

**PART 1.5 – RECOMMENDATIONS**

To prevent or reduce the likelihood of a future accident/incident, the following intervention strategies are recommended to remove, capture and/or mitigate the factors found by the Panel:

**Authorisations & Qualifications**

No	Intervention Strategy (Recommendation)	Para Ref	Factor	HF Model				Action
				Org	EPC	UA	Def	
1.5.1	Produce a DA competency framework and record training formally.	1.4.10 a (2)	Obs 1	✓				Comd JHC
1.5.2	Produce a DFC competency framework and record training formally.	1.4.10 a (3)	Obs 2	✓				Comd JHC
1.5.3	Re-define the recording of First Pilots hours in the JHC FOB Regulation J401.105.1 such that the hours flown in charge of flying controls can be determined (as articulated in MAA RA 2401).	1.4.10 a (4)	Obs 3	✓				Comd JHC
1.5.4	The term JEngO should not be used to describe unqualified engineering officers.	1.4.10 b	Obs 4	✓				Air Cmd (A4 ACOS)
1.5.5	Clarify the use of the term and authorisation requirements for 'one flight only'.	1.4.18 b	OF 6	✓	✓	✓		Hd MAA Tech Gp

**Crew Readiness**

1.5.6	Impose a robust planning process to avoid cumulative effects from fatigue due to protracted working periods.	1.4.9 b	OF 1	✓				Puma Force Cdr
1.5.7	Puma Force aircrew should be reminded of the requirement to report fatigue issues to flying supervisors.	1.4.13 a	Obs 5	✓				Puma Force Cdr

No	Intervention Strategy (Recommendation)	Para Ref	Factor	HF Model				Action
				Org	EPC	UA	Def	
1.5.8	Flying supervisors should make a positive check on previous working periods (iaw RAs 2345 & 2306) by eliciting a report from crews; enveloping 'crew readiness' to cover all factors that could affect crew performance, not just fatigue. For example, the CAA offers the acronym 'IM SAFE' for Illness, Medication, Stress, Alcohol, Fatigue and any Emotional issues that may impact crew readiness.	1.4.13 a	OF 3	✓	✓		✓	Puma Force Cdr

### Aircrew Training

1.5.9	Amend AFS training to ensure Puma aircrew read and understand all documents listed on the MF 4820.	1.4.17 a	CF 1	✓		✓	✓	Puma Force Cdr
		1.4.17 d	CF 4	✓	✓	✓	✓	
		1.4.17 h	OF 5	✓		✓	✓	
1.5.10	Factors that can influence human performance (error promoting conditions) should be re-iterated during HF continuation training.	1.4.17 b (1)	CF 2		✓	✓	✓	Puma Force Cdr
		1.4.17 b (2)	CF 3		✓	✓	✓	
		1.4.17 e	CF 5		✓	✓	✓	
		1.4.17 f	CF 6		✓	✓	✓	
1.5.11	Amend AFS training to ensure aircrew correctly route the MRGB cowling locking indicator lanyard.	1.4.17 c	Obs 8	✓				Puma Force Cdr
1.5.12	AFS and OCF training should be re-assessed to ensure a recognised visual and physical cowling inspection technique are taught.	1.4.17 d	CF 4	✓	✓	✓	✓	Puma Force Cdr
		1.4.18 g	CF 7	✓		✓	✓	

### Aircraft Documentation

No	Intervention Strategy (Recommendation)	Para Ref	Factor	HF Model				Action
				Org	EPC	UA	Def	
1.5.13	MF 705(Puma) 'spare' boxes should be pre-populated to help ensure aircrew cowling independent checks are carried out and documented.	1.4.17 d	CF4	✓	✓	✓	✓	OC ELW, RAF Benson
1.5.14	Amend Puma FRCs to ensure the actions required to secure the cowling are complete and unambiguous. For example, 'primary handle locked, bolt and pin secured and gated'.	1.4.17 g	CF 7	✓		✓	✓	Puma Force Cdr
1.5.15	To remove ambiguity and describe its function correctly, references to the term 'MRGB secondary locking indicator' should be amended to 'MRGB cowling position indicator' in all Puma documentation.	1.4.17 i (1)	Obs 9	✓				DE&S (P2G PTL)

