



Ministry
of Defence



Defence Fire and Rescue Tactics Techniques Procedure

Document No:	ATTP-A022-2024				
Title:	Shadow R1 MPRV and SUV (Where resourced)				
Date Issued:	06 01 2025				
Supersedes:	N/A				
Review Date:	01 01 2029				
Stakeholders:	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 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 ATTP 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	Date	Amended by	Role	Change	Status
V1.0	18/03/2021	Chris Bradshaw	F.S. Training Manager		Draft Review
V1.1	13/12/2024	Phil McGuinness	CFR Hd of Response	Minor tabs and layout only	DFR HQ Review
V1.2	18/12/2024	Shane Cook	AM for DFR HQ Andover	Station to confirm which branch to utilise P4,7 & 10 (45mm hose)	
V1.3	06/01/2025	Sgt Spackman	WM	Confirmation of branch used on p4,7 & 10	Draft
V1.3	06/01/2025	Shane Cook	AM for DFR HQ Andover	Changes agreed	For Issue
V1.3	06/01/2025	Phil McGuinness	CFR Hd of Response		Issued

Defence Fire & Rescue



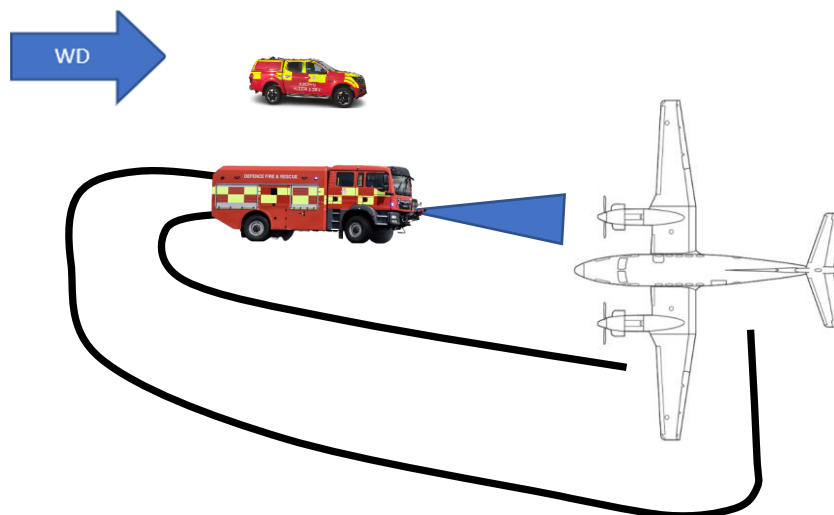
AIRCRAFT TACTICS TECHNIQUES PROCEDURES

1 x MPRV and 1 x SUV (Where resourced)⁴

Version Control	Page 2
TTP 1 - Engine Fire/External Fire	Page 3
TTP 2 - Wheel Assembly Incidents	Page 6
TTP 3 - Internal Fire	Page 7

TTP 1 – Engine/External Fire

Event Plan - Initial Deployment



Incident Commander Considerations:

- Location of A/C
- Emergency declared
- POB
- Wind Direction
- Transit to incident
- Confirm with all crews the nature of incident and location
- Deployment of SUV (if resourced)
- Evacuating PAX
- DRA followed by M/ETHANE
- Inform ATC of Tactical Mode & request external resources
- Consider contacting aircraft commander via ATC or 121.6 if available

⁴ RAF Waddington

- Repeat DRA as appropriate to the incident
- Prepare for ARA
- Declare state of airfield and ICAO category
- Consider use of secondary media
- Direct evacuated passengers / crew to safe holding area prior to designated casualty clearance set up by Medics
- Direct Medics to SUV location (if resourced)
- SENGO/Sqn Support
- LAFRS
- Ensure safe handover of incident when declared safe to relevant authority
- Debrief all crew's post-incident and identify any further support required.

