INCH-POUND
MIL-PRF-8565/20
w/AMENDMENT 2
13 December 2012
SUPERSEDING
MIL-PRF-8565/20
w/AMENDMENT 1
21 September 2011

# PERFORMANCE SPECIFICATION SHEET

# BATTERY, STORAGE, AIRCRAFT, MEDIUM RATE, MAINTENANCE-FREE, 24-VOLT, 17-AMPERE-HOUR

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-8565.

REQUIREMENTS:

1. Part or identifying number. The part or identifying number (PIN) of the battery covered by this specification sheet shall be D8565/20-1.

2. Dimensions and weight. The dimensions of the battery shall be as shown on figure 1. The weight of the battery shall not be greater than 50.0 pounds (22.7 kilograms) or less than 44.5 pounds (20.2 kilograms) (see 3.8.3 and 4.5.3 of MIL-PRF-8565). In addition, the weight of any production battery shall vary by not greater than ± 2.2 pounds (1.0 kilogram) from the average weight of the three approved qualification sample batteries but shall not exceed the maximum 50.0 pound limit or be less than the minimum 44.5 pound limit.

3. Capacity. The rated capacity of the battery shall be not less than 17.0 ampere-hours (Ah). See 3.8.6 as modified herein.

4. Recharge characteristics. The battery, after being discharged at the 1C-rate to 20.0 volts, shall successfully recharge to its full capacity in 2.0 ± 0.1 hours when constant potential charged at 28.25 ±0.25 volts with a charge current limit of 50 ± 1 amperes at 24˚ C (75˚ F) and 49˚ C (120˚ F) (see 4.4.1 of MIL-PRF-8565, 4.5.10.2 and 6.11.7.1 of MIL-PRF-8565/20).

5. Design characteristics. The battery shall use a starved-electrolyte, sealed electrochemical technology with pressure-regulated, self-resealing safety valve(s). Electrolyte leakage or spillage from the battery shall not occur during aerobatic maneuvers of the aircraft.



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6. Service life. The battery's service life (useful life) in the aircraft shall be not less than 3 years. The battery shall require no scheduled maintenance during the 3 years (see 3.8.9, 4.5.10 and 6.11.7.3 of MIL-PRF-8565/20).

7. Qualification inspection and conformance inspection. Table I lists the required inspections.

8. MIL-PRF-8565 variance. The battery shall comply with MIL-PRF-8565 except as follows:

8.1 The following paragraphs and figures are not applicable:

3.8.5 Vent tubes.
3.8.7 Constant voltage discharge.
3.8.8 Strength of receptacle.
4.5.5 Strength of vent tubes test.
4.5.8 Constant voltage discharge.
4.5.9 Strength of receptacle test.
4.5.11 Capacity discharge at 49˚ C (120˚ F).
4.5.30 Wormgear retaining pin hardness.
Figure 3. Battery mounting.

8.2 Modify the following paragraphs and table to delete "18.0 volts" and insert "20.0 volts".

4.5.6 Electrical test preparation, first sentence.
4.5.7 Capacity discharge, second sentence.
4.5.12 Charge and discharge test at low temperature, step 4.5.12.c and step 4.5.12.f.
4.5.17 Temperature rise and float test, step 4.5.17.e, second sentence.
4.5.22 Ground storage test, step 4.5.22.d. and 4.5.22.i.
4.5.23 Physical integrity at high temperature test. Steps 4.5.23.b and 4.5.23.k.
Table III. Capacity performance requirements, requirement numbers (1) and (3).

8.3 Modify the following paragraphs:

3.5.4 Venting. Delete paragraph and replace with: "Each battery shall contain a vent port on the cover as shown on figure 1 of MIL-PRF-8565/20. This vent shall allow escape of any hydrogen gas generated from the cells."

3.5.5 Receptacles. Insert the following after the first sentence: "The battery's electrical interface to the aircraft shall be a receptacle conforming to M83723/71R2025N. It shall be positioned and electrically connected as shown on figures 1 and 2, respectively, of MIL-PRF-8565/20."

8.4 Add the following paragraphs:

"3.5.11 Mounting holes. The mounting surfaces that surround each of the mounting holes shall be free of coating for a distance not less than 0.5 inch radius from the center of the hole. This shall apply only to the bottom of the mounting surface."



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"3.5.12 Temperature sensing circuit. The battery shall contain a temperature sensing circuit that interfaces with a battery charger to control the output characteristics as a function of the battery's internal temperature. The circuit shall consist of a thermistor, a resistor, and two thermal switches connected as shown on figure 2 of MIL-PRF-8565/20."

"3.5.12.1 Thermistor. The thermistor shall have the following characteristics:
a. Resistance value = 400 ohms ± 1% at 25° C.
b. Power rating = 0.1 watt at 125° C.
c. Linear resistance temperature coefficient = 4500 ppm/°C ± 400 ppm (25° C to 55° C), and 3900 ppm/°C ± 300 ppm (-40° C to 25° C).

3.5.12.2 Resistor. The resistor shall have the following characteristics:
a. Resistance value = 20 ohms ± 1% at 25° C.
b. Power rating = 0.125 watt at 70° C.

3.5.12.3 Thermal switches. Each thermal switch shall have the following characteristics:
a. Contact state = normally open (close on temperature rise)
b. Operating temperature = 40° C ± 5° C.
c. Reset temperature = 20° C minimum.
d. Contact resistance = 50 milliohms maximum."

"3.6.7 Label for marking installation and removal date. Label # 4 shall be located as shown on figure 1 of MIL-PRF-8565/20 and shall contain the following text:

First placed in service: _____**_____

Remove from service: _____**_____

** Leave blank, surface prepared to allow for printing.

Lettering height shall be at least 0.25 inch and marking shall be white or black print."

"3.6.8 Warning label. Label # 5 shall be located as shown on figure 1 of MIL-PRF-8565/20 and shall contain the following text:

WARNING
MAX WEIGHT = 50 LBS
USE EXTREME CAUTION
WHEN REMOVING

Marking for Label #5 shall be on yellow background with black printing and lettering height of at least 0.25 inch. The label shall have a dashed line 0.03 inch from the border edge with a line thickness of 0.06 inch."



