

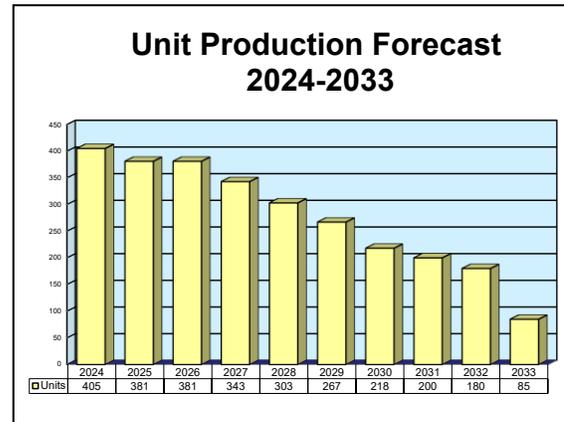
ARCHIVED REPORT

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BTR-80/BTR-82

Outlook

- Amidst need to offset enormous attritional losses in Ukraine, Russia has marshalled capacity of its industrial-economic base to increase annual armored vehicle outputs
- Persistent component and workforce shortages will undermine sustainability of the current production boom
- Russia's vast wartime requirements and heightened global isolation leave little latitude for significant export sales



Orientation

Description. A wheeled armored vehicle.

Sponsor. The Ministry of Defense of the Russian Federation continues to sponsor this legacy program of the Soviet Union.

Licensees. There are no indications that the Colombian Navy has ever exercised its August 2006 licensing agreement with Rosoboronexport.

Status. Development through serial production.

Total Produced. Through 2023, we estimate the prime contractor produced 5,192 BTR-80, 1,166 BTR-80A, and 1,739 BTR-82/82A vehicles.

Application. A wheeled armored vehicle optimized for transporting infantry during both offensive and defensive operations.

Price Range. In 2024 U.S. dollars, the BTR-80A costs an estimated \$291,600.

Contractors

Prime

Federal State Unitary Enterprise, Rosoboronexport, Rosoboronexport State Corp	http://www.roe.ru , 27/3 Stromynka St, Moscow, Russian Federation, Tel: + 7 495 534 6183, Fax: + 7 495 534 6153, Prime
Arzamas Machine-Building Plant JSC	http://www.amz.ru , 2, 9th May St, Arzamas, Nizhny Novgorod, Russian Federation, Tel: + 7 83147 96 40, Fax: + 7 83147 4 31 40, Email: oao_amz@amz.ru , Second Prime
Military Industrial Company, VPK	http://milindcom.ru/eng/about/ , 15, Rochdelskaya str., Moscow, Russian Federation, Tel: + 7 (495) 662-1057, Fax: + 7 (495) 662-1059, Email: SecrVPK@hq.basel.ru , Dealer/Distributor

BTR-80/BTR-82**Subcontractor**

Central Scientific-Research Inst. of Precise Mech. Eng, TSNITOCHMASH	Zavodskaya St 2, Klimovsk, Russian Federation, Tel: + 7 095 996 59 09, Fax: + 7 095 996 59 10, Email: info@tsniitochmash.ru (Modular Weapon System)
Chelyabinsk Tractor Plant, (ChTZ-URALTRAC)	http://www.chtz-uraltrac.com, Lenin Ave 3, Chelyabinsk, Russian Federation, Tel: + 7 351 772 95 82, Fax: + 7 351 772 08 30, Email: tractor@chtz.chel.ru (KAMAZ-7403 Diesel Engine)
KBP Instrument Design Bureau	http://www.kbptula.ru, 59 Shcheglovskaya Zaseka St, Tula, Russian Federation, Tel: + 7 4872 41 0210, Fax: + 7 4872 42 6139, Email: kbkedr@tula.net (Kliver Turret Assembly)
Tulamashzavod JSC	http://www.tulamash.ru, 2 Mosin St, Tula, Russian Federation, Tel: + 7 4872 32 10 09, Fax: + 7 4872 50 51 89, Email: sekretar@tulamash.ru (30mm 2A72 Automatic Cannon)

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

Technical Data**BTR-80**

Crew. Two: commander and driver, plus eight fully equipped infantrymen.