Crash 1 - MPRV Actions:

- Crash 1 to deploy on the relevant affected undercarriage area. Bring the monitor into place ready to be used should it be needed, and the TIC can be used to locate a heat signature
- Designated BA wearers will don BA sets but remain off air until instruction from Incident Commander
- Initially crew will respond and assist evacuating passengers/crew, who will be directed towards the SUV and away from danger area (where resourced)
In the absence of an SUV the IC will nominate a PAX handling area
- Vehicle Commander will identify entry points to aircraft if required
- Deploy sufficient lengths of hose (45mm) and Akron branch or hose reel dependent upon the IC's DRA, for preparation for entry into airframe if required
- If BA entry is required instruction will be given by Incident Commander. BA Team will deploy according to current SOP with sideline or hose reel dependent upon the IC's DRA as appropriate to the incident
- BA team should consider use of thermal image camera to identify internal hot spots
- BA team aim will be to ensure survivable conditions therefore ventilation should be considered at the earliest opportunity and reported to Incident Commander
- Remove any casualties as appropriate and according to SOP.
- **No internal entry to airframe should take place until all external fires are extinguished or declared as under control.**

Specific Aircraft Hazards: (Make use of AQRC):

- Propellers
- Flammable liquids
- Pressurised gases
- Mark 9 oxygen masks are kept onboard for aircrew to use in the case of being trapped in a smoke-filled environment.

Further Considerations:

- Once the pilot is aware of the engine fire, the engines will be shut down and the onboard emergency fire extinguishers operated. This will automatically shut down all of the aircraft's systems. The A/C captain will also instruct the aircrew to evacuate the airframe on the opposite side to the engine fire
- Aircrew will open main entry point to A/C and vacate the airframe to a safe location.
- Extracted aircrew will inform the crew commander of previous known locations of trapped casualties

- As part of 14 SQN SOP's the aircraft will be shut down prior to evacuation
- Aircrew are trained to evacuate via the front portside exit in the event of an emergency
- Consider security implications in relation to aircraft use
- Environmental considerations from fire run off and incident interaction.

Training:

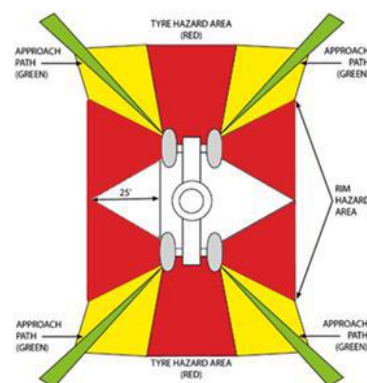
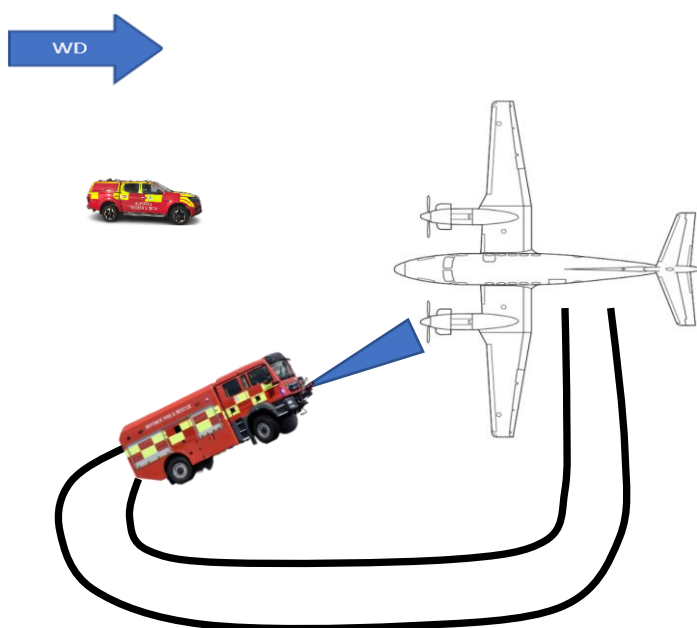
- Aircraft familiarization – Sqn personnel PPT
- CT Technical Note 63 – Engine Fires
- Endorsed PPT
- Redkite CMS.

