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	RN Aircraft Handler	✓ RAF Fire and Rescue	✓
	DFRS LEC	Other FRS Providers ¹	✓
	DFRS (Retained Officers)	DFRS (USVF)	

Technical Approved DFR HQ & CFR
Operations Committee

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¹ Other FRS Providers include Babcock, Mitie, QinetiQ Fire Services



Defence Fire & Rescue

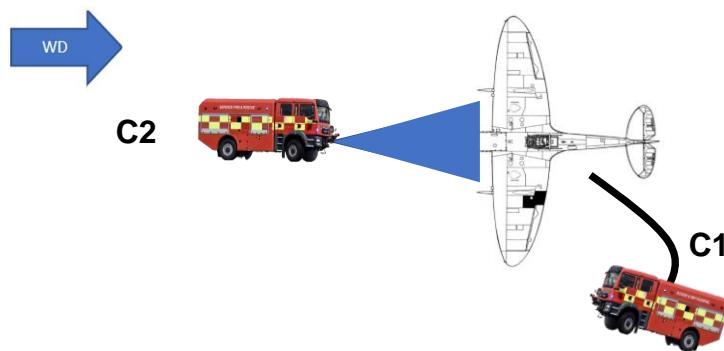
AIRCRAFT TACTICS TECHNIQUES PROCEDURES

Supermarine Spitfire

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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
- Evacuating PAX
- DRA followed by M/ETHANE
- Inform ATC of Tactical Mode & request external resources
- Direct all operational control and implement ICS
- Contact aircraft commander via ATC or 121.6 if available or direct visually, to ensure shutdown of engine and fuel cocks (IAW B171 CGY BBMF Spitfire Crash/Rescue)
- Repeat DRA as appropriate to the incident
- Prepare for ARA
- Declare state of airfield and ICAO category
- Consider use of secondary media initially as mass discharge dual application.
- Direct evacuated flight crew to safe holding area prior to designated casualty clearance set up by Medics
- Direct Medics to location
- 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 Deploys to the port of the aircraft covering the access to canopy.
- Be aware of PAX exiting the aircraft requiring assistance
- Designated BA wearers (Led by JNCO²) will don BA sets but remain off air until instruction from Incident Commander
- Initially crew will respond and assist evacuating crew, who will be directed towards the medics and away from danger area
- Vehicle commander will monitor operations of Crash 2 and assist with protection of the fuselage as required
- Prepare for use of 9kg dry powder extinguisher and appropriate hose line in preparation of engine fire access following mass discharge knockdown if required
- If engine fire access is required, instruction will be given by Incident Commander. BA Team will enter the area using suitable extinguishing appliance and equipment and with appropriate hose line under suitable BA Entry Control measures.
Note forceable access to engine may be required.
- Chock aircraft when safe on port side undercarriage
- Incident commander should consider use of thermal image camera to identify hot spots, monitoring the fuselage for heat transfer
- Short extension ladder may be required for cockpit access
- BA team will need to ensure canopy is opened following fire extinguishment if required on direction from IC
- BA team should gain access and make safe the airframe IAW:
- Engineering Authority B171 CGY BBMF Spitfire Crash/Rescue
- Assist in extrication of any casualties as appropriate and according to local SOP.

N.B. No direct access to airframe should take place until mass discharge has extinguished external engine fire.

CRASH 2 - MPRV Actions

- Crash 2 to deploy according to wind direction for immediate access to engine fire. Initial use of bumper turret will be required for primary knock down using foam discharge.
- Be aware of PAX exiting the aircraft.
- Consideration should be given to the use of vehicle secondary media (DP) if appropriate as dual media application.
- Bumper turret may be used to cool fuselage if required following mass discharge to engine fire. Consider conservation of media used.
- Incident Commander will provide supporting resources if incident requires BA intervention. (emergency covering line in support of BA Team, from MPRV, ladder access requirements)
- If BA teams are utilised the Incident Commander is to ensure that the following information is passed to ATC.
 - The number of BA in use
 - The purpose, e.g. ventilation
 - What Stage of control is in operation?
 - What additional BA resources are required?
- If a Rescue Task is required Crash 2 driver will remain with the vehicle to provide scene safety from the monitor in event of reignition.

