

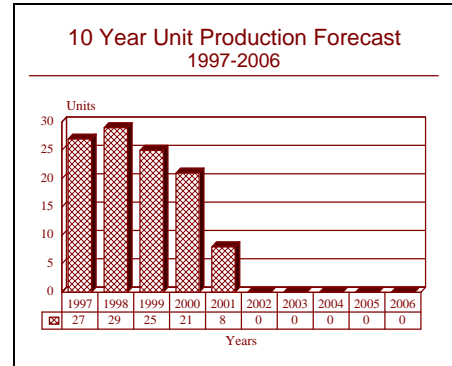
# ARCHIVED REPORT

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## SP.152 (2S5) Giatsint 152 mm Self-Propelled Gun - Archived 4/98

### Outlook

- Production of the Giatsint is forecast to run down in the next five years
- System still being promoted on the export market
- Some modernization and retrofit potential can be expected in the future



### Orientation

**Description.** A tracked 152 millimeter self-propelled artillery system

**Sponsor.** The development and initial procurement of this self-propelled artillery system was sponsored by the Ministry of Defense of the former Soviet Union through the Soviet Army. The continued procurement is supported by the Ministry of Defense of the Russian Federation.

**Contractors.** The SP.152 (2S5) was developed and is manufactured by the Soviet (now Russian Federation) State Arsenals now privatized as the Uraltransmash Works located at Yekaterinburg, Russian Federation.

**Licensees.** None

**Status.** The serial production of the SP.152 (2S5) is ongoing in the Russian Federation. The SP.152 (2S5) is in service in the Russian Federation and two other nations. This system is now being promoted on the open market

**Total Produced.** As of January 1, 1997, a total of 1,219 SP.152 (2S5) Giatsint systems had been manufactured.

**Application.** Mobile fire support for the field army at the battalion level.

**Price Range.** In equivalent 1997 United States dollars, the unit price of the latest version of the SP.152 (2S5) is \$1.519 million.

### Technical Data

**Crew.** Five: commander, gunner, two loaders and driver; two additional personnel can be accommodated if needed.

**Muzzle Brake.** Five-component multibaffle

**Recoil System.** Hydropneumatic

**Breech Mechanism.** Semiautomatic horizontal sliding wedge

**Ammunition.** This artillery system fires the new range of 152 millimeter ammunition developed by the former

Soviet Union beginning in 1966. The types include High Explosive Fragmentation (OF-45), High Explosive Base Bleed (OF-61), Smoke, unspecified chemical, cargo (submunition dispensing) and nuclear. The SP.152 (2S5) is also compatible with the 9K25 Krasnopol laser guided projectile.

**Armor.** The SP.152 (2S5) is fabricated from conventional steel alloy armor with a maximum thickness of 1.7 centimeters (0.66 inch).

**Dimensions.** The following dimensional data are for the latest production example, the Giatsint-S.

	<u>SI units</u>	<u>US units</u>
Length overall	8.33 meters	27.33 feet
Width	3.25 meters	10.66 feet
Height	2.76 meters	9.05 feet
Combat weight	28.2 tonnes	31.09 tons
Fuel capacity	856 liters	227.66 gallons
Ordnance caliber	152 millimeters	5.98 inches

**Performance.** The maximum 2A37 gun range figure is with the unassisted High Explosive projectile; a 33 kilometer (36,089 yard) range can be achieved with a rocket assisted projectile. The maximum speed and vehicle range data are for a metalled road.

