



# **ENGINEERING PROCEDURE MANUAL**

GAM/EPM/ISS.1 REVISION. 0

**GALAXY AEROSPACE (M) SDN. BHD.**

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MALAYSIAN INTERNATIONAL AEROSPACE CENTRE  
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**COPY NO.3 – ENGINEERING MANAGER GAM**

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## ENGINEERING PROCEDURE MANUAL

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### BINDING STATEMENT

- a. Forming the basis for approval to MRO/AMO In particular, this document governs the technical and organisational as well as the personnel-related prerequisites for proof of compliance and change of maintenance activities under GALAXY AEROSPACE (M) SDN. BHD.
- b. These procedures are approved by the undersigned and must be complied with, as applicable, when work is being progressed under GALAXY AEROSPACE (M) SDN. BHD.
- c. All the significant changes in this Engineering Procedure Manual (EPM) shall be informed via MOC to CAAM.
- d. This Engineering Procedure Manual (EPM) is to be updated accordingly to comply with any new or amended regulation published by the Civil Aviation Authority Malaysia from time to time.
- e. Access is permitted to the Civil Aviation Authority Malaysia to all locations of GALAXY AEROSPACE (M) SDN. BHD., its partners, its subcontractors, and its suppliers for checking whenever deemed required by the Civil Aviation Authority Malaysia.
- f. Engineering Procedure Manual (EPM) will be reviewed at intervals not exceeding 12 months or whenever significant changes occur which affect the content of the Engineering Procedure Manual (EPM)
- g. GALAXY AEROSPACE (M) SDN. BHD. will assure sufficient and qualified staff as well as education and training of the personnel.

**GALAXY AEROSPACE (M) SDN. BHD. (1040262-D)**



.....  
**DATO' SHAMSUL KAMAR BIN SAMSUDIN**  
**Accountable Manager**

**Date:**

DOCUMENT REFERENCE:	GAM/EPM/ISS.1	DATE:	17 Sept 2020
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**DATO' SHAMSUL KAMAR BIN SAMSUDIN**  
**Accountable Manager**

**Date: 17 SEP 2020**

DOCUMENT REFERENCE:	GAM/EPM/ISS.1	DATE:	17 Sept 2020
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### AUTHORISATION

The Engineering Procedure Manual (EPM); document no. **GAM/EPM/ISS.1 REVISION.0** is hereby prepared by the Engineering Manager and approved by Quality Assurance Manager.

The Engineering Manager is responsible to ensure that the policies, procedures and instruction contained in this manual are adhered to by all persons employed in the GAM Engineering Department in the execution of their duties.

Prepared by :

Syafrul Yamani bin Safruddin

.....  
  
 Engineering Manager

Date: 17 SEPT 2020

Approved by :

Omar bin Ahmad

.....  
  
 Quality Assurance Manager

OMAR BIN AHMAD  
 Quality Assurance Manager  
 Galaxy Aerospace (M) Sdn. Bhd  
 (1040262-D)

Date: 17 SEPT 2020

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**AMENDMENT RECORD**

Each amendment of this document will be accompanied by a letter of transmittal showing the pages to be removed and those to be inserted. All pages will show the date of issue which can be cross checked with the list of effective pages to ensure it's current.

Date of Amendment	Amdt. No.	Details of Amendment

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COPY NO. 3 : ENGINEERING MANAGER.  
COPY NO. 4 : TECHNICAL PUBLICATION .  
COPY NO. 5 : GAM Internal Data Server.  
(Accessible to all GAM Engineering and QA personnel)

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Latest Amendment Number:

Date:

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### ABBREVIATIONS

#### 1.0 Abbreviations.

AAT	Airworthiness Approval Tag
AD	Airworthiness Directives
AH	Approval Holder
AJL	Aircraft Journey Log
AMM	Aircraft Maintenance Manual
AMO	Approved Maintenance Organisation
APU	Auxiliary Power Unit
ARC	Authorized Release Certificate
ATC	Air Traffic Controller
CAAM	Civil Aviation Authority of Malaysia
CAM	Continuing Airworthiness Manager
CAMO	Continuous Airworthiness Maintenance Organisation
CE	Chief Engineer
COC	Certificate of Conformity
EASA	European Aviation Safety Agency
EIC	Engineer In-Charge
EGR	Engine Ground Run
EM	Engineering Manager
EPM	Engineering Procedure Manual
FAA	Federal Aviation Administration
FOD	Foreign Object Damage
GAM	Galaxy Aerospace (M) Sdn Bhd
GiN	Goods in note
GRN	Goods Received Note
LAE	License Aircraft Engineer
MIV	Material Issue Voucher
MOC	Management of Change
MOE	Maintenance Organisation Exposition
MWO	Maintenance Work Order
NHA	Next Higher Assembly
OEM	Original Equipment Manufacturer
PPE	Personnel Protective Equipment
POL	Petroleum, Oil and Lubrication
QA	Quality Assurance
QAM	Quality Assurance Manager
SB	Service Bulletin
TSO	Time Since Overhaul
TSN	Time Since New
UMC	Unscheduled Maintenance

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### ADMINISTRATION AND CONTROL

#### 1.0 Introduction.

##### 1.1 Purpose.

- a. The purpose of this Engineering Procedure Manual (EPM) is to offer guidance to staff on how to process within the operation.
- b. The following procedure ensures compliance with the CAAM regulations at this time and the manufacturer references.

##### 1.2 Effectivity.

- a. This section covers for EPM document.

##### 1.3 Format.

- a. Paper copies of this manual are distributed in accordance with the Distribution List.

#### 2.0 System of Amendment and Revision.

##### 2.1 Method of Amendment.

The EPM are issued on the authority of the Company. The Quality Assurance Manager (QAM) approve all amendments as required by the Company.

All amendments will be in the form of printed individual replacement pages. Handwritten amendments are not permitted. Each page of the manual will show the date of issue. Left side vertical marginal lines will indicate a changed or revised portion of the text.

Each paper amendment will be accompanied by a revised List of Approved Pages, with their dates of issue, and acknowledge form to manual holder. Whenever a change is made to a page, the amendment will show the new date.

A record of amendments incorporated is shown on the Amendment Record page. This page will not be replaced but will rather accrue signatures showing the amendment history.

##### 2.2 Source of Amendments.

Amendments may be suggested by any Company personnel. Amendments may be prompted by:

- a. Editorial changes.
- b. Identification of inadequacies or deficiencies.
- c. Changes in GAM activities.
- d. Changes in GAM Bases.
- e. Changes in customer requirements or standards.
- f. Changes in Legislation or Regulations.
- g. Changes in Company Management Structure.

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h. Changes in relation to Company Capability and its procedure.

### 2.3 Amendment Proposals.

Amendment proposals should be made through the Publication Amendment Request, see Section 3.0 below, to the EM including:

- a. Manual part and paragraph affected.
- b. Reason for change.
- c. Proposed change.
- d. Management of Change, MOC (if necessary) .

The EM will comment and forward it to the QAM for consideration.

The proposal will be further assessed for a decision on incorporation. The EM and QAM will communicate the result to the person who initiated the request.

### 2.4 Distribution.

The Company will ensure that all personnel in Distribution List to have easy access to a copy of the EPM.

## 3.0 Amendment Process Form.

3.1 Amendment request to add, delete, or amend the EPM can be made using the **Publication Amendment Request - GAM/E-002** as per MOE Part accompanied with the MOC when compulsory.

**END**

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### ORGANISATION DETAILS.

#### 1.0 Name and Address Organisation.

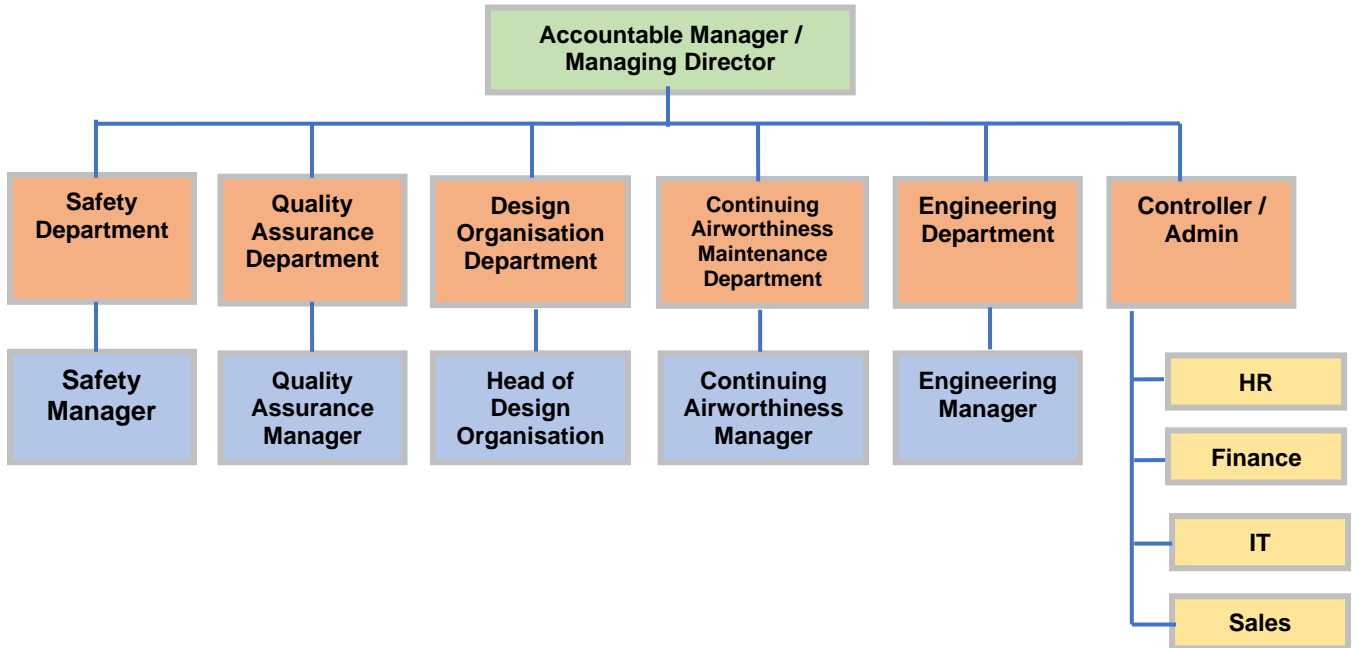
Name of Company	:	<b>Galaxy Aerospace (M) Sdn. Bhd (GAM).</b>
Head Quarter Office	:	Suite 11-14, Helicopter Centre, Malaysia International Aerospace Centre, Sultan Abdul Shah Airport, 47200 Subang, Selangor Darul Ehsan, Malaysia.
Telephone No	:	+603-7734 7226
Fax No	:	+603-7734 7526
Extension Base / Operation Base JBPM: Line Maintenance	:	<b>Hangar 2, UniKL MIAT</b> Subang Campus Persiaran A, Off Jalan Lapangan Terbang Subang, Seksyen U3, 47200 Subang, Selangor Darul Ehsan, Malaysia.
Operation Base PGU Subang	:	<b>Pasukan Gerakan Udara (PGU) PDRM.</b> Pangkalan Semenanjung, Lapangan Terbang Sultan Abdul Aziz Shah, 47200 Subang, Selangor Darul Ehsan, Malaysia.
Operation Base JBPM Bertam	:	<b>Bertam Fire and Rescue Department Air Base.</b> Kampung Tambang, 13200 Kepala Batas, Penang.
Operation Base PGU Kota Kinabalu	:	<b>Pasukan Gerakan Udara (PGU) PDRM.</b> Pangkalan Sabah, Jln. Johor off Jln. Selangor, Tanjung Aru, 88100 Kota Kinabalu, Sabah.
Operation Base MMEA (State Registered Aircraft)	:	<b>Malaysian Maritime Enforcement Agency.</b> Stesen Udara Maritim Subang, Jalan TUDM, 40150 Shah Alam, Selangor.

