

Military Accessories for Russian Motorcycles

- Reminder of WW-II Heritage: Militarization of Russian Heavy Motorcycles
- Mortar Development in Soviet Union
 - -Late 1930's, Designer B. I. Shavyrina Developed 50, 82, 107 and 120-mm Mortars
- Mortar Crew of Two: Driver and Rear Passenger
- Modified Limited Quantities of Russian Sidecars Converted to Accept 82-mm (3.2") Mortar
 - -Russian M-72 Motorcycle: Swing-Arm Mount from Wooden Case on Sidecar Frame
 - -Lend-Lease WLA Harley-Davidson: Swing-Arm Mount from Rear of Sidecar
 - -Russian M-72 Motorcycle: Mortar Mounted Directly on Sidecar Frame



on Sidecar Frame

Mortars as Weapons

- Relatively Simple Weapon and Easy to Operate
- · Semi-Accurate with a Range Up to Two Miles
- Mortar systems Consist of Four Main Components:
 - Barrel or "Tube"
 - Base Plate
 - Bipod (Two Legs)
 - Rounds of Ammo
- Assistant Gunner Drops a Round of Ammo into the Tube
- Each Round Has a Small Charge at Its Base and No Cartridge Case
- When the Round Reaches the Base of the Tube, It Hits a Fixed Firing Pin, which Detonates the Baseline Charge and Fires the Entire Projectile
- Tube Generally Inclined between 45° and 85° Angle, with the Higher Angle Giving Shorter Firing Distances
- Small and Medium Mortars (up to 82-mm) Are Commonly Used and Transported by Infantry-Based Mortar Units as a Substitute for, or in Addition to, Artillery
- Modern Mortars Normally Range in Calibre (Width of Tube Opening or Diameter of Shell) from 60-mm (2.36 in) to 120-mm (4.72 in)
- Soviet Bloc Standardized on the 82-mm Mortar

When the Russian copied the Stokes-Brandt Mle 27/31 81-mm mortar, they designed the barrel to be 82-mm wide, allowing them to use captured German 81-mm shells, but the Germans could not put Russian 82-mm shells in their 81-mm mortars. Clever!

Soviet 82-mm Medium Mortar Evolution during WW-II

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	82-BM-36 (82-батальонный миномёт-36)	82-BM-37 (82-батальонный миномёт-37)	82-РМ-41 (82-Полевой Миномёт-41)	82-BM 43 (82-батальонный миномёт-43)
	82-mm Mortar Model 1936 (82-мм миномет обр. 1936 г.)	82-mm Mortar Model 1937 (82-мм миномет обр. 1937 г.)	82-mm Mortar Model 1941 (82-мм миномет обр. 1941 г.)	82-mm Mortar Model 1943 (82-мм миномет обр. 1943 г.)
Production	1936	1937	1941	1943
Weight	67.7 kg in firing position	56 kg in firing position	52 kg in firing position	58 kg in firing position
Body Length	1.288-m (4 ft 3")	1.22-metres (4 ft)	1.2-metres (3 ft 11")	1.22-metres (4 ft)
Shell	3.05 kg (6 lb 12 oz)	3.05 kg (6 lb 12 oz)	3.05 kg (6 lb 12 oz)	3.05 kg (6 lb 12 oz)
Caliber	82-mm (3.2")	82-mm (3.2")	82-mm (3.2")	82-mm (3.2")
Rate-of-Fire	Up to 30 rpm	15-25 rpm	15-25 rpm	15-25 rpm
Ammunition	3.31 kg: O-832 with 400 grams of explosives	3.31 kg: O-832 with 400 grams of explosives	3.31 kg: O-832 with 400 grams of explosives	3.31 kg: O-832 with 400 grams of explosives
Muzzle Velocity	211 m/s (690 ft/s)	211 m/s (690 ft/s)	211 m/s (690 ft/s)	211 m/s (690 ft/s)
Range	3,040-m (3,324 yd) 1.9-miles	3,040-m (3,324 yd) 1.9-miles	3,040-m (3,320 yd) 1.9-miles	2,555-m (2,794 yd) 1.6-miles
Elevation	+45 to +80°	+45 to +85°	+45 to +85°	+45 to +85°
Traverse		± 3° to ± 30°	±5° to ± 25°	± 5° to ± 25°
Sight	MP-1, MP-2 or Mechanical Sight	MUM or MPM-44	MUM or MPM-44 with a Collimator of MP-82	MUM or MPM-44 with a Collimator of MP-82
Changes from Previous Model	First of Soviet 82-mm mortars. Conventional design with a standard bipod and square base-plate. Based on earlier French Brandt mle 27/31 mortar with Russian modifications. Soon replaced by the improved-M37.	Changed rectangular base- plate to a round one. Recoil springs added between the barrel and bipod. Distinguished by cross- leveling and connecting rod on the right leg rather than the left. M-37M is improved version with lighter, rounded base plate and a device to prevent double-loading (can be identified by the muzzle safety device).	Added removable wheel base, arched construction base plate (as in 107-mm and 120-mm mortars), and different two-legged construction. Wheels were slipped over the semi-axis of the bipod feet and removed during firing. Design improvements made to reduce weight and production cost, and improve manoeuvrability. M41 was more convenient to transport than the M37, but less steady during firing and had a worse center of gravity.	Differs from M41 in that the bipod has dedicated feet and the wheels are permanently fixed above those feet. Just as with the M41, the M43 was discontinued in favor of the improved-M37 mortar.

