

Soviet Mortars

CAPTAIN SCOTT R. GOURLEY
CAPTAIN DAVID F. McDERMOTT

The Soviet Army has always loved its mortars. That statement is no less true today than it was for the Czar's Army 70 years ago. As one modern commentator has written, "The Soviet Commander's favorite weapon is the mortar."

Mortars are rather austere in appearance and deceptively simple in operation, yet they are highly versatile and lethal on the battlefield. Because they are effective and economical in both design and production, mortars provide Soviet infantrymen with readily-available pocket artillery.

The Soviet love of mortars was amply demonstrated during the early days of the "Great Patriotic War" (World War II) when the Red Army employed mortars in a field expedient fire support role to compensate for its severe artillery losses. On today's battlefield, Soviet mortars play a comparable role. In fact, during the early stages of a meeting engagement, mortars may be the only indirect fire support a motorized rifle battalion commander has readily available. As an example of the importance the Soviets place on mortars, it has been stated that during World War II the Soviet Union produced 348,000 mortars while the Germans produced only 68,000. Soviet mortar forces, in fact, were superior in both the quantity and the quality of their equipment, and during the war years both the Germans and the Rumanians, in fact, copied the Soviet 120mm mortar.

Being of relatively uncomplicated design, the early Soviet mortars did not require a great deal of operator training. Even today, although mortars are considered artillery by the Soviets, they

are crewed by motorized rifle troops who have received specialized mortar training at battalion level.

Because of the low muzzle velocities associated with mortars (211 to 362 meters per second), mortar shells can be economically mass-produced using relatively thin cast iron casings rather than more expensive steel ones. This, coupled with the round's large explosive charge and its high, plunging trajectory, ensures that mortars, although lacking somewhat in range and accuracy, can be more effective than other field artillery systems, given the proper circumstances. This can be especially true when the mortar is employed against dismounted infantry in open terrain, because the near-vertical angle of a mortar shell's descent results in an almost circular lethal pattern of shell splinters. Against dug-in troops, VT fuzes can be used.

MODERN LINE

The development of the modern line of Soviet mortars began in the 1930s with the introduction of various models of 82mm and 120mm mortars. In 1936 the Soviets introduced the M1937 82mm mortar, followed later by both the M1941/42 and the M1943 82mm models. With identical — and therefore interchangeable — mortar tubes, similar ballistic characteristics, and the ability to use the same ammunition, the three models are easily transportable. They can be broken down into pack loads to be carried by a three-man team or by one pack animal. Additionally, all of the models reportedly can fire the 81mm ammunition employed by Western armies.

The only observable differences among the three models are the baseplates and the mounts. The M1937 has a circular baseplate with a portion cut out and two short shock absorber cylinders. The M1941/42 and M1943 have fully circular baseplates and longer shock absorber cylinders. Despite their many similarities, the M1937, with its more stable bipod mount, became the only standardized 82mm mortar for the Soviet Army.

Today, the M1937 has been phased out of most Soviet infantry units although it remains in Soviet airborne and naval infantry units. Other armies still employing the M1937 include those of the non-Soviet Warsaw Pact nations, Albania, and the People's Republic of China (PRC), where it is called the Type 53 82mm mortar. Some of these countries have even developed a two-wheeled carriage for transporting the mortar and its ammunition. The smoothbore, muzzle-loaded M1937 has a fixed firing pin for drop firing and is found in a six-mortar battery assigned to its parent battalion. Serviced by a five-man crew, the M1937 can deliver HE (high explosive), smoke, illumination, and incendiary rounds out to a range of 3,040 meters.

The 120mm mortar has replaced the 82mm mortar in many Soviet infantry formations. The original M1938 model, which was introduced in 1938, was replaced by the M1943 120mm model. As with the various 82mm mortars, these models are similar in both performance and crew servicing. The only physical differences are the M1943's larger shock absorber cylinders and its more sophisticated traverse and elevation mechanism. Ac-

According to a USAREUR pamphlet, the 120mm mortar is "a highly creditable Soviet achievement in originality and practicality of design."

The M1943, although initially used as a regimental-level weapon, is currently found in a six-piece battery assigned to the motorized rifle battalion. A smoothbore, muzzle-loaded weapon, the M1943 can be either drop-fired or trigger-fired by means of a lanyard. With a six-man crew, the M1943 provides direct support fires out to a range of 5,700 meters and delivers high explosive, incendiary, smoke, illumination, and chemical munitions.

