

## GALAXY AEROSPACE (M) SDN. BHD. (1040262-D) 11-14, Helicopter Centre, Malaysian International Aerospace Centre, Sultan Abdul Aziz Shah Airport, 47200 Subang, Shah Alam, Selangor Darul Ehsan, Malaysia

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# **ENGINEERING MANAGEMENT PLAN**

GAM/EMP-01 ISSUE 1/19

## **MASTER COPY**

## AUTHORISED ENGINEERING ORGANISATION ACC. TO TAMM 2<sup>ND</sup> EDITION DIRECTORATE GENERAL TECHNICAL AIRWORTHINESS (DGTA) CERTIFICATE NO. AEO 17/2018

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## LIST OF AMENDMENTS

ISSUE NO (No/Year)	DATE OF ISSUE	REASONS FOR CHANGE
1/17	October 2017	Initial Issue
1/18	March 2018	Para 1.2 -Removed para 1.2.1.3: Installation of DF system Para 1.5.5.6 -Revised statement to include details on establishment of Master List in Google Drive Server for monitoring, controlling and updating Type Design Data and Design Reference Data by AWO.
		<b>Para 4.2.3</b> -Amended Solidworks software version from 2017 to 2018.
		<b>Para 6.6.4</b> -Amended reference of approved signatories to GAM/AEO.P01.
		<b>Para 7.4.1</b> -Added information on management design review and reference to GAM/AEO.P14.
		<b>Para 8.2</b> -Amended Type Investigation process flow-chart.
		<b>Para 8.3.2.1</b> -Added statement of modification classification record to be prepared by GAM AEO using GAM/AEO.F002 in accordance with GAM/AEO.P03.
		<b>Para 8.3.2.2</b> -Added statement of the proposed classification by GAM AEO to be accepted/re-classified by DAR.
		<b>Para 8.3.8</b> -Added information on GAM AEO having to provide design approval certificate and master document list which summarises the type investigation documentations.
		Para 8.4.12



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ISSUE NO (No/Year)	DATE OF ISSUE	REASONS FOR CHANGE
		-Added reference to Service Release form GAM/AEO.F.036.
		Para 8.4.14 -Added reference to new procedure GAM/AEO.P16: Management of ICA.
		Para 8.6 -Added statement on data backup to be carried out monthly by IT department.
		<b>Para 10.1.2</b> -Added reference to new procedure GAM/AEO.P16: Management of ICA.
		Para 11.1 -Removed MAA (Malaysia Army Aviation) from list of Design Support Network (DSN).
		Appendix Section -Issue 1/17's Appendix 2: Approved Signatories List has been removed from EMP as the information is already provided in GAM/AEO.P01. -Appendix 3 in Issue 1/17 is now reassigned to Appendix 2 in Issue 1/18.
		Appendix 2 -Addition of Regulation 1 and 2 into compliance matrix. -Correction of references to EMP Para for Regulation 3.
		Para 1.1.2 -Amend SDE name from Sharliza Shaari to Mohd Yussyuwari Md Yusop
		Para 1.3 -Amend GAM address to latest address
2/18	November 2018	Figure 4.1 -Update GAM AEO facility location
		Figure 4.2 -Update GAM AEO Office Plan
		Para 6.6.5 - Amend SDE name from Sharliza Shaari to Mohd Yussyuwari Md Yusop



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		Front Cover -Changed phone and fax number
		Para 1.4.3 -Updated Guideline reference
		Para 1.5.3.8 -Inserted QAN full title
		Para 1.5.4.1 -Changed reserve copy to library copy
		Para 1.5.4.2 and para 1.5.5.6 -Changed GDrive or Cloud into Server
		Para 1.5.5.3 -Changed verification personnel for Level 2 and 3 documents and reference para
		Para 1.5.5.6 and 4.5.1 -Changed DCA to CAAM
		Para 2.1 -Editorial changes
1/19	April 2019	Para 2.2 -Inserted additional abbreviation for CCD, DEV and QAN
		Para 3.0 -Inserted EAC
		Para 4.2.3.1 -Amended software version.
		Para 4.2.5 -Rephrase sentence
		Para 4.4.1.2 and para 4.4.2.2 -Added another means of communication
		Para 4.4.2.1 -Corrected title for reference
		Para 4.5.2 -Updated the title and item in this para
		Para 5.5 -Updated approval GAM AMO
		Para 6.3.1 -Clarified function of DO
		Para 6.4.1



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-Clarified function of AWO
Para 6.6.2 -Added training requirement
Para 6.6.6 -Rephrase sentences.
<b>Para 7.0</b> -Replaced "delegated" with "contracted".
<b>Para 7.0 &amp; Para 8.1</b> -Added statement of interrelation between Design Assurance System, Type Investigation, Design Control and TAMM requirement.
Para 7.2 -Added MOC requirement
<b>Para 7.3.2</b> -Replace Accountable Manager to Senior Executive
Para 8.1 -Changed nomination procedure
<b>Para 8.2</b> -Included Design Review and Procedures P05 into type investigation flowchart.
Para 8.3.6 -Added form to be used
Para 8.3.7 -Specified authorised signatories
<b>Para 8.4</b> -Editorial Changes
Para 8.4.5, 8.4.13, 8.4.14 & 8.4.15 -Inserted related procedures
Para 8.4.18 -Rephrase sentence and added related procedure
Para 8.5 -Added statement of interrelation between Documentation Management System and Document Control and TAMM requirement.



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ISSUE NO (No/Year)	DATE OF ISSUE	REASONS FOR CHANGE
		Para 8.6 -Electronic Library term is used to describe digital storage of AEO type design data.
		<b>Para 10.2</b> -Change "chapter" to "para"
		Para 11 -Added additional DSN
		Appendix 2 -Added EMP para 8.6 into regulation 3.3.8 -Amended GAM Ref Doc column for regulation 3.4.1 and 3.5.19



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ENGINEERING MANAGEMENT PLAN GAM/EMP-01



## 1.0 GENERAL

### 1.1 STATEMENT OF UNDERTAKING

#### 1.1.1 Statement of undertaking from Senior Executive

This Engineering Management Plan (EMP) defines the organisation, people, procedures and policies which compliance with the requirement of the State Technical Airworthiness Regulations (STAR) as stipulated in by the TAMM – PU 2103.

These procedures are approved by the undersigned and shall be adhered to all personnel as applicable, in the execution of their duties and responsibilities.

This EMP will be continually updated. Significant changes or modification are implemented once they have been agreed by Authorities (TAMM Reg 3).

SHAMSUL KAMAR SAMSUDIN Senior Executive / Managing Director Galaxy Aerospace (M) Sdn Bhd

#### 1.1.2 Statement of undertaking from Senior Design Engineer (SDE)

This Engineering Management Plan (EMP) defines the organization, people, procedures and policies for Galaxy Aerospace (M) Sdn Bhd. It is in compliance with the requirements of the State Technical Airworthiness Regulations (STAR) as stipulated in the TAMM – PU 2103.

Binding to the provisions of STAR Regulations 3.2.8b, this EMP is hereby authorized for use. The undersigned is responsible to ensure that the administration and organization, department policies/procedure and instructions contained herein are adhered to by all personnel as assigned in the execution of their duties and responsibilities.

This EMP shall be reviewed annually for its relevancy and effectiveness.

I hereby submit the EMP for approval by DGTA through the sponsor ship of SAO organizations.

yuua/se

MOHD YUSSYUWARI MD YUSOP

Senior Design Engineer (SDE) Galaxy Aerospace (M) Sdn Bhd

1.1.3 This EMP has been reviewed by AAER-DGTA.

Directorate General Technical Airworthiness (DGTA)



## 1.2 APPROVAL

- 1.2.1 Galaxy Aerospace (M) Sdn Bhd (GAM) as an Authorized Engineering Organisation for the scope design development, review and approval of design data package for the work specified as below:
- 1.2.1.1 Installation of Cargo Hook on EC120B Helicopters
- 1.2.1.2 Installation of Emergency Float Kit on EC120B Helicopters

### 1.3 APPLICANT

1.3.1 The application for approval as an AEO is for GAM having its registered office at;

#### GALAXY AEROSPACE (M) SDN. BHD., 11-14, Helicopter Centre, Malaysian International Aerospace Centre, Sultan Abdul Aziz Shah Airport, 47200 Subang, Shah Alam, Selangor Darul Ehsan, Malaysia.

#### 1.4 PURPOSE OF MANUAL

The purpose of this manual is to inform GAM employees, customers, Statutory and Regulatory Authorities the essentials of the GAM Engineering Management System.

- 1.4.1 To assure that the required quality standard is indeed effectuated, that objective evidence can be substantiated, that GAM has maintained adequate control over design, development and purchasing.
- 1.4.2 To provide essential GAM Engineering Management policy guidelines and define function responsibilities of relevant parties.



1.4.3 The Company's engineering management system is in line with guidelines contained in Directorate General of Technical Airworthiness(DGTA)'s Technical Airworthiness Management Manual(TAMM), Civil Aviation Authority of Malaysia (CAAM) AN8401 and CAAM's Design Organisation Approval (DOA) Handbook.

#### 1.5 ENGINEERING MANAGEMENT PLAN (EMP)

- 1.5.1 The EMP is approved and issued by the Senior Design Engineer (SDE), on behalf of the Senior Executive of GAM.
- 1.5.2 The compilation and distribution of this EMP is managed by GAM through Airworthiness Office (AWO).
- 1.5.3 Revision to EMP;
  - 1.5.3.1 Amendments to the EMP will be carried out continuously. Normally they will become necessary due to reorganization, personnel changes, and modifications of valid procedures or as a result of changes in the Design Assurance System.
  - 1.5.3.2 Suggestions for additional alterations can be made to the AWO by each AEO employee using the Document Change Notice (form GAM/AEO.F.029).
  - 1.5.3.3 The AWO collects the necessary changes and decides, depending on their significance, when to issue an amendment.
  - 1.5.3.4 Change proposals will be collected by the AWO and it decides in agreement with the SDE if changes will be implemented. These changes will be implemented together and processed in the same way when changing the manual.
  - 1.5.3.5 Significant changes must be approved by the DGTA.
  - 1.5.3.6 Minor changes concerning the individual departments of the organisation or any other editorial changes can be approved by the SDE if there are no internal AEO changes related to function or personnel.
  - 1.5.3.7 Minor changes shall be issued with Issue No. x/yy\_zz where x/yy is the latest Manual reference issue and zz is the running number of the minor change to the reference issue. For example, a minor change to reference Issue No. 1/17 shall be revised as 1/17\_01.
  - 1.5.3.8 Revisions will always be done chapter wise. The chapters affected by a Document Change Notice must be exchanged. Incorporation of changes must be confirmed in the List of



Amendments by the holder of the Manual. Revisions will be marked by black bars on the margin of the page. Any significant changes related to GAM's EMP must go through the Management of Change Procedure adopted by GAM with safety is emphasised as the utmost priority. Reference should be made to Quality Assurance Notice(QAN) 001 – Management of Change procedure for details.