² RAF Coningsby's operating model.

- Once fire is extinguished and the aircraft has been made safe, casualties have been extracted and are in medical care, crew commander can look to close down the incident and hand aircraft over to relevant agencies.

Specific Aircraft Hazards - (Make use of AQRC):

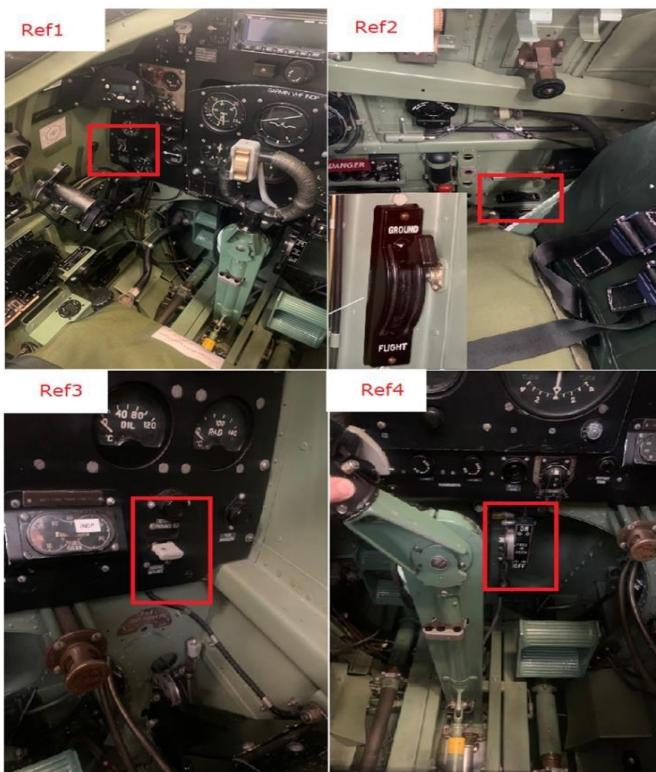
- Personnel must not enter within a 12 ft radius of the propeller when the engine is running
- At max RPM a minimum safety distance of 100 ft must be kept from the rear of the aircraft
- Personnel may be exposed to high noise levels during operation of the engine. Suitable ear protection must be worn
- Engine fire to be extinguished by spraying water / foam into the intake
- Aviation Fuel and pressurized systems again if fire spreads from engine fire.
- Ensure engine is shut down and fuel cocks closed with pilot or by opening canopy
- Normal means of access to the cockpit is gained by pressing the canopy release catch located on top of the leading edge of the canopy and physically sliding back the canopy towards the rear



- Depending on variant of Spitfire a “Canopy external emergency release” (Mk XIX) labelled Hood Jettison Pull may be available. The pull cord releases the bolts within the hinge system that secures the canopy to the aircraft allowing hood to be lifted off airframe.



Aircraft shutdown should be confirmed or completed as shown.



Aircraft shutdown should be confirmed or completed as shown.

- No1 and No2 magneto switches "OFF" **Ref 1**
- Ground/Flight switch "Ground" **Ref 2**
- Starter isolation switch "SAFE" **Ref 3**
- Fuel master "OFF" **Ref 4**

Further Considerations:

- There are 2 fuel tanks fitted to the Spitfire, fitted centrally in front of the cockpit, one on top of the other
- In addition, the Mk XIX's also have a fuel tank in both wings
- High octane AVGAS 100LL is used, total capacity for the aircraft derivatives are 85, 96 & 121 gals
- Propeller danger zones
- Will additional BA Team be required?
- Use of TIC
- Will engine covers need to be opened?
- ICP set up point
- LAFRS response times.