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8.5 Modify the following paragraphs:

3.8.6 Capacity and electrical performance. Delete the entire text and insert: “The rated capacity of the battery shall be not less than 17 ampere-hours at a discharge rate of 17 amperes to a 20-volt endpoint at a temperature of 24˚C (75˚F). See requirement 3 of MIL-PRF-8565/20.”

3.8.9 Cycling. Delete the text.

8.6 Add the following paragraphs:

“3.8.9.1 Qualification inspection. The battery terminal discharge voltage shall be not less than 20.0 volts when the battery is tested over the temperature range of -29° C to 63° C, and shall be not less than 19.0 volts when the battery is tested at a temperature of -40° C, when performing the discharge-charge cycles as specified in 4.5.10.1 of MIL-PRF-8565/20. The battery shall also comply with the service life requirement specified in requirement 6 of MIL-PRF-8565/20.

“3.8.9.2 Conformance inspection. The battery terminal discharge voltage shall be not less than 20.0 volts when performing each of the 100 discharge-charge-rest cycles of 4.5.10.2 of MIL-PRF-8565/20. The battery shall also comply with requirement 4 of MIL-PRF-8565/20 and with the service life requirement specified in requirement 6 of MIL-PRF-8565/20.”

8.7 Modify the following paragraphs:

3.8.16 Output performance. Delete the text and insert: "The battery shall maintain a terminal voltage of not less than 20.0 volts at 24° C (75° F) and 63° C (145° F) and not less than 19.0 volts at -40° C (-40° F) when tested in accordance with 4.5.28.1 of MIL-PRF-8565/20.”

3.8.17 Cold and hot temperature charge. Replace the title and text with: "Hot temperature charge. The battery shall perform as follows after being tested in accordance with 4.5.29 of MIL-PRF-8565/20.

“a. Sample 1 (stabilized at 49° C (120° F)): This sample shall provide not less than 17.0 ampere-hours of capacity after each of the discharges of steps 4.5.29.b and 4.5.29.f of MIL-PRF-8565/20. The terminal voltage of the battery shall be not less than 20.0 volts after being discharged in accordance with step 4.5.29.d of MIL-PRF-8565/20. The battery shall also meet the requirements of paragraph 3.7 of MIL-PRF-8565.

b. Sample 2 (stabilized at 68° C (154° F)): This sample shall provide not less than 15.3 ampere-hours of capacity after each of the discharges of steps 4.5.29.b and 4.5.29.f of MIL-PRF-8565/20. The terminal voltage of the battery shall be not less than 20.0 volts after being discharged in accordance with step 4.5.29.d of MIL-PRF-8565/20. The battery shall also meet the requirements of paragraph 3.7 of MIL-PRF-8565."



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8.8 Add the following paragraphs:

"3.8.18 Vibration. The battery shall maintain a voltage of not less than 20.0 volts during each of the discharges of steps 4.5.19.c, 4.5.19.d, and 4.5.19.h of MIL-PRF-8565/20. The battery shall also meet the requirements specified in 3.7 and 3.8.10 of MIL-PRF-8565 after being tested in accordance with paragraph 4.5.19 of MIL-PRF-8565/20."

8.9 Modify the following paragraphs:

4.4.2 Constant potential charging method. In the second sentence, delete "not less than 8 times the capacity rating of the battery being tested" and insert "50.0 ±1.0 amperes".

4.5.10 Cycling test. Delete the text.

8.10 Add the following paragraphs and table:

"4.5.10.1 Qualification testing. The following test will demonstrate the battery's capability of being repeatedly discharged, charged and rested over a specific maintenance-free operational period and varying operational temperature environments. The battery shall be discharged-charged-open circuited (rested) in accordance with the following method and table II of MIL-PRF-8565/20. This test consists of the following steps:

a. Constant potential charge the battery in accordance with 4.4.2 of MIL-PRF-8565/20.

b. First sequence (cycles 1 through 700).

(1) Room temperature environment:

(a) Stabilize the battery temperature at 23° C ±5° C (73° F ±9° F). Perform steps 4.5.10.1.b(1)(b) through 4.5.10.1.b(1)(c) of MIL-PRF-8565/20.

(b) Discharge the battery at a rate of 30 amperes for 6.75 minutes and the battery terminal voltage shall be not less than 20.0 volts.

(c) Immediately after completing step 4.5.10.1.b(1)(b), constant potential charge the battery at 28.75 ± 0.25 volts for the remainder of the one hour.

(d) Repeat above steps 4.5.10.1.b(l)(b) through 4.5.10.1.b(l)(c) for a total of 700 cycles.

c. Second sequence (cycles 701 through 715).



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(1) Hot temperature environment:

(a) Stabilize the battery temperature at 63° C +2° C/-0° C (145° F +4° F/-0° F), and discharge the battery at a rate of 30 amperes for 20 minutes, and the battery terminal voltage shall be not less than 20.0 volts.

(b) Immediately after completing step 4.5.10.1.c(1)(a), discharge the battery in accordance with figure 3, herein, and the battery terminal voltage shall be not less than 20.0 volts. Then immediately charge the battery at a constant potential of 27.25 ±0.25 volts for five minutes.

(c) Immediately after completing step 4.5.10.1.c(1)(b), discharge the battery in accordance with figure 4, herein, and the battery terminal voltage shall be not less than 20.0 volts. Then immediately charge the battery at a constant potential of 27.25 ±0.25 volts for 80 minutes.

(d) Stabilize the battery temperature at 49° C +2° C/-0° C (120° F +4° F/-0° F), and discharge the battery at a rate of 30 amperes for 20 minutes, and the battery terminal voltage shall be not less than 20.0 volts.

(e) Immediately after completing step 4.5.10.1.c(1)(d), discharge the battery in accordance with figure 3, herein, and the battery terminal voltage shall be not less than 20.0 volts. Then immediately charge the battery at a constant potential of 27.25 ±0.25 volts for five minutes.

