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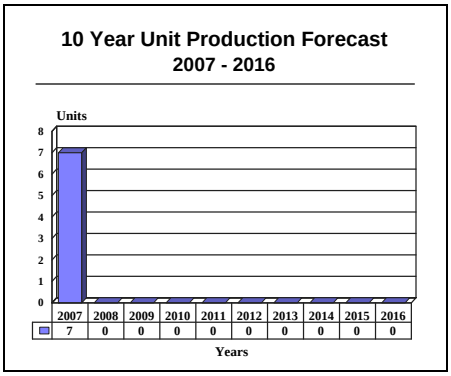
BMP-2 - Archived 7/2008

Outlook

- Serial production completed in the Russian Federation; licensed production in Slovak Republic also completed
- Licensed-production run in India will likely end by 2008
- Low unit price and expanding modernization/retrofit potential support ensures continued wide success on international market
- Production forecast reflects final years of India's licensed BMP-2-production run; no new production projected after 2008



Orientation

Description. A tracked infantry combat vehicle.

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

The Ministry of Defence, government of India, sponsors the licensed production and Indian Army procurement of this vehicle.

Status. Development through serial production and modernization/retrofit.

Total Produced. Through 2006, we estimate the prime contractor and licensees produced 33,939 BMP-2 vehicles.

Application. An amphibious, mechanized infantry combat vehicle, optimized for transporting infantry during offensive and defensive operations.

Price Range. In 2007 U.S. dollars, the Russian Federation offers remaining new-production BMP-2 vehicles at a unit price of $404,000. Used Russian BMP-2 vehicles are available in the $78,000 range.

India's BMP-2/Sarath carries a unit price of $398,000.

Contractors

Prime

Federal State Unitary Enterprise, Rosoboronexport, Rosoboronexport State Corp	http://www.rusarm.ru, 27/3 Stromynka St, Moscow, 107076 Russia, Tel: + 7 495 964 61 40, Fax: + 7 495 963 26 13, Prime
Kurganmashzavod	http://www.kurganmash.ru, 17 Mashinostroitely Ave, Kurgan, 640027 Russia, Tel: + 7 3522 53 22 44, Fax: + 7 3522 53 39 96, Email: root@kurganmash.ru, Second Prime
Ordnance Factories Organization of India, Ordnance Factory Board - Export Division	http://www.ofbindia.com, 10 A, S K Bose Rd, Kolkata, 700 001 India, Tel: + 91 33 248 9027, Fax: + 91 33 248 1748, Email: ofbtrade@vsnl.net, Licensee

ZTS-Dubnica nad Vahom AS, Zavody Tazkeho Strojarstva	http://www.ztsdubnica.sk, ulica Tovarenska 1, Dubnica Nad Vahom, 01841 Slovakia, Tel: + 421 42 442 00 33, Fax: + 421 42 442 00 33, Licensee

Subcontractor

Barnaultransmash Holding OAO	http://www.barnaultransmash.ru, 28 Kalinin Prospect, Barnaul, 656037 Russia, Tel: + 7 3852 77 20 13, Fax: + 7 3852 77 95 22 (UTD-20 Supercharged Diesel Engine)
Electromashina	http://www.electromashina.ru, 21, Mashinostroitelei, Chelyabinsk, 454129 Russia, Tel: + 7 7351 25 52 078, Fax: + 7 7351 25 52 050, Email: inbox@electromashina.ru (BMP-2 Modernization and Retrofit Package)
KBP Instrument Design Bureau	http://www.shipunov.com/eng/kbp/, Shcheglovskaya Zaseka St, Tula, 300001 Russia, Tel: + 7 4872 41 00 68, Fax: + 7 4872 42 61 39, Email: kbp@shipunov.com and kbkedr@tula.net (Kliver Turret Assembly)
Tulamashzavod JSC	http://www.tulamash.ru, 2 Mosin St, Tula, 300002 Russia, Tel: + 7 4872 20 75 39, Fax: + 7 4872 27 26 20, Email: wmzp@tulamash.ru (30mm 2A42 Automatic Cannon)
NOTE(S): Rosoboronexport acts as the primary conduit between the Russian defense industry and the international market. As such, all Russian defense contractors effectively operate under the auspices of Rosoboronexport.	

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Technical Data

Crew. Three: commander, gunner, and driver. The vehicle carries seven fully equipped infantrymen.

Armor. Steel alloy armor, offering protection against 12.7mm Armor-piercing (AP) projectiles over the frontal arc. Appliqué explosive reactive armor (ERA) is available for this vehicle.

