



Ministry
of Defence



Defence Fire and Rescue Tactics Technics & Procedures

Document No:	ATTP-A43								
Title:	PUMA-HC Mk2 – Brunei V1.5								
Date Issued:	18 11 2024								
Supersedes:	02 01 2024 - V1.4								
Review Date:	01 11 2029								
Stakeholders:	<table><tr><td>DFR HQ</td><td>✓ Capita Fire and Rescue</td></tr><tr><td>RN Aircraft Handler¹</td><td>RAF Fire and Rescue</td></tr><tr><td>DFRS LEC</td><td>✓ Other FRS Providers²</td></tr><tr><td>DFRS (DFSR, DIO, RN)³</td><td>DFRS (USVF)</td></tr></table>	DFR HQ	✓ Capita Fire and Rescue	RN Aircraft Handler ¹	RAF Fire and Rescue	DFRS LEC	✓ Other FRS Providers ²	DFRS (DFSR, DIO, RN) ³	DFRS (USVF)
DFR HQ	✓ Capita Fire and Rescue								
RN Aircraft Handler ¹	RAF Fire and Rescue								
DFRS LEC	✓ Other FRS Providers ²								
DFRS (DFSR, DIO, RN) ³	DFRS (USVF)								
Technical Author(s):	Fire Station and Stn SMEs								
Approved Authority:	DFR Sponsored Ops Policy Committee								

Sponsor Details: Strategic Lead Operational Capability & Development
Defence Fire & Rescue (DFR) Headquarters
Sedgemoor Building, Marlborough Lines,
Monxton Road,
Andover,
Hampshire,
SP11 8HT

Contact: dfr-hqocd@mod.gov.uk

Conditions of Release

1. This information is Crown Copyright and the intellectual property rights for this publication belong exclusively to the Ministry of Defence (MOD). No material or information contained in this publication should be reproduced, stored in a retrieval system or transmitted in any form outside MOD establishments except as authorised by both the sponsor and the MOD where appropriate.
2. This information is released by the United Kingdom Government to a recipient Government for defence purposes only. It may be disclosed only within the Defence Department of a recipient Government, except as otherwise authorised by the MOD.
3. This information may be subject to privately owned rights.
4. This document has been subject to a DFR HQ Equality Impact Assessment.
5. On initial release a publication will be reviewed at the 12-month point, following which reviews will be 5 yearly or where changes in circumstances warrant a review.

¹ RN (AH) stakeholders are the Operational Responders based at the Culdrose, Predannack, Yeovilton and Merryfield aerodromes

² Other FRS Providers include Babcock, Mitie and QinetiQ Fire Services. In addition, this publication will also be shared with AWE and QinetiQ FRS for information purposes only.

³ For the purposes of this ATTP, DFRS Fire Officers employed within DFRS, DIO & RN, are included for information purposes only.

Version Control History

Version	Amendment	Para No. Affected/Brief Details	Amended By	Date
V0.1	Draft	Initial Draft	GM Paul Wilkinson	April 2023
V1.1	Review	Document Review	AM Gavin Tiley	April 2023
V1.1	Publish	Tabbing and layout	Phil McGuinness	27/04/2023
V1.2	Requested amendments	Ladder incorporated - TTP1 C1 Confirm/make safe aircraft systems - TTP2 Ladder incorporated - TTP3 Ladder incorporated - TTP4	Afli Shahreen Rosli	07/12/2023
V1.2		All changes incorporated	Phil McGuinness	02/01/2024
V1.3	Requested amendment	Crash 1 Extended side line - TTP1	Afli Shahreen Rosli	17/01/2024
V1.3		Change incorporated	Phil McGuinness	17/01/2024
V1.4	Requested amendment	Last two Bullet Points added to ICs Crash 2 additional Bullets added	Afli Shahreen Rosli	29/02/2024
V1.4	Endorsed	Contents reviewed	Shane Cook DFR HQ	13/03/2024
V1.4	Published	Following stakeholder engagement	Phil McGuinness	13/03/2024
V1.5	Requested amendment	Crash 1 is now crewed by I/C and Driver (ERD Q'd) Crash 2 is now crewed by FF and Driver (ERD Q'd)	Afli Shahreen Rosli	21/08/2024
V1.5		Changes incorporated	Phil McGuinness	21/08/2024
V1.5		During the TRA (Feb 2024) 2 x ladder were utilised for gaining entry when the Puma's final resting position was on its side. The ATTP only identifies 1 x ladder being deployed for C1.	Shane Cook DFR HQ	23/08/2024
V1.5	Request amendment	1. The illustration now includes two ladders. 2. Tasks originally assigned to C1 will now be performed by C2.	Afli Rosli	11/11/2024
V1.5	N/A	Contents reviewed	Shane Cook DFR HQ	18/11/2024
V1.5	Published	N/A	Phil McGuinness	18/11/2024