(f) Immediately after completing step 4.5.10.1.c(1)(e), discharge the battery in accordance with figure 4, herein, and the battery terminal voltage shall be not less than 20.0 volts. Then immediately charge the battery at a constant potential of 27.25 ±0.25 volts for 80 minutes.

(g) Immediately after completing step 4.5.10.1.c(1)(f), discharge the battery in accordance with figure 3, herein, and the battery terminal voltage shall be not less than 20.0 volts. Then immediately charge the battery at a constant potential of 27.25 ±0.25 volts for five minutes.

(h) Immediately after completing step 4.5.10.1.c(1)(g), discharge the battery in accordance with figure 4, herein, and the battery terminal voltage shall be not less than 20.0 volts. Then immediately charge the battery at a constant potential of 27.25 ±0.25 volts for 80 minutes.

(i) Repeat steps 4.5.10.1.c(1)(g) and 4.5.10.1.c(1)(h) above for a total of 13 cycles.



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d. Third sequence (cycles 716 through 730).

(1) Cold temperature environment:

(a) Stabilize the battery temperature at -29° C +0° C/-2° C (-20° F +0° F/-4° F) , and discharge the battery in accordance with figure 3 of MIL-PRF-8565/20, and the battery terminal voltage shall be not less than 20.0 volts.

(b) Immediately after completing step 4.5.10.1.d(1)(a), charge the battery at a constant potential of 31.00 ±0.25 volts for 80 minutes.

(c) Immediately after completing step 4.5.10.1.d(1)(b), discharge the battery in accordance with figure 4, herein, and the battery terminal voltage shall be not less than 20.0 volts. Then immediately charge the battery at a constant potential of 31.00 ±0.25 volts for 80 minutes.

(d) Repeat steps 4.5.10.1.d(1)(b) and 4.5.10.1.d(1)(c) above for a total of 14 cycles.

(e) Stabilize the battery temperature at -40° C +0° C/-2° C (-40° F +0° F/-4° F), and discharge the battery in accordance with figure 3 of MIL-PRF-8565/20, and the battery terminal voltage shall be not less than 19.0 volts.

(f) Immediately after completing step 4.5.10.1.d(1)(e), charge the battery at a constant potential of 31.00 ±0.25 volts for 20 minutes.

(g) Immediately after completing step 4.5.10.1.d(1)(f), discharge the battery in accordance with figure 4, herein, and the battery terminal voltage shall be not less than 19.0 volts. Then immediately charge the battery at a constant potential of 31.00 ±0.25 volts for 80 minutes.

"4.5.10.2 Conformance inspection. Subject the battery to 100 cycles of discharge-charge-open circuit (rest) under the ambient conditions of 4.4.1 of MIL-PRF-8565. This test consists of the following steps:

a. Constant potential charge the battery in accordance with 4.4.2 of MIL-PRF-8565/20.

b. Discharge the battery at 17 amperes for a period of 1.0 hour.

c. Immediately constant potential charge the battery in accordance with 4.4.2 of MIL-PRF-8565/20.



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d. Open circuit (rest) the battery for 1.0 hour.

e. Repeat steps 4.5.10.2.b through 4.5.10.2.d of MIL-PRF-8565/20 for a total of 100 cycles.

f. Deleted.

g. Deleted.

h. Examine the battery to ensure compliance with the requirements in 3.8.9.2 of MIL-PRF-8565/20."

8.11 Modify the following paragraphs:

4.5.19 Vibration test. Delete the text and insert: “This test consists of the following steps:

a. Mount the battery, including electrical connector and cables, to the vibration test apparatus in accordance with 4.4.5 of MIL-PRF-8565.

b. Constant potential charge each battery in accordance with 4.4.2 of MIL-PRF-8565/20.

c. Discharge the battery at the 1C-rate for 10.0 minutes. Monitor the battery's terminal voltage during discharge. Examine the battery per the requirements of MIL-PRF-8565/20 paragraph 3.8.18.

d. Charge the battery in accordance with 4.4.2 of MIL-PRF-8565/20 during the vibration exposure. Subject the battery to the random vibration test levels shown on figure 5 of MIL-PRF-8565/20. The vibration test time for each axis shall be 180.0 +.0/-0.0 minutes. Conduct the vibration along each of the battery's three mutually perpendicular axes. After each axis of vibration, discharge the battery at the 1 C-rate for 10.0 minutes. Monitor the battery's terminal voltage during discharge. Examine the battery per the requirements of MIL-PRF-8565/20 paragraph 3.8.18.

e. Dismount the battery from the vibration test apparatus.

f. Discharge the battery at the 6.5C-rate for 3.0 minutes.

g. Charge the battery in accordance with 4.4.2 of MIL-PRF-8565/20.

h. Discharge the battery at the 1C-rate to 20.0 volts. Examine the battery per the requirements of MIL-PRF-8565/20 paragraph 3.8.18.

i. Charge each battery in accordance with 4.4.2 of MIL-PRF-8565/20.

j. Examine the battery per the requirements of MIL-PRF-8565/20 paragraph 3.8.18.”



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4.5.26 Shelf life test. Delete the text and insert:
"Constant potential charge the battery in accordance with 4.4.2. Store the battery for not less than 18 months in an uncontrolled temperature environment (such as an unheated, uncooled warehouse) where the ambient temperature shall be within the range of -40° C to +38° C (-40° F to +100° F). Bring the battery to the test facility. Constant current charge the battery in accordance with 4.4.3. Stabilize the battery at room temperature (see 4.4.1). Discharge the battery at the 1-C rate to 20.0 volts. Constant current charge the battery in accordance with 4.4.3. Subject the battery to the cycling test of 4.5.10.2 of MIL-PRF-8565/20. Examine the battery for the requirements of 3.8.9.2 of MIL-PRF-8565/20 and 3.8.13.2.

