ATTACHMENT 3

Concorde Battery Corporation's Return Battery Test Report

CONCORDE BATTERY CORPORATION

CB040214-1

National Transport Safety Board,

Return Battery Test Report,

RMA NO: 092313-001

CONDUCTED BY	**Ronald Hollett** **Technician**	
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APPROVED BY:	**John Timmons, PE** **Vice President, Engineering**	

Contents:

1. **Scope:** This test report details the testing completed for unpacking, inspecting and testing of returned 24 volt main aircraft batteries from the National Transport Safety Board (NTSB). RMA NO: 092313-001

2. **Referenced Documents:**
   a. Concorde Drawings:
      i. 5-0171, *RG Series Main Aircraft Battery, Component Maintenance Manual*, dated 03/15/12, Rev M.

3. **Test Article:** The test article is a 24 volt RG-380E/44 Concorde lead-acid main aircraft battery received from the National Transport Safety Board, serial number 40332918. Concorde lead acid main aircraft batteries are designed for engine starting and emergency power. Electrolyte is a sulfuric acid and water solution and is absorbed within the battery plates and separators. There is no free electrolyte.

4. **Personnel:**
   a. An authorized representative of Concorde performed unpacking, inspections and tests.
   b. All operations were witnessed or ordered by an official of the NTSB and Beechcraft. (FAA declined to witness testing)

5. **Test Facilities:**
   a. All tests were accomplished at Concorde Battery Corporation s laboratory.
      i. The Concorde facility is located at:
         Concorde Battery Corporation
         2009 San Bernardino Road
         West Covina, CA 91790.

6. **Test Matrix and Order of Test:**

Test	Test Article
Unpacking	X
Physical Examination	X
Electrical Examination	X

7. **Test Procedures and Results:**
   a. Unpacking Procedure:
      i. Prior to unpacking, photos were taken of the battery box in order to show the box has not been tampered with or previously opened.
      ii. Unpacking of the sample was video taped.
      iii. The battery was removed from NTSB sealed box.

   b. Physical Examination:
      i. Prior to the commencement of any electrical testing, the article was inspected for the following:
         (1) Mass and Dimensions.
            (a) Weight = 81.685 lbs. (material missing from sample)
            (b) Length = 9.59"
            (c) Width = 9.95"
            (d) Height of case only = 7.69"

(2) Damage to case, lid and interface connectors.
(a) There was visual cosmetic damage to the exterior of the case but showed no signs of penetration or electrolyte leakage through the external casing.
(b) The aluminum lid with hold down bar was not attached to the battery. The polypropylene sealed cover which the aluminum lid mounts to was cracked and damaged. Material of the sealed cover were missing from the battery, but there was no signs of penetration or electrolyte leakage through the sealed cover.
(c) No damage or effects were noticed on the interface connectors.
(3) There was no signs of electrolyte leakage.
(4) There was no sign of any cell opened to the atmosphere.

ii. All inspections were noted in the test log when conducted. See appendix D for details.

iii. Photos were taken of all sides of the battery. See appendix B for images.

iv. Battery Part Number and Serial Number were recorded.
(1) Part Number: RG-380E/44
(2) Serial Number: 40332918

v. The battery Q.C. records were retrieved from original acceptance test procedure.
(1) Acceptance Test Procedure Results
(a) Test/Final Assembly Lot # 103009-004
(b) Weight = 82.7 lbs.
(c) Open Circuit Voltage = 26.45 VDC
(d) C1 Capacity @ EPV (20 VDC) = 43.63 Ah.
(e) Constant 14V Discharge = 935A @ 15 seconds
(2) Additional details and notes.
(a) Battery shipped from Concorde West Covina CA. to Concorde Wichita KS. on 11/30/09.
(b) Battery shipped from Concorde Wichita KS. to Hawker Beechcraft Support Part DAL. on 02/22/10.
(c) Battery has work order tag #12147 dated 04/01/2012 by PRO STAR Aviation, Londonderry NH. stating an inspection and capacity check was done.
(d) No information was given to Concorde Battery in regards to the date of installation or length of service.

c. Electrical Examination:

i. Open Circuit Voltage (OCV)
(1) Using a voltmeter the open circuit voltage was recorded.
(a) OCV was 24.75 volts

ii. Internal Resistance:
(1) Using a milliohmeter the internal resistance of the battery was recorded.
(a) The internal resistance was 11.53 milliohm.

iii. Conditioning Charge Procedure: (Section 9 of Concorde Drawing 5-0171)

(1) The battery was discharged at the 42 amp rate to an end point voltage (EPV) of 20 volts.
(a) Battery produced -26.60 Ah. (61% of rated capacity)
(2) The battery was connected to the constant current charging equipment.

(3) Voltage, current, and time were recorded during testing. See appendix A for detailed data and results.
(4) The battery was charged at a constant current rate of 4.2 amps for 16 hours.
(a) Battery accepted 61.18 Ah.
(b) Battery max. voltage on charge was 33.19 volts.
(c) Battery max. temperature on charge was 55 C.
(5) After charging, the battery was cooled down for 4 hours allowing the battery temperature to be within 10 C/18 F of the ambient temperature.
(a) The battery temperature was 32 C after 4 hours of rest.

iv. Capacity Test Procedure: (Section 7 of Concorde Drawing 5-0171)
(1) Voltage, current, and time were recorded during testing. See appendix A for detailed data and results.
(2) The battery was connected to the discharge equipment and discharged at the 42 amp rate to the EPV of 20 Volts.
(a) The battery produced -48.59 Ah. (116% of the rated capacity) - Passed

(3) After the battery passed the capacity test, it was charged constant potential as follows.
(a) The battery terminals were connected to the constant potential charging equipment.
(b) A constant 28.25 volt, 100 ampere charge was applied to the battery for 4 hours.
(i) The battery accepted 51.57 Ah.

v. Constant Voltage Discharge:
(1) The battery was connected to the discharge equipment and discharged at a constant voltage of 14 volts for 30 sec.
(2) The voltage and current were recorded at 0.1 second intervals for the first second of testing and 1 second intervals for the remainder of testing. See appendix A for detailed data.
(a) The battery produced 776 amps at 15 seconds. (The batteries acceptance current rating is 700A at 15 seconds) - Passed

8. **Conclusion:** The RG-380E/44, serial no. 40332918 was electrically intact. Test results showed the battery to be electrically airworthy. The battery exceeded the acceptance test standards for a new battery. The battery, after servicing, delivered 116% of the rated C1 capacity and 110% of the minimum high rate current at 15 seconds. Physical damage to the top portion of the manifold inner cover and loss of the outer cover and hold down structure preclude return to service.

Appendix A: Electrical Testing Detailed Data and Results.

Battery Type: RG-380E/44
Test Para: DWG NO. 7-0095, 7.c.iii. & 7.c.iv.
Test Name: Conditioning Charge and Capacity Test Procedure
Test Date: 03/24/14
Program Name: RG-380E/44 Condition
Program Database: C:\VisuaLCN\Programs\Concorde.mdb
Module Description: LCV16-100-36
Address: Sys Controller: 1 Circuit: 1