- 1.5.3.9 The AWO will inform all necessary AEO staff, the DGTA and all other relevant persons according to the distribution list (chapter 1.5.4) via email about the issuance of a change to the EMP in the AEO network. All AEO staff directly affected by a change to the EMP shall also be briefed in a dedicated meeting.
- 1.5.4 EMP Distribution List:
  - 1.5.4.1 Controlled Hardcopy

The holder of controlled Hardcopies of this EMP are as follow:

EMP Copy No	HOLDER
01	MASTER COPY
	(Maintained by GAM AWO)
02	SPONSOR AEO
03	DGTA
04	GADING KASTURI SDN BHD
05	LIBRARY COPY



#### 1.5.4.2 Electronic Copy

Latest revision(s) of EMP shall be distributed to Galaxy Aerospace (M) Sdn. Bhd. server and the following persons shall be notified by email:

- a. Senior Executive
- b. AEO Employees
- c. Independent Monitoring Office (IMO)
- d. Engineering Manager (AMO) of Gading Kasturi Sdn. Bhd.
- e. Reserved
- 1.5.5 Documentation
  - 1.5.5.1 The EMP defines procedures and refers to existing procedures by a reference number.
  - 1.5.5.2 The GAM AEO Documentation Management System shall be divided into three hierarchical levels:
    - 1. Level 1 DIRECTIVE (GAM/EMP-01)
    - 2. Level 2 PROCEDURES (GAM/AEO.Pxx)
    - 3. Level 3 FORMS (GAM/AEO.Fxxx)
  - 1.5.5.3 All Level 2 and Level 3 documents, shall be prepared by AWO, verified by IMO or HIMO and approved by SDE and afterwards issued by the AWO. Amendments to these documents shall be carried out continuously, and suggestions for additional alterations can be made to the AWO by any AEO employee through Document Change Notice (form GAM/AEO.F.029). The distribution of these documents shall be done in accordance with paragraph 1.5.4.
  - 1.5.5.4 Revisions to Level 2 and Level 3, will be done document wise, meaning that document(s) affected by a Document Change Notice (form GAM/AEO.F.029) must be entirely replaced. Revisions will be marked by black bars on the margin of the page.
  - 1.5.5.5 Any changes related to GAM Documentation Management System must go through the Management of Change Procedure adopted by Galaxy Aerospace (M) Sdn. Bhd. with safety is emphasised as the utmost priority. Reference should be made to QAN 001 – Management of change procedure for details.
  - 1.5.5.6 Type Design Data for each Type Design Investigation and Design Reference Data Investigation shall be managed, maintained and updated by AWO into Server. For this



purpose, AWO shall establish Data Master List (an Excel file) which consists of Type Design Data and Design Reference Data in accordance with GAM/AEO.P06. Example of Reference Documents:

- a. TAMM PU2103 Second Edition or latest revision.
- b. EASA Acceptable Means of Compliance (AMC) and Guidance Material (GM).
- c. FAA Advisory Circulars (AC).
- d. USA MIL-STD and UK DEF-STAN.
- e. CAAM Airworthiness Notice.
- f. CAAM DOA Handbook.
- 1.5.6 Priorities;
  - 1.5.6.1 In the event of conflict between GAM EMP and reference document specified on Para 1.5.5.6, the TAMM shall have precedence.



# 2.0 DEFINITIONS AND ABBREVIATIONS

## 2.1 **DEFINITIONS**

The following terms are used in this EMP:

- **Airworthiness** Acceptable safety standard for an aircraft designed and built in accordance with the applicable requirements, when it is operated within the foreseen limits and within the limitations declared and maintained according to the procedures acceptable for the competent authority.
- **Continued** Airworthiness All the process ensuring that, following from initial certification or subsequent change of the aircraft at any time in its operating life, the aircraft or aircraft equipment complies with airworthiness requirements in force and is in condition for safe operation.
- **Engineering** The certificate awarded by the TAR to an organisation to operate as an AEO. **Certificate (EAC)**
- Letter of<br/>Engineering<br/>Authority (LEA)An attachment to an EAC which defines the scope of activity and any<br/>caveats and limitations under which the EAC is issued.
- **Major Change** Change to type design that has appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, noise, fuel venting, exhaust emission, or other characteristics affecting the airworthiness of the product.
- **Minor Change** Change to type design that imposes no appreciable effect on the mass, balance, structural strength, reliability, operational characteristics, noise, fuel venting, exhaust emission, or other characteristics affecting the airworthiness of the product.
- **Type Design** Drawings, specifications, manufacturing and assembly, and operating and maintenance instructions, necessary to define the configuration and the design features of an aircraft, to show that it complies with the airworthiness requirements.
- **Type Investigation** A type investigation programme is created to investigate and show compliance for the purposed design change with the applicable certification basis and verify that the design characteristic do not endanger flight safety. Furthermore, the preparation and verification of the compliance documents, including documents necessary for the continued airworthiness and safe operation of the aircraft such as supplements to the Flight Manual, have to be assured.



**Verification** Process which consist of determining that the results of a product development phase are in accordance with the specifications set in the previous development phases.

#### 2.2 LIST OF ABBREVIATIONS:

The following abbreviations are used in this EMP:

AEO	Authorised Engineering Organisation
AWO	Airworthiness Office
CI	Configuration Item
CCD	Compliance Checklist Document
DAR	Design Acceptance Representative
DE	Design Engineer
DGTA	Directorate General Technical Airworthiness
DO	Design Office
DSDE	Deputy Senior Design Engineer
DEV	Design Engineer Verification
EAC	Engineering Authority Certificate
EASA	European Aviation Safety Agency
EMP	Engineering Management Plan
FAA	Federal Aviation Administration
GAM	Galaxy Aerospace (M) Sdn. Bhd.
GK	Gading Kasturi (M) Sdn. Bhd.

IMO Independent Monitoring Office



LEA	Letter of Engineering Authority
QAN	Quality Assurance Notice
SDE	Senior Design Engineer
ΤΑΑΙ	Technical Airworthiness Alert Information
ТАММ	Technical Airworthiness Management Manual
TAR	Technical Airworthiness Regulator
ті	Technical Information
TIR	Technical Information Review



## 3.0 ENGINEERING AUTHORITY CERTIFICATE (EAC)





	RESTRICTED	
Direct	orate General Technical Airworthiness	ala
Aras 8	8, Menara TH Selborn	(SHE)
	lalan Tun Razak	X AND N
50400	KUALA LUMPUR	
Tel:	03-26873125	
Fax	03-26873094	
2	Apr 19	Concernation and the
1	Apr 18	di da
DGTA	V212/1/107/1	
Galax	xy Aerospace (M) Sdn Bhd	QUALITY S
79-1,	1st Floor, Jalan PJU 1A/41B	STRIEM
	Commercial Centre, Ara Damansara	SIRIM 004
	1 PETALING JAYA ntion: Senior Executive)	CERTIFIED TO ISO 9001 : 2008
2010/21		CERT NO. : AR6215
LETT	ER OF ENGINEERING AUTHORITY 17/2018 -	APPOINTMENT OF GALAXY
AERO	OSPACE (M) SDN BHD AS AN AUTHORISED ENGINE	ERING ORGANISATION
Refer	rence:	
A.	DGTA/100-6/1/2/1 dated 29 Mac 18 - Minutes	of meeting DGIA Certification
Comn	mittee (JKP) Series 25/18.	
Autho	On behalf of the Malaysian State Airworthiness A ning Engineering Authority (EA) to Galaxy Aerospa prised Engineering Organisation (AEO) for the scope of o	ce (M) Sdn Bhd (GAM) as an design development, review and
assign Author appro on E	ning Engineering Authority (FA) to Galaxy Aerospa	ce (M) Sdn Bhd (GAM) as an design development, review and a Hook and Emergency Float Kit this certificate. In conjunction with
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		rised	Engineering						Sdn Bhd (GAM) on the following
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		ii)				iew and a ncy Float H			n data package licopters.
	b. PU 21		A shall com Technical Air					gulation	n 1, 2 and 3 of
		rised		evel, in a	accordanc	ce with the	current E	ngineer	tivities, within the ing Management n.
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## 4.0 AUTHORISED ENGINEERING ORGANISATION DESCRIPTION

## 4.1 BACKGROUND

4.1.1 GAM is a Malaysian-owned company that was established in 2015 and run by a group of experienced Licensed Aircraft Engineer and Design Engineers with the main aim to lead third party Maintenance, Repair and Overhaul (MRO) company which provide client friendly, quality comprehensive aircraft maintenance support for Malaysia General Aviation.

## 4.2 **RESOURCES**

#### 4.2.1 Manpower

GAM is staffed with adequate qualified human resources consisting of direct hire staff and nominations of personnel involved in design activity are defined in procedure GAM/AEO.P01.

#### 4.2.2 Facilities

All design activities shall be carried out at GAM facility (refer facility location in Figure 4.1 and facility layout in Figure 4.2).

#### 4.2.3 **Tools and Equipment**

- 4.2.3.1 GAM is equipped with all the necessary tools for design and development.
  - i. Computer Hardware: All AEO Personnel have Window OS based computer.
  - ii. Design, analysis and drafting software:
    - a. Solidworks or any other 3D modelling software.
    - b. AutoCAD or any other drafting software
  - iii. Basic software
    - a. Microsoft Office



- 4.2.4 Other equipment: Fixtures, furniture, computers, projector, internet access, colour printer, scanner, etc are available to support AEO activities.
- 4.2.5 All records of tools and equipment for design development are being monitored and controlled by GAM AWO.

### 4.3 EXEMPTIONS

4.3.1 Should the need for an exemption arise, SDE shall officially inform and negotiate with the DGTA on case-by-case basis. SDE in his capacity shall demonstrate that while operating with the exemption, the normal function of AEO will continue and any risk to airworthiness is kept at minimum.

#### 4.4 OPERATING REQUIREMENT

- 4.4.1 Continued Compliance
  - 4.4.1.1 GAM will comply with all procedures and systems reference in this EMP and ensure applicable procedures are available to personnel who require those procedures to carry out their duties by signing acknowledgement list attached to the master copy of EMP.
  - 4.4.1.2 GAM shall continue to meet the standards and comply with the requirements prescribed in TAMM Reg. 3.4 to 3.6 for certification under this regulation and shall notify the TAR within 48 hours of any circumstance that could affect the ability to meet those requirements via phone calls, fax, email and followed by formal letter.
- 4.4.2 Changes to AEO
  - 4.4.2.1 GAM shall ensure that this EMP is amended so as to remain a current description of the organization. The amendment to the EMP shall ensure the applicable requirement of the regulation is met and an amendment procedure to the EMP is complied. A copy of each amendment to the EMP shall be provided to each personnel / organisation / authority specified in the distribution list as per paragraph 1.5.4. Refer to Section 1.5 (Engineering Management Plan) paragraph 1.5.3 (Revision to EMP) for amendment procedures.
  - 4.4.2.2 Notification and acceptance via phone calls, fax, email and followed by formal letter to the TAR will be granted if the changes of the following are to be made;



- The SDE or any Deputy Senior Design Engineer (DSDE) or,
- The design or CI Management activities undertakes.
- 4.4.2.3 The TAR is to be advised in writing immediately via email and followed by formal letter after any changes to the following;
  - Senior Executive
  - The cancellation, suspension, or completion of the formal instrument as required by TAMM Reg. 3.2.7.b
- 4.4.2.4 GAM shall comply with the conditions prescribed by TAR under which GAM may operate during or following any of the changes specified i.e. unavailability of SDE (refer EMP Section 4.5.4).
- 4.4.2.5 GAM shall apply to the TAR through email and formal letter for issue of a replacement certificate where any change referred to in TAMM regulation requires a change to the EAC, including the Letter of Engineering Authority (LEA). When the replacement certificate is issued by TAR, the certificate it replaces is revoked and all customers shall be informed immediately through phone calls, email and followed by formal letter within 4 days. GAM shall make the amendment to the EMP within 4 days as the TAR may consider necessary in the interests of safety.
- 4.4.3 Inspections and Audits
  - 4.4.3.1 GAM is accessible for TAR to conduct inspection and audits in compliance to the regulation when necessary. Full cooperation shall be rendered during this period.
  - 4.4.3.2 GAM shall undergo an external audit at an interval not to exceed two years and a copy of the audit report is to be provided to the TAR. Where applicable GAM shall allow the TAR or his/her representative to audit GAM's subcontractor (if any).
  - 4.4.3.3 GAM IMO shall conduct an Internal Audit as and when directed by TAR when there is consideration necessary in the interests of aviation safety.

