Ministry of Defence

Defence Fire and Rescue
Tactics Techniques Procedure

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Stakeholders:	DFR HQ	✓	Capita Fire and	✓
	RAF Fire Service	✓	RN Aircraft Handler[1]	✓
	DFRS LEC	✓	Other FRS Providers[2]	
	DFRS (DFSR, DIO, RN) [3]	✓	DFRS (USVF)	
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Approved Authority:	DFR Sponsored Ops Policy Committee			

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Conditions of Release

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 DFSR, DIO & RN, are included for information purposes only.

VERSION CONTROL HISTORY

Version	Date	Amended by	Role	Change	Status
V1.0	08 07 2021	J Graves	FSM		Draft
V1.1	15 10 2021	P McGuinness	CFR Hd of Response		Published
V1.2	22/07/2024	P McGuinness	CFR Hd of Response	New Cover updates. Change of sponsor. References Op Ins 066 & 069 added.	
V1.2	02/10/2024	J Graves	FSM	Note: Crash 2 could be either an MPRV or Striker	Fire Station Review
V1.2	04/10/2024	S Cook	AM DFR HQ	Recommend combining armed and unarmed TTPs	Stakeholder Review
V1.2	15/10/2024	P McGuinness	CFR Hd of Response	Combined armed & unarmed TTPs to reduce the number of TTPs.	Published

Defence Fire & Rescue

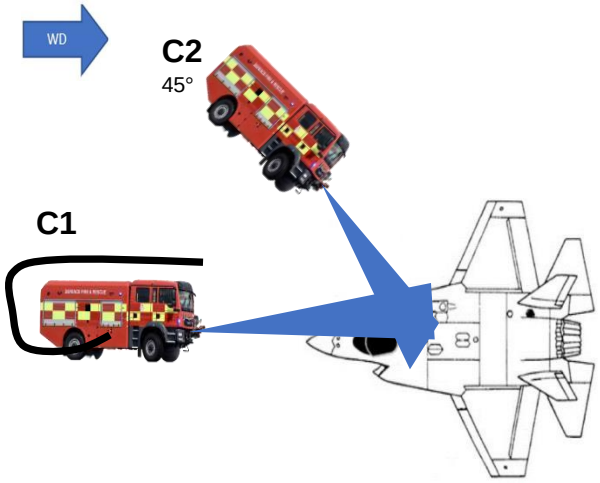
AIRCRAFT TACTICS TECHNIQUES PROCEDURES

Lightning F35B

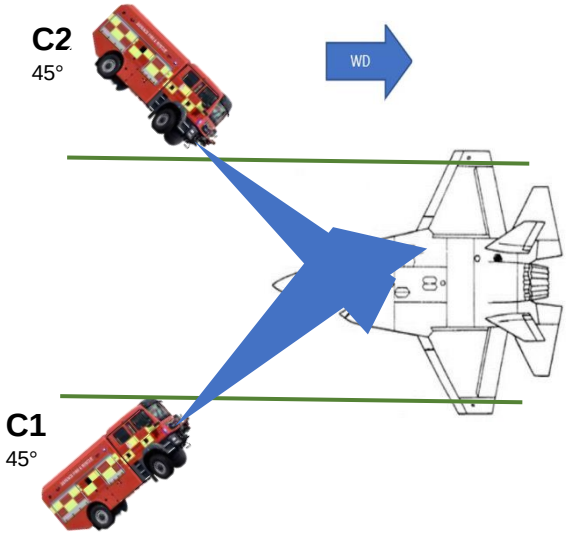
2 x MPRVs or (1 x MPRV & 1 Striker/HRET)

TTP 1 – Engine / External Fire

Event Plan - Initial Deployment



Unarmed



Armed

Incident Commander Considerations:

- Emergency declared
- Location of A/C
- Wind Direction
- Status of pilot
- Is aircraft armed or unarmed (deployment consideration)
- Liaise with pilot (through ATC if necessary) at earliest opportunity to confirm immediate shut down of engines and fuel cocks to reduce escalation of incident
- Weapons Systems are made safe?
- On arrival conduct DRA followed by M/ETHANE
- Direct all operational control and implement ICS
- Select a Safe System of Work
- Is flame visible?
- Is fire spreading (is mass discharge applicable?)
- Create survivable conditions
- Consider use of secondary media (if applicable)
- Inform ATC of Tactical Mode & request external resources

