Gen Tech (M))

EAU-DDT, ABS-DDT, and RES-DDT:

a. 60 Monthly Maintenance (Gen Tech (M) or Contractor)

All maintenance and operational activities are conducted iaw DAP 119J-1406-5F and DAP 119J-1406-12.

## J.3 Aerodrome Arresting System Monitoring

The monitoring of Air Systems arresting mechanisms is carried out using Joint Asset Management Engineering Solutions (JAMES), controlling maintenance including all child components in accordance with the instructions detailed within the JAMES SOPs for Arrestor Systems.

All requests for further information on this subject is to be directed, in the first instance, to RAF Marham Eng Ops Control Tel 01760 446247/8 from civilian telephone networks or 95951 6247/8 from military networks or email: MRM-ENGOPS@mod.gov.uk.

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## Annex JJ – Hydrazine Leak

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# ANNEX JJ: HYDRAZINE LEAK

## JJ.1 Hydrazine

Hydrazine is a highly toxic fluid used to fuel the emergency power unit of F16 Air System. F16 pilots are responsible for directing procedures for handling any leaks that might occur at RAF Marham.

## JJ.2 Actions on Contamination

The probability of a hydrazine leak is small and over-reaction on the part of individuals should be avoided. However, in the event of a suspected hydrazine contamination an F16 pilot is likely to take the following actions:

a. Advise ATC.

b. Request parking in a remote area of the airfield.

c. Request that entry to the parking area be strictly controlled.

d. Ensure all equipment and personnel to remain upwind of the Air System.

e. Request the establishment of rapid communication with his home base to discuss technical assistance.

Should RAF Marham receive an F16 Air System under these circumstances the Sup/ATCO IC is to take the following actions:

a. Initiate Emergency State 2.

b. Inform the SMO.

c. Deploy a suitably equipped vehicle with Management Radio Equipment (MRE) for use by the F16 pilot for ground-ground comms.

d. Consider diverting other Air Systems in the event the Crash Crews are engaged in the incident or discharging media from Airfield Rescue Vehicles.

e. Modify taxi patterns to ensure all traffic remains upwind of the incident.

f. React to further instructions from the F16 pilot as necessary.

In the event of an F16 hydrazine incident RAF Marham remote parking area is taxiway Kilo.

All requests for further information are to be directed, in the first instance, to RAF Marham Air Traffic Control Tel 01760 337261 Ext 4949 Email MRM-ATCSUP@mod.gov.uk.

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## Annex KK – UAS RPAS Orders

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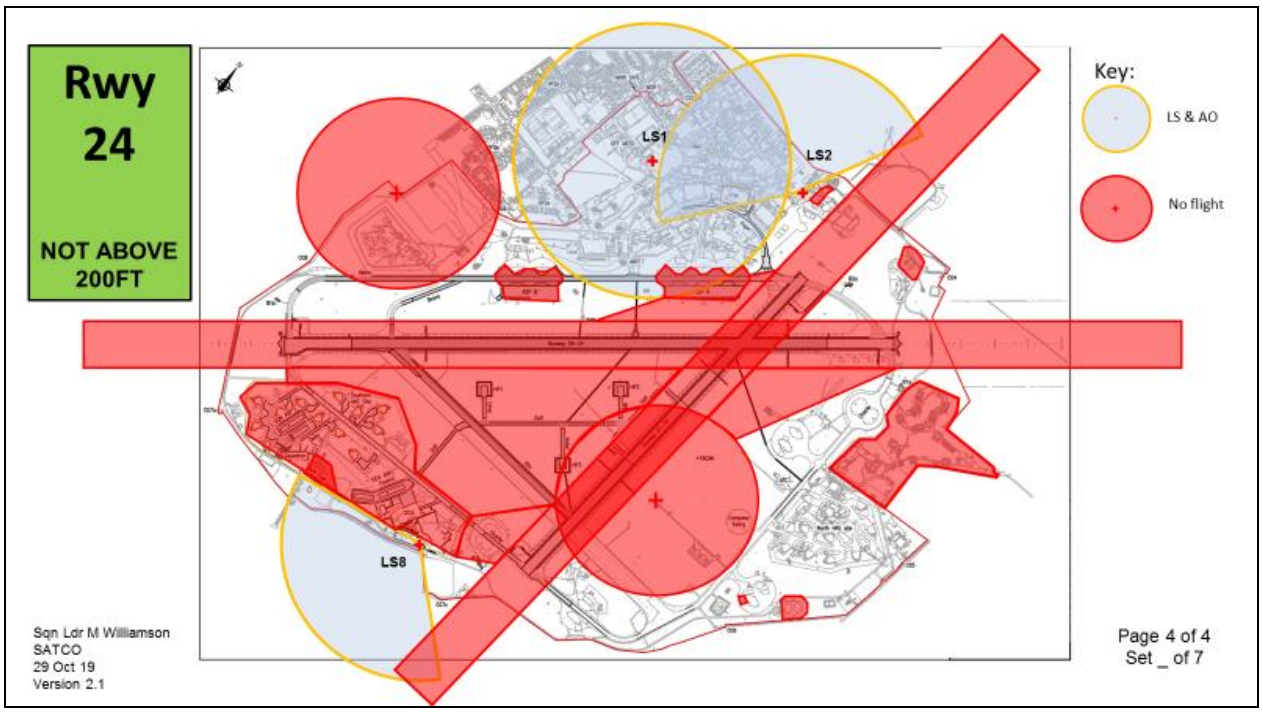
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Figure 2

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## Annex K – Manoeuvring Area Safety and Control Orders

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# ANNEX K: MANOEUVRING AREA SAFETY AND CONTROL ORDERS

## K.1 Arrangements for allocating Air System Parking Positions

The Duty Eng Ops Controller is responsible for accepting or rejecting all requests for non-Marham based aircraft to visit Marham and be handled by Marham personnel. The criteria used to make this decision will include, as a minimum, the availability of suitable parking, the Armament State of the aircraft, the reason for the visit and any other concurrent tasking on VASS. Generally, all visiting aircraft, will be directed by the Eng Ops Controller to VASS.

## K.2 Arrangements for Initiating Engine Start

Aircrew will liaise with the VASS see off team via hand signals to confirm that all is clear and safe prior to engine start.

The supervisor will ensure the area is clear from obstructions and personnel, prior to approving the engine start. The VASS team will also ensure that a fire bottle is situated at a convenient location in the event that it is required during start up. Once the pilot has signalled the aircraft start is successful the fire bottle will be relocated, by VASS, to the 2nd engine (if there is one) for the additional start, awaiting signal again from the pilot.

Once the aircrew are ready to depart they will signal VASS to remove the aircraft chocks (if they have not already done so – Prefects have the chocks removed prior to engine start due to the propeller on the front in proximity to the chocks). The ground handling team from VASS will then reposition themselves in order to safely marshal the aircraft out of the parking location and onto the taxiway.

## K.3 Ensuring Clearance for Air System Push-back (if required)/ restricted taxiing

Air System towing regulations are laid down in MRM AESO 03-14 Procedure for Handling Visiting Aircraft.

## K.4 Marshalling Services

Air System Marshalling Services within VASS are laid down in MRM AESO 03-14 Procedure for Handling Visiting Aircraft.

## K.5 'Follow Me' Provision

The ATC rover (Yellow Ford Ranger) will be used as a 'follow me' vehicle if one is required.

## K.6 Enforcement of Safety Precautions during Air Systems Refuelling Operations

All VASS trained personnel hold the MAM-P authorisation B211 with the Limitation of – Refuelling Assistance Only. This allows VASS to assist the crew members with gravity and pressure refuels as required. Training for gravity and pressure refuels are carried out during training and the ISpec is followed during this process. Here is Link to the ISpec and Training packages used at VASS. ISpec 03 lists all of the safety precautions and the assistance that VASS can provide.

## K.7 Order for Runway and Apron Sweeping; Apron Cleaning

The aerodrome sweeping programme has been devised to eliminate FOD from the operating surfaces. ATC will be informed by MT Flt if the programme cannot be met. Whilst it is highly desirable for the published programme to be followed it may be necessary for operators to request diversion of effort into a priority area, in which case MT are to be advised and requested to re-arrange the programme in agreement with the Supervisor.

## K.8 Arrangements for Reporting Incidents and Accidents on Apron

Any situation that may have an immediate effect on the safety of air system operations is to be reported as soon as possible to ATC via MRE radio (RAF Marham Tower on channel 2) or telephone 01760 337261 Ext **333** from a civilian telephone network 95951 Ext **333** from a military network.

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## Annex L – Emergency Orders / Aerodrome Crash Plan

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| | | | | |

# ANNEX L: EMERGENCY ORDERS / AERODROME CRASH PLAN

## L.1 Emergency Orders / Aerodrome Crash Plan

The Aerodrome Crash Plan for RAF Marham is detailed within the RAF Marham Aircraft Post Crash Management Plan.

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## Annex M – Aerodrome Rescue and Fire Fighting Services and Training Orders

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## 1ST PARTY ASSURANCE

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| | | | | |

# ANNEX M: AERODROME RESCUE AND FIRE FIGHTING AND TRAINING ORDERS

| M.1 Operational Output | | | | |
|---|---|---|---|---|
| ID | Date | Reviewed | Name | Link |
| 1 | 12 May 21 | 12 May 21 | Generic Standard Operational Procedures | Link |
| 2 | 12 May 21 | 12 May 21 | Local Standard Operational Procedures | Link |
| 3 | 12 May 21 | 12 May 21 | FRS Generic Risk Assessments | Link |
| 4 | 12 May 21 | 12 May 21 | Defence ARFF Service Provider Chief Fire Officers Instructions | Link |
| 5 | | | Tactical Information / Response Plans covering site-specific operational requirements | New LAFB TIPs |
| 6 | 12 May 21 | 12 May 21 | Fire Section Orders | Link |

| M.2 Task Resource Analysis (TRA) | | | | |
|---|---|---|---|---|
| ID | Date | Reviewed | Name | Link |
| 7 | | | Generic Standard Operational Procedures | Under Development |

| M.3 ARFF Assessments | | | | |
|---|---|---|---|---|
| ID | Date | Reviewed | Name | Link |
| 8 | 1 Sep 20 | 1 Sep 20 | DFSR Form 01 - Response Area Assessment. | Link |
| 9 | 1 Apr 21 | 1 Apr 21 | DFSR Form 02 - 1000m Assessment. | Link |
| 10 | 1 Apr 21 | 1 Apr 21 | DFSR Form 03 - Water Assessment. | Link |
| 11 | 22 Nov 20 | 22 Nov 20 | DFSR Form 04 - Category for Specific Hazard Assessment[1]. | Link |
| ~~12~~ | | | ~~DFSR Form 06 - Reduction of ARFF cover[2].~~ | ~~N/A~~ |

| M.4 ARFF Training Area Orders and Training Area Risk Assessments | | | | |
|---|---|---|---|---|
| ID | Date | Reviewed | Name | Link |
| ~~13~~ | | | ~~ARFF Training Area Orders~~ | ~~N/A~~ |
| ~~14~~ | | | ~~ARFF Training Risk Assessments~~ | ~~N/A~~ |

[1] For Aerodromes operating under RA 3049: Defence Contractor Flying Organization responsibilities for UK Military Air System Operating Locations, Form 5 will be used.
[2] For Aerodromes operating under RA 3049: Defence Contractor Flying Organization responsibilities for UK Military Air System Operating Locations, Form 7 will be used.

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## Annex N – Disabled Air System Removal

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# ANNEX N: DISABLED AIR SYSTEM REMOVAL

## N.1 Disabled Air System Removal

This order details the actions to be taken by engineering personnel to remove an air system that is unable to vacate the runway or taxi way under its own power due to unserviceability. For an air system that is unable to vacate the runway or taxi way under its own power due to an accident involving major loss of life or Cat 4/5 damage RAF Marham Aircraft Post Crash Management Plan should be implemented.

## N.2 Marham Based Lightning Aircraft

The owning Sqn is responsible for recovering a disabled Lightning aircraft IAW MRM AESO Book 2, Part 1, Chapter 1, Order 1.

## N.3 Visiting Air System

If a visiting Air System becomes disabled, the following actions are available:

a. The Visiting Aircraft Support Section (VASS) has the capability to tow visiting air systems that are unable to vacate the runway or taxi way under its own power.

b. The VASS supervisor is to check with the air system captain that the air system is in a safe condition to move i.e. the air system towing system is serviceable and all safety pins are fitted.

c. The air system captain has overall responsibility for the movement of the air system.

d. If VASS does not have the capability to move the air system due to air system unserviceability or lack of correct towing arm etc. they are to inform ATC and FS DEOC who will provide direction.

## N.4 Disabled Air System with Hydraulic or Fuel Leak

If the disabled Air System has a leaking Hydraulic or Fuel system the aircraft should directed to shut down as soon as possible. The air system should be parked on a concreted area until all the leaks are contained/cleaned. This is to prevent damage to the Tarmac taxi way. For any air system with a Hydraulic or Fuel leak ATC should be informed, and they will provide direction.

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## Annex O Part 1 – Air Traffic Management Orders

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# FOREWORD

Annex O to the RAF Marham DAM contain ATC orders and instructions that supplement those outlined within BM Orders and MAA regulatory publications; the content applies to all ATC personnel resident or attached to RAF Marham. They amplify, but in no way replace, orders by a higher authority. ATC personnel must adhere to these orders. Any order herein found to be in confliction with any other order or instruction issued by a higher authority, is to be reported to SATCO/DSATCO immediately.

**Acquaintance with Orders**. Iaw BMO Section 200 Order 202.1, all personnel are to ensure that they are fully conversant with the latest information prior to taking over watch. This includes checking the Op/Admin/SM and Standards Info folders and signing as having read new entries. RAF Marham operates a red/green T-card system that highlights staff currency. T-cards will be turned to red if any of the documents listed below are amended; the document will be promulgated on the briefing board and all cards turned to red. All personnel are personally responsible for ensuring Publication Amendment Signature folder, B13 is completed and signed for, prior to turning their T-card to 'green' and commencing duty. ATCOs are not permitted to control or supervise unless they are 'in the green'. Failure to self-brief adequately may result in administrative and/or disciplinary action. Documents to be read may include but are not limited to:

a. Documents listed within BMO Annex A to Section 300 Order 307.

b. RAF Marham Defence Aerodrome Manual (DAM).

c. RAF Marham ATC Administrative Order Book.

d. RAF Marham local documents held within Briefing room.

**Authority**. All orders contained within this annex are authorised by the SATCO. Contravention of any order may result in administrative and/or disciplinary action taken against the individual(s) concerned.

A Steventon
Squadron Leader
SATCO
Royal Air Force Marham
9 Jul 21

# GLOSSARY

The following is a list of abbreviations contained within this Annex:

| Abbreviation | Meaning |
|---|---|
| ACR | Approach Control Room |
| ADC | Aerodrome Controller |
| ADPF | Air Defence Priority Flight |
| AS | Air systems |
| ASMT | Airfield Surface Mechanical Transport |
| ASOM | Air & Space Operations Manager |
| ASOS | Air & Space Operations Specialist |
| ATCO | Air Traffic Control Officer |
| ATIS | Air Traffic Information System |
| ATZ | Air Traffic Zone |
| BCP | Business Continuity Plan |
| BM | Battlespace Management |
| BMO | Battlespace Management Orders |
| CCC | Code Callsign Conversion |
| COR | Climb Out Restriction |
| DASOR | Defence Air Safety Occurrence Report |
| DCF | Director of Central Flying |
| Dir | Director |
| DOO | Duty Ops Officer |
| ET | Electronic Tote |
| FJ | Fast Jet |
| FO | Flame Out |
| FOD | Foreign Object Damage |
| GEF | Ground Equipment Flight |
| GND | Ground Controller |
| GRMS | Ground Radio Maintenance Squadron |
| HR | Hot Refuelling |
| ICF | Initial Check-In Frequency |
| IFR | Instrument Flight Rules |
| ILS | Instrument Landing System |
| IMC | Instrument Met Conditions |
| MARSA | Military Accepts Responsibility for Separation of Aircraft |
| MATZ | Military Air Traffic Zone |
| MID | Military Instrument Departure |
| MRE | Management Radio Equipment |
| NOTAM | Notice To Aviation |
| NVG | Night Vision Goggles |

| | |
|---|---|
| PAPI | Precision Approach Path Indicator |
| PAR | Precision Approach Radar |
| PD | Practice Diversion |
| PFO | Precautionary Flame Out |
| POB | Persons On Board |
| PSR | Primary Search/Surveillance Radar |
| QFE | Query Fixed Elevation |
| RA | Radar Approach Controller |
| RHAG | Rotary Hydraulic Arrestor Gear |
| RTC | Radar Training Circuit |
| RVL | Rolling Vertical Landing |
| SASSY | Simulated Asymmetric |
| SDEB | Station Daily Execution Brief |
| SL | Slow Land |
| SSR | Secondary Surveillance Radar |
| STARS | Squadron Training Achievement Recording System |
| Sup | Supervisor |
| SWB | Switchboard |
| TACAN | Tactical Air Navigation |
| TRC | The Runway Caravan |
| VCR | Visual Control Room |
| VFR | Visual Flight Rules |
| VL | Vertical Landing |
| VMC | Visual Met Conditions |

# ANNEX O: AIR TRAFFIC MANAGEMENT ORDERS

## CHAPTER 1: GENERAL ORDERS

### O.1.1 Aircraft Movements - Priorities

[redacted]

### O.1.3 ATIS/Weather Information to AS

**General.** ATCOs are to ensure that AS inbound not recovering via RAF(U) Swanwick have received the latest information from ATIS. RAF(U) Swanwick should pass the latest weather information to all inbound AS to RAF Marham, but a check should be conducted if doubt exists. Where ATIS information has not been received in BLU/WHT Conditions, Short Weather is to be passed. In GRN or worse Met Conditions, full Met Information is to be passed.

**Start Up/Taxiing.** Stn based AS do not need to request start but should request taxi instructions stating Rwy, QFE and current ATIS code. If Rwy and QFE is not given then they are to be passed, with a correct readback received prior to a taxi instruction.

**Bird Activity High.** The bird activity level should be annotated by the ADC in the VCR daily. If the bird activity level on the airfield is high, the ADC must inform the Supervisor; this information should be put on ET/ATIS by the ASOS.

### O.1.4 Diversion Arrangements – Stn Based AS

Instructions for the diversion arrangements of 1 Gp airfields are found in HQ 1Gp ASO 2310(5). Booking of diversion airfields for stn based AS is completed by Stn Ops on the instructions of the DCF.

**Diversion to Alternate 1 Airfields (Weather).** When stn based AS divert to the Alternate 1 diversion airfield the DOO will inform 1 Gp Ops. The Supervisor/ATCO IC is to advise the D&D Controller and take whatever action is required to hand over the AS to en-route agencies.

**Diversion to Alternate 2 Airfields (Crash).** When stn based AS divert to the Alternate 2 airfield the Supervisor/ATCO IC is to make the arrangements via D&D.

### O.1.5 Crash Action & Crash Categories

**General.** RAF Marham has a minimum Crash Category of ICAO 5 for stn based AS, this can be surged to ICAO 8 with prior approval. The Fire Section's primary role is the support of flying operations, although it may commit resources to domestic or other non-operational incidents with approval from the Supervisor. For the foreseeable future, the Fire Section will be operating out of the NE HAS Site and best routing to an incident should be assessed from this location.

[redacted]

**Supervision and Control**. Once Crash Action has been initiated, it is the responsibility of the Crew Commander to supervise and control the incident regardless of the aircrew stating they require no further assistance. Crew Commanders are to inform ATC as soon as possible if they intend to commit their assets, as once they are committed there are no Crash/Fire facilities available for the immediate future; the Crash Cat will be reduced to ICAO 0 (Airfield BLACK). Subsequent actions, such as diverting or holding off airborne AS are to be undertaken through liaison with the DCF.

**Hot Brakes.** When responding to Hot Brakes, ES 2 action will be taken. On arrival, the Crew Commander will obtain the temperature and decide on further actions.

[redacted]

**Emergency State 3 Action**. ES 3 action is to be initiated in the following circumstances:

a. DAC Movements - One Fire vehicle (as directed by the Duty Crew Commander) is to follow the DAC AS as it taxies and whilst loading/unloading DAC.

b. Aeromed Flights.

[redacted]

d. Display Flying.

e. As instructed by the ATC Supervisor.

**Fire Sections response upon hearing the crash alarm.** IOT decrease the response times to an emergency on the airfield the following actions are to be carried out:

Emergency at a single location;

a. Fire section will pick up and put down the crash phone – no vocal communication will occur.

b. Crew Cdr will request emergency message to be passed via MRE.

c. ATC will pass ES type, Location/Grid Ref and the transit route to where the emergency has occurred, receiving a full readback from the Crew Cdr.

d. Once fire vehicle(s) are mobile, ATC will pass the full emergency message.

Emergency at dual/multiple locations;

a. Fire section will pick up and put down the crash phone – no vocal communication will occur.

b. Crew Cdr will request emergency message to passed via MRE.

c. ATC will pass the full emergency message, receiving a full readback from the Crew Cdr. The Crew Cdr will decide on the route to take and where to position vehicles, informing ATC.

d. ATC will pass the relevant clearance for the vehicles to proceed.

**Practice Crashes.** In order to improve the effectiveness of our own emergency procedures and exercise the Fire Section and Medics' response to airfield incidents, practice crashes should be carried out weekly by the ATC Supervisor. In order to ensure maximum training value and limit the impact on day-to-day operational activities the following procedure will be followed:

a. The Fire Section will highlight any periods they are engaged with stn/section training activities that would be adversely affected by a practice crash.

b. The Fire Section will provide a safety officer to observe and de-brief the exercise (pre-positioned if necessary).

c. To initiate the practice, the Supervisor should liaise with the SFireO, complete the Practice Emergency Plaque with an agreed scenario and hand to the ADC.

d. Attention should be given to initial actions of the VCR Team and, response time of the Crash Crew and Medics.

After each practice the Crew Cdr and Safety Officer will report to ATC for a full de-brief (medics will attend if deemed necessary).

**Release of Airfield Rescue Fire Fighting (ARFF) Assets in Support of Incidents**

Iaw BMO Section 400 Order 402 and JSP 426 Part 1 the RAF Marham ATC Supervisor/ATCO IC is to provide support to ARFF when life may be at risk. The following considerations are to aid the decision-making process:

a. **Local Authority Fire and Rescue Services (LAFRS) Response Times:**

(1) Kings Lynn – 30 Minutes

(2) Swaffham – 30 Minutes

b. **ARFF Response Times:**

(1) On Stn – Under 3 minutes.

(2) Off Stn – In excess of 3 minutes (Crew Cdr will advise).

c. **Local ARFF Priorities:**

(1) Airborne AS recovering to Marham with an Emergency.

(2) Other AS emergencies (Hot Brakes etc).

(3) Royal Flights.

(4) VIP Flights.

(5) Stn Based AS.

(6) Visiting As.

(7) Domestic cover.

Supervisors/ATCO ICs may consider diverting AS should the Crash Cat reduce as a consequence of supporting other incidents. The DCF should be consulted in the first instance and OC Ops is to be informed of the ongoing situation along with an estimated time for recovering the Crash Cat.

**O.1.6 Overdue Action Diversion Arrangements**

RA 3312 dictates the policy on when an AS is overdue and the actions that should be taken. However, prior to an AS being overdue at RAF Marham, the following action is to be taken.

**Stn based AS.** Providing a “red time” is on ET, approx. 5-10 mins prior to the time expiring the SWB ASOS is to;

a. Confirm that the AS is not currently on frequency or pre-noted inbound (via RA/Sup).

b. Check the information on STARS to confirm the AS sortie length.

c. Check with the relevant Sqn to confirm their ETA.

d. If the AS is still expected at the ET "red time" inform the ATC Supervisor.

**Visiting AS.** Providing a "red time" is on ET, approx. 5-10 mins prior to the time expiring the SWB ASOS is to;

a. Check the information on STARS to confirm airborne time and time on route.

b. Inform Marham Stn Ops and ask them to make enquiries at the departing Unit.

If the above checks fail to locate the AS and provide an accurate ETA then Overdue Action must be initiated iaw RA 3312.

**O.1.7 Spillages of Hydraulic Fluid or Fuel on Asphalt Surfaces**

Whenever an AS shuts down following a RHAG engagement it potentially expels hot hydraulic fluid and/or fuel. Left untreated on an asphalt surface, this can cause deterioration and softening, requiring repair. To prevent this, whenever hydraulic fluid, or aviation fuel, is expelled on aerodrome asphalt surfaces all ATCOs are to ensure the actions contained at Annex A of RAF Marham Major Accident Plan Part 2 are completed and then:

a. Assist in the communication & co-ordination of the responding clean-up teams.

b. Log all details in Duty Log for further reference and reporting.

**O.1.8 Individual Safety Management Responsibilities**

For all personnel:

a. Safety shall, whenever practicable, be given the highest priority above operational, training, public relations, commercial and working practice pressures. Nonetheless, an appropriate balance of safety and the delivery of operational capability shall be maintained.

b. All personnel have an individual responsibility for the impact on Flight and Air Safety from our actions.

c. All personnel must be proactive in highlighting safety concerns, observations or suggestions either through the normal escalation channels i.e. InForm, DASOR etc.

For personnel in executive appointments, such as training or standards, safety implications are to be given full prior consideration whenever changes to equipment, procedures, policy, or personnel are contemplated.

**O.1.9 Emergency States for Aeromedical Flights & Air Ambulance Flights within Norfolk**

There are 4 categories of Aeromedical flight. According to the category, the following actions are to be taken when RAF Marham is notified of an Aeromedical flight:

a. **Aeromed A**. All routine Aeromed flights. The Crash Ambulance (Medic One) is to be on normal standby.

b. **Aeromed B**. An inbound Aeromed flight with Class 2A (immobile) stretcher patients. ES 3 action is to be taken. In addition, one Fire vehicle and Medic One are to be in attendance.

c. **Aeromed C**. An inbound flight containing immobile patients listed as "very seriously ill" or "seriously ill". ES 3 action is to be taken. One Crash vehicle, Medic One and Starlight are to be in attendance.

d. **Aeromed D**. Aeromed AS requiring refuelling with patients on board. ES 3 action is to be taken. An MFV and Medic One are to be in attendance.

The Medical Staff also have ground handling responsibilities and meet all inbound RAF Aeromed flights. Although there is no requirement to do so, the Medical Staff may also attend civil Aeromed flights during normal working hours.

The RMC will notify of any special requirements for RAF Aeromed flights.

**Air Ambulance Flights within Norfolk**. Air Ambulance Flights by Helicopters use the generic callsign 'HELIMED'. This is followed by their number ('28' signifies that the AS is Norfolk based). The final part of the callsign is a letter to denote the flights tasking, as follows:

a. A (priority flight).

b. E (positioning flight).

c. Z (training flight).

i.e. 'HELIMED 28A'

**O.1.10 Rules for Acceptance of Diversion Commitments**

Iaw BMO Section 200 Order 205 Supervisors/ATCO ICs should consider the following when accepting diversion commitments:

a. RAF Marham's planned flying.

b. Actual and forecast weather.

c. Likely warning time that could be expected from diverting AS.

d. Equipment serviceability.

e. ATCO workforce.

f. VASS workforce

The ATCO IC/ASOS is only authorised to accept Coningsby diversion commitment 6/4 [redacted] from 0800-1700L unless a Supervisor is present, or the flying window varies significantly. All other diversion commitments are to be approved by the Supervisor.

Diversion commitments are to be notified immediately of any change in Colour Code or availability of approach aids.

The standard cable configuration is Both Cables Down. Should a Diversion Commitment request an alternate set up, approval is to be sought from the Supervisor.

**O.1.11 Rules for Acceptance of Practice Diversions**

PD requests should only be approved by the Supervisor or ATCO I/C. If the Supervisor or ATCO I/C are unavailable, a fully endorsed Approach Controller can deal with the request.

[redacted]

**O.1.12 Visiting AS**

**Visiting Aircraft Brief**. All visiting aircraft to Marham should be asked if they are "familiar with Marham as published". If they are unfamiliar, they are to be briefed on the following;

a. Cable configuration.

b. PAPI's set 3 degrees on Rwy 24/19/01 - set at 2.5 degrees on Rwy 06.

c. Circuit height and direction.

d. Level break at 1000ft QFE.

e. Slow lane for rwy 06/24 is the south side.

f. Slow lane for rwy 01/19 is the west side.

**Noise Abatement Procedure**. FJ visiting AS in VFR conditions should be briefed on the noise abatement procedure for RAF Marham if unfamiliar.

**O.1.13 Live Outside Broadcasts at RAF Marham**

Any live outside broadcast conducted by a civilian television or news agency could have serious repercussions for any Electro Explosive Devices (EEDs), such as EEDs contained within an aircraft operating in/around RAF Marham. This is because of the operating nature of the broadcast equipment and there are required minimum safe operating distances.

If notified about an upcoming/ongoing live outside broadcast with in or around RAF Marham, ATC should be made aware through ILOC of any restrictions. If in any doubt, contact Explosive Safety for further guidance.

**O.1.14 ATCO Currency**

ATCOs are mandated to maintain currency in all their endorsed disciplines iaw BM Standards & Endorsement (SED) Section 205. Currency is based on a combination of number of hours and different events.

Notwithstanding the 30-day requirement, any ATCO that does not consider themselves to be current in a controlling discipline should immediately inform the Supervisor/ATCO IC.

Hour-based currency in VCR, SRE & Supervisor should be logged daily on the spreadsheet, by writing the number of hours in the appropriate box. In order to maintain currency ATCOs need to achieve 4hrs currency in VCR, 4 hrs currency in SRE and 4 hrs currency in Sup, in a rolling 30-day period.

For PAR/SRA currency, ATCOs require a minimum of 6 PAR and 6 SRA a month. The amount done on each day should be logged on the spreadsheet.

Events based currency is split into Generic and Unit Specific, with separate spreadsheets for logging both. ATCOs should annotate the dates they carried out the procedures in the appropriate box.

At the end of each working week the Standards Team will be responsible for collecting the data and transferring it to the electronic version.

Exercises on ATA have been created to achieve all the event-based currency requirements. If an ATCO is unable to maintain live currency in SRE, PAR and/or SRA, ATA should be used.

**O.1.15 Actions on Notifications of AS Inbound Carrying Passengers with Suspected Communicable Disease**

BMO Section 100 Order 120 details the information that a pilot has to pass to ATC if they become aware that they have someone on board who is suffering from a suspected communicable disease. When a controller receives such information, they are to pass this immediately to the Supervisor / ATCO IC, who is then to arrange for the following:

a. Ensure Stn Ops are informed, passing all relevant information, as soon as practicable.

b. Ensure that the Public Health England (PHE), East of England is informed without delay on 0330 303 8537.

Early notification will enable Stn personnel to take appropriate measures; however, as a general guide, ATCOs should instruct pilots to shut down in their designated slot and await further instructions prior to offloading passengers. Stn Ops will co-ordinate the response to such an incident and are to be kept informed throughout. No emergency state action is required.

**O.1.16 Airfield Crane Operation**

The approval process for crane operations is within RAF Marham DAM Annex T. ATC are responsible for ascertaining if there is an Obstacle Limitation Surface (OLS) breach and carrying out further actions; this is conducted by the ASOM or their nominated deputy.

Once approved, the ACR specialist will raise a NOTAM. The VCR specialist will annotate the work in progress slides and board.

**O.1.17 Wyton Pathfinders**

The following actions are to be implemented to decrease the risk to Pathfinders flying club operating ivo Wyton airfield;

a. Station Operations are to call SWB specialist with the times that Pathfinders flying club are active.

b. SWB specialist is to inform the Supervisor and annotate the times on the ET weather page.

c. Supervisor is to ensure all ATCOs are made aware that Wyton airfield is active and the details are annotated on the plaques located on the ACR consoles.

**O.1.18 Briefing of Contractors and Working Parties**

A suitably qualified ATCO (holding a valid ADC endorsement) is to supervise and ensure a comprehensive brief is delivered to all Contractors and Working Parties looking to carry out work on the airfield.

Once the brief has been delivered iaw WIP paperwork, the ATCO is to sign that they have ensured the brief is correctly delivered and that the VCR specialist is fully conversant with the WIP that is taking place.

**O.1.19 EVCS Operations**

EVCS is an emergency use radio designed to cater for a catastrophic communications equipment failure. It operates on a Transceiver and therefore should not be used for the provision of an air traffic service (ATS). A Transceiver only captures one transmission and recording at a time.

**Single UHF frequency failure**. Utilise EVCS to transmit to air systems, switching them immediately to another available mains frequency.

**Multiple/catastrophic frequency/MASCOT VCCS failure**. Utilise EVCS to transmit to all systems for critical flights, transferring air systems on frequency to another suitable unit.

**Training**. All personnel are to undergo equipment specific training before utilising the EVCS, following guidance from the DUTO.

## CHAPTER 2: AERODROME ORDERS

### O.2.1 VCR workforce

Outside of notified flying periods, VCR workforce can be reduced to the specialist only with supervisor approval.

During any upcoming airfield infrastructure works, [redacted] there could be a significant increase in contractor work and vehicular activity. In this instance, or any other significant increase in activity, an ADC or ground controller should be present in the VCR throughout the flying window. Secondary or associated duties are not to be carried out in the VCR to ensure an adequate lookout and awareness of the traffic situation is maintained. This will assure the DDH that ATC are maintaining control and safety of all personnel on the airfield.

### O.2.2 ADC Responsibilities

The ADC is to carry out their duties in accordance with RA 3261. They are not to leave the VCR during their tour of duty unless authorised to do so by the Supervisor/ATCO IC, or when relieved by another suitably qualified ATCO. In addition, the ADC is to:

a. When Crash Action is initiated, request a Ground Controller.

b. Supervise the work of the VCR ASOS.

c. Ensure serviceability checks of the Crash and Emergency telephones and the Crash Alarm are carried out prior to the commencement of operations.

d. Complete and sign the daily check of arms record (RAF F2943) when the VCR safe is opened. All issues from/to the safe are to be recorded. ADC is to remain vigilant throughout their period of duty in the VCR to ensure the security of all weapons and ammunition.

e. When the aerodrome visibility drops below 1000m or the ADC cannot see the whole length of the rwy, Low Visibility Procedures (LVP) are to be implemented.

### O.2.3 Ground Controller Responsibilities

The Ground Controller is to conduct their duties iaw RA 3261 and is responsible to the ADC for the control of all AS, vehicles and pedestrians on all surfaces of the movement area except from the rwys.

In addition, the Ground Controller is specifically responsible for:

a. Issuing taxi instructions to AS and passing departure details to RA.

b. Obtaining departure clearance from RA and passing the agreed departure clearance to the AS, ensuring FJ visiting AS are familiar with noise abatement procedures.

c. Supervising the use of MRE equipped vehicles on the Manoeuvring Area. Permission to enter or cross the rwy is solely at the discretion of the ADC.

d. Assisting ADC during emergencies. Once Crash Action has been initiated, the Ground Controller is to take control of MRE.

**Control**. The Ground Controller is to keep AS on the ground frequency until the holding point before permitting them to contact Tower. AS are to be sent to Tower frequency in the correct order of taxiing. Once approved, AS wishing to enter and backtrack are to be instructed to contact ADC before entering the rwy.

**Timed Take-Offs**. When AS are taxiing for a timed take off, or operational take off, the Ground Controller is to inform RA and ADC as soon as possible.

**Alerting the Supervisor**. If a situation warrants the immediate attention of the Supervisor, ADC (or Ground Controller or VCR ASOS) is to activate the Alert Button on the VCR control panel.

**POB**. All AS, except for F-35B and AH64 (Apache), shall have their POB confirmed on initial request for start and prior to issuing a start-up clearance.

**Delegation of control over surfaces.** The ADC may delegate access control for out of use rwys surfaces to the ground controller. E.g. Rwy 06/24 in use, ADC may delegate access to rwy 01/19, holding short of the active rwy.

**O.2.4 Airfield Traffic Lights**

**Threshold & Alpha Taxiway Traffic Lights**. Traffic lights at all RWY thresholds and entry points to Alpha taxiway are to be RED during airfield opening hours. All clearances for ground vehicles to pass these lights must include "on receipt of a green light". A correct readback must be obtained before the lights are switched to green and vehicles should not be given clearance to proceed through a RED light. If a crossing clearance cannot be given, the vehicle is to be told to hold. Vehicles needing to enter any rwy can only do so with a clearance and after a correct readback obtained. The Rwy Obstructed plaque must be placed on the ADC pinboard with pins denoting vehicles granted access. This must remain until vehicles have been confirmed to have vacated the rwy.

**Approach Perimeter Road Lights**. Lights are to be set to RED before issuing a clearance as follows:

a. All approaches to the rwy. (approx 5nm for RADAR traffic, 3nm for slow AS with a delayed clearance or mid-point downwind in the Visual Circuit).

b. Heavy air transport (AT) departures e.g. C17, A330, Antonov, etc.

c. All AS departing off RWY 01 (except Cat A AS).

**Overrun Perimeter Road Lights**. Lights are to be set to RED before issuing a clearance as follows:

a. All take offs (except Cat A).

b. AS in emergency.

c. AS to touch and go (except Cat A).

d. AS landing RWY 01/19 (except Cat A and F-35B slow landing/RVL)

e. Heavy AT landing (RWY 06/24).

f. AS on fanstop or practice turnback.

g. At any point when flight safety may be compromised.

**Perimeter Road Barrier Failure**. The barriers are set to lower 8 secs after selection of the lights; the VCR switch will illuminate RED until the barrier has fully lowered. If the barrier fails, the switch light should not illuminate; the VCR specialist should report this to the duty airfield electrician/contractor asap.

**Mains Power/Traffic Light Failure**. In the event of mains power or traffic light failure, all traffic lights should fail to RED. When made aware of this situation, the ADC is to deploy ATC and/or RAF Police vehicles to exercise traffic control at the required perimeter road lights.

**Procedure following a Runaway Gun recovery**. When an AS has recovered to the aerodrome with a runaway gun the crew are to be directed to slot 6 or 11 iaw RAF Marham DAM Annex O Part 2 Emergency Order 7. ADC is to select the ring-road lights to red to prevent vehicles passing in front of the AS. If rwy 24/06 is unavailable due to maintenance, there are no licensed runaway gun slots available.

**O.2.5 Aerodrome Lighting**

The airfield electrician/contractor is available on [redacted]

**Faults**. All faults are to be reported to the duty airfield electrician/contractor without delay through the Supervisor/ATCO IC. If a fault is on the Lighting Control Panel a note is to be made of the circuits in use at the time. This information is to be notified to the oncoming ATCO during watch handover.

**PAPIs**. Alignment is checked by the airfield electrician/contractor using a Precision Spirit Level; therefore, the only checks normally required are that:

a. All bulbs are serviceable.

b. The units are not damaged and are free of obstructions.

**Energy Conservation**. Along with the regulations contained at RA 3265, ATCOs are to switch off all aerodrome lighting, whenever movements allow. In poor visibility or at night, lighting may be left on to aid vehicular movement.

**Lamp Conservation**. To help prolong lamp life, all lighting is to be switched on at the lowest brilliancy setting (excluding NVG) and then brightened as required.

**O.2.6 States of Readiness for Air System Emergencies**

**States of Readiness**. The ADC is to apply the states of readiness for AS emergencies in accordance with BMO Section 200 Order 203 and the Emergency Reference Cards held in the VCR. In addition, a checklist of F-35B emergencies, with appropriate states, is held in the VCR.

**Declaration of a State of Readiness**. States of readiness are to be declared as follows:

a. **State One & Emergency State 2**. Crash Phone.

b. **Emergency State 3**. Normal telephone network.