8.12 Add the following paragraph:

"4.5.28.1 Aircraft load profile. Perform the test of 4.5.28 of MIL-PRF-8565 three times. The test temperature for steps 4.5.28.b and 4.5.28.c of MIL-PRF-8565 shall be -40° C (-40° F) on the first sequence, 24° C (75° F) on the second sequence, and 63° C (145° F) on the third sequence. On the first sequence (-40° C), the discharge of 4.5.28.c of MIL-PRF-8565 shall use the load profile shown on figure 3 of MIL-PRF-8565/20, followed by a 20-minute charge at 28.25 volts (18 A current limit), followed by the load profile shown on figure 4 of MIL-PRF-8565/20. On the second and third sequences (24° C and 63° C), the discharge of 4.5.28.c of MIL-PRF-8565 shall use the load profile shown on figure 3 of MIL-PRF-8565/20, followed by a 5-minute charge at 28.25 volts (18 A current limit), followed by the load profile shown on figure 4 of MIL-PRF-8565/20."

8.13 Modify the following paragraph:

4.5.29 Cold and hot temperature charge test. Replace the title and text with:
"Hot-temperature charge test. This test consists of the following steps:

a. Constant potential charge each sample in accordance with 4.4.2 of MIL-PRF-8565/20.

b. Stabilize the temperature of sample 1 at 49° C (120° F) and sample 2 at 68° C (154° F) (see 3.8.17 of MIL-PRF-8565/20). Keep the ambient air temperature at the specified values for each sample while discharging each sample at the l C-rate to 20.0 volts. Determine the capacity delivered by each sample.

c. Stabilize the temperature of both sample 1 and sample 2 at 24° C (75° F) (see 4.4.1 of MIL-PRF-8565). Keep the ambient air temperature at 24° C (75° F) while constant potential charging each sample in accordance with 4.4.2 of MIL-PRF-8565/20.

d. Stabilize the temperature of sample 1 at 49° C (120° F) and sample 2 at 68° C (154° F) (see 3.8.17 of MIL-PRF-8565/20). Keep the ambient air temperature at the specified values for each sample while discharging each sample in accordance with figure 3 of MIL-PRF-8565/20. Determine the terminal voltage of each sample during discharge.

e. Stabilize the temperature of sample 1 at 49° C (120° F) and sample 2 at 68° C (154° F) (see 3.8.17 of MIL-PRF-8565/20). Keep the ambient air temperature at the specified values for each sample while constant potential charging each sample in



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accordance with 4.4.2 of MIL-PRF-8565/20.

f. Immediately after completing step 4.5.32.e (Paragraph 4.5.29.e is the step immediately prior to this step.) of MIL-PRF-8565/20, place each battery in a 24° C (75° F) environment and discharge each battery at the 1 C-rate to 20.0 volts.

g. Examine the battery for the requirements of 3.8.17 of MIL-PRF-8565/20."

8.14 Add the following paragraphs:

"6.11.7 Additional application information. The following information is provided for users of the D8565/20-1 battery.

"6.11.7.1 Aircraft charging system. The aircraft electrical system used for charging the battery should have a voltage output in the range of 28 to 29 volts and a current output in the range of 10 to 50 amperes.

"6.11.7.2 Initial installation date. The initial installer will write the date the battery is first installed in an aircraft (date first placed in service) in the space provided on the battery's identification marking (see 3.6.3 of MIL-PRF-8565 and figure 1 of MIL-PRF-8565/20).

"6.11.7.3 Service life. The battery's service life (useful life) in aircraft is limited to 3 years. A battery will not be used in aircraft after 3 years from the date first installed in an aircraft (see requirement 6 of MIL-PRF-8565/20).

"6.11.7.4 Removal date from aircraft. The battery will be removed from aircraft service 3 years after the date it was first installed in an aircraft.

"6.11.7.5 Uses other than for aircraft. The battery may be used for applications other than aircraft, such as ground applications, beyond the specified 3-year service life limitation if the battery is deemed satisfactory for such purposes by the user activity.

"6.11.7.6 Maintenance-free. The battery will require no periodically scheduled maintenance during its service life (see 6.15.10 of MIL-PRF-8565).

"6.11.8 Environmental characteristics. Battery performance should not be adversely affected when operating in a sand and/or dust environment. Battery materials should not support fungus growth. The battery should operate safely in an atmosphere containing ignitable or explosive fumes. "

8.15 Amendment notations. The margins of this specification sheet are marked with vertical lines to indicate where modifications generated by this amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.



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TABLE I. Qualification inspection and conformance inspection of batteries.