Configuration. 8x8.

Armor. Steel alloy armor provides protection against 12.7mm armor-piercing projectiles over frontal arc and 7.62mm armor-piercing projectiles over the rest of the vehicle. Appliqué and explosive reactive armor (ERA) packages are also available.

Dimensions. The following data reflect the basic BTR-80. Height is to the top of the searchlight.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	7.65 m	25.09 ft
Width	2.89 m	9.48 ft
Height	2.35 m	7.71 ft
Combat weight	13.60 tonnes	14.99 tons
Fuel capacity	290 liters	77.13 gal

Performance. The speed and range data reflect use on a paved road.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	100 kmph	62.10 mph
Maximum range	600 km	372.60 stat mi
Step	50 cm	1.64 ft
Trench	2 m	6.56 ft
Slope	42%	42%
Gradient	60%	60%
Fording	Amphibious	Amphibious
Water speed	10 kmph	6.21 mph

Engine. KAMAZ-7403 liquid-cooled V-8 supercharged diesel engine. This powerplant generates 193.9 kilowatts (260 hp), with a power-to-weight ratio of 14.26 kilowatts per tonne (17.34 hp/ton). The powerpack features an engine preheater, an automatic fire detection/suppression system, and a 24-volt electrical system. Two steerable waterjets provide water propulsion.

The vehicle can also mount the 178.97-kilowatt (240-hp) YaMZ-238M2 engine, with a power-to-weight ratio of 14.25 kilowatts per tonne (16.1 hp/ton) in the BTR-80 application.

Gearbox. Unspecified manual gearbox with one reverse and five forward gears. The drivetrain also employs a two-gear-ratio transfer case.

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Suspension and Running Gear. Torsion bar suspension with hydraulic shock dampers. Each of the front four wheels mounts two shock dampers; the back four wheels each mount a single shock damper. The vehicle employs hydraulically assisted power steering. A central tire pressure inflation system regulates the 13.00x18 run-flat tires.

Armament

Main Armament. The BPU-1 closed turret mounts one 14.5x114mm KPVT machine gun with 500 rounds of ammunition.

Secondary Armament. One coaxially mounted 7.62x54mm PKT machine gun with 2,000 rounds of ammunition. Six 81mm 902V electrically operated smoke grenade launchers mount on the rear of the turret.

The troop compartment features eight firing ports. Two forward-firing ports accommodate 7.62x54mm PK machine guns. The remaining six firing ports accept 5.45x39mm AKMS and AK-74 battle carbines.



BTR-80A Infantry Fighting Vehicle

Source: Arzamas Machine-Building Plant JSC

BTR-80A

Crew. Same as the BTR-80.

Configuration. 8x8.

Armor. Same as the BTR-80.

Dimensions. The following data reflect the production-standard BTR-80A. Height is to the top of the turret.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	7.65 m	25.09 ft
Width	2.89 m	9.48 ft
Height	2.81 m	9.21 ft
Combat weight	14.40 tonnes	15.87 tons
Fuel capacity	290 liters	77.13 gal

BTR-80/BTR-82

Performance. The speed and range data reflect use on a paved road.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	90 kmph	55.89 mph
Maximum range	700 kmph	434.70 stat mi
Step	50 cm	1.64 ft
Trench	2 m	6.56 ft
Slope	42%	42%
Gradient	60%	60%
Fording	Amphibious	Amphibious
Water speed	10 kmph	6.21 mph

Engine. Same options as the BTR-80, except the YaMZ-238M2 is standard, with the KAMAZ-7403 as an alternative.

Gearbox. Same as the BTR-80.

Running Gear. Same as the BTR-80.

Armament

Main Armament. Dual-feed 30x164mm 2A72 cannon, with 300 rounds of ammunition (in two 150-round belts)

mounted in the modular weapon system turret. Elevation (+70°), depression (-5°), and turret traverse (360°) are manually operated.

Secondary Armament. One coaxially mounted 7.62x54mm PKT machine gun with 2,000 rounds of ammunition. Six 81mm 902V electrically operated smoke grenade launchers mount on the rear of the turret.

