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NASA'S ZERO-G AIRCRAFT OPERATIONS

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NASA's Zero-g aircraft, operated by the Johnson Space Center in Houston, Texas, provides the unique "weightless or "zero-g" environment of space flight for hardware development and test and astronaut training purposes.

The program, which began in 1959, uses a slightly modified Boeing KC-135A aircraft, flying a parabolic trajectory, to produce "weightless" periods of 20 to 25 seconds. The program has supported the Mercury, Gemini, Apollo, Skylab, Apollo-Soyuz and Shuttle programs as well as a number of unmanned space operations. Typical experiments for flight in the aircraft have included materials processing experiments, welding, fluid manipulation, cryogenics, propellant tankage, satellite deployment dynamics, planetary sciences research, crew training with weightless indoctrination, space suits, tethers, etc. and medical studies including vestibular research.

The facility is available to microgravity research organizations on a cost-reimbursable basis, providing a large, "hands-on" test area for diagnostic and support equipment for the Principal Investigators and providing an iterative-type design approach to microgravity experiment development. The facility allows concepts to be proven and baseline experimentation to be accomplished relatively inexpensively prior to committing to the large expense of a space flight.

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