AIRCRAFT TACTICS TECHNIQUES PROCEDURES (ATTP/A43)

Puma HC Mk2 – Brunei Operations

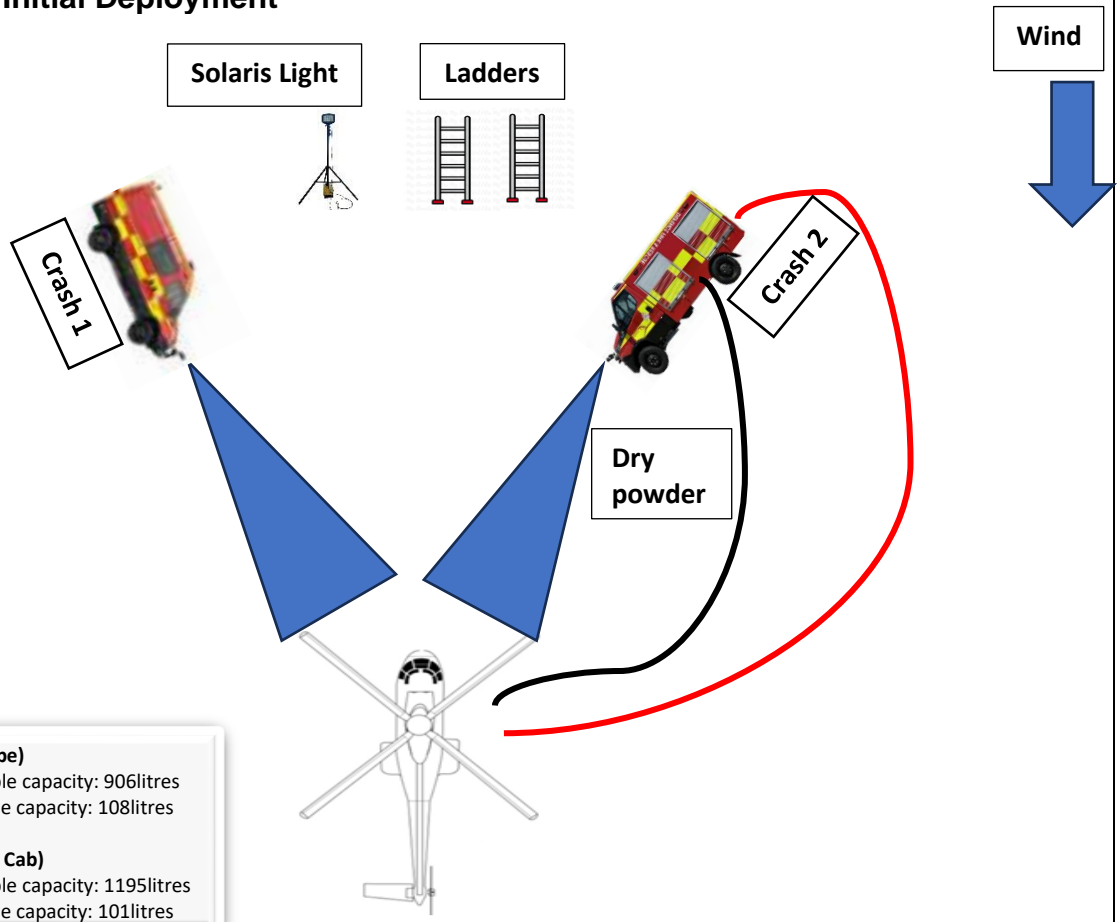
RRV (Crash1)