Note: Changes in the Emergency State may be done on MRE if Crash vehicles are already deployed.

**Emergency Messages**. The VCR ASOS is responsible for broadcasting the emergency messages.

**Crash/Fire Vehicle Access**. Routing of crash/medic vehicles will be as directed by the ADC, unless there is a multi-location incident. In this instance, the crew commander will control the routing. The Ground Controller is responsible for ensuring access routes remain clear of other vehicles and ac where possible. RAF Police will attend State One and will contact ATC on MRE to confirm routing to the incident. For an Emergency State 3, the crash and medic vehicles will be manned at their sections.

**Hot Brakes**. Hot Brakes are an Emergency State 2 and should be instigated via the Crash Phone, in the format: “Emergency State 2, Hot Brakes, F-35, Alpha Dispersal, 1 POB etc”.

**Practice Crash**. The opening of the emergency message for a practice crash is: "Practice State One, Practice State One, Practice State One…".

**Video Filming**. The Supervisor is to nominate a suitable person to record any Emergency State that can be captured on video.

**O.2.7 Aerodrome Control Procedures**

**Taxi Instructions**. AS should state the current ATIS code, rwy and QFE when requesting taxi. If the information is not received on taxi request, the rwy and QFE must be confirmed prior to issuing taxi instructions. Positive clearance must be given to cross any rwy threshold and some AS may require progressive instructions.

**Departures**.

a. Notify RA when AS taxi with departure details (if not on ET). RA may issue a departure clearance immediately or may call back after pre-noting the next agency.

b. **Call for Release**. RA may impose a call for release on individual AS, or for all departures. The ADC should request release prior to obstructing the rwy.

c. **IFR Separation**. ADC must ensure that when IMC exists, adequate IFR separation is provided between arriving and departing aircraft. If doubt exists about the weather conditions, the Supervisor is to be consulted.

d. **Phraseology for Rotary Wing Departures**. Rotary AS may depart from various locations on the airfield. ATCOs are to make it clear if AS can depart and cross the active rwy or if Rotary AS can depart but remain clear of the active rwy. The phraseology to be employed is as follows:

i. "Callsign, remain Northside/Southside, cleared for takeoff, surface wind....."

ii. Or "Callsign, cleared for take-off and cross (rwy), surface wind....."

**Visual Circuit Restrictions**. The maximum number of AS allowed in the visual circuit is 5 (by day) or 4 (by night) for rwy 06/24 and 4 (by day) and 2 (by night) for rwy 01/19.

**Low Level Circuits.** AS are not permitted to fly more than 2 consecutive low-level circuits.

**Continue Approach**. There is no restriction on the number of AS permitted to "continue approach" in the visual circuit. However, AS are not to be instructed to extend downwind unnecessarily. Under no circumstances are AS permitted to "continue approach" in the visual circuit and on radar simultaneously.

**Radar to Visual/Visual Joins**. Radar to visual/visual joins will be pre-noted, including type and POB for visiting AS. ADC will acknowledge by confirming the callsign. The circuit state will not be passed unless specifically requested. The AS will route through the Initial Point (IP) which is 3 nm on the extended approach centreline, displaced ½ nm deadside at 1000' QFE.

**If visual**. The clearance "…if visual continue with Tower (reason)" is only to be used after a delayed clearance at 4nm has already been issued. It may only be issued to radar traffic for stn based AS during daylight hours; the ATCO must be visual with the AS and confident that a clearance can be issued once the AS switches to the ADC frequency. Once the AS changes to the ADC frequency, it becomes subject to relaxed rwy occupancy rules.

**Unmonitored ILS**. If the PAR is unavailable, at the Supervisor/ATCO ICs discretion and with the pilots' agreement, an unmonitored ILS approach can be carried out. Director will not send an AS to Tower until the

AS is established on the localiser. The phraseology to be employed by ADC is similar to a straight in approach except you will state 'Cleared ILS approach, rwy 24, QFE, cct state, report long final with intentions'.

**Visiting Aircraft**. Destination and time en route of departing AS are to be obtained on taxi (if not before) and the information should be recorded on STARS.

**Overflight of AS on start**. All light AS and Helicopters are to be instructed not to overfly AS on start.

**Lights On/Off[redacted] Approaches**. Stn based F-35Bs will request lights off[redacted] in plain language and can only be accomplished with agreement of any other circuit occupants. All airfield lighting should be selected appropriately when stn based AS request Off[redacted] lighting. If required, the Alpha dispersal floodlights need to be manually switched off by ATC. The Bravo dispersal lights are controlled by VASS on ext 7016.

[redacted]

**O.2.8 Helicopter Operations at RAF Marham**

**Rotors-Running Refuels**. Helicopters visiting RAF Marham should not conduct rotors-running refuels. Visiting detachments may be authorised to conduct rotors-running refuels under Forward Air Fuelling Point (FARP) conditions subject to a risk assessment.

**Visiting Helicopters vs Hot Refuelling**. Helicopters visiting RAF Marham should not be parked on a dispersal where hot refuelling is taking place. Stn Ops should make sure that all visiting helicopters are parked in alternate locations. If the case should arise where there may be a conflict between the two, ATC should inform Stn Ops and request alternate parking.

**O.2.9 Rwy Occupancy Rules**

Crews are ultimately responsible for separation between AS in the visual circuit. The clearance issued to a pilot informs them that the rwy is available for use; it is the pilots' decision on whether there is sufficient spacing to carry out their approach. Whilst the ATCO is providing these clearances based on a professional assessment of the situation, it is incumbent on the pilot to make the final decision to execute the clearance. However, if ADC believes at any time that Flight Safety may be compromised, AS should be sent around.

**Station Based AS during Daylight Hours**

**Rwy 24/06RH**

a. A Touch and Go is not to be issued behind an AS to land. Clearance should be "Continue approach" or "Not below 200ft, (reason), clear low approach" whichever is more relevant.

b. "Clear low approach" plus "number ahead" may be given. "Not below 200ft, (reason), clear low approach" should be used in the appropriate circumstances i.e. obstructed rwy.

c. AS are not to be given a clearance to use the rwy if an AS on the rwy has been given a take-off clearance.

d. Formations. Clearance "in turn" may only be issued if the AS are to land on their first approach. All subsequent approaches are treated as individual AS.

e. Line-up In Turn. This can only be used during day light hours and cannot be utilised when LVPs are in place.

[redacted]

**Rwy 01/19RH**

Relaxed rwy occupancy rules exist between stn based AS the same as on RWY 06/24, except for the following:

a. Conventional. Single occupancy rules exist between conventional F-35B's making approaches to the rwy. A clearance will be issued when the AS ahead has conducted its approach or vacated the rwy. The minimum landing interval between Marham based AS conducting conventional landings is 6000ft.

[redacted]

**Station Based AS at Night**

**Rwy 24/06RH**

Any AS must have completed its touch and go (wheels up), initiated its low approach or landed before a subsequent AS is given a clearance. When an AS has landed it must have passed the 6000' to go IRDM board before an AS of similar speed may be "cleared to land, one on".

**Formations**. Clearances "in turn" are not to be issued at night. Formations are to be treated as individual AS.

**Rwy 01/19RH**

Single rwy occupancy rules apply.

**Visiting AS during Daylight Hours**

Visiting formations joining to land on their first approach can 'land in turn'. Otherwise, all visitors are subject to single rwy occupancy.

**Visiting AS at Night**

Single rwy occupancy rules apply.

**Radar Integration**. Regardless of AS type, radar traffic is not to be given a clearance to use the rwy in turn behind visual circuit traffic or vice versa. Radar traffic may be "cleared to land, one (or more) on" (rwy 06/24 only or if F-35B conducts a slow landing behind a Stn-based AS on all rwys). AS wishing to touch and go or low approach may be instructed to "not below 200ft, (reason) clear low approach" if the rwy is obstructed and the circumstances allow.

For Stn based AS during daylight hours ATCOs may use "if visual, continue with Tower, reason, circuit state".

With the approval of AO other AS detached to Marham may be deemed 'Stn based' and subject to the Marham DAM required.

[redacted]

**O.2.10 Aerodrome Inspections**

A full inspection of all aerodrome operating surfaces is to be carried out iaw RA 3264 prior to the aerodrome opening. During the winter months, a FOD check of the rwy is to be carried out prior to declaring the aerodrome open. A full inspection is to be carried out as soon as there is sufficient light.

Aerodrome inspections should take note of the following:

a. Obstructions on or near the movement area, which should be properly marked.

b. Defects in the surfaces (especially RHAG pull-out areas), and painted markings, on taxiways and rwys.

c. Correct positioning and apparent serviceability of signboards/RHAGs/Barriers/Aids.

d. Requirements for grass cutting, especially around traffic lights and PAPIs.

e. Serviceability of traffic lights.

f. Sweeping requirements over and above the weekly programme.

An inspection of the aerodrome lighting is to be undertaken before the start of night flying.

Any surface or equipment defect or FOD is to be reported to the Supervisor who is to record the information in the ATC log and take remedial action as required. If, following an inspection by a suitably qualified person, a surface is deemed unsuitable to support AS ops, the area is to be closed and cordoned off with bad ground markers, and lights if appropriate. OC Ops Wg, the DOO, Eng Ops and Sqns are to be informed at the earliest possible opportunity.

**O.2.11 Aerodrome Sweeping Programme**

The aerodrome sweeping programme has been devised to eliminate FOD from the operating surfaces. ATC will be informed by ASMT if the programme cannot be met. Whilst it is highly desirable for the published programme to be followed it may be necessary for ATCOs to request diversion of effort into a priority area, in which case ASMT are to be advised and requested to re arrange the programme in agreement with the Supervisor.

**O.2.12 Wildlife Management Policy**

Aerodrome Wildlife Control Unit (AWCU) operates iaw with RA 3270. To minimise the risk of birdstrikes in the circuit area a complete sweep of the aerodrome is to be made by the AWCU when the aerodrome is initially opened and during the aerodrome inspection by the ADC.

The Supervisor/ATCO IC is to inform the DCF of any report of continued wildlife concentration which constitutes a hazard to AS. The Supervisor/ATCO IC is to be aware of bird concentrations and the action taken to disperse them. In the absence of direction from the DCF they are to use their own discretion as to the course of action to be followed and are to advise ATCOs and pilots accordingly.

Should there be a break of flying activity of more than 30 minutes or the initial Station movement is more than thirty minutes after the initial wildlife control measures, the ADC is to initiate further sweeps of the rwy and adjacent manoeuvring areas. Sweeps should be done at a time not more than thirty minutes before the start or resumption of flying activities.

**O.2.13 Birdstrikes – Identification and Disposal of Remains**

The AWCU deals with the recovery and disposal of birdstrike remains. On the occasions where a member of the AWCU is not available, the discovering person is to carry out the following actions:

a. Place the remains in a polythene/plastic bag.

b. Record on the bag or a card attached to it:

i. Date and time of the strike.

ii. AS type and its number.

iii. The Stn reporting the strike.

iv. The geographical location of the strike.

v. The height and speed of the AS at the time of the strike.

c. Forward the above to the AWCU at the earliest opportunity.

The AWCU is specifically contracted to carry out wildlife control tasks. The unit is not to be distracted from doing its primary duty. Administrative tasks, or identification is to be done between flying waves tasks, or at the cessation of flying, as appropriate.

**O.2.14 RHAG Operations**

Mk 1 RHAGs are installed at each end rwy 06/24. They are positioned 1600' from the threshold of rwy 24 and 2100 ft from the threshold of rwy 06. Supervisors can change the configuration if deemed necessary for station, visitors or airfield users as well as raising the cable for any emergency AS inbound if time permits. The standard configuration is:

a. Approach cable DOWN.

b. Overrun cable DOWN

GEF (Arrestor) is responsible for raising/lowering/rigging/de-rigging RHAGs under the direction of the ADC. If Arrestor are required during the working day, they are to be contacted on Ext 7474, the alternate number is Ext 7477 (option 1).

Fire/Crash crews may be called upon to assist with these tasks and are qualified to raise and lower the RHAG as appropriate. There is NOT a requirement for GEF to check the cable prior to an engagement taking place.

Following a RHAG engagement the aerodrome is to be declared BLACK and the RHAG inspected for damage. Actions to be taken are as follows:

a. All vehicles (except fire) and personnel are to approach the AS from the front. ATCOs should, where able, pre-position towing vehicles in a suitable position.

b. The speed and weight of the AS is to be sought from the pilot.

Following an aircraft arrest, the fire crews with GEF personnel will remove the AS from the cable and rewind/recover the cable. Once the cable has been rewound, its serviceability status should be immediately sought from GEF. If it is deemed un-serviceable, it is available for one emergency arrest if required. If it is declared serviceable a second GEF crew will do a subsequent check later, during a break in flying.

Following an AS engagement only GEF personnel can carry out restoration maintenance and declare the RHAG serviceable. A FOD/rwy check is to be conducted prior to declaring the rwy serviceable.

ATCOs are to be aware that Arrestor are to carry out Before Use Servicing (BUS) checks prior to the commencement of flying each day. Should Night Flying also occur, an additional BUS is to be carried out. Arrestor are to confirm the completion of this check by informing ATC of the cable state and log it in the ATC Watch Log. If there is any doubt as to whether a BUS has been carried out, ATC are to contact GEF to confirm prior to the commencement of flying.

**O.2.15 Taxiway Golf use by Station Based AS**

Taxiway Golf is permitted for use by Stn based AS only. Crews must ensure they remain on the centreline of the taxiway.

There is an obstruction made up of an 18ft tall mast which supports a test oscillator, required to operate the High-resolution Direction Finding (HRDF) equipment utilised by ATC.

The obstruction is not marked and is not lit, during night flying, an obstruction light is to be placed at the base of antenna.

The obstruction is approximately 10.35m from taxiway centreline and shown below:


[redacted]

**O.2.17 Use of Crosswind Indicator**

The crosswind indicator provides instantaneous readings of the crosswind, as well as an average crosswind and headwind component every 2 minutes. F-35 require information on all winds >30 kts, regardless of crosswind component.

The crosswind component is to be passed to stn based AS in the following circumstances:

a. At the end of the take-off clearance if it is 10 kts or greater (instantaneous reading).

b. For formation line-ups if 10 kts or greater.

c. AS making an actual single engine approach.

d. When requested.

**O.2.18 Control of Refuelling Vehicles**

The control of refuelling vehicles is to be conducted as follows:

a. **Callsigns**. All refuelling vehicles will use the callsign REFUELLER … followed by a number.

b. **Access**. Drivers will request positive ATC clearance to proceed on to the manoeuvring area. In the event of an AS taxiing, vehicles are to be instructed to hold. Clearance to proceed is at the discretion of the Ground Controller (or ADC when both control positions are bandboxed).

**O.2.19 Use of VHF Radio to Control AS Emergencies on the Ground**

The Fire Section at Marham has a VHF radio that will be used to communicate directly with the crew of an emergency AS once that AS is on the ground.

The frequency to be used is 122.100 MHz The Crew Commander will co-ordinate the use of this frequency using the callsign, "Marham Crash Crew Commander". There is no requirement for ATC to monitor this frequency. MRE is still to be used for all liaison calls with the Crew Commander.

When it is known that an AS is inbound with an emergency, the Crew Commander will ask ATC via the MRE for the callsign of the emergency AS. This action will enable the Crash Crews to communicate directly with the pilot. The use of frequency 122.100 MHz is to be employed only when the emergency aircraft is on the ground.

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**O.2.21 US Fast Jet Phraseology**

US FJ crews use phraseology that sometimes differ from the UK military standard, particularly in the ADC environment. Guidance is as follows:

a. "(Left/Right) Base, Gear Down": Equivalent to "Finals" call.

b. Left/Right hand Pitch: Circuit direction.

c. Requesting the "Option": Option to Land, Touch and Go, or Low Approach.

d. Request "Closed (Pattern)": Visual Circuit.

In the interests of flight safety, ATCOs are authorised to utilise the above phraseology to limit the risk of any misunderstanding by visiting US FJ crews. Care must be taken to avoid confusion to other AS in the circuit, particularly trg AS.

**O.2.22 Gear Up Approaches for TRC Controller Currency**

BMO Section 500 Order 504 details the currency for TRC Controllers to be tested with no notice gear up approaches.

The ASOS Standards team is to monitor this currency and identify TRC Controllers due a gear up approach to the Supervisor.

The Supervisor is responsible for the conduct of the check and as such, must ensure that all involved are aware of their responsibilities for the safe conduct of the no-notice, gear up procedure. This reduces the potential for error and provides an opportunity to correct any differences in understanding between personnel.

The Supervisor is to request a gear up approach via the DCF subject to the following criteria:

a. Must be pre-arranged and ADC made aware.

b. Carried out by any ACO Pilot.

c. From the visual circuit only.

d. Less than 3 AS in the visual circuit.

e. Day only.

f. Will include a 'finals gear down' call.

g. Not from a 'Land/full stop' request.

The gear up approach (including callsign) is to be entered in the ATC logbook.

Failure by the TRC Controller to take appropriate action for a gear up approach will result in the suspension of their TRC endorsement and a period of retraining.

**O.2.23 Temporary Airfield Obstructions**

In addition to cranes, all temporary airfield obstructions are subject to NAVAID and airfield surface safeguarding and require approval.

The following authorisation, notification and briefing process is to be used:

a. Any requirement for temporary airfield obstructions from ASMT or contractors are to be requested nlt 24hrs in advance (or on the last standard working day) through ATC.

b. SATCO, or nominated deputy, will consult with GRMS regarding airfield safeguarding and impact on NAVAIDs. Subject to satisfying safeguarding criteria ATC will agree a suitable period for task completion and brief ASMT/contractor and inform Stn Ops.

c. ASOM is to arrange for NOTAM action (as appropriate) to be taken regarding the temporary airfield obstruction.

d. ATC SWB to inform Stn Ops and flying Sqns via cascade system to back-up NOTAM action. Airfield slides to be updated for briefing purposes.

e. ASMT/contractor to be briefed by ATC personnel upon ATC opening (Mon – Fri 0800(L); weekends as per tasking) standard ATC WIP airfield briefing.

f. ASMT/contractor inform ATC upon completion of the WIP for ATC to cancel the NOTAM, cascade information and update briefing slides.

Any requests out with this process will be denied, unless an urgent operational requirement exists, which will be considered by SATCO/OC Ops Wg or their nominated deputy.

**O.2.24 TRC Controller use of Tower Frequencies**

Should an AS attempt to make an approach with an unsafe landing gear configuration, and there is insufficient time to advise the ADC, the TRC Controller is to transmit a warning. Where possible the warning is to be reinforced by the firing of a red flare. When transmitting such a warning the TRC Controller is to use the phraseology:

"AS Callsign - Marham Caravan - CHECK GEAR"

In addition, if the AS is on the rwy having been cleared for take-off and there is an obvious flight safety problem then the transmit facility can be used. The TRC Controller is to use the phraseology:

"AS Callsign - Marham Caravan - Nature of Problem"

**O.2.25 Vehicular Access to TRC Point**

Access to all TRC points is via paved surfaces and may require a transit through traffic lights. When exiting the TRC point the transit starts from inside the traffic lights and therefore a red light is not encountered.

All TRC points are outside the Rwy Hold Lines and therefore with this in mind and to keep R/T to a minimum the following procedures are to be adopted WIE:

a. When transiting to the TRC points via paved surfaces an MRE call must be made to transit through the traffic lights.

b. When exiting the TRC point, if the transit route remains outside of the hold lines, no permission is required. An MRE call should still be made to report mobile from the caravan.

Drivers should be vigilant to check for any AS on the taxiway, or vacating the rwy onto the taxiway, prior to vacating the TRC point. Drivers should also be aware of any further clearances which might be required during their onward transit i.e. to cross the 24 Threshold when routing back from 19 TRC point.

**O.2.26 ILS Approaches Taxi Restriction**

Following the re-commissioning of the ILS it has been recommended that no vehicles or AS are to infringe the ILS critical area in front of the Glide Slope Building in any Met conditions.

When an AS carrying out an ILS is within 10nm, no AS or vehicle should be allowed access to ‘A’ Taxiway between the 19 and 24 thresholds.

[redacted]

CHAPTER 3: RADAR ORDERS

**O.3.1 Responsibilities of the Supervisor**

In accordance with BMO Section 200 Order 201, the Supervisor is responsible to the SATCO for operational and administrative direction and supervision of all ATC personnel on watch and direction of safety services. In addition, the Supervisor is to carry out the following specific tasks:

a. ATCOs are to be allocated to each control position according to endorsements held to ensure currency and to maximise training opportunities.

b. Check the daily navigation and maintenance schedule. Inform Ops of all unserviceability of navigation/approach aids. The release of navigation/approach aids for routine maintenance must consider the weather and flying programme.

c. Liaise with the DCF, as necessary, particularly with regard AS operations in poor weather conditions.

d. Inform the SATCO and BMFSO at the earliest opportunity of any incident/AIRPROX and is to ensure that the ATCO concerned submits an incident report before going off duty.

e. Consider whether ATCOs and/or ASOSs should undergo drug/alcohol testing iaw BMO Section 100 Order 136 if concerns exist about their ability to conduct their primary duties. The SATCO should be informed immediately who will take the appropriate actions through OC Ops and the Stn Cdr.

f. When appropriate, initiate SNOWTAM action iaw UK AIP GEN 3.7.

g. Ensure that all mandatory DASORs are raised asap after occurrence.

h. Ensure that Supervisor's comments are completed on DASORs raised when holding the watch.

During airfield opening hours, an ATCO I/C may be nominated during periods of light traffic. In these circumstances the ATCO IC is to carry out the tasks listed above, as appropriate.

In consultation with SATCO, Supervisors are to maintain a regular dialogue with GEF regarding planned maintenance activity. This information is to be used alongside A5 planning to ensure maintenance i.e. 3-monthly RHAG maintenance is carried out with minimal disruption. The Supervisor is also to tactically liaise with GEF for minor maintenance requests.

**O.3.2 Orders for Radar Approach Controller**

The Radar Approach (RA) Controller is to check the serviceability of the equipment at the beginning of the watch and at frequent intervals thereafter. They are to monitor all published Marham ICFs unless delegated out to other ATCOs. In addition, the RA Controller is to:

a. Check all published weather details are correct on ET and ATIS.

b. Check the Transition Level and Minimum IFR Cruising Level are correctly displayed.

c. Liaise with the Dir and LARS controllers to coordinate departures as required. Control of certain departures or visual recoveries may be delegated to a suitably qualified LARS controller.

d. Prenote en-route agencies on AS taxy i.e. Swanwick (Mil).

e. Control all visual recoveries informing the pilot of the number of AS in the instrument pattern. The AS is also to be warned into ADC including type and PoB for visitors. AS free-calling for radar to visual/initials or instrument recovery are to be handed to the Dir if manned.

f. Assist D&D with emergency AS.

On receipt of information that a crash has occurred on, or in the immediate vicinity of, RAF Marham, the RA Controller is to:

a. Ensure that all AS under RAF Marham's control are informed.

b. Inform the D&D.

c. Inform Swanwick (Mil).

d. Instruct the Swb ASOS to inform all diversion aerodromes.

e. Obtain the endurance/intentions of all AS under RAF Marham's control and attempt to ascertain those of AS away from Marham with other agencies; take appropriate action in consultation with DCF. Details are to be passed to the DOO.

f. AS remaining under RAF Marham control are to be held in a safe area of good radar cover, in VMC if possible, or with RAF(U) Swanwick, until the situation is resolved. The visual and radar training circuits are to be closed whilst the emergency is in progress.

**O.3.3 Orders for the Zone Controller**

RAF Marham has a LARS commitment iaw the UK AIP. LARS is available to military and civil AS below FL100 outside CAS within 30 nm of Marham during published airfield opening hours. The task can be band boxed during quiet periods.

In addition to providing LARS using published frequencies, the Zone controller is to provide a MATZ crossing service. This task may be delegated to another ATCO nominated by the Supervisor/ATCO IC. Furthermore, RA may delegate control of certain departures or visual recoveries to the Zone Controller.

The following Squawks are available for use by Marham LARS:

a. 3660-3666.

b. 3667 unverified, Basic Service. 3667 may be used in event of SSR Failure by all Radar Controllers.

**O.3.4 Orders for the Radar Director**

The Radar Director is to:

a. Control all AS recovering to RAF Marham (except for visual recoveries) and all AS in the instrument pattern until handed to Talkdown or released to the ADC. QFE is to be used by all AS. The 2000' wind should be offered to visiting AS requesting an ILS approach.

b. Inform the pilot of the number of AS in the instrument pattern:

i) On initially joining the instrument pattern.

ii) On turning downwind for further patterns.

iii) For all radar to visual recoveries.

c. Inform the ADC of the inbound AS and type of recovery; include AS type and POB for visiting ac. No circuit state will be passed for radar to visual recoveries unless specifically requested.

d. If the PAR is unavailable, at the Supervisor/ATCO ICs discretion and with the pilots' agreement, an unmonitored ILS approach can be conducted The AS may be transferred to Tower once they are established on the localiser. The AS is to be warned in to tower as an unmonitored ILS approach.

e. Monitor the progress of traffic handed over to the Talkdown Controller/Tower in order to resume control in the event of PAR or RT failure.

f. Inform RA when AS request a short pattern circuit.

**O.3.5 Orders for the Talkdown Controller**

The Talkdown Controller is to carry out their duties iaw RA 3291. The Talkdown Controller is to:

a. Check the maintenance PC to ensure that the system is operational.

b. Check that the PAR is radiating, and MTI markers are visible.

c. Check the serviceability of Stud 6, Stud 7 and the Radar Clearance line on both PAR comms panels.

d. Alert the Supervisor of any amber or red alerts and notify the Aquila Service Desk.

e. Ensure the ILS emergency speech facility is checked with an airborne AS (not Typhoon) on the first working day of each week.

If the equipment is released for maintenance, the Talkdown Controller is to re-check the set up before accepting it into service.

The maximum NORMAL and RAIN mode operating ranges are set by flight checks (document held by Aquila engineers) and displayed on the PAR console.

Sensitive Time Control (STC) settings should be set for each rwy as follows:

a. Rwy 24 - 12db

b. Rwy 06RH - 10db

All liaison calls to ADC are to be made on the RADAR Clearance Line. If 2 talkdowns are in progress, the 4nm liaison takes priority.

**O.3.6 ATC Clearance and Release**

A departure clearance is to be passed to Gnd/ADC taking in to account the next controlling agency. The departure clearance is to include:

a. Type of departure (MID/VFR) and associated climb instruction (if different to MID).

b. Squawk.

c. Frequency.

d. Details for next agency (squawks/frequencies/TADS) as appropriate

RA can issue next agency squawks for departure but must consider workload and expected distance to conduct a handover.

AS wishing to depart direct to Holbeach Range, (Twr to Twr) are to be pre-noted to specify transfer to Range Primary or Secondary frequency.

**CFR**. It is the responsibility of the RA/Sup to impose a CFR when the traffic situation merits. AS requiring specific/unusual departure profiles (helicopters, performance take-off) may be subject to a CFR to ensure any potential RADAR confliction has been resolved. ADC is to request release prior to obstructing the rwy with a departing AS.

**O.3.7 Code Callsign Conversion**

CCC can be used at RAF Marham, as required, for Stn based AS departures, recoveries or general handling. It may also be used for loitering LARS tracks or visiting AS as appropriate. It is an entirely internal procedure and the crews are not pre-briefed on their squawk. The squawks can be allocated as follows:

a. SSR Codes 3640 – 3653 are to be used for Stn based CCC.

i) Early Sup/RA should allocate squawks against ET and update the GUI. The allocation is passed to the Swb ASOS to update ET.

b. 3654/55 (RA) and 3656/57 (Dir) for visiting AS.

c. Loitering LARS track can be allocated any available LARS squawk.

The following CCCs are entered into the equipment on a permanent basis:

| | | | | | |
|---|---|---|---|---|---|
| a. | 7000 | V | i. | 0024 | CAL |
| b. | 7001 | L | j. | 0033 | PARA |
| c. | 7002 | R | k. | 0036 | PIPE |
| d. | 7003 | REDS | l. | 0037 | RHEL |
| e. | 7004 | AERO | m. | 0052 | FED N |
| f. | 7007 | OPSK | n. | 0053 | FED S |
| g. | 0020 | AMB | o. | 0054 | FED C |
| h. | 0023 | SAR | p. | 3667 | BS |

**O.3.8 Provision of Radar Services**

The provision of radar services at RAF Marham is as follows:

a. Departures.

i) Stn based AS. All Stn based AS will not action any vectors until passing the RVC. A vector may be legally given on first contact if required.

ii) Visitors. Visiting AS may be instructed to maintain rwy track or offered own navigation. TS may be applied immediately, and radar vectors given above the RVC.

b. Radar to Visual Recoveries.

i) AS under TS. RA 3232 allows descent and vectors 500ft below the RVC within 10nm of the airfield for AS recovering under TS. If the pilot is not visual with the aerodrome by 5nm (3nm with ADC approval) they are to be broken off and re-positioned for an instrument approach

ii) AS under DS. DS is not to be applied below the RVC. If the pilot is not visual with the aerodrome by 5nm, the AS is to be broken off and re-positioned for an approach for an instrument approach.

**Provision of Radar Services Outside RVC Coverage**. The RVC extends to 40nm from the airfield. Outside 40nm ATCOs are to use the ESA.

a. Reductions of Radar Services. Reductions of radar services are to be applied in accordance with CAP 774. Limitations are to be passed in full, except to Stn based AS when reducing for 'Angels'.

b. General Handling. Stn based AS general handling in the vicinity of Marham below the RVC do not need to be reminded of terrain clearance responsibilities. Visiting/LARS AS general handling must be informed of their terrain clearance responsibilities, with a positive confirmation received.

**Formations.** MARSA cannot be used when formations of AS are operating in a block. To reduce ATCO/pilot workload, formations can be asked if they require reciprocal traffic information i.e. 'do you require traffic information on other formation elements?'

Should the formation get airborne at separate times then confirmation should be sought from the joining member(s) if traffic information is required. This is applicable for formations operating using the same formation callsigns. This cannot be applied between multiple formations.

**O.3.9 TACAN Procedure**

**Procedures.** The TACAN approach is to be flown in accordance with published charts and the following procedures:

a. Due to the potential for a large amount of primary contacts in the Marham overhead, DS should not be applied once in the hold.

b. Rwy 06/24 & 19RH.

i) The AS will be not below 5000ft QFE until outbound from the overhead; a climb-out restriction of 4000ft QFE can be imposed.

ii) Emergency hold is 4000ft QFE; a climb-out restriction of 3000ft QFE can be imposed.

iii) Any climb-out restriction is only to be cancelled when the TACAN has passed the overhead on the outbound leg.

c. Rwy 01 – shorter profile due to Lakenheath/Mildenhall CMATZ.

i) The AS will be not below 3700ft QFE until outbound from the overhead; a climb-out restriction of 2700ft QFE should be imposed.

ii) Emergency hold is 4000ft QFE; however, a climb out restriction **2700ft** QFE should be imposed.

iii) Any climb-out restriction is only to be cancelled when the TACAN has passed the overhead on the outbound leg.

**Phraseology**. The following phraseology should be used when all AS report leaving their FL:

a. TACAN: "C/S report turning inbound, checks complete"

b. TACAN to ILS: "C/S report localiser established, checks complete"

c. TACAN to PAR/SRA: "C/S report steady inbound with heading, checks complete"

Note: An additional call of "Report before turning inbound" may be required to assist with sequencing of other instrument or Radar to Visual traffic.

TACAN approaches should be monitored in radar wherever possible. If unavailable, and at the Supervisor/ATCO ICs discretion and with the agreement of the DCF, an unmonitored TACAN approach with ADC can be carried out. Dir will not send an AS to Tower until established inbound. The phraseology to be employed by ADC is similar to a straight in approach except you will state:

Cleared TACAN approach, rwy XX, QFE XX, cct state, report finals Gear Down

**O.3.10 Limitations of ATC Services – Wash Weapons Airspace**

**Military AS**. With the exception of AS positioning to enter, or departing Holbeach range, ATCOs are not to provide a radar service to military AS within PMR 225 or EGD 207 unless the area(s) are closed, have been suppressed, or a crossing has been authorised by the Range Controllers.

**Civil AS**. Civil AS must avoid EGD 207 when active unless a crossing clearance has been sought. If civil AS approach within 5nm of EGD 207, the range controller must be contacted so they can inform any range traffic. Similarly, any AS transiting through PMR 225 must be warned to the range controller, reporting once clear.

**O.3.11 MATZ Crossing Service**

The following procedures are to be employed when providing a MATZ Crossing Service:

a. AS transiting the MATZ are to be placed on the Marham QFE if there is traffic to affect.

b. The Zone Controller is to offer traffic information to the RA Controller who can approve the crossing and impose a climb-out restriction if necessary.

c. The Zone Controller is to make a liaison call to the ADC on landline before the AS penetrates the MATZ.

d. If the MATZ Crosser is non-transponder equipped, or wearing a conspicuity squawk, the Zone Controller is to advise the RA/ADC Controllers when the AS is clear of the MATZ. RA should cancel any COR but, this may be delegated to Zone.

e. Approval for AS wishing to transit the MATZ below 1000 ft QFE is to be obtained from the ADC. Control will remain with the Radar Controller, however, if there is traffic to affect or AS require to cross the rwy, control is to be transferred to the ADC at the MATZ boundary on an agreed frequency.

Once clear of the rwy and any visual circuit traffic, control of the AS is to be returned to the Zone Controller.

f. The internal liaison phraseology for MATZ crossers is:

i) Zone to RA:

Zone. 'Traffic Information, Marham North 15 Miles tracking South squawking xxxx.'

RA. 'Contact.'

Zone. 'Maintaining 2100' QFE for MATZ crossing on that track.'

RA. 'Approved' (COR or other restrictions passed).

ii) Zone to ADC:

Zone. 'MATZ crosser, North to South 2 miles East of the overhead, at 2100' QFE.'

ADC. '*Readback above*'

Zone. 'Marham North 15 miles tracking south squawking xxxx.'

ADC. 'Contact' (MATZ crossing approved if visual circuit effected.)

Zone. 'COR xxxx ft QFE'.

ADC. 'COR xxxx ft QFE'.

Marham has two low flying gaps. AS should call for the Northern/Southern gap on Zone U/VHF frequencies. AS should be requested to report North or South abeam Marham. The time abeam Marham is to be logged to assist in the event of a low flying complaint.

**O.3.12 Secondary Surveillance Radar (SSR)**

The SSR data at RAF Marham is received from the SSR at RAF Honington. ATCOs are to operate SSR in accordance with RA 3226. Should the PSR fail, or be subject to maintenance, ATCOs shall continue to provide a service iaw RA 3241.

**Unplanned Outages**. When there is an unplanned outage requiring SSR-Alone operations at RAF Marham, the following procedures are to be adopted to ensure Stn based Sqns maintain an output:

a. Advise all AS on frequency that the PSR is unserviceable and:

i) Provide all AS with a reduced service iaw CAP 413 and CAP 774, by informing 'C/S…service type…reduced traffic information, traffic information provided on transponding aircraft only'

ii) If traffic levels warrant, handover lower airspace radar service (LARS) traffic to another LARS or adjacent RADAR unit, subject to overlapping radar coverage.

b. Inform SATCO/DCF and advise that the BCP has been invoked for SSR-Alone operations.

c. Promulgate PSR unserviceability via ATIS and NOTAM. Inform diversion airfields.

d. Cancel any PDs as appropriate.

e. Cascade to D&D, RAF(U) Swanwick and adjacent ATS units that Marham will be operating SSR-Alone. Also inform RAF(U) Swanwick that silent handover procedures will be suspended.

f. Minimise the time AS are in receipt of an SSR-Alone radar service; hand over to adjacent radar where possible. RAF(U) Swanwick/RAF Lakenheath should be requested to control any AS operating CAS within 30nm of Marham to ensure the AS receives the best service.

g. Standard separation of 5nm/3000' is to be applied between all AS not flying in close formation.

h. Liaise with Norwich/Lakenheath to request traffic information on any non-transponding AS observed in the departure lane, prior to releasing or recovering any AS.

i. Request RAF Lakenheath apply SSR Mode 3A to all AS, particularly those operating in extended trails ivo RAF Marham.

j. Radar Training Circuit (RTC) height to be maintained at 2500' agl, until AS is established on final approach and identified on PAR (rwy 06/24 only). Once identified on PAR and clear of any confliction, the AS can be descended to RVC height. If a confliction exists, traffic information should be passed iaw RA3291 para 11.

**Planned Outages**. Planned outages should be deconflicted from Stn flying where possible. All planned outages must be approved by SATCO or their nominated deputy. In addition to the procedures laid out above for un-planned outages, the following procedures are also to be undertaken:

a. Ensure SATCO has enough detail on the outage prior to the brief at SDEB.

b. Raise NOTAM identifying the period of planned outage iaw RA 3241.

c. ATC Supervisor is to remind the DCF prior to releasing the SSR for planned outage.

d. AS diverting to Marham in emergency are authorised to operate SSR-Alone iaw RA 3241.

**Picture Slip**. Should the SSR monitor fail, regular checks are to be made on departing AS to check for picture slip and the Supervisor/ATCO IC is to confirm the alignment by reference to one of the other units in receipt of the data, who are to corroborate primary/secondary radar correlation. In the absence of the corroboration mentioned above an SSR only service may be provided only to AS in an emergency.

**SSR Failure**. In the event of SSR failure, ATCOs are to ensure that the SSR Channel is deselected. This is done by activating the GUI and by pressing the "HONINGTON OFF" button on the "Channel Select" page. This puts the SSR channel in standby mode and prevents unwarranted "freezing" of the system's time base as it searches for an SSR site.

**O.3.13 Talkdown Procedures**

Thales, on behalf of Aquila, flight check the PAR annually which provides guidance on the maximum usable range of the PAR. ATCOs are not to use the equipment for the control of aircraft outside of the following ranges:

a. 16.5 miles – Clear Mode

b. 15 miles – Rain mode

General procedures for the control of all instrument approaches are contained within RA3291-94. Specific procedures for RAF Marham are as follows:

a. **8 Mile Call**. Call made to the ADC utilising the Radar Clearance Line stating range, callsign, intentions, further intentions and any other relevant information i.e. VHF or trails. In the event of simultaneous talkdowns, the 4nm liaison call takes priority

b. **If Visual**. When Stn based AS cannot be given a clearance, during daylight hours ADC may use the phrase: "(C/S, if visual, continue with Tower, reason, circuit state". The Talkdown Controller is to transmit the instruction verbatim on both the frequency and Radar Clearance line. If the pilot is not visual, the Missed Approach Procedure is to be executed.

c. **Not Below 200 ft**. The ADC has the authority to adjust a clearance to "(C/S, not below 200ft, reason, clear low approach" where the situation warrants. Flapless and SASSY AS are not to be given this clearance if vehicles are on the rwy threshold.

Monitoring of Approaches:

a. **ILS**. ILS approaches are to be monitored to DH. ATCOs must obtain a QFE readback on check-in and confirmation that the gear is down when the AS reports 'glidepath descending'. The pilot is to be advised if the AS is well left/right of the centreline or well below the glidepath. When monitoring an ILS approach on SRE the ATCO is not to make any reference to DH. There is no requirement to transmit the range to the AS when contacting ADC for the clearance.

**O.3.14 Trail GCAs**

Under certain circumstances iaw HQ 1Gp ASO 1G397.300, two or more AS may recover using the trail GCA procedure. USAF F15s, Typhoons and F-35B AS carry out this procedure on a regular basis. The lead AS receives a PAR talkdown whilst the trail AS is to follow the same flight path using an internal system. A PAR is provided to the trail AS once the lead AS is visual.

