



Audit Type: CAMO Initial Approval

Approval Ref: UK.MAA.CAMO.0051

MAA AUDIT REPORT

Organization	2 FTS Viking T MK1 and Vigilant T Mk1 Gliders CAMO				
Site(s)	22 (Training) Group, Blg 1300, MOD Abbey Wood, BS34 8JH RAF Syerston, Newark on Trent, NG23 5NG				
Audit dates	02 Dec 15 07-10 Dec 15				
Audit title and Reference	Gliders CAMO MRP Part M Sub-Part G and Sub-Part I Initial Approval MAA_15_CAMO_0051_1				
Audit scope, Criteria & Objectives	<p>To assess the Gliders CAMO for compliance with the MRP Part M Sub-Part G and Sub-Part I Regulations, RA 4900 series.</p> <p>The Initial Approval audit covered an assessment of CAMO functions based at 22 (Trg) Gp HQ and RAF Syerston.</p>				
Description of approach and methodology:	<p>Following comprehensive liaison between DSA-MAA-OA-CAW4, the Gliders Mil CAM and Gliders DCAM prior to the audit, desktop activities were conducted that included a formal review of the Gliders Continuing Airworthiness Managing Exposition (CAME), Issue 1 dated Nov 2015, and sampled embedded references. This audit phase also included a review of both specific and randomly sampled evidence, available through the RAF Syerston, UKMFTS PT and 22 (Trg) Gp MOSS sites.</p> <p>An interview with the Gliders CAMO QM was conducted by [REDACTED] and [REDACTED] at Blg 1300, MOD Abbey Wood on 02 Dec 15.</p> <p>Confirmation of CAME content, CAMO activities and further compliance evidence was achieved through an On-Site Visit (OSV) to RAF Syerston and interviews with key personnel during 07-10 Dec 15.</p>				
MAA Audit team	[REDACTED]	Role	MAA Lead Auditor	Post	DSA-MAA-OA-CAW4
	[REDACTED]	Role	MAA Auditor	Post	DSA-MAA-OA-CAW1
	[REDACTED]	Role	MAA Auditor	Post	DSA-MAA-OA-CAW
	[REDACTED]	Role	CAAi SME	Post	CAA Surveyor
Principal Auditee(s)	[REDACTED]	Role	Comdt 2 FTS & DDH		
	[REDACTED]	Role	2 FTS Wg Cdr Flying		
	[REDACTED]	Role	Mil CAM		
	[REDACTED]	Role	Deputy CAM		
	[REDACTED]	Role	CAMO QM (located at MOD Abbey Wood)		

	██████████	Role	CAM CT
	██████████	Role	MAR Team Leader
	██████████	Role	Serco GMS Chief Engineer
	██████████	Role	Serco GMS QM
	██████████	Role	Serco GMS Support Manager
	██████████	Role	Serco GMS Maintenance Manager
	██████████	Role	Serco GMS Engineering Records Controller
	██████████	Role	Serco GMS Technical Information Controller
	██████████	Role	UKMFTS PT Gliders Deputy TAA
	██████████	Role	UKMFTS PT EA
	██████████	Role	UKMFTS PT Safety Manager

Executive Summary

The first Gliders CAMO Initial Approval audit was conducted by the MAA in Dec 13 (CAMO/CERT/2012/051 refers), which resulted in 6 Level 2 findings. Due to the immaturity of the CAMO and lack of required oversight and control, MRP Part M Sub Part G approval was not granted at this time. A subsequent pause in glider flight operations led to CAMO resource being re-allocated to the Viking and Vigilant Airworthiness Recovery Programmes, which in turn stalled many CAMO activities and progress towards Initial Approval. Return to flight operations for limited numbers of post Airworthiness Recovery Programme aircraft were approved on 30 Jan 15 for Vigilant and 27 Nov 15 for Viking, 22 (Trg) Gp Duty Holder Advice Notes (DHANs) 086 Update 1 and 100 refer. Following cancellation of a rescheduled audit in Jun 15, MAA Advisory Letter MAA/Enf/15/04 was issued requiring the Gliders CAMO to be ready for another full Initial Approval audit by 04 Dec 15.

This Initial Approval audit was conducted on the Viking T Mk1 and Vigilant T Mk1 Gliders CAMO using the CAME provided at Issue 1 dated November 2015. The scope of the audit included MRP Part M Sub-Part G and Sub-Part I.

Pre-audit communication was carried out between the MAA Lead Auditor, Mil CAM and DCAM to agree OSV locations and key personnel to be interviewed. The RAF Syerston, UKMFTS PT and 22 (Trg) Gp MOSS sites contained supporting documents and evidence referenced in the CAME.

The MAA audit team, including the CAA Surveyor, conducted a desktop review of the aforementioned CAME and a random sample of supporting references. A MAA Form 7 containing observations was submitted to the DCAM prior to the RAF Syerston OSV. Some specific CAME feedback items were discussed in more detail during a dedicated session with the DCAM and CAM CT on 10 Dec 15. The Audit Team also witnessed the Dec 15 CAM Monthly Review.

The audit was conducted against the MRP RA 4900 series, plus RA 1005 and RA 1016. 23 Level 2 Non-Compliances, 2 Level 2 Non Conformities and 6 Observations were identified during the audit, which were all discussed at the Closing Meeting.

