SEALED LEAD ACID BATTERY
PART No. 9750U0554

COMPONENT MAINTENANCE MANUAL

WITH

ILLUSTRATED PARTS LIST

DOCUMENT No.
9602-6934 Rev. 04

COMPONENT MAINTENANCE MANUAL
9750U0554

HIGHLIGHTS

To: Holders of battery Type Falcon F6X Sealed Lead Acid Battery ATA Reference 21-01-02 Component Maintenance Manual (CMM)

Herewith Revision No. 4 dated MAY 23/25

This revision of the component Maintenance Manual has the following modifications:

- Inclusion of HIGHLIGHTS section
- General update to TESTING, DISASSEMBLY, ASSEMBLY & IPL sections
- Update of special tools, fixtures and equipment and addition of consumables

CHAPTER	PAGES	ACTION
Highlights	**HLGHTS Page 1**	**New**
Record of Revisions	**R/R-1**	**Updated**
List of Effective Pages	**LEP-1**	**Updated**
Table of Contents	**T/C-1**	**Updated**
Introduction	**INTRO-1**	**Updated**
Description	**5/6**	**Updated**
Testing	**Page(s) 7,16,21,23/24**	**Updated**
Disassembly	**Page(s) 26**	**Updated**
Assembly	**Page(s) 34,35/36**	**Updated**
Special tools, fixtures and equipment	**Page(s) 37/38**	**Updated**
Illustrated Parts List	**Page(s) 42**	**Updated**

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RECORD OF REVISIONS

REV No.	*ISSUE DATE*	*INSERT DATE*	*BY*	*REV No.*	*ISSUE DATE*	*INSERT DATE*	*BY*
01	27/11/19						
02	09/10/20						
03	17/02/23						
04	23/05/25						

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RECORD OF TEMPORARY REVISIONS

TEMPORARY REV No.	PAGE No.	ISSUE DATE	BY	DATE REMOVED	BY

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SERVICE BULLETIN LIST

SERVICE BULLETIN NUMBER	REVISION NUMBER	DATE BULLETIN INCORPORATED INTO MANUAL

PRODUCT IMPROVEMENTS

Product improvements have been incorporated using service bulletins entered in the service bulletin list. Service bulletin highlights are as follows:

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LIST OF EFFECTIVE PAGES

SUBJECT	PAGE	DATE	SUBJECT	PAGE	DATE
Title	T-1	MAY 23/25	Disassembly	25 26 27	NOV 27/19 MAY 23/25 MAY 23/25
Record of Revisions	R/R-1	MAY 23/25			
Record of Temporary Revisions	TR-1	NOV 27/19	Cleaning	28	OCT 29/20
Service Bulletin List	SBL-1	NOV 27/19	Check	29/30	OCT 29/20
List of effective Pages	LEP-1	MAY 23/25	Repair	31 32	OCT 29/20 Oct 29/20
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INTRODUCTION

The instructions in this manual provide the information necessary for an experienced shop mechanic to service and if required, re-block batteries with no specialised training.

The manual is divided into separate sections:

1. Title page
2. Record of revision
3. List of Effective Pages
4. Table of Contents
5. Introduction
6. Procedures and IPL Sections

The disassembly, repair and assembly sections generally contain only specific instructions to be used on the equipment covered herein. Most standard aerospace practices are not described herein.

An explanation of the use of the illustrated Parts List (IPL) is provided in the introduction to that section.

All weights and measurements in the manual are in English units, unless otherwise stated.

The Falcon 6X battery 9750U0554 is manufactured by:

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DESCRIPTION & OPERATION

1. Description

The Falcon 6X battery is a 24Volt 37Ah Valve Regulated Lead Acid Battery (VRLA) comprising of 2 x 12Volt 37 Ah monoblocs connected in series, a heater assembly and two PT100 temperature sensors housed within an aluminium case and lid.

The purpose of the battery is to:

- Provide electrical power when no other electrical power is available whilst on the ground.
- Provide power to aircraft systems during the APU start.
- Act as the emergency power supply to the aircraft essential equipment in the event of a total loss of electrical power.
- Act as buffer in the event of short electrical power interruption or A/C network voltage transient.

Each Monobloc incorporates resealing safety valves to guard against the effects of abusive use of the battery.

As the Falcon 6X battery is sealed, there are no restrictions as to transportation. The batteries are classified as non-hazardous cargo when transported by air, land or sea.

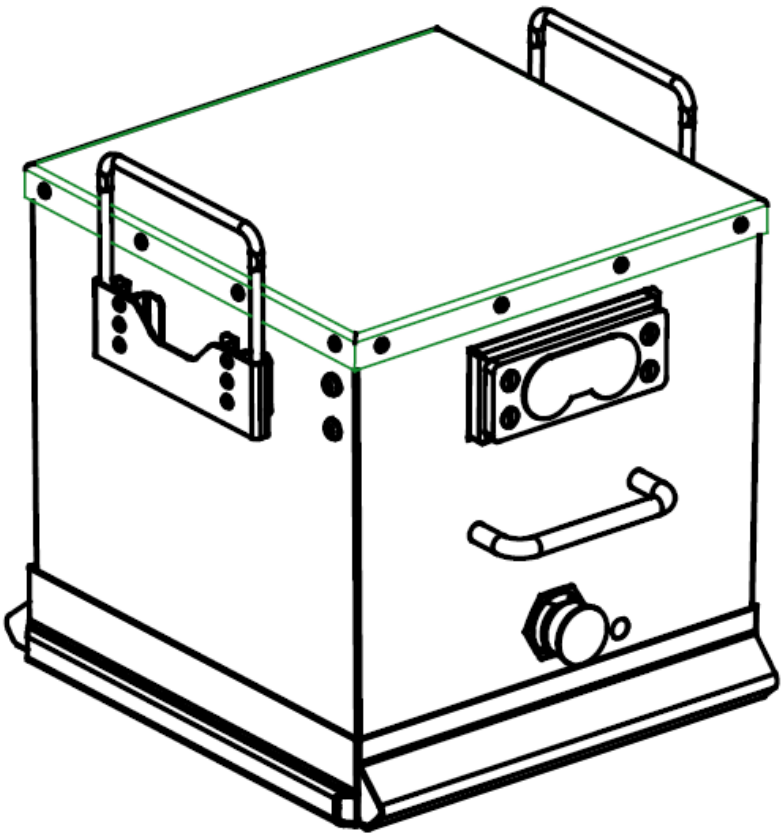

Figure 1 - Falcon 6X Battery

2. Operation

A Condition of battery on receipt

All batteries are dispatched from the manufacturer in a fully charged condition, the date of the latest charge being marked on the outer packaging

CAUTION : The battery is maintenance free. Under no circumstances should any attempt be made to introduce any substances, e.g., acid, distilled water or alkali, to the battery.

B Temperature Effect

The ideal environmental temperature for battery operation is 23°C (73°F) to 25°C (77°F). Long-term exposure to temperatures above 30°C (86°F) can shorten the life of the battery.

As the temperature falls, the available capacity of the battery is reduced, which causes a reduction in performance. However, this is not a permanent condition, and the capacity will be restored as the temperature rises. Long-term exposure to low temperatures will not damage the battery.

C State of Charge

The battery is designed to commence discharge when the open circuit voltage (OCV) is within the 80 - 100% of nominal capacity range. At no time should the battery OCV be below 25.4 volts.

The graph in figure 2 demonstrates the effect of temperature on battery capacity at various discharge rates.