| Test Number | Examinations and tests | Qualification inspection | | | | | Conformance inspection | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Sample Number | | | Requirement Paragraph 1/ | Test Paragraph | Group A Sample 1 100% | Group B Sample number | |
| | | 1 | 2 | 3 | | | | 1 | 2 |
| 1 | Incoming Inspection | X | X | X | 3.8.1 (G) | 4.5.1 (G) | X | X | X |
| 2 | Visual and Mechanical Examination | X | X | X | Reqmt 5 (N), 3.5 (N), 3.6 (N), 3.8.2 (G), Table II (G) | 4.5.2 (G) | X | X | X |
| 3 | Dimensions and Weight | X | X | X | Reqmt 2 (N), 3.8.3 (G) | 4.5.3 (G) | X 2/ | X | X |
| 4 | Dielectric Strength and Insulation Resistance Test | X | X | X | 3.7 (G), 3.8.4 (G) | 4.5.4 (G) | X 2/ | X | X |
| 5 | Electrical Test Preparation | X | X | X | -- | 4.5.6 (G) | | X | X |
| 6 | Capacity Discharge | X | X | X | Reqmts 3 (N), 8.2 (N), 3.8.6 (S) | 4.5.7 (G) | X | X | X |
| 7 | Output Performance | X | X | X | 3.8.16 (S) | 4.5.28.1 (N) | | | |
| 8 | Hot Temperature Charge Test | X | X | | 3.7 (G), 3.8.17 (N) | 4.5.29 (N) | | | |
| 9 | Cycling Test | X | | | Reqmt 4 (S), Reqmt 6 (S), 3.8.9 (S) | 4.5.10 (S) | | X | |
| 10 | Discharge While Inverted | | X | | 3.5.9 (G), Reqmt (5) of Table III (G) | 4.5.13 (G) | | | |
| 11 | Altitude Test | | X | | 3.5.9 (G), 3.7 (G), 3.8.10 (G) | 4.5.14 (G) | | | X |
| 12 | Shock Test (Basic Design) | X | | | 3.7 (G), 3.8.10 (G) | 4.5.15 (G) | | X | |
| 13 | Temperature Shock Test | X | | | 3.7 (G), 3.8.10 (G) | 4.5.16 (G) | | X | |
| 14 | Temperature Rise and Float Test | | X | | Reqmt 8.2 (S), 3.7 (G), 3.8.11 (G), Reqmt (1) of Table III (G) | 4.5.17 (S) | | | X |
| 15 | Battery Gas Emission Test | | X | | 3.8.10 (G), 3.8.12 (G) | 4.5.18 (G) | | | |
| 16 | Ground Storage Test | | | X 3/ | Reqmt 8.2 (S), 3.8.13.1 (G) | 4.5.22 (G) | | | |
| 17 | Vibration Test | | X | | 3.7 (G), 3.8.10 (G), 3.8.18 (N) | 4.5.19 (S) | | | |
| 18 | Humidity Test | | X | | 3.7 (G), 3.8.10 (G) | 4.5.20 (G) | | | X |
| 19 | Salt Fog Test | X | | | 3.7 (G), 3.8.10 (G) | 4.5.21 (G) | | X | |
| 20 | Deep Discharge Recovery Test | | | X | 3.7 (G), 3.8.13.3 (G) | 4.5.27 (G) | | | |
| 21 | Physical Integrity at High Temperature Test | X | | | 3.7 (G), 3.8.10 (G), Reqmt (1) of Table III (G) | 4.5.23 (G) | | | |
| 22 | Shock Test (Crash Safety) | X | | | 3.8.10 (G), 3.8.15 (G) | 4.5.25 (G) | | | |
| 23 | Shelf Life Test | | | X | 3.8.9 (G), 3.8.13.2 (G) | 4.5.26 (G) | | | |
| 24 | Final Examination | X | X | X | 3.7 (G), 3.8.4 (G) | 4.5.31 (G) | | X | X |

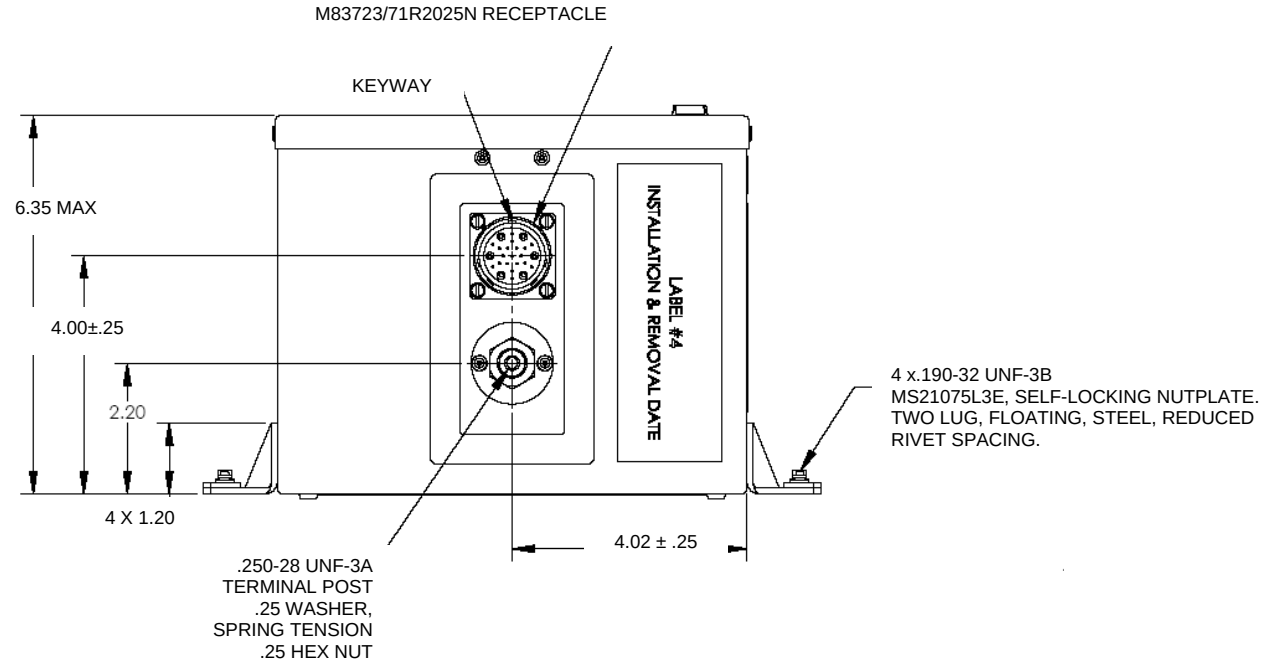
1/ The notations in parentheses specify the source of the paragraph. “(G)” means the paragraph as shown in MIL-PRF-8565. “(S)” shows that the paragraph has been modified by this specification sheet. “(N)” indicates that a new paragraph or requirement has been added by MIL-PRF-8565/20.
2/ See sample information in test paragraph.
3/ The manufacturer requesting qualification to this specification may submit an additional (fourth) test sample to expedite the qualification test program.
4/ For nonmetallic battery container designs, two outer nonmetallic battery containers shall be furnished for inspection.