Trail GCAs are not to be conducted on rwy 01/19 unless Stn based F-35s are conducting approaches as per section 2.9 'Runway Occupancy'.

Radar Director. Recovering AS are to establish their own separation between 2 and 5 nm in trail before turning onto final approach; once established the normal separation is 2 nm. The Director is to ascertain the DH of the lead AS and the MDH and DH of the trail AS. The Director should provide a wider pattern to enable the trail AS to remain locked onto the leader and ensure that all of the formation are displayed in both elements on PAR (not applicable when conducting SRA). Once in trail, instructions should be passed to the lead AS only; the trail AS will 'follow the leader' and not make any radio calls after calling 'tied on'.

Precision Approach Controller. A standard talkdown is to be given to the lead AS whilst monitoring the progress of the trail AS. ATCOs must obtain a correct readback of the QFE from the lead AS and should be prepared to advise trail AS of any significant deviation from the centreline or glidepath, giving corrections when necessary. Additionally, Talkdown Controllers are to warn trail AS if the separation between the leader and other trail AS reduces below 1.5 nm. The 8-mile call should be given in the following format:

8 miles, <u>C/S</u> Flt, <u>intentions (additional intentions if trail is different)</u>, trails

Talkdown on the lead AS will cease once the pilot of the AS calls 'visual' or reaches their DH.

ATCOs must receive confirmation that the gear is down from all formation elements before requesting a clearance at 4nm. This clearance is for all AS and need only be acknowledged by the formation lead. When the lead AS reaches DH or calls visual, the talkdown is to be transferred to the next AS. On initial RT contact with trail AS, the ATCO should identify and request the heading, then proceed to provide a standard GCA; the pilot will now descend to their DH. If the pilot in trail reaches MDH before control is transferred, the pilot, if not visual, is to level off. They should only descend below MDH when under the direct control of the

Talkdown Controller. Pilots who fail to be picked up by the Missed Approach Point are to initiate the Missed Approach Procedure.

Aerodrome Controller. The ADC is to acknowledge the 8 nm call as usual. At the 4nm call the clearance should be issued for all AS. For example:

NITRO 31 Flt cleared low approach, touch and go, (circuit state)

Clearances should be given to Trails GCA AS as a single formation even when intentions differ. However, when an element within the formation requests to land, all subsequent AS requesting to low approach or touch and go behind the landing AS are to be given a 'not below 200ft clear low approach'. The ADC should be prepared to delay trail AS if necessary, especially when the AS intentions within the formation include a land.

**O.3.15 Standing Agreement Coordination – Reduced Radar Separation**

Following confirmation that conflicting traffic is not a formation, Marham ATCOs are authorised to apply 3 nm reduced lateral radar separation iaw RA 3228.

Marham traffic is specified as traffic transponding a Marham Mode 3A (other than 3667) or traffic notified as under the control of a Marham radar ATCO.

**O.3.16 Tactical Coordination by Proxy**

In accordance with RA 3230, only the Supervisor, or RA holding all SRE endorsements, is authorised to carry out Tactical Coordination by Proxy.

**O.3.17 Local Sensitive Areas**

ATCOs are not to routinely vector AS below 2000ft over the following noise sensitive areas marked on the radar map:

a. Downham Market.

b. Fakenham.

c. King's Lynn.

**O.3.18 SSR Conspicuity Codes**

RA 3228 stipulates the vertical separation to be applied between AS using SSR; there is a distinction between using verified Mode C data and unverified Mode C data. The UK SSR Code Allocation Plan is specified in the UK AIP and lists all promulgated SSR Codes, detailing those designated as conspicuity.

ATCOs must be familiar with adjoining units conspicuity codes to avoid confusing AS data as verified. The local unit conspicuity squawks affecting RAF Marham are:

a. 7350 – Norwich.

b. 6176 – Cambridge VFR.

c. 6177 – Cambridge IFR.

d. 4501 – Wattisham.

e. 3750 – Wittering.

f. 1777 – Coningsby.

g. 2645 – Cranwell.

h. 1177 – London Information.

The Mode C of 2640-2642 codes denoting AS operating within the Lincolnshire AIAA have been verified; however, they are not under an ATC service so ATCOs will not be able to achieve coordination.

**O.3.19 Climb-Out Restrictions**

COR are a way of ensuring adequate separation exists between departing traffic (including AS conducting MA or CF procedures) and other traffic ivo RAF Marham. COR can be applied at any time at the discretion of RA including but not limited to:

a. AS conducting a TACAN approach.

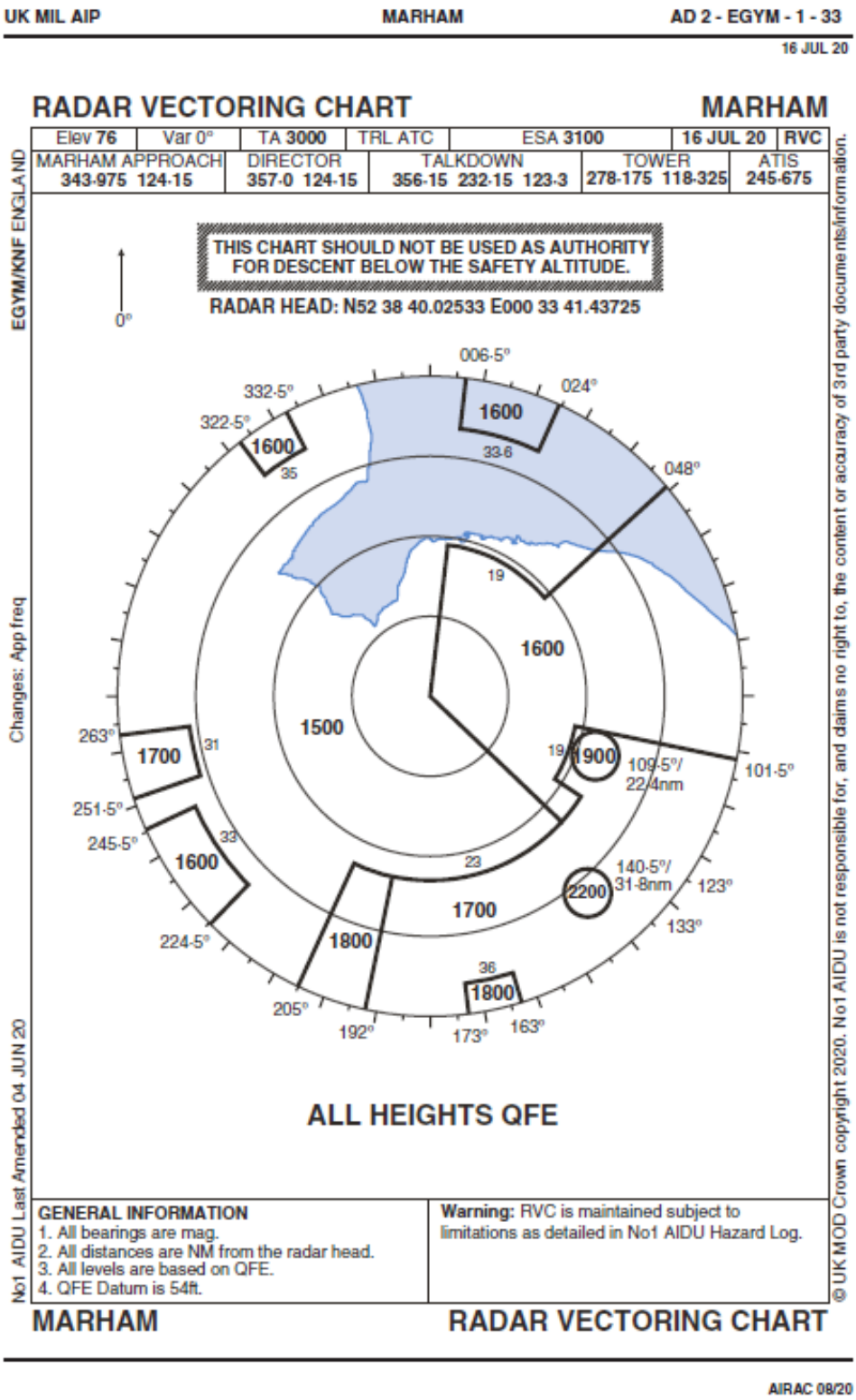
b. Conflicting traffic transiting through the expected departure profile (any met conditions).

c. MATZ crossers.

Any radar controller can request a COR, but they should be initiated through RA/Supervisor. Responsibility for cancelling a COR rests solely with RA/Supervisor. COR do not remove the requirement for co-ordination.

COR should be passed to all AS on instrument recoveries if the MA or CF procedure would break the COR or if the pilot intends to depart after the approach.

**O.3.20 RAF Marham RVC**




**O.3.21 Sculthorpe**

Activity at Sculthorpe currently falls into 3 different categories, Low Level Para Activity, High Level Para Activity and JFAC (CAS) Operations. Activity at Sculthorpe is NOTAM'd and RAF Marham ATC should abide

by the relevant NOTAM and the rules/guidelines laid down in the References. All AS using Sculthorpe are to check in with RAF Marham on 282.25 MHz or 124.150MHz (VHF) and request a relevant service iaw CAP 774. Non-participating Mil AS are not to be vectored within 2nm or 3000ft QFE of Sculthorpe AD during notified hours of mil ex (promulgated by NOTAM). Civilian AS are to be warned of Sculthorpe activity when operating in the vicinity.

Low Level Para Activity, below 2000ft amsl. AS para dropping at Sculthorpe, whether persons or cargo, are to squawk 0033. Radar circuits for rwy 24 should be conducted at 3000ft QFE, descending once clear of the Sculthorpe area and inbound for RAF Marham. ATCOs should select the relevant dynamic map in order to increase awareness.

Higher Level Para Activity. All AS intending to undertake para dropping activity above 2000ft amsl should contact RAF Marham ATC. AS are to squawk 0033 and obtain a service from ATC. ATC will provide relevant traffic information to the paradropping AS iaw CAP 774.

All paradropping AS should be requested to report before dropping (e.g. 30 seconds or 10 nm). This will provide ATC adequate time to provide traffic information on any conflicting traffic within the drop zone. AS captains

**O.3.22 FLARM**

FLARM Derived Data can now be used to supplement traffic information passed on non-transponder equipped AS. The indicated altitude of the conflicting traffic on FLARM would be given to an AS providing:

a. The ATCO is operating traffic close to non-squawking traffic and requests the Supervisor/ATCO I/C to interrogate FLARM.

b. The Supervisor/ATCO I/C correlates the radar contact to a contact on FLARM, opens the data block and ensures that the last update time is within 1 minute. The vertical position information can then be passed to the ATCO.

c. At this point the ATCO can decide whether this information is relevant. If deemed relevant, traffic information will be passed and with height information stated

'FLARM indicates <u>height/above/below</u>'

d. It is crucial that the term 'FLARM indicates' is included as this indicates to the pilot that the information is not assured, and therefore could be inaccurate.

Implementation. ATC Supervisors/ATCO I/C are to have glidernet.org displayed on their PC Screen and are to interrogate FLARM data before passing information to the Radar controller. If sufficient time/SQEP personnel are unavailable, TI is to be passed utilising 'no height information'.

Contingency. http://live.glidernet.org/ can also be loaded onto the Mil-EAMS system on the ASOS console. This contingency can be used in place of a MODNet computer if MODNet is U/S.

## CHAPTER 4: TEMPORARY ORDERS

Temporary orders will be issued for either short term changes to policy, regs or local orders; or, to instigate an immediate change/mitigation to an existing order or one that is undergoing review/investigation.

| Date | Order No | Subject | Remarks |
|---|---|---|---|
| 09 Oct 18 | 22/18 | Changes to 19RH MAP | In process of addition to TAP Charts North Oct 19 |
| To be added | | | |

Defence Safety Authority

# Defence Aerodrome Manual (DAM)

# RAF Marham

## Annex O Part 2 – Flying Order Book

## Issue 9

Military Aviation Authority

Military Aviation Authority
MAA

## TABLE OF CONTENTS

## 1ST PARTY ASSURANCE

The 1st party assurance of this annex is the responsibility of **SATCO** or as delegated.

## AMENDMENT TABLE

| Amendment No. | Amendment Date | Date of Incorporation | Name | Signature |
|---|---|---|---|---|
| | Oct 19 | Initial Issue | | |
| 1 | Nov 20 | | [redacted] | Electronically Signed |
| 2 | Dec 20 | | [redacted] | Electronically Signed |
| 3 | Aug 21 | | [redacted] | Electronically Signed |
| Version 21-1 | Sep 21 | Re-Issue | [redacted] | Electronically Signed |
| | | | | |

## FOREWORD

This Flying Order Book forms part of the ensuring element of my role as Delivery Duty Holder and Head of Establishment at RAF Marham. It applies to all units and squadrons resident at, or attached to, the Stn. The Orders contained within this document amplify those from higher authority but do not replace them and must not be construed as being less restrictive. Ops Wg personnel are to familiarise themselves with these orders and all RAF Marham aircrew are to sign as having read and understood them on arrival and on amendment. OC Ops Wg is to consider the need for briefing these orders and mandating signatures from visiting aircrew, dependent on the length of time that the aircrew are due to operate at RAF Marham.

OC Ops Wg is responsible for formally reviewing these Orders as part of the ASMP on a regular basis to ensure that they remain coherent with higher-level regulation and relevant to the requirements of Stn flying activity.

<Original Signed>

P Marr
Gp Capt
Stn Cdr

# ANNEX O: FLYING ORDER BOOK

## CHAPTER A1: MARHAM AIRFIELD AND MILITARY AERODROME TRAFFIC ZONE

RAF Marham is a military aerodrome situated within LFA5. Its Military Aerodrome Traffic Zone (MATZ) has standard dimensions. Military AS are controlled in all weather conditions, but civil pilots are only ADVISED to call for MATZ crossing clearance and no legal action can be taken in cases of civil AS entering the MATZ without clearance, regardless of weather conditions. Light AS operate occasionally within the RAF Marham MATZ from East Winch (350/5 nm from Marham) and Boughton (195/4.5 nm) under Letters of Agreement; operations from these strips will be notified to RAF Marham ATC. A layout diagram of the airfield can be found at A7.

**A1.1 Airfield Information**

**Lighting**.

a. **RWY Lighting**. The RWY lighting is standard on RWY 06/24 with high intensity

uni-directional lights every 100 ft and low intensity omni-directional lights every 300 ft. On RWY 01/19 there are high intensity bi-directional lights every 100 ft and low intensity omni-directional lights every 300 ft. There are additional Bi-directional lights every 100ft marking out the STOL strip on RWY 01/19.

(1) **Light selection.** RWY lighting can only be selected for one rwy at a time, 06/24, 01/19 or 01/19 STOL.

b. **Taxiway Lighting**. On taxiways that are 100 ft wide or greater there is non-standard blue edge lighting. Blue edge lighting is also located on G taxiway. Holding points are indicated by double blue lights on the inside and by a board with a triangle of blue lights on the outside of the taxiway. The Southern Taxiway has green centreline lighting.

c. **Additional Lighting**. At night or when visibility is poor and when RWY 06 is in use, the RWY 01/19 lights are to be switched on for the benefit of AS taxiing via the subsidiary RWY to dispersal. Whenever RWY 01/19 lights are required in addition to those for RWY 06/24, they must be switched on manually by the Duty Electrician. The Local Controller can only select lights for either RWY 06/24 or RWY 01/19.

[redacted]

**Marker Boards**. RWY Marker Boards are positioned at both sides of the RWY at intervals of 1000 ft in each RWY direction indicating the distance to go to the end. The boards are black with a single white number, in thousands of feet, and are illuminated whenever the RWY lights are switched on.

**Cables Rotary Hydraulic Arrester Gear (RHAG)**. A Mk 1 RHAG is installed at each end RWYs 24 and 06RH. They are positioned 1600 ft from the RWY 24 threshold and 2100 ft from the RWY 06 threshold. All cables are marked by a board each side of the RWY with a yellow disk on a black background. The boards are illuminated at night if the cable is in the raised position. For normal flying all cables are down (rigged but unsupported).

1. **Touchdown Zone Elevations**. The Touchdown Zone Elevations are (AMSL):

a. RWY 24: 75 ft.

b. RWY 06RH: 68 ft.

c. RWY 01: 68 ft.

d. RWY 19: 76 ft

e. Airfield elevation: 77 ft

f. VL PAD 1: 66ft

g. VL PAD 2: 70ft

h. VL PAD 3: 60ft

**A1.2 Take-Off and Departure Information**

Stn based aircraft will be issued a Marham IFF squawk for departure and recovery. If a handover to Swanwick Mil has been requested, the flight may wear a Swanwick squawk to facilitate procedural handovers. In this case, the first and last aircraft in a trail are to maintain the same Swanwick squawk until standard formation, in some cases ATC may issue local squawks for the remaining AS in formation to facilitate transponder checks. Stn based aircraft are to use the Marham squawks on recovery unless directed otherwise by ATC.

**Fixed Wing VFR Departures**. VFR departures require AS to be 1000 ft vertically and 1500 m horizontally clear of cloud with an in-flight visibility of 5 km. Details for VFR departures are as follows:

a. **RWY 24**. All AS are to remain on RWY track until passing the airfield boundary, then turn left 15 deg (noise abatement to avoid Fincham) and climb to 1000 ft QFE. Exceptionally, 500 ft QFE may be permitted to ensure adequate separation from the cloud base.

b. **RWY 06 RH**. All AS are to remain on RWY track until passing the airfield boundary. Then turn right 10 deg (noise abatement to avoid Castle Acre) and climb to 1000 ft QFE. Exceptionally, departures at 500 ft QFE may be permitted as for RWY 24. Crews should not turn left between the airfield and Narborough and should make every effort to avoid all villages on the climb-out. The two Explosive Storage Areas (ESAs), annotated on Section A2.16 and located due east of the departure end of RWY 06, must not be overflown below 1,000 ft agl.

c. **RWY 19.** All AS are to remain on RWY track and climb to 1000 ft QFE. Exceptionally, departures at 500ft QFE may be permitted. Do not overfly the ESAs below 1,000 ft agl.

d. **RWY 01.** All AS are to remain on RWY track and climb to 1000ft QFE. Crews should take care to avoid the noise sensitive areas of Narborough and Pentney. VSTOL capable AS carrying out a STO may turn right to intercept the 06RH departure track once climbing through 250ft. Do not overfly the ESAs below 1,000 ft agl.

e. **Minimum Height**. Crews should normally fly at not less than 1000 ft MSD within a 15 nm radius of Marham. However, flying at lower heights is permitted to meet specific training, flight safety or weather-avoidance requirements.

**IFR Departures**. Pilots electing to depart IFR are to ensure all their departure details including Low Level entry point (if applicable) are notified to ATC before take-off. AS departing IFR in BLU/WHT met conditions are to adhere to VFR noise abatement procedures. If the weather is GRN or worse, AS are to follow the relevant MID

a. **MID 24** – Fly rwy track to 2500'.

b. **MID 06** – Fly rwy track to 2500'.

c. **MID 01 North**– Fly rwy track to 1600' or 3 DME whichever is later and then onto track 035 and climb to 2500'.

d. **MID 01 West**– Fly rwy track to 1600' or 3 DME whichever is later and then onto track 270 and climb to 2500'.

e. **MID 19** – Fly rwy track to 1600' or 3 DME whichever is later and then turn onto track 270 and climb to 2500'.

f. All AS departing into the instrument pattern are to contact DIRECTOR #5.

**Visiting AS Departures**. Local Controllers are to ensure that pilots of visiting fast jet AS are briefed on the appropriate departure and noise abatement procedures before take-off.

**Departing AS and Timed Take-offs**. All Marham-based departing AS have priority over all other movements apart from AS with an emergency (real or practice), AS that have declared Minimum Fuel, Royal Flights or VIP flights. To allow efficient sequencing of AS movements crews are encouraged to book Timed Take-offs with ATC prior to walk and the lead crew should confirm their planned take-off and a NLT time with ATC on initial check in. If crews taxi late and need an immediate take-off to meet a task they are to inform ATC.

**Trail Departure**. Stream formations will be provided with a radar service with only the lead AS receiving the service. The formation leader is responsible for separation between units of the formation with Military Assumes Responsibility for Separation of Aircraft (MARSA). ATC will instruct all AS to squawk. For formations where the stream will extend beyond 3 nm the lead pilot should consider switching to departures before rolling.

**Approach Frequency on the Rwy**. To minimise confusion, formation leads should only request Approach on the rwy when the risks of reduced SA between departing and arriving/CCT traffic is outweighed by the requirement for the RDR service. In VFR conditions the default should be to depart on Tower.

The procedure for Approach frequency on the rwy is as follows:

a. Formations should inform ATC as early as possible that they require Approach on the rwy.

b. Approach on the rwy will be approved with the tower controller on Tower. Once a take-off clearance has been given, it should be read back on Tower. The formation lead should then inform Tower when they are switching to Approach.

c. Once all elements are on Approach, the formation lead will establish 2-way comms with the Approach controller.

'Marham Approach, GHOST 21 Flight, Rolling.'

d. The Approach controller will acknowledge with the following response.

'GHOST 21, Marham Approach, readability 5.'

e. Formations must not roll until they have established 2 way-comms with the Approach controller.

'GHOST 24, Airborne' called on Stud 4.

f. Any AS deviating from the clearance (eg holding on the ground to rectify a problem) will be switched back to Tower.

g. AS returning to Tower following a problem must be given a positive control instruction to confirm that both parties have a full understanding/expectation of the situation:

'Marham Tower, GHOST 23 is vacating RWY 24 to the North.'

'GHOST 23 take-off clearance cancelled; Call runway vacated.'

No other clearance to use the rwy is to be given until the Tower controller has established 2-way comms with the holding AS, even if it has vacated the rwy.

**A1. 3 Radio Failures Whilst Taxiing Out**

**Communications Failure**. Following a radio failure during taxi, crews should proceed to the marshalling point of the duty RWY. Anti-collision lights are to be switched off and the landing/taxi lights flashed to attract the RWY Controller's attention. The following Aldis light signals are to be used by the RWY Controller and the AS is to proceed accordingly:

a. STEADY RED: Stop.

b. FLASHING RED: Move clear of the manoeuvring area immediately.

c. FLASHING WHITE: Clear to return to dispersal via duty RWY.

**Communications Failure with Additional Failures**. If able to taxi, proceed as in para 16 AS unable to taxi will probably need to be closed down. At night the captain should remain with the AS and seek assistance in order to warn other traffic of its position.

# CHAPTER A2: VISUAL AND RADAR CIRCUIT PROCEDURES

**A2.1 Visual Circuit.**

The visual circuit height is 1000 ft QFE (500 ft QFE for light AS and helicopters). The low-level circuit height (day only) is 500 ft QFE for Marham-based fast jet AS. During periods when light AS are operating from RAF Marham, revised circuit procedures will be conducted iaw ATC Chapter A4. The circuit direction is left hand for RWY 24 and right hand for RWY 06, see Section A2.16. The circuit direction is left hand for RWY 01 and right hand for RWY 19, see Section A2.17. The following restrictions apply to the visual circuit:

a. Visual circuits are permitted with a minimum cloudbase of 1100ft and 5 km visibility, day or night. When Met visibility is declared < 5 km, the visual circuit may be declared fit initially by the ATC Supervisor/DCF and subsequently by an AS captain, when airborne, provided he assesses a minimum visibility of 5 km.

b. By day, the maximum number of AS in the visual circuit is 5 for RWY 06/24. This is limited to 4 AS for RWY 01/19.

c. At night, the visual circuit is subject to the following restrictions:

(1) The maximum number of AS in the visual circuit for RWY 06/24 is 4. The maximum for RWY 01/19 is 2 AS.

d. Formations breaking to land are to be considered as one AS movement.

e. If the visual circuit becomes overloaded or the weather is judged to be unsuitable by the ATC Supervisor pilots may be instructed to enter the instrument circuit or to land. If both instrument and visual circuits become overloaded, pilots may be instructed to land or hold clear of the pattern/circuit. In such situations, recovery priorities will be decided by the ATC Supervisor.

f. The low-level circuit is subject to the following additional restrictions:

(1) The maximum number of successive practice circuits is 2.

(2) Normal circuit noise abatement procedures are to be followed.

(3) Low level circuits are not to be flown if helicopters are inbound low level from the south of the airfield or if light AS are already in the visual circuit at 500 ft QFE.

(4) Practice Low level circuits are not permitted on RWY 01/19.

g. **Light selection**. RWY lighting can only be selected for one rwy at a time, 06/24, 01/19 or 01/19 STOL.

(1) **Lights off**. If captains require lights off approaches to the airfield they should request this to ATC using clear language: 'Request all airfield lights off'. If there are other aircraft in the circuit, then all users must be in agreement for lights off approaches.

(2) **Covert lighting**. All RWY Lighting has a covert setting for operational flying. If captains require covert light approaches to the airfield, they should request this to ATC using clear language: 'Request covert lighting'. If there are other aircraft in the circuit, then all users must be in agreement for covert light approaches.

[redacted]

**A2.3 Visual Joins**

Visual joins are not to be carried out in actual conditions worse than WHITE. However, Radar-to-Visual approaches may be carried out if the cloudbase is 1500 ft QFE. AS should route via initials, which is defined as 3 nm on the extended centreline displaced approx. 0.5 nm to the deadside at 1000ft QFE. Crews should ensure that AS/formations avoid local noise sensitive areas during the final stages of rejoins, particularly Fincham for RWY 06, Castle Acre for RWY 24 and Narborough and Eastgate Farm for RWY 19.

**A2.4 Run-In and Breaks**

Run-in and break joins are to be carried out between 500 ft and 1000 ft QFE; however, descent below 1000 ft is not to be initiated until inside initials and only with permission from ATC by requesting a "Low Break". If a normal circuit is to be flown, 1000 ft QFE must be achieved downwind. No Low Breaks are permitted on RWY 01/19. The maximum speed for the break is 420 kts. Crews are responsible for ensuring that adequate separation exists between themselves and instrument/visual circuit traffic. Battle breaks may be flown to RWY 24 at 1000' QFE. Particular care should be taken to avoid Narborough.

**A2.5 Recovery and Landing Information**

All AS should contact Marham Approach on Stud 4 for recovery. Visual recovery AS should squawk as detailed in para 1 of this Order if a radar service is not required. Instrument recovery AS or VFR AS requiring a radar service will be given a squawk by ATC at this time. During the recovery phase, AS may be handed over to Marham Director Stud 5 for radar pattern co-ordination. The initial recovery call to ATC should comprise of C/S, position, hdg, alt/FL, type of recovery, ATIS code and radar service required.

**A2.6 Recoveries**

Swanwick Military can provide a radar service to recovering AS at or above FL100.

**Instrument Recoveries**. Instrument recoveries will be vectored for the most expeditious approach to the RWY in use. Descent will normally be given to 2000 ft QFE, or 3000 ft QFE until clear of the active climb-out/MAP sector. Descent to 1600/1500 ft QFE will be given on the base leg or 15 nm track miles from touchdown. The instrument pattern is normally flown to the North (RWY 06/24) or West (RWY 01/19) of Marham. However, when Sculthorpe activity is NOTAM'd and the Colour Code is BLUE, the radar circuit will be flown to the South to minimize potential conflictions with the activity at Sculthorpe.

a. **Sculthorpe Activity**. Sculthorpe airfield has become a well-used site for the conduct of CAS sorties and tactical airfield ops. However, its location adjacent to the downwind and base legs of the radar circuit to RWY 24 has increased the potential for conflict between Marham traffic and Sculthorpe traffic. Consequently, during periods when Sculthorpe is NOTAM'd as active and until Marham ATC has received notification that activity has ceased, aircraft flying radar patterns to RWY 24 will be routed to the south of Marham in accordance with the following conditions:

(1) The Colour Code at Marham must be Blue.

(2) A southerly circuit will be provided under Traffic Service. If crews anticipate that a Deconfliction Service will be required, they should advise ATC as soon as possible and a northerly pattern should be flown to ensure separation from the radar returns generated by the Pickenham wind farms to the south.

(3) Marham ATC have a letter of agreement with Norwich ATC that allows penetration of Class D airspace. Marham ATC shall receive and pass a positive clearance for AS to enter the Norwich Class D Airspace before an AS enters the Norwich Class D CTZ.

(4) AS recovering from the North for a radar recovery will be routed as expeditiously as possible. There is no requirement to route to the south of Marham before being vectored into the radar circuit.

(5) If it is necessary to fly a radar pattern to the North during periods of Sculthorpe activity, the pattern may be flown at a greater height than normal which may result in AS being transferred to talkdown at 3000' QFE. If this is not acceptable crews should notify ATC who may reposition the AS to the South in order to facilitate a further descent.

**Slot times**. The ATC Supervisor, in consultation with the DCF, may impose slot times. When slot times are in force, AS should be at 15 nm on the extended centreline at their nominated slot time. Slot times are to be booked at **even** mins through the DCF, or for early slots before the DCF is on duty, through the ATC Ground Controller. Airborne crews unable to make their slot time should notify ATC (via another agency if necessary) of the revised time, as soon as possible. If the slot time is already in use, the next available will be booked. Crews unable to adhere to a later slot time are to divert to their nominated diversion.

**Visual Recoveries**. Pilots are to position for the RWY in use, taking care to avoid all local areas of population (see Local Area Order L1). To ensure the maximum deconfliction between AS operating at low-level in the North Norfolk area, crews recovering visually to Marham are to comply with the following procedures. Crews will be passed from Approach directly to Tower.

a. All low-level arrivals are to be not below 1000 ft QFE.

b. Low-level arrivals from the West for visual recoveries on RWY 24 are to route via the North of Marham.

c. Visual recoveries to RWY 06RH from the North and East of Marham should route to the North of the airfield bearing in mind the low-level traffic through the "Northern Gap".

**Trail Ground Controlled Approach (GCA) procedure** **(Sp & BM Orders 207).** This procedure allows pilots flying in trail to follow the flight path of the lead AS when they are in receipt of a GCA talkdown:

a. **Precision Approach Radar (PAR)** **(SP & BM Orders 207).** The following basic procedure is to be used by aircrew and controllers when conducting trails GCA procedures using PAR:

(1) Pilots are to advise ATC of their intention to carry out a trail GCA and are to arrange a minimum of 1 nm separation by the time the formation is established on the final approach heading.

(2) ATC is to pass the procedure minima to all AS in the formation. All AS in formation are to acknowledge by passing their respective DHs. ATC is then to transmit the procedure minima for the SRA approach. Crews of trail AS only are to acknowledge by passing their respective MDHs.

(3) On initiating descent, the pilot of the lead AS, under the direction and direct control of the PAR controller, is to descend to DH. The remainder AS in trail are to descend to their respective MDHs. Talkdown controllers are to obtain a QFE check from the lead element but must check each individual element has their landing gear down prior to a clearance being issued. Clearance will be issued for the entire formation.

(4) When the pilot of the lead AS calls 'visual' or reaches DH, the PAR controller is to transfer service immediately to the next AS in trail. Initial RT contact with trail AS is to include a request for the heading being flown. Pilots in trail, on being picked up by the PAR controller, are to revert to their DH previously passed to ATC and continue in accordance with instructions received.

b. **Trail Element Pilot Responsibility**. If subsequent pilots in trail reach their MDH before being picked up by the PAR controller, they are to level off and only descend to their DH when under the direct control of the PAR controller. Pilots who fail to be picked up are to continue to the MAP for the approach aid in use and, thereafter, initiate a missed approach if necessary.

[redacted]

a. **Trail (Practice) Short Pattern Circuit (SPC) Procedure**. Procedure minima will be applied as per the Trail GCA order above. The (Practice) SPC procedure differs from the standard trail procedure:

(1) ATC will vector the lead AS for a standard recovery profile as per a **standard singleton** talkdown (8nm final) iot ensure that both AS can be identified by the talkdown controller in sufficient time to facilitate a timely transfer of control and descent on the glidepath.

(2) The formation will be vectored at 1500ft/1600ft as per SPC height.

(3) If capacity and traffic density allow, the formation may be transferred onto Stud 6 or Stud 7 on the downwind leg by App/Dir. This will allow an expeditious handover, identification and descent.

b. **SRA**. The same procedure is to be used for Trail GCA approaches using surveillance radar equipment, except that all elements will use, and fly to, the SRA approach MDH/A.

**A2.7 Missed Approach Procedure**

In the event of a missed approach proceed as follows:

1. **RWY 06/24**. Climb on RWY track and report level at 1600 ft QFE on frequency in use, then proceed as directed by ATC.

2. **RWY 01**. Turn right as soon as practicable, track 042° climbing to 1600 ft QFE then as directed by ATC.

3. **RWY 19**. Turn right as soon as practicable, track 268° climbing to 1600 ft QFE than as directed by ATC.

**A2.8 Communications Failure (NORDO) Procedure**

If radio contact is lost during an approach and the approach cannot be continued, climb to 3000 ft QFE and attempt to contact Marham ATC on any published frequency.

**Total R/T (NORDO) Failure**. Crews should set IFF Mode 3 7600 + Mode C; subsequent actions depend on the weather:

a. Colour State WHITE or better RWYs 06, 19 and 24 only:

(1) Self-navigate to 10 nm on centreline not below SALT: 25 NM SALT 1900' (SALT 2800' beyond 25NM to the West, SALT 2300' beyond 25NM to the East).

(2) At 10 NM, descend to 1600 ft QFE.

(3) Self-navigate to airfield, monitoring ILS localiser audio.

(4) Fly a visual straight-in approach, intercept 3-degree glidepath.

(5) If Green flare not received, level at 300 ft, fly abeam the caravan rocking the wings, or flashing lights at night.

(6) Climb to 1000 ft QFE and fly a normal circuit. Expect a GREEN flare to land.

b. Colour State GREEN or worse or on RWY 01 all weather:

(1) Proceed as sub-para a above, but use ILS, TAC to ILS, TAC –TAC, (RWY 24) or TAC-TAC,(RWY 01, 06 and 19) for the final approach. Monitor the ILS localiser audio.

(2) If not possible, divert to find better weather (normally the diversion).

(3) Expect a GREEN Verey to land.

**Grade 1 Diversion**. If during any of the comms failure drills above, a series of RED Vereys or flashing red light signals from the RWY Controller's caravan indicates TOTAL REFUSAL OF PERMISSION TO LAND, and crews are to divert to the nominated diversion.

**Suspect Landing Gear During Communications Failure**. Crews requiring an undercarriage inspection during a comms failure should low approach from the first approach. (At night, ATC are to then switch on the undercarriage check lights. Once this is carried out, crews are to use the procedure at Order E6). When downwind, Verey cartridges will be fired to indicate the apparent position of the landing gear. The order and meaning is as follows:

a. Port, nose, starboard, hook (but see sub-para b).

b. A RED indicates that the u/c leg appears to be other than locked down. A RED will not be fired if the hook appears up. A GREEN indicates that the u/c leg appears locked down or that the hook appears down.

c. On finals, a further Verey will be fired as follows:

(1) GREEN - clear to land.

(2) RED - fly through lights again.

**ATC Actions During Emergencies**. Whenever an AS enters the circuit without radio contact, ATC is to carry out the following actions:

a. Pass the airfield and weather details over the ILS frequency.

b. Pass the landing clearance over the ILS frequency.

c. Give the crews a GREEN Verey if clear to land on the first approach.

d. At night, illuminate the UCLs if the AS overshoots from its first approach.

e. If the AS flies through with its hook down, ATC will assume a cable engagement is possible, and support both cables if not already supported.

**Assume the landing AS has armament on board and alert the Duty Armourer.**

**A2.9 Co-ordination of Instrument and Visual Traffic**

**AS in Emergency**. Any crews in the visual circuit that have not been cleared to land when an actual emergency AS reaches 10 nm finals will be instructed to “go around”.

**Non-emergency Traffic**. Instrument traffic is, whenever possible, to be given priority over visual traffic. To attain this, the following criteria are to be applied:

a. Radar traffic at 4 nm will have priority over visual circuit traffic that has not called 'Final'. Final clearance for the instrument traffic may be delayed to 2 nm finals, if necessary.

b. If final clearance to land, touch and go, or low approach cannot be given to instrument traffic by 2 nm finals, the approach is to be broken off. Pilots who are visual with the airfield and who wish to join the visual circuit are to be instructed to join deadside and to contact Tower. However, at the discretion of the Local Controller (during daylight hours only), Stn based crews may be instructed to transfer to Stud 2 for a final clearance and then continue the approach visually. Pilots who are not visual with the airfield are to carry out the missed approach procedure.

c. The maximum number of AS in the combined visual and instrument circuits is at the discretion of the ATC Supervisor provided the number in the visual circuit does not exceed that specified in Para 1 of this Order.

**A2.10 Short Pattern Circuits**

Whenever short pattern circuits are flown the following criteria are to be applied:

a. **RWY 19 and 24**. Right hand pattern at 1600 ft QFE, turning inbound at 7 nm downwind. Descents to 1100 ft during the base leg will only be given under a TS.

b. **RWY 01 and 06**. Left hand pattern at 1600 ft QFE, turning inbound at 7 nm downwind. Descents to 1000 ft during the base leg will only be given under a TS.

**A2.11 Practice Emergencies**

Practice Pan emergency circuits are to receive the same priority over non-emergency traffic as actual emergencies.

**A2.12 Minimum Landing Intervals**

**Separation & RWY Occupancy**. Pilots are responsible at all times for ensuring that adequate separation – an anticipated distance of at least 3000ft – exists between their AS and others in the visual circuit.

**RWY 06/24.**

a. Wherever practicable, relaxed RWY occupancy rules will be employed by ATC during the day between Marham based FJ AS to allow expeditious use of the RWY 06/24, e.g. a crew calling finals in the visual circuit when there is another AS ahead to land/touch and go/low approach can be cleared to "land/touch and go/low approach, one ahead". The crew is to ensure the AS ahead is either airborne post touch and go or landed, before executing the clearance. ATC retains the ability to cancel a clearance if required. However, Marham-based crews turning final to touch and go/low approach, behind a visiting AS and vice-versa will be told to "continue approach" until the AS has executed the approach and is airborne. Crews will not receive a clearance to touch and go behind a landing AS. If a positive clearance has not been issued by ATC, the crew is to initiate a 'go- around' at not below 200ft QFE.

[redacted]

**RWY 01/19.**

a. **Conventional.** A clearance will be issued when the AS ahead has conducted its approach or vacated the rwy. The minimum landing interval between Marham based AS conducting conventional landings is 6000ft.

[redacted]

**Touch and Go**. A touch and go will not be issued behind a landing AS. Crews cannot be issued a clearance to "touch and go" until all landing AS have cleared the RWY. If an AS is instructed to **"Continue Approach"**, they must initiate a 'go around' at not below 200 ft QFE unless a positive clearance to land/touch and go/low approach is received.

**Low Approaches and Go Arounds**. If an AS is cleared to low approach, it may descend below 200ft. If for any reason the rwy is obstructed, or the AS ahead is to land, the AS can be cleared to **'Not below 200ft, reason, cleared low approach'**. During a radar approach, if the RWY is obstructed, crews will be cleared for a '**Not below 200ft, reason, cleared low approach'**. If an AS is instructed to **"Continue Approach"**, they must initiate a 'go around' at not below 200 ft QFE unless a positive clearance to land/touch and go/low approach is received.

**Visitors.** Single occupancy rules exist on all runways when a clearance has been given to a visiting AS. Stn based crews will be given a 'continue approach' until the visiting AS has conducted its approach and is wheels up, or has vacated the rwy. The only exceptions are the following:

a. **Formations**. Formation AS joining to land from their first approach, in which case they will be issued 'cleared to land in turn'.

**Slow Lane**. The slow lane on RWY 06/24 is the South side and for RWY 01/19 the slow lane is the West side. During a stream landing, AS that need to cross from the slow lane should not do so until they hear the phrase "clear cross" from the following AS.

