

**MAINTENANCE MANAGEMENT PLAN  
(MMP)  
OF  
GALAXY AEROSPACE (M) SDN. BHD.  
(GAM)  
FOR  
MALAYSIA MARITIME ENFORCEMENT  
AGENCY  
AW139**

OFFICE : Suite 11-14, Helicopter Centre,  
Malaysia International Aerospace Centre,  
Sultan Abdul Aziz Shah Airport,  
47200, Subang, Selangor Darul Ehsan.  
Malaysia

TELEPHONE NO : +603-7734 7226  
FAX NO : +603-7734 7526

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# **PART 0**

# **AUTHORISATION**

## MAINTENANCE MANAGEMENT PLAN

### 0.1 LIST OF EFFECTIVE PAGES

MMP Chapter	MMP Reference	Page No.	Issue No.	Rev. No.	Date
<b>PART 0</b>	<b>AUTHORISATION</b>				
0.1	List of effective pages	1 – 4	1	1	7 DEC 2022
0.2	Record of Revisions	1	1	1	7 DEC 2022
0.3	Distributions List	1	1	0	24 JUNE 2022
<b>PART 1</b>	<b>TABLE OF CONTENTS</b>				
1.1	Table of Contents	1 – 4	1	0	24 JUNE 2022
<b>PART 2</b>	<b>INTRODUCTION</b>				
2.1	Condition of Use	1	1	0	24 JUNE 2022
2.2	Notification Procedure to Directorate General Technical Airworthiness (DGTA) Regarding Changes to the Organisation's Activities / Approval / Location / Personnel	1	1	0	24 JUNE 2022
2.3	Exposition Administration and Amendment Procedures	1	1	0	24 JUNE 2022
2.4	Corporate Commitment	1	1	0	24 JUNE 2022
<b>PART 3</b>	<b>LIST OF ABBREVIATIONS</b>				
3.1	List of Abbreviation	1 – 3	1	0	24 JUNE 2022
<b>PART 4</b>	<b>TAMM REGULATION 4 – APPROVED MAINTENANCE ORGANISATION</b>				
<b>4.1</b>	<b>GENERAL</b>				
4.1.1	Applicability - Who May Maintain State-Registered Aircraft, Aeronautical Product and Aircraft-Related Equipment	1	1	0	24 JUNE 2022
<b>4.2</b>	<b>AUTHORISATIONS</b>				
4.2.1	Application for AMO Certification	1	1	0	24 JUNE 2022
4.2.2	Awarded and Retention of AMO Certification	1	1	0	24 JUNE 2022
4.2.3	Reserved	1	1	0	24 JUNE 2022
4.2.4	Changes to AMO Certification	1	1	0	24 JUNE 2022
4.2.5	Validity of AMO Certification	1	1	0	24 JUNE 2022
4.2.6	Suspension, Revocation and Limitation of AMO Certification	1	1	0	24 JUNE 2022
<b>4.3</b>	<b>EXEMPTIONS</b>				
4.3.1	Exemption Requirements	1 – 4	1	0	24 JUNE 2022
<b>4.4</b>	<b>MAINTENANCE ORGANISATIONAL STRUCTURE</b>				
4.4.1	Key Appointments and Groups within an AMO	1 – 2	1	0	24 JUNE 2022

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 0.1</b>	PAGE: 1 of 4

## MAINTENANCE MANAGEMENT PLAN

MMP Chapter	MMP Reference	Page No.	Issue No.	Rev. No.	Date
4.4.2	Documentation of Organisational Structure	1 – 2	1	1	7 DEC 2022
4.4.3	Maintenance Support Networks (MSN)	1 – 2	1	0	24 JUNE 2022
4.4.4	Quality Management System (QMS)	1	1	0	24 JUNE 2022
<b>4.5</b>	<b>PERSONNEL REQUIREMENTS</b>				
4.5.1	Maintenance Authority	1 – 3	1	0	24 JUNE 2022
4.5.2	Accountable Manager	1	1	0	24 JUNE 2022
4.5.3	Senior Maintenance Manager (SMM)	1 – 2	1	1	7 DEC 2022
4.5.4	Quality Manager (QM)	1 – 2	1	1	7 DEC 2022
4.5.5	Maintenance Manager (MM)	1 – 2	1	1	7 DEC 2022
4.5.6	Maintenance Inspector/Supervisor (MI/S)	1 – 2	1	1	7 DEC 2022
4.5.7	Authorised Tradespersons (ATP)	1 – 2	1	1	7 DEC 2022
4.5.8	Aircrew	1	1	1	7 DEC 2022
4.5.9	Non-Trade Personnel (NTP)	1 – 2	1	1	7 DEC 2022
4.5.10	Human Factors in Maintenance	1	1	1	7 DEC 2022
<b>4.6</b>	<b>FACILITIES</b>				
4.6.1	AMO Facilities	1 – 4	1	1	7 DEC 2022
4.6.2	Storage Facilities	1	1	1	7 DEC 2022
4.6.3	Alternative Facilities	1 – 6	1	0	24 JUNE 2022
<b>PART 5</b>	<b>TAMM REGULATION 5 - AIRCRAFT MAINTENANCE AND MANAGEMENT PROCEDURES</b>				
<b>5.1</b>	<b>CONDUCT OF MAINTENANCE</b>				
5.1.1	Maintenance Authority	1 – 2	1	0	24 JUNE 2022
5.1.2	Publications, Instructions, Orders and Data	1 – 2	1	0	24 JUNE 2022
5.1.3	Foreign Source Data	1	1	0	24 JUNE 2022
5.1.4	Maintenance Procedure	1	1	0	24 JUNE 2022
5.1.5	Maintenance Certification	1	1	1	7 DEC 2022
5.1.6	Independent Maintenance Inspection	1 – 2	1	1	7 DEC 2022
5.1.7	Maintenance of Aircraft During the Period of Operation	1 – 2	1	0	24 JUNE 2022
5.1.8	Foreign Object Control	1 – 3	1	0	24 JUNE 2022
5.1.9	Safety	1 – 2	1	0	24 JUNE 2022
5.1.10	Reserved	1	1	0	24 JUNE 2022
5.1.11	Carried Forward Unserviceability (CFU)	1 – 2	1	1	7 DEC 2022

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 0.1</b>	PAGE: 2 of 4

## MAINTENANCE MANAGEMENT PLAN

MMP Chapter	MMP Reference	Page No.	Issue No.	Rev. No.	Date
5.1.12	Maintenance Test Flights	1	1	1	7 DEC 2022
5.1.13	Maintenance Ground Runs	1	1	1	7 DEC 2022
5.1.14	Aircraft Ground Handling	1	1	1	7 DEC 2022
5.1.15	Standard Repairs	1	1	1	7 DEC 2022
5.1.16	Modifications	1	1	1	7 DEC 2022
5.1.17	Weight and Balance	1	1	1	7 DEC 2022
5.1.18	Adhoc Non-Destructive Testing	1	1	0	24 JUNE 2022
5.1.19	Non-Standard Repairs	1	1	1	7 DEC 2022
5.1.20	Contingency Maintenance and Aircraft Battle Damage Repair	1	1	0	24 JUNE 2022
<b>5.2</b>	<b>MAINTENANCE RECORDS AND DOCUMENTATION</b>				
5.2.1	Maintenance Records and Documentation Requirements	1 – 2	1	1	7 DEC 2022
5.2.2	Electronic Records	1	1	0	24 JUNE 2022
5.2.3	Retention and Review of Maintenance Documentation and Records	1	1	1	7 DEC 2022
5.2.4	Falsification, Reproduction or Alteration of Maintenance Records	1	1	0	24 JUNE 2022
<b>5.3</b>	<b>REPORTING AND INVESTIGATION REQUIREMENTS</b>				
5.3.1	Reporting of Unserviceable Conditions	1	1	0	24 JUNE 2022
5.3.2	Reporting of Un-airworthy Conditions	1	1	0	24 JUNE 2022
5.3.3	AMO Investigation of Reported Unserviceable and Unairworthy Conditions	1	1	0	24 JUNE 2022
5.3.4	Maintenance Incident Reporting	1	1	0	24 JUNE 2022
5.3.5	Other Reporting Requirements	1	1	0	24 JUNE 2022
5.3.6	Technical Reporting Systems	1	1	0	24 JUNE 2022
<b>5.4</b>	<b>DEVIATIONS</b>				
5.4.1	Deviations	1	1	0	24 JUNE 2022
<b>5.5</b>	<b>TOOLS, EQUIPMENT AND AERONAUTICAL PRODUCT</b>				
5.5.1	Tools and Support Equipment	1	1	0	24 JUNE 2022
5.5.2	Local Manufacture or Modification of Tooling	1	1	0	24 JUNE 2022
5.5.3	Maintenance Tools and Material During Period of Operation	1	1	0	24 JUNE 2022
5.5.4	Aeronautical Products	1 – 2	1	0	24 JUNE 2022
5.5.5	Transfer of Aeronautical Product (Cannibalisation)	1	1	0	24 JUNE 2022

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 0.1</b>	PAGE: 3 of 4

## MAINTENANCE MANAGEMENT PLAN

MMP Chapter	MMP Reference	Page No.	Issue No.	Rev. No.	Date
5.5.6	Local Manufacture of Aeronautical Products	1	1	0	24 JUNE 2022
<b>5.6</b>	<b>AIRCRAFT ACCIDENTS</b>				
5.6.1	Initial Requirements	1	1	0	24 JUNE 2022
5.6.2	Recovery of Aircraft	1	1	0	24 JUNE 2022
5.6.3	Salvage	1	1	0	24 JUNE 2022
<b>PART 6</b>	<b>ANNEXES</b>				
Appendix 1	Qualification, Training and Experience of Management & Maintenance Personnel	1 – 3	1	1	7 DEC 2022
Appendix 2	List of Management and Maintenance Personnel for AW139	1	1	0	24 JUNE 2022
<b>PART 7</b>	<b>COMPLIANCE MATRIX</b>				
7.1	Compliance Matrix Table	1 – 4	1	0	24 JUNE 2022

**Prepared by :**

Name	:	OMAR BIN AHMAD
Position	:	QUALITY MANAGER
Signature	:	
Date	:	

**Verified by :**

Name	:	NURULAZHAN SALLEHUDDIN
Position	:	SENIOR MAINTENANCE MANAGER
Signature	:	
Date	:	

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 0.1</b>	PAGE: 4 of 4



## MAINTENANCE MANAGEMENT PLAN

### 0.3 DISTRIBUTIONS LIST

COPY NO	MANUAL HOLDERS	LOCATION	FORMAT
01	Quality Manager	GAM	Hard Copy
02	Senior Maintenance Manager	GAM	Hard Copy
03	Director General	Directorate General Technical Airworthiness (DGTA)	Hard Copy
04	Design Acceptance Representative (DAR)	MALAYSIA MARITIME ENFORCEMENT AGENCY (MMEA)	Hard Copy
05	Appointed Maintenance, Airworthiness and Contract Enforcer (AMMACE)	MALAYSIA MARITIME ENFORCEMENT AGENCY (MMEA)	Hard Copy
06	ACCOUNTABLE MANAGER & GALAXY AEROSPACE PERSONNEL	GAM	Soft Copy (via GAMS PORTAL)

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 0.3</b>	PAGE: 1 of 1



# **PART 1**

# **TABLE OF CONTENTS**

## MAINTENANCE MANAGEMENT PLAN

### 1.1 TABLE OF CONTENTS

<u>MMP</u>	<u>CONTENTS</u>	<u>NO. OF PAGE</u>
<b>PART 0</b>	<b>AUTHORISATIONS</b>	
0.1	List of Effective Pages	4
0.2	Record of Revisions	1
0.3	Distributions List	1
<b>PART 1</b>	<b>TABLE OF CONTENTS</b>	
1.1	Table of Contents	4
<b>PART 2</b>	<b>INTRODUCTION</b>	
2.1	Condition of Use	1
2.2	Notification Procedure to Directorate General Technical Airworthiness (DGTA) Regarding Changes to the Organization's Activities/Approval/ Location/Personnel	1
2.3	Exposition Administration and Amendment Procedures	1
2.4	Corporate Commitment	1
<b>PART 3</b>	<b>LIST OF ABBREVIATIONS</b>	
3.1	List of Abbreviations	3
<b>PART 4</b>	<b>TAMM REGULATION 4 – APPROVED MAINTENANCE ORGANISATION</b>	
<b>4.1</b>	<b>GENERAL</b>	
4.1.1	Applicability - Who May Maintain State-Registered Aircraft, Aeronautical Product and Aircraft-Related Equipment	1
<b>4.2</b>	<b>AUTHORISATION</b>	
4.2.1	Application for AMO Certification	1
4.2.2	Award and Retention of AMO Certification	1
4.2.3	Reserved	1
4.2.4	Changes to AMO Certification	1
4.2.5	Validity of AMO Certification	1

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 1.1</b>	PAGE: 1 of 4

## MAINTENANCE MANAGEMENT PLAN

<u>MMP</u>	<u>CONTENTS</u>	<u>NO. OF PAGE</u>
4.2.6	Suspension, Revocation and Limitation of AMO Certification	1
<b>4.3</b>	<b>EXEMPTIONS</b>	
4.3.1	Exemption Requirements	4
<b>4.4</b>	<b>MAINTENANCE ORGANISATIONAL STRUCTURE</b>	
4.4.1	Key Appointments and Groups within an AMO	2
4.4.2	Documentation of Organisational Structure	2
4.4.3	Maintenance Support Networks (MSN)	2
4.4.4	Quality Management System (QMS)	1
<b>4.5</b>	<b>PERSONNEL REQUIREMENTS</b>	
4.5.1	Maintenance Authority	3
4.5.2	Accountable Manager	1
4.5.3	Senior Maintenance Manager (SMM)	2
4.5.4	Quality Manager (QM)	2
4.5.5	Maintenance Manager (MM)	2
4.5.6	Maintenance Inspector/Supervisor (MI/S)	2
4.5.7	Authorized Tradespersons (ATP)	2
4.5.8	Authorised Aircrew	1
4.5.9	Non-Trade Personnel (NTP)	2
4.5.10	Human Factors in Maintenance	2
<b>4.6</b>	<b>FACILITIES</b>	
4.6.1	AMO Facilities	6
4.6.2	Storage Facilities	1
4.6.3	Alternative Facilities	3
<b>PART 5</b>	<b>TAMM REGULATION 5 – AIRCRAFT MAINTENANCE AND MANAGEMENT PROCEDURES</b>	
<b>5.1</b>	<b>Conduct of Maintenance</b>	

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 1.1</b>	PAGE: 2 of 4

## MAINTENANCE MANAGEMENT PLAN

<u>MMP</u>	<u>CONTENTS</u>	<u>NO. OF PAGE</u>
5.1.1	Maintenance Authority	2
5.1.2	Publications, Instructions, Orders and Data	2
5.1.3	Foreign Source Data	1
5.1.4	Maintenance Procedure	1
5.1.5	Maintenance Certification	1
5.1.6	Independent Maintenance Inspection	2
5.1.7	Maintenance of Aircraft During the Period of Operation	2
5.1.8	Foreign Object Control	3
5.1.9	Safety	2
5.1.10	Reserved	1
5.1.11	Carried Forward Unserviceability (CFU)	2
5.1.12	Maintenance Test Flights	1
5.1.13	Maintenance Ground Runs	1
5.1.14	Aircraft Ground Handling	1
5.1.15	Standard Repair	1
5.1.16	Modification	1
5.1.17	Weight and Balance	1
5.1.18	Ad-hoc Non-Destructive Testing	1
5.1.19	Non-Standard Repairs	1
5.1.20	Contingency Maintenance and Aircraft Battle Damage Repair	1
<b>5.2 Maintenance Records and Documentation</b>		
5.2.1	Maintenance Records and Documentation Requirements	1
5.2.2	Electronic Records	1
5.2.3	Retention and Review of Maintenance Documentation and Records	1
5.2.4	Falsification, Reproduction or Alteration of Maintenance Records	1
<b>5.3 Reporting and Investigation Requirements</b>		
5.3.1	Reporting of Unserviceable Conditions	1
5.3.2	Reporting of Un-airworthy Conditions	1
5.3.3	AMO Investigation of reported Unserviceable and Unairworthy Conditions	1

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 1.1</b>	PAGE: <span style="float: right;">3 of 4</span>

## MAINTENANCE MANAGEMENT PLAN

<u>MMP</u>	<u>CONTENTS</u>	<u>NO. OF PAGE</u>
5.3.4	Maintenance Incident Reporting	1
5.3.5	Other Reporting Requirements	1
5.3.6	Technical Reporting Systems	1
<b>5.4 Deviations</b>		
5.4.1	Deviations	1
<b>5.5 Tools, Equipment and Aeronautical Products</b>		
5.5.1	Tools and Support Equipment	1
5.5.2	Local Manufacture or Modification of Tooling	1
5.5.3	Maintenance Tools and Material During Period of Operational.	1
5.5.4	Aeronautical Product	2
5.5.5	Transfer of Aeronautical Product (Cannibalisation)	1
5.5.6	Local Manufacture of Aeronautical Product	1
<b>5.6 AIRCRAFT ACCIDENTS</b>		
5.6.1	Initial Requirements	1
5.6.2	Recovery of Aircraft	1
5.6.3	Salvage	1
<b>PART 6 ANNEXES</b>		
Appendix 1	Qualification, Training and Experience of Management & Maintenance Personnel	3
Appendix 2	List of Management and Maintenance Personnel for AW139	1
<b>PART 7 COMPLIANCE MATRIX</b>		
7.1	Compliance Matrix Table	4

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 1.1</b>	PAGE: 4 of 4

# **PART 2**

# **INTRODUCTION**

## MAINTENANCE MANAGEMENT PLAN

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### 2.1 CONDITION OF USE

1. This Maintenance Management Plan (MMP) is the property of the Galaxy Aerospace (M) Sdn. Bhd. (GAM). It is not to be copied or communicated in part or as a whole to any person not employed by the company without the written consent of the Accountable Manager.
  
2. Distribution List of this MMP is described in MMP 0.3.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 2.1</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

### 2.2 NOTIFICATION PROCEDURE TO DIRECTORATE GENERAL TECHNICAL AIRWORTHINESS (DGTA) REGARDING CHANGES TO THE ORGANIZATION'S ACTIVITIES / APPROVAL / LOCATION / PERSONNEL

1. GAM as an AMO must notify the DGTA of any proposal to carry out any of the following changes that take place to enable the DGTA to determine continued compliance with the Regulation and to amend, if necessary, the approval certificate, except that in the case of proposed changes in personnel not known to the management beforehand, these changes must be notified at the earliest opportunity.
  
2. This procedure applies whenever notification is required to be made to the DGTA on the above-mentioned changes.
  
3. Notification of changes to the approved maintenance organization
  - a. Changes to the following will require notification to the DGTA.
    - i. Name of company and location (including any additional location).
    - ii. Quality Manager.
    - iii. Senior Maintenance Manager.
    - iv. Facilities, equipment, tools, material, procedures, scope and level of work, technical arrangement, maintenance and certifying staff that could affect the maintenance approval.
  
  - b. The notification will be made, as soon as practical via fax, telex or letter, whichever is suitable.
  
  - c. The Quality Manager shall be responsible for notifying the DGTA of any of the above-mentioned changes.
  
  - d. DGTA may prescribe the conditions under which approved maintenance organization may operate during such changes unless determines that the approval should be suspended.
  
4. Exemption from Compliance with "State Airworthiness Authority" requirements:
  - a. Whenever the need to defer compliance with or deviation from DGTA arises, the Quality Manager shall submit such request in writing to the DGTA providing details of the justification.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 2.2</b>	PAGE: <span style="float: right;">1 of 1</span>



## MAINTENANCE MANAGEMENT PLAN

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### 2.3 EXPOSITION ADMINISTRATION AND AMENDMENT PROCEDURES

1. This procedure applies to amendments of MMP.
2. Amendment request may originate from any Maintenance or Operations personnel using the Publication Discrepancies / Amendment Request Form (GAM/E-002).
3. The QM is responsible for the amendment and approval application process with DGTA for any other amendment of the MMP except for amendments raised to correct typographical errors only which can be approved by QM.
4. Amendment that involves changes in maintenance procedures will be jointly reviewed by the QM and SMM.
5. All pages of MMP shall be controlled. Each page of the manual shall have the following:
  - a. Document Reference.
  - b. Issue Number.
  - c. Amendment No.
  - d. Date.
  - e. Page Number.
6. The contents of the List of Effective pages (LoEP) shall reflect all the pages in the MMP and be verified by the SMM. He/she then must forward the revision with new List of Effective Pages and the Transmittal Letter to Technical Publication.
7. Technical Publication shall be responsible for providing constant amendment service to holder of manuals.
8. Technical Publication shall distribute the revision to the MMP holders. To verify whether the amendment has been executed correctly, each batch of revised pages will be accompanied by a new List of Effective Pages.
9. Amendment to the manuals shall be indicated by a dark vertical line running along the left-hand side of the page, highlighting revised portion of the text.
10. QM shall review the MMP at once every six (6) month's intervals to ensure that MMP reflect the latest information.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 2.3</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 2.4 CORPORATE COMMITMENT

This MMP and any associated referenced manuals defines the organization and relevant procedures within GAM upon which the approval is based. These procedures are approved by the undersigned and shall be complied with, as applicable, when work or instructions are being progressed under the Terms of Approval issued by the DGTA.