#### 4.5 GAM CERTIFICATION

Related certifications held by GAM are detailed as follow:



#### 4.5.1 <u>Civil Aviation Authority of Malaysia (CAAM)</u>

- i. Design Organisation Approval (In Progress)
- ii. Continuing Airworthiness Management Organisation, CAMO/2016/03
- iii. Approved Maintenance Organisation, AMO/2016/02

#### 4.5.2 <u>Directorate General of Technical Airworthiness (DGTA)</u>

- Approval of Galaxy Aerospace (M) Sdn. Bhd. as AMO with Cert No: AMO 03/2018 (Ref: DGTA/212/1/107 Date:28 March 2018)
- Approval of Galaxy Aerospace (M) Sdn. Bhd. as AEO with Cert No: AEO 17/2018 (Ref: DGTA/212/1/107 Date:29 March 2018)



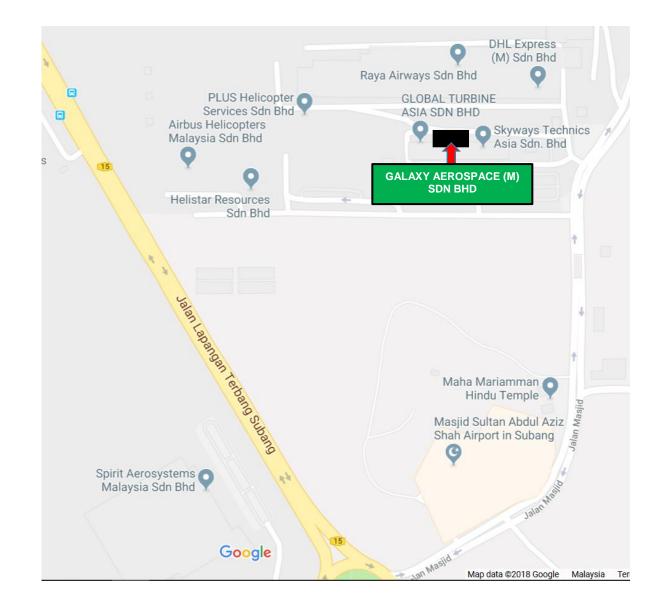
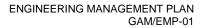


Figure 4.1 GAM AEO Facility Location







corridor

Figure 4.2 GAM AEO Office Plan

# 5.0 OTHER CERTIFICATES

## 5.1 DCAM CAMO PART-M





## 5.2 DCAM AMO PART-145

		DCAMALAYSIA
		DEPARTMENT OF CIVIL AVIATION MALAYSIA
	CE	RTIFICATE OF APPROVAL
		APPROVAL NUMBER : AMO/2016/02
		uant to regulation 31 of Civil Aviation Regulations 2016 t to the conditions specified below, the following organisation:
	GA	ALAXY AEROSPACE (M) SDN BHD NO 79-1, FLOOR NO 1, JALAN PJU 1A/41B, 47301, PETALING JAYA, SELANGOR DARUL EHSAN, MALAYSIA.
	is a	approved as a MAINTENANCE ORGANISATION
		in accordance with Airworthiness Notice 6501
COND	ITIONS:	
1.	The approval i	is limited to that specified in the enclosed Terms of Approval,
		requires compliance with the procedures specified in the latest revision
		nance Organisation Exposition, as specified in the enclosed Terms of
3.	of the <b>Mainter</b> Approval, This approval	
3	of the <b>Mainter</b> Approval, This approval compliance wi Subject to cor until the expi	is valid whilst the approved Maintenance Organisation remains in
3 4. :	of the <b>Mainter</b> Approval, This approval compliance wi Subject to cor until the expi	is valid whilst the approved <b>Maintenance Organisation</b> remains in th Airworthiness Notice <b>6501</b> , and mpliance with the foregoing conditions, this approval shall remain valid iny date, as specified in the enclosed Terms of Approval, unless

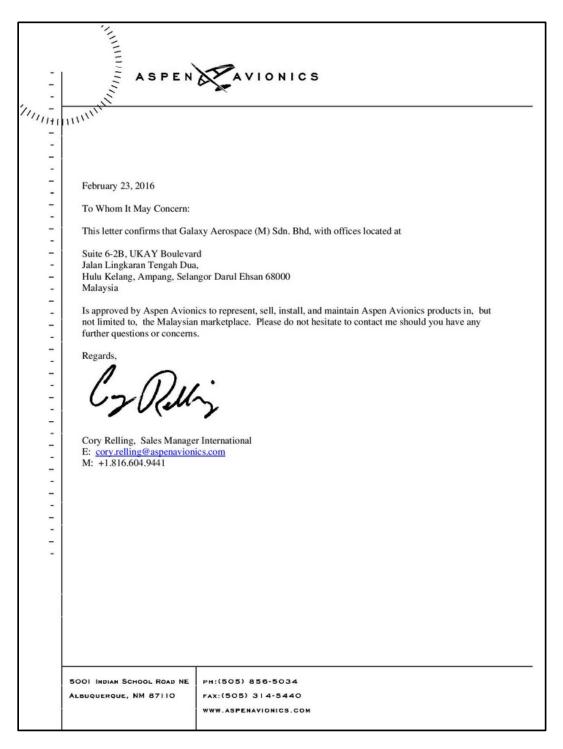


## 5.3 GARMIN AVIATION DEALER LETTER

1 <sup>st</sup> March, 2016 <b>CD WHOM IT MAY CONCERN</b> Garmin International Inc. with its head office at 1200E, 151 <sup>st</sup> Street, Olathe, Kansas 66062 U.S., hereby confirm that Galaxy Aerospace (M) SDN. BHD., 6-2B UKAY Boulevard, Jalan Lingkaran Tengah Dua, Hulu Kelang, 68000 Ampang, Selangor Darul Ehsan, MALAYSIA. is an Authorized Dealer and Service Centre for Garmin Aviation products. Galaxy Aerospace (M) SDN. BHD. is fully qualified for promotion, demonstration, procure installation and interfacing, technical consultation and warranty/non- warranty repair administr of the complete range of Garmin Avionics. If further information is required, please contact the undersigned. Yours faithfully, Justin Chen Manager Asia Aviation Sales & Support GARMIN Singapore Pte. Ltd.		GARMIN Singapore Pte. Ltd. #10-03 Eastgate Building. 46 East Coast Road Singapore 428766 Td : (65) 63480378 Fax : (65) 63480278
Garmin International Inc. with its head office at 1200E, 151st Street, Olathe, Kansas 66062 U.S., hereby confirm that Galaxy Aerospace (M) SDN. BHD., 6-2B UKAY Boulevard, Jalan Lingkaran Tengah Dua, Hulu Kelang, 68000 Ampang, Selangor Darul Ehsan, MALAYSIA. is an Authorized Dealer and Service Centre for Garmin Aviation products. Galaxy Aerospace (M) SDN. BHD. is fully qualified for promotion, demonstration, procure installation and interfacing, technical consultation and warranty/non- warranty repair administs of the complete range of Garmin Avionics. If further information is required, please contact the undersigned. Yours faithfully, Justin Chen Manager Asia Aviation Sales & Support	1 <sup>st</sup> March, 2016	
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<ul> <li>6-2B UKAY Boulevard, Jalan Lingkaran Tengah Dua, Hulu Kelang, 68000 Ampang, Selangor Darul Ehsan, MALAYSIA.</li> <li>is an Authorized Dealer and Service Centre for Garmin Aviation products.</li> <li>Galaxy Aerospace (M) SDN. BHD. is fully qualified for promotion, demonstration, procurent installation and interfacing, technical consultation and warranty/non- warranty repair administr of the complete range of Garmin Avionics.</li> <li>If further information is required, please contact the undersigned.</li> <li>Yours faithfully,</li> <li>Justin Chen Manager Asia Aviation Sales &amp; Support</li> </ul>		51 <sup>st</sup> Street, Olathe, Kansas 66062 U.S.A.
Galaxy Aerospace (M) SDN. BHD. is fully qualified for promotion, demonstration, procurent installation and interfacing, technical consultation and warranty/non- warranty repair administr of the complete range of Garmin Avionics. If further information is required, please contact the undersigned. Yours faithfully, Justin Chen Manager Asia Aviation Sales & Support	6-2B UKAY Boulevard, Jalan Lingkaran Tengah Dua, Hulu Kelang, 68000 Ampang, Selangor Darul Ehsan,	
installation and interfacing, technical consultation and warranty/non- warranty repair administr of the complete range of Garmin Avionics. If further information is required, please contact the undersigned. Yours faithfully, Justin Chen Manager Asia Aviation Sales & Support	is an Authorized Dealer and Service Centre for Garmin Av	viation products.
Yours faithfully, Justin Chen Manager Asia Aviation Sales & Support	installation and interfacing, technical consultation and wa	or promotion, demonstration, procureme arranty/non- warranty repair administrat
Justin Chen Manager Asia Aviation Sales & Support	If further information is required, please contact the under	signed.
Manager Asia Aviation Sales & Support	Yours faithfully,	
Manager Asia Aviation Sales & Support		
	Manager Asia Aviation Sales & Support	



### 5.4 ASPEN AVIONICS DEALER LETTER





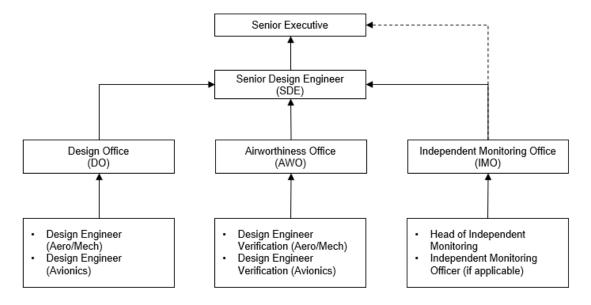
## 5.5 GAM AMO APPROVAL



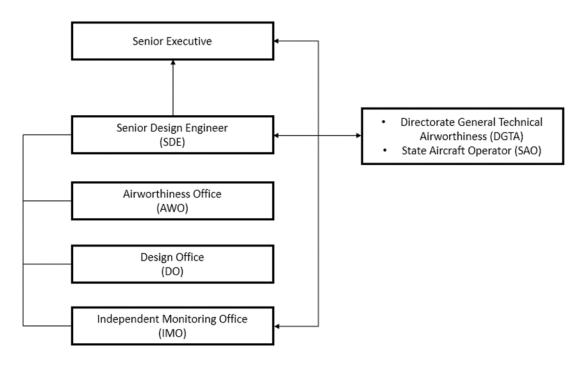


# 6.0 DESIGN ORGANISATION

## 6.1 AEO FUNCTIONAL CHART



## 6.2 GENERAL ORGANISATION AND INTERFACE





# 6.3 FUNCTION OF DESIGN OFFICE (DO)

- 6.3.1 DO consists of Design Engineers and reports directly to the SDE. DO serves to develop and prepare type design documentations (compliance documents / modification package) in accordance with approved procedures, rules, regulations and requirements.
- 6.3.2 The functions of DO includes, but not limited to the following: -
  - 6.3.2.1 Perform all related design activities (modification, repair and any new designs).
  - 6.3.2.2 Validate all designs against design inputs, airworthiness requirements and customer specifications.
  - 6.3.2.3 Provide proof of compliance to type investigation activities.
  - 6.3.2.4 Conduct show compliance activities against airworthiness requirements.
  - 6.3.2.5 Perform analysis and testing for showing compliance against airworthiness requirements.
  - 6.3.2.6 Prepare all related documents for certification approval with reference to TAMM.
  - 6.3.2.7 Check for completeness of all design documents.

# 6.4 FUNCTION OF AIRWORTHINESS OFFICE (AWO)

- 6.4.1 AWO consists of Design Engineer Verification and reports directly to the SDE. AWO serves to ensure the activities in the organization are compliant with approved procedures, rules, regulations and requirements. AWO also provides design verification / independent checking functions to type design documentation prepared / developed by DO. AWO is responsible for the Airworthiness and Technical Services aspect of overall AEO.
- 6.4.2 The functions of AWO includes, but not limited to the following: -
  - 6.4.2.1 Liaise with the DGTA / TAR or other national airworthiness authorities on all matters related to airworthiness and certification.
  - 6.4.2.2 Ensure that the EMP is prepared and updated as required in TAMM PU2103.
  - 6.4.2.3 Co-operate with the DGTA in developing procedures to be used for the type certification process.



