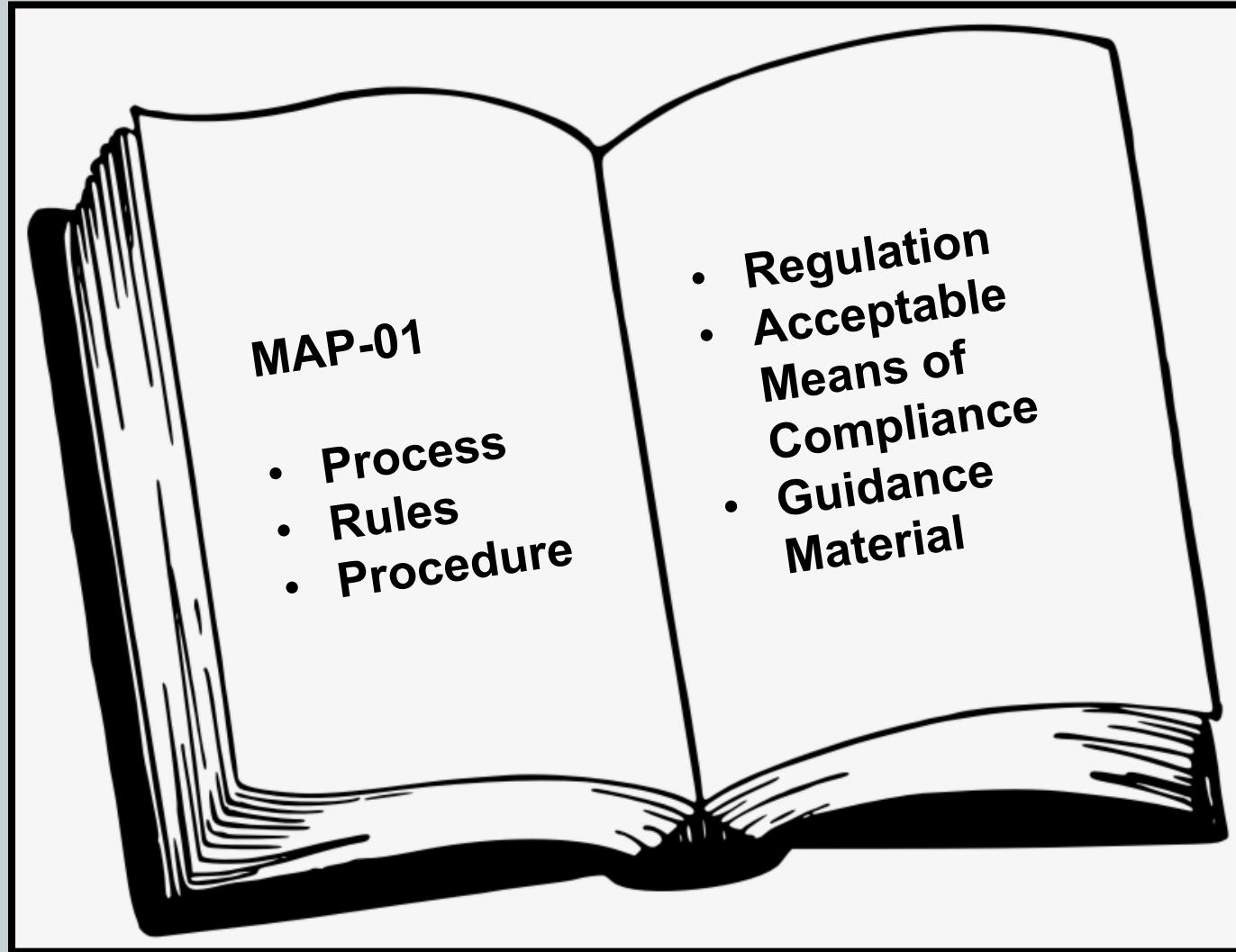




Continuing Airworthiness Engineering (CAE) 4000 Series and Manual of Maintenance and Airworthiness Processes – 01 (MAP-01) Review