Training:

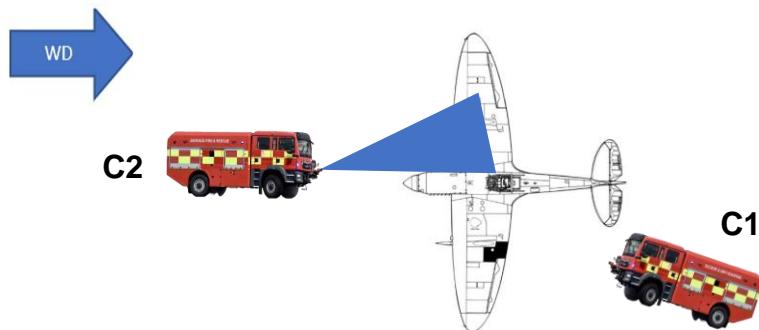
- Aircraft familiarization
- B171 CGY BBMF Spitfire Crash/Rescue
- Deployment exercise(s)
- Redkite CMS.

Supporting Information:

- DFR-Ops Guidance 009 - Aircraft Fires
- 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 033 - BA Operations
- Ops Instruction 066 - Fire Contaminants
- Op Guidance 001 - Aircraft Incidents
- Op Guidance 003 - Aircraft Fuel Fires
- Op Guidance 006 - Aircraft Internal Fires
- Op Guidance 007 - Aircraft Engine Fire
- Op Guidance 008 - Aircraft Undercarriage Incidents
- ATTP A23 Spitfire
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16)

TTP 2 - Wheel Assembly Incidents

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
- Evacuating PAX
- DRA followed by M/ETHANE
- Inform ATC of Tactical Mode & request external resources
- Direct all operational control and implement ICS
- Contact aircraft commander via ATC or 121.6 if available or direct visually, to ensure shutdown of engine and fuel cocks (IAW B171 CGY BBMF Spitfire Crash/Rescue)
- Repeat DRA as appropriate to the incident
- Prepare for ARA
- Declare state of airfield and ICAO category
- Consider use of secondary media initially as mass discharge dual application.
- Direct evacuated flight crew to safe holding area prior to designated casualty clearance set up by Medics
- Direct Medics to location
- 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 Deploys to the port of the aircraft covering the access to canopy.
- Be aware of PAX exiting the aircraft requiring assistance
- Designated BA wearers (Led by JNCO³) will don BA sets but remain off air until instruction from Incident Commander
- Initially crew will respond and assist evacuating crew, who will be directed towards the medics and away from danger area
- Vehicle commander will monitor operations of Crash 2 and assist with protection of the fuselage as required
- Prepare for use of 9kg dry powder extinguisher and appropriate hose line in preparation of engine fire access following mass discharge knockdown if required
- If engine fire access is required, instruction will be given by Incident Commander. BA Team will enter the area using suitable extinguishing appliance and equipment and with

³ RAF Coningsby's operating model.

appropriate hose line under suitable BA Entry Control measures.

Note forceable access to engine may be required.

- Chock aircraft when safe on port side undercarriage
- Incident commander should consider use of thermal image camera to identify hot spots, monitoring the fuselage for heat transfer
- Short extension ladder may be required for cockpit access
- BA team will need to ensure canopy is opened following fire extinguishment if required on direction from IC
- BA team should gain access and make safe the airframe IAW:
 - Engineering Authority B171 CGY BBMF Spitfire Crash/Rescue
- Assist in extrication of any casualties as appropriate and according to local SOP.

CRASH 2 - MPRV Actions

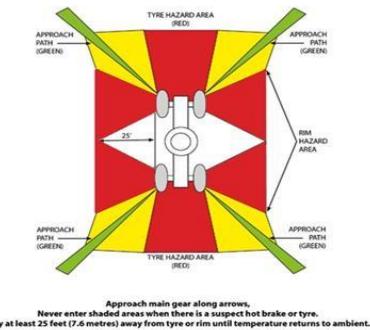
- Crash 2 to deploy according to wind direction to nose of aircraft. Initial use of bumper turret will be required for primary knock down using foam discharge. Consideration should be given to the use of vehicle secondary media (DP) if appropriate as dual media application

N.B. Where no fire is evident media should not be applied but crews should standby in case of fire initiation.