**A2.13 ILS Approaches**

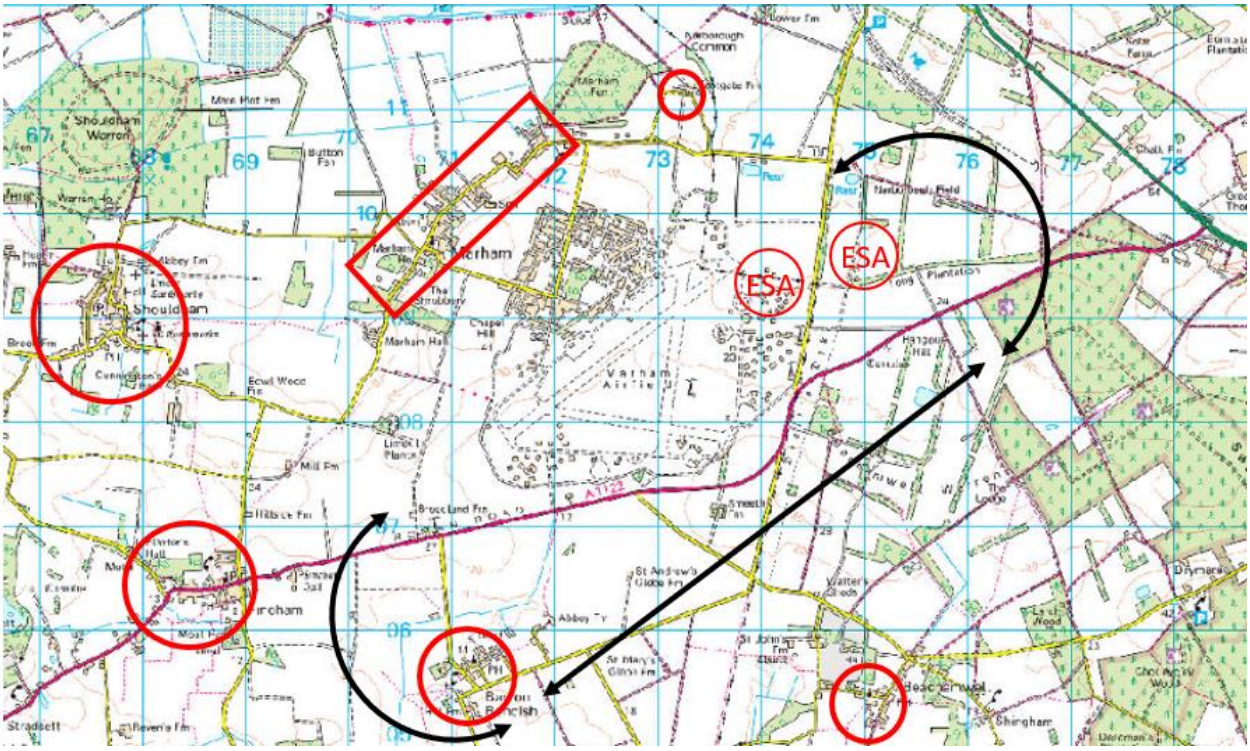
The integrity of the ILS glidepath installation is protected from interference by ensuring that AS or vehicles do not enter specified areas. At Marham, there is a protected area to the Northwest of the RWY 24 threshold. ILS integrity is achieved by displacing the North side holding point for RWY 24. Whenever an ILS is conducted, AS and vehicles are not to go past the holding point. If a monitored ILS approach is not possible due to PAR equipment serviceability issues, at the Sup/ATCO ICs discretion and with the pilot's agreement, the AS may be transferred to Tower at 8 miles for an unmonitored approach.

**A2.14 Practice Diversions**

PD requests should only be accepted by the ATC Supervisor, or during the normal working day by the Approach controller, if the Supervisor is unavailable. RAF Marham is an ARFF category 5 rated aerodrome and will endeavour to meet the required ARFF category for aircraft that request a PPR to land or touch and go at RAF Marham. However, for aircraft of a higher ARFF cat requesting PD approaches; the ATC Supervisor is authorised to accept PDs provided the aircraft do not touch down (unless they declare an in-flight emergency)[redacted]

[redacted]

A2.16 Rwy 06RH/24 Visual Circuit Ground Track



# CHAPTER A3: ATC SERVICES PROVIDED TO MARHAM BASED AV

**A3.1 ATC Service**

The ATC service provided to Marham-based crews is dependent on which service the pilot requests. Recovery States, which are to be based on forecast conditions, are not to be confused with the type of recovery, which is based on the actual conditions (see order S7). ATC is not to mandate the type of recovery flown by crews; this will be left to AS captains after their own assessment of actual conditions. Pilots should state which service they require on initial contact with ATC, both on departure and on recovery. If the pilot believes they are receiving the incorrect service or their in-flight conditions change they should request a downgrade or upgrade in service as appropriate.

**A3.2 Noise Abatement Procedures**

All AS departing Marham on an IFR departure are to adhere to the noise abatement procedures (ATC Procedures Order A1, A1-2 para 7 and Local Area Order L2) when possible and climb to 1600ft QFE (1500ft for RWY 24) where they may manoeuvre as directed by ATC; it is implicit that under normal circumstances a turn passed by ATC will not be actioned until the AS is above 1600 ft (1500 ft for RWY 24) QFE. However, if on departure AS request a DS and unknown traffic is in the vicinity, traffic information only shall be passed. If the pilot requires deconfliction advice, then they must request it from ATC and the appropriate avoiding action will be given. If on departure crews request a DS and ATC believe there is a definite risk of collision with pop- up unknown traffic then avoiding action will be provided immediately.

**A3.3 Reductions in Radar Service**

Reductions in radar services will be applied in the following manner:

a. At all times Marham-based AS are deemed to be in receipt of a reduced service from all around until clear of the radar overhead (5 nm). No reduction of service will be passed on the R/T.

b. Whenever radar suppression causes the controller to reduce the radar service the phrase “identified DS/TS reduced” will be used to minimise R/T. <u>No reason for the reduction of service will be passed on the R/T in these circumstances</u>.

c. ATC can continue to provide a radar service to AS when operating SSR alone. See ATC Procedures Order A10 for details.

**A3.4 Terrain Clearance Responsibility**

Whilst pilots are responsible for terrain clearance, controllers are to give a terrain clearance reminder IAW RA3231. Descent below 1600 ft will only be approved under TS/BS. For brevity, the reminder will not be passed to Stn-based AS in the following circumstances:

a. Undertaking CAS or GH in the local area from surface to a specified upper limit.

b. When descending inbound to Marham on a visual recovery.

**A3.5 Imposed Traffic Service on Departure**

To Marham based crews, in BLU / WHT conditions, ATC will automatically impose a Traffic Service. If the Captain requires a Basic Service / Deconfliction Service, this must be requested to Approach. This will not be actioned by ATC in the following circumstances:

a. In conditions GRN or worse, the Captain must request their Type of Service on departure with Approach.

## CHAPTER A4: LIGHT AV OPERATING PROCEDURES

Periodically light AS will operate from RAF Marham. When this is the case, the procedures in this order will apply.

**A4.1 Taxi Procedures**

AS do not call for engine start. On receipt of a taxi call, the Ground Controller is to pass the RWY, QFE, TL and regional pressure. AS captains will then pass their departure details and POB. Light AS will undertake engine checks prior to departure; these last 5-10 mins and, depending on the RWY in use, are to be carried out as follows:

a. RWY 24. When taxiing from Bravo dispersal engine checks are to be conducted on RWY 19, remaining clear of the taxiway. On completion, taxi to the RWY 24 threshold via the Northern Taxiway or by entering the RWY and back- tracking. If taxiing from ATC via the Southern Taxiway, AS are to carry out engine checks on the spectacles, remaining clear of the taxiway.

b. RWY 06RH. When taxiing from Bravo dispersal, engine checks are to be conducted on the Hockey Stick, remaining clear of the Northern Taxiway. On completion, taxi to the RWY 06 threshold via the Northern Taxiway or by entering the RWY and back-tracking. If taxiing via ATC on the Southern Taxiway, AS are to carry out engine checks on the spectacles abeam the RWY 01 threshold, remaining clear of the taxiway.

Pilots will be given climbout instructions including an SSR code and any height / heading restrictions. Unless stated otherwise, all AS will contact Marham Zone on 124.150 once airborne.

**A4.2 Depature Procedures**

**Standard Visual Departures**. The standard visual departures are as follows:

a. **RWY 24**. Climb on RWY track to 500 ft QFE. Turn right hdg 360º to clear the MATZ, continuing climb as cleared, contacting Marham Zone on 124.150.

b. **RWY 06RH**. Climb on RWY track to 500 ft QFE. Turn left hdg 360º to clear the MATZ, continuing climb as cleared, contacting Marham Zone on 124.150.

c. **RWY 19**. Climb on RWY track to 500ft QFE. Turn left hdg 180° to clear the MATZ, continuing climb as cleared, contacting Marham Zone on 124.150.

d. **RWY 01**. Climb on RWY track to 500ft QFE. Turn left hdg 360° to clear the MATZ, continuing climb as cleared, contacting Marham Zone on 124.150

e. Unless there is traffic to conflict, light ac are to be instructed to continue climb whenever possible after departure and not held unnecessarily at 500 ft.

**Non-Standard Departures**. Non-standard or IFR departures may be approved subject to traffic conditions and co-ordination. For an IFR climb, the AS Captain is to request the type of service required.

**A4.3 Recovery Procedures**

**Visual Join Procedures**. Light AS are to call Marham Zone on 124.150 with intentions at least 2 minutes before entering the MATZ. When in visual contact with the airfield, AS will be instructed to change to Marham Tower on 118.325, joining through initials at 500 ft QFE. During periods of continuous fast-jet recoveries / circuits, light AS may be instructed to remain outside the MATZ or join via the overhead at 1500 ft QFE and hold until fast-jet circuit activity has reduced. Fast-jet and other fixed-wing AS will be instructed to join via initials at 1000 ft QFE.

**Standard Overhead Join**. Light AS are to home to the overhead at 1500 ft QFE. Unless directed by ATC, AS are to let down on the deadside to a circuit height of 500 ft QFE, turn downwind and call with intentions. If ATC have conflicting traffic, the light AS is to be instructed to "C/S...Maintain 1500 ft, …(reason)" until the confliction is resolved.

**Other Types of Visual Join**. Downwind, base-leg and straight-in visual joins may be approved by ATC subject to other traffic.

**Instrument Approaches**. Light AS will occasionally carry out instrument approaches. Instrument patterns are to be kept as tight as practicable without devaluing the training benefit. Pattern height is 1600 ft QFE and a 3º glidepath flown. Standard liaison calls are to be made, but at 4 nm AS are to be instructed to "C/S, call by 2" (or broken off if the situation dictates). Final clearance is to be received by the pilot by 2nm.

**A4.4 Visual Circuit Procedures**

**Visual Circuits**. Standard light AS circuits are to be flown at 500 ft QFE inside the fast-jet circuit, which is to be flown at 1000 ft QFE. Glide circuits are to be flown at 1000 ft QFE. For PFLs, High Key is to be between 2000 ft and 3000 ft QFE. Glide circuits and PFLs are not to be initiated without clearance from ATC and will not be approved with mixed circuit traffic or when jet recoveries are imminent. Other circuit heights may be requested by pilots, approval will be subject to the prevailing air traffic situation. Fast-jet low-level circuits will not be permitted when the circuit is active with light AS.

**Traffic Lights**. The approach-end traffic lights are to be set to RED just before the AS turns finals. However, in order to expedite vehicular movement on the aerodrome, pilots may be told to "...continue approach" to alleviate traffic queues. Traffic lights are to be set to RED by 2 nm for light AS on instrument approaches.

**Circuit Limitations**. Light AS circuit flying may continue with one fast-jet joining or already in the visual circuit. If two or more fast-jet AS require to join or operate in the visual circuit, light AS will be instructed by ATC to land, clear the circuit or hold liveside. When instructed to hold, AS Captains are to racetrack at 500 ft QFE within the airfield boundary to the South of RWY 24/06 between the RWY 06 and RWY 24 thresholds, in the circuit direction.

**Circuit Information**. At initials, fast-jet crews are to be informed of the position of the circuit traffic together with an explicit statement that the AS is a light AS. E.g."One downwind low, light AS". Radar Controllers are to ensure that all visiting AS are fully briefed on the light AS circuit and that the standard visual join and circuit are to be at 1000 ft QFE with a level break. Tower Controllers are to ensure that radar clearances are as short as possible.

**RWY Occupancy Rules**. The occupancy rules iaw Order A2.12 will be applied.

**Vacating the RWY**. Light AS do not normally trample a raised cable and generally have a short stopping distance. Therefore, AS will vacate the RWY at the following locations depending on the RWY in use:

a. **RWY 24**. Light AS are to backtrack to the short RWY and vacate via RWY 01/19.

b. **RWY 06**. Light AS are to backtrack and vacate via the Hockey Stick. However, if the AS has landed some distance down the RWY, it may be more prudent to continue in the RWY direction and vacate at the most convenient exit.

c. **RWY 19**. Light AS are to backtrack and vacate onto the VAP from the 19 Threshold. If backtrack is not available, Light AS are to vacate at the next convenient left and proceed up Charlie taxiway.

d. **RWY 01**. Light AS are to continue down the runway, vacating left onto the VAP from the 19 Threshold. Trampling of a cable is to be expected on this runway configuration.

**A4.5 Practice Emergencies**

Light AS practice many types of emergencies and the following actions are to be taken:

a. **Turnbacks**. The Captain is to pre-brief ATC and receive approval before initiating a turnback. On receiving initiation of the turnback, the Tower Controller is to select all traffic lights to RED and transmit "C/S, turnback approved, all RWYs available, surface wind ....".

b. **Fanstops**. Fanstops may be initiated either in the visual circuit or at any time during the sortie. The Controller is to acknowledge the call with "C/S, report climbing away". If a fanstop is initiated downwind, Controllers are to expect the AS to request use of any RWY and are to select traffic lights to RED. If at any time a Controller is not happy with the position of the light AS when the pilot calls "… fanstop" the pilot is to be instructed "C/S, fanstop not approved, report climbing away". The pilot is to apply power immediately and continue with the sortie. This is particularly important when undertaking the fanstop manoeuvre after departure when subsequent radar or departing AS may have already been cleared to use the RWY.

c. **Radar Practice Forced Landing**. RPFLs are to be carried out iaw the MAA Manual of Air Traffic Management.

d. **Visual Practice Forced Landing**. The pilot will call climbing to High Key and once there will pass his intentions. This call is equivalent to a downwind call and the pilot is to be passed the number of AS ahead and the surface wind. The following call will be at Low Key where the Controller is not required to provide an acknowledgement.

e. **No RT Join**. Light AS recovering with no RT, whether practice or actual, will fly through initials at 500 ft QFE waggling their wings abeam the Truck RWY Caravan (TRC). On turning downwind they are to maintain 500 ft QFE where standard calls from ATC are to be expected. AS are to follow ATC instructions/ signals (Verey flares) for use of the RWY.

f. **Total Electrical Failure**. Light AS recovering with a total electrical failure, whether practice or actual, will fly through initials at 500 ft QFE and throttle the engine when abeam the TRC. On turning downwind they are to maintain 500 ft QFE where standard calls from ATC are to be expected. AS are to follow ATC instructions/signals (Verey flares) for use of the RWY.

**A4.6 Miscellaneous**

**Light Ac Use for Duty Travel**. If light AS are being used for duty travel purposes, AS Captains are requested to warn-out with Stn Ops prior to departure. This will ensure Stn Ops have details of the flight should they be required to answer questions from destination airfields or to carry out overdue action if necessary.

[redacted]

## CHAPTER A6: PREVENTION OF DAMAGE TO MAIN RWY AND TAXIWAY SURFACES

The surface layer of RWY 06/24 is primarily designed to provide good braking action on a smooth porous surface. However, it is susceptible to almost immediate damage from spilled fuel or hydraulic fluid in any quantity.

The holding areas and the take-off position at each end of the RWY are concrete and therefore impervious to the effects of fuel, which may vent from stationary AS or when shutting an engine down. AS Captains should note that the whole of the Bravo Taxiway is asphalt despite a section appearing to be concrete.

To prevent damage to the Main RWY and taxiways, the following precautions are to be taken:

a. **AS Captains**. Where venting or spillage of fuel occurs or is suspected, AS are to be taxied clear of the Main RWY as quickly as possible and parked on one of the concrete areas and inform ATC immediately.

b. **Fire Section**. When fire and crash rescue vehicles are required to attend to ac on the Main RWY, the Crew Commander is to be aware of the possibility of fuel spillage. Where possible, he is to ensure that the ac Captain is able to taxi clear of the RWY.

c. **ATC**. The ATC Supervisor should ensure crews unfamiliar with Marham are informed where they can conduct engine shutdowns.

[redacted]

[redacted]

## CHAPTER A9: LOW VISIBILITY PROCEDURES (LVP)

1. When the aerodrome visibility drops below 1000 m or the Aerodrome Controller cannot see the whole length of the RWY, LVPs will be implemented. The Supervisor will advise the DCF to check pilot ratings and the following procedures will be followed:

a. All RWY threshold lights, and the Northern taxiway light, will be set to RED. Vehicles will be instructed to use the airfield ring road wherever possible. Permission to cross any RWY must be obtained by all AS.

b. AS will not to be allowed to back-track the RWY in use.

c. Relaxed RWY occupancy rules (as detailed in ATC Procedures Order A2) will not apply, and clearance to land will only be given once either visual or verbal confirmation has been obtained that any AS landing ahead has vacated the RWY.

d. ATC will utilize the ATC Rover and SAPPHO to conduct regular sweeps of the RWY prior to its use.

e. If, after all safety checks have been carried out, the Aerodrome Controller is unable to see the entire length of the RWY, all clearances will be issued at “pilots’ discretion”.

f. During night flying, in addition to the above measures, airfield lights-out/covert approaches will not be permitted.

g. AS that are unfamiliar with Marham will only be permitted to taxi when guided by a follow-me vehicle, normally the ATC Rover.

# CHAPTER A10: PROVISION OF RADAR SERVICES AT RAF MARHAM OPERATING SSR-ALONE

**A10.1 General**

This order details the procedures to be employed by RAF Marham ATC when providing radar services under SSR-Alone conditions due to planned maintenance or unplanned outages of the RAF Marham Watchman Primary Search Radar (PSR).

RAF Marham ATC Business Continuity Plan Annex E assessed the risks associated with operating SSR-Alone and provides the authority of the Operational Duty Holder (ODH) to provide radar services iaw the conditions stipulated within this order.

**A10.2 Unplanned Outages**

When there is an unplanned outage requiring SSR-Alone operations at RAF Marham to maintain station output, the following procedures are to be adopted:

a. Advise all AS on frequency that the PSR is unserviceable and:

(1) Provide all AS with a reduced service by informing 'C/S reduced traffic information, traffic information passed on transponding AS only' iaw CAP413 6.83.

(2) Arrange to handover lower airspace radar service (LARS) traffic to another LARS or adjacent RADAR unit, subject to overlapping radar coverage.

b. ATC Supervisor is to inform SATCO/DCF and advise that ATC BCP has been invoked for SSR-Alone operations.

c. Promulgate PSR unserviceability via ATIS and raise a NOTAM. Inform diversion commitment airfields of the loss of PSR.

d. Cascade to D&D, Swanwick (Mil) and adjacent ATS units via landline that Marham PSR is unserviceable and will be operating SSR-Alone and to request that Traffic information of Non transponding aircraft is passed to ATC RAF Marham. Inform Swanwick (Mil) that silent handover procedures will be suspended until PSR is declared serviceable.

e. Controllers are to minimise the time AS are in receipt of an SSR-Alone radar service by handing over to an adjacent radar unit when possible. RAF(U) Swanwick/RAF Lakenheath should be requested to control any AS operating near CAS within 30nm of Marham to ensure the AS receives the best service.

f. Standard separation of 5 nm / 3000 ft is to be applied between all AS not flying in close formation. Reduced radar separation as detailed in RA3228(2) is not to be applied.

g. Prior to release of AS on departure, the ATC Supervisor/Radar Approach controller should liaise with Norwich/Lakenheath to request traffic information on any non-transponding AS observed in the departure lane.

h. Radar Training Circuit (RTC) height is to be maintained at 2500 ft agl, until AS is established on final approach and identified on PAR. Once identified on PAR the AS can be descended to pattern height subject to any traffic information (TI) passed regarding potential non-transponding AS iaw parameters set in CAP 3293.

**A10.3 Planned Outages**

Planned outages during opening hours should be kept to a minimum and only be approved when they cannot be deconflicted from air operations. When there is a planned outage requiring SSR-Alone operations at RAF Marham, the procedures detailed for un-planned outages are to be followed. In addition the ATC Supervisor is to ensure that the following procedures detailed below are to be undertaken:

a. SATCO must be briefed sufficiently in advance to facilitate a brief at 4 Worlds morning brief/Stn Main brief.

b. Raise NOTAM identifying the period of planned outage.

c. ATC Supervisor is to remind the DCF prior to releasing the PSR for planned outage.

d. ATC Supervisor to advise RAF Lakenheath of period of planned outage and transfer responsibility for provision of ATS to RAF Lakenheath.

e. AS diverting to Marham in emergency are authorised to operate SSR-Alone iaw RA3241.

All crews are reminded that when operating SSR-Alone ATC can only provide traffic information against transponding AS and that good lookout is imperative to fulfil crews' responsibilities to see and avoid other AS as per the conditions of ATS detailed in CAP774.

**A10.4 Failure of Primary RADAR and SSR**

Should both systems fail, Marham ATC can only provide a Basic Service and crews are to adopt the following procedures:

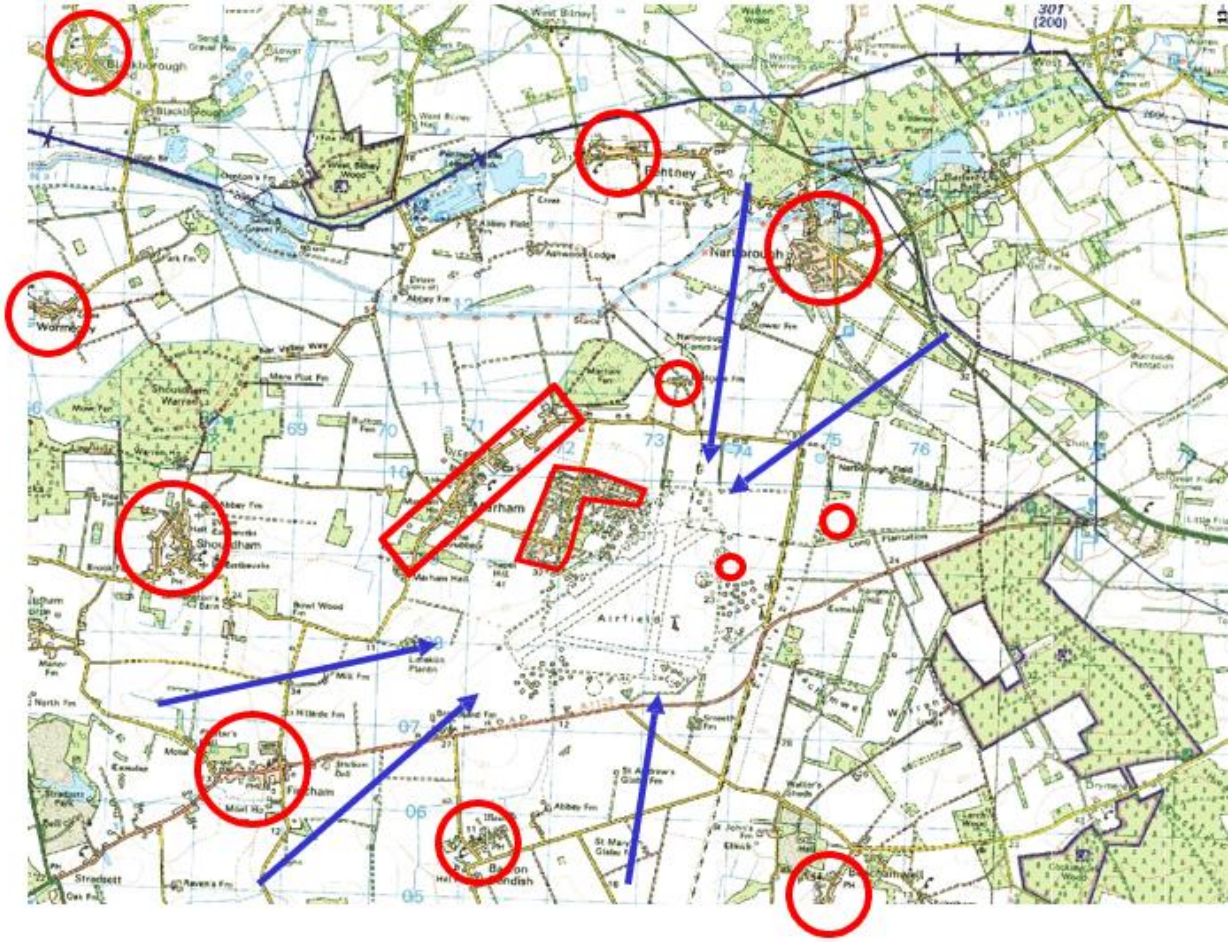
a. **Departures**. Depart initially via a MID. Marham ATC will make best effort to pass information on factor traffic. Should a Traffic/Deconfliction Service be required then climb to a minimum of 1700ft QNH for provision from Lakenheath or 3300ft QNH for Swanwick.

b. **Recoveries**.

(1) **METAR conditions Blue/White**. Conduct a Visual Recovery.

(2) **METAR conditions Green or worse**. Request a handover to Lakenheath and initially route to the TACAN hold. Fly a TAC, TAC-ILS or IAA unmonitored approach with a Traffic/Deconfliction service from Lakenheath. At the Intermediate Fix contact Marham Tower and request a straight in approach and they will give final landing clearance. Fly the instrument procedure. Marham ATC cannot clear any other procedure.

## CHAPTER L1: LOCAL SENSITIVE AREA MAP



## CHAPTER L2: NOISE ABATEMENT PROCEDURES

This order defines the noise abatement procedures to be used by all ac operating from RAF Marham to reduce the noise nuisance to the local community whilst maintaining operational efficiency.

**L2.1 Arrivals and Departures**

The procedures at ATC Order No 1 are to be adhered to. After take-off, formations are to remain in trail and are not to cut corners until above 1000 ft. Exceptionally, where crews require a non-standard departure from RWY 24, a climb to 2000 ft is to be made before departing from the standard procedures.

**L2.2 Night Flying**

All Stn flying, except essential operational tasks, is to cease at 2259 hrs (Local). During the summer months (1 May-31 Aug), this time is extended to 2359 hrs (Local). However, touch and go or low approaches are not permitted after 2300 hrs (Local); approaches (visual straight-in or instrument) are to culminate in a full-stop landing. Any requests for dispensation are to be made to OC Ops Wg for consideration[3]. Only straight-in approaches will be allowed for movements outside normal operating times.

**L2.3 Practice Diversions**

PDs are not to be accepted after 2300 hrs (Local). PDs are not to fly visual circuits after 2100 hrs (Local); only straight-in approaches may be flown.

**L2.4 Use of Afterburner/Reheat**

The use of afterburner/reheat during take-off or when making a low approach should be restricted to the minimum commensurate with operational requirements and flight safety.

**L2.5 Airfield Attacks at RAF Marham**

The normal limitations that apply to simulated attacks are stated in 1Gp ASOs. In addition, the following further limitations apply:

a. Attack tracks are to avoid all highlighted areas depicted on the Local Sensitive Areas map at Local Area Order L1. In addition, Marham's Domestic Site is not to be overflown.

b. Immediately after the attack and no later than the airfield boundary, ac are to climb to 500 ft MSD.

c. Attacks are not permitted after 1900 hrs. All attacks are to be booked through A5 and ATC Sup, giving TOT, initial attack LOAs, heights and departure headings. The ATC Sup is to relay this information to the DOC.

d. OC Ops Wg at RAF Marham is the Aerodrome Operator. When OC Ops is unavailable this responsibility may be delegated to OC the Duty Sqn (with a caveat of a minimum of SO1 level of supervision).

**L2.6 Transit Overflights**

Transit over flights may be authorised within the Marham MATZ, provided ac Captains are briefed specifically to maintain a minimum height of 1000 ft QFE and a maximum speed of 420 kts. Crews using the

[3] Circuit activity post-2300: requests (including justification) for Week 2 should be made via the Thu LF Prog Wrap-up meeting for OC Ops' consideration; in-week or Week 1 requests (including justification) should be made direct to OC Ops as soon as practicable

Marham preferred transit sector for transits at low level to the South of the airfield are to fly at a maximum height of 500 ft MSD.

[redacted]

**L2.9 Night Flying Shut Down Procedures**

ATC are to inform pilots when they are the last formation/sortie of the day.

The pilots of the last flight of the day should taxi to their parking slot and once content that no further support is required are to inform ATC that they are shutting down.

If a subsequent aircraft emergency should develop following the termination of radio contact with ATC, the emergency services should be contacted via telephone on extension 333.

## CHAPTER L3: AIR COLLISION RISK IN EAST ANGLIA

East Anglia is very congested airspace with many military and civil avoidance areas funnelling ac through choke points. Often traffic is not under any ATC service and therefore deconfliction can prove challenging.

To improve deconfliction, the following procedures are to be followed:

a. The best available radar service is to be used whether at low or high level, in IMC or VMC. Captains are to ensure that they are completely familiar with the radar coverage available during climb-out and let-down and should be cognisant of its limitations[4].

b. Look-out should always be maximised, whether IMC or VMC and whether or not the ac is receiving a radar service.

c. If conducting local area CAS, pilots are to be in receipt of a Radar Service from Marham ATC, unless operating in STANTA, in which case Lakenheath ATC should be used.

d. In addition, crews engaged on low altitude transit flights are to:

(1) Avoid transit flights below 3000 ft in IMC unless specifically cleared. If VMC cannot be maintained, crews are to climb above 3000 ft and fly iaw semi-circular flight rules or proceed to an area where VMC can be maintained.

(2) Plan transit routes to avoid airfield let-down patterns and areas of high air traffic density.

[4] No height-finding facility is available on airfield surveillance equipment.

# CHAPTER L4: RISK OF BIRDSTRIKES

**L4.1 Bird Risk High**

When large numbers of birds are in the vicinity of the airfield, particularly in the approach and departure lanes, the ATC Supervisor should consider the increased likelihood of a bird strike. In consultation with the DCF, he/she should consider issuing a 'Bird Strike Risk High' to Marham-based ac. This warning should be promulgated via ATC on STARS, be added to ATIS and Stn Ops should be briefed to warn visiting ac of the increased level of bird activity. The rules pertaining to Bird Risk High are as follows:

a. Pairs take-offs should not be conducted as the first take-off of the day.

b. If conditions do not permit pairs take-off, streamed take-offs should be performed with a minimum separation between each ac of not LESS than 1 minute. ATC will issue the take-off clearance to each individual element of the formation when they are satisfied the risk of bird strike has diminished.

**L4.2 Additional Measures**

Should the ATC Supervisor still consider the risk of bird strike to be high, he may, in consultation with the DCF, impose further restrictions such as closing the visual circuit or in extremis, an embargo on take-offs and landings until bird concentrations have reduced.

**L4.3 Blackborough End Landfill Site**

The landfill site situated at N52 42 24 E000 28 29 (approx. 5 nm NW of RAF Marham) attracts a considerable amount of bird activity. This site is now a permanent warning NOTAM, extending to 0.5 nm radius and 1000 ft vertically.

**L4.4 East Winch Quarry**

The old quarry situated at N52 43 56 E000 29 57 (approx. 5 nm NNW of RAF Marham) attracts a considerable amount of bird activity. This site is now a permanent warning NOTAM, extending to 0.5 nm radius and 1000 ft vertically.

## CHAPTER L5: RECREATIONAL FLYING CLUB ORDERS

**L5.1 Recreational Flying Clubs**

There are 3 recreational flying clubs based at RAF Marham. These are the Marham Aero Club, Fenland Gliding Club and the Paramotoring Club. These orders are to provide awareness to other airfield users of these clubs' regulations. These orders also contain actions in the event of an emergency or incident.

**L5.2 Marham Aero Club**

The Marham Aero Club (MAC) can operate light aircraft throughout the week but predominantly during weekends, evenings and Bank Holidays. The Marham Recreational FOB, Constitution and Rules are held in the MAC Clubhouse (Building 92A) and can also be found at Annex O Part 3 – Recreational Flying Club within the RAF Marham Defence Aerodrome Manual (LINK). The Marham Recreational FOB may not be amended without the approval of OC Ops Wg.

**L5.3 MAC Ops Outside Airfield Opening Hours**

The MAC Duty Pilot is to ensure that the DOC is contacted prior to and on completion of flying. Stn-based crews are to be aware that MAC may operate during weekends, Bank Holidays and Out of Hours (OOH). Aircraft movements will be de-conflicted by ATC. MAC aircraft operating locally will utilise the Marham LARS frequency 124.150 MHz and the MAC Duty Pilot (MAC DP) will notify any planned OOH Stn movements to Club Members via the out-brief notice board. In addition, Stn Ops publish movements and airfield works on E-allocator. In the event of short notice airfield activation, ATC will establish contact with any MAC aircraft operating locally on 124.150 MHz Instructions within the MATZ will be mandatory.

**L5.4 MAC Ops During Normal Stn Flying**

MAC aircraft may occasionally operate during normal Stn flying for the purposes of maintenance/training under the following conditions:

a. All flights are to be carried out iaw the orders for light aircraft operations contained at ATC Procedures Order A4.

b. Aircraft Captains are to de-conflict any aircraft moves with routine Stn flying by liaising with ATC Sup.

c. Aircraft must depart to clear the circuit and all arrivals should expect to land. ATC may allow circuits to be flown during periods of low airfield activity.

d. Only suitably qualified pilots (QSPs, and others at the discretion of the CFI), with the authority of the OIC and CFI may fly during working hours.

**L5.5 Fenland Gliding Club**

The complete orders and procedures for the Fenland Gliding Club (FGC) are contained in the Marham Recreational Flying Order Book held in the Club HQ and can also be found at Annex O Part 3 within the RAF Marham Defence Aerodrome Manual (LINK). The orders may not be changed without the written authority of OC Ops Wg.

**L5.6 FGC Operating Times**

FGC Duty Instructor is to ensure that the DOC is contacted prior to and on completion of flying. Gliding will normally take place at RAF Marham at weekends and Public Holidays, subject to Stn ac movements. Flying at other times is to be approved by OC Ops Wg. Motor gliders who obtain permission to operate during

routine airfield opening hours are to abide by the light ac operating procedures detailed in ATC Procedures Order A4. Gliders may not be operated at night. For the purposes of this order, 'night' is defined as 30 mins after sunset to 30 mins before sunrise.

**L5.7 Effect of Service Ac Movements on FGC**

Service ac occasionally operate from RAF Marham while gliding is in progress. The Marham ATC Supervisor will halt local gliding operations when necessary. The Duty Instructor is to ensure that ATC instructions are complied with. Local flying by light ac may take place alongside gliding operations. The Duty Instructor is to liaise with light-ac pilots and brief them on gliding operations.

**L5.8 Aero Modelling**

Aero model flying may take place during gliding operations. The Duty Instructor is to arrange an area for model flying and brief the operators on gliding operations. Models must never create a hazard to gliding.

**L5.9 Minimum Qualifications to Fly gliders**

Minimum qualifications to fly gliders can be found within the RAF Marham Recreational Flying Order Book within order F02 and is located at Annex O Part 3 (RFOB) within the RAF Marham Defence Aerodrome Manual.

**L5.10 Glider Conversion Checklist**

Conversion to new types of aircraft requires a thorough pre-flight briefing to enable the new pilot sufficient knowledge to safely handle any situation in flight. The guidelines laid out below are by no means exhaustive and in no way replace the experience of the Authorising Instructor. It is required that the manufacturer's flight manual is available, to be read by all pilots who fly the type of glider. It is mandatory for pilots who are to convert to an unfamiliar aircraft, to read and be conversant with the flight manual before full conversion to the aircraft is granted by the Authorising Instructor.

a. ACCESS. Canopy locks, opening, handholds, nose pitching, abandonment procedures (practice and careful jettison if possible).

b. SEATING. Ballast required, securing methods, seatback adjustment, head clearance on canopy, control movement throughout range and adjustment, Comfort in the cockpit. Do not use soft cushions, only energy absorbing foam with solid packing cushions are recommended.

c. COCKPIT. Instruments, Flaps, Trim, Canopy releases, Airbrakes, undercarriage, Cable release, Water dump valve operation.

d. PLACARDS. Min & Max loading, winch, aero tow, auto tow, Rough Air, Max Manoeuvre, VNE speeds, permitted manoeuvres (Elicit the speeds from questioning - not read from the placard).

e. ATTITUDE. Launch, Cruise, Thermalling, Landing attitudes, relative C of G.

f. LAUNCH. Pitching, attitude, Flap settings, emergency actions on wing drop, PIO's, safe heights (if on aero tow), Launch failures, airbrake opening, speed control.

g. GENERAL. Speeds to fly, control feel at various speeds, recovery from stalling & spinning, roll and pitch responses.

h. APPROACH. WULF checks, flap selection, Approach speed, attitude & landing (show attitude), airbrakes, rate of descent. Specifically, brief that if after the final turn it is discovered that the undercarriage is still up, the pilot is to continue with their approach to their originally chosen landing

area and to land as softly as possible. Explain that this is to prevent a repetition of previous accidents whereby pilots have crashed trying to lower the undercarriage on approach.

i. LANDING. Directional control in crosswinds with tail wheel or skid, wheel brake operation.

j. POST FLIGHT. Problems, recommendations. Full conversion requirements to fly the aircraft cross-country, Annotate pilot's logbook accordingly. Daily Inspections, Logbooks, Flight Manual, Rigging and derigging, independent checks, trailer loading and security whilst travelling.

**L5.11 GFC Ground Operations**

a. **Spectators**. Spectators are to be encouraged provided that they do not congest the launch area or cause a hazard. Parents are to keep their children under strict control and are not to allow them to run freely about the airfield. Members and visitors are discouraged from bringing animals on to the airfield; however, if they are present, the animals are to be kept under strict control.

b. **Vehicles**. All vehicles are to be parked in an orderly manner to the rear of the launch point, clear of and parallel to the take off and landing areas. All vehicles are to be left unlocked with keys in the ignition.

c. **Proximity to Ac**. Club or private vehicles not concerned with gliding operations, are not to be driven closer than 50 ft to parked ac.

d. **Lookout**. A lookout is to be maintained at all times for taxiing and landing ac. Vehicles are to give way to ac at all times and are to obey promptly all signals received from ATC. The signals are:

i. Steady Red: STOP.

ii. Flashing Red: CLEAR TAXIWAY/RWY IMMEDIATELY.

iii. Flashing Green: PROCEED.

