

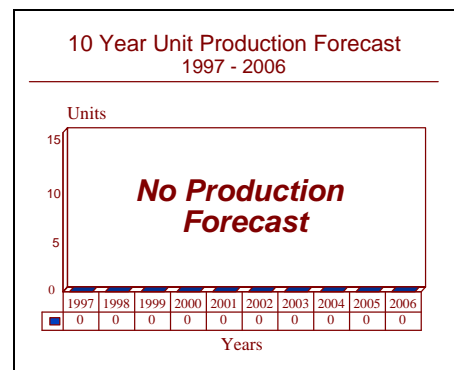
ARCHIVED REPORT

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SO.122 (2S1) Gvozdika 122 mm Self-Propelled Howitzer - Archived 4/98

Outlook

- The serial production of the SO.122 (2S1) Gvozdika is complete
- A total of 11,508 systems was manufactured
- Some additional modernization and retrofit potential exists for this self-propelled artillery system



Orientation

Description. A tracked 122 millimeter self-propelled artillery system

Sponsor. The development and initial procurement of this artillery system was sponsored by the Ministry of Defense of the Soviet Union through the Soviet Army. Continued support is by the Ministry of Defense of the Russian Federation.

Contractors. The SO.122 (2S1) was developed and manufactured by the Soviet State Arsenal at the Kirov Tractor Plant.

Licensees. The Bulgarian State Arsenal and the Polish State Arsenal manufactured the SO.122 (2S1) under license.

Status. The production of the SO.122 (2S1) has terminated by all sources. The Russians as well as

Poland and Bulgaria have further developed the basic chassis into a number of different variants including an armored personnel carrier and various command and control vehicles; some of these variants are still being manufactured.

Total Produced. A total of 11,508 SO.122 (2S1) artillery systems was manufactured by all sources.

Application. Mobile fire support for the field army at the division and battalion levels.

Price Range. In equivalent 1992 United States dollars, the unit price of the SO.122 (2S1) was \$1.021 million. This self-propelled artillery system is now being offered on the open market through international brokers; most of these particular systems are those held by the former German Democratic Republic and other nations of the former Warsaw Pact.

Technical Data

Crew. Four: commander, gunner, loader and driver plus two additional men in the associated ammunition carrier

Muzzle Brake. Multibaffle

Recoil System. Hydropneumatic

Breech Mechanism. Vertical sliding wedge

is compatible with the Kitolov-2 laser guided artillery projectile.

Ammunition. OF.462 High Explosive, BK.6M High Explosive Anti-Tank Fin Stabilized, D.462 Smoke, S.462 Illumination. In addition, a High Explosive rocket assisted projectile round is available for the SO.122; other rounds include unspecified chemical and a leaflet dispensing projectile. The SO.122 (2S1)'s 2A31 cannon

Armor. The SO.122 (2S1) is fabricated from conventional steel alloy armor with a thickness of 1.5 centimeters (0.59 inch) on the hull and two centimeters (0.787 inch) on the turret.

Dimensions. The SO.122 (2S1) mounts a modified D.30 ordnance that is designated 2A31. The following dimensions are for the last production examples from the Russian Federation.

	<u>SI units</u>	<u>US units</u>
Length overall	7.26 meters	23.81 feet
Width	2.85 meters	9.35 feet
Height	2.73 meters	8.96 feet
Combat weight	15.71 tonnes	17.32 tons
Fuel capacity	550 liters	146.27 gallons
Ordnance caliber	121.92 millimeters	4.80 inches

Performance. The maximum 2A31 howitzer range figure is with the OF.462 High Explosive projectile; with the assisted projectile, it is 21.9 kilometers (23,949.8 yards). The maximum speed and vehicle range data are for a metalled road. The amphibious speed is approximately five kilometers per hour (3.11 miles per hour).

