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ROCKET HISTORY THROUGH AN ARTIFACT: THE AMERICAN ROCKET SOCIETY TEST STAND NO. 2 (1938-1942)

Abstract

Abstract Rocket History through an Artifact: The American Rocket Society Test Stand No. 2 (1938-1942) by Frank H. Winter, Museum Curator, Ret.

For more than 30 years, the American Rocket Society (ARS) Test Stand No. 2 was exhibited in the the Rocketry and Space Flight Gallery of the National Air and Space Museum (NASM) in Washington, D.C., since the building opened in 1976. But for most of that time the stand had its back towards the wall, concealing its inner workings. Apart from this, the existing documentation on the object in the NASM's records was not very complete.

However, in 2007, the Rocketry and Space Flight exhibit was closed and the stand removed to the Museum's Storage and Restoration Facility. This provided the ideal opportunity to undertake a closer study of this artifact which turned out to have a far more significant and interesting history than previously realized.

This paper is a summary of the 65-page investigation on this artifact which includes detailed examinations of the object, researches on it using the early publications of the ARS and correspondence of early ARS members, extensive photo interpretations of extant photos of it throughout its operational life, and communications with a 93-year old associate of the ARS who played a role in its history.

In brief, the significance of ARS Test Stand No. 2 may be summed up as follows. ARS Test Stand No. 2 was used for static tests of experimental liquid-propellant rocket motors from 1938 to 1941 and was the main activity of the Society during those years. Most prominently, it tested and proved the effectiveness of the regeneratively-cooled liquid propellant rocket motor of ARS member James H. Wyld, the first successful regeneratively-cooled rocket motors in the U.S.

This led directly to the formation, in Dec. 1941, of Reaction Motors, Inc. (RMI), America's first commercial liquid-fuel rocket company that marked the emergence of professional rocket engineering in the United States. In turn, RMI, which borrowed the stand for their initial experiments, became an important pioneering company that developed, for example, the 6000C-4 rocket engine used in the Bell X-1 rocket research aircraft that became, in 1947, the first plane to break the sound barrier. Newly found early RMI photos also reveal that the stand played a role in RMI's development of its first larger static test stands and contained features of the original ARS Test Stand No. 2.