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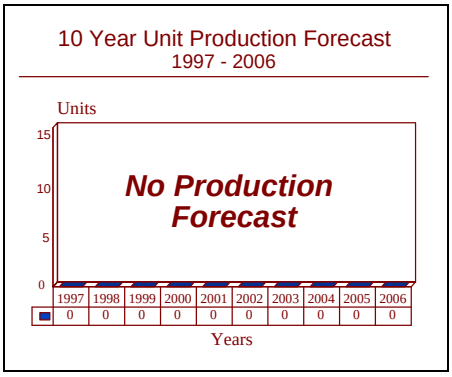
SO.120 (2S9) Nona-S 120 mm Self Propelled Howitzer/Mortar - Archived 4/98

Outlook

- The serial production of the SO.120 (2S9) is complete
- A total of 1,027 Nona-S systems was manufactured
- Some additional modernization and retrofit potential exists for the remaining systems.



Orientation

Description. A tracked 120 millimeter self-propelled artillery system

Sponsor. The development and 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.120 (2S9) was developed and manufactured by the Soviet (now Russian Federation) State Arsenals located at Perm; this facility is now known as Motovilikhinskiye Zavod JSC. The chassis was developed by the I.V. Gavalov Design Bureau at the Volgograd Tractor Plant.

Licensees. None

Status. The production of the SO.120 (2S9) terminated in 1991; the system is in service in the Russian Federation and several other nations.

Total Produced. A total of 1,027 SO.120 (2S9) artillery systems were manufactured for service deliveries.

Application. Mobile fire support for airborne, naval infantry and light armored forces.

Price Range. In equivalent 1991 United States dollars, the unit price of the SO.120 (2S9) Nona-S was $734,000.

Technical Data

Crew. Four: commander, gunner, loader and driver

Muzzle Brake. None

Recoil System. Hydropneumatic

Breech Mechanism. Interrupted screw stepped thread

Ammunition. For direct fires when used as a howitzer, a High Explosive Anti-Tank round is used. For indirect

fires as a mortar, High Explosive, Smoke, Illumination and White Phosphorous ammunition is used.

Armor. The aluminum alloy armor of this vehicle has a thickness of 1.6 centimeters (0.63 inch) on the hull and seven millimeters (0.275 inch) on the turret.

Dimensions. The SO.120 (2S9) Nona-S is based on a modified chassis of the BMD.1 airborne combat vehicle. The following dimensions are for the last production SO.120 Nona-S (the 2S9-1) system. The 2A51 120 millimeter rifled ordnance can be used as a direct/indirect fire howitzer or as an indirect fire mortar.

	SI units	**US units**
Length overall	6.02 meters	19.75 feet
Width	2.63 meters	8.62 feet
Height (at maximum)	2.29 meters	7.51 feet
Combat weight	8.51 tonnes	9.38 tons
Fuel capacity	300 liters	79.79 gallons
Ordnance caliber	120 millimeters	4.72 inches

Performance. The maximum ordnance range figure is for the latest versionofthe Nona-S (the 2S9-1) firing the unassisted High Explosive projectile; firing assisted mortar ammunition, the maximum range is 12.8 kilometers (13,998 yards). The maximum speed and vehicle range data are for a metalled road. The amphibious speed is approximately nine kilometers per hour (5.58 miles per hour). The Nona-S has a maximum water range of around 85 kilometers (52.8 statute miles).

Maximum speed	60 kilometers per hour	37.3 miles per hour
Maximum range	500 kilometers	310.5 statute miles
Step	80 centimeters	2.62 feet
Trench	1.9 meters	6.23 feet
Slope	33%	33%
Gradient	60%	60%
Fording	amphibious	amphibious
Elevation	+80°	+80°
Depression	-4°	-4°
Traverse (total)	70°	70°
Maximum ordnance range	8.8 kilometers	9,623.7 yards
Maximum rate of fire	10 rounds per minute	10 rounds per minute
Sustained rate of fire	4 rounds per minute	4 rounds per minute

Engine. The Nona-S uses the 5D20 diesel engine; this liquid cooled engine is rated at 178.97 kilowatts (240 horsepower); this engine is provided by the Russian State Factories. The power-to-weight ratio is 20.55 kilowatts per tonne (25.0 horsepower per ton). The engine powers the two hydrojet units which are used for amphibious operation.

Gearbox. The SO.120 (2S9) 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 Nona-S uses the clutch and brake steering system.

Suspension and Running Gear. The SO.120 (2S9) uses a combination hydraulic-pneumatic type suspension with six dual-tired road wheels on each side with the drive sprocket at the rear. The suspension can be adjusted through the hydraulic portion of the system to change the height of the Nona-S; 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 five track return rollers on each side.

Fire Control. The gunner is provided with a panoramic sight which is mounted on the turret roof and a telescopic sight for direct fires. A gyroscopically operated compass and land navigation system are fitted.

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