Supporting Information:

- DFR-OG 009 - Aircraft Fires
- Op Instruction 001 – Aircraft Incidents
- Op Instruction 002 – CFR HSE Policy
- Op Instruction 005 – Low Speed Manoeuvring
- Op Instruction 006 – MPRV ARFF Positioning Deployment & Task
- Op Instruction 007 – MPRV Vehicle Operations
- Op Instruction 018 – SUV positioning Deployment & Task
- Op Instruction 033 – BA Operations
- Op Instruction 066 - Fire Contaminants
- Op Instruction 069 - Polymer-Composites-and-MMMF
- Op Guidance 001 – Aircraft Incidents
- Op Guidance 003 – Aircraft Fuel Fires and Foam Application
- Op Guidance 005 – Incidents Involving Small Aircraft
- Op Guidance 007 – Aircraft Engine Fire
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16).
- www.fast-air.co.uk
- www.flightglobal.com MOD Aircraft Crash Hazards Document Set.

TTP 2 – Wheel Assembly Incidents

Event Plan - Initial Deployment



Approach main gear along arrows.
Never enter shaded areas when there is a suspect hot brake or tyre.
Stay at least 25 feet (7.6 metres) away from tyre or rim until temperature returns to ambient.

Incident Commander Considerations:

- Location of A/C
- Emergency declared
- Wind Direction
- POB
- Incident Commander is to prepare to react to the potential of:
 - Aircraft hot brakes
 - Wheel brake fires
 - Undercarriage collapse
- Confirm with all crews the nature of incident and location
- Deployment of SUV (if resourced)

- Owing to the potential of a minor incident involving an undercarriage to rapidly escalate into a major fire involving both the interior and the exterior of the aircraft all Fire and Rescue Service personnel should consider:
 - Possible spread of fire and heat to fuel tanks and fuselage
 - Evacuating aircrew
 - Danger zones
 - Sudden movement or collapse of the aircraft
- Fire and Rescue Service personnel should be dressed in full protective clothing with visors down and those working in the vicinity of an undercarriage should wear respiratory protective equipment and aural protection
- Consider contacting aircraft commander via ATC or 121.6 if available
- Pilot to be contacted to shut down engines (if not already done so)
- Dry powder should be considered especially where hydraulic oils are on fire and consider the advantages of dry chemical powders:
 - Envelopes and covers the whole heated surface simultaneously and uniformly
 - Low cooling effect, therefore avoiding thermal shock
 - Powder forms a coating where there is oil contamination
 - Effective extinguishing agent on hydraulic fluids and lubricants
 - DRA followed by M/ETHANE
 - Inform ATC of Tactical Mode & Request External Resources
 - Repeat DRA as appropriate to the incident
 - Declare state of airfield and ICAO category
 - Prepare for ARA
 - Direct evacuated passengers / crew to safe holding area (*as nominated by IC*) prior to designated casualty clearance set up by Medics
 - SENG0/Sqn Support
 - LAFRS
 - Ensure safe handover of incident when declared safe to relevant authority
 - Debrief all crew's post-incident and identify any further support required.

Crash 1 - MPRV Actions:

- Crash 1 to deploy on the relevant affected undercarriage area, taking into consideration wind direction, gradient, passengers and SUV position (if resourced)
- Bring the monitor into place ready to be used should it be needed, and using the Raytek temperature gun, ascertain the temperatures of:
 - Wheel brakes / Wheel Rims
 - Tyres and transference of heat to the undercarriage
- Designated BA wearers will don BA sets but remain off air until instruction from Incident Commander
- Initially crew will respond and assist evacuating passengers/crew who will be directed towards the SUV (where resourced), away from the danger area⁵
- Vehicle/Incident Commander will identify entry points to aircraft if required
- Deploy sufficient lengths of hose (45mm) and Akron branch or hose reel dependent upon the IC's DRA, for preparation for entry into airframe if required
- If BA entry is required instruction will be given by Incident Commander. BA Team

⁵ In the absence of the SUV a safe holding is to be nominated by IC who is responsible for maintaining the incident ground

will deploy according to current SOP with 45mm sideline or hose reel as appropriate to the incident

- BA team aim will be to ensure survivable conditions therefore ventilation should be considered at the earliest opportunity and reported to Incident Commander
- Remove any casualties as appropriate and according to SOP.
- **Note: No internal entry to airframe should take place until all external fires are extinguished or declared as under control.**

Specific Aircraft Hazards – (Make use of AQRC):

- Propellers
- Flammable liquids
- Pressurised gases
- Mk 9 oxygen masks are kept onboard for aircrew to use in the case of being trapped in a smoke-filled environment. They will last between 15-20mins depending on activity levels.