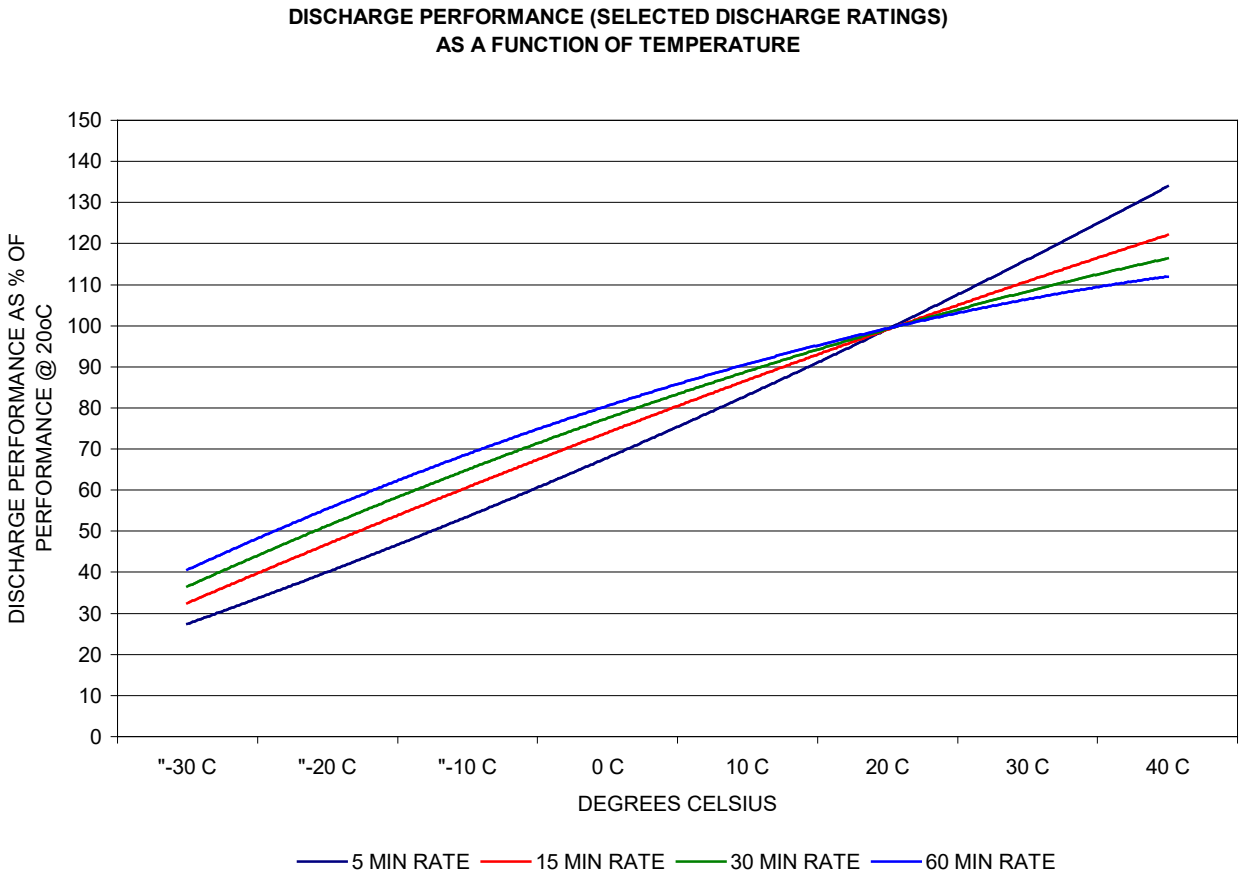

Figure 2 - Variation in Performance with Discharge Temperature

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General Information		
Battery Voltage:	Nominal 24.0 Volts	
Battery Weight:	39 Kg Max	
Dimensions:	Overall Height	265 mm Max.at corners 267 mm Max at centre of battery
	Overall Width	265 mm Max.
	Overall Length	293.7 mm Max.
Main Connector:	MIL-PRF-18148/3 type: MS 3509	
Auxiliary Connector:	MIL-DTL-38999/24WD19PN.	
Rated Capacity:	37 ampere-hours at the one-hour rate	
Battery Case Material:	Aluminium 5052 H32	

Table 1 - Leading Particulars

TESTING AND FAULT ISOLATION

1. General

This section contains battery functional tests and fault isolation information. Trouble shooting is presented in chart form (Ref. Fig.8).

2. Required Test Equipment (Ref. Fig. 4).

NOTE: Test equipment having equivalent specifications can be used.

NOMENCLATURE	*MFR*	*MODEL/PN*	*APPLICATION*
Battery Charger / Analyser	Christie	RF80K	Testing
DC Voltmeter Precision (±0.5%) 0 to 50V	Fluke	Fluke 85	Testing
Infrared temperature Gun	-	-	Testing

Table 2 - Required Test Equipment

3. Test Equipment Set Up

A. Capacity Testing
Connect the battery to the Charger / Analyser in accordance with figure 3.

B. Recharging
Connect the battery to the Charger / Analyser in accordance with figure 3.

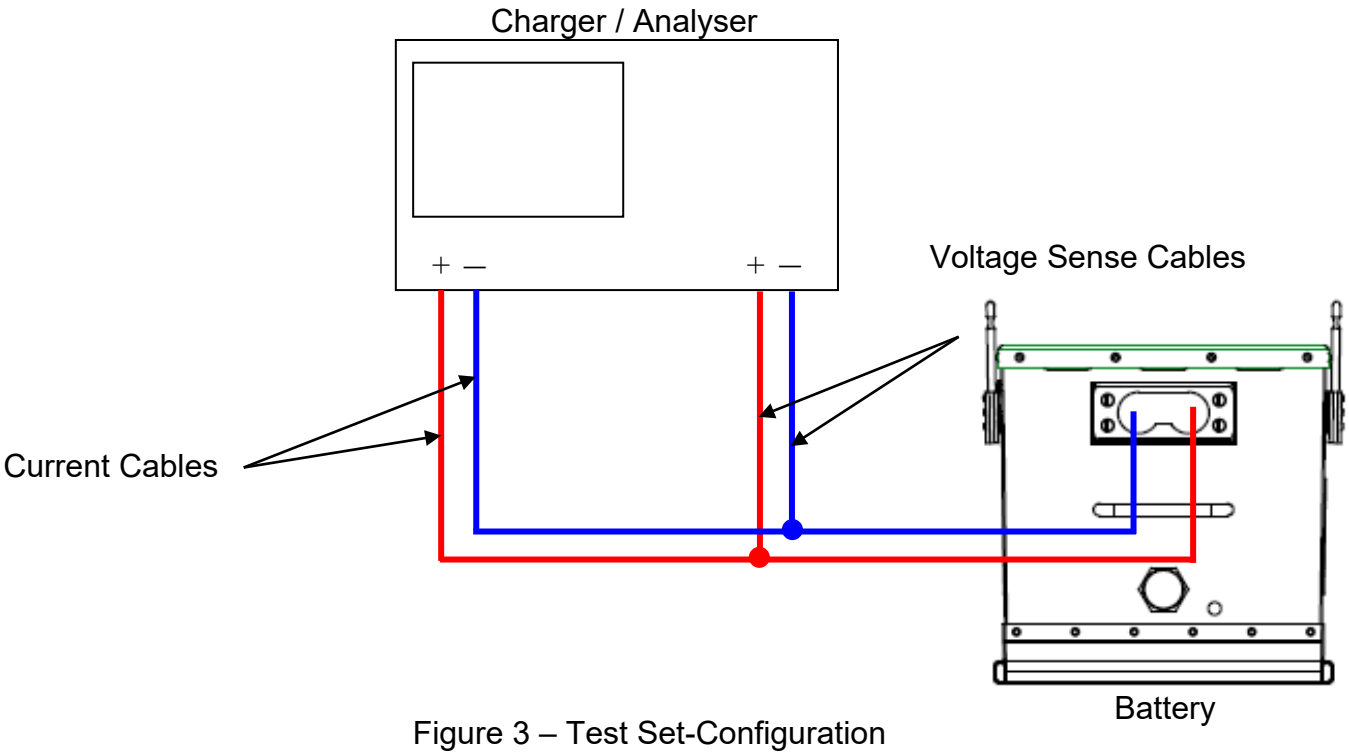


Figure 3 – Test Set-Configuration

4. Testing

A. Test Equipment

Refer to Table 2 for test equipment recommendations.

