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MC-4 High Altitude Pressure Suit, c. 1958

(Pennsylvania Military Museum, J. Gleim, Museum Curator)

Just as deep-sea divers need pressurized oxygen to compensate for water-depth pressure, pilots and aircrew need to compensate for the lack of air pressure and gravitational forces during aircraft maneuvers at extreme heights.



Photo of MM2018.27.1, High Altitude Flight Suit, Front.

Famed aviator Wiley Post, a pioneer in high-altitude flight worked with the B.F. Goodrich Company to develop the first pressurized flight suit in 1934. The suit consisted of three layers: long underwear, an outer suit made of rubberized parachute material, and a jointed frame that allowed Post to move his arms and legs to successfully control an aircraft. Between 1934 and his untimely death in 1935, Post successfully completed 10 high altitude flights in his Lockheed Vega aircraft “Winnie Mae”.

The United States military began to invest heavily in the development of pressurized flight suits during World War II but failed to produce an effective fully mobile pressure suit. US involvement in the Cold War spurred increased development in high speed, high altitude flight and reconnaissance planes like the Bell X-1A and the Douglas Skyrocket and necessitated the production of a functional high-altitude suit.

In 1948, the David Clark Company completed the T-1 flight suit, the first fully operational partial pressure high altitude suit. By 1953, pilots were wearing this suit on routine high-altitude fighter operations. The David Clark Company and Berger Brothers continued to improve pressurized flight gear throughout the 1950s.



Photo of MM2018.27.1, High Altitude Flight Suite, Back.

Developed and produced around 1958, this MC-4 flight suit is one of a lightweight generation of high altitude partial-pressure suits intended for flights up to and above 70,000 feet in non-pressurized aircraft cockpits. The suit is designed with air bladders within the legs, arms, front/back torso that inflate and deflate to maintain blood pressure to the brain during the execution of turns, in the event high-altitude escape (ejection) becomes necessary. These suits were worn by high altitude bomber aircrew, U-2 spy plane pilots and NASA astronauts.