



Ministry
of Defence



Defence Fire and Rescue Tactics, Techniques & Procedures

Document No:

Title: ATTP-A12 Avro Lancaster - Response 2 MPRVs V1.1

Date Issued: 24 06 2024

Supersedes: ATTP-A08 Dated: 15 10 2021

Review Date: 01 06 2029

Stakeholders:	DFR HQ	✓	Capita Fire and Rescue	✓
	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

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.

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



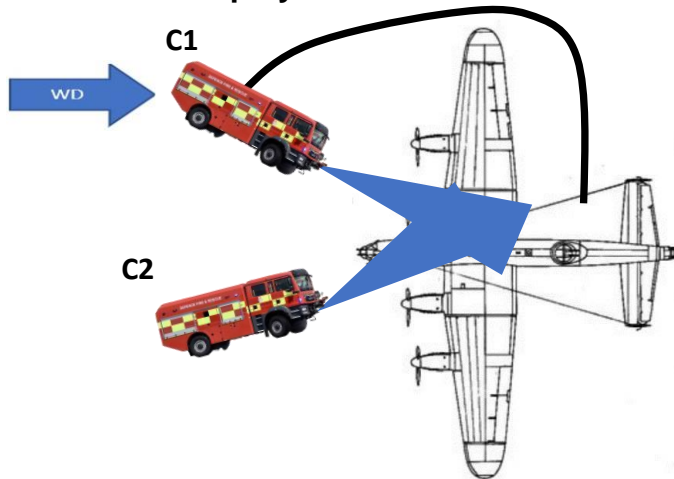
AIRCRAFT TACTICS TECHNIQUES PROCEDURES

Avro Lancaster

TTP 1 - Engine Fire	Page 2
TTP 2 - Wheel Assembly Incidents	Page 6
TTP 3 - Internal Fire / Smoke in Cockpit	Page 10
TTP 4 - External Fire	Page 14
Version Control	Page 16

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
- Contacting aircraft commander via ATC or direct visually, to ensure shutdown of engine and fuel cocks B173 CGY BBMF Lancaster Crash/rescue
- Repeat DRA as appropriate to the incident
- Prepare for ARA
- Declare state of airfield and ICAO category
- Consider use of secondary media and associated equipment (fog spike, DP Extinguisher, etc) including access requirements 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
- 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 Deploys to the site of the engine fire This will permit support of Crash 2 and additionally support redeployment as required during incident phases
- Be aware of PAX exiting the aircraft starboard rear or emergency exit under the main cockpit.
- 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 extinguishment of the fire and protection of the fuselage as required.
- Prepare for use of 9kg dry powder extinguisher together with appropriate equipment such as DP Fog Spike and an 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 media and equipment and with an appropriate hose line.
- Incident Commander should consider the use of thermal image camera to identify hot spots, monitoring the fuselage for heat transfer.
- BA team will need to check internal fuselage accessing through starboard egress for heat transfer / casualties as appropriate and make safe the airframe IAW:

□ B173 CGY BBMF Lancaster Crash/rescue

- BA team will brief Incident Commander when extinguishment of fire has been achieved.
- Remove any casualties as appropriate and according to 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:

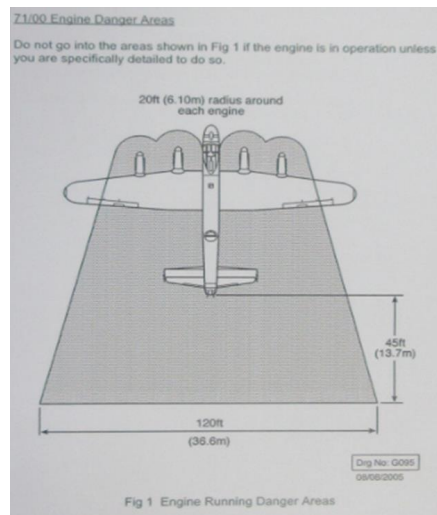
- The number of BA in use

² RAF Coningsby's operating model.