Battery S/N: 40332918

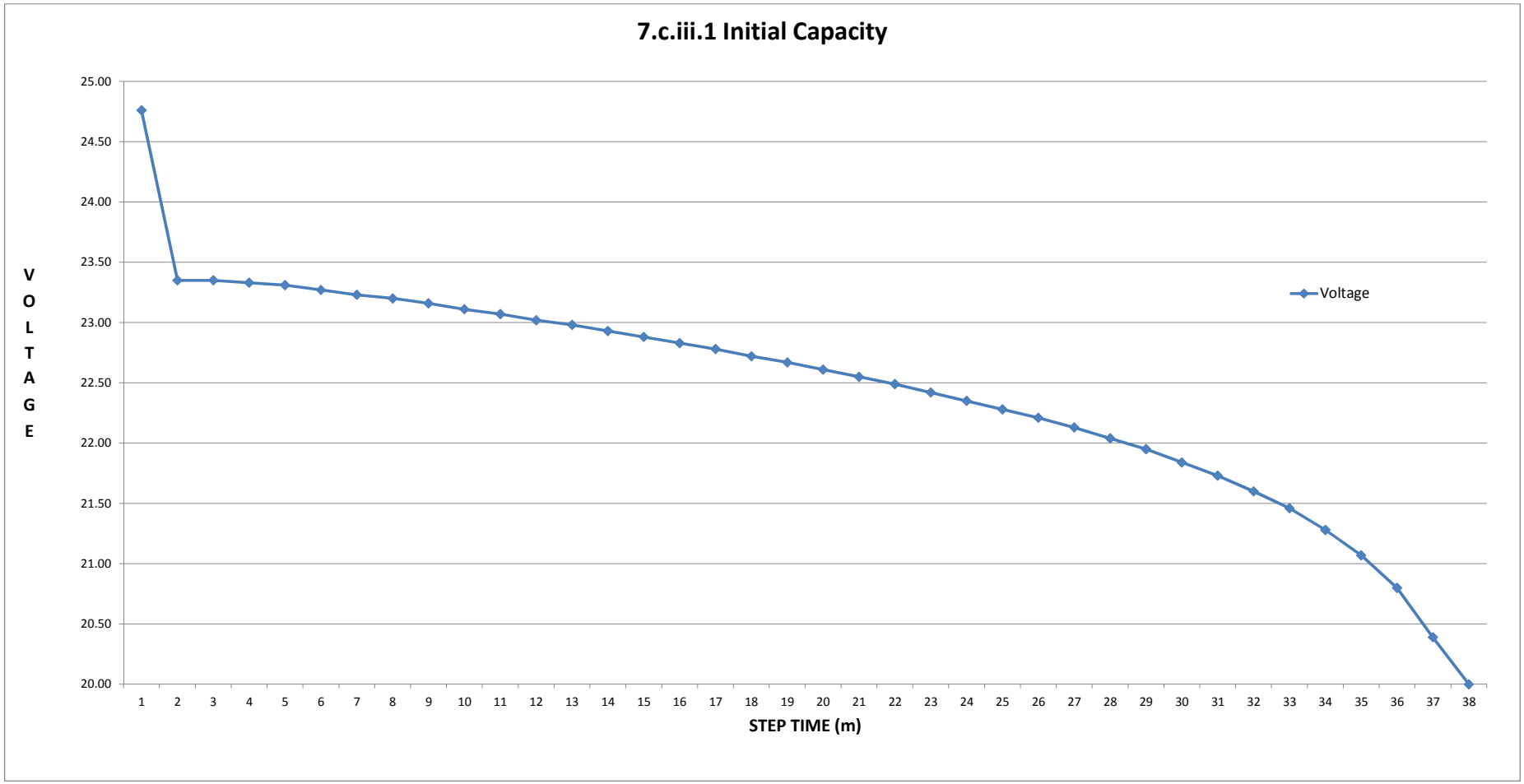
Total Time (h)	Step time (h)	Step time (m)	Step	Current	Voltage	Amp-Hours	Watt-Hours	Temp. (°C)	Mode
0.0	0.0	0.0	1	0.00	24.76	0.00	0.00	22.5	REST
0.0	0.0	1.0	2	-42.00	23.35	-0.69	-16.28	22.5	DCHG
0.0	0.0	2.0	2	-42.00	23.35	-1.39	-32.62	22.5	DCHG
0.1	0.1	3.0	2	-42.00	23.33	-2.09	-48.95	22.5	DCHG
0.1	0.1	4.0	2	-42.00	23.31	-2.79	-65.27	22.5	DCHG
0.1	0.1	5.0	2	-42.00	23.27	-3.49	-81.56	22.5	DCHG
0.1	0.1	6.0	2	-42.00	23.23	-4.19	-97.83	22.5	DCHG
0.1	0.1	7.0	2	-42.00	23.20	-4.89	-114.07	22.5	DCHG
0.1	0.1	8.0	2	-42.00	23.16	-5.59	-130.29	22.5	DCHG
0.2	0.2	9.0	2	-42.00	23.11	-6.29	-146.47	22.5	DCHG
0.2	0.2	10.0	2	-42.00	23.07	-6.99	-162.63	22.5	DCHG
0.2	0.2	11.0	2	-42.00	23.02	-7.69	-178.75	22.5	DCHG
0.2	0.2	12.0	2	-42.00	22.98	-8.39	-194.84	22.5	DCHG
0.2	0.2	13.0	2	-42.00	22.93	-9.09	-210.90	22.5	DCHG
0.2	0.2	14.0	2	-42.00	22.88	-9.79	-226.93	23.0	DCHG
0.3	0.3	15.0	2	-42.00	22.83	-10.49	-242.92	23.0	DCHG
0.3	0.3	16.0	2	-42.00	22.78	-11.19	-258.87	23.0	DCHG
0.3	0.3	17.0	2	-41.99	22.72	-11.89	-274.79	23.0	DCHG
0.3	0.3	18.0	2	-42.00	22.67	-12.59	-290.67	23.0	DCHG
0.3	0.3	19.0	2	-42.00	22.61	-13.29	-306.51	23.0	DCHG
0.3	0.3	20.0	2	-42.00	22.55	-13.99	-322.30	23.0	DCHG
0.4	0.4	21.0	2	-42.00	22.49	-14.69	-338.06	23.0	DCHG
0.4	0.4	22.0	2	-42.00	22.42	-15.39	-353.77	23.0	DCHG
0.4	0.4	23.0	2	-42.00	22.35	-16.09	-369.43	23.0	DCHG
0.4	0.4	24.0	2	-42.00	22.28	-16.79	-385.05	23.0	DCHG
0.4	0.4	25.0	2	-42.00	22.21	-17.49	-400.61	23.0	DCHG
0.4	0.4	26.0	2	-42.00	22.13	-18.19	-416.12	23.0	DCHG
0.5	0.5	27.0	2	-42.00	22.04	-18.89	-431.57	23.0	DCHG
0.5	0.5	28.0	2	-42.00	21.95	-19.59	-446.95	23.0	DCHG
0.5	0.5	29.0	2	-42.00	21.84	-20.29	-462.27	23.5	DCHG
0.5	0.5	30.0	2	-42.00	21.73	-20.99	-477.51	23.0	DCHG
0.5	0.5	31.0	2	-42.00	21.60	-21.69	-492.67	23.5	DCHG
0.5	0.5	32.0	2	-42.00	21.46	-22.39	-507.73	23.5	DCHG
0.6	0.6	33.0	2	-42.00	21.28	-23.09	-522.69	23.5	DCHG
0.6	0.6	34.0	2	-42.00	21.07	-23.79	-537.50	23.5	DCHG
0.6	0.6	35.0	2	-42.00	20.80	-24.49	-552.15	23.5	DCHG
0.6	0.6	36.0	2	-42.00	20.39	-25.19	-566.57	24.0	DCHG
0.6	0.6	36.6	2	-42.00	20.00	-25.60	-574.79	24.0	DCHG
0.9	0.3	15.0	3	4.20	23.27	1.04	23.98	25.0	CHRG
1.1	0.5	30.0	3	4.20	23.51	2.09	48.42	25.0	CHRG
1.4	0.8	45.0	3	4.20	23.66	3.14	73.06	25.5	CHRG
1.6	1.0	60.0	3	4.20	23.79	4.19	97.81	25.5	CHRG
1.9	1.3	75.0	3	4.20	23.91	5.24	122.76	25.5	CHRG
2.1	1.5	90.0	3	4.20	24.02	6.29	147.76	25.5	CHRG
2.4	1.8	105.0	3	4.20	24.13	7.34	172.95	25.5	CHRG
2.6	2.0	120.0	3	4.20	24.24	8.39	198.20	25.5	CHRG
2.9	2.3	135.0	3	4.20	24.35	9.44	223.59	26.0	CHRG
3.1	2.5	150.0	3	4.20	24.45	10.49	249.09	26.0	CHRG
3.4	2.8	165.0	3	4.19	24.56	11.54	274.66	26.0	CHRG
3.6	3.0	180.0	3	4.20	24.67	12.59	300.41	26.0	CHRG
3.9	3.3	195.0	3	4.20	24.77	13.64	326.17	26.0	CHRG
4.1	3.5	210.0	3	4.20	24.88	14.69	352.17	26.5	CHRG
4.4	3.8	225.0	3	4.19	24.99	15.74	378.17	26.5	CHRG
4.6	4.0	240.0	3	4.20	25.09	16.79	404.39	26.5	CHRG
4.9	4.3	255.0	3	4.20	25.20	17.84	430.64	27.0	CHRG
5.1	4.5	270.0	3	4.19	25.31	18.89	457.06	27.0	CHRG
5.4	4.8	285.0	3	4.20	25.41	19.94	483.56	27.0	CHRG
5.6	5.0	300.0	3	4.19	25.51	20.99	510.14	27.0	CHRG
5.9	5.3	315.0	3	4.20	25.61	22.04	536.89	27.5	CHRG
6.1	5.5	330.0	3	4.20	25.71	23.09	563.64	27.5	CHRG
6.4	5.8	345.0	3	4.20	25.82	24.14	590.61	27.5	CHRG
6.6	6.0	360.0	3	4.20	25.93	25.19	617.61	27.5	CHRG
6.9	6.3	375.0	3	4.20	26.04	26.24	644.78	27.5	CHRG
7.1	6.5	390.0	3	4.20	26.16	27.29	672.03	28.0	CHRG
7.4	6.8	405.0	3	4.20	26.28	28.34	699.43	28.0	CHRG
7.6	7.0	420.0	3	4.20	26.43	29.39	726.94	28.0	CHRG
7.9	7.3	435.0	3	4.20	26.63	30.44	754.68	28.0	CHRG
8.1	7.5	450.0	3	4.20	27.18	31.49	782.74	28.5	CHRG

