NASA/DAVID C. BOWMAN

Astronaut and veteran Marine Fred Haise took part in a simulated moon landing in the lunar simulator at NASA's Langley Research Center in Hampton, Va., in early October 2019. He hasn't lost his touch—during the simulation, he landed on target.

A Career Filled With Adventure For Apollo 13's Fred Haise

By Nancy S. Lichtman

As the 50th anniversary of "NASA's finest hour" is commemorated this month, Marine veteran Fred Haise reflects on his remarkable career as a pilot and astronaut.

In April 1970, astronaut Fred Haise, a Marine Corps veteran, was 200,000 miles away from Earth, on course to the moon. Haise had trained for this mission–Apollo 13—for months, and all was going according to NASA's meticulously crafted flight plan until an explosion tore through the spacecraft.

When Apollo 13 crewmembers contacted mission control in Houston, Texas, to report the "loud bang" they had heard, flight directors were already trying to determine what had gone wrong and how to keep the astronauts alive.

For the next three days, while the world watched and waited, NASA's engineers and Apollo 13 astronauts—Jim Lovell, Jack Swigert and Fred Haise—worked around the clock to bring the stranded spacecraft back to Earth safely.

"Apollo 13," the 1995 feature film about the mission, made the phrase "Houston, we've had a problem," a part of our lexicon. It was more than a line of catchy dialogue, however, for Haise and his crewmates, who were in a life or death situation.

During a recent interview with *Leatherneck* to mark the 50th anniversary of Apollo 13, Haise reflected on his career,

As the lunar module pilot on Apollo 13, Fred Haise trained to land in the Frau Mauro region of the moon in April 1970. The lunar landing was aborted after an explosion in the service module put the crew's lives in jeopardy. (NASA photo)

the discipline he developed as a Marine Corps fighter pilot, and the nearly disastrous lunar mission that was deemed a "successful failure."

Fred Haise didn't have any dreams about becoming a pilot when he was growing up in Biloxi, Miss., in a Navy family. When he entered the Naval Aviation Cadet (NAVCAD) Program at Naval Air Station Pensacola, Fla., in 1952 after earning an associate degree, he had never even been on an airplane. He simply wanted to do his part during the Korean War, and the NAVCAD program was a

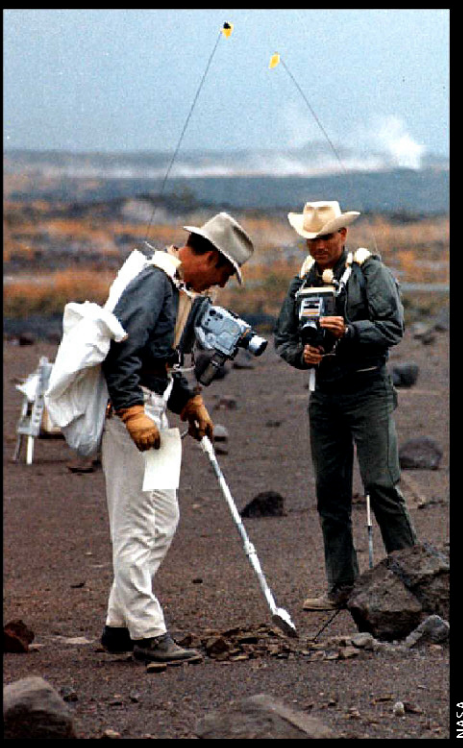
The Apollo 13 Saturn V lifts off from launch pad 39A at the Kennedy Space Center in Florida on April 11, 1970. (NASA photo)

A young 2ndLt Haise, right, and his sister Brenda at Haise's winging ceremony in 1954.

Below: Fred Haise prepares to take off in one of NASA's T-38 aircraft at Patrick AFB, Fla., in 1970.

NASA

COURTESY OF FRED HAISE



NASA

Above: Fred Haise, right, takes a documentation photo while fellow astronaut Jim Lovell points with his scoop during geology training in Hawaii in December 1969.

path to a commission for someone without a four-year degree.

When Haise began flight training, he found that not only was he good at it, he liked it. He credits his days as an aviation cadet under the direction of a drill instructor with helping him establish a good foundation for his career. "To stay on top of things you have to develop discipline," Haise said, adding that the Marine Corps also teaches organizational skills and leadership. "All those attributes … serve one well in [civilian] life."