- 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.
 - 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):

- Engine Danger Area

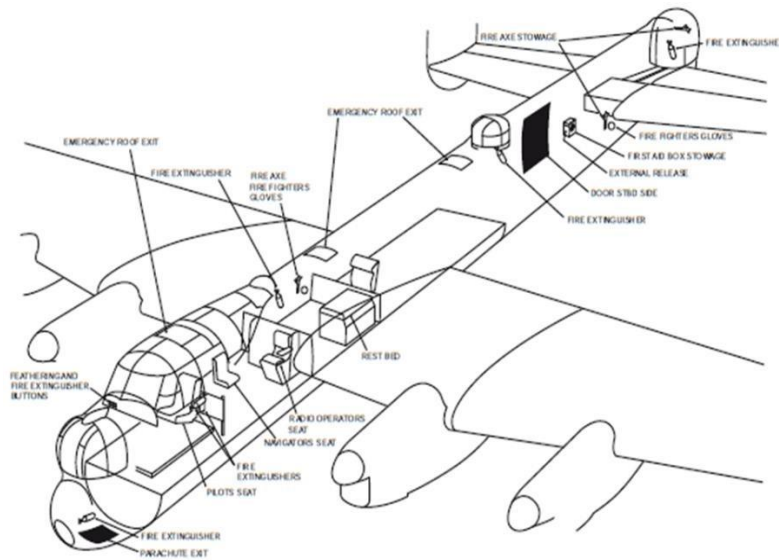


- Fire access panel highlighted by the small right hand red box on the image to the left for engine fires via the side access highlighted by the larger red box.



- Engine to be extinguished by spraying media into fire access panel on the side on each engine casing

■ Location of emergency exits and equipment



Further Considerations:

- 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.

Supporting Information:

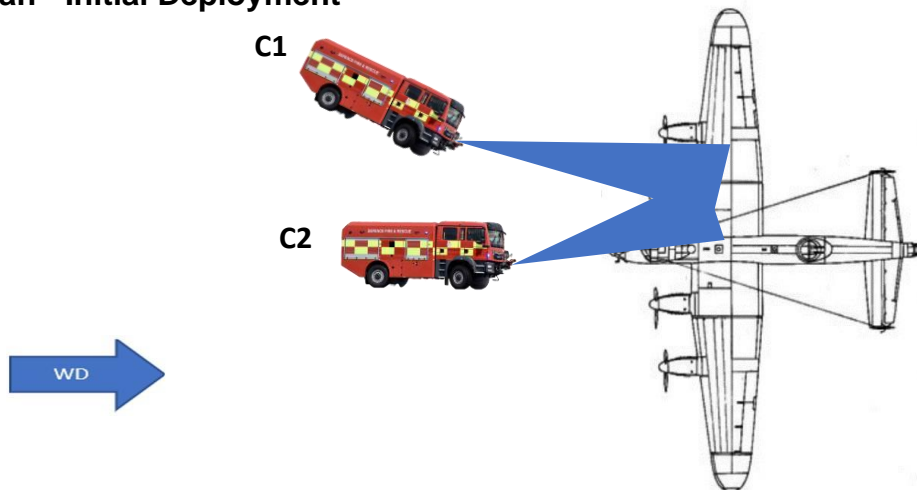
- DFR-Ops Guidance 009 - Aircraft Fires
- Ops Instruction 001 - Aircraft Incidents
- Ops Instruction 002 - CFR HSE Policy
- Ops Instruction 005 - Low Speed Manoeuvring
- Ops Instruction 006 - MPRV ARFF Positioning Deployment & Task
- Ops Instruction 007 - MPRV Vehicle Operations
- Ops Instruction 033 - 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 A12 Avro Lancaster
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16)

Training:

- Aircraft familiarization
- B173 CGY BBMF Lancaster Crash /Rescue
- Deployment exercise(s)
- Redkite CMS.

