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2016 Cygnus Refurbishment

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Cygnus, a dual-beam x-ray source, supports the Subcritical Experiments Program at the Nevada National Security Site for both Los Alamos and Livermore National laboratories. Since 2004, Cygnus has been successfully fired over 3000 times and refurbishment activities were completed in 2012 and 2016. The major refurbishment in 2016, conducted over a six-month period, will rejuvenate Cygnus operations for a number of years. In this paper we describe discoveries and resulting actions performed during the 2016 refurbishment period, particularly those related to arc damage and oil leakage in the induction voltage adder (IVA) ring stack. Many engineering enhancements and improvements were made to Cygnus in 2016, including the addition of inspection windows for the Marx tank, diverter switch, and IVA oil manifold. Finally, many safety improvements were also implemented, such as installation of elevated work platforms for the Marx tank and IVA assembly.

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