[&]quot;BM" means "batalyonny minomet" or "batalyonny minomyot" (depending on transliteration) mortar for battalion service.

Soviet WW-II Smooth-Bore 82-mm Mortar Development



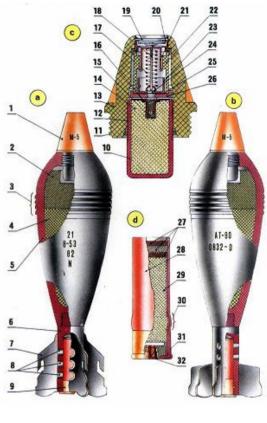
82-mm Soviet Mortar (M37) and O-832 Rounds

- Two Base-Plates Available
 - -Circular Plate for Normal Operation
 - -Smaller, Lighter Rectangular Plate for Mountain Warfare
- Smooth Bore (No Rifling)
 Muzzle-Loaded, Drop-Fired
 - -Fired by Dropping Projectile, Tail First, Down the Tube
 -Fixed Firing Pin

 - -Nothing Left Behind
- Firing Rate of Mortars: Up to 25 Rounds per Minute (rpm)
 An Experienced Shooter Could Hit the Target in 3-to-4 Shots







Mortar Shell Weight: 3 kg (6-1/2 lb) Fuse: Impact (Bakelite)

MPM-44 Mortar Sight (panzerball-htdszk.blogspot.com) FRONT VIEW TELESCOPE LOCKING LAMP COARSE ELEVATION SCALE 100-MIL INCREMENTS, 0 TO 6400 MILS MICROMETER ANGLE OF SITE SCALE **ELBOW TELESCOPE** DEFLECTION ANGLE OF SITE KNOB LOCKING KNOB FIXED BORESIGHT COURSE ANGLE FINE DEFLECTION SCALE. REFERENCE 1-MIL INCREMENTS MARK (RED) OF SITE SCALE COURSE DEFLECTION 0 TO 100 MILS SLIP SCALE (BLACK) COARSE ELEVATION SCALE DEFLECTION 100-MIL INCREMENTS. MICROMETER KNOB 100 TO 1600 MILS EIVED BORESIGHT REFERENCE MARK BORESIGHT COARSE ELEVATION (RED) LOCKING CROSS LEVEL VIAL INDEX ARROW **SCREWS** CROSSLEVEL VIAL ELEVATION MICROMETER DEFLECTION KNOB FINE ELEVATION SCALE, ELEVATION LEVEL VIAL SCALE 1-MIL INCREMENTS. ELEVATION VIAL 0 TO 100 MILS **ELEVATION KNOB** ELEVATION KNOB COURSE ELEVATION SCALE COARSE DEFLECTION INDEX ARROW LEVER LOCKING ELEVATION ELEVATION LOCKING KNOB LOCKING KNOB STATE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COL

The MPM-44 optical mortar sight has a magnification of 2.55.

