

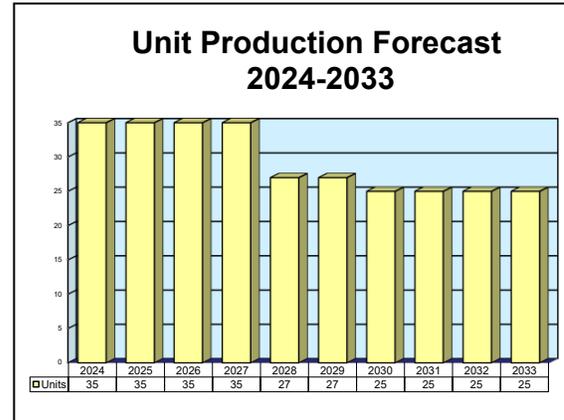
ARCHIVED REPORT

For data and forecasts on current programs please visit forecastinternational.com or call +1 203.426.0800

T-84

Outlook

- Initial LRIP run ended in 2006; program entered serial production in 2013
- Given the combat situation in Ukraine, T-84 export potential is currently a moot point
- Ukraine's stated intention to maintain production levels remains questionable under the current circumstances
- Forecast reflects projected serial production for Ukrainian and deferred Thai Army procurement



Orientation

Description. A main battle tank.

Sponsor. Ukraine's Ministry of Defense sponsors the development and Ukrainian Army procurement of the T-84.

Licensees. None.

Status. Development through serial production.

Total Produced. Through 2023, we estimate the prime contractor produced six prototypes and 577 production T-84 tanks.

Application. Armored mobile weapon system optimized for high-speed offensive and breakthrough operations, as well as defensive fire support.

Price Range. In 2024 U.S. dollars, the T-84 carries an estimated unit price of \$5.955 million.

Contractors

Prime

SE KMDB Kharkiv Morozov Machine Building Design Bureau	http://www.morozov.com.ua , 126 Plekhanivska St, Kharkiv, Ukraine, Tel: + 380 577 57 41 44, Fax: + 380 577 57 41 01, Email: morozov@morozov.com.ua, Prime
Ukroboronprom, Ukrainian Defense Industry	36 Degtyarivska St, Kyiv, Kyiv Municipality, Ukraine, Tel: + 380 44 461 91 02, Fax: + 380 44 586 24 77, Email: kanc@ukroboronprom.com, Prime
V.A. Malyshev State Enterprise, V.A. Malyshev Research and Production Assn	http://www.malyshevplant.com , Plehanovskaya St, 126, Kharkov, Ukraine, Tel: + 380 57 739 30 08, Fax: + 380 57 766 87 33, Email: marketing@malyshev.kharkov.ua, Prime

Subcontractor

Safran Electronics & Defense	http://www.safran-group.com/companies/safran-electronics-defense , 100 avenue de Paris, Massy, France, Tel: + 33 1 58 11 40 00, Fax: + 33 1 58 11 40 50 (SAVAN-15 Fire Control Suite)
---	--

T-84 Archived FEB**Technical Data**

Crew. Three: commander, gunner, and driver.

Armor. The low-silhouette hull features conventional rolled homogeneous steel armor with a maximum thickness of approximately 30 centimeters (11.81 in) on the glacis. This glacis armor yields protection equivalent to over 2 meters (6.56 ft) of conventional homogeneous armor.

The redesigned turret exhibits a welded steel alloy armor suite, which is lighter than the original T-80 design while providing an equal level of protection. The armor suite possibly includes an interior ceramic layer and a neutron-absorbing liner. The T-84U also mounts the latest indigenous-design explosive reactive armor (ERA) suite.

