U.S. Spacesuit Knowledge Capture

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The ability to learn from both the mistakes and successes of the past is vital to assuring success in the future. Due to the close physical interaction between spacesuit systems and human beings as users, spacesuit technology and usage lends itself rather uniquely to the benefits realized from the skillful organization of historical information; its dissemination; the collection and identification of artifacts; and the education of individuals and groups working in the field. The National Aeronautics and Space Administration (NASA), other organizations and individuals have been performing United States (U.S.) spacesuit knowledge capture since the beginning of space exploration. Avenues used to capture the knowledge have included publication of reports; conference presentations; specialized seminars; and classes usually given by veterans in the field. Recently, the effort has been more concentrated and formalized whereby a new avenue of spacesuit knowledge capture has been added to the archives through which videotaping occurs, engaging both current and retired specialists in the field presenting technical scope specifically for education and preservation of knowledge. Now with video archiving, all these avenues of learning can be brought to life with the real experts presenting their wealth of knowledge on screen for future learners to enjoy. U.S. spacesuit knowledge capture topics have included lessons learned in spacesuit technology, experience from the Gemini, Apollo, Skylab and Shuttle programs, hardware certification, design, development and other program components, spacesuit evolution and experience, failure analysis and resolution, and aspects of program management. Concurrently, U.S. spacesuit knowledge capture activities have progressed to a level where NASA, the National Air and Space Museum (NASM), Hamilton Sundstrand (HS) and the spacesuit community are now working together to provide a rather closed-looped spacesuit knowledge capture system which includes specific attention to spacesuit system artifacts as well. A NASM report has recently been created that allows the cross reference of history to the artifacts and the artifacts to the history including spacesuit manufacturing details with current condition and location. NASA has examined spacesuits in the NASM collection for evidence of wear during their operational life. NASA's formal spacesuit knowledge capture efforts now make use of both the NASM spacesuit preservation collection and report to enhance its efforts to educate NASA personnel and contribute to spacesuit history. Be it archiving of human knowledge or archiving of the actual spacesuit legacy hardware with its rich history, the joining together of spacesuit system artifact history with that of development and use during past programs will provide a wealth of knowledge which will greatly enhance the chances for the success of future and more ambitious spacesuit system programs.

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