AD 1.2 - RESCUE AND FIRE FIGHTING SERVICES AND SNOW PLAN

AD 1.2.1 - RESCUE AND FIRE FIGHTING SERVICES

1.2.1.1 AERODROME EMERGENCY SERVICES.

1.2.1.1.1 **Regulation RA 3261(2).** ADH, ADH-facing Organizations and HoE shall provide Emergency Services at aerodromes for which they are responsible.

1.2.1.1.2 **Means of Compliance.**

1.2.1.1.2.1 ARFF assets are established across the MOD estate to support flying operations as defined in RA 3263 - Aerodrome Classification; however, they should not be reserved for this sole use. As directed in DSA02 DFSR Defence Aerodrome Rescue and Fire Fighting (ARFF) Regulations, ARFF Criteria should respond to all incidents (both aerodrome and structural) across the MOD estate where local conditions allow, as a priority, when life may be at risk. Any consequent effect on aerodrome operations through a reduction or total loss of Crash Category should be considered secondary to the saving of life.

1.2.1.1.2.2 **Communications.** ATC **should** be connected by adequate ground communications to safety services and station departments concerned with flying. These communications are generally:

a. Direct Line Communication. Direct line communication to:

i. Station Fire Section (if separate from the crash bay).

ii. Station Medical Centre (where applicable).

iii. Crash Crew Bay.

iv. Parent Air Traffic Control Centre (ATCC).

v. Distress and Diversion Cell (D&D), London Area Control Centre (LACC).

b. **Indirect Telephone Communication.** Indirect telephone communication to:

i. Officer in Charge of flying.

ii. All flying squadrons and flights.

iii. Senior Engineering Officer (SEngO).

iv. Station Works Services (Representing Defence Infrastructure Organisation (DIO)) representatives.

v. Local civil Emergency Services.

vi. Local police.

c. **RTF Communication.** RTF communication between the ATC Tower and the crash/rescue vehicles, and vehicles employed in AS parachute recovery role.

d. **Crash Alarm Bells/Telephones.** Crash alarm bells/telephones (operated from the controller's position) to:

i. Crash Crew Bay.

ii. Station Fire Section (if separate from Crash Crew Bay).

iii. Station Medical Centre (where applicable).

e. **Station/Unit Broadcast System.**

1.2.1.1.2.3 **Crash Maps.** The Aerodrome Operator (AO) should arrange for the production and distribution of local area and aerodrome crash maps to enable the rapid location of AS crashes and aerodrome incidents as follows:

a. **Local Area Crash Map.** A local area crash map should consist of an Ordnance Survey map to a range of at least a 5 nm radius from the aerodrome.

The map should show, as a minimum:

i. Areas of overlapping cover with adjacent aerodromes.

ii. Areas of known poor RTF communications.

iii. Any other locally required features eg rendezvous points.

AD 1.2 - RESCUE AND FIRE FIGHTING SERVICES AND SNOW PLAN *Continued.*

b. **Aerodrome Crash Map.** An aerodrome crash map should be produced covering the aerodrome and its surrounds within reasonable visual range of the aerodrome controller. The map, which may be orientated to meet local requirements, eg as the aerodrome controller sees the aerodrome from his control position, will be overlaid with a simple letter-and-grid system. The grid should be of reasonable size (not too small), ideally aligned along the main instrument runway, and arranged that significant areas are not divided by grid lines. In addition the following features should be clearly depicted:

i. North orientation.

ii. Runway magnetic headings.

iii. Taxiways and dispersals.

iv. All roads and tracks fit to take safety service vehicles.

v. Main road junctions and crossings.

vi. Hazards such as ditches and narrow or difficult areas.

vii. Areas which are not negotiable by safety vehicles:

- At all times.