B. Condition of Batteries on Receipt

All batteries are despatched from manufacturer in a fully charged condition, the date of the latest charge being marked on the outer packaging.

C. Unpacking and Acceptance Checks

NOTE: The only acceptance check required immediately upon receipt is to look for signs of damage in transit. Unpacking and detailed examination is unnecessary and should be left until the battery is removed from storage.

D. Storage

The battery should be stored, fully charged, in a cool dry place, ideally below 25°C(77°F). The battery charge retention will be reduced, and possible performance degradation will occur if it is subjected to long-term exposure well in excess of this temperature.

The battery has a maximum inspection-free storage life of two (2) years, if stored at or below 20°C(68°F), after which a boost charge should be administered in accordance with Section H. However, it is advisable to conduct an inspection and open circuit voltage check after 12 months and top-up charge in accordance with Section 4.H if necessary.

The battery may be stored up to five (5) years without degradation of performance provided that an inspection and open circuit voltage check is conducted every 12 months. When stored in temperatures in excess of 25°C(77°F) the battery should be inspected every 6 months, and top-up charged in accordance with Section H should the open circuit voltage fall below 25.5 volts.

Should the battery be returned to storage following in-service use, it must be fully recharged in accordance with Section 4.H and if possible packed in original packaging.

E. State of Charge

The open circuit voltage of the battery prior to service can be used as an approximate guide to the state of charge of the battery. Figure 4 shows the relationship between open-circuit voltage and the state of charge of a new battery after 24 hours or more after recharge.

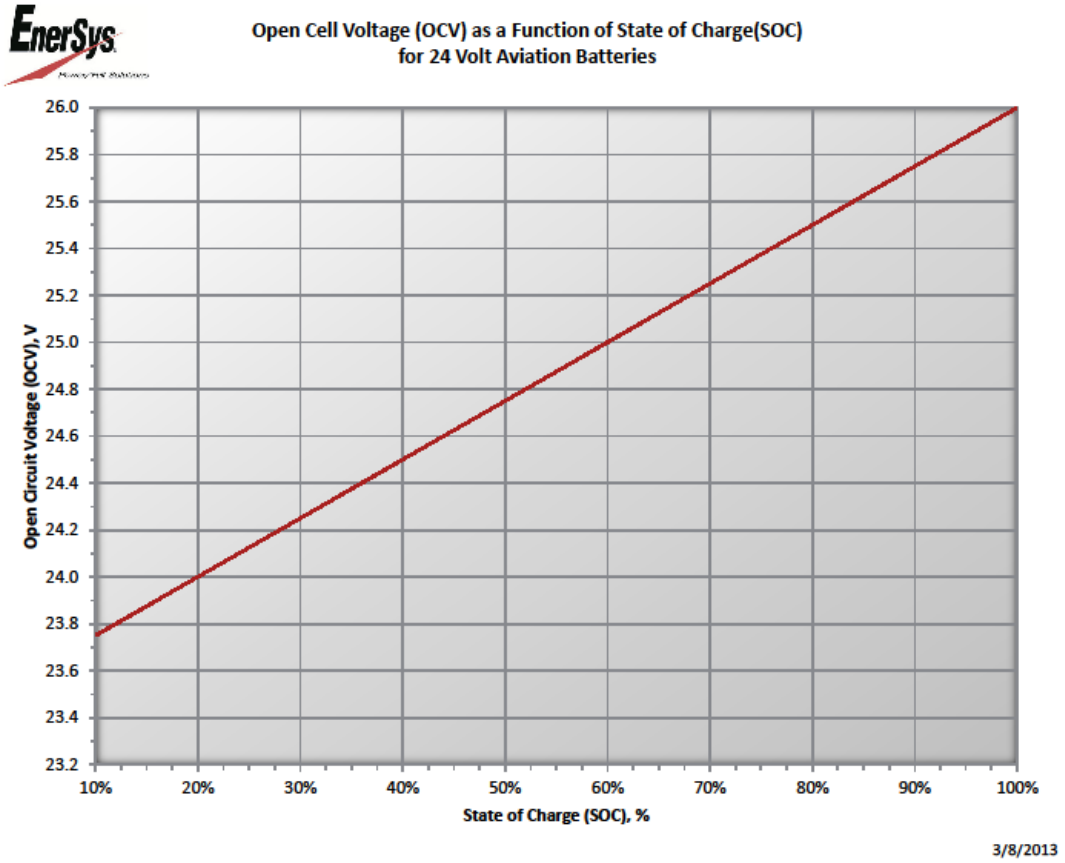


Figure 4 - Open Circuit Voltage as a function of State of Charge

Note!

That state of charge is not the same as available capacity. A battery at end-of-life and fully charged will show an OCV of 26.0V approximately but have an available capacity of 80% of rated capacity.

F. Commissioning Procedure (*Refer to Figure 5 – Battery commissioning flowchart)*

NOTE

A dedicated lead acid battery charging room is not required for battery commissioning. A normal electrical workshop may be used, and the battery can even be commissioned in a Nickel Cadmium battery room without fear of contamination.

1. Visual Inspection

1.1. Visually inspect the exterior of the battery and receptacles for signs of damage, cracks or corrosion. If any defects are found, pack the battery in its original packaging and reject the battery in accordance with Section J

2. Voltage checks

2.1. Measure the open circuit voltage (OCV).

2.1.1. If the OCV is in greater than or equal to 25.5 volts, the capacity is at least 80% and the battery can be issued for service.

2.1.2. If the OCV is greater than 25.3 volts but lower than 25.5 volts.

2.1.2.1. Charge the battery in accordance with Section 4.H.

2.1.2.2. On completion of the recharge, allow the battery to stand open circuit for a minimum of 4 hours for the battery voltage to stabilise.

2.1.2.3. If the open circuit voltage equals 25.5 volts or greater the battery can be issued for service.

2.1.3. If the open circuit voltage is less than 25.3 volts, the battery needs to be charged.

2.1.3.1. Charge the battery in accordance with Section 4.H.

2.1.3.2. On completion of the recharge, allow the battery to stand open circuit for a minimum of 4 hours for the battery voltage to stabilise.