Further Considerations:

- Upon undercarriage collapse Aircrew c/will commence shutting down of A/C systems and self-extract if possible
- Aircrew will open over-wing access point to A/C and vacate the airframe to a safe location. Note the main door will not open if the A/C has suffered undercarriage collapse
- Extracted aircrew to inform crew commander of previous known locations of trapped casualties
- Depending on severity of fire, crew commander may request use handheld extinguishers
- As part of 14 SQN SOP's the aircraft will be shutdown prior to evacuation
- Aircrew are trained to evacuate via the rear portside exit in the event of an emergency unless it is obstructed
- Sqn response/actions

Training:

- Aircraft familiarization – Sqn personnel
- Endorsed PPT
- Redkite CMS.

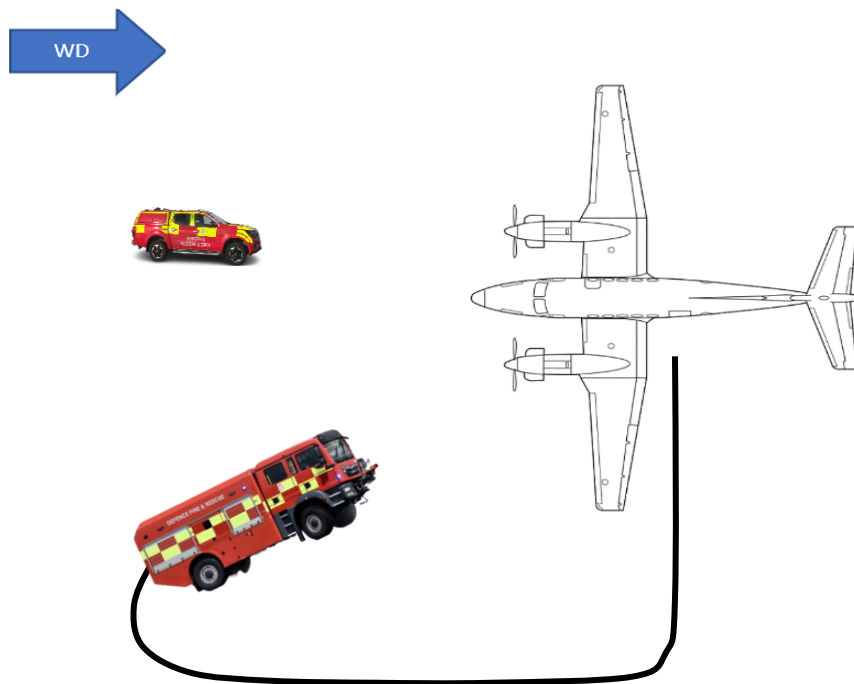
Supporting Information:

- DFR-OG 009 - Aircraft Fires
- Op Instruction 001 – Aircraft Incidents
- Op Instruction 002 – CFR HSE Policy
- Op Instruction 005 – Low Speed Manoeuvring
- Op Instruction 006 – MPRV ARFF Positioning Deployment & Task
- Op Instruction 007 – MPRV Vehicle Operations
- Op Instruction 018 – SUV positioning Deployment & Task
- Op Instruction 033 – BA Operations
- Op Instruction 066 – Fire Contaminants
- Op Instruction 069 – Polymer-Composites-and-MMMF
- Op Guidance 001 – Aircraft Incidents

- Op Guidance 003 – Aircraft Fuel Fires and Foam Application
- Op Guidance 005 – Incidents Involving Small Aircraft
- Op Guidance 008 – Aircraft Undercarriage Incidents
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16).
- www.fast-air.co.uk
- www.flightglobal.com MOD Aircraft Crash Hazards Document Set.

