

Panzer 38(t) Kugelblitz



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During the later years of World War II, the German air force had lost control of the air. This was particularly true on the western front. British and American planes roamed almost at will seeking ground targets. This made mobile deployment of ground forces very difficult. This movement was especially rough for slow-moving German tanks and armored columns. (Notice that speed is relative; compared to infantry on foot, a tank moves very quickly. That is a big part of its tactical and strategic value. Compared to a strafing Mustang P-51, though, a tank is a relatively slow-moving target.)

In response to Army requests, German manufacturers devoted huge resources to this problem. At first there were “stop gap” solutions. This entailed mounting available anti-aircraft guns on obsolete tank chassis, usually with minimal armor protection. The full tank chassis was important as the vehicle had to keep pace with main battle tanks to be useful. Halftracks overloaded with an anti-aircraft gun simply couldn't keep up cross country.

These stop-gap solutions were only marginally acceptable to the troops who had to use them. Most provided little protection from enemy fire. A more permanent solution was achieved with vehicles like the Wirbelwind and Ostwind. These mounted quad 20mm and single 37mm flak guns, respectively, in fully rotating turrets. The turrets had open tops. At least the crews were protected from small arms fire on the ground as they attempted to engage air targets.



Image 1. “Wirbelwind” based on Pz IV chassis.

These design projects led to the pinnacle of anti-aircraft panzers for the Wehrmacht; the Panzer IV-based “Kugelblitz”. This design went to the prototype stage very late in the war. Most sources indicate either two or five vehicles were made. There is a photograph showing a vehicle at the Kummersdorf firing range in 1944, so at least one was produced. There is also a report of one being engaged in a defensive battle near the end of the war. The destroyed turret of this vehicle was found years later.



Image 2. “Kugelblitz” based on Pz IV chassis.

By the time the Pz IV Kugelblitz was built, engineers, military experts, and even lay political leaders realized Germany was producing too much variety. They were simply producing too many different types of vehicles and weapons. All with dedicated manufacturing tools, spare parts, and ammunition. All requiring vast support services to keep in running order. So, when Albert Speer took over as armament minister, he instituted a “Rationalization” program. Older vehicles whose functions could be performed with newer variants were to be phased out. The production capacity could then be devoted to fewer versions, yielding a greater number of tanks. Better still; the required number of spare parts would be reduced, streamlining the logistical support required.

Near the end of the war, as this program progressed, it was decided to produce only three tank chassis types: Panzer 38, Panther, and Tiger. In the case of the Panzer 38, there would be the original Czech design for some vehicles, and a newer Panzer 38(D). The “D” stood for Deutsch, or "German". This was a version re-designed by German engineers to suit their manufacturing and design preferences. Since the Panthers and Tigers were desperately needed as combat