RRV (Crash 2)

Document Control	Page 02
TTP 1 - Engine Fire	Page 03
TTP 2 - Wheel Assembly Incidents	Page 06
TTP 3 - Internal Fire	Page 09
TTP 4 - External Fire	Page 12

TTP 1 - Engine Fire

Event plan – Initial Deployment



Incident Commander Considerations:

- Conduct and complete DRA
- Declare Tactical Mode
- Consider required agencies
- Consider implementing MIP
- Direct firefighting actions
- Consider contacting aircraft commander via Ops Room
- Be aware of PAX exiting aircraft
- Direct rescue crew
- Direct all operational control and implement ICS
- Provide M/ETHANE report
- Maintain safe operations and ensure scene safety
- Direct other agencies
- Consider water consolidation/replenishment
- Consider deploying the portable Solaris lighting system in hours of darkness.
- Consider deploying ladders to gain access into aircraft.
- Consider deploying life - saving equipment.

Crash 1 - RRV Actions:

- Crewing Incident Commander and ERD Driver
- Deploy vehicle to rescue side of the aircraft
- Be aware of PAX and assist them with exiting the aircraft
- Direct personnel away from airframe
- Be prepared to operate bumper monitor or deploy media with 1 x 45mm hose with G force branch as determined by the IC's DRA and prepare for use as covering jet outside of the aircraft
- Be prepared to act as pump operator on Crash 2 vehicle (if tasked)
- Driver Crash 1 prepares ladder for use.

Crash 2 - RRV Actions:

- Crewing: Firefighter and ERD Driver
- Deploy vehicle to point of Hazard.
- Be aware of PAX and assist them with exiting the aircraft
- Direct personnel away from airframe
- Operate the monitor
- Consider method of entry if PAX remain on board
- Don BA and utilise Rapid Deployment Procedures if required
- Deploy 2 x 45mm lengths of hose with G force branch/dry powder for engine fire at IC's direction and prepare for entry into aircraft
- BA team access aircraft and create survivable conditions
- Confirm/make safe aircraft systems
- Utilise medics to triage casualties on board if survivable conditions are present
- Aid medics in extricating casualties
- Maintain contact with IC.

Specific Aircraft Hazards:

- Flammable liquids and pressurised gases
- Presence of Man-Made Mineral Fibres
- Rotor blades.

Further Considerations:

- Aircraft position and wreckage
- Leaking fuel
- Passengers
- Other agencies.

Supporting Information:

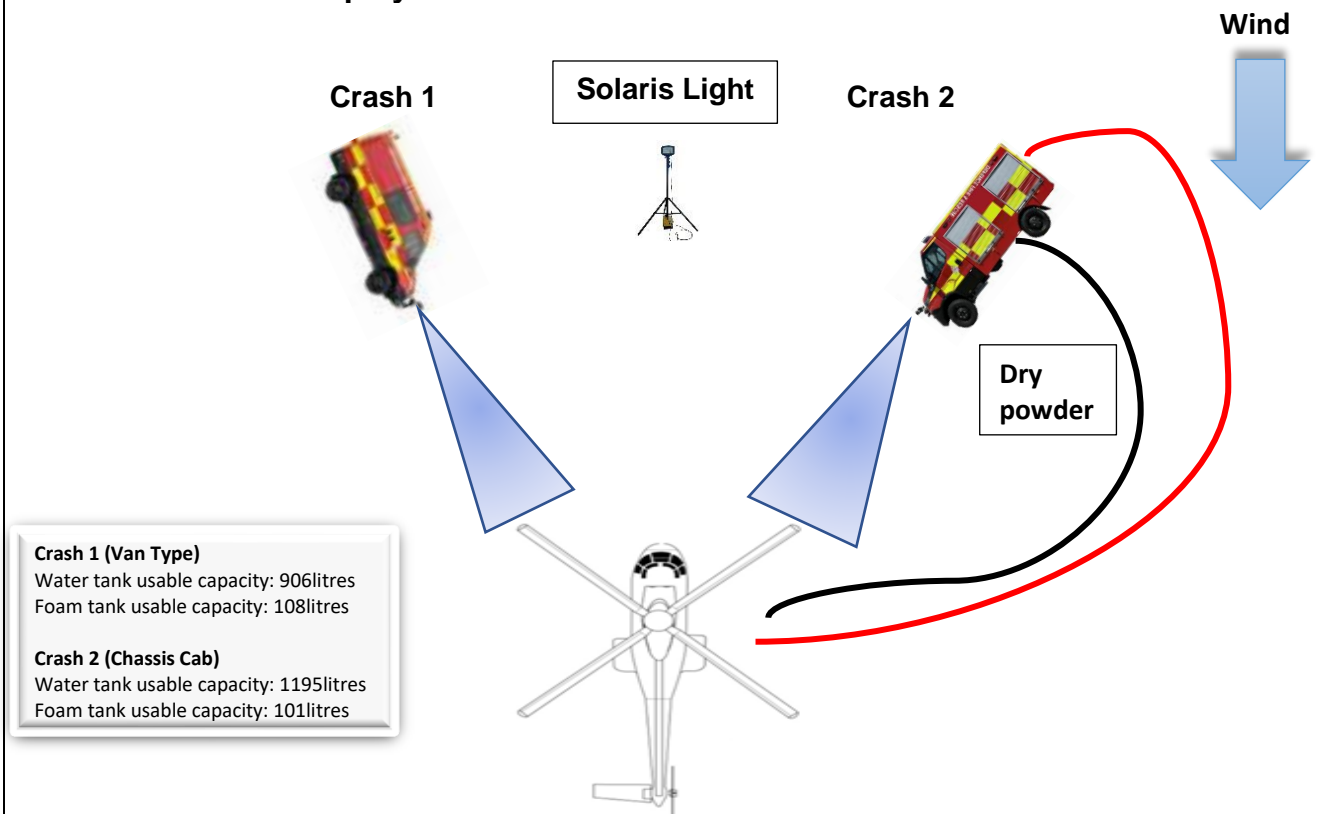
- DFR-OG 009 - Aircraft Fires
- ARFF TOG
- Ops Instruction 001 - Aircraft Incidents
- Ops Instruction 002 - CFR HSE Policy
- Ops Instruction 005 - Low Speed Manoeuvring
- Ops Instruction 006 - MPRV ARFF Positioning Deployment & Task
- Ops Instruction 007 - MPRV Vehicle Operations
- Ops Instruction 009 - Oshkosh Striker HRET Positioning Deployment & Task
- Ops Instruction 012 - Oshkosh Striker HRET Controls
- Ops Instruction 016 - Oshkosh Striker HRET Operator Considerations
- Ops Instruction 033 - BA Operations
- Ops Instruction 066 - Fire Contaminants
- Ops Instruction 069 - Polymer-Composites-and-MMMF
- Op Guidance 001 - Aircraft Incidents
- Op Guidance 002 - Incidents Involving Rotary Wing Aircraft
- Op Guidance 003 - Aircraft Fuel Fires and Foam Application
- Op Guidance 006 - Aircraft Internal Fires
- Op Guidance 007 - Aircraft Engine Fire
- Op Guidance 008 - Aircraft Undercarriage Incidents
- MOD Aircraft Crash Hazards Document Set
- AQRC A43.