- At certain times of the year owing to weather and/or tides.

viii. All points of exit from the aerodrome, eg hedge gaps, bridges over ditches, gateways, etc.

ix. Areas of known poor RTF cover.

x. Crash exits, which will be numbered.

c. Crash Map Distribution. Local area and aerodrome crash maps should be located in:

i. Station/Unit Headquarters.

ii. ATC.

iii. Truck Runway Control (TRC). Iaw RA 3276 - Truck Runway Control

iv. Crash Fire Section.

v. Station Medical Centre.

vi. Local civil Emergency Services.

vii. Unit crash/salvage section (where applicable).

viii. Search and Rescue (SAR) helicopter (where appropriate).

ix. All essential aerodrome vehicles.

x. All executive vehicles.

xi. ATC vehicles.

xii. Other locations as defined in Unit/Local orders.

1.2.1.1.2.4 **Ordnance Survey (OS) Maps.** In addition to local area and aerodrome crash maps, the AO should arrange for all essential aerodrome vehicles to carry up-to-date OS maps covering a radius of 20 nm from the aerodrome. These maps should also be provided to any SAR helicopters and ATC.

1.2.1.1.2.5 **Crash Exits.** Crash exits, which **should** be numbered iaw the crash maps, should be kept clear; notice boards to this effect **should** be displayed. On aerodromes where gates are locked for security reasons, the crash crews should be in possession of crash exit keys suitably tagged for quick identification, and duplicate keys should be readily available in ATC. Direction signs indicating the location of less obvious crash exits should be suitably displayed.

1.2.1.1.2.6 **Testing of the Crash Organization.** The AO is responsible for ensuring that the unit ARFF are adequately prepared to cover the flying task. The ARFF services should be exercised with any lessons identified being recorded and actioned. Full advantage **should** be taken of any planned participation by the civilian emergency services.

AD 1.2 - RESCUE AND FIRE FIGHTING SERVICES AND SNOW PLAN *Continued.*

1.2.1.1.2.7 **Testing of Crash/Rescue Communications.** The Air Traffic Control Officer in command (ATCO IC) (or other responsible individual detailed in Unit/Local Orders) should ascertain the serviceability state of the ARFF services, RTF equipment, crash telephone, teletalk, and crash alarm systems at the start of their watch. They **should** take immediate action, in the event of any unserviceability, to have repairs effected, and to make temporary alterations to the disposition of vehicles if this is necessary. Any unserviceability **should** be recorded and reported iaw RA 3204 - Air Traffic Management (ATM) Records and RA 3206 - ATM Equipment Checks.

1.2.1.1.2.8 **Crash on or in the Vicinity of an Aerodrome.** When a crash is seen to take place within the boundary/vicinity of an aerodrome, the ATCO IC should take immediate crash action. This action should be iaw Unit/Local orders subject to approved deviation if local conditions make other methods more expedient.

1.2.1.1.2.9 **Crash off the Aerodrome.** When a crash takes place off an aerodrome, and is unseen, action to be taken depends on whether the exact location of the crash/ditching is known or not. When the location is known, controllers should take action iaw Local/Unit Orders.

1.2.1.1.2.10 **Pilots Abandoning AS.** When a pilot intimates that he is about to abandon his AS, he will, if possible, pass his position using the distress frequency, but as this is not always possible, controllers should take immediate action to obtain direction finding bearings on such emergency transmissions. The D&D controller should be informed without delay and the true bearing passed.

1.2.1.1.2.11 **Search Action.** Controllers should initiate search and rescue activity by passing all available information regarding the incident to the ATCC for action by the National Maritime Operations Centre (NMOC); this does not, however, prevent the duty controller from taking local search action. When it is found possible to do so, it is essential that the ATCC be given full details of what has already been done in order that the NMOC may be able to plan and develop the search without duplication of effort.

1.2.1.1.2.12 **Crash or Incident Narrative.** When a crash takes place, particularly in conditions of high traffic density and/or bad weather, the controller may be too busy to do more than initiate crash action. The controller is, nevertheless, responsible for recording in the Air Traffic Watch Log (RAF F6658) a report of circumstances surrounding the emergency. To help the controller to do this, without prejudice to their immediate ATC tasks, the controller should order immediate log book entries to be made. Vital information might otherwise be lost or forgotten in the ensuing activities. The report should contain all relevant details of the incident as witnessed by the members of the control staff.