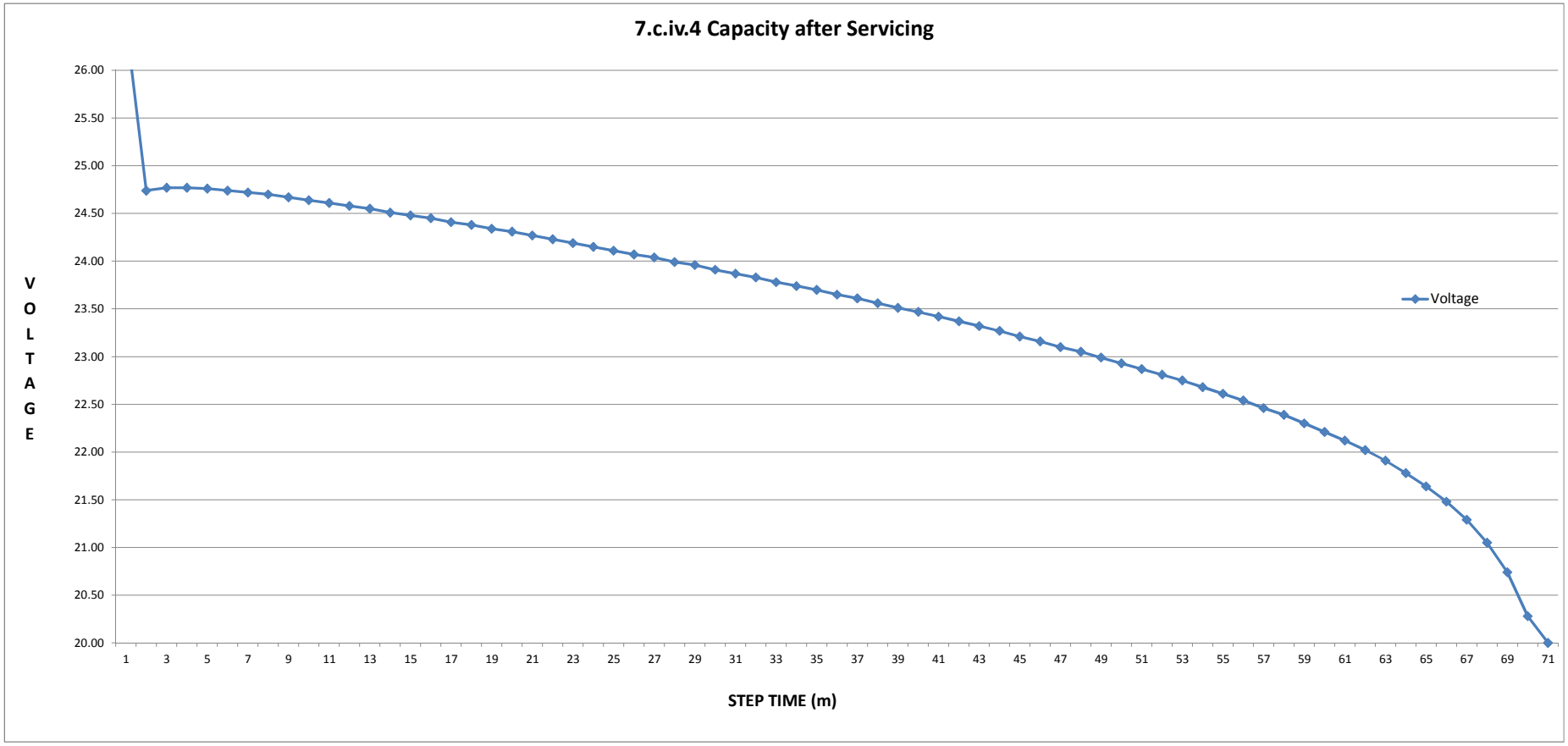
Battery Open Circuit Voltage = 24.76
Battery Temperature = 22.5°C