When he began advanced flight training in Corpus Christi, Texas, Haise decided to join the Marine Corps after learning he would be assigned to fly seaplanes as a Navy pilot. "I just said, 'Where's the Marine office?' because I knew Marines only got fighters or attack [aircraft]." After meeting with a Marine major, Haise became a Marine Aviation Cadet and was assigned to a fighter pilot training squadron.

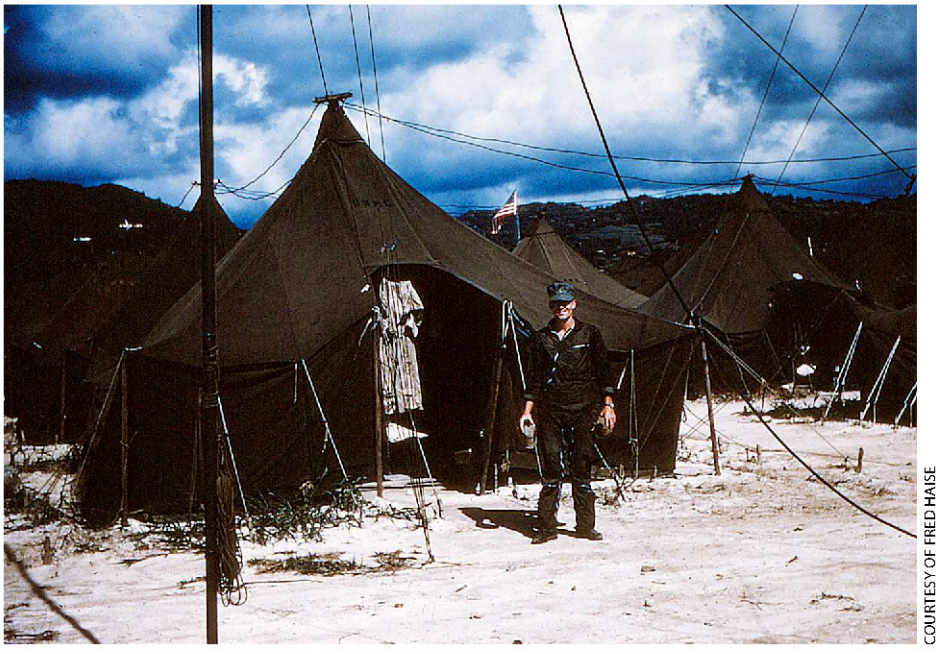
Haise completed his training and did his carrier qualifications in the World War II era aircraft, the Grumman F6F Hellcat. He received the gold wings of a naval aviator and was commissioned a second lieutenant in 1954. By that time, the Korean War was over and Haise was sent to Marine Corps Air Station Cherry Point, N.C., where he served with Marine Fighter Squadron (VMF) 533 flying the McDonell F2H-4 Banshee aircraft. After about a year with the squadron, Haise transferred to VMF-114, also at Cherry Point, where he flew the Grumman F9F-8 Cougar. Haise described the Cougar as a solid aircraft, but said he preferred the Banshee's close-air support capabilities.

"From a Marine standpoint, I think [the Banshee] was a better aircraft … for air to ground support. You could carry more armament and it was much better for that mission."

Those were good flying days, said Haise, more than six decades later. He recalls with particular fondness the live-ordnance training the squadrons did in Vieques, Puerto Rico. That live training was the closest to actual combat Haise would ever get. "You know, as a fighter pilot, at times if feels like one square I did not fill. I never was in combat … I never quite got to use what I had trained to do."