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### 2.0 Organisation Structure.

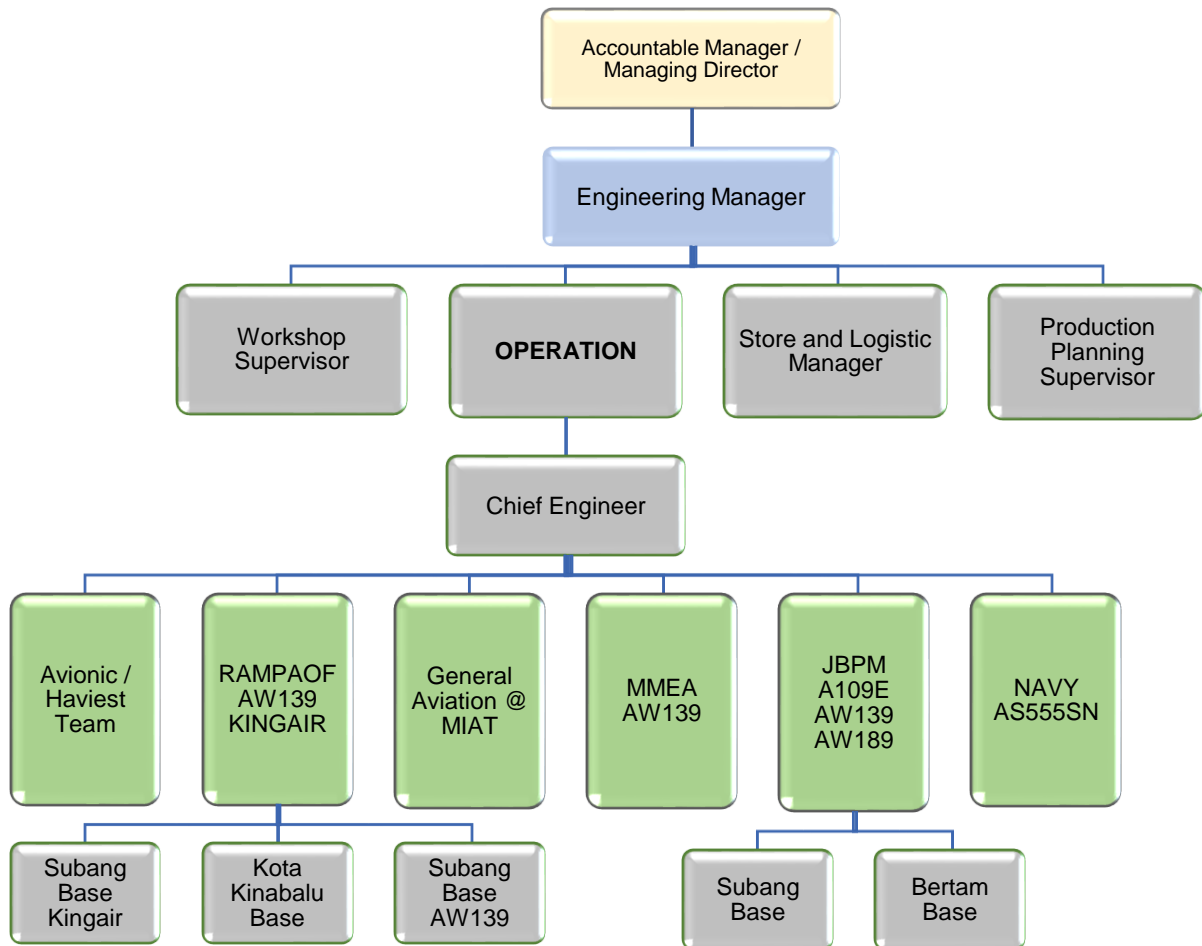
#### 2.1 Galaxy Aerospace (M) Organisation Structure.



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### 2.2 Galaxy Aerospace (M) AMO Engineering Structure.



### 3.0 Job Description and Responsibility.

#### 3.1 Engineering Manager (EM).

a) Immediate Superior

Accountable Manager (Managing Director).

b) Main Responsibilities & Specific Functions

- 1) Direct and manage all aircraft maintenance activities to provide safe and airworthy aircraft, meet the requirement of an Approved Maintenance Organisation and client requirements.
- 2) Ensure that all approved documents released from the section meets the requirements of the OEM, customer and CAAM requirements.
- 3) Ensure availability of approved maintenance program.

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- 4) Liaise with manufacturers, vendor and approved design organisations in support of aircraft and component maintenance.
- 5) Responding to quality deficiencies in the area of activity for which he is responsible, which arise from independent quality audits.
- 6) Ensuring through the workforce under his control that the quality of workmanship in the final product is to a standard acceptable of the organization and the CAAM.
- 7) Implementing the safety and quality policy and human factors matters.
- 8) Reporting an un-airworthy condition to the Accountable Manager and the Quality Assurance Manager.
- 9) Develop and implement efficient regarding the relevant Airworthiness Directives, Service Bulletin and any other technical instruction for implementation / review.
- 10) To ensure all required data furnished with, to review, to analyses and to approve for proposed changes (MOC) to be analyses in the next levels.
- 11) In the case of lengthy absence, the regulatory duties and responsibilities will be delegated to the Chief Engineer through the Management of Change procedure.

### 3.2 Chief Engineer (CE).

a) Immediate Superior

Engineering Manager (EM).

b) Main Responsibilities & Specific Functions

- 1) To assist EM to plan, direct and manage all aircraft maintenance activities to provide safe and airworthy aircraft, meet the requirement of approved AMO and clients requirements.
- 2) To advise any changes which affect the company's AMO certification.
- 3) To ensure that all Engineering organization maintenance, overhaul, and repair of aircraft and components activities and its related supporting program meets the Quality Standards and all requirements for the grant as an Approved Maintenance Organisation.
- 4) To assist EM facilitate engineering to meet the requirement of AMO with the provision of :
  - a) Facilitate appropriate to the planned work
  - b) Office accommodation appropriate to the management planned of the planned work.
  - c) A working environment appropriate to tasks being undertaken.
  - d) Storage facilities for parts, tools, equipment and materials.
  - e) Appropriate and sufficient tools, material to perform the planned tasks.

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- f) Sufficient personnel to plan, perform, supervise, inspect and certify the work being performed.
  - g) Maintenance data from the aircraft manufacturer and airworthiness data from CAAM, necessary to the task being performed.
- 5) To assist EM establish and maintain administration and operation of Maintenance and Engineering Department.
  - 6) To communicate with EM and QAM on airworthiness matters to ensure that all its operations conform to statutory and legal requirements.
  - 7) To assist EM liaise with manufacturers, vendors and approved design organisation in support of aircraft and component maintenance.
  - 8) To assist EM to ensure that all audit findings carried out internally and by CAAM are attended to and resolved within the agreed time-frame.
  - 9) To assist EM monitor the level of service provided to clients and take appropriate steps to achieved desired levels.
  - 10) To assist EM Cultivate a positive attitude and response in engineering personnel on the compliance of industrial safety, health and environmental regulations, procedures and practices in order to ensure safe working environments in the interest of personnel and the Company.
  - 11) To assist EM to ensure that all Maintenance personnel are provided with appropriate technical, knowledge and skill training.
  - 12) To ensure that maintenance personnel are authorized to perform maintenance activities through an approved and documented system based on the evaluation of formal qualification and experience.
  - 13) To set maintenance duty time limits.

### 3.3 Engineer In-charge (EIC).

#### a) Immediate Superior

Chief Engineer (CE).

#### b) Main Responsibilities & Specific Functions

- 1) Carry out aircraft planning, restore and maintain GAM aircraft to a serviceable, safe and airworthy condition in accordance with company approved methods and procedures.
- 2) Daily administration control of Maintenance Department.
- 3) Ensure correct and efficient execution of maintenance activities and task associated with aircrafts and parts. All maintenance task and procedures must conform to the organization standards.

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- 4) Facilitate the provision of adequate facilities, supporting equipment and qualified personnel to perform maintenance on aircraft and equipment.
  - 5) Make available to maintenance personnel the necessary overhaul manual, service bulletins, service letters, airworthiness directives, maintenance manual and any other required technical data.
  - 6) Coordinate with Store and Logistic section for proper upkeep of store section and provision of adequate spare and consumable for forecasted maintenance and defect rectification.
  - 7) The EIC will allocate and supervise work for personnel under his control.
  - 8) Manage all activities concerned with aircraft status, maintenance forecast and maintenance programs (Approved Maintenance Scheduled Program) in accordance with statutory and legal requirements to ensure timely availability of aircraft to meet contractual obligation.
  - 9) Ensures the necessary documentations are raised for all works performed on aircraft and its equipment for proper completion and certification.
  - 10) Review relevant Airworthiness Directives, Service Bulletin and any other technical instruction together with other member of AD/SB review board for applicability and compliance.
  - 11) Responds to quality deficiencies arising from Quality Audit and CAAM audit findings.
  - 12) Ensures all acceptable deferred defects are monitored and rectified within the stipulated time frame.
  - 13) Ensures that aircraft released to service meets the technical contractual obligation and quality of workmanship is acceptable to the organization and the CAAM.
  - 14) Provides updates to the EM on technical matters which affect the aircraft delivery status.
  - 15) Ensure that all Maintenance personnel are in possession of correct skills and are given appropriate training.
  - 16) Plan, organize and control the hangar operation to restore and maintain the aircraft serviceability in accordance with company, customer and relevant Aviation Authorities requirements in the most effective and productive manner.
  - 17) Responsible for maintaining a clean and safe working environment at all time.
  - 18) EIC is authorized by EM to manage specific maintenance activities in the AMO.
  - 19) The authority for the EIC may be revoked by EM if the Engineer In-charge is unable to demonstrate a sound working knowledge of the organization.

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### 3.4 License Aircraft Engineer (LAE).

a) Immediate Superior

Engineer In-charge (EIC).

b) Main Responsibilities & Specific Functions

- 1) To undertake and supervise the maintenance, inspection, repair, replacement, modification, rectification, and certification of aircraft in accordance with company and relevant aviation authority's approved methods and procedures.
- 2) The authorized LAE shall have a sufficient knowledge of maintenance, supervision, verification, and inspection process. He is responsible for correctness and quality of specific tasks performed by personnel under his supervision.
- 3) LAE competency assessment will be conducted by Quality Assurance Department.

### 3.5 Technician.

a) Immediate Superior

Engineer In-charge (EIC).

b) Main Responsibilities & Specific Functions

- 1) To perform aircraft maintenance related tasks as assigned to the best quality standards in a specific time frame whilst maintaining conducive working environment and observing safety and discipline in accordance with the company and relevant aviation authorities requirements.
- 2) All personnel performing 'hands on' maintenance on the aircraft and ground support equipment in the relevant trade.

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### AIRCRAFT TOWING & PARKING

#### 1.0 Introduction

This EPM is cited as EPM 1-01 issue 1 revision 0: Aircraft Towing and Parking

#### 2.0 Objective

As a guideline for AMO personnel in performing aircraft towing and parking, minimize probability of incident and/or accident.

#### 3.0 Interpretation

- 1.1. Towing is a process of moving an aircraft from one place to another without the engine running. Person in charge to the towing procedure should first, refer to Aircraft Maintenance Manual (AMM) Chapter 9 for Towing and Chapter 10 for Parking, before carrying out the process.
- 1.2. Personnel involved in towing duties must be trained, competent and confident, be familiar with the particular aircraft type requirements.

