

The Plane That Saved The Mustang: The North American A-36

In Flight USA

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Surviving A-36 and the USAF museum - at first glance, this airplane looks like a P-51, but notice the extended dive-brakes. The A-36 air frame was basically the same as that of the P-51. (Scott Schwartz)

Powered by an Allison V-12 engine equipped with a single-stage supercharger, the A-36 was essentially an early model P-51 Mustang fitted with two dive brakes on each wing. Other modifications to the airframe included strengthening of the wings, movement of the bomb racks closer to the main landing gear for less wing "flexing" while the plane was taxiing, and the installation of small vent windows in the windscreen side panels. In addition, two .50 caliber machine guns were mounted in each wing, and two .50 cal. guns were mounted in the lower nose to fire through the propeller. Naturally, the A-36 inherited the Mustang's clean aerodynamics; but why did North American turn the P-51 into a dive-bomber? To answer this question, we must look at the Mustang's origins.

In early 1940, the British asked the company to build P-40's under license from Curtiss. Rather than building another company's design (especially one that was already considered

obsolete), North American proposed building a fighter of its own. After some hesitation (the company had no fighter experience), the British agreed, and the first Mustang prototype (the NA-73X) flew on Oct. 26, 1940. Flight tests were successful, and the British ordered 320 of the new planes, calling them Mustang I's.

Interestingly, the U.S. government kept two Mustangs for itself, calling them XP-51's. Ultimately, the British received 650 Mustang I, Ia, and II's through outright purchase and Lend/Lease distribution. By the time the Lend/Lease order was placed, U.S. pilots had flown the two XP-51's and were raving about their performance. As a result, the U.S. retained 55 England-bound Mustangs for itself. The majority of these 55 airplanes were converted into to armed, high-speed reconnaissance aircraft, known as F-6's. The rest were used as high-speed ground attack airplanes and as low-altitude escort fighters. The British used their Mustang primarily in the close air support role as well.

Despite the Mustang's effectiveness as a ground-support airplane, enthusiasm by the military leaders on both sides of the Atlantic was lukewarm at best. The British, although satisfied with their Mustangs, were apprehensive about relying on a foreign aircraft. They were concerned about the availability of parts and maintenance. Hence, they focused their efforts on developing their own fighters. At the same time, the U.S. Army was already buying P-38's, P-39's, and P-40's. By 1942, there was no money in the defense budget for new fighters. It appeared that production of the Mustang was coming to an end.

Fortunately, a few people recognized the Mustang's potential. One of these Mustang "visionaries" was Major General Oliver P. Echols, who was instrumental in the Army's successful retention of the 55 Lend/Lease Mustangs. General Echols noticed that there was money available in the budget for attack airplanes, and he brought this to the attention of North American's "Dutch" Kindelberger. Kindelberger, in turn, approached Army Lt. General Henry H. "Hap" Arnold with the idea of turning the P-51 into a dive-bomber, knowing that Arnold had been an early proponent of dive-bombing tactics.

Although Army doctrine held that dive-bombing was ineffective and dangerous, (because of the high dive and pull-out speeds), Arnold had managed to persuade the Army to procure a few dive bombers – the Douglas A-24, and the Vultee A-31 among them. If Arnold would go along with the idea of producing a Mustang dive-bomber, North American's production lines would be kept open.

Kindelberger managed to convince Arnold that, by replacing the British armament (two 20mm cannon in each wing) with .50 cal. machine guns, and adding dive flaps, the Mustang would fill the bill as a dive-bomber. Arnold was convinced, and the first A-36 flew on Sept. 21, 1942. Only 500 A-36's were built. The results of flight tests conducted at Florida's Eglin Army Air Field seemed to reinforce the Army's doubts about dive-bombing, and the A-36.

The A-36 dove at speeds approaching 500 mph; the brakes only reduced the speed to about 350 mph. Unfortunately, one of the test airplanes crashed because it lost its wings during a vertical dive. Not surprisingly, Army officials decided that the airplane had great diving

capabilities for a fighter, but dove too fast for a dive-bomber. As a result of all this, the Army restricted the plane's dive-angles to 70 degrees. In addition, the evaluators at Eglin recommended that the A-36 be used mainly as a low-altitude attack airplane, and that the dive brakes be eliminated. This last recommendation may have given rise to the oft-repeated myth that all A-36's had their dive brakes wired shut. Apparently, this recommendation was never adopted as official policy.