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
- Contacting aircraft commander via ATC or direct visually, to ensure shutdown of engine and fuel cocks B173 CGY BBMF Lancaster 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
- 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 the side of aircraft the fire is located. 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.
Note: Where no fire is evident media should not be applied but crews should standby.
- 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

³ RAF Coningsby's operating model.

- 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 lines in preparation for access to undercarriage void following mass discharge knockdown (where required)
- If undercarriage void fire access is required, instruction will be given by the incident commander. BA Team will enter the area using suitable control measure with an appropriate hose line and 9kg dry powder extinguisher.
- Incident commander should consider use of thermal image camera to identify hot spots, monitoring the fuselage for heat transfer
- BA team may need to check internal fuselage accessing through starboard egress for fire extinguishment / casualties as appropriate.
- BA team will ensure engines and fuel cocks are shut down IAW:

□ Engineering Authority B173 CGY BBMF Lancaster Crash/Rescue

- BA team aim will brief Incident Commander when extinguishment of fire has been achieved.
- Remove any casualties as appropriate and according to SOP and IAW TRA

Crash 2 - MPRV Actions

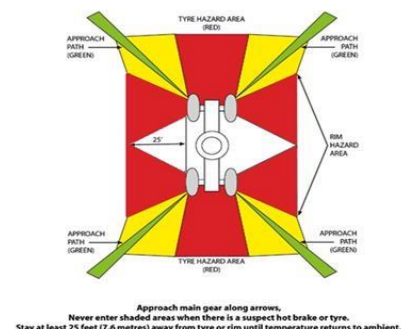
- Crash 2 to deploy according to wind direction to nose of aircraft. Initial use of bumper turret will be required for primary knock down using foam discharge. Consideration should be given to the use of vehicle secondary media (DP) if appropriate as dual media application

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
- 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
The undercarriage ground locks are stowed directly behind
The toilet to the left as you climb in through the main door.
- Ground locks are spring loaded and easy to fit (see red bars Pictured).

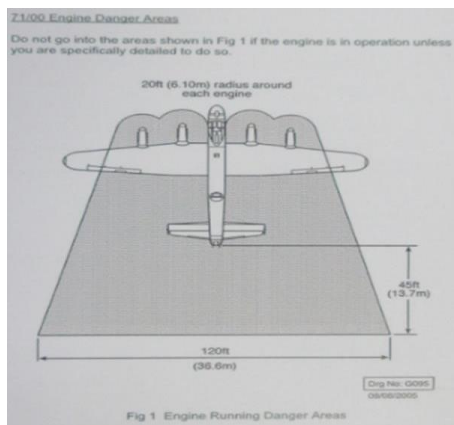


Ground Locks



Further Considerations:

- 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:

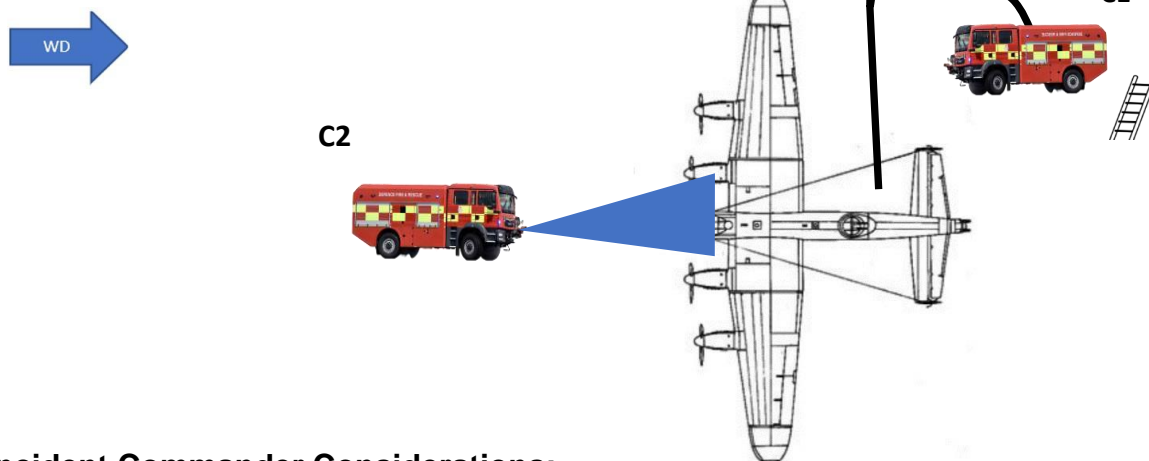
- Aircraft familiarization
- B173 CGY BBMF Lancaster Crash/Rescue
- Deployment exercise(s)
- Redkite CMS.