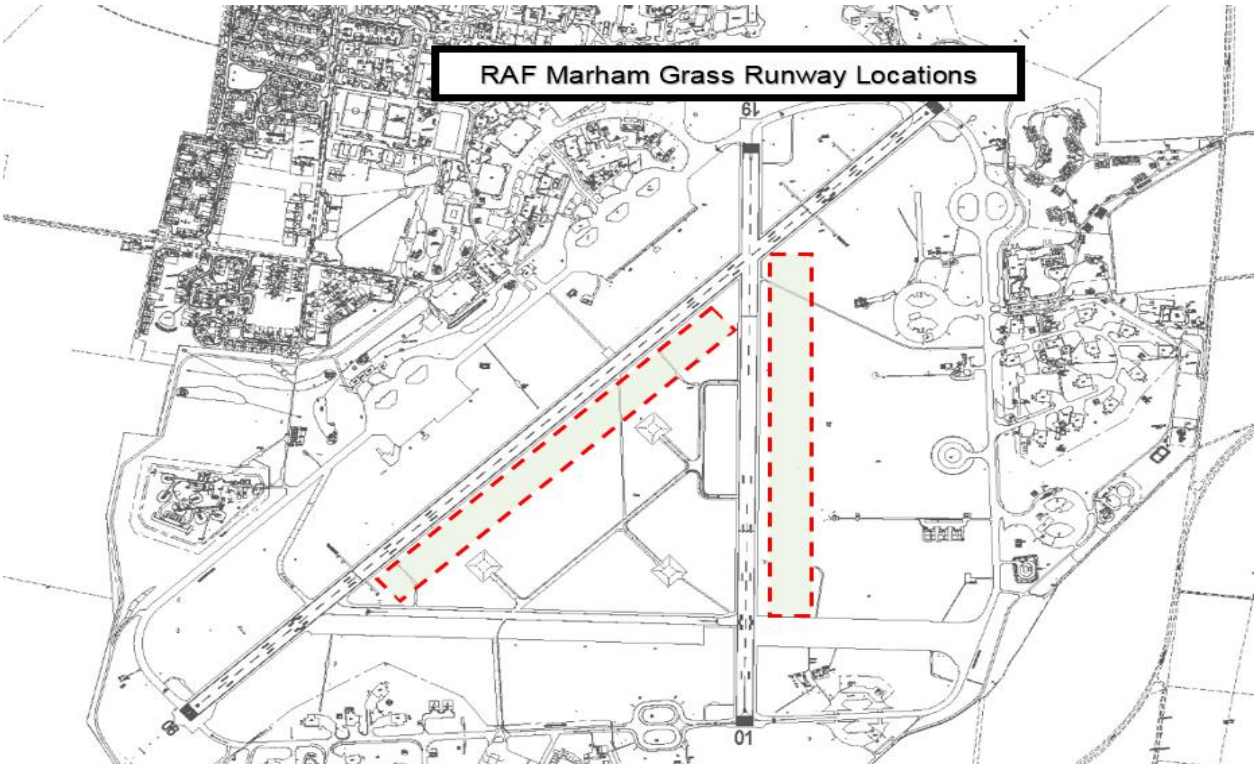
iv. Flashing White: RETURN TO START POINT.

(NB: A RED VEREY FIRED HORIZONTALLY MEANS EMERGENCY STOP.)

e. **Route**. The following route is to be observed at all times:

i. **Gliders being Towed**. When the airfield is closed and ATC is unmanned, gliders may be towed along or across runways but a careful lookout is to be maintained for ac, and a watch kept on the ATC Tower for any possible signals if the airfield becomes active.

ii. **Grass Runways**. Gliders will launch from the grass runway strips when using the winch launching method. When using the aerotow launch method behind the motor-glider tug, the main runways will be used to launch. Circuit traffic permitting, gliders have the option to land on the main runway or the parallel grass runways. A mandated downwind and finals call is to be made by the pilot to determine their runway selection.




iii. Club Vehicles. When the airfield is inactive, to avoid driving round the narrow- vehicle route, club vehicles (i.e. winches, buses and tractors) may be driven to the Clubhouse around the airfield perimeter track via the threshold of RWY 24. When crossing the Main RWY, a careful lookout is to be maintained for ac and the traffic lights must be obeyed.

iv. All other Vehicles. Vehicles, other than those covered above, are to be driven around the MT route outside the perimeter track. However, to reach the MT hangar, the Met Office and ATC, the MT route may be left at 93EAS and the Southern taxiway used. When the airfield is active, all vehicles are to follow the MT route.

## CHAPTER S1: CONTROL AND SUPERVISION OF FLYING

The RAF Marham flying supervisory structure comprises active and reactive elements.

**S1.1 Active Supervision**

The active flying supervision framework is based upon:

a. **Stn Cdr.** In his role as DDH, the Stn Cdr is the senior flying supervisor and risk holder for RAF Marham FEs and for the RAF Marham airfield. The Stn will plan to have at least 2 Wg Cdrs in work on the ground during normal working hours[5].

b. **OC Ops Wg**. The Stn Cdr delegates control, supervision and management of the airfield and routine flying operations to OC Ops Wg in the capacity of AO.

c. **Sqn Cdrs.** Sqn Cdrs are responsible to the Stn Cdr for supervision of their Sqn's flying. Sqn Cdrs are responsible for nominating suitably qualified and experienced personnel to conduct duties as the Duty Commander Flying (DCF), Duty Authoriser and Authorising Officer for approval by the Stn Cdr.

d. **Authorising Officers**. Authorising Officers are responsible to their respective Sqn Cdrs for the authorisation of individual sorties. The Stn Cdr will approve a list of Authorising Officers under his command, specifying their individual powers of authorisation.

e. **Duty Commander Flying (DCF).** The DCF is responsible to OC Ops Wg for supervision of the RAF Marham airfield and aircraft activity for a specified period. The DCF is to focus solely on air activity at, to, from, and in the vicinity of (if/when a factor) RAF Marham for the period of their duty.

f. **Duty Pilot**. Each flying sqn or unit is to have a Sqn Duty Pilot, who is to be the Sqn Cdr's representative during Sqn flying. In extremis, a Lightning Duty Pilot may cover both Lightning Sqns during combined operations; however, this should be avoided to the maximum extent practical. In such instances, pilots shall authorise sorties, out-brief and in-brief, face-to-face with the Lightning Duty Pilot. The Sqn Duty Pilot is responsible for the safe and efficient conduct of his/her Unit's flying.

g. **Duty Ops Controller (DOC).** The DOC is responsible to OC Ops Wg for: control of the Stn Ops Room; and co-ordination between, and support to, internal and external agencies that support RAF Marham air-related activity.

**S1.2 Reactive Supervision**

The reactive flying supervision framework (incident response) is:

a. **OC Ops Wg / Stn Duty Exec (SDE).** OC Ops Wg or, in his absence, the SDE is to be the Incident Commander and lead the Stn response to a major aircraft-related emergency, such as an aircraft crash.

b. **DCF**. The DCF is to co-ordinate all Stn flying activity not associated with the incident, specifically the recovery or diversion of other aircraft.

c. **Duty Pilot**. The Duty Pilot is to remain in situ to act as a permanent point of contact for the Silver Commander and DCF.

d. **ECC Co-ord**. The ECC Co-ord is to conduct duties in the ECC iaw extant Orders.

[5] Medical, dental or chaplaincy Wg Cdrs should not normally be nominated to carry out this duty

**S1.3 Minimum Supervision Framework.**

Flying activity will be supervised by a minimum of: Stn Cdr; OC Ops Wg (or SDE); DCF; Duty Pilot (for each Sqn); and ECC Co-ord. These individuals are supported by a number of other duty personnel. DCF may be held by the Duty Pilot if qualified to do so.

**S1.4 Supporting Orders:**

a. DCF (DAM Annex O Part 2 Chapter S2).

b. Duty Pilot (DAM Annex O Part 2 Chapter S3).

c. DOC (DAM Annex O Part 2 Chapter S4).

d. SDE / Incident Commander (DAM Annex O Part 2 Chapter S5).

e. Duty Met Officer (DAM Annex O Part 2 Chapter S6).

f. SDE (Command Working Instruction 12).

g. Incident Commander (Stn MAP Annex B Part 1).

h. ECC Co-ord (Stn MAP Annex D Part 1).

**S1.5 Qualifications/Experience**

Personnel holding flying supervisory roles must be suitably qualified and experienced to do so. Specific guidance is given in the Orders for each duty.

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## CHAPTER S5: ORDERS FOR THE STATION DUTY EXECUTIVE (SDE) / INCIDENT COMMANDER (RAF MARHAM SILVER COMMANDER(SC))

OC Ops Wg or, in his absence, the SDE is to be the Incident Commander (RAF Marham Silver Commander (SC)) and lead the Stn response to a major incident such as an aircraft crash or ground explosion. Orders for the SDE are in Command Working Instruction 12 (LINK).

TORs for the SC are contained in Op RALLY and Orders relating to Aircraft Post Crash Management are contained in the RAF Marham Aircraft Post Crash Management Plan.

## CHAPTER S6: ORDERS FOR DUTY MET OFFICER

**S6.1 Duty Forecaster**

The Duty Forecaster is responsible to OC Ops to provide a service to RAF Marham iaw the current RAF Marham Meteorological Office Standing Orders and Customer Service Agreement (CSA) with the United Kingdom Met Office (UKMO).

**S6.2 Responsibilities.**

a. Briefing of sqn aircrew, DCF, DOC and ATC Supervisor on current and forecast weather. Briefing requirements outside of the times 2000L Sunday to Airfield Closing on Friday need to be raised at least 48 hours in advance to ensure coverage.

b. Low-level weather forecasts for low-level flight and target acquisition.

c. Medium-level weather forecasts for medium-level flight.

d. En-route wind speeds/sea state and sea temperatures for survival considerations.

e. Electro-optic forecasts and other tactical met products.

f. Weather forecasts to inform the planning process beyond a 24-hour period. Available in a three-day format for all briefs and a five-day format for the Monday morning executive brief.

g. Answering of ad-hoc enquiries on current and forecast weather over the UK and occasionally overseas.

h. Provision of a Marham Cross-Section, TAFs, METAR reports, TRENDS and forecasts.

i. Cross-wind information for ATC during Airfield opening hours. With particular concern or cross-winds that reach 25 KTs and above.

j. Weather forecasts to inform and update decision making regarding airfield operations within a 24-hour period.

k. Weather observational data to meet ATC requirements[6].

l. Weather observational data from other UK Military Aerodromes to meet ATC and aircrew requirements.

m. Weather forecasts from other RAF stations to meet ATC and aircrew requirements.

n. Maintenance of records of observations, TAFs, forecasts, warnings and emergency state records for 3 months for legal verification purposes.

o. Support, as required, to visiting a/c with different roles to that of the a/c based at RAF Marham.

p. Provision of a winter OP Blacktop forecast for severe weather, icing and snow during the winter months between 01 Nov - 31 Mar. To be reviewed as required.

q. Provision of a summer heat stress forecast as required, nominally 1 May to 30 Sep.

[6] IAW 2017-373: Air Traffic Management Common Requirements Implementation Regulation ATM IT, the minimum frequency of observations is now 30 minute intervals when the airfield is open. Thus bringing Military Aerodromes in line with Civil regulations

**S6.3 Notification of Weather Changes**

In addition to the above services, the Duty Forecaster or Observer is to provide notification and update of weather events that impact on the station during airfield opening hours. This information is to be passed to the DOC, DCF and ATC supervisor, who will disseminate the information as required. As a minimum the following changes to the weather would require notification:

a. **TAF**. Any Amendment or Correction to the TAF during the original forecast period.

b. **Colour State**. Any weather condition change that subsequently requires a change to the actual colour state, irrespective of whether a change to the recovery state is required.

c. **Pressure**. (To ATC only) When the QFE changes by 1 hpa or more.

d. **Weather**. At the onset or cessation of the following weather phenomena:

(1) Freezing precipitation.

(2) Moderate or heavy snow (including rain and snow).

(3) Freezing fog.

(4) Hail - greater than 5 mm in diameter.

(5) Heavy rain.

(6) Thunderstorm.

(7) Drifting snow.

(8) Funnel cloud.

**S6.4 Meteorological Warnings.**

a. **Meteorological warnings**. Meteorological warnings of various types are issued. The types of warnings issued and the recipients of the warnings are agreed annually with OC Ops Wg. All Meteorological warnings are to be passed to Stn Ops. At times when the airfield is not operational some warnings will be issued by the Defence Guidance Unit (South) [DGU (S)].

b. **Notification of Snowfall and Freezing Conditions**. When the Met Office is open the Duty Forecaster or Observer is to inform Stn Ops when snow starts to fall, and also when the temperature of the Met Office concrete slab is observed or forecast to fall below 0 deg C. OP Blacktop is implemented 01 Nov – 31 Mar to provide specific information about such conditions.

c. **Thunderstorm Level/Risk**. Whenever a THUNDERSTORM LEVEL/RISK HIGH is in force or whenever there is evidence of thunder and/or lightning, the DCF is to terminate ground refuelling. Exceptionally, if a high priority task requires immediate refuelling, the DCF may grant dispensation in specific cases, for a set period, following an assessment of local conditions and consultation with the Duty Forecaster.

**S6.5 Notification**

When the Duty Forecaster considers a Meteorological warning is necessary the following personnel are to be notified:

a. For all Meteorological Warnings inform:

(1) DOC – who is to act iaw Supervision Order S4.

(2) ATC Supervisor and DCF (DOC also informs DCF to ensure warning is passed).

(3) Any Operational HAS site.

(4) MT Control.

(5) Guard Commander.

b. For Strong Wind Warnings inform all the above and:

(1) GRMS Task Control.

c. For Thunderstorm Warnings (both High and Moderate) the Stn tannoy broadcast and TCS are to be used and the airfield electrician is to be informed.

[redacted]

# CHAPTER S8: SELECTION OF THE ACTIVE RWY

**S8.1 Responsibility**

The selection of the active RWY at Marham is the responsibility of the ATC Supervisor after consultation with the Duty Met Forecaster. The DCF is to be informed at the earliest opportunity, as are Sqn Ops desks. The following rules should be considered:

a. RWY 06/24 is primarily to be used for take-offs and landings.

b. Marham-based ac are not normally to take-off or land when there is a tailwind component; this may be permitted following consultation with the DCF in conjunction with the ODM.

c. RWY 24 should not be used when visibility difficulties are likely to be accentuated by the low afternoon sun if wind conditions are such as to permit the use of another RWY.

Pilots wishing to take-off on a RWY other than the RWY in-use may be given permission to do so provided the traffic situation permits and consideration is given towards cable states.

**S8.2 Cable Configuration**

Cables will be configured for the in-use RWY unless approved by the DCF [redacted]

[redacted]

# CHAPTER E1: AERODROME RESCUE AND FIRE FIGHTING (ARFF) CATEGORIES

**E1.1 Airfield Category**

RAF Marham is established as a MOD ARFF Category 5 airfield; the requirements for which are detailed in DSA DFSR 02 Defence Aerodrome Rescue & Fire-Fighting (ARFF) Regulations.

**E1.2 Marham based flying operations**

Lightning flying ops require ARFF ICAO Category 5 iaw CAP 168.

**E1.3 Reductions in Crash Category**

The HoE (Head of Establishment) and AO (Aerodrome Operator) may grant dispensation to operate at a reduced airfield ARFF Category for a limited period. DSA DFSR 02-07 ARFF Reduction enables a reduction of ARFF Category, a Hazard Assessment is to be completed by the Senior ARFF Officer on duty (DSA DFSR O2 Annex A for comment by the AO and AOA (Aircraft Operating Authority)). On a day-to- day basis this authority is delegated to OC Ops Wg and further delegated to the DCF for a period no longer than 24 hrs. However, when life is at risk and an immediate requirement to dispatch the fire crews exist, the ATC Supervisor is authorised to release the crash crews to incidents on the technical or domestic site, but is to inform DCF of any reduction in ARFF Category at the earliest opportunity. OC Ops Wg is to be kept informed at all times.

**E1.4 Reduction in ARFF Category for Lightning aircraft**

In the event of the unavailability or unserviceability of a Fire-Fighting Vehicle (FFV) the Stn holds an inventory of Cmd Reserve FFVs to mitigate a reduction in ARFF capability. If required to maintain a reduction of 1 level below the Stn requirement (ICAO 5), due to FFV serviceability, the minimum FFVs required is 1x MFV or 2x RIV, however with a single MFV there will be reduction in Fire-Fighting capability on the technical site, this will require approval from the HoE.

a. **Emergency Reduction**. If a RIV fire crew is released by the ATC Supervisor to an incident on the technical site, ARFF Category 5 will be unaffected, provided the vehicle responding to the incident has not discharged firefighting media. If the vehicle is required to discharge firefighting media to save life, an MFV fire crew will be required for back up. The duty fire Crew Cdr will confirm the current ARFF Category to ATC. If ARFF 5 Grey (No Fire or Rescue cover) is declared, flying operations are to cease and any aircraft airborne are to divert. Similarly, if a fire crew or crews are released by ATC to attend a domestic incident outside the camp area involving life, the airfield ARFF Category is to be declared 5 Grey and all aircraft airborne are to divert until the requisite ARFF Category is restored. Should the domestic incident be assessed as non-life threatening, the fire crews will return to the Fire Section and the ARFF Category will be immediately restored to 5.

b. **Hot Refuelling**. Hot refuelling is to cease if an aircraft ES is declared at any time but single aircraft hot refuelling may continue when the airfield ARFF Category is reduced to 5 Yellow (MFV only). If, however, the airfield Crash Category is reduced to 5 Red (RIV only) or Grey then hot refuelling is to cease immediately.

**E1.5 Reduction in Crash Category for other aircraft**

All aircraft making an approach to RAF Marham are to be provided with the requisite ARFF Category detailed in DSA DFSR 02. The AO has authority to use the following to reduce the level of protection provided for visiting AC:

a. Reduced Hazard Profile Categories. DSA DFSR 02 table 4.

b. Remission. DSA DFSR 0201 para 3.

# CHAPTER E2: CRASH AND EMERGENCY STATE ALERTING PROCEDURES

**E2.1 Definitions**

The definitions of the crash/emergency states are as follows:

a. State 1 – Aircraft Accident. A crash seen on or seen from the airfield.

b. State 2 – Full Emergency. An incident on the airfield where doubt exists about the safety of the ac or its occupants, or to anticipate a State 1. The ARFF vehicles and emergency medical services are deployed to the incident or to pre-arranged positions on the aerodrome.

c. State 3 – Local Standby. A precautionary measure, to cater for a possible incident on the airfield or when an ac has crashed off the airfield but the position is unknown. ARFF vehicles are crewed with engines running at their normal locations.

**E2.2 Crash/Emergency Messages**

The standard format for a crash/emergency message by Crash Telephone, Public Address or Storno Management Radio Equipment (SMRE) is to be as follows:

a. “Emergency State 1/2/3” (as required and repeated 3 times as appropriate).

b. Type of ac and nature of emergency.

c. Location - Grid Reference or 'Ac Recovering, no. miles out from RAF Marham'.

d. Persons on board and whether any have ejected or baled out.

e. Any complications (crash onto buildings or vehicles).

f. Whether the ac is armed or carrying hazardous cargo.

g. Any additional information of use to emergency services.

h. For Marham-based ac, the callsign is to be passed to Stn Ops ONLY. This must only be passed via the Crash Telephone and not on the Public Address System or SMRE.

**E2.3 Declaration of Emergency State**

**Aerodrome Controller.** The ATC Local Controller is to:

a. Operate the crash alarm telephone and pass a standard emergency message.

b. Repeat the message on SMRE to the Fire Section, Medical Services and Ops.

c. Hand control of crash/rescue services to the Ground Controller.

d. Hold taxiing ac, informing them that there is an Emergency State.

**Airfield Assistant**. The Airfield Assistant is to:

a. Inform ATC Switchboard/Operations.

b. Broadcast standard crash message on public address system using the crash alarm tone for a State 1 only.

**ATC Supervisor**. The ATC Supervisor is to:

a. Inform other diversion airfields/commitments as necessary.

b. Decide, in conjunction with Crash-Crew Commander, whether to alert/call out Local Fire/Ambulance Services.

c. Consult the DCF as to disposal of aircraft under control.

d. Inform D&D Cell, LATCC (Mil).

**ATC Switchboard**. The ATC Switchboard Operator is to:

a. Inform SATCO.

b. For a State 1 (Aircraft Accident), inform the Met Office and ask for an actual weather report.

**Stn Ops**. On declaration of an Emergency State the DOC is to carry out actions as detailed in Supervision Order S4 Para 2.

**E2.4 Upgrading of Emergency States**

ATC will upgrade Emergency States by means of the SMRE, telephone and public address system. Responsibilities are as follows:

**Aerodrome Controller**. The Aerodrome Controller is to operate the Crash Alarm telephone, if not already used, and pass a standard emergency message. After passing the standard emergency message they are then to:

(1) Repeat the upgraded emergency message on SMRE.

(2) Broadcast by Public Address system[7] (using the crash alarm tone for State 1 only) as follows:

'Emergency State 2', followed by any additional information.

OR

'State 1 (x 3)', followed by standard crash message.

**E2.5 Further Emergencies**

If, during an emergency, another Emergency State is declared for a second ac, the Aerodrome Controller is to include in his message:

'There is a second Emergency State .....'

**E2.6 Termination of Emergency State**

An Emergency State is to be considered terminated when:

[7] Stn Ops are to carry out this function when the ATC PA system is u/s

a. The ac has shut down and the Crash-Crew Commander has reported that it is safe.

b. The Crash-Crew Commander reports that rescue and firefighting activities are complete. Stn Ops are to carry out this action when only salvage action remains.

**Broadcast message**. When an Emergency State is terminated, the Aerodrome Controller is to broadcast by public address system:

'Emergency State .....is now terminated'.

**E2.7 Rules for AV Not Involved Whilst a State One is in Progress**

Whenever a "State 1" is declared, ATC will broadcast "State 1 in progress" on the Tower frequency. The following rules then apply until the Emergency State is terminated:

a. IPPs/APUs and engines are not to be started. IPPs/APUs or engines that are running need not be shut down but no further starts are permitted. This rule also applies to ac on the de-tuner and to engine ground runs.

b. Parked ac are not to taxi.

c. Ac on the RWY or taxiing are to come to a halt until cleared to move by ATC.

d. The emergency vehicles will be given priority over ac in the air unless an emergency has been declared.

e. AS with fuel to divert will be diverted where possible. Lightning AS will be permitted to VL or land on the other runway as required; if Rwy 01/19 is available, expect SLs/RVLs. Where the situation dictates overflight of the 'black' runway i.e. approaches to Rwy 19, AS will not descend below 200 feet until clear of the intersection.

**E2.8 Radio Telephony Discipline**

During an Emergency State, it is essential that R/T discipline is maintained. Messages passed on SMRE are to be clear and concise. As a rule, when the crash crew are deploying, R/T is to be kept to the ABSOLUTE minimum. It is vitally important that the Crash-Crew Commander be allowed time to brief and control the crash crews. The Crash-Crew Commander will pass a situation report to ATC as soon as it is safe to do so.

## CHAPTER E3: FIRE SERVICE CRASH AND EMERGENCY STATE ORDERS

**E3.1 State of Readiness**

The state of readiness of the Duty Crash Crew will be as directed by the ATC Supervisor.

**E3.2 Airfield Open**

During airfield open hours, one fireman is to be on watch in the Fire Section Control Room and the remainder of the Duty Crash Crew are to be employed in the immediate vicinity of their fire vehicles.

**E3.3 Crash/Fire Procedures**

The ATC Supervisor is to direct the Duty Crash Crew in the early stages of an emergency.

a. **Crash on or Near the Airfield Within View of the Fire Section**. The crew is to proceed immediately to the incident. The Crash Crew Commander will obtain the following information from ATC over R/T:

(1) Ac type.

(2) No of personnel on board the ac and information regarding any crew members who have ejected.

(3) Whether the ac is armed or carrying hazardous cargo.

b. **Crash Away from the Stn**[8]. The Crash Crew is to proceed to the incident and the Crew Commander is to gather the following information, if available, before proceeding:

(1) Location of the incident (map reference and description of place).

(2) Type of ac involved.

(3) No of personnel on board and information regarding any crew members who have ejected.

(4) Whether or not fire is visible.

(5) Whether there are any complications (eg, a crash onto buildings or vehicles).

(6) Whether the ac is armed or carrying hazardous cargo.

**E3.4 Crew Composition**

The crash crew (in its entirety) is to respond to incidents and the unity of the Crew is to be maintained.

[8] Nominally within 5nm.

**E3.5 Primary Tasks**

The primary tasks of the Crash Crew are:

a. To save life.

b. To create and maintain survivable conditions.

c. To initiate the rescue of those occupants unable to make their escape without direct aid.

d. To make safe any special risks.

e. To minimise damage to aircraft and associated equipment.

f. To reduce or mitigate effects on the environment.

g. To preserve evidence at incident location.

**E3.6 Preservation of Evidence**

In order that evidence may be preserved, the Crew Commander is to ensure that any disturbance of the crash site is kept to an absolute minimum consistent with carrying out the tasks in Para 5 above.

## CHAPTER E4: MEDICAL SERVICES CRASH AND EMERGENCY STATE ORDERS

These orders outline the medical services to be provided to meet Stn Crash and Emergency State requirements. The response to Crash and Emergency State alerts is detailed in Station Medical Centre (SMC) Standing Orders.

**E4.1 Actions on Emergency State 1**

On receipt of the alert the following actions are to be taken:

a. The Crash Ambulance with the Duty Medical Attendants is to proceed immediately to the crash site or as directed by ATC.

b. The Duty Medical Officer is to be notified of the incident so that the appropriate medical response can be organized.

**E4.2 Actions on Emergency State 2**

On receipt of the alert the Crash Ambulance, with the Duty Medical Attendants is to proceed to the airfield as directed by ATC, and to stand by as part of the Crash Combine.

**E4.3 Actions on Emergency State 3**

On receipt of the alert, the SMC is to ensure that the Crash Ambulance and Duty Medical Attendants are prepared for immediate deployment if required. If there has been an ac crash away from the airfield SMC staff are to react iaw the Major Accident Plan Part 2 or 3 as appropriate

# CHAPTER E5: IN-FLIGHT EMERGENCIES

**E5.1 Actions in the Event of an In-Flight Emergency**

The following steps shall be adhered to:

a. Call Marham ATC on an ATC frequency and state the nature of the problem. Ac requiring cables should notify ATC asap.

b. If necessary, discuss the issue with the Sqn Duty Pilot or Sqn Duty Flt Cdr.

c. In the event of an actual or suspected lightning strike, crews are to inform ATC and proceed iaw their emergency procedures. In addition, if pilots observe lightning whilst airborne, they are to report it to the relevant ATC Agency.

The ATC Supervisor is to inform the DCF of the emergency and discuss any initial actions that may be taken. Crews should ensure that once they have discussed any further actions with the Sqn Duty Supervisor, they inform ATC of any changes to their proposed actions.

The DCF is to liaise with the relevant Sqn Duty Supervisor to determine if it is necessary for him/her to be in attendance in the ATC Tower.

## CHAPTER E6: PROCEDURE FOR CHECKING AV UNDERCARRIAGE BY NIGHT

**E6.1 Undercarriage Check at Night Procedure**

The procedure for checking suspect undercarriage at night is as follows:

a. Pilots are to inform ATC on R/T of any suspected undercarriage failure.

b. ATC will turn on the Undercarriage Check Lights (UCLs) which are positioned 25 m South-East of RWY 01/19 on an axis of 020 deg/200 deg.

c. Once aligned with the inspection lights, pilots are to fly their ac over the illuminated area no lower than 300 ft AGL. They are to be firmly established on instruments before and during passage of the lights

d. Crews should be aware that ATC are equipped with a NVG capability and may be able to ascertain the status of the U/C without the need to fly over the inspection lights.

The DCF or ATC Supervisor will view the ac from the veranda of the ATC Visual Control Room and will advise the Local Controller of the message to be passed to the pilot.

**E6.2 Map of Position of Undercarriage Check Lights**

## CHAPTER E7: ORDERS FOR AV LANDING AT RAF MARHAM FOLLOWING AN IRREGULAR RELEASE OR WITH HUNG-UP OR MISFIRED ORDNANCE

### E7.1 Definitions

The definitions of Irregular Release, Hang-up and Gun Stoppage are contained in the Air Command Air Weapon and Electronic Warfare Range Orders.

**Misfire.** The term Misfire is to include all situations in which a missile motor fails to ignite after the complete sequence of events prescribed for the launching of the missile has been performed.

**Eng Support**. In all circumstances, the associated sqn armourers will deal with Marham-based ac. Visiting crews will be dealt with by a team tasked by OC AEF.

### E7.2 Procedure Following an Irregular Release

Un-attributable Irregular-Release. In the event of an ac landing at Marham with a reported un-attributable Irregular-Release, the following procedure is to be adopted:

a. If the ac still has weapons fitted it is to be directed off the in-use RWY to the nearest make-safe area (slots 2-5, see map at end of Chapter E7).

b. The weapon system is then made safe under the supervision of a SNCO Eng Tech W. The ac may than be taxied back to dispersal once the all-clear has been given by the SNCO.

### E7.3 Procedure Following a Hang-Up (Gravity Weapon)

**Live Weapon (Gravity).** In the event of a crew landing at Marham with a reported hang-up of a live gravity weapon, the crew will be directed off the in-use RWY to the nearest make-safe area (Slot 2 – 5, see map at end of Chapter E7). The following actions should then take place:

a. Pilots shall ensure the Master ARM is safe and carry of the appropriate PCL procedure.

b. The armament safe team is to carry out make safe procedures detailed in the Lightning JTD.

**Practice Weapon**. Ac landing with hung-up practice weapons [redacted]

may proceed directly to a HAS or other normal parking area as appropriate.

### E7.4 Runaway Gun/Stoppage Procedures

**Runaway Gun**. Crews of ac landing at Marham after suffering a runaway gun or stoppage are to expeditiously taxy to Slot 2 or 4 (see map at end of Chapter E7), ensure all ACS switches are safe and await the arrival of armament personnel to disable the weapons.

[redacted]

**E7.6 Make Safe Areas**

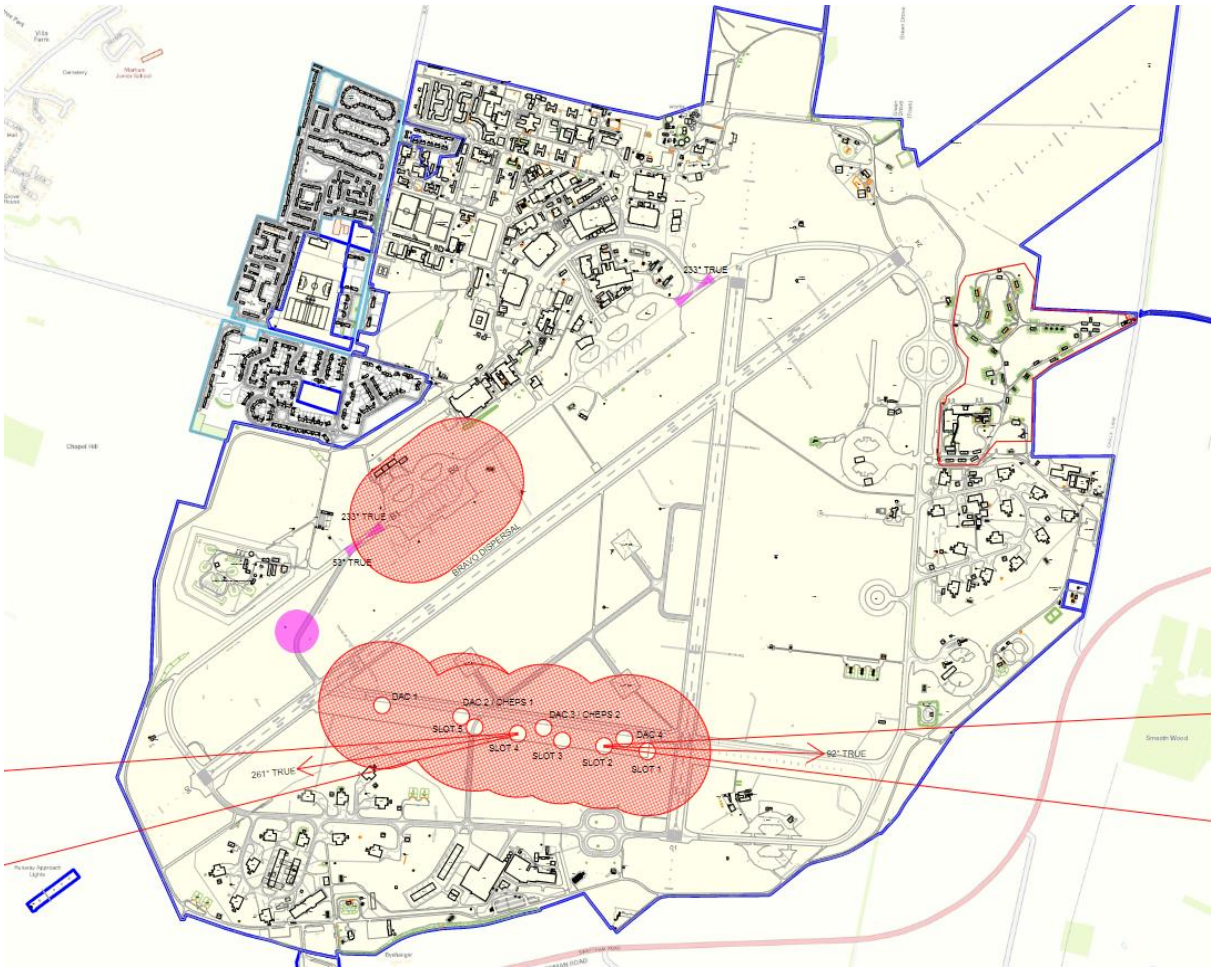
The locations of make-safe areas are as shown on the map at the end of Chapter E7.

**E7.7 Licensed Parking Slots and Safe Headings**

**Licensed Parking Slots**. If it is necessary to park an ac armed with HE and/or forward firing weapons at a location other than in a HAS, it must be parked on a parking slot that is licensed to accommodate armed ac and, if appropriate, annotated as having a safe parking heading. Current forward firing parking slots are shown in the map below.

**Alternative Forward Firing Licensed Parking Slots**. Due to the current ongoing issues with KILO taxiway surface degradation, it is recommended that in an emergency using HAS 46-49 and 53 is accepted as a forward firing alternative. Aircraft are to be directed to the NE HAS site by ATC and instructed to point the aircraft at the nominated HAS doors which offer forward firing ballistic protection. Once the aircraft is pinned by the pilot or armaments team, the aircraft can then be moved into the HAS for safe storage.[redacted]

E7.8 Directional Weapons Safeguard Map




The most up-to date version of the directional weapons safeguarding map can be found at the following [Link]

# CHAPTER E8: MINIMUM FUEL

**E8.1 Notifying of Minimum Fuel**

The simplest method of notifying any ATC agency of the need for priority handling due to a low fuel-state is the use of plain language R/T. Should aircrew recovering on minimum fuel to Marham wish to advise ATC of their fuel state they should use the abbreviated RT call of "MINIMUM FUEL". Crews are to note that a call of "MINIMUM FUEL" does not constitute an emergency. However, they will be afforded priority over other ac if possible and it is therefore in their interest to declare "MINIMUM FUEL" as soon as the situation arises.

The "MINIMUM FUEL" call should be made at least before the start of the planned final circuit or, if under the control of an ATCRU, when a straight-in approach and landing is necessary. In either case, the call will be interpreted by Marham ATC as meaning:

> "If I do not land from the next/first approach, I may have to divert to the promulgated diversion."

Crews declaring "MINIMUM FUEL" should be given a minimum ground-track approach, although other ac will be allowed to continue ahead of the fuel-priority ac. Crews joining, and those in the circuit, are to be kept informed by ATC of the location of all ac calling "MINIMUM FUEL".

**E8.2 Fuel Emergency**

Crews declaring a fuel emergency or have depleted below diversion fuel are to use the phrase ‘MAYDAY, MAYDAY, MAYDAY FUEL’ in accordance with CAP413 if they believe they will land with less than 500 lbs, otherwise a PAN call will suffice. In addition, crews diverting to a USAF base should use ‘EMERGENCY FUEL’ terminology if they will land with less than 500 lbs.

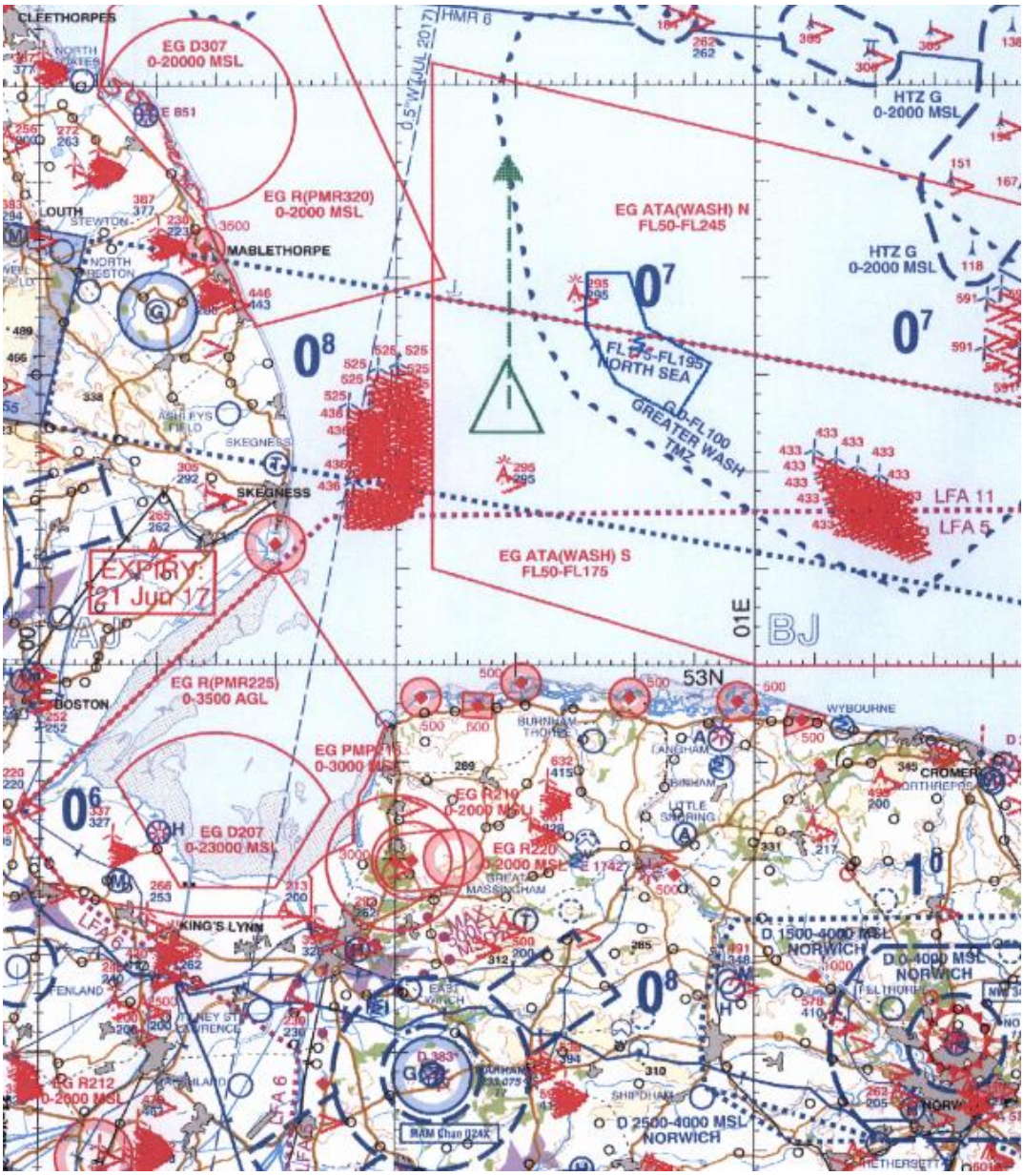
In most cases, unless weather dictates otherwise, ac on minimum fuel that reach the nominated FOG should use all remaining fuel to land at the intended point of landing. If the weather is marginal, consider diverting well before reaching the nominated FOG.

