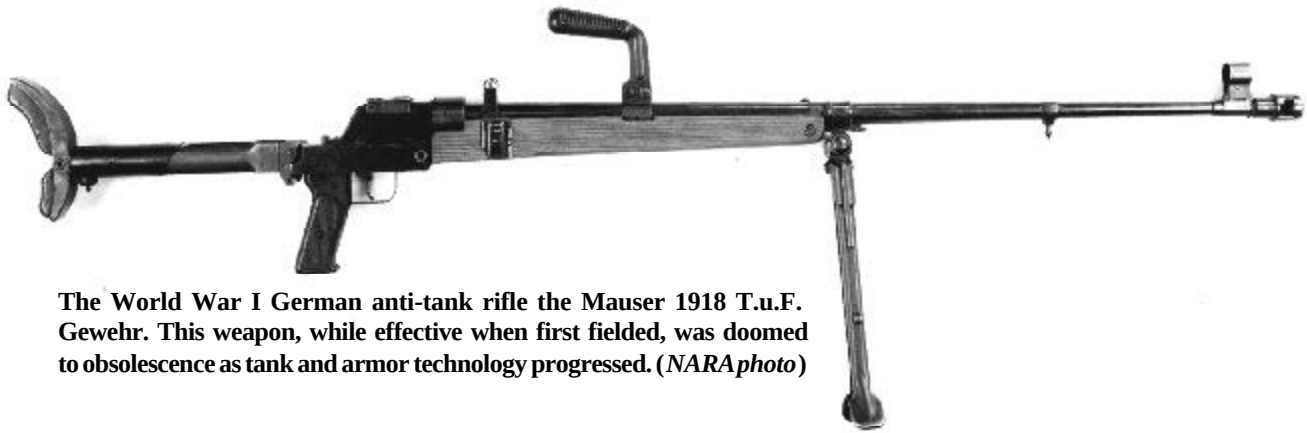




The World War I German anti-tank rifle the Mauser 1918 T.u.F. Gewehr. This weapon, while effective when first fielded, was doomed to obsolescence as tank and armor technology progressed. (NARA photo)

7.92 mm Panzerbüchse (P.z.B.) 39 German Anti-Tank Rifle

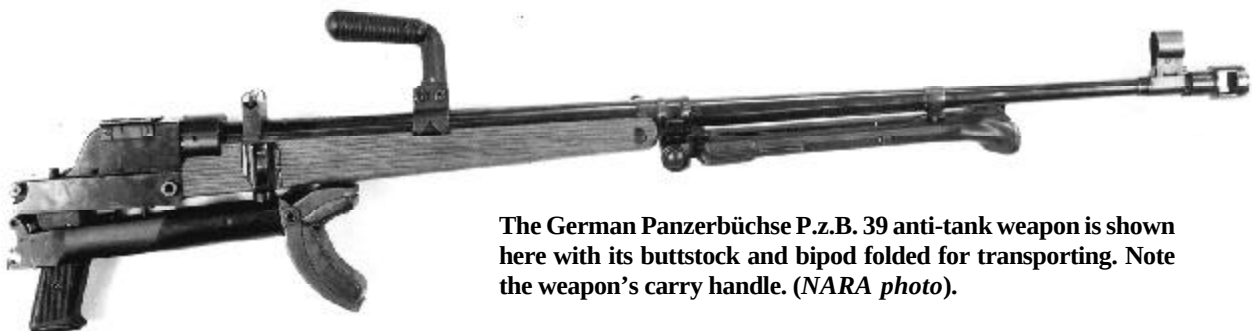
Small Caliber Tank Buster by Frank Iannamico

In 1916 the first British armored vehicles called tanks, were fielded against the German Army during World War I on the Western Front. It was only natural for the Germans to react by immediately beginning development a weapon to defeat them. One of the first German anti-tank weapons was the caliber 13x92SR Mauser 1918 Tank Gewehr, or T.u.F. Gewehr. The weapon was fielded only nine months after the first British tank appeared. This bolt-action weapon looked like an oversized version of the standard German service rifle. The Mauser firm built approximately 16,000 of the weapons. Although moderately successful for its intended task,

the weapon was quite heavy at 35 pounds and had substantial recoil. After World War I ended there was little research and development done with anti-tank weapons until the 1930s.