Note:

***The procedure in this EPM not intended to override the procedure and requirement specify in the respective Aircraft Maintenance Manual.***

#### 4.0 Application

- 4.1 This will normally consist of a minimum of three personnel although more assistance should be enlisted as observers within the hangar area / confine area whenever required.
- 4.2 The tug driver has overall responsibility for the aircraft and should ensure that the brake operator (Rated LAE/AH or trained technician by at least attending a General Familiarization training for the particular aircraft) and observers are well verse with the facility and been briefed on the particular and intention of aircraft movement.
- 4.3 A tug driver must be trained personnel by Safety Department.
- 4.4 Towing Preparation
  - 4.4.1 Ensure that the towing vehicle is suitable and serviceable for the intended task. Prior to attaching the towing vehicle to the towing bar, the vehicle brake **MUST** be tested twice for it functionality. This procedure has to be carried out at a safe distant from the aircraft i.e 50ft and in a direction away from the aircraft.
  - 4.4.2 Prepare the aircraft in accordance with the AMM instructions, with the particular attention to the following, if applicable:
    - a. Brake system pressures
    - b. Steering system dis-engaged
    - c. Aircraft ground locks fitted, and wheel choke are ready and serviceable.

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- d. Doors (including baggage holds) closed.
  - e. Undercarriage component i.e. wheel, brake, wheel hub, oleo is in good condition.
  - f. Landing skid in good condition for the use of towing wheel.
  - g. Ensure the tow bar or the towing wheel are in serviceable condition.
- 4.4.3 Ensure all ground equipment, maintenance platform and other obstruction are clear from the manoeuvring path.
- 4.4.4 Always connect the tow bar to the aircraft first before connecting the tow bar to tow tractor.
- 4.5 Manoeuvring – General
- 4.7.5 All aircraft towing operations are to be carried out in accordance with the AMM instructions.
- 4.7.6 The operation of aircraft brakes whilst in motion is prohibited except in an emergency.
- 4.7.7 The ‘brake on’, ‘brake off’ hand signals are to be instigated by the tug driver when the aircraft is stationary and repeated by the flight deck personnel when complied with, where applicable.
- 4.7.8 Aircraft brakes must be on or wheel choke in place prior to tow bar ‘hook up’ and ‘unhook’.
- 4.7.9 Requirements to operate brakes in emergencies are to be indicated by a shout of ‘brakes’ or using the hand signal.
- 4.7.10 Personnel involved with the towing must at all times be alerted with the surrounding condition and always ready for any unforeseen situation.
- 4.7.11 Tractor light and aircraft navigation light shall be switched ‘ON’ under poor visibility condition.

**CAUTION**

**ALL STAFF INVOLVED WITH A MANOEUVRING AIRCRAFT SHOULD BE AWARE OF, AND REMAIN CLEAR OF, AIRCRAFT WHEELS / UNDERCARRIAGES.**

- 4.6 Manoeuvring – Airfield
- 4.6.1 A portable radio or aircraft communication must be used for communication with the Air Traffic Controller (ATC) if required. Use only approved/standard radiotelephony procedure.
- 4.6.2 The observer may board the towing vehicle when moving across the airfield but must always be alert for any obstruction. At such times, the observer should be positioned at the appropriate view of the vehicle driver at all times.
- 4.6.3 Aircraft anti-collision beacons should be utilised at all times as an indication of aircraft in motion and, additionally, aircraft navigation lights on all movements in the darkness or adverse weather conditions. A radio ‘watch’ is to be maintained listening out on the air traffic ground frequency.

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- 4.6.4 Immediately prior to moving, clearance to commence towing must be obtained from ATC via a radio using aircraft designated call sign, as appropriate. Only proceed when the clearance is obtained and been acknowledged, and completely understood. Stop at the point to which the clearance has been given unless further instruction is obtained.
- 4.6.5 During towing, airfield speed limit of the tow vehicle must be observed.
- 4.6.6 If during an airfield towing operation an emergency occur, such as vehicle breakdown or tow bar failure, call ATC immediately and inform them of the situation and current position on the airfield and, if necessary, ask for an apron control vehicle to come and assist.
- 4.7 Manoeuvring – Hangar
  - 4.7.1 Speed within the hangar is to be kept to a minimum.
  - 4.7.2 Ground equipment which may cause obstruction must be cleared from the intended manoeuvring area.
  - 4.7.3 Observers are to remain in view of the tug driver while the aircraft is in motion. All helicopter blades or airplane wings must have a proper clearance of any obstruction. Attention must also be paid to the clearance of the tail rotor and rudder/stabilizer.
  - 4.7.4 The tug driver should stop the movement and beckoning the observer if he lost sight of the observer.
  - 4.7.5 The supervisor or appointed LAE should supervise all hangar manoeuvres.
- 4.8 Parking
  - 4.8.1 Aircraft with wheel must be parked with wheels chocked on. For a limited parking area, a helicopter can be parked closed to each other with a condition that the blades **MUST NOT** overlapping or overhanging stands or other obstructions.
  - 4.8.2 Aircraft brakes may be released once the aircraft has been properly choked.
  - 4.8.3 Ensure electrical services used when towing is switched off, i.e. Radio, Lights, Main batteries (battery topping charge should be performed if a battery have been used for a long duration during towing).
  - 4.8.4 Ensure all windows and baggage doors are closed.
  - 4.8.5 If the aircraft is park outside a hangar, respective aircraft AMM Chapter 10 must be referred for the necessary precaution with regard to high wind and other severe condition.

**END**

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### CLEANLINESS OF AIRCRAFT (FOD CONTROL)

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-02 issue 1 revision 0: Cleanliness of Aircraft (FOD Control)

#### 2.0 Objective

2.1 To minimize probability of incident and/or accident due to FOD. This EPM addresses the procedures pertaining to identification of FOD, minimizing FOD damage and reporting of potential damages or finding.

#### 3.0 Interpretation

3.1 FOD means any article or substance, alien to an aircraft or system, which could potentially cause damage to an aircraft or injure airport or airline personnel.

#### 4.0 Application

4.1 Applies to all maintenance personnel and personnel directly responsible and involve in the airworthiness of an aircraft.

4.2 Any person who contravenes any provision in this EPM commits an offence against the EPM and MOE of GAM. As these are the basis of GAM's Part 145 approval, it denotes an offence against the requirements of CAAM.

4.3 What is FOD?

4.3.1 Foreign Object Damages (FOD) refers to any item, material or substance that either deliberately or inadvertently, is left in or gains access to any part of aircraft or aeronautical product.

4.3.2 The presence of FOD can cause damage, or present a hazard to aircraft, aeronautical product and personnel safety, for example:

- a. Dirt or grit in moving parts can cause excessive wear and other damage, reduction in working clearances, seizure or scoring of working surfaces, and deterioration seals etc.
- b. Loose articles such as nuts, bolts, rivets and hand tools can cause jamming of controls, motor etc.
- c. Damage to electrical installations and cooling air filters.
- d. Chafing of pipes caused through restriction in pipe clearances.
- e. Extraneous fluids may damage protective coatings and promote corrosion.

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### 4.4 Working Practices

- 4.5.5 To prevent small tools, torches, pencils/pens, badges etc., from falling into the aircraft structure, engineering personnel should ensure that articles are stowed in places, such as closed pockets, which will prevent them being drop and lost.
- 4.5.6 A suitable footwear is worn, or mats used, to ensure that aircraft surfaces are not scratched or damaged.
- 4.5.7 A safety goggles, caps etc. must be worn properly fitted so that they are not likely to fall and drawn into the engines.
- 4.5.8 All equipment, spares, or tools are accounted for when servicing or work has been completed to reduce the possibility of such items being left behind.
- 4.5.9 Aircraft components supplied with special transport cases or packaging should not be unpacked until ready for use. Blanking plates should only be removed prior to installation.
- 4.5.10 All tins and containers containing substances for use in aircraft maintenance, such as greases and jointing compound, should be kept closed when not in use, and any tins and containers that have been open for an unknown length of time, should be discarded.
- 4.5.11 Parts that is not required for immediate installation should be kept in stores.
- 4.5.12 Whenever it is necessary to open or dismantle a component (to the limits of GAM approval/capability listing), the work should be carried out in controlled environment in the appropriate place, where dust grit, etc., will not be introduced into the components.

### 4.5 Interior Cleanliness

- 4.5.1 At intervals prescribed in the Aircraft Maintenance Manual, floor panels and panels associated with areas of 'closed structure' are opened for inspection.
- 4.5.2 The area should be cleaned, and any corrosion prevention treatment restored where necessary. When a structure is to be closed, either permanently or by a removable panel, inspection should verify that the compartment is FOD free.
- 4.5.3 Wherever possible, vacuum cleaners should be used to remove debris. High pressure air jets should not be used where debris can be blown over a wider area or driven into lap joints, bearings, electrical components, etc.
- 4.5.4 The final inspection should be made when there is no likelihood of the compartment being reopened, and when it is certain that no further operations are necessary which might introduce extraneous matter into the compartment.
- 4.5.5 Compartments reopened for adjustments, etc., should be given further careful examination after the work has been completed.
- 4.5.6 On completion of the work, the Approval Holder should satisfy that the structure or compartment is perfectly clean and FOD free.

### 4.6 Cleanliness of Installations and Systems

- 4.6.1 Compartments into which engines, undercarriages, etc., are installed should be inspected for cleanliness prior to the installation. The compartment should also be checked for freedom from loose articles and other matters.

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- 4.6.2 On removal of a component from an aircraft, all electrical plugs, ducts, pipes, hose, etc., should be suitably blanked to prevent ingress of FOD.
- 4.6.3 Disconnection of any system will require adequate blanking to prevent ingress of extraneous material. Any test equipment, ground equipment or any other equipment such as servicing units should be kept clean and all covers and blanks should be fitted when not in use.
- 4.7 Exterior Cleanliness
  - 4.7.1 Exterior cleanliness must be carried out at least at an interval as specified in the Aircraft Maintenance Manual (AMM) under the Corrosion Control Program (CCP) although more frequent interval is recommended.
  - 4.7.2 A recommended cleaning agent specified in the AMM to be used during cleaning process.
  - 4.7.3 Any potential access / opening that may allow water to seep through and may damage a component / equipment inside shall be covered or blank off properly prior to washing.
  - 4.7.4 A good practices during washing is to identify any visible damage i.e. scratch, dent, corrosion and also looks for missing screws, fastener etc.
  - 4.7.5 Exterior of an aircraft also may be polished whenever required using an non-corrosive commercial product.
- 4.8 Potential F.O.D
  - 4.8.1 Potential FOD refer to any item or workplace condition that are not FOD but can become FOD if not identify or control properly (i.e. loose screw on a working trolley).
  - 4.8.2 GAM practice “Half an Hours Before and an Hour Later” concept in identification and controlling of potential FOD.
  - 4.8.3 **‘Half an Hour Before’** means that all maintenance crew before starting any work, there shall be a FOD walk around check on all the working places and **‘An Hour Later’** means that there shall be another FOD walk around check again before leaving the work place.
  - 4.8.4 Before and after each engine ground run, the ground run crew shall ensure that FOD inspection has been performed in the ground run area at least 100 feet radius.
  - 4.8.5 Before and after aircraft take-off and landing, the marshaller shall ensure that FOD inspection has been performed in the area at least 100 feet radius.
  - 4.8.6 This is to prevent any FOD around us and it is everybody responsible to ensure of “NIL FOD AROUND US” at all times.
- 4.9 Reporting of Potential FOD or FOD Finding
  - 4.9.1 If Potential FOD or FOD has been found in the aircraft or maintenance area, a person shall raise FOD/Incident/Accident/Dangerous Occurrence Report and submit to Safety Manager or Engineering Manager, where it will be reviewed, and necessary action to be taken.

**END**

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### ENGINE GROUND RUN

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-03 issue 1 revision 0: Engine Ground Run

#### 2.0 Objective

2.1 To emphasis a standard requirement for Ground Run in term of safety precaution and procedure which wasn't stated in the respective Aircraft Maintenance Manual.