- 6.4.2.4 Issuance of guidelines for documenting compliance.
- 6.4.2.5 Co-operate in issuing guidelines for the preparation of the manuals required by the applicable implementing rules, Service Bulletins, drawings, specifications, and standards.
- 6.4.2.6 Control the design suppliers.
- 6.4.2.7 Maintain the EMP.
- 6.4.2.8 Verify application and adequacy of EMP's procedures.
- 6.4.2.9 Verify efficiency of the organisation.
- 6.4.2.10 Propose and implement corrective EMP action
- 6.4.2.11 Control of design signatories.
- 6.4.2.12 Co-operate with the DGTA in proposing the type-certification basis.
- 6.4.2.13 Advise all departments of the AEO in all questions regarding airworthiness, environmental protection approvals and certification.
- 6.4.2.14 Prepare the Type Investigation program and co-ordinate all tasks related to Type Investigation in occurrence with the DGTA.
- 6.4.2.15 Regularly report to the DGTA about Type Investigation progress and announcement of schedule tests in due time.
- 6.4.2.16 Ensure reporting to the DGTA about Type Investigation programs needed for demonstration of compliance.
- 6.4.2.17 Establish the compliance checklist and updating for changes.
- 6.4.2.18 Check that all compliance documents are prepared as necessary to show compliance with all airworthiness and environmental protection requirements, as well as for completeness, and signing for release of the documents.
- 6.4.2.19 Check the required type design definition documents in accordance with DGTA requirements and ensure that they are provided to the DGTA for approval when required.
- 6.4.2.20 Provide verification to the Senior Design Engineer (SDE) that all activities required for Type Investigation have been properly completed.



- 6.4.2.21 Propose the classification of changes to DAR in accordance with DGTA requirements in TAMM.
- 6.4.2.22 Monitor significant events on other aeronautical products as far as relevant to determine their effect on airworthiness of products being designed by the design organisation.
- 6.4.2.23 Ensure co-operation in preparing Technical Information Review (TIR) and subsequent revisions, with special attention being given to the manner in which the content affect airworthiness and environmental protection.
- 6.4.2.24 Ensure the initiation of activities as a response to failure (accident/incident/in-service experience) evaluation and complaints from the operation and provide information to the DGTA in case of airworthiness impairment (continuing airworthiness).
- 6.4.2.25 Advise the DGTA with regards to the issue of Airworthiness Directives in general based on Service Bulletins.
- 6.4.2.26 Ensure that the manuals and / or any type design data which may require approval by the DGTA and / or SAO, including any subsequent revisions (the Aircraft Flight Manual, MMEL, the Airworthiness Limitations section of the Instructions for Continued Airworthiness and the Certificate Maintenance Requirements (CMR) document, (where applicable)) are checked to determine that they meet the respective requirements, and that they are provided to the DGTA for approval.

# 6.5 FUNCTION OF INDEPENDENT MONITORING OFFICE (IMO)

- 6.5.1 The IMO is responsible for the quality management within the AEO and the respective departments bound by instructions.
- 6.5.2 The IMO monitors independently the compliance with and adequacy of the Design Assurance System shown in chapter 7.0. The independent monitoring function guarantees periodic checking (minimum once a



year) of defined procedures (auditing), as well as consistency and compliance to the defined procedures and quality objectives.

6.5.3 IMO personnel consist of Head of Independent Monitoring Office (HIMO) and Independent Monitoring Officer (if applicable). The minimum personnel required is HIMO.

# 6.6 NOMINATION OF APPROVED SIGNATORIES

- 6.6.1 Approved signatories mean a person to be able to sign under the authority of AEO granted to GAM in relation to the exercising of the scope and level of authorities as stipulated in the LEA. The entire necessary career summary giving experience in the AEO function is kept in individual Personnel and Training Record Sheet.
- 6.6.2 Training program is provided to all approved signatories in order to meet the regulatory requirement to maintain the competence of each personnel undertaking engineering activities and is recorded as per procedure GAM/AEO.P01 using GAM/AEO.F026. The training program and schedule are defined in the yearly training plan.
- 6.6.3 Refer to Appendix 1 for Appointment/Selection Criteria/Competency and Responsibilities for all the Approved Signatories.
- 6.6.4 In case of unavailability of SDE, Senior Executive shall appoint new SDE and within the transition period, all engineering activities shall be frozen, unless otherwise allowed by DGTA.
- 6.6.5 Refer to GAM/AEO.P01 for Approved Signatories List.
- 6.6.6 Listed next page are nominated authorized personnel by DGTA for the appointment of SE and SDE. For DEV and DE, authorisation and approval signatories are implemented as per GAM/AEO.P01 via GAM/AEO.F026. Appointment letter with responsibilities shall be issued to each of the approved signatories. All authorised personnel's scope of approval as described in para 1.2.



SENIOR EXECUTIVE		
Name	SHAMSUL KAMAR BIN SAMSUDIN	
Release Documents	<ol> <li>Service Release</li> <li>Incorporation Approval</li> </ol>	

SENIOR DESIGN ENGINEER (SDE)				
Name	MOHD YUSSYUWARI BIN MD YUSOP			
Release Documents	<ol> <li>Design Approval Certificate</li> <li>Approval of Compliance documents (approved by) of original issues and amendments to:         <ul> <li>a. Certificate of Conformity (COC).</li> <li>b. Engineering Report – Substantiation.</li> <li>c. Compliance Checklist Document</li> </ul> </li> <li>Approval of technical content (approved by) and of original</li> </ol>			
	<ul> <li>issues and amendments to (Aero Mech/Avionics):</li> <li>a. Engineering Drawings.</li> <li>b. Instruction of Continued Airworthiness.</li> <li>c. Modification Document.</li> <li>d. Aircraft Flight Manual Supplement.</li> <li>e. Service Bulletin.</li> <li>f. Design Query Note.</li> <li>g. Deviations/Substitutions.</li> </ul>			

<b>DESIGN ENGINEER</b>	DESIGN ENGINEER (VERIFICATION) – AVIONICS			
Release Documents	<ol> <li>Approval of Compliance documents (verified by) of original issues and amendments to:         <ul> <li>a. Engineering Report</li> </ul> </li> </ol>			
	<ul> <li>2. Approval of technical content (verified by) and of original issues and amendments to (Avionics): <ul> <li>a. Engineering Drawings.</li> <li>b. Instruction of Continued Airworthiness</li> <li>c. Modification Document.</li> <li>d. Aircraft Flight Manual Supplement</li> <li>e. Service Bulletin</li> <li>f. Design Query Note</li> <li>g. Deviations/Substitutions</li> </ul> </li> </ul>			



DESIGN ENGINEER (VERIFICATION) – AERO/MECH				
Release Documents	<ol> <li>Approval of Compliance documents (verified by) of original issues and amendments to:         <ul> <li>Engineering Report</li> </ul> </li> </ol>			
	<ul> <li>2. Approval of technical content (verified by) and of original issues and amendments to (Aero/Mech): <ul> <li>a. Engineering Drawings.</li> <li>b. Instruction of Continued Airworthiness</li> <li>c. Modification Document.</li> <li>d. Aircraft Flight Manual Supplement</li> <li>e. Service Bulletin</li> <li>f. Design Query Note</li> <li>g. Deviations/Substitutions</li> </ul> </li> </ul>			

DESIGN ENGINEER (DE) - AVIONICS					
Release Documents	<ol> <li>Preparer of design document for original issues and amendments to:         <ul> <li>a. Engineering Report</li> </ul> </li> </ol>				
	<ul> <li>2. Preparer of design document for original issues and amendments to (Avionics): <ul> <li>a. Engineering Drawings.</li> <li>b. Instruction of Continued Airworthiness</li> <li>c. Modification Document.</li> <li>d. Aircraft Flight Manual Supplement</li> <li>e. Service Bulletin</li> <li>f. Design Query Note</li> <li>g. Deviations/Substitutions</li> </ul> </li> </ul>				

DESIGN ENGINEER (DE) – AERO/MECH					
Release Documents	<ol> <li>Preparer of design document for original issues and amendments to:         <ul> <li>Engineering Report</li> </ul> </li> </ol>				
	<ul> <li>2. Preparer of design document for original issues and amendments to (Aero/Mech): <ul> <li>a. Engineering Drawings.</li> <li>b. Instruction of Continued Airworthiness</li> <li>c. Modification Document.</li> <li>d. Aircraft Flight Manual Supplement</li> <li>e. Service Bulletin</li> <li>f. Design Query Note</li> <li>g. Deviations/Substitutions</li> </ul> </li> </ul>				



# 7.0 DESIGN ASSURANCE SYSTEM

A Design Assurance System is the prerequisite for the approval of an AEO. It is considered as an acceptable means of compliance (interchangeable and compatible) to the element of Design Control which is a TAMM requirement Para 3.4.

The Design Assurance System is the organisational structure, responsibilities, procedures and resources to ensure the proper functioning of the AEO.

Design Assurance System is the totality of all measures (organisation, procedures, roles and responsibilities) enabling GAM AEO to carry out the following tasks:

- Carry out type investigations, i.e. to determine the compliance of the design change or repair solution with the applicable airworthiness and environmental protection requirements, so as with the applicable quality standards.
- Achievement of the procedures and responsibilities laid down in this manual.
- Perform periodical self-monitoring of the design assurance system to ensure the adequacy of the design for intended applications and the compliance of the design changes and/or repairs with applicable airworthiness and environmental protection requirements.
- Elimination of weak points detected within self-monitoring by appropriate corrective actions, i.e. to adapt the organisation, procedures and responsibilities to the requirements.
- Periodical project meetings.
- Assurance that tasks contracted to suppliers are also fulfilled according to the criteria shown above.

Design Assurance System includes all areas dealing with the design and continued airworthiness of a type design.

Design Assurance System is valid at design start and expires when the last aircraft built according to the type design has been taken out of service.

Objective of the Design Assurance System is to provide justified confidence in the AEO towards the DGTA and the SDE, and to put the DAR in a position to accept declarations of the AEO concerning compliance of airworthiness and environmental protection requirements without further investigation.

# 7.1 POSITION OF DESIGN ASSURANCE SYSTEM WITHIN THE AEO

The implementation and maintenance of the Design Assurance System is the responsibility of the SDE. He or she has the technical authority to issue directives in all matters of approved AEO, independent of whether or not the affected sections are subordinated to him or her.

The technical authority of the SDE toward all sections, carrying out tasks for the AEO, assures that, even in case of conflict, the requirements of this manual and referenced procedures will be implemented and adhered to.



# 7.2 SIGNIFICANT CHANGES TO THE DESIGN ASSURANCE SYSTEM

The following should be considered as "significant" to the showing of compliance or to the airworthiness or environmental protection of the products:

- Changes in the organisation that contribute directly to the airworthiness or environmental protection (AWO or the independent checking function)
- Change of the management staff (Senior Executive and SDE)
- Substantial reduction in number and/or experience of staff
- Change of facilities which could affect the AEO.
- Change of ownership
- Change of the terms of approval
- Change to the principles of procedures related to:
  - ✓ The design change and repair procedure
    - ✓ The continued airworthiness procedure
    - ✓ The classification of changes and repairs as "major" or "minor"
    - ✓ The approval of the design of minor changes and minor repairs

Significant changes to the Design Assurance System must go through GAM MOC a per stated in para 1.5.3.8 and be approved by DGTA prior to their implementation. The SDE is responsible for submitting the application for approval in writing to the DGTA.

# 7.3 MEASURES FOR SYSTEM MONITORING

The performance of all measures for the independent monitoring of the Design Assurance System is delegated by SDE to the Head of Independent Monitoring Office (HIMO) as specified in Para 6.5.

The HIMO supports the SDE in his or her overall responsibility.

The surveillance of the Design Assurance System also includes the satisfactory integration of subcontractors / suppliers. Therefore, the tasks of this chapter are assigned and to be applied to suppliers. For details, refer to GAM/AEO.P12 (Control of AEO Suppliers)

#### 7.3.1 Auditing

The IMO assures that the AEO as a whole will be audited for compliance with this manual according to the internal audit procedure (ref GAM/AEO.P13).

The audit report has to be presented to the Senior Executive. Corrective / preventive actions, when necessary, should be taken and implemented in coordination with the SDE.

The IMO has the task of coordination and administration of the internal audit system, e.g. audit planning, report preparation, evaluation, corrective action tracking, archiving as well as performing the audits.



# 7.3.2 Reporting

The HIMO shall report periodically to the Senior Executive and SDE about audit results and findings, corrective actions and timely follow-up of open corrective actions. He or she will also inform the Senior Executive about any irregularities.

Furthermore, there will be an annual Management Review meeting during which there will be reports referring to the Design Assurance System or rather necessary corrective actions, which have to be taken.

### 7.3.3 Assessment of the Design Assurance System

Based on audit reports from HIMO and his or her own observations, the SDE prepares a yearly assessment of the Design Assurance system.

