

Audit Report

Report No.	IAR-2021/008
Area / Scope	GAM/145 – Gill Lead Acid Battery
Date of audit	05 March 2021

A AUDIT DETAILS	
1. Copy to	Engineering Manager
2. Purpose	The objective of the audit is to carry out audit on GAM Avionics Workshop as per CAA Malaysia requirement Notice 6501 for the purpose to include additional part number into GAM Workshop Capability List.
3. Reference	1. CAAM Notice 6501
	2. GAM/CAAM/MOE Issue 2 Revision 03
	3. Workshop Procedure Manual Issue 1 Revision 01
	4. Workshop Capability Procedure (WCP 2.1.10)
4. Auditor	Nur Amirah Izani Binti Kamarzaman
B AUDIT SUMMARY	
1.	<p>Audit of Avionics Workshop carried out to evaluate the compliance and adequacy of procedure (readiness) of the workshop operations for the additional part number requested into the capability list. The additional part no. was requested to cater the current maintenance contract and other interested customer/client. MOC No.: GAM/MOC/20/0026 dated 13 April 2020 raised.</p> <p><u>Description, Scope And Model of Component Under Workshop Capability</u></p> <p>Description</p> <p>a. This section details the capability to perform maintenance checks to specified Gill Lead-Acid Aircraft Battery.</p> <p>Scope of Capability</p> <p>a. Maintenance for workshop capability to be carried out by GAM for Gill Lead-Acid Aircraft Battery are as per follows:</p> <ul style="list-style-type: none"> i. Charging ii. Capacity Testing iii. Filling (Activation) <p>Model of Component under Workshop Capability</p>



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MODEL / SERIES			
Gill Dry-Charged Lead-Acid Aircraft Battery			
Gill Part Number	1 Hour Rate (C1)	Gill Part Number	1 Hour Rate (C1)
G-25	18Ah	G-247	19Ah
G-35	23Ah	GE-50E	31Ah
G-35M	23Ah	GE-51E	22Ah
G-240	8Ah	GE-54E	10Ah
G-241	8Ah	G-638E	37Ah
G-242	10Ah	G-6381E	43Ah
G-243	10Ah	G-639E	24Ah
G-244	18Ah	G-640E	14Ah
G-245	18Ah	G-641	18Ah
G-246	19Ah		

MODEL / SERIES			
Gill 7000 Series LT Valve-Regulated Lead-Acid Batteries			
Gill Part Number	1 Hour Rate (C1)	Gill Part Number	1 Hour Rate (C1)
7025-20	20Ah	7639-25	25Ah
7025-24	24Ah	7639-27	27Ah
7035-28	28Ah	7639-30LT	30Ah
7035-34	34Ah	7639-34	34Ah
7242-14	14Ah	7641-20	20Ah
7242-16	16Ah	7638-36	36Ah
7243-14	14Ah	7638-44	44Ah
7243-16	16Ah	7638-44T	44Ah
7246-20	20Ah	7638-44ST	44Ah
7246-20AT	20Ah	7638-48P	48Ah
7407-28	28Ah	7638-53	53Ah

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MODEL / SERIES			
Bell Helicopter LT Valve-Regulated Lead-Acid Batteries			
Gill Part Number	1 Hour Rate (C1)	Gill Part Number	1 Hour Rate (C1)
7407-28	28Ah	7638-44	44Ah
7639-25	25Ah	7638-53	53Ah
7638-36	36Ah		

MODEL / SERIES			
Embraer (Phenom 100 and 300) LT Valve-Regulated Lead-Acid Batteries			
Gill Part Number	1 Hour Rate (C1)	Gill Part Number	1 Hour Rate (C1)
7639-27	27Ah	7638-36	36Ah
7639-30LT	30Ah	7638-48P	48Ah
7639-34	34Ah		

The audit was carried out with the reference made to the CAAM Notice 6501, and latest revision of GAM/CAAM/MOE, Workshop Procedure Manual and Workshop Capability Procedure. Audit methodology used are sampling of document, interview with personnel and observation of the work area.

The scope of this pre-audit covers;

- Facility requirement;
- Personnel requirement;
- Tool / Equipment / Material requirement;
- Maintenance Data / Documents;
- Demonstration of First Article Inspection (FAI) i.a.w the technical reference up to capacity testing capability

Demonstration of FAI of the article was unable to be performed due to the unavailability of the article. Audit however been carried out on the workshop to assess the availability of the tools / equipment / material, personnel competence, maintenance data and facilities to perform the maintenance.

The requirements to perform maintenance to the requested part number found to be similar to the lead acid battery part numbers approved in the GAM Workshop Capability List.

Personnel Contacted (Auditee)

Mr. Mior Mohd Adib	Avionics Workshop Supervisor (Certifying staff)
Mr. Fakhqursy	Avionics Workshop Technician

Facility

- a) Avionics (Nickel Cadmium Workshop) is in the same building with GAM HQ Office Building. It is a room which consist of the area to study maintenance data, complete the maintenance record, storage of tools, material, and place to perform the intended maintenance.