#### 3.0 Interpretation

3.1 The term aircraft Engine Ground Run (EGR) is usually used to describe the operation of one or all of the engines of an aircraft, whilst on the ground, for the purpose of functionally checking the operation of either engines or aircraft systems.

3.2 Aircraft EGR is part of maintenance requirement to prove serviceability, for defect trouble shooting and testing of aircraft and the aeronautical products. As the name implies the procedure shall not make the aircraft lift or airborne.

Note:

***The procedure and limitation related to EGR in the Aircraft Maintenance Manual (AMM) and Flight Manual for each particular aircraft MUST be referred and strictly followed. Taxiing an aircraft is prohibited for all maintenance personnel.***

#### 4.0 Application

4.1 Only **LAE with appropriate type rating and valid Company Approval** allow to perform EGR. This include the starting and running of Auxiliary Power Unit (APU) for the purpose of operation or maintenance.

4.2 EGR for helicopter that rotor to be turned under power is strictly be performed by the **Pilot appropriately rated for the particular aircraft only.**

4.3 Personnel authorized in para 2.1 and 2.2 for the operation is responsible to make sure the EGR been carried out in safe and correct manner. They must fully understand and aware the **Normal Procedure** and **Emergency Procedure** for engine run stated in the Flight Manual.

4.4 All documentation and maintenance requirement i.e. pre-flight check, ground run form (if applicable), AJL must be fill-in and signed prior to the ground run.

#### 4.5 Before starting

4.5.1 An aircraft and surrounding check must be carried out by the LAE in-charge and personnel involve covering the following:

4.5.1.1 EGR shall only be carried out at appropriate ground run area with the consent of the control tower (if applicable).

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- 4.5.1.2 For other than the appropriate area, LAE in-charge must ensure the surface level and condition is within the limitation as per AMM.
- 4.5.1.3 Ensure that the area is free from FOD such as debris, oil or fuel spillage and any equipment such as maintenance steps and servicing trolleys are move to a safe distance away from the aircraft.
- 4.5.1.4 Ensure all aircraft blanks (intake and exhaust) and any other covers / tie down are removed from the aircraft.
- 4.5.1.5 All panels, hatches and fairings are closed and secured. EGR with some fairing / panel removed are allow for the purpose of leak checks or other requirement if permitted by the AMM.
- 4.5.1.6 Port and Starboard main wheel chocks (if applicable) are in place and correctly positioned. Ensure the use of appropriate and serviceable condition chokes are observed.
- 4.5.1.7 External ground power is available (if required), in a serviceable condition and connected to the aircraft external power receptacle. The ground power unit must be positioned at a safe distance from the aircraft i.e out of the rotor disc area for helicopter.
- 4.5.1.8 Personnel Protection Equipment (PPE) such as ear defender, safety shoe and reflective vest must be worn during an EGR.
- 4.5.2 Prior to an EGR, all personnel involve including pilot (for helicopter) must be briefed by LAE in-charge on the requirement and purpose of the procedure and determine actions in the event of an emergency. Personnel must also be briefed on the safe approach zone and prohibited zone during EGR.
- 4.5.3 A minimum of 2 ground personnel (Maintenance Personnel) are required during the EGR. One personnel responsible to give start clearance and act as a marshaller during the ground run and another personnel is responsible with a fire extinguisher. The cockpit operation shall be performed by personnel stated in para 2.1 and 2.2.
- 4.5.4 Additional personnel may require when the use of external ground power unit is necessary.
- 4.5.5 Personnel responsible with fire extinguisher must be briefed on procedure during emergency in the event of fire. Any action taken should be under the instruction of personnel in the cockpit unless a fire occur at an area with no indication from inside the cockpit and should this occur, the personnel in the cockpit must be informed by any means.
- 4.5.6 External fire extinguisher is use for non-engine fire for aircraft fitted with engine fire protection / extinguishing system and any fire for aircraft not fitted with fire protection system.
- 4.5.7 A headset may be used by the personnel responsible for start clearance to maintain communication with the cockpit personnel when direct communication is deemed impossible.
- 4.5.8 Both ground personnel are responsible to monitor and prevent unauthorised person or vehicle entering the EGR area.

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- 4.5.9 All airfield running restrictions must be observed at all times, person carrying out EGR must be aware of airfield procedures and restrictions and under no circumstances should be disregarded or varied in any way.
- 4.5.10 Communication with the control tower must be established prior to the EGR and maintain at all time during the ground run (if applicable)
- 4.5.11 Appropriate Pilot Checklist or the Flight Manual must be used at all times during the EGR. Personnel carrying out the EGR must fully understand and familiar with the instruction in the checklist or manual.
- 4.5.12 'All Clear' signal must be obtained from the marshaller before starting an engine.
- 4.6 After Starting
  - 4.6.1 When the engine(s) have stabilised at idle speed, when appropriately signalled by the pilot the ground power unit should be disconnected (if utilized) and move away from the aircraft.
  - 4.6.2 The marshaller should remain in contact with cockpit personnel using a headset or when extended time are required should remain at a safe distance being clearly visible from the cockpit the whole time.
  - 4.6.1 Both ground personnel shall continue to monitor and prevent unauthorised person or vehicle entering the EGR area during engine running.
- 4.7 Shut Down
  - 4.7.1 A period of idle running must be allowed for the engine(s) temperatures to stabilise to prevent carbon formation in the oil system. The time may vary with different installations and the Engine Maintenance Manual and Flight Manual to be referred.
  - 4.7.2 Prior to engine shutting down, ground personnel have to be informed and acknowledged.
  - 4.7.3 Unless really necessary, approach to aircraft during engine winding down must be avoided especially for helicopter as main rotor sailing may occur during this period.
- 4.8 Recording
  - 4.8.1 Engine start count, running time (if applicable) and fuel burns are to be recorded in the Technical Log. Any defects noted during the ground run are also to be recorded for further trouble shooting and rectification.
  - 4.8.2 Pilot or LAE performing the EGR must sign off the applicable paperwork.

**END**

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## ENGINEERING PROCEDURE MANUAL

### COMPONENT / PART REMOVAL

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-04 issue 1 revision 0: Component / Part Removal

#### 2.0 Objective

2.1 To clarify the use of engineering forms relate to aircraft maintenance environment and avoid the confusion when interpret the status of component / part after removal from an aircraft.

3.1 This EPM defines the step taken when removing a component / part from an aircraft or next higher assembly (NHA).

#### 3.0 Interpretation

3.1 Component / part removal is a common maintenance activity. There are many reasons for removal such as due to defect, inspection, troubleshooting or just for an access to perform other task.

3.2 Component or part may be removed under the following circumstances:

a) Removal from Aircraft

- i. Planned removal arising from schedule maintenance, modification, replacement or for gaining access to another schedule requirement.
- ii. Unplanned removal arising from a flight crew or maintenance reported defect or unsatisfactory condition including items removed for evaluation, and items found unserviceable prior or post installation.

b) Removal from Next Higher Assembly (NHA)

- i. Purpose is to remove component or part as a separate unit from NHA for repair, refurbishment, cleaning, inspection, overhaul, etc.

#### 4.0 Application

4.1 There are 4 types of tags to be utilised whenever a component / part removal has been carried out depending on the purpose of the removal itself.

- a) Serviceable Tag      GAM/E-005
- b) Unserviceable Tag    GAM/E-006
- c) Holding Tag        GAM/E-018
- d) Quarantine Tag      GAM/E-007

4.2 Every component / part removed from aircraft MUST be properly tag for easy identification and prevent error during installation or other required process of the item.

4.3 For each circumstance, the following tags shall be used accordingly:

##### 4.3.1 Serviceable Tag

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- a) Use to tag a component / part removed in serviceable condition from an aircraft or NHA for the purpose of safekeeping.
- b) Serviceable Tag also to be used when transferring non-standard component / part i.e mission equipment, roll equipment from an aircraft to another aircraft.
- c) LAE / Approval Holder (AH) must full-in as much details available for the component / part in the Serviceable Tag. The person's name must be printed, sign and stamp an approval number in the appropriate column. **Aircraft registration from where the item removed MUST be stated in the "GIN/ID. NO:" box.**
- d) For component / part removed from NHA, the p/n and s/n of the NHA will be stated instead of aircraft registration.

Note:

*Component / part from Store will also be attached with Serviceable Tag issued by Store Inspector with a Goods Received Notes (GIN) number in the appropriate box*

### 4.3.2 Unserviceable Tag

- a) Use to tag an unserviceable condition component / part removed from aircraft or NHA prior to return to Store for a required action such as repair, overhaul or to be discard later.
- b) LAE/AH shall fill-in all the details in the appropriate boxes with **reason for removal state in the "Remark" box** and print name, sign and the approval number.
- c) Unserviceable component / part is to be kept at an appropriate area segregated from serviceable component / part.

### 4.3.3 Holding Tag

- a) Component / part removed from aircraft / NHA for the purpose of gaining access for other inspection, or to perform an inspection out of aircraft, or to perform applicable repair as per AMM with an **intention to be reinstalled / fitted back to the same aircraft** must be tagged with Holding Tag.
- b) LAE/AH must fill-in all the appropriate boxes and emphasis the reason for removal. Name, sign and stamp must be filled in the "Removed By" box.
- c) Component / Part must be kept in appropriate area / rack while waiting to be reinstalled to the aircraft to ensure the condition remain as is prior to installation.

Note:

*The Holding Tag is just for identification of the status of a component / part during removal from an aircraft and the actual status prior to be installed back onto an aircraft is the responsible of the installer (LAE/AH)*

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### 4.3.4 Quarantine Tag

- a) Component / part with unknown condition shall be tagged with Quarantine Tag for further evaluation and to determine the actual status.
- b) LAE/AH must fill-in the appropriate boxes and reason for quarantine stated clearly. Evaluation and decision may be made after consulting the OEM of the component / part and the tag will be replaced with Serviceable or Unserviceable Tag appropriately once the condition has been determined with a supporting document attached.
- c) Quarantine component / part must be returned to Store, to be registered and kept until decision is made.

**Note:**

*Store will also use the Quarantine Tag when an incoming component / part purchased is ambiguous in term of physical condition or the documentation.*

- 4.4 All the Tags are available pre-printed, however if unavailable, a printable copy is also available from a Production Planner.

**END**

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### CANNIBALIZATION PROCESS

#### 1.0 Introduction

3.1 This EPM is cited as EPM 1-05 issue 1 revision 0: Cannibalization Process

#### 2.0 Objective

2.1 To ensure understanding of cannibalization process by AMO personnel

#### 3.0 Interpretation

3.1 "Robbery or Cannibalization" in aviation term defined as an authorised removal of urgently required component / parts from either the following sources in order to make serviceable a defective in-service aircraft.

3.1.1 Another aircraft currently down for maintenance

3.1.2 Another aircraft currently grounded due to other defect not effecting the component / part to be cannibalized.

Note:

*Mission Equipment or Role Equipment transferred from one aircraft to another aren't categorise as cannibalization.*

#### 4.0 Application

4.1 Cannibalization is usually due to unavailability of spare parts, due to an emergency, long resupply times, physical distance, or insufficient planning or budget.

4.2 Cannibalization will occur when there are no spares available in the store's inventory and aircraft is require for operation.

4.3 This procedure is only allowed when all resources / factors and safety elements have been considered.

4.4 When there is a necessity to cannibalize a component / part, Engineer-In-Charge (EIC) for the operation must first liaise with CAMO planner of the aircraft explaining the situation and suggest a solution of cannibalize the defective component / part from another aircraft. The cannibalization process should only proceed when agreed by the CAMO after consulting the operator. However, depending on operation, EIC may need to liaise and get an approval to cannibalization from the operator itself.

4.5 EIC shall notify CAMO planner directly or via AMO Planner of the defect and require replacement component / part. Regardless, AMO Planner must be aware of the situation.