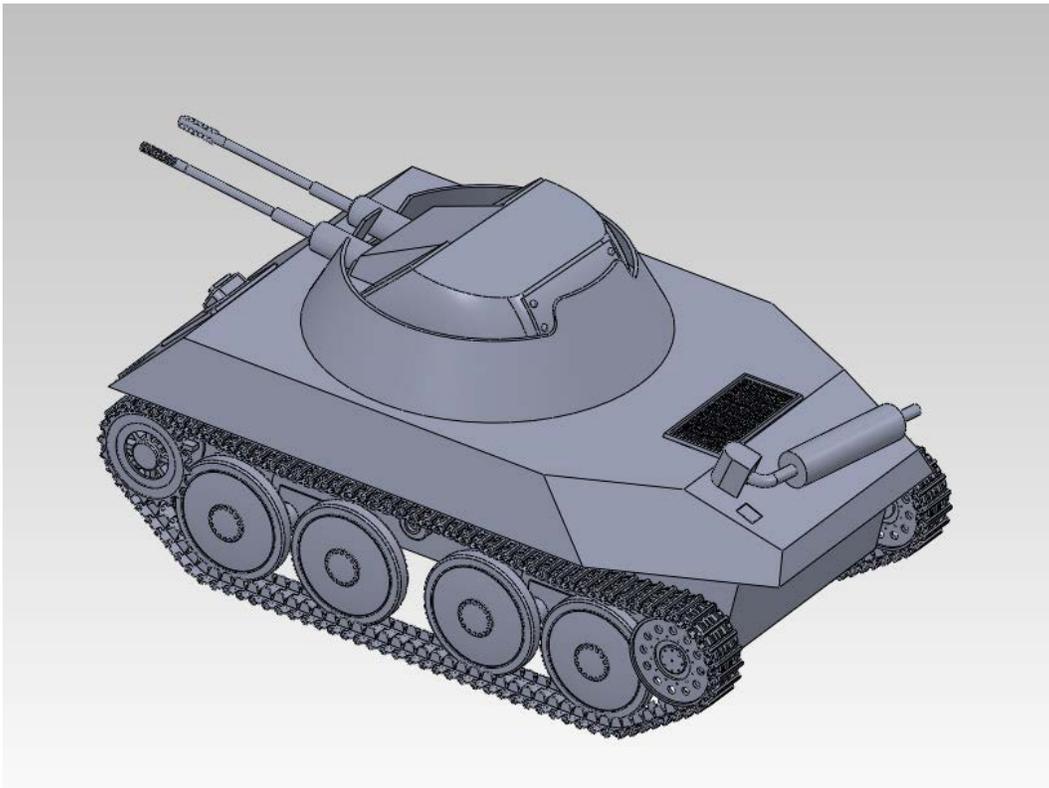
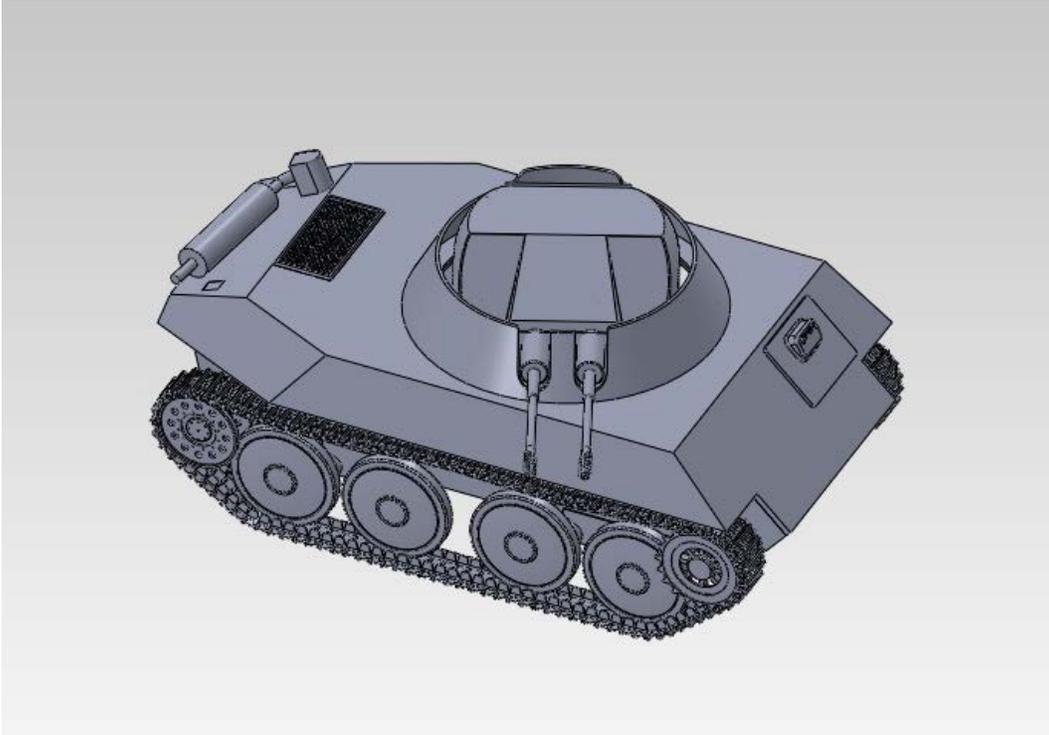
tanks, that left variations of the Panzer 38 for various weapon platforms. A vast number of variations were planned, too. Personnel carriers, anti-tank vehicles, mobile artillery vehicles, and anti-aircraft platforms. Most of these interesting designs never left the drafting boards.

