The BTR Handbook- The Universal APC

Purpose

- To inform the Army training community of the large number of Soviet styled BTR (Bronetransporter) Armored Personnel Carriers (APC) found in over 70 countries.

- To describe the improvements made in the BTRs from the post-World War II period to the latest versions.

- To provide a distribution summary for each major BTR type by country.

- To discuss the capabilities of each group of BTRs.

- To enumerate each BTR version with a short description of the vehicle's purpose.

- To present photographs of many of the BTR variants.

Executive Summary

- Demonstrates the spread of the BTR to over 70 countries around the world, including much of Africa, Eastern Europe, South Asia, and the Middle East.

- Makes obvious that both American allies and potential foes use the BTR as a standard APC for their infantry or a support vehicle.

- Provides a historical perspective of the BTR and each subsequent APC generation.

- Lists each generation of BTR and its variants.

- Includes photographs of many BTR versions.

Cover photos: Top photo: BTR-40 at the Batey ha-Osef museum in Tel Aviv, Israel; Wikimedia Commons; 2005. Bottom photo: BTR-80A, Wikimedia Commons, 13 September 2008.

Map

Figure 1. Countries with BTR Variants.
The red stars indicate the countries where BTR variants can be found.

Introduction

Even though the first Soviet Bronetransporter (BTR) made its first appearance not long after the end of World War II, the BTR is still a major armored personnel carrier (APC) and weapons platform in over 70 countries around the world. From the BTR-40's introduction around 1946 until the Ukraine produced its latest BTR-4 variant in 2008, the BTR has served and continues to serve a variety of purposes in the military and border police of many countries. Almost 20,000 BTRs in a variety of configurations continue to serve as front line vehicles in third world countries, rear-echelon and support vehicles in developing

nations or as reserve APCs in more advanced armies. Knowledge about the capabilities of the many BTR variants that an American soldier may find on today's battlefield will likely remain essential to successfully completing the mission in a variety of future operational environments.

History

Due to its experiences in World War II against the Nazi army on the Eastern Front, the Soviet Union began a subsequent search for both wheeled and tracked vehicles with the capability to traverse water obstacles and most of the terrain in Eastern Europe. From 1947 to 1950, V.A. Dedkov developed a four-wheel drive (4 x 4) vehicle based on the GAZ (*Gorkovsky Avtomobilny Zavod*)-63, a small truck. Production began immediately, and over the years the Soviet Union, its successor state Russia, and other former Warsaw Pact countries made modifications to eliminate perceived flaws in the previous BTR models. While some models such as the BTR-50 used tracks, most BTRs moved by wheels, with the number of wheels increasing over time from four to six, and eventually to eight. After the fall of the Soviet Union, Russia introduced the BTR-90 version in 1994. The Ukraine continues to produce variants based on previous designs, including the BTR-3U in 2003 and the BTR-4 in 2008.

The Soviet Union, Russia, and the Ukraine have all exported BTRs around the world, while other countries sell their outdated or surplus models to even more countries. Many nations continue to operate their BTRs as front-line APCs or as support vehicles in the rear echelons, while others keep their older BTRs in reserve in case of a national emergency. At least 74 countries still operate a BTR variant.

BTR-40 (4 x 4) Armored Personnel Carrier

The original BTR-40 looks like a box on four wheels, with the tires protected by steel fenders. The crew consists of two soldiers – a commander and driver – who sit in the center of the vehicle with automobile-type armored doors for entry. Six to eight passengers can ride in the open back area and enter through two rear doors. For troop carriers, the main armament consists of a 7.62-mm machine gun that mounts to the vehicle's roof, with a standard load of 1,000 rounds of ammunition. There are also pintle mounts for two additional machine guns on the side of the vehicle, and three firing ports in each side of the hull as well as one firing port in each of the rear doors. Soldiers riding in the troop compartment can fire their personal weapons through all eight firing ports. The original BTR-40 could travel up to 80 kilometers per hour (km/h) with a range of 285 kilometers (km) on a full fuel tank.[1]

The Soviet Union produced about 8,500 BTR-40s and variants from 1950 to 1960.Design deficiencies ultimately caused the vehicle's replacement, as the BTR-40 could not cross rivers or go across country as quickly as the Soviet military desired. The Soviet Union soon chose to move away from four-wheel drive vehicles in favor of six-wheel (6X6) vehicles.[2]

Figure 2. BTR-40

BTR-40A:

The BTR-40A is basically the BTR-40 with two 14.5-mm KPV (*Krupnokaliberniy Pulemyot Vladimirova)* heavy machine guns for air defense that first appeared in 1950. A crew of five, including a team of three in the troop compartment, operates the machine gun with a basic load of 2,400 rounds. The machine guns can shoot at elevations ranging from -6 to 80 degrees, while the turret can traverse 360 degrees.[3]

BTR-40B:

The BTR-40b is essentially the same vehicle as the original BTR-40, but designed to carry only six passengers in the troop compartment. The BTR-40B, however, includes overhead armor to protect the passengers, an integrated NBC defense system, and allowed soldiers in the troop compartment to shoot their individual weapons through firing ports in the vehicle's sides or rear.[4]

Figure 3. BTR-40B

BTR-40Kh:

The Soviet Union designed some of the BTR-40s for chemical decontamination and reconnaissance purposes, and these vehicles were designated as the BTR-40Kh. This variant carries a number of markers on poles to designate cleared lanes through contaminated areas.[5]

BTR-40V:

BTR-40Vs are BTR-40B that received the central tire-pressure regulation system (CTPRS) starting in 1956.[6]

BTR-40Zhd:

Some scout units starting in 1959 received the BTR-40zhd variant, which consists of the basic BTR-40 fitted with special metal wheels and a modified suspension system that allows the vehicle to travel on railroad lines as well as roads.[7]

BTR-40 with AT-3 Sagger:

The former East German Army added a triple launcher anti-tank guided missile (ATGM) to its BTR-40s, and added overhead armor to protect the ATGM gunner. The Russian name for the ATGM is the 9K11 *Malyutka* (Little One) while the North Atlantic Treaty Organization (NATO) reporting name for the missile is the AT-3 Sagger. The Sagger was the first man-portable ATGM produced by the Soviet Union, and Sagger launch systems were later placed on a number of vehicles in addition to the BTR.[8]

Figure 4. AT-3 Sagger missile mounted on an armored vehicle

SPW-40:
East Germany designated called BTR-40s the SPW-40.

Type 55:
The Chinese received a number of BTR-40s from the Soviet Union, but later produced their own APCs in Chinese factories based on the BTR-40 design, calling them Type 55s.[9]

Walid
The Egyptian army labels their BTR-40 lookalikes, "Walids." The Kader Factory for Developed Industries used a West German chassis, manufactured under license in Egypt, and produced its first APC in 1960. The Walid first saw combat during the 1967 Egypt-Israeli War, when the Israeli Army captured a number of them. Most of Egypt's Walids are now in storage.[10]

Figure 5. Modified BTR-40 at the Yad Ia-Shiryon Museum in Israel

BTR-40 (4 x 4) Armored Personnel Carrier[11]		
Country	**Quantity**	**Comments**
Burundi	20	None
China	UNK	Type 55
Cuba	500	Combination of BTR-40, BTR-50, BTR-60, and BTR-152
Egypt	200	In storage
Guinea	16	None
Guinea-Bissau	35	Combination of BTR-40 and BTR-60
Indonesia	40	None
Israel	6	None
North Korea	2,500	Combination of BTR-40, BTR-50PK, BTR-60PA, BTR-60PB, BTR-152, VTT-323, and VTT-M-1973
Laos	30	Combination of BTR-40 and BTR-50
Mali	30	None
Rwanda	16	Combination of BTR-40 and BTR-50
Tanzania	10	Combination of BTR-40 and BTR-152
Vietnam	Unk	None
Yemen	650	Combination of BTR-40, BTR-60, and BTR-152; only 150 operational

BTR-152 (6 x 6) Armored Personnel Carrier

Figure 6. BTR-152 at the Yad la-Shiryon Museum in Israel

The Soviets initially built the BTR-152, which first entered service in 1950, based on the ZIL-151 (*Zavod imeni Likhachova*) truck, but later built the APC on the more sturdy ZIL-157 chassis. The vehicle carries a crew of two – commander and driver – and up to seventeen passengers in the rear cargo compartment. The BTR-152 can travel up to 65 km/h on the road, with a cruising range of 650 km. The primary main armament on most versions consists of a 7.62-mm SGMB (SG-43 Goryunov modernized) machine gun with a basic load of 1,250 rounds. Sometimes the Soviets would replace the normal machine gun with a 12.7-mm DShK (*Degtyaryova-Shpagina Krupnokaliberny*) 1938/46 heavy machine gun, with only 500 rounds of ammunition. The BTR-152 contains two side pintle mounts for additional 7.62 machine guns as well as three firing ports on each side of the vehicle and an additional firing port in each rear door. Some of the later versions include closed tops to protect the soldiers in the troop compartment.[12]

The Soviet Union produced about 15,000 of the BTR-152s in the years 1950-1962 and exported the vehicle around the world. Despite the age of the APC's design, over 20 countries still operate BTR-152 variants.[13]

Figure 7 Rear of the BTR-152 at the Yad la-Shiryon Museum in Israel

BTR-152:

The original APC, also known as the Model A, has an open-top configuration, carries no winch for self-extraction, and does not operate a central tire-pressure regulation system (CTPRS) as some later BTR-152 models do. The original BTR-152 model carries a single spare tire on the rear of the vehicle, along with space for a fuel or water can. The Soviet Union produced 4923 of the original BTR-152, 3333 with the A0 RT-12 radio and 1590 others without a radio.[14]

BTR-152A:

First produced in 1952, the BTR-152A anti-aircraft version carries two 14.5-mm KPV heavy machine guns mounted in a turret behind the driver's compartment and 2,000 rounds. The vehicle carries a crew of four while the machine guns can elevate to plus 80 degrees and traverse in a complete circle. The Soviet Union produced 719 BTR-152As between 1952 and 1955.[15]

Figure 8. BTR-152 captured by the Israeli Army and armed with 20 mm cannons (BTR-152 TCM-20)

BTR-152B:

The BTR-152B is a command vehicle with a raised superstructure in the rear with four windows, but does not possess the CTPRS. The additional space makes it more comfortable for staff to work inside the vehicle.[16]

BTR-152D:

A crew of five supports the BTR-152D, which serves as an anti-aircraft version and carries four 14.5-mm machine guns. Few copies of this variant were produced because of the engineering difficulties of mounting such large machine guns on the vehicle.[17]

BTR-152E:

First produced in 1955, the BTR-152E mounts quadruple 14.5-mm machine guns for air defense built on the same chassis as the BTR-152V with the CTPRS. The Soviet Union only produced 160 of these vehicles from 1955 to 1957.[18]

BTR-152I:

The BTR-152I is a command vehicle and includes the CTPRS.[19]

BTR-152K/BTR-152K1:

Based upon the losses suffered from incendiary devices thrown from upper windows, balconies, and roofs during the Budapest uprising in November 1956, the Soviet developed the BTR-152K (sometimes called the Model D) that provides protection for the passengers through overhead armor and contains two roof hatches. The two hatches contain a total of three firing ports. BTR-152Ks can only carry a total

of 15 soldiers including the crew, but featured a heater and an NBC overpressure system. Soldiers could operate a heavy machine gun mounted on the four roof brackets, but one of the hatches needed to be opened to fire the weapon. The BTR-152K is adaptable for use as an ambulance, communications vehicle, or for use in an artillery unit. The only difference between the K and K1 versions is that the K featured external CTPRS hoses while the latter used internal hoses. The Soviet Union produced 245 BTR-152K1s. While most went to the army, the Soviet Union's KGB and MVD received a total of 30 of the production models.[20]

Figure 9. Russian BTR-152K without its 7.62-mm machine gun

BTR-152U:

The BTR-152U is the same vehicle as the BTR-152B, but with the CTPRS system. It does not possess the upgrades found on the BTR-152I. This variant is often found on the battlefield carrying a trailer with additional equipment.[21]

Figure 10. BTR-152U at a military museum in Warsaw, Poland

BTR-152V:

The BTR-152V is a 1955 production model with an open top and an external CTPRS system. The CTPRS allows the operator to reduce the tire pressure to increase the contact area when the vehicle crosses soft ground such as snow or mud. The CTPRS also allows the vehicle to escape the kill zone if any of its tires are hit as the system slows the loss of air pressure. The Soviet Union produced 2904 BTR-152Vs between October 1955 and 1959.[22]

Figure 11. BTR-152V1 converted to an ARV at the Yad Ia-Shiryon Museum in Israel

BTR-152V1:

The BTR-152V1 is a 1962 production model, also known as the Model B that includes a 5,000 kg winch on the vehicle's front bumper, an integrated infrared night vision TVN-2 system, cabin heating, windshield defroster, and a CTPRS system with internal air lines that make it less susceptible to damage from enemy fire. Some versions were modified to use as a wrecker with a rear hoist such as the BTR-152V1 pictured. The Soviet Union only made 611 of these variants between October 1958 and December 1959. The Soviet MVD (Ministry of Interior) and border guards received 556 of the BTR-152V1s produced.[23]

Figure 12. BTR-152V1 captured by the Israelis from the South Lebanon Army

BTR-152V2:

The BTR-152V2 is essentially the same production model as the BTR-152V1, but without the winch on the front bumper.[24]

Figure 13. Two Soviet-built BTR-152V2s

BTR-152V3:

The BTR-152V3 is just like the BTR-152V1, but outfitted with infrared (IR) night-driving lights and internal air lines for the CTPRS system to make it less susceptible to damage from enemy fire. The V3 model comes in both 4-wheel and 6-wheel drive versions.[25]

BTR-152 with ZU-23 mounts:

In 1982, the Palestinian Liberation Organization (PLO) in Lebanon mounted twin 23-mm anti-aircraft machine guns in the troop compartment on some of its BTR-152s for additional air defense capability.[26]

BTR-152 with Czech M53:

The Egyptians modified some of their BTR-152s to fire four 12.7-mm DShKM (DShK Modernized) drum-fed machine guns to serve as an anti-aircraft weapon system as part of their air defense system.[27]

Type 56:

The Chinese built their version of the BTR-152, but named it the Type 56 APC. The Type 56 is essentially the same vehicle as the original BTR-152, except for a different engine.[28]

BTR-152 (6 x 6) Armored Personnel Carrier[29]		
Country	Quantity	Comments
Angola	170	Combination of BTR-60, BTR-80, BTR-152
Cambodia	160	Combination of BTR-60 and BTR-152
Central African Republic	4	None
China	Unk	Type 56
Congo	20	None

Cuba	500	Combination of BTR-40, BTR-50, BTR-60, and BTR-152
Eritrea	Unk	None
Ethiopia	Unk	Combination of BTR-60 AND BTR-152
Guinea	6	None
Israel	34	None
Laos	20	None
Mali	8	Non
Mozambique	100	None
Namibia	6	None
Nicaragua	102	None
North Korea	2,500	Combination of BTR-40, BTR-50PK, BTR-60PB, BTR-152, VTT-323, and VTT-323M-1973
Sudan	50	BTR-152
Syria	1,500	Combination of BTR-40, BTR-50, BTR-60, and BTR-152
Tanzania	10	Combination of BTR-40 and BTR-152
Uganda	15	Combination of BTR-60 and BTR-152
Vietnam	Unk	None
Yemen	650	Combination of BTR-40, BTR-60, and BTR-152

BTR-50 Armored Personnel Carrier

Figure 14. Russian BTR-50PU at the technical museum in Togliatti, Russia

While most BTRs operate on four, six, or eight wheels, the BTR-50 and its variants travel by a tracked system, allowing it to traverse terrain where wheeled vehicles cannot go. In the 1960s and 1970s, the BTR-50 served as the Soviet Union's primary tracked APC before being phased out by the BMP-2

(*Boyevaya Mashina Pekhoty*) and newer BTR models. It is built on the Soviet PT-76 light amphibious tank chassis. While the BTR-50 began production in 1954, it did not make its public debut until November 1957. The former Czechoslovakia (later, Slovakia) produced the BTR-50 in its factories, but under the designation OT-62. Many countries still operate the BTR-50 and its variants, and Indonesia purchased a number of used BTR-50s from the Ukraine as recently as 2001.[30]

A crew of two – the commander and driver – operate the BTR-50, and the APC can carry up to 18 soldiers. The major drawback to the original BTR-50's design is that the dismounted soldiers must enter the vehicle from the top, as there are no side doors, and the open top construction makes the troops susceptible to air burst artillery fire. The primary weapon in the original design is a 7.62-mm SGMB machine gun with 1,250 rounds of ammunition. In addition, there are two firing ports in each side of the hull from which some soldiers in the crew compartment can shoot their personal weapons. The 57-mm, 76-mm, or 85-mm guns in the fighting compartment can be fire while on land or water, but if in the water the water jet propulsion system must be in operation.[31]

The BTR-50's top speed is 44 km/h with a range of 400 km. The BTR-50 is amphibious and can cross a river at 11 km/h through the use of two hydrojets. The track suspension system consists of a torsion bar, six road wheels, a rear drive, front idler, and two shock absorbers. The tracks do not use any return rollers. The mechanical design places the engine, fuel tanks, and power train for the BTR-50 behind the troop compartment. The BTR-50 mounts an IR search light on the front hull and also features an IR driving light. Some later versions of the BTR-50 use a closed-top system that can be pressurized against a nuclear, biological, or chemical (NBC) attack, and is also outfitted with an automatic engine fire extinguisher system.[32]

Figure 15. MTK (UR-67)

BTR-50MTK:

Known by the Russians by the designation, UR-67, because of the explosive line charges of the same nomenclature that the vehicle carries. The BTR-50MTK is a mine-clearance variant that fires rockets launched from tubes located inside the vehicle.[33]

Figure 16. BTR-50MTP in Ukraine

BTR-50MTP:

The BTR-50MTP is the name given to the maintenance variant, which contains an operational workshop or crew bunks. The MTP's crane can hoist 1,500 kg of weight up to 2.85 m high. The MTP also contains a drawbar that can tow 8,000 kg of weight, but with a block and tackle the vehicle can actually move 15,000 kg-vehicles. The MTP can also carry a variety of petroleum, oil, and lubricant (POL) products and can pump POL out at the rate of 52-65 liters per minute.[34]

BTR-50P:

The original BTR-50P production version features an open-top troop compartment with a 57-mm or 85-mm anti-tank (AT) gun on the rear deck that soldiers mount by using ramps, but the vehicle contains no firing ports. Soldiers in the troop compartment must enter and leave the vehicle over the sides leaving them susceptible to direct fire weapons.[35]

Figure 17. Ukrainian BTR-5OP without its weapons systems

BTR-50PA:

The BTR-50PA is the same APC as the BTR-50P with no AT gun, but instead fires a 14.5-mm KPVT heavy machine gun mounted on the commander's cupola.[36]

Figure 18. BTR-50PK at the Yad la-Shiryon Museum in Israel

BTR-50PK:

The BTR-50PK is similar to the original BTR-50P, but contains two firing ports on each side of the vehicle, an NBC defense system, and a closed armored top to provide more protection to soldiers in the troop compartment. There is a 7.62-mm machine gun mounted on the vehicle's front.[37]

Figure 19. Iraqi BTR-50—Possibly a BTR-50PK(B)

BTR-50PK(B):

The Soviets designed the BTR-50PK(B) as an amphibious armored recovery vehicle to assist and support vehicles at river crossing sites or move damaged vehicles away from the water obstacle. While the vehicle contains two radios for improved communication, the BTR-50PK(B) does not carry a winch or crane system and must use tow bars or chains to move the disable vehicles.[38]

Figure 20. BTR-50PU Command Vehicle at the Batey ha-Osef Museum in Israel

BTR-50PU:

The BTR-50PU is the original BTR-50P converted for use by a commander and equipped with improved radios, land navigation equipment, an auxiliary power supply, and four external aerial antennas. The feature that differentiates this variant from other BTR-50s is the two project bays on the front of the vehicle. The BTR-50PU usually does not carry any armament. At least two different versions of the BTR-50PU exist. They are known as Model 1 and Model 2.[39]

MTR-1:

The MTR-1 is a BTR-50 version designed to service and repair other vehicles and equipment.[40]

OT-62:

BTR-50s produced in Czechoslovakia (later Slovakia) and Poland are designated OT-62s, and are almost identical in all aspects to the BTR-50P. OT-62s configured as BTR-50PUs are called TOPAS and possess the armored roof for the passengers, the NBC system, a more powerful engine than the original version, and a side door that passengers use for entering the troop compartment. The TOPAS is sometimes fitted with a small turret. The Israelis captured a number of BTR-50s and OT-62s during the Six-Day and Yom Kippur Wars. The Israelis used the captured OT-62s because of the superior workmanship until the 1980s before they passed them on to the Southern Lebanese Army. After the Southern Lebanese Army fell apart in the early 2000s, several of the previously captured OT-62s ended up in the hands of the Lebanese.[41]

Figure 21. Modified Syrian or Egyptian OT-62 TOPAS at the Yad la-Shiryon Museum in Israel

OT-62A/Model 1:

The OT-62A/Model 1 is the basic OT-62, minus the turret.[42]

OT-62B/Model 2/TOPAS-2A:

The OT-62B/Model 2/TOPAS-2A mounts a small turret on the right side of the front of the vehicle and is armed with a T-21 recoilless gun. The gun can be fired from inside the vehicle, but requires manual loading. The 2.13 kg high-explosive anti-tank (HEAT) round can engage stationary targets at 450 m and 300 m against moving targets.[43]

Figure 22. Egyptian OT-62B offloading during Exercise Bright Star '85

OT-62C/Model 3/TOPAS-2AP:

The OT-62C/Model 3/TOPAS-2AP is the same APC as the OT-62A, but produced by Poland and called the TOPAS-2AP. The TOPAS-2AP sometimes features a turret-mounted weapon.[44]

Figure 23. TOPAS-2AP at a Warsaw, Poland museum

OT-62 Ambulance:

Sometimes the OT-62 is configured as an ambulance to evacuate wounded from the battlefield.[45]

Figure 24. BTR-50 series Medevac vehicle used in South Lebanon on display at the Yad la-Shiryon Museum in Israel

OT-62 Command Vehicle:

The command version contains additional radio equipment and mapboards.[46]

OT-62 Repair:

OT-62As are sometimes modified for use as repair vehicles.[47]

OT-62 Radio Carrier:

At times, the OT-62 is modified to serve as a communications vehicle to carry a large amount of radio equipment.[48]

R-3M/R-2M:

R-3M or R-2M is the nomenclature of the TOPAS APC with modifications to serve as a radio carrier.[49]

WPT-TOPAS Armored Recovery Vehicle:

The WPT-TOPAS Armored Recovery Vehicle (ARV) looks like the OT-62A, but is very useful in amphibious operations. The ARV contains an electrical winch with a capacity of 2,500 kg and a hand-operated winch with a capacity of 1,000 kg. The ARV mounts a machine gun in a high turret for self-protection during frontline operations.[50]
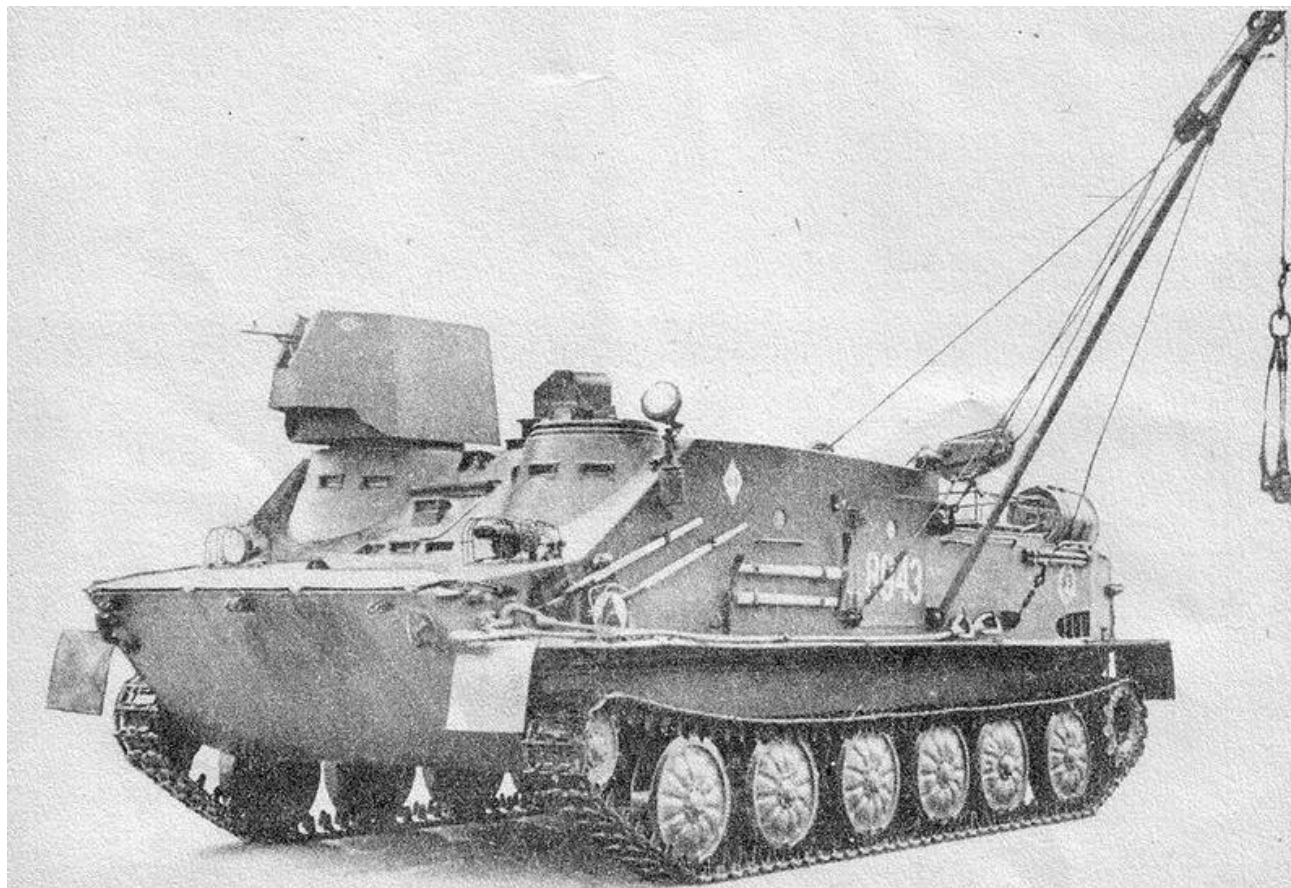

Figure 25. 7 Polish Marine Division WPT-TOPAS ARV

BTR-50 Armored Personnel Carrier[51]		
Country	**Quantity**	**Comments**
Algeria	Unk	None
Bulgaria	202	Combination of BTR-50, BTR-60, and OT-62s; includes 120 in storage
Croatia	16	None
Egypt	500	BTR-50PK; all in storage
Finland	Unk	BTR-50PK
Guinea	10	None
Indonesia	34	None

Israel	Unk	BTR-50P
Iran	300	Combination of BTR-50 and BTR-60
Libya	540	Combination of BTR-50 and BTR-60
North Korea	2,500	Combination of BTR-40, BTR-50PK, BTR-60PB, BTR-152, VTT-323, and VTT-323M-1973
Russia	Unk	BTR-50
Somalia	Unk	None
Sudan	20	Combination of BTR-50 and BTR-152
Syria	1,500	Combination of BTR-40, BTR-50, BTR-60, and BTR-152
Vietnam	Unk	None

OT-62 Armored Personnel Carrier[52]		
Country	Quantity	Comments
Bulgaria	82	Combination of BTR-50, BTR-60, and OT-62; includes 120 in storage
Egypt	Unk	Most in storage
India	157+	Combination of OT-62 and OT-64
Libya	100	Combination of OT-62 and OT-64
Sudan	20	Combination of OT-62 and OT-64

BTR-60 (8 x 8) Armored Personnel Carrier

When the BTR-152 became obsolete, the Soviet Union searched for a replacement APC and came up with the BTR-60, which went into production in 1960 and was produced until at least 1986. The Soviet Union produced about 25,000 BTR-60 vehicles between 1960 and 1976. Under license from the Soviet Union, Romania produced another 1,872 BTR-60s, but called them TAB-71s. While the crew of two – commander and driver – remains the same, the number of soldiers available for dismount drops to 12 or less. Unlike many BTR-50 variants, most BTR-60s exhibit an armored top to protect the soldiers in the troop compartment. They can dismount either through the hatches on top of the APC, or through the vehicle's sides. The maximum speed for the Soviet's first 8-wheeled APC on roads is 80 km/h and 60 km/h moving cross-country. The cruising range on a single tank of gas is 500 km. This APC retains the capability to conduct amphibious operations at 10 km/h with one hydrojet, and also contains a collective NBC defense over pressure system.[53]

The primary armament on most BTR-60s consists of two machine guns, one 14.5-mm KPV and one 7.62-mm PKT (*Pulemyot Kalashnikova Tank*), that both fire from a small turret mounted on the front of the vehicle. The BTR-60 carries 500 rounds for the larger machine gun and 2,000 rounds for the smaller machine gun. There are three firing ports on each side of the vehicle for soldiers using their personal weapons. Vehicles can carry different armaments, but additional weapons systems normally reduce the troop compartment's carrying capacity.[54]

While the BTR-60 features thicker armor than its predecessors, the BTR-60 is still vulnerable to damage from high explosive (HE) fragmentation ammunition and small arms fire. The tires are also susceptible to punctures from indirect and direct fire weapons. Equipment on the outside of the vehicle such as antennas and auxiliary fuel tanks can also be damaged by field artillery fire.[55]

Figure 26. BTR-60 in the Batey ha-Osef Museum in Israel

BTR-60 ACRV:
Artillery units use the BTR-60 ACRV (armored command and reconnaissance vehicle) also sometimes known as the BTR-60 ACRV M1979(2) when used as an artillery tow vehicle."[56]

BTR-60AVS:
Some command post versions received the BTR-60AVS designation.

BTR-60BD:

The BTR-60BD variant, designed in Russia, modified the transmission to increase the speed of the vehicle to 100 km/h on the road and improved the range of this version to 800 km. This is an experimental model that never reached the production stage.[57]

BTR-60 Djibouti:

To make the BTR-60 more deadly, the Djibouti armed forces removed turrets from their French AML-90 4 x 4 armored cars and installed them on their BTR-60s. The turret's main weapon consists of a 90-mm rifled gun and a 7.62-mm coaxial machine gun.[58]

BTR-60MS:

The BTR-60MS is a radio carrier APC with a "High Ball" aerial antenna that telescopes into place.[59]

BTR-60 MEP:

The BTR-60 MEP is an infantry command post variant.[60]

Figure 27. BTR-60P during a Soviet military exercise

BTR-60P:

The original BTR-60P model that began production in 1960 has no overhead cover, and operates without an NBC protection system. Soldiers enter the vehicle through half doors on the side of the vehicle. The original main weapons systems are 7.62-mm machine guns mounted on the forward hull and along the sides of the vehicle. The soldiers, however, must stand to at least shoulder level above the protected troop compartment to fire these machine guns. The BTR-60P does have an IR night-vision system and contains a winch on the front with the capacity to pull 4,500 kg.[61]

BTR-60P Maintenance Assistance:

The Russians may call the BTR-60P variant the MTR-2, but it is essentially a maintenance support vehicle with an open compartment in the back, which is covered by a tarp. Another name for this type of APC is the MTP-2.[62]

BTR-60PA:

In 1963 in its first major modification, the Soviet Union added the armored top to protect the troop compartment and called it the BTR-60PA. The vehicle also contains the centralized NBC pressure system, but the soldiers have to exit the vehicle through hatches in the troop compartment top. There are three firing ports on each side of the vehicle for personal weapons. Some BTR-60PAs carry a 12.7-mm heavy DShK machine gun with two 7.62-m PKT machine guns as auxiliary weapons.[63]

Figure 28. BTR-60PA at the War and Peace Show 2010

BTR-60PAU:

The BTR-6OPAU command variant is used by Bulgarian artillery units. This APC contains no turret and features a large radio mast.[64]

Figure 29. Bulgarian BTR-60PAU Artillery Command Vehicle

Figure 30. Polish Army BTR-60PB

BTR-60PB:

In the second major modification of the BTR-60, the Soviets added the turret originally made for the BRDM-2 that carries two different calibers of machine guns—the 14.5-mm and a 7.62-mm coaxially-mounted machine gun along with a periscope sight in the turret roof. There is also a 12.7mm machine gun location in front of the gunner's hatch. There is also space for the passengers to mount two 7.62-mm machine guns are either side of the forward hatch. Due to the turret configuration, the BTR-60PB can only carry eight troops for dismounted operations instead of the 12 soldiers accommodated by some of the previous BTR-60 designs.[65]

Figure 31. Former Soviet BTR-60PB with the 14.5-mm KPV machine gun

Modernized BTR-60PB:

To increase the BTR-60PB's lethality, the Muromteplovoz Company replaced the vehicle's older turret with a modern MB2 turret equipped with three newer weapons systems—the 30-mm 2A42 cannon, the 7.62-mm PKTM machine gun, and the AG-17 grenade launcher. The turret can fire its weapons up to 60 degrees in the air against slow-flying aircraft. The vehicle also has a better diesel engine that increases its range and features improved day/night sights.[66]

Figure 32. BTR-60PB Crew Compartment Interior

BTR-60PBK:

Company commanders use the BTR-60 PBK variant, which contains three additional radios and a power generator for use as a command post. It was first produced in 1975.[67]

BTR-60PB-MD Bulgaria:

The BTR-60PB-MD is an improved Bulgarian BTR-60PB modification with 81-mm smoke grenade launchers, a better engine, improved night-vision sights, an innovative NBC system, and more modern radios.[68]

Figure 33. Bulgarian BTR-60PB-MD1 in Sofia Army Day parade

BTR-60PU:

The BTR-60PU is a command version with a soft top instead of the standard armored protection for the troop compartment. The vehicle can deploy a radio antenna that reaches 10 m into the air. The PU's most noticeable feature is the dipole antenna that goes nearly all the way around the top of the vehicle.[69]

BTR-60 PU-12:

BTR-60 command vehicles found in anti-aircraft units are called BTR-60 PU-12 models. The main feature is a telescoping antenna that the crew raises by a manual crank, but it also has extra storage space and carries a generator.[70]

BTR-60PU-12M:

The BTR-60PU-12M variant is similar to the BTR-60PU-12 with upgraded modifications for air defense units.