The BTR-80A features the same firing port arrangement as the original BTR-80.

Variants/Upgrades

Variants. The prime contractor has used the BTR-80 as the basis for the following line of vehicles:

Designation	Description
BTR-80	Basic 8x8 light armored vehicle. Also known as the Bronetransportr. See Technical Data , above.
BTR-80A	Improved version of basic model with modular weapon system and dual-feed 30mm 2A72 cannon. See Technical Data .
BTR-80K	Also known as the Kushetka-B or BTR-80 M1989/1. Command vehicle derivative of BTR-80. Higher roof line with five antennas; observation window replaces turret armament. Carries two R-173 radios, two R-159 radios, TNA-4 navigation system, and various observation equipment. Alternative configurations carry different radio equipment, including R-163-50U and R-163-UP.
BTR-80K Variants	Variations of BTR-80K, designated P-240BT3 Zenit-B, BTR-80K1Sh1, BTR-80 R-975, BTR-80 R-145, 1V153 Kapustnik-B, BTR-80Pu-16M6, and M7 ZS-88. Designated by command net.
BTR-80ZS	Also known as ZS-88 (both designations are Russian). Undisclosed number of BTR-80 vehicles featuring a loudspeaker system for psychological warfare and crowd control.
RKhM-4-01	Nuclear, biological, and chemical (NBC) reconnaissance vehicle.
BREM-K	Also called GAZ-59033. Armored recovery vehicle with stabilizers, A-frame, and towbars.
BMM	Armored medical vehicle. Three versions available: BMM-1 (battlefield evacuation), BMM-2 (battalion aid station), and BMM-3 (mobile dressing/first aid station).
2S23	120mm self-propelled gun-mortar on BTR-80 chassis. Also known as the SM-120 (2S23) Nona-SVK 120mm self-propelled howitzer/mortar.

BTR-80/BTR-82

Designation	Description
BTR-80M	Basic 8x8 light armored vehicle with improved tires and YaMZ-238 engine.
BTR-80MBP	Details unavailable.
BTR-80S	BTR-80A variant. Optimized for internal security operations, with 14.5mm KPVT heavy machine gun replacing 30mm 2A72 cannon.
BTR-82/BTR-82A/82AM	Modernized BTR-80/BTR-80A variants. See Program Review .
BPDM Typhoon-M	BTR-82 variant designed to perform intelligence, counter-sabotage, and electronic communications and surveillance functions in support of Russian strategic missile forces. Outfitted with an array of specialized radar and surveillance systems, with the rear compartment heavily modified to operate as a mobile operating station.
BTR-82A1	BTR-82A variant integrating a remotely operated turret system and advanced fire control systems. The turret features a 30mm cannon and a coaxial 7.62x54mm machine gun.
BTR-82AM	BTR-80 standard vehicles modernized to the BTR-82/82A performance standard. Utilized by Ground Forces and Naval Infantry contingents.
BTR-82U/BTR-22	8x8 design unveiled at the Army 2023 Exposition in Russia. Platform design is distinct from, though evolutionarily influenced by, the core elements of the BTR-80/82 series.

Modernization and Retrofit Overview. The prime contractor has developed multiple primary retrofit packages for the basic BTR-80.

In conjunction with the KBP Instrument Design Bureau, the prime contractor has mounted KBP's Kliver turret (designated TKB-799) on the BTR-80. The Kliver features a 30mm 2A72 cannon, one coaxially mounted 7.62x54mm PKTM machine gun, and four Kornet anti-tank guided missile launchers. Arzamas introduced this variant in 1997. The configuration reportedly has not yet secured any sales.

The Central Scientific-Research Institute of Precise Mechanical Engineering (TSNIITOCHEMASH), in conjunction with Arzamas, is retrofitting the modular weapon system of the BTR-80A on the original BTR-80. Optional armament modifications include the BGM-71 TOW anti-tank guided missile system.