This leads us to one of these “paper panzers”; the Panzer 38 Kugelblitz. Since the Pz IV production was going to be discontinued, and top-off-the-line Panther and Tiger chassis couldn't be wasted, this left the Panzer 38 chassis. It is interesting to note that this late in the war, 1944 and 1945, Germany was still relying on the captured Czechoslovakian design. The Czechs had designed this vehicle in 1935 before WWII had even started. Further, with some redesign, the German engineers were even planning future designs. Allied victory ended those programs, however.

Using modern engineering design packages, we can have a look at this proposed vehicle. See Images 3, 4, & 5.



Image 3. Panzer 38 "Kugelblitz" depicted with modern engineering software.



Images 4 & 5. Further depictions of the proposed Panzer 38 "Kugelblitz" showing the general layout of this interesting "Paper Panzer".

The vehicle was to have a crew of four. A driver sat in the front of the hull. Three men, amazingly, crewed the roughly spherical turret. At first this is hard to believe. However the design software allows laying out the vehicle to scale. You'll see in Images 6, 7, and 8 that the three men barely fit inside the turret. In the case of this model, the men are of average height; 5'6" tall. I don't believe three 6' tall men would have fit!

The driver, shown in green, had an escape hatch in front of him, as in the Russian T-34. There was simply no room above the driver for a hull roof hatch, as was German practice. The commander, in the center of the turret, had a hatch above his head. The two loaders, one for each gun, presumably had to follow the commander out in an emergency. There is a small hatch forward of each loader, but they would have to be very thin to fit through those! This seems a frightening proposition when you image trying to escape from a burning vehicle. Note that the model doesn't show the gun breaches, the sizable ammunition boxes, the gun sights, and the other ancillary equipment that would also be in the turret. In reality, the turret would be even more cramped.

Also notice that the men in the turret moved with it. As the whole turret rotated back to engage enemy aircraft, the men in it rotated back as well. We can only conjecture that restraints would have been required to keep the men from in injury.

