WHEELED LIGHT COMBAT VEHICLES

Austrian Wheeled Light Combat Vehicles
Belgian Wheeled Light Combat Vehicles
Brazilian Wheeled Light Combat Vehicles
British Wheeled Light Combat Vehicles
Canadian Wheeled Light Combat Vehicles
Chinese Wheeled Light Combat Vehicles
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US Wheeled Light Combat Vehicles

Steyr Pandur ARFSV

Notes: The ARSFV (Armored Reconnaissance Fire Support Vehicle) is a scout and fire support version of the Pandur APC (see Austrian APCs). In this guise, the Pandur has a turret armed with a 90mm NATO gun. A small scout squad is still carried, but passenger space is reduced. The turret is a Cockerill LCTS-90MP turret, with 22 rounds for the main gun stored in the turret and all of the machinegun rounds stored in the turret. The main gun is a 90mm Cockerill Mk 8 rifled gun. The standard machineguns for the turret are MAG-58s, but Steyr will put virtually any machineguns in the turret. The commander and gunner have hatches on the turret deck, but the commander's hatch is in an electrically-powered cupola with all-around vision blocks. The commander can aim and fire (but not reload) his machinegun from under armor, using a monitor attached to his cupola. This monitor also can display an image from the gunner's thermal imager as well as his own image intensifier.

The base engine of the Pandur II chassis is a Cummins ISC-350 turbocharged diesel with an output of 285 horsepower, but options include other variants of the ISC-350 with outputs of 355, 385, or 400 horsepower, and Steyr-Daimler-Puch is willing to design in other engines at a customer's request. Hunter/killer combinations are also offered for the baseline turrets. Armor is increased somewhat; however, appliqué armor is available for the hull and all turret/cupola configurations. (Though there are two firing ports on either side and two in the rear – appliqué armor normally blocks the side firing ports.) The appliqué armor used for the Pandur is normally a lightweight appliqué based on ceramic composite enclosed in thin steel. The baseline configuration gives the crew and passengers a collective NBC system, with an NBC overpressure system being an option. Normal access for the troops is via two large doors in the rear, but a powered ramp can also be fitted. Other standard equipment includes a front-mounted winch with a capacity of 6 tons, or 12 tons with block and tackle and a laser warning system. The Pandur ARFSV is also amphibious as standard, propelled in the water by steerable waterjets. Steering is power-assisted, and the Pandur II has antilock brakes. Turning radius is surprisingly small, with the Pandur ARFSV being able to turn 180 degrees in 9 meters.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Pandur ARFSV (285 hp)	$513,372	D, A	547 kg	17.1 tons	3+4	12	Thermal Imaging (G), Image Intensification (D, G, C)	Shielded
Pandur ARFSV (285 hp w/Applique)	$526,452	D, A	543 kg	18.1 tons	3+4	12	Thermal Imaging (G), Image Intensification (D, G, C)	Shielded
Pandur ARFSV (355 hp)	$513,684	D, A	549 kg	17.2 tons	3+4	12	Thermal Imaging (G), Image Intensification (D, G, C)	Shielded
Pandur ARFSV (355 hp w/Applique)	$514,251	D, A	548 kg	18.2 tons	3+4	12	Thermal Imaging (G), Image Intensification (D, G, C)	Shielded
Pandur ARFSV (385 hp)	$513,816	D, A	543 kg	17.2 tons	3+4	12	Thermal Imaging (G), Image Intensification (D, G, C)	Shielded
Pandur ARFSV (385 hp w/Applique)	$514,383	D, A	539 kg	18.2 tons	3+4	12	Thermal Imaging (G), Image Intensification (D, G, C)	Shielded
Pandur ARFSV (400 hp)	$513,882	D, A	544 kg	17.2 tons	3+4	12	Thermal Imaging (G), Image Intensification (D, G, C)	Shielded
Pandur ARFSV (400 hp w/Applique)	$514,449	D, A	539 kg	18.2 tons	3+4	12	Thermal Imaging (G), Image Intensification (D, G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Pandur ARFSV (285 hp)	124/87	34/24/3	365	106	Trtd	W(4)	TF7 TS6 TR6 HF9 HS4 HR4
Pandur ARFSV (285 hp w/Applique)	118/83	33/23/3	365	106	Trtd	W(4)	TF9Sp TS7Sp TR3 HF10Sp HS6Sp HR4*
Pandur ARFSV (355 hp)	146/102	41/28/4	365	132	Trtd	W(4)	TF7 TS6 TR6 HF9 HS4 HR4
Pandur ARFSV (355 hp w/Applique)	140/98	39/27/4	365	132	Trtd	W(4)	TF9Sp TS7Sp TR3 HF10Sp HS6Sp HR4*
Pandur ARFSV (385 hp)	156/109	43/30/4	365	143	Trtd	W(4)	TF7 TS6 TR6 HF9 HS4 HR4
Pandur ARFSV (385 hp w/Applique)	149/104	41/29/4	365	143	Trtd	W(4)	TF9Sp TS7Sp TR3 HF10Sp HS6Sp HR4*
Pandur ARFSV (400 hp)	160/112	45/31/4	365	148	Trtd	W(4)	TF7 TS6 TR6 HF9 HS4 HR4
Pandur ARFSV (400 hp w/Applique)	153/107	43/30/4	365	148	Trtd	W(4)	TF9Sp TS7Sp TR3 HF10Sp HS6Sp HR4*

Fire Control	Stabilization	Armament	Ammunition
+3	Good	90mm Cockerill gun, MAG, MAG (C)	45x90mm,4000x7.62mm

*Floor armor value is 4; hull and turret roof armor are 3.

FN 4RM/62F AB

Notes: This Belgian vehicle is used only by the Belgian Gendarmerie, and marks the FN company's only foray into the armored vehicle market. It began service in 1971, but has now been long out of service, having been retired after their service in the Belgian Gendarmerie in the 1990s. The Belgians do, however, keep several of them in running order in storage.

The 4RM/62F AB looks very much like the Panhard AML, and sems to take some design cues from that vehicle. The hull and turrets are of all-welded steel. The driver is in the center front of the hull in the glacis; he has a single hatch opening upwards, and a front armored windshield and three vision blocks to the front and sides. The windshield has an armored cover which is deployed in combat situations. The crew can also enter and exit through a door on either side of the hull; the door on the right side has a vision block. The turret is in the center of the vehicle, and the commander and gunner sit in this. The commander and gunner have a hatch on the turret deck, with the commander on the right side of the gun and the gunner on the left. The commander's cupola has all-around vision blocks, while the gunner has vision blocks on the front and sides of his hatch. (He also has the sights for the main gun.) The turret has electric rotation and a manual rotation backup. The crew had a collective NBC system, into which they could plug in their protective masks.

The 4RM/62F AB is powered by a 130-horsepower gasoline-fueled engine, and coupled to a manual transmission with four forward and one rearward gears. The 4RM/62F AB could turn in only 6 meters and could ford 1.1 meters without preparation. (It is not, however, amphibious.) The engine compartment has an automatic fire suppression system.

Two variants are available, distinguished with their turrets. The first one is a large turret armed with a 90mm MECAR low-pressure gun and a coaxial MAG machinegun. These versions have six smoke grenade launchers on either side of the turret at the rear sides. The second turret was smaller, and equipped with a 60mm French breech-loaded mortar capable of direct fire and two coaxial MAGs. On this model, the same smoke grenade launchers were situated on the center sides of the turret. In both cases, the smoke grenades are electrically fired by controls in the commander's cupola.

Twilight 2000 Notes: By 2000, the remaining vehicles were being operated by occupying French forces for internal security purposes.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
90mm Turret	$225,102	G, A	350 kg	8 tons	3	8	WL Spotlight (C)	Enclosed
MG/Mortar Turret	$136,966	G, A	321 kg	8.8 tons	3	8	WL Spotlight (C)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
90mm Turret	134/68	38/19	180	58	Trtd	W(3)	TF3 TS3 TR3 HF3 HS2 HR2
MG/Mortar Turret	113/79	31/22	180	58	Trtd	W(3)	TF3 TS3 TR3 HF3 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
90mm Turret	+2	Basic	90mm MECAR Gun, MAG, MAG (C)	40x90mm DEFA, 3680x7.62mm
MG/Mortar Turret	+2	Basic	Brandt 60mm LR Gun/Mortar, 2xMAG	46x60mm Shells, 4830x7.62mm

EE-3 Jararaca

Notes: The Jararaca is a Brazilian 4x4 recon vehicle in service with a number of armies worldwide. The Jararaca was ultimately rejected for Brazilian service due to the limitations of its 4x4 chassis, but it saw some export success, most notably to Iraq, who used them in the Iran-Iraq War and the Gulf War, and Iran, who also used them in the Iran-Iraq War. The EE-3's export attempts were partially short-circuited by the trend towards larger wheeled chassis and the availability of light armored cars in the wake of the Cold War.

The EE-3's hull is made of electro-slag refined steel. Armor, like most such light wheeled armored cars, is not heavy, but is adequate against small arms and shell fragments, and is proof against 7.62mm armor-piercing rounds from the front. A variety of turrets may be mounted, some of which are statted out below. The basic vehicle comes with a ring mount (NHT equivalent) to which an M2HB is usually fitted at the front deck hatch (C). The vehicle has a right-side door and a rear deck hatch for crew access; the commander and gunner also have hatches on the front deck, and the various turrets employed usually have hatches on the turret deck for the commander and gunner. Variant armaments include a 20mm autocannon, a 60mm gun/mortar, and a Milan ATGM launcher. The EE-3 is powered by a 120-horsepower Mercedes-Benz OM 314A turbocharged diesel in the rear of the hull. Transmission is a manual Clark Model 240 V with one reverse and five forward gears. Suspension is by semi-elliptical leaf springs and hydraulic shock absorbers. The axles also have hypoid gears. The driver has access to a central tire pressure regulation system. The driver's hatch is in the glacis plate and hinges upward; it may be kept open for normal driving and closed for combat.

While versions with 20mm autocannons, 60mm gun/mortars, and a turret with light and heavy machineguns were not proceeded with beyond unspecified export sales, the reconnaissance car variant with a ring-mounted M2HB was the most-produced variant, and about a dozen versions with the Milan II ATGM launcher were known to be produced for Cyprus. A single NBC Reconnaissance version was produced as a test and subsequently taken into service by the Brazilian Army in one of its Cav regiments. This version has an NBC Overpressure system, three optical chemical sniffers and three Radiac meters (looking to the sides and front of the vehicle), an inertial navigation system, and a rebuilt driver's station with a bulge on the glacis plate in front of the driver's station and vision blocks to the front and sides of the station (the hatch is deleted). The vehicle has an extra long-range data-capable radio. The crew has several changes of MOPP suits and a small computer-controlled station for the analysis of samples taken from outside the vehicle. The commander can aim and fire (but not reload) his machinegun from inside the vehicle with the hatch closed.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
M2HB Ring Mount	$36,928	D, A	293 kg	5.5 tons	3	4	Passive IR (D)	Enclosed
ATGM Carrier	$63,736	D, A	243 kg	5.4 tons	3	5	Passive IR (D, G)	Enclosed
20mm Autocannon	$97,973	D, A	208 kg	6.15 tons	3	6	Passive IR (D, G)	Enclosed
60mm Gun/Mortar	$121,024	D, A	208 kg	6.68 tons	3	6	Passive IR (D, G)	Enclosed
MG Turret	$40,524	D, A	223 kg	5.88 tons	3	4	Passive IR (D, G)	Enclosed
NBC Reconnaissance	$308,728	D, A	338 kg	6 tons	3	7	Passive IR (D, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
M2HB Ring Mount	169/85	47/24	135	44	Stnd	W(3)	HF7 HS3 HR2
ATGM Carrier	171/86	48/24	135	44	Stnd	W(3)	HF7 HS3 HR2
20mm Autocannon	154/78	43/22	135	44	Trtd	W(3)	TF6 TS4 TR3 HF7 HS3 HR2
60mm Gun/Mortar	144/73	40/20	135	44	Trtd	W(3)	TF6 TS4 TR3 HF7 HS3 HR2
MG Turret	163/81	44/22	135	44	Trtd	W(3)	TF6 TS4 TR3 HF7 HS3 HR2
NBC Reconnaissance	161/81	44/22	135	44	Stnd	W(3)	HF7 HS3 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
M2HB Ring Mount/NBC Reconnaissance	None	None	M2HB (C)	1260x.50
ATGM Carrier	None	None	Milan II Launcher	8xMilan II ATGM
20mm Autocannon	+1	Basic	20mm Rh-202 Autocannon, M2HB (C)	400x20mm, 1260x.50
60mm Gun/Mortar	+1	Basic	60mm Brandt LR Gun/Mortar, M2HB (C)	42x60mm, 1260x.50
MG Turret	+1	Basic	M2HB, MAG	1260x.50, 2400x7.62mm

EE-9 Cascavel

Notes: The EE-9 is another Brazilian AFV intended for both domestic service and the export market. Several export customers

chose the Cascavel in preference to vehicles like the Panhard AML or ERC-90 Sagaie due more lax export laws in Brazil. The automotive components are also similar or the same as found in civilian heavy trucks, making the supply of spare parts easier. The Cascavel is a 6x6 wheeled recon vehicle of conventional layout, developed to replace the M8 Greyhound and uses the general layout of the Greyhound. The EE-9 shares many components with the EE-11 Urutu APC, and both were produced at the same time and often sold as sets to export customers. It was produced from 1974 to 1993.

The Cascavel has a driver's hatch on the front deck, commander's and gunner's hatches on the turret, and a firing port on each side. The gun turret has a coaxial MAG MG, and a mount (NMT equivalent) at the commander's hatch (C) for an optional second MAG MG. The initial 37mm gun turrets are simply barely modified M8 Greyhound turrets, while the 90mm gun turrets are based on those of the French Panhard AML. The Mark I and II turrets are manually rotated, while others have an electric traverse. The EE-9 is powered by a Detroit Diesel 6V-53N diesel engine developing 212 horsepower; this engine is similar to the one powering the M113A2 APC. The Mark I is powered by a different Mercedes-Benz gasoline engine which develops 190 horsepower. The suspension is a 6x6 double axle boomerang drive, which gives it a very smooth ride. The Mark I and II have manual transmissions, while other variants have an automatic transmission. The driver is in the front center, with the turret in the center of the vehicle and the engine and transmission at the rear. The Mk III uses a variant of the 6V-53N which is locally produced and uses a variant of the Panhard AML's turret. The Mark IV has a locally produced variant of the Cockerill Mk 3 90mm gun in an Engesa-made turret, and central tire pressure regulation and run-flat tires, as well as vertical-axis gun stabilization. The Mark V has a Mercedes-Benz OM52A 190 horsepower diesel engine, while the Mark VI has a modified version of that engine, the OM352A, and the Mark VII is a Mark VI fitted with the gearbox of the Mark IV. All three have a more integrated fire control system.