	<p>The 2 FTS focus on Airworthiness Recovery Programmes, period of stalled CAMO activities and recent return of key personnel back to core CAMO roles was reflected by an immature CAME containing several areas of declared non-compliance, limited CAMO oversight and control of some CAW tasks; a considerable number of outstanding known issues required addressing, including a significant reliance on corporate knowledge across the Organization. The continued lack of MAA CAMO approval, and significant outstanding work to achieve this, was highly concerning given the return to flight operations for both glider types, deliveries and forecasted deliveries of aircraft from their respective Airworthiness Recovery Programmes and plans to expand out to a currently unconfirmed number of VGS sites around the UK.</p> <p>In addition to addressing the findings detailed in this audit report, 2 FTS should review and update the validity of CAMO based mitigations in the Glider return to flight DHANs, and give consideration to a CAMO approval milestone for flight operations at RAF Syerston and other VGS sites within the Gliders expansion plan.</p> <p>On a positive note, the level of cooperation was excellent across the organization with interviewees providing transparent, open and honest responses. The establishment and filling of key posts, alongside the location of key UKMFTS PT Glider personnel at RAF Syerston, was considered a very positive step and proving effective at resolving a backlog of TQs/MF765s. This move has also improved communication between the organizations and supports an efficient turnaround of highlighted technical issues.</p> <p>Implementation and further development of core CAMO activities had restarted and appeared to be heading in a positive direction with the return of the DCAM from the Vigilant Airworthiness Recovery Programme. CAMO Self Assurance activities had also quickly ramped up under the CAM CT and were starting to prove effective at identifying areas and issues for further CAM Team focus.</p> <p>The MAR Team thoroughly understood their duties and appeared to be undertaking robust and effective AR activities on behalf of the Mil CAM.</p>			
Recommendation	<p>The Viking T Mk1 and Vigilant T Mk1 Gliders CAMO does not currently meet the requirements of MRP Part M Sub-Part G and Sub-Part I; Initial Approval should not be considered until all findings are closed.</p> <p>The Mil CAM is required to provide the MAA with resourced Corrective Action Plans (CAPs) by 26 Feb 16, with the CARs being closed by 26 Jul 16. Due to the number and nature of findings it is subsequently recommended that another full Initial Approval audit is conducted, including the verification of all CAR closure actions.</p> <p>It is additionally recommended that 2 FTS formally review all Observations, prioritising those related to CAMO based mitigation/assumptions in the Glider Return To Flight DHANs. Also, 2 FTS should identify a suitable CAMO Initial Approval milestone within the Gliders expansion plans.</p>			
Number of Findings	Non-conformity		Non-compliance	
	Level 1	0	Level 1	0
	Level 2	2	Level 2	23
	Observation	0	Observation	6

**Audit Record and
Objective
Evidence**

INTRODUCTION

The Gliders CAMO was structured under the management of the RAF Syerston DDH, [REDACTED] OBE BA RAFR. The Mil CAM post was held by Wg [REDACTED] who was dual hatted with 3 FTS Mil CAM duties at RAF Cranwell. The Mil CAM was supported by a CAMO Team comprising a DCAM and 2x CAMO SNCOs (1 position gapped at the time of audit) at RAF Syerston. The CAMO QM was located within 22 (Trg) Gp at MOD Abbey Wood.

At the time of audit all Glider flying operations were conducted from RAF Syerston, with 2 FTS intending to expand operations to a number of VGS locations in the near future (~Apr 16). Vigilant had been flying in limited numbers since 30 Jan 15 and Viking had just been approved for recommencement of flight operations on 27 Nov 15.

MAA_15_CAMO_Obs_0051_1: A CAMO approval milestone for flight operations at RAF Syerston and other VGS sites should be included within the Gliders expansion plans.

MAA_15_CAMO_Obs_0051_2: CAMO based mitigation/assumptions in the Vigilant and Viking return to flight DHANs do not appear to have been reviewed and validated to reflect the Gliders CAMO non-approved status, immaturity and areas of declared MRP non-compliance.

The UKMFTS PTL is the Type Airworthiness Authority (TAA) for Viking and Vigilant Gliders. UKMFTS PT staff are located at various sites including RAF Syerston, MOD Abbey Wood and RAF Linton-on Ouse. Dedicated space for key UKMFTS Gliders personnel had recently been provisioned on-site at RAF Syerston, adjacent to the Serco Glider Maintenance Section (GMS) and 2 FTS HQ buildings.

The Serco GMS were an MRP Part 145 Maintenance Organization located at RAF Syerston and undertook on-site Line and Base maintenance for both glider types. They were also undertaking the Vigilant Airworthiness Recovery Programme and were responsible for recurring anti-deterioration maintenance on pre-recovery programme, non-flying gliders located at various VGS sites around the UK.

The Trial Viking Airworthiness Recovery Programme (TVARP) comprising 6 aircraft was being undertaken by Southern Sailplanes who operated under a time and tail number limited MAA Waiver, MAA_AWE_2015_034. They had applied for MRP Part 145 approval to support more Viking Airworthiness Recovery Programme work.

CAMO responsibilities and tasks were split between the Mil CAM, CAM Team and various post holders within Serco GMS and the UKMFTS PT.

Audit evidence was gathered during interviews with the principal auditees and supporting documentation.

Interview record notes were made using MAA Form 5a, which will be retained by the MAA.

OPENING MEETING

An opening meeting was conducted with the following attendees to explain the audit purpose, scope and programme:

Gliders CAMO

██████████ - Gliders DDH
██████████ - Gliders Mil CAM
██████████ - Gliders DCAM
██████████ - CAM CT

MAA

██████████ - DSA-MAA-OA-CAW4
██████████ - DSA-MAA-OA-CAW1
██████████ - DSA-MAA-OA-CAW
██████████ - CAA Surveyor

CHANGES TO THE ORGANIZATION

Since the last MAA audit in 2013 there had been a number of permanent changes to the organization including the establishment of additional core and supporting CAMO posts, provision of dedicated space at RAF Syerston for key UKMFTS PT personnel and co-location of the DDH and Mil CAM.