In June 2015, Uralvagonzavod subsidiary JSC Central Research Institute Burevestnik unveiled a new BTR-80

modernization package intended primarily for the export market. The package includes the integration of a remotely operated turret module and enhanced fire-control, imaging, and situational awareness systems.

The new model also features improved armored protection and survivability levels due to the integration of additional applique and slat-armor fittings.

Circa 2021, Russian defense press outlets reported ongoing efforts to modernize base model BTR-80 series vehicles serving with the Ground Forces, VDV and Naval Infantry to the BTR-82AM standard, effectively elevating the inventories of these assets to the performance and technical standard of new-build BTR-82 A series vehicles. Progress was reported to be relatively slow prior to the onset of war, and these efforts are liable to have been further complicated by the heightened resource demands, and constraints, generated by current wartime conditions.

BTR-80/BTR-82



BTR-82/82A Infantry Fighting Vehicles

Source: Arzamas Machine-Building Plant JSC

Program Review

Background. The BTR-80 represents the third generation of modern Soviet wheeled 8x8 armored personnel carriers (Bronetransportr), which began with the highly successful BTR-60 series in 1960. Through the early 1980s, the Russians produced about 25,000 vehicles of the BTR-60 series. Even today, the BTR-60P remains in service in large numbers in the Russian Federation and many other nations.

After a False Start

In the mid-1970s, development of an improved version of the BTR-60P began. Entering service in 1980, the BTR-70 had only a brief production run, ending in 1982. In short, the BTR-70 failed to correct the deficiencies of the original BTR-60 design. Although the BTR-70 featured more engine power than the BTR-60, its two ZMZ-4905 spark ignition engines proved to be fire hazards. Another BTR-70 failing was that despite the redesigned crew entry/exit, the vehicle was still difficult to exit under combat conditions.

The Arzamas Machinery Construction Factory (now operating as Arzamas Machine-Building Plant JSC) began further redesign of the BTR-70 in 1981. The redesigned vehicle (designated BTR-80) entered service in 1984.

Description. The 8x8 BTR-80 shares the basic interior layout of the BTR-60 and BTR-70.

The driver sits in the left-front of the hull; the commander sits at the right-front. Each position features a single-piece hatch cover, windows with armored shutters, and four day periscopes. The driver's station also features an infrared or passive night viewing

device. The commander's station features a firing port in the right side of the vehicle. The gunner (a member of the infantry squad) and one infantryman sit behind the driver and commander, forward and to the side of the turret.

The one-man manually operated turret mounts immediately behind the driver and commander, along the centerline of the vehicle. The gunner stands at his turret crew station to fire the weapons. The troop compartment occupies the midsection of the vehicle; six infantrymen sit back-to-back on a bench in the middle of the compartment. Each side of the troop compartment features three forward-angled firing ports. Each of the troop compartment's two overhead hatch covers features an additional firing port.

In addition to the roof-mounted hatches, the troop compartment features a two-piece door on each side of the hull (between the second and third axles) for troop access/egress. The upper portion of the door opens to the front; the lower portion hinges downward to form a step.

The engine compartment occupies the rear of the vehicle. The waterjet mechanism, for water propulsion, mounts at the center-rear of the hull. The engine powers the waterjet directly via a short drive mechanism. Other features of the original version of the BTR-80 include bilge pumps in the engine and crew compartments; a nuclear, biological, and chemical (NBC) protective suite; DP-3B radiation detection equipment; VPX-R chemical detection equipment; the crew communication system; and a P-123M radio.

BTR-80/BTR-82***BTR-80A: Enhanced Capability***

In 1991, Arzamas began development of an improved version of the BTR-80. This new model (designated the BTR-80A) mounts the one- or two-man modular weapon system turret and an upgraded engine.

Other than the new turret/armament and the new engine options, the rest of the vehicle is the same as the original BTR-80.

While Arzamas is slated to continue producing the BTR-80A for export, the Russian Army has announced that it plans to cease procurement of the vehicle in favor of the newer BTR-82 and BTR-82A series. Production of the original BTR-80 ended in 2007.