1.2.1.1.2.13 **Met Crash Reports.** When a crash takes place on, or in the vicinity of, an aerodrome, it is essential that a weather report is made without delay by an accredited observer. The controller should inform the duty Met officer without delay when a crash occurs. The Met Office should make immediate weather observations and draw up a weather report and place it on record. An Air Traffic Watch Log entry should be made when this has been done. The controller should obtain a copy of the crash weather report and preserve it in the Air Traffic Watch Log to amplify the record of circumstances surrounding the accident.

1.2.1.1.2.14 **Aerodrome Inspection after Crash.** Inspection of the crash area after the debris has been removed should be made iaw RA 3264 - Aerodrome Inspections.

1.2.1.1.2.15 **Information Requests.** Controllers and other ATC staff should restrict all information about a crash to the authorized persons to whom the original crash message was passed, unless further amplifying broadcasts over the station broadcast system are approved. In no circumstances is any member of a control staff to make any statement, or offer any information, or give answers to any questions about the crash to any unauthorized person. Such inquiries should be referred to the relevant individual defined in Local/Unit Orders.

1.2.1.1.3 **Guidance RA 3261(2).**

1.2.1.1.3.1 **Search Action.** Full details of any crash will be passed to the ATCC, NMOC and D&D in order that search and rescue activity initiated by them is properly integrated. If the probable area of a crash is known, controllers may request local AS (if weather, types, and endurance are suitable) to search for the crashed AS. Whenever possible, the search AS will be dispatched on orders from the Officer in Charge of flying or Air Operations Duty Officer; controllers will use their own initiative to have local search activity started as soon as possible.

1.2.1.1.4 **Regulation And Governance.**

1.2.1.1.4.1 For further details see Military Aviation Authority (MAA) - Regulatory Article 3261(2) - Aerodrome Emergency Services.

AD 1.2 - RESCUE AND FIRE FIGHTING SERVICES AND SNOW PLAN *Continued.*

1.2.1.2 GOVERNMENT AERODROME FIRE FIGHTING SERVICES.

1.2.1.2.1 Defence Aerodrome Rescue and Fire-Fighting (ARFF) requirements are set out in the **DSA02 DFSR Defence Aerodrome Rescue and Fire Fighting (ARFF) Regulations**, https://assets.publishing.service.gov.uk/media/639c9470d3bf7f375ea7cd05/20221209-DSA02_DFSR_Aerodrome_Rescue_Firefighting_Regulations-V3.0.pdf

AD 1.2.2 - SNOW PLAN

1.2.2.1 SNOW AND ICE OPERATIONS.

1.2.2.1.1 Contaminated Runway operations remain the exception rather than the norm in the UK; therefore, additional guidance is required in order to establish an equivalent level of safety even in adverse conditions.

1.2.2.1.2 Contaminant Clearance

1.2.2.1.2.1 When the Aerodrome is available for use, the Aerodrome Operator (AO) **shall** ensure that the Movement Area remains safe for the operation of Air Systems at all times.

1.2.2.1.2.2 AOs **should** ensure the clearance of winter contaminants from the Movement Area and the measurement and reporting of surface conditions in line with Front Line Command requirements.

1.2.2.1.3 Aerodrome Snow And Ice Plan

1.2.2.1.3.1 Duty Holder-Facing Organizations **shall** prepare an Aerodrome Snow and Ice Plan.

1.2.2.1.3.2 Prior to the onset of winter conditions, the AO **should** prepare and/or review a plan to effect efficient measurement and clearance procedures intended to ensure maximum availability of the Movement Area.

1.2.2.1.3.3 The Snow and Ice Plan **should** be developed in accordance with AP119J-0100-1, Snow Clearance and Ice Control of Airfields.

1.2.2.1.3.4 The Snow and Ice Season is normally 1 Nov to 30 Apr; however, this may vary each year depending on the weather forecast. The AO is responsible for deciding if Op BLACKTOP should start early or finish later than these dates.