Dimensions. The following data reflect the latest production-standard BMP-2. The Improved BMP-2 weighs 14.49 tonnes (15.97 tons). The height is to the top of the commander's sight.

	SI Units	U.S. Units
Length	6.74 m	22.11 ft
Width	3.15 m	10.33 ft
Height	2.45 m	8.04 ft
Combat weight	14.29 tonnes	15.75 tons
Fuel capacity	462 liters	122.87 gal

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

	SI Units	U.S. Units
Maximum speed	65 kmph	40.37 mph
Maximum water speed	7 kmph	4.35 mph
Maximum range	577 km	358.3 statute mi
Step	70.4 cm	2.31 ft
Trench	2.5 m	8.2 ft
Slope	30%	30%
Gradient	59%	59%
Fording	amphibious	amphibious

Engine. Barnaultransmash UTD-20 supercharged diesel engine. This six-cylinder powerplant generates 223.8 kilowatts (300 hp), with a power-to-weight ratio of 16.56 kilowatts per tonne (20.14 hp/ton). The power-plant includes a compressed air starting system with an electrical backup. The vehicle integrates an oil-injection smoke-generating system with the engine exhaust. The

27-volt electrical system features two 140-ampere-hour batteries.

Gearbox. A manually operated gearbox, with one reverse and five forward gear ratios.

Suspension and Running Gear. Torsion bar suspension, with six dual-tire roadwheels and three track-return rollers on each side. The drive sprocket mounts at the front of the hull. The first, second, and sixth roadwheel stations feature shock dampers. The double pin-type track features water scoops between the track components.

Armament

Main Armament. Stabilized 30mm 2A42 rifled automatic cannon. This dual-feed ordnance fires a variety of HE and AP 30x165mm rounds from disinte-grating-link belts, at rates of 250 or 500 rounds per minute. The BMP-2 carries 500 rounds of 30x165mm ammunition. Elevation (+74°), depression (-3°), and turret traverse (360°) are electrical with manual backup.

Secondary Armament. One coaxially mounted 7.62x 54mm PKT machine gun, with 2,000 rounds of ammunition. Each side of the turret mounts three 81mm 902V electrically operated smoke grenade launchers.

Missile Armament. The BMP-2 also mounts a 9M113 Konkurs (AT-5 Spandral) wire-guided, anti-tank missile launcher. The AT-5 has a maximum range of four kilometers (4,374.4 yd). Export BMP-2 vehicles mount the wire-guided 9M111 Fagot/9M111M Faktoriya (AT-4 Spigot) anti-tank missile. The AT-4 has a maximum range of 2.5 kilometers (2,734 yards). The vehicle stores four anti-tank missiles.

Fire Control. The BMP-2 features a basic fire control suite, requiring manual aiming of on-board weapons. The gunner's station features the BPK-1-42 binocular sight and TNPT-1 designator. As an option, the suite can integrate the BPK-2-42 active/passive sight. The commander's station features a 1PZ-3 day monocular sight, a TKN-3B day/night binocular sight, and a TNP-165 designator.

The BMP-2 mounts two infrared searchlights – one mounts coaxially (to the right) with the main armament; the other mounts at the commander's station on the roof of the turret.

Variants/Upgrades

Variants. Even though BMP-2 production in the Russian Federation is now dormant, contractors continue to develop new variants. The following table presents the major BMP-2 variants to date.

Designation	Description
Russian Federation	
BMP-2K	Command vehicle, with additional communications equipment. First major BMP-2 variant to enter service.
BMP-2D	Up-armored variant of basic BMP-2; first fielded with Soviet forces in Afghanistan. Also features a mine clearance device under the nose of the vehicle.
BMP-2ZS	Mounts two large loudspeakers and associated psychological operations (PSYOPS) equipment.
BMP-2/KMT-8/10	Basic BMP-2, mounting the KMT-8 or KMT-10 mine plow system. To maintain its amphibious capability, the vehicle mounts an extra floatation bladder at the bow.
Slovak Republic	
BVP-2	Local designation for the license-produced BMP-2, of the (then) Czech Army.
India	
Sarath Amphibious Dozer	A prototype armored engineer vehicle, featuring a hydraulically operated digging bucket, an 8-tonne (8.82-ton) winch, mine plows, a dozer blade, and a rocket-propelled earth anchoring system. Available for production.