This assessment contains:

- Analysis of the effectiveness of the Design Assurance System (the number of audits performed, the number of non-compliances etc)
- Corrective actions initiated (e.g. changes to the DAS) as a result of non-compliances
- A summary of the detected deviations including necessary corrective actions to be initiated and dates for their termination
- Changes to the policy and new objectives for the next year

This review is also the basis for education and trainings as well as for the main emphasis of audits for the next years.

# 7.4 SPECIALISED TASKS

# 7.4.1 Design Review

A Design Review is the design checking of all systems in all important points. It assures that all documentation belonging to affected entity are commonly surveyed using prepared checklists.

The AWO assures that Design Reviews are planned in a timely manner, the execution thereof is carried out in accordance with GAM/AEO.P14, and actions determined in the Reviews are done according to schedule.

Management Design Review shall be carried out once a year on approved Type Investigation projects in accordance with GAM/AEO.P14 to maintain high design quality standard throughout the project and to identify potential areas for improvement in the validation process.



# 8.0 TYPE DESIGN INVESTIGATION

# 8.1 GENERAL

The objective of design activities in GAM is to produce a reliable design, meeting customer requirements as well as the airworthiness specifications and environmental protection requirements and other applicable regulations in a cost and time range.

Type Design is a specification necessary to define the configuration and the design features of the product shown to comply with the requirements applicable to the product. It is also intended to signify compliance with element of Design Control which is a TAMM requirement Para 3.4.

The necessary procedures therefore are described in the following paragraphs.

A Type Design Investigation Programme is created to investigate and show compliance for the proposed design change with the applicable certification basis and to verify that the design characteristics do not endanger flight safety. Furthermore, the preparation and verification of the compliance documents, including documents necessary for the continued airworthiness and safe operation of the aircraft such as supplements to the Flight Manual and Modification Manual, have to be assured.

Nature and scope of the means of showing compliance will be defined in the Certification Plan.

The SDE is responsible for type investigation as a whole.

The AWO will be responsible for coordinating type investigation and ensuring completeness of all proofs of compliance. It will act as a liaison office for the AEO to DGTA.

The responsible persons in the various technical fields (DEVs/DEs) will be officially nominated by SDE.

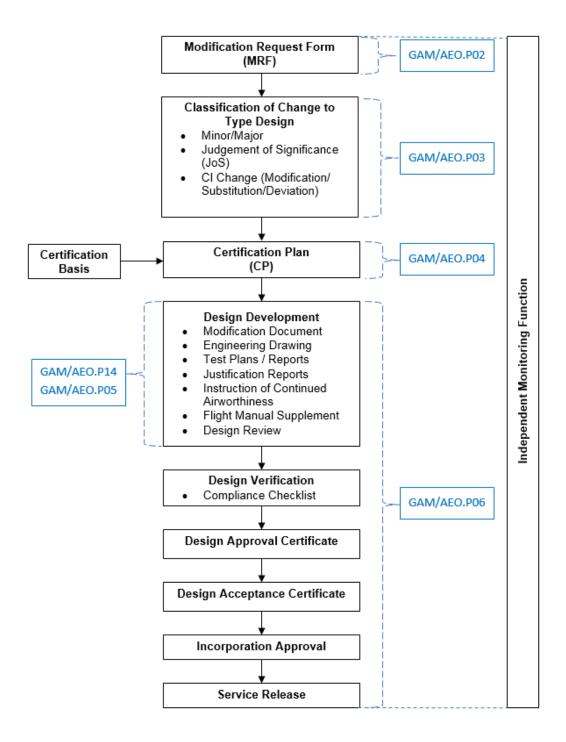
As an authorised signatory, the DEV has to verify the individual compliance documents according to the certification basis. Note that initial showing of compliance shall not be carried out by the same person who will verify compliance.

In summary, AEO performs the following tasks:

- Type investigation within the terms of approval (see paragraph 1.2)
- Providing showing of compliance through preparation of compliance documents
- Verification and declaration of compliance



# 8.2 SCHEMATIC ILLUSTRATION OF DESIGN, DESIGN ASSURANCE AND TYPE INVESTIGATION





# 8.3 METHOD AND PROCEDURES

8.3.1 Modification Request

A modification request is raised through a Modification Request Form. AWO shall ensure that the modification request is within the scope of approval (see paragraph 1.2). See GAM/AEO.P02 for detailed procedure.

AWO shall review all relevant Airworthiness Directives (ADs) to ensure validity of ADs with respect to affected area of design change.

- 8.3.2 Classification of Change to Type Design
  - 8.3.2.1 GAM AEO may propose the classification of changes to type design as either minor or major, CI change classification as modification, substitution or deviation and Judgement of Significance (JOS) as either significant or non-significant by preparing and submitting the Modification Classification Record (form GAM/AEO.F.002) to DAR in accordance with GAM/AEO.P03.
  - 8.3.2.2 DAR from State Aircraft Operator (SAO) shall have the complete authority to accept the proposed change made by GAM AEO as per Para 8.3.2.1 above, or request for reclassification if deemed required.

# 8.3.3 Certification Plan

The purpose of preparing a Certification Plan (form GAM/AEO.F.003) is to identify the applicable airworthiness codes, to put forward means of compliance with each requirement and to demonstrate compliance with the certification requirements.

The Certification Plan shall be prepared and managed in accordance with GAM/AEO.P04.

In the Certification Plan, applicable airworthiness requirements according to certification basis as well as method of showing compliance as stipulated in chapter 8.3.3.2, compliance documents, project schedule, delegation and resource planning will be defined. In addition, requirement for a Flight Manual Supplement shall be identified and justified in the Certification Plan.

# 8.3.3.1 Showing of Compliance

In line with a design, it is necessary to qualify the final product and to validate the design results. Therefore, the product will undergo a series of theoretical and experimental examinations. Nature and scope of the showing of compliance are bindingly defined in the Certification Plan.



The results of the theoretical design work will be documented in the form of Engineering Drawings, Justification Reports (Safety Assessment, Structural Substantiation, ...) and manuals (FMS, ICA, ...).

Documentation coming from the experimental showing of compliance consists of ground tests, flight tests, vibration tests etc. In line with the Certification Plan, the required scope of testing will be specified by a test plan giving all necessary details.

# 8.3.3.2 Means of Compliance

A standard list of Means of Compliance is adopted by the AEO for showing compliance to airworthiness requirements and shall be clearly stated in the Certification Plan. The following codification shall be used for specifying means of compliance:

A. Engineering evaluation		
• MC0	Compliance Statement	
• MC1	Design Review	
• MC2	Calculation, Analysis	
• MC3	Safety Assessment	
B. Tests		
• MC4	Laboratory Tests	
• MC5	Ground Tests	
• MC6	Flight Tests	
• MC8	Simulation	
C. Inspection		
• MC7	Inspection / Audit	
D. Equipment Qualification		
• MC9	Equipment Qualification	

# 8.3.3.3 Definition of Codification

A. Engineering Evaluation
MC0 Compliance Statement
• Direct answer in Compliance Checklist Document
<ul> <li>Definition taken into account</li> </ul>
<ul> <li>Application of a required factor</li> </ul>
<ul> <li>Reference to Type Design documents, require engineering standard, process specification</li> </ul>
Reference to other requirements

### MC1 Design Review

• Any document of descriptive nature

required manuals,



- Descriptive Note / Technical Note
- Technical Specifications
- Drawings

# MC2 Calculation, Analysis

- Substantiation report based on analysis or calculation
- Structural analysis, Dynamic analysis, Aeroelastic evaluation report, Analysis of experimental data, Demonstration by analogy, Electrical load analysis, Synthesis report

### MC3 Safety Assessment

- System Safety Assessment
- Risk Minimization Analysis
- Design Assessment
- Critical Parts Plan

# B. Tests

### MC4 Laboratory Tests

- Any testing on components, sub-assemblies, sub-systems or systems, except testing on aircraft itself
- Associated compliance documents (Test Plan / Report)

# MC5 Ground Tests

- Testing on aircraft itself
- Associated compliance documents (Test Plan / Report)

# MC6 Flight Tests

- Testing on aircraft in flight
  - when required (performance, handling qualities, cooling)
  - whenever compliance cannot be fully shown by other means (crew workload, failure assessment)
- Associated compliance documents (Test Plan / Report)

# MC8 Simulation

- Simulator testing
  - for safety reasons (hazardous failure conditions assessment), or
- for economic reasons (to reduce flight testing)
- Associated compliance documents (Test Plan / Report)

# C. Inspection

# MC7 Inspection

- Design inspection
  - Conformity inspection on manufactured articles
  - Authorities inspection on aircraft of complex installations or specific features difficult to assess differently
- Software/Hardware Audit



 Authorities audit of software or complex electronic hardware Development

#### **D. Equipment Qualification** MC9 **Equipment Qualification**

- Process which may include all previous means of compliance to provide evidence of adaptation for use on the aircraft
- Equipment qualification processing depending on:
  - Safety classification
  - Experience
  - Novelty of technology used
- Associated compliance documents:
  - Qualification reports (equipment, software, tool, hardware)
  - Declaration of Design and Performance (DDP)
- 8.3.4 Type Design Documentation

The type design documentation package is a set of documents required to accomplish the Type Investigation process. Refer to GAM/AEO.P05 for details.

8.3.4.1 Compliance Documents

Compliance Documents are used for showing compliance to airworthiness regulations and test procedures during type investigation and they are the basis for production, traceability and operations.

The kinds of Compliance Documents applicable to the AEO are summarised in the table below:

Compliance Documents			
Compliance Checklist Document			
Engineering Drawings			
General Arrangement			
<ul> <li>Structural Drawings</li> </ul>			
Wiring Diagrams			
•			
Justification Reports			
<ul> <li>Structural Substantiation</li> </ul>			
Safety Assessment			
•			
Test Reports			
Ground Test Report			
Flight Test Report			
•			



Information and Instructions for Continued Airworthiness

- Modification Manual
- Service Bulletin

The documents are prepared, provided that it is necessary for the Type Investigation programme and for showing of compliance according to the Certification Plan.

# 8.3.5 Signature Rules

8.3.5.1 Compliance Documents

The checking and approval of all compliance documents takes place by signature on the cover sheets, with the rules stated below.

For further information regarding persons authorised as signatories within the AEO, see GAM/AEO.P01.

# 8.3.5.2 "Prepared by"

This signature field signifies the technical definition and showing of compliance by a qualified DE in his or her respective technical field.

8.3.5.3 "Verified by"

This signature field signifies the independent checking, which is part of the Design Assurance System, by a qualified DEV in his or her respective technical field. In order to guarantee independent checking, the "Prepared by" and "Verified by" signatures **shall not** be given by the same person.

All compliance documents of suppliers shall only be verified and signed by DEV in his or her respective technical field.

By his or her signature, the DEV shall confirm verification of compliance with all applicable airworthiness and environmental protection requirements as defined in the Type Investigation programme.



# 8.3.5.4 "Approved by"

This signature field signifies that all compliance documents have been checked for completeness by SDE.

By his or her signature / stamp, the SDE shall approve the release of the document.

## 8.3.6 **Compliance Checklist Document**

After completion of all investigation, analyses, tests and completion of the type investigation programme, a Compliance Checklist Document (CCD) is established to document the achieved showing of compliance and to show certification records. (Use GAM/AEO F.012)

The CCD summarises the certification project and contains a list of all applicable airworthiness regulations, means of compliance, statement of compliance and the corresponding compliance documents.

The completion of Type Investigation programme will be confirmed by signature of SDE on the CCD.

### 8.3.7 **Design Approval Certificate**

SDE shall confirm the airworthiness of the design change in particular by a signature on the Design Approval Certificate (Form GAM/AEO.F.015) and in his absence, the SE will sign by stating that,

- The design change has been subject to investigation and it has shown to fulfil the applicable airworthiness and environmental protection requirements and it does not impair safety.
- The compliance documents, including affected publications, have been completed, verified, and approved.
- The design change complies with the Type Investigation procedures laid down in chapter 8 of this manual.
- The AEO undertakes the responsibility for malfunction, defect and failure reporting laid down in chapter 10.2 of this manual and will assume compliance with airworthiness codes.