1.2.2.1.4 Regulation And Governance.

1.2.2.1.4.1 For further details on Snow and Ice Operations see the following:

- Military Aviation Authority (MAA) - Regulatory Article 3278 - Snow and Ice Operations.
- *Airfield Support Capabilities Role Office (ASCRO)* - AP119J-0100-1 - Snow Clearance and Ice Control of Airfields.

AD 1.2.3 - ADDITIONAL AERODROME INFORMATION

1.2.3.1 LAMP AND PYROTECHNIC SIGNALS.

1.2.3.1.1 All authorised ground personnel, aircrew and other personnel who are required to fly regularly as supernumerary crew members are to keep themselves proficient in the assembly and operation of signalling devices, which must only be used for authorised purposes and in accordance with the normal definitions in Rules of the Air Traffic Regulations. The basic signals, also used by NATO forces, are listed in the table below. The use of lamp and pyrotechnic signals for specific purposes at units is to be covered by verbal briefing and local orders.

1.2.3.1.2 The standard lamp and pyrotechnic signals in Table 1 should be used in the control of Aerodrome Service (AS), where necessary (MAA RA 3261 - Aerodrome Service).

AD 1.2 - RESCUE AND FIRE FIGHTING SERVICES AND SNOW PLAN *Continued.*

1.2.3.1.3 Table 1 - LAMP AND PYROTECHNIC SIGNALS		
Characteristics & Colour of Light Beam or Pyrotechnic	**From Air Traffic Control**	
	To an AS in flight	**To an AS on the ground**
Steady Red Light	Go Around	Stop
Red Flashes	Total refusal of permission to land	Move clear of landing area
Steady Green Light	You may land	You may take-off
White Flashes (not Pyrotechnic)	Land at this Aerodrome after receiving steady green light	Return to starting point

1.2.3.1.3 Regulation And Governance.

1.2.3.1.3.1 For further details on LAMP and Pyrotechnic Signals see the following:

- Military Aviation Authority (MAA) - Regulatory Article 3261 - Aerodrome Service.

1.2.3.2 RUNWAY / HELIPORT SURFACE TEXTURE .

1.2.3.2.1 - SURFACE TEXTURE		
AERODROME / HELIPORT	**RUNWAY**	**SURFACE TEXTURE**
DOMESTIC		
ALDERGROVE (BIA)	See UK Civil AIP for further details.	
BARKSTON HEATH	24/06, 28/10, 36/18	24-06 Grooved Marshall Asphalt, 90m of concrete at each end of pavement; 28-10 Stone Mastic Asphalt, 90m of concrete followed by 200m of asphalt at 10 end; 36-18 is Asphalt.
BENSON	19/01RH	Porous Friction Course. Rwy ends: concrete. Runway 19/01 liable to be slippery when wet. Runway 24/06 is unused & operations are not permitted due to the hazard presented by the extremely poor surface. However, 24/06 remains available in an emergency only.
BOSCOMBE DOWN	05/23, 17/35	Asphalt/concrete. 17/35 liable slippery when wet.
BRIZE NORTON	25/07	Grooved Marshall asphalt. Approximately 1500 feet of Stone Mastic Asphalt (SMA) at each runway end.
CHETWYND	Nil	-
CONINGSBY	07/25	Asphalt/concrete.
COSFORD	06/24	Asphalt and Grass.
CRANWELL / CRANWELL NORTH	26/08, 01/19, 08N/26N, 03/21, 07/25.	Asphalt/Concrete and Grass Rwys. Natural sfcs.
CULDROSE	12RHC/ 30, 06RHC/ 24LHC, 18LHC/ 36	Asphalt.
FAIRFORD	09/27	Asphalt/concrete.
FLEETLANDS	1,4,5,6 & 7	Concrete.
GANNET (Prestwick)	See UK Civil AIP for further details.	
HALTON	02/20, 07/25	Grass Rwys. Natural sfcs.
HEREFORD	08/26	Not Known.
KENLEY	02/20, 07/25, 12/30	Asphalt and Grass.
KIRKNEWTON	05L/23R, 12/30, 05R/23L	Asphalt.
LAKENHEATH	06/24	Asphalt/concrete. 06 - non weight-bearing overrun 304m; 24 - non weight-bearing overrun 305m.