Training:

- Aircraft familiarization
- Aircraft lecture - 6 monthly lesson.
- Redkite CMS
- Deployment exercise(s)

TTP 2 – Wheel Assembly Incidents

Event Plan - Initial Deployment



Incident Commander Considerations:

- Conduct and complete DRA
- Declare Tactical Mode
- Formulate tactics dependent if fire is present and where escalation is likely
- Consider required agencies
- Consider implementing MIP
- Direct firefighting actions
- Consider contacting aircraft commander via Ops Room
- Be aware of PAX exiting aircraft
- Direct rescue crew
- Direct all operational control and implement ICS
- Provide M/ETHANE report
- Maintain safe operations and ensure scene safety
- Direct other agencies
- Consider water consolidation/replenishment
- Consider deploying the portable Solaris lighting system in hours of darkness.

Crash 1 - RRV Actions:

- Crewing Incident Commander and ERD Driver
- Deploy vehicle to rescue side of aircraft.
- Be aware of PAX and assist them with exiting the aircraft
- Direct personnel away from airframe
- Be prepared to operate monitor or deploy media with 1 x 45mm hose with G force branch as determined by IC's DRA and prepare for use as covering jet outside the aircraft.
- Be prepared to act as pump operator on Crash 2 vehicle.

Crash 2 - RRV Actions:

- Crewing: Firefighter and ERD Driver
- Deploy vehicle to point of Hazard.
- Be aware of PAX exiting the aircraft
- Be prepared to operate monitor
- Be aware of PAX and assist them with exiting the aircraft
- Consider method of entry if PAX remain on board
- Don BA and utilise Rapid Deployment Procedures if required
- Deploy 2 x 45mm lengths of hose with G force branch/dry powder for wheel assembly fire at IC's direction and prepare for entry into aircraft
- Make access to aircraft and confirm survivable conditions
- Confirm/make safe aircraft systems
- Utilise Medics to triage casualties on board if survivable conditions are present
- Aid Medics in extricating casualties.

Specific Aircraft Hazards/Procedures:

- Flammable liquids and pressurised gases
- Presence of Man-Made Mineral Fibres
- Rotor blades.

Further Considerations:

- Aircraft position and wreckage
- Leaking fuel
- Passengers
- Other agencies
- The actions during this incident will be dependent on the following conditions:
 1. Is the wheel assembly on fire?
 2. Is the fire confined to one area or is escalation likely?

Training:

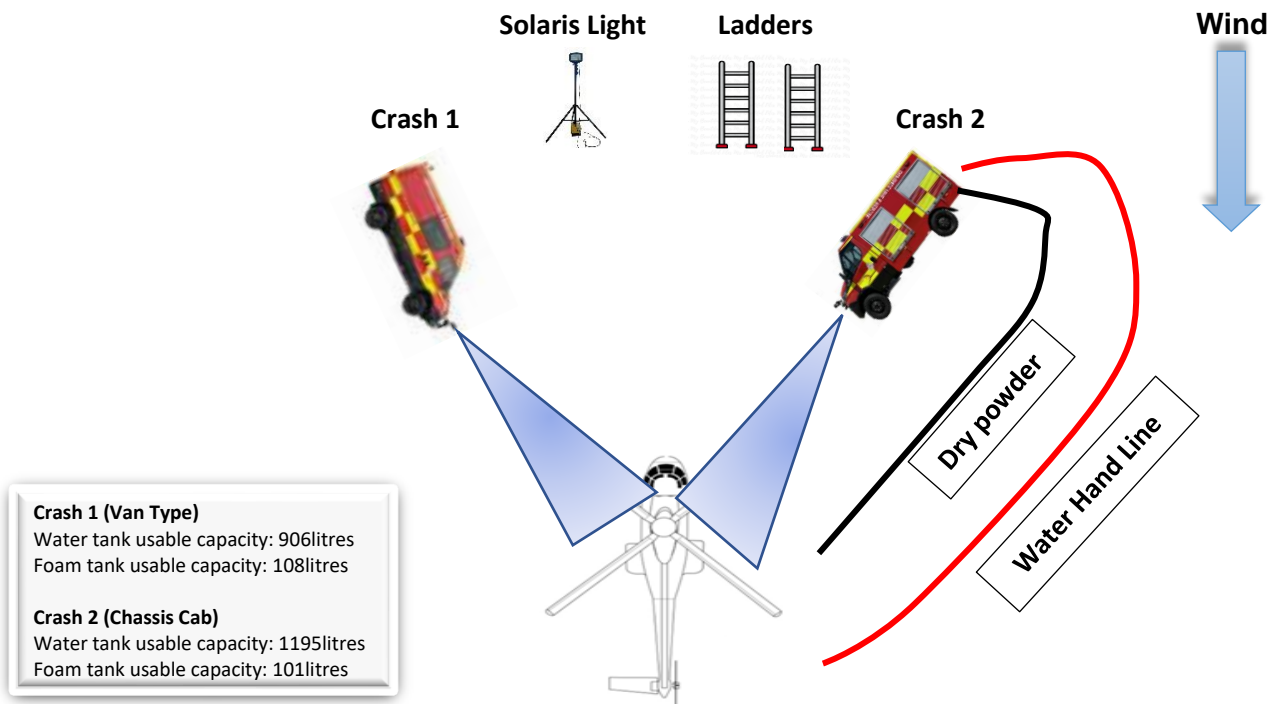
- Aircraft familiarization
- Aircraft lecture - 6 monthly lesson.
- Redkite CMS
- Deployment exercise(s)