Brazilian EE-9s are being modernized to the Cascavel NG (New Generation) standard. This includes a refurbishment to a "zero miles" condition, replacement of the engine with a 225-horsepower MWM Acteon 6.12 TCE diesel engine, an 8+1 Allison 3000 automatic transmission, addition of a twin Spike LR2 ATGM launcher on the right side of the turret, digital displays for each crewmember, a new command and control suite, a hunter-killer set of sights, upgraded night vision, a GPS navigation system, NBC Overpressure system, air conditioning, and upgraded armor protection. Rearrangement of the interior of the vehicle allows for more ammunition storage, yet makes the inside of the Cascavel NG more roomy. The Cascavel NG is a comprehensive upgrade of the EE-9.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Mark I	$140,636	G, A	318 kg	11 tons	3	8	Passive IR (D, G, C)	Enclosed
Mark II	$140,732	D, A	322 kg	11 tons	3	8	Passive IR (D, G, C)	Enclosed
Mark II (Rebuilt)	$256,150	D, A	336 kg	12 tons	3	8	Passive IR (D, G, C)	Enclosed
Mark III	$258,550	D, A	337 kg	12.3 tons	3	8	Passive IR (D, G, C)	Enclosed
Mark IV	$282,550	D, A	337 kg	12.5 tons	3	10	Passive IR (D, G, C)	Enclosed
Mark V/VI/VII	$282,454	D, A	335 kg	12.3 tons	3	8	Passive IR (D, G, C)	Enclosed
Cascavel NG	$563,555	D, A	384 kg	13 tons	3	12	Image Intensification (D, G, C), Thermal Imaging (G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Mark I	141/71	39/20	360	106	Trtd	W(3)	TF3 TS3 TR2 HF8 HS5 HR3
Mark II	153/78	42/22	360	72	Trtd	W(3)	TF3 TS3 TR2 HF8 HS5 HR3
Mark II (Rebuilt)	143/72	40/20	360	72	Trtd	W(3)	TF6 TS6 TR4 HF8 HS5 HR3
Mark III	141/71	39/20	360	72	Trtd	W(3)	TF6 TS6 TR4 HF8 HS5 HR3
Mark IV	139/70	39/19	360	72	Trtd	W(3)	TF6 TS6 TR4 HF8 HS5 HR3
Mark V/VI/VII	130/66	36/18	360	70	Trtd	W(3)	TF6 TS6 TR4 HF8 HS5 HR3
Cascavel NG	141/71	39/20	360	83	Trtd	W(3)	TF8Sp TS8Sp TR5 HF10Sp HS7Sp HR4*

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Mark I/Mark II	None	Basic	37mm M6 Gun, MAG, MAG (C)	107x37mm, 2400x7.62mm
Mark II (Rebuilt)	+1	Basic	90mm EC-90 Gun, MAG, MAG (C)	44x90mm, 2400x7.62mm
Mark III	+2	Basic	90mm CN 90 F3 Gun, MAG, MAG (C)	44x90mm DEFA, 2400x7.62mm
Mark IV	+2	Fair	90mm EC-90 Gun, MAG, MAG (C)	44x90mm, 2400x7.62mm
Mark V/VI/VII	+3	Fair	90mm EC-90 Gun, MAG, MAG (C)	44x90mm, 2400x7.62mm
Cascavel NG	+3	Good	90mm EC-90 Gun, 2xSpike LR ATGM	48x90mm, 4xSpike LR2

	Launchers, MAG, MAG (C)	ATGM, 3000x7.62mm

*Belly AV for the Cascavel NG is 4Sp.

Alvis FV701 Ferret

Notes: The Ferret is an obsolete, British-built, 4x4 armored car, having been originally designed in 1947 to a British Army requirement for a light, agile scout car. The Ferret was similar to the World War 2 Daimler Dingo in form and layout, though it was larger and had a more powerful engine and beefier suspension. The Ferret used a then-novel H-form drive train with a central differential, which allowed the height of the Ferret to be reduced while retaining a decent ground clearance and good mobility. The Ferret was powered by a Rolls Royce B.60 gasoline engine developing 116 horsepower, coupled to a manual transmission which had all gears available whether driving forward or backwards. The suspension is by transverse links and single-coil springs, with the tires being of the run-flat type. Armor protection is limited to keep the weight down. The vehicle has a single hatch on the top serving both driver and commander/gunner. Though according to US Military sources some 20 countries were employing the Ferret in 1996, few countries use the Ferret in 2023, and these primarily serve in a police or internal security role. Many have been sold to private concerns, with others finding their way into museums, and others becoming range targets.

The Mark 1 was the original version, and was produced in three primary variants, the Mk 1, Mk 1/1 and Mk 1/2. These versions were characterized by a flat-topped superstructure with a light or medium machinegun on a pintle mount. The Mk 1 had its pintle on the rear of the superstructure, while the Mk 1/1 had the pintle on the front of the superstructure. The Mk 1/1 also had revised ammunition and internal stowage and in general allowing for the crew to find things easier, and in having things like racks for personal weapons and hand grenades. The Mk 1/2 had a low fixed turret (somewhat like a further superstructure) with the machinegun on a pintle at the front of the turret. The Mk 1/1 and Mk 1/2 had thicker armor plates on the sides and rear than the Mk 1. The Mk 1/1 and 1/2 are amphibious with preparation; a flotation screen must be erected, taking 10 minutes to perform.

The Mk 2/1 was a Mk 1 with the turret of the Mk 1/2 and revised stowage of the Mk 1/1, as well as applique armor to bring it up to the Mk 1/1 standard. It also had applique armor on the front of the turret, and the turret hatch was made two-part, opening to each side. The Mk 2/2 had minor differences from the Mk 2/1. The Mk 2/3 was the primary reconnaissance car for the British Army; it had a hand-cranked turret with the machinegun in a ball mount and a searchlight mounted on the right side of the turret, and was otherwise similar to the Mk 1/2 for game purposes. The Mk 2/4 was an upgraded version that differed from the Mk 2/3 primarily in having applique armor plates on the sides and on the turret sides and front. The Mk 2/5 was a Mk 1/1 or 1/2 upgraded to a Mk 2/4 standard. The Mk 2/6, also known as the FV703, was equipped with a four-round Vigilant ATGM system and all that it entails. The missiles were fixed at a slight elevation from the turret. When the Vigilant system became obsolete, the Mk 2/6s were returned to Mk 2/4 configuration, and were designated Mk 2/7s. The Mk 2s can also swim with the use of a flotation screen, like the Mk 1/1 and 1/2.

The Mk 3 was known by the troops as the “Big Wheels” version. It indeed had larger wheels and tires than earlier Marks, with an attendant higher ground clearance and some increase in off-road mobility. Armor protection was also increased. The vehicle was also made amphibious by design, and did not require preparation to swim, or need flotation screens. The engine is an uprated version of the standard engine, developing 129 horsepower, to cope with increased weight.

The Mk 4, also known as the FV711, was a version equipped with the turret of the Alvis Saracen APC. The Mk 4s were newly built as well as conversions from the Mk 2/3 and 2/4. These were armed with a machinegun in a ball mount, and had a searchlight on the right side of the turret.

The Mk 5, also known as the FV712, was derived from the Mk 3, but had a wide, flat turret mounting four Swingfire ATGMs, and a pintle-mounted machinegun in between the missile racks.

The Ferret 80

The Ferret 80 was, as the name indicates, an export upgrade package developed by Alvis in 1980 to extend the Ferret’s useful lifespan. The hull steel armor was replaced by aluminum plates, and one of three turrets were offered, up to a Helio FVT900 turret mounting a 20mm autocannon and a coaxial machinegun, with electrical rotation. The new hull armor plates made the hull more longitudinal and boxier. A more powerful Perkins T6-3544 155-horsepower diesel engine was fitted to cope with the increased weight, and was made a unitary powerpack with an automatic transmission. The transverse links in the suspension were replaced with wishbone links. Steering was given a power assist, as were the brakes. Night vision and rudimentary fire control equipment was fitted, along with an NBC Overpressure system. The electrical system was totally re-wired and reinforced. It would have been an interesting variant, but Alvis attracted no interest on the international market and the Ferret 80 was discontinued after a few years.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Mk 1	$18,036	G, A	225 kg	3.7 tons	2+1	2	Headlights	Enclosed
Mk 1/1	$20,830	G, A	225 kg	4.19 tons	2+1	2	Headlights	Enclosed
Mk 1/2	$22,682	G, A	225 kg	4.37 tons	2	2	Headlights	Enclosed
Mk 2/3	$27,028	G, A	246 kg	4.4 tons	2	2	WL Searchlight	Enclosed
Mk 2/4	$29,823	G, A	249 kg	5.2 tons	2	2	WL Searchlight	Enclosed
Mk 2/6	$109,391	G, A	251 kg	4.56 tons	2	4	Headlights	Enclosed
Mk 3	$30,697	G, A	252 kg	5.2 tons	2	2	WL Searchlight	Enclosed
Mk 4	$32,038	G, A	253 kg	5.4 tons	2	2	WL Searchlight	Enclosed
Mk 5	$146,853	G, A	256 kg	5.36 tons	2	4	Headlights	Enclosed
Ferret 80 (No 16	$41,115	D, A	369 kg	5 tons	2	2	Image Intensification (D)	Shielded

Cupola)								
Ferret 80 (FVT600 Turret)	$110,456	D, A	325 kg	6 tons	3	3	Image Intensification (D, G, C)	Shielded
Ferret 80 (FVT900 Turret)	$150,023	D, A	390 kg	7 tons	3	3	Image Intensification (D, G, C), Passive IR (G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Mk 1	230/116	63/32	96	52	Stnd	W(2)	HF3 HS2 HR2
Mk 1/1	206/104	58/29/5	96	52	Stnd	W(2)	HF3 HS3 HR3
Mk 1/2	200/101	56/28/5	96	52	Stnd	W(2)	HF3 HS3 HR3
Mk 2/3	199/100	56/28/5	96	52	CiH	W(2)	TF2 TS2 TR2 HF3 HS3 HR3
Mk 2/4	173/87	48/24/4	96	52	CiH	W(2)	TF3 TS3 TR2 HF3 HS4 HR4
Mk 2/6	193/98	53/27/5	96	52	CiH	W(2)	TF2 TS2 TR2 HF3 HS3 HR3
Mk 3	188/94	52/26/5	96	57	CiH	W(3)	TF3 TS3 TR2 HF3 HS4 HR4
Mk 4	182/92	51/26/5	96	57	CiH	W(3)	TF3 TS3 TR2 HF3 HS4 HR4
Mk 5	183/92	51/26/5	96	57	CiH	W(3)	TF2 TS2 TR2 HF3 HS4 HR4
Ferret 80 (No 16 Cupola)	228/114	63/32/6	96	58	Stnd	W(3)	HF4 HS4 HR4
Ferret 80 (FVT600 Turret)	195/98	54/27/5	96	58	Trtd	W(3)	TF3 TS3 TR2 HF4 HS4 HR4
Ferret 80 (FVT900 Turret)	172/86	48/24/4	96	58	Trtd	W(3)	TF4 TS3 TR3 HF4 HS4 HR4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Mk 1 & 1/1	None	None	Bren L2A4 or M1919A4 (C)	450x7.62mm or .30-06
Mk 1/2	None	None	Bren L2A4 (C)	1200x7.62mm
Mk 2/3, 2/4	None	None	M1919A4	2500x.30-06
Mk 2/6	None	None	M1919A4, 4xVigilant Launchers	2500x.30-06, 4xVigilant ATGM
Mk 3	None	None	L37A1	2500x7.62mm
Mk 4	None	None	M1919A4 (Later L37A1)	3000x.30-06 (later 3000x7.62mm)
Mk 5	None	None	4xSwingfire Launchers, L37A1 (C)	2500x7.62mm, 4xSwingfire ATGM
Ferret 80 (No 16 Cupola)	None	None	L7A2 (C)	3000x7.62mm
Ferret 80 (FVT600 Turret)	+2	Basic	M2HB, L37A1	1800x.50, 3000x7.62mm
Ferret 80 (FVT900 Turret)	+2	Fair	20mm Oerlikon KAA, L37A1	600x20mm, 1600x7.62mm

Daimler FV712 Fox

Notes: This light armored vehicle was designed concurrently with the Scimitar for use in light divisions. The official British designation is the CVR-W (Combat Vehicle Reconnaissance – Wheeled), and the Fox was meant to replace the Ferret. It was the last armored vehicle that the British division of Daimler built; it then closed its production facilities in 1971. Many Fox turrets were removed and placed on Scorpion chassis; along with some more upgrades, these modified vehicles were made into the Sabre (q.v.). The Fox is also used by Nigeria and Malawi. The driver is in the center of the front deck, with hatches on the turret deck for the commander and gunner. In addition, there is a small door on the left side of the vehicle. The Fox is amphibious with about 5 minutes of preparation, but due to the tires used on the Fox and the lack of waterjets or propellers, the swimming speed is extremely limited. The Fox can be dropped by parachute or LAPES insertion. In combat, Foxes were normally seen festooned with ammunition boxes and fuel cans, as internal storage is extremely limited.

Foxes are powered by a Jaguar J 60 No. 1 Mk 100B 190-horsepower gasoline engine. This was initially coupled to a manual transmission, but this was later upgraded to an automatic transmission.

The Panga is a “light” version of the Fox, with a one-man turret armed only with a heavy machinegun. It has a fully automatic transmission, air conditioning, flashing lights and a siren, and a PA system. It is in service only with Malaysia. The FV722 Vixen is

similar to the Panga, in that it is a “light” version of the Fox, but it has a cupola instead of a turret, with a machinegun mount. It was developed and type-standardized for service in Northern Ireland, but not put into production.

The Fox/25mm is a variant armed with a 25mm Chain Gun. It is presented here as an interesting variant, but was never actually developed beyond the prototype stage.

The Fox/Milan has its turret replaced with a lighter turret mounting twin Milan ATGM launchers. It too was not developed beyond prototype state.

The Polecat is a Fox chassis fitted with the one-man GPMG turret as found on some variations of the FV432. Another version was proposed mounting an M2HB in a similar turret. Both were proposed for use in Northern Ireland, and had police equipment such as sirens, flashing lights and a PA system. Neither was actually picked up for service.

The Fox-Scout was a proposed convoy escort version with a turret armed with an EX-34 and a large increase in ammunition carried. It was not proceeded with.