It is accepted that where these procedures are in conflict with the DGTA or any new or amended requirements published or adopted by the DGTA from time to time, then these procedures shall not override such regulations or requirements.

I accept and commit that GAM shall provide the highest quality of services in accordance with the TMM. I shall ensure all personnel employed in GAM adhere to this plan and shall penalize those personnel who do not conform to this plan in accordance to GAM's company procedures. I shall bear responsibilities and accept all liabilities arising from non-conformities committed by my personnel.

It is understood that the DGTA will continue to approve this Organization so long as the DGTA is satisfied that these procedures are being followed and acceptable standards maintained.

It is further understood that the DGTA reserves the right to suspend, vary or cancel this approval if the DGTA has evidence that said procedures are not followed or acceptable standards not upheld. When a conflict arises between this MMP and TMM, I shall be committed to ensure that the MMP do not override the necessity of complying with TMM.

GAM shall assure of technical airworthiness of state registered aircraft and are maintain according to standard and quality.

Signed: 

Date: **24 JUN 2022**

**DATO' SHAMSUL KAMAR BIN SAMSUDIN**  
 Managing Director/Accountable Manager  
*For and behalf of*  
**GALAXY AEROSPACE (M) SDN. BHD.**

DOCUMENT REFERENCE:				GAM/MMP/AW139	DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 2.4</b>	PAGE:	1 of 1

# **PART 3**

# **LIST OF ABBREVIATIONS**

## MAINTENANCE MANAGEMENT PLAN

### 3.1 LIST OF ABBREVIATIONS

ABDR	Aircraft Battle Damage Repair
AD	Airworthiness Directives
ADD	Acceptable Deferred Defects
AEO	Authorised Engineering Organisation
AM	Accountable Manager (GMD/MD)
AMO	Approved Maintenance Organisation
ARC	Authorised Release Certificate
ASR	Airworthiness Standard Representatives
ATP	Authorised Tradespersons
AVL	Approved Vendors List
BCAR	British Civil Aviation Regulation
CAAM	Civil Aviation Authority of Malaysia
CAESE	Centre of Aerospace Engineering Services Establishment, also known as PUSPEKA
CAR	Corrective Action Request
CFU	Carried Forward Unserviceability's
CI	Configuration Items
CM	Configuration Manager
CMAINT	Contingency Maintenance
COC	Certificate of Conformity
CoG	Center of Gravity
CRS	Certificate of Release to Service
DAR	Design Acceptance Representatives (MMEA)
DGTA	Directorate General Technical Airworthiness
DR	Discrepancy Report
EASA	European Aviation Safety Agency
EIE	Enter in Error
EPM	Engineering Procedure Manual
FAA	Federal Aviation Administration
FOD	Foreign Object Damage
GAM	Galaxy Aerospace (M) Sdn. Bhd.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 3.1</b>	PAGE: 1 of 3

## MAINTENANCE MANAGEMENT PLAN

GSE	Ground Support Equipment
HR	Human Resource
ID	Identification Details
IMI	Independent Maintenance Inspectors
IPD	Illustrated Parts Data
IQA	Internal Quality Audit
LMA	Letter of Maintenance Authority
LOA	Letter of Acceptance/Award
MA	Maintenance Authority
MAO	Maintenance Authorising Office (MMEA)
MMEL/MEL	Master Minimum Equipment List/Minimum Equipment List
MI/S	Maintenance Inspector/Supervisor
MM	Maintenance Manager
MMEA	Malaysian Maritime Enforcement Agency
MMP	Maintenance Management Plan
MMS	Maintenance Management System
MRO	Maintenance Repair and Overhaul
MSDS	Material Safety Data Sheet
MRB	Management Review Board
MSN	Maintenance Support Network
NAA	National Aviation Authority
NCR	Non-Conformance Report
NDT	Non-Destructive Testing
NTP	Non-Technical Personnel
OEM	Original Equipment Manufacturer
PPE	Personnel Protective Equipment
QM	Quality Manager
QMS	Quality Management System
QRM	Quality Review Meeting
SAO	State Aircraft Operators
SMM	Senior Maintenance Manager
SRM	Structural Repair Manual

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 3.1</b>	PAGE: 2 of 3

## MAINTENANCE MANAGEMENT PLAN

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STI	Special Technical Instruction
TAMM	Technical Airworthiness Management Manual

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 3.1</b>	PAGE: 3 of 3

# **PART 4**

# **TAMM REGULATION 4 - APPROVED MAINTENANCE ORGANISATION**

## **4.1 GENERAL**



## MAINTENANCE MANAGEMENT PLAN

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### **4.1.1 APPLICABILITY - WHO MAY MAINTAIN STATE-REGISTERED AIRCRAFT, AERONAUTICAL PRODUCT AND AIRCRAFT-RELATED EQUIPMENT (REGULATION 4.1.1)**

1. GAM is permitted to maintain AW139, aeronautical product and aircraft-related equipment are those that have been certified as AMOs by DGTA and authorised to undertake work by the MAO.
2. GAM shall only operate as an AMO with a valid AMO certificate issued by DGTA. GAM is required under the AW139 In-Service Support Contract to attain AMO from DGTA. Detail of contract are as follows:
  - a. Contract Number : KDN/PL/T/APMM/4/2021
  - b. Scope of Contract : Maintenance Services and Integrated Logistic Support
  - c. Contract Period : 20 October 2021 to 19 October 2024
  - d. MAO : MALAYSIA MARITIME ENFORCEMENT AGENCY (MMEA)
3. The Letter of Maintenance Authority (LMA) issued by DGTA with each AMO certificate shall be considered a part of the certificate.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.1.1</b>	PAGE: 1 of 1

## **4.2 AUTHORISATIONS**

## MAINTENANCE MANAGEMENT PLAN

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### 4.2.1 APPLICATION FOR CERTIFICATION (REGULATION 4.2.1)

1. AMO application is made by the GAM Accountable Manager to DGTA, which is the Technical Airworthiness Authority (TAA) through the MAO for Leonardo Helicopters AW139 and aeronautical products. The authorisation from the MAO shall be in the form of contract
  
2. The submitted application shall include details of the following:
  - a. Company Name and Address.
  - b. Reason for application.
  - c. MMP enlisting the scope and level of maintenance and associated requirement.
  - d. Exemption required (if any).
  - e. A copy of relevant maintenance contract and LOA / Contract for Leonardo Helicopters AW139 helicopter.
  - f. Any relevant certifications held by GAM.
  
3. To ensure the scope of Maintenance, Repair and Overhaul (MRO) activities on the commercial/civil aspect, company is also certified with the following scope:
  - a. CAAM AMO/2016/02.
  - b. CAAM DOA/2020/01.
  - c. DGTA AMO for AS555SN FENNEC RMN, MK-100 SUPERLYNX and AW139HOM
  - d. Indonesia DGCA – 145F-1009
  - e. FAA Repair Station – Certificate No. GLYY941D

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.2.1</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 4.2.2 AWARD AND RETENTION OF AMO CERTIFICATION (REGULATION 4.2.2)

1. The award and retention of the AMO certification is subjected to the following requirement are complied with and also subjected to the Compliance Audit and Surveillance Audit carried out by DGTA and the following conditions:
  - a. AMO and its MMS comply and continue to comply with all the applicable regulations in the Regulation 4 and 5 of TAMM.
  - b. The maintenance on AW139, its and aeronautical product is carried out to the approved standards, with the sufficient, competent and authorized personnel belong to the organization whose work is certified as correct and accepted by DGTA.
  - c. Appropriate and adequate facilities in accordance with the scope and level of the maintenance.
  - d. Availability of all the necessary tools, equipment and other material to support the conduct of maintenance within the approved scope and level.
2. Application satisfying the requirements of Regulations 4.2.1 and 4.2.2.a, followed by satisfactory compliance assessment, GAM is entitled to be formally certified as an AMO by issuance of a certificate and accompanying LMA.
3. Failure to comply with Regulations 4.2.1 and 4.2.2.a will be a basis for rejection of the application. Such rejection shall be fully documented and disclosed to GAM by DGTA.
4. The continued validity of an AMO certification shall be re-assessed by a process and at a frequency determined by DGTA. Failure to comply with TAMM Regulations 4 and 5 shall be a basis for the AMO certificate to be suspended or revoked.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.2.2</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

---

### 4.2.3 RESERVED

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.2.3</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 4.2.4 CHANGES TO AMO CERTIFICATION (REGULATION 4.2.4)

1. GAM shall comply and continue to comply with all the requirements defined in the TAMM Regulation 4 and 5 and shall ensure that no changes are made that contrary to the regulation.
  
2. Any changes to the basis of AMO certification or GAM ability to comply with the regulations (such as an increase in the scope and/or level) shall be forwarded by QM to DGTA through the MAO within seven (7) working days of the change and seek approval or request for re-certification. Example of changes such as company's name or location, personnel filling key appointments, facilities, significant changes to major maintenance system such as tool control, personnel authorisations, or maintenance documentation.
  
3. A change of the organisation's name does not affect technical airworthiness. However, the change does necessitate the issue of a new AMO certificate. Changes, both significant and minor, are to be reported in writing to DGTA. Examples of minor changes include editorial changes to the MMP and referenced documentation and have no significant effect to the MMS
  
4. The proposal for changes should include, as a minimum, the following details:
  - a. The nature and effective date of the proposed change.
  
  - b. The effect of the change on airworthiness.
  
5. QM shall update the MMP once DGTA has approved any changes requested to the basis of an AMO's certification.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.2.4</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 4.2.5 VALIDITY OF AMO CERTIFICATION (REGULATION 4.2.5)

1. The AMO certification issued by DGTA with Letter of Maintenance Authority (LMA) shall remain in force and valid 3 years or until (the contract to which they relate) expires or it's terminated, surrendered, suspended or superseded. GAM is to surrender its AMO certificate if the contract expires or otherwise stated by DGTA.
2. The period/duration of AMO certification is correlated to the ongoing compliance with TMM regulation.
3. Any requests for changes to the duration of a certification are to be submitted to DGTA, through the MAO.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.2.5</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### **4.2.6 SUSPENSION, REVOCATION AND LIMITATION OF AMO CERTIFICATION (REGULATION 4.2.6)**

1. DGTA has full discretionary powers to suspend, revoke or limit any AMO certification if sufficient evidence is available to support such an action.
2. AMO certificate shall be suspended when DGTA observes on reasonable grounds during audit where evidence proved the AMO to be noncompliant to the regulations or any evidence that there is possible safety threat.
3. There will be three (3) categories of non-compliance which may result in the termination of AMO certification. The categories are Critical, Major and Minor non-compliances.
4. DGTA shall suspend, revoke, or limit the scope and/or level of the AMO certification when the AMO has not implemented the necessary corrective action either for Major and/or Minor non compliances within that stipulated period or after it has been granted a further period of up to three months, subject to the DGTA notifying the Accountable Manager. In exceptional circumstances and subject to a realistic and satisfactory corrective action plan being in place, DGTA may extend the period for corrective action to a maximum 6 months.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.2.6</b>	PAGE: 1 of 1



## **4.3 EXEMPTIONS**

## MAINTENANCE MANAGEMENT PLAN

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### 4.3.1 EXEMPTIONS (REGULATION 4.3.1)

1. Where GAM finds that it cannot comply with the regulations or believes that sufficient justification exists not to (strictly) comply with regulatory requirements, GAM is required to apply for an Exemption from DGTA. A request for Exemption is a written submission to DGTA and is processed through the MAO.
2. Approval from the DGTA is required prior to the maintenance organisation operating in accordance with the intent of any proposed Exemption.
3. Whenever the need to defer compliance with or deviation from DGTA Regulation 4 and 5 or GAM MMP arises, the QM shall submit such request in writing to the DGTA providing details of the justification through the MAO.
4. The Request for Exemption shall contain following information but not limited to:
  - a. Basic description of the request.
  - b. Description of the problem and its origin.
  - c. Nature and extent of the Exemption required, including expected duration.
  - d. Impact on aircraft maintenance and maintenance standards (if determinable).
  - e. Impact on engineering, aircraft safety and maintenance standards.
  - f. Details of why the organization is unable to meet the subject regulatory requirement and attempts that have been made to do so.
  - g. Any other relevant supporting documents.
5. Once approved (or not approved) by the DGTA, Record of Exemptions shall be documented, which includes reasons of exemption, duration (if any), and terms and condition. List of Exempted Regulations shall be stated in Annex A of this section. GAM is to notify DGTA in writing within seven (7) working days when any of the Exemption is no longer applicable and update this MMP once the exemption is no longer applied.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.3.1</b>	PAGE: 1 of 2



## **4.4 MAINTENANCE ORGANISATIONAL STRUCTURE**

## MAINTENANCE MANAGEMENT PLAN

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### 4.4.1 KEY APPOINTMENTS AND GROUPS WITHIN AN AMO (REGULATION 4.4.1)

1. In compliance to the TAMM regulations, GAM has listed its organization structure with the key appointment and group to plan, perform, supervise, inspect or certified maintenance as certified by DGTA as follows:

**a. Top Management:**

- i. Accountable Manager (AM)
  - 1. GAM is headed by the Managing Director (MD) who acts as the Accountable Manager under TAMM regulation.
  - 2. The details of the specific roles and responsibilities for AM is described in MMP 4.5.2 (Accountable Manager).

**b. Management:**

- i. Senior Maintenance Manager (SMM)
  - 1. SMM who is appointed by the AM is to lead and manage the maintenance for the AMO. SMM is supported by MM, MI/S, ATP and NTP.
  - 2. The details of the specific roles and responsibilities for SMM is described in MMP 4.5.3 (Senior Maintenance Manager).
- ii. Quality Manager (QM)
  - 1. QM who is appointed by the AM is to ensure GAM perform aircraft maintenance and management within the requirement of DGTA on a day-to-day basis and responsible for all quality activities in order to assure that GAM meets the requirements as an AMO.
  - 2. The details of the specific roles and responsibilities for QM is described in MMP 4.5.4 (Quality Manager).
- iii. Maintenance Manager (MM)
  - 1. The details of the specific roles and responsibilities for MM is described in MMP 4.5.5 (Maintenance Manager).

**c. Supervisory:**

- i. Maintenance Inspector/Supervisor
  - 1. The details of the specific roles and responsibilities for MI/S is described in MMP 4.5.6 (Maintenance Inspector/Supervisor).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.4.1</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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**d. Working:**

i. Authorised Tradesperson (ATP)

1. The details of the specific roles and responsibilities for ATP is described in Part 4.5.7 (Authorised Tradesperson).

ii. Aircrew

1. GAM does not possess any aircrew for this AMO certification as company only provides maintenance for the AW139 helicopters. Aircrew are from the MMEA as the SAO.

iii. Non-Trade Personnel (NTP)

1. The details of the specific roles and responsibilities for NTP is described in MMP 4.5.9 (Non-Trade Personnel).
2. Personnel in management capacity are not authorised to release aircraft or aeronautical product unless Regulation 4.5.1 is fulfilled.
3. List of key personnel in GAM AMO structure together with their QTE is referred to Appendix 1 and 2 of the Annexes.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.4.1</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 4.4.2 DOCUMENTATION OF ORGANISATIONAL STRUCTURE (REGULATION 4.4.2)

1. In compliance to TAMM Regulation 4.4.2, GAM management positions and supervisory position is detailed in MMP 4.4.1 (Key Appointments and Groups Within An AMO).
2. An organisational chart showing associated entails a management framework within which the above key appointments and groups operate is as per Annex 4.4.2 (Maintenance Organisational Structure/Chart) of this chapter.
3. GAM manpower allocated for AW139 are as below:

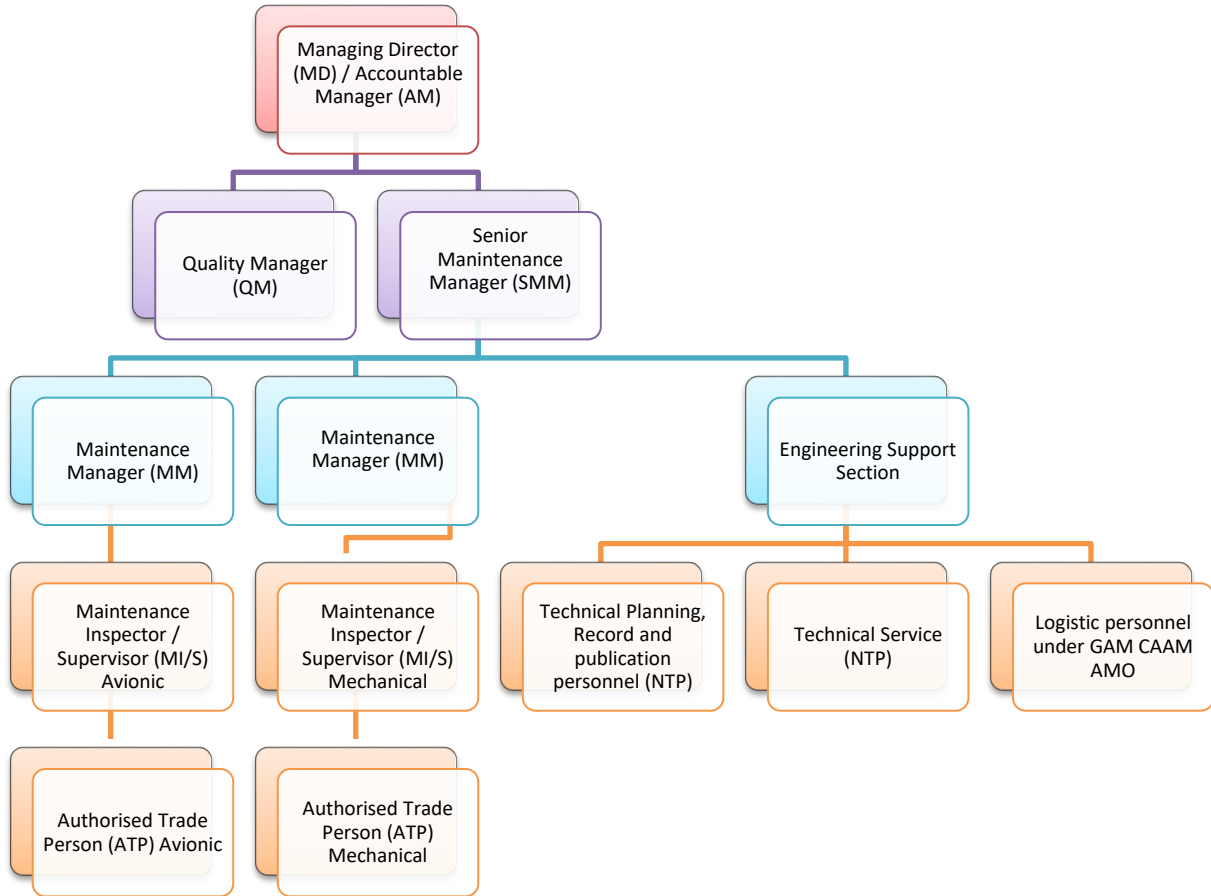
No	Designation	No. of Personnel
1.	Senior Maintenance Manager (SMM)	1
2.	Quality Manager	1
3.	Maintenance Manager	2
4.	MI/S – Mechanical	4
5.	MI/S – Avionics	4
6.	ATP – Mechanical	2
7.	ATP – Avionics	0
8	NTP – Planner, Record , Technical Service and Publication	5
<b>Total</b>		<b>16</b>

4. If GAM is unable to meet the aircraft maintenance requirements based on manpower and aircraft, GAM will obtain technical support services from the OEM or appointed MSN.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	1	<b>PART 4.4.2</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

### Annex 4.4.2 - Maintenance Organisational Structure/Chart



DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	1	<b>PART 4.4.2</b>	PAGE: <span style="float: right;">2 of 2</span>



## MAINTENANCE MANAGEMENT PLAN

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### 4.4.3 MAINTENANCE SUPPORT NETWORK (REGULATION 4.4.3)

1. Where GAM does not have the sufficient internal resources or full capability to conduct the required maintenance activities, therefore, some of the maintenance function will be outsourced to the Original Equipment Manufacturer (OEM) or other approved maintenance facility (vendors).
2. GAM shall provide and control the list (List of Maintenance Support Network (GAM/Q-057)) of the external organization with the details of organisations and defined scope and level of maintenance that will be outsourced to the applicable vendors.
3. GAM shall ensure and be held accountable to DGTA for the technical integrity of the state registered aircraft and/or ground support equipment whenever maintenance is outsourced to vendors. The assessment and authorization of vendors shall comply with the requirement as set forth in the TAMM regulation.
4. The procedure for outsourcing maintenance of components/parts shall define requirement for vendor assessment/evaluation and authorization which shall include the relevant documentation, what to be done (audit/assessment and etc.) before outsourcing is to take place, documents availability, certificate, validity period of the vendors to become MSN to GAM (whichever is applicable). The organisation which has been identified will be evaluated as per EPM 3-04 (Vendor Audit) and EPM 3-05 (Vendor Approval).
5. The Quality Department shall maintain the latest Maintenance Support Network (GAM/Q-057) of all acceptable vendors.
6. GAM is fully supported by OEM of the AW139 and other Maintenance Support Network which are:
  - a. Leonardo Helicopter – Airframe, Engine and aeronautical product.
  - b. Other MSN listed in the List of Maintenance Support Network (GAM/Q-057).
7. Where applicable, whenever GAM need support from its MSN to carry out maintenance activity, a formal written maintenance contract or Purchase Order (PO) between the GAM and the Contractor shall be executed (whichever is applicable/to be defined once the need is arise). The contract or PO shall clearly specify the maintenance work scope to be carried out.
8. All work undertaken shall be coordinated by the SMM who will provide the necessary maintenance support including manpower, facility and equipment if required.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.4.3</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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9. The MSN shall comprise of appropriately trained and competent personnel. All work must be done in accordance with approved data and other technical publications and using appropriate tools and material.
  