Supporting Information:

- DFR-OG 009 - Aircraft Fires
- ARFF TOG
- Ops Instruction 001 - Aircraft Incidents
- Ops Instruction 002 - HSE Policy
- Ops Instruction 024 - RRV Vehicle Operations
- Ops Instruction 026 - RRV ARFF Positioning Deployment & Task
- Ops Instruction 033 - BA Operations
- Ops Instruction 066 - Fire Contaminants
- Ops Instruction 069 - Polymer-Composites-and-MMMF
- Op Guidance 001 - Aircraft Incidents
- Op Guidance 002 - Incidents involving Rotary Wing Aircraft
- Op Guidance 003 - Aircraft Fuel Fires and Foam Application
- Op Guidance 006 - Aircraft Internal Fires
- Op Guidance 007 - Aircraft Engine Fire
- Op Guidance 008 - Aircraft Undercarriage Incidents
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16)
- AQRC A43.

TTP 3 – Internal Fire

Event Plan – Initial Deployment



Incident Commander Considerations:

- Conduct and complete DRA
- Declare Tactical Mode
- Consider required agencies
- Consider implementing MIP
- Direct firefighting actions
- Consider contacting aircraft commander via Ops Room
- Be aware of PAX exiting aircraft
- Direct rescue crew
- Direct all operational control and implement ICS
- Provide M/ETHANE report
- Maintain safe operations and ensure scene safety
- Direct other agencies
- Water consolidation/replenishment
- Consider deploying the portable Solaris lighting system in hours of darkness.
- Consider deploying ladders to gain access into the aircraft.
- Consider deploying life - saving equipment.

Crash 1 - RRV Actions:

- Crewing: Incident Commander and ERD Driver
- Deploy vehicle to rescue side of aircraft.
- Be aware of PAX and assist them with exiting the aircraft
- Be prepared to operate bumper monitor or deploy media with 1 x 45mm hose with G force branch as determined by IC's DRA and prepare for use as covering jet outside the aircraft.
- Be prepared to act as pump operator on Crash 2 vehicle.
- Driver Crash 1 prepares the ladder for use.

Crash 2 - RRV Actions

- Crewing: Firefighter and ERD Driver
- Deploy vehicle to point of Hazard.
- Be aware of PAX exiting the aircraft
- Operate monitor
- Consider method of entry if PAX remain on board
- Don BA and utilise Rapid Deployment Procedures
- Deploy 2 x 45mm lengths of hose with G force branch/dry powder for internal fire at IC's direction and prepare for entry into aircraft
- Make access to aircraft and create survivable conditions by extinguishing fire and ventilating
- Remove any casualties from immediate danger
- Confirm/make safe aircraft systems
- Utilise Medics to triage casualties on board if survivable conditions are present
- Aid Medics in extricating casualties.