- Bumper turret may be used to cool fuselage and maintain foam blanket if required following mass discharge to undercarriage fire. Consider conservation of media used
- When available vehicle commander will report actions and situation update to Incident Commander
- Vehicle Commander will provide supporting resources if incident requires BA intervention. (emergency covering line in support of BA Team, 45mm lay flat hose from MPRV, ladder access requirements)
- Vehicle commander will provide timely updates to Incident Commander and respond to command requests
- Incident Commander will provide supporting resources if incident requires BA intervention. (emergency covering line in support of BA Team, from MPRV, ladder access requirements)
- If BA teams are utilised the Incident Commander is to ensure that the following information is passed to ATC.
 - The number of BA in use
 - The purpose, e.g. ventilation
 - What Stage of control is in operation?
 - What additional BA resources are required?
- If Rescue Task is required Crash 2 driver will remain with the vehicle to provide scene safety from the monitor in event of reignition.
- Once fire is extinguished and the aircraft has been made safe, casualties have been extracted and are in medical care, crew commander can look to close down the incident and hand aircraft over to relevant agencies.

Wheel assembly danger areas

- Generic wheel assembly danger areas
- Potential structural collapse due to weakened undercarriage



Specific Aircraft Hazards - (Make use of AQRC):

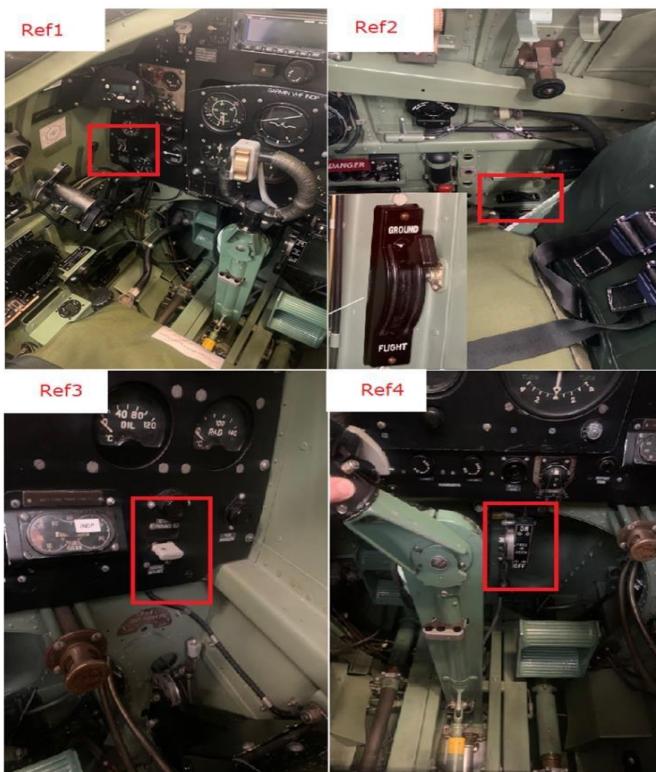
- Personnel must not enter within a 12 ft radius of the propeller when the engine is running
- At max RPM a minimum safety distance of 100 ft must be kept from the rear of the aircraft
- Personnel may be exposed to high noise levels during operation of the engine. Suitable ear protection must be worn
- Engine fire to be extinguished by spraying water / foam into the intake
- Aviation Fuel and pressurized systems
- Ensure engine is shut down and fuel cocks closed with pilot or by opening canopy
- Normal means of access to the cockpit is gained by pressing the canopy release catch located on top of the leading edge of the canopy and physically sliding back the canopy towards the rear



- Depending on variant of Spitfire a "Canopy external emergency release" (Mk XIX) labelled Hood Jettison Pull" may be available. The pull cord releases the bolts within the hinge system that secures the canopy to the aircraft allowing hood to be lifted off airframe.



Aircraft shutdown should be confirmed or completed as shown.



