

NexGen Sonic Burner Use in Cargo Liner and Seat Cushion Flammability Test

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Abstract: The Next Generation (NexGen) sonic oil burner has been undergoing extensive testing and development since its conception nearly a decade ago. Over the past few years, it has been transformed into a high precision tool for use in fire testing for a number of different aircraft material fire test methods, including the seat cushion flammability and cargo liner oil burner tests. Both of these test methods have incorporated the use of the Park burner, which has been the industry standard test burner. However, the Park burner is no longer manufactured and replacement parts are becoming increasingly scarce. This problem affects labs which currently rely on the Park burner for certification testing, but poses an even greater difficulty for new test labs that do not have access to a Park burner. The NexGen Sonic Burner is designed as an alternative to the Park burner, and can be constructed using readily available parts and materials. A number of different internal configurations have been tested with the NexGen burner including the original Park-type stator and turbulator, the Flame Retention Head, and the latest igniterless stator and turbulator components. The NexGen burner does not require the use of a calorimeter and thermocouple temperature calibration as the Park burner. The NexGen relies on proper configuration of the internal components to control the flame, and uses a “temperature validation procedure” as a check to ensure the burner is operating as intended. The NexGen burner has been designed to produce test results similar to that of the Park for the seat and cargo test methods, while being easier to setup, requires less maintenance, and be more consistent. There have also been some minor updates in the test apparatus and instructions for both the seat and cargo tests when using the NexGen burner. This presentation will focus on the development of the NexGen burner for the seat and cargo test methods, required supporting hardware for use with the NexGen burner, and differences in the test methods when using the NexGen compared to the Park oil burner.