

# SETTING A WORLD ALTITUDE RECORD IN THE P-51D MUSTANG

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# REACHING NEW HEIGHTS

No, this is not Doug's climb attitude for the record flight! Rather, it shows *The Rebel* going through a loop. (Aerophoto)



## THE BACKGROUND

Ever since childhood I have been fascinated with aviation — with a special focus on military fighters. As a youngster, I studied WWI, WWII and Korean War fighters and it didn't matter whose side they were on.

I began my flying career at 16. Somewhere along the line of accruing 20,000-hours, I researched national and international aviation records and how to set one. Actually, I didn't stop at just one and now lay claim 112 records.

The main records fall under "time-to-climb" (brake release to a certain altitude) and "point-to-point" (a time between two points on the earth). There are other categories as well, but I focused on these two. For example, I set the record for turbojets of a certain weight class from brake release to 10,000-feet (69-seconds) and to 40,000-feet (four-minutes, twelve-seconds). The Learjet 24 was a heck of a plane! Eventually, I achieved 2000-hours of single-seat Warbird fighter time, 700 of those in the Mustang. Thinking of my records in other aircraft, I decided to attack the time-to-climb records for a reciprocating-powered aircraft in the P-51 weight class, along with the absolute records for altitude — sustained and momentary. My usual thorough (anal) research — with attention to detail and preparation for such a task — took one-year.

Studies included publications and documents from NAA, the USAAF, along with records and documents from Rolls-Royce and Packard. Armed with this knowledge, I then looked into documents of the National Aeronautics Association, the *Federation Aeronautique International* (FAI is the world record sanctioning body), the USAF Flight Safety Center, the USN Safety Center, and the FAA.

Finally, I consulted with good friends Col. Joe Kittinger (high-altitude parachutist)

and Bud Anderson (WWII ace). I intended to fly quite high in an aircraft lacking any environmental systems. Joe Kittinger and I discussed the problems of hypoxia and he suggested a 1.5-hour regimen of 100% oxygen prior to the flight. Bud Anderson shared his 1949 USAF P-51 fight test research papers with me and coached me on the best performance profile. Jack Roush, having taken his P-51 to 33,000-feet, warned me about the controls freezing up.

## THE PREPERATION

The personal flight equipment had to be collected and fitted. I already used a helmet and mask for my high-altitude cross-country flights (at FL 230). In addition to a normal flight suit, I added extra clothing for extreme cold weather (-60F at high altitudes), a "Pulse Ox" to monitor blood level oxygen, and skiing heat packs for feet and hands.

Additional equipment for the flight included multiple video cameras, camera moisture packs to combat both humid and extreme dry altitudes, Pivothead video recording sunglasses, and large 64GB data cards. To this, I added voice recorders — one each in the Mustang and Cessna Citation jet that was the chase plane. I also included an iPad with my special route displayed and the NAA-required data link equipment. The latter tracked my progress and reported to the NAA observer on the ground.

Planning performance included considerations of prop/RPM settings, mixture setting, climb schedule, fuel consumption, and fuel booster pump use. Regarding configuration, I wanted to duplicate the 1942 P-51 acceptance flights for "apples to apples" authenticity. I already lacked the higher-octane fuel used during that period but left the .50-cal replica guns and ammunition onboard as well as the bomb shackles.

Looking at the current records for time-to-climb to 20,000-, 30,000-, and 40,000-feet in my weight class (C-1.e, Group 1), I felt there was a good chance of breaking those records by the required margin. That is IF I could make 40,000-feet at all! Now the big question — what would my altitude limit end up being? The USAAF acceptance test flights listed maximum service ceiling at 41,000-feet. But this

was with a brand-new plane and engine, test conditions, and a 25-year-old test pilot!

What would end up being my limiting factors? Would my 70-year-old airframe fail or some system quit? (Not to mention that my own personal "airframe" was way over 25!) Would the V-1650-9A just fail at high altitudes? Would the original oxygen system quit delivering vital oxygen at some point and I not notice? If so, would I drift off hypoxic and not recover? Would I pressure breath correctly when needed? Would I get the bends so badly that I couldn't perform? Would the harsh temperatures get to me so badly that I would have to quit or freeze to death? Would I have good weather? In my attempt to stay lightweight, would I compromise fuel requirements and cut myself short on fuel? Or, most likely, would I worry so much about all these factors that I simply decide this was not an adventure I could survive?

## THE MASTER PLAN

The plan was to takeoff at max power (55-inches MAP) and as I climbed try to keep it at 55-inches as long as possible. Eventually, I would be at max throttle but decreasing MAP during the climb. I would have to balance coolant temperature against coolant cooling door drag. Around 20,000-feet, I would need to shift to HIGH on the Merlin supercharger to obtain maximum power for continuing the flight. I would break through 10,000-feet and 20,000-feet "with vigor." From there on up into the stratosphere, I wasn't sure how much "vigor" *The Rebel* would exhibit. I would, hopefully, level off at an altitude above the previous record (33,000-feet) and meet the "Sustained Altitude" requirement level for at least 90-seconds with the end speed greater than the entry speed. At the end of this phase, I would simply pull max back pressure on the stick and "pop up" until the Mustang stalled, thereby achieving the max momentary altitude. Post-stall, I would fall off either direction and start the descent.

I reckoned, correctly as it turned out, that it would take me longer to descend than to climb. This is due to the invariable condensation that would build up when the very cold windscreen met the Florida humidity at (continued on page 44)



*The Rebel* heading up and away from the Cessna Citation chase plane.

Doug Matthews airborne in his P-51D *The Rebel*.