Dimensions. The following data reflect the latest production T-84U tank. The width is with the side skirts fitted; without side skirts, the width is 3.6 meters (11.81 ft). The height is to the turret roof.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	9.72 m	31.89 ft
Width	3.78 m	12.40 ft
Height	2.2 m	7.22 ft
Combat weight	46.07 tonnes	50.78 tons
Fuel capacity	1,300 liters	345.74 gal

Performance. The performance data reflect use on a paved road. With preparation, the T-84U can ford 5 meters (16.4 ft) of water.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	62 kmph	38.5 mph
Maximum range	540 km	335.3 stat mi
Step	98 cm	3.21 ft
Trench	2.85 m	9.35 ft
Slope	36%	36%
Gradient	63%	63%
Fording	1.8 m	5.91 ft

Dimensions. The following data reflect the latest production T-84 Oplot-M/BM tank. The width is with the side skirts fitted; without side skirts, the width is 3.6 meters (11.81 ft). The height is to the turret roof.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	9.72 m	31.89 ft
Width	4.17 m	13.68 ft
Height	2.84 m	9.32 ft
Combat weight	51.02 tonnes	56.23 tons
Fuel capacity	1,300 liters	345.74 gal

Performance. The performance data reflect use on a paved road. With preparation, the T-84 Oplot-M/BM can ford 5 meters (16.4 ft) of water.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	70 kmph	43.50 mph
Maximum range	500 km	310.69 stat mi
Step	98 cm	3.21 ft
Trench	2.85 m	9.35 ft
Slope	36%	36%
Gradient	63%	63%
Fording	1.8 m	5.91 ft

Engine. Malyshev 6TD-2 multifuel, two-stroke, supercharged diesel engine. This powerplant generates 895 kilowatts (1,200 hp), with a power-to-weight ratio of 19.47 kilowatts per tonne (23.68 hp/ton). The T-84 Oplot-120-M features a power-to-weight ratio of 22.40 kilowatts per tonne (24.7 hp/ton).

The powerplant also features a smoke generating system; an 8-kilowatt (10.72 hp) auxiliary power unit mounts on the left rear of the hull. A 27-volt electrical system supports vehicle operations.

T-84 Archived FEB

Malyshev is also developing an improved version of the 6TD diesel engine. Designated 6TD-3, this intercooled engine generates 1,118.55 kilowatts (1,500 hp), with a power-to-weight ratio of 24.33 kilowatts per tonne (29.6 hp/ton) in the T-84U application.

Gearbox. An unspecified hydraulically assisted manual unit with one reverse and seven forward gears. The gearbox is reportedly an improved version of the original T-80 unit.

Suspension and Running Gear. Torsion bar suspension, with six forged-steel dual-tired roadwheels and five return rollers on each side. The drive sprocket mounts to the rear. The first, second, and sixth roadwheel stations feature hydraulic shock dampers. A new-design "live" track is available in both a road pattern and an off-road pattern.

Armament

Main Armament. 125mm KBA-3 smoothbore tank gun. This ordnance is the Ukrainian version of the standard Russian 2A46M1 D-81TM MBT ordnance. This fully stabilized ordnance features a thermal sleeve and fume extractor. Elevation (+13.5°), depression (-5.6°), and turret traverse (360°) are electrically operated, with manual backup. After firing, the gun automatically returns to the index position for reloading.

The main armament feeds from the Korzina carousel-type electrohydraulic automatic loading system. Projectiles and propellant charges are stored in a near-vertical position in the fighting compartment. The T-84 carries 43 rounds of 125mm ammunition, with 28 rounds in the carousel magazine.

Like the 2A46M1 ordnance, the KBA-3 can achieve a muzzle velocity of 1,830 meters per second (6,003.9 fps) with the Russian 3VP6 Hyper Velocity Armor Piercing Fin Stabilized Discarding Sabot (HV-APFSDS) penetrator round. Available Russian-design 125mm ammunition includes:

- 3VBM3, 3VBM6, 3VBM7, 3VBM8, 3VBM13, and 3VBM17 APFSDS
- 3VP6 APFSDS-T
- 3VBK7, 3VBK10, 3VBK16, and 3VBK17 High-Explosive Anti-Tank (HEAT)

- 3VOF22 and 3VOF36 High Explosive-Fragmentation (HE-Frag)

The KBA-3 can also fire the Russian 9M119M Svir (AT-11 Sniper) anti-tank guided missile. The Svir (also known as the Reflecks) laser-guided missile can deliver its HEAT warhead out to a range of 5 kilometers (5,468 yd). The T-84 carries six 9M119 munitions. The T-84 can also fire the Ukrainian Combat laser-guided anti-tank missile, a somewhat larger equivalent of the 9M119.