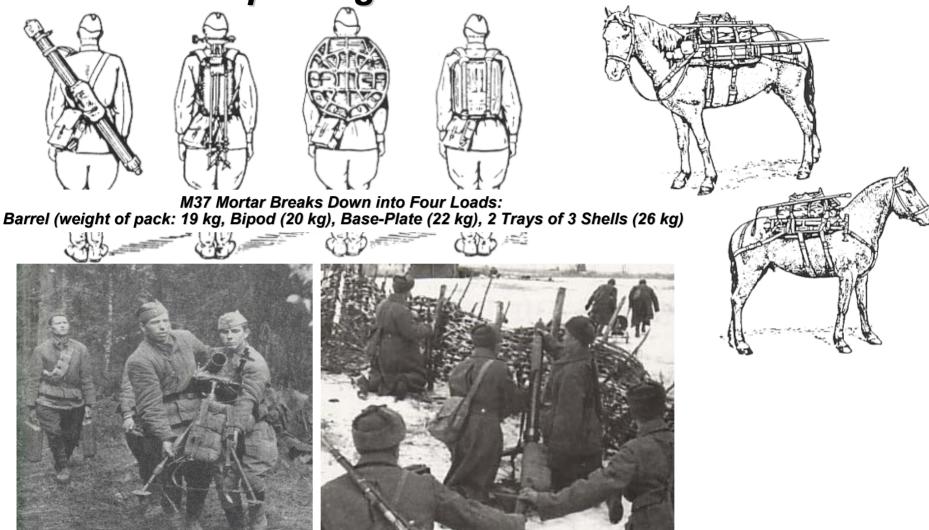


Captured Soviet/Russian Model 1937 82-mm Mortar



The M37 is one of the most produced mortars in the world. By the beginning of the Great Patriotic War (WW-II), the Red Army had 14,200 82-mm mortars.

Transporting the M37 82-mm Mortar



The M37 was normally transported in a light vehicle and carried in several pieces over short distances. The M41 and M43 had an integrated, two-wheel carriage, but the improved mobility did not outweigh the reduced performance.

Zvezda Plastic Model of Soviet 82-mm Mortar Team



Zvezda Plastic Models is the largest kit manufacturer in Russia, encompassing many different scales, time periods and showcasing many armored vehicles throughout history.

M-72: Father of Russian Motorcycle Sidecars

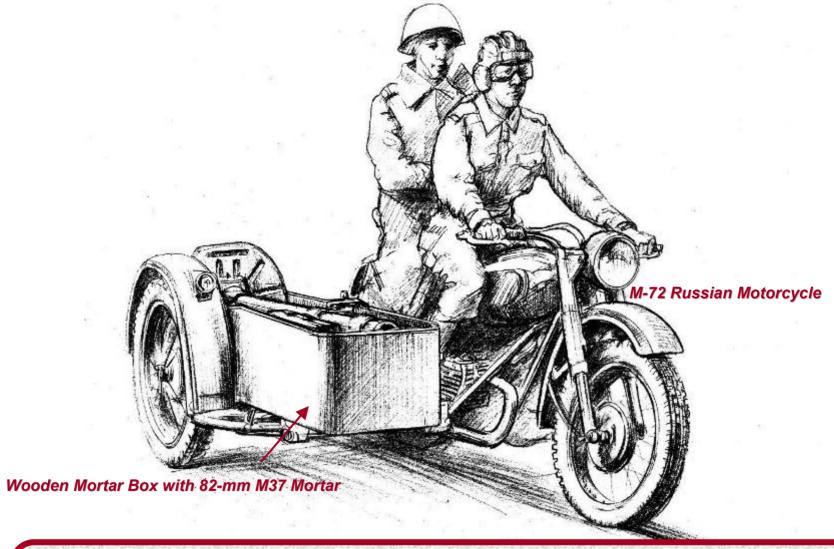


Russian M-72 Was a Direct Copy of the German R71

The Russian sidecar contained bike bags of ammo and spare parts, and special brackets with a swiveling device for fixing a light machine.