# 8.3.8 Acceptance of Change by SAO's Design Acceptance Representative (DAR)

Design Acceptance is the determination of the technical acceptability of a design to the SAO. Design Acceptance is a quality management process comprises four phases:

- Specification of requirement
- Determination of Competency
- Verification of Requirement Satisfaction
- Certification of Requirement Satisfaction

GAM shall liaise with SAO's DAR for the specific design acceptance requirement, and provide all necessary supporting documents, which include Design Approval Certificate (refer Para 8.3.7) and a complete Type Investigation documents summarised by a Master Document List as per GAM/AEO.P06 that will be required for the SAO's DAR to issue a Design Acceptance Certificate.

# 8.4 CONFIGURATION ITEM (CI) MANAGEMENT

CI Management System is established to control and verify configurations to ensure that specified requirements are met if CI Management is specified in the work scope of individual project under taken by GAM.

For the purposes of TAMM regulation, all communication and interaction between GAM and operational authorities is to be conducted through the Sponsor AEO, except for those instances where the Sponsor AEO directs otherwise.

8.4.1 Technical Information Review

Technical Information Review system is established to monitor technical issues affecting the CI and initiate action needed to ensure that adequate levels of performance and safety are maintained. Refer to GAM/AEO.P09 for Technical Information Review procedures.

- 8.4.2 Maintenance Engineering Analysis (MEA) Reserved.
- 8.4.3 Aircraft Structural Integrity Management Reserved.
- 8.4.4 Engine Structural Integrity Management Reserved.



# 8.4.5 Modifications

Except for those configuration changes to be managed as substitutions or deviations, all configuration changes to a CI shall be managed as Modification. GAM shall manage the modification changes as a design change and the procedure shall follow the same procedure as required. Refer GAM/AEO.P05 and GAM/AEO.P06 for the procedures.

## 8.4.6 Substitutions

Configuration changes are managed as substitutions if a new part is to be authorized for used in a CI as alternative to, or replacement for, a currently approved part and the configuration change has no other effect on the functionality, interface characteristics or logistics support requirements of the affected CI.

8.4.7 Deviations

Configuration changes to CIs are managed as deviation where; by reason of accidental, production error, deterioration or unavailability of material or parts, or any other occurrence.

- 8.4.8 Aircraft Stores Clearance and Certification Reserved
- 8.4.9 Aerial Delivery Clearance Reserved
- 8.4.10 Special Technical Instructions (STIs)

Special technical Instruction (STI) management system is established to issue of those design change and continuing airworthiness instructions whose urgency cannot be satisfied by other types of implementing instructions. STI shall be issued by GAM in the form of Service Bulletin. Refer to GAM/AEO.P15 for the procedures.

# 8.4.11 Incorporation Approval

Incorporation Approval is granted only by the Senior Executive of GAM as applicable or a nominated representative of the Senior Executive within the limits and in accordance with the requirement of a written delegation.

Incorporation Approvals are granted only if the Senior Executive or a nominated representative has determined that:

- A Design Acceptance certificate has been issued for the design.
- Authorized personnel have approved draft-implementing instructions for the change.
- Operational endorsement of implementing instructions had been granted for any design change, which affects



functional performance or the operational characteristic of the aircraft.

Where a proposed design change will have an effect on functionality, interface or logistic support requirements of higher level items, or requires a complimentary change to higher level items, Incorporation Approvals has been endorsed and,

For safety related changes, where the condition as above has been made, any decisions not to provide Incorporation Approval, or to not comply with recommended incorporation timeframes, is endorsed by Senior Design Engineer (SDE).

Refer to GAM.F.035 for Incorporation Approval form.

# 8.4.12 Service Release for Minor Changes to Type Design

Service Release shall include all engineering, logistics and operational matters are complete, or alternatively approved processes are in place to resolve outstanding issues, prior to the release into service of these types and design changes. Service release shall be issued by SAO.

Refer to GAM.F.036 for Service Release form.

# 8.4.13 Management of Type Design Data

Management of Type Design Data will ensure only current and relevant data is used for design activities. GAM shall ensure the relevancy and currency of all design data. All design data shall be kept in individual project file. Refer GAM/AEO.P06 for procedures.

# 8.4.14 Instructions for Continuing Airworthiness (ICA)

ICA information is necessary to fully disclose a design and redress departures from the initial design condition as a result of degradation and operation. The ICA is documented in the technical series publications, which include

- Flight Manuals
- Maintenance Manuals
- Repair and Overhaul Manuals
- Illustrated Parts Breakdown
- Technical Maintenance Plans

Refer to section 10 (Continued Airworthiness) and GAM/AEO.P16.for further details.

### 8.4.15 Flight Manuals and Aircraft Operating Instructions Refer to GAM/AEO.P08 for management of flight supplement and GAM/AEO.F010.(Flight Manual Supplement)



# 8.4.16 Weight and Balance

Reserved

## 8.4.17 Non-Destructive Testing

All proposed NDT procedures shall be originated by OEM.

8.4.18 Production

GAM shall establish and maintain a production control and management system with the outsourcing provider. All manufacturing and assembly of the products shall be conducted by Approved Maintenance Organisation/Certified organisation as GAM's production.

Refer GAM/AEO.P12 for Control of Authorised Engineering Organisation Supplier.

8.4.19 Modification Installation

The modification installations for the approved Type Design developed under this EMP shall be implemented by Approved Maintenance Organization/Certified Organisation.

# 8.5 RECORDING / CONFIGURATION MANAGEMENT

The management of design change, including assignment of Modification Number, drawing number(s), Modification Manual number etc, documenting status of data approvals, shall be performed according to GAM/AEO.P06, Documentation Management System which is directly compatible and interchangeable with the terminology "Document Control" as stipulated in TAMM requirement Para 3.3.10.

8.5.1 Master Document List

The Master Document List is a configuration management document, listing all Type Design documents in the framework of a Type Investigation programme. It is also used to track revision and applicability of each document.

# 8.6 RECORD KEEPING

The Technical Publications responsible shall keep the Type Design Documentation readily available for inspection by the DGTA at any time on file for at least 2 years after the aircraft has been written off or permanently withdrawn from the service.

The type design data shall be filed in hardcopy in the Technical Library and also digitally in the AEO server. Data backup will be done monthly by IT Department. The process of archiving Type Design Documentation is defined in GAM/AEO.P06.



# 8.7 DOCUMENTATION DISTRIBUTION

The applicable type design data shall be properly distributed from AEO in accordance with GAM/AEO.P06.

# 8.8 SPECIAL PROCEDURES DURING TYPE INVESTIGATION

### 8.8.1 Prototyping / First Article Inspection

Prototyping is meant for manufacturing components, parts and appliances, either in-house production, external production, or from procurement processes, according to released Engineering Drawings of the AEO (refer to GAM/ AEO.P10) and within the range of prototyping or single-part production as first article for testing.

Prototyping must be based on the AEO-approved prototype Engineering Drawings and initiated by AWO with the form "Request for Conformity / Test" (ref GAM/ AEO.F.022) to the assigned persons.

Conformity of the manufactured parts is checked and confirmed on the form "Conformity Inspection Report" (ref GAM/ AEO.F.023) by AWO.

The disposition of discrepancies will be stated in the form and if further inspections are needed, the procedure stated in this paragraph shall be adhered to. Non-conforming articles shall be handled in accordance with corresponding Maintenance Organisation procedure.

See GAM/AEO.P10 for detailed instructions.

#### 8.8.2 First Aircraft Installation

In the frame of First Aircraft Installation, the design change will be installed and tested in a test aircraft, if it involves testing or design inspection as defined in Certification Plan.

The successful completion of article inspection, laboratory tests (as per paragraph 8.8.1) and justification reports (as per paragraph 8.3.4.1) is a prerequisite for such an installation. The installation and its conformance will be initiated by the "Request for Conformity" form and confirmed on the "Conformity Inspection Report" by AWO.

All test plans should be reviewed by the respective inspection / test personnel prior to release. In doing so, the compatibility of interfaces with next higher assemblies, respectively the aircraft, can be examined, as well as compliance of the design with the airworthiness codes can be checked.

The results of these tests will be documented in the Test Reports according to chapter 8.3.4.1 and is subjected to evaluation and approval respectively by AWO.

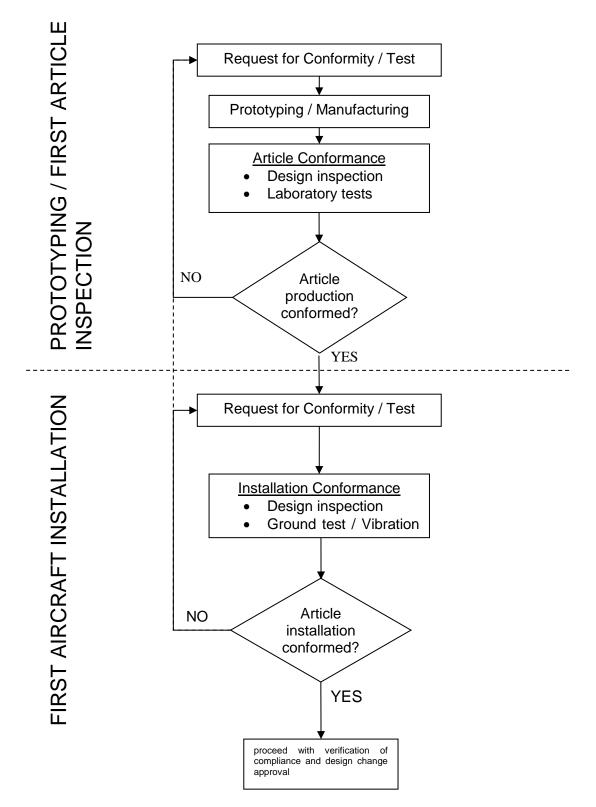


In addition, the completion of the tests and disposition of discrepancies shall be indicated and verified on the "Conformity Inspection Report". If further tests are needed, the procedure stated in this paragraph shall be adhered to. Non-conforming articles shall be removed from aircraft and handled in accordance with corresponding Maintenance Organisation procedure.

See GAM/ AEO.P10 for detailed instructions.



8.8.3 Process Flow for Prototyping, First Article Inspection and First Aircraft Installation





# 9.0 REPAIR

In case of a repair which is not covered by the existing Repair Manual of the Type Certificate holder, the AEO shall be informed by the operator or Maintenance Organisation. DAR from State Aircraft Operator (SAO) shall have the authority to classify the repair as "minor" or "major".

If classified as 'major', repair cannot be conducted by the AEO and DGTA shall be informed for issuance of repair approval sheet.

If classified as 'minor', the DE and/or DEV shall proceed with repair design in accordance with GAM/AEO.P11.

Approval of repair shall be done by a signature on the Design Approval Certificate in accordance with para 8.3.7.



# **10.0 CONTINUED AIRWORTHINESS**

# 10.1 ISSUING OF INFORMATION AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Design changes may lead to updates of the Technical Documentation relevant to the use and maintenance of the aircraft. Such Technical Documentation typically consists of the following:

- 1. Use of A/C
  - Flight Manual Supplement (FMS)
- 2. Maintenance of A/C
  - Instructions of Continued Airworthiness (ICA)
- 3. In-Service Technical Documentation
  - Service Bulletin (Alert, Mandatory or Optional)
  - Modification Document

### 10.1.1 Flight Manual Supplement (FMS)

The Flight Manual contains instructions and information necessary to the flight crew members for the safe operation of the aircraft. A supplement of flight manual is only required for a design change when there is a need to add to or vary the information that is required to be provided in an Aircraft Flight Manual under the design standard for an aircraft.

AEO activities with regard to updating Aircraft Flight Manual are relevant to the following cases:

- Preparation of new FMS when required for **minor design** changes or repairs.
- Documentary changes or revisions to approved FMS previously issued by the AEO.

For FMS documentary changes, an authorised signatory stated in GAM/AEO.P01 shall be responsible by signing on the Design Query Note form on the 'Airworthiness Approval' field, which serves as approval sheet. The revised FMS shall be approved by a signature and stamp by the authorised signatory on the Log of Revisions page of the FMS.

Refer to GAM/AEO.P08 for detailed procedure to manage FMS.