There had also been a number of temporary changes resulting from the pause in flying, stand up of Viking and Vigilant Airworthiness Recovery Programmes and limited return to flying operations at RAF Syerston.

The current size and structure of the organization was detailed in the Gliders CAME Issue 1 and would be further updated to reflect future organizational changes as Airworthiness Recovery Programmes progressed and flying operations expanded back out to various VGS sites. Serco GMS were also fully aware of these plans and intended to seek a corresponding increase in scope of their MRP Part 145 approval.

REVIEW OF PREVIOUS AUDIT FINDINGS

With agreement from the MAA, 6 previous audit findings from CAMO/CERT/2012/051 had not been progressed during the pause in flying and re-write of the Gliders CAME. These CARs would be closed by the MAA, with either supporting evidence where they had been satisfactorily addressed, or cross-referenced to a new CAR within this audit report where the finding was still evident.

SCOPE OF APPROVAL

RA 1005 – Competent Organizations & Responsibilities

Serco GMS were conducting Glider Line/Base Maintenance and Vigilant Airworthiness Recovery Programme work as an MRP Part 145 Approved Maintenance Organization (AMO) under reference MAA.145.1501.

Southern Sailplanes were conducting the 6 aircraft TVARP under MAA Waiver MAA_AWE-2015_034 which was due to expire on 31 March 2016. An application for MRP Part 145 approval had been received by the MAA and was being progressed in line with the provided route map.

RA 1016 – Requirement for a Mil CAMO

Although dual hatted between 2 and 3 FTS, a Mil CAM had been appointed, authorised and was co-located with the DDH at RAF Syerston. CAMO activities were based on the RA 4900 series, although several self-declared non-

compliances were detailed in the CAME; these are discussed further in this report.

RA 4941 – Application – MRP Part M Sub Part G

An application for Gliders CAMO MRP Part M Sub Part G and Sub Part I approval had been made via MAA Form 2 dated 18 February 2015.

RA 4943 – CAME – MRP Part M Sub Part G

Provision of the CAME – RA 4943(1)

The audit was conducted against the current authorised version of the Vigilant T Mk 1 and Viking T Mk 1 CAME (Issue 1 dated Nov 15). Following a desktop review of the CAME and sampled embedded references by MAA staff and the CAA Surveyor, observations were recorded on an MAA Form 7. This was supplied to the Gliders DCAM prior to the OSV. Some specific CAME feedback items were discussed in more detail during a dedicated session with the DCAM and CAM CT on 10 Dec 15. The Audit Team also witnessed the Dec 15 CAM Monthly Review.

Following the previous 2013 MAA audit, CAME development had effectively stalled until Sep 15 when the DCAM was assigned back to core CAMO duties. The CAME had been subject to 2 CAMO QM Internal Quality Audits (IQAs) which had highlighted a number of issues and generated several draft CAME iterations prior to DDH signature.

The CAME Issue 1 dated Nov 2015 had been signed by the DDH and also contained signed corporate commitment statements from the Mil CAM, Gliders TAA and Serco GMS Chf Eng. However, Part 1 contained several statements of known MRP non-compliance (highlighted in blue text and backed up by entries in the 22 (Trg) Gp CAM Tracker) that conflicted with the DDH commitment statement in Part 0.

The Organization was unable to demonstrate it was fully compliant with RA 4943(1)a with respect to a signed statement from the DDH confirming the CAME and associated manuals defined the organization's compliance with MRP Part M.

MAA_15_CAMO_CAR_0051_1 refers.

In addition to the CAME containing statements of known non-compliance and a large number of general observations included on Form 7 feedback, several other compliancy issues were identified and confirmed during interviews:

- a. In multiple areas the CAME contained general organizational references (e.g. Serco AMO) but did not clearly detail who in the organization was responsible for delegated CAMO tasks. During interview with the Serco GMS Chf Eng it was apparent he was not fully comfortable with this approach and required clearer definition.
- b. The CAME did not accurately reflect the person responsible for amending the CAME and associated procedures/references; these duties sat with the DCAM. The CAMO QM was identified in the CAME Section 5.5 as responsible for incorporating amendments. During interview he confirmed his role was review, identifying commonality across other 22 (Trg) Gp platforms, staffing, coordinating and MAA interface only.
- c. Serco GMS MOE and UKMFTS procedures were referenced extensively throughout the CAME but no requirement was detailed to inform the Mil

CAM on changes which may impact the CAME.

The Organization was unable to demonstrate it was fully compliant with RA 4943(1); the CAME stated several areas of known non-compliance, did not fully or accurately detail how CAw activities were conducted, and did not appropriately detail CAME amendment procedures.

MAA_15_CAMO_CAR_0051_2 refers.

During interviews it was confirmed that several personnel were not clear of what CAMO tasks they were responsible for and had not been involved in the CAME production and review process. They generally thought the CAME had been written to reflect elements of their current job responsibilities, but there was no evidence to prove their current job responsibilities covered all of the MRP and Mil CAM's requirements. CAMO responsibilities had not been highlighted or confirmed in local procedures and TORs. For example, the Serco GMS Engineering Records Controller's TORs had not been amended for a considerable period (~2012) and did not accurately reflect his current AMO role. Also the DCAM's TORs were 22 (Trg) Gp TORs and did not fully reflect her current roles and responsibilities; the CAM CT did not have any TORs.

The Organization was unable to demonstrate it was fully compliant with RA 4943(1) AMC Para 2 with respect to some personnel not being familiar with the parts of the CAME that were relevant to their tasks.

MAA_15_CAMO_CAR_0051_3 refers.