Maximum speed	63 kilometers per hour	39.1 miles per hour
Maximum range	492 kilometers	305.5 statute miles
Step	70 centimeters	2.30 feet
Trench	2.5 meters	8.20 feet
Slope	47%	47%
Gradient	58%	58%
Fording	1.1 meters	3.61 feet
Elevation	+57°	+57°
Depression	-2°	-2°
Traverse (total)	30°	30°
Maximum ordnance range	28.4 kilometers	31,058.2 yards
Maximum rate of fire	6 rounds per minute	6 rounds per minute
Sustained rate of fire	3 rounds per minute	3 rounds per minute

**Engine.** The SP.152 (2S5) uses a four cylinder diesel engine of unknown nomenclature and dimensional specifications; this liquid cooled engine is rated at 447.6 kilowatts (520 horsepower); this engine is provided by the Russian State Factories. The engine is a multifuel design. The power-to-weight ratio is 15.88 kilowatts per tonne (16.73 horsepower per ton).

wheels on each side; the drive sprocket is at the front while the rear road wheel acts as the idler. The first two and last two road wheel stations mount hydraulic shock dampers. There are four track return rollers mounted on each side.

**Gearbox.** The SP.152 (2S5) uses an unidentified manually operated constant mesh type gearbox. This unit is provided by the Russian State Factories.

**Fire Control.** The SP.152 (2S5) has a minimal fire control suite as it is designed for indirect fires. Gun position equipment is fitted and the gun laid using information from a central fire control source. A direct fire telescope is also provided.

**Suspension and Running Gear.** The SP.152 (2S5) uses a torsion bar type suspension with seven dual-tired road

## Variants/Upgrades

**Variants.** The SP.152 (2S5) is broadly based on the chassis of the GMZ tracked minelaying vehicle. However, as of late 1996, there were no known variants

that have been directly derived from the SP.122 (2S5) self-propelled artillery system.

## Program Review

**Background.** The SP.152, which has the Russian industrial designation 2S5 and is also known by NATO as the M-1981 is one of several new self-propelled artillery systems that were introduced by the former Soviet Union in the 1970s. This development was prompted by lessons learned in the Ramadan War as well as the general perception that the then Soviet Army was due for a new generation of more sophisticated self-propelled artillery systems. Concurrent to this effort was one to develop a new range of 152 millimeter ammunition. In order to speed the development as well as to reduce overall costs, it was decided to base the new self-propelled artillery system on the basic chassis and powertrain of an existing vehicle, the tracked GMZ minelayer. The development of the SP.152 (2S5) began in 1967 and the first systems were fielded in late 1976. The SP.152 (2S5) was operationally tested and used in Afghanistan. The Russian Army calls the SP.152 the Giatsint, a type of flower with the latest model called Giatsint-S.

**Description.** The SP.152 (2S5) is built around the modified GMZ tracked chassis. The SP.152 (2S5) is a turretless (but not open except when operating) self-propelled artillery system that is broadly similar in appearance to the Mark F3. The hull is of all welded steel armor construction with a maximum thickness of 19 millimeters (0.748 inch) affording protection from most small arms projectiles as well as ballistic fragments. The driver is seated in the front of the vehicle to the left with the engine compartment opposite the driving station. The driver is provided with a single piece hatch cover and three periscopes, the center of which can be removed and replaced with an infrared periscope for night operations. The commander is seated in a raised portion of the vehicle to the rear. The commander's position is provided with a cupola that can be traversed 360°. A remotely controlled 7.62 millimeter machine gun is externally mounted on the cupola. The remaining crew members are seated to the rear of the vehicle; on the roof above these crewmembers are hatches and side-facing periscopes. Normal entry and exit is by a hydraulically operated ramp at the rear of the vehicle.

The 2A37 152 millimeter cannon and mount are placed to the rear. The 2A37 ordnance has a horizontal sliding wedge breech block assembly that operates semiautomatically. The gun is operated from outside the vehicle with the elevation and traverse mechanisms hydraulically operated. The semiautomatic loading system consists of the projectile/charge loading com-

ponent and the electrically operated ramming component. The gun layer, seated to the left of the 2A37 cannon, operates the loading/ramming system, lays and fires the weapon. The gun layer is provided with a shield toward the front of the vehicle. A total of 30 projectiles and charges are carried in a carousel type mechanism inside the vehicle to the left in the crew compartment. As the quantity of on-board ammunition is low for any sustained fires, a logistics vehicle with four additional personnel is normally considered a part of the 60 round unit of fire.