# 10.1.2 Instructions for Continued Airworthiness

In the frame of minor changes and repairs when dedicated maintenance directives are necessary, supplements to existing Instructions for Continued Airworthiness will be prepared and issued. Its content must cover areas of Aircraft Maintenance Manual and Illustrated Parts Catalogue affected by the design change.

The basic Aircraft Maintenance Manual is primarily composed of:

- the Airworthiness Limitations Section
- the maintenance programme (inspection schedule and maintenance checks)
- the detailed maintenance directive (maintenance procedures, wiring diagram, Component Maintenance Manual)

Refer to GAM/AEO.P16 for further details on ICA.

10.1.3 TAAI / TI / STI (AD / ASB / SB etc.)

See chapter 10.2.7 of this EMP.

- 10.1.4 Modification Document (MD)
  - 10.1.4.1 A modification document is a document providing details, such as planning information, accomplishment instructions & material information, which are needed to implement a change on the product or a repair. It is issued to provide maintenance organisation with all necessary data for the performance of installation with respect to a design change.
  - 10.1.4.2 For repairs, a Repair Design Approval Sheet may be prepared in accordance with GAM/AEO.P11 to issue information and accomplishment instructions in lieu of a Modification Document.



# 10.1.5 Release of Information Issued by the AEO

All Technical Documentation related to issue of information or instructions shall be signed by a qualified DE Verification in his/her respective technical field on the 'Verified by' field to confirm the following:

- verification of technical consistency with corresponding approved design change(s), repair(s) or approved data;
- verification of the feasibility in practical applications

These documents shall be signed by SDE to confirm completeness checking and to approve the release of the document. If applicable, the documents (or rather parts of it) have to be approved by the Authority before issuing.

In the case of SB, the approval shall be given on a separate Service Bulletin Approval Sheet. Refer to GAM/AEO.P15 for detailed approval process.

10.1.6 Distribution of Information issued by the AEO

Once a minor change / repair is approved, the AEO provides, where applicable, instructions for continued airworthiness (FMS, ICA or SB, Alert SB, etc.) to all known operators of aircraft equipped with this design change in accordance with GAM/AEO.P06. The AEO will also provide the same information to any other persons, who would need to comply with it.

# **10.2 MALFUNCTION, FAILURE AND DEFECT REPORTING**

10.2.1 Malfunction Alert and Collection of Malfunction Data

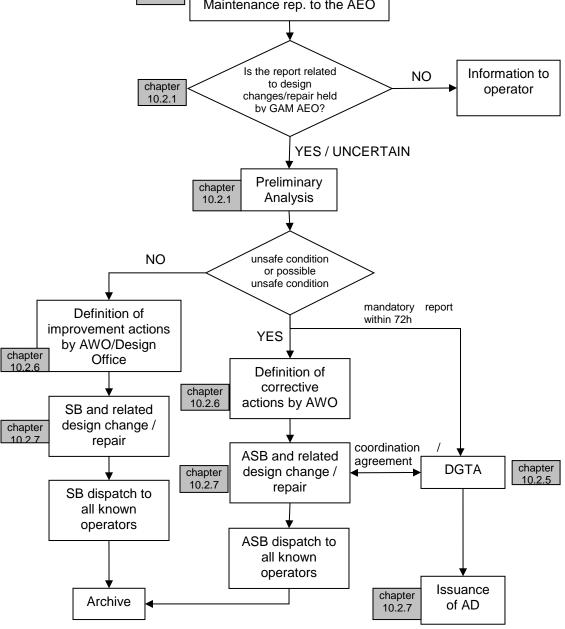
Failures, malfunction and defects (also known as incidents) that occur in service on approved minor change / repair designed by the AEO are collected and analysed by the AEO and further processed when the flight safety of the aircraft on which these are installed is impaired. The process therefore is visualized in para 10.2.2.

All data regarding those incidents is collected by the AEO and will be analysed by the AWO. Operators or Maintenance representatives are expected to submit Technical Information Review (TIR) (form GAM/AEO.F.019) by filling out the form in accordance with GAM/AEO.P09.



# Chapter 10.2.1 Technical Information Review (TIR) from Operator or Maintenance rep. to the AEO Is the report related NO Information to

10.2.2 Process Flow for Malfunction, Failure and Defect Reporting



10.2.3 Responsibility

The Airworthiness Office (AWO) investigates (if necessary with support of the Design Office) each incident and must determine if the incident is related to an approved design change / repair held by the GAM AEO.



If there is no conjunction to GAM AEO design changes, the AWO shall inform the operator and/or other related parties such as STC holder.

In all cases, the management of incidents is the responsibility of the AWO. In that respect, the AWO shall involve all parties of the AEO in time. For the purpose of process tracking, the Technical Information Review shall be registered in the Master Database (see GAM/AEO.P06) by the AWO.

The AWO is responsible for the final approval of Service Bulletins.

#### 10.2.4 Classification of Incidents

The AWO conducts a preliminary evaluation in order to determine whether the incident affects flight safety.

Flight safety is affected when the incident results in an unsafe condition. An unsafe condition exists if there is factual evidence that:

An event may occur that would result in fatalities, usually with the loss of the aircraft, or reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:

- (i) A large reduction in safety margins or functional capabilities, or
- Physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely, or
- (iii) Serious or fatal injury to one or more occupants unless it is shown that the probability of such an event is within the limit defined by the applicable airworthiness requirements, or
- (iv) There is an unacceptable risk of serious or fatal injury to persons other than occupants, or
- (v) Design features intended to minimise the effects of survivable accidents are not performing their intended function.

If flight safety could be affected, DGTA must be informed and corrective actions are to be taken in the shortest possible time frame by AWO and/or DO. If the preliminary analysis shows that there is no flight safety concern, the AWO forwards the necessary information to the DO for improvement actions as appropriate according to chapter 10.2.6 of this EMP.

#### 10.2.5 Notification of Incidents affecting Flight Safety

In cases where the incident has led or could lead to an unsafe condition, the AWO must directly and immediately inform the DGTA on behalf of the SDE about the incident, with available details at that time.



Within 72 hours, the Technical Information Review, which contains all necessary information, will be forwarded to the DGTA. These procedural instructions ensure early information and participation of all responsible AEO sections by the AWO.

#### 10.2.6 Corrective Actions of Notified Failures, Malfunction and Defects

If first investigation has shown that flight safety could be affected, the AWO shall summon a temporary committee called Corrective Action Board (CAB) consisting of selected members of the AEO, including SDE, Design Office and Quality representatives. The CAB shall define further measures for investigation, analyses and corrective actions to be conducted regarding the incident.

If corrective or improvement actions in approved Type Design Documentation become necessary, this will be carried out according to the instructions of Design Query Note as per GAM/AEO.P09.

In order to allow embodiment of corrective actions on the aircraft concerned by the incident, a relevant Service Bulletin is prepared.

When all corrective or improvement actions have been performed, it shall be updated on the SDR and closed by AWO.

#### 10.2.7 TAAI / TI / STI (AD / ASB / SB etc.)

If it is necessary to apply corrective actions in order to restore or obtain a safe condition, the DGTA or any other responsible aviation authority shall issue an TAAI / TI / STI. The AWO has the obligation to assist the authority by providing all necessary technical data.

Any TAAI / STI / TI is to be reviewed with a TIR in accordance with GAM/AEO.P09 to monitor technical issues affecting the CI and initiate action needed to ensure that adequate levels of performance and safety are maintained. The prepared TIR and all related data shall be forwarded by the AWO to the DGTA for review. The data necessary for corrective actions, which will be forwarded to the DGTA, should be approved by the CAB beforehand.

After DGTA agreement, the AEO may issue the TIR to all users, owners and all other persons who may be affected by the unsafe condition.

If the incident is not an unsafe condition, the DGTA may not be involved in the matter and improvements, however TIR shall still be initiated in accordance with GAM/AEO.P09.



# 11.0DESIGN SUPPORT NETWORK

# 11.1 ROLE OF DESIGN SUPPORT NETWORKS (DSN)

Listed below are the networks to support the present in-service design activity. Current status of DSN are also stated.

In the event that certain design engineering tasks required is beyond its capability, GAM shall outsource the work to external agencies as on request basis. The external agencies shall be one, which is listed in the design support network. Other agencies, which are, established aviation services providers can also be considered on a case by case basis. Evaluation of the expertise and experience of external agencies is detailed in GAM/AEO.P12.

NO	Organisation	Status	Scope and Level of Support Provided	How Services are to be treated	Third Party Data Release Protocols
1	DGTA	Airworthiness	Scope: Formulation and regulation of the State Technical Airworthiness Regulation		Not Applicable
2	RMAF	Sponsor AEO	Scope: Sponsor AEO	Sponsor AEO	Not Applicable
3	GADING KASTURI	Production/ Modification Installation	Scope: Fabrication of support bracket Fabrication of wiring harnesses Level: Certificate of Conformance (C of C) of the products	Design Support Network	Not Applicable
4	Airbus Helicopter	OEM	Scope: OEM for EC120B	Design Support Network	Not Applicable
5	DART Aerospace	OEM	Scope: OEM for Emergency Floatation System	Design Support Network	Not Applicable
6	Onboard System	OEM	Scope: OEM for Cargo Hook Sling System	Design Support Network	Not Applicable



# APPENDIX 1: APPOINTMENT, SELECTION CRITERIA/COMPETENCY AND RESPONSIBILITIES

G/	GAM Appointment: Senior Design Engineer (SDE)			
	Selection Criteria/Competency		Responsibilities	
1.	Minimum Engineering Degree or satisfy the requirements for Chartered Professional Engineer (CPEng) membership in the Institution of Engineers, Malaysia.		Responsible and has direct access to Senior Executive for ensuring that the requirement of STAR is complied with at all times. Assuring there are sufficient and competent	
2.	Relevant experience in the management of a design and CI Management system within a quality framework.		personnel to plan, perform, supervise, review, control and certify all engineering activities. To appoint DSDE provided the person satisfies all criteria normally applied to a SDE.	
3.	Demonstrate high level of professional knowledge on the applicable weapon system, equipment or technology, acquired either through relevant prior experience and/or formal training.	5.	To approve all designs judged as significant. To authorize DSDE or DE to perform SDE functions during his absence on design control and maintaining the EMS. To authorize non-DEs to approve designs judge	
	Confidence to undertake independent design review and approval. Maturity and integrity to identify situations that are beyond his/her competency and capability.		as non-significant. Maintaining the EMS internal evaluation system and ensure that the EMS is understood, implemented and maintained at all levels. Assuring that subcontractor engineering activity complies with both the systems and procedures as agreed and the technical requirements	
		9.	specified for that activity. Advise CEO on any arising matter and to carry out any other duties related to design and engineering as assigned by CEO.	



AEO Appointment: Deputy Senior Design Engineer (DSDE)				
	ection Criteria/Competency		Responsibilities	
	Minimum Engineering Degree or satisfy the requirements for Chartered Professional Engineer (CPEng) membership in the Institution of Engineers, Malaysia.		Develop engineering design for relevant design work To assist establishing, maintaining and ensuring Engineering Design procedures as documented operates in accordance with GAM's Engineering Management Plan (EMP)	
2.	Relevant experience in the management of a design and CI Management system within a quality framework.	3.	To develop and maintain relevant Technical Service Network to the extend required to meet the engineering responsibilities.	
3.	Demonstrate high level of professional knowledge on the applicable weapon system, equipment or technology, acquired either through relevant prior		To advise the relevant authority through Airworthiness Office of any changes that may affect the basis on which Organization Engineering Authority has been assigned and where necessary, seek revision. Perform positive design judgment categorized	
	experience and/or formal training.	5.	as significant prior to review by SDE.	
4.	Confidence to undertake independent design review and approval. Maturity and integrity to	6.	Perform positive design judgment categorized as non-significant.	
5.		7.	Perform design verification for Design Engineer (DE).	
	identify situations that are beyond his/her competency and capability.	8.	Advise SDE on any arising matter and to carry out any other duties related to design and engineering as assigned by SDE.	



