C13 RV Shower Seat Failure and Resulting Injuries Due to Incomplete Assembly Instructions

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After attending this presentation, attendees will learn of the need for adequate instructions by parts suppliers. They will also learn of the role of hidden and non-standard features in a sub-component of a consumer product

This presentation will impact the forensic community and/or humanity by demonstrating the need for adequate instructions with sub- assemblies and components and the consequences for not providing them.

Background: Mr. X ordered an RV (recreational vehicle) from a manufacturer of luxury motor homes. He initially used it for recreational purposes only, and he later used it for his living quarters. About 3½ years after his purchase, he was showering and in order to wash his feet he sat on the fold down seat which was mounted on the shower wall. The fiberglass seat tabs failed about the hinge pin line and caused him and the seat to fall approximately 18 inches to the shower floor resulting in low back injuries. An investigator found one of the two stainless steel hinge pins lying on the shower floor along with the seat and its broken tabs. He removed the wall mounting bracket and seat components for evidence preservation purposes. The removed parts were replaced during repair of the RV before it was returned to service.

Plaintiff's attorney made the removed parts available to his retained experts, a mechanical engineer, and a metallurgical engineer. His mechanical engineer inspected the repaired RV before it was sold. Plaintiff's experts both opined that the hinge pin had dislodged from the mounting bracket and caused seat tabs to fail. They further opined that the hinge pin loosened and dislodged due to improper assembly during the manufacture of the RV. They specifically stated that they were not rendering any opinions regarding the design and manufacture of the seat or its mounting bracket. Plaintiff's attorney filed suit against the American RV manufacturer, without naming the foreign seat manufacturer.

The RV manufacturer's attorney arranged for the author to be retained to perform forensic engineering services in evaluating the claim. The removed parts were inspected and a used exemplar seat was obtained. Analytical stress analysis were performed to evaluate potential for failure of the seat tab(s), Results indicated that the seat tabs are not expected to fail during normal or even mildly abusive usage if the hinge pins are securely fastened to the mounting bracket. Results indicated that if one hinge pin is completely removed, the additional torsion stresses at the remaining hinge pin predict failure in that seat tab, but not in the seat tab from which the hinge pin is removed.

The mounting bracket has threaded receptacles into which the threaded ends of the hinge pins are engaged. These receptacles are largely obscured within the bracket interior. The interior ends of these receptacles have plastic inserts beyond the metal threads which are fully obscured. If the hinge pin threads fully engage the metal threads and extend sufficiently far into the plastic inserts, then the plastic inserts provide a locking function to prevent the pin threads from loosening during normal usage. If the hinge pin threads do not extend sufficiently far into the plastic inserts, then there is no locking function and the pin threads can loosen during normal usage.

The seat manufacturer's instructions make no mention of the plastic inserts or their locking features. They instruct the user to "fully tighten pins with a tubular key." A tubular key is not a standard tool and is nor provided with the product.

Products, Component, Instructions

 ** Presenting Author*