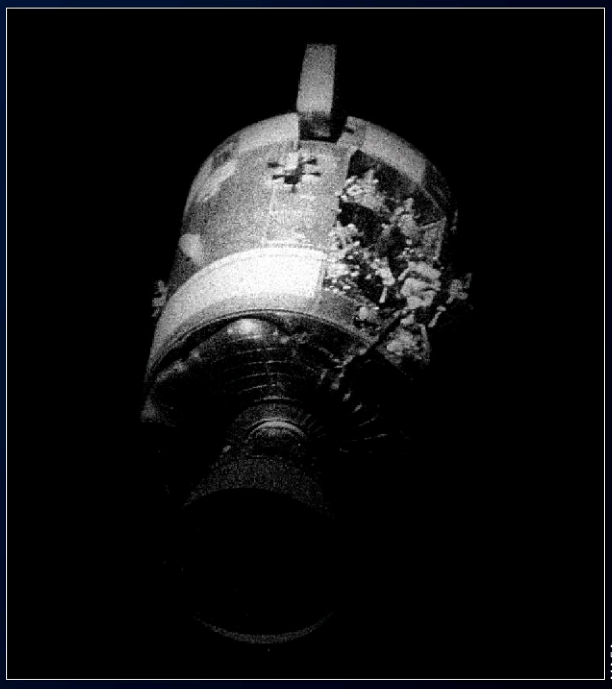
Haise's next assignment took him to Kingsville, Texas, where he continued to fine-tune his flying skills as a flight instructor. "You get to learn from watching others do things and make mistakes, so that makes you a better pilot," said Haise. But that wasn't the only reason Haise enjoyed instructing. "I thought it was great," he said with a laugh. "I got a lot of flight time." Like any pilot, Haise simply loved flying.

Haise had his sights set on building a career as a test pilot but knew that he would have to earn an engineering degree first, so he left the Marine Corps in 1956 and used his GI Bill benefits to attend the University of Oklahoma. Haise had taken mostly liberal arts classes while earning his associate degree but now, as an aeronautical engineering major, he had a heavy load of math and science courses. "It was a rough go," said Haise. "I enjoyed it … having the flight experience, aeronautical engineering was very real-



COURTESY OF FRED HAISE

Haise stands in front of a tent at NAS Roosevelt Roads, Puerto Rico. When Haise was flying with VMF-533 and VMF-511 in the 1950s, he completed live-ordnance training using bombing ranges in Vieques, Puerto Rico.



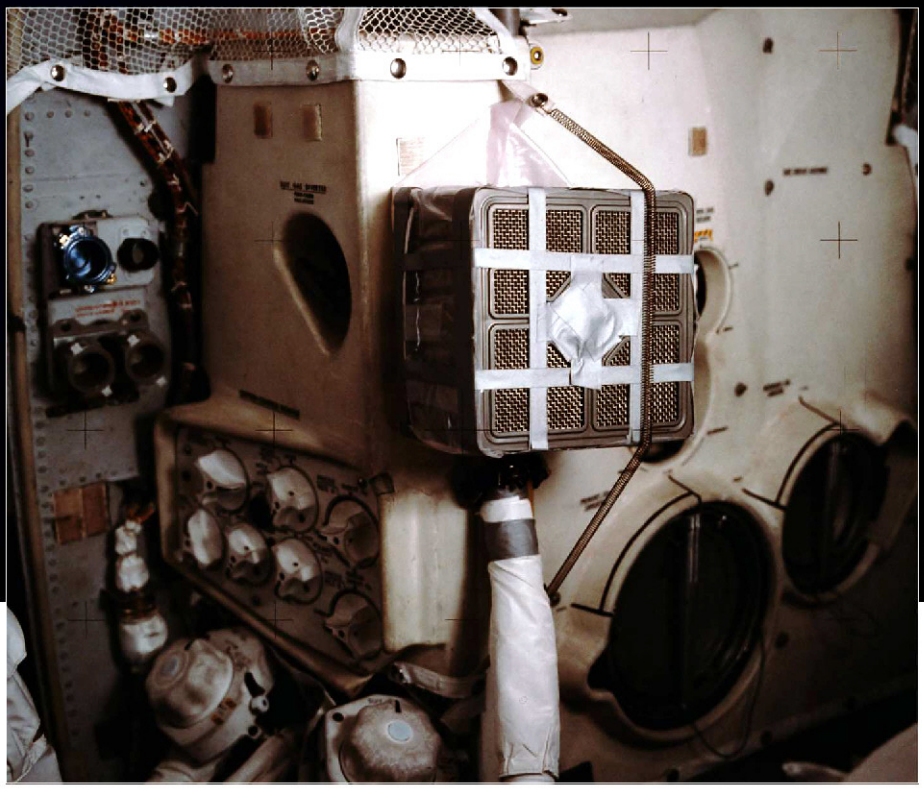
NASA

NASA

Above: Astronauts monitor the Apollo 13 emergency in mission control. Seated, from the left, Deke Slayton, director of flight crew operations; Marine Jack Lousma, capsule communicator; and Apollo 13 backup commander John Young. Standing, from the left, Ken Mattingly, original Apollo 13 command module pilot, and Marine Vance Brand, support crewmember.