Test Para: 7.c.iii.1
Intial Capacity = 61% of Rated Capacity

8.4	7.8	465.0	3	4.19	28.93	32.54	812.05	29.0	CHRG	
8.6	8.0	480.0	3	4.20	30.73	33.59	843.52	29.5	CHRG	
8.9	8.3	495.0	3	4.20	31.32	34.64	875.99	30.0	CHRG	
9.1	8.5	510.0	3	4.20	31.61	35.69	908.91	31.0	CHRG	
9.4	8.8	525.0	3	4.20	31.81	36.74	942.08	32.0	CHRG	
9.6	9.0	540.0	3	4.20	31.97	37.79	975.43	33.0	CHRG	
9.9	9.3	555.0	3	4.20	32.10	38.83	1008.93	34.0	CHRG	
10.1	9.5	570.0	3	4.20	32.22	39.88	1042.58	34.5	CHRG	
10.4	9.8	585.0	3	4.20	32.33	40.93	1076.33	35.5	CHRG	
10.6	10.0	600.0	3	4.19	32.42	41.98	1110.16	36.5	CHRG	
10.9	10.3	615.0	3	4.20	32.51	43.03	1144.16	37.5	CHRG	
11.1	10.5	630.0	3	4.20	32.58	44.08	1178.16	38.0	CHRG	
11.4	10.8	645.0	3	4.20	32.65	45.13	1212.27	39.0	CHRG	
11.6	11.0	660.0	3	4.20	32.71	46.18	1246.51	40.0	CHRG	
11.9	11.3	675.0	3	4.20	32.77	47.23	1280.76	41.0	CHRG	
12.1	11.5	690.0	3	4.20	32.82	48.28	1315.01	42.0	CHRG	
12.4	11.8	705.0	3	4.20	32.86	49.33	1349.30	43.0	CHRG	
12.6	12.0	720.0	3	4.20	32.91	50.38	1383.78	44.0	CHRG	
12.9	12.3	735.0	3	4.20	32.94	51.43	1418.27	45.0	CHRG	
13.1	12.5	750.0	3	4.20	32.97	52.48	1452.77	46.0	CHRG	
13.4	12.8	765.0	3	4.20	33.00	53.53	1487.27	46.5	CHRG	
13.6	13.0	780.0	3	4.20	33.02	54.58	1521.77	47.0	CHRG	
13.9	13.3	795.0	3	4.20	33.03	55.63	1556.27	48.0	CHRG	
14.1	13.5	810.0	3	4.20	33.04	56.68	1590.77	49.0	CHRG	
14.4	13.8	825.0	3	4.19	33.06	57.73	1625.27	49.5	CHRG	
14.6	14.0	840.0	3	4.20	33.06	58.78	1659.77	50.0	CHRG	
14.9	14.3	855.0	3	4.20	33.06	59.83	1694.27	51.0	CHRG	
15.1	14.5	870.0	3	4.19	33.06	60.88	1728.77	52.0	CHRG	
15.4	14.8	885.0	3	4.20	33.06	61.93	1763.27	52.5	CHRG	
15.6	15.0	900.0	3	4.20	33.06	62.98	1797.77	53.0	CHRG	
15.9	15.3	915.0	3	4.20	33.10	64.03	1832.31	53.5	CHRG	
16.1	15.5	930.0	3	4.20	33.14	65.08	1867.04	54.5	CHRG	
16.5	15.9	951.5	3	4.20	33.18	66.59	1916.89	55.0	CHRG	
16.6	16.0	960.0	3	4.20	33.19	67.18	1936.52	55.0	CHRG	**Test Para: 7.c.iii.5**
17.6	1.0	60.0	5	0.00	26.59	0.00	0.00	42.0	REST	**Condition Capacity Accepted = 67.18 Ah**
18.6	2.0	120.0	5	0.00	26.55	0.00	0.00	36.0	REST	
19.6	3.0	180.0	5	0.00	26.52	0.00	0.00	32.5	REST	
20.6	4.0	240.0	5	-0.01	26.51	0.00	0.00	32.0	REST	
20.8	4.2	251.0	5	0.00	26.51	0.00	0.00	32.0	REST	**Battery Open Circuit Voltage = 26.51**
20.8	0.0	0.0	6	0.00	26.51	0.00	0.00	32.0	REST	**Battery Temperature = 32°C**
20.8	0.0	1.0	6	-42.00	24.74	-0.69	-17.27	32.0	DCHG	
20.8	0.0	2.0	6	-42.00	24.77	-1.39	-34.60	32.0	DCHG	
20.8	0.1	3.0	6	-42.00	24.77	-2.09	-51.93	32.0	DCHG	
20.9	0.1	4.0	6	-42.00	24.76	-2.79	-69.26	32.0	DCHG	
20.9	0.1	5.0	6	-41.99	24.74	-3.49	-86.58	32.0	DCHG	
20.9	0.1	6.0	6	-42.00	24.72	-4.19	-103.88	32.0	DCHG	
20.9	0.1	7.0	6	-41.99	24.70	-4.89	-121.17	32.0	DCHG	
20.9	0.1	8.0	6	-42.00	24.67	-5.59	-138.44	32.0	DCHG	
20.9	0.2	9.0	6	-42.00	24.64	-6.29	-155.69	32.0	DCHG	
21.0	0.2	10.0	6	-42.00	24.61	-6.99	-172.92	32.0	DCHG	
21.0	0.2	11.0	6	-42.00	24.58	-7.69	-190.12	32.0	DCHG	
21.0	0.2	12.0	6	-42.00	24.55	-8.39	-207.31	32.0	DCHG	
21.0	0.2	13.0	6	-42.00	24.51	-9.09	-224.47	32.0	DCHG	
21.0	0.2	14.0	6	-42.00	24.48	-9.79	-241.61	32.0	DCHG	
21.0	0.3	15.0	6	-42.00	24.45	-10.49	-258.73	32.0	DCHG	
21.1	0.3	16.0	6	-42.00	24.41	-11.19	-275.82	32.0	DCHG	
21.1	0.3	17.0	6	-42.00	24.38	-11.89	-292.89	32.0	DCHG	
21.1	0.3	18.0	6	-42.00	24.34	-12.59	-309.93	32.0	DCHG	
21.1	0.3	19.0	6	-42.00	24.31	-13.29	-326.95	32.0	DCHG	
21.1	0.3	20.0	6	-42.00	24.27	-13.99	-343.94	32.0	DCHG	
21.1	0.4	21.0	6	-42.00	24.23	-14.69	-360.91	32.0	DCHG	
21.2	0.4	22.0	6	-42.00	24.19	-15.39	-377.85	32.0	DCHG	
21.2	0.4	23.0	6	-42.00	24.15	-16.09	-394.76	32.0	DCHG	
21.2	0.4	24.0	6	-42.00	24.11	-16.79	-411.64	32.5	DCHG	
21.2	0.4	25.0	6	-42.00	24.07	-17.49	-428.50	32.5	DCHG	
21.2	0.4	26.0	6	-42.00	24.04	-18.19	-445.33	32.5	DCHG	
21.2	0.5	27.0	6	-42.00	23.99	-18.89	-462.14	32.5	DCHG	
21.3	0.5	28.0	6	-42.00	23.96	-19.59	-478.91	32.5	DCHG	
21.3	0.5	29.0	6	-42.00	23.91	-20.29	-495.65	32.5	DCHG	
21.3	0.5	30.0	6	-42.00	23.87	-20.99	-512.37	32.5	DCHG	
21.3	0.5	31.0	6	-41.99	23.83	-21.69	-529.05	32.5	DCHG	
21.3	0.5	32.0	6	-42.00	23.78	-22.39	-545.71	32.5	DCHG	
21.3	0.6	33.0	6	-42.00	23.74	-23.09	-562.34	32.5	DCHG	
21.4	0.6	34.0	6	-42.00	23.70	-23.79	-578.93	32.5	DCHG	
21.4	0.6	35.0	6	-42.00	23.65	-24.49	-595.50	32.5	DCHG	
21.4	0.6	36.0	6	-42.00	23.61	-25.19	-612.03	32.5	DCHG	
21.4	0.6	37.0	6	-41.99	23.56	-25.89	-628.53	32.5	DCHG	
21.4	0.6	38.0	6	-41.99	23.51	-26.59	-645.00	32.5	DCHG	
21.4	0.7	39.0	6	-42.00	23.47	-27.29	-661.43	32.5	DCHG	

21.5	0.7	40.0	6	-42.00	23.42	-27.99	-677.83	32.5	DCHG	
21.5	0.7	41.0	6	-42.00	23.37	-28.69	-694.20	32.5	DCHG	
21.5	0.7	42.0	6	-42.00	23.32	-29.39	-710.53	32.5	DCHG	
21.5	0.7	43.0	6	-42.00	23.27	-30.09	-726.83	32.5	DCHG	
21.5	0.7	44.0	6	-42.00	23.21	-30.79	-743.09	32.5	DCHG	
21.5	0.8	45.0	6	-42.00	23.16	-31.49	-759.31	32.5	DCHG	
21.6	0.8	46.0	6	-42.00	23.10	-32.19	-775.49	32.5	DCHG	
21.6	0.8	47.0	6	-42.00	23.05	-32.89	-791.64	32.5	DCHG	
21.6	0.8	48.0	6	-42.00	22.99	-33.59	-807.75	32.5	DCHG	
21.6	0.8	49.0	6	-42.00	22.93	-34.29	-823.81	32.5	DCHG	
21.6	0.8	50.0	6	-42.00	22.87	-34.99	-839.83	32.5	DCHG	
21.6	0.9	51.0	6	-42.00	22.81	-35.69	-855.81	32.5	DCHG	
21.7	0.9	52.0	6	-42.00	22.75	-36.39	-871.75	32.5	DCHG	
21.7	0.9	53.0	6	-42.00	22.68	-37.09	-887.64	32.5	DCHG	
21.7	0.9	54.0	6	-42.00	22.61	-37.79	-903.48	32.5	DCHG	
21.7	0.9	55.0	6	-41.99	22.54	-38.49	-919.28	32.5	DCHG	
21.7	0.9	56.0	6	-42.00	22.46	-39.19	-935.02	32.5	DCHG	
21.7	1.0	57.0	6	-42.00	22.39	-39.89	-950.71	32.5	DCHG	
21.8	1.0	58.0	6	-42.00	22.30	-40.59	-966.34	32.5	DCHG	
21.8	1.0	59.0	6	-42.00	22.21	-41.29	-981.91	32.5	DCHG	
21.8	1.0	60.0	6	-42.00	22.12	-41.99	-997.42	32.5	DCHG	
21.8	1.0	61.0	6	-42.00	22.02	-42.69	-1012.86	32.5	DCHG	
21.8	1.0	62.0	6	-42.00	21.91	-43.39	-1028.23	32.5	DCHG	
21.8	1.1	63.0	6	-42.00	21.78	-44.09	-1043.51	32.5	DCHG	
21.9	1.1	64.0	6	-42.00	21.64	-44.79	-1058.70	32.5	DCHG	
21.9	1.1	65.0	6	-42.00	21.48	-45.49	-1073.79	32.5	DCHG	
21.9	1.1	66.0	6	-41.99	21.29	-46.19	-1088.75	32.5	DCHG	
21.9	1.1	67.0	6	-42.00	21.05	-46.89	-1103.57	32.5	DCHG	
21.9	1.1	68.0	6	-42.00	20.74	-47.59	-1118.19	33.0	DCHG	
21.9	1.2	69.0	6	-42.00	20.28	-48.29	-1132.55	33.0	DCHG	
22.0	1.2	69.4	6	-42.00	20.00	-48.59	-1138.56	33.0	DCHG	**Test Para: 7.c.iv.4** **Capacity = 116% of Rated Capacity**
22.5	0.5	30.0	7	36.29	28.25	40.59	1114.14	46.5	CHRG	
22.9	0.9	56.1	7	9.68	28.25	49.10	1354.46	55.0	CHRG	
23.0	1.0	60.0	7	1.65	28.25	49.27	1359.11	34.0	CHRG	
23.5	1.5	90.0	7	1.08	28.25	49.89	1376.50	35.0	CHRG	
24.0	2.0	120.0	7	0.90	28.25	50.39	1390.23	34.5	CHRG	
24.5	2.5	150.0	7	0.73	28.25	50.79	1401.43	34.0	CHRG	
25.0	3.0	180.0	7	0.56	28.25	51.11	1410.25	34.0	CHRG	
25.5	3.5	210.0	7	0.44	28.25	51.36	1417.08	33.0	CHRG	
26.0	4.0	240.0	7	0.36	28.25	51.57	1422.57	32.5	CHRG	**Test Para: 7.c.iv.7** **Charge Capacity Accepted = 51.57 Ah**