2.1.3.3. Preform a capacity test, in accordance with Section 4.G

2.1.3.4. If the battery achieves at least 80% capacity:

2.1.3.4.1. Record the capacity and date of test.

2.1.3.4.2. Issue the battery to service

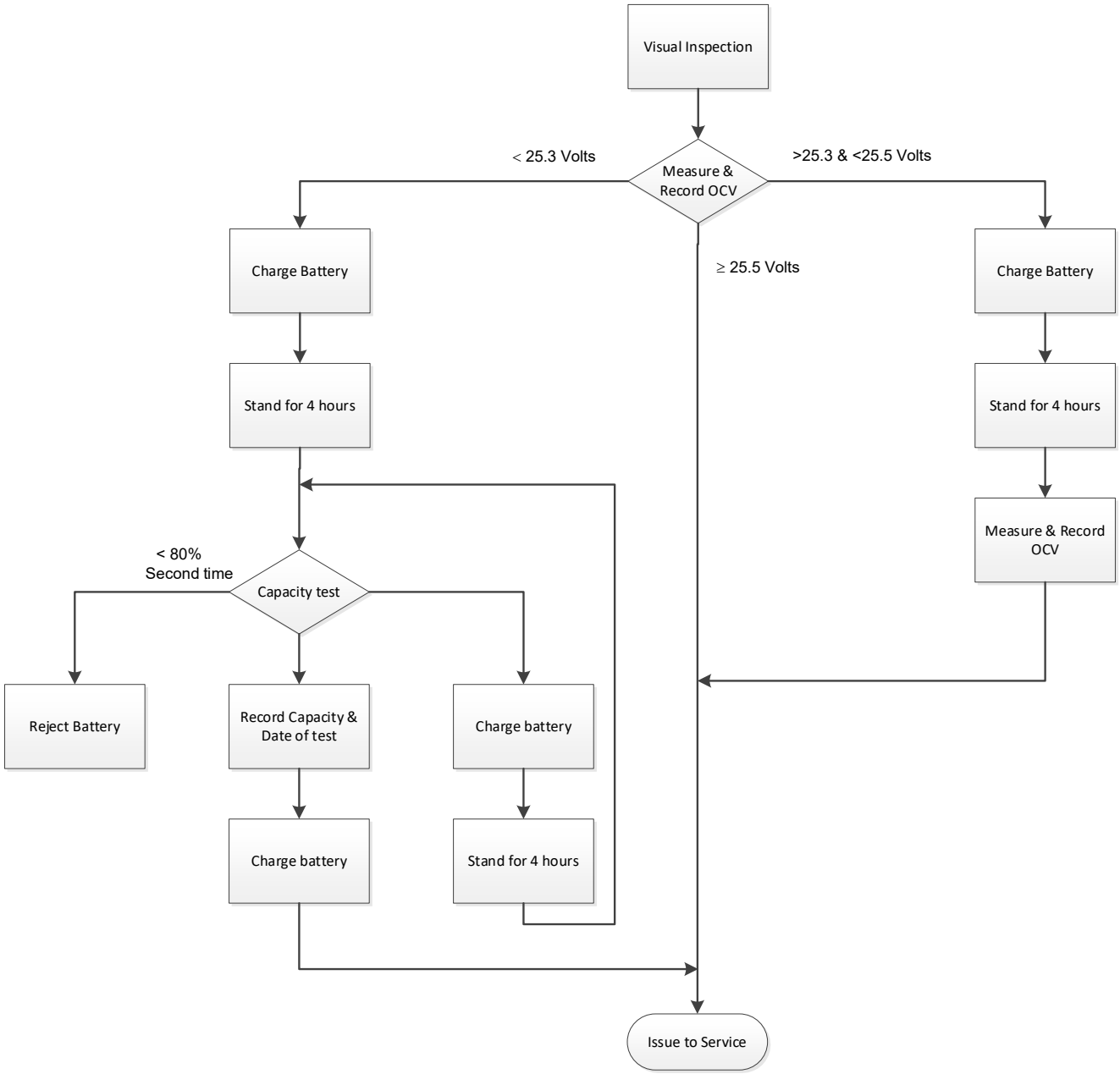


Figure 5 – Battery Commissioning Flowchart

G Scheduled/Unscheduled Maintenance (Refer to figure 6 for Scheduled/Unscheduled maintenance flowchart)

In normal service the battery may be installed on the aircraft up to a maximum of 12 months, after which it should be removed and subjected to scheduled maintenance.

1. Visual Inspection.

1.1. Visually inspect the exterior of the battery casing for signs of damage and cracks. Examine the battery terminal and heater connector. for signs of damage, corrosion, and water/dirt ingress; clean as necessary.

2. Insulation Resistance

2.1. Measure and record the insulation resistance between the negative terminal and the battery case.

2.2. The minimum resistance value shall be 250KΩ before cleaning and a 10MΩ after cleaning.

3. Earthing Bonding

3.1. Using a Milli-ohmmeter, measure and record the resistance between the Pin (V) of receptacle J2 and the unpainted area on the front face of the battery.

3.2. The resistance shall be less than 50 mΩ.

3.3. If the resistance value is greater than 50mΩ, clean grounding surface and repeat 1.3.1

3.4. If resistance is still greater than 50mΩ, refer to REPAIR.

4. Heater Assembly

4.1. Using a multimeter, measure and record the resistance between the following pins of receptacle J2

Heater	Pin	Pin	Resistance (Ω)
A – B	B	C	219 to 241
A – C	B	P	219 to 241
B – C	C	P	219 to 241
D	D	E	72 to 80

4.2. If the values measured or outside the specified range, refer to REPAIR.

5. PT100 Temperature Sensor

5.1. Using a multimeter, measure and record the resistance between the following pins of receptacle J2

Temperature Sensor	Pin	Pin
T1	J	K
T2	L	M

5.2. Using Table 3, check the measure resistance values of each temperature sensor against the specified lower/ upper temperature limits.

5.3. Measure and record the temperature on the top surface of the PT100 sensors using a calibrated IR meter.

Measured Resistance Ohms	Lower Temperature Tolerance °C	Upper Temperature Tolerance °C		Measured Resistance Ohms	Lower Temperature Tolerance °C	Upper Temperature Tolerance °C		Measured Resistance Ohms	Lower Temperature Tolerance °C	Upper Temperature Tolerance °C
105	11.70	14.72		108.4	20.43	23.53		111.7	28.92	32.10
105.1	11.96	14.98		108.5	20.69	23.79		111.8	29.18	32.36
105.2	12.22	15.24		108.6	20.94	24.05		111.9	29.44	32.62
105.3	12.47	15.50		108.7	21.20	24.30		112	29.70	32.88
105.4	12.73	15.76		108.8	21.46	24.56		112.1	29.95	33.14
105.5	12.99	16.02		108.9	21.71	24.82		112.2	30.21	33.40
105.6	13.24	16.27		109	21.97	25.08		112.3	30.47	33.66
105.7	13.50	16.53		109.1	22.23	25.34		112.4	30.73	33.92
105.8	13.76	16.79		109.2	22.49	25.60		112.5	30.98	34.18
105.9	14.01	17.05		109.3	22.74	25.86		112.6	31.24	34.44
106	14.27	17.31		109.4	23.00	26.12		112.7	31.50	34.70
106.1	14.52	17.57		109.5	23.26	26.38		112.8	31.76	34.96
106.2	14.78	17.83		109.6	23.51	26.64		112.9	32.02	35.22
106.3	15.04	18.09		109.7	23.77	26.90		113	32.27	35.48
106.4	15.29	18.34		109.8	24.03	27.16		113.1	32.53	35.74
106.5	15.55	18.60		109.9	24.29	27.42		113.2	32.79	36.00
106.6	15.81	18.86		110	24.54	27.68		113.3	33.05	36.26
106.7	16.06	19.12		110.1	24.80	27.94		113.4	33.31	36.52
106.8	16.32	19.38		110.2	25.06	28.20		113.5	33.56	36.78
106.9	16.58	19.64		110.3	25.32	28.46		113.6	33.82	37.04
107	16.83	19.90		110.4	25.57	28.72		113.7	34.08	37.30
107.1	17.09	20.16		110.5	25.83	28.98		113.8	34.34	37.56
107.2	17.35	20.42		110.6	26.09	29.24		113.9	34.60	37.82
107.3	17.60	20.68		110.7	26.35	29.50		114	34.86	38.08
107.4	17.86	20.93		110.8	26.60	29.76		114.1	35.11	38.34
107.5	18.12	21.19		110.9	26.86	30.02		114.2	35.37	38.61
107.6	18.37	21.45		111	27.12	30.28		114.3	35.63	38.87
107.7	18.63	21.71		111.1	27.38	30.54		114.4	35.89	39.13
107.8	18.89	21.97		111.2	27.63	30.80		114.5	36.15	39.39
107.9	19.14	22.23		111.3	27.89	31.06		114.6	36.40	39.65
108	19.40	22.49		111.4	28.15	31.32		114.7	36.66	39.91
108.1	19.66	22.75		111.5	28.41	31.58		114.8	36.92	40.17
108.2	19.92	23.01		111.6	28.66	31.84		114.9	37.18	40.43

Table 3 – PT100 Temperature range v/s Resistance

5.4. If the values measured or outside the specified range, refer to REPAIR

6. Open circuit Voltage (OCV)

6.1. Measure and record the OCV using a digital multi-meter.

6.1.1. If the OCV is greater than 25.5 Volts, test the battery in the “as found” condition and continue with capacity test (4.G.7).