### Aircraft Technical

1.5.16	Establish the purpose of the max line on Puma hydraulic reservoirs and revise the information given to the Puma Force accordingly.	1.4.15	Obs 6	✓				DE&S (P2G PTL)
1.5.17	Verify the expansion characteristics of hydraulic fluid, and advise the Puma Force on any necessary revision of procedures and checks.	1.4.16	Obs 7	✓				DE&S (P2G PTL)
1.5.18	Provide regulation requiring all military registered ac to carry FDRs.	1.4.19 i (b)	OF 8	✓				Hd MAA Tech Gp
1.5.19	Ladder stowage serviceability should be confirmed.	1.4.25 b	OF 10	✓		✓	✓	OC ELW, RAF Benson
1.5.20	Embody a more robust and crashworthy ladder stowage.	1.4.25 b	OF 10	✓		✓	✓	DE&S (P2G PTL)
1.5.21	Embody a secure stowage for the ac load pole.	1.4.25 c	OF11	✓				DE&S (P2G PTL)
1.5.22	As an interim measure to Para 1.5.21, ensure the load pole is secured such	1.4.25 c	OF11	✓				Puma Force Cdr

	that unwanted movement is prevented.							
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No	Intervention Strategy (Recommendation)	Para Ref	Factor	HF Model				Action
				Org	EPC	UA	Def	
1.5.23	Provide regulation requiring all military registered rotary wing ac to be fitted with energy attenuating seats.	1.4.26	AF 1	✓				Hd MAA Tech Gp
1.5.24	Embody an improved cockpit warning system to indicate the status of the ac cowlings or formally mitigate its absence.	1.4.35 b	CF 9	✓				DE&S (P2G PTL)
1.5.25	Embody a mechanical fail-safe system on the MRGB cowling locking mechanism.	1.4.37	CF 10	✓				DE&S (P2G PTL)
1.5.26	Role permitting, CAFTS should not be fitted such that battery access is blocked.	1.4.32	OF 13	✓				Puma Force Cdr
1.5.27	Verify the crashworthiness of the instrument panel.	1.4.25 d	Obs 14	✓				DE&S (P2G PTL)

**Organisational Risk Management**

1.5.28	Impose a robust planning process to ensure adequate time is provided for sortie preparation.	1.4.12 a	OF 2	✓				Puma Force Cdr
1.5.29	A single authorised Duty Engineer should be clearly highlighted and accessible to Puma Force aircrew to ensure effective communication of airworthiness advice.	1.4.13 b	OF 4	✓			✓	OC ELW, RAF Benson
1.5.30	Conduct an HFI assessment on the MRGB cowling to address formally the potential for human error and offer appropriate mitigation.	1.4.17 i (2)	CF 8	✓	✓	✓		DE&S (P2G PTL)
1.5.31	Ensure a robust system exists to protect corporate knowledge (iaw MAA RA 1130).	1.4.34 d	Obs 12	✓				DE&S (AES PTL)

No	Intervention Strategy (Recommendation)	Para Ref	Factor	HF Model				Action
				Org	EPC	UA	Def	
1.5.32	RtL statements associated with a MRGB cowling detaching in flight should be re-assessed against ALARP and tolerability criteria; updating risk registers as appropriate.	1.4.35 b	Obs 13	✓				Comd JHC

**Survival**

1.5.33	Introduce a prescribed brace position for the NHP that is practiced as part of ac abandonment drills.	1.4.22	OF 9	✓				Puma Force Cdr
1.5.34	Integrate all issued location beacons into AEA's.	1.4.27	OF 12	✓				DE&S (AES PTL)

**Other**

1.5.35	Search techniques employed by the ESG should be made available for any future accident.	1.4.31	Obs 11	✓				Hd of MilAAIB
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