

**UNIVERSITY OF ROCHESTER
ENVIRONMENTAL HEALTH & SAFETY**

Policy No.: FS012	Approved by: Mark Cavanaugh
Title: Fire Alarm Panel Battery Load Testing	Date: 11/19/2020
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Prepared by: Brian Prinzing	

I. PURPOSE

This procedure establishes the steps required to be performed in order to do a load test for fire alarm panel back-up power batteries.

II. PERSONNEL AFFECTED

Fire Safety Specialist or Fire Inspector II responsible for testing the fire alarm systems in their respective areas.

III. DEFINITIONS

IV. RESPONSIBILITIES

The Fire Safety Specialist or Fire Inspector II will contact the University Public Safety dispatch center and advise them that testing will be performed on the fire alarm system for "XX" area and to disregard all troubles and fire alarms for that system.

V. PROCEDURES

- A.** Depending on the type of fire alarm system, the batteries will be inside the bottom of the main control panel, or inside an auxiliary battery panel located near the main panel. Remove any panel face covers to access the batteries. Before proceeding any further, visually ensure that all live A.C. connections 50 volts or greater are properly covered. If such exposed connections are found, close and lock the cabinet and contact an electrician to replace safety covers over the live connections prior to continuing. If unable to determine or uncomfortable in determining that terminals >50 volts AC are covered and protected against electric shock, do not touch any interior components, close the panel cover and contact an electrician for help.
- B.** Isolate the battery power from the system by lifting the wire directly off the battery terminal or by disconnecting the plug and/or fuse combinations (generally found in the Simplex panels).
- C.** Disconnect and test only one (1) battery at a time.
- D.** Open the cover and connect the SOC TESTER cables to the red and black terminals on the battery. The cables have color-coded alligator style clips to match the terminals on the battery. **DO NOT MATCH** a red clip from the tester to a black terminal on the battery and vice versa. (the SOC TESTER will not turn on)

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- E.** If the battery can be tested, a readout on the <VOLTAGE ANALYZER> screen located on the SOC TESTER will display a voltage. If no number shows in this screen upon attaching the clips, the battery will not test and can be considered bad.
- F.** If a readout appears in the <VOLTAGE ANALYZER> screen, turn the SOC TESTER on using the OFF/ON switch located on the right side of the tester. Dial in the battery amp hour rating on the SOC TESTER using the <AHR SETTING> dial located left of the OFF/ON switch. A digital readout will display in the large screen under the words AMPERE HOUR RATING. There is a two (2) position switch located under the <AMPERE HOUR RATING> screen labeled as AH and CCA. This is to be set to the AH (ampere-hour) side. CCA is for (cold cranking amps) and is not used for testing fire alarm batteries. Dial in the ampere-hour setting within +/- .2 of the battery amp hour rating. (Ex: set point 7-amp hour battery can be dialed in to a range of 6.8 to 7.2).
- G.** Set the <BATTERY TEMPERATURE> dial, located to the left of the AMPERE HOUR RATING screen, to the approximate temperature of the battery being tested. A temperature scale listed in Fahrenheit (outside numbers and Celsius (inside numbers) are printed around the dial. This is an approximate estimate of the temperature.
- H.** On the readout screen under the above controls, starting from (right to left) is a button for setting the battery voltage. The button is depressible and has settings for 6V (up setting) or 12V (down setting). This button is always in the down 12V setting unless you have a different voltage battery being tested.
- I.** To the left of the voltage-setting button, are the color readout LED lights indicating the different percentages of the battery charging. These will light up upon completion of the test. The percentages are listed under each light starting (right to left) 110%, 100%, and 90% and are colored GREEN. 80% and 70% are YELLOW. 60%, 50% and 40% are RED. The <40% light is larger and also RED. Green is ok for charging and use, yellow is marginal and should be monitored, and Red is replace battery.
- J.** To the left of the readout lights, is the <TEST IN PROGRESS> light and will flash BLUE when the test is being done.

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- K.** Next button is the <START TEST> feature. Pressing this button will begin the load test.
- L.** The final display is the <CHARGE INTERNAL BATTERY> light. This will flash RED if the SOC TESTER battery does not have enough power to operate. Discontinue the test and either charge the internal battery using the SOC TESTER DC power adapter cord. The SOC TESTER will still function if the DC power cord is plugged in and also charges the internal SOC TESTER battery.
- M.** Once steps E through I have been completed, press the <START TEST> button and the test will run approx. 40-50 seconds. Once the test is completed, the SOC TESTER will illuminate a STATE OF CHARGE led light indicating the capacity of the battery. Occasionally, two (2) led lights may illuminate at the same time. Turn the SOC TESTER off, turn back on and re-test the battery.
- N.** Once the first battery has been tested, fill out the battery information sheet located in the inside cover of the SOC TESTER and also fill out a label to be attached to the battery. Information on both of these items is self-explanatory.
- O.** Return the first battery to the panel and reconnect the terminal wires properly. Disconnect the second battery and follow steps E through I and L. A result will display upon completion of the second test. Record the information on the battery information sheet, complete a second label, and affix to the battery. Return the second battery to the panel and reconnect. Close and secure any covers or boxes.
- P.** Follow the system re-connect procedures to return the panel to normal status, if no additional testing is going to be taking place. If there are any troubles on the panel upon restoring, check the battery, connections and the troubles should clear. There are some cases that the batteries show a charging trouble on the FACP. Monitor these panels after the test and they should clear within an hour. Some fire alarm panels will clear quicker than others will.
- Q.** Contact Public Safety to inform them that testing has been completed for that system and they should have a good restoral.

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- R. Proceed to the next panel if additional batteries will be tested and repeat this procedure.

- S. Transfer the information from the battery information sheet onto the EH&S fire device testing cover sheet for the building tested and print out a copy to be attached with the Annual Fire Alarm Device Testing Report for that system.

VI. REFERENCES

SOCTESTER SOC 140 operating manual (full description of procedures)

VII. APPENDICES/FORMS

VIII. REVISION HISTORY

Date	Revision No.	Description
1/23/2009	New	Initial development of this policy
5/11/2010	1	Updated section V subsection B regarding safety covers over A.C. connections
4/5/2013	2	Remove disconnect/reconnect procedures
8/17/2017	3	Clarified steps
11/19/2020	3	Triennial year review