BMP-2

Designation	Description
Sarath Engineer Recon Vehicle	Reconnaissance vehicle; retains BMP-2 turret without armament. Features a variety of communications and survey equipment. Nine BMP-2s have received the Engineer Reconnaissance Vehicle conversion. Following testing, the variant became available for production/conversion in 2002.
Trishul	Modified Sarath chassis, mounting Trishul surface-to-air missile (SAM) system (4 launchers and associated fire control components/radars).
Trishul Command Post	Command post variant of the Sarath for the Trishul SAM launcher.
Akash	New-production stretched Sarath chassis, mounting the Akash SAM system.
Akash Command Post	Command post variant for the Akash SAM launcher.
Nag	Modified Sarath chassis, mounting a four-round Nag anti-tank guided missile launcher and associated fire control equipment. A component of the Namica system.
Sarath 105mm Self-Propelled Howitzer	Prototype, mounting an indigenous 105mm howitzer on a modified Sarath chassis.
Sarath Ambulance	Basic Sarath chassis, retaining the turret without armament. Carries four-man crew (commander, driver, two orderlies) and four litter patients. Entered production in 1995.

Modernization and Retrofit Overview. Beginning in 1987, the prime contractor began integrating a series of improvements into the BMP-2 as production cut-ins. The upgraded vehicle, known as the Improved BMP-2, features the following upgrades:

- New components for the 30mm 2A42 ordnance stabilization system
- An improved internal communications suite
- An air conditioning system
- Improved track components
- Appliqué armor (both passive and/or explosive reactive)
- Mine clearance equipment
- An improved BPK-1-42 gunner's sight

The prime contractor can also retrofit these upgraded components to earlier production vehicles.

Beyond the Improved BMP-2

In addition to the Improved BMP-2 upgrade package, the prime contractor has developed two major integration packages for existing vehicles:

- Integration of uprated UTD-23 engine. This powerplant generates 268.45 kilowatts (360 hp), with a power-to-weight ratio of 18.79 kilowatts per tonne (22.86 hp/ton).
- Integration of KBP Design Bureau Kliver turret. This one-man turret mounts the 30mm 2A72 cannon and coaxial 7.62x54mm PKTM machine gun, as well as a four-round launcher for the laser-guided 9M133 Kornet anti-tank guided missile.

Expanding Upgrade Opportunities

Other contractors are now seeking to exploit the growing modernization and retrofit potential of the BMP-2.

During the IDEX 1995 weapons fair, Kurganmashinvest displayed an upgrade package that included the Improved BMP-2 components, along with the integration of the 30mm AGS-17 automatic grenade launcher and the Sanoet-1 gunner's thermal sight (developed with the cooperation of SAGEM of France). Kurganmashinvest offers this package as a retrofit program or as a new-production vehicle.

In 1996, Electromashina began offering a variety of upgraded electronic components. The Russian firm also offers general upgrade services for the BMP-2.

Diehl Remscheid of Germany and Kléber of France both offer new track components for the BMP-2.

The State Scientific and Technical Center of Artillery and Rifle Arms in the Ukraine developed an upgrade package that replaces the 30mm 2A42 ordnance with the local 30mm KBA-2 cannon. The package also mounts a 30mm AGS-17 automatic grenade launcher at the left rear of the turret. The gunner's station receives the TKN-45S Agat stabilized day/night sight; the commander's station receives a 1PZ-3 sight.

Program Review

Background. Beginning with the Boevaya Mashina Pekhota (BMP-1) in the early 1960s, Russian military doctrine led the world in embracing the mechanized infantry combat vehicle as a basic component of the modern battlefield.

Enter the BMP-2

In the early 1970s, the Russians began development of the next-generation BMP, featuring a significant increase in firepower over the BMP-1. The BMP-2 entered Soviet Army service in 1977; the Russians first publicly revealed the BMP-2 in 1982. NATO initially identified the new vehicle as the BMP-M-1981.

Description. The BMP-2 integrates a new turret and main armament with the basic BMP-1 chassis.

Basic BMP-1 Layout

The vehicle retains a conventional interior layout. The driver sits in the left-front of the hull; the powerpack and gearbox occupy the right-front. The driver's station features a single-piece hatch cover and three TNPO-170A periscopes; the center periscope is interchangeable with a vertically extended TNPO-350B periscope (for use during amphibious operations) or a TVNE-1PA active/passive night vision device.

One infantryman sits immediately behind the driver, in the position occupied by the commander in the BMP-1. This position features a single-piece hatch cover, two day periscopes (facing forward and to the left), and a firing port in the left side of the hull.