The Degtyarev (DP 7.62mm light) machine gun bipod fastened to the swivel rod, making it easy to transport and to fire on the move. Tubular brackets (front and rear) accepted machine gun pintles for shooting from front or rear.

Sketch of Soviet M-72 with 82-mm Mortar



Produced in very limited quantities, the M-72 motorcycle substituted a 82-mm mortar for the sidecar "tub". The mortar box was made of wood or aircraft plywood. Aircraft plywood is high-strength plywood, made from mahogany and/or birch, and uses adhesives with increased resistance to heat and humidity. It was used for several WW-II fighter aircraft.

1:35 Scale M-72 Soviet Motorcycle Model with 82-mm Mortar



Kit comes with fully-detailed M-72 motorcycle, support gear, ammunition cases, sidecar with 82-mm mortar, multi-part mortar (with base plate and choice of two bipod configurations), 3 mortar rounds and 2 crew figures posed servicing the weapon.

Mortar Sight

Miniatures of the M-72 Version



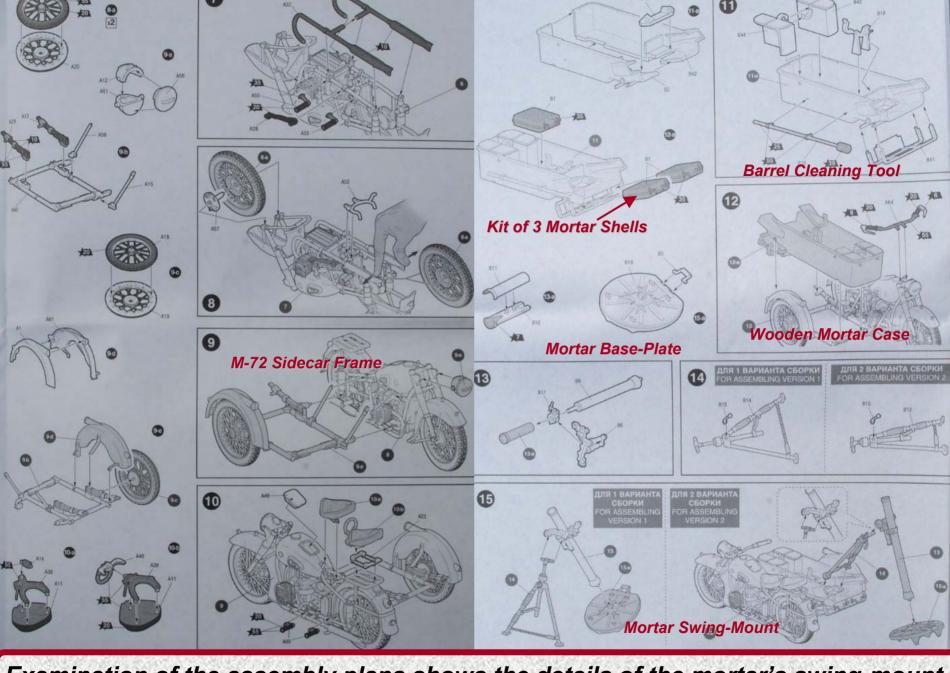


82-mm Mortar Team



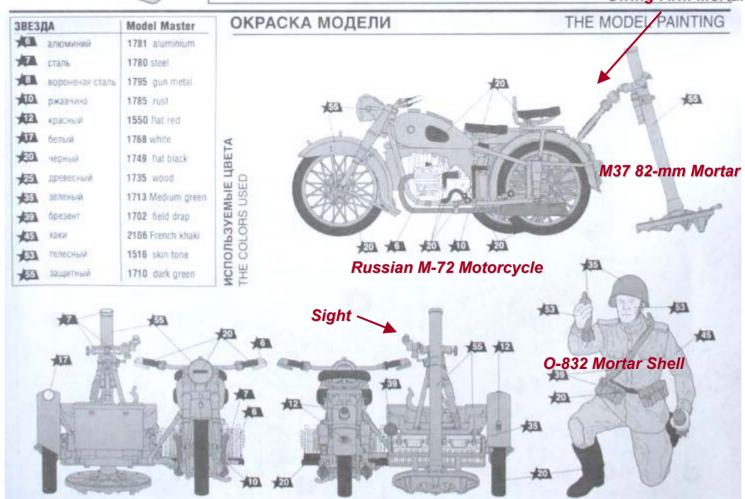


Interestingly, the miniatures show the application quite well.
The mortar was on a swing-arm from the M-72 motorcycle wooden case.