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- b) The Nickle Cadmium maintenance area is a 9.8 x 10 square feet room equipped with an air conditioning unit, working bench, racks, electrical power source, ventilation fan, sink and heavy-duty lifting equipment.
- c) Personal computer and printer for accessing manual, paperwork purposes process found available during the audit (GAM/IT_ASSET/H138).
- d) The room was found secured and can only be accessed by the authorised personnel only.
- e) The maintenance area space was found sufficient for the intended production activities. Working area also found convenient and suitable to carry out maintenance.
- f) Lighting found bright enough for inspection and maintenance purposes.
- g) Temperature and humidity are controlled by using the air-conditioning unit installed in the work area. The temperature is to be controlled between 15 to 35 degree Celsius as per the OEM procedure and properly recorded in the Temperature and Humidity Record form. Record reviewed and found satisfactory.
- h) Incoming, holding, and outgoing racks found adequately available and suitably labelled.
- i) Safety evacuation plan and equipment i.e. serviceable fire extinguisher, eyewash, and first aid kit found available at the work area.

Maintenance Data / Document

- a) The Publication Master List Issue GAM/WS/P-01-2021 dated 15 January 2021 found available for viewing.
- b) Technical references used to carried out maintenance check and found updated and from the approved source. The manual was accessed in the Google Drive (Workshop – Maintenance Data Folder) controlled by the Technical Publication Personnel.
- c) Latest revision of the Gill Aircraft Battery Component Maintenance Manual, Service Manual & Material Safety Data Sheet can be obtained from (<http://www.gillbatteries.com/Products/Maintenance>).
- d) The workshop worksheet reviewed and found to be satisfactory.
- e) The applicable reference manuals are as follow;

Model/Series	Manuals
Gill Dry-Charged Lead-Acid Aircraft Battery	Gill Teledyne Battery Products Dry-Charged Lead-Acid Aircraft Battery Service Manual Q01-1120 latest revision.
Gill 7000 Series LT Valve-Regulated Lead-Acid Batteries	Gill Teledyne Battery Products Component Maintenance Manual 7000 Series LT Valve-Regulated Lead-Acid Batteries Q01-1101 latest revision
Bell Helicopter LT Valve-Regulated Lead-Acid Batteries	Gill Teledyne Battery Products Component Maintenance Manual LT Valve-Regulated Lead-Acid Batteries Q01-2001 latest revision.
Embraer (Phenom 100 and 300) LT Valve-Regulated Lead-Acid Batteries	Gill Teledyne Battery Products Component Maintenance Manual LT Valve-Regulated Lead-Acid Batteries Q01-4000 latest revision.

Tools / Equipment / Material

- a) Tools / equipment / material checked for availability and serviceability in accordance with the relevant maintenance data for the intended scope of maintenance.
- b) List of Tools / equipment found for tool control. The tool location and calibration due are also identified in the list for ease of monitoring.
- c) The finding on tools for the intended maintenance is as follows;

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Designation	Characteristic	Usage			QA Remarks
		Charging & Testing	Capacity Test	Filling (Activation)	
Battery Charger and Discharger	Constant Current Charging Range 0 – 25 ADC Constant Current Load Bank Range 0 – 50 ADC	X	X	X	<i>Available GAM/CTE/72</i>
Digital Multimeter (Capable to measure Voltage and Current)	Commercially available	X	X	X	<i>Available CTE/27</i>
Standard Mechanic's Tools	Commercially available	X	X	X	<i>Available</i>
Hydrometer	Range 1.110 to 1.300 s.g. units	X	X	X	<i>Available ST191</i>
Infrared Thermometer	Commercially available	X	X	X	<i>Available CTE/66</i>
Funnel	Commercially available	X	X	X	<i>Available</i>

Personnel

- a) Total of 02 Avionics workshop personnel found available for the Operation, 01 Supervisor and 01 technician.
- b) The nominated certifier (Mr. Mior Mohd Adib) is GAM approved certifier for Nickle-Cadmium battery, Lead Acid battery and ELT (GAM AH No.: GAM C001).
- c) Personnel protective equipment i.e. protective apron, safety shoe, protective goggles, and safety gloves also found available for the workshop personnel use.

2. Findings / observation

Observation

Nil

Minor Finding

Nil

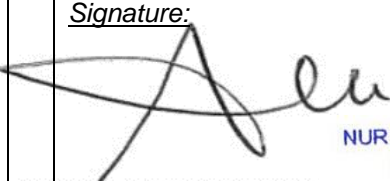
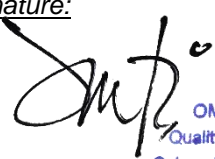
Major Finding

Nil



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3.	<p>Conclusion</p> <p>Nil findings found during the audit. Avionics – Gill Lead Acid battery operation found to be satisfactory and recommended for the additional part number.</p>
4.	<p>Prepared by</p> <p><u>Signature:</u>  <u>Date:</u> 05 March 2021</p> <p>NUR AMIRAH IZANI KAMARZAMAN Quality Assurance Inspector Galaxy Aerospace (M) Sdn. Bhd (1040262-D)</p>
5.	<p>Approved by</p> <p><u>Signature:</u>  <u>Date:</u> 15 March 2021</p> <p>OMAR BIN AHMAD Quality Assurance Manager Galaxy Aerospace (M) Sdn. Bhd (1040262-D)</p>
6.	<p>Distribution</p> <p><input type="checkbox"/> Managing Director Date:</p> <p><input type="checkbox"/> Others Date:</p>