During the early stages of World War II the Germans developed the Panzerbüchse P.z.B. 38 weapon. The weapon relied on a small, high-velocity 7.92x94mm armor-piercing projectile to defeat armor. The cartridge used was essentially a necked down version of the earlier 13x92SR Mauser cartridge used in the 1918 tank gun. The P.z.B. 38 was designed by Bauer and built by the Haveler and Gustloff Werk factories from 1939 to 1940. The P.z.B. 38 used a sliding breechblock

in place of a conventional bolt. Upon firing, the barrel would recoil along a short slide, camming open the breach, and automatically ejecting the spent cartridge case. The operator would then simply place a fresh round into the chamber and the weapon was ready to fire. The P.z.B. 38 was considered far too complex and expensive. A less complex anti-tank weapon was needed, and the Panzerbüchse 39 or P.z.B. 39 was conceived to fulfill the requirement. The Panzerbüchse P.z.B. 39 and P.z.B. 38 had similar characteristics; both were single shot designs and fired the same ammunition. The manually operated P.z.B. 39 however was substantially lighter, less elaborate in construction and produced



The German Panzerbüchse P.z.B. 39 anti-tank weapon is shown here with its buttstock and bipod folded for transporting. Note the weapon's carry handle. (NARA photo).

in much larger numbers than its predecessor the P.z.B. 38.

The small caliber, high velocity anti-tank gun was used as a weapon of opportunity by the German Army early in World War II. The weapon was primarily used against enemy vehicles with light or medium armor. The cartridge was similar to that used in the Polish Mareszek anti-tank rifle and the U.S. .30-50 caliber round that was under development in 1931. The Germans captured a number of the Polish anti-tank weapons during their 1939 invasion of that country. There is evidence that the Germans used the Polish weapons until a sufficient number of their own weapons could be fielded. The Polish weapon had little in common with the German P.z.B. 39 except that both the weapons were designed to fire a cartridge with a large case and a relatively small caliber, high velocity projectile. The Polish cartridge also used a 7.9mm bullet, but the cartridge case was a smaller diameter, and held a powder charge that was 30 grains less than its German variant.

The ammunition used in the P.z.B. 38 and P.z.B. 39 utilized a steel core to penetrate armor. The original projectiles consisted of a hardened steel core and a tiny capsule of tear gas. The idea behind the tear gas capsule was that it would disperse once the projectile penetrated the vehicle and force the crew to evacuate. The idea was not successful, while the steel core often penetrated the armor of a target, the tear gas capsule would be left lying out-

side the vehicle. This would often affect German infantry troops that were attempting to assault the disabled vehicle. After 1940 a much harder tungsten steel core was used.

Construction

The breechblock or bolt of the P.z.B. was arranged to slide in vertical guides in the receiver, and was hand-operated. The hand lever for the bolt was constituted by the trigger housing and the pistol grip. The trigger housing was hinged at the forward end and attached to the receiver by an axis pin. The rear of the housing was secured by a spring catch. The pistol grip was capable of a limited pivotal movement with respect to the trigger housing to operate the trigger housing catch.

The safety catch was mounted on top of the receiver just behind the bolt. The safety had two positions, one marked with a letter "S" for Sichen or

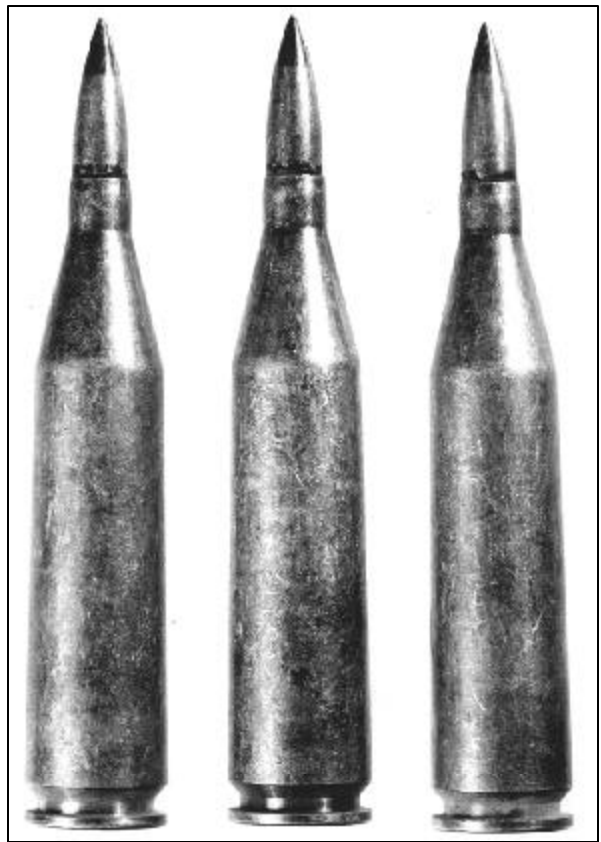
"Safe", the other position was marked "F" for Feuer or "Fire". In the safe position a portion of the safety catch obstructs the sear and prevents its rotation.

