 <b>Galaxy Aerospace</b> <small>maintenance . repair . overhaul</small>	<b>Audit Report</b>	
	Report No.	IAR-2023/088
	Area / Scope	GAM-AMO/Workshop
	Date of audit	28/11/2023

A		AUDIT DETAILS																																					
1.	Audit Type / Category	Tick where applicable <input type="checkbox"/> Scheduled <input type="checkbox"/> Surveillance <input type="checkbox"/> Vendor <input type="checkbox"/> Product <input checked="" type="checkbox"/> Variation to approval	Specify: To include additional MarathonNorco part no into GAM Workshop Capability List.																																				
2.	Audit Reference	1. CAD 8601 Maintenance Organisation Approval (CAAM Part 145) Iss 01 Rev 00 dated 01 May 2021; 2. GAM/CAAM/MOE Iss 3 Rev 1, dated 26 October 2022; 3. Workshop Management Procedure Iss 2 Rev 1, dated 03 July 2023; and 4. Draft Workshop Capability Procedure GAM/WCP/Part 2.1.3 Amendment 3 dated 21/11/2023.																																					
3.	Auditor(s)	1. Omar bin Ahmad (Lead Auditor)																																					
4.	Auditee(s)	1. Hamidah binti Hama 2. Mior Mohd Adib bin Mior Sallehuddin																																					
5.	Location	GAM Operation Center, No 11-14, Helicopter Centre, Malaysian International Aerospace Centre, Sultan Abdul Aziz Shah Airport, 47200, Subang, Selangor Darul Ehsan, Malaysia																																					
B		AUDIT SUMMARY																																					
1.	<b><u>General Information</u></b>	<p>The audit was carried out to evaluate the compliance and adequacy of procedure (readiness) of the workshop operation for the additional MarathonNorco part number requested into the Workshop Capability List. The additional part number was requested for external interested clients or Galaxy Aerospace future maintenance contract. MOC Ref. No.: GAM/MOC/23/0052 refers.</p> <p>Below are the details of the additional part number requested:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Battery Type</th> <th>Part Number</th> <th>No.</th> <th>Battery Type</th> <th>Part Number</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>\ CA-1700</td> <td>29365-01C</td> <td>6.</td> <td>\ M<sup>3</sup>X-33-1</td> <td>33181-001</td> </tr> <tr> <td>2.</td> <td>\ CTSP-400</td> <td>31519-001</td> <td>7.</td> <td>\ M<sup>3</sup>-54-1</td> <td>32536-001</td> </tr> <tr> <td>3.</td> <td>\ TMA-5-20C</td> <td>30703-002</td> <td>8.</td> <td>\ M<sup>3</sup>-54-2</td> <td>33033-001</td> </tr> <tr> <td>4.</td> <td>\ TSP-44-1</td> <td>33467-001</td> <td>9.</td> <td>\ M<sup>3</sup>-54-3</td> <td>32536-003</td> </tr> <tr> <td>5.</td> <td>\ UTSP-400</td> <td>31006-002</td> <td>10.</td> <td>\ M<sup>3</sup>X-54-1</td> <td>33183-001</td> </tr> </tbody> </table> <p>The audit was carried out with reference to the latest revision of CAD 8601, Maintenance Organisation Exposition (MOE), Engineering Procedure Manual (EPM) and AMO Audit Checklist.</p> <p>Review of the supporting documents, key personnel interviews, and workplace observations comprise the audit technique.</p>		No.	Battery Type	Part Number	No.	Battery Type	Part Number	1.	\ CA-1700	29365-01C	6.	\ M <sup>3</sup> X-33-1	33181-001	2.	\ CTSP-400	31519-001	7.	\ M <sup>3</sup> -54-1	32536-001	3.	\ TMA-5-20C	30703-002	8.	\ M <sup>3</sup> -54-2	33033-001	4.	\ TSP-44-1	33467-001	9.	\ M <sup>3</sup> -54-3	32536-003	5.	\ UTSP-400	31006-002	10.	\ M <sup>3</sup> X-54-1	33183-001
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The scope of audit area covers:

- (a) Facilities requirements;
- (b) Personnel requirements;
- (c) Maintenance Data / Documentation; and
- (d) Equipment / Special tools / Materials / Spare.