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 A12 Avro Lancaster
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16)

TTP 3 – Internal Fire / Smoke in the Cockpit

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 direct visually, to ensure shutdown of engine and fuel cocks (IAW B173 CGY BBMF Lancaster Crash/Rescue)
- Repeat DRA as appropriate to the incident
- Prepare for ARA
- Declare state of airfield and ICAO category
- Direct evacuated flight crew to safe holding area prior to designated casualty clearance set up by Medics
- Direct Medics to location
- 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 Deploys to the rear of the aircraft on the starboard side covering the main access / egress point in preparation for internal access to fuselage.
- Be aware PAX exiting the aircraft starboard rear or emergency exit under the main cockpit.
- Designated BA wearers (Led by JNCO⁴) 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
- Deploy ladder for access through starboard access / egress.
- Incident Commander should consider use of thermal image camera to identify hot spots, monitoring the fuselage for heat transfer.

⁴ RAF Coningsby's operating model.

- BA team enter Risk Area under suitable BA Entry Control measures and will need to check internal fuselage accessing through the starboard entrance / egress for heat transfer / casualties / ensuring engines and fuel cocks are shut down as appropriate IAW:

□ B173 CGY BBMF Lancaster Crash/Rescue

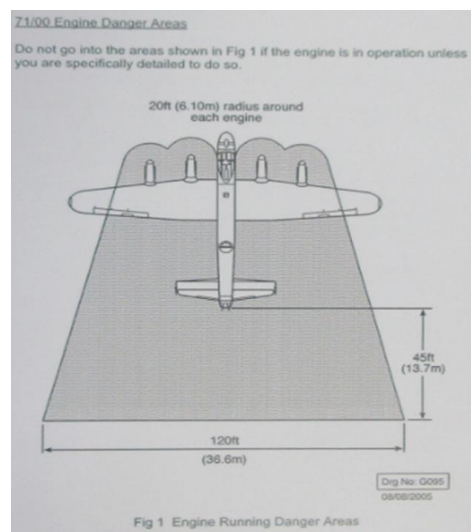
- BA team will brief Incident Commander when extinguishment of fire has been achieved.
- Remove any casualties as appropriate and according to local SOP and IAW TRA.