BTR-60PZ:

The BTR-60PZ is the final production model of the BTR-60 series with an IPZ-2 roof-mounted periscope and a turret with a high angle of fire. It provides better ground to air fire than other variants.[71]

Figure 34. BTR-60PZ in Kubinka, Russia tank museum

BTR-60-P-238BT:
Communication elements use the BTR-60-P-238BT for switchboard operations.[72]

BTR-60-P-240BT:
Similar to the BTR-60-P-238BT, the signal units use the BTR-60-P-240BT for radio and wire communications integration, as solders can operate R-123M and R-241 switchboards from this APC.[73]

BTR-60-P-241BT:
The BTR-60-P-241BT is another communications version equipped to operate the P-241 telephone system.[74]

BTR-60-R-137B
The BTR-60-R-137B variant is armed with a turret for self-protection and contains additional radios for frontline command and control use.[75]

BTR-60-R-140BM:
The BTR-60-R-140BM is another communications version with a turret, but with upgraded command and control systems superior to those on the BTR-60-R-137B.[76]

BTR-60-R-145:

The BTR-60-R-145 is a communications version without a turret, but is equipped with an R-145 radio set for improved communications.[77]

BTR-60-R-145BM:

The BTR-60-R-145BM contains five tactical radios, including one for ground-to-air communication. These radios include the R-111, R-123, and R-130M systems. Antennas include a "clothesline" mounted on a front-to-rear rail for mobile use and a 10 m collapsible telescoping mast.[78]

BTR-60-R-156BTR:

The BTR-60-R-156BTR is a command and control APC without a turret that contains additional radios for communication.[79]

BTR-60-R-409BM:

The BTR-60-R-409BM operates the R-409 and R-123M radios to relay messages over long distances.[80]

BTR-60-R-975:

The BTR-60-R-975, with a turret, is also known as the BR-60 PB FAC. There is no armament in the turret and the front of the turret contains a plexiglass window for observation. This APC serves as a forward air control (FAC) vehicle, and comes equipped with several radios for communication. Besides the plexiglass in the turret, this version can be recognized by the large portable generator mounted on the vehicle's rear deck.[81]

BTR-60 SPAAG:

The Cubans mounted twin 30-mm anti-aircraft machine guns on the top of the BTR-60 to produce the BTR-60 SPAAG (self-propelled anti-aircraft gun).[82]

BTR-60VVS:

The BTR-60VVS is a command APC with an observation window instead of a turret.[83]

BTR-60-Z-351BR:

The BTR-60-Z-351BR contains a powerful electrical generator to produce additional power for mobile command posts.[84]

BTR-60 1V18 (Klyon-1):

An APPK (Agjensioni I Përkrahjes së Punësimit në Kosovë) computer and upgraded communication system makes the BTR-60 1V18 effective as an artillery observation variant.[85]

BTR-60 1V19 (Klyon-2):

Similar to the 1V18 version, the field artillery uses the BTR-60 1V19 as a fire direction center vehicle or by battalion commanders.[86]

BTR-60 Armored Personnel Carrier[87]		
Country	**Quantity**	**Comments**
Afghanistan	Unk	Some may be still in service with various militia groups
Algeria	300	None
Angola	170	Combination of BTR-60, BTR-80, and BTR-152
Armenia	11	BTR-60P
Azerbaijan	19	Border Guard
Belarus	188	None
Botswana	50	None
Bulgaria	659	Combination of BTR-50 and BTR-60
Cambodia	160	Combination of BTR-60 and BTR-152
Chad	20	None
Congo	30	None
Cuba	500	Combination of BTR-40, BTR-50, BTR-60, and BTR-152
Djibouti	10	Most non-operational
Egypt	250	In storage
Eritrea	Unk	None
Estonia	21	Combination of BTR-60, BTR-70V, and BTR-80
Ethiopia	90	Combination of BTR-60 and BTR-152
Finland	Unk	BTR-60PB
Georgia	Unk	None
Guinea	8	None
Guinea-Bissau	35	Combination of BTR-40 and BTR-60
Iran	300	Combination of BTR-50 and BTR-60
Israel	Unk	None
Laos	30	Combination of BTR-40 and BTR-60
Libya	540	Combination of BTR-50 and BTR-60
Mali	44	None
Mexico	3+	3 in the Marines and Unknown quantity in the Army
Mongolia	150	None
Mozambique	160	None
Nicaragua	64	None
North Korea	2,500	Combination of BTR-40, BTR-50PK, BTR-60PB, BTR-152, VTT-323, and VTT-323M-1973
Peru	Unk	None
Romania	374	BTR-60s built in Romania were called TAB-71s, but are being withdrawn from service
Russia	4,000+	Combination of BTR-60, BTR-70, and BTR-80; at least 4,000 in storage
Syria	1,500	Combination of BTR-50, BTR-60, BTR-70, and BTR-152
Tajikistan	23	Combination of BTR-60, BTR-70, and BTR-80
Turkey	300	BTR-60P
Turkmenistan	829	Combination of BTR-60, BTR-70, and BTR-80

Uganda	15	Combination of BTR-60 and BTR-152
Uzbekistan	24	None
Vietnam	Unk	None
Yemen	650	Combination of BTR-40, BTR-60, and BTR-152; approximately 150 operational
Zambia	13	None

BTR-70 (8 x 8) Armored Personnel Carrier

Figure 35. BTR-70 at the technical museum in Togliatti, Russia

The BTR-70 was supposed to have been an improved version of the BTR-60, and was first seen in November 1980. This vehicle possesses the same boat-like shape as the BTR-60, but sports a wider nose and a more powerful engine. There is also a wider gap between the second and third axles, providing space for hatches that allow dismounted troops to enter the vehicle through its sides. The BTR-70 still has a crew of two but can carry up to nine soldiers.[88]

While some of the BTR-70's capabilities are better than those of the BTR-60, the vehicle performed horribly in Chechnya in 1994. The Chechen infantry destroyed, damaged, or captured 67 of 70 Russian APCs, including many of the BTR-70s. The BTR-70 can travel 80 km/h on roads, with a cruising range of 600 km. With two engines, the vehicle can still move if one motor becomes nonoperational, but at a reduced speed. The BTR-70 is amphibious and can cross water obstacles at 10 km/h through the use of a

single hydrojet in the rear of the hull. Before crossing the water obstacle, however, the crew must activate the trim vane in the front of the vehicle and turn the bilge pumps on.[89]

The main weapon system in the turret on the standard BTR-70 is a 14.5-mm KPV machine gun with a basic load of 500 rounds on board. There is also a coaxial 7.62-mm PKT machine with 2,000 rounds, also in the turret. There is also space for two RPG-7 (rocket propelled grenade) launchers and two 30-mm AGS-17 (automatic grenade launcher) portable grenade launchers. Firing ports on both sides of the vehicle allow the soldiers inside the APC to fire their personal weapons.[90]

Figure 36. BTR-70 at museum in Belarus

BTR-70:
The initial production model in 1978 was designated as the BTR-70. Minor modifications occurred over the next several years, but the nomenclature did not change. These included the installation of two ZMZ-49-05 V8 engines with 120 horsepower each in 1982, the TNPT-1 periscope system in 1984, and the installation of four side-firing ports and additional periscope systems in 1986.[91]

BTR-70D:
The prototypes that used diesel fuel instead of gasoline were designated as the BTR-70D. This is also the same designation given to the Ukrainian models with a 300 horsepower diesel engine.[92]

BTR-70DI:
The BTR-70DI is a Ukrainian BTR-70, but is powered by a Euro II 276 horsepower diesel engine.

BTR-70M:

Some BTR-70s were modified by adding the rear hull of the BTR-80 to the vehicle and thus received were designated as the BTR-70M. Adding to the confusing nomenclature, Ukrainian models with a UTD-20 300 horsepower engine also received the same designation.[93]

BREM:

To create the BREM, the Russians removed the turret from the BTR-70 and add a front-mounted jib crane in order to serve as an armored repair and recovery vehicle.[94]

BTR-70 MBP:

The BTR-70 MBP serves artillery units as a command and control vehicle.[95]

BTR-Kh:

When BTR-70s are converted for chemical reconnaissance use, the APC receives the BTR-Kh designation.[96]

BTR-70K:

The BTR-70K is a modified version used by commanders.[97]

BTR-70KShM:

The BTR-70KShM variant carries improved communications and navigation equipment to serve as a command vehicle.[98]

BTR-70MS:

The BTR-70MS version does not have a turret and serves as a communications vehicle; the MS stands for *mashina syvazi,* or signals, vehicle.[99]

BTR-70SM:

The BTR-70SM is a Ukrainian variant without any armament used as a battlefield ambulance.[100]

BTR-70V:

This variant features the BPU-1 turret system, the same system as found on the BTR-80, but without any smoke grenade launchers.[101]

BTR-70 with automatic grenade launcher:

In Afghanistan, some of the forces add the AGS-17 automatic grenade launcher to the vehicle's roof to make the BTR-70 more deadly.[102]

Figure 37. Dismounted AGS-17 Automatic Grenade Launcher

BTR-70 with modified turret:
This BTR-70 variant came about when the improved BTR-80 turret was attached to the top of the BTR-70. Another change includes the addition of more firing ports and a bow-mounted wave deflector for amphibious operations.[103]

Cobra-K:
Slovakia and Belarus attached the 2A42 Cobra-series modular turret and inserted a KamAZ-7403 engine to their BTR-70s for a new variant called the Cobra-K.[104]

SPW (Schutzenpanzerwagen) 70:
The SPW 70 is the East German version of the Romanian BTR-70.