10. The MSN shall certify for the tasks accomplished in accordance with Aviation Authority requirements in any documents i.e. work package, engineering order, certificate of conformance (C of C), EASA Form 1, FAA Form 8130 or any other equivalent documents. GAM authorized personnel shall sign Certificate of Release to Service after the work is completed.
  
11. In the case of urgency or ad-hoc basis, one-time approval is granted for aeronautical product supplier/service. However, the following condition shall be applied:
  - a. Only applicable for one-time product purchase/service. The company has the capability to supply/servicing the product and acknowledge by Quality personnel through at least, company profile or company website.
  - b. The approved sub-contractor which has the same capability could not respond to the request made due to high cost, longer lead time and demanding company.
  - c. Verification from Quality department, approval from QM is required prior any purchase/service being made.
  - d. Capable to produce required documentation such as Certificate of Conformity, EASA Form 1 or other relevant documents.
  - e. Detail procedure of this paragraph is defined in the EPM 3-04 (Vendor Audit) and 3-05 (Vendor Approval).
  - f. MAO to be notified on the use of vendor under this paragraph.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.4.3</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 4.4.4 QUALITY MANAGEMENT SYSTEM (REGULATION 4.4.4)

1. The basic quality requirements to achieve this standard are laid down in this Maintenance Management Plan. It also set out the Company's Quality Policy by specifying the personnel directly responsible for quality matters and the particular procedures and practices that must be observed. Adherence to this standard also ensures compliance with the airworthiness requirement.
2. Quality is not the sole responsibility of the QM / Department. It is the duty of all employees to comply with this policy and to strive to improve quality standard at every opportunity.
3. The Quality Department is an independent monitoring department which has the responsibility and authority to monitor the compliance of all policies, procedures, practices and administration system related to airworthiness. The compliance regime shall consist of general surveillance, sampling inspections, planned and unscheduled audits.
4. The Quality standards are set by the Quality Department and monitored by the QM. The Accountable Manager shall receive a copy of all Audit Report and a copy extended to DGTA upon request.
5. For the purpose of audit, DGTA is allowed to access the necessary record on quality. Accountable Manager shall allow DGTA to access the Quality Management System.
6. In ensuring the desired quality products and services are achieved, a yearly IQA is conducted to check the processes and procedures are being followed.
7. All internal / external audit findings and issues related to the quality will be reviewed in 6 months interval meeting known as QRM chaired by Accountable Manager to review not only current quality issue, aircraft maintenance program, processes, procedures, audit findings, internal quality indicators but shall also emphasize on the broad aspect of ongoing compliance with processes, procedures, effectiveness of corrective action and preventive actions as well.
8. The audit system should clearly establish a means by which audit report containing observations about non-compliance or poor standards can be actioned.
9. The detail procedure of audit plan, process and the implementation are defined in EPM 3-06 (Quality Department Audit Programme), EPM 3-07 (Quality Audit - Hangar), EPM 3-08 (Quality Audit – Technical Support Department), EPM 3-09 (Audit – Quality Department), and EPM 3-10 (Documentation Audit Programme).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.4.4</b>	PAGE: <span style="float: right;">1 of 1</span>

## **4.5 PERSONNEL REQUIREMENTS**

## MAINTENANCE MANAGEMENT PLAN

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### 4.5.1 MAINTENANCE AUTHORITY (REGULATION 4.5.1)

1. Every person who plans, performs, supervises, inspects or certifies maintenance shall be assessed and authorised to do so. This is called Internal Maintenance Authority (IMA). The assignment of IMA shall not be done in an unreliable manner but in a way that ensures that personnel authorised to maintain and manage maintenance of AW139, its aeronautical product and related equipment are competent to do so.
2. The assessment and authorization for the maintenance personnel to the level of authority assigned to each technical personnel in GAM is to ensure that maintenance activities have been performed, supervised and inspected by competent and authorized personnel. The re-assessment and re-authorization to all the maintenance personnel shall be carried out once a year. Procedure for Company Approval System, Issuance, Renewal or extension of Company Approval are detailed in EPM 3-01 (Issuance of Company Approval), EPM 3-03 (Quality Department – Approval Renewal) and EPM 3-12 (Company Approval System).
3. The IMA that corresponds to the group listed by Regulation 4.4.1 is as per Table 4.5.1 of this chapter.
4. The personnel requirement in term of Qualification, Training and Experience (QTE) for every position are listed in the Appendix 1 of the Annexes.
5. GAM shall maintain records of all assessments and approvals for the assignment of Maintenance Authority in accordance with MMP 5.2.2 (Maintenance Record and Documentation).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.1</b>	PAGE: 1 of 3

## MAINTENANCE MANAGEMENT PLAN

**Table 4.5.1**

TITLE	JOB SCOPE DOCUMENT REFERENCE			
Managing Director (Accountable Manager)	PART 4.5.2			
Senior Maintenance Manager (SMM)	PART 4.5.3			
Quality Manager	PART 4.5.4			
TITLE	JOB SCOPE DOCUMENT REFERENCE	ASSESSMENT CRITERIA	ASSESSMENT METHOD	AUTHORISATION DURATION
<b>Maintenance Manager</b>	PART 4.5.5	<ul style="list-style-type: none"> <li>• Technical background and experience</li> <li>• Conversant to company procedure</li> <li>• Management skill</li> </ul>	Interview	12 months / as required by SMM
<b>Maintenance Inspector/Supervisor</b>  (Approval Holder/ Certifying Staff)	PART4.5.6	<ul style="list-style-type: none"> <li>• Technical background and experience</li> <li>• Level of conversant with company procedure</li> <li>• Working attitude</li> <li>• Supervisory skill</li> </ul>	Written and Oral Test	12 months / expiry of Local Authority License / as required by SMM
<b>Authorized Tradespersons</b>  (Technician)	PART 4.5.7	<ul style="list-style-type: none"> <li>• Technical background and experience</li> <li>• Familiarization to company procedures</li> <li>• Working attitude</li> </ul>	Written and Oral Test	12 months / as required by SMM
<b>Aircrew</b>	PART 4.5.8	N/A	N/A	N/A

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.1</b>	PAGE: <span style="float: right;">2 of 3</span>

## MAINTENANCE MANAGEMENT PLAN

<p><b>Non-Technical Personnel</b></p> <ul style="list-style-type: none"> <li>• Tools Store Personnel</li> <li>• Warehouse Personnel</li> <li>• Apprentice/Trainee</li> </ul>	<p>PART 4.5.9</p>	<ul style="list-style-type: none"> <li>• Suitable qualification and experience background for the job scope</li> <li>• Familiarization to company procedures</li> <li>• Working attitude</li> </ul>	<p>Written and Oral Test</p>	<p>12 months / as required by SMM</p>
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DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.1</b>	PAGE: 3 of 3

## MAINTENANCE MANAGEMENT PLAN

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### 4.5.2 ACCOUNTABLE MANAGER (REGULATION 4.5.2)

**A. Immediate Superior**

1. Board of Director

**B. Main Responsibilities**

1. Responsible to ensure that maintenance carried out in compliance by the Company with the standard and requirements of DGTA.

**C. Specific Functions**

1. Responsible for ensuring that maintenance carried out meets the standards required by DGTA.
2. Responsible for ensuring that the necessary finance, manpower resources and facilities are available to enable the company to perform the maintenance activities within the GAM maintenance scope and level as stated in the AMO authorization and certification.
3. To ensure through a quality management system, that effective management and control systems are established and maintained within the company to monitor and maintaining compliance with approved procedures, standards and practices.
4. Responsible for ensuring the competence of all personnel including management personnel has been assessed.
5. Taking immediate action to resolve any issues which affect the company's ability to provide the required quality of maintenance activities.
6. To ensure that the DGTA and MAO are notified immediately, in writing, of any issues that affect the company's ability to provide the required quality of maintenance as stipulated in the AMO certification.
7. He has the authority to appoint Senior Maintenance Manager (SMM) and Quality Manager (QM).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.2</b>	PAGE: 1 of 1



## MAINTENANCE MANAGEMENT PLAN

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### 4.5.3 SENIOR MAINTENANCE MANAGER (REGULATION 4.5.3)

**A. Immediate Superior**

1. Accountable Manager (Managing Director)

**B. Qualification, Training & Experience Requirements**

1. Selection criteria shall be meet with the requirements in this MMP Part 6 Appendix 1.

**C. Main Responsibilities & Specific Functions**

2. SMM is a position appointed by the Accountable Manager.
3. Responsible to plan, direct and manage all aircraft maintenance activities to provide safe and airworthy aircraft, meet the requirement of approved AMO and client's requirements.
4. To advise DGTA (through the responsible AM and MAO) any changes which affect the company's AMO certification.
5. To ensure that all Engineering organization maintenance, overhaul, and repair of aircraft and components activities and its related supporting program meets the Quality Standards and all requirements for the grant as an Approved Maintenance Organisation.
6. To facilitate engineering and maintenance to meet the requirement of AMO with the provision of:
  - a. Facilitate appropriate to the planned work
  - b. Office accommodation appropriate to the management planned of the planned work
  - c. A working environment appropriate to tasks being undertaken
  - d. Storage facilities for parts, tools, equipment and materials
  - e. Appropriate, serviceable, calibrated (where appropriate) and sufficient tools, GSE, specialist equipment and material to perform the planned tasks.
  - f. Sufficient personnel to plan, perform, supervise, inspect and certify the work being performed.
  - g. Maintenance data from the aircraft manufacturer and airworthiness data from DGTA, necessary to the task being performed.
7. Establish and maintain administration and operation of AMO.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.3</b>	PAGE: 1 of 3

## MAINTENANCE MANAGEMENT PLAN

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8. Communicate with QM and DGTA on airworthiness matters to ensure that all its operations conform to statutory and legal requirements.
9. Liaise with manufacturers, vendors and approved design organisations in support of aircraft and component maintenance.
10. To ensure that all audit findings carried out internally and by DGTA are attended to and resolved within the agreed time-frame.
11. To monitor the level of service provided to clients and take appropriate steps to achieved desired levels.
12. Cultivate a positive attitude and response in engineering personnel on the compliance of industrial safety, health and environmental regulations, procedures and practices in order to ensure safe working environments in the interest of personnel and the company.
13. To ensure that all Maintenance personnel are provided with appropriate technical, knowledge and skill training.
14. Direct the planning and implementation of training, development, projects and growth related to Engineering.
15. Oversee the Engineering Support Section of their function as Technical Planning, Publication and Record, and Warehouse.
16. To ensure that maintenance personnel are authorized to perform maintenance activities through an approved and documented system based on the evaluation of formal qualification and experience.
17. Operating a system for the training, assessment, authorization and periodic re-assessment of personnel.
18. To nominate maintenance task to be performed by authorized Non-Technical Personnel and Aircrew.
19. To establish FOD control programs/systems.
20. To set maintenance duty time limits.
21. Responsible to assess and re-assess, authorize and re-authorize the MM, MI/S, ATP, NTP through an authorization system stipulated in the EPM.
22. Act as a self-certifying maintainer for maintenance activities perform himself limited as if he/she have satisfied the requirements of MMP 4.5.1 and MMP Appendix 1 - (QUALIFICATION, TRAINING AND EXPERIENCE OF MANAGEMENT & MAINTENANCE PERSONNEL) requirement equivalent to MI/S.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.3</b>	PAGE: 2 of 3

## MAINTENANCE MANAGEMENT PLAN

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23. Senior Maintenance Manager (SMM) is supported by Maintenance Manager. In the case of lengthy absence, the regulatory duties and responsibilities will be delegated to the Maintenance Manager through the Management of Change procedure. However, such delegations do not relieve SMM of the overall responsibility.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.3</b>	PAGE: 3 of 3

## MAINTENANCE MANAGEMENT PLAN

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### 4.5.4 QUALITY MANAGER (REGULATION 4.5.4)

#### A. Immediate Superior

1. Managing Director (Accountable Manager).

#### B. Qualification, Training & Experience Requirements

1. Selection criteria shall be meet with the requirements in this MMP Part 6 Appendix 1.

#### C. Main Responsibilities & Specific Functions

1. QM is a position appointed by the Accountable Manager.
2. To ensure GAM perform aircraft maintenance and management within the requirement of DGTA on a day-to-day basis. Responsible for all quality activities in order to assure that GAM meets the requirements as an AMO.
3. Responsible on all matters regarding quality and main function is monitoring GAM compliance to the regulatory requirement outline in TAMM.
4. Establish an independent quality system to monitor compliance with TAMM regulations. Formulate and issue instructions to establish and maintain his departments at high standard of efficiency and economy.
5. Responsible for implementing a quality audit programmed in which compliance with all maintenance procedures is reviewed at regular intervals and any observed non-compliance or poor standards are brought to the attention of the person responsible for corrective action.
6. Carry out surveillance, sampling inspection and audit to ensure that engineering maintenance activities are in accordance with the requirement of the company and the DGTA.
7. Liaise, consult and negotiate with DGTA on aircraft airworthiness matter including the implementation of Quality Assurance functions.
8. To manage all audit finding carried out internally and by DGTA to assure they are attended to and resolved within the agreed time-frame.
9. Control administers and issue Company Approval to qualified personnel.
10. Initiate and co-ordinate aircraft accident/incident investigation work to identify the causes and come up with preventive measures.
11. Evaluation and approval of supplier and sub-contractor.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.4</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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12. Advice the Accountable Manager in the event of any discrepancies is not being adequately attended to by the relevant person or in respect any disagreement over nature of the discrepancies.
13. Ensuring that the requirement of training, safety program requirements and continuous training of technical staffs are in conformance with the standards and requirement of DGTA, other relevant Airworthiness Authorities and the Company.
14. Review MMP, standard practices and maintenance procedures for use within the Company, derived from approved sources, and keeping them up to date.
15. Preparing standard practices and procedures for use within the organization, derived from approved sources, and keeping them up to date.
16. Coordinating with all departments to ensure they are in compliance with all relevant airworthiness requirements.
17. In the case of lengthy absence, the regulatory duties and responsibilities will be delegated to the Accountable Manager through the Management of Change procedure. However, such delegations do not relieve Quality Manager of the overall responsibility.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.4</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 4.5.5 MAINTENANCE MANAGER (REGULATION 4.5.5)

#### A. Immediate Superior

1. Senior Maintenance Manager

#### B. Qualification, Training & Experience Requirements

1. Selection criteria shall be meet with the requirements in this MMP Part 6 Appendix 1.

#### C. Main Responsibilities & Specific Functions

1. Carry out aircraft planning, restore and maintain GAM aircraft to a serviceable, safe and airworthy condition in accordance with company and TAMM approved methods and procedures.
2. Daily administration control of Maintenance Department.
3. Ensure correct and efficient execution of maintenance activities and task associated with aircrafts and parts. All maintenance task and procedures must conform to the organization and TAMM standards.
4. Ensure that aircraft and equipment maintenance is performed, supervised and inspected in accordance with the relevant instructions, orders and publications.
5. Facilitate the provision of adequate facilities, supporting equipment and qualified personnel to perform maintenance on aircraft and equipment.
6. Make available to maintenance personnel the necessary overhaul manual, service bulletins, service letters, airworthiness directives, maintenance manual and any other required technical data.
7. Coordinate with Warehouse section for proper upkeep of store section and provision of adequate spare and consumable for forecasted maintenance and defect rectification.
8. The Maintenance Manager will allocate and supervise work for personnel under his control.
9. Manage all activities concerned with aircraft status, maintenance forecast and maintenance programs (Approved Maintenance Scheduled) in accordance with statutory and legal requirements to ensure timely availability of aircraft to meet contractual obligation.
10. Ensures the necessary documentations are raised for all works performed on aircraft and its equipment for proper completion and certification.
11. Review relevant Airworthiness Directives, Service Bulletin and any other technical instruction together with other member of AD/SB review board for

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.5</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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- applicability and compliance.
12. Liaise and consult Quality Manager on airworthiness matter such as Certificate of Airworthiness renewal, approval of Maintenance Schedule concession or extension etc.
  13. Responds to quality deficiencies arising from Quality Audit and DGTA audit findings.
  14. Ensures all acceptable deferred defects are monitored and rectified within the stipulated time frame.
  15. Ensures that aircraft released to service meets the technical contractual obligation and quality of workmanship is acceptable to the organization and the DGTA.
  16. Provides updates to the SMM on technical matters which affect the aircraft delivery status.
  17. Ensure that all Maintenance personnel are in possession of correct skills and are given appropriate training, authorized and aware of their responsibilities.
  18. Plan, organize and control the hangar operation to restore and maintain the aircraft serviceability in accordance with company, customer and relevant Aviation Authorities requirements in the most effective and productive manner.
  19. Responsible for maintaining a clean and safe working environment at all time.
  20. Maintenance Manager is authorized by SMM to manage specific maintenance activities in the AMO.
  21. Maintenance Manager (MM) is assessed and authorized by SMM via letter of authorization and is responsible for the maintenance management and functions.
  22. MM shall be initially authorized by SMM for duration of 12 months after a formal assessment to determine his competency, knowledge on maintenance, supervision, inspection, and technical administration requirement. MM shall be re-assessed and re-authorized by the SMM on a periodic basis not exceeding 12 months.
  23. The authority for the MM may be revoked by SMM if the MM is unable to demonstrate a sound working knowledge of the organization's MMP.
  24. Maintenance Manager competency assessment will be conducted by SMM with reference to this MMP and EPM 5-02 (Job Competence Assessment).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.5</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### **4.5.6 MAINTENANCE INSPECTOR / SUPERVISOR (CERTIFYING STAFF / APPROVAL HOLDER) (REGULATION 4.5.6)**

#### **A. Immediate Superior**

1. Maintenance Manager (MM)

#### **B. Qualification, Training & Experience Requirements**

1. Selection criteria shall be meet with the requirements in this MMP Part 6 Appendix 1.

#### **B. Main Responsibilities & Specific Functions**

1. To undertake and supervise the maintenance, inspection, repair, replacement, modification, rectification and certification of aircraft in accordance with company and relevant aviation authority's approved methods and procedures.
2. The SMM is responsible for selecting, certifying and authorizing MI/S.
3. The authorized MI/S shall have a sufficient knowledge of maintenance, supervision, verification and inspection process. He is responsible for correctness and quality of specific tasks performed by personnel under his supervision.
4. The SMM shall formally re-assess and re-authorize the MI/S on a periodic basis not exceeding 12 months.
5. Maintenance Inspector/Supervisor competency assessment will be conducted by SMM and Quality Department as detailed in GAM EPM 5-02 (Job Competence Assessment). Relevant records and documentation shall be maintained accordingly.
6. Carry out aircraft, components and ground equipment maintenance tasks efficiently.
7. Carry out and certify (as applicable) assigned tasks in accordance with the requirements of the MMP.
8. Organise available manpower and other resources to meet operational requirements.
9. Ensure defects are rectified correctly in an efficient manner.
10. Exhibit high standard and quality of maintenance work and corresponding certification in accordance with company and DGTA requirements.
11. Co-ordinate and liaise with Supervisor or other relevant personnel to effect efficient maintenance action.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.6</b>	PAGE: 1 of 2