Overview

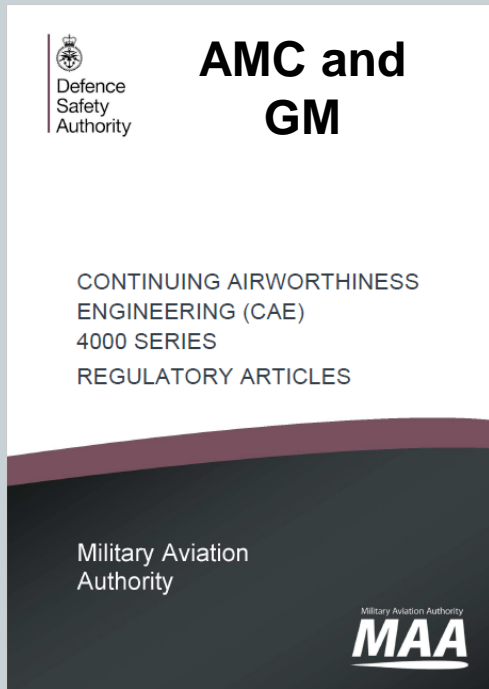
- In 2015 it was identified that an end to end review of the CAE 4000 Series and MAP-01 was required
- Review initiated to:
 - Uplift of Continuing Airworthiness AMC & GM from the MAP-01 into 4000 Series Regulation
 - Removal of Regulation that is no longer required
 - Transfer appropriate Type Airworthiness Regulatory content to the 1000/5000 Series
 - Refresh of remaining process for coherency with current Regulation
- Review has made few significant changes, but content has been relocated
- Additionally:
 - Review of the MAP-01 authorizations
 - Update to the MAP-02



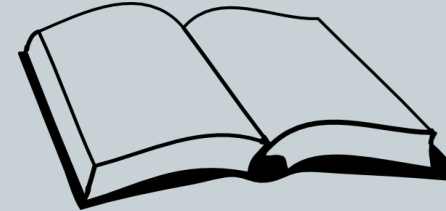
MAP-01

- **Process**
- **Rules**
- **Procedure**

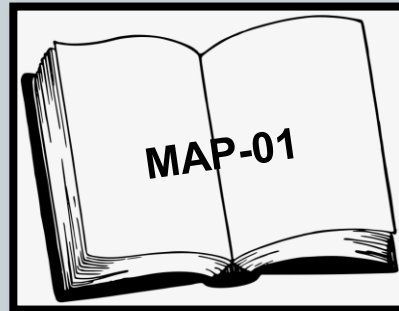
- **Regulation**
- **Acceptable Means of Compliance**
- **Guidance Material**



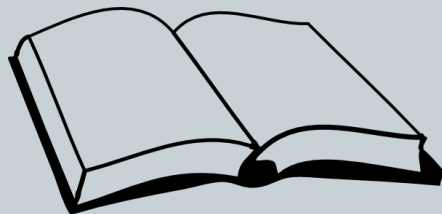
Replacement MAP-01



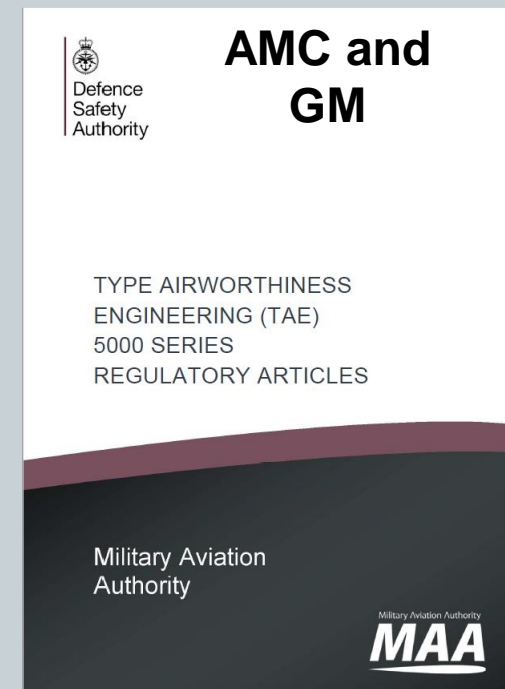
Shop-floor process, reference and Engineering Authorizations