4.6 CAMO planner shall advice the status of the component i.e. remaining hours for overhaul etc. to justify the rationale for the action.

4.7 CAMO planner / EIC must liaise with the operator to advice the situation and obtain a clearance to proceed. This can be made via phone call or Whatapps as preliminary but has to be officially emailed afterward.

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- 4.8 A donor aircraft shall be identified by the CAMO or suggested by EIC and a consideration shall be made if life limited component to be cannibalized.
- 4.9 A **Cannibalization Tag GAME-017** must be used for this procedure. **The pink copy shall be attached to the donor Aircraft Journey Log (AJL) and the white copy to the worksheet for defect rectification of the receiving aircraft.**
- 4.10 An entry must be made in the AJL by the LAE/Approval Holder (AH) making the removal and the pink copy attached **MUST BE CLEARLY VISIBLE** to notify the maintenance or flight crew of the removed component.
- 4.11 The **white copy of Cannibalization Tag is a substitute to Serviceable Tag / Airworthiness Release Certificate (ARC).**
- 4.12 LAE/AH doing the removal shall certify by signing and stamp in the 'Removed from Aircraft' section of the Cannibalization Tag conforming the serviceability of the component / part removed. The LAE/AH is then responsible to initiate a request to Store for a replacement component together with all the required consumable (if any).

Note:

*Depending on contract, new serviceable component / part may supply by CAMO / Operator of the aircraft. For this arrangement, the request shall be made to them directly by the LAE/AH who did the removal.*

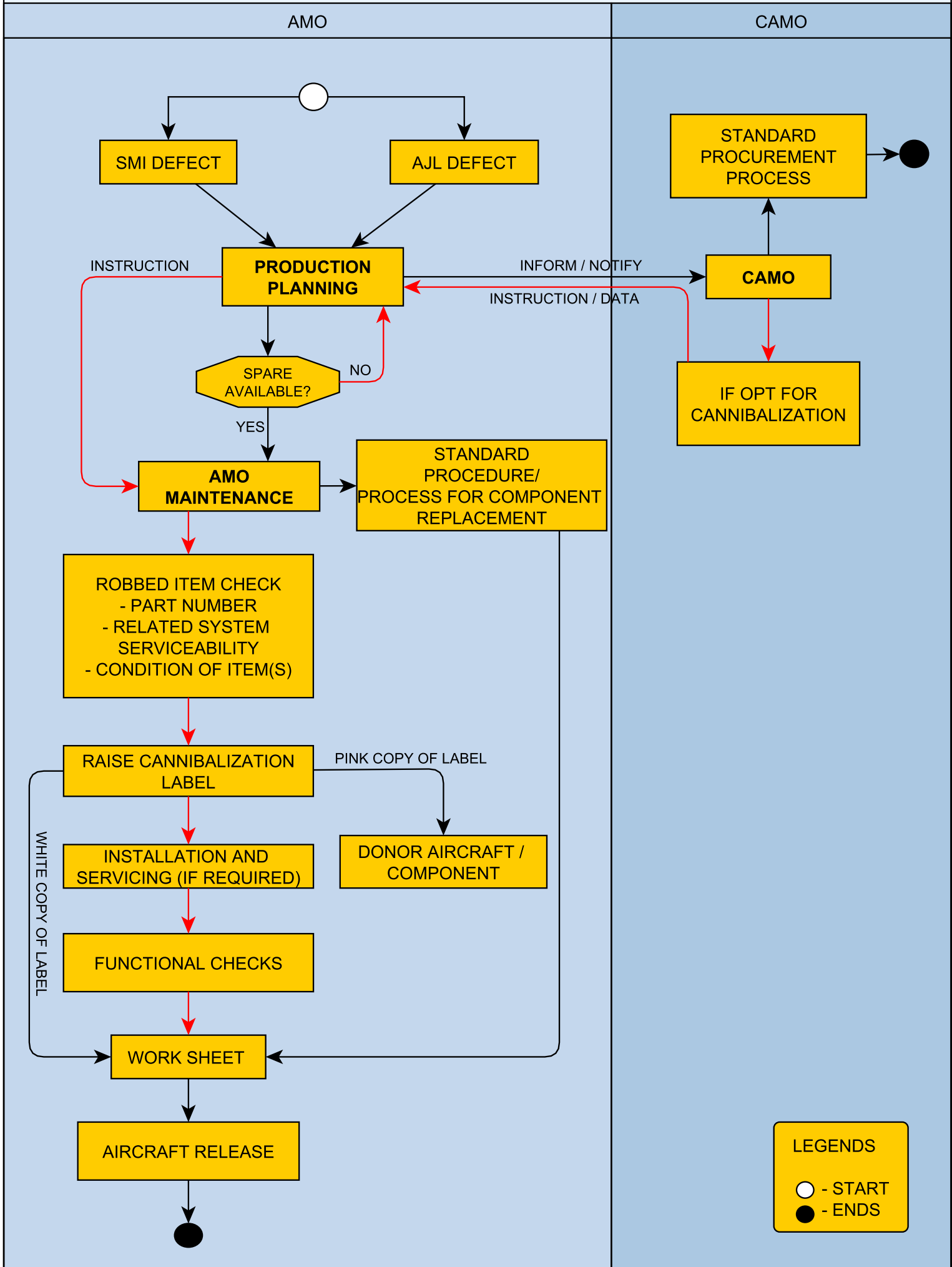
- 4.13 At aircraft where the component / part to be installed, LAE/AH installing the component / part should satisfied with the condition and shall certify the 'Installed to Aircraft' section once installation is completed and attach to the Unscheduled Maintenance (UMC) worksheet or other worksheet defines by respective CAMO.
- 4.14 A functional check shall be carried out whenever applicable to confirm the serviceability of the installed component.
- 4.15 Releasing aircraft to service shall follow standard procedure defines by respective CAMO of the aircraft.
- 4.16 Once ordered component / part arrived, a standard replacement procedure applies for the installation work. **The pink copy of the Cannibalization Tag attached to the donor's AJL as per para 2.2.1(f) shall be removed and attach to the installation worksheet.** An entry made for the removal in the AJL shall be closed referring to the installation worksheet.

**END**

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# EPM 1-05 CANNIBALIZATION PROCESS



### LEGENDS

- - START
- - ENDS

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### TOOL CONTROL

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-06 issue 1 revision 0: Tool Control

#### 2.0 Objective

2.1 Tool Control aids in ensuring tools that are being used are properly calibrated and no tools are being left un-intentionally after it's been used and risk of becoming FOD.

2.2 At a minimum, tools control is a method to quickly determine that all tools are accounted for at the end of a maintenance task. This can only be done if each tool has a specific place where it is stored that allows for quick identification if the tool is missing or the movement of it been properly monitor and register.

#### 3.0 Interpretation

3.1 Definition of tools:

- a) Standard industrial tools, specific design tools from aircraft manufacturer (Special Tools), work aid or common equipment i.e. drill gun, rivet gun, vacuum cleaner, air hoses.
- b) Standard industrial test equipment i.e. multimeter, bonding tester and specific test set produced by the specific aircraft / equipment manufacturer.

#### 4.0 Application

4.1 A complete list of tools inventory is kept by the HQ Main Store and inventory keeper of tools in MIAT Tool Store is the Tool Store personnel.

4.2 Inventory keeper of tools at respective operation bases are the Engineer-in-Charge (EIC) of the operation or personnel delegated by him.

4.3 In general, control of standard tools, special tools and test equipment are carried out by means of Tool Control Register System.

4.4 All newly purchase tools MUST go through an acceptance process and register at HQ Store prior to safe keeping at an appropriate location. This is to ensure a proper recording, inventory and control of the items.

4.5 Control number can be identified as follow:

- a) **Gxxxxx** – Standard tools with xxxx are the 4 digits running number
- b) **CTE/xx** – Calibrated tools with xx are the 2 digits running number
- c) **STxxx** – Special tools with xxx are the 3 digits running number

4.6 Tools Store in MIAT is a common store for all special tools and test equipment but there is an exception for items that are frequently use and dedicated to one particular aircraft type to be kept at other location.

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- 4.7 A complete tool list of tools MUST be made available at the custodian location. Most of the procurement were made by Logistic personnel but there were cases where the procurement is more economical and faster with direct purchase by end user, for an example:
- a) Buying from a local hardware store for general tools or hand tools i.e. drill gun, spray gun, vacuum cleaner etc.
  - b) Buying from an online store.
- 4.8 Regardless of purchasing methods, all items need to have a control number that can only be assigned by HQ Store.
- 4.9 The item will be registered in the HQ Store **Master List GAM/E-016** and **Serviceable Tag GAM/E-005** will be issued if applicable.
- 4.10 For out of Subang Base procurement, the acceptance process to be made by EIC of that base and liaise with store for the control number.
- 4.11 HQ Store is responsible to monitor the calibration due date if any and call back to store for those items to be sent out for calibration when required.
- 4.12 There a 2 different types of tool control register system implemented with regard to location.

### 4.12.1 Tools Store at MIAT Base

- a) Tool Store personnel (storeman) is responsible for tools in GAM MIAT Store ensuring items is in good condition and accounted.
- b) Any tools loan out from store MUST be registered in the **GAM/E-025 Tool control register (book)**. Personnel book out the tool shall register the appropriate details as required in the form.
- c) Prior to issuing a tool, storeman should ascertain item is serviceable and ensure the calibration due is still valid, if applicable.
- d) It is the responsibility of loaner to ensure the condition of the tool is satisfactory during the transaction.
- e) Storeman will only be available during normal office hours. Access after the hours shall be controlled by EIC / LAE working late on that particular day.
- f) Door key to the store shall be obtained from storeman and recorded properly in the **Key Control Register GAM/E-026** and shall be returned the next working day.
- g) Person holding the key shall at all times ensure the security of the tool store and its content is preserved.

### 4.12.2 Tools Store at other Bases

- a) Tools store at other bases is under the control of the EIC of the base.

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- b) Any tools loan out from store MUST be registered in the **GAM/E-025 Tool control register (book)**. Personnel book out the tool shall register the details in the form.
- c) In the absent of EIC, the responsibility shall be transferred to delegated LAE on duty at the particular time.

**Note:**

*If decided to book out a whole toolbox, the toolbox register number shall be filled in the record. It is the responsibility of the loaner to ensure the quantity of the tools inside the toolbox exactly when returning back to store.*

- 4.13 All personnel are responsible for the security and condition of tools in their possession or care. Any broken, lost or misplaced of any hand tool is to be immediately reported by the user to the person in charge.
- 4.14 Any tools/equipment found defective or discrepancies notes must not be used, immediately withdrawn from use and tag with **Unserviceable Tag – GAM/E-005** stating nature of defect. Such item must be reported to the EIC / Storeman for necessary action.
- 4.15 It is the responsibility of the storeman to ensure that an accurate record is maintained of all tools issued. There is no definite period for any tools to be allowed for loan, but store personnel shall follow up with the loaner on following day for status of tools.
- 4.16 The storeman should annotate all outstanding items on the Tool Control Register, giving full details/reasons for each item that has not been returned during the duty period.
- 4.17 Loaner must ensure that all tools are clean and serviceable prior to and upon completion of use.
- 4.18 When receiving tools back into stores the receiving storeman will check that the tool is both serviceable and clean prior to it being accepted.
- 4.19 Any discrepancies, items missing or damaged, are to have their status identified by means of the Unserviceable Label GAM/E-006 stating nature of defect or damaged and Missing Tool Declaration GAM/E-027 for missing items.
- 4.20 Missing Tool Declaration form shall be raised by the user immediately once the occurrence has been confirmed and to be forward to EIC.
- 4.21 Any broken, lost or misplaced of any hand tool is to be immediately reported by the user to the store personnel. Store personnel shall liaise with EIC to perform the following:
  - 4.21.1 Tools missing suspected lost in aircraft.
    - a) LAE / EIC shall consult Chief Engineer (CE) to temporary ground the aircraft, where the user and other maintenance personnel will search for the missing tool at the aircraft vicinity and if require panels shall also be remove for access to satisfy any doubt.
    - b) once satisfied on the search of the missing tool and could not found it anyway in the aircraft, LAE / EIC will declare to stop searching and accept the missing of the tool. CE shall authorise in releasing the aircraft for service.