## MAINTENANCE MANAGEMENT PLAN

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12. Ensure high standard of engineering housekeeping and security in the place of work such as aircraft interior/exterior, hangar, workshops and other engineering maintenance areas.
13. Ensure relevant documentation and procedures are in accordance to established practices.
14. Ensure technical instructions, manuals are in good condition and updated to current status when used.
15. Ensure correct inventory of special tool and support equipment are in serviceable condition for proper and safe usage.
16. Ensure personnel under his supervision namely Technicians maintain a high standard or personal and work disciplines.
17. Maintain constant and effective communication with his superior, peers and subordinates.
18. Provide guidance and on-job-training to personnel under his charge to maintain desired quality and standard of work.
19. Act in the capacity of Engineering Maintenance Supervisor when required and/or called upon to do so and ensure proper hand-over is accomplished.
20. Cultivate a positive attitude and general respect for the compliance of industrial safety, health and environmental regulations, procedures and practices for personnel protection as well as company's interest.
21. Carry out any other duties assigned by immediate superior.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.5.6</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 4.5.7 AUTHORIZED TRADESPERSONS (ATP) (REGULATION 4.5.7)

#### A. Immediate Superior

1. Maintenance Manager

#### B. Qualification, Training & Experience Requirements

1. Selection criteria shall be meet with the requirements in this MMP Part 6 Appendix 1.

#### C. Main Responsibilities & Specific Functions

1. To perform aircraft maintenance related tasks as assigned to the best quality standards in a specific time frame whilst maintaining conducive working environment and observing safety and discipline in accordance with the company and relevant aviation authorities requirements.
2. All personnel performing 'hands on' maintenance on the state registered aircraft and ground support equipment must have an authorization from the SMM that specify their competency level in the relevant trade.
3. ATP must pass the assessment before considered fit to work on aircraft.
4. The ATP shall be formally re-assessed and re-authorized by the SMM once a year (12 months). The SMM has the authority to revoke ATP or allows ATP to continue performing maintenance works after the re-assessment and re-authorizing process. The re-assessment process is detailed in EPM 5-02 (Job Competence Assessment).
5. For those ATP that holds GAM Company Approval, EPM 3-01 (Issuance of Company Approval) shall be refers.
6. ATP competency assessment will be conducted by SMM or delegated MM with reference to EPM 5-02 (Job Competency Assessment). Relevant records and documentation shall be maintained accordingly.
7. Carry out aircraft components and equipment maintenance tasks efficiently.
8. Carry out and certify as required assigned tasks in accordance with the requirements of the MMP and EPM.
9. Communicate and liaise with MI/S or other relevant personnel to effect efficient maintenance actions.
10. Exhibit high standard and quality of maintenance work and corresponding certification (if applicable) in accordance with company and DGTA requirements.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.7</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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11. Ensure high standard of engineering housekeeping and security in the place of work such as aircraft interior/exterior, hangar, workshops and other engineering maintenance areas.
  
12. Ensure technical instructions, manuals are in good condition and updated to current status when used.
  
13. Carry out any other duties assigned by any duly delegated superior.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.7</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 4.5.8 AIRCREW (REGULATION 4.5.8)

1. GAM does not possess any aircrew for this AMO certification as company only provides maintenance for the AW139 helicopters. Aircrew are from the MMEA as State Aircraft Operator (SAO).
2. Only appropriately trained, qualified and authorized aircrew may perform defined maintenance. In this case, the maintenance defined as Ground Run and Maintenance flight test to the AW139 aircraft are authorized to operate. The aircrew shall declare that they are trained, qualified and authorized to conduct the defined maintenance.
3. SMM/MM shall ensure that only appropriately authorized pilot to perform test flight, with the relevant SAO approval.
4. Prior to flight test, SMM/MM shall discuss with SAO as followed
  - a. Scope of work or task
  - b. Pilot authorization and qualification.
5. Detail of procedure for flight test shall be refer to EPM 1-03.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.8</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 4.5.9 NON-TRADE PERSONNEL (REGULATION 4.5.9)

#### A. Qualification, Training & Experience Requirements

1. Selection criteria shall be meet with the requirements in this MMP Part 6 Appendix 1.

#### B. Scope

1. The SMM is allowed to authorize and employ Non-trade Personnel (NTP) to perform, specific maintenance tasks in GAM but under close supervision by Maintenance Inspector / Supervisor. SMM will define and specified the scope of maintenance work that he / she allows to carry out. Once he / she pass the assessment, he / she is considered fits to work on aircraft. The SMM shall re-assess and re-authorize the NTP every 12 months.
2. Each NTP shall be authorized for maintenance works with proper scope and level in his / her authorization letter. NTP is not authorized to perform any maintenance activities beyond the authorized scope. NTP is to be closely supervised by MM and MI/S.
3. Non-trade Personnel includes but not limited to, the following personnel:
  - a. Technical Record Personnel.
  - b. Technical Planning Personnel.
  - c. Technical Publication Personnel.
  - d. Tools Store Personnel.
  - e. Warehouse Personnel.
  - f. Apprentice/Trainee.
  - g. Maintenance support (assist in non-critical and non-complex maintenance task))
4. The considerations required when selecting maintenance tasks as being suitable for the application of non-trade labour include, but are not limited to, the following:
  - a. Task technical complexity,
  - b. Task training requirements,
  - c. Task competencies and currencies required,
  - d. Any associated security issues, and
  - e. Any environmental considerations.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.9</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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5. Responsibilities and function of the Non-trade Personnel can be referred to EPM 5-01 (Terms of Reference of Engineering Personnel).
6. NTP competency assessment will be conducted by SMM in accordance with EPM 5-02 (Job Competence Assessment). Relevant records and documentation shall be maintained accordingly.
7. For any NTP that holds GAM Company Approval, EPM 3-01 (Issuance of Company Approval) shall be refers.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.9</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

### 4.5.10 HUMAN FACTOR IN MAINTENANCE (REGULATION 4.5.10)

1. GAM management will ensure that all maintenance staff in GAM should adequately understand Human Factors involving aircraft and aeronautical products. Therefore, maintenance related personnel are required to attend Human Factors training as part of human factor awareness program. Other human factor awareness program includes, but not limited to, awareness posters and briefing.
2. The system and procedures are integrated in GAM SMS Manual. This is to create an understanding and appreciation about their relationship with company procedures, with equipment and tools, and working environment, and also about relationship with the other people in the team.
3. MI/S who is constantly involved in making maintenance decisions in the maintenance release and inspection works, must be aware of the human performance, capabilities, and limitations under various environmental conditions.
4. SMM, MM, MI/S, ATP and NTP shall be required to attend continuation training in Human Factors every two years. This course maybe conducted by company itself to inculcate the human factors awareness among company staff.
5. As a part of compliance to latest Malaysia Labor Law, working hours for the employees shall not exceed 12 hours per day and any arrangement for shift and duty rosters shall be take into account the rest day or period prior the shift or duty roster assignment. Any requirement for duty period extension shall be identified and authorized by Maintenance Manager. SMM shall ensure the Accountable Manager is aware of the need to work extended hours.
6. The employee working hour and rest time are addressed in GAM Employee Handbook Para 1.10 Working Hours.
7. All employees must be alcohol and drug free during working hours. This is to avoid performance impairment caused by fatigue, alcohol and drug.
8. All maintenance personnel shall be responsible to notify their immediate superior should they be or suspect any person of to be under influence of drugs or alcohol, physiological or psychological condition that may adversely affect the performance of their duties. He/she shall raise Safer Cards via GAMS Portal as per mention in SMS Manual Part8. Safety Reporting.
9. Blameless reporting to foster culture within the organisation that disclose the appropriate authorities, any personal condition that has potential top adversely affect technical airworthiness are defined in GAM SMS Manual Part 7 Non-Punitive Reporting.
10. It is requirement for supervisors who identify a person whom they believe is impaired to immediately remove the person from the task at hand to ensure correct procedures are implemented for the return of tools, foreign object control and

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.10</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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completion of maintenance documentation and to consider any requirement for checking work completed by the person.

11. The SMM has the authority to revoke the authorization for MM, MI/S, ATP and NTP if they are found psychologically and physiologically not suitable to carry out maintenance tasks in accordance with regulation 4.5.10.
12. Procedure for Human Factor training is detailed in EPM 3-11 (Human Factor Training).
13. When an incorrect or inappropriate maintenance has occurred, investigation and Maintenance Occurrence Report (MOR) need to be raised within 48 hours of the incident and formally report the incident to DGTA.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.5.10</b>	PAGE: 2 of 2



## **4.6 FACILITIES**

## MAINTENANCE MANAGEMENT PLAN

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### 4.6.1 AMO FACILITIES (REGULATION 4.6.1)

1. GAM shall ensure the facility;
  - a. Have an appropriate working space for the performance of maintenance within the assigned scope and level.
  - b. Assure that the AW139 aircraft, aeronautical product and aircraft related equipment being maintained are kept secure and protected from any adverse environmental conditions.
  - c. Promote and protect the physical safety, efficiency and comfort of all the organisation's employees so as to not impair the quality of work performed or the ability for employees to safely and effectively perform their duties.
  - d. Have an adequate office accommodation for the effective management and planning of maintenance appropriate for the scoped activities.
  - e. Have an adequate protection of maintenance documentation, data, instructions and records to prevent deterioration.
  - f. Where required, have adequate segregation from other state-registered aircraft, aeronautical product and aircraft-related equipment and/or from other weapon systems being maintained and/or stored.
2. Main facility for all scope of work will be carried out at Stesen Udara Maritim Subang unless otherwise agreed by Maintenance Authorising Office.
3. GAM designated maintenance office provided by MMEA are located at the middle of the hangar office facilities as per the floor plan provided.
4. The facility are subjected to the on-site assessment which to be carried out by the Quality Department. The assessment input shall be followed but not limited to the following criteria:
  - a. Basic facilities requirement such as hangar space, area to carry out compass swing and weight & balance, ground run activities, utilities, compressed air, GSE and etc.
  - b. Storage facilities i.e. unserviceable area, holding rack, tools store, consumable store, POL storage & etc.
  - c. Environmental issue i.e. waste disposal, waste storage, waste management.
  - d. Safety and security i.e. access to the maintenance area, storage area, fire protection, explosive ordinance requirements & etc.
  - e. All findings shall be recorded and if any deficiency detected, facilities owner shall be notified. In the meantime, GAM shall take initiative to propose and provide countermeasure to ensure the maintenance activity could take place at the alternative facilities.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.6.1</b>	PAGE: 1 of 5

## MAINTENANCE MANAGEMENT PLAN

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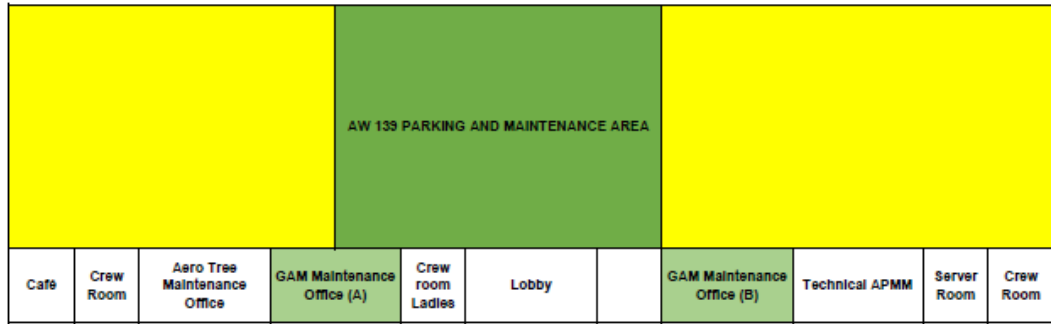
- f. All records and related documentation for the alternative facilities assessment shall be forwarded to the Accountable Manager, facilities owner and shall be maintained accordingly.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.6.1</b>	PAGE: 2 of 5

## MAINTENANCE MANAGEMENT PLAN

### MMEA Hangar

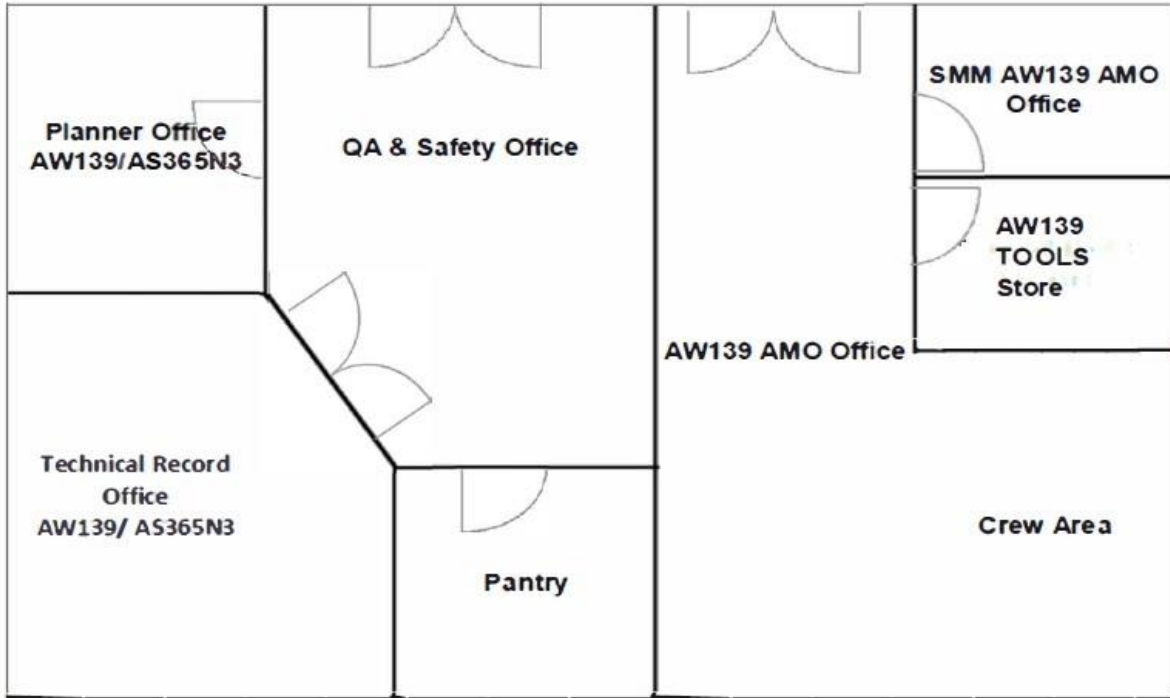
POL Store



DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.6.1</b>	PAGE: 3 of 5

## MAINTENANCE MANAGEMENT PLAN

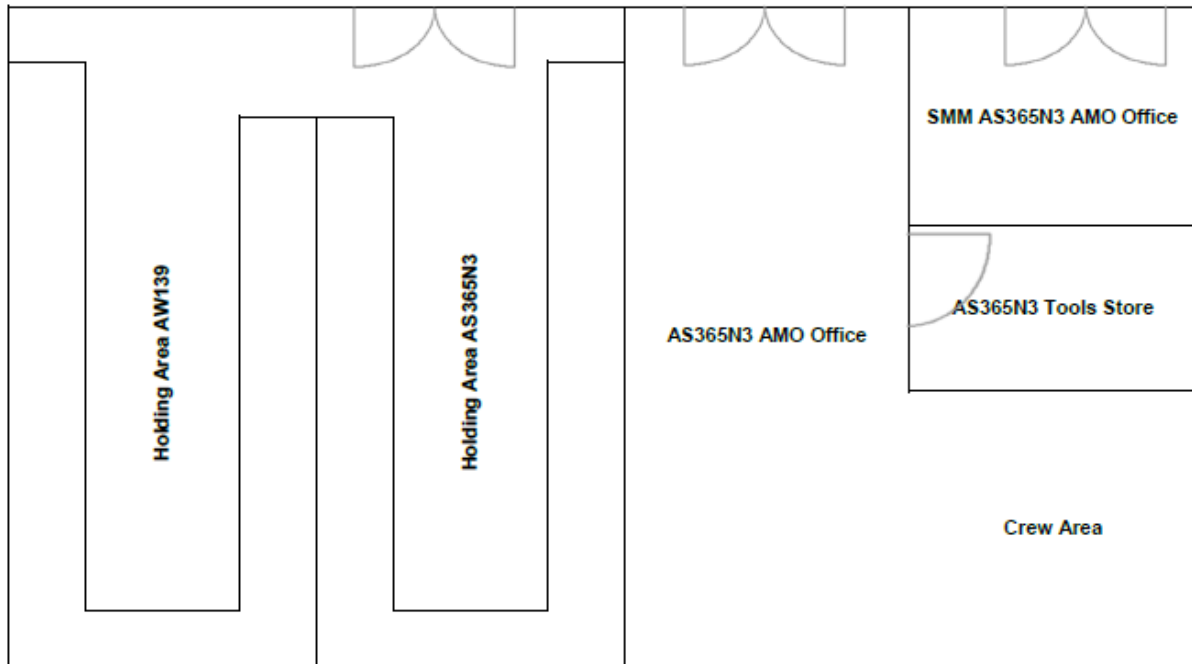
### GAM Maintenance Office (A)



DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.6.1</b>	PAGE: 4 of 5

## MAINTENANCE MANAGEMENT PLAN

### Maintenance Office (B)



DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.6.1</b>	PAGE: 5 of 5

## MAINTENANCE MANAGEMENT PLAN

### 4.6.2 STORAGE FACILITIES (REGULATION 4.6.2)

#### GAM HQ

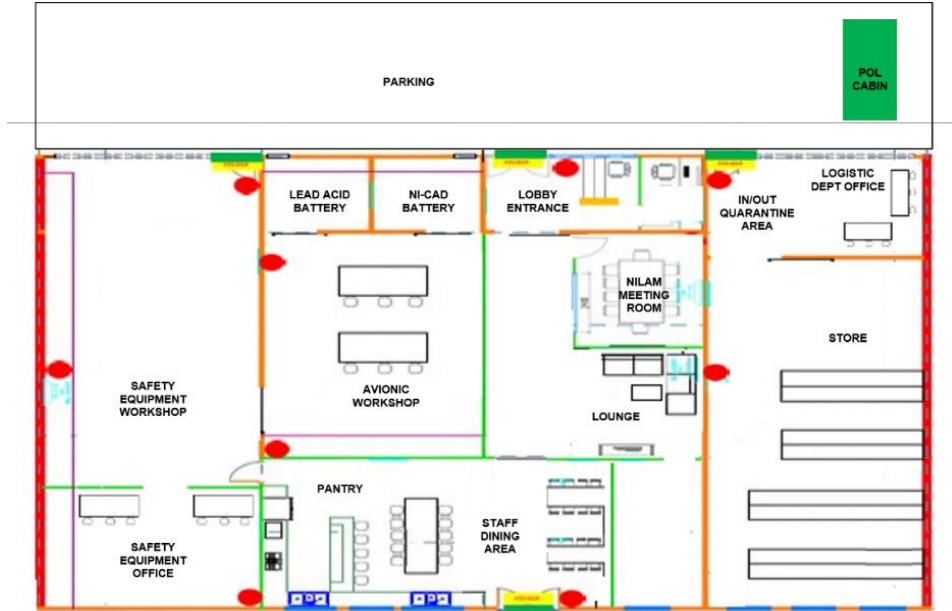
- a. GAM's aeronautical warehouse located at GAM HQ facility and the warehouse is managed, controlled and regulated under GAM Part 145 approved organization by CAAM. The warehouse has been dedicated as a common store for both Civil and Stated registered aircraft.
- b. During office hours storage facilities are accessible only to Warehouse Personnel and locked at the other time.
- c. Consist of environmentally controlled bonded store for storing of parts and components, a segregated Quarantine storage and receipt and dispatch area. Storage facilities are maintained in clean, air conditioned and humidity controlled conditioned.
- d. Storage racks are strong enough to hold large components so that components are not distorted during storage.
- e. Wherever practicable, all aeronautical products should remain packaged in protective material and remain inhibited until ready for installation to minimize damage and corrosion during storage.
- f. A POL item storage at the cabin and located outside of GAM HQ Main Office for storage of fuel, grease and lubricants.
- g. All special tools and equipment for aircraft maintenance are located in a dedicated tools store.
- h. Procedures of store procedures and storage of aircraft component are detailed in the EPM 2-01 (Acceptance of Aircraft Components and Materials).

