



Reentry Device (RED) – Flight Heritage

SpaceWorks has been actively developing a broad line of atmospheric Reentry Devices (RED) leveraging SpaceWorks' heritage Terminal Velocity (TVA) brand. The family of RED devices includes a reentry data recorder, RED-Data2 and larger sample return capable versions designated RED-4U, RED-25 and RED-50. Under a series of SBIR contracts with NASA and under license from the Aerospace Corporation, SpaceWorks developed and in 2017 delivered the first three RED-Data2 devices for flight to the International Space Station (ISS) under CRS OA-7. Reentry occurred in June 2017 over the Pacific Ocean. The RED-Data2 vehicles are designed to survive the breakup of the host vehicle and reenter the Earth's atmosphere at hypersonic speeds. The primary mission of the RED-Data2 vehicles is to collect thermal protection system (TPS) temperature data from embedded thermocouples in the vehicles' heat shields. A RED-4U technology demonstrator was drop tested from a high-altitude balloon in June 2015 under NASA Ames Research Center sponsorship.

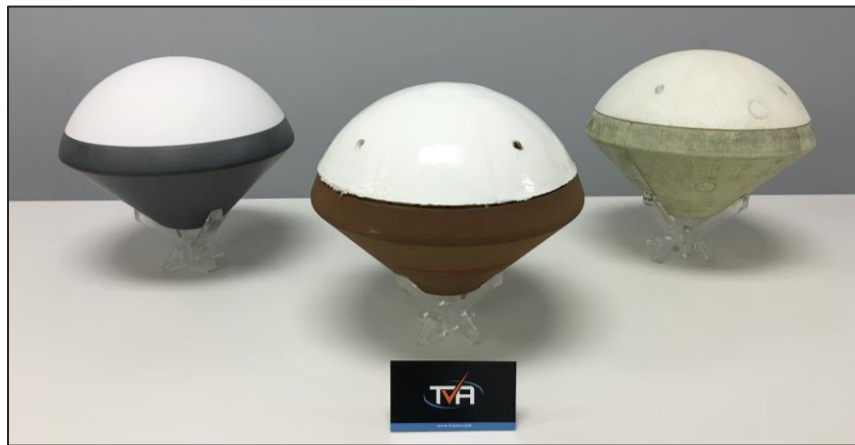


Figure 1: RED-Data2 Heatshield Data Recorders (L-R, LI-2200, Avcoat, Conformal PICA)



Figure 2: SpaceWorks' Heritage RED-Data2 and RED-4U STV Capsules. NASA Ames ARC Jet testing of RED-Data2 (left), RED-4U ballistic recovery system and high-altitude balloon test (middle), and automatic opening RED-4U mockup (right)