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4.21.2 Tools missing other than in the aircraft.

- a) The user needs to search for the missing tool.
- b) Once confirmed of missing tool, CE / EM shall advice the Storeman of next action to be taken either to purchase a new tool or not in the 'Additional Remarks' column of the Form.

4.22 Other procedure required to follow is:

4.20.1 **The Storeman shall endorse the Tools Master List as 'lost' and an Unserviceable Label is placed at the tool location in the store.**

4.19.2 **If the item is subsequently found at later time after the new tool has been purchased, the tool needs to be return to the store and the storeman will re-activate the tool in the Tools Master List.**

4.19.3 Before the tool can be used for maintenance, the storeman shall clean and determine the serviceability of the tool and placed the tool at the respective place in the store.

### 5.0 Additional - Personal Tool Control (MOE 2.6.4)

- 5.1 Personal hand tools are the responsibility of individual maintenance personnel.
- 5.2 Personal tool listing shall be made for each personnel. Each tool shall be engraved with person's name and staff no. The individual personnel shall keep a copy of their own listing and another copy of the listing shall be kept by Quality Assurance department.
- 5.3 Random check shall be carried out at regular intervals to confirm the tool listing status and serviceability.
- 5.4 No personal precision tool / equipment should be used without being calibrated and maintained as part of company's list of controlled tools as per requirement of MOE Part 2.4 and MOE Part 2.5.

**END**

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## ENGINEERING PROCEDURE MANUAL

### ACCEPTANCE OF AIRCRAFT COMPONENTS AND MATERIALS

#### **1.0 Introduction**

1.1 This EPM is cited as EPM 1-07 issue 1 revision 0: Acceptance of Aircraft Components and Materials

#### **2.0 Objective**

2.1 To ensure all Aircraft Components and Materials to be used on aircraft maintain by Galaxy Aerospace (GAM) have been evaluate, control and manage in accordance with the Civil Aviation Authority of Malaysia (CAAM) requirement and regulation as stipulated in MCAR and Notice 6501.

#### **3.0 Interpretation**

3.1 Aircraft Component meaning all the system main assembly (Class 1 and 2) and its sub-assembly.

3.2 Materials meaning the class 3 items such as filters, washer etc. and consumable including oil, hydraulic fluids, grease etc.

3.3 The Authorized Release Certificate (ARC)/Airworthiness Approval Tag (AAT), CAAM Form 1, FAA Form 8130-3, EASA Form 1, Certificate of Conformity (CoC) or equivalent certificate must be accompanied for all components and materials (depending on Class) supplied to GAM.

#### **4.0 Application**

4.1 When accepting aircraft component, parts and material for Galaxy Aerospace (GAM), under the Store and Logistic section, a full examination of the items shall be carried out by company Approved Store Inspector or Licensed Aircraft Engineer (LAE), with particular attention to aircraft components for full compliance with the order made, and that the relevant documents are in accordance with the requirements of the DCA Malaysia Notice 6501.

4.2 All incoming aircraft component, parts and material shall be properly handled and stored to prevent damage and deterioration.

4.3 All parts received must came from a supplier listed in the approved vendor list and being approved for the supply / repair / overhaul of the part concerned. The vendor list may identify the required release documentation for the particular parts. The documents accompanied each item must provide a full and accurate information relating to the origins / source, and must reflect the requirements of the purchase order in all aspects.

4.4 Items that have been repaired, overhauled, modified or inspected must be accompanied by release documents that detail the life used and relevant maintenance history in the component log card or log book.

4.5 Standard parts that are not the subject of specific product approvals are to be accompanied by a Certificate of Conformity pertaining to their standard of manufacture.

4.6 Should an item does not fully comply with the criteria as detailed above or if doubt exists, the particular part is then quarantined for further evaluation and investigation.

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- 4.7 Aircraft components obtained from other operators or maintenance organizations may be accepted if they conform to the constraints detailed in Notice 6501.
- 4.8 All aircraft component and material received are subjected to inspection prior to acceptance into company inventory system. The inspection is done in the Quarantine Area which must be clearly identified and physically segregated from the Bonded Store.
- 4.9 Delivered items from a shipping agent or supplier will be placed in the Quarantine Area for the Storeman or LAE to inspect:
- 4.9.1 Confirm the packaging of the parts identifies the supplier / vendor and free from damage and alteration.
  - 4.9.2 Storeman shall register the incoming parts or tools using the **Goods in Note (GiN) Register List - GAM/E-004**. Same GiN reference number shall be assigned to all the shipment receive in that particular day.
  - 4.9.3 Verify that actual part and delivery receipt reflect same information as per Deliver Order and Purchase Order with regard to part number, serial number, quantities and historical information.
  - 4.9.4 Verify that the identification on the parts has not been tampered e.g. serial number stamped over, improper or missing decal / data plate, or serial numbers located not in standard area.
  - 4.9.5 Ensure that any shelf life has not expired.
  - 4.9.6 Conduct visual inspection of the part for any irregularities
  - 4.9.7 Verify accompanying certification documents to ensure part is traceable to an approved source and reflect the maintenance status.
    - a) Authorized Release Certificate (ARC) / Airworthiness Approval Tag (AAT) / FAA 8130-3 / EASA Form 1 / Certificate of Conformity or equivalent certificate.
    - b) Engine or component log book or log card contains all the relevant details (certification, life, sub assembly, status of AD / SB / modification)
- 4.10 If component satisfy the acceptance requirement, an Approved Store Inspector or LAE will fill-up and certify the **Component Acceptance Check form - GAM/E-003**. The GiN reference number shall be the release number for the particular part.
- 4.11 If the component subjected to shelf life expiry, shelf life expiry tracking number is raised and recorded in **Shelf Life Expiry Tracking List - GAM/E-008**.
- 4.12 Component will be repackaged and transferred to Bonded Store together with the **Serviceable Label - GAM/E-005**.
- 4.13 Serviceable Label shall include details extracted from the ARC/AAT or Certificate of Conformity including Time Since Overhaul (TSO), Time Since New (TSN) or Life Remaining.
- 4.14 The item then located in its designated location within the Bonded Store. All documentation will be kept in fireproof cabinet in the Store for the purpose of traceability.
- 4.15 The item will be assigned in a specific location in the Bonded Store and registered in the Excel Sheet in store PC for quantity monitoring.

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### 5.0 Additional - Investigation and Segregation of Unacceptable Aeronautical Product

- 5.1 If a part / component is suspected to be unapproved part / component or discrepancy found in its documentation during acceptance inspection, the component must remain in Quarantine Area and appropriately tagged using **Quarantine Label – GAM/E-007**. The Storeman will raise the **Component Discrepancy Report form – GAM/E-003A** for further action. A copy of Discrepancy Report shall be made available to Quality Assurance Manager.
- 5.2 Part will be registered in Store Quarantine Record book and to be kept in Quarantine Area until settlement of the non-compliance. Quarantine parts shall be released once all discrepancies have been rectified.
- 5.3 If parts / components are confirmed to be unapproved, it will be sent back to the supplier and request for warranty / refund will be initiated by the Logistic personnel.
- 5.4 QAM will be notified, for further action to be taken towards the supplier (suspend or terminate).

**END**

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## ENGINEERING PROCEDURE MANUAL

### STORAGE AND SHELF LIFE CONTROL OF AIRCRAFT PARTS

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-08 issue 1 revision 0: Storage and Shelf Life Control of Aircraft Parts.

#### 2.0 Objective

2.1 The following procedure has been raised to ensure the correct control and safe storage of aircraft parts and minimize waste due to unused parts with expired shelf life.

#### 3.0 Interpretation

3.1 Shelf Life is the length of time for which an item remains usable, fit for consumption, or saleable.

#### 4.0 Application

4.1 Storage facilities for serviceable aircraft parts should be cleaned, well ventilated and maintained at a constant dry temperature to minimise the effects of condensation. Storage recommendation by the manufacturer must be observed indefinitely to ensure parts are remain in a serviceable state.

4.2 All aircraft parts, wherever practicable, should remain packaged in protective material to minimise damage and corrosion during storage.

4.3 The shelf life begins from the release date stated on the Airworthiness Release Certificate (ARC) / Certificate of Compliance (CoC) of the particular part. The Shelf Life must be determined in accordance with manufacturer instruction.

4.4 Individual item shall be issued with individual shelf life tracking number for tracking and control.

4.5 All aircraft parts are subject to shelf life control and must have labels clearly marked with expiry dates. The parts will then be registered in the **Shelf Life Expiry Master Register form GAM/E-008** for monitoring.

4.6 **Serviceable Label - GAM/E-005** must identify the part number, serial number, shelf life expiry and GiN (Goods-in Notes) particularly to differentiate the in-coming batch especially when the part been ordered repeatedly.

4.7 Items nearing storage life expiry should be identified at least one month prior to the expiry date in order that the appropriate recertification action may be taken.

4.8 "First in first out" policy must be observed to ensure item with least shelf life must be issued first.

4.9 During the first week of every month the **Shelf Life Expiry Master Register form GAM/E-008** are to be scrutinised for any items, rotatable / repairable and consumable that will become shelf life expired during the next calendar month.

4.10 When the expiry date are due, such items are to be removed from the Bonded Stocks and place in an Out-going Area with the **Unserviceable Label – GAM/E-006** raised, stating the reason for their removal from stock.

4.11 Such items are then to be recorded as removed from stock on the Excel Sheet in the Store PC

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4.12 The following standards are required for storage:

- a. Storage facility are environmentally controlled rooms to store aircraft parts. Store rooms must be kept clean and dry as possible with all outside doors are to be kept closed.
- b. Ideal temperature is to be set at 18°C - 24°C and relative humidity is to be maintained between 55% and 75%. Any humidity increased above 76% should be monitored closely. The recording is using **Temperature & Humidity Record GAM/E-026**. Personnel movement into and out of storage area is to be strictly limited to avoid unnecessary opening of doors.
- c. Avionics parts, radio, instrument and electrical power system components are particularly prone to damage due to high humidity. During storage, they must be protected by a suitable anti-static wrapping to prevent dust and moisture ingress. All connectors and replaceable are to be blanked or capped. Silica gel bags may be used to protect against moisture and inspected at regular intervals for sign of saturation.
- d. Whenever possible use the original sealed transit case or packing, otherwise use polythene bagging with open end folded or loosely stapled.
- e. General parts may be stored in non-metallic containers, cardboard boxes or jars.
- f. 'O' rings, seals and packings are to remain in sealed packets, items opened for sample inspection to be discarded.
- g. Rubber parts should be stored in their original seal envelopes and should not be exposed to direct daylight or sunlight.
- h. Flux Valves and Standby Compass must be stored on wooden or plastic shelving away from any magnetised material such as speakers and weather radar transceiver.
- i. Components containing inhibiting fluid should be checked periodically for fluid loss and agitated to re-distribute the fluid.
- j. Fuel, Pneumatic and hydraulic components all inlet and outlet must be covered with protective blanks and caps and stored in plastic bags.
- k. Hoses are to be stored without kinks or bends and must be properly blanked.
- l. Windshield and windows are to be stored in their original shipping container and be kept away from heat and other contaminant by solvent.
- m. Tyres are to be stored away from sunlight, heat and must not allowed to become contaminated with oil and grease. Tyre are to be stored vertically, supported by two tubes with two third being above the support point. Tyres are to be turned periodically not exceeding 3 months to a new position. For complete wheel assembly storage position is the same as the requirements for tyres and storage pressure should not exceed 30 psi.
- n. Fire Extinguisher are to be stored above the floor in their original shipping containers. Discharge outlets should be blanked.
- o. Pyrotechnics such as fire extinguisher cartridges, flares and squibs are to be stored in a lockable steel container in a dry room.
- p. Batteries are to be stored off the floor in a well-ventilated room. Ni-cad batteries must be strictly segregated from Lead Acid type.