The turrets of Foxes were placed on FV101 Scorpions and FV432s; the former produced the Sabre and is found in British Tracked Light Combat Vehicles, while the latter produced 13 vehicles which were used as VISMODs in training exercises in Canada and are found in British Tracked APOs.

Twilight 2000 Notes: The practice of placing Fox turrets on Scorpion chassis was stopped soon after the start of the war, as it was apparent that as many armored vehicles as possible needed to be available, and the remaining Foxes were refurbished instead. A few Fox/Milans also made it into combat.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Fox	$142,671	G, A	254 kg	6.39 tons	3	4	Passive IR (D, G)	Enclosed
Panga	$66,410	G, A	204 kg	5.84 tons	2	4	Passive IR (D)	Enclosed
Vixen	$25,601	G, A	262 kg	5.5 tons	4	4	Passive IR (D)	Enclosed
Fox/25mm	$150,305	G, A	255 kg	6.3 tons	3	4	Passive IR (D, G)	Enclosed
Fox/Milan	$148,409	G, A	262 kg	6.14 tons	3	6	Passive IR (D, G)	Enclosed
Polecat (GPMG Turret)	$64,601	G, A	251 kg	6.2 tons	3	4	Passive IR (D)	Enclosed
Polecat (M2HB Turret)	$66,530	G, A	251 kg	6.2 tons	3	4	Passive IR (D)	Enclosed
Fox-Scout	$70,392	G, A	251 kg	6.2 tons	3	4	Passive IR (D, G)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Fox	219/110	61/30/3	145	109	Trtd	W(3)	TF5 TS4 TR3 HF6 HS3 HR2
Panga	236/119	65/33/3	145	109	CiH	W(3)	TF5 TS4 TR3 HF6 HS3 HR2
Vixen	249/134	69/35/3	145	109	Stnd	W(3)	HF6 HS3 HR2
Fox/25mm	222/112	61/31/3	145	109	Trtd	W(3)	TF5 TS4 TR3 HF6 HS3 HR2
Fox/Milan	226/114	63/32/3	145	109	Trtd	W(3)	TF3 TS2 TR2 HF6 HS3 HR2
Polecat (GPMG Turret)	224/114	62/31/3	145	109	Trtd	W(3)	TF5 TS4 TR3 HF6 HS3 HR2
Polecat (M2HB Turret)	224/114	62/31/3	145	109	Trtd	W(3)	TF5 TS4 TR3 HF6 HS3 HR2
Fox-Scout	224/114	62/31/3	145	109	Trtd	W(3)	TF5 TS4 TR3 HF6 HS3 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Fox	+2	Basic	30mm Rarden, EX-34	99x30mm, 2600x7.62mm
Panga	+2	Basic	M2HB	1200x.50
Vixen	None	None	L7A2 (C)	2600x7.62mm
Fox/25mm	+2	Basic	25mm Chain Gun, EX-34	250x25mm, 1500x7.62mm
Fox/Milan	+2	None	2xMilan Launchers, EX-34	10xMilan ATGM, 2600x7.62mm
Polecat (GPMG Turret)	+1	Basic	L37A2	2600x7.62mm
Polecat (M2HB Turret)	+1	Basic	M2HB	1200x.50
Fox-Scout	+1	Basic	EX-34	4500x7.62mm

Arquus Scarab

Notes: The Scarab was originally designed to replace the Ferrets of the South African Defense Force. The Scarab is based on the chassis of the Unimog U-1600 series of trucks. The Scarab is fitted with lightweight but strong armor able to stop light cannon shells hitting the front of the vehicle. The Scarab is equipped with a light turret mounting a GI2 20mm autocannon or a smaller weapon. This is a remote turret, aimed and fired by a gunner inside the hull using a downlinked TV monitor with a periscope backup. The windows are of ballistic glass able to provide a level of protection equal to the armor of the face in which they are installed. The floor of the vehicle is mine resistant, and against mine blasts, the floor is treated as having twice the armor of the front face. The driver has a door on the right side of the front compartment; there is also a hatch on the roof over the commander's position. The Scarab has an NBC Overpressure system and air conditioning. In the front under the glacis is a 6-ton capacity winch with 200 meters of cable.

The Scarab is powered by a 231-horsepower Mercedes-Benz OM906 LA diesel engine and coupled to an automatic transmission, with an MD3560 transmission and 4x4 suspension. There is a central tire pressure regulation system. Fuel tanks are self-sealing and the underside of the vehicle has additional protection; the lower sides also have additional protection against SFF projectiles, and the lower 200 millimeters of the Scarab has an enhanced armor value.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Scarab (20mm)	$131,056	D, A	785 kg	10.8 tons	2+2	8	Passive IR (D, G), Image Intensification (G)	Shielded
Scarab (M2HB)	$67,917	D, A	775 kg	10.32 tons	2+2	8	Passive IR (D, G), Image Intensification (G)	Shielded
Scarab (7.62mm)	$64,517	D, A	775 kg	10.33 tons	2+2	8	Passive IR (D, G), Image Intensification (G)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Scarab (20mm)	167/84	47/23	360	79	CiH	W(3)	TF6 TS4 TR2 HF14 HS5 HR3*
Scarab (M2HB)	173/87	48/24	360	79	CiH	W(3)	TF6 TS4 TR2 HF14 HS5 HR3*
Scarab (7.62mm)	172/87	48/24	360	79	CiH	W(3)	TF6 TS4 TR2 HF14 HS5 HR3*

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Scarab (20mm)	+2	Fair	20mm GI2 Autocannon	400x20mm
Scarab (M2HB)	+2	Fair	M2HB	650x.50
Scarab (7.62mm)	+2	Fair	MG4 or MAG	1200x7.62mm

*Belly armor is 4Sp; AV of the HS up to 200mm from the bottom is 6Sp.

Alvis FV601 Saladin

Notes: Originally designed to replace a variety of World War 2 armored cars, the Saladin was designed shortly after that war and entered service in 1955. It was in turn replaced in British service by the Scorpion, but remains in service with several Third World nations in Africa, the Middle East, and Southeast Asia. The Saladin is a light 6x6 chassis topped with a turret armed with a short-barreled 76mm gun. There is a hatch on the center front for the driver, and hatches on the turret deck for the commander and gunner.

The prototype was designated the FV601A and was armed with a 2-Pounder main gun. It was felt that this gun was not heavy enough, and Alvis then proposed a much heavier variant armed with a then-new short barreled low-pressure 76mm gun. The gun was deemed adequate for the vehicle's role of infantry and close assault fire support and was designated the FV601B. After numerous small fixes the FV601B was redesignated the FV601C and given the name Saladin, and placed into production.

The Saladin is powered by a Rolls Royce B8 Mk 5A gasoline engine with an output of 170 horsepower. (This makes the Saladin a bit underpowered compared to other vehicles in its class.) The Saladin has a semiautomatic transmission, with a gear preselector. Its turning radius is tight at 7.3 meters. It can climb a 0.4-meter wall, cross a 1.5-meter trench, and negotiate a 40% side slope. The elevation limit for the main gun and coaxial machinegun is +20 degrees, while depression is -10 degrees. The turret has electrical traverse, but there is no gun stabilization and only a telescopic rangefinder.

A further variant was devised for the West German Border Police; this was the FV601D, or as designated by the West Germans, the Geschützer Sonderwagen III. This version was fitted out for the police role and had no coaxial machinegun and had different lights and smoke grenade launchers, and had a PA system. The main gun was standard, but CS and special smoke rounds were devised for it. The West Germans employed the FV601D mostly with the Berlin Brigade.

A prototype was built of a Saladin armed with a 30mm Rarden autocannon instead of the 76mm gun, but this did not find favor with any domestic or export customer and was withdrawn.

Indonesia is readying their Saladins, refurbishing them to a "zero miles" state, and doing a complete overhaul. A Saladin that

comes out of this process has a Wear Value of 1 for all components.

The Saladin shared a chassis with the Saracen APC, Stalwart High-Mobility Carrier, and Salamander Fire Engine. Australia bought many Saladins, but later put the turrets of their Saladins on M113 chassis. Saladins saw combat in the Omani Civil War and during UN interventions in Cyprus, as well as during the Iraqi invasion of Kuwait and various internal disturbances in Indonesia. They continue to see action in Indonesia, Sudan, and Sri Lanka, as well as several other African nations and in Yemen. Other notable users include Jordan and Portugal.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
FV601A	$72,105	G, A	862 kg	10.55 tons	3	8	Headlights	Enclosed
FV601B/C	$126,024	G, A	858 kg	11.59 tons	3	8	Headlights	Enclosed
FV601D	$120,788	G, A	855 kg	11.2 tons	3	8	Headlights	Enclosed
Saladin/30mm	$76,191	G, A	844 kg	10.76 tons	3	8	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
FV601A	134/67	37/18	241	95	Trtd	W(4)	TF5 TS5 TR4 HF6 HS4 HR3
FV601B/C	124/63	34/18	241	95	Trtd	W(4)	TF5 TS5 TR4 HF6 HS4 HR3
FV601D	128/64	36/18	241	95	Trtd	W(4)	TF5 TS5 TR4 HF6 HS4 HR3
Saladin/30mm	132/66	37/18	241	95	Trtd	W(4)	TF5 TS5 TR4 HF6 HS4 HR3

Vehicle	Fire Control	Stabilization	Armament	Ammunition
FV601A	+1	Basic	QF 2-Pounder (40mm) Gun, M1919A4, M1919A4 (C)	80x40mm, 2750x.30-06
FV601B/C	+1	Basic	76mm L5A1 Gun, M1919A4, M1919A4 (C)	42x76mm, 2750x.30-06
FV601D	+1	Basic	76mm L5A1 Gun, M1919A4 (C)	42x76mm, 2750x.30-06
Saladin/30mm	+1	Basic	30mm Rarden Autocannon, M1919A4, M1919A4 (C)	180x30mm, 2750x.30-06

Shorts Shorland Armored Car

Notes: The Shorland Armored Car was a lightly armored version of the LWB Land Rover produced originally for British use in Northern Ireland, but later sold elsewhere. The original Mk 1 used a Series IIA chassis, but later marks used later LWB Land Rover chassis. The vehicle is a basic 4x4 Land Rover chassis with an armored body and machinegun turret added. The Shorland Armored Car was originally produced with the Ulster Defence Regiment in mind, but served with 29 countries, including the Royal Air Force in Germany to escort moves involving Special Weapons (nuclear weapons). The vehicle looks very much like a Cadillac Gage Ranger armored car, but has a turret atop the center which looks very much like a Ferret Mk 2's turret. The first Shorlands started service in 1966, and weapons and chassis have been steadily upgraded since then. The chassis is largely standard, but the suspension is beefed up to cope with the additional weight of armor and turret. They were largely given over to a crew of three, but some dismounts may be carried in the rear, though it is a cramped situation. Shorts also developed the Shorland into a light APC, though this will not be statted out here.

The Mk 1 is the original version, with relatively light armor and a 67-horsepower gasoline engine. The Mk 2 is the same vehicle, but with a 77-horsepower engine. The Mk 3 was introduced in 1972 and uses a more up-to-date chassis, increased armor protection and a 91-horsepower engine to cope with the increased weight. The Mk 4 was introduced in 1980 and uses a 113-horsepower engine to cope with the increased weight of even heavier armor. The Series 5 is based on the Land Rover Defender 110 chassis and has a 113-horsepower gasoline engine or a 109-horsepower diesel engine with an automatic transmission and an all-welded armored body as well as increased mine protection.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Mk 1	$21,094	G, A	217 kg	3.09 tons	3+2	2	Headlights	Enclosed
Mk 2	$21,136	G, A	217 kg	3.11 tons	3+2	2	Headlights	Enclosed
Mk 3	$21,202	G, A	224 kg	3.36 tons	3+2	2	Headlights	Enclosed
Mk 4	$21,704	G, A	218 kg	3.46 tons	3+2	2	Headlights	Enclosed
Series 5	$23,144	G, A	219 kg	3.77 tons	3+2	2	Headlights	Enclosed
Series 5 (Diesel)	$23,126	D, A	220 kg	3.76 tons	3+2	2	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Mk 1	151/27	42/7	73	37	CiH	W(2)	TF2 TS1 TR1 HF2 HS2 HR1
Mk 2	167/29	46/8	73	42	CiH	W(2)	TF2 TS1 TR1 HF2 HS2 HR1
Mk 3	182/32	50/9	128	50	CiH	W(3)	TF2 TS2 TR1 HF2 HS2 HR2
Mk 4	212/37	59/10	128	62	CiH	W(3)	TF2 TS2 TR2 HF3 HS2 HR2
Series 5	197/35	55/10	174	62	CiH	W(3)	TF2 TS2 TR2 HF3 HS2 HR2*
Series 5	191/34	53/9	174	40	CiH	W(3)	TF2 TS2 TR2 HF3 HS2 HR2*

(Diesel)

Fire Control	Stabilization	Armament	Ammunition
None	None	L7A2	1500x7.62mm

*Belly armor AV is 3.

GKN Simba AFSV

Notes: This version of the Simba armored personnel carrier was designed as a light reconnaissance vehicle and fire support vehicle for Simba and other wheeled formations. The only sales so far were to the Philippines who shockingly use them for riot control as well as anti-guerilla operations. The Malaysians were very interested, but ultimately decided on the SIBMAS instead. The driver is on the front left with the Perkins 210 Ti turbocharged diesel 210-horsepower powerpack to his right. The rest of the crew is in the turret, with the commander on the right of the gun and the loader and commander on the left. The commander and loader have hatches on the turret deck. There is a two-piece door on the right side of the hull. Though it is not a standard configuration, Filipino AFSVs often have a pintle-mounted machinegun by the commander's hatch. Filipino ASFVs are also fitted with air conditioning, run-flat tires, and a front-mounted 6-ton winch with 150 meters of cable.

Twilight 2000 Notes: Filipino Simbas were used in a very violent manner against rebels in fortified (or not so fortified) positions, and even against rioters in a few instances. Some of these vehicles were acquired by British forces during the war, mostly for internal security purposes, but some of them were used to replace vehicle losses in the European theatre.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$228,242	D, A	596 kg	10 tons	4	8	Passive IR (D, G)	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
164/83	46/23	230	78	Trtd	W(3)	TF6 TS4 TR4 HF8 HS3 HR3

Fire Control	Stabilization	Armament	Ammunition
+2	Fair	90mm Cockerill Mk3 Gun, EX-34	40x90mm, 1500x7.62mm

GDLS Cougar

Notes: This vehicle is the reconnaissance and fire support platform of the AVGP (Armored Vehicle – General Purpose) program, and was produced from 1976-80. This is basically the Grizzly armored personnel carrier topped with a new turret using a 76mm Cockerill cannon. In addition, the passenger space is largely taken up with ammunition racks for the gun. The rear doors are retained, but the rear deck hatches are deleted, as are the firing ports. The turret is larger than the Grizzly's turret, more heavily armored, and has a hatch on the deck for the commander and gunner. The turret is, in fact, the same one as mounted on the British Scorpion and the Australian M113A1 MRV vehicles. As with the Grizzly, the Cougar is as likely as not to have a weapon mount for the commander by his hatch.