#### Stesen Udara Maritim Subang (SUMS)

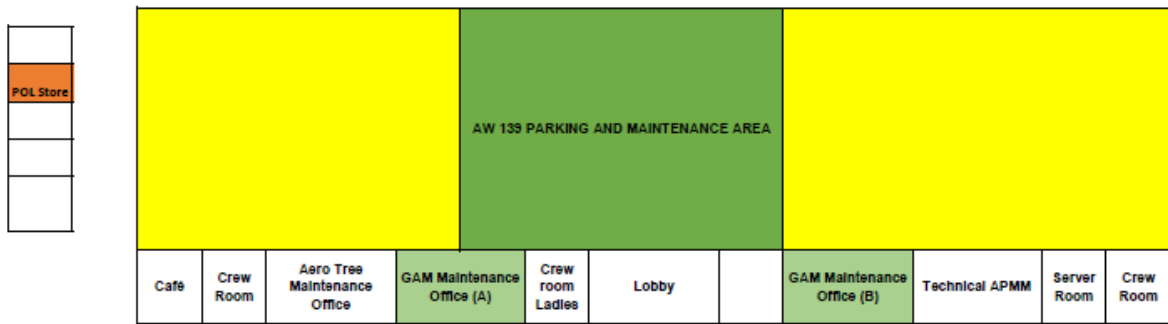
- a. Storage facilities in SUMS consist of POL Store, POL cabinet, tools store and Holding room.
- b. Storage facilities are accessible only to authorized personnel that are authorized by SMM.
- c. Holding room is environmentally controlled and maintained in clean, air-conditioned and humidity controlled.
- d. POL storage is located on left side of the SUMS hangar. It is used to store Petroleum, Oils, and Lubricants products.
- e. Tools store is located in the Maintenance Office (B). All special tools and small special equipment are stored in the tool store.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.6.2</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN



GAM HQ Warehouse



SUMS Ground Floor

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 4.6.2</b>	PAGE: <span style="float: right;">2 of 2</span>



## MAINTENANCE MANAGEMENT PLAN

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### 4.6.3 ALTERNATIVE FACILITY (REGULATION 4.6.3)

1. Subjected to the maintenance contract, the alternative facilities to conduct maintenance of the AW139 and/or aeronautical products away from the main maintenance facility will be assessed first before being approved.
2. The alternative facilities to conduct maintenance of the AW139 and/or aeronautical products away from the main maintenance facility will be at
  - a. Galaxy Aerospace Malaysia MIAT SUBANG
 and  
 at any other place of performance shall be mutually agreed in terms and conditions, when it is required and permissible by the Government/MMEA.
3. Scope and Level of Maintenance at the Alternative Facility is not limited to contractual agreement and subjected to MMEA request. The request shall be highlighted in the regular meeting with the MMEA.
4. The alternative facilities are subjected to the on-site assessment which to be carried out by the Quality Department and shall only be used after approved by DGTA. Facility audit procedure is further detailed in EPM 3-07 (Quality Audit – Hangar).
5. The assessment input shall be followed but not limited to the following criteria:
  - a. Basic facilities requirement such as hangar space, area to carry out compass swing and weight & balance, ground run activities, utilities, compressed air, GSE and etc.
  - b. Storage facilities i.e. unserviceable area, holding rack, tools store, consumable store, POL storage & etc.
  - c. Environmental issue i.e. waste disposal, waste storage, waste management.
  - d. Safety and security i.e. access to the maintenance area, storage area, fire protection, explosive ordinance requirements & etc.
  - e. All findings shall be recorded and if any deficiency detected, facilities owner shall be notified. In the meantime, GAM shall take initiative to propose and provide countermeasure to ensure the maintenance activity could take place at the alternative facilities.
  - f. All records and related documentation for the alternative facilities assessment shall be forwarded to the Accountable Manager, facilities owner and shall be maintained accordingly.
6. GAM facilities consist of:
  - a. The UniKL- MIAT facility for aircraft maintenance and management offices rendered for:
    - (1) Maintenance Management.
    - (2) Planning.
  - b. The GAM's management office rendered for:
    - (1) Quality.
    - (2) Warehouse

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.6.3</b>	PAGE: 1 of 3

## MAINTENANCE MANAGEMENT PLAN

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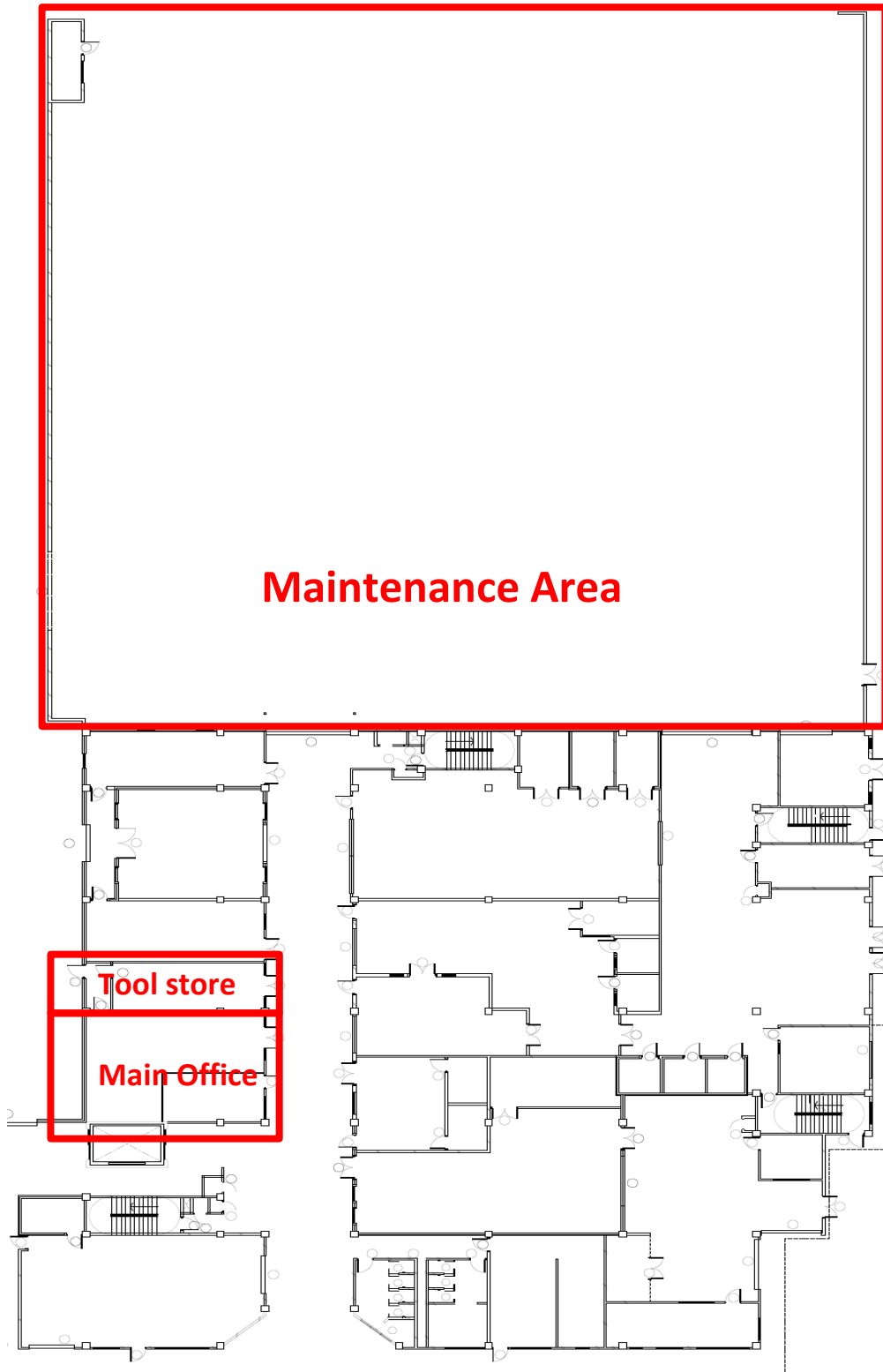
- c. Hangar and Equipment.
- (1) Maintenance Bay
  - (2) Aircraft Starting Fire Extinguisher
  - (3) Planning and Technical Record Office
  - (4) Crew Rest and Standby Area
  - (5) POL Cabinet
  - (6) Tool Store
7. GAM designated maintenance office provided by UniKL-MIAT is located at the middle of the hangar office facilities as per floor plan provided.
8. The above facilities have a common official contact at:
- Hangar 2, UniKL-MIAT, Persiaran A,  
 Off Jalan Lapangan Terbang Subang,  
 47200 Subang,  
 Selangor Darul Ehsan.
9. Tools, equipment, ground service equipment and publication to be used for maintenance activities at UniKL- MIAT facility is further detailed in EPM 1-14 (Alternative Facilities).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.6.3</b>	PAGE: 2 of 3

## MAINTENANCE MANAGEMENT PLAN

### UniKL-MIAT Hangar

A. GAM at UniKL Miat Hangar Floor Plan.



DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 4.6.3</b>	PAGE: 3 of 3

# **PART 5**

# **TAMM REGULATION 5 - AIRCRAFT MAINTENANCE AND MANAGEMENT PROCEDURES**

## **5.1 CONDUCT OF MAINTENANCE**

## MAINTENANCE MANAGEMENT PLAN

### 5.1.1 MAINTENANCE AUTHORITY (REGULATION 5.1.1)

1. GAM shall only operate as an AMO with a valid AMO certificate issued by DGTA.
2. The Letter of Maintenance Authority (LMA) issued by DGTA with each AMO certificate shall be considered a part of the certificate.
3. The LMA shall define the scope and level of activity for which the certificate is issued.
4. GAM shall be certified by the DGTA and authorized as Approved Maintenance Organisation (AMO) for maintenance of AW139 and its aeronautical products by the MAO.
5. The DGTA AMO scope and level of maintenance activities are as follows:

No	Scope	Level
1.	AW139	a) 1 <sup>st</sup> Line maintenance b) Scheduled Base Maintenance for AW139 as per Maintenance Planning Information (AMPI), Unscheduled maintenance, defect rectification, troubleshooting, Service Bulletin (SB), and Airworthiness Directive (AD) compliance, modification embodiment, component replacement, repair on aircraft and its sub system. c) Excluding component overhaul which not included in the scope of Aircraft Maintenance Manual. Depot Line Maintenance activities will be carried out by the applicable MSN.
2.	Pratt & Whitney Canada PT6C-67C	a) Maintenance on the P&W PT6C-67C engine as per Chapter 5 of the Engine Maintenance Manual including scheduled & unscheduled maintenance, defect rectification, troubleshooting, Service Bulletins (SB) and Airworthiness Directive (AD) compliance, modification embodiment and component replacement. b) Excluding engine and component overhaul. Depot Line Maintenance activities will be carried out by the applicable MSN.

DOCUMENT REFERENCE:			GAM/MMP/AW139		DATE:	24 JUNE 2022	
ISSUE:	4	REVISION:	0	<b>PART 5.1.1</b>		PAGE:	1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.2 PUBLICATIONS, INSTRUCTIONS, ORDERS AND DATA (REGULATION 5.1.2)

1. An AMO needs to have access to all the information required to conduct maintenance to the scope and level to which it is certified. That information will be located in publications, instructions, orders or other data repository (for example, electronic media). Valid authorisation for its use needs to be ensured through effective ongoing management.
2. GAM is obliged to perform maintenance on state registered aircraft, aeronautical products and aircraft-related equipment in accordance with DAR and relevant OEM approved technical publications, instructions, orders and data. The AMO needs to ensure that any information authorised by DAR or the relevant OEM is applicable to its authorised scope and level.
3. The term Technical Publications is interpreted to include all technical information including specifications, drawings and Technical Publications, produced in any format such as hard copy, soft copy, compact disc, microfilm and videotape.
4. All maintenance work performed by GAM on aircraft and related component shall be carried out in accordance with approved and up to date data applicable to authorized scope and level of maintenance. All the data used for maintenance shall be authorised by DAR or OEM and approved by DAR before use.
5. SMM shall ensure the Technical Library receive, update and distribute all the applicable Technical Publications. The data shall be received from DAR and/or OEM.
6. A Publication Master List (GAM/E-020A) shall be maintained where it will record the details for all technical publication available in GAM. The list shall contain, as minimum, the publication reference, title, amendment no, amendment date, source and location. The list shall be approved by SMM and must tally with the physical holding and adequate for AMO scope and level at all time.
7. All relevant manufacturers and vendors' manual, notices and other literatures necessary for the satisfactory functioning of the maintenance must be available, complete and in sufficient quantities for the easy reference of all concerned.
8. Maintenance Managers are responsible for the following:
  - i. Maintain an up-to-date Publication Master List (GAM/E-020A) of all technical references held in their respective section.
  - ii. Ensure the receipt of the publications from the Technical Publications Section and perform frequent check for the current status of Technical Publications against the Master List.
  - iii. Ensure that necessary and prompt corrective actions are taken for technical references found not current or of latest update.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.2</b>	PAGE: <span style="float: right;">1 of 2</span>

## MAINTENANCE MANAGEMENT PLAN

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- iv. For any inaccurate, incomplete or ambiguous procedure, practice, information or maintenance instruction found in maintenance technical publication, Senior Maintenance Manager should be formally informed.
  
- 9. All Technical Publication shall be check frequently for availability of revision. Procedure in EPM 4-01 (Technical Publication Control) and EPM 4-03 (Approved Publication Discrepancy) must be adhered.
  
- 10. An audit to confirm the status of all technical data held by Maintenance Department shall be carried out by the QM.
  
- 11. Maintenance documentation prepared by Technical Records Department is subjected to Surveillance/Audits in respect of approved capabilities, facilities, equipment, appropriate skills and certification procedures.
  
- 12. All approved publication and maintenance data for the helicopter AW139 are controlled and updated in Publication Master List (GAM/E-020A).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.2</b>	PAGE: 2 of 2



## MAINTENANCE MANAGEMENT PLAN

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### 5.1.3 FOREIGN SOURCE DATA (REGULATION 5.1.3)

1. FSD is any data that has been acquired from sources other than DAR or OEM. Foreign source data may include, but are not limited to, manufacturer's handbook, user/operator guides, engineering drawings, instructions used by other in-services organization and foreign military forces and government regulations.
2. If there is need to use foreign source data, the data should be identified and controlled according to the company procedures.
3. When there is requirement, SMM shall submit the FSD to DAR for approval prior to use by GAM.
4. Procedure for foreign source data is detailed in EPM 4-01 (Technical Publication Control).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.3</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.4 MAINTENANCE PROCEDURES (REGULATION 5.1.4)

1. GAM shall only use approved and suitable maintenance procedures which are relevant with company's scope of maintenance which shall be in line with AEO requirements (if applicable). The maintenance procedures shall be approved by either DAR or the OEM.
2. Any deficiencies or deviation to the maintenance procedures due to facility differences or unique local constraint shall be approved by DAR prior to implementation.
3. The SMM may issue instructions, orders or memoranda for the amplification and guidance to maintenance procedures within the AMO, provided such amplification or clarification does not constitute a Design Change.
4. Nevertheless, GAM has established EPM 4-03 (Approved Publication Discrepancy), which details out the locally developed maintenance procedure to ensure the efficiency of maintenance activity.
5. SMM may authorize local procedures which being generated to clarify the approved maintenance procedures as long as it does not constitute a design change. Any local maintenance orders shall be drafted and reviewed by appropriate person identified by SMM and authorized by SMM prior to use the orders.
6. All maintenance policies, procedures and plan shall be identified and controlled according to company procedures.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.4</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.5 MAINTENANCE CERTIFICATION (REGULATION 5.1.5)

1. All personnel involved in maintenance shall accurately and progressively document all maintenance work which had been performed i.e., in work order, work sheet and technical log. For the maintenance work which involves a number of steps and take longer time to be completed, progressive certification is required where ATP shall place their initial, approval stamp and appropriately dated upon work performed.
2. All entries in the maintenance records shall be made in legible ink, where cursive writing is not allowed.
3. Upon completion of the task, MI/S shall certify the work performed by document his initial/sign, approval stamp and appropriately dated.
4. The list of ATP and MI/S shall been maintained through [List Of Approval Holder \(GAM/Q-001\)](#).
5. The respective MI/S shall ensure that all certifications had been referred to applicable technical instruction which had been used during maintenance. For any maintenance task which involves tolerance, dimension and test figures, record of the value shall be available in relevant documentation and being certified accordingly.
6. For MI/S responsible to certify aircraft or component to release shall ensure the following:
  - a. All required maintenance had been completed and certified accordingly. This to include and not limited to:
    - (1) All signatures are accompanied by a number allocated to the individual.
    - (2) The name of the individual completing documentation is printed with all signature/certifications, secured stamps, electronic passwords.
    - (3) Maintenance Control Section (or equivalent) maintains a register of signatures
  - b. For any deferred maintenance, it had been complied with EPM 1-11 (Defect Deferment - ADDs).
  - c. The aircraft or aeronautical product is in an approved configuration.
  - d. All relevant documentation had been completed and compiled including the work package, relevant forms, serviceable label (GAM/E-005), CoC / EASA Form 1, reports and etc.
  - e. All tools and test equipment used during maintenance had been removed from the aircraft or aeronautical product and/or accounted for.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.5</b>	PAGE: <span style="float: right;">1 of 2</span>

## MAINTENANCE MANAGEMENT PLAN

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7. Where an authorized person is responsible for supervising a person under training, the authorized person shall accept full responsibility and certify the maintenance performed.
8. Failure by an individual to comply with the requirements and procedures may result in the withdrawal of the approval from the individual.
9. A person certifying the release of state-registered aircraft, aeronautical products and aircraft-related equipment after the maintenance shall ensure:
  - a) All required maintenance has been completed and certified, or a determination has been made to defer any maintenance required.
  - b) Maintenance has been completed and certified, or a determination has been made to defer any maintenance required.
  - c) The aircraft or aeronautical product is in an approved configuration.
  - d) All tools and test equipment used during maintenance have been removed from the state-registered aircraft, aeronautical products and aircraft related equipment and / or accounted for.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.5</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.6 INDEPENDENT MAINTENANCE INSPECTION (REGULATION 5.1.6)

1. Independent Maintenance Inspection is required after initial assembly or disturbance of safety-critical items (i.e adjustment, overhaul, repair, modification or replacement of any part of flight or engine control system).
2. Where Vital Points have been identified and listed in maintenance document for the aircraft, such points shall be subjected to [Independent Maintenance Inspection](#) following initial assembly or any disturbance.
3. [Independent Maintenance Inspection](#) shall be recorded and certified by appropriate Approval Holder on maintenance work documents such as Tech Log, Work Cards, Worksheets and etc. After the [Independent Maintenance Inspection](#) is certified, a [maintenance certificate](#) shall be signed which relates to the work that required the [Independent Maintenance Inspection](#) .
4. Only authorised personnel who has not been involved in the maintenance task being inspected shall perform Independent Maintenance Inspections. The person performing Independent Maintenance Inspection needs to be authorized as per [MMP 4.5.1](#). The SMM shall ensure that only personnel authorized Maintenance Inspector/Supervisor to perform independent maintenance inspections.
5. Example of tasks that requires Independent Maintenance Inspection are as follows, however DAR or SMM shall specify additional Independent Maintenance Inspection as required:
  - a. Flying controls and associated equipment.
  - b. Engine controls and associated equipment.
  - c. Undercarriage controls, brake and steering controls and controls and associated equipment.
  - d. Installed airborne oxygen equipment.
  - e. Aircrew escape and survival equipment.
  - f. Explosive ordnance and associated equipment.
  - g. As stipulated in respective approved Aircraft Maintenance Manual/Component Maintenance Manual or any other approved maintenance manual.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	<a href="#">7 DECEMBER 2022</a>
ISSUE:	4	REVISION:	1	<b>PART 5.1.6</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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6. In this context, **Independent Maintenance Inspection** shall include inspection to ensure:
  - a. Full, free and correct movement of controls is obtained throughout the system relative to movements of the crew controls.
  - b. All items are correctly assembled, adjusted and locked.
  - c. Free from FOD.
  