6.1.2. If the OCV measures greater than 20.0 Volts but less than 25.5 Volts, charge the battery per Section 4.H. On completion of the charge, allow the battery to stand open circuit for a minimum of 4 hours for the battery voltage to stabilise before continuing with capacity test (4.G.7).

6.1.3. If the OCV measures 20.0 Volts or less the battery procedure with Deep discharge recovery procedure 9602-6298 as the battery is considered to be in a deeply discharge state.

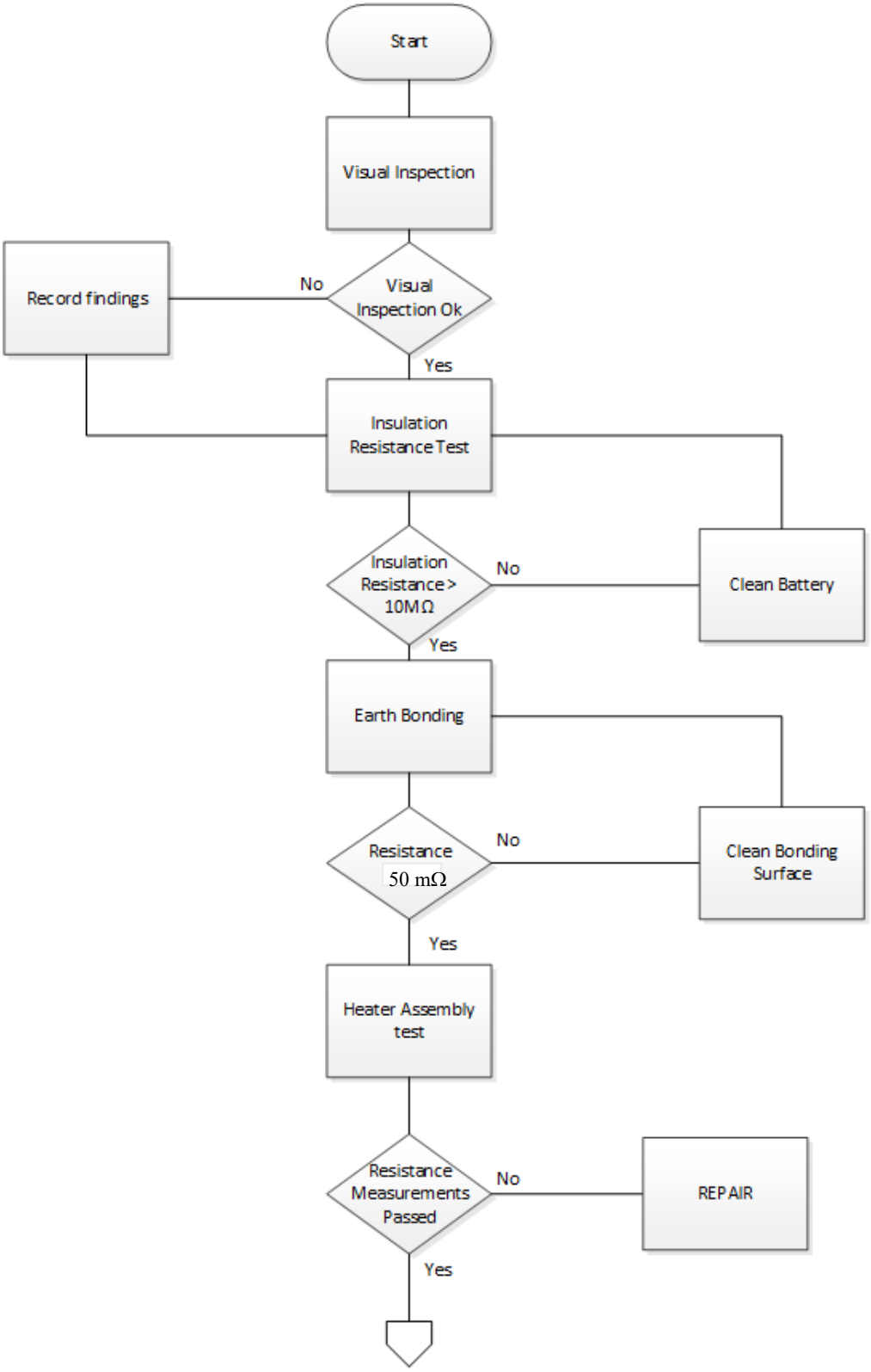
7. Capacity Test

7.1. Perform a capacity test per Section 4.H.

7.1.1. If the result of the capacity test is greater than 80%, Record the capacity and date of test on the battery label.

7.2. Recharge battery per Section 4.I.

7.3. Ensure the battery is clean and return the battery to service


Start
Visual Inspection
Visual Inspection Ok
No
Record findings
Yes
Insulation Resistance Test
Insulation Resistance > 10MΩ
No
Clean Battery
Yes
Earth Bonding
Resistance 50 mΩ
No
Clean Bonding Surface
Yes
Heater Assembly test
Resistance Measurements Passed
No
REPAIR
Yes