AEO A	AEO Appointment: Design Engineer Verification (DEV)			
	ection Criteria/Competency	Responsibilities		
1.	At least a holder of Degree in Engineering / or any related field appropriate to the scope of AEO.		Develop engineering design for design work related To advise the relevant authority through	
2.	At least 3 years of design and engineering experience in the required technical field(s), and demonstrate an excellent		Airworthiness Office of any changes that may affect the basis on which Organization Engineering Authority has been assigned and where necessary, seek revision.	
	understanding of related design standards.	3.	Perform positive design judgment categorized as non-significant.	
3.	At least 3 years of experience in continued airworthiness and modification processing.	4.	Perform design verification for Design Engineer (DE).	
4.	Demonstrate to have profound knowledge about the details of the compliance showing process.	5.	Advise SDE on any arising matter and to carry out any other duties related to design and engineering as assigned by SDE.	
5.	Demonstrate to have good knowledge and understanding in related regulatory requirements as well as interpretations and means to provide compliance with these requirements.			
6.	Experienced in identifying areas in the respective compliance documents and information or instructions for continued airworthiness which have to be corrected, reworked or improved from the technical point of view.			



AEO A	AEO Appointment: Design Engineer (DE)			
Selection Criteria/Competency		Responsibilities		
1.	Tertiary Education in	1.	Develop engineering design for design work	
	Engineering or relevant		related	
	Engineering Discipline			
		2.	To develop and maintain relevant Technical	
2.	Relevant experience in design		Service Network to the extend required to	
	development and review		meet the engineering responsibilities.	
	activities.			
		3.	Perform positive design judgment categorized	
3.	A demonstrably high level of		as non-significant.	
	professional knowledge on			
	the applicable weapon	4.	Advise SDE/DSDE on any arising matter and	
	system, equipment or		to carry out any other duties related to design	
	technology.		and engineering as assigned by SDE/DSDE.	
4.	Sufficient confidence to			
	undertake independent			
	design			
	review.			



# **APPENDIX 2: REGULATION COMPLIANCE MATRIX**

The following matrix indicates means of compliance and cross-reference the regulation stipulated in TAMM to the existing GAM AEO to demonstrate compliance with TAMM PU2103, 2<sup>nd</sup> Edition requirement.

Regulation No	Regulation Title	GAM Reference Doc.
1	APPLICATION OF REGULATIONS AND PROCEDURAL RULES	
1.1	General	Noted
1.2	Rule Making	Noted
1.3	Application of These Regulations	GAM/EMP-01
		-Para 1.1
1.3.1	Exemptions	Noted
1.4	Technical Airworthiness Directive and Technical	Noted
	Airworthiness	
	Advisory Circular	
1.5	Rules of Interpretation	Noted
1.6	Design Acceptance Representative	Not Applicable
1.6.1	Applicability	Not Applicable
1.6.2	Notification for Delegation	Not Applicable
1.6.3	Scope of Authority	Not Applicable
1.6.4	Eligibility	Not Applicable
1.6.5	Certificate of Authority	Not Applicable
1.6.6	Duration of Certificate	Not Applicable
1.6.7	Delegation of DAR Responsibilities	Not Applicable
1.7	Airworthiness Standards Representative (ASR)	Not Applicable
1.7.1	Applicability	Not Applicable
1.7.2	Notification for Delegation as an ASR	Not Applicable
1.7.3	Eligibility	Not Applicable
1.7.4	Certificate of Authority	Not Applicable
1.7.5	Duration of Certificate	Not Applicable
1.7.6	Delegation of ASR Responsibilities	Not Applicable
2	TYPE CERTIFICATION, SERVICE RELEASE AND DESIGN ACCEPTANCE	
2.1	General	Title
2.1.1	Applicability	Noted
2.2	Type Certification	Title
2.2.1	Applicability	Noted
2.2.2	Issue of a Malaysian State Type Certificate Recommendation	Noted
2.3	Changes to the Type Design	Title
2.3.1	Design Acceptance system for changes to Type Design	Noted
2.3.2	Classification of changes in Type Design	GAM/EMP-01
		-Para 8.3.2
		GAM/AEO.P03
2.3.3	Changes Requiring a New Malaysian State Type Certificate	Not Applicable
2.3.4	Supplemental Type Certification	Noted
2.4	Design Acceptance for Major Change to Type Design	Title
2.4.1	Issue of a Design Acceptance Certificate for Major Change	GAM/EMP-01
		-Para 8.3.8 -Para 8.7
		GAM/AEO.P06



Regulation	Regulation Title	GAM Reference Doc.
No 2.4.2	Statement of Requirements for Major Change	GAM/EMP-01
2.4.2	Statement of Requirements for Major Change	-Para 8.3.8
		-Para 8.7
		-1 ala 0.7
		GAM/AEO.P06
2.4.3	Statement of Operating Intent (SOI)	Noted
2.4.4	Recognition of prior acceptance	Noted
2.4.5	Type Design	GAM/EMP-01
		-Para 8.3.4.1
		-Para 8.3.8
		-Para 8.7
		GAM/AEO.P05
		GAM/AEO.P06
2.4.6	Type Record	GAM/EMP-01
		-Para 1.5.5.6
		-Para 8.3.4.1
		-Para 8.3.8 -Para 8.7
		-Fala 6.7
		GAM/AEO.P06
2.4.7	Compliance finding	Noted
2.5	Airworthiness Standards for Design Change	Title
2.5.1	Airworthiness Standards for Major or Minor Change	Noted
2.6	Special Flight Permit	Title
2.6.1	SFP Submission and Recommendation	Not Applicable
2.7	Service Release for New Aircraft or Major Change to Type	Title
2.1	Design	The
2.7.1	Service Release Submission and Recommendation	Noted
2.8	Design Acceptance for Minor Change to Type Design	Title
2.8.1	Issue of a Design Acceptance Certificate for Minor Change	GAM/EMP-01
		-Para 8.3.8
		-Para 8.7
		GAM/AEO.P06
2.8.2	Statement of Requirements for Minor Change	GAM/EMP-01
2.8.2	Statement of Requirements for Minor Change	-Para 8.3.8
		-Para 8.7
		-1 ala 0.7
		GAM/AEO.P06
2.8.3	Assumption of Design Acceptance Certification for Minor	Noted
	Change	
2.9	Certificate of Airworthiness	Title
2.9.1	Issuance and Cancellation of Certificate of Airworthiness	Noted
2.9.2	Review of Certificate of Airworthiness	Noted
2.10	Other Certification Issue	Title
2.10.1	Notification of Unairworthy Conditions	Noted
2.10.2	Change to Planned Withdrawal Date	Noted
2.11	Civil Leased Aircraft	Title
2.11.1	Definition	Not Applicable
2.11.2	Applicability	Not Applicable
2.11.3	Recognition of civil aviation regulatory systems	Not Applicable
2.11.4	Continue Compliance	Not Applicable
2.12	Unmanned Aircraft System	Title
2.12.1	Definition	Not Applicable
2.12.2	Applicability	Not Applicable
2.12.3	Initial Requirement	Not Applicable



Regulation No	Regulation Title	GAM Reference Doc.
2.12.4	Registration	Not Applicable
2.12.5	Requirements	Not Applicable
2.12.6	Flying Operations	Not Applicable
2.12.7	Incident/Accident Reporting Procedures	Not Applicable
3	AUTHORISED ENGINEERING ORGANISATIONS	Title
3.1	General	Title
3.1.1	Applicability	Noted
3.2	Engineering Authority Certificates	Title
3.2.1	Applicability	Noted
3.2.2	Certificate Required	GAM/EMP-01
0.2.2		-Para 3
3.2.3	Sponsor AEO Requirements	Noted
3.2.4	Application	Noted
3.2.5	Audits	GAM/EMP-01
0.2.0		-Para 4.4.3
3.2.6	Issue of Engineering Authority Certificate	GAM/EMP-01
5.2.0	Issue of Engineering Autionty Certificate	-Para 3
3.2.7	Validity of Engineering Authority Certificate	GAM/EMP-01
0.2.1		-Para 3
3.2.8	Engineering Management Plan	GAM/EMP-01
3.3	General Requirements of Issue	Title
3.3.1	Definitions	Noted
		GAM/EMP-01
3.3.2	Personnel	-Para 4.2.1
		-Para 4.2.1 -Para 6.6
		GAM/AEO.P01
3.3.3	Design Support Networks	GAM/EMP-01
		-Para 11
3.3.4	Design Control System	GAM/EMP-01
		-Para 8
3.3.5	Configuration Item Management System	GAM/EMP-01
		-Para 8.4
3.3.6	Data	GAM/EMP-01
		-Para 1.5.5
		-Para 8.3.4
3.3.7	Equipment, Tools and Facility Requirements	GAM/EMP-01
		-Para 4.2
3.3.8	Records	GAM/EMP-01
		-Para 1.5.5
		-para 8.6
3.3.9	EMS Internal Evaluation System	GAM/EMP-01
		-Para 7
3.3.10	Documentation Control	GAM/EMP-01
		-Para 1.5.5
		-Para 8.3.4
		GAM/AEO.P05
		GAM/AEO.P06



No           3.4           3.4.1	Design Control Design Control System	
3.4.1	Design Control System	
		GAM/EMP-01
		-Para 1.5.5.6
		-Para 8
		GAM/AEO.P02
		GAM/AEO.P03
		GAM/AEO.P04
		GAM/AEO.P05
		GAM/AEO.P06
2.4.2	Data Cantral	GAM/AEO.P14
3.4.2	Data Control	GAM/EMP-01 -Para 1.5.5.6
		-Pala 1.5.5.0
		GAM/AEO.P06
3.4.3	Issue of Design Approval Certificates	GAM/EMP-01
		-Para 8.3.4 -Para 8.7
		GAM/AEO.P06
3.4.4	Design Review	GAM/EMP-01
		-Para 7.4
		GAM/AEO.P14
3.4.5	Judgment of Significance	GAM/EMP-01
		-Para 8.2
		-Para 8.3.2.1
		GAM/AEO.P03
3.4.6	Design Acceptance	GAM/EMP-01
		-Para 8.3.8
		GAM/AEO.P06
3.4.7	Software Integrity	GAM/EMP-01
		-Para 8.3.3.2
2.5	Cl Management	-Para 8.3.3.3
<b>3.5</b> 3.5.1	CI Management Applicability	Title Noted
3.5.2	Technical Information Review	GAM/EMP-01
0.0.2		-Para 8.4.1
3.5.3	Maintenance Engineering Analysis	GAM/AEO.P09 Not Applicable
3.5.4	Aircraft Structural Integrity Management	Not Applicable
3.5.5	Engine Structural Integrity Management	Not Applicable
3.5.6	Modifications	GAM/EMP-01
		-Para 8.4.5
3.5.7	Substitutions	GAM/EMP-01
25.9	Deviations	-Para 8.4.6 GAM/EMP-01
3.5.8	Deviations	-Para 8.4.7
3.5.9	Aircraft Stores Configuration	Not Applicable
3.5.10	Aerial Delivery Clearances	Not Applicable
3.5.11	Special Technical Instructions (STIs)	GAM/EMP-01
		-Para 8.4.10
		GAM/AEO.P15



Regulation No	Regulation Title	GAM Reference Doc.
3.5.12	Incorporation Approval	GAM/EMP-01
		-Para 8.4.11
3.5.13	Service Release for Minor Changes to Type Design	GAM/EMP-01
		-Para 8.4.12
3.5.14	Management of Type Design Data	GAM/EMP-01
		-Para 1.5.5
		-Para 8.4.13
3.5.15	Instructions for Continuing Airworthiness (ICA)	GAM/EMP-01
		-Para 8.4.14
		GAM/AEO.P16
3.5.16	Flight Manuals and Aircraft Operating Instructions	GAM/EMP-01
		-Para 8.4.15
		GAM/AEO.P08
3.5.17	Weight and Balance	Not Applicable
3.5.18	Non Destructive Testing	Not Applicable
3.5.19	Production	GAM/EMP-01
		-Para 8.4.18
		-Para 8.8
		GAM/AEO.P12
3.5.20	Modification Installation	GAM/EMP-01
		-Para 8.4.19
3.6	Operating Requirements	Title
3.6.1	Continued Compliance	GAM/EMP-01
		-Para 4.4.1
3.6.2	Changes to an AEO's Organization	GAM/EMP-01
		-Para 4.4.2
3.6.3	Inspections and Audits	GAM/EMP-01
		-Para 4.4.3