2. **Facilities**

(a) The additional part number requested are for the maintenance carried out in an approved maintenance facility as listed below:

- (i) Ni-Cad Battery Room,  
Galaxy Aerospace (M) Sdn. Bhd. Operation Centre (GAM OC),  
Suite 11-14, Helicopter Centre,  
Malaysia International Aerospace Centre,  
Sultan Abdul Aziz Shah Airport,  
47200 Subang, Selangor, Malaysia.

3. **Personnel**

(a) There are 4 component certifying staff qualified to perform the task.

No.	Name	GAM ID	Approval No.	Date attended formalized product training
1.	Mior Mohd Adib bin Mior Sallehuddin	8110	C001	02-09 Jan 2019
2.	Mohammad Fakhqursy bin Haniz	8235	C004	18-21 Jul 2022
3.	Mohammad Zakwan Izzat bin Zainudin	8062	C005	01-04 Sep 2022
4.	Nina Na'ilah binti Ruslan	8145	C006	01-04 Sep 2022

(b) An interview with Mior Mohd Adib was conducted for his understanding on the company procedure. The interview was acceptable. Personnel was able to provide copy of his certification authorization upon requested by the auditor.


(c) Training records for all the certifying staff involved in this activity were reviewed and found that all of them had attended the current mandatory training as stated in the MOE Part 3.4.5. No additional training required for inclusion of new battery type.

**4. Maintenance Data / Documentation**

(a) The applicable battery type and reference manuals are as follow:

No.	Battery Type	Reference Manual
1.	CA-1700	MarathonNorco Operating and Maintenance Manual for Nickel-Cadmium Aircraft Batteries 24-34-00.
2.	CTSP-400	
3.	TMA-5-20C	
4.	TSP-44-1	
5.	UTSP-400	
6.	M <sup>3</sup> X-33-1	MarathonNorco Operating and Component Maintenance Manual for Marathon Micro Maintenance (M <sup>3</sup> ) Nickel-Cadmium Aircraft Batteries 24-34-08.
7.	M <sup>3</sup> -54-1	
8.	M <sup>3</sup> -54-2	
9.	M <sup>3</sup> -54-3	
10.	M <sup>3</sup> X-54-1	

- (b) The Publication Master List Issue No. GAM/WS/P-13-2023 dated 06-10-2023 was reviewed during the audit, found the Illustrated Parts List for the additional MarathonNorco part no requested were not listed in the Publication Master List. **(NCR 01 raised)**
- (c) The latest revision of MarathonNorco Aircraft Battery CMM, IPL and Service Bulletins / Letters can be obtained from the website (<https://www.marathonnorco.com/technical-publications-list/>).
- (d) The workshop worksheet used to record the maintenance activities was the same worksheet template used for the other existing approved MarathonNorco Aircraft Battery Type.
- (e) MarathonNorco Operating and Maintenance Manual for Nickel-Cadmium Aircraft Batteries 24-34-00 have three workshop worksheets which are Extend Active Storage Shelf Life, 1 year inspection (includes temperature sensor) and 6 months inspection.
- (f) MarathonNorco Operating and Component Maintenance Manual for Marathon Micro Maintenance (M<sup>3</sup>) Nickel-Cadmium Aircraft Batteries 24-34-08 have three workshop worksheets which are Extend Active Storage Shelf Life, 1 year inspection (includes temperature sensor) and 6 months inspection.

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5. **Tools & Equipment's/Components/Spares**

(a) Tools / equipment / material were 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 were also identified in the list for ease of monitoring. Refer Appendix 1.



(c) List of equipment and tools available for the intended maintenance were as follows:

Description		P/N available during audit	QA Remarks
Battery Charger and Discharger (Christie)		123020-001	CTE/250
Servicing Kits		32480-001 and 33178-001	ST011 and ST239
Digital Insulation Multimeter (Capable to measure voltage and current)		FLUKE 1587	CTE/74 CTE/340
Standard Mechanic's Tools		Commercially available	Commercially available
Infrared Thermometer		Commercially available	Commercially available
Temperature Sensor Test Unit –	Climatic Chamber	BS2185	ST252
	Fluke Thermocouple Thermometer	51 II	CTE/114
Vernier Caliper		Commercially available	CTE/173, CTE/266, CTE/277
Torque Wrench		Commercially available	CTE/363, CTE/81, CTE/115, CTE/362
Stiff Bristle Brush (non-metallic)		Commercially available	Commercially available
Heat Gun		Commercially available	Commercially available

7. **Conclusion**

There was one minor NCR raised during this audit and no major finding was found during the audit. The audit was determined to be satisfactory in general. Respective auditee shall also take the necessary action to all issues highlighted by the auditor during the audit.

