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THE XLR-99 PIONEER ROCKET ENGINE—POWERING THE X-15 ROCKET PLANE INTO AIR  
AND SPACE IN THE 1950S-60S

**Abstract**

Previous IAF History papers by one of the authors (Winter), with Frederick I. Ordway III, covered the overall history of Reaction Motors, Inc. (RMI), a pioneering U.S. rocket company. Additional papers by papers by Winter treated the history of RMI's famous 6000C-4 ("Black Betsy") rocket engine that powered the X-1 rocket research aircraft that broke the sound barrier in 1947.

The present paper covers the largest and last major rocket engine development by RMI, the XLR-99, also known as the Pioneer, that powered the famous X-15 hypersonic rocket research aircraft that made some 199 flights from 1959 to 1968. The X-15, of which three were made, established numerous world speed and altitude records, some of which have not been broken. In 1963, X-15 pilot Joe Walker crossed the 100 km altitude mark twice, thus joining the NASA astronauts and Soviet cosmonauts as then, the only men to have crossed the barrier into outer space, thus earning him "astronaut wings." However, while the X-15 story is rightfully well covered in the literature, surprisingly little has been written on the history of its engine that made these flights possible. The present paper, based on interviews by some of the RMI engineers who helped develop the engine, as well as other sources, will help to fill in this very important gap in the history both of aviation and the history of rocket technology.