CAME Approval – RA 4943(2)

Part 0 of the CAME detailed a number of circumstances that constituted major or minor changes and the corresponding amendment procedures to be followed. However, the DCAM was not included in Para 0.8.3. It was also noted that CAME signatories/key stakeholders (Serco GMS Chf Eng and Gliders TAA) were not mentioned in any of the CAME change criteria.

The Organization was unable to demonstrate that it was fully compliant with RA 4943(2) with respect to the CAME not detailing the requirement to seek approval for changes to key named personnel.

MAA_15_CAMO_CAR_0051_4 refers.

RA 4945 – Personnel Requirements

Requirements for the Mil CAM – RA 4945(1)

The DDH had appointed a Mil CAM (dual hatted 2 FTS and 3 FTS) who was responsible for the management and oversight of all CAw activities. No day-to-day CAw management responsibilities had been delegated to the DCAM. The Mil CAM's qualifications and experience were detailed in the 22 (Trg) Gp SQEP Matrix. This matrix, in conjunction with the Gliders CAME, highlighted the requirement for a Type Familiarization Course which had not been developed at the time of audit and had therefore been identified by the Mil CAM as a training deficiency. Mitigation was detailed in the CAME based on the Mil CAM's technical and operating knowledge of both platforms gained through the Airworthiness Recovery Programmes. The 22 (Trg) Gp SQEP Matrix also detailed the DCAM and CAM CT as requiring this course.

The Organization was unable to demonstrate that it was fully compliant with RA

4945(1) with regard to formalised Type Training Courses for Viking and Vigilant not being in place and therefore resulting in training deficiencies for the Mil CAM, DCAM and CAM CT.

MAA_15_CAMO_CAR_0051_5 refers.

Qualification of Personnel - RA4945(2)

The 22 (Trg) Gp SQEP matrix contained 'tabs' for core CAMO staff qualifications and experience. Although many of requirements had been annotated, it was noted that the required ARC inspectors course had not been completed by the Mil CAM. Also DCAM requirements for DHASMC and Airworthiness of Military Aircraft were pending and other boxes containing comments and overall SQEP Yes/No assessments were blank. The Glider Airworthiness Review Team were not included on the relevant tab in this matrix alongside AR staff from other 22 (Trg) Gp platforms.

The Organization was unable to demonstrate it fully conformed to the 22 (Trg) Gp DFT HQ Engineering and Logistics Quality Manual Order 1-001 in that the SQEP Matrix contained multiple missing or incomplete entries.

MAA_15_CAMO_CAR_0051_6 refers.

For personnel within the UKMFTS PT and Serco GMS with delegated CAMO responsibilities, the Mil CAM relied upon the Deputy TAA and Serco GMS Chf Eng to set training/qualification/competency standards and ensure they were correctly assessed, achieved and recorded. During interview it was apparent the Mil CAM did not have any involvement in these activities and no oversight or assurance had been conducted on his behalf.

The Organization was unable to demonstrate it was fully compliant with RA4945(2)a; the Mil CAM had not assured and recorded the competence of Serco GMS and UKMFTS personnel assigned with CAMO responsibilities.

MAA_15_CAMO_CAR_0051_7 refers.

The Organization was unable to demonstrate it was fully compliant with RA4945(2)b; the Mil CAM had not established and controlled the continued competence of Serco GMS and UKMFTS PT personnel involved in CAMO activities.

MAA_15_CAMO_CAR_0051_8 refers.

Some work had been undertaken to capture personnel involved in CAMO tasks and identify them in Part 5 of the CAME. However, the proportion of CAMO tasks and time dedicated to them had not been carried out and was reflected as "TBD". It was confirmed during interviews that a Task Resource Analysis had not been completed. It was therefore not possible to confirm that sufficient SQEP manpower resource had been established.

The Organization was unable to demonstrate that it was fully compliant with RA 4945(2) AMC Para 2 with regard to analysis of the CAMO tasks to be performed, how these tasks were divided/combined and how they were assigned.

MAA_15_CAMO_CAR_0051_9 refers.

The Mil CAM, on behalf of the DDH, was responsible for ensuring that each member of staff was adequately trained to carry out the functions associated with their CAW management responsibilities and delegated CAMO tasks. Although an informal, one-off CAMO awareness briefing had been delivered to some personnel

approximately 1 year ago by the DCAM, this training had not been formalised, recorded, delivered to all staff or delivered on a recurring basis.

The Organization was unable to demonstrate that it was fully compliant with RA 4945(2) AMC Para 3 with regard to the initial and recurrent training for personnel with delegated CAMO responsibilities.

MAA_15_CAMO_CAR_0051_10 refers.

RA 4947 – Continuing Airworthiness Management

CAMO Responsibilities – RA 4947(1)

The Gliders Mil CAM had, in accordance with RA 4956, delegated some CAw tasks to the UKMFTS PT and Serco GMS; other tasks were conducted by the Mil CAM and CAM team. Southern Sailplanes were deemed to be a maintenance organization only and did not carry out any delegated CAMO tasks. The routine forum for reviewing CAw tasks and activities was the CAM Monthly Review meeting which the audit team witnessed on 08 Dec 15.

Development and Control of an Aircraft Maintenance Programme – RA 4947(1)a

No processes existed for capturing, trending and analysing maintenance data; this was an area of self-declared non-compliance and had been captured by the CAMO QM during the two previous IQAs. The issue was also recorded on the CAM Assurance Tracker and highlighted during the CAM Monthly Review but, at the time of audit, no progress had been made to address it. The Mil CAM considered the lack of an electronic maintenance information recording and management system (e.g. WRAM/LITs/GOLD esp) a considerable constraint in his ability to access and interrogate maintenance data. The organization relied upon paper MF700 documentation, supported by the Gliders Management Aid Database.