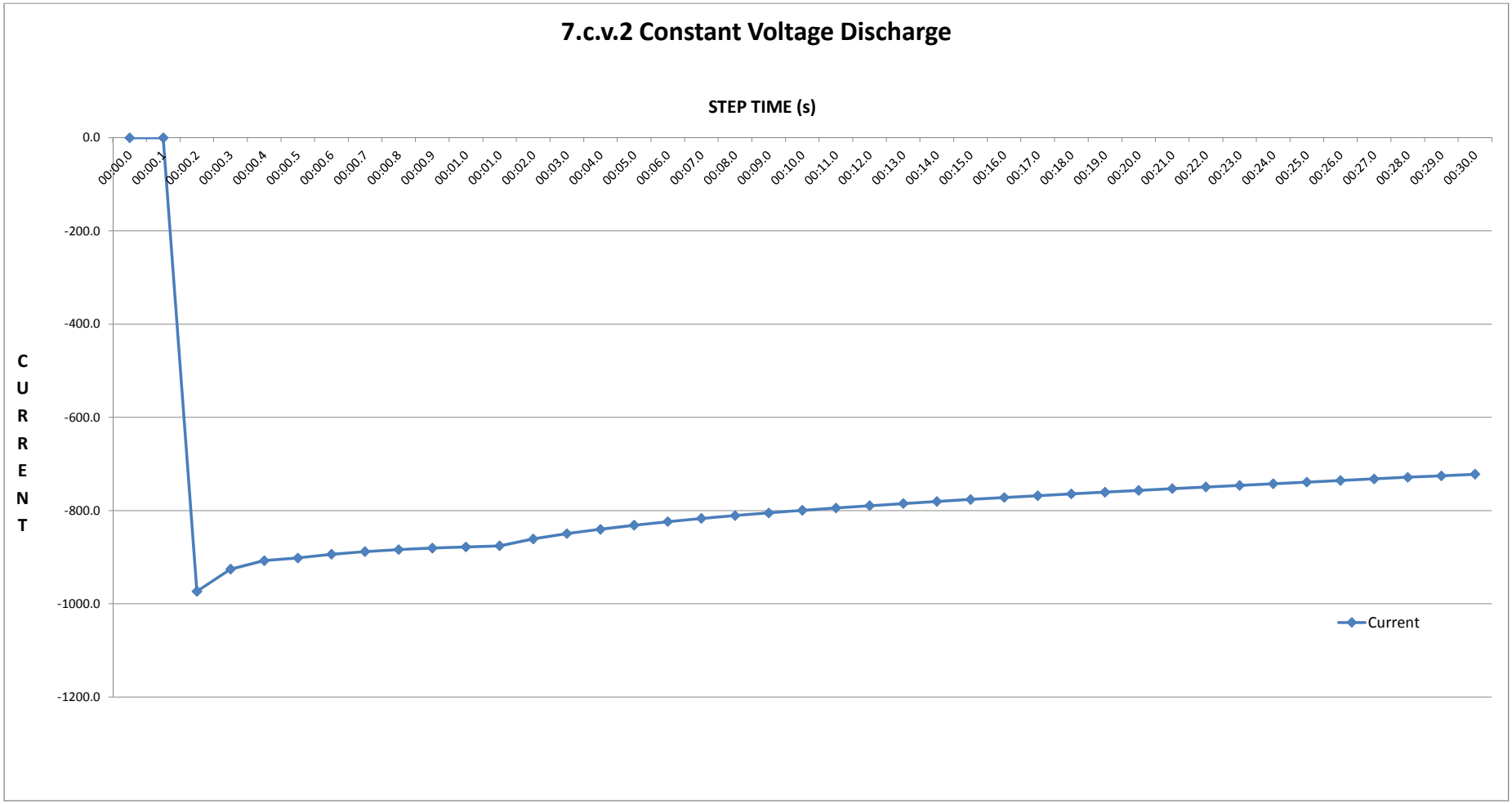

7.c.iii.1 Initial Capacity
VOLTAGE
25.00
24.50
24.00
23.50
23.00
22.50
22.00
21.50
21.00
20.50
20.00
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
STEP TIME (m)
Voltage


7.c.iv.4 Capacity after Servicing
VOLTAGE
26.00
25.50
25.00
24.50
24.00
23.50
23.00
22.50
22.00
21.50
21.00
20.50
20.00
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71
STEP TIME (m)
Voltage