7. In some circumstances, due to peculiarities of assembly, it may be necessary for **Independent Maintenance Inspection** to be made simultaneously **during maintenance task**.
  
8. If a control system is disturbed after completion of **Independent Maintenance Inspection** that part which has been disturbed shall again be **Independent Maintenance Inspection** before flight.
  
9. **Independent Maintenance Inspection** shall be the final operation to establish integrity of control system when all work has been completed.
  
10. The procedure for the Independent Maintenance Inspections/ Duplicate Inspection is stipulated in EPM 1-01 (Independent Maintenance Inspection). SMM shall specify additional **Independent Maintenance Inspection** as required in the systems that they are maintaining.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.6</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### **5.1.7 MAINTENANCE OF AIRCRAFT DURING THE PERIOD OF OPERATION (REGULATION 5.1.7)**

1. Maintenance shall only be performed on aircraft after aircraft captain has released the aircraft in which means that when aircraft is no more operating (aircraft captain had signed off for the aircraft).
2. However, minor maintenance is allowed to be performed (during the 'Period of Operation' i.e while aircraft is being operated by aircrew or already accepted by them provided that maintenance procedure is authorized by the SMM or DAR, the maintenance that is to be performed is authorized by the aircraft captain and SMM specify and documents/ the types of maintenance tasks that are permissible during the period of operation.
3. SMM must ensure minor maintenance authorized by the aircraft captain to be under full supervision. All tool control procedures and documentation requirement must be adhered.
4. The SMM shall document the maintenance tasks that are permissible during that operation which does not enjoy the safe airworthiness safeguards.
5. Maintenance task that can be carried out during period of operation can include but not limited to:
  - a. Minor maintenance tasks identified during aircrew walk around.
  - b. Minor maintenance tasks that are necessary during operational check prior to, or during flight.
  - c. Correction of unserviceability identified in flight that can be rectified without adversely affecting technical airworthiness or compromising safety.
  - d. Lubrication and servicing which does not involve secondary dismantling other than opening and securing access panel.
  - e. Pre-flight and End of Day inspection i.a.w Flight Manual requirement.
  - f. Aircraft refueling.
  - g. Rectification of defect recorded by Flight Crew in Aircraft Technical Log.
  - h. Minor maintenance where complexity is straight forward, and routine and no secondary dismantling is required other than:
    - i. Opening and securing access panel.
    - ii. Disconnecting and reconnecting of cabling.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.7</b>	PAGE: <span style="float: right;">1 of 2</span>

## MAINTENANCE MANAGEMENT PLAN

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- iii. Unfastening and refastening of standard quick release fittings where incorrect assembly is easily detected, or design precludes incorrect assembly.
- 6. Every procedure for maintenance that needs to be carried out during period of operation must be prior approved by SMM or DAR.
- 7. Maintenance is to be carried out by authorized personnel by SMM.
- 8. The needs of maintenance had been identified and acknowledge by SMM.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.7</b>	PAGE: 2 of 2



## MAINTENANCE MANAGEMENT PLAN

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### 5.1.8 FOREIGN OBJECT CONTROL (REGULATION 5.1.8)

1. Foreign Object Damage (FOD) is a general term which applies to all loose objects which are a danger to the safety and integrity of an aircraft and which, therefore, must not be left in any area so as to constitute a hazard. The list of FOD items most frequently found on the apron is long and principally includes: -
  - a. Plastic and paper bags/sheets, rags, empty oil and hydraulic fluid cans, empty soft drink cans, nuts and bolts, tools and equipment, luggage wheels and tags, metal cutlery, burst ballast bags, broken wooden items and miscellaneous rubbish.
2. The presence of FOD is due mainly to the carelessness of staff and their lack of understanding of the consequences.
3. GAM maintenance personnel are responsible for taking adequate measures to ensure the safety of aircraft, vehicles and persons using the aprons. A fundamental element of the safety effort is to maintain the aprons in a clean condition and free from obstructions.
4. Foreign objects are regularly deposited on the Movement Area and it is essential that all personnel understand the danger to flight safety that such objects represent. Foreign objects may be ingested into aircraft engines causing damage leading to engine failure, which is especially critical if it occurs in flight, particularly if it occurs during the take-off phase. At best, such damage leads directly to premature engine removal and replacement. In addition, damage caused by foreign objects can occur to tires and undercarriages, control systems and other parts of the airframe. All such damage could lead to in-flight failures and inevitably requires expensive repairs to be made. All foreign objects are a threat to aircraft safety.
5. Every individual has responsibility to ensure that the risk of damage to aircraft from FOD is minimized. Any items of FOD found by a staff member in the course of their work should be removed. An item of FOD seen in an area that a staff member is not authorized to enter should be brought to the attention of Maintenance Manager.
6. Training/Briefing/Awareness.
  - a. Training/Briefing/Awareness on FOD prevention shall be provided to all employees.
7. Housekeeping.
  - a. "Clean-As-You-Go" is the on-going practice which removing Damage during modification, operation, maintenance on/in the aircraft, part, component or engine to ensure the product is FOD free. "Clean-As-You-Go" shall be enforced throughout the company.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.8</b>	PAGE: 1 of 3

## MAINTENANCE MANAGEMENT PLAN

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- b. Maintaining clean and neat working area. Work Damage shall be removed during daily cleanup at the end of each shift. This includes floor sweeping, cleaning work benches, machinery and equipment.
  - c. All loose objects either on ramp, maintenance stand and support equipment shall be secured.
  - d. Proper disposal containers shall be placed near the work area.
  - e. All potential FOD or lost items shall be reported to immediate supervisor or management for further action to be taken. For lost items, cease activity in affected area, continue with thorough search until the item is found or adequate assurances are made that the item is not in the area.
8. Material handling, packaging, shipping and storage.
- a. Warehouse personnel shall perform receiving inspections on all material and parts received. This is to ensure items were not damage during shipping, items are properly packaged, preserved and properly identified. Proper storage, identification and preservation of all material waiting to be issued to maintenance.
  - b. Materials to be used in the packaging, shipping, and storage, of the parts shall be clean and free of contamination.
  - c. All items, assemblies and components which are subject to foreign object intrusion after removal shall have fittings, ports or opening properly capped or covered with protective devices (caps, plus, protector). Whenever required, these items will be preserved to prevent corrosion or deterioration.
  - d. All removed items shall be properly tagged and stored in designated area to prevent damage by physical contact or contamination.
  - e. All removed, overhauled or new items shall be inspected prior to installation for FOD and contamination. Removal/installation documentation to track items.
9. Tool control and accountability.
- a. Tool loan out/in shall be recorded for traceability.
  - b. Personal tools shall be identified by unique marking system.
  - c. Easy detection for missing tools i.e. shadow board in tool boxes.
  - d. Keeping toolbox inventories and checking for tools daily.
  - e. Immediate notification to superior upon lost tool or discovery of lost tools.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.8</b>	PAGE: 2 of 3

## MAINTENANCE MANAGEMENT PLAN

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10. Whenever there is an incident which suspected to cause by FOD, Quality Manager shall be immediately informed, and all maintenance work related to the aircraft or component shall be stopped. Aircraft or component shall be quarantined until the investigation completed and aircraft or component release for repair/rectification.
11. Thorough FOD incident investigation shall be carried out to prevent recurrence by identifying and eliminating the root causes. The causes of the damage shall be determined and any maintenance practices or procedures which may contribute to the incident shall be highlighted.
12. Findings in the investigation report shall be highlighted to management and shall be followed up accordingly. Necessary changes shall be implemented to FOD Prevention Program if required.
13. Procedure for foreign object control is further detailed in EPM 1-07 Cleanliness of Aircraft (FOD Control).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.8</b>	PAGE: 3 of 3

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.9 SAFETY (REGULATION 5.1.9)

#### A. GAM Safety Policy

1. GAM is committed to provide and maintain a safe work environment for all employees and all other persons on site. Safety is of primary importance in conducting GAM day-to-day operations. In conducting its activities, process and services, GAM shall:
  - a. Regard safety as prime consideration at all times.
  - b. Apply Human Factor principles.
  - c. Encourage personnel to report maintenance related errors/incidents.
  - d. Recognize that the compliance with procedures, quality standards, safety standards and regulation is the duty of all personnel.
  - e. Recognize the need for all personnel to cooperate with Quality Auditors.
  - f. Comply with all applicable Malaysian Health, Safety and Environment legislations.
  - g. Establish and adhere to procedures to identify, evaluate and control or eliminate safety hazards.
  - h. Provide necessary safety training to all employees.

Note : Detail of safety policy refer to the SMS Manual (GAM/CAAM/SMS).

#### B. Personnel Protection Equipment (PPE)

1. Company will provide basic PPE such as safety shoe, marshalling vest and ear defender for each maintenance staff. Goggle, mask and glove also being made available to be used.
2. Any specific PPE which to be used for specific maintenance activity shall be provided upon request from maintenance.

#### C. Material Safety Data Sheet (MSDS)

1. All chemical, hazardous, flammable materials to be used for maintenance work shall be accompanied with material data sheet.
2. Therefore, all activities involve the materials i.e. storage, handling, usage, precautions, PPE to be used and others shall be carried out according to the information given in Material Safety Data Sheet.

#### D. Safety Procedure During Aircraft Maintenance

1. During aircraft maintenance, all maintenance staff shall adhere to the safety precautions highlighted in the Aircraft Maintenance Manual and other applicable publications or documentations.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.9</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.10 RESERVED

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.10</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.11 CARRIED FORWARD UNSERVICEABILITY (REGULATION 5.1.11)

1. Although an aircraft should be completely serviceable at all times, many systems and structures are duplicated, or have built in redundancy. In the process of maintaining an aircraft or Configuration Item (CI) operational commitment sometimes necessitate maintenance actions or rectification to be deferred/delayed/carry forward for a limited period of time. The aircraft manufacturer recognizes this and make provision for an aircraft to fly for limited periods with inoperative system, under strictly defined conditions.
2. Maintenance CFU, which are recorded and controlled within the maintenance control system at the Maintenance Base.
3. SMM in conducting aircraft and/aeronautical products maintenance is allowed to perform CFU. CFU shall be assessed from both technical and operational perspective/considerations. Defect which considered cannot be cleared shall be entered in front of Technical Log defer defect sheet and filled up Carried Forwards form/Deferred Defect Record.
4. CFU can be performed by competent person authorized by SMM subjected to approval and authorization in regulation 4.5.1.
5. For all CFU which affects the handling and/operational characteristics of an aircraft, the SMM or his authorized personnel shall obtain an operational endorsement from appropriate authorized aircrew representative prior to approving CFU.
6. All CFU shall be approved by the SMM or in the absence of SMM, the MM shall approve the CFU in accordance with the [Aircraft Deferred Defect Form \(GAM E-074\)](#) endorsed by DAR.
7. The SMM/authorized personnel by SMM is responsible for ensuring all defects are rectified or, where rectification action cannot be completed and the defect is suitable, transferred to CFU's prior to completion of the maintenance input. All work carried out to rectify defects will be certified by the issue of CRS in the appropriate categories.
8. In the occasion of insufficient access to technical data and/information pertaining to the technical unserviceability and to ensure the decision made is adequate and correct, the DAR and OEM advise shall be obtained before approving any CFU.
9. Control of CFU's is the responsibility of the SMM responsible for the maintenance will ascertain if the defect is suitable for carrying forward to a future input, and the length of time, within limited boundaries, the deferment may be given. The final authority of the CFU, (the person authorising its issue), will be the person issuing the CRS for the maintenance input.
10. SMM is the person who will co-ordinate with Planning and ensure materials and equipment are available for a prescribed maintenance input.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.11</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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11. SMM shall perform CFU within the AMO with the defined scope. SMM may also authorize STI to be deferred as a CFU (for e.g. in the absence of spares) provided the DAR allows in writing in the STI itself.
12. For the benefit to aircrew during their acceptance of the aircraft prior to flight, all CFU are to be filled up/recorded and made visible to the aircrews and the decision to defer the said maintenance tasks CFU shall be annotated in the respective sections in the aircraft logbook and etc.
13. SMM needs to personally and regularly review all CFU decision to ensure all CFU decision and limitation is correct and appropriate. Then he/she is to ensure that the correct process has been followed and CFU are rectified as soon as possible and within the time period defined in the approved CFU.
14. Work packs are raised for each maintenance input, which include all scheduled maintenance, special checks and any CFUs planned to be action during the input. Work packs have an index sheet, which lists the contents of the pack. Worksheets raised during a maintenance input will be recorded on the maintenance certificate sheet prior to the recording of the defects.
15. On completion of maintenance input the responsible supervisor will ensure all scheduled requirements have been done and that all defects are certified prior to releasing the aircraft for service.
16. Any CFU's are raised on [Aircraft Deferred Defect Form \(GAM E-074\)](#) which is passed to the SMM for control. When planned for accomplishment the SMM will ensure the CFU is issued with the relevant work pack.
17. The recorded CFU on format [Aircraft Deferred Defect Form \(GAM E-074\)](#) must be visible and presented to aircrew on acceptance of the aircraft.
18. A register is maintained of CFU's raised, which provides a record of all CFU's and enables the issue of a serialized number, which is unique to each CFU.
19. All completed documentation is stored in the technical records and eventually in the archive store.
20. Procedure for carried forward unserviceability is detailed in EPM 1-11 (Defect Deferment - ADDs).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.11</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.12 MAINTENANCE TEST FLIGHTS (REGULATION 5.1.12)

1. Maintenance Test Flights shall be carried out whenever a flight safety critical item is changed, adjusted or maintained or it is defined in the Aircraft Maintenance Manual and etc. Example: Replacement/installation of new engine, its adjustment which could not be confirmed/proven during the maintenance ground run and etc. The maintenance test flights shall also be carried out if it is called for in the manual.
2. GAM shall provide pilot with DAR and/or ASR or OEM approved maintenance test flight schedule documentation covering the range of applicable functional tests and checks.
3. A requirement of maintenance test flights shall only be generated to verify the performance of an aircraft and aircraft system after successfully completion of workshops test, bay tests and maintenance ground run.
4. Upon completion of maintenance task, a CRS shall be signed off by the [Authorised personnel](#). The aircrew shall be provided with the approved maintenance test flight schedule/pro-forma which shall covers all the applicable range of functional tests and checks. Crew notification request shall be submitted to SAO and to confirm the appropriately qualified pilots are performing the maintenance test flights.
5. [Authorised personnel](#) to conduct MTF as Flight Test Maintainer if required (i.e. track and balance). The authorisation management of personnel that capable to conduct MTF as Flight Test Maintainer is stated in the Company Approval Certificate (GAM/Q-013).
6. Procedure for maintenance test flight is detailed in EPM 1-03 (Flight Test) and EPM 1-13 (Aircraft Marshalling).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.12</b>	PAGE: 1 of 1



## MAINTENANCE MANAGEMENT PLAN

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### 5.1.13 MAINTENANCE GROUND RUNS (REGULATION 5.1.13)

1. Maintenance ground runs shall be performed, unless specifically stated otherwise by the DAR, when the safe, full or partial correct operation of an aircraft or aeronautical product needs to be proven serviceability before the aircraft or aeronautical product is returned to service or cleared for a maintenance test flight.
2. Maintenance ground runs shall be performed in accordance with DAR or OEM approved procedures and shall only be performed by competent and authorised personnel.
3. As AW139 is a rotary wing aircraft, GAM is not authorized to conduct any maintenance ground run on the aircraft. For the purpose of conducting Maintenance Ground Run, the appropriately qualified pilots will be officially requested through MMEA office.
4. [Authorised personnel](#) may conduct installed engine cranks for maintenance purposes such as engine wash.
5. Procedure for performance of AW139 maintenance ground run is detailed in EPM 1-02 (Ground Running Procedure) and EPM 1-13 (Aircraft Marshalling).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.13</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.14 AIRCRAFT GROUND HANDLING (REGULATION 5.1.14)

1. Ground handling is a service to facilitate an aircraft for positioning, preparation and upon completion of a flight. The services provided by AMO are as below:
  - a. Marshalling
  - b. Chocking, secured movement of aircraft
  - c. Towing
  - d. Mooring
  - e. Cleaning
  - f. Refueling
2. The personnel shall be trained on ground handling training prior given authorization to the AMO personnel.
3. The following are general safety precautions that shall be observed before ground handling aircraft commences:
  - a. Towing passage must be clear of any obstructions.
  - b. Towing equipment - tractor, tow bar, towing wheels must be in serviceable condition.
  - c. Center of gravity of aircraft should be known to ensure that there is sufficient weight on nose/tail Wheel and ballast installed as applicable.
4. SMM shall ensure procedures and equipment approved by the DAR are used when ground handling aircraft.
5. Reference should be made to respective Maintenance Manual for specific precaution, permissible towing angles/loads, requirements and limitations.
6. As for aircraft ground handling processes, all procedures are stipulated in the EPM 1-04 (Towing and Parking) and EPM 1-13 (Aircraft Marshalling).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.14</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.15 STANDARD REPAIRS (REGULATION 5.1.15)

1. Standards repairs are those standard repairs works of aircraft or Aeronautical Product which are to be carried out are based on approved maintenance publication by Original Equipment Manufacturer (OEM), Standard / Structure Repair Manual (SRM).
2. Standard repairs are repairs which were already defined and documented in the SRM. The standard repairs to primary and secondary structures should always need to be notified to the relevant DAR as could potentially affect future changes, modification and any repairs in the adjacent area.
3. Where damage has occurred to an aircraft either due to an accident as a result of wear, corrosion or failure, it may be possible to carry out a repair to the damaged area. All such repairs require investigation into the level of damage and the extent of the required repair.
4. In all cases the repair process should aim to return the aircraft to a serviceable condition by the quickest means, balanced by cost effectiveness.
5. All the standard repair details/information shall be forwarded to the DAR. Standard repair details forwarded to the DAR should include as a minimum:
  - a. Aircraft or aeronautical product identification/serial number.
  - b. Details of the damage (including location).
  - c. Details of the repair carried out.
  - d. Relevant structural repair manual authorising the repair.
  - e. Date of repair.
  - f. Details of any other previous repairs removed or altered during the repair.
6. GAM does not hold design approval for this aircraft type. All repairs are certified under the Company's approval by individual engineers under their personal authorisations using manufacturers' Structural Repair Manuals, or Approved Repair Scheme obtained from any other design organisations approved by the DGTA.
7. [The approved documents and records of repairs shall be kept with the aircraft records.](#)
8. Worksheets will be completed for all repairs detailing the work carried out, stage by stage, with inspections being certified for each stage and area as completed. The worksheets will cross refer to the repair drawings and detail any special requirements or processes, with certificates attached from any contractors/ subcontractors.
9. Inspection and control of repairs is the same as any other maintenance action.
10. Standard repair procedure is detailed in EPM 1-05 (Repair Procedure).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.15</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.16 MODIFICATIONS (REGULATION 5.1.16)

1. During the life of an aircraft or aeronautical product, operational or logistical factors will arise that require the development and incorporation of modifications. Modifications are changes made to particular aircraft, including its components, engines, radio apparatus, accessories, instruments, equipment, and their installation. Substitution of one type for another when applied to the aircraft is considered to be a modification as well.
2. A modification to the aircraft, engines and its subsystems directly from the OEM shall be in the form of Service Bulletin.
3. A modification produce locally shall be developed by an approved AEO and the data package approved by DGTA.
4. Any modification proposal including SB either Mandatory or Optional in nature will be submitted to DAR through SMM for approval. The format required when forwarding modification proposals to the relevant DAR should facilitate the capture of all of the information necessary to fully disclose the modification. The minimum information required should include the reason for the proposed modification, publication references, the item/area being modified, the manufacturing process (where applicable), materials used and a detailed description and/or drawing of the proposed change.
5. Incorporation of modifications shall be documented in accordance with MMP 5.2 (Maintenance Records).
6. **Classification of Modification:**
  - a. **Minor**

Minor change that has no appreciable effect on the:

    - i. Mass and balance
    - ii. Structural strength
    - iii. Reliability
    - iv. Operational characteristics
    - v. Noise
    - vi. Fuel venting
    - vii. Exhaust venting
    - viii. Exhaust emissions
    - ix. Other characteristics affecting the airworthiness of the product.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.16</b>	PAGE: 1 of 2

## MAINTENANCE MANAGEMENT PLAN

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b. Major

All other changes other than MMP 5.1.16 Para 6(a). are considered as major modifications. All major modifications shall be approved under STC by an appropriately qualified AEO or DGTA.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.16</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.17 WEIGHT AND BALANCE (REGULATION 5.1.17)