The all-welded steel turret mounts on the centerline of the vehicle, to the rear of the vehicle's center of gravity. The commander sits to the right of the main armament; the gunner sits to the left. The gunner's station features a single-piece hatch cover and three TNPO-170A periscopes. The commander's cupola features a single-piece hatch cover and two TNPO-170A periscopes. The turret design allows for a 2A42 maximum elevation sufficient to engage aerial (helicopter) targets. The anti-tank guided missile launcher mounts on the roof of the turret between the commander's and gunner's hatches.

The troop compartment occupies the rear of the vehicle. Two outward-swinging rear doors provide primary troop access/egress. Both doors feature a periscope and integral fuel tank; the left rear door also features a firing port. Each side of the troop compartment features three firing ports, with periscopes. The roof of the troop compartment features two large hatch covers.

The BMP-2 is fully amphibious, employing two rear-mounted waterjets. The vehicle also features the PAZ overpressure nuclear, biological, and chemical (NBC) protective suite. Additional standard equipment includes an intercommunications system, radios, fire extinguishers, and a bilge pump.

And BMP-1 Vulnerabilities

Like the BMP-1, the BMP-2 exhibits design flaws that severely impact its combat effectiveness.

- The BMP-2 remains decidedly austere in terms of crew/troop comfort and protection.
- The rear door-mounted internal fuel storage system of the BMP design has proven to be a fatal flaw when the vehicle faces hostile fire from the rear.
- The interior design of the BMP-2 does not allow for rapid troop egress in combat.

Despite the drawbacks, the low unit price of the BMP-2 continues to attract considerable sales on the international market.

Significant News

Belarus to Upgrade Armored Vehicles – Belarus plans to upgrade its fleet of armored vehicles. The Belarusian Defense Ministry said that this upgrade work could begin this year, according to Interfax.

The vehicles to be modernized, which are exclusively of Russian origin, include T-72 tanks, as well as BTR-70 and BMP-2 armored personnel carriers (APCs). The tanks are to receive new fire control systems, thermal sights, and rangefinders. Interfax also said that some BMP-2s will receive Rubezh-4 weapons control systems. The Belarus BTR-70s may receive a new engine supplied by a domestic company. These APCs will also be outfitted with a 30mm gun turret and an AGS-17 grenade launcher.

Russia, long the only close ally of Belarus, may be the source for this equipment. At one time, Russia and Belarus were even considering a merger. However, relations between the two countries have soured in recent months. Belarus President Alexander Lukashenko, called the last dictator in Europe, has crushed all opposition to his regime. Now, Russia plans to phase out the cheap oil and gas deals that were once a main pillar supporting Lukashenko's regime. (FI, 2/07)

Afghanistan Littered with Abandoned Russian Armor - Hundreds of Russian tanks and armored vehicle personnel carriers are rotting in Afghanistan. Left behind when the then-Soviets pulled out in 1989, these tanks and APCs became the property of the communist Afghan government. When this regime collapsed, the vehicles were distributed to the various militia groups that tried to seize control of the country. Eventually, many were used by the Taliban in its drive to conqueror all of Afghanistan.

Dozens and dozens of hulks remain strewn around the landscape of Afghanistan. Some are now serving the military forces of the new Afghan government, but hundreds are beyond repair and stripped of anything of value. A large number of these vehicles are located at a "graveyard" near Kabul. This group includes T-55 and T-62 tanks, as well as BTR and BMP armored personnel carriers.

Afghanistan does have the money to collect and dispose of these vehicles. This means these vehicles will remain monuments to the country's troubled history for many years to come. (FI, 1/07)

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Funding

The Ministry of Defense of the Russian Federation continues to fund the modernization and retrofit of this legacy program of the former Soviet Union.

The Ministry of Defence, government of India, funds the licensed production of the BMP-2 for Indian Army procurement.

Timetable

Month	Year	Major Development
	1972	Development of follow-on to BMP-1 begun
Early	1977	Initial BMP-2 production deliveries
Nov	1982	USSR publicly reveals BMP-2 in parade
	1983	India announces BMP-2 license-production program
Feb	1985	India signs license-production agreement
Aug	1987	Initial deliveries of Indian BMP-2 (Sarath)
	2007	Production dormant in the Russian Federation and Slovak Republic; licensed production continues in India

Worldwide Distribution/Inventories

Export Potential. The Russian Federation is aggressively marketing a wide variety of its combat vehicles, including the BMP-2, on the international market. The sheer numbers of vehicles available at bargain-basement prices continue to have a significant impact on the international market.