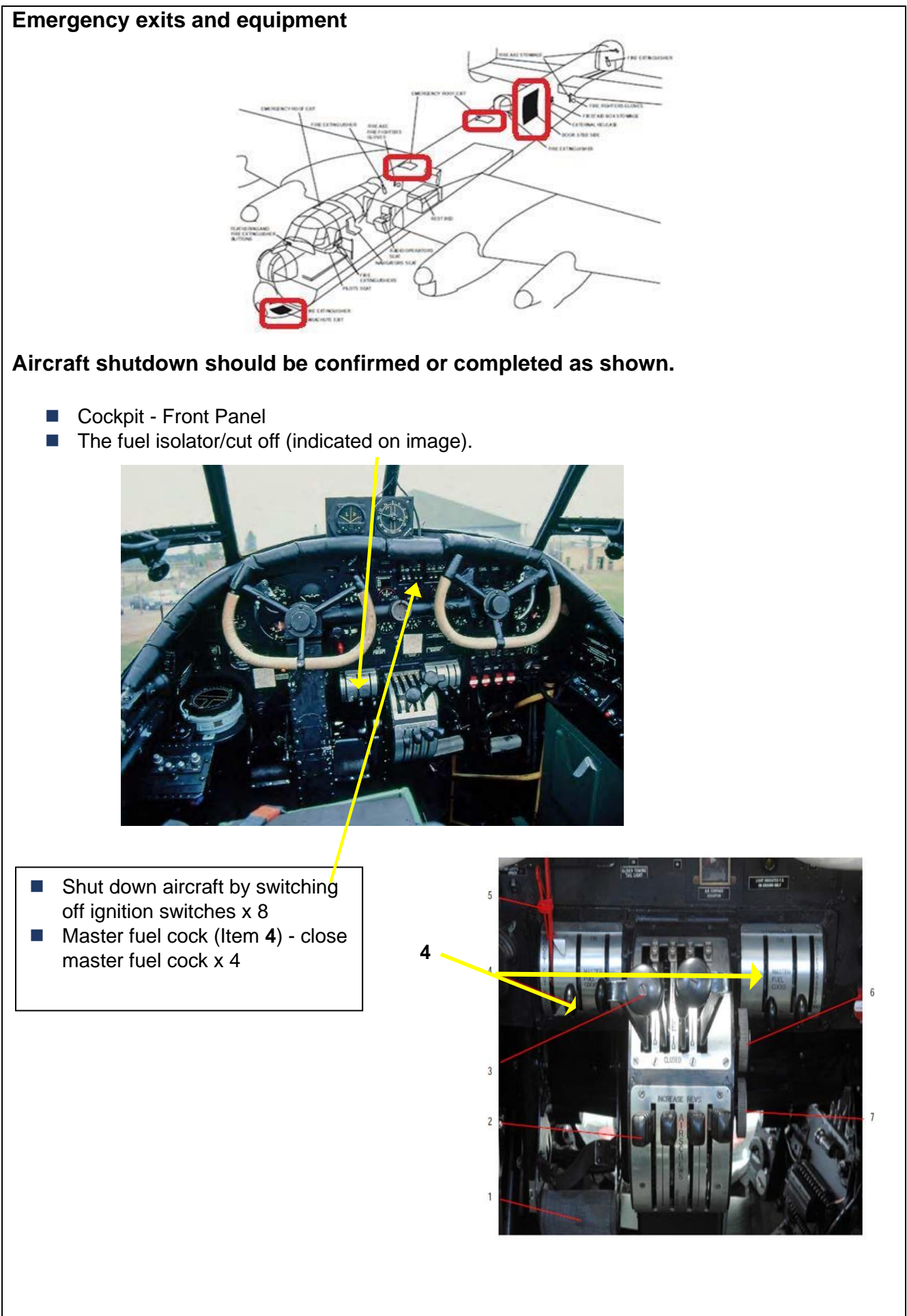
Crash 2 - MPRV Actions

- Crash 2 to deploy according to wind direction slightly to port side of fuselage to cover cockpit critical area.
- Be aware of PAX exiting the aircraft.
- Bumper turret may be used to cool fuselage if required.
- Incident Commander will provide supporting resources to Crash 1.
- Crew will assist Crash 1 deploy ladder to starboard access / egress and appropriate hose line for fuselage entry by BA team.
- 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.