Replacement MAP-02



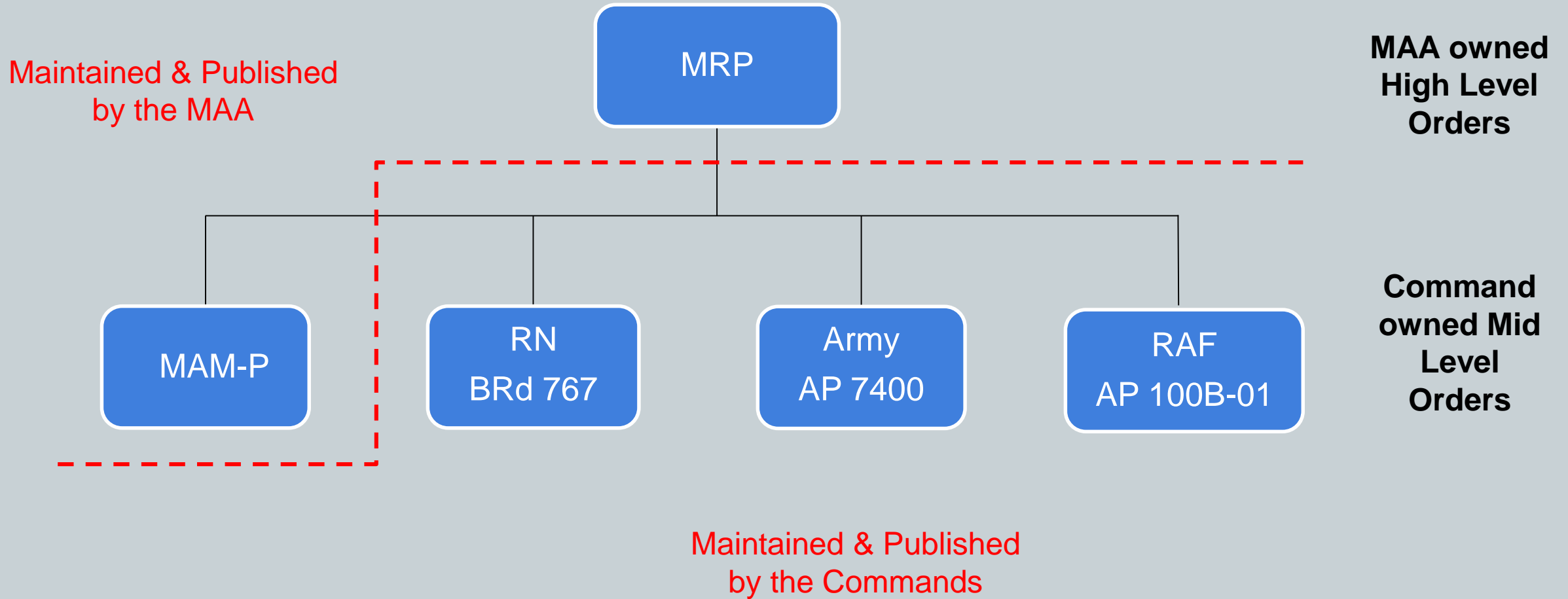
MOD Form 700 Series and Maintenance Documentation related content



Summary of deliverables (1 of 3)

- New MAP-01 = *Manual of Airworthiness Maintenance – Processes (MAM-P)*
 - Change of ownership
 - Co-owned / sponsored by the Commands
 - Maintained & Published by the MAA
 - No longer AMC & GM
 - ‘shop floor’ processes supporting CAE RA compliance
 - **160 chapters reduced to 76 (with a reduction in page count of 53%)**
 - New amendment process (using elements of Form 765)
 - Updated Authorizations table
 - 34% reduction
 - Identification of Pt 145 & Pt M authorizations

MAM-P Precedence



Summary of deliverables (2 of 3)

- Updated MAP-02 = *Manual of Airworthiness Maintenance – Documentation (MAM-D)*
 - Inclusion of Governance chapters (transferred from MAP-01)
 - Updated structure
 - Still owned, maintained and published by the MAA
 - Amendment process remains via MOD Form 765

Summary of deliverables (3 of 3)

■ CAE 4000 Series:

- 13 updated, stand-alone, RAs
- Withdrawal of 53 RAs
 - 37 as a result of associated transfers to the 5000 Series
 - 2 as a result of transfer to the 1000 Series
 - 14 withdrawn as they are satisfactorily captured elsewhere in defence publications

■ Gen 1000 Series and TAE 5000 Series:

- Up-issue of RAs removing MAP-01 or MAP-02 references
- Minor amendment of ~10 RAs
- 2 new RAs being considered
- RAs updated to align with new Engineering Authorizations