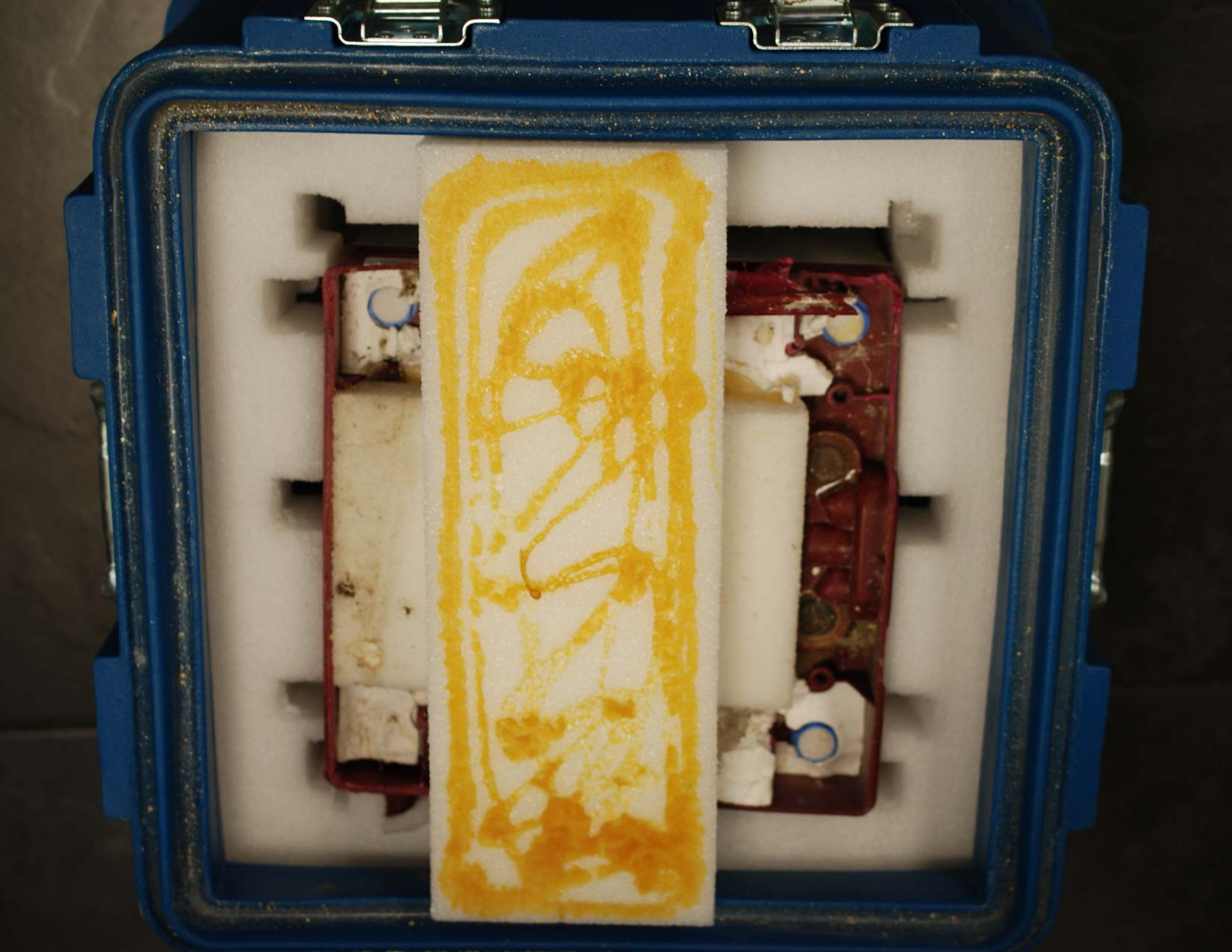
Battery Type: RG-380E/44
Test Para: DWG NO. 7-0095, 7.v.2
Test Name: Constant Voltage Discharge
Test Date: 03/26/14
Program Name: C14V60S
Module Description: HDU1-2500-12/24V
Address: Circuit: 1

Battery S/N: 40332918

Status	Step Time	Prog Time	Voltage	Current	Temperature	Capacity	Energy	
			[V]	[A]	[C]	[Ah]	[Wh]	
DCH	00:00.0	00:00.0	26.36	0.0	21.5	0.00	0.00	
DCH	00:00.1	00:00.1	26.36	0.0	21.5	0.00	0.00	
DCH	00:00.2	00:00.2	13.97	-973.3	21.5	0.00	0.00	
DCH	00:00.3	00:00.3	13.97	-925.7	21.5	-0.03	-0.38	
DCH	00:00.4	00:00.4	13.97	-907.5	21.5	-0.05	-0.74	
DCH	00:00.5	00:00.5	13.97	-901.8	21.5	-0.08	-1.09	
DCH	00:00.6	00:00.6	13.97	-893.6	21.5	-0.10	-1.44	
DCH	00:00.7	00:00.7	13.97	-888.0	21.5	-0.13	-1.79	
DCH	00:00.8	00:00.8	13.97	-883.8	21.5	-0.15	-2.13	
DCH	00:00.9	00:00.9	13.97	-880.6	21.5	-0.18	-2.47	
DCH	00:01.0	00:01.0	13.97	-877.9	21.5	-0.20	-2.82	
DCH	00:00.0	00:01.0	13.97	-875.6	21.5	0.00	0.00	
DCH	00:01.0	00:02.0	13.97	-860.8	21.5	-0.24	-3.37	
DCH	00:02.0	00:03.0	13.98	-849.7	21.5	-0.48	-6.69	
DCH	00:03.0	00:04.0	13.97	-840.2	21.5	-0.71	-9.97	
DCH	00:04.0	00:05.0	13.97	-831.4	21.5	-0.95	-13.22	
DCH	00:05.0	00:06.0	13.97	-823.7	21.5	-1.18	-16.43	
DCH	00:06.0	00:07.0	13.97	-816.9	21.5	-1.40	-19.62	
DCH	00:07.0	00:08.0	13.97	-810.8	21.5	-1.63	-22.78	
DCH	00:08.0	00:09.0	13.97	-805.0	21.5	-1.85	-25.91	
DCH	00:09.0	00:10.0	13.97	-799.3	21.5	-2.08	-29.03	
DCH	00:10.0	00:11.0	13.97	-794.3	21.5	-2.30	-32.12	
DCH	00:11.0	00:12.0	13.97	-789.5	21.5	-2.52	-35.20	
DCH	00:12.0	00:13.0	13.97	-784.9	21.5	-2.74	-38.25	
DCH	00:13.0	00:14.0	13.97	-780.6	21.5	-2.95	-41.29	
DCH	00:14.0	00:15.0	13.97	-776.1	21.5	-3.17	-44.31	**Test Para: 7.v.2**
DCH	00:15.0	00:16.0	13.97	-772.0	21.5	-3.39	-47.32	**Current @ 15 seconds = -776**
DCH	00:16.0	00:17.0	13.97	-768.1	21.5	-3.60	-50.31	
DCH	00:17.0	00:18.0	13.97	-764.2	21.5	-3.81	-53.28	
DCH	00:18.0	00:19.0	13.97	-760.5	21.5	-4.02	-56.24	
DCH	00:19.0	00:20.0	13.97	-756.8	21.5	-4.24	-59.19	
DCH	00:20.0	00:21.0	13.97	-752.9	21.5	-4.45	-62.12	
DCH	00:21.0	00:22.0	13.97	-749.4	21.5	-4.65	-65.04	
DCH	00:22.0	00:23.0	13.97	-745.9	21.5	-4.86	-67.94	
DCH	00:23.0	00:24.0	13.97	-742.5	21.5	-5.07	-70.83	
DCH	00:24.0	00:25.0	13.97	-738.9	21.5	-5.27	-73.70	
DCH	00:25.0	00:26.0	13.97	-735.4	21.5	-5.48	-76.57	
DCH	00:26.0	00:27.0	13.97	-732.0	21.5	-5.68	-79.41	
DCH	00:27.0	00:28.0	13.97	-728.6	21.5	-5.89	-82.25	
DCH	00:28.0	00:29.0	13.97	-725.3	21.5	-6.09	-85.07	
DCH	00:29.0	00:30.0	13.97	-722.0	21.5	-6.29	-87.88	


7.c.v.2 Constant Voltage Discharge
STEP TIME (s)
CURRENT
0.0
-200.0
-400.0
-600.0
-800.0
-1000.0
-1200.0
00:00.0
00:00.1
00:00.2
00:00.3
00:00.4
00:00.5
00:00.6
00:00.7
00:00.8
00:00.9
00:01.0
00:01.0
00:02.0
00:03.0
00:04.0
00:05.0
00:06.0
00:07.0
00:08.0
00:09.0
00:10.0
00:11.0
00:12.0
00:13.0
00:14.0
00:15.0
00:16.0
00:17.0
00:18.0
00:19.0
00:20.0
00:21.0
00:22.0
00:23.0
00:24.0
00:25.0
00:26.0
00:27.0
00:28.0
00:29.0
00:30.0
Current

Appendix B: Photographed Images

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Platinum Series®
Valve Regulated Sealed Lead Acid Non-Spillable Aircraft Battery
40332918
SEAL CASE