Maximum speed	61 kilometers per hour	37.9 miles per hour
Maximum range	500 kilometers	310.5 statute miles
Step	70 centimeters	2.30 feet
Trench	2.2 meters	7.22 feet
Slope	55%	55%
Gradient	77%	77%
Fording	amphibious	amphibious
Elevation	+70°	+70°
Depression	-3°	-3°
Traverse (total)	360°	360°
Maximum ordnance range	15.3 kilometers	16,732 yards
Maximum rate of fire	8 rounds per minute	8 rounds per minute
Sustained rate of fire	5 rounds per minute	5 rounds per minute

Engine. The SO.122 (2S1) uses the YaMZ 238V diesel engine; this V-8 liquid cooled engine is rated at 223.71 kilowatts (300 horsepower); this engine is provided by the Russian State Factories. The power-to-weight ratio is 14.24 kilowatts per tonne (17.32 horsepower per ton). The engine powers the two hydrojet units which are used for amphibious operation.

suspension can be adjusted to change the height of the SO.122; this is of value when transporting the system by aircraft or rail; this feature can also be used to lower the silhouette of the vehicle and to lock the suspension against the effects of recoil. There are no track return rollers. Normally, the SO.122 is fitted with 40 centimeter dead type track but a 67 centimeter track with deeper cleats is available for operations on substandard surfaces.

Gearbox. The SO.122 (2S1) uses an unidentified manually operated constant mesh type gearbox with five forward and one reverse gear ratios. This unit is provided by the Russian State Factories. The SO.122 uses the clutch and brake steering system.

Fire Control. The SO.122 (2S1) is normally used for indirect fire missions with the targeting data provided by a forward observer through a command post via the R-123 radio set on the SO.122 (2S1) vehicle. The howitzer crew then lays the cannon in the appropriate manner. The gunner has a 5.5 power PG-2 indirect fire sight with a 10.5 degree field of view and a OP5-37 direct fire sight with the same optical parameters.

Suspension and Running Gear. The SO.122 (2S1) uses a torsion bar type suspension with seven dual-tired road wheels on each side of the vehicle; the drive sprocket is at the front while the rear road wheels act as the idlers. Two hydraulic shock dampers are on each side. The

Variants/Upgrades

Variants. The SO.122 (2S1) is broadly based on the chassis of the widely used MT-LB tracked vehicle which has been developed for a variety of missions. In addition, several other vehicles related to the artillery fire support mission have been directly derived from the basic SO.122 (2S1) system. Five of these vehicles are known as the Artillery Command and Reconnaissance Vehicle MT-LBu or 1V12 and 1V21 series; they are also known by their individual industrial designations

which are most likely interchangeable with the other designations. Other than a significantly larger hull in order to accommodate more personnel and equipment, there is nothing noteworthy about these vehicles except the specialized equipment fitted to them in order to meet the associated mission requirements. The following data breaks out basic differences between these vehicles.

<u>Russian Industrial Designation</u>	<u>NATO Designation</u>	<u>Remark</u>
1V12/1V12M2	not known	System designation
1V13/1V13M1	M-1974-1	Deputy battery commander's vehicle; the battery fire direction center
1V14/1V14M1	M-1974-2A	Battery commander's vehicle
1V15/1V15M1	M-1974-2B	Battalion commander's vehicle
1V16/1V16M2	M-1974-3	Deputy battalion commander's vehicle; the battalion fire direction center
1V21	none	Air defense management vehicle
1V22	none	Air defense management vehicle
1V23	none	Air defense management vehicle
1V24	none	Air defense management vehicle
1V25	none	Air defense management vehicle
M-LBus	none	Electronic jamming vehicle, has auxiliary power unit
MTK.2	M-1979 MCV	Mine clearing vehicle
RKhM	none	Chemical reconnaissance vehicle
Not known	Dog Ear radar vehicle	Mounts Dog Ear target surveillance and acquisition radar
Not known	Zoo Park radar vehicle	Mounts Zoo Park artillery locating radar

The 1V12 and 1V21 series differ in the type and level of sophistication of artillery fire command and control equipment such as type and number of radios, optical and/or laser rangefinders, whip or telescoping antenna, machine gun armament, number of embarked personnel and other details, mainly related to the level of command personnel that the vehicle is designed for.

received the above vehicle have differing designations for them. For example, Poland designates the 1V12 series the 1W12 through 1W16.

In addition, Bulgaria, which manufactured the SO.122 (2S1) under license, has developed a new armored personnel carrier that is based on some components from the chassis of the SO.122 vehicle.

The Czech Republic, Poland, Slovak Republic and some of the other nations that have manufactured or

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