Licensed Production. In 1984, following the acquisition of the BMP-1, India commenced a license-production program for the BMP-2 at the (then) new Medak facility. The Indian Army maintains a procurement objective of about 1,500 BMP-2/Sarath vehicles, in a number of variants.

Countries. The following holdings are current through 2006, reflecting both export sales and direct transfers from the Russian Federation to former states of the late Soviet Union:

Afghanistan (168, Pre-Operation Enduring Freedom; current status unknown), **Algeria** (225), **Angola** (107), **Armenia** (75), **Azerbaijan** (206), **Belarus** (1,268), **Czech Republic** (186), **Democratic People's Republic of Korea** (70), **Finland** (110), **Georgia** (16), **India** (1,476), **Indonesia** (11), **Iran** (219), **Iraq** (194, Pre-Operation Iraqi Freedom; current status unknown), **Jordan** (37), **Kazakhstan** (206), **Kuwait** (46), **Kyrgyzstan** (101), **Russian Federation** (21,719), **Sierra Leone** (3), **Slovak Republic** (93), **Sri Lanka** (51), **Sudan** (6), **Syria** (100), **Tajikistan** (31), **Togo** (20), **Turkmenistan** (409), **Ukraine** (1,468), **Uzbekistan** (172), and **Yemen** (108).

Forecast Rationale

Serial production of the BMP-2 mechanized infantry combat vehicle by the prime contractor in the Russian Federation is completed; we forecast no new Russian production of the BMP-2. Likewise, the licensed-production run in the Slovak Republic is also completed.

Indian Run Winding Down

The licensed, serial-production run of the BMP-2/Sarath in India is reportedly now in its final year. With an estimated Indian Army procurement objective of 1,500 units, India's licensed-production run will likely end by 2008.

Expanding Upgrade Market

Despite the impending end of the BMP-2 serial production line, thousands of BMP-2 vehicles remain available on the international market. Low unit prices will ensure the BMP-2 remains in active service worldwide throughout the forecast period. In response to the widespread availability of the BMP-2, the modernization and retrofit market has become the new center of gravity for the BMP-2 program. An increasing number of players seek to exploit the modernization and retrofit potential of this vehicle.

Popular Despite Flaws

Beginning with the Boevaya Mashina Pekhota (BMP-1) in the early 1960s, Russian military doctrine led the world in embracing the mechanized infantry combat vehicle as a basic component of the modern battlefield. However, like the groundbreaking BMP-1, the BMP-2 exhibits design flaws that severely impact its combat effectiveness. The BMP-2 remains decidedly austere in terms of crew/troop comfort and protection. The rear door-mounted internal fuel storage system of the BMP design has proven to be a fatal flaw when the vehicle faces hostile fire from the rear. Also, the interior design of the BMP-2 does not allow for rapid troop egress in combat. Despite the drawbacks, the low unit price of the BMP-2 continues to attract considerable sales on the international market

Virtue of Affordability

Our **Ten-Year Outlook** chart reflects what we expect will be the final years of the Indian licensed-production run. We include the dormant Russian and Slovak production lines for historical and statistical comparison. Although we expect no new production after this year, modernization and retrofit work will maintain the BMP-2 as a viable and affordable infantry combat vehicle on the international market throughout the forecast period.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

			High Confidence Level			Good Confidence Level				Speculative			
Vehicle	**(Engine)**	**thru 06**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**Total 07-16**
KURGANMASHZAVOD													
BMP-2	UTD-20	32009	0	0	0	0	0	0	0	0	0	0	0
Subtotal - KURGANMASHZAVOD		32009	0	0	0	0	0	0	0	0	0	0	0
ORDNANCE FACTORIES ORG (INDIA) (Licensee)													
BMP-2 (a)	UTD-20	1476	7	0	0	0	0	0	0	0	0	0	7
Subtotal - ORDNANCE FACTORIES ORG (INDIA) (Licensee)		1476	7	0	0	0	0	0	0	0	0	0	7
ZTS DUBNICA NAD VAHOM (Licensee)													
BMP-2/BVP-2	UTD-20	454	0	0	0	0	0	0	0	0	0	0	0
Subtotal - ZTS DUBNICA NAD VAHOM (Licensee)		454	0	0	0	0	0	0	0	0	0	0	0
Total Production		33939	7	0	0	0	0	0	0	0	0	0	7

(a) Production does not include 47 partially assembled vehicles, delivered in 1987 from USSR.

BMP-2

BMP-2 Mechanized Infantry Combat Vehicle

Source: Russian Army