- Safety distances to be adhered to if pilot intends to use canopy jettison.
- Extinguish fire, gain entry, evacuate pilot
- Direct Medics to location
- Inner and outer cordons (Considerations of RPE levels)
- Repeat DRA as appropriate to the incident
- Prepare for ARA (where time and resources permit)
- SENGO/Sqn Support
- Liaise with LAFRS (where applicable)
- Declare state of airfield and ICAO category
- 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 according to event plan for ARMED or UN-ARMED aircraft (as pictured).
- Be aware if Pilot is exiting the 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, if appropriate as dual media application
- Cool A/C if required
- Carry out check of area affected by fire to confirm area is safe
- Don BA under Rapid Deployment Procedures.
- Deploy covering 45mm jet
- Consider method of entry if pilot remains in cockpit
- Make safe aircraft systems and weapons
- Assist with medical/trauma response
- Provide scene safety, establish casualty handling station.

Crash 2 - MPRV/Striker Actions:

- Deploy vehicle to support firefighting operations
- Be aware of Pilot exiting the aircraft
- Be prepared to operate Monitor
- Be prepared to Deploy HRET (*if FFV Combination allows for this)*
- IC may/will dismount and commence 360-degree assessment (*if not already complete*)
- Driver is to remain in position and carry out monitor operations until no longer required, then they are to dismount and carry out any activity that is required to assist the Ops/BA team
- They may assist by footing the ladders for BA Team to make entry and initiate rescue tasks
- They may/will assist in getting a 45mm with foam branch to work
- Other tasks will involve getting equipment required to carry out rescue task ready for Ops/BA team, they will assist as and when tasked
- Consider use of vehicle thermal image camera to identify internal hot spots.

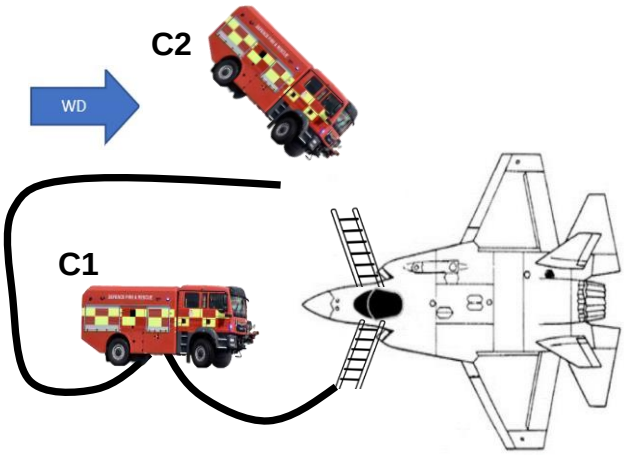
Deployment once Fire is extinguished

NB No internal entry to airframe should take place until all external fires are extinguished as directed by IC.

- IC may or may not choose to redeploy C1 once <u>all systems are made safe</u>
- Remove casualty as appropriate and according to SOP Rescue of pilot
- BA team under rapid deployment procedures, monitored by appointed person
- Deploy split extension ladder to each side of cockpit area
- Maintain post fire security and exit protection through hose reel and 45mm with foam branch
- Access cockpit (Normal/Emergency) means
- With ladders footed ascend and access cockpit and flight crew