Some maintenance issues were reviewed (but not trended) through the DASOR process, CAM DASOR Tracker and fortnightly Engineering Occurrence Meeting. The DASOR Tracker comprised an Excel spread sheet capturing details of the occurrence, decisions based on the embedded 'Golden Rule' flow diagram and the action(s) taken.

Technical Query processes were detailed in the respective aircraft 2(R)1 leaflets and was being utilised to highlight documentation and maintenance issues to the PT, in conjunction with MF765s and MF760s, were necessary.

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)a with regard to trending and analysis of maintenance data not being undertaken.

MAA_15_CAMO_CAR_0051_11 refers.

Manage the embodiment of Modifications & Repairs – RA 4947(1)b

CAMO involvement in the concept, requirements capture, development and implementation of modifications was discussed with key personnel, using the FLARM collision avoidance system as an example. CAM Work Procedure 2 had been written and provided more detail on how the CAM Team managed and assured the embodiment of modifications and repairs. Fleet embodiment was

conducted using MF700 paperwork, recorded on the Gliders Management Aid Database and reviewed during the CAM Monthly Review meeting. However, Modification Configuration Control was self-declared as an area of known non-compliance with increased Mil CAM oversight and monitoring required through dedicated configuration monitoring meetings.

Further to this issue, Modification Kits were purchased and supplied by the PT directly to Soaring Oxford, for storage and issue. No evidence was provided to demonstrate Mil CAM oversight of this process or confirm/assure the correct configuration status of piece-parts and overall mod kit composition against the Modification Leaflet. It was expected that Serco GMS staff would check the modification kits immediately prior to embodiment.

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)b AMC Para 3b regarding the oversight and monitoring of modification configuration control, an area of self-declared non-compliance.

MAA_15_CAMO_CAR_0051_12 refers.

Requests for Repair Schemes or Concessions were made using the TQ process directly between the PT and AMO (Serco GMS or Southern Sailplanes for TVARP work). PT Desk Officers were responsible for evaluating TQs and deciding what action(s) were required, including if/when to inform the Mil CAM. Where applicable this included liaison with the respective aircraft Design Organisations (Marshalls Aerospace for Viking and Grob for Vigilant) through existing PDS contracts. TQ responses were approved by PT LoAA holders and provided back to the initiating AMO. CAM personnel had evolved a number of informal oversight and monitoring mechanisms (including the DCAM being copied into TQ requests) but these were reliant on personality interactions and corporate knowledge. No evidence was provided to ensure the Mil CAM/DCAM would be made aware of all issues and could provide proactive, timely, positive control and oversight of individual and wider fleet issues with escalation to the DDH where required.

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)b regarding the monitoring, oversight and use of repair schemes and concessions.

MAA_15_CAMO_CAR_0051_13 refers.

All repair records were compiled by Serco GMS and archived in MOSS. To facilitate this for aircraft in TVARP, Southern Sailplanes provided repair requests and records to Serco GMS on completion of each aircraft package. Several interviewees highlighted concerns that this was a disjointed process with no tool to record, trend and track cumulative aircraft repairs or similar repairs across the fleet. This was highlighted as a self-declared area of known non-compliance in the CAME and recorded as an issue on the CAM Assurance Tracker.

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)b AMC Para 4c with respect to the monitoring of multiple repairs to enable the identification of common or cumulative airworthiness issues.

MAA_15_CAMO_CAR_0051_14 refers.

Maintenance Standards – RA 4947(1)c

The processes for ensuring Maintenance Standards and that work was completed in accordance with the Aircraft Maintenance Programme were detailed in the CAME Section 1.3. Input/Output meetings, management of maintenance issues, access to Approved Data and output assurance were discussed further during interviews with the Mil

CAM, DCAM and Serco GMS staff. No non-compliances were identified.

Ensure that all applicable SI(T)s are applied – RA 4947(1)d

The UKMFTS PT were responsible for producing and issuing SI(T)s, with the CAM Team reviewing drafts, providing feedback and determining fleet operating impacts. SI(T)s were issued to the Serco GMS Engineering Records Controller who then disseminated them for action (including to Southern Sailplanes) and also monitored compliance within the stipulated timescales. SI(T) embodiment was also discussed at the monthly CAM Monthly Review meeting.

PT staff were responsible for monitoring Airworthiness Directives and Service Bulletins for civil variants of the Vigilant and Viking gliders. Interviewees stated these were discussed at the PT weekly New Arising Group Review (NAGR) alongside other issues such as TQs and MF765s. This meeting had no formal standing agenda or minutes and was structured around whiteboard information. Although presently working on an open invite basis, the PT intended to formally include the CAM Team in this meeting.

MAA 15 CAMO Obs 0051 3: The UKMFTS Glider NAGR meeting did not formally include a CAM Team representative, had no standing agenda and decisions were not minuted.

Personnel interviewed felt the SI(T) process was working up to aircraft embodiment, but highlighted a follow up mechanism/ meeting was required to consider further actions including incorporation into the maintenance programme or modification action. This was therefore identified as a self-declared area of known non-compliance and captured in the CAM Assurance Tracker.

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)d AMC Para 9d regarding a lack of follow up action post SI(T) issue and embodiment.

MAA 15 CAMO CAR 0051 15 refers.

Ensure that all faults reported, or those discovered during scheduled maintenance, are managed by a MRP/Mil Part 145 approved maintenance organization – RA 4947(1)e

Serco GMS held an MRP Part 145 approval (MAA.145.1501) and Southern Sailplanes held a valid MAA Waiver for TVARP work (time bounded and limited to 6 specific tail numbers). Dialogue had occurred between Southern Sailplanes and the MAA to progress their application for MRP Part 145 approval, in support of further expected Viking recovery work.