Secondary Armament. One coaxially mounted 7.62x54mm PKT (SGMT) machine gun; one remotely operated 12.7x107mm NSV machine gun on the turret roof. Each side of the turret mounts six electrically operated 81mm smoke grenade launchers. Unlike on the Russian T-80, the smoke grenade launchers of the T-84 mount under a protective cowl. The T-84 carries 1,250 rounds of 7.62x54mm ammunition and 450 rounds of 12.7x107mm ammunition.

Fire Control. The T-84 features the Type 1A45 fire control system of the Russian T-80U; the T-84, however, integrates a number of improved components. The 1A45 analog/digital automatic fire-control suite features the latest 1V528-2 ballistic computer with several sensor inputs. The gunner's primary day/night sight is the vertically stabilized Buran-E system, which consists of the 1G46 Irtysh day sight with an integral laser rangefinder and the missile guidance component. A thermal night vision sight is optional.

The commander's station features the vertically stabilized TKN-4S Agat day/night binocular-type periscopic sight with an infrared capability. The 1A45 fire control suite fully integrates both the commander's sight and the gunner's sight. The commander's station also features five TNP-165 vision blocks.

In addition to the basic fire control suite, the T-84 features the Shtora-1 electro-optical countermeasures system and the R-163-50K radio set. An L-2 Luna infrared/white light searchlight mounts to the left of the main armament; the commander's cupola mounts a secondary infrared/white light searchlight.

In September 1997, Sagem of France signed an agreement with the Ukraine Ministry of Industry to supply the SAVAN-15 fire control suite for the T-84.

T-84 Archived FEB



T-84 Main Battle Tank

Source: Russian Army

Variants/Upgrades

Variants. Malyshev is reportedly developing six variants of the basic T-84 chassis. To date, only one of these variants has entered low-rate serial production.

<u>Designation</u>	<u>Description</u>
BREM-84 Atlet	A Ukrainian version of the Russian BREM-80U armored recovery vehicle (ARV).
BTMP-84 HIFV	A heavy infantry fighting vehicle based on the T-84 chassis.
T-84 SPAAG	A tactical air defense variant integrating the Donets air defense system with the T-84 chassis. The Donets consists of a modified ZSU-23-4 turret mounting two SA-13 Gopher surface-to-air missiles on each side of the four 23mm cannon. The Donets system remains in the prototype stage.
T-84-120 Oplot	Revealed in late 2000, this T-84 variant integrates a NATO-standard KBM-2 120mm smoothbore tank gun with the T-84 tank. The 120mm ordnance is fully stabilized; it can also reportedly fire the indigenous Combat missile, fitted with some sort of sabot. The T-84-120 Oplot features the standard T-84 fire control suite, optimized for 120mm ammunition. The 120mm ordnance also feeds from a modified automatic loading system. The Oplot can also mount a KBA-3 125mm tank gun, depending on customer specifications. Malyshev has produced at least 32 models for export.
T-84-120 Yatagan	A variant of the T-84-120 Oplot designed primarily for export. As with the base model, the Yatagan mounts a NATO-standard KBM-2 120mm smoothbore tank gun and automatic loading system. Although the Turkish Army evaluated the Yatagan for potential procurement in the early 2000s, no export orders for the vehicle have materialized.
T-84 Oplot-M/BM	Modernized variant of the T-84-120 Oplot MBT. This variant features enhanced, modular ERA protection and improved fire control mechanisms such as the PNK-6 target acquisition system.

T-84 Archived FEB

Program Review

Background. With the collapse of the Soviet Union, the newly independent Ukraine inherited the A.A. Morozov Design Bureau and the Malyshev Tank Plant at Kharkov (Zavod 75).

These organizations had originally developed the T-80 main battle tank for the Soviet Union. In addition to continuing production of the T-80UD (including for export), Morozov and Malyshev further developed the T-80 as the T-84. Several developmental designations have been associated with the T-84 tank (including Obiekt 478B, 478DU, and 478DU2), apparently differing in their automotive and fire control components.

In 1997, the T-84 tank became available for production.

Description. The T-84 exhibits the same basic interior layout as the Russian T-80.

The driver's compartment is in the center of the forward hull; the turret/fighting compartment occupies the center of the vehicle; the powerpack and gearbox mount in the rear of the hull. The driver's station features a single-piece hatch cover, a TVNE-4E observation periscope, and two FG-125 driving lights.