1. SMM or an appropriately trained individual appointed by the SMM, shall be responsible for aircraft and equipment weighs.
2. The weight and balance report also known as Mass and balance report (MBR) shall be prepared by Weighing engineer approved by DAR.
3. Any adjustment on the weight and balance report shall be recorded in Aircraft Basic Mass and Balance records (MBR) and acknowledged by DAR.
4. The weight and balance of AW139 aircraft is outsource to an approved MSN.
5. SMM shall ensure all the information on aircraft weight and balance is accurate and updated.
6. SMM shall transfer all pertinent weight and balance details in aircraft record.
7. Mass and balance report (MBR) shall be retained in accordance with the MMP Part 5.2 Maintenance Records.
8. Aircraft shall be weighed whenever:
  - a. After any maintenance or modification which is significantly alter the aircraft weight and Center of Gravity (C of G).
  - b. As requested by DAR.
9. The details of Weight and balance information shall be forwarded to DAR accordingly.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.17</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.18 ADHOC NON-DESTRUCTIVE TEST (REGULATION 5.1.18)

1. During the course of maintenance, serviceability assessments may require the application of Non-Destructive Test. Non-Destructive Test is the development and application of technical methods to examine materials or components in ways that do not impair serviceability. Established Non-Destructive Testing procedures are approved by the relevant DAR before it can be implemented
2. GAM AMO capable to perform NDT limited to Dye Penetrant Method only and the application within the Maintenance Manual limitation.
3. Other methods of NDT i.e., X-ray, Eddy Current, Ultrasound, Magnetic Particle Test services will be sourced out to an Approved MSN whenever required.
4. The NDT procedure for the methods in para 3 if arise, shall be obtained from the OEM or approved AEO either for once-off or on-going basis.
5. The procedure shall be approved by SMM prior to implementation.
6. In the absence of an ASR-approved NDT procedure, and to meet an urgent operational requirement, a locally developed NDT procedure may be approved by the SMM or his delegate (MM). Where a requirement arises to use a non-AEO approved NDT procedure on a regular or on-going basis for a component or structure, the SMM shall obtain from the relevant AEO approval of the specific NDT procedure and application.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.18</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.1.19 NON-STANDARD REPAIRS (REGULATION 5.1.19)

1. Non-standard repairs are repairs that are not documented in the approved maintenance publications or instructions and will require design approval, design acceptance and incorporation approval by the relevant DAR prior to incorporation. The application of Aircraft Battle Damage Repair during peacetime is also considered as non-standard repair.
2. Aircraft and aeronautical product may incur damage or malfunctions for which there is no standard repair scheme.
3. When the situation occur, SMM shall request for a repair scheme from the DAR or shall obtain DAR approval for a proposed repair scheme.
4. For Primary and secondary aircraft structure and Safety critical items or systems, the OEM or appropriate AEO approved repair scheme only shall be used.
5. The fabrication of parts GAM can only fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities.
6. Prior to any non-standards repair to be incorporated, SMM shall ensure the maintenance data has been approved by DAR with all the information about the design details of non-standard repairs obtained either from OEM/AEO or a repair scheme developed by the AMO itself.
7. The maintenance data needs to contain the following information:
  - a. Aircraft or aeronautical product identification/serial number.
  - b. Details of the damage, including location.
  - c. Relevant maintenance publication that make reference to damaged area.
  - d. Details of proposed repair scheme.
8. SMM shall ensure all repair documentation is retained accordingly.
9. All approved design package and documentation shall be maintained in accordance with MMP 5.2 (Maintenance Record).
10. Non-standard repair procedure is detailed in EPM 1-05 (Repair Procedure).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>PART 5.1.19</b>	PAGE: 1 of 1



## MAINTENANCE MANAGEMENT PLAN

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### **5.1.20 CONTINGENCY MAINTENANCE AND AIRCRAFT BATTLE DAMAGE REPAIR (REGULATION 5.1.20)**

1. Not applicable in the case of MMEA since it is the responsibility of the MMEA. Any requirement arises will be carried out accordingly to the approved design and scope of work by the AEO.
2. In the case of MMEA, where a Contingency Maintenance (CMAINT) and Aircraft Battle Damage Repair (ABDR) capability is required due to nature of aircraft operation, GAM shall:
  - a. have documented CMAINT and ABDR procedures which are approved by the DAR.
  - b. Ensure that the procedures are completely documented in accordance with the approved maintenance recording system.
  - c. Ensure that personnel are authorized, in accordance with Regulation 4.5 Personnel Requirement, to perform ABDR
  - d. Have any additional documents and controlled procedure.
  - e. Have procedures to be followed after ceasing contingency maintenance to restore the aircraft to peacetime standard (if required

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.1.20</b>	PAGE: 1 of 1

## **5.2 MAINTENANCE RECORDS AND DOCUMENTATION**

## MAINTENANCE MANAGEMENT PLAN

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### **5.2.1 MAINTENANCE RECORDS AND DOCUMENTATION REQUIREMENTS (REGULATION 5.2.1)**

1. Procedure for maintaining Maintenance records and documentation shall be made reference to EPM 4-05 Technical Records.
2. All maintenance tasks carried out on aircraft and aeronautical products shall be properly documented and recorded.
3. All maintenance entries in maintenance records shall be done by authorized personnel with reference to the approved maintenance data and using correct & serviceable tools and equipment.
4. Occasions and prerequisites when entries may be made into maintenance documentation and records. The circumstances are:
  - a. Annotation of maintenance that is due.
  - b. Certification of maintenance done.
  - c. Recording of Carried Forward Unserviceability.
  - d. Certification of serviceability of an aeronautical product.
  - e. Release of an aircraft from maintenance.
  - f. Recording of flying hours, cycles, fatigue and other life accumulation readings.
5. SMM shall ensure entries in any maintenance documentation and records describing unserviceable conditions shall ensure that all entries contain of minimum information such as:
  - a. Accurate and concise description of defect or unserviceable condition.
  - b. The name and signature of the person making entry, date and approval stamp.
  - c. The date and time the unserviceable condition was entered.
6. Upon completion of maintenance, it shall describe:
  - a. Activity, corrective action or rectification taken.
  - b. Applicable reference for the rectification.
  - c. Certification had been carried out as specified in MMP 5.1.5 (Maintenance Certification).
7. The SMM shall ensure that the maintenance documentation and records contain sufficient detail to show the make, model, identification number and/or serial number of the aircraft.
8. The SMM shall ensure that the maintenance documentation and records are:
  - a. Controlled in serially,

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.2.1</b>	PAGE: <span style="float: right;">1 of 2</span>

## MAINTENANCE MANAGEMENT PLAN

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- b. Legible and comprehensible.
- c. Unable to be changed, either deliberately or inadvertently without leaving evidence that a change did take place and maintaining legibility of the original data. The original entry shall remain visible.
- d. Stored and supported in such a manner as to retain readability for 5 years subject to approval from SAO
- e. Appropriately protected against loss, damage and unauthorized alteration.
- f. Secured.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.2.1</b>	PAGE: 2 of 2

## MAINTENANCE MANAGEMENT PLAN

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### 5.2.2 ELECTRONIC RECORDS (REGULATION 5.2.2)

1. GAM use hard copy print-out as a primary maintenance documentation for the AW139 and the documentation will be used as primary record.
2. After completion of maintenance, documentation will be gathered by Technical Record Department and check for correctness of recording and certification. Any error found should be corrected by the personnel making entry.
3. The maintenance documentation then will be scanned and safe in the Google Drive (an online storage) subscribe by GAM.
4. The maintenance record place in the online storage is a backup for primary hardcopy record as per para 5.1 (b).
5. The online folder for the scan copies of the documentation is only accessible by Technical Record Personnel.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.2.2</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### **5.2.3 RETENTION AND REVIEW OF MAINTENANCE DOCUMENTATION & RECORDS.** **(REGULATION 5.2.3)**

1. Technical Record [Section](#) will determine all the aircraft documentation and records. Paper record keeping system are stored in a safe manner to ensure free from deterioration with regard to fire, flood, theft, and unauthorised access in the suitable storage media.
2. All the records shall be kept in company archives and any other department authorized by Quality Department.
3. All the records shall be made available for scrutiny by Government / MMEA or to their authorized representative.
4. All aircraft records are required to be kept for a retention period determined by the SAO.
5. [Any disposal of records, shall get prior approval from MAO.](#)

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	<a href="#">7 DECEMBER 2022</a>
ISSUE:	4	REVISION:	1	<b>PART 5.2.3</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### **5.2.4 FALSIFICATION, REPRODUCTION OR ALTERATION OF MAINTENANCE RECORDS (REGULATION 5.2.4)**

1. Alteration of maintenance records shall only be performed by authorized personnel in proper manner:
  - a. Legible ink
  - b. Crossed out/strike off/circled the false records, stamped and dated
  - c. There will be also a wording “E.I.E” as “Enter in Error” on top of the “strike off” or “circled” or “crossed out”.
2. No person shall make or be caused to make:
  - a. Any intentionally false entry in any maintenance records
  - b. Any intentionally reproduction of maintenance records for fraudulent purposes
  - c. Alterations in maintenance records for fraudulent purposes
3. Reproduction of any maintenance records or document shall only allowable upon receiving writing request mentioning specific records required and clear and relevant purpose requisition. The records shall only be reproduced after received approval from SMM and DAR.
4. To ensure information integrity, alteration to completed maintenance records is only allowed to be carried out by the authorized personnel under the authorization of SMM. This is to minimize the risk of inadvertent or fraudulent maintenance records and alteration.
5. SMM shall ensure that no alteration to maintenance records is allowed without his permission. SMM shall ensure that serious action to be taken against those personnel who ignore or try to ignore or breach the above requirement in accordance with company procedures.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.2.4</b>	PAGE: 1 of 1

## **5.3 REPORTING AND INVESTIGATION REQUIREMENTS**



## MAINTENANCE MANAGEMENT PLAN

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### 5.3.1 REPORTING OF UNSERVICEABLE CONDITIONS (REGULATION 5.3.1)

1. Unserviceable condition is defined as a loss in performance compared to the stated limits in approved design of an aircraft or aeronautical products which may include but not limited to damage or cracking due to normal wear.
2. All unserviceable condition or defect found shall be recorded before rectification being carried out including defect found:
  - a. During flight servicing.
  - b. Engine ground run.
  - c. Aircraft system tests.
  - d. Leak check.
  - e. And whenever maintenance personnel leaving the maintenance area.
3. For defect highlighted by pilot or aircrew, it will be reflected in technical log. For any straightforward rectification, the rectification process shall be recorded in the same technical log. Otherwise, if necessary, aircraft will need to be grounded for further inspection and troubleshooting. In this case, maintenance shall record it in a work pack.
4. Any detected defect during maintenance inspection, new entry shall be raised in the same work pack to annotate the defect and rectification process carried out.
5. Procedure for unserviceable condition which is the result of other than fair wear and tear, DAR shall be informed either in writing or via email. All aircraft or component which is considered as unserviceable under this condition shall be identified, labeled, recorded and keep apart from serviceable aircraft or component. Refer to EPM 1-12 (Reporting procedure).
6. Details of all unserviceable conditions which are reported during operation or maintenance shall be recorded at the first opportunity as required.
7. Reporting shall be done before the next flight or before release to of an aircraft or aeronautical product to service.
8. All the unserviceability / defect / nonconformities shall be documented in the respective maintenance records detailing the type of unserviceability / defects / nonconformities, records on how it was rectified and completed in accordance with MMP 5.2.2 (Maintenance Record and Documentation).
9. The SMM shall ensure that state-registered aircraft, aeronautical product and aircraft-related equipment that are subject to reporting of an unserviceable condition are quarantined from other serviceable and unserviceable state-registered aircraft, aeronautical product and aircraft-related equipment, and appropriately identified to show the item is subject to special occurrence reporting action.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.3.1</b>	PAGE: <span style="float: right;">1 of 1</span>

## MAINTENANCE MANAGEMENT PLAN

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### 5.3.2 Reporting of Un-airworthy Conditions

1. Unairworthy condition is known as when an unserviceable condition may adversely affect airworthiness which may cause:
  - a. A primary structural failure in aircraft.
  - b. A control system failure in an aircraft.
  - c. An engine failure, particularly an engine structural failure.
  - d. Failure to aircraft safety system.
  - e. Fire in aircraft.
  - f. Other adverse effect on technical airworthiness which subject to SMM assessment.
  
2. GAM shall report to DAR for un airworthy conditions, Unless otherwise specified by DAR, GAM shall report to the DGTA within twenty-four (24) hours either in writing or via email for any conditions that have the following characteristics:
  - a. The condition or failure of an aircraft or aeronautical product that could cause the loss of an aircraft ;
  - b. Any failure of an emergency system or life support system ; or
  - c. The condition or failure of an aircraft or aeronautical product that could adversely affect wider fleet operations.
  
3. Reporting procedures refer to EPM 1-12 (Reporting Procedure).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.3.2</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.3.3 AMO INVESTIGATION OF REPORTED UNSERVICEABLE AND UNAIRWORTHY CONDITIONS (REGULATION 5.3.3)

1. GAM shall investigate all unserviceable and unairworthy conditions reported in accordance with Regulation 5.3.1.d and 5.3.2 and forward the report to the DAR within 15 working days or the time frame stipulated by the SAO.
2. Where GAM is unable to meet the time limits as specified, or where the investigation is beyond the capability, GAM shall seek advice from the relevant AEO or DAR
3. Investigations need to cover the incident itself, prime cause, contributing cause, and where applicable, recommendations and/or the implementation of corrective and preventative action. Where applicable, the following information should be considered in the investigation or forwarded to the relevant DAR when further investigation is necessary:
  - a. The details of any other unserviceability or damage.
  - b. Possible prime and contributing causes.
  - c. The test equipment used, and diagnostic procedures followed.
  - d. Description of the tests, measurements and adjustments.
  - e. Details of irregularities observed during the investigation.
  - f. Probable cause of the condition.
  - g. Proposed action and recommendations to prevent recurrence.
  - h. Details of any items placed in quarantine pending further investigation.
4. GAM shall report to the DAR and DGTA within twenty-four (24) hours when, during the investigation of the defect becomes aware of the following:
  - a. The condition of failure on an aircraft or aeronautical product could cause the loss on an aircraft or
  - b. Any failure of an emergency system or life support system that could cause the loss of life or
  - c. The condition or any failure/defects/un-airworthy of an aircraft or aeronautical product which directly or indirectly could adversely affect wider fleet operation.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.3.3</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.3.4 MAINTENANCE INCIDENT REPORTING (REGULATION 5.3.4)

1. GAM will conduct an investigation when an incorrect or inappropriate maintenance activity that adversely impacts technical airworthiness has occurred. Formal report will be submitted to the DGTA and DAR accordingly.
2. GAM shall conduct an investigation if there is an incident of incorrect or inappropriate maintenance activity that could adversely impact technical airworthiness has occurred.
3. Incident or accident occurred during maintenance activities that have effect to personnel, aircraft or material shall be reported to DGTA and DAR immediately for subsequent preventive action.
4. Reporting procedures refer to EPM 1-12 (Reporting Procedure).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.3.4</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.3.5 OTHER REPORTING REQUIREMENTS (REGULATION 5.3.5)

1. GAM shall submit a report to the DAR (whenever required) immediately when the following conditions are to be found:
  - a. Received unapproved aeronautical products.
  - b. Aircraft system component that had been installed has been identified as an unapproved aeronautical product.
  - c. System or component is believed to make the aircraft or aeronautical product substandard for the required system performance.
  - d. The packaging of an aircraft or aeronautical product compromises technical integrity.
  - e. Conditions that affect the aircraft that warrant the aircraft to be declared 'un-airworthy' shall be reported to the SAO.
  - f. Any other failure or unairworthy condition defined by DAR.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.3.5</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.3.6 TECHNICAL REPORTING SYSTEMS (REGULATION 5.3.6)

1. Technical reports shall also be used to notify DGTA or DAR on the inability to comply with, or to forecast problems in complying with, promulgated maintenance instructions.
2. The technical reporting system shall capture as much information as possible to allow full analysis, investigation and/or corrective action to take place. Systems used to notify authorities of compliance inability, defects, maintenance deficiencies, and equipment condition and damage or safety issues; should do so in a timely manner to allow for the appraisal of airworthiness impact and intervention if required.
3. SMM to ensure that all technical reporting requirements shall complied with SAO requirement whenever necessary.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.3.6</b>	PAGE: 1 of 1

## **5.4 DEVIATIONS**

## MAINTENANCE MANAGEMENT PLAN

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### 5.4.1 DEVIATIONS (REGULATION 5.4.1)

1. Any request for Deviation should be initially assessed by SMM. If the SMM deems the request is justified, then a request for deviation is to be submitted to DAR stating all relevant details pertaining to the deviation being sought. Each request for deviation should be restricted to individual aircraft or individual aeronautical products/parts.
2. Deviation shall be applied whenever:
  - a. Temporarily depart from the DAR approved weapon system type design.
  - b. Incorporation of non-standard repair to aircraft primary or secondary structure and safety critical system shall obtain approval from the OEM or AEO.
  - c. Temporarily depart from aircraft maintenance instruction or publication.
3. Upon receiving approval from DAR, GAM shall ensure that:
  - a. The work is performed in accordance with the instruction detailed in the deviation documents.
  - b. A permanent record of the deviation implementation is made in the applicable aircraft or aeronautical product maintenance documentation.
  - c. A copy of the deviation approval will be retained as aircraft maintenance records.
4. Whenever a deviation has been corrected or no longer applies, an entry in the maintenance documentation should be made to reflect the change. Additionally, the DAR needs to be informed of all reworks that have been completed.
5. Procedure for deviation is detailed in EPM 3-02 (Deviations Against A Procedure).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.4.1</b>	PAGE: 1 of 1



## **5.5 TOOLS, EQUIPMENT AND AERONAUTICAL PRODUCT**

## MAINTENANCE MANAGEMENT PLAN

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### 5.5.1 TOOLS AND SUPPORT EQUIPMENT (REGULATION 5.5.1)

1. GAM had acquired the appropriate tools and support equipment (common/general tools, special tools, test and precision measuring equipment, test equipment, ground handling and support equipment) to carry out the maintenance activity according to GAM maintenance scope and level.
2. All the tools and support equipment required to carry out the maintenance activity are listed in the Tools and Equipment Master List (TEML) (GAM/E-016). The list is available at the tool store and controlled, current and updated at all time.
3. The list shall contain, as minimum, the part number, description, serial number, calibration status, condition status and location. The TEML must tally with the physical holding and adequate for AMO scope and level at all time.
4. GAM shall ensure that all tools and support equipment are:
  - a. Serviceable.
  - b. Suitable to be used for the maintenance task specified.
  - c. Calibrated (whenever applicable).
  - d. Identified and traceable. In addition, serviceable ground support equipment (GSE) shall be identified with tag/label. Unserviceable tools and GSE shall be tagged with Unserviceable Tag (GAM/E-006).
  - e. Accounted for during maintenance prior to final certification.
5. Whenever tools or equipment cannot be located or accounted for, aircraft or component shall not being release from maintenance. Unless the tools or equipment is found, or SMM or nominated delegate is satisfied that the tools or item has not been left in the aircraft or component, then, the aircraft or component shall be released to service.
6. GAM shall ensure that GSE used for the maintenance of AW139 aircraft is approved for use by the DAR.
7. SMM might authorize the usage of test equipment during flight whenever:
  - a. The aircraft does not need to be modified and no flight critical system affected
  - b. DAR approval had been sought
8. Procedure for tool and support equipment is detailed in EPM 2-02 (Test Equipment / Tools / Ground Support Equipment Calibration) and EPM 2-03 (Tools Control).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.5.1</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### **5.5.2 LOCAL MANUFACTURE OR MODIFICATION OF TOOLING (REGULATION 5.5.2)**