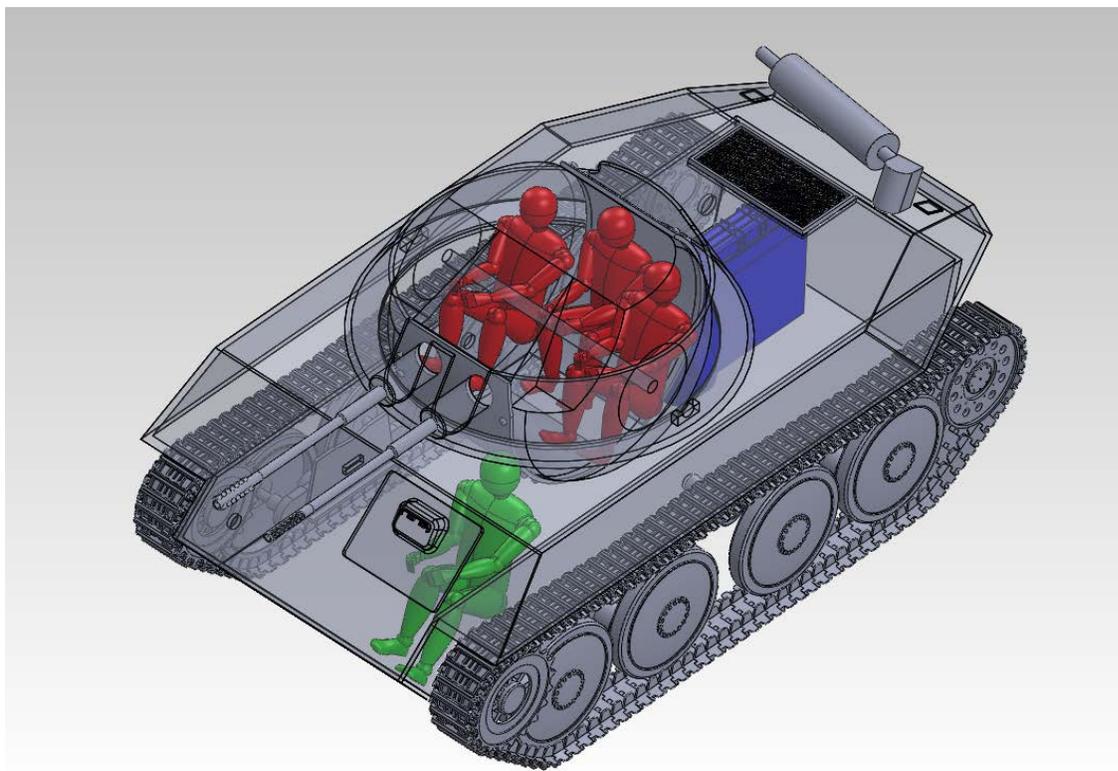
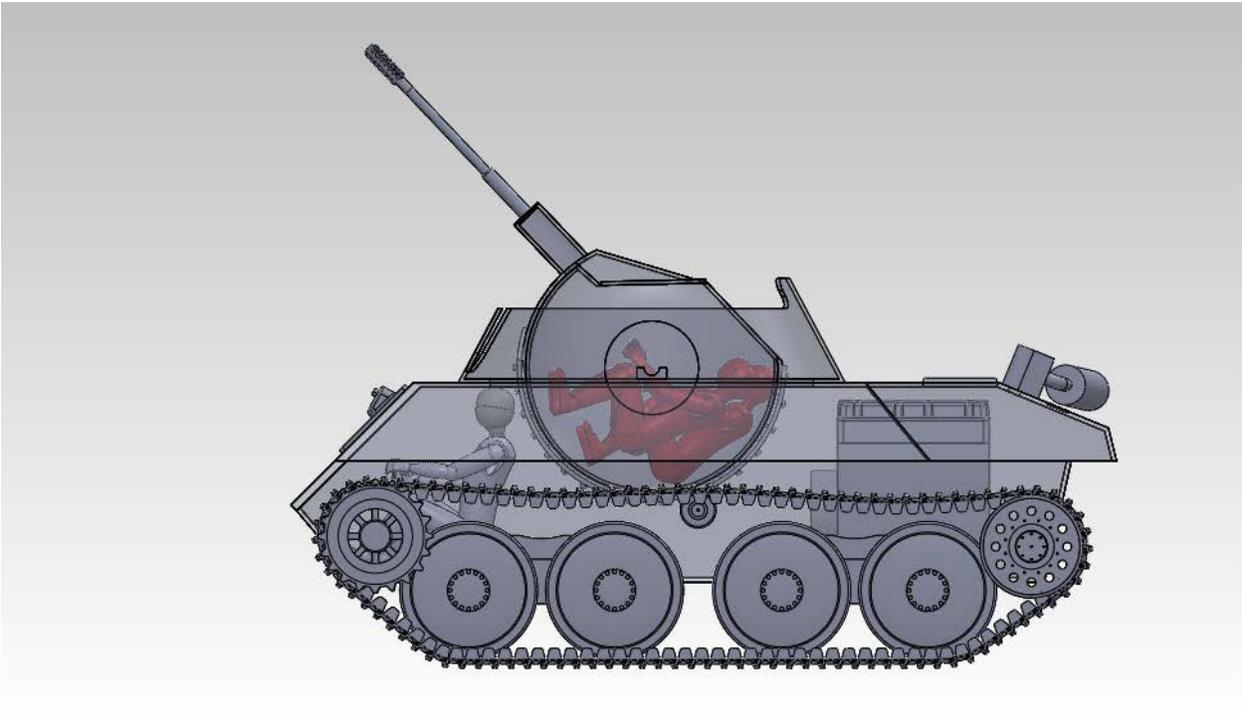