Examination of the assembly plans shows the details of the mortar's swing-mount.



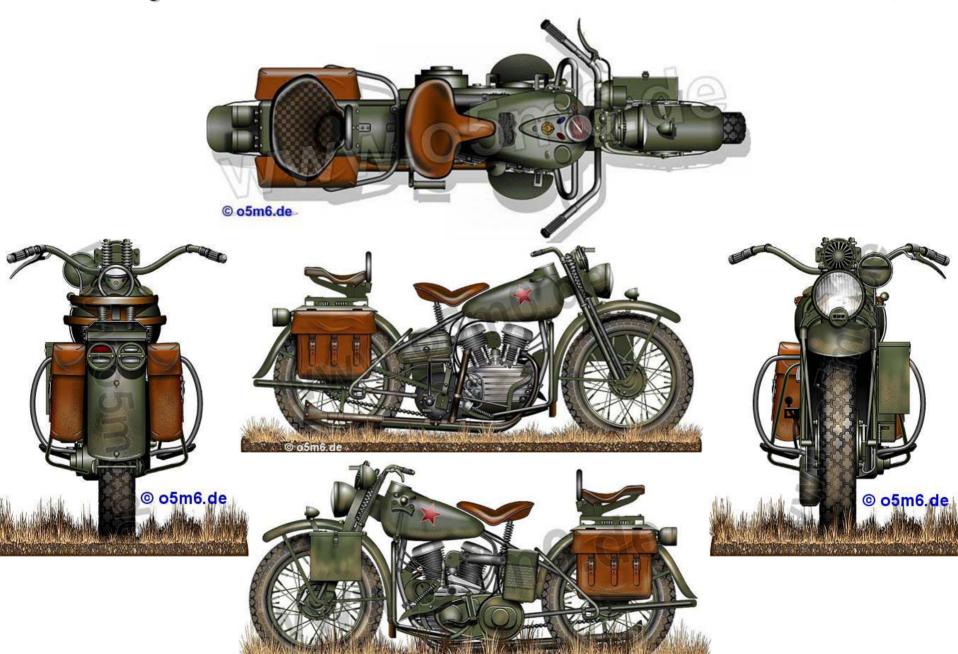


Alternate Mount: Harley-Davidson 42WLA (www.o5m6.de)