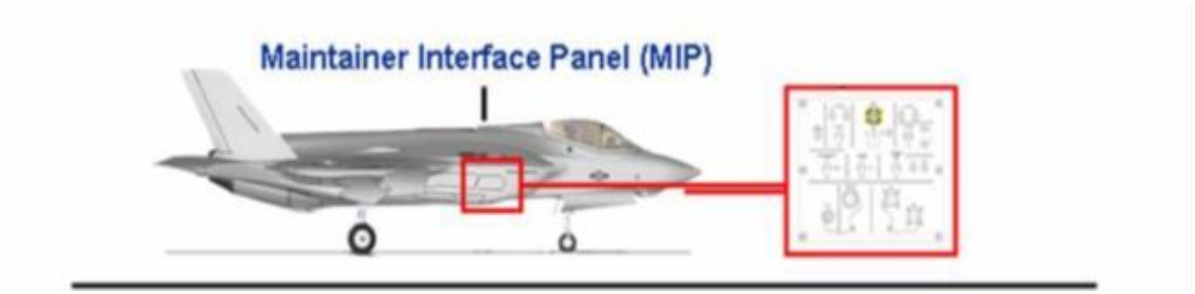
Make safe as required

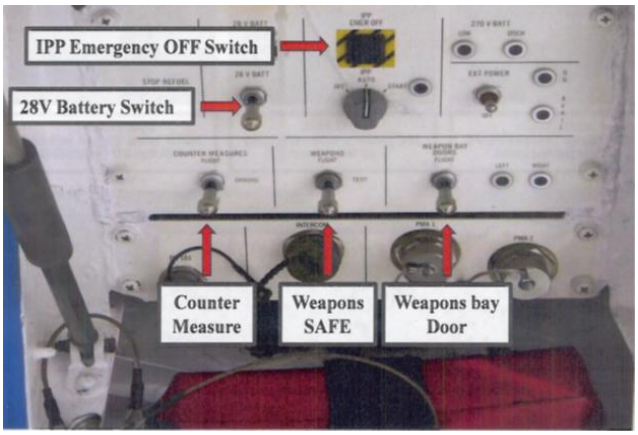
All systems made safe



Making aircraft Safe

- The Pin Bag is generally located in the in the Maintenance Interface Panel (MIP) red bag below





Further Considerations:

- Firefighters to be aware of Aircraft and Engine potentially collapsing due to deteriorating state, firefighters in risk area to continually assess and conduct personnel risk assessments
- Physiological stress of BA wearers and firefighters to be constantly monitored
- Engine fires can vary in size, outcome and potential spread of the fire increasing volume
- Keep limited exposure of personnel wherever as possible to save manpower, this is completed by strict cordon control
- Guard branches should be maintained until there is no doubt that any residual heat has completely dissipated
- Cover all fuel spillages with aspirated foam

- Consider Carbon Fibre Hazard / PPE and RPE required to deal with the incident safely and effectively
- Consider any environmental implications
- Preserve the scene and any evidence
- Generally accepted practice is to keep the wreckage damp utilising fine mist water spray. If the aircraft is small, then the wreckage can be covered in a salvage sheet
- The Station or RAFLO will have initiated the PCM, and the cordon should be maintained until their arrival and the crash scene is handed over by the Station.

Casualty Handling and PPE Contaminants

- In light of the hazards associated with the liberation of dusts and fibres at accident sites, it is recommended that consideration should be given to the need to clean non-disposable personal protective equipment at the earliest opportunity.
- Casualties contaminated with fire residues from composites should have outer clothing removed where possible, to prevent fibres being transported away from the crash site and ambulance/medical teams advised as to the irritant nature of these products.
- The treatment of casualties with serious/life threatening injuries should not be delayed. Medical teams must be advised of the hazards posed by contaminated clothing.
- It is generally considered that normal washing protocols for personal protective equipment will suffice following normal Fire and Rescue Service (F&RS) operations at aircraft fire/crash scenarios. However, fire service personnel familiarise themselves with: Ops Instruction 066 - Fire Contaminants and follow this post incident.

Post Crash Actions

- Ensure hot debrief is carried out involving all relevant agencies
- On occasions when firefighters have been subjected to the type of traumatic conditions likely to be experienced at an aircraft incident in which loss of life has occurred, a variety of personal feelings and conditions may arise, including Post Traumatic Stress Disorder
- A formal debrief and feedback session should be conducted post incident, identify training needs and good practice. Shared learning identified should be disseminated via HQ staff.