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- No1 and No2 magneto switches “OFF” Ref 1
- Ground/Flight switch “Ground” Ref 2
- Starter isolation switch “SAFE” Ref 3
- Fuel master “OFF” Ref 4

Further Considerations:

- There are 2 fuel tanks fitted to the Spitfire, fitted centrally in front of the cockpit, one on top of the other
- In addition, the Mk XIX's also have a fuel tank in both wings
- High octane AVGAS 100LL is used, total capacity for the aircraft derivatives are 85, 96 & 121 gals
- Propeller danger zones
- Will additional BA Team be required?
- Use of TIC
- Will engine covers need to be opened?
- ICP set up point
- LAFRS response times.

Training:

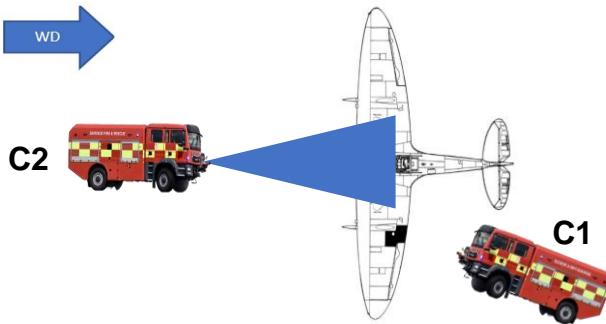
- Aircraft familiarization
- B171 CGY BBMF Spitfire Crash/Rescue
- Deployment exercise(s)
- Redkite CMS.

Supporting Information:

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TTP 3 – 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
- Evacuating PAX
- DRA followed by M/ETHANE
- Inform ATC of Tactical Mode & request external resources
- Direct all operational control and implement ICS
- Contacting aircraft commander via ATC or 121.6 if available or direct visually, to ensure shutdown of engine and fuel cocks (IAW B171 CGY BBMF Spitfire Crash/Rescue)
- Repeat DRA as appropriate to the incident
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- Initially crew will respond and assist evacuating crew, who will be directed towards the medics and away from danger area
- Vehicle commander will monitor operations of Crash 2 and assist with protection of the fuselage as required
- Chock aircraft when safe and ensure engines are shut down
- Incident commander should consider use of thermal image camera to identify hot spots, monitoring the fuselage for heat transfer
- Short extension ladder may be required for cockpit access
- BA team will enter RA under suitable BA Entry Control measures and will need to ensure canopy is opened following fire extinguishment if required on direction from the IC

⁴ RAF Coningsby's operating model.

- BA team should gain access and make safe the airframe IAW:
 - Engineering Authority IAW B171 CGY BBMF Spitfire Crash/Rescue
- Assist in extrication of any casualties as appropriate and according to local SOP.

N.B. No direct access to airframe should take place until mass discharge has extinguished external engine fire.

CRASH 2 - MPRV Actions

- Crash 2 to deploy according to wind direction for immediate access to nose of airframe protecting critical part (canopy cockpit). Initial use of bumper turret will be required for primary knock down using foam discharge
- Be aware of PAX exiting the aircraft.
- Consideration should be given to the use of vehicle secondary media (DP) if appropriate as dual media application.
- Bumper turret may be used to cool fuselage if required following mass discharge to engine fire. Consider conservation of media used.
- Incident Commander will provide supporting resources if incident requires BA intervention. (emergency covering line in support of BA Team, from MPRV, ladder access requirements)
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- Will additional BA Team be required?
- Use of TIC
- Will engine covers need to be opened?
- ICP set up point
- LAFRS response times.

Training:

- Aircraft familiarization
- B171 CGY BBMF Spitfire Crash/Rescue
- Deployment exercise(s)
- Redkite CMS.

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Document Control

Version	Date	Author	Role/Name	Status	Changes
V1.0	04 08 2021	A. Carr	F.S. Training Manager	Current	Drafted
V1.0	15 10 2021	P McGuinness	CFR Hd of Response	Issue	Published
V1.1	19 06 2024	P McGuinness	CFR Hd of Response	Doc Update	New Cover New Sponsor
V1.1	20 06 2024	S Dalgliesh	FSM / FS RAF Coningsby	Endorsed	
V1.1	21 06 2024	S Cook	AM DFR HQ	Stakeholder review	Footnotes requested
V1.1	24 06 2024	P McGuinness	CFR Hd of Response	Issued	Footnotes added