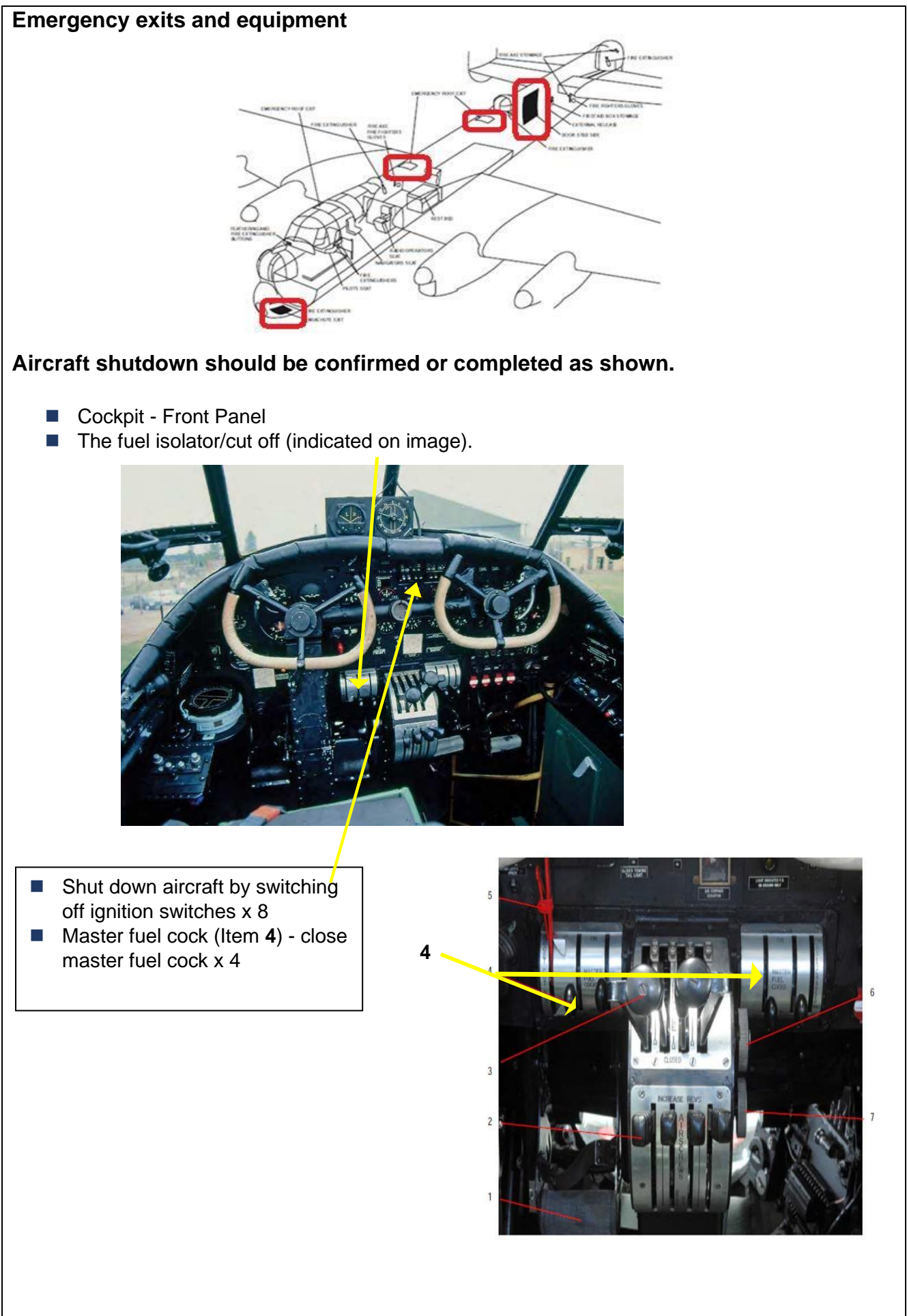
Specific Aircraft Hazards - (Make use of AQRC):

- All crew to be aware of engine propellers when approaching the aircraft, taking into consideration engine danger zones.