Power is provided by a Detroit Diesel 6V53T turbocharged diesel developing 275 horsepower. The engine is hooked up to an automatic transmission. The suspension is 6x6, or 6x4 for road use, and the vehicle can surmount a 0.8-meter wall, cross a 1.2-meter trench, and ride on a 30-degree side slope or a 60-degree gradient. On each side of the turret are four smoke grenade launchers. Armor is all-welded steel. The turret is mounted on the right center of the hull roof. Cougars were originally amphibious, propelled in the water by propellers and steered by rudders; the propulsion system proved to be troublesome and prone to breakdowns, and after a few years, was removed (though the bilge pumps remained, disabled).

The AVGP vehicles were all retired in 2005, but continue on in police and training use and other countries' militaries, most notably in the RCMP, where they serve on the Emergency Response Team. The Serbians operate one which they captured from a Canadian UN mission. The Uruguayans use 44 which they converted into APCs by removing the turrets and replacing them with hull plating and hatches. (The Uruguayans also operate 98 Grizzlys and 5 Huskys.) Cougars are in general veterans of several UN Peacekeeping missions.

The WLAVLE Program replaces the sights with improved ones, mounts wider tires, improves the torsion bars, allowing an increase in gross weight, and in general refurbishes the Cougar. In addition, cracks in the aluminum turret armor were fixed.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Cougar	$179,108	D, A	446 kg	10.6 tons	3+2	8	Passive IR (D), Image Intensification (G, C)	Enclosed
Cougar (LAST)	$180,008	D, A	441 kg	11.6 tons	3+2	8	Passive IR (D), Image Intensification (G, C)	Enclosed
Cougar (WLAVLE)	$225,909	D, A	446 kg	10.6 tons	3+2	8	Passive IR (D), 2nd Gen Image Intensification (G, C)	Enclosed
Cougar (WLAVLE, LAST)	$226,808	D, A	441 kg	11.6 tons	3+2	8	Passive IR (D), 2nd Gen Image Intensification (G, C)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Cougar	194/98	54/27/3	204	102	Trtd	W(4)	TF5 TS4 TR4 HF6 HS4 HR3
Cougar (LAST)	181/91	50/26/3	204	102	Trtd	W(4)	TF6Sp TS5Sp TR3 HF8Sp HS6Sp HR3*
Cougar (WLAVLE)	194/98	54/27/3	204	102	Trtd	W(4)	TF5 TS4 TR4 HF6 HS4 HR3
Cougar (WLAVLE, LAST)	181/91	50/26/3	204	102	Trtd	W(4)	TF6Sp TS5Sp TR3 HF8Sp HS6Sp HR3*

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Cougar	+2	Fair	76mm L23A1 Gun, C6, C6 (C)	40x76mm, 4400x7.62mm
Cougar (WLAVLE)	+3	Fair	76mm L23A1 Gun, C6, C6 (C)	40x76mm, 4400x7.62mm

*Hull floor AV is 5; hull and turret roof AV is 3.

Norinco NAV-1

Notes: Norinco calls this a “Multifunctional Anti-Riot Assault Vehicle,” but it’s true purpose lies less in riot control and more in assault against multi-floor structures. It consists of an SUV with a lightly-armored body and armored glass, with a strong steel frame around it. The top of this frame is equipped with two ramps. These ramps can be raised and lowered, and have a rough surface and handrails. The ramp can therefore be quickly ran up by assaulting soldiers or police to gain entry to windows or openings up to four storeys up. The ramps can be raised, lowered, extended, or retracted as necessary for the mission; their normal “storage” position is on the roof retracted so that the ramps do not extend beyond the frame. The ramps, when folded, can be used as an assault platform; even folded, the ramps can reach a shorter 2nd-story floor. The ramps can reach up to 10.5 meters or 2.8 meters when folded. The ramps themselves are a steel grating and cannot be counted upon to stop bullets. Up to twelve troops may be on the ramps when traveling or as they raise; the driver, commander, and six more troops may be inside the vehicle. In addition, six people can stand on the frame outside of the SUV.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$186,211	D, A	1.25 tons	3.27 tons	2+6	8	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
259/50	52/10	100	113	Stnd	W(2)	HF2 HS2 HR2

RH-ALAN LOV

Notes: These LOV-OP variants are based on the Torpedo HV TK-130 T7 4x4 medium truck, with an armored shell added. The LOV series began development in 1992 and was first seen in a parade in 1995, along with other members of the LOV family. The LOV-OP APCs have been relegated to Reserve status, but these variants remain in active service. So far, the LOV family is used only by Croatia, and has been offered for export. Interest is lowered somewhat by the LOV-OP being slightly underpowered, and RH-ALAN is considering putting more powerful engines in the LOV series. The driver is in the front left, with a rather small bullet resistant front windshield and left side windshield. He has an overhead hatch to access his compartment; he can also get in by going through the troop compartment or by using a door on the left side. The driver's position is raised somewhat above the rest of the hull. The driver's position has no provision for night vision, but he is normally issued a set of night vision goggles (included in the cost below). The commander is to his right; he has vision blocks to his front and a door in the hull to his right. He also has a periscope which can be traversed to the front, right and the left. The gunner's position, in the center of the troop compartment, has a raisable seat and an overhead hatch. The position is surrounded by low AV2 gun shields to all sides except the front; they also go lower on the sides toward the front. The gun has only limited traverse and is moved side to side primarily by rotating the cupola. The gunner has no vision blocks and must peek over the gun shields to observe his surroundings. The troop compartment has a pair of large overhead hatches over the rear of the compartment and two doors in the rear of the hull. On each side of the hull at the front of the flat troop compartment roof is a cluster of four smoke grenade launchers which fire forwards and slightly to the sides.

The LOV-OP is powered by a Deutz BT6L 9125 turbocharged diesel engine developing 132 horsepower, and coupled to a manual transmission. The driver has conventional controls. The suspension is 4x4 (switchable to 4x2 for road use) and has run-flat tires. The LOV is a bit underpowered, but the vehicle's light weight mitigates this to an extent. A winch is mounted just behind the driver and commander's positions, and the cable leads out through the bottom front. It has a 5.1-ton capacity and 38 meters of cable, and is primarily meant for self-recovery. The front and sides of the vehicle have moderate armor sloping, helping protect the vehicle a little more. Armor slopes upwards and downwards from the center of the vehicle's sides and front. The floor and roof have additional armor reinforcement for protection against land mines and IEDs.

The LOV-ABK vehicle is the Croatian equivalent to the BRDM-2-RKhb, being an NBC reconnaissance vehicle. It is not fitted with the marking pennants of that vehicle, but is equipped with an optical chemical sniffer, a Geiger counter, airlocks to bring samples inside the vehicle, remote claws to take samples, and a chemistry set to analyze samples. The LOV-ABK is equipped with an NBC overpressure system and radiation shielding as well as a special air conditioning and heating system.

The LOV-ED is an electronic warfare variant of the LOV armored personnel carrier. The vehicle is equipped with radio and radar jammers that cause all enemy radio and radar use rolls within 700 meters to be jammed with ECM 3. Also in the vehicle is equipment to intercept radio transmissions as with ELINT 2.

The LOV-IZV reconnaissance vehicle is a LOV armored personnel carrier with additional weapons, a land navigation system, and extra communications equipment. The LOV-IZV has an extra weapon mount by the commander's hatch for an antimateriel rifle, an 8-barrel 60mm rocket launcher, and an extra weapon mount near by the center roof hatch for a grenade launcher. At least 2 short range and one long range radio are carried.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
LOV-ABK	$296,372	D, A	928 kg	6.9 tons	4	6	Passive IR (D, C)	Shielded
LOV-ED	$77,375	D, A	660 kg	6.8 tons	4	7	Passive IR (D, C)	Enclosed
LOV-IZV	$81,129	D, A	328 kg	10 tons	5	6	Passive IR (D), Image Intensification (C)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
LOV-ABK	151/74	42/22	170	66	Stnd	W(3)	HF7 HS4 HR3*
LOV-ED	157/79	43/22	170	66	Stnd	W(3)	HF7 HS4 HR3*
LOV-IZV	119/60	33/17	170	66	Stnd	W(3)	HF7 HS4 HR3*

Vehicle	Fire Control	Stabilization	Armament	Ammunition
LOV-ABK/ED	None	None	M2HB (C)	600x.50
LOV-IZV	None	None	M2HB (C), Mk-19 (R), 8-Round 60mm MRL Pod, RT-20 AMR (C)	600x.50, 200x40mm, 8x60mm Rockets, 350x20mm

*Roof AV is 3; floor AV is 4.

Fennek

Notes: This Dutch vehicle was designed to replace the Lynx in Dutch service and the Luchs in German service. The vehicle is a 4x4 scout vehicle carrying at least three radios, inertial land navigation gear, GPS, and sensors located on an elevating pod that can be raised 1.5 meters above the vehicle's roof. Included in the sensors is a TV camera with video recorders and a shotgun microphone.

Twilight 2000 Notes: This vehicle was just beginning to be produced at the war's outset, and is rare. They were used in Poland almost from the beginning by German forces, and later by Dutch forces against the French.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$179,674	D, A	1 ton	10 tons	3	5	Thermal Imaging, Image Intensification	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
144/58	36/15/4	325	63	Stnd	W(3)	HF10 HS5 HR4

Fire Control	Stabilization	Armament	Ammunition
None	None	M-2HB (C), or MG-3 (C), or HK GMG (C)	3000x.50, or 5000x.7.62mm, or 500x40mm

Panhard AML

Notes: Manufactured by the French firm of Panhard, the 4x4 AML comes in several types: The AML-90 is armed with a French 90mm gun, the AML-60-12 with a 60mm gun/mortar and M2HB, and the AML-60-20 with a 20mm autocannon and 60mm gun/mortar. Both versions have a door on each side, and a hatch on top of the turret for the commander and gunner. The AML is partially related to the British Daimler Ferret, and has several similarities to that design; the AML was originally to have been a license-produced Ferret. Production began in 1960, and over 4000 were produced by the early 1980s. The AML was designed specifically for counterinsurgency work, especially in France's involvement in the Algerian War. Most were originally produced with a gasoline engine, but some were upgraded with more powerful diesel engines; the diesel engine I am modeling here is an Israeli 102-horsepower engine, though other upgrades have been undertaken with several different engines.

The AML has an interesting "feature," in that, due to the nature of its coil spring suspension and drum brakes, the steering wheel cannot be turned while the AML is stationary – you cannot start off going into a turn and must instead get going 2-3 meters before turning the wheel. In addition, turning the wheel requires a modicum of strength, as does braking. (Like an M113, for different reasons, one will build upper body strength driving an AML.) Though the AML has a manual transmission, there is no clutch pedal; instead, the clutch is engaged by gripping the gearshift, which is located on the floor of the driving compartment, which strangely is located behind the driver's seat. The powerplant design was borrowed from the Panhard EBR and is a 90-horsepower gasoline-fueled engine, which is somewhat underpowered and prone to mechanical breakdowns in hot weather. This engine was designed to fit into the space available in the AML's engine compartment; though several engines were tried in the AML to solve the powerplant problem; all of these retrofits required a costly rebuilding of the AML's engine compartment, and only a diesel variant of the engine went into production. The small size of the AML makes the turret basket cramped, and little room is available above the turret ring without unbalancing the vehicle. The space problem is especially acute in the AML-90, with the relatively huge gun breech and recoil stroke. The driver is on the center front deck; the commander is on the left side of the turret, with the gunner on the right. Either the commander or gunner may operate the searchlight from inside the turret. There is a door on either side of the hull, with the one on the right side for the driver's entry and exit and the one on the left side for emergency purposes. The left side door is a bit heavy to open, as it normally mounts a spare tire or fuel or water cans. The AML's wheels have nitrogen-filled inner tubes granting the AML a run-flat capability.

AMLs equipped with the 60mm Brandt LF gun/mortar have an elevation limit of +80 degrees and a depression of -15 degrees. A command variant of the AML-60-7 was produced, which has more communications equipment and a reduced load of mortar shells and machinegun ammunition. The commander carries out observation through a binocular periscope, while the gunner's sight uses a monocular telescope and an indirect fire sight. The AML-60-20 is upgraded with the Serval turret, which had more room for the larger Brandt LR gun/mortar which had a barrel much longer than the CS DTAT gun/mortar and a larger breech. Unfortunately, the larger mortar along with the autocannon exacerbated the tight space even with the larger turret. This turret also included an electronic fire control system.

The AML-90 had a then-new low-pressure short-recoil 90mm main gun, which was specifically designed for rearguard duties and to engage and destroy Soviet Airborne vehicles which were likely to be employed by parachuting forces. It later showed an ability to destroy T-55 tanks in Israeli use and in Africa. However, the range is poor compared to T-55s and newer armored vehicles and proved to be a handicap in employment against such forces. An amphibious variant of the AML-90 was also produced, with bulged side panels inflated with polyurethane and propellers.

The AML-90 Lynx turret upgrades the fire control and stabilization of the 90mm gun, borrowed from AMX-10RC. The upgrade replaced the day telescopic and binocular telescopic sights with sights based on an image intensification system. The new sights also increased the first-round hit probability at long range. The searchlight was moved to the left side of the main gun, adjacent to the coaxial machinegun, with the image intensifier sight mounted on the right side of the main gun. Two alternate engines were offered, a 95-horsepower diesel or a 115-horsepower diesel. The main gun is modified to allow the firing of APFSDS rounds, further increasing its anti-armor efficacy. In contrast to other AML turrets' manual traverse, the Lynx had hydraulic turret traverse. The commander has a domed cupola with all-around vision blocks.

The AML-20 is a light fire support version of the AML, armed with a single 20mm autocannon and a coaxial machinegun. By the commander's hatch is a mount for another machinegun. The turret has power traverse and elevation for the turret and armament, and the main armament could be elevated to +50 degrees and depressed to -8 degrees. Unlike the AML-60-20, the M693 autocannon as installed in the AML-20 has room for a dual-feed mechanism, allowing antipersonnel and antiarmor ammunition to both be loaded and ready to fire. Two different turrets were offered for the AML-20, the SAMM TL-120 SO and the Denel LCT-20. The SAMM turret was noted for its thicker frontal armor, though it was open-topped. The commander did not have a way to direct fire from the main armament, with only the gunner able to acquire targets. The LCT-20 turret was more sophisticated and had a roof instead of being open topped. It had night vision for the gunner and commander, and the commander's hatch was domed and had four panels of bullet-resistant glass. Sights for the main armament were provided for both the commander and gunner, with the commander having override controls for the autocannon and coax.