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Fax: 603-627-7801
www.prostaraviation.com
WO#: 13147
Date: 4-1-2012
~~Overhauled~~
~~Repaired~~
Ø Inspected
~~Deep Cycle~~
Ø Cap Check
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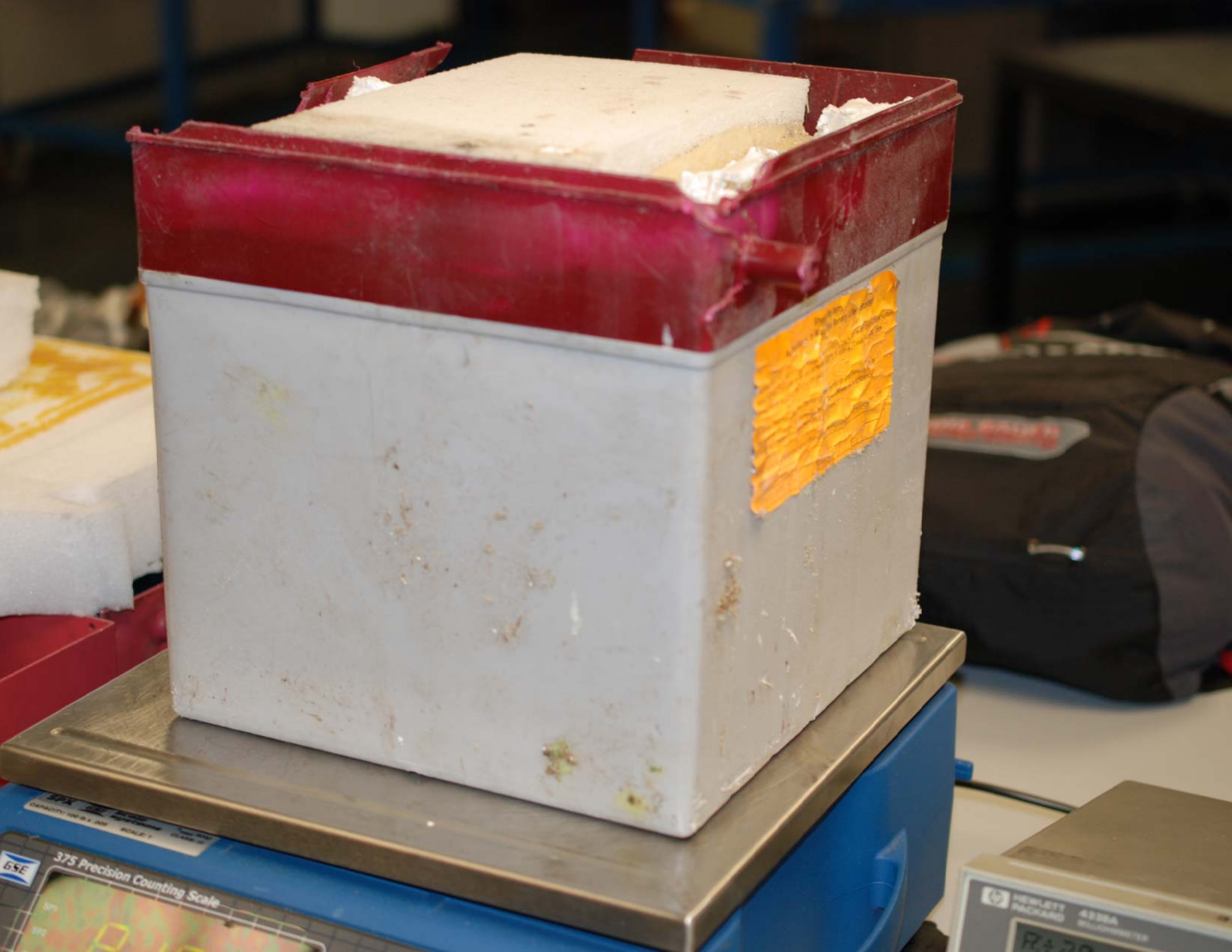
...the heart of your aircraft®
CONCORDE
Platinum Series®
Valve Regulated Sealed Lead Acid Non-Spillable Aircraft Battery
Part Number RG-380[illegible]
Former Part Number RG-380[illegible]
24 Volts, Nominal
42 Ampere Hour Capacity (C/1)
CONCORDE BATTERY CORPORATION West Covina, California 91790
375 Precision Counting Scale
GSE
SP1
SP2
SP3
81.685
lb
kg
SAMPLE
ENTER
1
2
3
4
5
6


Shelf Life Item
Instructions to Maximize Battery Life in Storage
Platinum
GSE
375 Precision Counting Scale
HEWLETT PACKARD
4338A


375 Precision Counting Scale


FAA-PMA
TSO-C173 DEVIATION
CONCORDE
For installation approval of this Part Number on Type Certificated Aircraft, refer to the latest Concorde Battery Corporation Eligibility List on our web site: http://www.concordebattery.com or for a copy Telephone: 626-813-1234 Fax: 626-813-1235
Concorde Battery Corporation, 2009 San Bernardino Rd, West Covina, CA 91790 USA
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GSE
375 Precision Counting Scale
HEWLETT PACKARD
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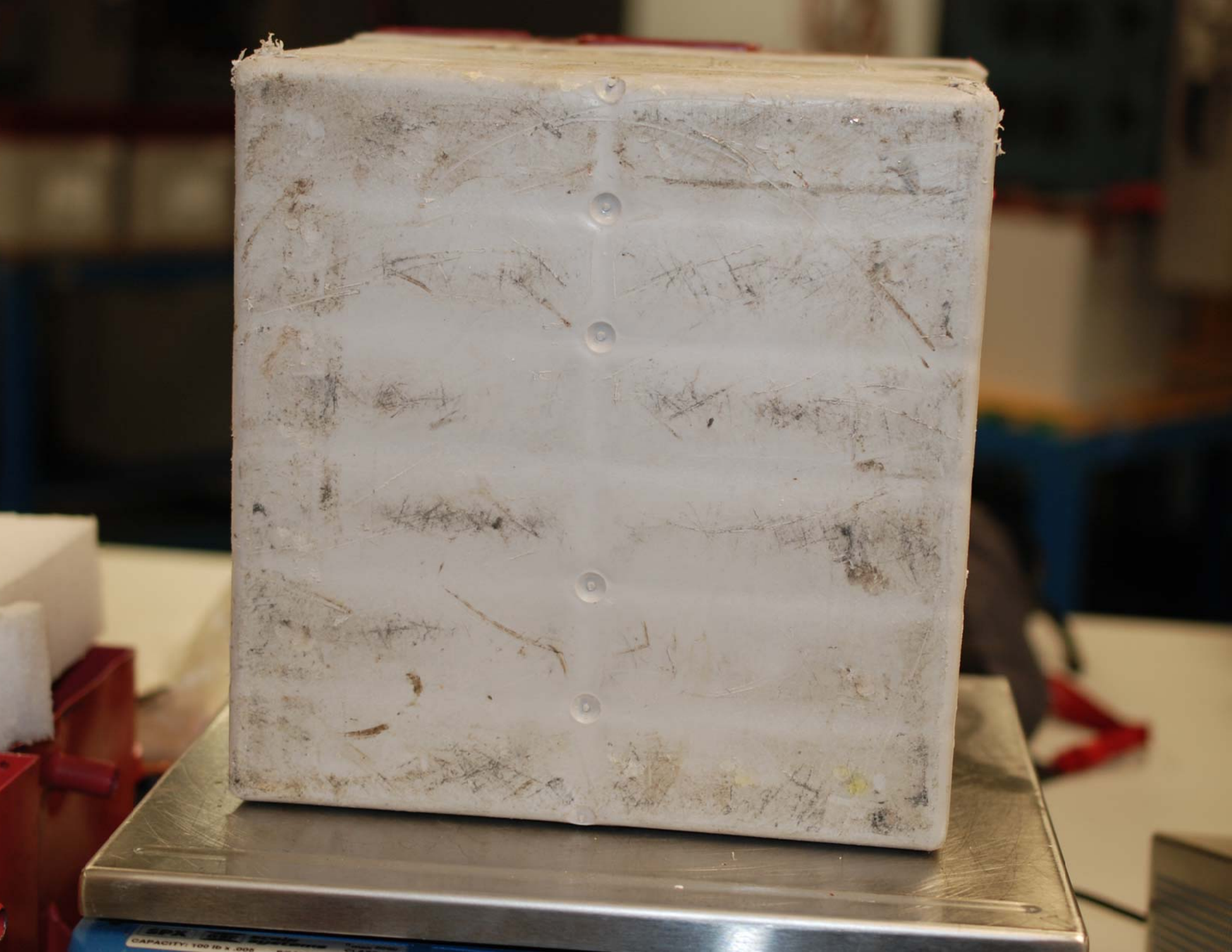