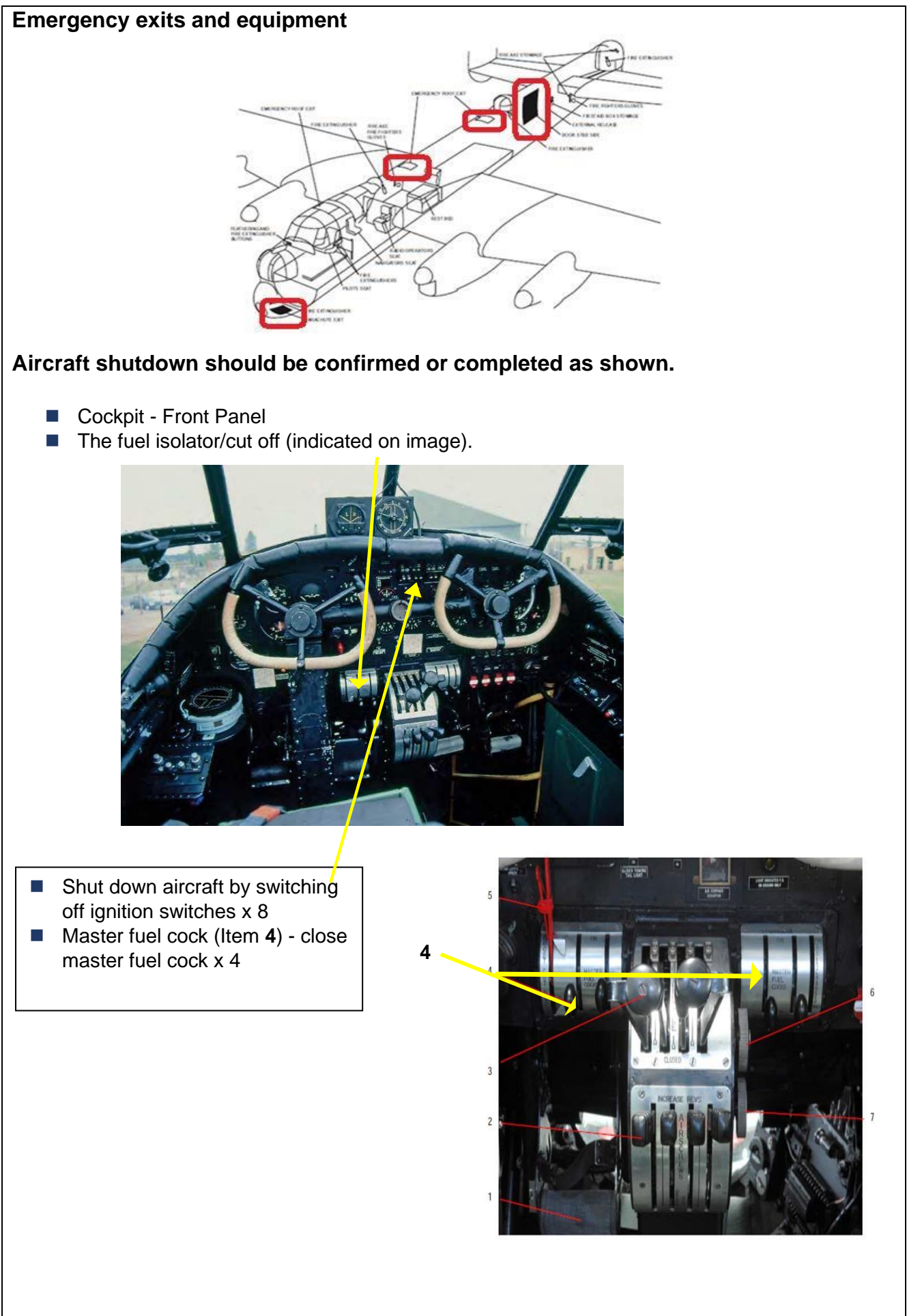


[illegible][illegible]

- [illegible]



- [illegible]



Further Considerations:

- Propeller danger zones
- Will additional BA Team be required?
- Use of TIC
- ICP set up point
- LAFRS response times.