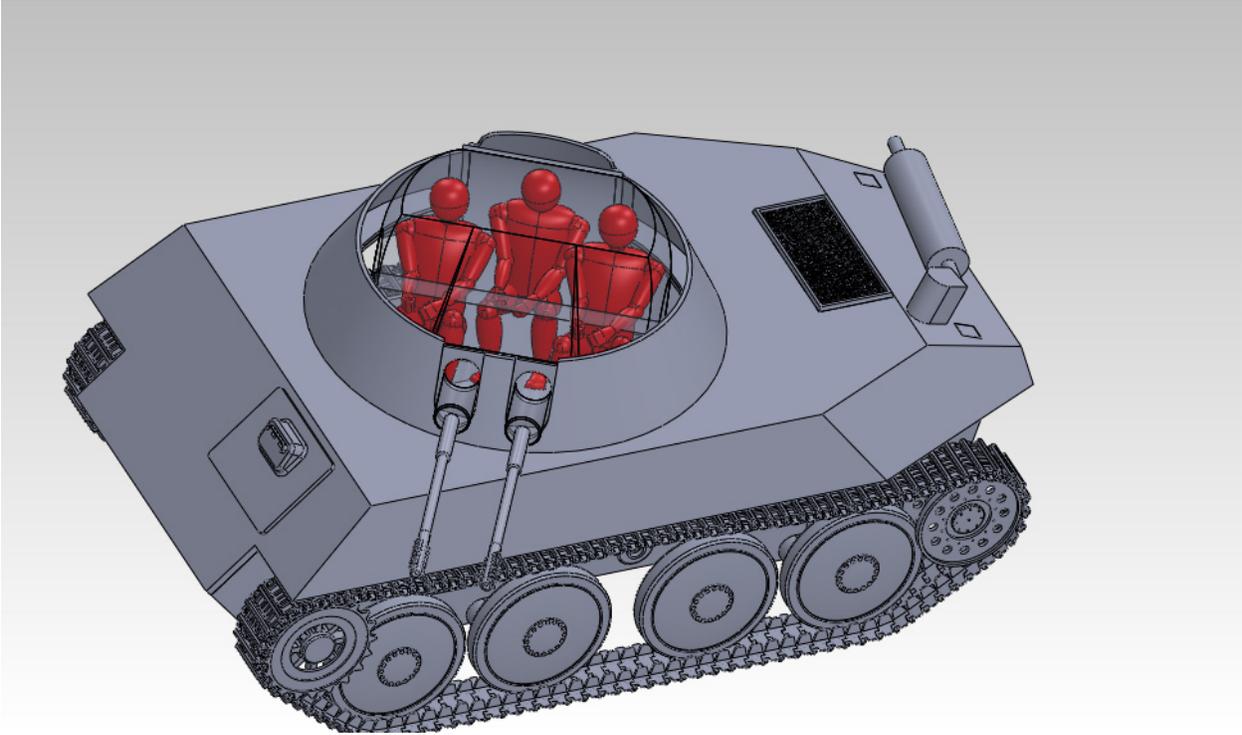