Above: View of the severely damaged service module after separation from the command module, April 17, 1970. This was taken near the end of the mission.

Right: In-flight photo of the hastily engineered carbon dioxide scrubber the crew constructed using duct tape, maps and other materials they had on hand after receiving instructions from mission control. The device allowed the crew of Apollo 13 to survive by using the lunar module as a "lifeboat" after they lost power in the command module due to an explosion.



NASA

world to me, so in some respects, it made school more interesting."

When he enrolled at the University of Oklahoma, he transferred his commission to the Air Force in order to fly with the Air National Guard (ANG). According to Haise, the transfer was more a matter of convenience than anything else.

Three years later, engineering degree in hand, Haise, a civilian although still flying in a reserve capacity with the ANG, began the competitive process of applying for test pilot slots with National Advisory Committee for Aeronautics (the agency was renamed National Aeronautics and Space Administration NASA in 1958). Haise's ANG squadron commander had discussed with him the advantages of working for a government agency as opposed to employment with an aircraft manufacturer. "He described it right because he said, 'If you go to a company, you will be stuck in the development of one aircraft and you might spend six years with one aircraft. At NASA, you will get a lot more versatility with the kind of projects and types of aircraft you'll be involved with.' " That proved to be correct. Over the course of his career, Haise flew 80 different types of aircraft.

Haise landed a job at NASA's Lewis Research Center in Cleveland, Ohio, (now called the Glenn Research Center) and worked there as a civilian test pilot. "A lot of noted people went through Lewis on the way uphill," said Haise, including test pilot and future first man on the moon Neil Armstrong. A little more than three years later, Haise, like Armstrong before him, transferred to NASA's Dryden Flight Research Center at Edwards Air Force Base in California. "That was probably the

View of the moon taken from the window of the lunar module during Apollo 13. (NASA photo)

most enjoyable flying time of my career because I was flying lots of different aircraft at any one time and … [was] involved in a support role or direct role in about three different test programs at the same time."

In fact, the flying he was doing was so enjoyable, that Haise said he had to think twice about whether to apply for a transfer to the manned spaceflight center in Houston, Texas. Armstrong, who by that time was preparing for an upcoming Project Gemini spaceflight, didn't exactly make the life of an astronaut sound very appealing. "At one time, Neil had come back visiting and was asked 'What's it like being an astronaut?'" Armstrong's response was not encouraging. "His summary was 'Well, you sit in a lot of meetings, you sit in a simulator a lot and it's not much good flying."

"Compared to what I was doing, it did not sound too delightful, but I thought more about it and the thought of going to the moon was the thing. I knew if I stayed at Edwards, I would never have that chance, so that's what made me apply," said Haise. He was selected and began astronaut training in 1966. Haise's classmates in Astronaut Group 5 included two fellow Marines, Jack R. Lousma and Vance D. Brand. Another classmate was Air Force veteran John L. "Jack" Swigert, who would go on to serve as the command module pilot on Apollo 13.

When Haise entered astronaut training, Project Gemini was drawing to a close and the planning for the Apollo program, which would land a man on the moon, was well underway. Besides learning to operate the spacecraft, Haise and his classmates took geology classes and did fieldwork to prepare them to study and collect rock samples from the lunar surface.

Haise's first crew assignment was with the future first men on the moon Armstrong and Air Force Colonel Edwin E. "Buzz" Aldrin. They were the backup crew for Apollo 8. "I spent six months with Neil and Buzz sitting in meetings and simulators and all of that," Haise said, chuckling about the accuracy of Armstrong's earlier description of an astronaut's daily schedule.

He was then assigned to another backup crew with Navy Captain James A. Lovell Jr., and Navy Lieutenant Commander Thomas K. "Ken" Mattingly. Due to some changes with other mission's crews, Lovell, Haise and Mattingly were then tapped as the primary team for Apollo 13, the planned third lunar landing, with Lovell assigned as the mission commander, Mattingly as the command module pilot and Haise, the lunar module pilot.