The heavy barrel of the P.z.B. 39 was secured by a castle nut. To insure that this nut was secure a catch was fitted to the right side of the receiver. If the barrel nut was loose the catch will rotate into the path of the

breechblock and prevent the weapon from being fired.

The butt stock and carrying handle were made from pressed sheet steel. The stock folds under the receiver, the lower portion of the butt plate also folds. The small part of the butt was covered with leather. The shoulder piece was padded and covered with a felt material. The one-piece foregrip was constructed from wood.

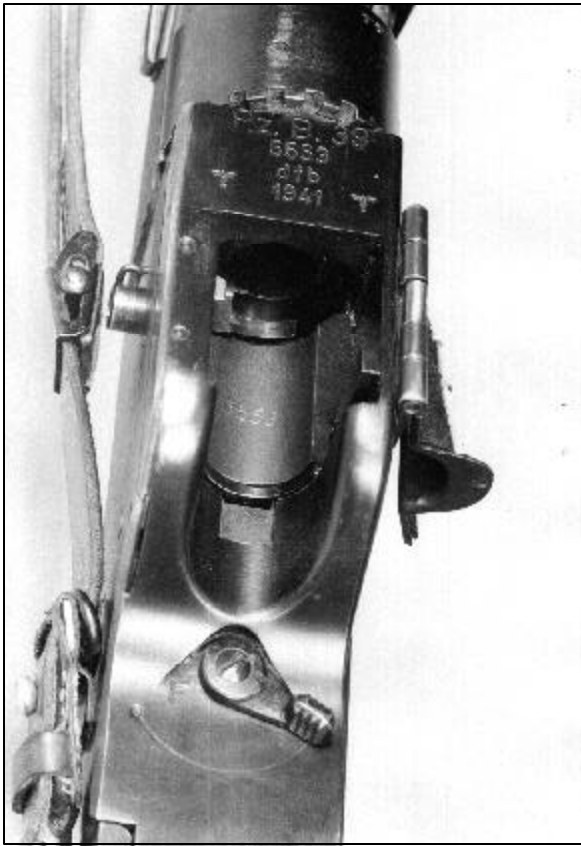
The weapon was equipped with a bipod that is similar to that used with the German MG34 machine gun. The weapon was equipped with a muzzle brake, similar to that seen on the British MK I .55 caliber Boyes anti-tank rifle. However, the "turbine" type muzzle device on the German P.z.B. 39 was of a much smaller diameter. Metal ammunition boxes could be



The high velocity cartridges used in the P.z.B. 38 and P.z.B. 39 weapons used a small 225-grain 7.92 projectile on a large necked down case. The projectiles contained a hardened steel core and a tear gas capsule. The velocity of the projectile had an average velocity of 3,540 fps. (NARA photo)



A metal ammunition carrier could be mounted on the sides of the P.z.B. anti-tank gun for easy access by the operator of the weapon. Each carrier held 10 rounds of ammunition. (NARA photo)



View of the receiver of the P.z.B. 39 serial number 5553. Note the barrel nut and the fire-safe selector. The “dtb” code markings indicate that this weapon was manufactured by Gustloff-Werke, Suhl in 1941. (NARA photo)

until it is clear of the chamber. The weapon was then loaded by placing a round in the chamber. To close the breech, the pistol grip was pulled rearward forcing the breechblock to rise and close on the fresh round. During this action a ramp on the left side of the breechblock forces the extractor forward and the extractor slide toggle engages the groove in the side of the breechblock. The sear remains engaged with the hammer and compresses the hammer spring. The ramp above the breechblock then forces the round fully into the barrel's chamber. The

trigger was prevented from being pressed until the trigger housing catch had re-engaged the receiver of the weapon.

the Aberdeen Ballistic Research Laboratory with instructions to test the armor defeating capabilities of the weapon. After completion of the prescribed test the weapon was to be forwarded to the Springfield Armory. An extract from a previous British report “Notes on Enemy Weapons No. 10” accompanied the weapon.