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- q. Flammable fluids are to be stored in in separate POL store located separate from the store.
- r. Engines, propellers and other bulky items are stored in (bonded) bulk store where possible. Where no suitable bulk storage is available the item is to be sealed/protected and positioned in the hangar or workshop where the likelihood of damage is minimal. Items stored as such are to be inspected prior to issue from stock.
- s. Avionics material, radios and instrument must never be stored in racking underneath stored fuel, oil, or hydraulic system components. Any leakage of fluid from these components is capable seriously damaging the material stored below them.
- t. Avionics parts are preferably to be segregated from fluid system parts and if storage space constraints total segregation, then the fluid system components should be always placed on the lower shelves, with avionics and electrical equipment above them.
- u. Storage methods should ensure materials or parts are issued in strict rotation. Old stock is to be issued before new stock with particular attention to perishable goods, instruments or components with a definite storage limiting period.
- v. Any additional control requirements specified on the manufacturer's label are to be closely followed.
- w. Electrostatic sensitive components are to be stored on conductive racking that is grounded adequately. All blanks and storage packages used will be conductive to prevent static build up.

### 5.0 Additional - Recertification

- 5.1 In all cases where the shelf life has expired and an item is offered for recertification (if any), the unserviceable label must provide details of:
- a. The current GRN Number.
  - b. The supplier, or last repair agency who handled the item, and its status on receipt at GAM (i.e. New/Overhauled/Repair).
  - c. The date it was received at GAM.
  - d. Details of any previous shelf life expiry since receipt at GAM.

**END**

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## ENGINEERING PROCEDURE MANUAL

### ISSUANCE OF AIRCRAFT COMPONENTS AND MATERIAL FROM THE STORE

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-09 issue 1 revision 0: Issuance of Aircraft Components and Material from the Store

#### 2.0 Objective

2.1 To ensure all items issue from store are properly recorded and accounted. Also, to ensure item been issue with all the necessary document prior to be used on aircraft.

2.2 This procedure is for the issuance of component and material from the Bonded Store for the purpose of aircraft maintenance, component maintenance, sale or loan to a third party.

#### 3.0 Interpretation

3.1 Aircraft Component meaning all the system main assembly (Class 1 and 2) and its sub-assembly.

3.2 Materials meaning the class 3 items such as filters, washer etc. and consumable including oil, hydraulic fluids, grease etc.

#### 4.0 Application

4.1 The issue (sales) of aircraft components or material to other operator is strictly under the discretion of the Engineering Manager.

4.2 A strict policy of issuing the oldest stock first in to be followed in order to prevent a possibility of stocks becoming `Shelf Life Expired`.

4.3 Requestor must fill up **Material Issue Voucher (MIV) - GAM/E-022** and submit to a storeman for any request of component and material from the store. Request may come from maintenance personnel, production planner or sales department.

4.4 Prior of issuing from the store, the storeman is responsible to ensure that each item issued is fit the description in the MIV raised.

4.5 All aircraft parts released from the Bonded Store must be accompanied with **Serviceable Tag - GAM/E-005**, Airworthiness Release Certificate (ARC) / Certificate of Conformity (CoC) and a log card (if any) except for consumable items, which the MIV act as the release document.

4.6 The following copies of the MIV are for respective holder:

WHITE COPY        - STORE'S FILE  
 PINK COPY         - PRODUCTION PLANNER  
 YELLOW COPY      - ENGINEER UPON RISING OF MIV

4.7 Each item issued out will be recorded in the **Bin Card - GAM/E-023** and all relevant details related to the parts and the aircraft it intended to be fitted at, as per MIV are to be entered in the appropriate fields.

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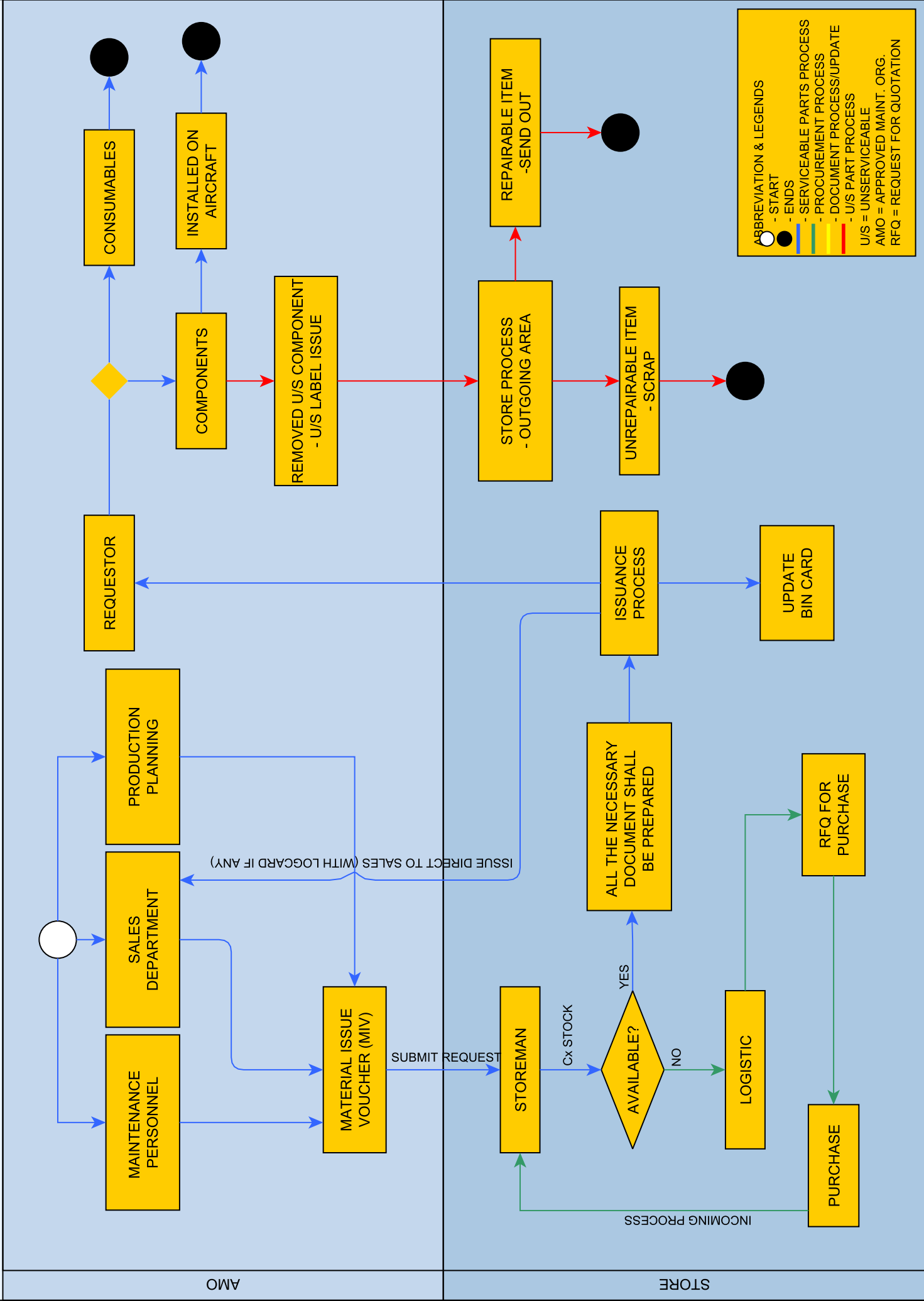
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- 4.8 Only the Storeman is allowed to withdraw items from the Bonded Store.
- 4.9 Unserviceable part or component removed from aircraft **MUST** be delivered to store together with **GAM/E-006 Unserviceable Tag** for store process either for repair, overhaul or discard.

**END**

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# EPM 1-09 ISSUANCE OF AIRCRAFT COMPONENT AND MATERIAL FROM THE STORE



## ENGINEERING PROCEDURE MANUAL

### AIRCRAFT DOCUMENTATION FLOW CONTROL

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-10 Issue 1 Revision 0: Aircraft Work Order Flow Control

#### 2.0 Objection

1.2 To exhibit and ensure a manageable and control of documentation from CAMO to AMO vice versa.

#### 3.0 Interpretation

3.1. Aircraft documentation highlighted in this EPM may but not limited to Work Order, Work Pack, Work Sheet, Aircraft Journey Log Component.

#### 4.0 Application

4.1 As per CAAM Notice 6101, aircraft management is under the control of an approved CAMO. Therefore, CAMO is responsible to manage the maintenance of the aircraft either schedule or unscheduled. CAMO shall issue a Work Order to an approved AMO to perform the required schedule maintenance when it became due.

4.2 A CAMO for aircraft contracted to Galaxy Aerospace (GAM) AMO will issue a Work Order together with a Work Pack and Work Sheet (Package) for a schedule maintenance to be carried out.

4.3 The Work Order from CAMO will be received by AMO Production Planner via email.

4.4 Once register and vetted, a complete work package will then be issued to the AMO maintenance team to be performed on the planned date and duration.

4.5 A complete maintenance document shall then be registered again by Production Planner before handing over to CAMO.

4.6 The same flow also applies to modification package, Service Bulletin, Airworthiness Directive and registered unscheduled maintenance i.e. deferred defect.

4.7 For defect found during either line or base maintenance, worksheet will be raised by LAE and register under Unscheduled Maintenance Check (UMC) control number.

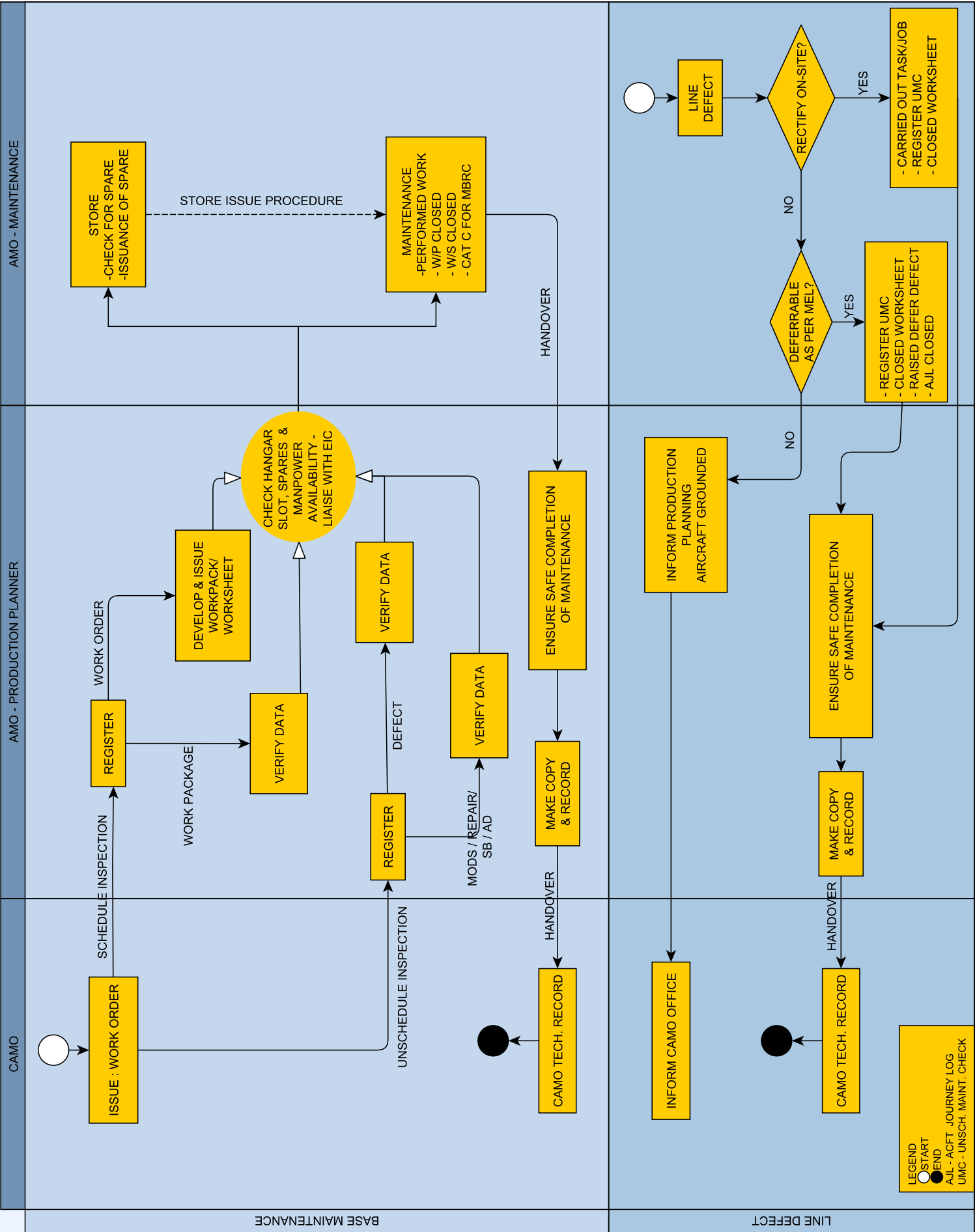
4.8 Defect found during operation (Line Maintenance) the worksheet will be closed prior to releasing the aircraft to service by either rectification or deferring as per MEL.