BTR-82 & BTR-82A: the New Standard

The prime contractor revealed the BTR-82 and BTR-82A at a December 2009 meeting of the Russian defense industry. These new variants are significantly upgraded BTR-80 series vehicles featuring a unified turret module with electric drive and two-axis stabilization for the main gun (a 14.5x114mm KPVT in the BTR-82; a 30x164mm 2A72 in the BTR-82A). The BTR-82's 14.5mm KPVT main gun feeds from a single 500-round ammunition belt, replacing the 50-round ammo boxes of the BTR-80.

Both variants mount a TKN-4GA series stabilized gunner's day/night sight and a TKN-AI commander's observation device, as well as upgraded communications gear and a topographic navigation system.

The BTR-82 and BTR-82A also reportedly feature an improved armor suite, featuring:

- An upgraded energy-absorbing hull bottom design
- Fragment-resistant interior surfaces
- Redesigned crew/troop seat suspension
- An upgraded fire-extinguishing system

The BTR-82 and BTR-82A mount an unspecified 223.8-kW (300-hp) diesel engine, an advanced transmission, and an upgraded suspension.

In 2010, Arzamas began low-level production of the BTR-82 for testing. After a brief trial period, Arzamas began serial production of the vehicle the same year.

The development of the BTR-82/82A took on particular significance in the wake of the Army's refusal to broadly adopt the BTR-90 in its 2011-2020 State Armaments Program. The BTR-90 series was initially charted as the successor to and replacement for much of Russia's aging stock of BTR-70 and BTR-80A vehicles.

After the cancellation of the BTR-90 program, the Russian Army redirected its approach toward the procurement of the BTR-82 and BTR-82A designs. The series was intended to serve as an affordable interim solution for the demands of Russia's mechanized forces until the arrival of serial-production Bumerang vehicles.

Reports indicate that the Russian Naval Infantry began procuring serial-production BTR-82AMs in late 2013 or early 2014 after the vehicle's performance was deemed satisfactory in trials and testing.

The AM variant is outfitted with an array of improvements intended to enhance the vehicle's amphibious performance, in accordance with the specialized requirements of the Naval Infantry arm.

However, Arzamas has at times struggled to sustain the high rate of production requested by the MoD for BTR-82/82A deliveries. In 2012, the Russian government handed Arzamas a steep fine for significant delays in the production and delivery of BTR-82/82A vehicles.

In May 2014, VPK and Arzamas unveiled a new variant of the BTR-80 series, currently designated the BTR-82A1. The model is derived from the improved foundation of the BTR-82A model, and is outfitted with a new remotely operated turret system.

The turret integrates an array of advanced, but unspecified, fire-control and visual systems and is equipped with a 30mm cannon, a 7.62mm coaxial machine gun, and multiple smoke grenade launchers.

Funding

Not available, as the Russian government does not release funding information regarding this program.

BTR-80/BTR-82

Worldwide Distribution/Inventories

Export Potential. The BTR-80 has done moderately well on the export market. The Rosoboronexport organization continues to promote the BTR-80 series on the international market. Although the bargain-basement unit prices for Russian combat vehicles and Russia's network of allies will sustain modest sales through the forecast period, the series' overall export potential has been undermined the country's own urgent production demands and deepened condition of international isolation.

Countries. The following holdings are through 2022: **Afghanistan** (72); **Armenia** (24); **Azerbaijan** (70 plus; unspecified BTR-82/82A); **Bangladesh** (178); **Belarus** (192 plus 22 BTR-80K - Kushetka-B); **Democratic People's Republic of Korea** (10 BTR-80A); **Estonia** (8); **Finland** (2); **Georgia** (2); **Hungary** (371 BTR-80 and 100 BTR-80A); **Iraq** (115 ex-Hungarian Army); **Kazakhstan** (175 BTR-80, 100 BTR-80A, 170 BTR-82/82A, with an additional 20 BTR-82/82A remaining on order); **Kyrgyzstan** (45); **Macedonia** (60); **Mali** (4 BTR-80); **Moldova** (12); **Palestine** (25 BTR-80); **Republic of Korea** (10 BTR-80A); **Russian Federation** (1,250 BTR-80/80A, 808 BTR-80K - Kushetka-B, , 1,300 BTR-82A/AM - condition of Russian inventories highly fluid given wartime losses and mobilization of stored assets); **Sri Lanka** (6); **Sudan** (60 BTR-80A); **Tajikistan** (30); **Turkey** (239); **Turkmenistan** (184); **Ukraine** (340 plus 39 BTR-80K - Kushetka-B); **Uzbekistan** (290); and **Venezuela** (164 BTR-80A). In addition, a small quantity of BTR-82 vehicles have been photographed in service with pro-Russian separatist troops fighting in Eastern Ukraine.