The Serco GMS Chf Eng was responsible for reviewing Acceptable Deferred Faults (ADFs) and Limitations on behalf on the Mil CAM. This was conducted as an Annual Level K check on each aircraft in conjunction with 28 day MF700 quality checks. During interview it was found the Serco GMS Chf Eng was aware of MRP requirements with respect to cumulative airworthiness risk; this was also detailed in supporting Serco GMS procedure 3.2.1. He also conducted trending and confirmed out of limits damage was referred to the PT via the TQ process. ADFs and Limitations were reviewed by the Mil CAM as a standing agenda item the CAM Monthly Review.

Control Restrictions and other abnormal flying restrictions were reported and investigated via the DASOR process. Asor2 FTS-RAF\Central Gliding School\Vigilant\15\9461 and asor2FTS-RAF\Central Gliding School\Vigilant\15\10485 were reviewed (related to two occurrences where

Vigilant ZH206 had insufficient trim to maintain pitch attitude). At the time of audit both DASORs were still open. Alongside other DASORs, these occurrences were captured in the Glider DASOR Tracker, which contained details of investigation actions required by the AMO and PT. However no register or trending mechanism existed for occurrences of this nature.

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)e AMC Para 14 regarding the requirement to maintain a register and trend reported UFCMs, control restrictions and other abnormal flying characteristics.

MAA_15_CAMO_CAR_0051_16 refers.

Co-ordinate Scheduled Maintenance, SI(T) and Service Life Limited Parts – RA 4947(1)f

Scheduled maintenance requirements were detailed in the respective aircraft Master Maintenance Schedules. These requirements, alongside SI(T)s and Life Limited Parts were primarily recorded and tracked using the MF700 Technical Log and associated log cards iaw MAP-01. Day-to-day responsibility for management of these activities was delegated to the Serco GMS Engineering Records Controller and Chf Eng. Assurance and linkages to the Mil CAM and CAM Team were discussed during interviews with both these personnel, but not tested during this audit. It was also apparent a significant reliance was placed on the Gliders Management Aid Database as a duplicate, secondary means of recording, presenting and managing maintenance information in a more user friendly format. It was noted the Eng Records Controller was considered to be the Subject Matter Expert and single point of failure regarding the use of the database. He also thought this tool was appropriate for a limited number of flying aircraft and could be developed further to incorporate a larger operating fleet. It was hosted on an RAF Syerston intranet and the Eng Records Controller was investigating options to migrate it to Dii.

MAA_15_CAMO_Obs_0051_4: In conjunction with CAR 11, the Mil CAM should confirm the Serco Engineering Database is suitable for managing delegated CAW tasks, supporting a larger operating fleet of aircraft and is appropriately hosted.

MAA_15_CAMO_Obs_0051_5: The Organization should identify methods of mitigating the Engineering Records Controller as the Gliders Management Aid Database SME and single point of failure.

Records – RA 4947(1)g

Items that constituted CAW records were detailed in the CAME Section 1.7 and included the items detailed in RA 4947(1)g Paras 17 a and b. Management and storage of these aircraft maintenance records was the responsibility of the Serco GMS Engineering Records Controller. He processed all work cards to update MF700 records, component log cards, the Gliders Management Aid Database and archived documentation in filing cabinets in a locked room adjacent to his office. He was concerned that this room was reaching maximum capacity and the Eng Records Controller had been searching for additional space at RAF Syerston.

MAA_15_CAMO_Obs_0051_6: The Engineering Records archive was approaching maximum capacity and additional space options had been investigated but not confirmed.

To support the specified MAP-01 policy for lost aircraft maintenance documentation, CAM Work Procedure 12 was detailed as the reference for lost documentation with safety implications. This procedure was viewed and contained a placeholder title for missing airworthiness documentation. Further process

details were missing and specified as "to be completed". During interview, the Serco GMS Eng Records Controller referenced the MAP-01 policy and local recovery procedures but confirmed there were no parameters or formal monitoring measures in place to trigger the lost form procedure.

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)g AMC Para 19 requiring the CAMO to develop and issue procedures for lost aircraft maintenance forms.

MAA_15_CAMO_CAR_0051_17 refers.

The impounding of engineering and aircraft operations documentation was detailed in No 2 FTS Flying Orders and Guidance – Glider Order 20. The process for locking down all CAW records was also specified in CAMO Work Procedure 12 as "to be completed".

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)g AMC Para 21 requiring the CAMO to have a procedure for data locking of CAW records.

MAA_15_CAMO_CAR_0051_18 refers.

Weight & Moment Statement – RA 4947(1)h

As referenced in the CAME, aircraft weighing tasks, procedures and periodicities were detailed in the respective aircraft 2(R)1 Leaflets. Aircraft weighs were coordinated by the Serco GMS Engineering Support Manager and conducted by the Military Air Environment (MAE) Weigh team who completed the Aircraft Weighing Report (MF756C) and Aircraft Basic Weight & Moment Record Card (MF751). The Engineering Records Controller checked and archived these documents after transferring information to the relevant MF700 forms. Procedures were in place to inform the PT of anomalies but were not tested during this audit.

Occurrence reporting and follow up – RA 4947(1)i

DASOR use and awareness was found to be well understood and considered part of normal business at RAF Syerston from both operating and engineering perspectives. All technical related occurrences were logged in the Occurrence Tracker and reviewed by CAMO personnel at the Engineering Occurrence Meeting. Once appropriately actioned, investigated and addressed this meeting subsequently recommended DASORs for DDH review and closure. During the CAME review and DCAM interview, it was confirmed there was no requirement placed on Southern Sailplanes to raise DASORs or highlight issues of this nature to CAMO/Serco GMS. As a consequence there was no mechanism in place for capturing maintenance occurrences or Haz-obs related to aircraft in the TVARP.