MAM-P, MAM-D & MRP timeline

- Publication - **29 Nov 19**

- Regulatory Notice – MAA/RN/2019/12

- Detailed mapping information for the:
 - MAP-01 to MAM-P
 - Engineering Authorizations
 - Regulatory changes

- Transition arrangements
 - Organizations to achieve compliance by **30 Jun 20**

Mapping information will be held on MAA websites alongside Nov 19 release

MAP-01 vs MAM-P

MAP-01	Sections
	0 Prelims
	1 Organization, Policy and Airworthiness
	2 Operation of Aircraft
	3 SHEF
	4 Training, Employment and Authorizations
	5 Maintenance Principles
	6 Maintenance Practices
	7 General Maintenance Recording and Reporting
	8 Publications, Schedules and Forms
	9 Transfer and Repair
	10 Configuration Control
	11 Airframe and Engines
	12 Avionic and Electrical
	13 Safety, Role and Support Equipment
	14 Weapons and Explosives
	15 Quality Assurance
16 Aircraft Integrity Management	

MAM-P	Sections
	0 Prelims
	1 Organization and Policy
	2 Competence, Employment & Authorizations
	3 Operation of Aircraft
	4 Maintenance Practices – General
	5 Maintenance Practices – Airframes and Engines
	6 Maintenance Practices – Avionics and Electrical
	7 Maintenance Practices – Safety, Role & Support Equipment
	8 Maintenance Practices – Ordinance, Weapons & Explosives
	9 Maintenance Fault Reporting
	10 Publications, Schedules and Forms
11 Quality Management	

MAM-P review methodology

- MAP-01 Working Group
- Review
- Uplift
- Withdraw
- Transfer
- Merge

Engineering Authorizations

- Command initiated, end-to-end review
- Resulting in a 34% reduction in total number of Engineering Authorizations
 - **332 → 218**
- 8 new authorizations were introduced to address shortfalls

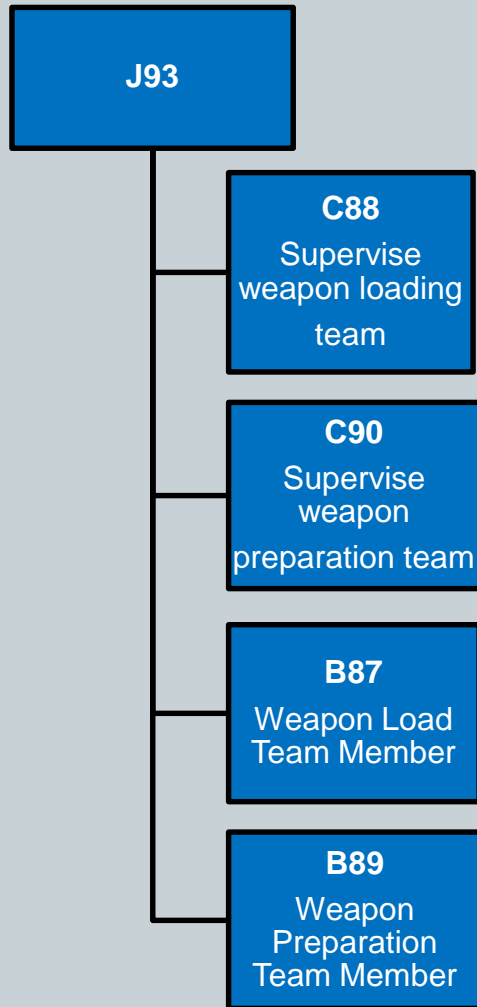
- The format A-K retained
 - All authorizations have been renumbered:
 - MAMP-A1XX
 - MAMP-B2XX
 - MAMP-C3XX
 - MAMP-D4XX