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<b>C PREPARATION AND APPROVAL</b>	
1.	<p>Prepared by Signature :  Date : 21.12.2023</p> <p>Name :  OMAR BIN AHMAD Quality Assurance Manager Galaxy Aerospace (M) Sdn. Bhd (1040262-D)</p>
2.	<p>Approved by Signature :  Date : 21.12.2023</p> <p>Name :  OMAR BIN AHMAD Quality Assurance Manager Galaxy Aerospace (M) Sdn. Bhd (1040262-D)</p>

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**Appendix 1**

CUPBOARD C - EQUIPMENT LIST						
ITEM	GAM ID	DESCRIPTION	P/N OR MODEL	S/N	CALIBRATION DUE	LOC
1	CTE/540	FLUKE 1587 Insulation Multimeter	FLUKE 1587	3650094	SENT FOR CALIBRATION	L1
2	CTE/74	FLUKE 1587 Insulation Multimeter	FLUKE 1587	45330115	28-MAR-2024	L1
3	CTE/60	BC-9000 Battery Charger/ DC Power Supply (KIT)	4169	00000328	10-JULY-2024	L3
4	CTE/61	BC-8000 Battery Capacity/ Discharge Tester/ Battery Charger/ DC Power Supply (KIT)	4168	00001063	SENT FOR CALIBRATION	L2
5	CTE/64	GEDORE TBN 10 Preset Insulated Torque Wrench (30 lbf.in)	1050TW141	1JT000675	26-APR-2024	L1(2)
6	CTE/65	GEDORE TSN 25 Preset Insulated Torque Wrench (115 lbf.in)	30150TW141	1JT000510	26-APR-2024	L1(2)
7	CTE/66 C	UNI-T Infrared Thermometers	UT300S	N/A	21-MAR-2024	L1(4)
8	CTE/67	Thermohygrometer (Spare)	HTC-1	N/A	27-APR-2024	L1(5)
9	CTE/71	BC-7000 Battery Capacity Tester (KIT)	4167	00000213	03-FEB-2024	L3
10	CTE/363	Insulated Torque Wrench 1/4' Drive (10 - 50 lbf.in)	1050TW141	0918912697	01-JUN-2024	L2
11	CTE/81	Insulated Torque Wrench 1/4' Drive (30 - 150 lbf.in)	30150TW141	19063696	SENT FOR CALIBRATION	L1(3)
12	CTE/108	HANNA Waterproof Tester	HI98129	1706302	08-JUL-2024	L1(5)
13	CTE/111	Kennedy Quick Set Torque Screwdriver	QSS08H	00510456	SENT FOR CALIBRATION	L1(2)
14	CTE/173	Vernier Caliper, Plastic	4113203	N/A	27-JAN-2024	L1(1)
15	CTE/114	Fluke Thermocouple Thermometer	FLUKE 51 II	51008731MV	27-JAN-2024	L1
16	CTE/115	Insulated Torque Wrench 1/4' Drive (30 - 150 lbf.in)	30150TW141	0721903005	29-MAR-2024	L1(3)
17	CTE/238	GO-NO-GO GAUGE	BS1073M	N/A	26-JAN-2024	L1(4)
18	CTE/264	AC OUTLET ANALYSER WITH UK PLUG	776-5315	2146008	SENT FOR CALIBRATION	L1
19	CTE/266	Digital Calliper 5 Digit (0.01mm-150mm)	29422	N/A	24-MAR-2024	L1(1)
20	CTE/277	Digital Calliper (0.01mm-150mm)	29422	N/A	25-MAY-2024	L1(1)
21	CTE/362	Insulated Torque Wrench 1/4' Drive (30 - 150 lbf.in)	30150TW141	21121377	01-JUN-2024	L2
22	CTE/296	Datalogger Temperature	RS-172	210727891	24-MAY-2024	L1(6)
23	CTE/298	Digital Hydrometer	DH-10C	AA021282	22-JUN-2024	L1
24	CTE/358	TORQUE SCREWDRIVER	1515P	0423400261	07-JUN-2024	L1(2)
25	CTE/250	CHRISTIE REFLEX CHARGER ANALYZER RF80-M	N/A	123020-001	17-FEB-2024	NICAD BATTERY ROOM

**List of Calibrated Tool**