Training:

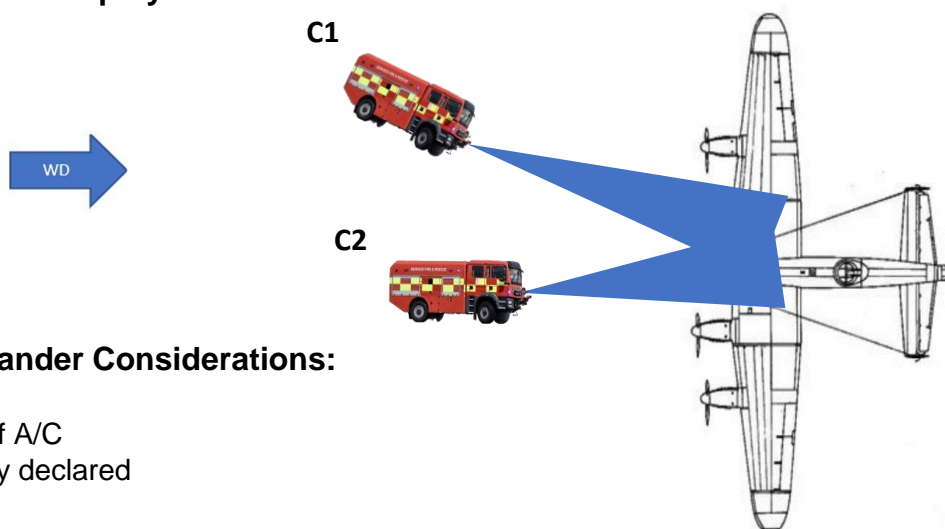
- Aircraft familiarization
- B173 CGY BBMF Lancaster Crash /Rescue
- Deployment exercise(s)
- Redkite CMS.

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 A12 Lancaster
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16)

TTP 4 – External Fire

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
- 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 direct visually, to ensure shutdown of engine and fuel cocks (IAW B173 CGY BBMF Lancaster Crash/Rescue)
- 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
- 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 to starboard side of aircraft. This will permit support of Crash 2 in initial knockdown of fire protecting the critical area.
- Designated BA wearers (Led by JNCO⁵) 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 mass protection of the cockpit as required.
- Prepare ladder for rescue requirements as appropriate.
- Prepare appropriate lengths of hose line in preparation for airframe access following mass discharge knockdown if required.

⁵ RAF Coningsby's operating model.

- Designated BA team will don BA if instruction given by Incident Commander. BA Team will enter the area using suitable control measure with an appropriate hose line.
- Incident Commander should consider use of thermal image camera to identify hot spots.
- BA team will brief Incident Commander when extinguishment of fire has been confirmed.
- An inspection of the aircraft interior/exterior should be carried out at the earliest opportunity to either ensure that fire/heat has not penetrated the cockpit/fuselage and to organize internal firefighting BA team should this be necessary.
- BA team will ensure engines and fuel cocks are shut down and IAW:

□ B173 CGY BBMF Lancaster Crash/rescue

- Remove any casualties as appropriate and according to local SOP and IAW TRA.

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

Crash 2 - MPRV Actions:

- Crash 2 to deploy in primary position on the 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.
- Bumper turret may be used to cool fuselage if required following mass discharge. Consider conservation of media used.
- Bumper turret may be required to ensure any fuel spillage has foam blanket applied.
- 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.

Specific Aircraft Hazards - (Make use of AQRC):

- Potential structural collapse due to weakened undercarriage (see **TTP 2**)
- Landing gear must be pinned for security.
- Pin main undercarriage.

Further Considerations:

- Propeller danger zones (see **TTP 1**)
- Engine Shut down (see **TTP 3**)
- Will additional BA Team be required?
- Use of TIC
- Will engine covers need to be opened?
- ICP set up point
- LAFRS response times.

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 A12 Lancaster
- MOD Aircraft Crash Hazards Document Set
- NATO STANAG/TO 00-105E-9-Chapter 13 (revision 16)

Training:

- Aircraft familiarization
- B173 CGY BBMF Lancaster Crash/Rescue
- Deployment exercise(s)
- Redkite CMS.

Document Control					
Version	Date	Author	Role/Name	Status	Changes
V1.0	25 06 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