For testing purposes, an AML-90 turret was modified to mount an HS 831 30mm autocannon, with a coaxial machinegun. This was the AML-30. This variant did not elicit any interest from the domestic or export markets and it was not continued with, though a further variant with amphibious capability was also devised. A variant was also devised mounting four launchers for SS-11 or SS-12 ATGM, but this variant was also not proceeded with.

The Jordanians fitted the complete turret of the FV107 Scimitar light tank on an AML chassis, and operated them for a while in the 1980s. These were then retired to museums, displays, and ranges.

Kenyan AML-60s and AML-90s have been completely refurbished by the Israelis, and come out of this refurbishment with a Wear Value of 1.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
AML-90 (Gas)	$185,782	G, A	332 kg	5.5 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-90 (Diesel)	$185,818	D, A	332 kg	5.5 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-90 (Gas, Amphibious)	$204,982	G, A	331 kg	6.05 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-90 (Diesel, Amphibious)	$205,018	D, A	331 kg	6.05 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-90 Lynx (95 hp Engine)	$191,792	D, A	335 kg	5.5 tons	3	4	Passive IR (D), Image Intensification (G, C), WL Searchlight	Enclosed
AML-90 Lynx (115 hp Engine)	$191,816	D, A	336 kg	5.5 tons	3	4	Passive IR (D), Image Intensification (G, C), WL Searchlight	Enclosed
AML-60-7 (Gas)	$108,214	G, A	334 kg	4.5 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-60-7 (Diesel)	$108,250	D, A	334 kg	4.53 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-60-7 Command (Gas)	$104,175	G, A	333 kg	4.46 tons	3	5	Passive IR (D), WL Searchlight	Enclosed
AML-60-7 Command (Diesel)	$104,213	D, A	333 kg	4.49 tons	3	5	Passive IR (D), WL Searchlight	Enclosed
AML-60-12 (Gas)	$113.775	G, A	333 kg	4.3 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-60-12 (Diesel)	$113,813	D, A	334 kg	4.33 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-60-20 Serval (Gas)	$119,124	G, A	333 kg	4.8 tons	3	4	Passive IR (D), Image Intensification (G, C)	Enclosed
AML-60-20 Serval (Diesel)	$119,160	D, A	334 kg	4.83 tons	3	4	Passive IR (D), Image Intensification (G, C)	Enclosed
AML-20 (SAMM Turret) (Gas)	$124,458	G, A	340 kg	4.92 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-20 (SAMM Turret) (Diesel)	$124,494	D, A	340 kg	4.95 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-20 (LCT-20 Turret) (Gas)	$155,538	G, A	343 kg	5.12 tons	3	4	Passive IR (D), Image Intensification (G, C)	Enclosed
AML-20 (LCT-20 Turret) (Diesel)	$155,574	D, A	343 kg	5.15 tons	3	4	Passive IR (D), Image Intensification (G, C)	Enclosed
AML-30	$142,935	G, A	341 kg	4.63 tons	3	4	Passive IR (D), WL Searchlight	Enclosed
AML-30 (Amphibious)	$164,055	G, A	341 kg	5.09 tons	3	4		Enclosed
AML NA-2	$187,063	G, A	326 kg	4.48 tons	3	5	Passive IR (D), Image Intensification (G)	Enclosed
AML/Scimitar	$160,758	G, A	341 kg	6.27	3	6	Passive IR (D, G,	Enclosed

			tons				C), Image Intensification (G)

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
AML-90 (Gas)	135/68	38/19	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-90 (Diesel)	149/75	41/21	156	31	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-90 (Gas, Amphibious)	125/63	34/18/4	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS3Sp HR2
AML-90 (Diesel, Amphibious)	139/70	38/19/5	156	31	Trtd	W(2)	TF3 TS3 TR3 HF3 HS3Sp HR2
AML-90 Lynx (95 hp Engine)	141/71	39/20	156	28	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-90 Lynx (115 hp Engine)	164/82	46/23	156	36	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-60-7 (Gas)	171/86	48/24	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-60-7 (Diesel)	186/94	52/26	156	31	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-60-7 Command (Gas)	172/86	48/24	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-60-7 Command (Diesel)	187/94	52/26	156	31	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-60-12 (Gas)	176/89	49/25	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-60-12 (Diesel)	193/98	53/27	156	31	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-60-20 Serval (Gas)	163/82	46/23	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-60-20 Serval (Diesel)	178/90	50/25	156	31	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-20 (SAMM Turret) (Gas)	160/80	44/22	156	39	Trtd	W(2)	TF4 TS3 TR3 HF3 HS2 HR2*
AML-20 (SAMM Turret) (Diesel)	174/88	49/25	156	31	Trtd	W(2)	TF4 TS3 TR3 HF3 HS2 HR2*
AML-20 (LCT-20 Turret) (Gas)	155/78	43/22	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-20 (LCT-20 Turret) (Diesel)	170/86	48/24	156	31	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-30	168/85	47/23	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML-30 (Amphibious)	157/79	43/22	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML NA-2	171/86	48/24	156	39	Trtd	W(2)	TF3 TS3 TR3 HF3 HS2 HR2
AML/Scimitar	135/69	38/19	156	39	Trtd	W(2)	TF5 TS4 TR4 HF3 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
AML-90	+1	Basic	90mm DEFA D921 Gun, AAT-F1	20x90mm DEFA, 2000x7.62mm
AML-90 Lynx	+2	Fair	90mm DEFA D921 Gun, AAT-F1	30x90mm DEFA, 2200x7.62mm
AML-60-7	+1	Basic	60mm CS DTAT Gun/Mortar, 2xAAT-F1	53x60mm, 3800x7.62mm
AML-60-7 Command	+1	Basic	60mm CS DTAT Gun/Mortar, 2xAAT-F1	32x60mm, 3200x7.62mm
AML-60-12	+1	Basic	60mm CS DTAT Gun/Mortar, M2HB, AAT-F1	43x60mm,1300x.50, 3800x7.62mm
AML-60-20 Serval	+2	Basic	60mm Brandt LR Gun/Mortar, 20mm M693 Autocannon, AAT-F1	43x60mm, 500x20mm, 3800x7.62mm
AML-20 (SAMM Turret)	+1	Basic	20mm M693 Autocannon, AAT-F1, AAT-F1 (C)	1000x20mm, 3500x7.62mm
AML-20 (LCT-20 Turret)	+2	Fair	20mm M693 Autocannon, AAT-F1, AAT-F1 (C)	1000x20mm, 3500x7.62mm
AML-30	+1	Basic	30mm HS831 Autocannon, AAT-F1	200x30mm, 2200x7.62mm
AML NA-2	+1	None	4xSS-11/12 Launchers, 2xAAT-F1	8xSS-11 or 12, 2000x7.62mm
AML/Scimitar	+2	Fair	30mm L21 Rarden, L7A2	200x30mm, 2200x7.62mm

*The turret is open-topped, and the AV for the Turret Roof is 0,

GIAT AMX-10RC

Notes: This reconnaissance vehicle first equipped French forces in 1976. The AMX-10RC has been described as more of a light wheeled tank than a scout car, with its powerful 105mm gun. Other users include Morocco (where they make up a substantial part of the armored forces of that country) and Qatar. Many of the automotive components of the AMX-10RC are the same as on the AMX-10P tracked armored personnel carrier, with about 40% parts commonality, especially in the engine, transmission, and steering mechanisms. The AMX-10RC has air conditioning and heating. The first half of production used a French-made gun, while later vehicles had a gun that fires NATO standard ammunition. The driver's hatch is in the front center of the vehicle, and there are two hatches on the turret deck for the commander and loader. Though it is not a part of the vehicle as delivered, it was a common practice to equip these hatches with weapon mounts. The AMX-10RC has an NBC Overpressure system and may conduct reconnaissance on a contaminated battlefield.

Part of the AMX-10RC's first production run was powered by an HS 115-2 multifuel supercharged diesel engine developing 249 horsepower. In 1985, this engine was replaced in production with the Baudouin 6F11 SRX supercharged diesel developing 280 horsepower. Eventually, this engine was retrofitted to all French AMX-10RCs. The AMX-10RC is amphibious with preparation, propelled in the water by waterjets. The transmission has four reverse and four forward gears, as well as a parking gear and a neutral gear. The AMX-10RC is skid steered and can perform a pivot turn. The suspension is 6x6 and has a Hydropneumatic suspension with variable ground clearance and tilt. The driver has access to a central tire pressure regulation system. Each wheel has a shock absorber.

The main gun is a 105mm F2 BK MECA Gun; this fires proprietary 105x527R ammunition, designed specifically for this gun as mounted in the AMX-10RC. This gun was also designed specifically for the AMX-10RC to take up less space than the NATO M68/L7. The turret has storage for 12 rounds, with the rest being stored in the hull. All of the coax's ammunition is stored in the turret.

Production of the first version stopped in 1994, with all versions being upgraded in several ways. The LLTV equipment was replaced with CASTOR thermal imaging sights, applique armor was added, and an EIREL IR jammer was fitted, giving the AMX-10RC the equivalent of IRCM 1. The original muzzle brake was replaced with a better one featuring 10% better recoil reduction. The heavier vehicle is no longer amphibious, and the bilge pumps and waterjets have been removed.

The AMX-10RC 105 TML is a progressive upgrade of the AMX-10RC armored reconnaissance vehicle, with appliqué armor, upgraded night vision, improved stabilization, and a Finders C2R Battle Management System for a commander to keep track of his units and enemy units on a computerized system. A more powerful engine has been installed to cope with the extra weight. A turret with a bustle-mounted autoloader is an option; the installation of this turret reduces the crew requirement by one, and requires a new turret with 22 rounds kept in the bustle for the autoloader (other rounds carried in the hull must be loaded into the bustle before the autoloader can index them). This variant of the AMX-10RC is armed with a 105mm G2 high-pressure main gun, equivalent to a NATO standard gun and firing NATO standard ammunition. Though this modification was given a hard look, in the end it was not undertaken.

The 2000 AMX-10RCR upgrade for the most part duplicates the 105 TML upgrade, though using the standard main gun instead of the G2 gun. The additional armor is more tightly integrated into the vehicle, making the AMX-10RCR lighter than earlier additional armor designs, and includes armored side skirts. A SAGEM hard-kill APS is also installed, along with EIREL IR jammer, and set of LIRE IR flare launchers. The AMX-10RCR is also equipped with Galix smoke grenade launchers which can also fire flare or explosive rounds. The AMX-10RCR is equipped with a SIT V1 battlefield management system and fitted with up-to-date Thales PR4G VS4 frequency-hopping secure radios. The main gun remains the F2, but it paired to an advanced computerized fire control system. The NBC Overpressure is paired with an NBC-resistant air conditioning system. The transmission is now automatic, and the controls power boosted, though the engine remains the same. The turret is a bit larger, allowing the installation of an additional radio (in addition to the 2-4 already installed) and battlefield management equipment.

The AMX-10RAC is essentially the same AMX-10RC hull, topped with the TS-90 turret armed with a 90mm main gun; as found on the AMX-10 PAC 90 and Renault VBC-90. One prototype was completed, but it found no takers on the international market and was dropped. The AMX-10RCM variant was proposed in the early 2000s; it featured a new modular turret armed with a 120mm NATO-compatible main gun. This variant never made it beyond the design board. The AMX-10RC T40M is an AMX-10RC with the Nexter T40M turret. This turret is armed with a 40mm autocannon, coaxial machinegun, a roof-mounted RCS with machinegun integrated into the commander's hatch, and 2 ATGM pods. The AMX-10RC T40M was a testbed produced in order to test-fire the 40mm CTA autocannon on a working hull, as the turret would be later mounted on the EBRC Jaguar. On the testbed, the missile pods were mockups, but the stats below reflect a "what if" variant.

Twilight 2000 Notes: Most of the French vehicles were deployed by the Foreign Legion, with about 50 being retained for use on the Franco-German border and 25 elsewhere in France.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
AMX-10RC	$299,100	D, G, AvG, A	501 kg	15.88 tons	4	10	Passive IR (D), Image Intensification (G, C)	Shielded
w/Applique	$300,614	D, G, AvG, A	503 kg	16.6 tons	4	10	Passive IR (D), Image Intensification (G, C)	Shielded
w/Applique & Anti-Mine Kit	$310,094	D, G, AvG, A	508 kg	22 tons	4	14	Passive IR (D), Image Intensification (G, C)	Shielded

AMX-10RC (Late)	$400,038	D, A	504 kg	15.96 tons	4	10	Passive IR (D), Image Intensification (G, C), Thermal Imaging (G)	Shielded
w/Applique	$401,552	D, A	506 kg	16.68 tons	4	10	Passive IR (D), Image Intensification (G, C), Thermal Imaging (G)	Shielded
w/Applique & Anti-Mine Kit	$411,132	D, A	511 kg	22.8 tons	4	14	Passive IR (D), Image Intensification (G, C), Thermal Imaging (G)	Shielded
AMX-10RC 105 TML	$411,765	D, A	512 kg	19.63 tons	4	12	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
w/Autoloader	$434,234	D, A	531 kg	20.1 tons	3	13	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
w/Anti-Mine Kit	$421,365	D, A	516 kg	22.75 tons	4	14	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
w/Anti-Mine Kit & Autoloader	$443,834	D, A	482 kg	23.22 tons	3	15	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
AMX-10RC 105 TML (Upgraded)	$435,765	D, A	512 kg	19.63 tons	4	12	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
w/Autoloader	$458,234	D, A	531 kg	20.1 tons	3	13	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
w/Anti-Mine Kit	$445,365	D, A	516 kg	22.75 tons	4	14	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
w/Anti-Mine Kit & Autoloader	$467,834	D, A	482 kg	23.22 tons	3	15	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
AMX-10RCR	$519,107	D, A	516 kg	17.2 tons	4	15	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
w/Anti-Mine Kit	$529,307	D, A	520 kg	20.32 tons	4	18	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
AMX-10RAC	$280,392	D, G, AvG, A	496 kg	15,12 tons	4	10	Passive IR (D, C, G), Image Intensification (G)	Shielded
AMX-10RCM	$332,880	D, G, AvG, A	509 kg	16.78 tons	4	12	Passive IR (D), Image Intensification (G, C)	Shielded
AMX-10RC T40M	$257,308	D, A	483 kg	14.94 tons	4	10	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
AMX-10RC	131/66	37/18/5	720	92	Trtd	W(4)	TF6 TS6 TR6 HF8 HS4 HR4
AMX-10RC w/Applique	127/64	36/18	720	92	Trtd	W(4)	TF9Sp TS8Sp TR6 HF11Sp HS6Sp HR4
AMX-10RC w/Applique & Anti-Mine Kit	104/53	29/14	720	92	Trtd	W(5)	TF9Sp TS8Sp TR6 HF11Sp HS6Sp HR4*
AMX-10RC (Late)	142/72	40/20/5	720	104	Trtd	W(4)	TF6 TS6 TR6 HF8 HS4 HR4
AMX-10RC w/Applique (Late)	137/69	39/19	720	104	Trtd	W(4)	TF9Sp TS8Sp TR6 HF11Sp HS6Sp HR4
AMX-10RC w/Applique & Anti-Mine Kit (Late)	112/57	31/15	720	104	Trtd	W(5)	TF9Sp TS8Sp TR6 HF11Sp HS6Sp HR4*
AMX-10RC 105 TML (Both)	122/62	34/17	720	104	Trtd	W(4)	TF11Sp TS8Sp TR7 HF14Sp HS7Sp HR5
AMX-10RC 105 TML w/Autoloader (Both)	120/61	33/17	720	104	Trtd	W(4)	TF11Sp TS8Sp TR7 HF14Sp HS7Sp HR5
AMX-10RC 105 TML w/Anti-Mine Kit (Both)	110/55	31/15	720	104	Trtd	W(5)	TF11Sp TS8Sp TR7 HF14Sp HS7Sp HR5**
AMX-10RC 105 TML w/Anti-Mine Kit & Autoloader (Both)	109/54	30/15	720	104	Trtd	W(5)	TF11Sp TS8Sp TR7 HF14Sp HS7Sp HR5**
AMX-10RCR	134/68	38/19	720	104	Trtd	W(4)	TF12Sp TS8Sp TR7 HF15Sp HS8Sp HR5
AMX-10RCR w/Anti-	119/60	33/17	720	104	Trtd	W(5)	TF12Sp TS8Sp TR7 HF15Sp