Specific Aircraft Hazards/Procedures:

- Flammable liquids and pressurised gases
- Presence of Man-Made Mineral Fibres
- Rotor blades.

Further Considerations:

- Aircraft position and wreckage
- Leaking fuel
- Passengers
- Other agencies
- Internal lighting
- Hydraulic ventilation

Supporting Information:

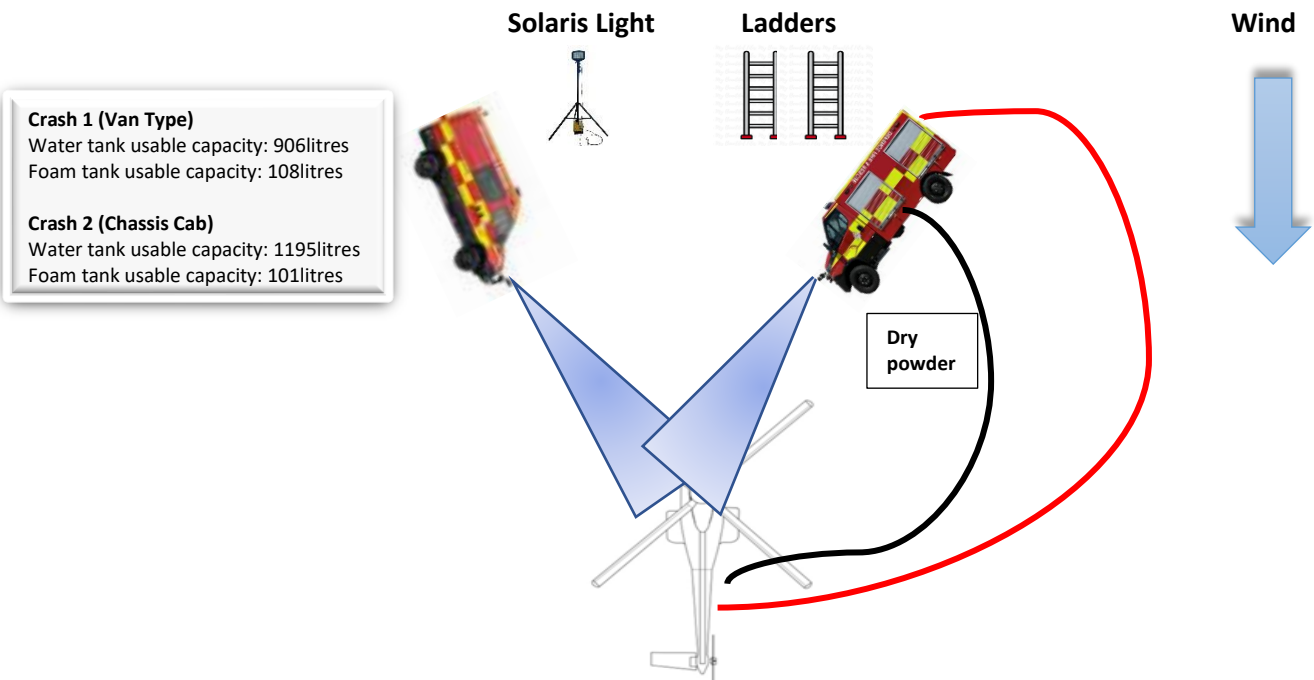
- DFR-OG 009 - Aircraft Fires
- ARFF TOG
- Ops Instruction 001 - Aircraft Incidents
- Ops Instruction 002 - HSE Policy
- Ops Instruction 024 - RRV Vehicle Operations
- Ops Instruction 026 - RRV ARFF Positioning Deployment & Task
- Ops Instruction 033 - BA Operations
- Ops Instruction 066 - Fire Contaminants
- Ops Instruction 069 - Polymer-Composites-and-MMMF
- Op Guidance 001 - Aircraft Incidents
- Op Guidance 002 - Incidents involving Rotary Wing Aircraft
- Op Guidance 003 - Aircraft Fuel Fires and Foam Application
- Op Guidance 006 - Aircraft Internal Fires
- Op Guidance 007 - Aircraft Engine Fire
- Op Guidance 008 - Aircraft Undercarriage Incidents
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16)
- AQRC A43.