A few days before the April 10, 1970, launch, however, Jack Swigert, who had been training as the backup command module pilot, replaced Mattingly who had recently been exposed to rubella (German measles). NASA officials couldn't risk sending him into space while it was unknown whether he had contracted the disease.

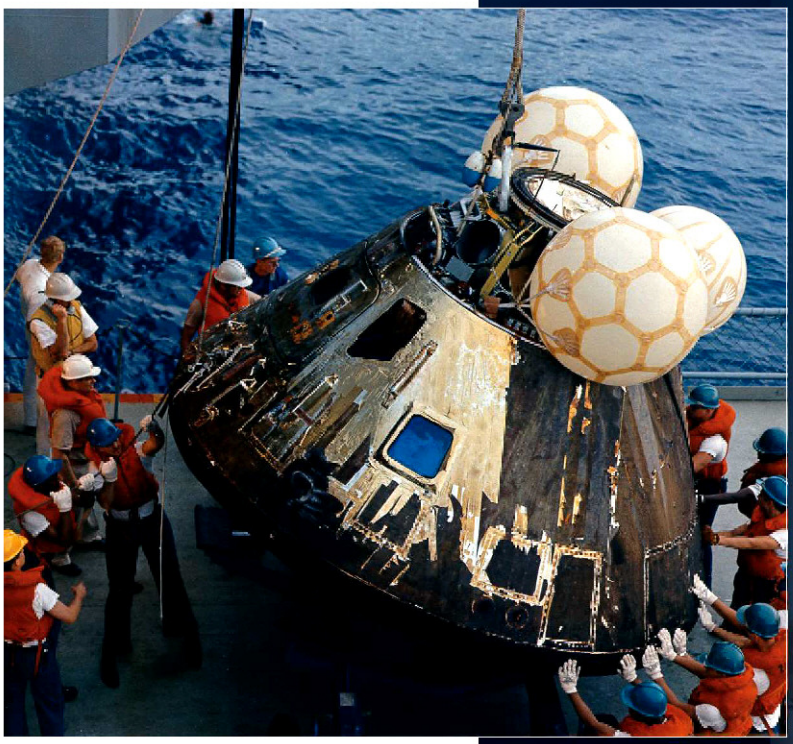
"We should have known … things weren't going to go right when two and a half days before launch we swapped out a crewman," said Haise. Fans of the movie "Apollo 13" may recall the scenes that portrayed friction among the astronauts as a result of that crew change. According to Haise, that simply wasn't a realistic version of events. "Training wise, as a backup, you train equally … and you were really prepared to go fly the mission if you had to, so there wasn't a technical threat. Unfortunately, the movie gave a little hint of that in the way they portrayed it, but that was not an issue."

In the two days leading up to the launch, Haise said he and Lovell cycled "through the critical mission phases in the simulator with Jack just to verify that we talked about things the same way."

The crew change "technically wasn't very tricky, it was emotionally ... unfair in different ways to both individuals. You normally invite people to the launch … friends, family, and of course, Ken had all his friends and family coming. Jack didn't have much opportunity to do that," said Haise.

Almost three days into the flight, midway between the Earth and the moon, an explosion in one the spacecraft's oxygen tanks caused extensive damage to the service module. The damage to the spacecraft not only meant that landing on the moon would be out of the question, but, perhaps more significantly, flight controllers didn't know if it was possible to get the spacecraft back to Earth.

Through ingenuity and problem solving, Apollo 13 made a safe return to Earth, in spite of the fact that, among other setbacks, the spacecraft lost power and the astronauts were unable to use the computers on board. Unfortunately, the astronauts missed the opportunity to land on the moon.



NASA

NASA

The harrowing events of the mission were introduced to a new generation 25 years later through the release of "Apollo 13."

"The movie, if you look at it from the big picture, I thought told an entertaining, good story of the situation. We were people in serious trouble and a team worked together, flight and ground, to figure out things to get us home, and I think that came through loud and clear in the movie," he added.

After returning from Apollo 13, Haise went right back into training as the backup commander for Apollo 16. He was later slated to be the mission commander for Apollo 19 with fellow Marine Colonel Gerald "Jerry" Carr as the lunar module pilot. "I thought that was great. If we

Top: After splashdown, the Apollo 13 command module is being hoisted aboard USS *Iwo Jima* (LPH-2) on April 17, 1970.