"I would like to refute the assertion made by many people that we wired our dive brakes shut. That is just not true; that would have been like flying into battle with one arm tied behind our backs!" So says retired Army Captain Charles Dills, who flew 39 missions in the A-36 between November 1943 and February 1944. "I don't know of anyone who wired the brakes shut; there may have been a few isolated cases of individual pilots having trouble with the brakes, but it was not policy."

Dills flew the A-36 on strafing and dive-bombing missions from several bases in Italy. Despite the Army test results, most pilots liked the A-36. "I really resent it when people say that the A-36 didn't perform at altitude – as though the plane was defective!" says Dills "The airplane was designed to be a low-altitude attack plane, and it did its job very well!

"When strafing, we'd go in to enemy territory at 200 or 300 feet. At this altitude, we had the element of surprise. We would be there, give the targets a burst from the machine guns, and be gone before they could even pick up their guns. The slots in the dive brakes gave out an unnerving whine that helped us. The Germans had a name for us: 'The Screaming Devils.'

"When dive bombing, we would go in much higher; probably around 14,000 feet. German gunners had a problem in that the computers on their 88 mm guns had to try to predict where the airplane was going to be in 15 or 20 seconds, and when we dove straight down the target, the 88 mm guns could not be elevated to 90 degrees. So, they couldn't aim at us until we pulled out; at that point, we were traveling at over 400 mph, and they could not keep up and accurately lead us." says Dills. "All we had to do was change our course or elevation very slightly, every 15 seconds or so, and their computers (which were used to set the shell's fuses for detonation at the intended target's altitude) could not give them accurate readings."

Typical strafing missions involved attacking anything that moved on the ground. This usually meant trucks and infantry. Says Dills: "We looked for targets of opportunity – anything that looked like enemy war stuff," he says. Dills adds: "We did not bomb civilian farm houses, unless there was reason to believe that the enemy was using them as observation posts; in those cases, we were given specific targets to attack." Dills describes one such mission, which involved the risk of hitting friendly ground troops. "One time, we were sent up near the Anzio beach head to attack an "implement factory," which was being used as an observation post; there was friendly infantry within 500 yards of the place on three sides, he says." Dills explains that not bombing this factory would cause even more losses to friendly troops. "This place was causing losses!" he says.

Typically, attack formations would consist of eight or 12 airplanes – most missions were eight – divided into groups of four airplanes. Each group would fly in a wide-spread “V” formation, while en route to the target:

“We were not real close to each other... not like the stuff you see in air shows; we had to stay far apart so that we could keep an eye out for enemy planes. We had specific areas to watch, because the lead plane was doing all the navigating. He wasn’t looking for enemy aircraft. If his wingman was on his left, that wingman would look to the right, 100 percent of the time. He never looked the other way because he was watching for an attack from the right side. The element leader would be to the flight leader’s right, looking around and trying to keep track of where we were, in case something happened to the flight leader. His wingman would be on the right, looking only to the left.”

The A-36’s would begin their dives from approximately 14,000 feet. Captain Dills describes a typical dive-bombing run:

“As the group neared the target, the leader would waggle his wings. This was the signal to get in trail (single file behind the lead plane). As we got closer to the target, the leader would open his dive brakes and roll upside down. We would follow suit and fly upside down until we were directly over the target. We would then go straight down, until we had a good aim at the target. I’ve seen some reports that say we released our bombs at 3,000 feet. That’s getting a little low. I’d say we dropped the bombs at around 5,000 feet or so. As you were pulling out, you’d shut the dive brakes and it was like getting a kick in the butt. Your speed would jump from 350 mph to about 450, and you’d get the hell out of there. If there was no flak, we’d climb and re-group for whatever we were supposed to do next. If there was a lot of flak, we’d just get out of there as fast as we could and re-group elsewhere.”

Sometimes, danger came from one’s own squadron mates. Says Dills: “We were attacking some docks, and I had dropped my bombs; I was flying straight down there were two bombs, right in front of me! They were no more than 30 or 40 feet from me, and I could not pull out of the dive without hitting them! They must’ve been dropped by the guy behind me, and I had to fly formation with them until they passed me! They were so close that I could read right on the bomb 536 pounds, GP (General Purpose)!”