TTP 3 – Internal fire Incidents

Event Plan - Initial Deployment



Incident Commander Considerations:

- Location of A/C
- Emergency declared
- POB
- Wind Direction
- Transit to incident
- Confirm with all crew's nature of incident and location
- Deployment of SUV (if resourced)
- Evacuating PAX
- DRA followed by M/ETHANE

- Inform ATC of Tactical Mode & request external resources
- Consider contacting aircraft commander via ATC or 121.6 if available
- Repeat DRA as appropriate to the incident
- Prepare for ARA
- Declare state of Airfield and ICAO category
- Consider use of secondary media.
- Direct evacuated passengers / crew to safe holding area prior to designated casualty clearance set up by Medics.
- Direct Medics to SUV location (if resourced)
- SENG/Sqn Support
- LAFRS
- Ensure safe handover of incident when declared safe to relevant authority
- Debrief all crew's post-incident and identify any further support required.

Crash 1 - MPRV Actions

- Crash 1 to deploy on the port side of the A/C, this will give easy access if a BA team is needed to make entry
- Designated BA wearers will don BA sets but remain off air until instruction from Incident Commander
- Initially crew will respond and assist evacuating passengers/crew who will be directed towards the SUV and away from danger area (where resourced)⁶
- Vehicle Commander will identify entry points to aircraft if required
- Deploy sufficient lengths of hose (45mm) and Akron branch or hose reel dependent upon the IC's DRA, for preparation for entry into airframe if required
- If BA entry is required instruction will be given by Incident Commander. BA Team will deploy according to current SOP with 45mm sideline or hose reel as appropriate to the incident
- BA team should consider use of thermal image camera to identify internal hot spots
- BA team aim will be to ensure survivable conditions therefore ventilation should be considered at the earliest opportunity and reported to Incident Commander
- Remove any casualties as appropriate and according to SOP.
- **No internal entry to airframe should take place until all external fires are extinguished or declared as under control.**

Specific Aircraft Hazards – (Make use of AQRC):

- Propellers
- Flammable liquids
- Pressurised gases
- Mk 9 oxygen masks are kept onboard for aircrew tom use in the case of being trapped in a smoke-filled environment. They will last between 15-20mins depending on activity levels.

Further Considerations:

- Ventilation priority

⁶ In the absence of the SUV a safe holding is to be nominated by IC who is responsible for maintaining the incident ground

- BA teams
- Mark 9 oxygen masks are kept onboard for aircrew to use in the case of being trapped in a smoke-filled environment. They will last between 15- 30 mins depending on activity levels
- BA Teams are to note that access to rescue the occupants is very tight
- Due to irrespirable atmosphere, should crew be trapped but are under A/C system oxygen prior to ventilation, then consideration should be given to a DRA being carried out to leave the casualties in situ until medical personnel can access the A/C to assess them
- As part of 14 SQN SOP's the aircraft will be shut down prior to evacuation.
- Aircrew SOPs require evacuation via the main front port side exit in the event of an emergency
- Shut down aircraft iaw SQN SOP.

Training:

- Aircraft familiarization – Sqn personnel
- Endorsed PPT
- Redkite CMS.

Supporting Information:

- DFR-OG 009 - Aircraft Fires
- Op Instruction 001 – Aircraft Incidents
- Op Instruction 002 – CFR HSE Policy
- Op Instruction 005 – Low Speed Manoeuvring
- Op Instruction 006 – MPRV ARFF Positioning Deployment & Task
- Op Instruction 007 – MPRV Vehicle Operations
- Op Instruction 018 – SUV positioning Deployment & Task
- Op Instruction 033 – BA Operations
- Op Instruction 066 – Fire Contaminants
- Op Instruction 069 – Polymer-Composites-and-MMMF
- Op Guidance 001 – Aircraft Incidents
- Op Guidance 003 – Aircraft Fuel Fires and Foam Application
- Op Guidance 005 – Incidents Involving Small Aircraft
- Op Guidance 006 – Aircraft Internal Fires
- Op Guidance 008 – Aircraft Undercarriage Incidents
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16).
- www.fast-air.co.uk
- www.flightglobal.com MOD Aircraft Crash Hazards Document Set.