Although all Soviet mortars have difficulty in traversing rapidly, the M1943 can be shifted up to six degrees without its bipod being moved. For purposes of transportation, the M1943 can be broken down into three components. Normally, however, it is folded together with its bipod and towed on a two-wheeled carriage by a GAZ-66, GAZ-69, or MTLB vehicle. In addition to the Soviet Union, the other Warsaw Pact nations, the PRC (where it is the Type 55), and various insurgent movements use the M1943 model and, in isolated cases, the M1938.

Although the M1943 120mm mortar is currently in the Soviet inventory, there have been continuing reports concerning a replacement for it, particularly with regard to the Soviet troops in Afghanistan. At least one reference identifies a new model 120mm mortar, tentatively designated the M1965, which apparently was never deployed. Viktor Suvorov has stated, however, that beginning in 1971 Soviet motorized rifle battalions were re-equipped with an 82mm automatic mortar nicknamed the "Vasileck." Although Suvorov claims the Vasileck is a relatively uncomplicated system, he credits it with being capable of both single round and automatic fire (up to 120 rounds per minute) delivering both conventional and antitank mortar rounds.

Six Vasilecks are assigned to the mortar battery of a motorized rifle battalion. The Vasileck itself is mounted on a self-propelled armored vehicle or towed by a standard prime mover. The



This Warsaw Pact 120mm mortar appears to be a model M1938 because of the shorter shock absorber cylinders.

deployment of such a weapon, especially in the self-propelled version, provides the battalion commander with a highly mobile and versatile means of fire support capable of concentrated fire (up to 720 rounds per minute) in both a conventional mortar role and, more importantly from the Soviet viewpoint, an antitank role.

When tactically deployed, the M1943 120mm mortar batteries are located one-half to one-and-a-half kilometers from the line of contact in a linear formation 150 to 250 meters long. The mortar battery is normally deployed as a single unit providing direct support fire. Under special situations, the battery can be divided into two firing platoons or attached to one of the battalion's companies.

OTHER MORTARS

For a number of years, the Soviets have deployed two models of 107mm mortar, designated the M1938 and the M107. Both systems are allegedly scaled-down versions of the M1938 120mm mortar. The M107 is the more modern system and is replacing the M1938. With a range of 6,300 meters and the capability of HE, smoke, and chemical fires, these 107mm systems

are assigned to Soviet mountain units.

The Soviets have also pioneered the development of heavy caliber mortars such as the M160 (160mm) and the M240 (240mm). One of the major differences between these heavy mortars and the medium caliber mortars is the fact that the heavy mortars are breech- rather than muzzle-loaded. The trigger-fired M160, introduced in 1953, has a maximum effective range of 8,040 meters, but it fires only HE ammunition. It is mounted on a two-wheeled carriage, towed by a GAZ-66 general purpose cargo truck.

Originally fielded with motorized rifle divisions, the M160 is currently deployed with Soviet mountain units. It is also in service in the PRC where it is called the Type 56 160mm mortar and deployed with twelve tubes per infantry division. Various makes of the 160mm mortar have seen combat with the Indian Army during the 1971 Indo-Pakistani War and with the Arab forces during the various Middle Eastern conflicts, to include the current situation in Lebanon.

The M1953 240mm mortar, also referred to as the M240, was first deployed in 1953 and is the largest standardized mortar currently in service with the Soviet Army. Although no longer in production, it may still be

MORTAR SAFETY DEVICE

For several years, occasional photographs of Soviet mortar operations have shown what appears to be some sort of muzzle brake attached to the end of the mortars. In reality, the appendage is a safety device designed to prevent double-loading the mortars if they misfire. Designed for both the M1957 82mm and M1943 120mm mortars, the device not only blocks the insertion of a second round before the first one leaves the tube but also triggers an external indicator for visual verification. This safety device is especially convenient during barrage firing when one misfire might not be noticed because of the noise.