SPW 70(S):
Designation for East German BTR-70s converted for staff operations that contain communications equipment and featured a telescoping mast antenna.[105]

SPW 70(SL):
The identification of the East German Forward Air Control (FAC) vehicle based on the BTR-70 is relatively easy due to its four large communications antennas.[106]

SPW 70(Ch:
East German BTR-70s used as an NBC reconnaissance vehicle received the SPW 70(Ch) designation.[107]

Figure 38. Romanian TAB-77s on patrol in Afghanistan

TAB-77:

The TAB-77 is the name given to BTR-70s built in Romania.[108]

TAB-77 M1983:

The original Romanian TAB-77 M1983 prototype came with an armament package that included a 30-mm main gun and the 9M14M ATGM system.[109]

TAB-77 M1984:

A second Romanian, the TAB-77 M1984, prototype featured a 23-mm main gun and the 9M14M ATGM system.[110]

Figure 39. TAB-77A PCOMA at the King Ferdinand National Military Museum in Bucharest, Romania

TAB-77A PCOMA:

The TAB-77 converted for use as an artillery command vehicle was designated as the TAB-77A PCOMA.[111]

TAB-77A R-1451/M:

Another Romanian command vehicle received the designation TAB-77A R-1451/M.[112]

TAB-77A R-1452:

TAB-77s converted for use as a communication vehicles are known as TAB-77A R-1452s.[113]

Figure 40. TERA-77L in a Ploiesti, Romania military parade

TERA-77L:

The TERA-77L, used for a battlefield recovery vehicle, comes with a recovery crane and dozer blade.[114]

TABC-79:

The Romanians made some of their BTR-70s 4x4 drive instead of 8x8 and designated them as TABC-79s.[115]

Figure 41. Romanian TABC-79s in Afghanistan

BTR-70 Ukrainian Upgrade:

For this version, the Kharkov Morozov Design Bureau altered the vehicle's armament to add a 2A72 30-mm cannon or Ukrainian KBA-2 30-mm cannon along with a 7.62-mm coaxial machine gun. This turret design allows for both a 360-degree traverse and an elevation from -10 degrees to 60 degrees. The vehicle carries 130 rounds for the 30-mm cannon, and the two four-stroke diesel engines increase the vehicle's range to 560 km. In 2010, the Ukraine exported 71 BTR-70s without weapons systems to Azerbaijan, to reach a total of at least 157 BTR-70s in Azerbaijan's armed forces.[116]

BTR-70 Zhalo-s (Sting):

The BTR-70 Zhalo-s is no longer in service, but served as a tank destroyer built on a BTR-70 chassis. A special turret houses an 85-mm long-barreled anti-tank gun with a fume extractor.[117]

SPR-2:

With the removal of the turret and the addition of a large telescopic antenna mast on top of the vehicle, the BTR-70 becomes a radar jammer known as the SPR-2 to support electronic warfare (EW) operations.[118]

SPR-2M:

The SPR-2M is an updated version of the SPR-2 and is used for the same EW purposes.[119]

BTR-70 Armored Personnel Carrier[120]		
Country	**Quantity**	**Comments**
Armenia	18	Border Guard
Azerbaijan	157+	Border Guard
Bangladesh	Unk	None
Belarus	446	None
Bosnia-Herzegovina	3	None
Estonia	21	Combination of BTR-60, BTR-70, and BTR-80
Georgia	25	None
Kazakhstan	190	None
Kyrgyzstan	58	None
Macedonia	58	None
Nepal	Unk	None
Pakistan	120	None
Russia	10	Combination of BTR-60, BTR-70, and BTR-80; at least 4,000 in storage
Syria	1,500	Combination of BTR-50, BTR-60, BTR-70, and BTR-152
Tajikistan	23	Combination of BTR-60, BTR-70, and BTR-80
Turkmenistan	829	Combination of BTR-60, BTR-70, and BTR-80
Ukraine	857	None
Uzbekistan	25	None
Zambia	20	None

BTR-80 (8 x 8) Armored Personnel Carrier

The next improvement for the BTR was the introduction in 1984 of the BTR-80, with a single diesel engine instead of two gasoline engines. The BTR-80 can carry up to ten soldiers, either in a configuration of two crew members – commander and driver/mechanic – plus eight soldiers; or a crew of three with the addition of a gunner, leaving space for seven soldiers who can disembark for dismounted operations. The BTR-80 possesses an NBC protection system, an automatic fire system, bilge pumps, and a winch for self-recovery purposes. The BTR-80 can travel up to 90 km/h on roads and cross water obstacles at 10 km/h in its amphibious mode on its single diesel engine that provides better

performance with a lower risk of fire. The cruising range for the BTR-70 is 600 km. The entry hatches between the second and third axles on both sides of the vehicle include a step to make entry easier. There are at least 5,000 BTR-80 vehicles in service in approximately 30 countries.[121]

Figure 42. BTR-80 conducting a river crossing

Figure 43. An American Soldier checks out a BTR-80 in Bosnia

The standard weapon system is a turret equipped with a 14.5-mm PKVT machine gun with 500 rounds and a coaxial 7.62-mm PKT machine gun with 2,000 rounds. The major change in the turret design allows the guns to fire at a higher angle, a design flaw on the BTR-60s and BTR-70s that the Soviets discovered the hard way in the Afghanistan mountains. There are seven pivoted firing ports on the BTR-80, four on the right and three on the left, permitting all seven soldiers to fire their personal weapons from inside the vehicle. Two of the side firing ports are designed for the 7.62 PK general purpose machine guns while the others are fitted for the AKMS or AK-74 individual machine guns. There is also space inside the vehicle to carry two man-portable surface-to-air missiles (SAM), usually the SA-14 (Gremlin), SA-16 (Gimlet), or SA-18 (Grouse). The BTR-80 also carries six smoke dischargers on the rear of the vehicle for obscuration purposes.[122]

Figure 44. 2S23 at the Second Ural Expo Arms

2S23 Self-Propelled Gun-Mortar System:

Also called the "Nona-SVK," this BTR-80 variant features a turret with a 2A60 120-mm rifled mortar/gun similar to the gun found in the 2S9 tracked mortar/gun system.[123]

BMM-80 (GAZ-59039):

The BMM80 or "Simfoniya" is the name given to the series of BTR-80s converted for use as armored ambulances. The ambulance can carry up to 9 ambulatory patients or two on medical litters. The BMM-1 is a first aid vehicle used as a battlefield ambulance for evacuation. The BMM-2 is a battalion medical aid station and the BMM-3 is a brigade medical aid station.[124]

BREM-K ARV (GAZ-59033):

The BREM-K ARV is the name given to BTR-80s used as armored recovery vehicles. The ARV contains a mounted A-frame and tow bars.[125]

Figure 45. BREM-K Armored Recovery Vehicle

BTR-3E/BTR-3E1

BTR-3E is the name given to the Ukrainian version of the BTR-80 with a new engine and higher profile. Some military analysts consider this a completely separate vehicle, but that is up to debate. This vehicle

can also carry the Shturm turret that contains a 30-mm ZTM cannon, a 40-mm automatic grenade launcher, a 7.62-mm machine gun, and twin launchers for the Barrier AT system and then the nomenclature becomes the BTR-3E1.[126]

There are several other versions in the BTR-3 series of vehicles. The original BTR-3 is most closely associated with the BTR-80. The BTR-3U "Okhotnik" is also known as the BTR-94K and is the base model. The Ukraine has exported 10 of the BTR-3E series APCs to Burma.[127]

Figure 46. Ukrainian BTR-3E1

BTR-3U Armored Personnel Carrier

Some analysts regard the BTR-3U first seen in 2001 as a BTR-80 variant, but others consider it a different vehicle altogether because of its greater interior space and increased power derived from its Deutz

engine. Produced by the Ukraine and called the Guardian, the BTR-3U can travel 85 km/h on roads and swim 8 km/h across water obstacles. A crew of three—commander, driver, and gunner—operate the vehicle, while six soldiers are available for dismounted operations. This is the version used by the UAE Marine forces and features a Buran-N1 turret system. The Ukraine has exported 24 of these vehicles that feature a Buran-N1 turret system to the United Arab Emirates for use by their Marines.[128]

Figure 47. BTR-3U conducts an amphibious landing on Tendra Island, Ukraine

The one-man turret operates a variety of weapons systems. These include the 30-mm dual feed cannon with 350 rounds of ammunition, a 7.62-mm coaxial machine gun with 2,500 rounds, a 30-mm grenade launcher with 116 rounds (29 in the ready magazine with three additional magazines in reserve), and six 81-mm electrically-operated smoke grenade launchers.[129]

Figure 48. Russian BTR-80 in Kosovo

BTR-80 (GAZ-5903):

The designation for the original vehicle was the BTR-80.[130]

BTR-80 1V152:

The BTR-80 1V152 version is used by battalion commanders and forward observers in field artillery units. This variant contains special navigation, range finding, and vision equipment.[131]

BTR-80A (GAZ-59034):

The BTR-80A version carries a turret with TNP-3 day/night sights, a 2A72 30-mm cannon, and a 7.62-mm PKT coaxial machine gun similar to the turret found on the German Marder APC. The BTR-80A also carries three additional smoke grenade launchers.[132]

Figure 49. BTR-80A

BTR-80AK:

The BTR-80AK is the command vehicle variant of the BTR-80A. The main differences are that there is only a single firing port on the right side of the vehicle's hull and that there are two whip antennas on the two rear corners of the vehicle for easy identification.[133]

BTR-80 "Caribe":

Columbia calls their BTR-80s the "Caribe" and this variant features a 12.7-mm heavy machine gun as its main weapon.[134]

BTR-80GKKO:

This is the Hungarian designation for a proposed prototype without a turret, but outfitted with additional observation equipment.[135]

BTR-80K (GAZ-59031) Command Post Vehicle:

While the BTR-80K operates additional communications equipment, its turret retains the 14.5-mm and 7.62-mm machine guns. Radios include the R-173, R-173P, and R-159. The radio antenna also extends to a height of 11 m. Maximum capacity for this variant, however, is only six personnel including the crew.[136]

BTR-80 Kushetka-B (KshM or M1989/1):

With the removal of the turret and the addition of several radios and antennas, the BTR-80 is now a command vehicle designated at the BTR-80 Kushetka-B.[137]

BTR-80M:

First produced in 1993, the BTR-80M is a Hungarian model that improved upon its predecessor with a new tire style, a better DMZ-238M2 series 240 horsepower engine, and a longer hull. It is also the same designation given to the version used by Hungary for its upgraded BTR-80s with improved day/night sights, additional stowage on the hull, an improved NBC defense capability, and the Hungarian radio system.[138]

BTR-80 MPAEJ:

The BTR-80 MPAEJ is the Hungarian designation for its battlefield engineering vehicle that has no turret.[139]

BTR-80 MPFJ:

The BTR-80 MPFJ is the Hungarian designation for its engineer vehicle without armament used by its engineers to clear obstacles.[140]

BTR-80 MVJ:

The MVJ is the Hungarian designation for its repair and recovery vehicle based on the BTR-80.[141]

BTR-80 PBKM (KM-80):

The BTR-PBKM variant contains additional radio communications equipment to make it a command vehicle.[142]

BTR-80 R-975:

The BTR-80 R-975 is a variant equipped with additional communications equipment for use as a FAC vehicle.[143]

BTR-80S:

The BTR-80S version removes the standard turret from the BTR-80A and replaces it with a modular armament system that includes special TNP-3 day/night sights, a 14.5-mm KPVT machine gun and a 7.62-mm PKT coaxial machine gun.[144]

Figure 50. Georgian BTR-80S APCs in Georgian Independence Day Parade in Tbilisi

BTR-80 SKJ:

The BTR-80 SKJ is the Hungarian version of the BTR-80 ambulance with an enlarged passenger compartment.[145]

BTR-80UP:

The BTR-80UP is the Ukrainian designation for an improved BTR-80 variant with a 300 horsepower engine, improved armor protection, and an air conditioner to improve the quality of life inside the vehicle for the crew and troops.[146]

BTR-80UP-KB:

The BTR-80UP-KB will serve as the battalion command vehicle in the Ukrainian armed forces.[147]

BTR-80UP-KR:

The BTR-80UP-KR is the Ukrainian company command vehicle variant.[148]

BTR-80UP-S:

The BTR-80UP-S is the Ukrainian designation for vehicles used for staff operations.[149]

BTR-80UP-M:

The Ukrainian military will call battlefield ambulances the BTR-80-UP-M.[150]

BTR-80UP-BREM:

For ARV operations, the Ukrainians designate their vehicle as the BTR-80UP-BREM.[151]

BTR-80UP-R:

The Ukrainian designation for their dedicated reconnaissance vehicles will be the BTR-80UP-R.[152]

BTR-80UP-T:

The Ukrainians will even use their BTR-80s for transportation purposes and those vehicles are called BTR-80UP-Ts.[153]

BTR-80 VSF:

The BTR-80 VSF is the Hungarian NBC reconnaissance vehicle.[154]

BTR-82:

The BTR-82 and the BTR-82A are upgrade variants for the Russian and Kazakhstan militaries. The BTR-82 features a 14.5-mm machine gun, improved armor protection, better night vision capabilities, new GPS navigation technology, a 300 horsepower engine, and a BTR-80A style turret. Both versions also feature a 7.62-mm coaxial machine gun.[155]

BTR-82A:

First produced in 2009, the BTR-82A's main armament is the 2A72 30-mm automatic cannon with day and night sights along with the other features of the BTR-82 including the 7.62-mm coaxial machine gun.

Figure 51. Russian BTR-82A

BTR-94:

The BTR-94 is the Ukrainian amphibious armored car version of the BTR-80, with twin 2A7M 23-mm machine guns with 200 rounds, a coaxial KT 7.62-mm machine gun with 2,000 rounds, and six 81-mm smoke grenade launchers.[156]

Figure 52. Iraqi National Guard BTR-94

E-351BrM:

The E-351BrM is a BTR-80 that contains a diesel-electric generator to produce power during field operations.[157]

K1Sh1 (GAZ-59032):

The K1Sh1 is the nomenclature for BTR-80s with an expanded chassis to bear the enlarged hull. There is no armament in the turret. The Kushetka-B is based on this BTR-80 variant.[158]

Kliver Turret System:

So far this BTR-80 version has only gone through testing and is not yet in production. The turret contains a 2A72 30-mm cannon, a 7.62-mm PKMT coaxial machine gun, and four M133 Kornet ATGMs, all operated by a single soldier.[159]

P-240BTZ:

The P240BTZ is a BTR-80 version that is used by communication units as a switchboard platform to route calls.[160]

PU-12M6 (9S482M6):

The PU-12M6 variant is used by artillery battery commanders for communications.[161]

PU-12M7 (9S482M7):
The PU-12M7 is an improved version of the PU-12M6 for artillery batteries.[162]

Figure 53. PU-12M7 at the MAKS 2007 air show near Moscow, Russia

R-149BMR/R-149BMRA:
These BTR-80 variants are used as a command or communications vehicles.[163]

R-165B:
The R-165B is a BTR-80 model used as a short-wave radio communications platform.[164]

R-439-MD2:
The R-439-MD2 is a BTR-80 version modified for use as a satellite communications vehicle.[165]

R-439-BK:
The R-439-BK is another satellite communications BTR-80 variant that features the Legenda 2BK radio.[166]

RkhM-4:
This BTR-80 variant contains special equipment for NBC reconnaissance and detection.[167]

RkhM-4-01:
The RkhM-401 variant is the RkhM-4 with more modern NBC detection equipment than its predecessor. It carries markers that can be used to designate a safe path for follow-on vehicles.[168]

Figure 54. Russian RkhM-4-01 on maneuvers

RkhM-4-02:

This RkhM-4-02 is an upgraded version of the RKhM-4.[169]

RkhM-6:

An even newer NBC reconnaissance and detection variant that can indicate safe lanes with markers that deploy while the crew stays inside the vehicle.

Figure 55. RkhM-6 with NBC markers that can be deployed from inside the vehicle

RPM-2 (NKR):

First produced around 2000, the RPM-2 is used for radiological reconnaissance on the battlefield.[170]

Figure 56. Russian RPM-2

Saur 1 (BTR-80 with Cummins Diesel):

Some BTR-80s were tested with a Western Cummins 6CTA 8.3-C250 diesel engine that increases the vehicle's road speed to 100 km/h and extends its range to 600 km. The Saur 1 is the Romanian designation with an all-new design for the hull, rear entry and exit doors, and a new turret.[171]

Figure 57. Saur 1 at the Expomil 2011in Bucharest, Romania

Saur 2:

The Saur 2 is the Romanian designation for an improved version of the Saur 1.[172]

Figure 58. Saur 2 at the Expomil 2011in Bucharest, Romania

SPR-2 Wide Band Jamming System:
Designed to neutralize proximity fuses on artillery shells, the SPR-2 features a large telescopic antenna mast in lieu of a turret.[173]

TAB Zimbru (B33):
The TAB Zibru is the Romanian designation for a BTR-80 with a Model 1240 V8-DTS series engine with 268 horsepower, additional storage space for 12.7-mm ammunition, and the Romanian radio system.[174]

Figure 59. B33 TAB Zimbru at the National Day Parade in Romania

"Tajfun":
This proposed variant is not yet on the market, but is designed for base security forces with a 7.62mm machine gun and a Kredo-1 radar system.

ZS-88:
A few BTR-80s include a loudspeaker system for psychological operations and riot control and are designated as the ZS-88.[175]

ZS-96:
A different version of the BTR-80 for psychological operations and riot control is given the nomenclature, ZS-96.

Zimbru 2000:
The Zimbru 2000 is the Romanian designation for the proposed upgrade to the TAB Zimbru. The improved BTR-80 would feature an enlarged hull, a better Deutz BF6M 1013 FC engine with 285 horsepower, and an improved Allison-MD 3060 PR transmission system.[176]

Figure 60. Zimbru 2000 prototype

BTR-80 Armored Personnel Carrier[177]		
Country	**Quantity**	**Comments**
Algeria	150	None
Angola	170	Combination of BTR-60, BTR-80, and BTR-152
Armenia	4	None
Azerbaijan	19	Combination of BTR-60, BTR-70, and BTR-80
Bangladesh	75	None
Belarus	194	None
Burma	10	BTR-3E1
Burundi	10	None
Colombia	8	None
Djibouti	8	Status Unknown
Estonia	21	Combination of BTR-70, BTR-70, and BTR-80
Georgia	17	None
Hungary	328	Combination of BTR-80 and BTR-80A

Iraq	100	Combination of BTR-80 and BTR-94
Kazakhstan	90	None
Kyrgyzstan	10	None
Macedonia	12	None
Moldova	11	None
Mongolia	20	None
Russia	200+	BTR-80A
South Korea	20	None
Sri Lanka	25	Combination of BTR-80 and BTR-80A
Sudan	7	BTR-80A
Tajikistan	23	Combination of BTR-60, BTR-70, and BTR-80
Thailand	Unk	BTR-3E1
Turkmenistan	829	Combination of BTR-60, BTR-70, and BTR-80
UAE	24	BTR-3E1
Uganda	Unk	None
Ukraine	395	None
Uzbekistan	210	None

BTR-3U Armored Personnel Carrier[178]		
Country	Quantity	Comments
Azerbaijan	3	Status Unknown
Kazakhstan	2	None
Burma	10	1000 more planned
United Arab Emirates	90	None

BTR-90 (8 x 8) Armored Personnel Carrier

The latest upgrade for the BTR is the BTR-90, first introduced to the public in 1994. The BTR-90 has a higher and larger profile than the BTR-80, and its nose resembles the LAV-25. The BTR-90 also possesses better armor protection than its predecessor, and features the same turret as the BMP-2. The BTR-90 can travel up to 100 km/h on roads and 50 km/h off roads, with a range of 700 km. The BTR-90 can cross water obstacles without any preparation through the use of two water-jet propellers in its rear hull.[179]

Armament can vary, but the standard weapons are the 30-mm 2A42 automatic cannon and a 7.62-mm PKT coaxial machine gun. The standard ammunition load is 500 rounds for the 2A42 and 2,000 rounds for the PKT machine gun. There are firing ports on all sides for the seven soldiers inside the troop compartment. Some BTR-90 variants also fire the AT-5B/Konkurs-M ATGM. The BTR-90 has a crew of two or three, depending on whether the eighth soldier operating the turret is considered crew or part of the dismounts.[180]

Figure 61. BTR-90

Currently, there are no countries with the BTR-90 in its inventory. The Russians announced in October 2011 that they would discontinue purchasing BTR-90s due to the vehicle's outdated design. A report in 2004 indicated that Jordan provided 50 BTR-90s to Iraq, but they were actually BTR-94s.[181]

Arzamas Upgrade:

This BTR-90 version includes a 30-mm automatic gun, a 7.62-mm coaxial machine gun, and a 30-mm grenade launcher with the ability to engage slow-moving planes within 2.5 km. The ATGM can fire out to 4 km while the vehicle features systems for collective NBC protection, automatic fire-fighting, and remote screen-laying.[182]

BTR-90 with 100-mm Turret:

This version, introduced in 2001, uses the BMP-3 turret that contains the 100-mm 2A70 gun, the 30-mm 2A72 cannon, and the 7.62-mm PKT coaxial machine gun. It is operated by a crew of four, leaving only six soldiers available for dismounted operations.[183]

Krymsk Hybrid-Electric APC:

This BTR-90 variant is driven by a battery-powered electric motor and may eventually evolve into an unmanned weapons platform for Russia. The Kyrmsk can be operated by remote control, reaches a top

speed of 97 km/h, and can accelerate from zero to 80 km/h in only 33 seconds. There is potential for the Krymsk to be equipped with advanced weapons systems such as lasers and electromagnetic rail guns.[184]

Undesignated Proposed Variant:
There is discussion regarding whether, over time, the BTR-90 chassis eventually could be fitted with the armament needed to use it as an AT missile launch platform.[185]

BTR-4 (8 x 8) Armored Personnel Carrier

The BTR-4 is an improved Ukrainian version that places the engine in the middle of the vehicle behind the crew compartment, so that soldiers can now dismount through doors located in the back of the vehicle. The number of personnel that the BTR-4 can carry ranges from three to seven, depending on the vehicle's mission. The BTR-4 can travel 68 km/h on the road and swim 10 km/h across water obstacles, with a cruising range of 690 km. Built in the Ukraine and first exhibited in 2006, the BTR-4 contains a collective NBC protection system and an automatic fire-suppression system. The BTR-4 can carry a variety of armaments.[186]

Iraqi BTR-4:
The Iraqi version of the BTR-4 carries the BM-7 Parus turret equipped with the 30-mm ZTM-1 cannon, the 7.62-mm PKMT coaxial machine gun, and six 81-mm grenade launchers. The variant may also have the ability to carry twin rails for ATGMs, such as the AT-5 Spandrel or the Ukrainian Bar'er system.[187]