A large hydraulically operated spade is at the rear of the vehicle; lowered prior to firing, the spade assists in the stabilization of the vehicle. A dozer blade is mounted at the front of the vehicle; it is used for the preparation of the firing position. A nuclear, biological and chemical defense system and infrared driving equipment for the driver (including an infrared searchlight) are standard equipment.

The exact place of the SP.152 (2S5) in the Russian military structure is still not clear. While replacing the M.46, D.74 and D.20 for mission areas requiring heavy tube artillery, the fact that the SP.152 (2S5) is a nuclear capable system, plus its appearance in specialized artillery units, means that nuclear fires were (originally at least) a prime mission area for this artillery system. Generally, the SP.152 (2S5) self-propelled artillery system is assigned at the battalion or division level. A SP.152 (2S5) battalion normally has three batteries each with six weapons; more recently, the battery complement has been increased to eight weapons.

**Operational Analysis.** The SP.152 is an effective, combat proven self-propelled artillery system. Our research indicates that most accounts of its performance, both in combat and in peacetime training, have been laudatory. However, its probable primary mission area, that of providing nuclear fires, was deleted by former President Gorbachev's announcement related to the reductions and eliminations of Russian Army tactical nuclear weapons. The principal criticism of the SP.122 is the fact that (at least when it is operated) it is an open system that exposes at least part of the crew to the effects of the environment as well as counterbattery fire. However, the Mark F3, M107 and M110 are all of similar design and have served for decades and continue to serve. In any event, the overall effectiveness of this system should ensure its continued presence for decades to come.

## Funding

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The development and initial procurement of this artillery system was sponsored by the Ministry of Defense of the former Soviet Union through the Soviet Army. The continued procurement is supported by the Ministry of Defense of the Russian Federation.

## Recent Contracts

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Not available as contractual information is not released.

## Timetable

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This timetable relates to the SP.152 (2S5) only.

	1967	Development began
Late	1975	Serial production began
	1976	SP.152 initial operating capability
	1981	System publicly revealed
Late	1980s	Giatsint-S introduced
Early	1997	Production ongoing

## Worldwide Distribution

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**Export Potential.** Outside of three nations of the increasingly moribund Commonwealth of Independent States, the SP.152 (2S5) has been exported to Finland. This system is now being promoted on the open market at a competitive price, so there is a potential for more export sales in the future.

**Countries.** As of early 1997, the SP.152 (2S5) is in service with the following nations: **Belarus** (120), **Finland** (18 - known as Telak 91), **Russian Federation** (1,057), **Ukraine** (24).

## Forecast Rationale

As of early 1996, and unlike some other Russian self-propelled artillery systems (especially the SP.152 (2S19)), only a moderate level of information has been released on the SP.152 (2S5). However, sufficient information on the Giatsint continues to become available to allow us to describe and to more accurately forecast the production of this system.

Indicative of the dramatic changes in what was formerly the principle member of the old Soviet Union is our latest production forecast for the SP.152 (2S5). The forecast production is much less than it would have been only eight years ago. Nevertheless, this system,

along with the SP.152 (2S19), are indicated by our research as being the standard components of the rationalized Russian artillery park. Artillery of all types is still viewed as the god of war by the Russians, and the SP.152 (2S5), a combat proven system, is an ideal component of the rejuvenated and modernized Russian artillery park. Therefore, barring unforeseen events, the manufacture of the Giatsint seems assured out to the turn of the century. Of course, we will continue to monitor this system and related developments for events which could change our forecast, and will update this report on an interim basis if warranted.

## Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

Ordnance	(Engine)	through 96	High Confidence Level			Good Confidence Level			Speculative			Total 97-06	
			97	98	99	00	01	02	03	04	05		06
URALTRANSMASH WORKS													
SP.152 (2S5) (a)	UNKNOWN	1219	27	29	25	21	8	0	0	0	0	0	110
Total Production		1219	27	29	25	21	8	0	0	0	0	0	110

(a) All production is for service deliveries only.