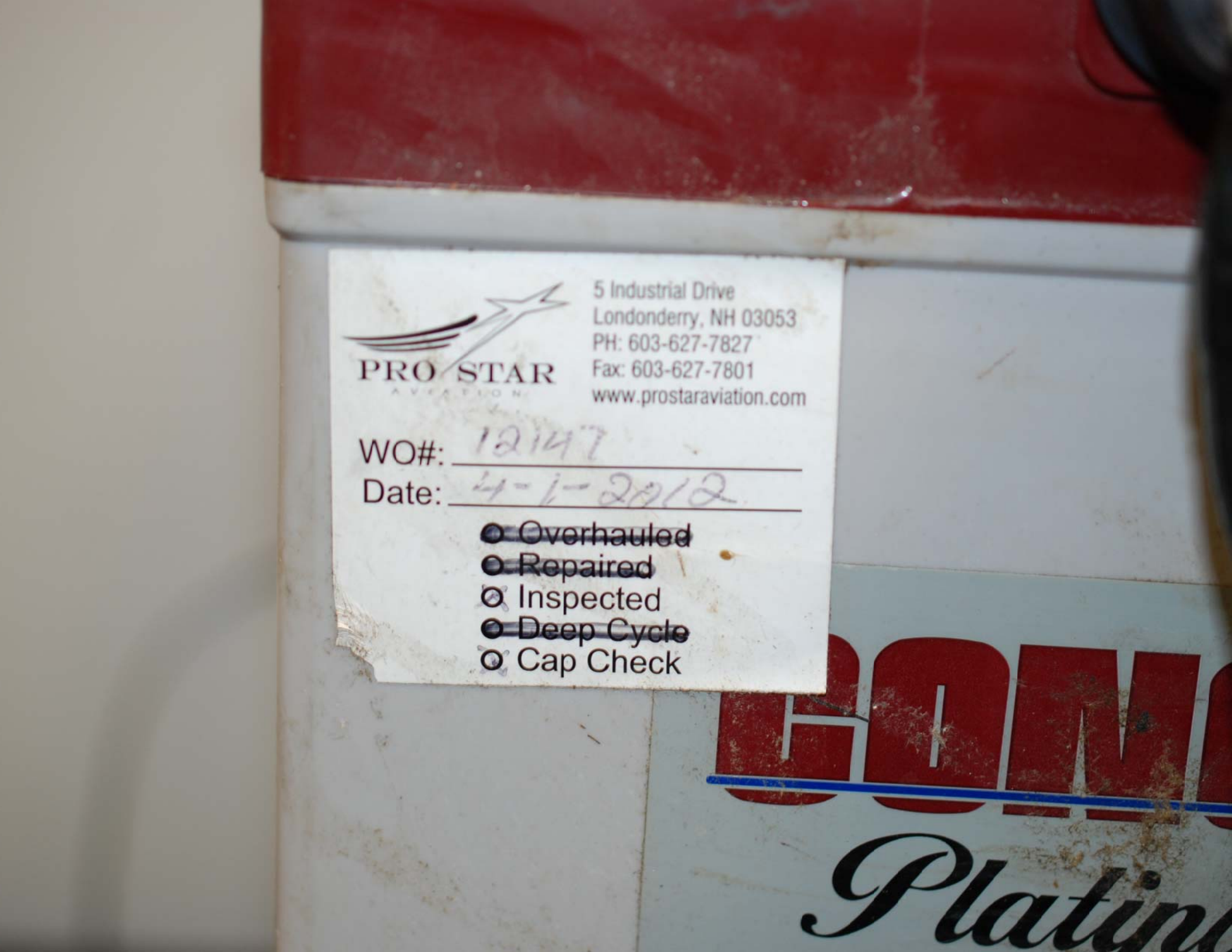
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PH: 603-627-7827
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Date: 4-1-2012
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Shelf Life Item
Instructions to Maximize Battery Life in Storage

Constant potential (constant voltage) boost charge the battery when open circuit voltage falls below 25.0 volts for 24 volt batteries and 12.5 volts for 12 volt batteries. See Instructions for Continued Airworthiness.

Batteries that have not been recharged when stored for long periods are to be conditioned charged and capacity tested for Airworthiness in accordance with Concorde's Instruction for Continued Airworthiness.

Instructions for Continued Airworthiness are available at www.concordebattery.com

DATE SHIPPED	FEB 22 2010			
SERVICE DATES				

Appendix C: List of Test Equipment

Battery type: RG-380E-44 **Serial No.: 40332918** **Test: DWG. # 7-0095**

List of Test Equipment:

Test	Description	Manufacturer	Model No.	Serial No.	Date of Calibration	Date Calibration due	Notes
Weight	Scale	GSE	375	8907	7/30/13	7/30/14	Used for weight
OCV	Multimeter	Fluke	175	88250074	9/30/13	9/30/14	Used for Open Circuit Volts
Int. Resist	Milliohm meter	Hewlett Packard	16143B	3148500154	11/30/13	11/30/14	Used for Internal Resistance
Cap/Cond	Dch/Cha	Bitrode	LCV16-100-36	110793	12/30/13	06/30/14	Used for Capacity and Charge
C14V30S	Hi Rate Dch	Firing Circuits	2285-0301	01020032	12/30/13	06/30/14	Used for C14V30S Discharge
OCV	Multimeter	Fluke	175	97900673	9/30/13	9/30/14	Used for Open Circuit Volts
Dim.	24" Caliper	Mitutoyo	CD-24"	0015545	07/30/13	07/30/14	Used for Dimensions

Appendix D: Test Log

Test Log

Battery type: RG-380E/44 **Serial No.: 40332918** **Test: DWG. # 7-0095**

Date	Remarks
3/24/14	
1:00pm	NTSB and Beechcraft representative arrived at Concorde Battery Corporation.
1:15pm	Battery was unpacked and inspected. Photos and video taken during unpacking. Battery showed visual cosmetic damage. - See photo/video for images
	Battery was weighed as received = 81.685 lbs.
	Battery open circuit voltage = 24.75 volts
	Battery Internal resistance = 11.53 milliohm
	Battery dimensions checked: Length = 9.59", Width = 9.95", Height to case = 7.69"
	Battery was shipped to Wichita facility Nov. 2009, Battery sold to Beechcraft Feb. 2010
	Battery had been inspected and capacity checked by Prostar Aviation, Londonderry, NH, 03053 on 04/12/2012. WO # 12147
1:30pm	Battery connected to circuit # 1, Temp Probe # 3.
1:40pm	Battery started conditioning procedure. Program: RG-380E/44 Condition. Unit: Bitrode LCV16-100-36
2:16pm	Battery Initial capacity = -25.60 Ah. (61% of rated capacity). Battery cont. on Condition...
3/25/14	
5:25am	Battery completed condition charge. Accepted 61.18 Ah, Max voltage = 33.19, Max Temp. = 55 C
10:18am	NTSB and Beechcraft representative arrived at Concorde Battery Corporation. Reviewing previous data.
10:25am	Battery rested 4 hours . Open circuit voltage = 26.51, Temp = 32 C
010:26am	Battery started capacity test after condition charge.
11:34am	Battery completed capacity test = -48.59 Ah (116% of rated capacity) - Passed. Battery continued on 28.25V CP recharge. Accepted = 51.57 Ah
3/26/14	
9:50am	NTSB and Beechcraft representative arrived at Concorde Battery Corporation. Reviewing previous data.
9:52am	Battery subjected to Constant 14 volt 30 second discharge test. Current = 776 Amps @ 15 seconds. - Passed. (Battery rated 700A @ 15 seconds) Peak = 973 Amps, 30 seconds = 722 Amps, AH = 6.49
10:00am	Battery put on 28.25V CP recharge prior to being sealed in the box for return.
11:00am	Battery completed charge. Accepted 7.18 Ah.
11:20am	Battery open circuit voltage 26.86 volts prior to packaging. (OCV will decrease, voltage still settling after recharge.)
11:25am	Battery sealed in box for return. (NTSB and Beechcraft representative witnessed)
	Testing Completed