Mine Kit							HS8Sp HR5**
AMX-10RAC	135/69	38/19/5	720	92	Trtd	W(4)	TF6 TS7 TR6 HF8 HS4 HR4
AMX-10RCM	125/63	34/18/4	720	92	Trtd	W(4)	TF6 TS6 TR6 HF8 HS4 HR4
AMX-10RC T40M	150/76	42/21/5	720	104	Trtd	W(4)	TF6 TS6 TR6 HF8 HS4 HR4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
AMX-10RC	+2	Fair	105mm F2 BK MECA Gun, AAT-F1	38x105mm DEFA, 4000x7.62mm
AMX-10RC (Late)	+3	Fair	105mm F2 BK MECA Gun, AAT-F1	38x105mm DEFA, 4000x7.62mm
AMX-10RC 105 TML	+4	Fair	105mm M68 Gun, AAT-F1	38x105mm, 4000x7.62mm
AMX-10RC 105 TML (Upgraded)	+4	Good	105mm M68 Gun, AAT-F1	38x105mm, 4000x7.62mm
AMX-RCR	+4	Good	105mm F2 BK MECA Gun, AAT-F1, AAT-F1 (RCS)	40x105mm DEFA, 4400x7.62mm
AMX-10RAC	+1	Basic	90mm CN90 F4 gun, AAT-F1	42x90mm DEFA, 4000x7.62mm
AMX-10RCM	+3	Fair	120mm CN120-26 gun, AAT-F1	30x120mm, 4000x7.62mm
AMX-10RC T40M	+3	Good	40mm 40CT Autocannon, AAT-F1, 2xAkeron ATGM Launchers	1000x40mm, 4400x7.62mm, 4xAkeron Missiles

*Belly armor with the anti-mine kit is AV 6Sp.
**Belly armor with the anti-mine kit is AV 7Sp.

Panhard EBR

Notes: This is one of the first armored vehicles built in France after the Second World War, but it is based on a pre-World War 2 design, much improved and updated with the technology of the post-war world. Even so, it is a very old design, almost totally replaced by 2000 in the French Army by the AMX-10RC, and found primarily in the hands of Indonesia, Mauritania, Morocco (in small numbers), Portugal, and Tunisia. West Germany also employed a small number of EBR M1954s with their Border Police. The assembly line for the EBR was shut down in 1960, though conversions were performed until 1969. The EBR experienced combat service in the Algerian War, the Portuguese Colonial War, and various African hotspots.

The EBR has a low profile with four roadwheels and four steel-rimmed floating wheels to ease travel over rough terrain and prevent bottoming out. The floating wheels are powered, and the suspension is 8x8, but the floating wheels can be raised for roads or level ground. The tires consist of Veil-Picard tubes, which are nitrogen-filled and designed to absorb bullet hits to an extent. In addition, the tires are bullet resistant. The floating wheels have aluminum rims and steel grousers, and outer rubber blocks. The engine is a Panhard 12 H6000S Flat12 gasoline engine delivering 200 horsepower. (“Flat” is not an exaggeration; the entire engine is only 23 centimeters tall.) The transmission is manual and has 4 gears front and reverse. A novel feature is the front and rear driver stations; the EBR is capable of being driven with equal speed and maneuverability in either direction; however, the Moroccans and Tunisians tend to fill the rear driver’s position with supplies and leave the second driver at home (allowing an extra 150 kg to be carried). There are hatches in the front and back decks for the two drivers, and two hatches on the turret deck for the commander and gunner. The engine is mounted under the turret basket of the EBR, which unfortunately means the turret must be removed to conduct major service on the engine. It’s also a mechanically complex piece of equipment. The engine is rather loud when running, negating stealthy approaches despite the EBR’s low profile.

The turret of the EBR a modified form of the FL-11 turret mounted on AMX-13 light tank, armed with a 75mm SA-49 gun, using the ammunition of the US M3 gun, already used by M4 Shermans and M24 Chaffee in postwar French service, and of the Mle 97 antitank gun. The gun is short-barreled. Despite the AMX-13 turret, the EBR’s gun was manually loaded and did not include the AMX-13’s magazine-fed autoloader. The oscillating turret design for the elevation and depression was retained. This version, also called the EBR M1951, was produced from 1951-1954, with 836 being built. Each driver had a hull-mounted MAC31 Reibel machinegun, and another one was mounted coaxial to the main gun. Sometimes, the commander’s cupola was fitted with a pintle mount and another MAC31, but this was not standard and is not addressed in the stats below. There are two smoke grenade launchers on either side of the turret. As the rear of the turret is a large stowage basket.

650 of these vehicles were later modified between 1964 and 1968, with the main guns rebored out to 90mm and fitted with a large T-shaped muzzle brake, becoming the CN90 F2 90mm low-pressure gun. These are M1951Rs.

Starting in 1954, an improved version was fielded, with a total of 279 EBR M1954s being built. This version had a variant of the FL-10 oscillating turret (again, a variant of the AMX-13’s turret) mounted. This version was armed with a long-barreled high-velocity SA-50 gun fed by a pair of 6-round magazines in the rear of the turret. The M1954 was largely retired from French service in 1964, but some were reworked into command variants by removing their main gun and ammunition racks, replacing them with a map table and long-range radios (which were at that time very large). The command variant also has a set of two binocular periscopes.

The EBR-ETT was an APC variant of the EBR. It was designed for use as a troop carrier for use in French cavalry squadrons. They were not adopted by the French Army, but were adopted by the Portuguese Army. This consisted of a hull similar to the AMX-

VTT APC (APC variant of the AMX-13) mounted on the EBR chassis. They were heavily armed, with a heavy machinegun on a ring mount on the commander's position and a pair of medium machineguns, while retaining the driver's hull-mounted front machinegun. There are two primitive firing ports on the sides and one firing port in the rear of the vehicle, but these are simply holes cut into the armor of the vehicle along with vision blocks. The roof of the passenger compartment has two long hatches. The smoke grenade launchers are moved to the front sides of the passenger compartment. There are two doors on the rear face.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
EBR M1951	$201,675	G, A	391 kg	13 tons	4	12	Active/Passive IR (D)	Enclosed
EBR M1954	$226,707	G, A	402 kg	13.7 tons	4	13	Active/Passive IR (D)	Enclosed
EBR M1951R	$244,592	G, A	398 kg	13.5 tons	4	12	Active/Passive IR (D)	Enclosed
EBR-ETT	$93,558	G, A	839 kg	15 tons	2+10	12	Active/Passive IR (D)	Enclosed
EBR Command	$87,231	G, A	574 kg	13.5 tons	2+3	13	Active/Passive IR (D)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
EBR M1951	129/65	36/18	380	89	Trtd	W(4)	TF6 TS6 TR6 HF8 HS4 HR4
EBR M1954	124/62	34/18	380	89	Trtd	W(4)	TF6 TS6 TR6 HF8 HS4 HR4
EBR M1951R	125/63	34/18	380	89	Trtd	W(4)	TF6 TS6 TR6 HF8 HS4 HR4
EBR-ETT	117/58	32/16	380	89	Stnd	W(4)	HF8 HS4 HR4
EBR Command	125/63	34/18	380	89	Trtd	W(4)	TF6 TS6 TR6 HF8 HS4 HR4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
EBR M1951	+2	Basic	75mm SA-49 Gun; MAC31, MAC31 (FD), MAC31 (RD)	56x75mm, 4470x7.5mm
EBR M1954	+2	Basic	75mm SA-50 Gun, MAC31, MAC31 (FD), MAC31 (RD)	56x75mm, 4470x7.5mm
EBR M1951R	+2	Basic	90mm CN90 F2 Gun, MAC31, MAC31 (FD), MAC31 (RD)	43x90mm, 4470x7.5mm
EBR-ETT	None	None	M2HB (C), MAC31 (D), MAC31 (R), MAC31 (L)	330x.50, 4470x7.5mm
EBR Command	None	None	MAC31 (C)	2000x7.5mm

Panhard ERC

Notes: The ERC began as a private venture by Panhard; military manufacturers sometimes do this, hoping that the domestic and international markets see that a design is good and want to buy it. The French Army did not buy the ERC (and its sister APC, the VCR), but several other countries did, including large orders from Mexico and Argentina, and smaller orders from Gabon, Ecuador, Ivory Coast, Chad, and Nigeria. They have seen combat service in the various brushfire wars in Africa, and in Mexico against the drug cartels. The first production orders were for the ERC-90 F1 Lynx variant; the orders from Mexico and Argentina were for this variant, and both countries cited the Lynx's greater ability to depress and elevate the main gun as reasons they chose this variant. Lynx production began in 1977, with the Sagaie beginning production in 1979. Iraq showed early interest in a version of the Lynx topped with a UTM800 turret; these are the VCR/TH found in French ATGM Vehicles.

The ERC-90 F1 Lynx uses a lighter form of 90mm cannon, the CN90 F1, but this gun is hampered by its lack of antiarmor effect, and the Lynx is suited primarily for reconnaissance or, as the Mexicans and Argentines use it, as a fire support vehicle. The Lynx also has a coaxial machinegun and a machinegun on a pintle mount by the commander's hatch on a ring mount. The Lynx is equipped with a laser rangefinder/designator. The central wheels are powered and the suspension is 6x6. The center wheels may be raised for better efficiency on roads, and the Lynx is amphibious without preparation, propelled in the water by waterjets. The driver's hatch is on the right side of the hull, and the commander and gunner's hatches are on the turret deck. The Lynx was powered by a 155-horsepower Peugeot gasoline engine. The Lynx can climb a 60% hill and a 40% side slope, climb over a 0.8-meter wall, and cross a 1.1-meter trench. The vehicle has automatic fire extinguishers, an NBC Overpressure system (with a later upgrade giving the Lynx an air conditioner), and three smoke grenade launchers on each side of the turret. Armor is decent for such a light vehicle, and sloping is marked.

The ERC-90 F4 Sagaie 1 was designed in response to a need for a reconnaissance vehicle which could double as a light tank destroyer. To this end, the Sagaie 1 mounts a CN90 F4 main gun in a GIAT TS90 turret which can fire APFSDS rounds as well as

other types of ammunition. The base vehicle was ready at the same time as the Lynx, but GIAT's engineers had a hard time trying to find a muzzle brake which would work with APFSDS ammunition. In the end, they used the muzzle brake found on the AMX-13 light tank. Ivory Coast was the first export customer, and as the AMX-10RC would not fit in the Transall C-160s or C-130 aircraft, and most of the bridges in the area of Africa that France operated in had a 6-8-ton weight limit, the French Army ordered Sagaie 1s to equip part of their FDF Brigades as well as use by the Foreign Legion and Marines 160 French Sagaie 1s were converted in 1987 to a 170-horsepower diesel engine; by the early 1990s, most of these upgrades were complete, and the upgrade engine was offered on the international market. In addition to the different turret shape, the Sagaie 1 may be identified by its wrap-around turret basket.

The Sagaie 1 has a weakness: it's low power-to-weight ratio. The Sagaie 2 addresses it by the mounting of two 98-horsepower diesel engines, for a total of 196 horsepower. The turret it uses is different, being the long and wide SAMM TTB-190 with more ammunition storage, and the hull is extended to make room for the double engine. The only known customer of this version was Gabon. Its larger tires can distinguish this version. A prototype version of the Sagaie 2 with a pair of 123-horsepower gasoline engines was designed, but not produced.

Prototypes of an ERC-60-20 with the Serval turret of the AML were produced, but don't appear to have had any takers. The EMC-91, a version with a breech-loaded 81mm mortar, was produced as a prototype, but I don't have enough information to stat it out.