AD 1.2 - RESCUE AND FIRE FIGHTING SERVICES AND SNOW PLAN *Continued.*

1.2.3.2.1 - SURFACE TEXTURE		
AERODROME / HELIPORT	**RUNWAY**	**SURFACE TEXTURE**
LEEMING	16/34 03/21	Porous Friction Course / Blacktop.
LEUCHARS	08/26	Blacktop, not grooved. Concrete Rwy ends with thin porous friction layer between ORPs (Blacktop, not grooved).
LITTLE RISSINGTON	04/22, 09/27, 13/31	Asphalt.
LOSSIEMOUTH	05/23, 10/28	Concrete.
MARHAM	06/24, 01/19	Blacktop/concrete. Rwys 06/24 & 01/19 have 15·24m wide concrete shoulders. Concrete ends to Rwy 24/06 & parts of Rwy 01/19 liable to be slippery when wet.
MERRYFIELD	09/27, 03/21, 16/34	Asphalt. Surfaces slippery when wet.
MIDDLE WALLOP	09/27, 17/35	Natural surface.
MILDENHALL	11/29	Asphalt/concrete.
MONA	04/22	Asphalt.
NETHERAVON	04/22, 11/29	Grass Rwys. Natural sfcs.
NORTHOLT	01/25	Grooved Marshall Asphalt.
ODIHAM	09/27	Asphalt. Rwy 09/27 ORPs out of bounds to acft due poor sfc condition & unfirm manhole covers. Rwy slippery when wet; friction levels drop.
PREDANNACK	05/23, 09/27, 36/18, 13/31	Blacktop.
SHAWBURY	05/23, 18/36	Blacktop & Concrete - Concrete ends. Rwy 36 THR: Southerly Concreted area is covered in Addagrip 1000. None of the rwys are grooved.
SYERSTON	06/24, 11/29, 15/33	Standard asphalt - deteriorating. Rwys 06/24 & 11/29 - asphalt, no special characteristics. Rwy 15/33 - deteriorating/broken asphalt, no special characteristics. Other Rwys are grass/natural sfc.
TERN HILL	04/22, 10/28 17/35	Asphalt and Grass.
TOPCLIFFE	13RH/31, 02/20RH	Asphalt.
UPAVON	05/23, 07/25	Summerfield Track/Grass Rwys. Natural sfcs.
VALLEY	13/31RH, 01/19 RH	Asphalt.
WADDINGTON	20/02	Blacktop - Concrete rwy ends.
WARTON	07/25	Grooved Asphalt.
WATTISHAM	05/23	Asphalt/concrete. Rwy 05 - concrete THR.
WESTON-ON-THE-GREEN	01/19, 05/23, 10/28	Grass Rwys. Natural sfcs.
WITTERING	25/07	Grooved Asphalt.
WOODVALE	03/21, 08/26,	Asphalt.
YEOVILTON	09/27, 04/22	Concrete. All Rwys slippery when wet.
OVERSEAS		
AKROTIRI	10RH/28	Concrete.
GIBRALTAR	09/27	Blacktop.
KINGSFIELD	06/24	Asphalt/Concrete.
MEDICINA LINES	-	Grass.
MOUNT PLEASANT	10/28, 05/23	Concrete.

AD 1.2 - RESCUE AND FIRE FIGHTING SERVICES AND SNOW PLAN *Continued.*

1.2.3.3 CONTINUOUS FRICTION MEASURING EQUIPMENT (CFME). *Continued.*

1.2.3.3.1 In order to ensure safe operation of Air Systems, the condition of landing surfaces needs to be evaluated.

1.2.3.3.2 **Regulation.**

1.2.3.3.2.1 CFME **shall** be used in specific circumstances.

1.2.3.3.3 **Means of Compliance.**

1.2.3.3.3.1 CFME, such as Gripster and Mu-meter, are considered unreliable on contaminated Runways and may indicate a higher than actual friction measurement. Therefore, CFME **should not** be used on Runways contaminated with wet snow, slush or water.