Above: The Apollo 13 astronauts, from left, Fred Haise, Jim Lovell and Jack Swigert, emerge from the recovery helicopter aboard USS *Iwo Jima* (LPH-2) after their safe return to Earth.

During the 1977 flight tests for the space shuttle Enterprise, crewmembers of the shuttle and the NASA 747 "host" aircraft included, from left, Fitz Fulton, Gordon Fullerton, Vic Horton, Fred Haise, Vincent Alvarez and Tom McMurtry. (NASA photo)

NASA

NASA

Above left: Haise was the commander for the first of space shuttle Enterprise's test flights from a 747 aircraft in 1977.

Above right: Astronauts Fred Haise, commander, and Gordon Fullerton, pilot, above the runway at Edwards AFB, Calif., during the final approach and landing test flight on Oct. 26, 1977.

COURTESY OF FRED HAISE

Today Fred Haise is the vice chairman of the board for the Infinity Science Center in his home state of Mississippi. He was actively involved in the fundraising and planning for the facility and its interactive displays.

COURTESY OF FRED HAISE

Haise, center, met with fellow Marines, Gen James F. Amos, 35th Commandant of the Marine Corps, and SgtMaj Micheal P. Barrett, 17th Sergeant Major of the Marine Corps, at Biloxi's annual Salute to the Military at the Mississippi Coast Coliseum.

would've landed, there would've been two Marines on the moon," Haise said. The Apollo program was canceled, however, after Apollo 17, and Haise never made it to the moon. Disappointed, but not one to dwell on what could have been, he kept moving ahead.

Like all squared-away Marines, Haise set about preparing for the next challenge. He went to Harvard Business School and took a "four-month pressure cooker course" in program management and development. Back at NASA in Houston, he put those skills, along with his experience as a test pilot to use working in the developmental phase of the space shuttle program from 1973-1976, taking part in the evaluations of the design proposals for the shuttle orbiter.

After working on the program management side, Haise was given the task of commanding the first crew to test the new shuttle orbiter Enterprise during approach and landing tests in 1977.

"I felt more pressure, particularly as we got ready to fly the first flight," he said. Haise was determined that the flight should go well in order to prevent a setback or, worse, cancellation of the program. The flights were a success. "To me it was the best flying experience … of my career because I was in it sort of womb to tomb. I had been through all the design development and now got to fly it for the first time."

Haise left NASA in 1979 for the corporate world, signing on with Grumman

Astronauts Jim Lovell, left, and Fred Haise in front of the Apollo 13 command module, Odyssey, at the Cosmosphere in Hutchinson, Kan. On April 4, the two astronauts will attend an event at the museum marking the 50th anniversary of NASA's "successful failure." Joining them will be several members of the mission control team. (Photo courtesy of Cosmosphere, Hutchinson, Kan.)

as the vice president of space programs. He retired in 1996, and he's been actively involved in the expansion and fundraising for the Infinity Science Center in his home state of Mississippi, hoping to inspire a new generation to continue scientific pursuits, including space exploration.

Haise still represents NASA, giving speeches and making public appearances, traveling from his home in Houston to locations across the country to talk about his experiences as an astronaut.

Throughout the summer of 2019, there were ceremonies and events in celebration of Apollo 11 and the first lunar landing. And this month, Haise will travel to the Cosmosphere in Hutchinson, Kan., where Odyssey, the Apollo 13 command module, is on display, to attend the first of many events to commemorate the 50-year anniversary of one of NASA's finest moments.

Looking back on the Apollo program, Haise is disappointed that NASA's manned spaceflight program hasn't included continued exploration of the moon or any of the planets in our solar system.

"You know going to the moon is not that far if you think about it in terms of the universe," he said. According to Haise, the Apollo program should've been the beginning of exploration of other celestial bodies in our solar system. "Certainly, I thought we'd press on and at some point, be on Mars."

He proudly pointed out that he and his NASA colleagues made history with what would be considered rudimentary avionics technology by today's standard. The computer that was on board the spacecraft didn't have a microchip processor, it was hand-wired, Haise said, and had about 1/10 of a megabyte of memory. "It was kind of extraordinary, what we were able to do with what we had," said Haise.

At the time, though, for Haise it was simply the next exciting challenge to be overcome in an already thrilling aviation career.

"The thought of going to the moon at the time to me… was just another great adventure," he said.