

Test T.5: External short circuit

38.3.4.5.1 Purpose

This test simulates an external short circuit.

38.3.4.5.2 Test procedure

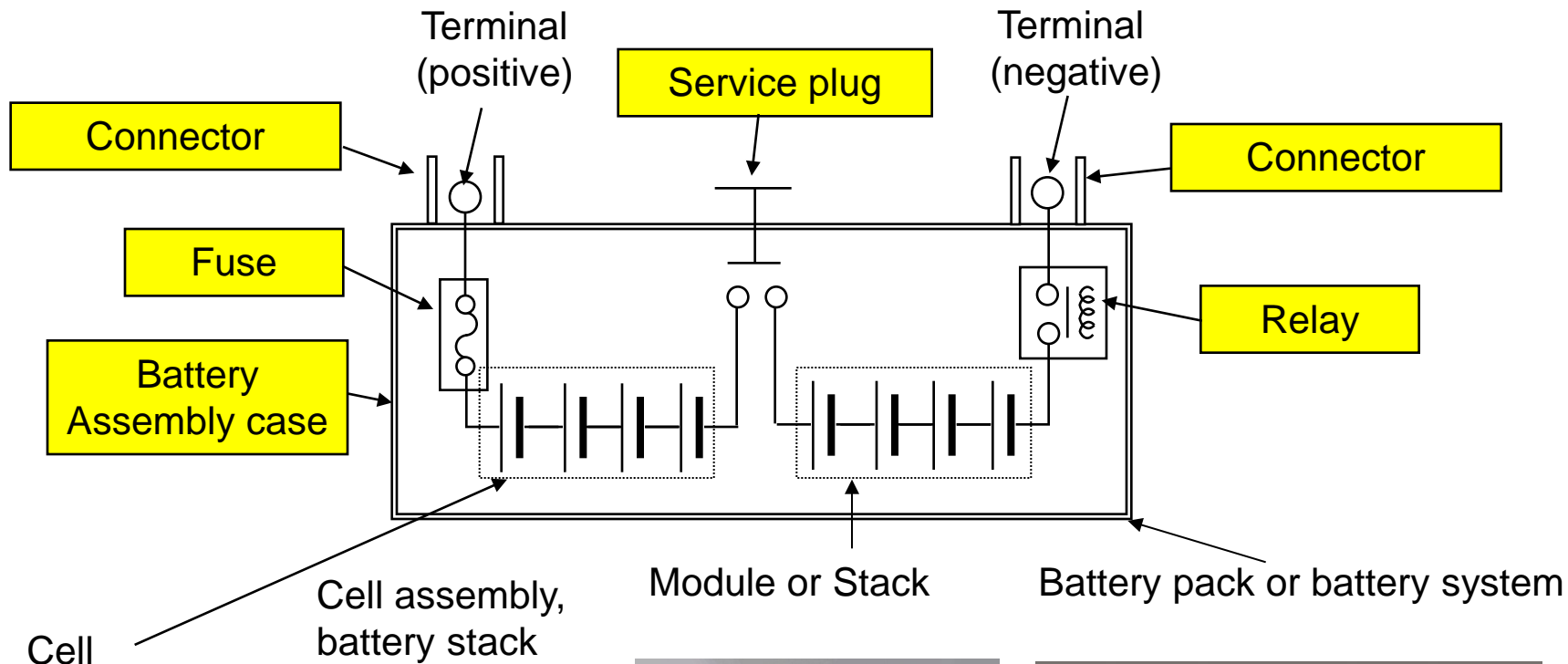
The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches $55 \pm 2^\circ \text{C}$ and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at $55 \pm 2^\circ \text{C}$. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $55 \pm 2^\circ \text{C}$.

38.3.4.5.3 Requirement

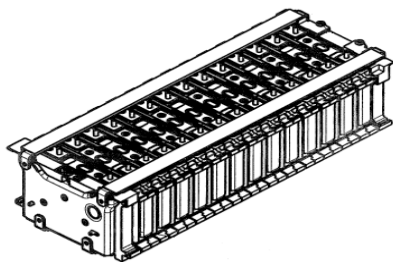
Cells and batteries meet this requirement if their external temperature does not exceed 170°C and there is no disassembly, no rupture and no fire during the test and within six hours after the test.

Components of Battery Pack System

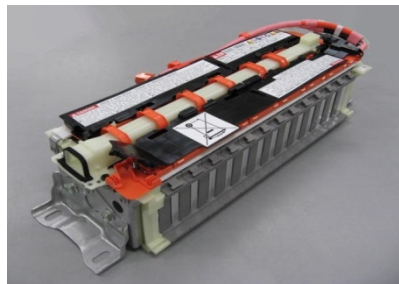
Note: cell electronics is not drawn in this figure.



Cell



Component battery



Complete production

38.3.3 When a cell or battery type is to be tested under this sub-section, the number and condition of cells and batteries of each type to be tested are as follows:

- (b) When testing rechargeable cells and batteries under tests T.1 to T.5 the following shall be tested in the quantity indicated:
 - (i) ten cells at first cycle, in fully charged states;
 - (ii) four small batteries at first cycle, in fully charged states;
 - (iii) four small batteries after 50 cycles ending in fully charged states;
 - (iv) two large batteries at first cycle, in fully charged states; and
 - (v) two large batteries after 25 cycles ending in fully charged states.

Batteries not equipped with short-circuit protection that are designed for use only in a battery assembly, which affords such protection, are not subject to the requirements of T.5, when cells of the battery have been passed to all applicable tests.