As mentioned earlier, A-36 sorties consisted of strafing attacks, or dive-bombing attacks that were sometimes followed by strafing attacks. “We never strafed with our bombs on,” says Capt. Dills. Once bombs were released, there was no point in climbing up to 10,000 feet for the trip home. Says Dills: “We were already near the deck, so we’d go home on the deck; along the way, we’d look for targets of opportunity.”

Even though the A-36 was a formidable fighter in its own right, Captain Dills points out that he and his pilots avoided enemy planes as much as possible, especially when carrying bombs. The reason for this is that engaging in air to air combat would force the A-36’s to jettison their bombs prematurely. Forcing the A-36 pilots to drop their bombs before reaching their targets meant a tactical victory for the enemy.

Some A-36's did fight enemy aircraft, but Dills says that he encountered an enemy airplane on only one of the missions he flew. This occurred during a low-level strafing mission with seven other A-36's over Italy. Dills recalled the details:

"We really shouldn't have been out that day; the ceiling was only 700 feet, and the area was full of hills and mountains. But, there we were... I was flying on Major Kelly's left wing, and I fell in behind him, hoping that we could make it through this valley. As I caught up to him, he turned left into me. I was still on his left, but now I was ahead of him. I reduced throttle so that he could catch up. I was looking back and noticed that he was catching up very fast. But, he passed me. I gave it more throttle in order to catch up to him, but he kept going faster."

Dills finally saw the object of his leader's attention: "There was a Heinkel HE-111 cruising through the valley at 500 feet... of course, Kelly was going a lot faster than I was, and he got the first shot at it and set it on fire. I took a shot at it as I went by, but I'm not sure if I did any damage. I wanted to get the hell out of there, because... here came the other six airplanes and they wanted to take shots at this thing too. So, here we were, fooling around under a 700-foot ceiling, trying to take shots at this damned thing! I'm surprised we didn't shoot each other down! So, I just went off to one side and watched. I mean, obviously, he (the Heinkel) was going to crash because he was already on fire. His left wing dipped and he hit the ground at a 45-degree bank. The wing broke off at the root, where it had been set afire, and the whole wing flew up in the air. I can still see it in my mind, with the black and white cross. The fuselage slid across the ground, leaving a sheet of flame behind it that was 500 feet long and 50 feet high. When they investigated after we had captured the territory, the local people said that they had buried 15 German pilots who were on board. I felt like Major Kelly should have gotten credit for 15 victories. I mean, what's more important? Shooting down the plane or the pilot? Obviously, the pilot. If you let the pilot go back and get another airplane, you haven't really done anything by shooting him down. But, if you kill the pilot, that's a true victory. I hate to put it that way during peacetime, but it's the truth."

One of the challenges faced by A-36 pilots was a lack of specialized training in dive-bombing techniques. A few Navy and Marine instructors were "loaned" to the Army, but most Army aviators learned their trade through improvisation. Dills recalls: "We had no dive-bombing training in flying school, but when I got to my RTU (Replacement Training Unit) in Sarasota, Florida, they had P-40's. We had little 25- or 50-pound things with little explosive charges, and we'd drop them on the bombing range. We glide bombed at a 60-degree angle, but we didn't go vertical. People just didn't do that – in any airplane. It would have scared the hell out of them, I guess. But once we got over 'there,' people starting shooting at you and you did things that you never would've thought of before. Vertical dives worked so well in the A-36, that we didn't think twice about doing it in P-40's (later on) – with no dive brakes!"

Another challenge was the limited availability of the A-36 itself. Because of the A-36's limited production run, the number of A-36's available for combat had dwindled substantially by 1944.

Dills never even saw an A-36 until he arrived in Italy. Once there, he was given some ground instruction, and then turned loose in the airplane.

“That’s the way we did it; if you were a fighter pilot, you were supposed to be able to fly anything that had wings and an engine.” The expectation of such flexibility proved valuable, when, due to lack of replacements, the A-36 all but vanished from combat zones by 1945.

Captain Dills finished his tour flying “war weary” P-40’s and 15 missions in a P-47D Thunderbolt.

As many know, the “experiments” involving the Merlin-powered Mustang were successful, and resulted in the P-51B/C. Except for some structural accommodations for the Merlin engine, the P-51B/C was basically the same airplane as the A-36.

Short-lived though it was, production of the A-36 allowed the Mustang line to continue long enough for the airplane to evolve into the great fighter that it ultimately became.