The British evaluation had mistakenly reported that the velocity of the ammunition for the P.z.B. 39 exceeded 3,850 fps. Testing at Aberdeen concluded that the average velocity was actually closer to 3,540 fps. The velocity of the cartridges was checked at a distance of 78 feet and 128 feet from the muzzle. The extreme velocity spread was 244 fps at 78 feet and 160 fps at 128 feet.

Anti-tank P.z.B. 39 gun, serial number 5553 was tested at the Aberdeen Proving Ground on April 1, 1942.

Five rounds were fired for characteristics and length of trace. The trace element in the captured cartridges was found to be erratic. Two of the rounds began their trace immediately upon leaving the muzzle of the weapon, temporarily blinding the shooter. The remaining rounds traced successfully from 900 to 1,000 yards. One round failed to fire, the cause was determined to be that the primer that was seated too deep in the cartridge case. The testing of the P.z.B. 39 was limited because only

mounted on both sides of the wooden grip. The function of the ammunition boxes was to provide quick and easy access to the operator of the weapon. Each box held 10 rounds of ammunition.

Operation

To open the breech, the pistol grip was first pushed forward on its axis. The movement of the grip forces the trigger housing catch forward out of its engagement with the receiver. At the same time a projection on the front end of the catch comes into contact with the back of the trigger, which prevents it from being depressed. Continuing the forward movement of the grip, pulling it in a downward direction, the housing will pivot, drawing the breechblock downward

trigger was prevented from being pressed until the trigger housing catch had re-engaged the receiver of the weapon.

Allied Testing

An example of the P.z.B. 39 anti tank weapon was shipped to the Aberdeen Proving Ground on March 26, 1942. The weapon was to be sent to the attention of

German troops proudly pose with a knocked out Russian tank. The soldier (second from left) appears to be holding a Russian DT 7.62x54R machinegun removed from the tank. (NARA photo)



a few rounds were available for the evaluation.

The personnel firing the weapon reported that the recoil was very light, even less than the standard U.S. service rifle. The tear gas capsules from the projectiles had some affect on the personnel that were examining the results of the hits on the steel targets.

The German cartridge for the P.z.B. 39 weapon had an approximate average muzzle velocity of 3,540 fps with a recorded high of 3,676 and a low of 3432 fps. At this velocity the 225-grain projectile was capable of penetrating 11/4-inch face-hardened plate at 100 yards and 3/4-inch (20-degree angle) and 1-inch face-hardened armor plate at 300 yards.

The P.z.B. remained in service with the German Army until 1944. By this time tanks and armor had progressed to the point that the P.z.B. 39 weapon was no longer effective. The majority of the former P.z.B. 39 anti-tank guns were converted into grenade launchers by removing the forearm and shortening the barrel to 24.125 inches. The forward end of the barrel was machined down to a 13/16-inch diameter and threaded to accommodate the launcher base. A grenade discharge cup was then fitted onto the barrel. The launcher was the same model used on the 8mm 98K German service rifle. Special 150-meter sighting equipment was also fitted to the weapon. Three types of grenades could be launched from the weapon, an anti-personnel grenade, a small anti-tank grenade and a large anti-tank grenade. A grenade-launching cartridge with a wooden bullet was used to propel the grenades from the weapon. The former anti-tank weapon was redesignated as the grenade launcher or Granatbüchse Model 39 or GrB 39.

In a desperate attempt to give the infantryman a means of challenging the Russian T34 tanks, the 20mm Panzerbüchse 41 or P.z.B. 41 was introduced. The self-loading P.z.B. 41 was based on the Solothurn S18/1000 cannon. The complex and cumbersome weapon was still ineffective against the formidable Russian T34 armor. During World War II, the Germans used a number of additional anti-tank weapons a large number of them captured from the allies. The Germans were particularly fond of the effective Russian 14.5 mm PTRD anti tank weapon.

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