



## **Understanding Hidden Failures, the Saga of the Parachute**

In RCM2, a hidden failure is a functional failure that on its own will not become evident to the operating crew under normal circumstances. If the functional failure is not “hidden”, then the failure would be considered “evident”. For each of the scenarios below, is the failure of the parachute hidden or evident?

1. The pilot of a military training plane bails out when the plane catches fire utilizing a parachute provided for the purpose. The chute rips apart at the seams on opening due to the stitching being exposed to a corrosive environment for the last year.
2. A crew member from a military cargo plane is an avid skydiver. With her parachute in the shop for repairs, she “borrows” one from the cargo plane. When the skydiver deploys it, the chute fails to open on the weekend jump.

In Scenario 1, the failure is hidden as the parachute is a protective device designed to be capable of safely returning the pilot to the ground in the event the plane is unable to do so. Under normal circumstances, the need would not exist to bail out of good airplane unless it failed in some way first. To overcome the potential multiple failure, a failure finding approach should be applied to the parachute. In Scenario 2, the failure is evident as it is normal for a skydiver to use the parachute to return to the ground. The failure on its own would definitely be evident to the skydiver when the chute failed to open.

When considering protective devices and hidden failures, it may surprise you to learn that upwards of 20% of your protective devices are already in the failed state and you don’t know it.

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