# CHAPTER E9: PREMEDITATED EJECTION

## E9.1 Positioning for Premeditated Ejection

Aircrew who are forced to carry out a premeditated ejection in the local area should, where possible, proceed to 16 Nm NW of Blakeney Point (Marham Tacan Ch 24 008/35) and fly a heading of North.

## E9.2 Map of Location of Premeditated Ejection



## CHAPTER E10: RECALL AND MANDATORY DIVERSION OF MARHAM BASED AV

**E10.1 Recall Procedure**

The DCF must be aware of the details contained within this SOP pertaining to the recalling of aircraft. If the requirement to recall aircraft arises then the DCF is to be informed ASAP. The DCF is to instruct ATC and the SDA to immediately initiate recall procedures via the flowchart procedures detailed below

**ATC**. ATC is to attempt to recall all necessary aircraft in the normal manner via Guard or other relevant controlling agencies.

Although utilising Guard is the most expedient method, there are known areas of poor coverage so Link 16 is also to be employed as below.

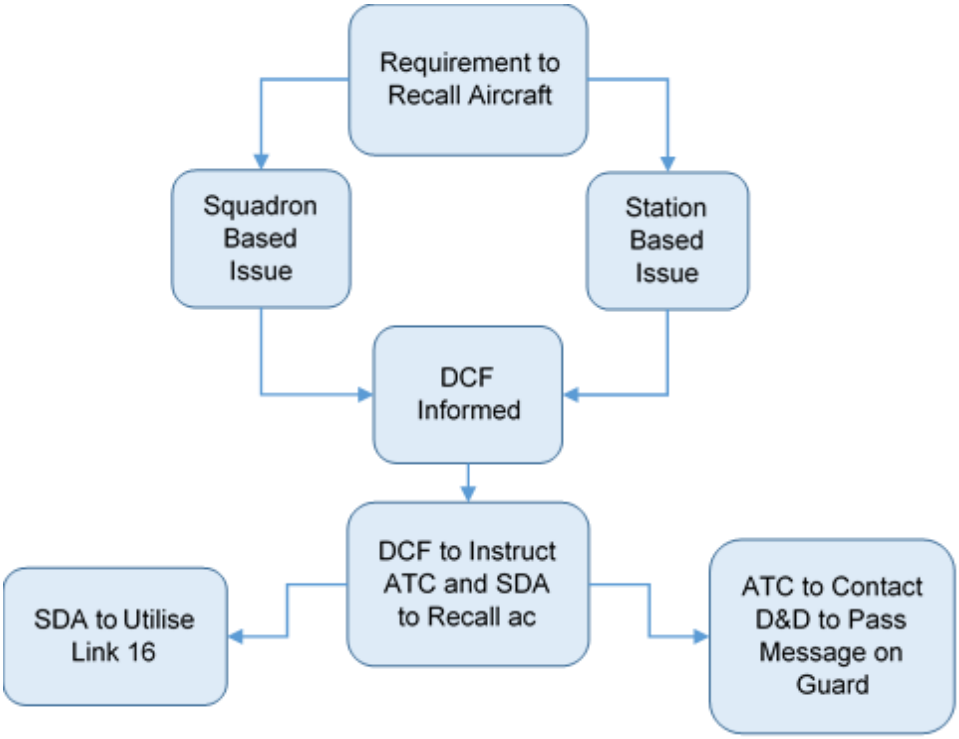
**SDA**. In order to recall aircraft, the SDA is to utilise Link 16 in the following manner:

a. The requirement to recall aircraft and reason why is to be passed to the SDA by the DCF.

b. The SDA is to call JDLMO on 95221 Ext 4717 and pass them the message received from the DCF verbatim. The SDA will also need to pass on the STNs of the aircraft to be recalled, which can be obtained via their Sqn Ops staff or from the Auth sheets. JDMLO will then pass on the message to all relevant aircraft.

JDLMO operate from 0700L until the last known landing of an aircraft with a booked STN. JDMLO can select individual STNs to send the message to the aircraft via J-Voice or as a Free Text.

**E10.2 Recall Procedure Flowchart**



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# CHAPTER F7: GEAR UP APPROACHES FOR ATC TRAINING

**F7.1 Gear Up Approach Procedure**

There is a requirement to occasionally carry out 'Gear Up' approaches for ATC controller training and validation purposes. Such approaches will be requested by the ATC Supervisor to the DCF on the day of execution, and are subject to the following criteria;

a. Must be pre-arranged and Aerodrome Duty Controller made aware.

b. Carried out by a suitably experienced pilot as directed by Auth/DCF.

c. From the visual circuit only.

d. Day Only.

e. Less than 3 ac in the visual circuit.

f. Will include a 'final gears down' call.

g. Not from an approach to Land/Full Stop.

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Defence Safety Authority

# Defence Aerodrome Manual (DAM)

# RAF Marham

## Annex O Part 3 – Recreational Flying Order Book

Issue 9

Military Aviation Authority

Military Aviation Authority
MAA

## TABLE OF CONTENTS

## 1ST PARTY ASSURANCE

The 1st party assurance of this annex is the responsibility of **SATCO** or as delegated.

## AMENDMENT TABLE

| Amendment No. | Amendment Date | Date of Incorporation | Name | Signature |
|---|---|---|---|---|
| Version 21-1 | Jul 21 | Re-Issue | Sqn Ldr Steventon | Electronically Signed |
| | | | | |

# FOREWORD

This Recreational Flying Order Book applies to Marham Aero Club (MAC), the Fenland Gliding Club (FGC), the Paramotoring Club, Model Aero Club and any other light aircraft who use RAF Marham under the auspices of either club. All members of the recreational flying clubs are to read, and sign as having read these Orders on arrival, every 6-month period and on amendment.

To maintain document control and oversight of recreational flying activity at RAF Marham, this document is the responsibility of the Aerodrome Operator (AO). This task may be delegated but is to be reviewed on a 12-monthly basis following advice and amendments from OICs of the recreational flying clubs.

The MAC OIC is responsible to the MAC Responsible Representative (RR) to ensure the continued relevance and correctness of these Orders and produce amendments where necessary. The FGC CFI is responsible to the OIC FGC to ensure the continued relevance and correctness of these Orders and is to produce amendments where necessary.

To avoid duplication, the Marham FOB is to be read and if any discrepancy is found between the RAF Marham FOB and this document, the Marham FOB is to take precedence. The OIC and CFI should then be informed, and action taken to rectify this document.

P Marr ADC MMDS BEng RAF
Group Captain
Station Commander
Royal Air Force Marham
1 Aug 2021

# ANNEX O: RECREATIONAL FLYING ORDER BOOK

## CHAPTER R1: RFOB TEMPORARY ORDERS

Nil

# CHAPTER R2: RAF MARHAM AIRFIELD PROCEDURES

## R2.1 Intended Use of RAF Marham Airfield

Before any recreational club uses the airfield for flying activity, RAF Marham Station Operations must be contacted at least 24 hrs before intend use via email or by phone. The exception to this is the Paramotoring Club who will contact Ops on the day based on the weather forecast. Ops can be contacted via the below numbers on either:

a. Duty Ops Controller - 01760 337261 x6240 or OOH duty mobile [redacted]

b. Duty Ops Specialist - 01760 337261 x6244

Airfield ground users are to be given priority over recreational clubs to complete necessary work on the airfield. During the week, a 1 hour 'airfield cool-off' period after ATC closes is to be given to the GEF RHAG team, ASMT and any other users before recreational flying can take place.

ASMT sweepers grass-cutting are active most weekends (Saturday) to sweep/cut the airfield between 0600-1500 local. Agreement has been sought between ASMT and SATCO for runways to be swept and for grass strips for FGC to be cut between 0600-1000 local where possible. Recreational clubs can therefore use the designated operating surfaces after 1000 local for flying activity. Clubs are to liaise with airfield ground users prior to flying at which point de-confliction will be managed geographically rather than by time.

## R2.2 Recreational Aircraft Operations Outside ATC Opening Hours

The ATZ of RAF Marham is H24. Generally, however, ATC is only manned during hours of planned military operations.

Rules of the Air Regulations 2015 requires that at times when the aerodrome is uncontrolled aircraft and vehicle movements must not take place without the permission of the person in charge of the aerodrome. The Aerodrome Operator (OC Ops) has approved the following procedure for movements of aircraft and vehicles when Marham ATC is not controlling the airdrome.

a. Whilst operating on the airfield, personnel must remain vigilant, and vehicle drivers must be prepared to give way to aircraft taxying, taking off or landing in accordance with their obligations under Standardised European Rules of the Air (SERA) 3210 – Right of way.

b. Whenever ATC is NOT manned pilots are to carry out the following actions as part of the out brief:

i. During normal working hours Contact the DOC on the following numbers and advise them of take-off and landing times, all numbers should be attempted until contact is made:

(1) DOC Extension – 6240

(2) DOC Extension – 6244

(3) DOC duty mobile – [redacted]

ii. The DOC will advise of any other airfield users accessing the airfield near the time of flight or any other restrictions. The following sections should then be contacted as a courtesy, but it is not necessary to receive a response before flying:

(1) ATC – 4949

(2) ASMT – 3206

(3) GEF – 7474/7477

(4) Fire Section – 3473 (Fire Duty Mobile [redacted])

(5) MPGS/Security – 7620

iii. Immediately prior to walk a blind call should be made on the SMRE radio channel 2 (ATC) in the ops room. The format of the message should be as follows:

"Marham all stations, this is Marham Aero Club, [Registration], Takeoff from [R/W} at [Time] Local"

e.g.

"Marham all stations, this is Marham Aero Club, G-JAGS, take-off from runway 19 at 1210 Local"

iv. Any responses should be acknowledged, and best effort made to co-ordinate airfield movements.

v. Pilots should only commence the take-off roll from a location on the runway that allows them to visually clear a minimum length of runway ahead. The minimum length should allow their take-off to be aborted at the point of rotation and the aircraft brought to a stop. Whilst performance calculations for the specific conditions will allow the distance to be calculated accurately no less than 3000ft should be cleared in normal circumstances. If only the minimum length of runway stipulated above has been cleared pilots must also give consideration to the available options in the event of an airborne abort (eg EFATO, Fire) if the runway beyond the minimum length were to be obstructed.

vi. If there is a vehicle obstructing a runway on which the captain of a powered aircraft intends to land they should overshoot not below 200 ft agl to attract the driver's attention and continue to circle until the vehicle has cleared the runway.

vii. Whilst operating inside the ATZ (on the ground and in the air) when ATC is not manned pilots should make blind calls on 118.325 (MRM VHF TWR) at key stages of flight. This will reduce the risk of runway incursion by vehicles using the airfield. Pilots should also monitor 124.15 (MRM VHF ZONE) and be prepared to respond to calls from factor traffic in the vicinity. Whilst outside the ATZ there is no need to monitor/make calls on 118.325.

Recommended times for information calls with examples:

(1)STARTING – "Marham all stations, G-JAGS starting on VAP"

(2)TAXYING – "Marham all stations, G-CJJN taxying from VAP to RWY 19"

(3)POWER CHECKS - "Marham all stations, G-CJJN holding at A3 for power checks"

(4)LINING UP – "Marham all stations, G-JAGS positioning for take-off RWY 24"

(5)DOWNWIND – "Marham all stations, G-JAGS downwind low approach RWY 01"

(6)FINAL – “Marham all stations, G-CJJN final land runway 06”

viii. A/C captains are to advise another member or individual willing to execute obligations contained in EP4 of this document of their intent and inform when flying ceases. That individual should execute EP4 if the aircraft captain has not contacted them within 30 minutes of the expected landing time.

### R2.3 Circuit Direction

All circuits by MAC and FGC pilots should be in the opposite direction to enable visual deconfliction. (see R2.4 and R2.5 below)

Gliders are deemed to be in circuit when they are flying parallel to the launch run, abeam and flying downwind of the landing area, and at any time they are at heights below 500ft agl.

Gliders should not make approaches to land towards areas obstructed by people, aircraft , vehicles or areas suspected of having hidden obstructions.

### R2.4 Weekend Only: MAC Circuit Directions

RW 06/24 – CCTs should be flown to the North (Due to the grass strip being South of the RW)

RW 01/19 – CCTs should be flown to the West (Due to the grass strip being East of the RW)

### R2.5 FGC Circuit Directions

RW 06/24 – CCTs should be flown to the South

RW 01/19 – CCTs should be flown to the East.

### R2.7 FGC Specific Regulations

Gliders are not to be flown on the alternate powered a/c circuits below 1200ft, whilst non-FGC powered ac are operating.

Gliders are permitted to land on both grass and the runways. Aerotowing is only to be conducted from the runways and Winch Launching is only to be conducted from the grass strips. Landing on taxiways should only be considered in emergency.

If RAF Marham Air Traffic Control becomes active at short notice whilst gliding is in progress, The Air Traffic Control Supervisor may halt local gliding operations if necessary. In such circumstances the Duty Instructor should execute the glider recall procedures below.

### R2.8 Glider Recall Procedures

The Duty Instructor is to ensure that no further launching is carried out. Gliders are to be contacted by radio and the Day-Glo mat is placed at the launch point. All FGC pilots upon notification of the MATZ becoming active, visual confirmation of the Day-Glo mat or VERBAL briefing are to take the following action:

a. Land immediately FGC pilots are to land on the gliding grass strip as the first option, avoiding the main runway 06/24 if possible, and inform the TWR of their intentions to land.

b. If specifically authorised by the Duty Instructor, the pilot in charge may remain airborne for the duration of the airfield activation, providing soaring conditions allow such action, and two-way radio contact has been established with "Marham Base" and TWR 118.325 MHz.

i. The authorised pilot is to remain clear of the MATZ both horizontally & vertically. There is to be no attempt to re-enter the MATZ or rejoin circuit unless authorised by the Duty Instructor, Air Traffic Control on TWR 118.325 or until gliders are seen re-launching.

c. Pilots returning from cross-country flights are to establish two-way radio contact TWR 118.325 MHz before entry to the MATZ.

## R2.9 Recreational Aircraft Operations During ATC Opening Hours

Light civilian aircraft and gliders should only be cleared to operate from RAF Marham when ATC is manned subject to traffic density. Only MAC pilots who meet the following requirements will be permitted to fly in the circuit with fast jet traffic:

a. Qualified Service Pilots

b. Other Pilots specifically approved by the Head of Training or Responsible Representative.

Captains are to warn out with Stn Ops and ATC at least 30 minutes prior to taxi giving the following information:

a. Requested departure profile

b. POB

c. Time en-route.

# CHAPTER R3: RECREATIONAL AIRCRAFT EMERGENCY ORDERS

MAC incident which results in damage to aircraft, equipment or injury to personnel is to be reported to the Club Responsible Representative or OIC who will assist with further reporting. It is the responsibility of the Club Responsible Representative or to inform the Station Duty Exec & Duty Ops Controller. Club members are to ensure a DASOR and MOR is completed within 48hrs of the incident, to allow an appropriate safety investigation to take place.

## R3.1 Medical Cover at Weekends

If urgent medical assistance is required at weekends (or Bank Holidays), call 999 in the first instance and then attempt the Duty Medic 01760 337261 Ext 222.

## R3.2 Incident/Accident Reporting Requirements

The Civil Aviation (investigation of Air Accidents) Regulations require the notification of accidents direct to the Chief Inspector of Air Accidents, Air Accidents investigation Branch and the local police when there has been death or serious injury, or an aircraft receives substantial damage.

MAC incident reporting should be carried out iaw RAFSA ASMP the information in below is for information only.

## R3.3 EP1: Aircraft Crash when ATC is not Manned

Any recreational flying club member may become aware of an aircraft crash having taken place, in most cases this will be the MAC duty pilot or FGC Duty Instructor in the first instance. Upon becoming aware that an aircraft crash has occurred the individual should carry out the following actions.

**AC crash more than / within 5Nm of RAF Marham**. In the event of an ac crash on, or adjacent to RAF Marham, the following actions should be carried out:

a. Note down as many details as possible of the incident including:

i. Ac Type inc Tail No.

ii. POB.

iii. Crash Position (Crash Map Grid Ref).

b. Dial 222 or contact on MRE Stud 2 (ATC) and request the RAF Marham Fire Section. Pass on as much detail as possible about the incident.

c. Dial 999 and request Civilian Police, who will cascade to the Ambulance Service and Fire and Rescue. Additionally, state which entrance you wish the civilian emergency services to enter through (either the Main Gate/Entry Point A or Crash Gate 7/Entry Point C).

Contact the Station Duty Exec ([redacted]), Ops Duty Mobile ([redacted]) and Duty Medic. The Station Duty Exec and DOC initiate the RAF Marham Major Accident Plan.

d. Contact the MGR on Ext 7620/7312 & RAF Police on Ext 7214, who will arrange follow me vehicles for the civilian emergency service vehicles.

e. Contact the DCDSDO2 ([redacted]) and pass on as much detail as possible.

f. If both FGC and MAC are flying, the FGC Duty Instructor is responsible for coordinating the emergency response as per R3.8 below.

## R3.4 EP2: Emergencies During Airfield Opening Hours

**Radio Failure**. Powered a/c recovering with no RT should carry out the following actions:

a. Attempt to contact on all available radios

b. Squawk 7600

c. Fly to 3nm on deadside of the extended centreline for the last known runway in use.

d. Descend to 500 ft on the last known QFE

e. Fly abeam the Truck Runway Caravan (TRC) rocking wings.

f. Turn downwind maintaining 500 ft QFE and make blind calls.

g. Land on receipt of a green flare from the TRC or a green lamp signal from the ATC tower

## R3.5 EP3: Overdue Action

If a powered aircraft or glider is considered overdue in accordance with individual club operating procedure the following action should be taken without delay:

a. Contact all numbers contained in this order at R2.2.b.i and ii.

b. Call D&D Swanwick on 01489 612406 (95586 2406). They will ask for departure and arrival airfields, expected operating area, ac type and POB. D&D will advise further actions as required. Contact the Local Civilian Police, giving the above details.

c. Contact any Gliding and or Flying Clubs near to the intended route for any information they may have.

d. Contact Lakenheath RAPCON (Radar Approach Control) on 01638 521450 (9205226 1450) and Norwich 01603 420641.

## R3.6 EP4: Actions if Lost

If pilots are unable to establish their position then they are to carry out the lost procedure. Whilst circumstances will dictate the order in which the checks should be carried out, the following is a general guide in the event of becoming lost:

a. Check the safety altitude for the route being flown. However, do not climb into cloud if you are visual with the ground and never enter cloud if you do not have an instrument flight qualification.

b. Note the fuel state and the airborne time remaining.

c. Ensure that the DI is correctly aligned with the compass.

d. Re-check the flight log to ascertain that the correct heading is being flown.

e. Re-assess the ETA for the missed fix.

f. Assuming visual contact with the ground, search the area for an identifiable feature within a circle of uncertainty of 10% of the distance flown since the last positively identified fix.

If after completing the above actions, you are still uncertain of position then call for assistance. It is not an admission of failure but a prudent and safe course of action. If in two-way contact with an ATC unit then make a PAN call on that frequency. Otherwise make a PAN call on 121.5 MHz and set the transponder to 7700. If you cannot remember the full CAP 413 phraseology then just state “Who you are, last known

position, heading and what help you need" - any further information will be asked for by the D&D controller. Don't forget to cancel your PAN call when you are safe!

### R3.7 EP5: Actions in the Event of a F&L Spill

1If a spill occurs, the person who notes the spill is to follow the fuel spill actions detailed below and on the side of the fuel bowser. The fuel spill will probably migrate towards the edge of North Eastern area of the VAP and this should be passed to Eng Ops.

**FUEL SPILLAGE**

**IMMEDIATE ACTION**

**ACTION TO BE TAKEN BY PERSON(S) OR SECTION DISCOVERING A FUEL/OIL SPILLAGE**

- **Attempt to prevent further spillage if considered safe to do so by closing valves or ceasing operations.**
- **Raise the alarm by ringing A4 iLOC DEOC on**

**6247/6248 or 07768 928470 OOH**

**Give the following information:**

- **Name, Rank and Telephone Number.**
- **Exact location of spillage (eg. Unit, Bldg N°, Area).**
- **Type and size of spillage (product & qty – if known).**
- **Container markings, eg HAZCHEM/ UN Numbers etc.**
- **Number of casualties (if known).**
- **Type of road/taxi-way surface.**
- **Any additional information.**

**Attempt to contain spillage without risking casualties.**

- **Attempt to contain the spillage, block any nearby drains, using nearest spill kit/sand etc.**
- **Prevent access to the area by initialising a cordon using available personnel.**
- **Evacuate personnel to a safe location 'UPWIND' of the spillage area.**

**Remain at the location until relieved by the Spillage Response Team, Pollution Control Officer.**

MAC or FGC members are to attempt to use the fuel spill kits provided to each club so long as they do not position themselves in an area where they are at risk of contamination.

## R3.8 FGC Incident Aide Memoir

### Incident

Raise a DASOR in 48 hrs, inform OIC

REPAIRABLE

Consult RAFGSA Centre Manager – Glider will normally be moved to Centre.

CLUB REPAIR

Club repairs glider under own resources. Recover contribution from Pilot. Cancel claim.

WRITE-OFF

Excess recovered from Club by RAFGSA

### Accident

MINOR ACCIDENT
In which any person is slightly injured or glider is damaged within Club capacity to repair

IMMEDIATE ACTION BY DUTY INSTRUCTOR / DUTY MEMBER
1. Attend to any casualties.
2. Inform Stn Duty Exec [redacted]
3. Inform Club Deputy Chairman [redacted], OIC [redacted] and CFI [redacted]

FOLLOW-UP ACTION BY CFI OR CLUB CHAIRMAN
Submit DASOR within 48Hrs and advise GSA Safety Member

MAJOR ACCIDENT
In which any person is killed or seriously injured or glider is damaged beyond Club capacity to repair.

IMMEDIATE ACTION BY RESPONSIBLE PERSON
1. Attend to casualties and summon medical aid through 999 or 01760 337261-222.
2. Place guard on wreckage. Do not move it without permission of AAIB accident investigator.
3. Impound aircraft logbook.
4. Inform Stn Duty Exec [redacted] AND OIC [redacted] (who will inform Stn Cdr).
5. If civilian casualty or accidents occurs on civilian property, inform civil police.
6. Inform Club Chairman.
7. If considered appropriate, advise Distress & Diversions Cell RAF(U) Swanwick 01489 612406 if accident has occurred at non-airfield location.

FOLLOW UP ACTION CFI OR CLUB CHAIR

1. Inform Immediately:
   a. RAFGSA/RAFFCA Chairman.
   b. Operations member
2. Raise DASOR within 48 Hrs. Inform Ops Member within 7 days.
3. Make repair or salvage arrangements

With RAFGSA centre (if required)

# CHAPTER R4: RAF MARHAM RECREACTIONAL FLYING ORDERS

## R4.1 MAC Supervision

## R4.2 Orders for the Duty Member

The main responsibility of the duty member is to be aware of the flights taking place at MAC during the period of their duty and to initiate overdue action if necessary.

Factors such as wind or ground delays might make it difficult to determine whether an aircraft is overdue. It should be noted that air traffic control deems an aircraft to be overdue if they have not arrived or made RT contact with their destination airfield by their nominated ETA.

The MAC duty member should establish with pilots a co-ordination time when they plan to make contact post landing.

**Actions in the event of a late arrival**. If contact is not made by the pilot at the planned co-ordination time overdue action is to be initiated in accordance with R3.5 EP3.

## R4.3 MAC Orders for Flight Briefing and Authorisation of Flight

All flights in aircraft operated by MAC are to be authorised by a Club member who has been approved by the Head of Training (HoT) or Responsible Representative to hold the powers of authorisation appropriate to the flight that is to take place.

All current qualified service pilots are granted self-authorisation powers. Club members who are granted self-authorisation powers are noted in the Auth's folder and this is to be reviewed and signed off every 3 months by the HoT.

Authorising pilots are to conduct the following items with those they are authorising as a minimum:

a. Sortie Content Brief

b. Out Brief

c. In Brief

## R4.4 MAC Pilot Currency Requirements

**Pilot Currency**. In addition to the standard CAA currency rules the minimum currency for pilots of MAC aircraft is as follows:

a. >100 hrs P1: 45 days.

b. <100 hrs P1 it is 31 days.

c. If a pilot is outside these limits a dual flight with a FI is to be completed.

These currencies are based upon having flown a SEP aircraft in the period.

Under exceptional circumstances the Responsible Representative or Head of Training only, may waive these currency requirements. The waiver must be issued in writing.

## R4.5 MAC Orders for Solo Students

GH/navigational exercises may be undertaken in BLUE or better conditions (8 km visibility and 2500 ft cloud base). Student pilots are to conform to VFR at all times and ensure that they maintain at least 500 ft vertical clearance from cloud when operating below 3000 ft.

Circuit sorties may be flown in conditions of 5 km visibility and 1500 ft cloud base. Student pilots are to maintain at least 500 ft vertical clearance from cloud.

Surface wind must not exceed 15 kts and the crosswind component is not to exceed 10 kts. Solo students are not to fly if the wind is expected to exceed this limit during the period of operation.

## R4.6 MAC Orders for Captaining Force Development and RAF Duty Flights

To conduct Force Development (FD) flights, in MAC aircraft, in support of RAF Marham FD Sqn, the captain of the aircraft must satisfy the following requirements:

a. Holds a valid civilian licence

b. Is a Qualified Service Pilot or WSO with experience operating Gast Jets from RAF Marham.

c. Is approved to conduct FD Flying by the Responsible Representative or his nominated deputy

RAF Duty flights should be carried out iaw Queen's Regulations for the RAF: J722.

## R4.7 MAC Orders for Operations from East Winch

There may be occasions when Marham Aero Club flying will be conducted from East Winch. The purpose of this order is to ensure that this flying is carried out in a safe manner.

R4.23 below contains more information regarding the use of East Winch.

Pilots must obtain PPR and be familiar with East Winch operations.

Pilots should re-brief the out brief at EW as if it was initially conducted at Marham.

The first pilot of the day should collect the aircraft keys and pack from RAF Marham en-route to East Winch. They should follow current in brief and out brief procedures for flying and checking of information within the clubhouse.

Once flying is complete the keys and pack-up should be returned to RAF Marham. If the aircraft is being handed over to another club member then the pilots in command should meet to handover the equipment and also to handover any information pertinent to flying from the clubhouse.

When flying is planned at East Winch, please make sure Marham Ops have been contacted on 01760 337261 x6240 and made aware prior to the planned activity.

Airborne and Taxiing calls should be made on RAF Marham LARS frequency 124.150. The airfield is in Class G airspace and has no ATZ associated with it. Therefore, be extra vigilant of trespassing aircraft.

## R4.8 Passenger Carrying and Aircraft Maximum Loading

Members wishing to fly as captain whilst carrying passengers must be current to do so in accordance with ANO

Passengers should enrol as passenger members of the club by filling out an application form prior to their flight. Application forms are kept in the clubhouse.

The Captain is to ensure that his passengers have received a comprehensive brief on safety equipment, emergency procedures and the importance of lookout.

No dual instruction may be given on a Club aircraft except by the appointed instructors and examiners.

Sick bags are to be carried on all passenger flights.

## R4.9 Start Up, First Solo, Taxi and Shutdown Procedures

**Start-up.** Before starting an aircraft the following checks must be made:

a. A suitably qualified pilot or engineer must be in the cockpit.

b. The aircraft is in a position where the slipstream will not cause damage to property, personnel or other aircraft.

c. Brakes must be applied fully. In cases where chocks are required, these must be in position until the pilot clearly signals that he is ready for them to be removed.

d. There is clear path by which the aircraft may taxi from the parking area and no persons are in the vicinity of the propeller.

e. A rotating beacon (if fitted) should be switched on; strobe lights are not to be switched on until the pre take-off checks and prior to lining up for departure.

f. The aircraft tool bag must be checked for completeness.

g. Hand-swinging the propeller is forbidden unless performed by a person who has received proper tuition in this procedure and has been authorised in writing in his logbook by a flying instructor to carry out this procedure without supervision.

h. Once the engine is running, there is no reason for a person to enter or leave the cockpit without having first shut the engine down except under the following circumstance:

**First Solo**. On a first solo, an FI may enter and leave the cockpit without shutting the engine down providing that this procedure is in accordance with the aircraft flight manual.

a. The engine must be set to idle before opening the canopy/door. The parking brake must be fully applied.

b. The student under instruction about to be sent solo will remain at the controls at all times while the engine is running.

c. The student pilot must be specifically brief on safety precautions and communications once outside the ac.

d. The ac must not be approached from in front of the wing leading edge line.

**Taxiing.** Aircraft should always be taxied at a steady RPM (1000-1200) and at a slow speed, considering the proximity of other aircraft, obstructions, the nature of the airfield surface, etc. By doing this the engine is also warmed evenly and engine life is preserved. Taxiing into an open hangar is strictly forbidden.

When ATC is closed, before entering an operating surface (Taxiway or Runway) The area ahead must be clear of obstructions and airfield contractors. If any doubt exists, Stop and do not proceed.

When entering a runway to take-off when ATC is not manned a clearing turn should be carried out to clear the approach lane and confirm there are no approaching vehicles or pedestrians.

**Shutdown.** Shutdown should be reported to ATC if manned.

## R4.10 Cross Country and Navigation Exercises

Student pilot cross-country and navigational exercises are to be planned in accordance with the navigation syllabus in the Flying Lesson reports. However, instructors may arrange for a student to carry out an ad hoc route to achieve a particular training aim.

Solo student pilots on navigation exercises are to complete a Solo Navigation Briefing Certificate to confirm that they have received a full briefing from their supervising instructor.

Pilots departing on international flights must comply with Article 66 of the ANO.

Cross-country flying and landings away from RAF Marham should be executed in accordance with the below:

a. The Captain is to satisfy himself that the aircraft has adequate fuel and oil for the proposed journey and that an adequate reserve of fuel and oil is carried.

b. The Captain is responsible for the safety and protection of the aircraft while on the ground during land-a-ways. The aircraft is to be housed in a hangar at night or during high winds. Where this is not possible, the aircraft is to be correctly picketed in a sheltered position and the control surfaces and cockpit controls properly locked.

c. Except when otherwise authorised by the Club, Members carrying out cross-country flights are to return the aircraft to the club airfield at least one hour before sunset on the day of departure, unless to do so would prejudice the safe operation of the aircraft. In such an event the Captain is to advise the duty member so that arrangements can be made for future bookings etc.

d. Captains are responsible for all charges and fees associated with their flight including expenses occurred obtaining or confirming the correct chocks-to-chocks time at other airfields. Landing, parking, hangarage, handling and navigation fees are to be paid to the airport authorities prior to departure from the airport. A handling charge of £10 will be imposed on any member who allows a bill for airport services to be invoiced to the Club.

e. The Captain is to contact the Head of Training or an FI for further instructions if he is in any doubt as to his capability to return from a land-away in the event of forecast deterioration in the weather.

f. The duty member is to be provided with a route brief and a copy of the route (this can be electronic).

g. Pilots are to arrange a co-ordination time with the duty member. This should be no later than the planned take-off time plus 15 minutes.

h. Pilots must make contact with the duty member no later than co-ordination time; Overdue action will be initiated if they do not.

## R4.11 instrument Flying

Practice Instrument Flying may only be carried out in VMC in the company of another pilot who is qualified to operate the aircraft and who is briefed to carry out lookout.

## R4.12 Practice Forced Landings (PFLs)

PFLs are only to be carried out over an active airfield (with ATC permission) or clear of congested areas and livestock. Congested areas are defined as “areas substantially used for residential, industrial, commercial or recreational purposes”.

When conducting PFLs away from an airfield, pilots are to go around by 500 ft AGL. When operating near housing, pilots are to consider going around earlier to avoid unnecessary noise nuisance.

PFLs must be specifically briefed with the sortie authoriser.

## R4.13 Aerobatics

Aerobatics in club aircraft are prohibited.

## R4.14 Post Landing Actions

**Completion of Technical Log and Fuel Folder**. The aircraft Captain is to enter the sortie duration, tacho readings, fuel and oil uplifted in the aircraft technical log immediately after landing.

**Reporting Aircraft Serviceability and Unusual Occurrences**. The Captain is to enter aircraft defects in the aircraft technical log immediately after landing. If no defects are apparent, the word “Serviceable” or “Nil” must be entered in the appropriate place on the sheet. In addition, the Captain is to make a verbal report to an instructor or engineer of any significant aircraft unserviceability, handling problems or other relevant events such as a heavy landing. During land-a-ways, the Captain is to telephone an instructor for advice if the Captain experiences a defect that could prevent a safe recovery to Marham.

**Cleaning of Aircraft**. The captain of the last flight of the month is to ensure that the aircraft is cleaned inside and out using the cleaning materials in the POL locker.

Aircraft must be secure.

## R4.15 Aircraft Technical Log Entries

Captains must ensure they enter both the ‘brakes off/on’ times as well as the Tacho/Hobbs reading for their flight, the accuracy of these entries is important for the maintenance of the club aircraft. Pilots are to note that there are differences between ac times, Tachometer or Hobbs meters.

In the case of several successive flights undertaken by a member then the Tacho/Hobbs readings must be entered for each individual flight and not just a reading from the start of the first flight and the end of the last flight.

## R4.16 Refuelling and Fuel Bowser Operating Instructions

Only authorised club members are cleared to use bowser. The list of those authorised is maintained by the Ops Member in conjunction with the Engineering and Fuel Member and training for new members is to be carried out on joining the Aero Club. If a member has not flown or used the bowser for a year retraining is to be carried out by a current member of the club.

The Procedure is as follows:

a. Ensure the fire extinguisher is ready for use and is close to the point of refuelling. If able ensure that a second person man the fire extinguisher throughout the refuelling procedure.

b. Unlock the storage cabinet, the main fuel valve, engine box and the fuel drain valve, located at the rear.

c. Carefully lift off the engine box and place it on the ground the right way up, adjacent to the bowser. Note it may be necessary to unlock the hose reel and move the handle to the horizontal position prior to removal.

d. Ensure there is sufficient oil and fuel for the day in the sump and tank respectively of the diesel pump.

e. Check the fuel log to ensure the bowser has sufficient fuel for the refuel and annotate the meter reading in the log from the small counter.

f. If this is the first refuel of the day, then take a fuel sample and store in the fuel sample drawer. The sample must be taken from the drain valve at the rear. Check for water content with test kit.

g. Unreel the bonding lead from the bowser and connect it to the aircraft exhaust stub.

h. Carefully unlock the hose reel and reel out the hose avoiding dragging it along the ground and try to prevent the hose from kinking.

i. Ensure the hose nozzle is in the closed position, i.e. trigger lock is not operated.

j. Confirm the fuel counter has been zeroed and the move the main fuel valve to the open position, which is in line with the pipe from the tank.

k. Take hold of the engine-starting handle and give it a firm pull.

l. Dispense the fuel whilst monitoring the flow rate from the nozzle and stop the engine immediately, as continuing will seriously damage the pump.

m. Once the refuel is complete, stop the diesel engine and carefully put the hose and bonding lead away.

n. Take a note of the meter readings and fill in the fuel log.

o. Replace the engine box cover back over the engine

If the club is likely to be left unattended, both the engine box and the valves must be secured, and the keys locked away in the club in the new key cabinet. At cease flying ensure all locks and covers are correctly fitted and secured.

## R4.17 Fuel Bowser Inspections

Prior to use of the fuel bowser a daily inspection is to take place. This is to confirm that the bowser appears visually sound and there are no visible leaks. In accordance with rule MO8, a check of the water content of the fuel is also to be recorded. The result of the daily inspection is to be annotated in the fuel upload log.

An annual maintenance schedule is to occur, and the records of the maintenance are to be uploaded to the MAC sharepoint site.

## R4.18 Mitigation of Mid-Air Collision Risk

To mitigate the risk of mid-air collision involving a Marham Aero Club ac to as Low as Reasonably Practicable (ALARP) the following is to be adhered to:

a. Transponders are to be set to MODE C/S at all times when airborne, unless advised to the contrary by ATC. If the transponder is U/S the aircraft may still be flown. Captains are to be aware of the increased risk of mid-air collision and the transponder is to be fixed at the next maintenance opportunity.

b. When operating outside the visual circuit, Marham Aero Club ac are to be in receipt of a Basic Service or Traffic Service whenever these are available.

c. Where fitted, strobe lights are to be switched on.

d. The use of a moving map with electronic conspicuity is encouraged at all times.

## R4.19 Carbon Monoxide (CO) Detectors

All MAC aircraft are to be fitted with a CO detector which is to be checked pre-start and monitored as part of the routine checks.

In the event of CO being detected the following actions are to be followed:

a. Switch off the heating.

b. Close the air vents.

c. Ventilate the cabin by opening windows/doors (as permitted by the pilot's operating handbook).

d. Land as soon as practicable.

## R4.20 Fuel Planning

Pilots are to ensure that fuel is sufficient for the planned sortie and a subsequent diversion to an alternate airfield. Non-instrument rated pilots are to have an alternate airfield which is WHITE colour conditions or better (1500' cloud base and 5Km visibility) as well as being able to route the diversion in VMC. Instrument rated pilots must have a GREEN colour rated airfield or better (700' cloud base and 3.7Km visibility).

Pilots should consult the aircraft operating notes to ascertain fuel burn per hour and min landing fuel if applicable.

## R4.21 Night Flying

MAC aircraft are not permitted to be flown at night.

## R4.22 Use of G-CJJN

G-CJJN, a Robin HR100/210 Safari II, and is on a dry hire lease from Joe Mason. As such, please make sure that before operating it you have read the contract of hire between Marham Aero Club and Joe Mason.

Training will be carried out at Marham or other local airfields as required but no PPL training shall be undertaken in G-CJJN.

Prior to using G-CJJN members need to be approved by the Head of Training (HoT) and, due to insurance requirements, the owner. As a minimum, members should have 100 PIC hours before being approved to fly as PIC of G-CJJN.

To act as PIC, members will need to have completed a differences training schedule due to the variable propellor capability prescribed by the HoT. Members with no experience should expect to carry out no fewer than 2 training sorties with an instructor before being approved to act as PIC.

Flying hours must be recorded on the logbook and should be repeated on the online document to allow for correct billing to Joe Mason. Accurate hours allow for the correct payment to be made to Joe for the lease of the aircraft.

## R4.22 Cost Sharing Flight

The primary intent of cost sharing flights is to enable access to fly and to promote air mindedness of service personnel at a lower rate than that required of an individual lesson. This is achieved by leveraging the authority granted by the CAA, outlined in CAP 1589, whereby a pilot may share the 'direct cost' of a flight with up to 5 passengers so long as the PIC contributes to the cost.

Cost sharing flying is approved in MAC aircraft as per CAA CAP 1589 which pilots are required to read and understand prior to undertaking such flights.

Prior to taking an individual flying, the individual must be a member of the club. At a minimum they must be a Cost Sharing Member. This can be achieved prior to the flight by way of completion of a membership form and payment of the required sum for membership.

**Training**. To conduct cost sharing flights a pilot must have completed a check flight and briefing with an FI.

The briefing should cover potential human factors that may arise from flying with someone not well known to the pilot. Particular emphasis shall be placed on the following areas as well information detailed on the CAA website - https://www.caa.co.uk/General-aviation/Aircraft-ownership-and-maintenance/Cost-sharing-flights/:

a. A pilot must adhere to all weather requirements as detailed in the ANO and MAC orders, whichever are the most restrictive, in accordance with the privileges granted to them on their licence. The PIC must make clear to potential cost sharing passengers, at the time of agreement, that there is no guarantee weather and serviceability will allow the flight to take place.

b. The PIC must ensure a thorough safety brief is conducted. This shall include, but not necessarily be limited to, emergency egress, use of safety equipment including fire extinguisher, lookout responsibilities and risk of distraction when the PIC is using the radio.

c. Weight and balance must be conducted for each flight, particularly when flying G-CJJN.