Twilight 2000 Notes: Some Sagaie 2s were diverted for French use from shipments originally meant for Gabon.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
ERC-90 F1 Lynx	$254,037	G, A	427 kg	7.45 tons	3	6	Passive IR (D), Image Intensification (G)	Shielded
ERC-90 F4 Sagaie 1 (Gas Engine)	$233,277	G, A	427 kg	8.3 tons	3	8	Passive IR (D), Image Intensification (G)	Shielded
ERC-90 F4 Sagaie 1 (Diesel Engine)	$233,320	D, A	429 kg	8.2 tons	3	8	Passive IR (D), Image Intensification (G)	Shielded
ERC-90 F4 Sagaie 2 (Diesel Engines)	$167,397	D, A	428 kg	8.45 tons	3	7	Passive IR (D), Image Intensification (G)	Shielded
ERC-90 F4 Sagaie 2 (Gas Engines)	$167,544	G, A	427 kg	8.75 tons	3	7	Passive IR (D), Image Intensification (G)	Shielded
ERC-60-20	$229,091	G, A	415 kg	6.57 tons	3	6	Passive IR (D), Image Intensification (G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
ERC-90 F1 Lynx	162/82	46/22/6	242	55	Trtd	W(3)	TF3 TS3 TR3 HF8 HS6 HR4
ERC-90 F4 Sagaie 1 (Gas Engine)	149/75	41/21/5	242	55	Trtd	W(3)	TF6 TS7 TR6 HF8 HS6 HR4
ERC-90 F4 Sagaie 1 (Diesel Engine)	162/82	46/22/6	242	41	Trtd	W(3)	TF6 TS7 TR6 HF8 HS6 HR4
ERC-90 F4 Sagaie 2 (Diesel Engines)	176/90	49/25/6	242	49	Trtd	W(3)	TF6 TS7 TR6 HF8 HS6 HR4
ERC-90 F4 Sagaie 2 (Gas Engines)	208/105	58/29/7	242	96	Trtd	W(3)	TF6 TS7 TR6 HF8 HS6 HR4
ERC-60-20	180/90	50/25/6	242	55	Trtd	W(3)	TF3 TS3 TR3 HF8 HS6 HR4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
ERC-90 F1 Lynx	+3	Fair	90mm CN 90 F1 Gun, MAG, MAG (C)	30x90mm DEFA, 3000x7.62mm
ERC-90 F4 Sagaie 1	+1	Fair	90mm CN 90 F4 Gun, AAT-F1, AAT-F1 (C)	20x90mm DEFA, 2000x7.62mm
ERC-90 F4 Sagaie 2	+2	Fair	90mm CN 90 F4 Gun, AAT-F1, AAT-F1 (C)	32x90mm DEFA, 3000x7.62mm
ERC-60-20	+2	Basic	60mm Brandt LR Gun/Mortar, 20mm M693 Autocannon, AAT-F1	43x60mm, 500x20mm, 3800x7.62mm

Renault/Saviem VBC-90

Notes: The VBC-90 is a French-built, 6x6, armored car, intended for both domestic use and the export market. It is noted for its high-velocity long-barreled gun paired with a sophisticated fire control and ranging system. It is based on the VAB APC, topped with a lower hull and a large turret. After France took the VAB into service in 1978, Renault developed a reconnaissance vehicle would be needed with similar specifications, and better yet, a similar parts train and logistics, but fitted with a different-shaped hull and turret. The VBC, however, was not designed to French Army requirements, nor was it ordered by any large army or was in receipt of any

large orders. The VBC-90 however replaced the AMX-13 in Gendarmerie service, and was replaced by the Italian-made B1 Centauro; a small order of six was made by Oman, and an order by Lebanon was (so far) scuttled by Saudi Arabia. These were to have come from existing stocks; the VBC-90 itself is no longer being manufactured, though parts are still being made.

The driver's position is accessed by a hatch on the front left deck, and the position has large bullet resistant windows to the sides and front. The commander is in the turret with an overhead hatch with a ring mount, and is to the left of the main gun. The commander has a viewer showing the field of view from the gunner's sight. The gunner/loader is on the right, and has his own hatch on the turret roof. The armor is on par with other vehicles of its class, but protects primarily from shell fragments and small arms rounds, though it might stop 23mm autocannon rounds from the front due to a sharply-raked glacis. The suspension is 6x6, and the VBC-90 is powered by a Renault MIDS 06-20-45 220-horsepower turbocharged diesel, protected by an automatic fire detection and extinguishing system. This power pack is accessed by a large door on the rear of the vehicle. The VBC-90 is not amphibious, despite being based on an amphibious APC, being too dense. There is a power winch on the right side of the hull front with a capacity of 6 tons and with 60 meters of cable. The suspension is 6x6 and has a manual transmission with conventional controls. The VBC-90 has locking differentials, and an electrically-actuated clutch and gearshift. Each wheel has an independent suspension, with torsion bars and shock absorbers.

The GIAT TS90 turret holds 20 rounds of the main gun ammunition supply, with the rest of the supply being carried in the hull. The main gun, though not able to duel with main battle tanks, punches above its weight class, and is common to several French armored car designs. The day gunsight has a 5.9x magnification and an 8-degree field of view, while the night sight has a 5.5x magnification with the same field of view. The fire control system is the same as fitted to late variants of the AMX-10RC. The rear of the turret has pairs of smoke grenade launchers on either side of the turret.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$272,728	D, A	370 kg	13.5 tons	3	12	Passive IR (D), Image Intensification (G)	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
134/68	38/19	380	81	Trtd	W(3)	TF6 TS7 TR6 HF6 HS4 HR3

Fire Control	Stabilization	Armament	Ammunition
+3	Fair	90mm CN90 F4 Gun, AAT-F1, AAT-F1 (C)	45x90mm, 4000x7.62mm

VBL

Notes: This French light armored is basically an armored jeep-like vehicle with a multipurpose weapon mount on the roof and a modular interior construction that allows it to fulfill a variety of roles. It is a "basic box" type of AFV. Though designed to a French Army specification, the first customer was actually Mexico, where deliveries to the Mexican Army began a few months before deliveries to the French Army in 1984. They were first placed in French service in 1985, and were then sold to several other countries. They can be fitted with a bewildering variety of weapon options, from light machineguns to light autocannons, grenade launchers to ATGM launchers. Variants include the various weapon carriers (used as scout vehicles), a ground surveillance radar carrier, command vehicles, communications posts, and the ATGM carriers, which are covered in the French ATGM Carriers section.

There is a door on either side of the cab, a hatch on the roof for the gunner, and a door on the rear of the vehicle. The VBL is, in most cases, equipped with air conditioning and heating. The LRAC-89 or APILAS, while issued with the vehicle, are not on weapon mounts; the LRAC-89 was the first rocket launcher issued with the VBL, then later this was changed to disposable APILAS launchers; much later (after the Twilight 2000 timeline) six Eryx ATGM launchers were issued instead. Most weapons are on pintle mounts or on ring mounts and have no special mounting, but some of the heavier weapons are on electrically rotating cupolas, and the VBL Mk 2 has a light Protector RWS. Ring mounts often have semicircular gun shields around them, open only at the back. VBLs are powered by Peugeot XD3T 95-horsepower turbodiesel engine, but the VBL's light weight means that this engine is adequate. (The VBL Mk 2 is powered by the VB2L's engine.) The VBL is fully amphibious, propelled in the water by a propeller. The VBL may be transported by most aircraft, airdropped, or be carried underslung beneath medium and heavy lift helicopters.

The VB2L, or VBL LWB (Long Wheelbase) has a rear cargo section extended by 20 centimeters and a 130-horsepower DW10FC turbodiesel engine installed to cope with the additional weight. This allows for a bigger crew, or heavier weapons or increased ammunition carried. The VB2L has a total of 3 roof hatches, one in the front and two in the rear. Some VB2Ls have RWSs.

Patrol, Scout and Reco (Reconnaissance) versions have an extra long-range radio, an optical chemical sniffer and a Radiac meter. The VBL and VB2L are not equipped with night vision devices, but the crews are normally equipped with night vision goggles (not included). The GSR (Ground Surveillance Radar) variant has a radar with a range of 20 km, and an extra radio for networking with command elements. ASR (Aerial Surveillance Radar) are similar, but they network to nearby AAA guns and SAM units. Command vehicles are equipped with at least two long-range radios and one short-range radio, as well as a ruggedized laptop computer, and a handheld image intensifier. The commo version normally has three long-range radios and a short-range radio, used for networking with a Command VBL. It also normally has a radio dedicated to a wireless modem.

Twilight 2000 Notes: VBLs were being built at the rate of 40 per month at the time of the Twilight War and by 1995, over 1500 were in use by the French armed forces alone.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological

VBL LMG	$32,316	D, A	375 kg	3.55 tons	2+1	4	Headlights	Enclosed
VBL Reco HMG	$36,075	D, A	358 kg	3.55 tons	2+1	4	Headlights	Enclosed
VBL 20mm	$72,816	D, A	360 kg	3.56 tons	2+1	4	Headlights	Enclosed
VBL 30mm	$127,440	D, A	360 kg	3.57 tons	2+1	4	Headlights	Enclosed
VBL GL	$56,033	D, A	358 kg	3.56 tons	2+1	4	Headlights	Enclosed
VBL GSR Carrier	$180,468	D, A	359 kg	3.43 tons	3	6	Headlights	Enclosed
VBL Command	$52,716	D, A	358 kg	3.56 tons	3	4	Headlights	Enclosed
VBL Commo	$33,036	D, A	358 kg	3.56 tons	3	4	Headlights	Enclosed
VBL Mk 2	$42,018	D, A	360 kg	3.79 tons	2+1	4	Headlights	Enclosed
VB2L Patrol	$33,140	D, A	394 kg	3.8 tons	2+2	4	Headlights	Enclosed
VB2L Scout 1	$87,336	D, A	398 kg	3.93 tons	2+2	4	Headlights	Enclosed
VB2L Scout 2	$48,160	D, A	396 kg	3.93 tons	2+2	4	Headlights	Enclosed
VB2L Command	$50,339	D, A	377 kg	3.82 tons	4	4	Headlights	Enclosed
VB2L GSR/ASR	$197,267	D, A	378 kg	3.8 tons	4	4	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
VBL LMG	200/101	56/28/3	120	20	Stnd	W(2)	HF3 HS2 HR2
VBL Reco HMG	200/101	56/28/3	120	20	Stnd	W(2)	HF3 HS2 HR2
VBL 20mm	200/101	56/28/3	120	20	Stnd	W(2)	HF3 HS2 HR2
VBL 30mm	199/101	56/28/3	120	20	Stnd	W(2)	HF3 HS2 HR2
VBL GL	200/101	56/28/3	120	20	Stnd	W(2)	HF3 HS2 HR2
VBL GSR Carrier	206/104	58/29/3	120	20	Stnd	W(2)	HF3 HS2 HR2
VBL Command/Commo	200/101	56/28/3	120	20	Stnd	W(2)	HF3 HS2 HR2
VBL Mk 2	248/125	69/34/3	120	39	CiH	W(2)	TF2 TS2 TR2 HF3 HS2 HR2
VB2L Patrol	246/124	69/34/3	130	39	Stnd	W(2)	HF3 HS2 HR2
VB2L Scout 1	240/121	67/34/3	130	39	CiH	W(2)	TF2 TS2 TR2 HF3 HS2 HR2
VB2L Scout 2	240/121	67/34/3	130	39	CiH	W(2)	TF2 TS2 TR2 HF3 HS2 HR2
VB2L Command	245/124	68/34/3	130	39	Stnd	W(2)	HF3 HS2 HR2
VB2L GSR/ASR	246/124	69/34/3	130	39	Stnd	W(2)	HF3 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
VBL LMG/Command	None	None	AAT-F1 or MAG (C), LRAC-89 or 12xAPILAS or 6xEryx	4000x7.62mm, 12x89mm Rockets
VBL Reco HMG	None	None	M2HB (C), LRAC-89 or 12xAPILAS or 6xEryx	2400x.50, 12x89mm Rockets
VBL 20mm	None	None	20mm M621 Autocannon, LRAC-89 or 12xAPILAS or 6xEryx	1500x20mm, 12x89mm Rockets
VBL 30mm	None	None	30mm M781 Autocannon, LRAC-89 or 12xAPILAS or 6xEryx	1000x30mm, 12x89mm Rockets
VBL GL	None	None	Mk 19 or HK GMG AGL (C), LRAC-89 or 12xAPILAS or 6xEryx	750x40mm Grenades, 12x89mm Rockets
VBL GSR Carrier/Commo	None	None	AAT-F1 or MAG (C)	2000x7.62mm
VBL Mk 2	+2	Fair	M2HB, LRAC-89 or 12xAPILAS or 6xEryx	2000x.50, 12x89mm Rockets
VB2L Patrol	None	None	AAT-F1 or MAG (C), LRAC-89 or 12xAPILAS or 6xEryx	4000x7.62mm, 12x89mm Rockets
VB2L Scout 1	+2	Fair	20mm M621 Autocannon, AAT-F1, LRAC-89 or 12xAPILAS or 6xEryx	600x20mm, 1600x7.62mm, 12x89mm Rockets
VB2L Scout 2	+2	Fair	M2HB, AAT-F1, LRAC-89 or 12xAPILAS or 6xEryx	1000x.50, 1600x7.62mm, 12x89mm Rockets

VB2L Command	None	None	AAT-F1 or MAG (C)	2950x7.62mm
VB2L GSR/ASR	None	None	AAT-F1 or MAG (C)	3000x7.62mm

Robur SK-1

Notes: This former East German armored patrol vehicle was used exclusively by the East German Police and not used by the army. Though similar in appearance to the Russian BA-64, the SK-1 is an independent development and much bigger than the BA-64. To me, the SK-1 looks kind of like the race car token from the boardgame *Monopoly*. The SK-1 is the chassis of a Robur Garant 30K truck fitted with an all-welded armored body and a light turret. There is a door in the rear of the hull for the crew to enter, and a two-piece hatch on top of the turret. The body under the turret has small doors on either side. The turret traverse is manual. The turret has several vision slits and a hole for a machinegun. The driver and commander have bullet-resistant windows to the front which may be covered by armored shutters with vision slits in them. The SK-1 was used by the internal security forces of East Germany and never issued to the East German Army. With the reunification of Germany, most of the SK-1s were scrapped, except for some sent to museums or private collectors.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$13,764	D, A	325 kg	5.4 tons	2+3	4	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
95/48	27/14	70	16	Trtd	W(2)	TF2 TS2 TR2 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	MG34	900x8mm

Spähpanzer Luchs

Notes: This vehicle came out of a German Army requirement in the mid-1960s for a new generation of wheeled armored vehicles. The 6x6 version was accepted in service as the Fuchs, the 4x4 version was not placed into production, and the 8x8 version became the Luchs. The Luchs is a light armored car for use in scouting. The armament is light and best suited for suppressive fire, and it has enough speed for quick getaways, but the Luchs is not built for sustained combat, though frontal armor is heavy for a vehicle of its type.

The turret is literally festooned with vision blocks, with 12 provided for all-around vision. The driver is in the front of the hull on the left; there is a position for a second driver in the center of the vehicle about ¾ of the way back, but in practice this position was normally filled with up to 150 kg of supplies and extra ammunition and the second driver left at home. On the turret are two hatches for the commander and gunner. There is a small door on the left of the hull between the second and third wheels. The Luchs has an NBC Overpressure system and is known for its quiet operation. The tires are run-flat and the suspension is 8x8, with equal speed forward or reverse. Up to Com Mov 69, the vehicle may be steered using all four axles, but above that speed, only the front two axles may be used in steering. The Luchs does not have a tire pressure regulation system, but the tires are low-pressure and well-suited to off-road driving. While the engine may burn diesel or gasoline, performance is limited to 300 horsepower with gasoline, AvGas, or Alcohol; with diesel fuel, the engine is rated at 390 horsepower. The Luchs is fully amphibious and has propellers at the rear and a folding trim vane at the front. The Luchs may move in water in reverse at one-half speed, but the manufacturer does not recommend amphibious operation in reverse. Radios include an FM short-range secure radio and an HF long-range radio with an amplifier for Morse Code transmission.

