

# Tactical Ballistic Missile System FROG-7B (9K52, 9M52, R-70), Luna-M



The FROG-7 is the latest addition to the "Free Rocket Over Ground" family of unguided, spin-stabilized, short-range (battlefield support) artillery rockets. The rocket is of conventional single-stage design, with a cylindrical warhead of the same diameter as the rocket body, giving it a cleaner, more modern appearance than its predecessors. The FROG-7 has a range of 70 km and a 550 kg warhead, and an impact area of approximately 2.8 km long by 1.8 km wide. The FROG-7 is capable of delivering HE, nuclear, or chemical warheads. The FROG-7 gave the Soviet division commander a deep interdiction/penetration nuclear threat.

The FROG-7A was first introduced in 1965 as a replacement for earlier FROG variants, some of which had been in service since the mid-1950s. The FROG-1 and -2 are obsolete. The FROG-3, -4, and -5 variants, mounted on a non-amphibious version of the PT-76 light tank chassis, are obsolete in the USSR, but were still found in other Warsaw Pact armies at the end of the Cold War. The FROG-5 is still used as a training rocket, and the FROG-6 is a dummy rocket used for training purposes only. The FROG-7B,

introduced in 1968, is essentially the same rocket as the FROG-7A but with a longer warhead section.

The FROG-7 was replaced by the SS-21 tactical ballistic missile which has greater range (120 km) as well as probable improvements in reaction time, missile reliability, accuracy, and handling characteristics. Since the SS-21 is mounted on a six-wheeled TEL similar to the SA-8/GECKO SAM system, it has improved cross-country capability and is probably amphibious. Like the SA-8, it probably has an air filtration and overpressure system for collective chemical and biological protection. The SS-21 was first deployed in 1976 in the USSR and was reported in GSF in 1981.

During the Cold War the most prominent short-range nuclear force [SNF] system at the division level was the unguided free-rocket-over-ground (FROG), which in the Soviet Army was deployed in a battalion of four launchers. As of 1987 the Soviets were replacing FROGs with the more accurate, longer range SS-21s in some divisions opposite NATO. About 500 FROG and SS-21 launchers were opposite NATO. Another 215 FROG launchers were opposite China and in the Far East; some 100 were opposite Southwest Asia and eastern Turkey; and about 75 were in strategic reserve. Non-nuclear versions of the FROG-7 have been exported to both Warsaw Pact and some non-Warsaw Pact nations. The FROG-7 is deployed by Cuba, Egypt, Iraq, Kuwait, Libya, North Korea, Syria, and Yemen. *Laith*, an Iraqi improved version of the FROG-7, has a 90 km range.

The FROG-7 (9K52 Luna), the final version of the FROG family, is an unguided, spin-stabilized, short-range, battlefield support artillery rocket. The range of the FROG-7A rocket is 70 km with a CEP of 500 to 700 meters. It is fitted with either a 450 kg HE, 450 kg nuclear, or 36 kg chemical warheads. The improved FROG-7B carries a cargo warhead for delivering bomblets or mines.

In addition to improvements in the rocket which give it greater range, a new transport-launch vehicle using a wheeled chassis has been developed based on the ZIL-135 [BAZ-135] 8 x 8 truck. This wheeled transporter erector launcher (TEL) carries one rocket and a crane. It incorporates a number of improvements in rocket handling such as the on-board crane. Reload missiles are placed on the TEL by that vehicle's own hydraulically operated crane on the right side of the launcher rail. A very similar vehicle is also used with the FROG-7 system to transport the reserve rockets. The earlier FROG'S used semitrailers towed by ZIL-157V tractor trucks, and needed crane trucks for reloading of the transport-launch vehicles. Preparation for firing can take 15 to 30 minutes depending on the situation. A typical FROG-7 battalion is equipped with two firing batteries each with two TELs and a D-band RMS (END TRAY) long-range meteorological radar. The cruising range of the transporter-erector-launcher vehicle is 400 km. The FROG-7 TEL vehicle provides no NBC protection for the crew. The single-rail launcher has limited traverse.

REFERENCE SOURCE:

<http://www.fas.org/man/dod-101/sys/missile/row/frog-7.htm>