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TABLE II. Life cycling temperature conditions (qualification inspection).

| Test Cycle | Test Temperature - °C (°F) | CP Charging Voltage (Volts) | Minimum Battery Terminal Voltage (Volts) |
|---|---|---|---|
| 1 - 700 | 24 (75) | 28.75 ± 0.25 | 20.0 |
| 701 | 63 (145) | 27.75 ± 0.25 | 20.0 |
| 702 - 715 | 49 (120) | 27.75 ± 0.25 | 20.0 |
| 716 - 729 | - 29 (- 20) | 31.00 ± 0.25 | 20.0 |
| 730 | - 40 (- 40) | NA | 19.0 |




NOTES:

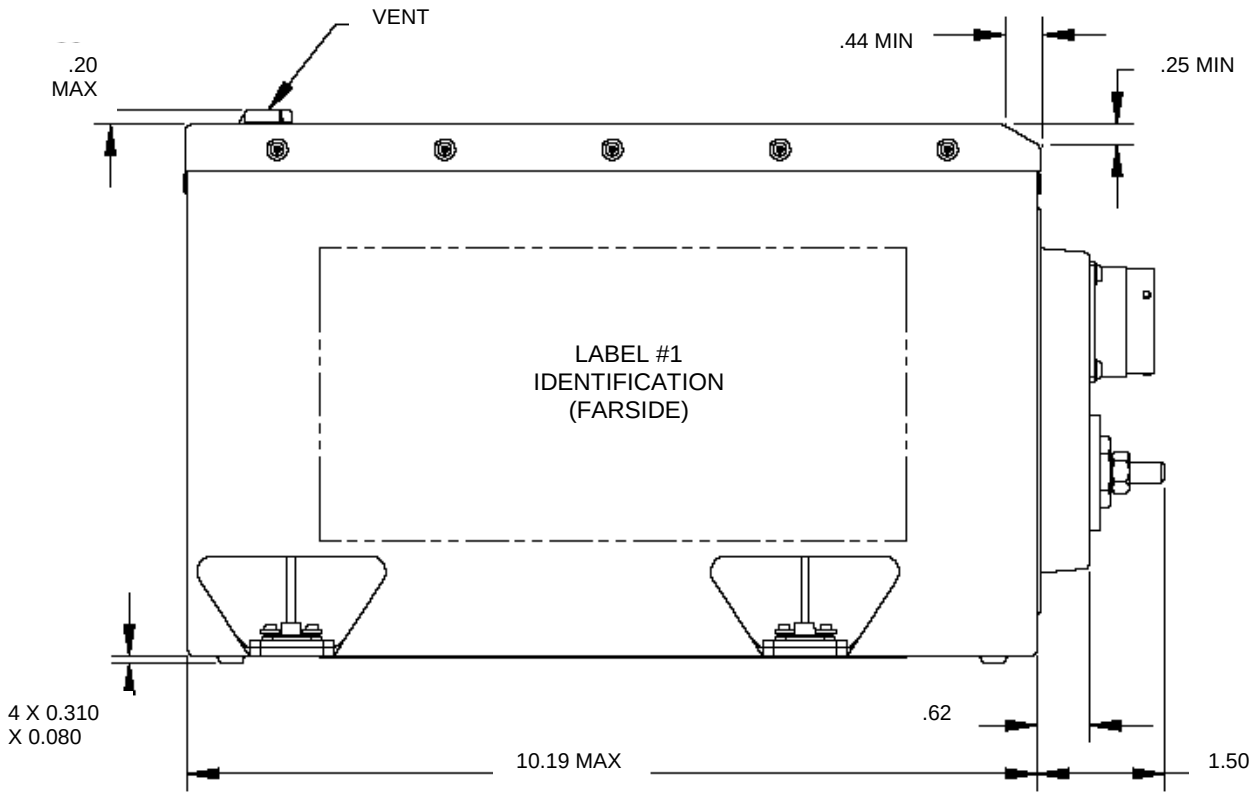
1. All dimensions are in inches.
2. Unless otherwise specified, tolerances are ±0.06 for 2-place decimals (.XX), ±0.030 for 3-place decimals (.XXX) and ±1º for angles.
3. Abbreviations used in this figure are maximum (MAX) and minimum (MIN).
4. Cover fasteners are allowed to extend 0.080 inch beyond cover dimension.

Front View

FIGURE 1. Dimensions and configuration for PIN D8565/20-1.



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Side View

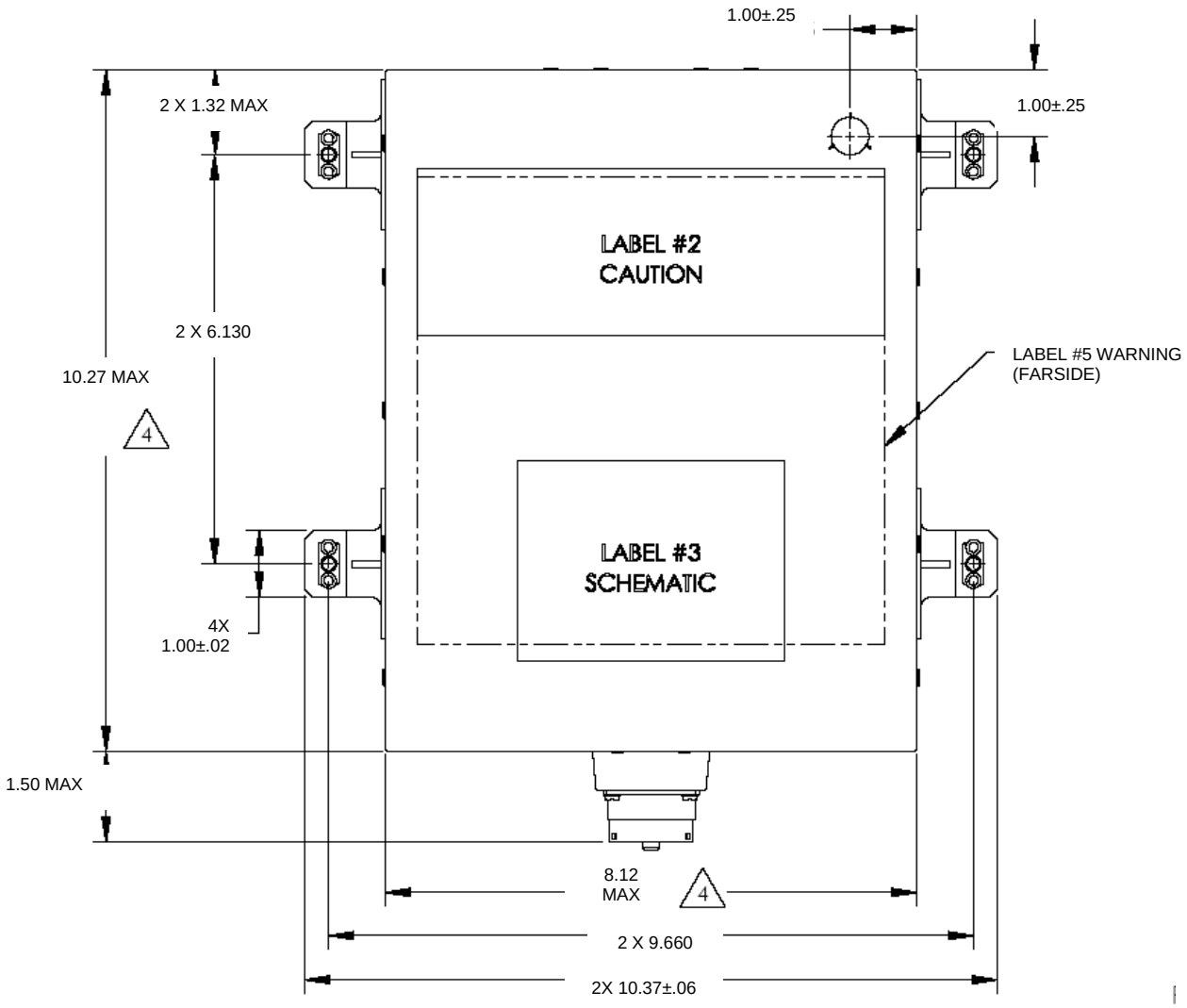
NOTES:

1. All dimensions are in inches.
2. Unless otherwise specified, tolerances are ±0.06 for 2-place decimals (.XX), ±0.030 for 3-place decimals (.XXX) and ±1º for angles.
3. Abbreviations used in this figure are maximum (MAX) and minimum (MIN).
4. Cover fasteners are allowed to extend 0.080 inch beyond cover dimension.

FIGURE 1. Dimensions and configuration for PIN D8565/20-1 – Continued.



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Top View

NOTES:

1. All dimensions are in inches.
2. Unless otherwise specified, tolerances are ±0.06 for 2-place decimals (.XX), ± 0.030 for 3-place decimals (.XXX) and ±1º for angles.
3. Abbreviations used in this figure are maximum (MAX) and minimum (MIN).
4. Cover fasteners are allowed to extend 0.080 inch beyond cover dimension.

FIGURE 1. Dimensions and configuration for PIN D8565/20-1 – Continued.



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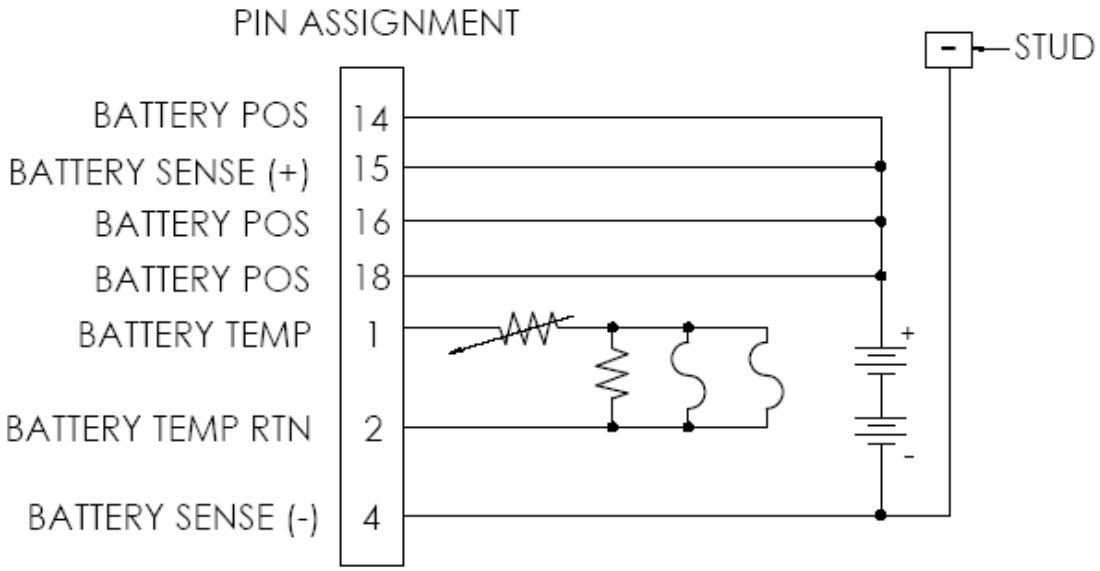



FIGURE 2. PIN D8565/20-1 electrical schematic for label #3.



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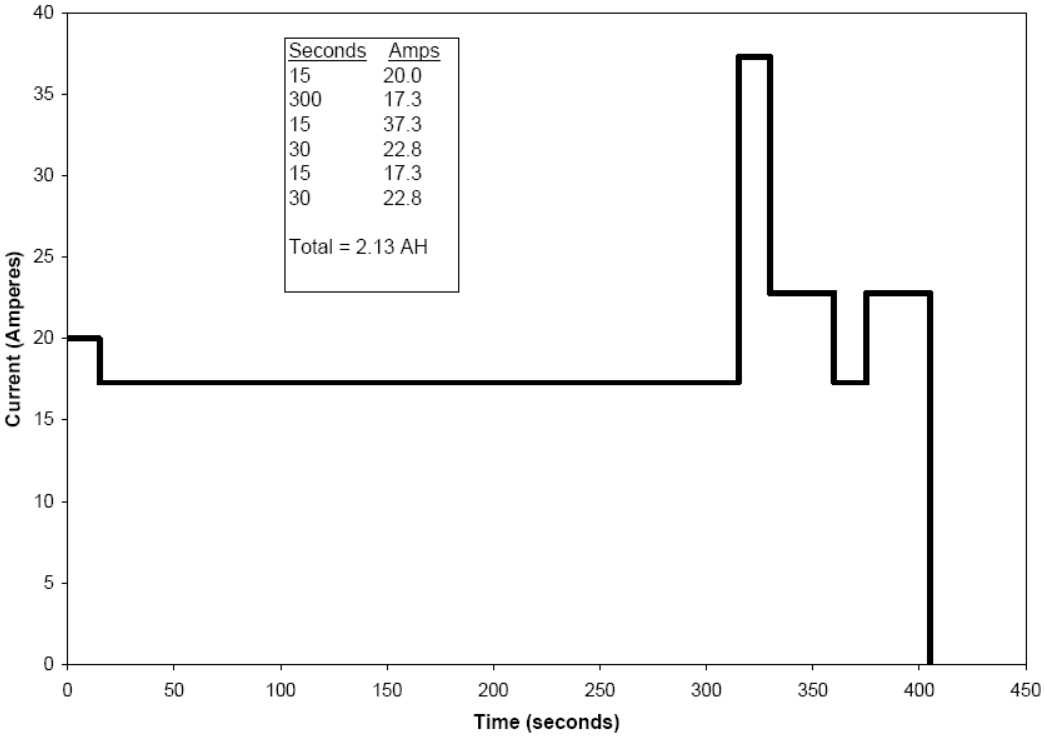



