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## BLADE CONNECTOR WITH SPRINGS TO PREVENT SHORT CIRCUITS WHEN OPENING THE BACK DOOR

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## **Blade Connector with Springs to Prevent Short Circuits When Opening the Back Door**

### **Abstract**

During notebook system disassembly, when opening the back door, the motherboard is still connected to the battery which is easy to cause short circuits when replacing modules or memory SODIMM, e.g. when screws drop or the screwdriver touches the motherboard components accidentally; the unexpected short circuits may introduce component damage or other unexpected issues after assembling the system back, and it's hard to screen out these defects by a simple boot test at the service site. This invention is to design a new type of connector with springs to ensure the battery is disconnected automatically from the motherboard when the D-cover is removed.

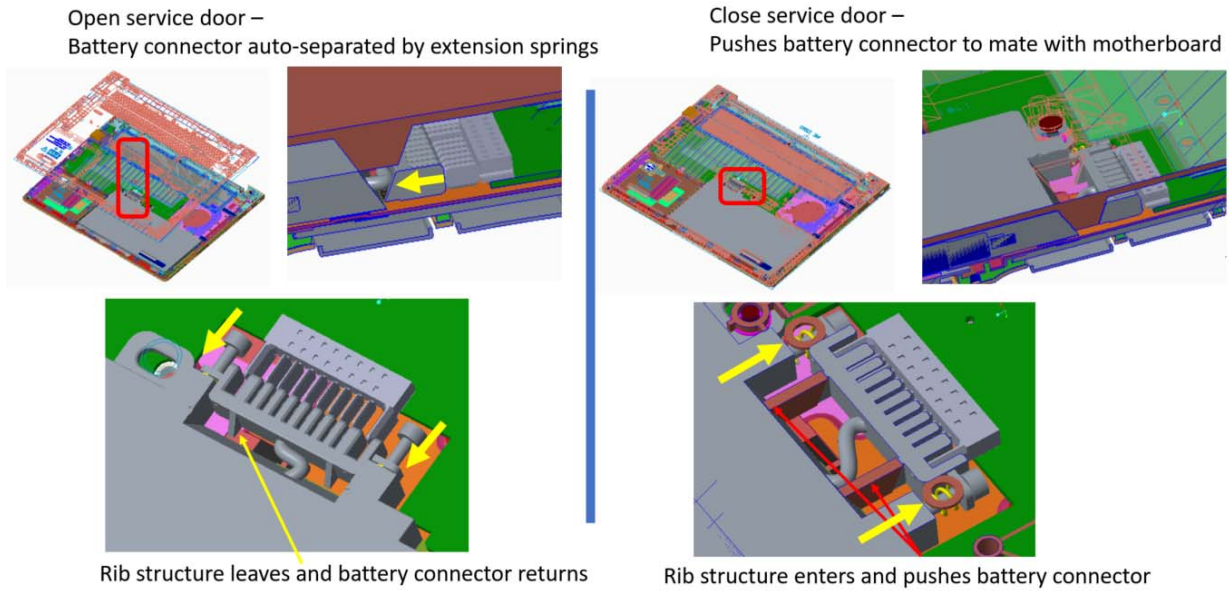
### **Background**

The traditional method is relying on operators' manual control; but can't avoid short circuits 100% even the procedure has already been defined clearly in the production lines or service facilities. SOP can't 100% prevent human operation misses.

