# For the Mojave Test Pilots, the Sky Has No Limits

by Francesco Militello Mirto (EmmeReports)

With twenty plus years of service, **Captain Pete “Maverick” Mitchell** continues to fly as a **Test Pilot** with the **VX-31 Squadron.** From the Mojave Desert, the most famous naval aviator in the world, whose cinematic exploits have influenced the lifestyle and professional choices of many young aviators, takes off to test the Darkstar, a mysterious stealth aircraft. Despite the Pentagon's ban, which has decided to suspend the project, Maverick takes the jet to its limit, first reaching Mach-9 and then pushing it to Mach-10. An epic scene, whose photography and music by Hans Zimmer rekindles the passion of us "boys" of 1986.

*James E. Brown III, NTPS President, CEO and Fixed Wing Test Pilot Instructor*
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But as **James E. Brown III**, President, CEO and Fixed Wing Test Pilot Instructor at **NTPS** (National Test Pilot School) said, *"Let's face it, with Top Gun movies you get exactly what you paid for, excitement, a story of love and a superficial look at what a fighter pilot can be today"* . A more than authoritative opinion, that of President Brown, given that we are talking about a military pilot with more than 9600 flight hours on 141 different aircraft, including A-7D, F-15 A / B / C / D, F-15E, F-117A and F-22A!

*James E. Brown III, NTPS President, CEO and Fixed Wing Test Pilot Instructor*
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*"I steal this sentence from Jon Beesly, who was the first pilot to fly the F-35, 'Tom Cruise was pretending to be me, not the other way around'. They have done some things right, but others are patently wrong*," continued the NTPS president. *"For a Test Pilot to arbitrarily exceed the limits of the Mach integer test (Mach 10 versus Mach 9) is pure Hollywood, designed to create drama and entertainment. In real life, if the goal were Mach 10, it would be achieved in small incremental steps, methodically increasing airspeed, Mach, dynamic pressure and temperature. After each stage, a meaningful analysis would be conducted to assess the condition of the aircraft and whether it is prudent to move on to the next stage. It's a tedious process that doesn't have much entertainment value. In both the Fighter Pilot and Test Pilot worlds, some of the in-flight activities presented for entertainment purposes would be career (or life) end moves in real life"*.

We wanted to start by citing the blockbuster film "Top Gun Maverick", to talk about the prestigious National Test Pilot School, interviewing some members of the staff, starting with the President and CEO, James E. Brown III, currently the jet pilot with more flight hours than anyone else in the world.

*"I'm quietly aiming for 10,000, which could very well happen in early 2023*." Brown told EmmeReports. *"I made my first solo flight in February 1976, got my private pilot license in December 1976 and have flown pretty much ever since! I actively flew during my 14-year career in the USAF, had a short stint with United Airlines with the B-737s and spent 21 years with* ***Lockheed's Skunk Works****, testing the F-117 and F- 22. I retired from Lockheed on a Friday*

*afternoon and started teaching at the National Test Pilot School the following Monday. It has been a long, stimulating and rewarding career as a driver".*

Almost 10,000 hours in the middle of the clouds, tied to an ejection seat and with a helmet on his head, flying on airplanes that have made the history of military aviation, from the Strike Eagle to the Raptor, passing through what, in the collective imagination, remains the stealth par excellence, the Nighthawk. But what is Brown's favorite aircraft?

*"You won't believe it, but it's a 1946 cut-wing Piper Cub*." the NTPS president replied. *"It's just a pleasure to fly. No automation or avionics distract you; you have to fly it completely from engine start to shutdown, it has delightful handling qualities and is slow enough to look out the window and enjoy the flying experience. Even better, you can open the window, lower the door and feel the wind in your face".*

*James E. Brown III, NTPS President, CEO and Fixed Wing Test Pilot Instructor*
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Today James E. Brown III is at the controls of the National Test Pilot School, which is based in the Mojave Desert, California. The main mission of NTPS is to train military and civil aviation personnel, train pilots and test engineers, increasing their competence in flight testing and aviation safety, both in the aeronautical and aerospace fields.

*"Our instructors must be flight test experts, have an engineering degree or be licensed in* ***Society of Experimental Test Pilots*** *recognized Test Pilot School. "* explained Brown. *"We are looking for test pilots who have experience as flight instructors and have participated in multiple programs,*

*preferably on multiple types of aircraft*." NTPS does not issue pilot licenses, but the **Federal Aviation Administration** requires instructors to hold a certified flight instructor qualification.

The full Professional Test Pilot Course is a one-year program consisting of classroom instruction, laboratory exercises (including simulators) and actual flight testing. In one year, a Test Pilot student receives 600 hours of classroom instruction, over 100 flight hours, and experience on approximately 25-30 different types of aircraft. Key elements of the curriculum include the engineering theory behind every aspect of the flight test, including planning, execution and reporting, along with data acquisition and analysis. The key to this is to develop a safety mindset regarding testing and planning, to be able to perform these events without risk to the aircraft and to the flight and ground crews.

*"The most important quality a Test Pilot must have is integrity, the ability to provide an honest assessment of what has been observed in the flight test, regardless of personal feelings or pressure from outside influences*." said Brown *"A Test Pilot can perform an absolutely flawless mission, but that is of no value if he is unable to observe and report the results to the technical personnel in charge of aircraft or system development. A good Test Pilot must be able to fly the aircraft with precision. It is essential to put the aircraft in a specific condition of altitude, airspeed, load factor and system status, then perform a specific maneuver required for the flight test, which is always a scientific experiment, in which the reduction of variables is the key to isolating the problem and determining a valid answer"* .