Engineering Authorization review methodology

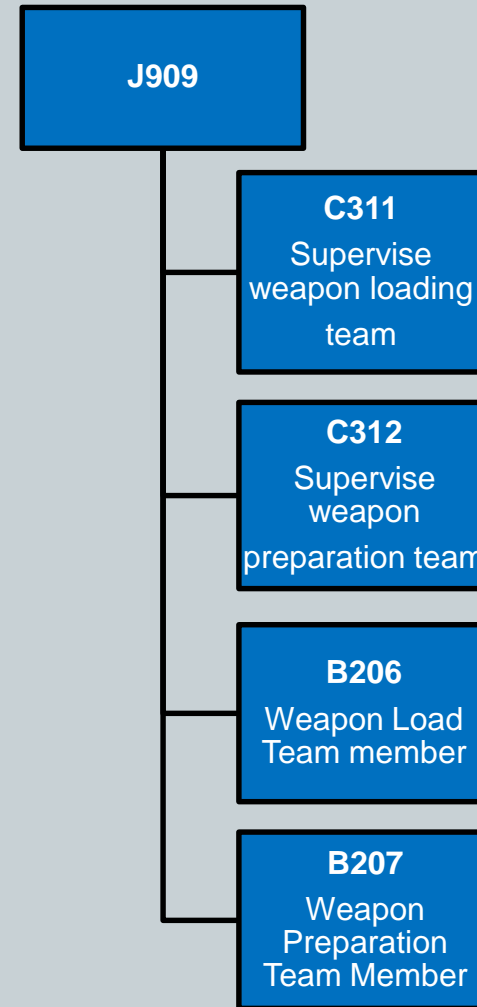
- MAA Working Group – with Command endorsement
- New
- Keep no change
- Keep and update
- Delete via merger
- Delete H&S
- Delete sS

Engineering Authorizations – Keep No Change

MAP-01

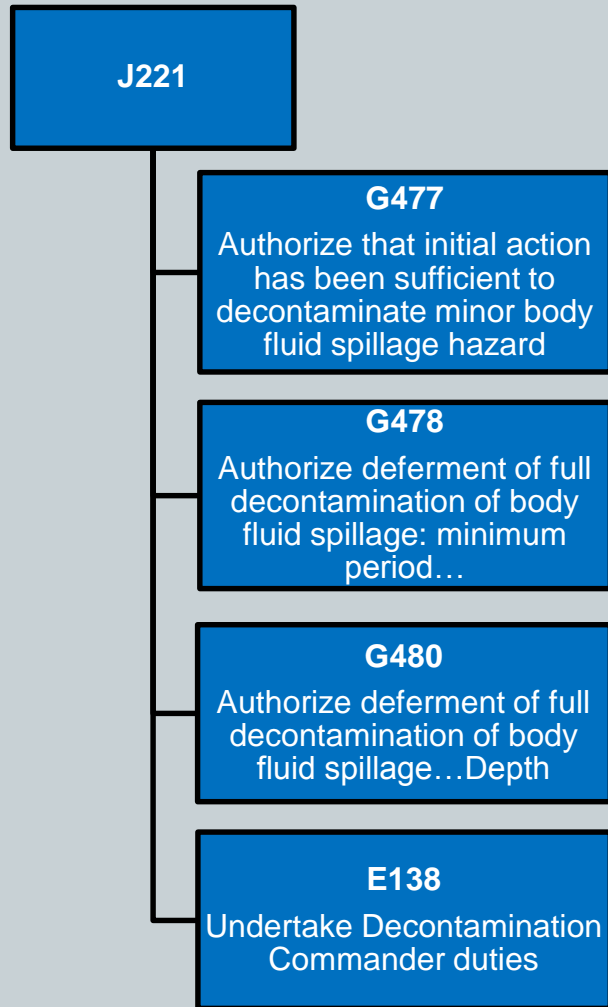


MAM-P

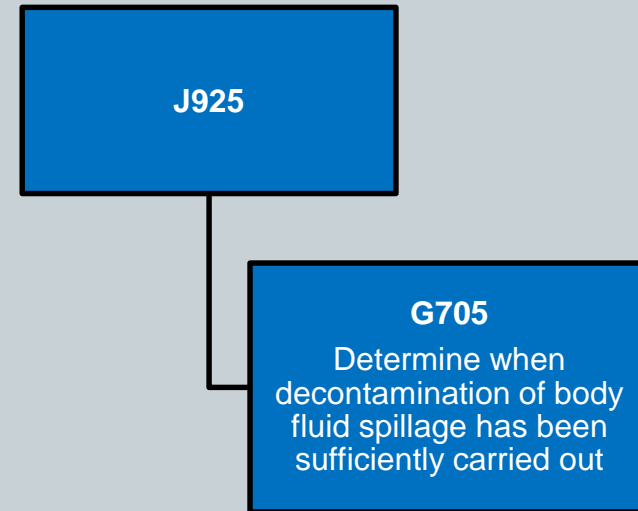


Engineering Authorizations – Delete Via Merger

MAP-01



MAM-P



Of Note:

■ MAM-P Authorizations

- Removal of the % latitudes for Preventive Maintenance and Life Extensions
- New Authorizations read:
 - Authorize extensions to preventive Maintenance iaw TI
 - Authorize extensions to component scrap, reconditioning, bay Maintenance and textile scrap lives iaw TI
 - Authorize extensions to explosives Maintenance lives iaw TI and JSMCR

Of Note:

■ MAM-P Authorizations

- Removal of the % latitudes for Preventive Maintenance and Life Extensions
- New Authorizations read:
 - Authorize extensions to preventive Maintenance **iaw TI**
 - Authorize extensions to component scrap, reconditioning, bay Maintenance and textile scrap lives **iaw TI**
 - Authorize extensions to explosives Maintenance lives **iaw TI and JSMCR**

- Support Policy Statement (2(N/A/R)1) leaflets will be updated in line with this review to include Air System specific latitudes

Life Extension Authorizations

MAP-01 Authorization	Authorization wording	MAM-P Authorization	Authorization wording
MAP-J256	Authorize up to 10% bay maintenance life extensions to components with lives allotted to safeguard against critical failure modes.	MAMP-J978	Authorize extensions to component scrap, reconditioning, bay maintenance and textile scrap lives iaw TI.
MAP-J257	Authorize extensions of up to 10% of textile scrap lives allotted to safeguard against non-critical failure modes.		
MAP-J258	Authorize up to 10% extensions to reconditioning lives allotted to safeguard against critical or noncritical failure modes.		
MAP-J272	Authorize up to 25% bay maintenance life extensions to components with lives allotted to safeguard against noncritical failure modes.		
MAP-J273	Authorize extensions to scrap lives by up to 10% except where extensions would cause fatigue or explosive lives to be exceeded.		

MAM-D

- New MAP-02 = *Manual of Airworthiness Maintenance - Documentation (MAM-D)*
 - 2 Parts
 - Part 1 – Governance and Guidance
 - Part 2 – Catalogue of Forms
 - Note, the Instructions for Use will:
 - Transfer to the MOD Form 799 series
 - Transfer to the MOD Poster series
 - Deleted, where the information is no longer valid

CAE 4000 Series Changes

- 13 stand-alone RAs developed with AMC and GM extracted from the MAP-01.
- Withdrawals:
 - 2 RAs associated with transfer of material into the GEN 1000 Series
 - 37 RAs associated with transfer of material into the TAE 5000 Series
 - 14 RAs that are managed elsewhere in Defence Policy or TI
- Associated review of:
 - RA 4809 – Acceptance of Components
 - RA 4815 – Maintenance Procedures and Safety and Quality Policy
 - MRP Part M – inclusion of RFC and introduction of Mil CAMO Instructions to replace ALTI
- Publication **29 Nov 19**
- No programmed CAE 4000 Series updates in **May 20**

CAE 4000 Series Post 30 Nov 19

- RA 4000 – Foreword
- RA 4009 – Aviation Engineering Orders [new title]
- RA 4051 – Airborne Checks [new title].
- RA 4053 – Royal Flights and Flights for Nominated Very Important Persons
- RA 4054 – Ground Handling Operations [new title]
- RA 4061 – Air Systems Displaying Abnormal Flying Characteristics [new title].
- RA 4103 – Removal of Body Fluid Contamination from Air Systems [new title].
- RA 4213 – Control of Air System Components used in Ground Test Facilities [new title]
- RA 4657 – Weapon Loading and Armed Aircraft Maintenance [new title]
- RA 4253 – Loose Articles – Recovery Procedures [new title]
- RA 4403 – Expedient Repair
- RA 4510 – Ground Running of Aero-Engines and Auxiliary Power Units
- RA 4600 – Aircraft Assisted Escape Systems – Safety and Maintenance Procedures [new title]
- MAA MRP Part 145
- MAA MRP Part M

GEN 1000 Series Changes

■ Transfers from the 4000 Series

- RA 1164 – Transfer of Aircraft & Equipment (RA 4401)
- RA 1201 (desig) – DAE Quality Policy (RA 4700)