1. For the purpose of this regulation 'Standard tooling' is defined as those tools required for the maintenance of aircraft and aeronautical product that are not specifically identified in the applicable maintenance publications and/or instructions. The SMM should seek advice from the relevant DAR prior to manufacture/modification of tooling.
2. Where an urgent operational maintenance requirement exists, the SMM (or delegate) may authorise the local manufacture or modification of 'Standard tooling' to meet this requirement. The manufacture or modification of tooling specified in publications and instructions is strictly prohibited without authorisation from the relevant DAR as applicable.
3. This regulation is not intended to apply to simple modification of standard hand tools, such as grinding or cutting down of spanners to allow easier access where the modification poses no risk of damage or any threat to airworthiness.
4. SMM shall ensure that:
  - a. Manufactured or modified tools had been assessed and ensure to fit the intended purpose and does not compromise the safety aspect of aircraft, component and person who carried out the task
  - b. Tools had been registered and identified as in MMP 5.1.1 (Tools and Support Equipment)
  - c. All Relevant documents and records regarding the tools design or technical data shall be maintained at least as long as the tools being used.
5. Procedure for local manufacture or modification of tooling is detailed in EPM 2-03 (Tools Control).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.5.2</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### **5.5.3 MAINTENANCE TOOLS AND MATERIAL DURING PERIOD OF OPERATION** **(REGULATION 5.5.3)**

1. As specified in MMP 5.5.1, maintenance during period of operation is permissible. It is also applicable to the maintenance tools used during the period of operation which the activities include the following:
  - a. Post start leak checks.
  - b. Opening and closing of access panels as requested by aircrew during pre-flight inspections.
  - c. Minor maintenance as authorized by Senior Maintenance Manager.
  - d. In flight maintenance (if necessary).
2. Tools being used for the maintenance during period of operation shall be identified and accounted for.
3. The personnel authorised to perform the maintenance task are responsible for the security of the tools and are to ensure that all tools are accounted for on completion of maintenance and prior to launch of an aircraft.
4. Procedure for maintenance tools and material during period of operation is detailed in EPM 2-03 (Tools Control).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.5.3</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.5.4 AERONAUTICAL PRODUCTS (REGULATION 5.5.4)

1. Aeronautical Products management involves, but not limited to, the procurement, transportation, receipt/inspection, storage, and installation process.
2. Procurement personnel shall only purchase the aeronautical product from the approved vendor/supplier upon request. The procurement shall be made with reference to the relevant documentation such as Illustrated Parts Data (IPD).
3. Once the part had been received, the warehouse personnel shall ensure the following:
  - a. All received documents are matched to the requirement of purchasing documents and authorized by the respected manufacturer / supplier.
  - b. The product is conformed to the details in purchasing documents i.e. manufacturing reference number and part number.
  - c. Any sign of damage on the product.
  - d. Initial inspection or functional testing specified by authority/publications is to be carried out.
4. If the one of the conditions above is found, warehouse personnel shall label, segregate and quarantine the product before liaising with the procurement personnel for further action.
5. All aeronautical parts shall be stored appropriately according to the instruction available in the products' descriptions or manuals.
6. In order to ensure the traceability of the product, warehouse personnel shall trace the product originality up the correct Part Number (P/No), EASA Form is attached with Certificate of Conformity (CoC), signatory of the label and certificates and traceable to the country of the product is originated.
7. Aeronautical parts / products shall be properly handled during receiving, transferring and installation process.
8. Relevant personnel (warehouse and maintenance) should refer to the parts/products documentations for handling methods while carry out their task.
9. Aeronautical product that is to be transported is packaged, labeled and transported with all applicable documentation.
10. Installation of aeronautical products shall be carried out by authorized maintenance personnel with respect to the authorized documentations or orders. All installation shall be documented in the appropriate maintenance documentations i.e. work package, Aircraft Flight and Component Log Book.
11. Procedure for procurement, receiving, labelling and storage of aeronautical product are detailed in EPM 2-01 (Acceptance of Aircraft Component and Material).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.5.4</b>	PAGE: <span style="float: right;">1 of 1</span>

## MAINTENANCE MANAGEMENT PLAN

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### **5.5.5 TRANSFER OF AERONAUTICAL PRODUCT (CANNIBALISATION) (REGULATION 5.5.5)**

1. Transfer / cannibalisation of parts / components to service other aircraft / engine / system is inevitable in any maintenance process. The process of transfer / robbing of parts / components will occur when:
  - a. In-service parts/components which could not be made serviceable.
  - b. An outside vendor item which could not meet the need date.
  - c. A part/component which is critical for flight operations and that has become defective during ramp operation which is confirmed as nil stock.
  - d. Customer requirement to support other operational aircraft.
2. In addition, all robbing of parts/components activities shall be recorded in the Aircraft Flight and Component Log card.
3. Procedure for cannibalisation of parts/components is detailed in GAM EPM 1-09 (Robbing Procedure).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.5.5</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### **5.5.6 LOCAL MANUFACTURE OF AERONAUTICAL PRODUCTS (REGULATION 5.5.6)**

1. Local manufacture of aeronautical product may be required when:
  - a. an item is no longer available, and a suitable substitute has not been identified.
  - b. there are excessive lead times for procurement.
  - c. there is a need to minimize procurement expense.
2. GAM can only conduct local manufacture aeronautical product in accordance with approved documentation from the AEO. GAM needs to consider the preservation of engineering and technical integrity when there is a requirement to locally manufacture an aeronautical product.
3. In order to carry out the local manufacturing, SMM shall ensure that:
  - a. The manufacturing data package is approved by the DAR and is complete.
  - b. The process identified in the package are within GAM capability.
  - c. The manufactured product identification, traceability and associated documentation (as detailed in the manufacturing data package) are complied with.
  - d. All manufactured product test and evaluation requirements are met.
  - e. The provision of a signed CoC attesting that the manufactured item conforms to the DAR certified design detailed in the manufacturing data package.
4. All products locally manufactured in accordance with a manufacturing data package should be uniquely identified and permanently marked with the manufacturer's reference number (MRN) and manufacturer's code (MC) and, where required, a serial number. MRN details will be provided by the DAR as part of the manufacturing data package. If currently issued, then the AMO should use its own MC, else the DAR's can be used under direction.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.5.6</b>	PAGE: 1 of 1

## **5.6 AIRCRAFT ACCIDENTS**



## MAINTENANCE MANAGEMENT PLAN

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### 5.6.1 INITIAL REQUIREMENT (REGULATION 5.6.1)

1. Investigation of aircraft accidents involving AW139 is under responsibilities of Government / MMEA as the helicopters are owned and operated by them.
2. When required, GAM shall provide necessary support for investigation purpose.
3. SMM shall ensure the preservation of evidence in order to facilitate the investigation which includes:
  - a. Documentation and records.
  - b. Sampling of any gasses and fluids if required i.e fuel, hydraulic fluids and oxygen.
  - c. Tools and equipment.
4. Procedure for initial requirement is detailed in QAN 014 (Occurrence Management Process).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.6.1</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.6.2 RECOVERY OF AIRCRAFT (REGULATION 5.6.2)

1. The recovery of aircrafts shall be the responsibility of Government / MMEA. GAM will provide the necessary support upon request and instruction from the SAO.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.6.2</b>	PAGE: 1 of 1

## MAINTENANCE MANAGEMENT PLAN

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### 5.6.3 SALVAGE (REGULATION 5.6.3)

1. Aircraft and aeronautical product that has been the subject of an aircraft accident shall only be reused following authorization by the relevant AEO or DAR.
2. In the case of contingency maintenance, whenever required, aircraft or aeronautical product could be salvage due to SMM consideration for the following:
  - a. Whether any crash loadings might have been sufficient to take the aeronautical product above proof load.
  - b. Whether there are any residual strains or cracks.
  - c. Whether the aeronautical product was subject to contamination, fire or overheating which may have changed the material characteristics or distorted the product.
  - d. Approval from DAR prior to the process.

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>PART 5.6.3</b>	PAGE: 1 of 1

# **PART 6**

# **ANNEXES**

## MAINTENANCE MANAGEMENT PLAN

### APPENDIX 1

#### QUALIFICATION, TRAINING AND EXPERIENCE OF MANAGEMENT & MAINTENANCE PERSONNEL

Position	Appointed by	Qualification	Training	Experiences
Accountable Manager (AM)	Board of Director	Nil	Nil	1. Involve in the Aviation Industry 2. Experience in organization management.
Senior Maintenance Manager (SMM)	Accountable Manager	Qualified Maintenance Manager or Maintenance Inspector / Supervisor  <b>OR</b>	1. Attended at least a AW139 General Familiarization Course, <b>AND</b>  2. Attended TAMM training and have a thorough understanding of the TAMM regulation in maintenance and aeronautical product of state registered aircraft.	At least 5 years in aircraft maintenance.
		Possess a CAAM/EASA License  <b>OR</b>		
		Possess Engineering Degree or Diploma		

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	PAGE:	1 of 4

### MAINTENANCE MANAGEMENT PLAN

Position	Appointed by	Qualification	Training	Experiences
Quality Manager (QM)	Accountable Manager (AM)	Possess a AMEL License <b>OR</b>	1. Attended TAMM training and have a thorough understanding of TAMM regulation in maintenance and aeronautical product of state registered aircraft, <b>AND</b> 2. Attended at least the Understanding, Documenting and Implementing Quality Management System to ISO 9000	1. At least 3-year experiences in Quality Department or qualified as Lead Auditor, <b>AND</b> 2. Qualified a certified Lead Auditor.
		Possess a Tertiary education		
Maintenance Manager (MM)	Senior Maintenance Manager (SMM)	Possess a CAAM/EASA License, <b>OR</b>	1. Must have attended aircraft AW139 type training, <b>AND</b> 2. Attended Safety and Human Factor Training	At least 3 years as MI/S in aircraft maintenance
		Qualified Maintenance Inspector/Supervisor, <b>OR</b>		
		Possess Engineering Degree		
Maintenance Inspector /Supervisor (MI/S)	Senior Maintenance Manager (SMM)	Possess a CAAM/EASA License, <b>OR</b>	1. Must have attended aircraft AW139 type training, <b>AND</b>	At least 5 years in aircraft maintenance
		Qualified Aircraft Tradesman, <b>OR</b>		

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>Appendix 1</b>	PAGE:
					2 of 4

## MAINTENANCE MANAGEMENT PLAN

Position	Appointed by	Qualification	Training	Experiences
		Possess Engineering Degree	2. Attended Safety and Human Factor Training	
Authorized Trade Persons (ATP)	Senior Maintenance Manager (SMM)	Completed all aircraft basic courses and aircraft training to their respective trades, <b>OR</b>	1. Attended aircraft AW139 type training,, <b>AND</b> 2. Attended Safety and Human Factor Training	At least 1 years in aircraft maintenance
		Qualified Aircraft Tradesman, <b>OR</b>		
		Possess Engineering Degree		
Non-Trade Personnel (NTP)  Ground Handling, Service and Ground Handling, Assist with direct supervision in noncomplex and noncritical maintenance task	Senior Maintenance Manager (SMM)	Tertiary education in aviation maintenance under Basic Training	1. Attended at least a General Familiarization Course, <b>AND</b> 2. Attended Safety and Human Factor Training	At least 6 month in aircraft maintenance
Non-Trade Personnel (NTP)  Publication, Record and Planning.	Senior Maintenance Manager (SMM)	Possess a Degree, <b>OR</b>	1. Attended at least a General Familiarization Course, <b>AND</b> 2. Attended Safety and Human Factor Training	At least 6 months in relevant operation

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>Appendix 1</b>	PAGE: 3 of 4

### MAINTENANCE MANAGEMENT PLAN

Position	Appointed by	Qualification	Training	Experiences
		Possess a Diploma, <b>OR</b>	<ol style="list-style-type: none"> <li>1. Attended at least a General Familiarization Course, <b>AND</b></li> <li>2. Attended Safety and Human Factor Training</li> </ol>	At least 1 year in relevant operation
		Possess a Certificate	<ol style="list-style-type: none"> <li>1. Attended at least a General Familiarization Course, <b>AND</b></li> <li>2. Attended Safety and Human Factor Training</li> </ol>	At least 2 years in relevant operation
Non-Trade Personnel (NTP)  Warehouse Operation.	Senior Maintenance Manager (SMM)	Holding company approval for store inspection (E1) from GAM Part 145 operation.	Attended Safety and Human Factor Training	At least 1 year experience in relevant operation environment (Advantage for tools controls or spare controls).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	7 DECEMBER 2022
ISSUE:	4	REVISION:	1	<b>Appendix 1</b>	PAGE: 4 of 4



## MAINTENANCE MANAGEMENT PLAN

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### APPENDIX 2

#### LIST OF MANAGEMENT AND MAINTENANCE PERSONNEL FOR AW139

##### Galaxy Aerospace (M) Sdn Bhd Manpower Resources

1. List of Key Personnel

<u>Positions</u>	<u>Nominated Personnel</u>
Accountable Manager	Dato' Shamsul Kamar bin Samsudin.
Senior Maintenance Manager	Nurulazhan bin Sallehuddin
Quality Manager	Omar bin Ahmad.
Maintenance Manager	Mohd Saiful Hasanun bin Mohd Yusop Redzuan bin Anor Bashah

2. In order for GAM to perform aircraft maintenance and related activities satisfactorily, it is a requirement to list down the number of personnel employed and their functions within the organization. Due to the fact that the number of employees always changing, the latest breakdown on the number of employees and the functions they fill in is laid down in the latest update by HR Department.
3. GAM from time to time will engage outside contractor when the need arises.
4. For the latest list of certifying staff, reference should be made to Quality Assurance document reference GAM/Q-001B (List of Approval Holder).

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>Appendix 2</b>	PAGE: 1 of 1

# **PART 7**

# **COMPLIANCE MATRIX**

## MAINTENANCE MANAGEMENT PLAN

### 7.1 COMPLIANCE MATRIX

TAMM Regulation No.	Regulation Title	PART Reference No.	Organization/GAM Compliance Reference
<b>4.1</b>	<b>GENERAL</b>		
4.1.1	Applicability – Who May Maintain State-Registered Aircraft, Aeronautical Product and Aircraft- Related Equipment	PART 4.1.1	N/A
<b>4.2</b>	<b>AUTHORISATIONS</b>		
4.2.1	Application for AMO Certification	PART 4.2.1	N/A
4.2.2	Award and Retention of AMO Certification	PART 4.2.2	N/A
4.2.3	Reserved	Reserved	N/A
4.2.4	Changes to AMO Certification	PART 4.2.4	N/A
4.2.5	Validity of AMO Certification	PART 4.2.5	N/A
4.2.6	Suspension, Revocation and Limitation of AMO Certification	PART 4.2.6	N/A
<b>4.3</b>	<b>EXEMPTIONS</b>		
4.3.1	Exemptions Requirements	PART 4.3.1	N/A
<b>4.4</b>	<b>MAINTENANCE ORGANISATIONAL STRUCTURE</b>		
4.4.1	Key Appointments and Groups within an AMO	PART 4.4.1	N/A
4.4.2	Documentation of Organisational Structure	PART 4.4.2	N/A
4.4.3	Maintenance Support Networks	PART 4.4.3	EPM 3-04, EPM 3-05 and GAM/Q-57
4.4.4	Quality Management System	PART 4.4.4	EPM 3-06, EPM 3-07, EPM 3-08, EPM 3-09 and EPM 3-10
<b>4.5</b>	<b>PERSONNEL REQUIREMENTS</b>		
4.5.1	Maintenance Authority	PART 4.5.1	EPM 3-01, EPM 3-03 and EPM 3-12
4.5.2	Accountable Manager	PART 4.5.2	N/A
4.5.3	Senior Maintenance Manager	PART 4.5.3	N/A
4.5.4	Quality Manager	PART 4.5.4	N/A
4.5.5	Maintenance Manager	PART 4.5.5	EPM 5-02
4.5.6	Maintenance Inspector/Supervisor	PART 4.5.6	EPM 5-02,
4.5.7	Authorized Tradespersons	PART 4.5.7	EPM 3-01, and EPM 5-02

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>Compliance Matrix</b>	PAGE: 1 of 3

## MAINTENANCE MANAGEMENT PLAN

4.5.8	Aircrew	PART 4.5.8	N/A
4.5.9	Non-Trade Personnel	PART 4.5.9	EPM 5-01, and EPM 5-02
4.5.10	Human Factors in Maintenance	PART 4.5.10	EPM 3-11
<b>4.6</b>	<b>FACILITIES</b>		
4.6.1	AMO Facilities	PART 4.6.1	N/A
4.6.2	Storage Facilities	PART 4.6.2	EPM 2-01
4.6.3	Alternative Facilities	PART 4.6.3	EPM 1-14 and EPM 3-07
<b>5.1</b>	<b>CONDUCT OF MAINTENANCE</b>		
5.1.1	Maintenance Authority – Scope and Level	PART 5.1.1	N/A
5.1.2	Publication, Instructions Orders and Data	PART 5.1.2	EPM 4-01, EPM 4-03, and GAM/E-020
5.1.3	Foreign Source Data	PART 5.1.3	EPM 4-01
5.1.4	Maintenance Procedures	PART 5.1.4	EPM 4-03
5.1.5	Maintenance Certification	PART 5.1.5	EPM 1-11 and GAM/E-005
5.1.6	Independent Maintenance Inspections	PART 5.1.6	EPM 1-01
5.1.7	Maintenance of Aircraft During the Period of Operation	PART 5.1.7	N/A
5.1.8	Foreign Object Control	PART 5.1.8	EPM 1-07
5.1.9	Safety	PART 5.1.9	SMS Manual
5.1.10	Reserved	Reserved	N/A
5.1.11	Carried Forward Unserviceability	PART 5.1.11	EPM 1-11
5.1.12	Maintenance Test Flights	PART 5.1.12	EPM 1-03, EPM 1-13 and GAM/Q-013
5.1.13	Maintenance Ground Runs	PART 5.1.13	EPM 1-02, EPM 1-13
5.1.14	Aircraft Ground Handling	PART 5.1.14	EPM 1-04, EPM 1-13
5.1.15	Standard Repairs	PART 5.1.15	EPM 1-05
5.1.16	Modifications	PART 5.1.16	N/A
5.1.17	Weight and Balance	PART 5.1.17	N/A
5.1.18	Adhoc Non-Destructive Testing	PART 5.1.18	N/A
5.1.19	Non-Standard Repairs	PART 5.1.19	EPM 1-05
5.1.20	Contingency Maintenance and Aircraft Battle Damage Repair	PART 5.1.20	N/A

DOCUMENT REFERENCE:		GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>Compliance Matrix</b>	PAGE: 2 of 3

## MAINTENANCE MANAGEMENT PLAN

<b>5.2</b>	<b>MAINTENANCE RECORDS AND DOCUMENTATION</b>		
5.2.1	Maintenance Records and Documentation Requirements	PART 5.2.1	N/A
5.2.2	Electronic Records	PART 5.2.2	N/A
5.2.3	Retention and Review of Maintenance Documentation and Records	PART 5.2.3	N/A
5.2.4	Falsification, Reproduction or Alteration of Maintenance Records	PART 5.2.4	N/A
<b>5.3</b>	<b>REPORTING AND INVESTIGATION REQUIREMENTS</b>		
5.3.1	Reporting of Unserviceable Conditions	PART 5.3.1	EPM 1-12
5.3.2	Reporting of Un-airworthy Conditions	PART 5.3.2	EPM 1-12
5.3.3	AMO Investigation of Reported Unserviceable and Un-airworthy Conditions	PART 5.3.3	N/A
5.3.4	Maintenance Incident Reporting	PART 5.3.4	EPM 1-12
5.3.5	Other Reporting Requirements	PART 5.3.5	N/A
5.3.6	Technical Reporting Systems	PART 5.3.6	N/A
<b>5.4</b>	<b>DEVIATIONS</b>		
5.4.1	Deviations	PART 5.4.1	EPM 3-02
<b>5.5</b>	<b>TOOLS, EQUIPMENT AND AERONAUTICAL PRODUCT</b>		
5.5.1	Tools and Support Equipment	PART 5.5.1	EPM 2-02, EPM 2-03, GAM/E-016 & GAM/E-06
5.5.2	Local Manufacture or Modification of Tooling	PART 5.5.2	EPM 2-03
5.5.3	Maintenance Tools and Material During Period of Operation	PART 5.5.3	EPM 2-03
5.5.4	Aeronautical Products	PART 5.5.4	EPM 2-01
5.5.5	Transfer of Aeronautical Product (Cannibalisation/Robbery)	PART 5.5.5	EPM 1-09
5.5.6	Local Manufacture of Aeronautical Products	PART 5.5.6	N/A
<b>5.6</b>	<b>AIRCRAFT ACCIDENTS</b>		
5.6.1	Initial Requirements	PART 5.6.1	QAN 014
5.6.2	Recovery of Aircraft	PART 5.6.2	N/A
5.6.3	Salvage	PART 5.6.3	N/A

DOCUMENT REFERENCE:				GAM/MMP/AW139		DATE:	24 JUNE 2022
ISSUE:	4	REVISION:	0	<b>Compliance Matrix</b>		PAGE:	3 of 3