NTPS is known and appreciated worldwide for the competence of its instructors, all military pilots with an excellent aeronautical background, acquired in the flight departments in which they served. Among these is **Commander Andrea Pingitore**, 24 years in the Navy, graduate of the USNTPS, with more than 2500 flight hours on over 45 aircraft and currently Chief RW Test Pilot Instructor and Safety Manager at NTPS.


*CDR Andrea Pingitore, Chief RW Test Pilot Instructor and Safety Manager of NTPS - Copyright Photo NTPS*

*"I oversee execution of theoretical activities, in simulators and in flight on helicopters, for our students who attend the one-year Professional Course and for students who join us only for short courses of 2-3 weeks."* Pingitore explained. *"I'm also the NTPS Safety Manager, so I'm responsible for in-flight safety for all aircraft, fixed-wing and rotary-wing, and flight crews. NTPS has 7 helicopters of 5 different types, A-109, UH-1N "Huey", BO-105, OH-58 and EC-145 and I am qualified and trained on all. In addition to these, we periodically lease other helicopters to give our students more exposure on more vehicles, and of course I often fly as an instructor on these aircraft too".*

*An NTPS UH-1N "Huey" - Copyright Photo NTPS*

Andrea Pingitore was also Commander of the Italian Naval Aviation Test & Evaluation Center, where he carried out several flight tests on the EH-101 and SH / MH-90 and on their interoperability with naval units. Since working at NTPS, he has flown in a dozen helicopters, but also in fixed-wing aircraft.


*CDR Andrea Pingitore, Chief RW Test Pilot Instructor and Safety Manager of NTPS*
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*"Flying in the Mojave Desert is very stimulating, especially for the history of the experimental flights carried out here."* said Pingitore. *"From Chuck Yeager to Neil Armstrong, they've all been through here. I believe that the Mojave Desert is precisely the cradle of experimental flight, due to the enormous expanses and the high temperatures that are reached in summer and which allow aircraft to be tested in extreme conditions."*


*An NTPS OH-58 in flight - Copyright Photo NTPS*

The Italian Naval Aviator is also a professor as well as a test pilot. *"I always recommend studying the aircraft before flying it, because it is essential to know the design characteristics of each aircraft before evaluating it*." said Pingitore. *"I also remind the students that the most important moment in the evaluation of a new aircraft is limited to the first 30 minutes of flight, where the discrepancies of the aircraft can be better recognized, because after about 30 minutes the pilot begins to compensate with his experience with defects in flight qualities. The last piece of advice I give is to always remain humble when you become a Test Pilot or Flight Test Engineer."*

The Italian Test Pilot is 44 years old and continues to study, deepen and keep his mind trained. *"We must never stop dreaming and aiming higher and higher, the limit is the sky, which in itself has no limits."*. His motto is *"Set your standard high and don't stop till you get there."*

**Katelyn Gunderson**, an aerospace engineer with more than 360 flight hours and a member of the American Institute of Aeronautics and Astronautics (AIAA) and the Society of Flight Test Engineers (SFTE), shares the same sentiments. After first getting to know the world of flight testing during an internship at GE Aviation's Flight Test Operation, she quickly realized that she wasn't the stereotypical engineer stuck in the details of problem solving, but that she liked to evaluate the big picture. *"I love that experimental flight offers the opportunity to combine both the operational and the technical side of engineering, because I really like both*." Gunderson said.


*Katelyn Gunderson Graduate Assistant at NTPS - Copyright Photo NTPS*

She is currently attending and working at NTPS as a Graduate Assistant, funded by a scholarship awarded by the school. This means she alternates between academic courses with other Professional Course test pilots and flight test engineers, and work for NTPS performing a variety of flight test-related tasks, such as installation and calibration of aircraft test equipment and scheduling flights in Flight Operations.


*Katelyn Gunderson, NTPS Graduate Assistant - Copyright Photo NTPS*

*"My big dream is to flight test as an astronaut one day!"* Katelyn told EmmeReports. *"The National Test Pilot School is the world's first accredited test pilot school in the world, and one of the few options for attending test pilot school as a civilian. The majority of certified Flight Test Engineers come through the military. NTPS provides the opportunity for civilians to gain the expertise and test discipline required to become a leader in the flight test industry in a way that was previously off-limits. "*

As Gunderson said, the most challenging part for NTPS students is the amount of information to process and learn in a short period of time. *"Flight testers must have a broad knowledge of many different topics so that we can interact with and lead diverse test teams. Speaking intelligently is necessary for gaining credibility. It is exciting to learn so many new things, even if some days it feels like drinking through a fire hose."*

Katelyn believes that for Flight Test Engineers, as well as Test Pilots, studying at the prestigious NTPS offers unlimited job opportunities in the aerospace industry. *"I came to NTPS after working for **NASA**, which provided the opportunity to lead some incredibly rewarding projects. I have a desire to go back, but I want to have an open mind to all the opportunities that will be presented after graduation. Time will tell!"*


*The Mojave Air & Space Port gateway - Copyright Photo NTPS*

Captain **Chuck Yeager** is flying over the Mojave Desert to try again to break through the sound barrier. The air provides enormous resistance at over 1000 kilometers per hour, the controls are blocked, the aircraft is shaken by often uncontrollable vibrations. The power of the rockets may not be enough, and the aerodynamics of the Bell X-1 may not cope. But Test Pilot Yeager never gave up. He fires the rocket engine and blasts past Mach-1, which is 1,224 kilometers per hour. He is the first man to break the sound barrier and the fastest driver in the world! From that moment on, the world of aviation changes forever.

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