■ Uplifted due to MAP-01 to MAM-P changes

- RA 1002 – Airworthiness Competent Persons
- RA 1006 – Delegation of Engineering Authorizations
- RA 1023 – Chief Air Engineers – Air Safety Responsibilities
- RA 1220 – Delivery Team Airworthiness and Safety (RA 1220(5) – SPS)

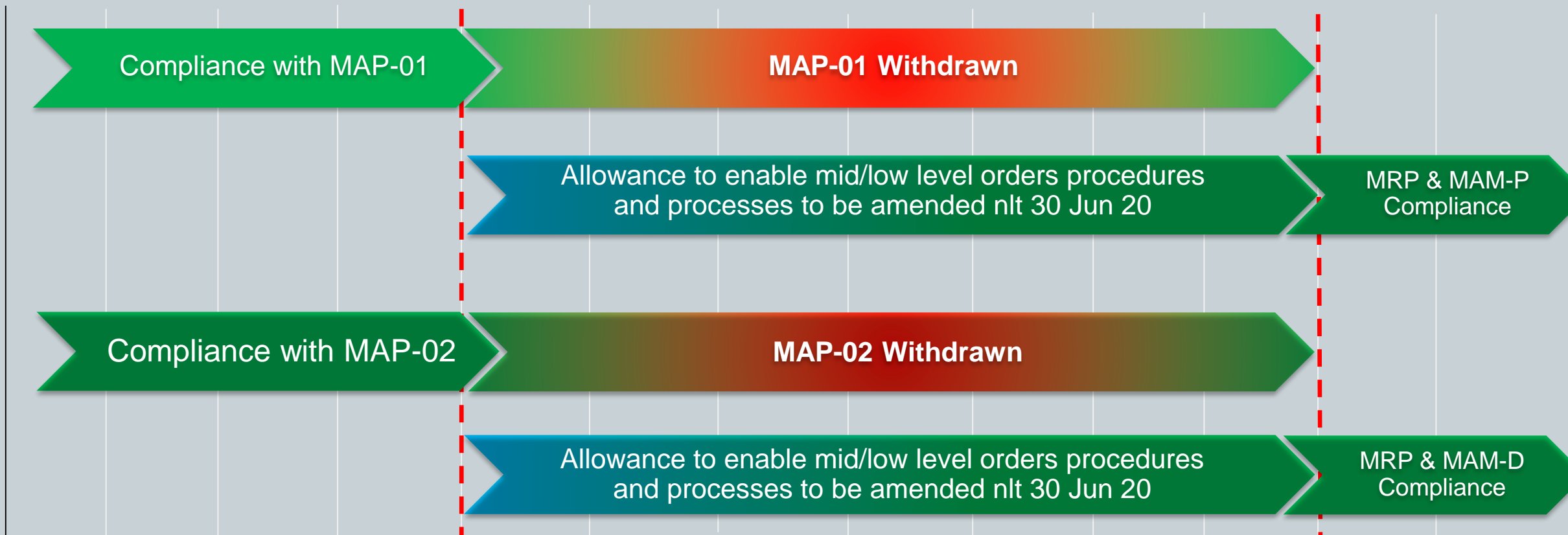
TAE 5000 Series Changes

- 4000 to 5000 Series Transfer
 - Regulation move not new requirements
- 5000 Series Updates
 - 4 RAs amended to remove MAP-01 & MAP-02 references
 - Amalgamation of Integrity Management in 1 Regulation – RA 5726
 - Thus withdrawal of RA 5720, 5721 and 5722
 - Up-issue of RA 5723 – Ageing Aircraft Audit
- Publication **29 Nov 19**

Transition Timeline

Publication on 30 Nov 19

30 Jun 20



Sept

Nov

Jan

Jun

2019

2020

Questions?

■ PoCs

- Commands:

- Air – Sqn Ldr James Heath
- Navy – WO1 Jonathan Phillips
- Army – WO1 Alan Smyth
- JHC – Flt Lt Daniel McIlmurray

- MAA:

- DSA-MAA-MRPEnquiries@mod.gov.uk

■ Regulatory Notice (RN):

- MAA/RN/2019/12

- Enhanced detail and mapping documents
- Mapping documents will endure on websites beyond RN