In the welded turret, the commander sits to the right of the main armament; the gunner sits to the left. Both the commander's and gunner's stations feature single-piece hatch covers and TNPA vision blocks. The operating handles of the commander's TKN-3 sight also rotate the cupola and operate the searchlight.

Optimized for NBC Environment

The standard PAZ overpressure-type nuclear, biological, and chemical (NBC) protective suite consists of a radiation detector, a dust separator/blower, and a

filtering system. The tank also features a lead-based foam cloth lining for neutron absorption. This lining helps eliminate electromagnetic pulse; it also reduces interior noise and spalling.

Other features include the R-163 radio suite and R-174 intercommunication system, extended-range external fuel tanks, an INEY centralized fire extinguishing system, and an OPVT snorkel. All T-84 tanks can mount a dozer blade or the KMT mineclearing roller system.

T-84U: the Improved T-84

In 1999, Malyshev began openly marketing the T-84U as an improved model of the T-84. This model offers the following features:

- The latest version of the 1V528 ballistic computer
- An optional command and control unit
- A satellite-based navigation system (combined Navstar and GLONASS)
- New-design ERA modules
- A new radio (the R-163-50K)
- An improved auxiliary power unit
- Two track options

This version apparently retains the 125mm main armament.

Prior to offering the T-84U on the open market, Ukraine sold 320 units to Pakistan in 1996 in a deal worth \$580 million. However, we have yet to see any evidence that Malyshev has delivered any T-84 tanks to Pakistan under this contract.

Funding

The Ukraine Ministry of Defense is funding the development and Ukrainian Army procurement of the T-84.

Contracts/Orders & Options

Not available, as neither the Ukraine Ministry of Defense nor the prime contractor has released contractual information regarding this program.

T-84 Archived FEB

Worldwide Distribution/Inventories

Export Potential. Although the T-84 is facing a glutted international market, it does enjoy two significant advantages over the T-80. First, Malyshev has dispensed with the troublesome vehicular gas turbine powerplant of the standard T-80 in favor of a more reliable diesel engine. Second, by developing a T-84-120 Oplot variant mounting a NATO-standard 120mm smoothbore main armament, Malyshev can offer a tank conforming to what is fast becoming the international tank ordnance standard. Thus, while the prospects for T-84 export are hardly bright, they are at least somewhat better than what the T-80 faces in the market.

Countries. **Georgia** (12 T-84 Oplot-120s); **Thailand** (approximately 49 T-84 Oplot-Ms); **Ukraine** (6 prototypes; 387 production T-84s; 123 T-84 Oplot-Ms).

Forecast Rationale

The Russian invasion of Ukraine has placed severe strains on the manufacturing capability and workforce of the country's domestic defense industry.

Although Ukrainian defense products remain theoretically available for purchase on the export market, the country's defense contractors are currently prioritizing the production and modernization of armored vehicles for direct transfer to the Ukrainian Army and National Guard for use on the frontlines.

Serial production of the T-84 Oplot series MBTs is reportedly ongoing, primarily for procurement by the Ukrainian Army.

Domestic Demands

Reports indicate that Ukrainian defense contractors are currently prioritizing the retrofit and modernization of Ukraine's existing stocks of active and surplus T-64 MBTs to the BM Bulat standard over the considerably

more expensive option of manufacturing new-build Oplot models. Nevertheless, statements from Ukrainian defense officials and open-source reporting suggest that the Ukrainian Army hopes to procure more than 50 new-build Oplot MBTs in order to buttress the operational capabilities of its frontline armored fleet.

Export Potential

The export potential of the T-84 Oplot MBT has largely fallen victim to the Ukrainian Army's immediate combat requirements. However, the T-84-120 Yatagan's combination of low unit cost and upgraded fire control systems presents a potentially appealing post-war solution for a niche subsection of customers – those for whom the procurement of modern Western MBTs would be prohibitively expensive but who, nevertheless, prefer NATO-standard 120mm ordnance over the available Russian or Chinese alternatives.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
V.A. Malyshev State Enterprise												
T-84												
	577	35	35	35	35	27	27	25	25	25	25	294
Total	577	35	35	35	35	27	27	25	25	25	25	294