One Soviet military manual, targeted for Third World clients, emphasizes the use of the safety device with the simple statement: "It is not allowed to deliver fire without the double-loading prevention device installed." No device is actually foot-pedal, however. Even with the fixture installed on the tubes, an additional safety warning urges the mortar commander and gunner to "keep a close watch on each shot so that the shell is brought to the muzzle face by the trigger not earlier than the previous shot is fired."

deployed in the heavy artillery brigade found at the Front level. It is breech-loaded with a maximum range of 9,700 meters and has replaced medium caliber conventional artillery pieces in certain fire support roles. In loading, the tube is rotated on the trunnions until it reaches a horizontal position that is five feet off the ground. Its barrel is 5.34 meters long, and it has a large disc-shaped baseplate with star-shaped ribbing on its underside, small vertical cylinders on both sides of the barrel just above the axle, and a collar or yoke around the tube itself in which the trunnions are located.

A truck or artillery tractor is the prime mover for the 240mm mortar, which is towed muzzle first. This prime mover also transports the eight-man mortar crew and the system's ammunition, one round of which requires a team of four or five men to lift it into the breech. The 240mm mortar has been described as a "massive weapon"

that fires a 100-kilogram (220-pound) high explosive round, and it may have a comparable chemical capability.

More ominously, the 240mm mortars have been assessed as having a nuclear capability. The round in this instance reportedly weighs 130 kilograms. At least one respected observer has speculated, however, that such a round may have been discarded since its blast radius could have been greater than the mortar's maximum range. As in the case of the 160mm mortar, the 240mm mortar has reportedly been observed in combat in Lebanon.

Two other "monster mortars" entered the Soviet arsenal — in extremely limited numbers — during the "bigger is better" decade in the 1950s. During the 7 November 1957 Moscow parade, the Soviets unveiled the M1957 420mm self-propelled mortar. The mortar was mounted on a modified (lengthened) JS tank chassis. The only visible difference between the 420mm mortar and the 310mm self-propelled gun unveiled during the same parade was the lack of a recoil cylinder above the mortar tube. Initial observations mistakenly identified both systems as 300mm gun launchers designed for long-range rocket-assisted projectiles.

The Soviets improved on their designs and introduced the second 420mm mortar, the M1960, which showed extensive modifications. The tube was longer, the vehicle's suspension had been improved with the addition of a larger shock absorber system, and the cab of the vehicle had been repositioned. The M1960 was credited with a maximum range of 18,280 meters and an HE projectile weight of 770 kilograms (1,700 pounds).

Most recently, persistent reports have mentioned a new self-propelled nuclear-capable mortar in service with the heavy artillery brigades found at Front level. Suvorov has said that this system, introduced in 1970, is mounted on a GMZ chassis, which provides increased cross-country mobility and improved crew protection. Allegedly, efforts are now under way to equip not only Front level artillery formations but also Army and Division level com-

mands with a regiment and a battalion, respectively, of self-propelled 240mm mortars. This is one way the Soviets could provide simple yet economical mass fire support. Further reports indicate that as of 1980 this new mortar had been deployed with Soviet Category I units stationed in the Group of Soviet Forces Germany and the Western Military Districts of the USSR. It is also reported that the self-propelled system has an automatic loading device comparable to the one fitted to the Israeli 160mm mortar.

In the past few decades, U.S. military contact with Soviet mortars has been primarily limited to those in Vietnam. During the Vietnam War, conventional North Vietnamese Army and People's Liberation Armed Force units included mortars in their artillery arsenals. The mortars — some captured and some supplied — included 60mm, 81mm, 82mm, and 120mm systems.

In an era of high technology weapon systems, the continued Soviet reliance on mortars may seem anachronistic, perhaps even humorous. But the simplicity of design, the rugged operational reliability, and the lethality of these systems should never be underestimated. Like the Russian Army that preceded it, the Soviet Army loves its mortars.



CAPTAIN SCOTT R. GOURLEY, a U.S. Army Reserve Field Artillery officer, is an ROTC graduate of the University of California at Los Angeles. While on active duty he served, among other assignments, as an instructor in target acquisition and Soviet artillery at the U.S. Army Field Artillery School.



CAPTAIN DAVID F. McDERMOTT is an intelligence officer, also in the U.S. Army Reserve, now serving with the 91st Division (Training), at the Presidio of San Francisco. A graduate of the U.S. Military Academy, he served at Fort Hood in Military Intelligence assignments while on active duty.