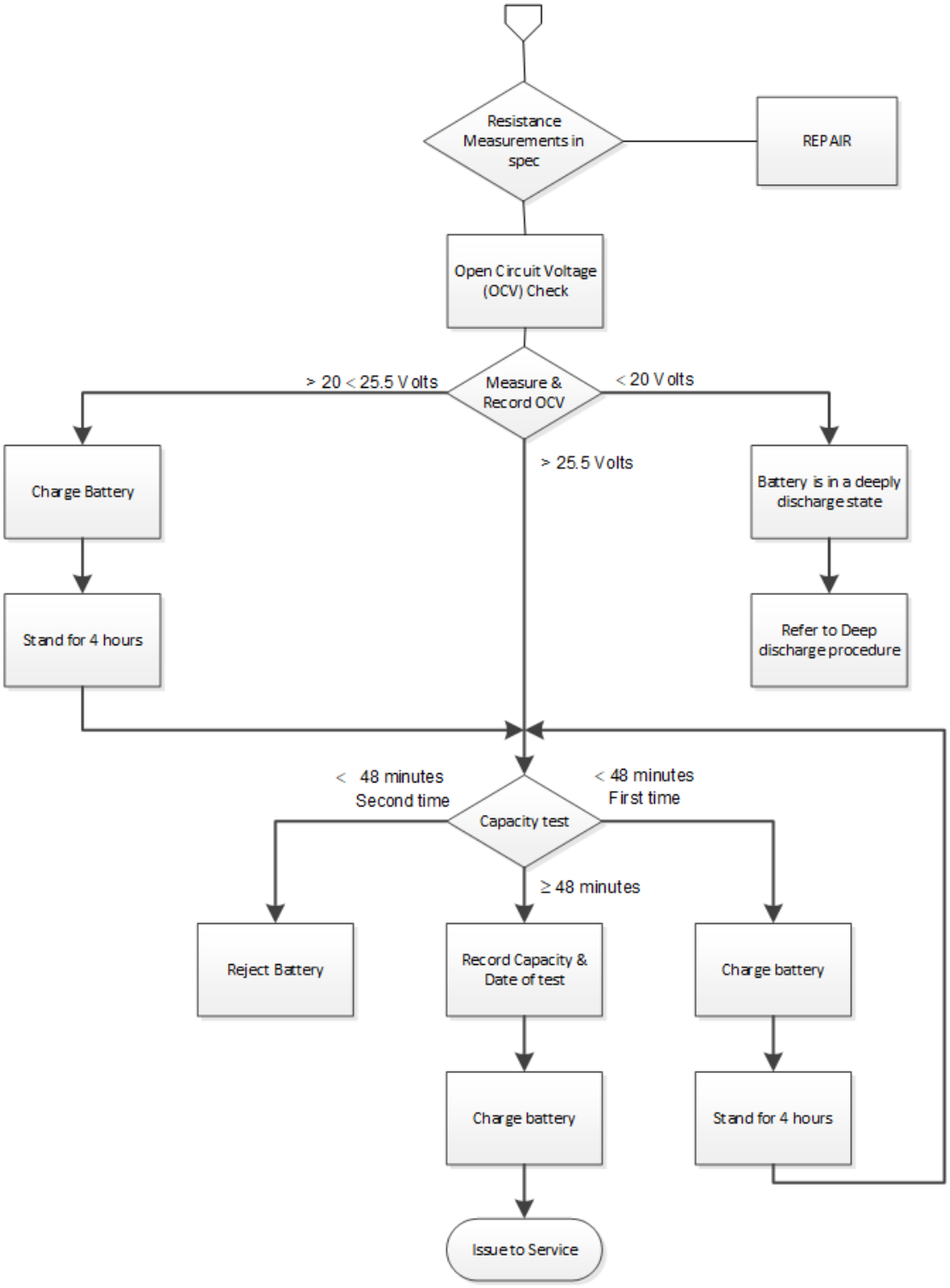


Figure 6 – Scheduled/Unscheduled Maintenance flowchart

H Capacity Test

Capacity testing is performed by discharging the battery with a constant current load at the one- hour rate and measuring the time required (in minutes) to reach the cut off voltage.

1. Connect the battery to the charger / Analyser as per figure 3.

2. Discharge the battery at a constant current of 37 amps to an end voltage of 20.0 volts.

3. Calculate the capacity of the battery using this equation:

Capacity% = (Run Time / 60) X 100

3.1. If the discharge duration is greater than 80% i.e. 48 minutes, recharge the battery in accordance with Section I.

Note: The minimum allowable capacity for flight is 80% or 48 minutes

3.2. If the discharge duration is less than 80%:

3.2.1. Recharge the battery in accordance with Section H.

3.2.2. On completion of the charge, allow the battery to stand open circuit for a minimum of 4 hours for the battery voltage to stabilise.

3.2.3. Conduct a further discharge test Discharge the battery at a constant current of 37 amps to an end voltage of 20.0 volts.

3.2.3.1. If the discharge duration is now in excess of 80%, recharge the battery in accordance with Section 4.I.

3.2.3.2. If the discharge duration is still below 80%, reject the battery in accordance with Section 4.J.

Charging

This manual only covers Constant Voltage (CV) charging since CV charging is the preferred method. If constant current charging is the only available option, please contact EnerSys Technical Support for guidance.

Note:

Charging should be performed in the battery work shop where the ambient temperature is maintained between 20ºC(68°F) and 30ºC(86°F). The battery may be charged outside this temperature window if a temperature compensated charger is used.

1. Charge the battery at a constant voltage of 28.5Volts with a charger capable of delivering a **minimum** of 20Amps using the set-up illustrated in figure 3 for a minimum charge duration of 6 hours).

J Rejection Procedure

1. If the exterior of the battery and receptacles for signs of damage, cracks or corrosion during commission, contact either manufacture of the battery.

2. If the battery fails to attain a 48-minute run time (80% capacity) after two discharge tests, it is acceptable to reblock the battery on two occasions by an approved EASA Part 145 Organisation. If the battery has already been reblocked on two occasions and fails to meet the release to service criteria, then the battery should be decommissioned and replaced.

5. Fault Isolation

Trouble shooting information is presented in Table 4 as a guide in locating a cause of malfunction and isolating the cause to a specific component.

TROUBLE	*PROBABLE CAUSE*	*REMEDY*
Zero battery voltage	Broken or loose terminal connections.	Repair per repair instructions.
Low battery capacity	In service charging malfunction.	Run electrical test. Check aircraft charger.
	Defective cell	Run electrical test
	Defective Heater(s)	Check heater assembly
	Defective Temperature Sensors	Check PT100 temperature sensors
Low voltage output	In service charger malfunction, loose terminal connection.	Run electrical test. Check aircraft charger.

Table 4 - Fault Isolation

DISASSEMBLY

1. General

This section describes and provides the information necessary for an experienced shop mechanic to re-block batteries with no specialised training.

2. Safety

WARNING: Caution shall be exercised when testing, building and handling batteries, as monoblocs are fully charged and any short circuit condition may result in injury.

WARNING: To avoid risk of injury, care shall be taken when wearing jewellery such as rings, bracelets, metal watchstraps, necklaces and belt buckles.

CAUTION: Any such items shall if possible, be removed prior to working on monoblocs or batteries to avoid risk of injury.

CAUTION: All tools coming into contact with the monobloc terminals shall be fully insulated to prevent the risk of a short circuit condition.

3. Detailed Instructions

NOTE: The ( ) part identification numbers herein are detailed in IPL, Fig.1 item numbers.

A. SLAB Batteries with serial numbers M0001 to M0399: Do steps given in B.(1) to remove cover (30).

B. SLAB Batteries with serial numbers M0400 onwards: Do steps given below to remove cover (30).

Check the Rivet Code marked on the battery Label (200), If the Rivet Code is -1, go to step (1). If the rivet code is -2, go to step (2)

(1) Rivet Type NAS1720H4-2A (40)

(a) Punch out the rivet (40) stems with a 2.0 mm (0.078 in.) pin punch.

CAUTION: BE CAREFUL NOT TO DAMAGE THE PAINTED SURFACE OF THE OUTER BATTERY COVER (30).

(b) Cut off the rivet (40) heads with a sharp chisel (bevel angle of 20° or less).

(c) Punch the rivet (40) sleeves through the outer battery case (210) holes with a 3.0 mm (0.118 in.) pin punch.

(d) Remove the cover (30) and debris from the rivets (40) from inside the outer battery case (210).

(e) Make sure that the rivet (40) hole diameters are within specification. Refer to CHECK for maximum rivet hole specification size.

(2) Rivet Type NAS1398D4A2 (40A)

CAUTION: TO PREVENT DAMAGE TO THE OUTER BATTERY CASE (210) AND COVER (30), DO NOT USE CENTRE PUNCH AND HAMMER.

(a) Centre mark the stem of the rivets (40A) with a rotary tool and carbide ball burr to give a guide for the subsequent drilling operation.

CAUTION: BE CAREFUL NOT TO DAMAGE THE STRUCTURE OF THE OUTER BATTERY CASE (210) AND COVER (30).

(b) Drill to remove the locking sleeve in the head of the rivets (40A), then drill through the depth of the rivet heads with a 3.0 mm (0.118 in.) drill bit. Use a slow drilling speed and keep the drill at 90° to the surface of the outer battery case (210).

(c) Break off the rivet (40A) heads with a 3.0 mm (0.118 in.) pin punch with a flat head by prying from side to side.

(d) Punch the rivet (40A) sleeves through the outer battery case (210) holes with a 3.0 mm (0.118 in.) pin punch.

(e) Remove cover (30) and any debris from the rivets (40A) from inside the outer battery case (210).

(f) Make sure that the rivet (40A) hole diameters are within specification. Refer to CHECK for maximum rivet hole specification size.

C. Remove the two holddown blocks (100)

D. Remove the four monobloc terminal nut covers (80).

E. Remove and the binx nuts (70), plain washers (60), from the rear lamination (50).

F. Remove the binx nut (70), plain washer (60), from the positive terminal lamination.

G. Remove the binx nut (70), plain washer (60), and from the negative terminal lamination.

NOTE: Do not remove the front laminations from the main battery connector.