4.9 Defect found during Base Maintenance, a worksheet will be raised by LAE. Defect either rectified or deferred if applicable and the worksheet shall be included in the maintenance Work Pack.

**END**

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# EPM 1 -10 AIRCRAFT DOCUMENTATION FLOW CONTROL



BASE MAINTENANCE

LINE DEFECT

LEGEND  
 ○ START  
 ● END  
 AJL - ACFT JOURNEY LOG  
 UMC - UNSCH. MAINT. CHECK



## ENGINEERING PROCEDURE MANUAL

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### PUBLICATION AND MAINTENANCE DATA CONTROL

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-10 Issue 1 Revision 0: Aircraft Work Order Flow Control

#### 2.0 Objection

1.2 To exhibit and ensure a manageable and control of Publication and Maintenance data from CAMO to AMO.

#### 3.0 Interpretation

3.1. Aircraft Publication and Maintenance Data highlighted in this EPM are but not limited to Maintenance Manual, Parts Catalogue, Component Manual.

#### 4.0 Application

4.1 Aircraft Publication and Maintenance Data will normally provide by CAMO responsible for the aircraft. However, there also cases where Galaxy Aerospace (GAM) AMO will subscript the publication directly from the OEM.

4.2 It is the responsibility of the Production Planner to update the publication whenever a new revision received from CAMO or the OEM.

4.3 A new revision shall be registered, and Publication Master List be updated to reflect the changes.

4.4 All respective publication in a registered PC must be update accordingly to the latest revision.

4.5 Operational related publication such as Quick Reference Handbook (QRH), Flight Manual are under the CAMO responsibly for the update.

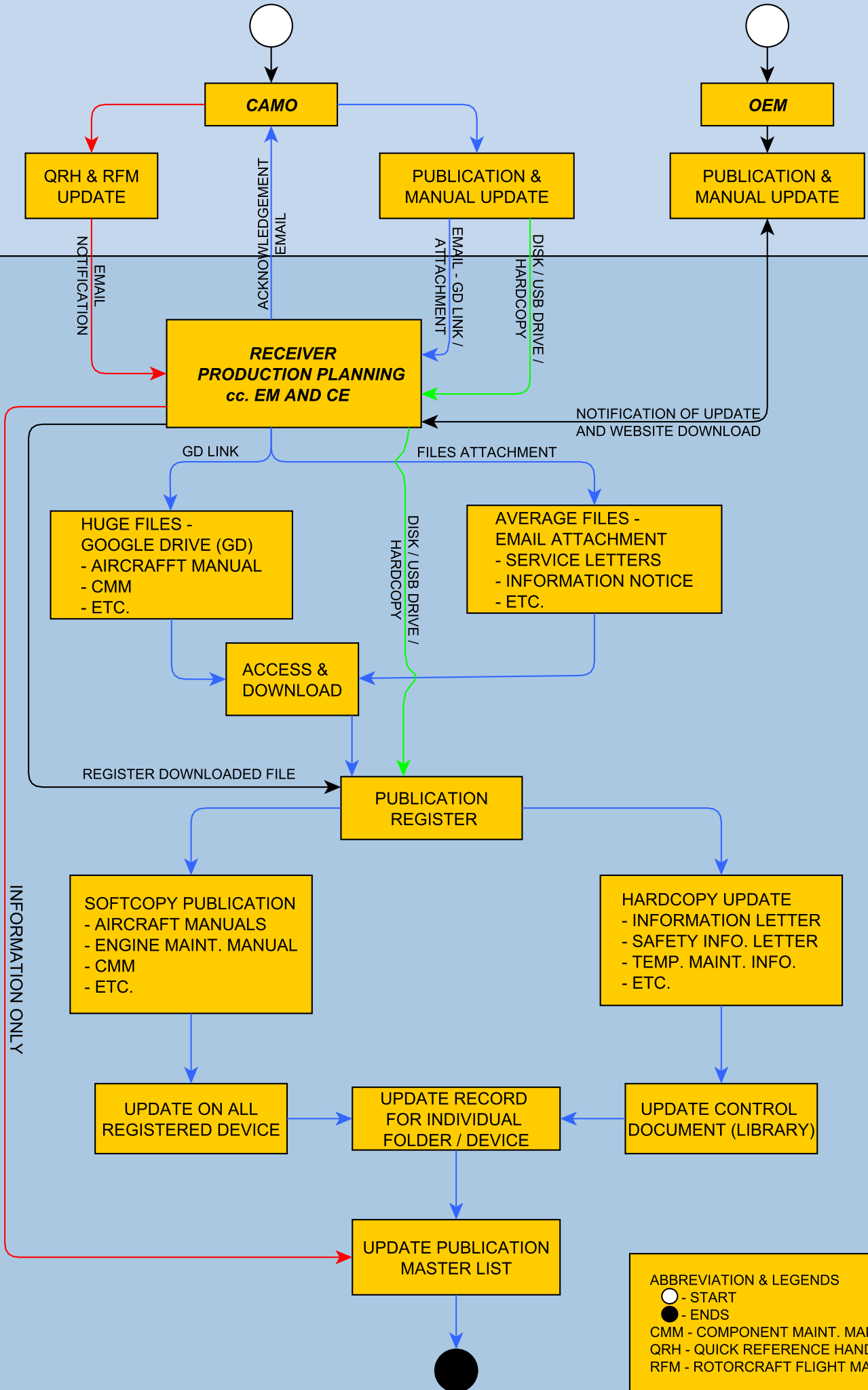
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# EPM 1-11 PUBLICATION AND MAINTENANCE DATA CONTROL

ORIGINATOR

AMO



INFORMATION ONLY

## ENGINEERING PROCEDURE MANUAL

### ADDITIONAL BASE AND LINE FACILITY - CONTROL OF AIRCRAFT COMPONENT AND MATERIAL

#### 1.0 Introduction

- 1.1 This EPM is cited as EPM 1-10 Issue 1 Revision 0: Additional Base and Line Facility – Control of Aircraft Component and Material.

#### 2.0 Objection

- 1.2 This procedure is to ensure all aircraft component and material being use at Galaxy Aerospace (GAM) approved additional base and line facility are properly manage, control and record as required by the regulation.

#### 3.0 Interpretation

- 3.1. Aircraft Component meaning all the system main assembly (Class 1 and 2) and its sub-assembly.
- 3.2. Materials meaning the class 3 items such as filters, washer etc. and consumable including oil, hydraulic fluids, grease etc.
- 3.3. Additional Base and Line Facility are GAM's approved facility located out of Subang.

#### 4.0 Application

- 4.1 When there is a requirement of aircraft parts / consumable to be used during schedule maintenance, a request via email must be made by Engineer-In-Charge (EIC) for the base to GAM's store in Subang for the required items.
- 4.2 GAM's store in Subang will then process the request and storeman shall fill in the Material Issue Voucher (MIV) **GAM/E-022** on behalf of the requester and sign off the necessary column.
- 4.3 The items shall be packed properly with all the necessary document including the applicable ARC/COC, Serviceable Label and a copy of MIV.
- 4.4 Items shall be shipped from GAM's store in Subang to the respective destination via registered forwarding company or any other mean i.e government transport (Police's Kingair) whichever convenience.
- 4.5 Upon received at receiving destination, EIC should be checked for:
- a. Damage during transportation and general condition.
  - b. Availability of document attachment to item.
  - c. Part number and description of item as per requested.

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- 4.6. If found any discrepancies during the check, the components should be quarantined and segregated from the serviceable components and materials until the finding has been cleared / satisfied.
- 4.7. If found satisfactory, EIC will then make a record of the received item and place the item in the respective holding area for aircraft parts in the Holding Room together with all the accompanied documents until it been utilized for the schedule maintenance.

**END**

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## ENGINEERING PROCEDURE MANUAL

### ADDITIONAL BASE AND LINE FACILITY - CONTROL OF AIRCRAFT DOCUMENTS

#### 1.0 Introduction

1.1 This EPM is cited as EPM 1-11 Issue 1 Revision 0: Additional Base and Line Facility – Control of Aircraft Document

#### 2.0 Objective

1.2 This procedure is to ensure all aircraft documents i.e Aircraft Journey Log (AJL), Work Order, Worksheet for an aircraft being stationed at an Approved Base other than GAM's Main Base at MIAT are properly manage, control and record as required by the regulation.

#### 3.0 Interpretation

3.1. Additional Base and Line Facility are GAM's approved facility located out of Subang

#### 4.0 Application

4.1 Aircraft Journey Log.

4.1.1 After every flight / a serialized page that have been utilized (i.e. for EGR) the white, blue and pink copies of the AJL shall be torn off by the LAE responsible for the aircraft.

4.1.2 All the copies will then be kept in a dedicated folder in a metal cabinet by the base Engineer-In-Charge (EIC) until it is ready to be sent out to AMO Production Planner in GAM's Main Base in Subang.

4.1.3 A scan copy of each serial page will be sent to CAMO by end of day.

4.2 Work Order / Worksheet.

4.2.1 The Work Order / Worksheet will be emailed by CAMO Planner to the Base EIC for the incoming schedule maintenance or defect rectification. The Work Order received must be registered by the base EIC and initiate the plan downtime to perform the due maintenance.

4.2.2 After completion of works, the EIC shall ensure the completeness of the paperwork i.e. signed, stamped.

4.2.3 EIC will then keep all the completed documentation in a dedicated folder in metal cabinet while waiting for it to be sent out to AMO Production Planner in GAM's Main Base in Subang.

4.2.4 The document shall be scanned and email to CAMO Planner by end of day.

4.3 All original copy of AJL and completed Work Order or Worksheet will be kept no more than 7 days at the base before sending it out to Subang.

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4.4 Every single AJL and Work Order or Worksheet must be registered by EIC before sending out. The methods of shipping can be by Poslaju, courier service or hand carry.

4.5 Upon received at GAM Subang, all the documentation will be registered by Production Planner.

**END**

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