Supporting Information:

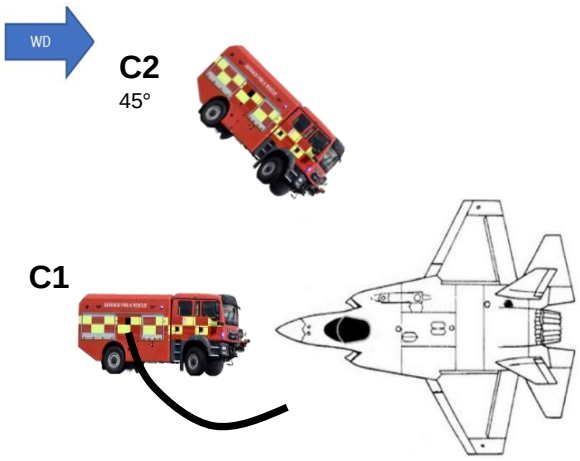
- DFR-Ops Guidance 009 - Aircraft Fires
- Ops Instruction 001 - Aircraft Incidents
- Ops Instruction 002 - CFR HSE Policy
- Ops Instruction 006 - MPRV ARFF Positioning Deployment & Task
- Ops Instruction 007 - MPRV Vehicle Operations
- Ops Instruction 018 - SUV positioning Deployment & Task
- Ops Instruction 033 - BA Operations
- Ops Instruction 066 - Fire Contaminants
- Ops Instruction 069 - Polymer-Composites-and-MMMF
- Op Guidance 001 - Aircraft Incidents
- Op Guidance 003 - Aircraft Fuel Fires (and Foam Application)
- Op Guidance 004 - Military Fast Jets
- 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)
- AD 101C-1901-D1A, AD 101C-1901-D1B, AD 101C-1901-D1C, AD 101C-1901-D1D
- AD 101C-1901-D1E
- AQRC A13

Training:

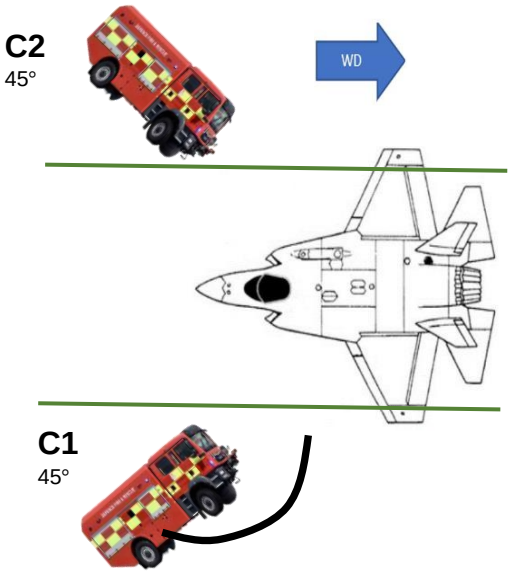
- Aircraft familiarization - Sqn SME
- Deployment exercise(s)
- Aircraft lecture - 6 monthly lesson / familiarisation presentation
- Redkite / CMS training

TTP 2 – Undercarriage Incidents

Event Plan - Initial Deployment



Unarmed



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- Location of A/C
- Wind Direction
- Status of pilot
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- Weapons Systems are made safe?
- On arrival conduct DRA followed by M/ETHANE
- Direct all operational control and implement ICS
- Select a Safe System of Work
- Is flame visible?
- Is fire spreading, (is mass discharge needed/create survivable conditions)?
- Consider use of vehicle thermal image camera to identify hot spots
- Consider use of secondary media (where necessary)
- Firefighters are to adopt a safe approach route
- Inform ATC of Tactical Mode & request external resources
- Safety distances to be adhered to if pilot intends to use canopy jettison.
- Where applicable - extinguish fire, prior to gaining entry, evacuate pilot
- Direct Medics to location
- Inner and outer cordons (considerations of RPE/Goggles)
- Repeat DRA as appropriate to the incident
- Prepare for ARA (where time and resources permit)
- SENGO/Sqn Support
- Liaise with LAFRS (if applicable)
- Declare state of airfield and ICAO category
- Ensure safe handover of incident when declared safe to relevant authority
- Debrief all crew's post-incident and identify any further support required.

Further Consideration

- 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?