FIGURE 3. Aircraft start-up load profile.

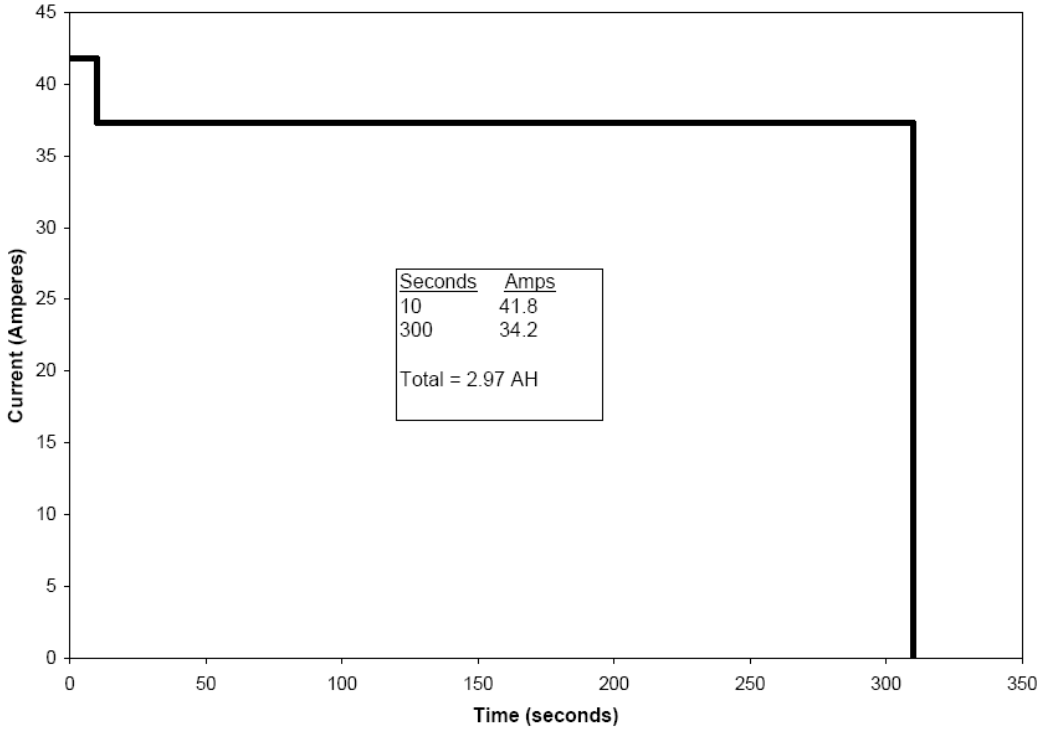



FIGURE 4. Aircraft emergency load profile.



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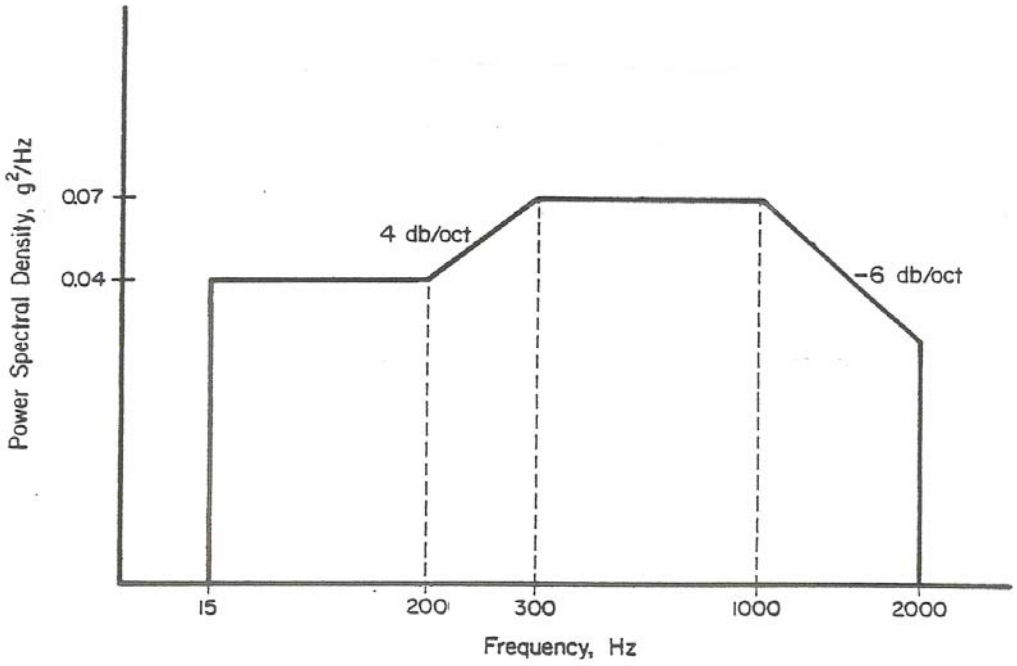



FIGURE 5. PIN D8565/20-1 random vibration test levels.

Custodians:
Navy - AS
Air Force - 99
DLA - CC

Review activity:
Air Force - 11

Preparing activity:
Navy - AS

(Project 6140-2013-002)

Agent:
Navy - SH

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