Forecast Rationale

The Russian Federation's invasion of Ukraine has placed unprecedented strain on the country's post-Soviet armored vehicle inventories and the production capacity of its defense industrial base. In the two years since the war's onset, stiff Ukrainian resistance has resulted in enormous attritional losses of Russian war material, including armored vehicles. According to independent analysis, Russia has lost at least 4,000 armored vehicles in Ukraine. Respected open-source defense analysis outlet Oryx has concretely documented over 1,000 cumulative losses of vehicles from the BTR-70/BTR-80 family. Vehicles rendered inoperable by operational and maintenance pressures outside of direct combat may bring these totals even higher.

These mounting losses are generating an urgent and insatiable appetite for replacement vehicles on the part of the Russian Ground Forces, which heavily depend upon such inventories to ferry troops throughout the increasingly lethal battlefield environment in Ukraine and to sustain the force's capacity to readily conduct maneuver warfare and offensive operations when feasible.

Although Russia's vast inventories of Soviet-legacy surplus stocks have provided a fecund, if operationally suboptimal, solution to addressing the Army's armored vehicle requirements in the immediate term, renewed emphasis has also been placed on the expedition of new-build production. Towards this end, the Russian government has placed the national economy on war-footing, leveraging the benefits of its post-2014 autarkic turn and marshalling the country's broader industrial

infrastructure towards the fulfillment of war production goals.

Although not all Russian production claims should be taken at face value, there is nevertheless significant evidence that these measures have borne fruit, increasing output rates for a range of critical weapons systems. Still, the presence of countervailing forces will pose mounting pressure on Russia's ability to consistently sustain the current production boom over the longer term. The marked deterioration of Russia's external economic position, a mounting deficit of access to advanced technical components and component flows, and pervasive shortages of qualified personnel are all liable to impose a ceiling on Russia's production ramp-up even as it develops sophisticated sanctions evasion measures.

The End of Exports

The Russian Federation's war in Ukraine has been calamitous for its position as one of the world's leading exporters of defense material. Not only have the economic risks presented by the Western sanctions regime deterred many states from pursuing any future acquisitions of Russian hardware, but Russia's own requirements render it increasingly unable of providing even willing potential partners with new-build equipment on a consistent basis. Particularly as it pertains to critical capabilities such as armored mobility, Russia's continual accretion of losses and scope of its wartime requirements leave space only at the margins for armored vehicle assets to be redirected towards the export market.

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Nevertheless, marginal export sales or donations of vehicles to states with which Russia shares particularly strong affinities or strategic interests are liable to emerge despite this situation, but overall export activity for new-build BTR-80/82A series vehicles will remain a shadow of the platform's prewar potential through much of the current forecast period, if not beyond.

While the primary locus of both domestic and export activity now resides with the more advanced BTR-82A series vehicles, Rosoboronexport continues to offer the BTR-80A series to foreign customers. However, given its advancing obsolescence and Russia's considerable stocks of the vehicle, new-build production of the 80A is liable to definitively conclude within the present forecast period.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	Thru 2023	High Confidence				Good Confidence			Speculative			Total
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Arzamas Machine-Building Plant JSC												
BTR-80 A												
	1,166	8	3	0	0	3	0	0	0	0	0	14
BTR-82/82A												
	1,739	397	378	381	343	300	267	218	200	180	85	2,749
Subtotal	2,905	405	381	381	343	303	267	218	200	180	85	2,763
Total	2,905	405	381	381	343	303	267	218	200	180	85	2,763