BTR-4K Command Vehicle:
The BTR-4K is a communications-heavy vehicle that contains an R-173-M radio, an R-163-50K radio, an R-159 radio, a Severok-K radio, the TA-57-U telephone set, and the TK-2 telephone spool. The vehicle also has a variety of navigation aids and night vision devices.[188]

BTR-4KSh Command and Staff Vehicle:
Similar to the BTR-4K, the BTR-4KSh also mounts a 12.7-mm machine gun for use by commanders and staff in forward units.[189]

BRM-4K Reconnaissance Vehicle:
The BRM-4K variant has the same communications and navigation equipment as the BTR-4K, but with additional equipment for reconnaissance, including chemical detection gear.[190]

BTR-4 with Grom or Shkval Module:
The BTR-4 with the Grom turret features a 3TM-2 (2A42) 30-mm gun with 360 rounds of ammunition, the AG-17 30-mm grenade launcher with 150 rounds, the KT-7 7.62-mm machine gun with at least 1,200 rounds, and four ATGM missiles, either 9P135M Konkurs or Bar'er. Its three possible varieties of sights include the PNK-45S, the PNK-5, and the PZU-7.[191]
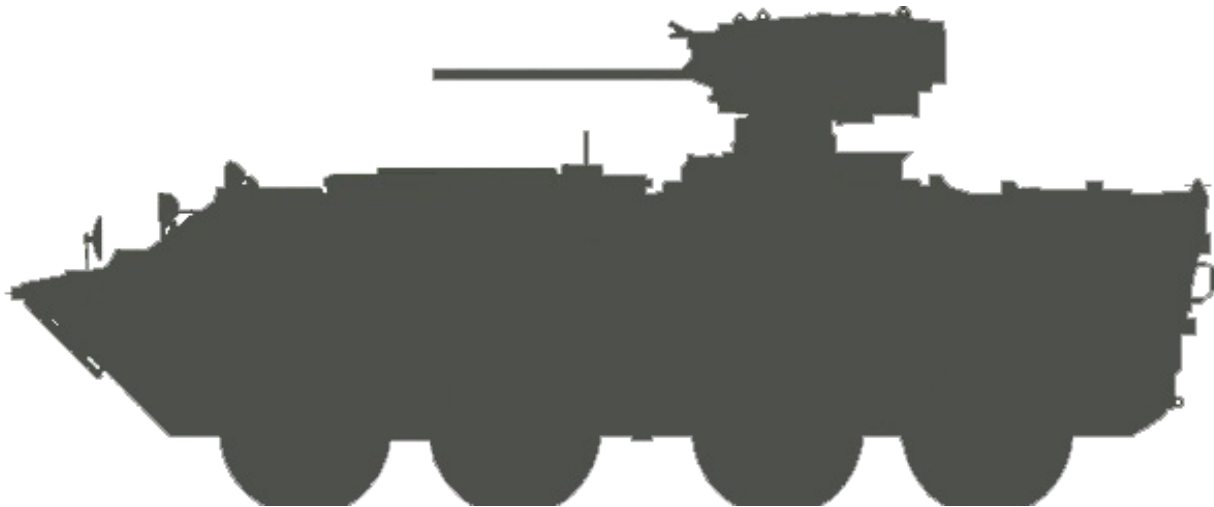
Figure 62. BTR-4 silhouette with Grom gun module

BREM-4K Repair and Recovery Vehicle:

The BREM-4K is a BTR-4 APC that operates a crane capable of lifting 3,000 kg and pulling up to 6,800 kg. It also contains welding equipment and other gear necessary to tow broken-down vehicles and equipment.[192]

BSEM-4K Ambulance:

The BEM-4K has an enlarged rear hull designed for evacuating casualties from the combat zone.[193]

MOP-4K Fire Support Vehicle:

This variant features a variety of heavy armament, including a 120-mm cannon with 40 rounds of ammunition and a 12.7-mm machine gun with 450 rounds.[194]

BTR-4 Armored Personnel Carrier[195]		
Country	Quantity	Comments
Iraq	420	None
Kazakhstan	100	None
Ukraine	10	None

OT-64 SKOT (8 x 8) Armored Personnel Carrier

Figure 63. OT-64 at the technical museum in Brno, Czech Republic

The *Sredni Kolowy Opancerzny Transporter* (SKOT) is an APC similar to the BTR built by Poland and the former Czechoslovakia in the early 1960s. About 10,300 SKOTs were built between the early 1960s and 1990. Also known as the OT-64, primarily for the vehicles made in the former Czechoslovakia and now Slovakia, this vehicle with a crew of two can carry up to 18 soldiers who either enter through five hatches on top of the vehicle, or through two doors in the rear of the vehicle. The SKOT can travel up to 94.4 km/h on roads, and can travel up to 710 km on its 320 liter fuel tank. This amphibious vehicle can cross water obstacles at 9 km/h by using its two propellers.[196]

The primary weapon in the turret is a 14.5-mm KPVT machine gun with 500 rounds of ammunition. The turret can traverse 360 degrees and can lower its weapons to -4 degrees of elevation, or raise them to 29 degrees. There is a secondary 7.62-mm PKT coaxial machine gun also mounted in the turret. There are two firing ports on each side of the vehicle and one port in each of the rear doors, allowing up to six troops to fire their personal weapons from inside the vehicle.[197]

OT-64:
The original OT-64 was built without any weapons and later used as a medical evacuation vehicle.[198]

OT-64/R-2M Command:
The OT-64/R-2M is the nomenclature assigned to SKOTs used as command vehicles.[199]

OT-64-R-3MT/R-4MT:

The OT-64-4-3MT/R-4MT variants serve as a radio carriers.[200]

Figure 64. One of the two propellers for amphibious operations on the OT-64

Other Polish Variants:

Poland uses the SKOT as both an artillery resupply vehicle and a minelayer.[201]

SKOT/OT-64A:

This is the original SKOT design without a turret. While the Czech model has no armament, the Polish version sports a pintle-mounted 7.62-mm machine gun. Some of the OT-64s feature two AT-3 Sagger ATGM launchers with four additional Saggers carried inside the vehicle.[202]

Figure 65. OT-64A

Figure 66. OT-64A Interior

SKOT-2/OT-64B:

Only Poland produces this version of the SKOT. This vehicle features split hatches that can be locked in their vertical positions. The weapons are normally pintle-mounted 7.62-mm machine guns or a 12.7-mm machine gun behind a metal shield.[203]

Figure 67. SKOT-2 at the Military Vehicle Collectors show in Bielsko Biala, Poland

Figure 68. OT-64C(1) on maneuvers

SKOT-2A/OT-64C(1):

This is the primary version of the SKOT, equipped with the single-man turret that is the same as the BRDM-2 turret containing 14.5-mm KPVT and 7.62-mm PKT coaxial machine guns. Some versions of this

variant also carry AT-3 Sagger ATGMs mounted on each side of the turret with side shields to protect them from flank attacks.[204]

SKOT-2AP/OT-64C(2):

This is the version that was prevalent throughout the Polish army. This turret, while shaped differently than other SKOTs, carries the same two machine guns as the SKOT-2A and the ATGM, but its maximum elevation can reach 89.5 degrees.[205]

Figure 69. OT-64C(S) in Krakow, Poland

SKOT with Cobra Turret:

The lighter Cobra turret with a 30-mm 2A42 cannon and a 7.62-mm PKT machine gun is mounted on some SKOTs. The machine gun carries a basic load of 1,650 rounds of ammunition.[206]

SKOT-WPT and DPT-64 Armored Repair Vehicles:

These SKOT variants serve as repair vehicles. The SKOT-WPT carries a 1,000 kg capacity crane and features a 7.62 machine gun for self-defense.[207]

Figure 70. SKOT-WPT crosses a water obstacle on an engineer bridge

WR-02 Rys APC Upgrade:

Poland attempted to extend the life of its SKOTs by upgrading the batteries, dashboard, electrical systems, sump pumps, and transmissions of these vehicles. The Wr-02 Rys APC upgrade also includes an internal air conditioning system and an onboard computer system along with the IVECO Cursor 8 engine. The export version is called the WR-02 Rys-2.[208]

WR-02 Rys Reconnaissance Vehicle:

The WR-02 Rys Reconnaissance Vehicles possess the same upgrades found on the WR-02, but also come equipped with special long-range reconnaissance and observation systems.[209]

WR-02 Artillery Command Post Vehicle:

There is a high probability that the Polish Army also uses the WR-02 as a battery and battalion commander's vehicle in some of its artillery units.[210]

WR-02 Command Post Upgrade:

The WR-02 SKOT includes all the upgrades of the previous version, but also adds an automatic transmission, a vehicle lighting system, and improved communications equipment.[211]

Figure 71. This SKOT command vehicle has at least 8 antennas

OT-64 SKOT Armored Personnel Carrier[212]		
Country	Quantity	Comments
Algeria	150	None
Cambodia	30	None
Czech Republic	28	Combination of OT-64A, SKOT/OT-64C, SKOT 2
India	157+	Combination of OT-62 and OT-64
Libya	100	Combination of OT-62 and OT-64
Poland	Unk	None
Slovakia	17	Combination of OT-64A and OT-64C
Sudan	50	None
Uganda	4	None
Uruguay	53	None

Analyst Assessment

There are over 70 countries that use some variant of the BTR. Some of those countries are friendly to the US while others are not. American Soldiers need to know not only the capabilities of their own weapons, but also those of their allies and enemies. Only by understanding what capabilities a BTR variant possesses will the Soldier know whether an ally's BTR can complete the mission that an American commander assigns; or perhaps more importantly, what dangers an enemy's BTR may hold for an American unit.

With almost 20,000 BTRs scattered throughout the world's militaries, it is only a matter of time until an American Soldier will work with or fight against one of the more than 100 BTR versions produced during the last eight decades. This Threat Report only provides a glimpse into the capabilities of the various BTR variants. For more details on the capabilities for the most prevalent BTRs, see the Worldwide Equipment Guide (WEG).

Training Implications

- The BTR is a primary APC in over 70 countries including those friendly, neutral, and unfriendly to the US.

- The BTR is the major APC for the infantry in many countries.

- Some BTRs can only be used as APCs to transport dismounted troops to the forward areas of the battlefield.

- Other BTRs have capabilities that permit their use as Infantry Fighting Vehicles (IFVs), allowing Soldiers to remain mounted en route to an objective.

- Many BTRs, some with turrets and others without, are used as command vehicles or to control indirect fire. The elimination of these vehicles could affect the ability of those commanders to adequately exercise proper command and control or adjust indirect fire.

Related Products

See also the Red Diamond Newsletter, which contains current articles on a variety of topics useful to both soldiers and civilians ranging from enemy TTP to the nature and analysis of various threat actors.

For detailed information on weapons and equipment, see the Worldwide Equipment Guide.

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End Notes

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[2] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012; Military Factory, "BTR-40 (Bronetransporter) Armored Personnel Carrier/Armored Car (1950), 11 January 2013.

[3] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012; Military Factory, "BTR-40 (Bronetransporter) Armored Personnel Carrier/Armored Car (1950), 11 January 2013.

[4] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012; Military Factory, "BTR-40 (Bronetransporter) Armored Personnel Carrier/Armored Car (1950), 11 January 2013.

[5] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012.

[6] Military Factory, "BTR-40 (Bronetransporter) Armored Personnel Carrier/Armored Car (1950), 11 January 2013.