The flight shall be conducted as if the FI were a passenger and include a simulated emergency brief. The prospective cost sharing pilot will then conduct a short (00:20) sightseeing tour of the local area and prove that they are aware of all relevant avoids, restricted airspace and noise abatement procedures.

**Authorisation**. Unless otherwise approved by the Chairman, all cost sharing flying must be authorised and supervised by an FI. Suitably experienced pilots for example, those who hold a CPL or greater, are QSPs or have in excess of 250 Hours in light aircraft may be given self-authorisation privileges by the Chairman on an individual basis.

A list of pilots who are qualified and their authorisation privileges shall be maintained by the OIC.

**Restrictions**. Cost sharing flights shall not operate to and from different airfields without the prior authorisation of the Chairman. Cost sharing flights are authorised from RAF MARHAM with service personnel passengers only. For cost sharing with civilian passengers, cost sharing flights are approved to be conducted from East Winch with a valid East Winch PPR.

**Payment.** Flights shall be charged at the standard club rate per hour.

The PIC shall contribute no less than 10% of the cost.

On completion of the flight, in order to be transparent with the cost sharing element, all members of the flight are required to pay their portion of the charge directly to the club via the most current payments means. The payment chit must clearly be noted that it is for a cost sharing flight and have an outline on the back of the breakdown of percentages.

## R4.23 East Winch Operations

The following information is provided for MAC pilots operating to and from East Winch Private Airfield and is for guidance only. This information does not replace the need for pilots to obtain prior briefing and/or training from a suitably qualified FI prior to using the airfield. PPR is required at all times.

East Winch is a privately owned airfield located approximately 6NM SE of King's Lynn (N52:42.30 E000:32.00). Airfield elevation is 15 metres.

Airfield movements are strictly PPR, available on 01553 840396 or by prior arrangement. Operating hours are confined to between 0800 and 1900 hrs local. Pilots are to avoid overflying local buildings and East Winch village where possible.

Runway orientation and dimensions (boundary to boundary) are as follows:

a. RWY 10/28 – 650 x 25 metres (grass).

All visual circuits are to be flown to the north of the airfield. Pilots are encouraged to overfly the airfield prior to landing in order to gain situational awareness of the prevailing traffic situation.

The primary windsock is located on the north side of RWY 28 threshold. There is a secondary windsock located on the roof of the maintenance hangars however this may be misleading, and its use should be avoided.

All movements are at the aircraft captain's discretion and risk. It should be noted that there may be pedestrians, vehicles and animals on the airfield and a good lookout is vital. There is often a high level of bird activity on and in the vicinity of the airfield.

Inbound aircraft are requested to establish prior MATZ Penetration clearance from Marham Zone on frequency 124.150. Outbound aircraft will be able to establish communication with Marham Zone on this frequency whilst on the ground at East Winch and are encouraged to advise the controller of intentions prior to departure. If operating outside of Marham Zone hours, pilots are encouraged to make blind traffic information calls on 124.150Mhz.

All aircraft movements are to be recorded in the control hut next to the main hangar. In lieu of a landing fee, pilots are encouraged to make a small donation to the East Anglian Air Ambulance.

## R4.24 Memorandum of Understanding Between Recreational Flying Clubs and Fire Section

**Introduction**. The RAF Sports Aircraft (RAFSA) mandates that a minimum of Rescue Fire Fighting Service (RFFS) 'Special' is provided. As such there is a standing requirement for written understanding between MAC, FGC and the RAF Marham Fire Service pertaining to fire cover during club flying operations when ATC is closed as required by RAF Marham DAM Annex O Part 2 – Flying Order Book.

**Flying when ATC is Open.** If ATC is open for late day or night flying, there will be no requirements on MAC and FGC or the RAF Marham Fire Service. ATC will co-ordinate any action as required.

**Flying when ATC is Closed.** The following points are required of MAC and FGC to ensure that the Fire Service is kept informed:

a. Before start of flying, the MAC Captain/ Duty Instructor will inform, by phone (Ext 3473) or by MRE, the on-call fire crew of the day's flying programme.

b. After landing, without undue delay, the captain will inform, by phone (Ext 3473) or personally, the on-call fire crew.

c. If unable to contact on the above extension the Fire Crew Duty mobile ([redacted]) should be called.

d. Should there be an emergency the MAC Duty Member or FGC Duty Instructor will instigate the emergency response as set out in RAF Marham DAM Annex O Part 3 – Recreational Flying Order Book R3.3 EP1. Overdue action will be taken as required (RAF Marham DAM Annex O Part 3 – Recreational Flying Order Book R3.6 EP4).

RAF Marham Stn Fire Service will continue to provide RFFS ICAO 4 during periods when ATC is closed as per their current standing orders.

I agree to the above

| | | |
|---|---|---|
| Date | Date | Date |
| Signed | Signed | Signed |
| [redacted] | [redacted] | [redacted] |
| RAF Marham Fire Service | OIC MAC | OIC FGC |

# CHAPTER R5: FENLAND GLDING CLUB ORDERS

Flying orders and Regulations will be issued by the Executive Council in accordance with the RAFGSA Handbook and Operations Manual. The RAFGSA flying Orders are supplementary to QR (RAF), JSP 318 and DCIs. In addition, the operational regulations of the British Gliding Association are also to be followed. The Fenland GC Flying orders are laid down in addition to the Flying Orders and Regulations within the RAFGSA Handbook. It is the responsibility of the Fenland Gliding Club CFI to ensure that all pilots under the control of the Fenland GC are aware of the current Flying Orders and regulations within the RAFGSA and BGA.

## R5.1 Two-Seater Flying Instructor Training

**Two-Seater Flying**. Training aircraft may be flown, when authorised by a Full rated or authorised Assistant Category Instructor, by two people in the following circumstances:

a. **Instruction**. For basic instruction the student is to occupy the front or right-hand seat. For check flights or advanced instruction either seat may be occupied. The aircraft captain is to be a BGA rated instructor.

b. **Mutual flying**. For purposes of Instructor training when both pilots are qualified on type and only on the express permission of the CFI, the pilot in the front seat is to be designated aircraft captain.

c. **Safety pilot**. Safety pilots are to be instructors or specifically authorized solo pilots who have been trained and tested in the glider type and authorized by the CFI. They are to be current on the launch and glider type and in the seat they intend to act as safety pilot.

**Instructor Training**. Instructor qualifications are to be in accordance with the British Gliding Association rules. Clubs may only undertake formal Instructor training courses with the consent of the RAFGSA Ops Member. Individual preparation of pilots for an instructor course and further training of Assistant Instructors is the responsibility of the Fenland Gliding Club CFI.

## R5.2 Chief Flying Instructor Duties

The Fenland Gliding Club Chief Flying Instructor is responsible to the Club Chairman for:

a. Supervision and authorisation of all flying carried out by the Fenland Gliding Club.

b. The production of local flying orders and compliance with RAFGSA and BGA rules and regulations.

c. Oversight of Basic, post-solo and Instructor Category Flying training in accordance with the RAFGSA syllabus.

d. Appoint a Deputy Chief Flying Instructor (where practicable) who is to have the full authority of the post in the absence of the CFI.

## R5.3 FGC Duty Instructor

The Duty Instructor for the day is to be appointed by the CFI and is directly responsible to the CFI for all flying. The Duty Instructor is to remain at the site, defined as on the airfield, in the hangar or club premises or flying within the immediate circuit area. If not present at the launch point, the duty Instructor is to hand over to another Instructor. The Duty Instructor is not to be made responsible for the collection of the daily flying fees or any other task that would distract their attention from the control of flying operations. The Duty Instructor is to:

a. Provide advance pre-notification of their intended weekend flying activity to RAF Marham Stn Ops by midday Thurs to be published on Friday for wider distribution and dissemination.

b. Contact the Fire section prior to flying commencing and at cease flying to inform them of the planned flying activity.

c. Ascertain the suitability of the weather for the planned operations from a weather forecast relevant to the area during the flying period.

d. Refer to the Stn Operations Weekend User email to ascertain any aircraft movements or airfield works for that day, noting any NOTAMS or Royal Flights affecting the area. In the event of airfield movements refer to Recreational FOB Order A2.

e. Conduct an airfield inspection prior to flying commencing. Liaise with any personnel already on the airfield such as the runway sweepers, arrestor crews etc, to ensure safe deconflition. Ensure that after flying commences, an airfield inspection is conducted for any potential FOD or hazards.

f. Ensure all equipment is to be used is fully serviceable. MT vehicles are FOD free, all cable cutting and joining equipment are available on the winches. A First-Aid kit, launch point cellular phone and MRE Radios are available at the launch point.

g. Select a suitable launch point, with due regard to:

(1) Clearance from the downwind boundary.

(2) Obstructions.

(3) Rough ground.

(4) Local effects of turbulence.

h. Ensure, before the first flight of any glider each day that all servicing, Daily inspections, positive control checks and independent inspections have been carried out by suitably qualified pilots and signed for in the relevant glider logbook.

i. Brief the Assistant Category Instructors on the flying to be carried out and their responsibilities.

j. Ensure all flights are authorised and all pilots briefed accordingly. Ensure a suitably qualified pilot only carries out any flight test requirements.

k. Ensure any infringement of flying regulations or incident of flying indiscipline is brought to the attention of the CFI at the earliest opportunity.

l. In the event of an accident, the Emergency Procedures EP1 are to be implemented immediately.

m. Nominate a suitably qualified pilot to undertake the task of Duty Pilot.

n. Ensure that all equipment used is returned to the hangar, Clubhouse & MT area adequately refuelled, parked and secured. Gliders are to clean at cease flying.

o. Carry out a complete check of the airfield for FOD at cease flying.

## R5.4 FGC Launch Controller

The responsibilities of the launch controller are critical to flight safety and therefore must be thoroughly understood by the person undertaking the task. The Launch Controller must be at least of Solo experience,

deemed competent to undertake the task, given tuition and supervision by a Full Category Instructor. The launch controller must satisfy themselves that:

a. The pilot is ready to accept the launch by ensuring the Pilot asks verbally for "Cable On".

b. The Pilot has the left hand at or near to the cable release at all times from the moment the cable has been attached.

c. The launch area is clear above and behind and most importantly in front and around the launch release zone.

d. The "All clear above and behind" and the "Take up Slack" commands are to be relayed to the Pilot and to ensure the Launch Signaller has received the "Take up Slack".

e. The "All Out" command is relayed to both the pilot and the Launch Signaller at the correct time (too early may snatch the Launch).

f. The possible overrun of the cable is to be monitored and if any doubt exists the launch is to be terminated.

The only person to issue the commands to launch a glider is to be the nominated Launch Controller and is at no time to be distracted during the launching of that glider.

In order that the commands to launch can be safely heard by the pilot in windy or noisy conditions, it is recommended that the Launch controller issues them from the closest position to the pilot, which is to be the wing tip and hand signals to the Launch Signaller are to be used.

When there is minimal staffing for ground operations, the Wingtip Orderly can act as the Launch Supervisor in a dual capacity.

### R5.5 Duty Pilot

The duty pilot is responsible to the Duty Instructor. The minimum experience level is Solo and is to ensure the following are carried out:

a. The flying log is to be completed

b. A list is compiled of all members who wish to fly.

c. Nomination of qualified winch and cable retrieve drivers.

d. Nomination of experienced members to escort and brief potential members at the launch point on airfield and gliding procedures.

e. Ensure students are allocated Instructors in advanced of their flights if at all possible, to ensure adequate pre-flight planning/briefing.

f. A good handover is given to a suitably qualified person if the duty pilot departs for flying or other reasons.

g. Other duties as directed by the Duty Instructor.

### R5.6 FGC Operating Times

Gliding will normally take place at RAF Marham at weekends and Public Holidays, exceptionally flying may take place on other days subject to Station commitments. No gliding is to be undertaken at night, defined as half an hour before sunrise to half an hour after sunset as determined on the ground.

## R5.7 Access to the Airfield

All vehicles are to be checked for potential FOD and all drivers are to remain vigilant to FOD prevention. All vehicles and personnel are to gain access to the airfield via the perimeter ring road and only enter the airfield perimeter track if:

a. The individual is in possession of a valid airfield driving permit. A Club Member with an airfield driving permit can escort a new visitor on to the airfield in convoy as long as a brief prior to entering the operating surfaces is conducted.

b. The airfield is inactive, traffic signals are at green and a constant lookout is maintained for aircraft manoeuvring.

c. Prior contact has been made with ATC on Ext 4949 or if signalled to do so by Air Traffic Control.

d. All movement across the main runways is to be for glider towing to and from the launch point only. The following routes to the airfield are to be used:

**Glider towing**. When ATC is closed, OOH towing of Gliders is permitted along taxiways and runways if the airfield is clear and no imminent movements are due. All gliders being towed during airfield opening hours are to be in radio or visual contact with ATC.

**Club vehicles.** Access to and from the MT hangar is to be via the perimeter track or fast access track (FAT). Access to the airfield from the clubhouse is to be via ALPHA taxiway through VAHS and only if the airfield is inactive and with the Duty Instructors authority.

**All other vehicles**. All other vehicular activity is to be around the airfield ring road entering the airfield taxiways via the slip road at the bend outside ATC over the anti FOD grid.

## R5.8 Airfield Driving Regulations

All movements on the airfield are to comply with the requirements of the Airfield Driving Permits issued by ATC.

## R5.9 Launching Signals

Only the recommended launching signals laid out in the BGA regulations are to be used. All other forms of signalling are prohibited.

## R5.10 Ground Safety Precautions

Full crash facilities are not required during normal gliding operations however if the Fenland Gliding Club undertakes any aero tow or motor glider flying then a First-aid kit and serviceable fire appliance is to be available at the launch point.

## R5.11 General Gliding Operations

Duty Instructors are to be particularly aware when operating in crosswind conditions that obstructions on the airfield, vehicles, aircraft or people are not in conflict with any falling cables or situation that may be potentially hazardous. The crosswind operating limits for aircraft are to be closely monitored in accordance with the manufacturer’s flight manual and also with due regard to pilots with limited experience.

## R5.12 Radio

Radios fitted to gliders are only to be operated on the frequencies specifically allocated by the CAA for gliding as laid out in the current BGA regulations. Pilots are to use the following VHF frequencies:

a. **118.325** MHz- Local flying and Marham ground traffic.

b. **129.90** MHz - Launch point to Winch communications ONLY.

c. **124.15** MHz - Local circuit flying within Marham ATZ.

d. **130.10** MHz - All flights outside Marham ATZ but not on cross-country.

e. **130.125** MHz - All cross-country flights.

f. **130.40** MHz - Only in cloud.

All call signs are to comply with the basic Radiotelephony conventions and practices. The use of 129.90 MHz as launch point control is to be regarded as a non-dedicated gliding frequency as other aerial activities use the same frequency.

## R5.13 Winch Operations

All drivers of winches are to be trained by qualified and authorised Winch Instructors. FGC Members are not to operate any winch until certified competent by the MT Member. The winch driver is responsible to the Duty Instructor for the following:

a. Ensuring the winch is in a serviceable condition, unserviceabilities are to be reported to the Duty Instructor. No launching of gliders is to be carried out if the cable guillotines are unserviceable.

b. All equipment used for cable repairing is returned to the winch after use and all cuttings placed into a rubbish bin.

c. Stoplights are serviceable at all times.

d. That no attempt to work on fouled cables is to be made when the engine is running or launching carried out if there is a possibility of cables fouling each other.

e. All launching is carried out only when the area where released cables may fall is clear of gliders, people, vehicles and ground obstructions.

f. The cable retrieve driver has been briefed and competent to carry out the task including broken cable retrieve procedures.

g. All persons at the winch area are to be either in the winch cab or the cable retrieve vehicle whilst winching is in progress and the doors are to be closed.

h. Refuelling the winch and removing any accumulated rubbish at the end of flying operations. The removal of all cable from the airfield is paramount to flight safety.

## R5.14 Aerotow Operations

This order states the Standard Operating Procedures for aerotow launching operations of the Fenland Gliding Club (FGC) based at RAF Marham. The FGC is permitted to conduct regular aerotow launches of gliders from RAF Marham. The FGC has consulted with the Marham Aero Club to establish a common understanding of these operations, which will apply outside of normal Station flying hours. Notwithstanding this guidance, personnel are to continue to use their best judgement to ensure the safety of aircraft and personnel.

Aero towing from the Fenland Gliding Club site may only be authorised when:

a. The experience of the Tug and Glider pilot exceeds ten tows.

b. The Duty Instructor authorises such flights.

c. MAC has been informed of Aero towing operations.

d. The ground safety precautions given are complied with, fulfilling the requirements of current DCIs governing the use of powered aircraft at RAFGSA sites.

e. All Aero Towing is to be carried as instructed below

## R5.15 Launching

The FGC will launch and recover the tug aircraft from the hard surface runways. Exceptionally, aerotowing from the grass strips may take place but is to be avoided. Gliders will continue to winch launch from the grass strips adjacent to the runways. Gliders associated with aerotow operations will remain clear of the runways as far as possible and until such time as both the glider and tug are likely to be ready (within 5 minutes). Both the glider and tug combination will be positioned left- or right-hand side of the runway centreline to allow the opposite side of the runway to remain clear for taxiing aircraft. The option of landing “long” is also available for powered aircraft recovering to the runway during glider/ tug hook up.

The standard glider and tug aerotow profile will be to climb ahead until not below 1000ft QFE. The glider and tug will normally continue to climb to at least 2000ft QFE in the high key area, upwind of the airfield, glider side. Tug pilots are to transmit radio calls until the aircraft separate. Tug pilots are to remain clear of the powered flying circuit at all times whilst on tow.

The tug pilot is to avoid over flying local villages and built up areas to reduce the noise footprint associated with aero tow operations.

## R5.16 Recovery

Glider pilots will normally land back on the glider grass strips unless it is deemed landing on the runway is the safest option. Glider pilots recovering for a further aerotow may land on the hard runways providing they transmit their intentions to do so. Gliders are to taxi off to the side of the runway shoulders as soon as possible after landing avoiding any raised runway lighting/ fixtures.

The tug aircraft will recover for an expeditious left or right base join for the hard runway in use. The tug will fit in with other circuit traffic as required. Tug pilots are to transmit their intentions for re-joining the circuit. Due the risk of entangling runway lights with the attached rope, tug pilots will conduct a steep, full spoiler approach to the RHAG markers on the runway. Tug pilots are to vacate the runway as soon as possible unless there is a glider ready for immediate departure.

After landing. if back-tracking along the runway, tug pilots are to be conscious of runway lights and fixtures along the runway shoulders and are not to entangle the tow rope. A back-track radio call is to given to alert all air traffic of the Tug intentions. Turning is to be conducted after any raised lighting or fixtures. Pilots are to be aware of the tow rope position when taxiing off the runways

## R5.17 Emergency Descents

All inadvertent entry into cloud from below is to be discouraged, controls are to be centralised and airbrakes extended immediately upon entry. Pilots are to have been trained in basic cloud descent procedures (Stage 1) before they are to fly in conditions that may result in descents through cloud. Gliders entering cloud from above cloud tops (descents in wave) may do so provided the following conditions have been met:

a. The pilot in command has been trained in the Emergency exit from cloud procedures (Stage 1) and their personal flying Logbooks annotated to record their level of training, as defined in the RAFGSA Handbook.

b. The occupants are wearing serviceable parachutes and have been instructed in their use.

c. The Turn & Slip instruments have been correctly aligned before cloud penetration.

d. There is no safe alternative other than to penetrate cloud.

e. The radio is set at the correct frequency and a broadcast made before cloud entry, and at regular intervals and on exit from cloud giving:

(1) Position.

(2) Height AMSL.

(3) Immediate Intentions.

## R5.18 Hangar Flights and Field Landings

All flights made outside the normal operating circuits are to be treated as practice field landing flights which includes all flights ending with landings regarded as 'Hangar flights'. Such flights are to be individually briefed by the Duty Instructor on circuit and landing direction and the pilot is to be particularly alert to the changing obstructions that may be present (normal operations circuit etc.). Landings are only to be made to existing grass or hard runways and not to taxiways. Any doubt as to whether or not obstructions exist on these landing areas, the captain of the aircraft is to land on a paved surface. The minimum qualification to fly these types of circuit is to be Bronze `C'.

## R5.19 Competition Finishes

Competition finishes require thorough preparation if a safe arrival at the goal destination is to be achieved. All competition finishes are to be authorised by the Duty Instructor before commencement of the final glide. A pilot who intends to carry out a competition finish is to:

a. Make his intentions known to the Duty Instructor via radio in good time.

b. Maintain a good lookout throughout paying particular attention to the circuit and launching areas, the finish is to coincide with the downwind leg of the circuit. The glider is not to be flown towards an area that may impede the safe execution of the flight.

c. Ensure the flight is conducted within the aircraft flight limitations imposed on it.

d. Complete the finish ensuring that at all times the aircraft is not lower than 100ft AGL, unless landing straight ahead or on approach to land

## R5.20 RAFGSA Gliding Daily Risk Assessment

| **Date** | **Location** |
|---|---|
| | |
| **Duty Instructor** | **Duty Pilot** |
| | |
| **Met Brief published** | **Yes or No** |

| | |
|---|---|
| **Met Warnings? Yes or No (List detail)** | **Effect** |
| **NOTAMS Checked? Yes or No**<br>**(Within the local operating area)** | **Impact** |
| **Take-off / Landing direction**<br><br>**Cross Wind?** | |
| **Launch Method**<br>**(Winch – W Aerotow – A)** | |
| **Who Can Fly as P1 locally**<br>**(Tick Appropriate minimum qual for conditions)** | **All Pilots** |
| | **Qualified pilots** |
| | **Silver C** |
| | **Bis** |
| | **Ass Cats** |
| | **Full Cats** |
| **Who can Fly Cross Country**<br>**(Full Cat minimum for 2 seaters)** | **Qualified Pilots** |
| | **Silver C** |
| | **Gold C** |
| **Cross Country Routes** | |
| **Rt A** | |
| **Rt B** | |
| **Rt C** | |
| **Remarks:** | |

# CHAPTER R6: RAF MARHAM PARAMOTORING CLUB FLYING ORDERS

## R6.1 Flying Orders

Flying orders and Regulations will be issued in accordance with the British Hangliding and Paragliding Association (BHPA) Handbook and Operations Manual, and the RAF Marham Defence Airfield Manual. Flying will comply with the RAF Marham Paramotoring Club (MRM PMC) Flying Orders Book.

It is the responsibility of the MRM PMC Chief Technical Officer (CTO) to ensure that all pilots under the control of the MRM PMC are aware of the current Flying Orders and regulations within the BHPA.

Paramotor flying will only take place when ATC is closed on weekdays. Paramotor flying will only take place in isolation from Marham Aero Club, Marham Model Flying Club and the Fenland Gliding Club. Any weekend activity is by exception and coordinated through the DOC.

## R6.2 Chief Technical Officer Duties

The MRM PMC Chief Technical Officer (CTO) is responsible to the Club Chairman for:

a. Supervision and authorisation of all flying carried out by the MRM PMC.

b. The production of local flying orders and compliance with BHPA rules and regulations.

c. Ensuring pilots are correctly qualified in accordance with MRM PMC regulations.

d. Appointment of a Deputy Technical Officer(s) who is to have the full authority of the post in the absence of the CTO.

## R6.3 Pilot Ratings

Pilots are to be Club Pilot Paramotor (CP) rated as a minimum to fly as part of the MRM PMC. All pilots are to be current and insured members of the BHPA. If there are any issues with this, the CTO will adjudicate. No ab initio student pilots are to fly in the MRM PMC.

## R6.4 Operating Times

Paramotoring can take place at RAF Marham on weekdays when ATC and airfield is closed, exceptionally flying may take place on other days subject to Station commitments. No paramotoring is to be undertaken at night, defined as half an hour before sunrise to half an hour after sunset as determined on the ground. MRM PMC will not fly on weekends thereby deconflicting their operations with the Marham Aero Club, the Model Flying Club and the Fenlands gliding club.

Pilots are to confirm with ATC (Ext) on the day of flying, or in the case of early morning flying, before cease work the previous night, that the airfield is closed and MRM PMC intend to use their operating area. They are to provide their contact number to ensure they can be updated if that situation changes. Only one operating area is to be active during flying operations.

Pilots are to Inform the MPGS (Ext) that paramotoring is taking place on the airfield and in the vicinity of RAF Marham.

## R6.5 Access to the Airfield

Other than an emergency, there is no vehicular access to the airfield. All vehicular activity is to be around the airfield ring road. Vehicles are to remain on hard standings and, where practical, use marked parking bays

## R6.6 Airfield Driving Regulations

All movements on the airfield are to comply with the requirements of the Airfield Driving Permits and SSOs. No vehicles are to leave the hard-standing surfaces

## R6.7 Paramotoring Operations

All pilots are to be particularly aware when operating that obstructions on the airfield, vehicles, aircraft or people are not endangered. The operating limits for paramotors and gliders are to be closely monitored in accordance with the manufacturer's flight manual and with due regard to the pilot's experience.

Operating Areas, No Flying Areas and No Landing Areas are defined at R6.14 below.

Before entering an active Operating Area, personnel are to carry out a visual check to ensure they are not at risk of collision with a landing or launching paramotor.

Pilots are responsible for their safety and the safety of others involved with Paramotoring Operations. Pilots are to conduct their own dynamic risk assessment before launch and ensure they only fly within their capabilities.

All pilots and personnel involved in paramotoring operations are to be aware of the risk of and alert to, the presence of FOD at all times. All personnel are responsible for FOD prevention.

## R6.8 Paramotoring Start Up Drills

Paramotors with propellers fitted are not to be started unless:

a. Worn by the pilot or,

b. In a properly designed and constructed bench and

c. In the area declared as the Operation Area

When starting the paramotor the following checks (STAMP) are to be completed:

a. Straps are to be correctly secured and helmet worn

b. Throttle is in the hand, carried correctly and checked for ease of operation

c. The paramotor and pilot is in the Operating Area

d. Magnetos are switched to 'ON'

e. Propeller operation is warned to all bystanders by shouting 'Clear Prop!'

## R6.9 Launching Drills

Before launching the following is to be carried out:

a. All take offs are to be carried out into wind

b. Gliders are to be laid out to face into wind by their pilots and are to be thoroughly checked for twists and knots before attachment to the harness

c. An equipment check is to be carried out

d. Pilots are to conduct a thorough check above and behind them for landing gliders before attempting a launch

## R6.10 In Flight Procedures

Pilots must be aware of and obey No Flying Areas and No Landing Areas as described at R6.14 below

CP qualified pilots can complete cross country tasks, but it is recommended that they remain local to their airfield until they have developed an understanding of their local area. Pilots taking part in cross country flying are to:

a. Be in possession of an in date Topographical Air Chart (rec 1:250, 000) or an operating electronic navigation device displaying Air Navigation information

b. Brief a PoC on the planned route and contact details, including ETAs etc who can assist if the pilot fails to check in

c. Have read the document on the BHPA document 'In an Emergency'

## R6.11 Landing Drills

When preparing to land the pilot is to carry out the following checks (FAWNTS):

a. **Fuel check**. Is there sufficient to go around again

b. **Area**. The pilot is to be positioned to land in the Operating Area

c. **Wind**. Check of wind direction and strength by the pilot and land into wind

d. **Nose wheel or undercarriage**. The pilot is to be correctly positioned in the harness to land

e. **Trim**. The wing is to be correctly trimmed for landing

f. **Throttle**. Throttle in hand and ready to kill the engine

g. **Security of items and equipment**. Ensure all loose items are properly secured and will not interfere with landing

## R6.12 End of Flying Drills

When finishing flying for the day, all pilots are to conduct their own FOD check of the Operating Area. The final pilot to use the Operating Area is to:

a. Ensure all equipment is removed from the Operating Area

b. Carry out final FOD check

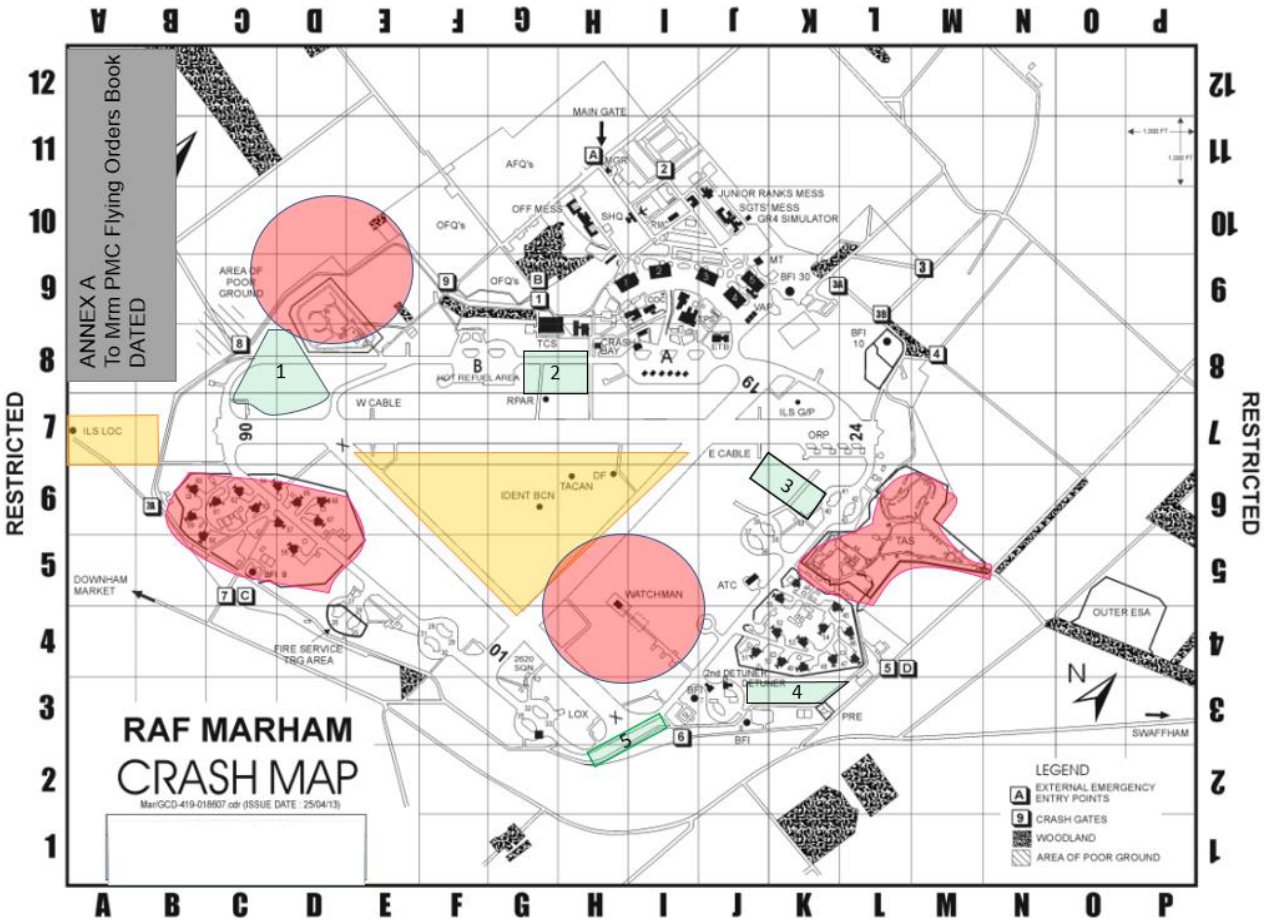
c. Inform ATC and MPGS that paramotoring operations have ceased

## R6.13 Actions in the Event of an Incident

| | **INCIDENT OCCURS** | |
|---|---|---|
| If CTO or DTO take control of situation. In absence of CTO or DTO, pilot trained person takes control | | Do not panic<br><br>Assess situation |
| If required call emergency services 01760 337261 then 222<br><br>Stop all further launches | **PROVIDE ASSISTANCE/FIRST AID** | Do not put yourself or others at risk |

| | | |
|---|---|---|
| Mark incident to inform others attempting to land to stay clear | | |
| Do not move wreckage except to stabilise the situation or prevent casualties from being at further risk or becoming worse<br><br>If the incident occurred on civilian property or there are civilian casualties inform civilian police | **PRESERVE EVIDENCE** | If req:<br><br>Inform SDE<br><br>Take photographs<br><br>Segregate witnesses and take statements<br><br>Follow reporting process on BHPA website |

## R6.14 Map of Operating Areas




## R6.15 Operating Ares

Operating areas are coloured in **GREEN** on the map and numbered 1 – 3. Planned landings and take offs can only take place within the bounds of these areas. Only one Operating Area is to be in use at any one time. ATC are to be informed when it is use and then informed when the area is closed

## R6.16 No Flying Areas

No Flying Areas are coloured in **RED** on the map and cover the:

[redacted]

c. Watchman Radar

d. STAR-NG Radar

**Flying over or landing in these areas is not permitted**

## R6.17 No Landing Area

The No Landing Area is coloured in **ORANGE** on the map and covers the central area of the airfield. Landing in this area is not permitted.

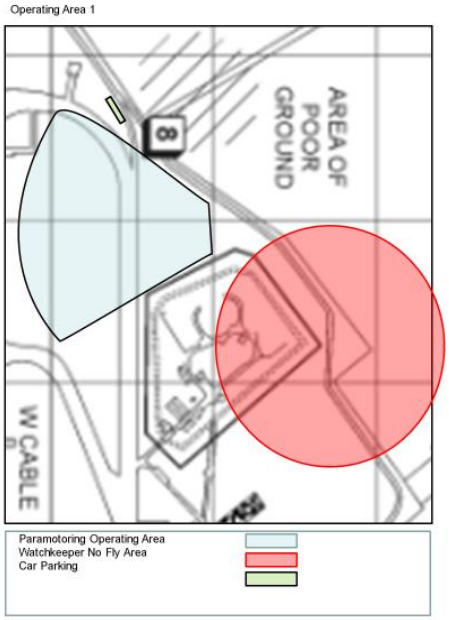
The airfield has several tall obstructions (eg Floodlight gantries). All pilots are to make themselves aware of these and avoid them when flying.

## R6.18 Good Neighbour Policy

Buildings and airfield infrastructure are always to be avoided.

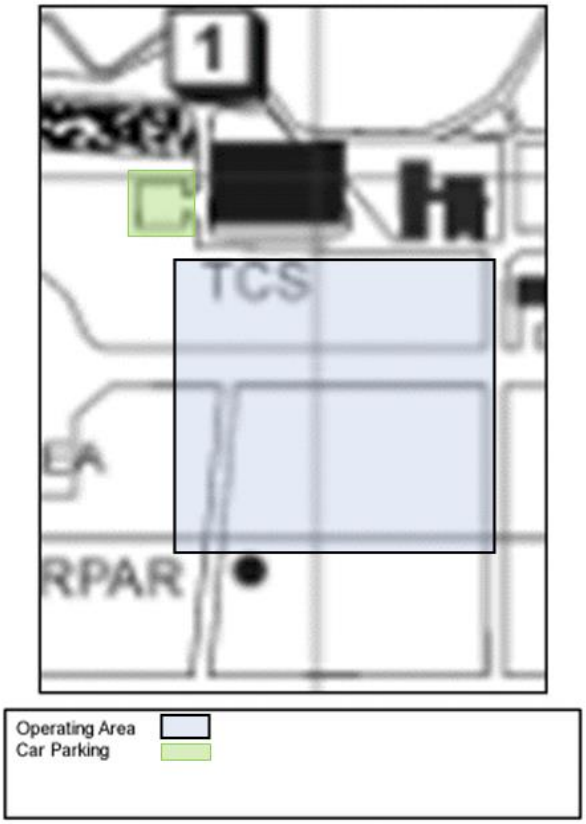
Overflying SFA AND SLA must be avoided at all times unless there is a genuine need for safety purposes.

## R6.19 Notes for Operating Area 1



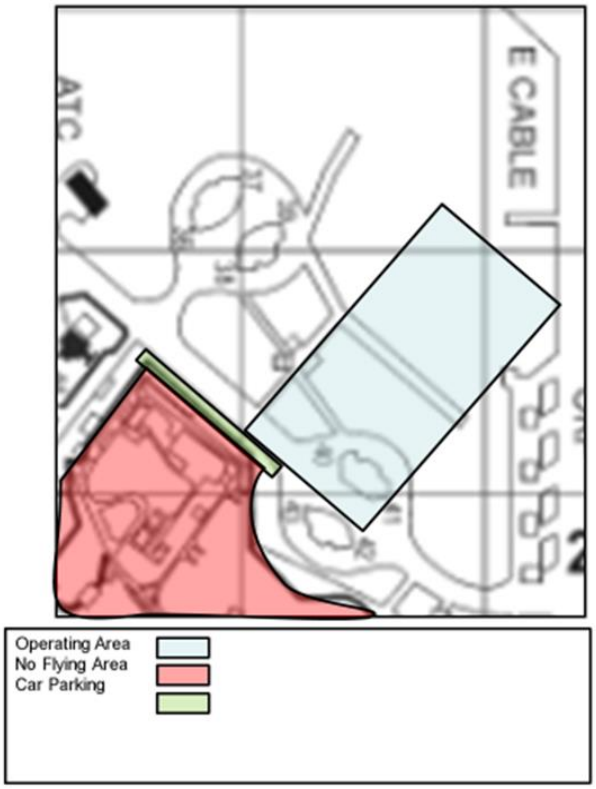

- All operating areas are rough under foot
- Observe the STAR NG No Fly Area
- Cap parking on the approach ramp to the Taxiway. Parking on the airfield side of the Red STOP! Sign only
- No vehicles beyond the Red STOP! Sign

## R6.20 Notes for Operating Area 2



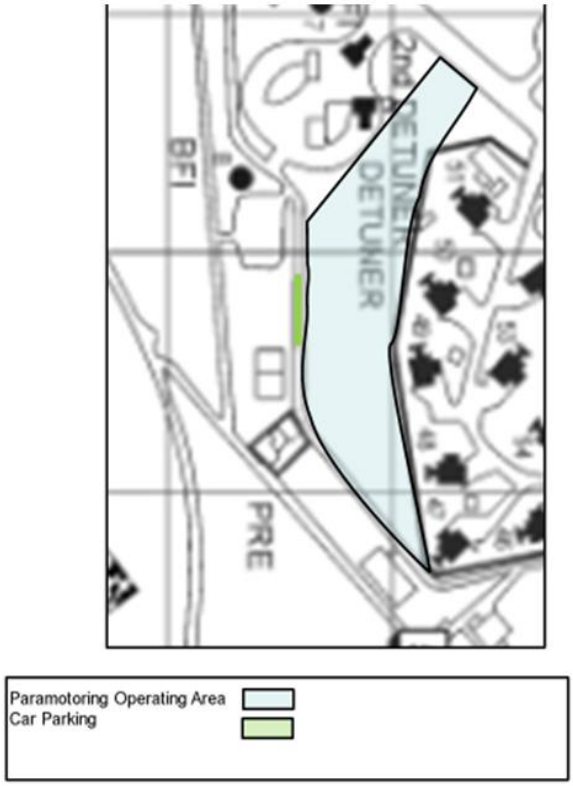

- All operating areas are rough under foot
- Car parking in the LSS car park only
- Beware of rotor from LSS buildings

**R6.21 Notes for Operating Area 3**




- All operating areas are rough under foot
- [redacted]
- No vehicles beyond the Red STOP! Sign

## R6.22 Notes for Operating Area 4




- All operating areas are rough under foot
- Car parking in spaces on perimeter track only
- Beware of rotor from trees in the HAS Dispersal

## R6.23 Notes for Operating Area 5


**Paramotor Operating Area**
**Car Parking**

- All operating areas are rough under foot
- Be aware of the radiation Hazard of the Watchman Radar
- Car parking on outside of Perimeter Track only

# CHAPTER R7: RAF MARHAM MODEL AERO CLUB ORERS

## R7.1 Airfield Operating Areas

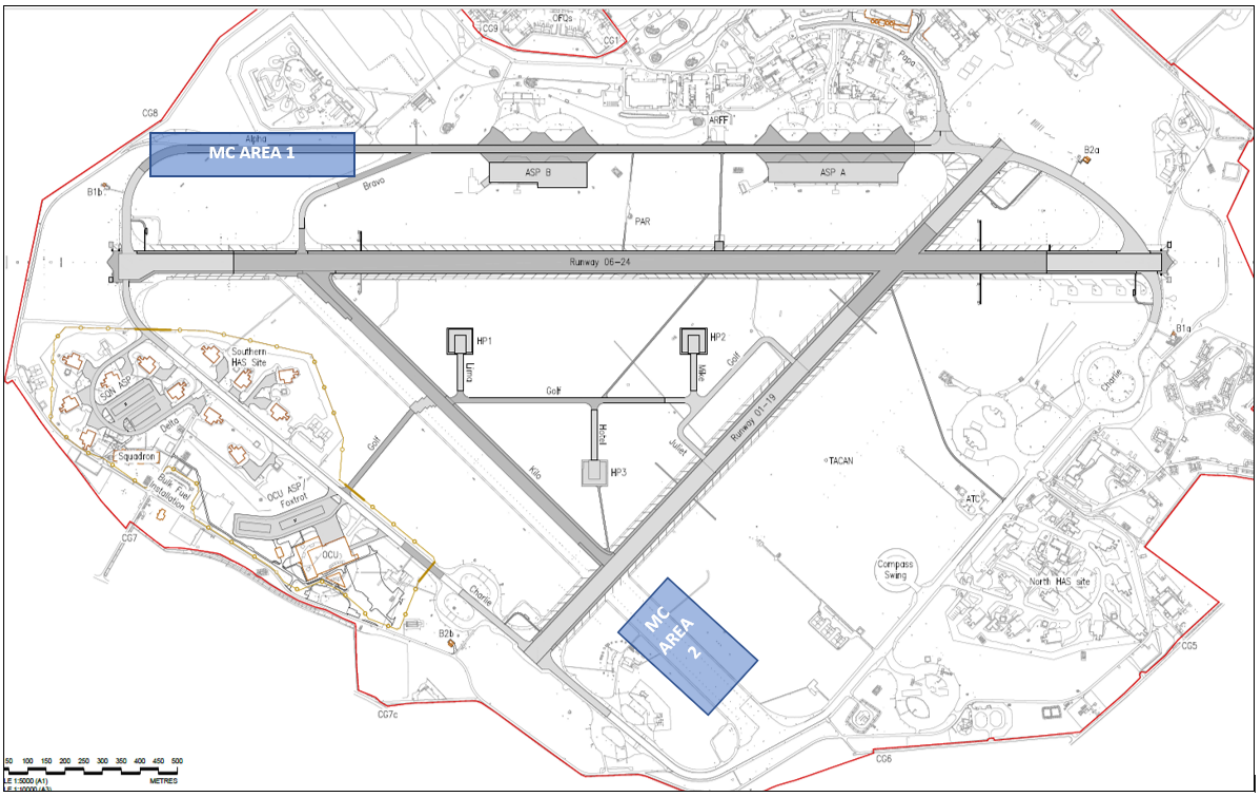
If the Marham Aero Club and the Fenland Gliding Club are operating from 19/01 then the model club will operate from MC Area 1 as detailed in figure 1 (doing a right hand or left-hand circuit depending on wind direction).