Image 6. Vehicle with crew. Driver shown green, turret crew in red, engine in blue.



Images 7 & 8. Additional views of crewed vehicle.

The challenge of designing such a vehicle is obvious. With even these rough views of internal components, we can see how complex a design problem it is. What we've explored here is only an initial glance at what goes into such design work. Where will the crew sit? Where will the engine and transmission be located? The drive shaft? Ammunition and fuel? All these questions, and many more, must have an answer and documentation before fabrication can begin.

We must also bear in mind that these designs were very carefully analyzed by allied military and engineering experts after the war. These designs influence weapon design to this day. Want to see a little proof that American designers were influenced by the "Kugelblitz" design? Have a look at Image 9. This is a photo of an Allied experimental anti-aircraft vehicle. It mounts a Bofors 40mm gun and two 50 caliber machine guns in a spherical turret. Look familiar?

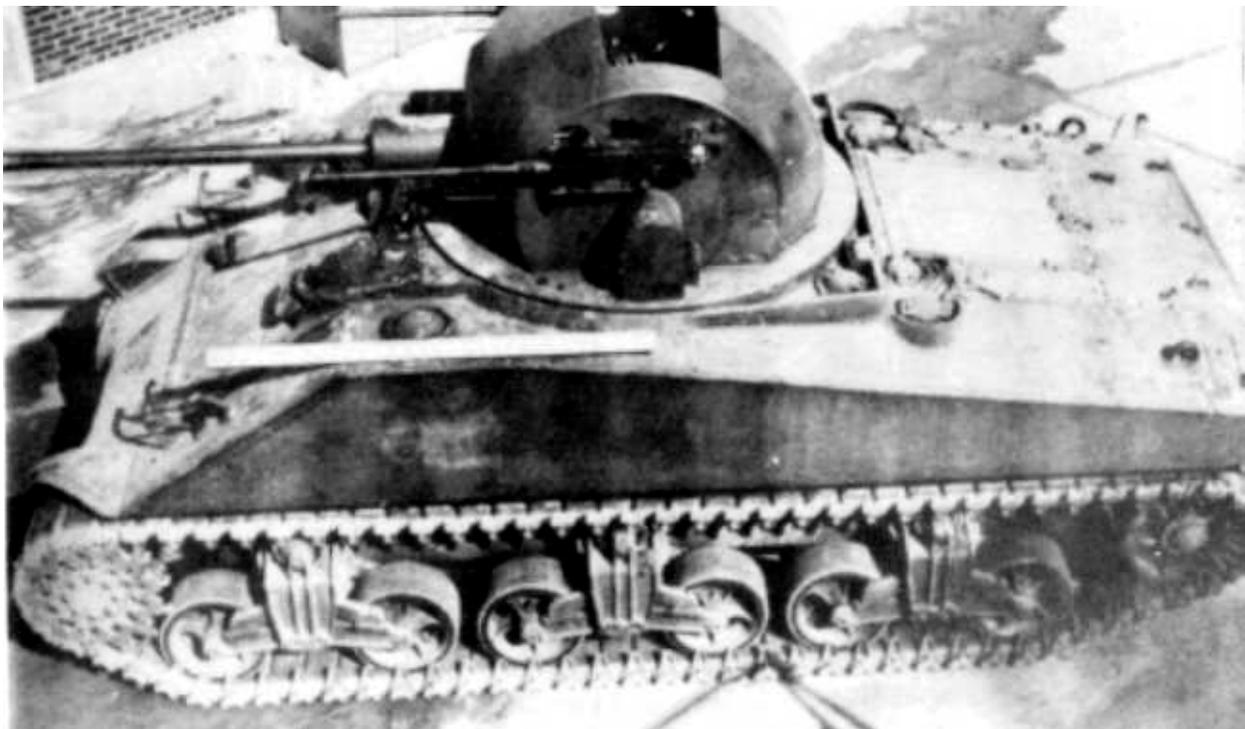


Image 9. Experimental American Sherman mounting anti-aircraft guns in spherical turret.

So it is obvious that these vehicles are more than just engineering or historical oddities. What makes it more impressive is that during WWII no computer software...or computers...were available. All of this design work was done with laborious hand calculations. The drawings were all done with pencil, pen, and paper. Keeping these things in mind, it is clearer why these "paper panzers" are so interesting to so many people.