[7] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012; Military Factory, "BTR-40 (Bronetransporter) Armored Personnel Carrier/Armored Car (1950), 11 January 2013.

[8] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012.

[9] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012.

[10] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012; Military Periscope, "Walid (4 x 4) armored personnel carrier," 1 May 2013.

[11] Military Periscope, "BTR-40 (4 x 4) armored personnel carrier," 1 November 2012.

[12] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; Training and Doctrine Command (TRADOC) Intelligence Support Activity (TRISA), Worldwide Equipment Guide, 2013, page 3-21; Military Factory, "BTR-152 Armored Personnel Carrier (1950)," 25 August 2011; Army Recognition, "BTR-152," Undated.

[13] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21.

[14] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; Krasnayazvezda, "BTR-152," 21 April 2012.

[15] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; Krasnayazvezda, "BTR-152 antiaircraft," 21 April 2012.

[16] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; FAS, "BTR-152," 19 June 1999.

[17] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; Yazvezda, "BTR-152 antiaircraft," 21 April 2012.

[18] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; Krasnayazvezda, "BTR-152 antiaircraft," 21 April 2012.

[19] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21.

[20] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; FAS, "BTR-152," 19 June 1999; Krasnayazvezda, "BTR-152," 21 April 2012.

[21] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21.

[22] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; Krasnayazvezda, "BTR-152," 21 April 2012.

[23] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; Krasnayazvezda, "BTR-152," 21 April 2012.

[24] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21.

[25] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; FAS, "BTR-152," 19 June 1999.

[26] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21; Jedsite, "BTR-152 [Lebanon – AA]," Undated. Sword of the Motherland Foundation, "History, Development, and Use of the 23mm ZU-23 Anti-Aircraft Gun," Undated.

[27] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21.

[28] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-21.

[29] Military Periscope, "BTR-152 (6 x 6) armored personnel carrier," 1 November 2012.

[30] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; Military Factory, "BTR-50P Armored Personnel Carrier (1950)," Undated; Military Today, "BTR-50P," Undated; Army Recognition, "BTR-50 PK Armoured personnel carriers Armoured troop-carrier," Undated; Jedsite, "BTR-50," 9 August 2011.

[31] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; Federation of American Scientists (FAS), "BTR-50P Amphibious Armored Personnel Carrier," 19 June 1999; Military Factory, "BTR-50P Armored Personnel Carrier (1950)," Undated; Military Today, "BTR-50P," Undated; Jedsite, "BTR-50," 9 August 2011.

[32] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; FAS, "BTR-50P Amphibious Armored Personnel Carrier," 19 June 1999; Military Factory, "BTR-50P Armored Personnel Carrier (1950)," Undated; Jedsite, "BTR-50," 9 August 2011.

[33] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; (FAS), "BTR-50P Amphibious Armored Personnel Carrier," 19 June 1999; Army Recognition, "BTR-50 PK Armoured personnel carriers Armoured troop-carrier," Undated.

[34] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012.

[35] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; Military Today, "BTR-50P," Undated; Military Today, "BTR-50P," Undated.

[36] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; (FAS), "BTR-50P Amphibious Armored Personnel Carrier," 19 June 1999.

[37] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; Army Recognition, "BTR-50 PK Armoured personnel carriers Armoured troop-carrier," Undated; Military Factory, "BTR-50P Armored Personnel Carrier (1950)," Undated.

[38] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; Army Recognition, "BTR-50 PK Armoured personnel carriers Armoured troop-carrier," Undated.

[39] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; (FAS), "BTR-50P Amphibious Armored Personnel Carrier," 19 June 1999; Military Factory, "BTR-50P Armored Personnel Carrier (1950)," Undated.

[40] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012.

[41] Military Periscope, "OT-62 armored personnel carrier," February 2013; Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; Harpoon Head Quarters, "OT-62 Topas amphibious APC," Undated.

[42] Military Periscope, "OT-62 armored personnel carrier," February 2013.

[43] Military Periscope, "OT-62 armored personnel carrier," February 2013; Military Periscope, "TOPAS-2AP armored personnel carrier," 1 October 2008.

[44] Military Periscope, "TOPAS-2AP armored personnel carrier," 1 October 2008.

[45] Military Periscope, "OT-62 armored personnel carrier," 1 February 2013.

[46] Military Periscope, "OT-62 armored personnel carrier," 1 February 2013.

[47] Military Periscope, "OT-62 armored personnel carrier," 1 February 2013.

[48] Military Periscope, "OT-62 armored personnel carrier," 1 February 2013.

[49] Military Periscope, "TOPAS-2AP armored personnel carrier," 1 October 2008.

[50] Military Periscope, "TOPAS-2AP armored personnel carrier," 1 October 2008.

[51] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; Military Periscope, "OT-62 armored personnel carrier," 1 February 2013; Military Periscope, "TOPAS-2AP armored personnel carrier," 1 October 2008.

[52] Military Periscope, "BTR-50 armored personnel carrier," 1 November 2012; Military Periscope, "OT-62 armored personnel carrier," 1 February 2013; Military Periscope, "TOPAS-2AP armored personnel carrier," 1 October 2008.

[53] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-16; FAS, "BTR-60 Armored Personnel Carrier," 19 June 1999; Military Factory, "BTR-60 8x8 Armored Personnel Carrier (1960)," Undated; Military Today, "BTR-60PB Armored Personnel Carrier," Undated; Jedsite, "BTR-60," 8 July 2009.

[54] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-16; Military Factory, "BTR-60 8x8 Armored Personnel Carrier (1960)," Undated; Jedsite, "BTR-60," 8 July 2009.

[55] FAS, "BTR-60 Armored Personnel Carrier," 19 June 1999; Military Factory, "BTR-60 8x8 Armored Personnel Carrier (1960)," Undated; Jedsite, "BTR-60," 8 July 2009.

[56] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-50P Armored Personnel Carrier (1950)," Undated.

[57] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[58] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[59] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[60] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[61] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[62] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-16.

[63] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-16; FAS, "BTR-60 Armored Personnel Carrier," 19 June 1999; Military Factory, "BTR-60 8x8 Armored Personnel Carrier (1960)," Undated.

[64] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[65] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; FAS, "BTR-60 Armored Personnel Carrier," 19 June 1999.

[66] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-16 and 3-17.

[67] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; Military Today, "BTR-60PB Armored Personnel Carrier," Undated.

[68] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[69] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; FAS, "BTR-60 Armored Personnel Carrier," 19 June 1999.

[70] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-50P Armored Personnel Carrier (1950)," Undated.

[71] Worldwide Equipment Guide, page 3-17; Military Today, "BTR-60PB Armored Personnel Carrier," Undated.

[72] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[73] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[74] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[75] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[76] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[77] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[78] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; FAS, "BTR-60 Armored Personnel Carrier," 19 June 1999.

[79] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[80] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.

[81] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-17; FAS, "BTR-60 Armored Personnel Carrier," 19 June 1999.
[82] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.
[83] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.
[84] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.
[85] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; Military Today, "BTR-60PB Armored Personnel Carrier," Undated.
[86] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012; Military Today, "BTR-60PB Armored Personnel Carrier," Undated.
[87] Military Periscope, "BTR-60 (8 x 8) armored personnel carrier," 1 November 2012.
[88] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[89] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012; FAS, 'BTR-70 Armored Personnel Carrier," 16 October 1999; Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[90] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[91] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[92] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[93] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[94] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.
[95] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[96] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.
[97] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[98] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.
[99] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.
[100] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[101] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[102] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.
[103] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.
[104] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[105] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[106] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[107] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[108] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[109] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[110] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[111] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[112] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[113] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[114] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.
[115] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.

[116] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.

[117] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.

[118] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.

[119] Military Factory, "BTR-70 8x8 Armored Personnel Carrier (1980)," 13 August 2008.

[120] Military Periscope, "BTR-70 (8 x 8) armored personnel carrier," 1 November 2012.

[121] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-18 and 3-19; FAS, "BTR-80 Armored Personnel Carrier," 25 August 2000; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[122] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-18 and 3-19; FAS, "BTR-80 Armored Personnel Carrier," 25 August 2000; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[123] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-18; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[124] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-18; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[125] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-18.

[126] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-19.

[127] Military Factory, "BTR-3 Armored Personnel Carrier (2001)," 4 October 2012.

[128] Military Periscope, "BTR-3U," 1 November 2012; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010; Military Factory, "BTR-3 Armored Personnel Carrier (2001)," 4 October 2012.

[129] Military Periscope, "BTR-3U," 1 November 2012.

[130] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[131] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[132] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; FAS, "BTR-80 Armored Personnel Carrier," 25 August 2000.

[133] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[134] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[135] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[136] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-18.

[137] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012.

[138] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[139] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[140] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[141] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[142] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[143] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012.

[144] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[145] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[146] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[147] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[148] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[149] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[150] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[151] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[152] Military Factory, "BTR-80 Armred Personnel Carrier (1987)," 30 November 2010.

[153] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[154] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[155] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-18 and 3-19; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[156] Military Periscope, "BTR-90 (8 x 8) armored personnel carrier, 1 December 2012; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010; Military Factory, "BTR-94 Amphibious Armored Personnel Carrier (2000)," 2 February 2001.

[157] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[158] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[159] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012.

[160] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[161] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[162] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[163] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[164] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[165] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[166] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[167] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-18.

[168] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[169] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[170] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[171] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[172] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[173] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012.

[174] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[175] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012; Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[176] Military Factory, "BTR-80 Armored Personnel Carrier (1987)," 30 November 2010.

[177] Military Periscope, "BTR-80 (8 x 8) armored personnel carrier," 1 November 2012.

[178] Military Periscope, "BTR-3U," 1 November 2012.

[179] Military Periscope, "BTR-90 (8 x 8) armored personnel carrier, 1 December 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-20; FAS, "BTR-90," 3 September 2000; Military Factory, "BTR-90 8x8 Armored Personnel Carrier (1995)," 30 November 2010.

[180] Military Periscope, "BTR-90 (8 x 8) armored personnel carrier, 1 December 2012; TRISA, Worldwide Equipment Guide, 2013, page 3-20; Military Factory, "BTR-90 8x8 Armored Personnel Carrier (1995)," 30 November 2010.

[181] Military Periscope, "BTR-90 (8 x 8) armored personnel carrier, 1 December 2012.

[182] Military Periscope, "BTR-90 (8 x 8) armored personnel carrier, 1 December 2012.

[183] Military Periscope, "BTR-90 (8 x 8) armored personnel carrier, 1 December 2012.

[184] Military Periscope, "BTR-90 (8 x 8) armored personnel carrier, 1 December 2012.

[185] Military Periscope, "BTR-90 (8 x 8) armored personnel carrier, 1 December 2012.

[186] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[187] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[188] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[189] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[190] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[191] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[192] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[193] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[194] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[195] Military Periscope, "BTR-4 (8 x 8) armored personnel carrier," 1 October 2010.

[196] Military Periscope, "OT-64 SKOT (8 x 8) armored personnel carrier," 1 February 2013; Military Today, "OT-64/SKOT Armored Personnel Carrier," Undated; Ministry of Defence & Armed Forces of the Czech Republic, "History: Armoured Personnel Carrier OT-64," Undated; Jedsite, "OT-64," 11 September 2010.

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