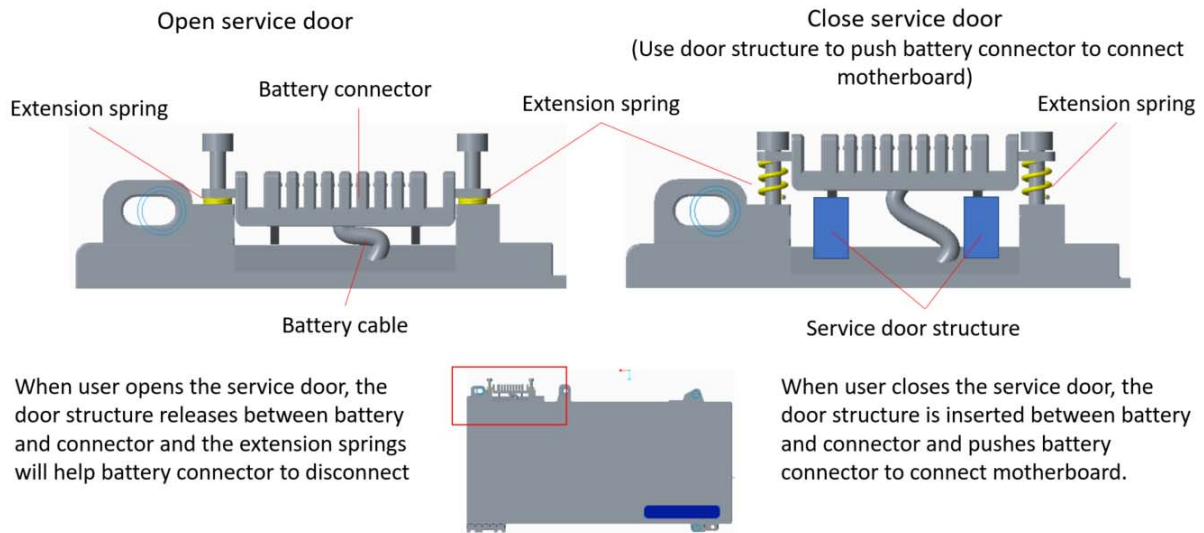
### **Invention Description**

Need to change the design of the battery connector; add springs on the battery side connector to determine the connection or disconnection from the motherboard side connector. The rib structure on the service door will push or release the springs on the battery connector.

- When the service door is assembled, this structure will push the battery connector to mate with the motherboard side connector.
- When the service door is disassembled, the springs will pull the battery connector back and un-mate from the motherboard side connector.

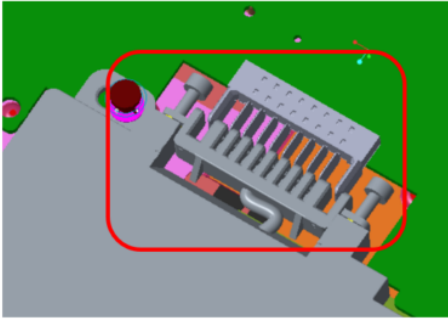


**Figure 1.** How blade connector operates when opening and closing the service door

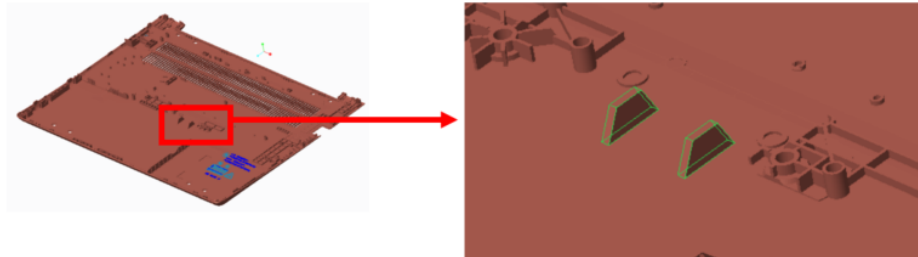


**Figure 2.** Blade connector and spring design

Placement : Reserve space for power connector



Location : Add rib structure on service door



**Figure 3.** Blade connector and rib location

### **Advantages**

- Save warranty costs by implementing a foolproof mechanism to prevent additional motherboard/module/SODIMM replacements caused by short circuits.
- Reduce re-repairs at the customers due to latent failures induced by short circuits during the first repairs.
- Both the above will help improve a manufacturer's ARR (Annualized Replacement Rate) / AIR (Annualized Intervention Rate) and enhance User Experience.

***Disclosed by Longman Chen/ Roger Lee/ Danny Ding/ Ken Tsai/ Fancy Ku/ Laura Hung, HP Inc.***