NOTE: All Binx nuts and washers should be discarded together with the rear laminations and holddown blocks.

H. Disconnect the internal heater connector

I. Carefully remove the two PT100 sensors (150) from the surface of the monobloc. assembly.

J. Remove screws (110) and washers (120), securing thermostat bracket (190) to the battery case.

K. Carefully position the positive and negative laminations, PT100 temperature sensors (150) and thermostat bracket (190) so that they do not become trapped during the removal of the monobloc and heater assembly

L. Carefully invert the battery onto a polystyrene block (40mm thick), or other non-conductive material and carefully remove the battery case.

NOTE: Care must be taken to avoid shorting terminals during this procedure

NOTE: Position the front of the case so that it is clear of the polystyrene block to avoid damaging the laminations, internal wiring, PT100 sensors and thermostat assembly.

CLEANING

1. General

   A. The following item is required to perform the cleaning procedure.

      Soft clean dry cloth

2. Disassembled Battery

   A. Ensure that no particles from the drilled rivets remain in the case.

   B. Wipe the inside of the case and underside of lid with soft clean dry cloth to remove dust or dirt particles.

CHECK

1. General

A. Battery case and lid. Examine for:

1) Cleanliness
(2) Cracking
(3) Corrosion

B. Rubber components: Examine for the following defects:

(1) Signs of perishing
(2) Deterioration

C. All other components.

(1) Renew if damaged or showing signs of deterioration.

REPAIR

1. Unserviceable Monoblocs

NOTE:

Monoblocs are serial numbered in pairs; the two units carry the same serial number as is shown on the label on the battery container. When re-blocking, the existing label should be removed from the battery container and replaced by a new label carrying the appropriate new serial number.

Re-blocking kits can be purchased directly from EnerSys Ltd or an approved distributor. The reblocking procedure shall be carried out by an EASA approved Part 145 Organisation.

2 . Zero Battery Voltage

If the open circuit voltage is recorded as zero, either,

i) Repair unit

or

ii) Return manufacturer

If repaired unit in i) still records open circuit voltage as zero, return battery to address in Section 1 for an inspection by the manufacturer to determine the cause of failure.

To replace a pair of cell blocks, proceed as follows: -

a. Remove unserviceable monoblocs (see Disassembly).

b. Renew unserviceable monoblocs (see Assembly)

c. Carry out capacity test (see Testing)

3. Heater Mats

If the resistance measurements are not within the defined criteria, then the heater mats and monoblocs should be replaced as a sub assembly as per the reblocking kit (140)

4. PT100 Temperature Sensor(s)

If one or both PT100 temperature sensors resistance measurements fail to meet the defined criteria, replace as required.

5. Earth Bonding

If the resistance measurement is not within the defined criteria, then clean the surface area and repeat the measurement.

RE-BLOCKING

1. General

Following a schedule or unscheduled removal from aircraft there might be a need to reblock the battery. The Falcon 6X battery can be reblocked with new monoblocs up to a maximum of two times

2. Records

Each time a re-blocking procedure is performed the date of the re-block is to be recorded on the label attached to the battery case. Furthermore, full details including the date and the serial numbers of the monoblocs are to be recorded in the booklet accompanying each new battery. This booklet should be held in the battery shop where the re-block will take place.

3. Procedure

Detailed instructions of how to disassemble, check and reassemble the battery are given in the appropriate sections of this manual.

ASSEMBLY

1. General

This section describes and provides information for an experienced shop mechanic to assemble batteries with no specialised training.

2. Safety

Same as disassembly.

WARNING: Caution shall be exercised when testing, building and handling batteries, as monoblocs are fully charged and any short circuit condition may result in injury.

WARNING: To avoid risk of injury, care shall be taken when wearing jewellery such as rings, bracelets, metal watchstraps necklaces and belt buckles.

CAUTION: Any such items shall if possible, be removed prior to working on monoblocs or batteries to avoid risk of injury.

CAUTION: All tools coming into contact with the monobloc terminals shall be fully insulated to prevent the risk of a short circuit condition.

NOTE: The ( ) part identification numbers herein are IPL, Figure 1 item numbers.

3. Detailed Instructions

NOTE: The ( ) part identification numbers herein are detailed in IPL, Fig.1item numbers.

A. Verify both new monoblocs are properly matched pairs:
- Same manufacturer
- Same part number
- Open circuit voltage is within 1%
- Date Codes or Date of Manufacture

B. Carefully invert monobloc and heater assembly (20) onto a polystyrene block (40mm thick), or other non-conductive material.

Note Position the positive and negative laminations, PT100 temperature sensors (150) and thermostat bracket (190) so that they do not become trapped during the installation of the new monobloc/heater assembly

NOTE: Care must be taken to avoid shorting terminals during this procedure

C. Carefully slide the battery case down over the new monobloc/heater assembly (20).

D. Carefully turn over the assembled battery into the upright orientation.

NOTE: Care must be taken to ensure there are no wires trapped under the front laminations during the assembly process.

NOTE: Wires are not permitted between the front laminations and the surfaces of the monobloc.

E. Connect the monobloc/heater assembly connector to it is mating half.

NOTE: Ensure the clip on the connector is positively located

F. Applying a small amount of Loctite (130) to the threads of screws (110) before securing the thermostat bracket (190) to the battery case, with washers (120), tightened to 2.0Nm (17.7 lb-in).

NOTE: Ensure that the front surface of the thermostats are in contact with the front face of the monobloc.

G. Position the positive terminal lamination at the front of the battery over the positive monobloc terminal. Fit plain washer (60) and Binx nut (70) over positive terminal and tighten to 3.9Nm (34.5 lb-in) and install terminal nut cover (80).

NOTE: Over tightening the terminal nuts may result in fracturing of the terminal posts.

H. Position the negative terminal lamination at the front of the battery over the negative monobloc terminal. Fit plain washers (60) and Binx nuts (70) over positive terminal and tighten to 3.9Nm (34.5 lb-in) and install terminal nut covers (80).

I. Fit new rear lamination (50) between the rear positive and negative terminals of the monobloc assembly. Fit the plain washers (60) and Binx nuts (70) and tighten to 3.9Nm and install terminal nut covers (80).

J. Install new holddown blocks (100) to the outer edges of the monoblocs.

K. Re fit temperature PT100 (150) Temperature sensors to surface of monoblocs. Use contact adhesive (180) to ensure good adhesion with monobloc surface,

L. Fit lid (30) and secure lid to container with 16 off Pop Rivets (40 -40A) using the applicable tool listed in Table 5. Ensure each rivet is located flush to the case cover.

SPECIAL TOOLS, FIXTURES AND EQUIPEMENT

1. Special Tools

NOTE: Equivalent substitutes may be used for listed items.

The equipment detailed in Figure 10 is required to disassemble and reassemble batteries.

ITEM NUMBER	ITEM	PART NUMBER	SECTION WHERE USED
10	Drill		DISASSEMBLY
20	3.0mm (.118”) Drill Bit		DISASSEMBLY
30	Torque Spanner & 7mm(.276”) socket		DISASSEMBLY/ ASSEMBLY
40	Power Riveter Cherry G746A		ASSEMBLY
50	Pulling Head H746-4MBC & Nose 845-032 (for Rivet NAS1720H4-2A (40))		ASSEMBLY
60	Pulling Head H955-4 & Nose 960-024 (for Rivet NAS1398D4A2 (40A))		ASSEMBLY
70	2.4mm (.094”)Carbide Ball Burr		DISASSEMBLY
80	2.0mm(.078”) & 3.0mm (.118”) Pin Punches		DISASSEMBLY
90	Chisel (with bevel angle of 20°)		DISASSEMBLY
100	Rotary Tool		DISASSEMBLY

Table 5 - Special Tools, Fixtures and Equipment

2. Consumables

ITEM NUMBER	ITEM	PART NUMBER	SECTION WHERE USED
10	*Loctite 222*		ASSEMBLY
20	*Soft clean dry cloth*		CLEANING

Table 6 - Consumables

ILLUSTRATED PARTS LIST

1. Introduction

A. Purpose

(1) This section provides illustrations and parts breakdown of the Falcon 6X battery, which can be disassembled, repaired or replaced and reassembled.