The Organization was unable to demonstrate that it was fully compliant with RA 4947(1)i with regard to the satisfactory completion, coordination and follow up of maintenance occurrences for aircraft in Southern Sailplanes.

MAA_15_CAMO_CAR_0051_19 refers.

RA 4948 – Documentation

The CAMO, Serco GMS and Southern Sailplanes had ready access to all current technical information and processes for publication amendments were in place.

RA 4951 – Quality System

Establishing A Quality Management System (QMS) – RA 4951(1)

Part 2 of the CAME described the CAMO QMS and how it integrated with other Quality Systems including Serco GMS, Southern Sailplanes, UKMFTS PT and 2 FTS. The CAMO QM was located in 22 (Trg) Gp HQ at Blg 1300 MOD Abbey Wood and had conducted several IQA audits of the CAMO, CAME and associated activities against the MRP. These were supported by CAM Team monthly Self Assurance activities which had recently been restarted by the CAM CT following a lengthy period of inactivity. It was noted that since taking up the post in the Jun 2015, the CAM CT had made significant impact and achieved an RA 4947 full annual audit cycle. The CAMO QM did have direct access to the DDH if required and CAMO issues were discussed at the 22 (Trg) Gp Monthly Engineering and Logistics Meeting, CAM Quality Meeting and 2 FTS Quality Meeting.

Functions of the Quality System – RA 4951(2)

During interviews with CAM Team personnel it became apparent that assurance of delegated CAMO tasks was assumed to be carried out by the delegated organization and therefore not explicitly covered under the SA regime. However, interviews with Serco GMS staff confirmed their assurance regime was limited to MRP Part 145 compliance and related processes only. Similarly, the UKMFTS PT QMS was still immature and focused on compliance with TAA activities and internal processes. Assurance of all delegated CAMO tasks could not be confirmed and was considered more difficult by a lack of clear definition of responsibilities in the CAME and associated lower tier procedures/TORs.

The Organization was unable to demonstrate that it was fully compliant with RA 4951(2) regarding the function of the Quality System to assure compliance of all Mil CAM activities, including sub-contracted activities with the RA 4900 series.

MAA_15_CAMO_CAR_0051_20 refers.

It was noted that IQA and SA findings were captured in the CAM Assurance Tracker as a matter of routine. Although review of this tracker was conducted as part of the 22 (Trg) Gp Monthly Engineering & Logistics Meeting, findings did not always appear to be positively managed and completion dates were routinely amended without approval of the finding originator. This conflicted with the processes and flowcharts detailed in the 22 (Trg) Gp DFH HQ Engineering & Logistics Quality Manual Order 1-007.

The Organization was unable to demonstrate that it fully conformed to the 22 (Trg) Gp DFH HQ Engineering & Logistics Quality Manual regarding the management of IQA and SA findings.

MAA_15_CAMO_CAR_0051_21 refers.

The CAME also highlighted that review meetings with the 2 FTS Contract Monitoring Team had been postponed due to maintenance contract extensions, aircraft recovery programme work and the generation of new requirements for future glider support arrangements. This was confirmed during interview with the Mil CAM and self-declared within the CAME as an area of known MRP non-compliance.

The Organization was unable to demonstrate it was fully compliant with RA 4951(2) regarding monitoring and assurance that contracted maintenance is

carried out in accordance with the contract.

MAA 15 CAMO CAR 0051 22 refers.

Quality Management Records – RA 4951(3)

Quality Management records including audit reports and meeting minutes were stored on MOSS for a minimum of 2 years.

RA 4953 – Record Keeping

As already highlighted, items that constituted CAw records were detailed in the CAME Section 1.7 and included items detailed in RA 4947(1)g Paras 17 a and b. The CAME also included "minutes of all airworthiness related meetings" (CAME Part 0 and Para 5.2 listed a series of meetings but did not identify which ones fell into this category), Mil CAMO Self Assurance, IQA reports and BMAR/AR reports within this CAw record definition. Records of CAMO meetings and assurance activities were retained within MOSS but some were not stored with limited access or locked down/archived as records. The procedures for the retention of documentation to support BMAR/MARC activities was detailed in the CAME with documents converted to PDF but not archived on Meridio. When reviewing the CAME referenced SI(T) register, TQ register and MF765 registers on MOSS, it was found they were not restricted/read only access and could be amended via the document check out process. Furthermore the SI(T) register contained working links to superseded SI(T)s.

The Organization was unable to demonstrate it was fully compliant with RA 4953(2) regarding the storage of CAw records in a manner that ensured protection from alteration and that they remained permanently accessible.

MAA 15 CAMO CAR 0051 23 refers.

RA 4954 – Continued Validity of Approval

Requirements of this RA were detailed in the CAME but not applicable as this audit was to support the Gliders CAMO Initial Approval.

RA 4955 – Findings

With agreement from the MAA, 6 previous audit findings from CAMO/CERT/2012/051 had not been progressed further during the pause in flying and re-write of the Gliders CAME. These CARs would now be closed by the MAA with supporting evidence where they had been satisfactorily addressed, or cross-referenced to a new CAR within this audit report where the finding was still evident.