If the Marham Aero Club and the Fenland Gliding Club are operating from 06/24 then the model club will operate from MC Area 2 doing left hand circuits over the grassland away from the Watchman RADAR.

Vehicle access is to be through the respective access airfield access points.

Model Flying will typically operate at between 100-150ft. The legal height limit for Unmanned Aerial Systems as dictated by the UK CAA is 400ft (120m). **Flyers are never to exceed this height limit**.

## R7.2 Map of Operating Areas




## R7.3 Permission for Use of Marham Airfield

Permission must be sought from Duty Operations Controller (NLT 24 Hrs in advance) MRM-OpsDOOGroup@mod.gov.uk, the following information MUST BE PROVIDED:

a. Type:

b. Date:

c. Time From & To:

d. Location:

e. Reason:

f. Contact Name:

g. Contact Number:

The Weekend flying activity email will be produced by Duty Operations Controller and this will confirm the active users for the upcoming weekend.

### R7.4 Intended Use of Marham Airfield

On the day of flying it is the responsibility of the pilot to confirm which locations the following airfield users are operating and from:

a. Marham Aero Club (MAC)

b. Fenland Gliding Club (FGC)

c. Paramotoring Club (Note: Paramotoring is a segregated activity and will only take place in isolation on weekdays, with no FGC, MAC or MC activity allowed. This is coordinated through the DOC.)

d. ASMT

Full contact information for the following is on the noticeboard next to the door on your right as you walk in:

a. Aero Club

b. Fenland Gliding Club (FGC)

c. Paramotoring Club (See MC03)

d. ASMT

e. ATC

f. Marham Duty Ops

A working mobile phone will be kept on the nominated responsible person to enable comms with other airfield users.

### R7.5 Safety Actions Before Flying

In keeping with good practise all aircraft and control systems are to be checked prior to the flight for safe operation.

Upon arriving at the flying area, a watch is to be kept for any full-size activity. If a full-size aircraft enters the flying box, then **IT IS IMPERATIVE ALL FLYERS ARE TO LAND IMMEDIATELY. Failure to do so could result in loss of life.**

### R7.6 Alternative Club Contacts

[redacted] is OIC of the Model Aero Club. Full contact details are below:

a. Mob: [redacted]

b. Work Ext: [redacted]

c. Email: [redacted]

d. Civilian: [redacted]

[redacted] is the Deputy Building Custodian and a very active point of contact. Full contact details are below:

a. Mob: [redacted]

b. Work Ext: [redacted]

c. Email: [redacted]

d. Civilian: [redacted]

# CHAPTER R8: CONACT NUMBERS IN THE EVENT OF AN INCIDENT OR ACCIDENT

**ADDRESS PANEL**

**01760 337261 then 222 when prompted. All fire and medical aid will be arranged on this number. Have airfield map for grid reference**

| | |
|---|---|
| FGC Club Chairman | [redacted] – Ext [redacted] |
| FGC OIC | [redacted] |
| Station Duty Exec | [redacted] |
| Stn Ops DOC | [redacted] |
| MAC Chairman (RR) | [redacted] |
| MAC OIC | [redacted] |
| MAC Ops/2IC | N/A |
| FGC CFI | [redacted] |
| MAC HoT | [redacted] |
| RAFGSA Chairman | [redacted] |
| RAFGSA Ops Member | [redacted] |
| RAFSA Chairman | [redacted] |
| RAFSA Secretary | [redacted] |
| Dept of Transport AAIB Phone: | [redacted] |
| FGC Bus mobile | [redacted] |
| MAC Flying Club | [redacted] |
| Marham Fire Section | [redacted] |
| Duty fire Crew | [redacted] |
| Police Cambridge | [redacted] |
| Duty RAF Police Guard Cdr | [redacted] |
| Duty Medic | [redacted] |

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## Annex P – Aerodrome Data Reporting

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# ANNEX P: AERODROME DATA REPORTING

## P.1 Legislation, Standards and Technical References

Information relating to the aerodrome serviceability or hazards to air navigation is to be routinely updated through the AIP and NOTAM. (At larger establishments this can be managed by specified Ops or ATC staffs).

## P.2 Reporting Procedures

Any situation that may have an immediate effect on the safety of Air System operations is be reported as soon as possible. In the first instance to ATC / Ops (if present) by radio or telephone. If no ATC / Ops then to the AO or deputy.

## P.3 NOTAM[9]

The AO is to ensure that all NOTAM action is recorded for possible 1st / 2nd and 3rd line audit. NOTAMs will be originated in the standard NOTAM format for any of the following circumstances:

a. A change in the serviceability of approach aids and radios.

b. A change in the operational information contained in the DAM and published in the Mil AIP.

c. Aerodrome works effecting the manoeuvring area or penetrating the OLS.

d. New obstacles which affect the safety of Air System operations.

e. Bird or animal hazards on or in the vicinity of the aerodrome.

f. A change in the availability of aerodrome visual aids, ie markers and markings, runway lighting, etc.

g. Any change in aerodrome facilities published in AIP.

h. Unusual air activities at the aerodrome.

[9] NOTAM information must be provided by fax or email. Where urgent advice can be given by telephone, it must be confirmed by fax or email as soon as possible. Reporting Officers raising a NOTAM must subsequently check the issued NOTAM for accuracy.

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# ANNEX Q: AERODROME SERVICEABILITY REPORTING

## Q.1 Aerodrome Serviceability Inspections

Aerodrome inspections are to be carried out by the Aerodrome Controller (ADC) iaw RA 3264 and MRM Annex O Part 1; who is to carry out a comprehensive inspection of the movement area including but not limited to:

a. Daily, before the aerodrome is opened for flying on each occasion.

b. If night flying is to be conducted a further inspection is conducted prior to last light.

c. Prior to sunset, before any planned night movements.

d. Check the serviceability of all aerodrome traffic lights.

e. Controllers are to vacate the vehicle at random intervals and conduct a close-up visual inspection of an area of the runway.

Before commencing the Aerodrome inspection, the ADC is to ensure that all frequencies are selected on loudspeaker in the VCR and that the local assistant is present before entering the airfield. The controller is to broadcast all movements on MRE as per CAP413.

It is at the controller's discretion which route they take, as long as all surfaces are inspected, and relevant time is spent conducting the checks.

Where ATC is not present the AO can delegate management of inspection to other individuals but not the responsibility.

## Q.2 Inspection/Works Logging

All inspections are to be logged in the ATC logbook, including any issues raised. Any issues are to be reported to the relevant section subject matter expert (SME).

Any sweeping requests after an inspection are to be logged. Any work requests are to be put through the correct channels and a record of the request and subsequent action maintained.

## Q.2 Arresting System Inspections

The arrestor systems are inspected daily by GEF. The Aerodrome controller is to perform a confidence check to ensure that they are configured for the correct runway in use.

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# ANNEX R: AERODROME TECHNICAL INSPECTION

## R.1 Aerodrome Technical Inspections

The following inspections are to be carried out as a minimum:

a. Aquilla ATM are responsible for the routine inspections of the technical equipment (transmitters, receivers, ILS etc) with precision navigation aids being calibrated by a flight check air system accordance with AP 600-Royal Air Force Information CIS policy and relevant SPS.

b. Runway, taxiway and obstruction lights, along with PAPIs and aerodrome traffic lights are inspected daily by the RAF Marham Airfield Electrician.

c. All earthing points are checked annually by the RAF Marham Airfield Electrician.

d. Manoeuvring Areas and drainage are inspected, maintained and repaired in accordance with DIO guidance.

e. All aerodrome signs are inspected weekly by SATCO and monthly by STRE SME.

f. Aerodrome lighting, along with other essential equipment is backed up by the station stand-by power system. The system is inspected by Amey once every 2 weeks, with a switchover test being carried out once every 6 months.

g. The Airfield Medical Response Vehicle (AMRV) is inspected daily by ASMT in accordance with the AESP. All AMRV equipment is inspected daily by the Regional Health Centre.

h. Traffic lights, CCTV and road barriers for the control of airside vehicle control measures are inspected daily by ATC.

i. Bird Control Unit equipment and vehicles are inspected in accordance with BCU policy.

j. ATC is responsible for annually reviewing Aerodrome Driving orders.

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## Annex S – Radar, Radio and Navigation Aid Maintenance, Monitoring and Protection

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# ANNEX S: RADAR, RADIO AND NAVIGATION AID MAINTENANCE MONITORING AND PROTECTION

## S.1 Surveillance Equipment Maintenance and Monitoring

Procedures and definitions for Technical Surveillance Countermeasures Assessments are contained within AP600, Chap 4.2

Defensive Monitoring (DM) is to permit the detection of COMSEC breaches, which, in operational situations, can allow mitigating action to be taken so as not to prejudice the outcome of a mission. It also provides a direct and factual input to assessments of the vulnerability of HMG and other official communications to the threat of exploitation by a foreign intelligence service, terrorist organisation or criminal. In so doing, it provides practical demonstrations of the vulnerability of given communications, thus contributing directly to the education of communicators and communications users. Details of DM can be found within AP600, Chap 4.4. and JSP 440, Part 2.

The details and links provided are for information purposes only, all matters concerning DM should be brought to the attention of OC Stn CIS Flt RAF Marham.

## S.2 Navigation Aid Maintenance and Monitoring

The maintenance of ground radio airfield landing and navigation aids in the RAF is published iaw maintenance or support policy statements and other schedules authorised in advance of the publication of the relevant maintenance topic/ category and defined iaw AP600, Chap 6.6.

The Battlespace Management (BM) Eng Role Office has a requirement to monitor the operational status, performance and availability of airfield radar or navigational equipment. This information is collated to provide trend analysis to BM Force, ADEWS and Aquila iaw AP600, Chap 6.7.

The details and links provided are for information purposes only, all matters concerning navigation equipment maintenance and monitoring should be brought to the attention of OC Stn CIS Flt RAF Marham.

## S.3 Radar, Radio and Navigation Aid Protection

Radio Site Clearance (RSC) is the process by which all Radio Frequency (RF) emitters, which are to be installed or used at RAF Marham, are authorized for transmission. RF emitters include radars, beacons, satellite communications systems, radio navigational aids and radios (fixed or mobile). This includes locally procured radios and equipment, examples of which are AIRWAVE, COTS short range radios and management type radios. RSC is a mandatory process within the MoD; and governed by AP 600, Chap 3.30.

Integrity of Ground Radio Installations is the responsibility of Integrity of Ground Radio Installations is the responsibility of OC Stn. and includes site security, safety, service safeguarding and infrastructure of Ground Radio Installations (GRIs). Further information is contained within AP600, Chap 6.4.

Defence Radio Site Protection is concerned with ensuring that the operational effectiveness of fixed and transportable radio systems (and the safety of the people and materiel that depend upon them) is not undermined by the damaging effects of Radio Frequency (RF) emissions or poorly sited structures. Additionally, the accuracy and availability of information transmitted and received by a Ground Radio Installation (GRI) may be adversely affected if a man made or natural object intrudes into a critical area around the GRI antenna system. JSP604 provides details for site restrictions, which must be applied to safeguard against such eventualities.

The details and links provided are for information purposes only, all matters concerning protection of radar and navigational aids should be brought to the attention of OC Stn CIS Flt, RAF Marham.

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# ANNEX T: AERODROME WORKS SAFETY

## T.1 Work in Progress (WIP)

A plan of the aerodrome is fully maintained and prominently displayed in ATC for the purpose of identifying all obstacles, nature of obstruction, markings and work in progress. It is the responsibility of the ATC Supervisor/ATCO IC to ensure that the information provided on the plan is always accurately displayed.

## T.2 WIP Log

A WIP Logbook is maintained in the VCR, in which the Aerodrome Controller (ADC) enters details of all work in progress. In order to certify that the extent of the work area and ATC briefing has been fully understood, each entry is signed by both the ADC and supervisor of the working party. This is completed before any work commences.

## T.3 WIP Briefings

Supervisors of any working parties are to be fully briefed on their responsibilities. The ADC is responsible for ensuring that the supervisor of the working party receives a comprehensive brief in accordance with RA 3266 and Annex O Part 1. This task can be delegated to the Ground Controller (GC).

## T.4 Control Measures

When work is to be carried out on the airfield and it is not possible to stop flying, special control rules are enforced to safeguard the working party. The works supervisor is to be issued with an MRE radio or the ATC duty driver is to be tasked to accompany the working party. The works supervisor or ATC driver is to maintain radio contact with ATC and ensure the work party moves clear of the manoeuvring area prior to any aircraft movement in their vicinity. The ATC supervisor/ATCO IC is responsible for issuing orders and instructions to the work party. Aircraft captains are to be informed of any work in progress that may affect aircraft operations, including any unique taxi instructions or procedures. All airfield work is to be clearly marked using approved high visibility markers and lit during hours of darkness.

## T.5 Grass Cutting

A grass cutting plan is established and is maintained in accordance with the aerodrome policy.

## T.6 Crane Operations

The purpose of this process is to approve crane ops at RAF Marham. The completion of this will ensure orders and regulations are adhered to, appropriate sections are informed, and safety is maintained for flying operations.

The originating Basing Team (BT) is responsible for Crane Ops.

Applications for crane operations at RAF Marham, regardless of originating contractor will complete the Station Health and Safety Advisor (SHSA) 4Cs process, using the ‘Authorisation for Cranes in the vicinity of RAF Marham' form.

Upon completion and approval of the 4Cs process, the SHSA will send this information onto the Basing Team and the ATC FOM/JNCO IC Shift for processing.

The following actions will then be completed by the crane operator and ATC, in order to grant approval for crane operations and ensure all appropriate details are logged, maintained and monitored.

a. **Crane operator**. The crane operator will contact the ATC FOM in order to provide the following information.

i. Crane identification.

ii. Crane hire company (as liveried).

iii. Proposed working height (Ft AGL).

iv. Location (GPS Coordinates).

v. Mean Sea Level (MSL) of site.

vi. Dates of operation.

vii. Times of operation.

viii. POC, including crane operator contact details.

b. **ATC**. The ATC FOM will specify any additional requirements to the operator, such as:

i. 200 candela steady red light attached to top of jib.

ii. Notify ATC start and finish of operation.

iii. Whether the works are only subject to a certain runway being in use.

c. ATC are responsible for safeguarding of crane operations. If a crane is greater than 10m above mean sea level (AMSL), it will need to be safeguarded by HQ Air Cmd and AIDU. The ATC FOM is to contact the AIDU Safeguarding Section on the following JFIGFndn-AIDUSafeguarding@mod.uk. This will ensure that all cranes conform to RAF Marham's Obstacle Limitation Surface (OLS). If the crane does not breach the OLS it will be appraised by Eng and ATC will authorise its operation. If the OLS is breached, actions are covered at part T.7 below.

d. SATCO has responsibility for final approval of all crane ops.

e. Upon completion of all parts stated above, the ATC FOM will issue a crane permit to the crane operator for the proposed works. Copies of this permit will be sent to the SHSA, crane operator and the relevant BT.

The following actions should be completed by ATC, or as delegated by the SATCO.

a. The SWB operator will process the approved crane request through Mil-EAMS and a NOTAM will be created.

b. The on shift FOA will plot the crane operation onto the Work In Progress (WIP) board in the VCR and number it. They will also update the Airfield WIP slide held on Sharepoint for all airfield users to utilise.

c. The NOTAM and original request (operators contact details) will be stored in the ‘Crane Notifications’ folder under the corresponding crane number.

The ATC FOM will be responsible for timely and consistent monitoring of crane operations, ensuring that changing information is recorded and if appropriate, NOTAM's and permits amended. A robust monitoring process will also identify operations that are due to finish, ensuring the removal of expired NOTAM's.

## T.7 Breach of Obstacle Limiting Service

If the OLS is breached by a temporary obstruction the following actions must be completed.

a. The SATCO or his nominated deputy must be informed and will attempt to negotiate with the crane operator to see if the crane can operate at lower heights. If this is not achievable, it can be tactically managed by the ATC Sup for crane operations to be permitted during periods of non-flying.

b. If part a above cannot be achieved, the SATCO will request NATS, via AIDU, to re-model airfield procedures in order to facilitate the proposed crane operation. This will come at cost, which the relevant PT are to cover.

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## Annex U – Aerodrome Users Vehicle and Pedestrian Control

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# ANNEX U: AERODROME USERS VEHICLE AND PEDESTRIAN CONTROL

## U.1 Vehicle and Pedestrian Control

The aim of this order is to ensure that all drivers and pedestrians are aware of the correct procedures for driving on or near the airfield iaw with the regulations for Aerodrome Access at RA 3262 and Road Transport Regulations at JSP 800 Vol 5.

RAF Marham is home to F-35 and supports various visiting aircraft during the course of the day, it is not unusual to witness multiple aircraft taxiing or making various approaches to one or more of the runways at the same time. Driving on the airfield requires a high degree of vigilance, especially at night or in low visibility conditions. Vehicles are not permitted on the manoeuvring area unless the driver is in possession of a valid RAF Marham Airfield Access Pass (FMT 600A) as authorised by the Senior Air Traffic Control Officer (SATCO).

## U.2 Airfield Access Permit (AAP)

All personnel required to drive on the airfield are to pre-book an Airfield Access Pass brief with Air Traffic Control (ATC) via the booking page available on MOSS. The FMT 600A is valid for 12 months and it is the responsibility of the individual to return to ATC annually to re-read and sign for orders. When arriving for the brief, all personnel are to be in possession of their medical proof of colour perception. The ATC Airfield Driving Training Team will deliver the brief, test and complete an airfield familiarization iaw RA 3262. The Brief refers to RAF Marham's Airfield Driving Regulations as laid down in SSOs Ch4 Annex B.

## U.3 Colour Perception

Due to the airfield lighting and the lamp signals used by both ATC and the Runway Controller, it is important that personnel are able to distinguish between different colours. Before arriving at ATC for the brief, all personnel and contractors are to book a Colour Perception (CP) test at the Station Medical Centre and bring evidence of that test with them.

a. Permits will only be issued to personnel with a CP of 2 (Normal) or CP 3 (Defective-Safe).

b. Permits will NOT be issued to personnel with CP 4 (Unsafe).

## U.4 Airfield Driving in Poor Visibility

During poor visibility, the risk of a runway incursion or collision with aircraft and other vehicles is greatly increased. Vehicle access to the airfield will be restricted as weather deteriorates. Non-essential work will be suspended. Low Visibility procedures will be conducted in accordance with DAM Annex X, with the main points highlighted below:

a. During poor visibility the airfield is out of bounds to all personnel until permission has been given to enter the airfield by the Aerodrome Controller.

b. Personnel requiring access to the airfield are to report to ATC before proceeding.

c. Vehicles permitted to enter the airfield are to ensure vehicle lighting is on and headlights are dipped. Vehicles with occulting amber lights are to have them switched on.

d. The maximum speed limit is 20mph or as advised by ATC.

## U. 5 Airfield Closure

On declaring the airfield closed, ATC will broadcast on MRE and turn all threshold traffic lights to green to allow unrestricted movement of vehicles and pedestrians around the station.

## U.6 Out of Hours (OOH) and Weekend use of the Airfield

Outside published hours, particularly at weekends and evenings, Air Systems from the RAF Marham Aero Club, Fenland Gliding Club, Paramotoring Club and Model Flying Club operate from Marham airfield. Personnel seeking access to the airfield outside of aerodrome operating hours are therefore to contact Stn Ops.

Stn Ops will disseminate any weekend airfield activity through the flying and gliding clubs webpage.

Personnel requesting prior permission to access to the airfield at weekends or outside of normal flying hours must do so through the ATC during normal working hours.

Outside of airfield opening hours, all vehicles capable of monitoring SMRE, particularly ARFF and ASMT crews are to monitor SMRE Channel 2 when driving on the airfield in addition to keeping a good lookout. Gliders are largely silent and difficult to see. FGC will raise airfield users on SMRE Channel 2 to alert of their presence or to relay safety critical messages.

Outside of Airfield opening hours and when recreational flying activity is published as taking place, ASMT and FGC are to establish contact **prior** to gliding activity commencing to deconflict activity. SMRE channel 2 should be monitored and used as per para 10. The duty mobile numbers for both ASMT and FGC are obtainable from the DOC.

## U.7 HAS Site Access

The HAS site is controlled by the Combined Support Cell (CSC) Manager. Before entering this area, permission must be obtained from the CSC control desk.

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## Annex V – FOD Prevention Training and Awareness

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## 1ST PARTY ASSURANCE

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## AMENDMENT TABLE

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| | | | | |

# ANNEX V: FOD PREVENTION TRAINING AND AWARENESS

## V.1 FOD Prevention Officer

The RAF Marham FOD Prevention Officer is based in the Rolls Royce Service Delivery Centre (RR SDC), is contactable as follows:

a. Mil: 95951 6660

b. Tel: 01760 337261 6660

## V.2 FOD Prevention Officer TORs

The FOD Prevention Officer's TORs, published within the FOD Management Plan, include a requirement to log all reported FOD incidents at RAF Marham. Incidents are investigated in accordance with RA 1400 and AP8000 Lflt 8301 in collaboration with the RAF Marham SFSO or SEMSCo as required. The FOD Prevention Officer produces a monthly report to the Station FOD Prevention Community, in addition to contributing to the series of RAF Marham Total Safety meetings.

## V.3 FOD Awareness

All permanently employed contractors, MOD Civil Servants and Service Personnel assigned to RAF Marham are given a FOD Awareness Briefing as part of the mandatory Fire / FOD / Security Brief package, including details of how to report FOD incidents. This briefing package, which must be completed as soon as possible on arrival to the Unit, then becomes an annual requirement.

## V.4 FOD Check Points

All entrances to RAF Marham air system Operating Areas have painted FOD Check Points on the tarmac. Associated signage instructs drivers to stop their vehicles within the FOD Check Points, and to remove any potential FOD before proceeding onto the air system Operating Areas.

## V.5 Briefing of Contractors

All contractors working at RAF Marham are to be given a '4Cs' brief before being allowed to commence work. The 4Cs brief includes a section on the importance of FOD Prevention and methods of reporting any incidents.

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## Annex W – Aerodrome Wildlife Management

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# ANNEX W: AERODROME WILDLIFE MANAGEMENT

## W.1 Wildlife Control Management Plan

The Aerodrome Wildlife Control Units' (AWCU) primary aim is to reduce the risk of collision between birds and aircraft by maintaining, as far as reasonably practicable, a bird-free environment on, and around, the airfield at RAF Marham. To achieve this, AWCU and relevant station personnel are required to work closely together to promote a holistic approach to environmental, habitat and wildlife management. Effective control will comprise of active control provided by at least one patrol vehicle equipped with distress calls, pyrotechnic scarers and lethal control (under licence) and staffed by properly trained personnel throughout daylight operational hours. Provision should also be made for regular runway checks and the clearance of birds from the runway areas during night-time operations.

RAF Marham is situated in a highly diverse, high bird activity area. Set in a predominantly arable environment interspersed with occasional pockets of dense woodland and adjacent wetland areas. Within the bounds of the Unit, there are numerous rookeries and Corvids and Gulls regularly cross the airfield and its local environs in order to access their feeding grounds. Also, there are game-rearing areas nearby and farming activity has a direct influence on the numbers of hazardous species that gather in local fields. Numerous large bodies of water (gravel pits) in the local vicinity, and directly underneath the approach and departure flight lanes, now support extremely large numbers of waterfowl and roosting gulls. All of these can have a negative impact on the bird protection afforded by the RAF Long Grass Policy.

The RAF Marham Aerodrome Wildlife Control Plan (AWCMP) has been created iaw Manual of Military Air Traffic Management (MMATM), to give clear direction and understanding of AWCU responsibilities and actions. The AWCMP will outline those tasks stated and provide guidance for off-station wildlife control and wildlife scaring and the AWCU monitoring of the airfield habitat and environment.

Civil Aviation Publication CAP 168, Licensing of Aerodromes, Chapter 5 requires the aerodrome authorities to formulate and implement a comprehensive and auditable Bird Control Management Plan (BCMP). This document serves as the BCMP however is titled as the AWCMP as it addresses not only the bird strike risk but the wildlife strike risk as a whole. NBC Environment is the designated contract provider for RAF Marham and produces its own generic documents for the Eastern Region.

## W.2 Airfield Wildlife Control and Wildlife Scaring

The primary role of the AWCU is to establish an environment on and around RAF Marham in which bird activity does not present a hazard to aircraft movements. The aim is to strive to establish a wildlife free aerodrome and maintain the largest possible bird free buffer zone around the airfield in order to increase safety margins. Wildlife control will not exist unless the detection and dispersal of wildlife are both efficient and flexible. Efficient detection can only be achieved by constant mobile surveillance utilising the flexibility of the constant presence to adapt to the variable flying environment at RAF Marham.

The AWCU should be actively manned one hour before any inbound or outbound aircraft movement, or as directed by ATC, however this may be reduced to a stand-by commitment by the ATC Supervisor when there are no expected aircraft movements and no diversion commitments held by the Unit. This relaxation is afforded to enable the AWCU to undertake broader unit tasks as detailed later in this plan. However, wildlife control should be related to wildlife activity rather than aircraft activity and the AWCU should undertake its duties accordingly outlined in Airfield Wildlife Operating Procedures RAF Eastern Region. The AWCU will, by use of approved techniques and legally sanctioned means, work to disperse wildlife away from the all active airfield surfaces within the manoeuvring area and will attempt to disperse birds away

from the areas immediately surrounding the manoeuvring area and normal flight profiles of aircraft approaching or departing the airfield.

The AWCU operator should report the bird state level to ATC, prior to the commencement of Station flying, at the start of each shift and whenever the bird state changes. Different bird states may be in place simultaneously for different parts of the airfield. The AWCU operator should inform ATC of any changes in risk to aircraft caused by change in bird activity, or changes in their behaviour which may result in increased or decreased likelihood of conflict with aircraft.

At RAF Marham the following table is to be used to inform ATC and aircraft operators of the risk and intensity of bird activity:

| Bird Risk Levels | | |
|---|---|---|
| Numbers seen | On ground | Airborne |
| 1-100 | 1 | 3 |
| 100-250 | 2 | 4 |
| 250-500 | 5 | 7 |
| 500-750 | 6 | 8 |
| 750-1000+ | 9 | 10 |

Green = Bird Risk Low / Yellow = Bird Risk Medium / Red = Bird Risk High

This information is to be passed to the ATC Supervisor by the AWCU operative when the level of bird activity changes, either up or down. When the bird activity enters the red zone as above, the ATC Supervisor is to notify the DCF. The DCF will then decide on flying activity at Marham based on the information passed via the ATC Supervisor from the AWCU operative.

One of the simplest yet most efficient ways to deter birds from an airfield is to maintain the grass areas at a height of 150mm to 200mm. The maintenance of the grass at this height is known as the Long Grass Policy. At RAF Marham, it is not possible to keep the entire airfield grass at a height of between 150mm and 200mm as operation airfield equipment imposes technical limitations. These areas of shorter grass are sanctioned by SATCO and AWCU should be aware of the location of these areas as bird activity may be increased accordingly.

Bird and wildlife scaring methods and techniques are decided by the AWCU. Controllers are to be aware that issuing direct instructions to AWCU operators pertaining to the scaring of wildlife can be counterproductive and the AWCU operator should be empowered to decide on the best techniques and methodology to employ. Sweeps of the runway are of limited use in controlling wildlife. AWCU operators would be better employed pushing wildlife away from the airfield and creating a more hostile environment. However, ATC should be aware of the visual limitations of the AWCU operator at ground level on the airfield. They should use the extra height of the ATC tower in conjunction with aircrew reports to inform the AWCU operator of problem areas; however, to ensure that the correct course of action is taken, it is essential that ATC personnel allow the AWCU operator to prioritise tasks.

Effective operations will comprise of active wildlife control consisting of at least one patrol vehicle equipped with distress calls, pyrotechnic scarers and lethal control (under licence). This patrol will be staffed by appropriately trained personnel throughout operational hours. AWCU are to ensure that potential FOD generated from the firing of weapons and pyrotechnics is kept as low as reasonably possible. This should include firing over grass areas when operationally practical and conducting a thorough FOD sweep to find any discarded waste as a result of firing.

To aid the establishment of a wildlife free airfield, AWCU operators are to familiarise themselves with the flying programme at the commencement of their shift but are to be aware that flying programmes are

likely to change throughout the day. Consequently, ATC should inform AWCU when there are gaps in the programme to enable AWCU to effectively utilise their time.

This may include tasks such as removal of nests or birds from hangars, habitat management (e.g. visiting the various messes to check on bird attractants such as food waste disposal) and monitoring the landscaping of the domestic site and hedgerows for bird attracting species of trees and shrubs.

The AWCU will remove any dead animals that it comes across during routine patrols of active surfaces, or that are reported to it by ATC. If the animal is of a size and weight that makes it a risk for the AWCU operator to lift, then RAF personnel will be required to assist. At present NBC Environment are responsible for the disposal of all deceased animals and birds from the airfield regardless of cause of death.

### W.3 Off-Airfield Wildlife Control and Scaring

The control of wildlife on the active surfaces remains the priority of the AWCU; however, wildlife use the human environment to suit their needs, building nests, burrows and roosting in and around buildings (particularly the hangars). The AWCU should work to provide the largest possible wildlife free buffer zone around the airfield. They should work to disperse wildlife away from the hanger areas, and to discourage their return by making the area as inhospitable as possible, either by giving advice to the unit to facilitate the introduction of practical measures or by direct action. The AWCU should monitor off-airfield bird habits in accordance with IBSC Standard 9

The AWCU will carry out pest control programmes as deemed necessary through consultation between building custodians and the AWCU, providing that the pest in question has a direct relationship to wildlife activity on the station and in doing so does not interfere with the primary role of the AWCU.

The AWCU will visit all station messes on a weekly basis, checking that the disposal of food waste is done in such a way that it does not become an attractant to scavenging birds and vertebrates. The findings of these checks will be reported to the SATCO for any action deemed necessary and onward passage to all agencies that are affected.

On a seasonal basis the AWCU will check the landscaping of the station for any fruit or berry producing shrubs and trees. The findings of these checks will be reported to the SATCO for any actions deemed necessary.

The AWCU manager will carry out regular off-airfield visits to local farmers and bird attracting sites within the safeguarding zone (13 km from the station) to carry out bird counts and PR meetings, the outcome of which will be reported to the SATCO through the monthly report.

### W.4 Monitoring of Habitat and Environment

The AWCU will carry out monitoring activities on the airfield, including checks to ensure compliance with Long Grass Policy, notification of the broad leaf component of the Grass and Tree Habitats on and around the Stn, the results of which will be recorded and reported to SATCO for any action deemed necessary. The grassed area will be checked on an on-going basis and will be reported through the monthly report.

The AWCU will assist the station with environmental and habitat monitoring as necessary, providing this does not interfere with the primary role of the AWCU.

The AWCU will assist the station in the culling of vertebrates at the request of RAF Marham; however, this is only possible if the AWCU operator on duty is qualified to do so and has the correct equipment available.

## W.5 Identification of Bird Remains

AVVLA and Birdstrike Management Ltd's recent analysis of bird-strike records has proved beneficial to the identification of trends and bird activities. However, for this evidence to be useful, it must be complete. The identification of bird remains will focus attention on the specific bird species that are evident on an airfield and help inform the best methods of deterrence. Consequently, the AWCU is to assist in the identification of bird remains either found on the airfield or taken from airframes.

## W.6 Deer Control

RAF Marham does not suffer with significant deer issues. Any incidents of deer on the airfield are usually limited to individual occurrences and are dealt with on a case by case basis. Should it be required we also have, at our disposal, extensive expertise on this subject through Defence Deer Management (DDM) who are the primary service provider for advice, guidance and active deer management across the MOD estate.

## W.7 Rabbit & Hare Control

RAF Marham is densely populated by rabbits and hares, with warrens present extensively across the airfield but in higher concentrations north side of runway 24/06 especially around the IRDM boards. Routine culling takes place all year round due to high concentrations and risk to Air Safety. Special consideration is to be taken during breading season in which only safety pertinent culling is to occur.

## W.8 Mole Control

Mole hills are regularly seen at RAF Marham and they have caused issues in the past. The AWCU Mgr is in constant dialogue with CA and requests a specialist mole catcher when required.

## W.9 Recording of Wildlife

The main method of recording wildlife activities at RAF Marham is via information recorded on Geopal, an electronic log recorded automatically on a handheld tablet. AWCU operatives record activity at 15-minute intervals throughout the hours of operation at RAF Marham.

a. AWCU operating times and record of bird and wildlife control activities throughout each watch period.

b. Details of the weather and all significant changes in the weather throughout each watch period.

c. Details of wildlife activity on and in the immediate vicinity of the aerodrome and the dispersal action taken.

d. Details of any birdstrike which occurs either on or in the immediate vicinity of the aerodrome, or off-base, and the subsequent action taken.

e. Details of habitat control measures undertaken.

f. Record of specific aerodrome grass policy activities.

g. Details of any environmental changes which might affect local wildlife movement or behaviour patterns.

h. Details of field tasks undertaken by AWCU personnel at local breeding, feeding or roosting sites, and any other off-aerodrome activities affecting the primary task.

i. Details of all wildlife and rodent pest control tasks undertaken on the aerodrome.

j. Administrative details concerning the wildlife control effort, i.e. equipment unserviceability's, expendable stores used and vehicle mileage.

k. Record of all wildlife killed, and habitats destroyed.

Information from the Wildlife Control Log is to be collated by the AWCU Manager. SATCO is to inspect and countersign the log weekly. Wildlife Control Logs are to be retained for 10 years on unit and then forwarded to the Birdstrike Management Ltd for permanent retention.

The BCU Manager and SATCO are to complete the Wildlife Report and Bird Statistics monthly. SATCO is to ensure that the BCU Manager forwards the final report to HQ Air and Birdstrike Management Ltd (safeguarding@birdstrike.co.uk) in electronic format by the 10th day of each month for permanent retention.

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## Annex X – Low Visibility Operations

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## ANNEX X: LOW VISIBILITY OPERATIONS

**X.1 Restrictions**

In addition to the instructions at RA 3274, when the aerodrome visibility drops below 1000m or the ATC Aerodrome Controller (ADC) cannot see the whole length of the RWY, Low Visibility Procedures (LVP) are to be implemented by the ATC Supervisor or ATCO I/C on duty.

Once the aerodrome visibility is above 1000m and the ADC can see the full length of the RWY, LVP may be cancelled at the Supervisor's discretion. The VCR ASOS should make an MRE broadcast and contact Stn Ops to announce the cancellation of LVP.

**X.2 Responsibilities**

The Supervisor should advise the DCF to check pilot ratings and ensure that the following actions are carried out when aircraft call for start or at least 30 minutes prior to any ETA.

a. The ADC should set all RWY threshold lights and Alpha Taxiway lights to RED and instruct all vehicles to use the airfield ring road wherever possible. Any AS or vehicle wishing to cross any RWY must receive a positive clearance. RWY/Taxiway lights are to be switched on as appropriate to aid movement around the airfield (If required, RWY 01/19 RWY lights will need to be manually switched on by Gadfly if RWY 06/24 is in use and vice versa).

b. The VCR ASOS should tannoy (via Stn Ops if required) the scripted low visibility warning. The message should be repeated on MRE and also passed to the airfield contractors' offices (ext 7255 and 7690).

c. The ADC should utilise the ATC Rover and AWCU to conduct regular sweeps of the RWY prior to its use.

**X.3 Procedures**

Whilst LVP are in force the following procedures are to be followed:

a. Single RWY occupancy rules are to be applied. In addition, a landing clearance may only be given once the ADC has either visual or verbal confirmation that any AS landing ahead has vacated the rwy.

b. After all normal safety checks have been completed, if the ADC is still unable to see the entire length of the RWY, all clearances are to be issued at pilots' discretion. 'Land at your discretion'. Operators are not to use the phraseology 'clear/cleared' for a discretionary clearance.

c. AS unfamiliar with Marham should not be allowed to taxi unless guided by a follow-me vehicle.

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## Annex Y – Snow and Ice Operations

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# ANNEX Y: SNOW AND ICE OPERATIONS

RAF Marham Snow and Ice operations are held within Operation BLACKTOP Orders.