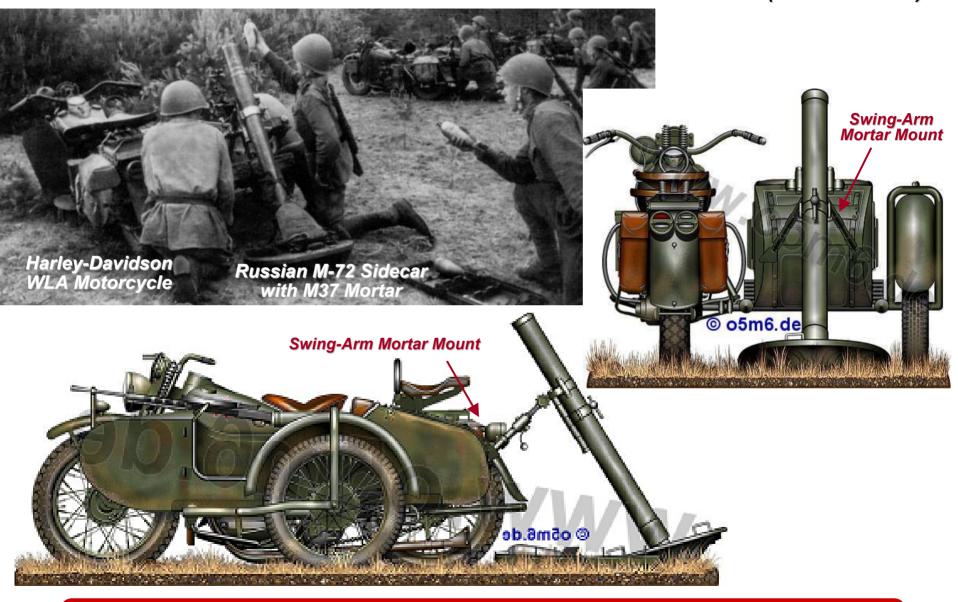


Found in large numbers (60,000) throughout all theaters in WW-II, the H-D Model WLA was an extremely reliable vehicle. It had a bracket for a light machine gun and combat zone safety lighting. Most of the WLA's delivered to the USSR were equipped with the M-72 sidecar and a passenger/pillion seat on the luggage rack upon arrival in Russia. The Soviet Union received some 34,000 motorcycles thru Lend-Lease. Of these, no less than 26,000 were H-D 42WLA chain-driven solo motorcycles.

Harley-Davidson 42WLA 45 cu.in. Chain-Driven,

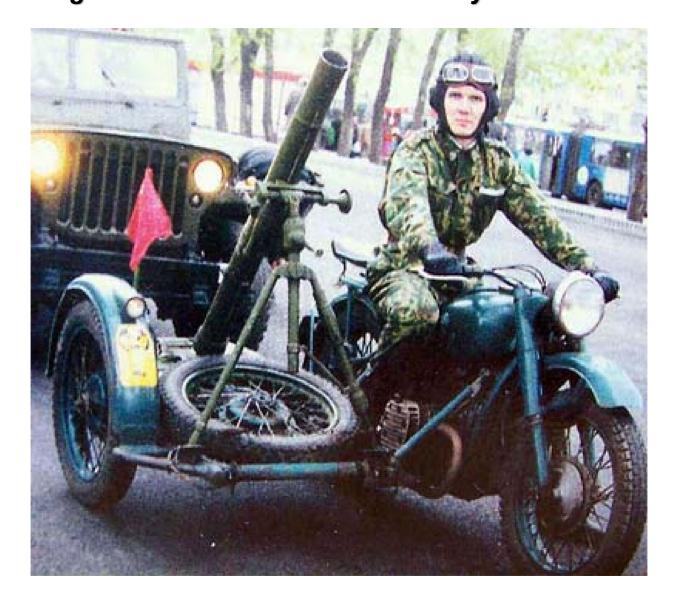


Second Version: Harley-Davidson Solo Motorcycle with Russian M-72 Sidecar and 82-mm Model 1937 Mortar (www.o5m6.de)



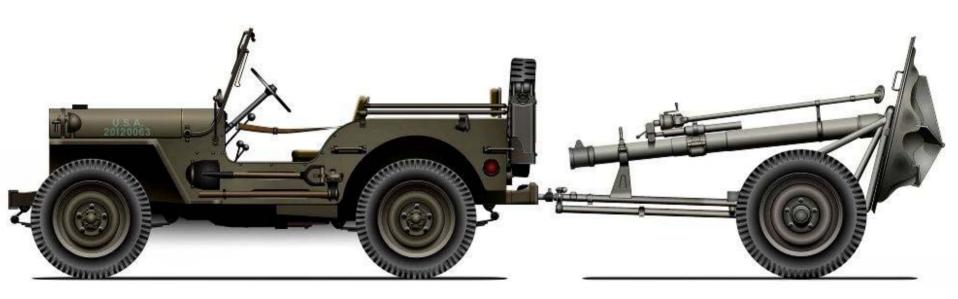
A crew fired their mortar, mounted to WLA's fitted with side cars. The mortar was permanently attached to the rear, with no spare wheel.

Third Version: 82-mm Mortar Mounted Directly on M-72 Sidecar Frame, Allowing the Crew to Lob Shells Directly from the Sidecar



Willys MB Truck ¼-ton, 4x4, Command Reconnaissance Car Towing the WW-II Soviet 120-mm Heavy Mortar (www.o5m6.de)

The weapon weighed 285 kg (630 lb). Its maximum range was 5,700-m (6,200 yd, 3-1/2 miles).



The larger, 120-mm (4.7") heavy mortar required a Willys MB, ¼-ton jeep, to haul it around the battlefield. It was produced by the Soviets in large quantities with an estimated 12,000 120-mm mortars being produced by the end of World War II.