RA 4956 – CAMO Tasks performed by Other Organisations

The Mil CAM was responsible for CAw management tasks, with some of these tasks sub-contracted to UKMFTS and Serco GMS personnel. The CAME Part 3 did not breakdown exactly what these tasks and references were, but contained brief high level support statements in supporting PT CASP 15 and ACT/03098 contracts. The Mil CAM deemed that the Gliders TAA and Serco GMS Chf Eng signatures in the CAME signified acceptance of tasks detailed in the CAME. However, the CAME did not give a sufficient breakdown of these delegated

responsibilities; this was confirmed during interview with the Serco GMS Chf Eng. The Mil CAM had very limited oversight and control of many of these tasks.

The Organization was unable to demonstrate that it was fully compliant with RA 4956 regarding the definition, acceptance and control of sub-contracted CAMO Tasks.

MAA_15_CAMO_CAR_0051_24 refers.

RA 4970 – Baseline Military Airworthiness Review – MRP Part M Sub Part I

BMAR activities were detailed in the CAME Part 4 and conducted by the Glider Airworthiness Review Team (GART) on behalf of the Mil CAM. Following the pause in flying operations a provisional BMAR had been conducted on each aircraft to identify any work required during the recovery package. Upon completion of this package, a full repeat BMAR was carried out on each aircraft, with an associated MARC issued prior to flight. BMAR comprised 100% physical and documentation checks back, as a minimum, to the aircraft's last Major Maintenance Package. This review point had been deemed appropriate and recorded in a documented agreement between the Mil CAM and TAA. The depth and scope of BMAR activities was detailed in CAM Work Procedure 10 and a series of Annex templates had been produced to record the documentation review, physical inspection, BMAR/MAR report, trending and annual summary report.

RA 4971 – Military Airworthiness Review and Certification – MRP Part M Sub Part I

At the time of audit a limited number of Vigilant aircraft had been through the recovery programme; BMAR records for ZH123 demonstrated compliance with the CAME defined processes. Individual completed Annexes for the provisional BMAR and full repeat BMAR were stored on MOSS (original word documents and converted PDFs). A MARC for this aircraft, reference BMAR/47/ZH123, had been issued on 06 Jul 15 (valid until 05 Jul 16) and signed by the Mil CAM who was the only person with the authority to sign them. At the time of audit no aircraft had flown sufficiently long to generate an annual AR. MARC validity, extension and revocation details were included in the CAME, but therefore not tested during this audit.

RA 4972 – Airworthiness Review Staff

A record of AR surveyors by name and position was located on the CAM Team MOSS site and referenced from the CAME. These 3 civilian personnel (Team Lead + 2 AR surveyors) were employed by Serco but reported to the Mil CAM; these personnel did not fall under the Serco GMS and did not conduct any MRP Part 145 maintenance work. Engineering authorisations were limited to those required to conduct AR duties only.

Part 4 of the CAME detailed the training requirements (formal qualifications and OJT), competence assessment and authorization process. Records for [REDACTED] one of the AR surveyors, were selected at random and reviewed. Evidence presented to support authorisation included a CV, training certificates and a British Gliding Association Licence. His BMAR/MAR inspector authority letter was signed by the Mil CAM on 23 Feb 15 and covered both Viking and Vigilant. During review of these records it came to light that the CAMO held an MAA AAMC (MAA/AAMC/2014/058) regarding RA 4972 Mil AR surveyor requirements.

Although the AAMC application was made based on his experience as a civilian Senior Supervisor in the Military air Environment and his BGA Ordinary Glider Inspector Licence, MAA approval was granted based solely on his BGA licence. During the audit it was discovered this BGA licence had expired on 30/09/2010; it should be noted that no evidence was found to doubt [REDACTED] competence or question the validity of BMAR work he had been involved with.

The Organization was unable to demonstrate that it was fully compliant with RA 4972 regarding the qualification and experience requirements for Mil AR surveyors.

MAA_15_CAMO_CAR_0051_25 refers.

RA 4973 – Airworthiness Review Process

At the time of audit no AR requirements had been triggered but the processes were detailed in CAM Work Procedure 10.

RA 4974 – Circumstances when Military ARC Becomes Invalid

The requirements of this RA were covered in the Gliders CAME Part 4.6.

CLOSING MEETING/ OUT-BRIEF

A closing meeting was held with the personnel detailed below and all issues were briefed verbally.

Gliders CAMO

- [REDACTED] – Gliders DDH
- [REDACTED] – Gliders Mil CAM
- [REDACTED] – Gliders Mil CAM (Desig)
- [REDACTED] – Gliders DCAM
- [REDACTED] – CAM CT

MAA

- [REDACTED] – DSA-MAA-OA-CAW4
- [REDACTED] – DSA-MAA-OA-CAW1
- [REDACTED] – CAA Surveyor

Other Issues Requiring Attention

Observation 1: CAMO Initial Approval does not appear to be a hard milestone for flight operations at RAF Syerston or expansion plans back out to VGS sites.

Observation 2: CAMO based mitigation/assumptions in the Vigilant and Viking return to flight DHANs do not appear to have been reviewed and validated to reflect the Gliders CAMO non-approved status, immaturity and areas of self-declared regulatory non-compliance.

Observation 3: The UKMTFS Glider NAGR meeting did not formally include a CAM Team representative, had no standing agenda and decisions were not minuted.

Observation 4: In conjunction with CAR 11, the Mil CAM should confirm the Serco Engineering Database is suitable for managing delegated CAW tasks, supporting a larger operating fleet of aircraft and is appropriately hosted.

Observation 5: The Organization should identify methods of mitigating the

	<p>Engineering Records Controller as the Gliders Management Aid Database SME and single point of failure.</p> <p>Observation 6: The Engineering Records archive was approaching maximum capacity and additional space options had been investigated but not confirmed.</p>		
Completed by	██████████	Date	26 Jan 16
Approved for Release by	██████████	Date	26 Jan 16