    Where no fire is evident media should not be applied but crews should standby

Crash 1 - MPRV Actions:

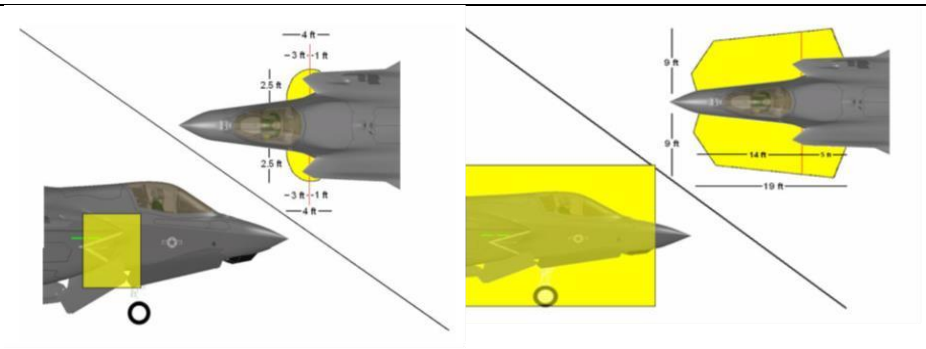
- Crash 1 to deploy according to event plan for ARMED or UN-ARMED aircraft.
- For fire/fuel spill, initial use of bumper turret may be required for primary knock down.
- Consideration should be given to the use of vehicle secondary media, if appropriate (wheel brake fire).
- Carry out check of area affected by fire to confirm area is safe (Thermal Imaging Camera)
- Don BA under Rapid Deployment Procedures.
- Deploy covering 45mm jet
- Consider method of entry if pilot remains in cockpit
- Make safe aircraft systems and weapons
- Assist with medical/trauma response
- Cool A/C if required
- Provide scene safety

Crash 2 - MPRV/Striker Actions:

- Deploy vehicle to support firefighting operations
- Be prepared to operate Monitor
- Be prepared to Deploy HRET if FFV Combination allows
- Don BA under stage 1 procedures if tasked
- Consider further media application
- Assist Crash 1 crew in their tasks if required
- Cool A/C if required
- Assist with medical/trauma response
- Provide scene safety, establish casualty handling station.

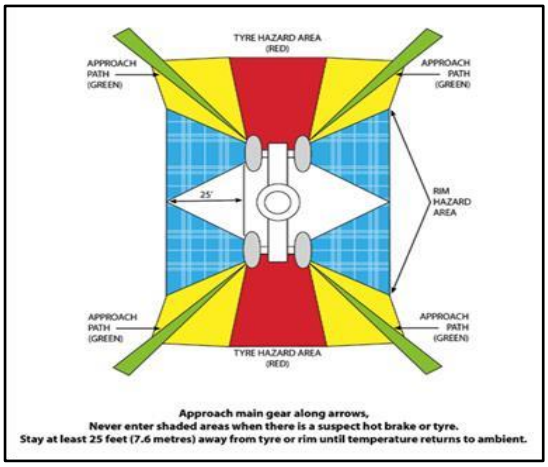
Specific Aircraft Hazards: (Make use of AQRC):

- All crew to be aware of engine intakes when approaching, taking into consideration the danger zones.
- Personnel to be aware of engine jet efflux and hazardous zones.
- All personnel in the risk area are to be in appropriate PPE/RPE.
- If armed be aware of armaments pyrotechnics and ejector seats.
- Aspirated foam blanket should be maintained as required.
- If pilot opts to use Transparency Removal System, safety distance to be adhered to 100m
- A/C to be shut down IAW AQRC A13.

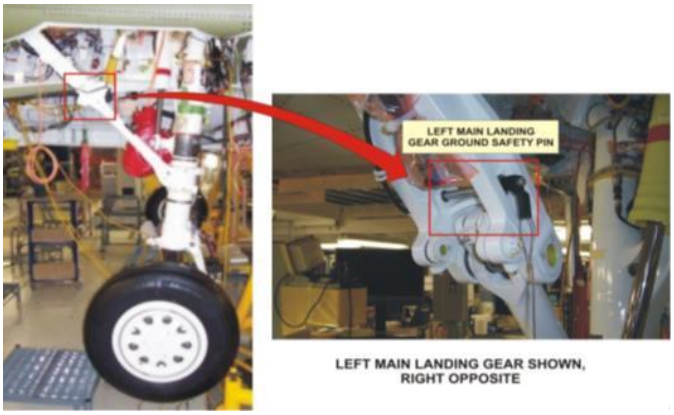


Engine Intake Hazard

Engine Exhaust Hazard



Generic Undercarriage Hazard Areas



To pin the nose wheel

Post Incident Actions

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