B. Explanation and Usage of Section

(1) Assembly Order Indenture Section

The Indenture System used in the parts list shows the relationship of one part to another. For a given item, the number of indentures depicts the relationship of the item to the associated next higher assembly.

(2) Effectivity Code

Reference letters (A, B, C etc) are assigned in the EFF code column to each top assembly. The reference letter of the applicable top assembly is also shown in the EFF CODE column for each detail part and subassembly except that no reference letter is shown for detail parts and subassemblies used on all top assemblies.

(3) Quantity Per Assembly

The UNITS PER ASSY column shows the total number of units required per assembly, per subassembly, and per sub subassembly as applicable. The letters REF indicate the item is listed for reference purposes.

(4) Parts Replacement Data

Interchangeability information will be provided in a future manual revision if it becomes applicable.

(5) Service Bulletin Incorporation

Service Bulletin incorporation information applicable to the parts list will be provided in a future manual revision if it becomes applicable.

(6) Items Not Illustrated

(a) Items not illustrated are indicated by a dash (-) ahead of the item numbers in the FIG, and ITEM NO. column.

(7) Alpha Variant Item Numbers

(a) Alpha variants A-Z (except I and O) are assigned to existing item numbers where necessary to show:

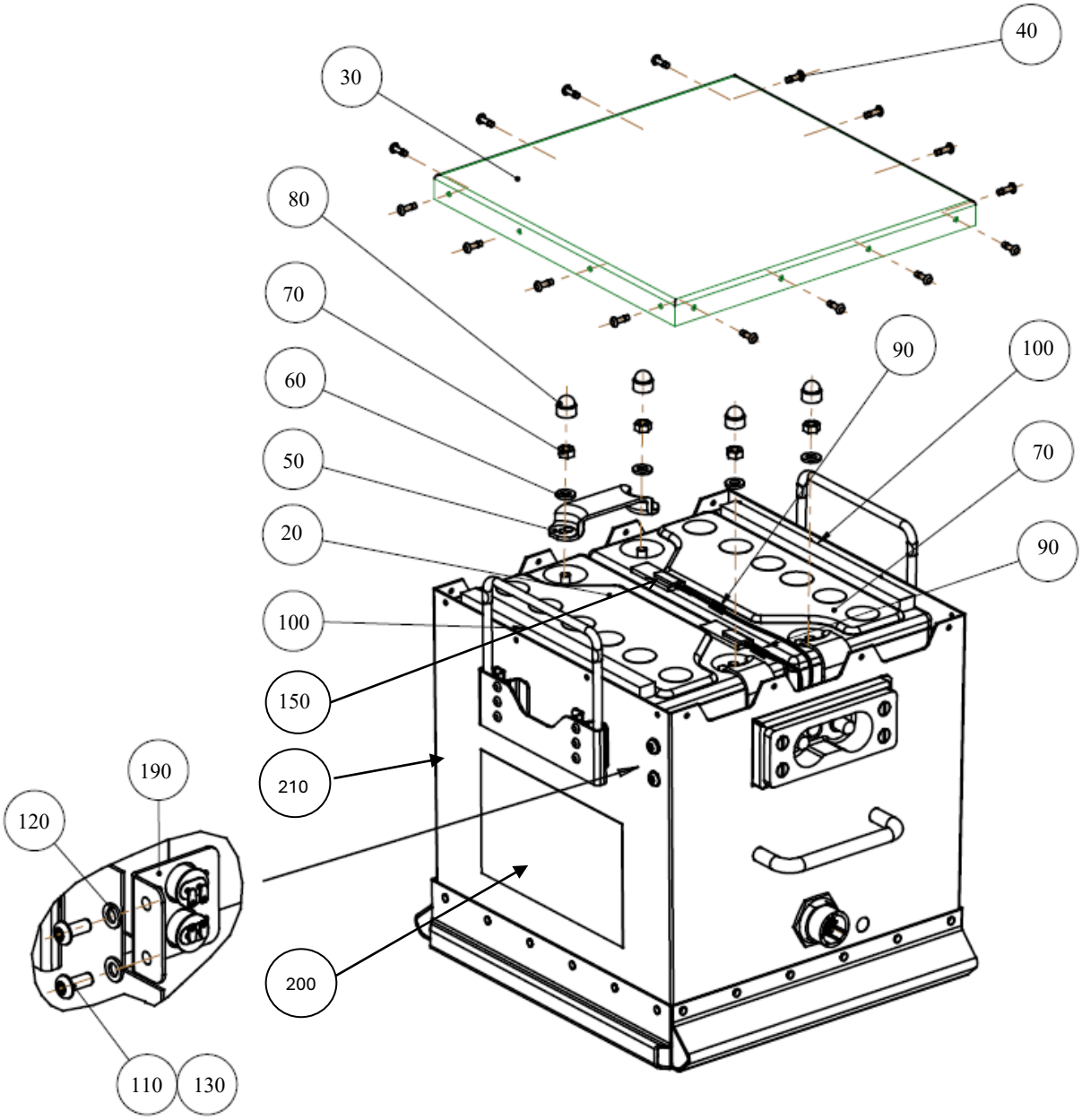
1. Added Items
2. Service Bulletin Configurations
3. Configuration differences
4. Optional parts
5. Product improvement parts (non-service bulletin)

(b) Alpha variant item numbers are not shown on the exploded view when the appearance and location of the alpha variant item is the same as the basic item.

(8) Vendors

The vendor of all parts shown in the parts list is as follows:

VENDOR CODE	NAME/ADDRESS
U6335	EnerSys Ltd Stephenson Street NEWPORT South Wales NP19 4XJ U.K.



Battery, Exploded View

Figure 1

ILLUSTRATED PARTS LIST

FIG.	ITEM	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	EFF. CODE	UNITS PER ASSY
1	-10	9750U0554-00	SEALED LEAD ACID BATTERY	A	RF
	-10A	9750U0554-01	SEALED LEAD ACID BATTERY	B	
	-10B	9750U0554-02	SEALED LEAD ACID BATTERY	C	
	20	-	MONOBLOC & HEATER SUB ASSEMBLY		1
	30	-	LID ASSEMBLY, COVER		1
	40	2207-8667-1	POP RIVET 1/8" UNIV HEAD (NAS1720H4-2A)	A B C	16
	40A	2207-8667-2	POP RIVET 1/8" UNIV HEAD (NAS1398D4A2)	C	16
	50	-	LAMINATIONS, REAR, INSULATED		1
	60	2207-9905	M6 PLAIN WASHER		4
	70	2207-9488	M6 BINX NUT		4
	80	2201-9558	INSULATING NUT COVER, M6		4
	90	-	CABLE TIE		2
	100	-	HOLD DOWN BLOCK		2
	110	2207-7671	M5 X 12 TAMPERPROOF SCREW		2
	120	2207-7670	M5 PLAIN WASHER		2
	130	-	ADHESIVE, LOCTITE 222		AR
	-140	9250-0194	REBLOCKING KIT		1
	150	-	PT100 SENSOR ASSEMBLY		1
	-180	-	CONTACT ADHESIVE		AR
	190	-	THERMOSTAT BRACKET		1
	200	-	LABEL, IDENTIFICATION		1
	210	-	OUTER ASSEMBLY, CASE		1

- DENOTES NOT ILLUSTRATED
AR – As required