

**Paul G. Willoughby**  
**CSD Retired**



Paul G. Willoughby received a B.S. in Aerospace Engineering in 1960 and a M.S. in Engineering Mechanics in 1962 from the University of Michigan. Prior to leaving the University he participated in experimental shock tube, gaseous detonation and highly underexpanded jet plume studies at the U of M Propulsion Lab. He worked at United Technology Center Chemical Systems Division, CSD, from 1962 to 1999. Between 1962 and 1984 he concentrated on experimental technology studies involving solid rocket motors. These included two phase flow in rocket nozzles, the effect of acceleration (spin) on the combustion of solid propellants, cold flow simulation of internal flows in solid rockets and high speed cinematography of solid propellant combustion. From 1984 to 1999 he concentrated on the evaluation of solid rocket test and flight hardware and manufacturing hardware and processes. These studies included the analysis of and recovery from test and flight solid rocket motor failures and manufacturing anomalies. Since retirement in 1999 he has consulted on solid rocket motor manufacturing, test and flight anomalies.