Training:

- Aircraft familiarization
- Aircraft lecture - 6 monthly lesson.
- Redkite CMS
- Deployment exercise(s)

TTP 4 - External Fire

Event Plan – Initial Deployment



Incident Commander Considerations:

- Conduct and complete DRA
- Declare Tactical Mode
- Consider required agencies
- Consider implementing MIP
- If external fire only then utilise RRV Monitor
- Direct firefighting actions
- Consider contacting aircraft commander via Ops Room
- Be aware of PAX exiting aircraft
- Direct rescue crew
- Direct all operational control and implement ICS
- Provide M/ETHANE report
- Maintain safe operations and ensure scene safety
- Direct other agencies
- Water consolidation/replenishment.
- Consider deploying the portable Solaris lighting system in hours of darkness.
- Consider deploying ladders to gain access into the aircraft.

Crash 1 - RRV Actions:

- Crewing: Incident Commander and ERD Driver
- Deploy vehicle to rescue side of aircraft.
- Be aware of PAX and assist them with exiting the aircraft.
- Direct personnel away from airframe.
- Be prepared to operate monitor or deploy media with 1 x 45mm hose with G force branch as determined by IC's DRA and prepare for use as covering jet outside the aircraft.
- Be prepared to act as pump operator on Crash 2 vehicle.
- Driver Crash 1 prepares the ladder for use.

Crash 2 - RRV Actions:

- Crewing: Firefighter and ERD Driver
- Deploy vehicle to point of Hazard.
- Deploy main monitor and extinguish fire utilising mass discharge.
- Be aware of PAX exiting the aircraft.
- Consider method of entry if PAX remain on board.
- Don BA and utilise Rapid Deployment Procedures (if required).
- Deploy 2 x 45mm lengths of hose with G force branch/dry powder for external fire at IC's direction and prepare for entry into aircraft.
- Make access to aircraft crew and confirm survivable conditions (if required).
- Confirm/make safe aircraft systems.
- Utilise Medics to triage casualties on board if survivable conditions are present.
- Aid Medics in extricating casualties.

Specific Aircraft Hazards/Procedures:

- Flammable liquids and pressurised gases
- Presence of Man-Made Mineral Fibres
- Rotor blades.

Further Considerations:

- Aircraft position and wreckage
- Leaking fuel
- Passengers
- Priority should be to engage in offensive firefighting prior to engaging pump & roll
- Other agencies.

Supporting Information:

- DFR-OG 009 - Aircraft Fires
- ARFF TOG
- Ops Instruction 001 - Aircraft Incidents
- Ops Instruction 002 - HSE Policy
- Ops Instruction 024 - RRV Vehicle Operations
- Ops Instruction 026 - RRV ARFF Positioning Deployment & Task
- Ops Instruction 033 - BA Operations
- Ops Instruction 066 - Fire Contaminants
- Ops Instruction 069 - Polymer-Composites-and-MMMF
- Op Guidance 001 - Aircraft Incidents
- Op Guidance 002 - Incidents involving Rotary Wing Aircraft
- Op Guidance 003 - Aircraft Fuel Fires
- Op Guidance 006 - Aircraft Internal Fires
- Op Guidance 007 - Aircraft Engine Fire
- Op Guidance 008 - Aircraft Undercarriage Incidents
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16)
- AQRC A43.

Training:

- Aircraft familiarization
- Aircraft lecture - 6 monthly lesson.
- Redkite CMS
- Deployment exercise(s)