1.2.3.3.3.2 Friction tests **should** be completed utilising CFME:

a. If doubt exists as to the braking conditions of the Runway.

b. Whenever there is an Air System incident/accident on the Runway, where a possibility exists that the surface conditions may have been a contributing factor, a full evaluation of those sections of the Runway considered to be associated with the incident/accident should be carried out in accordance with the Post Crash Management procedures contained in the Manual of Post Crash Management, and records of readings and traces retained in accordance with RA3204, Air Traffic Management (ATM) Records.

1.2.3.3.3.3 A friction test **should** consist of:

a. One run over the usable length of the Runway on a line between 2 m and 10 m each side of the centreline.

b. Additional runs at varying distances from the centreline **should** be conducted where poor areas are known to exist, or to cover Air System formation operations.

1.2.3.3.3.4 Mean values **should** be recorded for each third of the Runway length available.

1.2.3.3.3.5 The braking condition for the total Runway length **should** be passed to the pilot unless the Braking Code has changed between runway thirds.

1.2.3.3.3.6 A plan of the Runway(s) **should** be maintained by Air Traffic Control (ATC) showing where pooling occurs and where areas of low friction caused by rubber deposits, Runway markings, etc. exist, especially if a recurring equivalent coefficient reading of 0.35 or below is recorded. If this is the case Defence Infrastructure Organisation (DIO) **should** be advised.

1.2.3.3.3.7 **Contaminated Runway.** Where Runways are contaminated with wet snow, slush or water, (greater than 3 mm depth) Runway conditions **should** be reported detailing the contamination for each third of the Runway as detailed in Manual of Aerodrome Design and Safeguarding.

1.2.3.3.3.8 A record **should** be kept by ATC of all evaluation monitoring runs. A copy of the rainfall trace for the day **should** be attached to the record. If the rainfall trace is not available a full rain report for the day **should** be requested and attached to the record.

1.2.3.3.4 **Guidance.**

1.2.3.3.4.1 **Equivalent Braking Action.** The table below describing friction values is only valid for compacted snow and/or ice covered Runways. The description 'Good' is used in the comparative sense, e.g. good for an icy surface, as clearly a surface affected by ice or snow is not as good as a dry or wet Runway.

1.2.3.3.4.2 - FOR SNOW / ICE / SLUSH / OR WATER ASSOCIATED WITH SLUSH COVERED RUNWAYS

Measured or Calculated Coefficient	ICAO Estimated Surface Friction	Weather Teletype Code	RCR/JBI Factor	Equivalent Braking Action	Percentage Increase in Landing Roll
A	B	C	D	E	F
0·40 and above 0·36 to 0·39	Good Medium/Good	5 4	25/1·00 23/0·88 19/0·70	Good	0-15%
			18/0·65 13/0·50	Fair (Medium)	16-45%

AD 1.2 - RESCUE AND FIRE FIGHTING SERVICES AND SNOW PLAN *Continued.*

0·30 to 0·35 0·26 to 0·29	Medium Medium/Poor	3 2	12/0·48 9/0·37 6/0·25	Poor	46-99%
0·25 and below	Poor	1	5/0·23 2/0·10	Nil	100% or more

1.2.3.3.4.3 Conversion Of Mu Reading To Runway Condition Report (RCR) Readings.

1.2.3.3.4.3.1 To Convert Mu readings to RCR readings, units will multiply the Mu figure by 32.1522 and then round down to the nearest whole number, for example:

1.2.3.3.4.3.2 Mu Reading = 0.77 RCR - 0.77 x 32.1522 = 24.757 = 24

1.2.3.3.4.3.3 Deployment of CFME on contaminated Runways for the purpose of obtaining friction value readings is not permitted because contaminant drag on the equipment's measuring wheel, amongst other factors, will cause readings obtained in these conditions to be unreliable. A Runway is termed contaminated when water deeper than 3mm, or wet now or slush is present over 25% or more of the assessed area.

1.2.3.3.4 Regulation And Governance.

1.2.3.3.4.1 For further details on CFME see the following:

- Military Aviation Authority (MAA) - Regulatory Article 3272 - Continuous Friction Measuring Equipment (CFME).