

**SUB-SCALE WATERFLOW CAVITATION AND DYNAMIC TRANSFER  
FUNCTION TESTING OF AN OXIDIZER TURBO-PUMP COMBINED INDUCER AND  
IMPELLER**

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**ABSTRACT**

In 2009 and 2010, Concepts NREC prepared for and performed a series of tests on a 52% scale of a version of the Pratt & Whitney Rocketdyne J-2X Oxidizer Turbopump under a Phase III SBIR with NASA MSFC. The test article was a combined inducer and impeller, tested as a unit. This paper presents an overview of the test rig and facility, instrumentation, signal conditioning, data acquisition systems, testing approach, measurement developments, and lessons learned. Results from these tests were presented in the form of two papers at the previous JANNAF joint propulsion conference, in December of 2011.