The Luchs A2 upgrades the night vision system and the communications suite with frequency-hopping radios and the deletion of the Morse Code transmitter. The radios have increased range as well. The Luchs was replaced in German service by the Fennek in the early 2000s.

Twilight 2000 Notes: About half of the Luchs in service at the time of the Twilight War were equipped with thermal imagers, and some were also equipped with video cameras and shotgun microphones along with recording equipment and radio links to higher headquarters.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Luchs A1	$155,651	D, G, AvG, A	733 kg	19.5 tons	4	10	Passive IR (D, G, C), IR/WL Searchlight	Shielded
Luchs A2	$169,451	D, G, AvG, A	733 kg	19.5 tons	4	10	Passive IR (D), Thermal Imaging (G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Luchs (Diesel)	158/79	43/22/4	500	111	Trtd	W(6)	TF10 TS8 TR8 HF12 HS7 HR6
Luchs (G, AvG, A)	129/65	36/18/4	500	133	Trtd	W(6)	TF10 TS8 TR8 HF12 HS7 HR6

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Luchs	+2	Fair	20mm Rh-202, MG3 (C)	600x20mm, 1000x7.62mm

Fennek

Notes: This Dutch/German vehicle was designed to replace the Lynx in Dutch service and the Luchs in German service. In 2000, the prototypes finished field trials, and in 2001, the Germans and Dutch placed a combined order for 632 – 419 for the Dutch and 222 for the Germans, with the Germans going on to buy 78 more in 2015. Most are reconnaissance vehicles with a sensor package and a weapon, but 130 Dutch vehicles are MRAT (Medium-Range Antitank) vehicles with mounts for ATGMs, and 78 Dutch vehicles are general purpose, armored utility vehicles; a further 18, produced for the Dutch by Turkey, and are SWP (Stinger Weapons Platform) vehicles. 24 of the German order were transport vehicles for combat engineer teams, and 20 are JFST (Joint Fire Support Team) vehicles, with laser rangefinders and advanced optics. (Artillery Observer vehicles are almost the same, differing in the fire support hardware and software.) Turkey also produces the Fennek under license from the Dutch, though this production is primarily for Germany and the Netherlands. In addition the recent Qatari order is primarily being fulfilled by Turkish production. (Qatari Fenneks are either JFST or FAO vehicles.)

The Fennek is a 4x4 vehicle with power provided by a Deutz Diesel engine producing 239 horsepower and with central tire pressure regulation system. The engine is insulated and is much quieter than the same engine installed in another vehicle, and also has the equivalent of IR Suppression 1. Sensors are mounted on an extendible 1.5-meter mast, which is slaved to a ruggedized laptop computer mounted in the hull. The sensor head can also be put on a tripod and remotely situated up to 37 meters away. The software of the computer controls the sensors and the mast extension and retraction; the computer is also connected to a data-capable computer for transmission to headquarters elements. The Fennek normally also has inertial navigation gear and GPS. The vehicle has an air conditioning system which also functions as an NBC Overpressure system. Sensors on the mast include a thermal imager, a laser rangefinder, a day TV camera and a shotgun microphone. The TV camera and thermal imager are linked to a video recorder inside the vehicle. Weapons are mounted on an RWS or remote mount and are aimed and fired by remote controls mounted inside the vehicle or a touchscreen on the commander's position. JFST vehicles also have a laser designator/rangefinder on the mast and an image intensifier.

Most mount a light RWS; Dutch versions are armed with an M2HB, while German examples are typically armed with an MG3 or HK GMG. The Dutch MRAT version is armed with a twin launcher for Israeli-designed, but European-produced, Spike-MR ATGM. SWP vehicles have four launchers for Stinger SAMs. The Fennek has counter-IED jamming equipment, which has a 75% likelihood of jamming IED remote comms, and a 50% chance of jamming IED and mine fuzes. RWSs carry six smoke grenade launchers; Fenneks without RWSs have six smoke grenade launchers at the rear of the vehicle (three on each side at the roof). The front of the vehicle has a 5-ton-capacity winch with 70 meters of cable.

Many, but not all. scout variants of the Fennek are equipped with an Aladin miniature UAV. The Netherlands has pledged an unknown number of Fenneks to Ukraine, but they have not seen combat service as of August 2024; the Ukrainians received an unknown number of recon variants. I have not been able to find out enough about the Fennek AD MR 81mm mortar transporter, AD VCP mobile command post, or Fennek 2 variants to stat them out, and they would not appear in the Twilight 2000 timeline in any case.

Twilight 2000 Notes: This vehicle was just beginning to be produced at the war's outset, and is rare. They were used in Poland almost from the beginning by German forces, and later by Dutch forces against the French. The scout variant with a UAV is not available in the Twilight 2000 timeline.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Scout/Recon Vehicle	$180,533	D, A	810 kg	10.2 tons	3	10	Thermal Imaging (G, C), Image Intensification (G, C), CCD Camera (G, C)	Shielded
MRAT Vehicle	$278,798	D, A	776 kg	9.96 tons	3	10	Thermal Imaging (G, C), Image Intensification (G, C), CCD Camera (G, C)	Shielded
Combat Engineer Team Vehicle	$184,853	D, A	674 kg	10.33 tons	4	10	Thermal Imaging (G, C), Image Intensification (G, C), CCD Camera (G, C)	Shielded
JFST Vehicle	$180,600	D, A	810 kg	10.25 tons	3	11	Thermal Imaging (G, C), Image Intensification (G, C), CCD Camera (G, C)	Shielded
SWP Vehicle	$341,226	D, A	724 kg	10.17 tons	3	10	Thermal Imaging (G, C), Image Intensification (G, C), CCD Camera (G, C)	Shielded
Utility Vehicle	$70,906	D, A	910 kg	9.95 tons	1+4	8	Headlights	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Scout/Recon Vehicle	185/94	51/26	230	70	CiH	W(3)	TF2 TS2 TR2 HF8 HS5 HR4

MRAT Vehicle	189/95	52/26	230	70	CiH	W(3)	TF2 TS2 TR2 HF8 HS5 HR4
Combat Engineer Team Vehicle	184/93	51/26	230	70	CiH	W(3)	TF2 TS2 TR2 HF8 HS5 HR4
JFST Vehicle	185/94	51/26	230	70	CiH	W(3)	TF2 TS2 TR2 HF8 HS5 HR4
SWP Vehicle	186/94	52/26	230	70	CiH	W(3)	TF2 TS2 TR2 HF8 HS5 HR4
Utility Vehicle	190/95	52/26	230	70	Stnd	W(3)	HF8 HS5 HR4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Scout/Recon Vehicle	+2	Good	M2HB (RWS), or MG3 (RWS), or HK GMG (RWS)	3000x.50, or 5000x.7.62mm, or 500x40mm
MRAT Vehicle	+2	None	2xSpike ATGM Launchers	10xSpike-MR or LR ATGM
Combat Engineer Team Vehicle	+2	Good	M2HB (RWS), or MG3 (RWS), or HK GMG (RWS), 100 kg Plastic Explosive, Engineer Demo Chest	3000x.50, or 5000x.7.62mm, or 500x40mm
JFST Vehicle	+2	Good	M2HB (RWS), or MG3 (RWS), or HK GMG (RWS)	3000x.50, or 5000x.7.62mm, or 500x40mm
SWP Vehicle	+2	None	4xStinger SAM Launchers	12xStinger SAMs
Utility Vehicle	None	None	M2HB (C), or MG3 (C), or HK GMG (C)	3000x.50, or 5000x.7.62mm, or 500x40mm

MOWAG Eagle

Notes: The Eagle line of armored trucks is a set of vehicles that are related, though some are only related by name and subsystems. They have remote turrets, and the armor consists of an inner layer of ballistic ceramic and an outer layer of aluminum. This provides protection against most small arms, but does not stop heavier weapons. The windows are also bullet resistant. Armament generally consi9sts of a medium machinegun and the weapon can be aimed and fired from inside the vehicle, and has night vision. The engines generally have more horsepower than their baseline chassis to cope with the additional weight of armor, weapons, and turrets.

MOWAG Eagle I

This vehicle is an armored version of the HMMWV M1042. The vehicle is only slightly larger in size (10 centimeters wider) than the standard HMMWV and can be transported inside the same sorts of aircraft; it is also light enough to be sling-loaded by medium and heavy lift helicopters. The commander has a hatch in the roof above his seat. To the left and rear of the commander's hatch is a cupola with a weapon mount; this cupola is a sort of RWS and generally armed with a medium or heavy machinegun, as well as six smoke grenade launchers. On the front of the vehicle is a winch with a 5.4-ton capacity. The Eagle I is NBC-tight, though it does not have an actual NBC Overpressure system and the crew is dependent upon their own NBC gear. The vehicle has NBC-Resistant air conditioner. There are four upholstered seats in the vehicle. There are stowage compartments for various weapons, small arms, and equipment; the exact composition of these compartments depends upon the crew, unit requirements, and mission requirements. The rear cargo bed also has tie-down points for cargo that does not fit into the stowage compartments. The Eagle I has two doors on either side and a largo door in the rear of the vehicle. The Eagle I is powered by a 159-horsepower GM LNA Turbodiesel engine and has a 4x4 suspension. It is not amphibious, but can ford up to 0.76 meters.

MOWAG Eagle II & III

This is similar to the Eagle I, but is based on the HMMWV M1113 ECV (Extended Capacity Vehicle). The Eagle I was updated to take into account the changes the Swiss wanted in the Eagle platform, discovered in use by the Swiss, Germans, and Danish. The engine is replaced by one of 190 horsepower, and the Eagle II has the M1113's TAK-4 independent 4-wheel suspension. The interior and layout of the Eagle II is similar to that of the Eagle I, and most other details are as the Eagle I.

The Eagle III is the Eagle II turned into a FIST/FALO platform, with a different-shaped cabin and windows to give observers a better view of their surroundings and a mast-mounted sighting system with advanced optics and a laser designator/rangefinder. It has slightly different dimensions than the Eagle II, but is otherwise very similar to the Eagle II.

MOWAG Eagle IV

The Mowag Eagle IV is a 4x4 light armored reconnaissance vehicle developed by the Swiss company Mowag, now part of General Dynamics European Land Systems. Introduced in 2003, it is based on the Mowag Duro IIIP chassis. The Eagle IV offers enhanced payload capacity, improved armor, and superior mine resistance compared to its predecessors. It features STANAG 4569 Level III

ballistic protection and Level IIa mine protection. The vehicle is used by the Danish and German armies, providing high mobility and protection for various military operations. It is an Eagle only in name, being part of the same product line but based on a different vehicle's chassis (the MOWAG DURO II) and having a markedly different protection level, particularly in its enhanced antimine protection. The Eagle IV has a V-hull and is mine-resistant (see the rules I have devised on this page). It uses a Cummins ISBe 250 250-horsepower Turbodiesel. The suspension is 4x4 with run-flat tires, and while not amphibious, can ford to a depth of 1 meter. Danish vehicles are equipped with the Pilar Mk IIw Integrated Gunshot Detection system, integrated with the Lemur OHWS and a BMS; the Pilar system detects the direction and distance of the shot and slews the OHWS's weapon to the shot location, if set on automatic. The front bumper has a 12-ton capacity winch with 50 meters of cable.

MOWAG Eagle V

Used by Germany, Denmark and Switzerland, the Eagle V is based on the DURO II chassis and is designed to accept various RWSs and mission sets. Available in 4x4 and 6x6 configurations, it offers high mobility and protection against mines, IEDs, and ballistic threats. The Eagle V features a Cummins diesel engine, Allison automatic transmission, and De-Dion suspension for excellent off-road performance. It supports various mission roles, including reconnaissance, command, and patrol. The Eagle V has an air conditioning system and NBC sealing (though it does not have a true NBC Overpressure system). The Eagle C is powered by a 245-horsepower Cummins Turbodiesel engine that possesses considerable torque. The Eagle V has antilock air disc brakes and run-flat tires, along with a locking differential. The Eagle V has an electrical bus sufficient to allow the mounting of several RWSs and APSs, as well as electronic equipment and communications gear. The front bumper has a 12-ton capacity winch with 50 meters of cable. The engine compartment and the vehicle cabin have separate fire detection and suppression systems. The Eagle V has a double-V hull and a mine mitigation package. The Eagle V has 70-80% parts commonality with the Eagle IV, a requirement of the German Army. Finally, the Eagle V can mount applique armor plates made of ballistic ceramic under steel, similar to the Eagle's base armor but with steel instead of aluminum.

The Eagle V 6x6 is, of course, the same truck chassis extended out to three axles. It is more of an armored truck or an APC than a light combat vehicle, but is included here for completeness' sake. The 6x6 Eagle V is also used as the basis for several specialist vehicles, such as ATGM or SAM carriers or command post and medical vehicles.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
MOWAG Eagle I	$41,231	D, G, A	1.05 tons	3.8 tons	2+2	6	Passive IR (G), Image Intensification (G)	Shielded
MOWAG Eagle II	$45,332	D, G, A	1.07 tons	4.1 tons	2+2	6	Passive IR (G), Image Intensification (G)	Shielded
MOWAG Eagle III	$132,932	D, A	980 kg	4.4 tons	3	7	Passive IR (G), Image Intensification (G, Mast), Thermal Imaging (Mast)	Shielded
MOWAG Eagle IV	$51,416	D, A	2.39 tons	7.6 tons	2+2	8	Passive IR (G), Image Intensification (G)	Shielded
MOWAG Eagle IV (Danish)	$112,016	D, A	2.31 tons	7.63 tons	3	9	Passive IR (G), Image Intensification (G)	Shielded
MOWAG Eagle V 4x4	$55,206	D, A	2.99 tons	10 tons	2+3	10	Passive IR (G), Image Intensification (G)	Shielded
MOWAG Eagle V 4x4 w/Applique	$56,453	D, A	2.89 tons	10.44 tons	2+3	10	Passive IR (G), Image Intensification (G)	Shielded
MOWAG Eagle V 6x6	$55,530	D, A	7.96 tons	11 tons	2+8	10	Passive IR (G), Image Intensification (G)	Shielded
MOWAG Eagle V 6x6 w/Applique	$56,948	D, A	7.69 tons	11.46 tons	2+8	10	Passive IR (G), Image Intensification (G)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
MOWAG Eagle I	302/152	83/42	95	59	CiH	W(3)	TF3 TS3 TR2 HF4 HS3 HR2
MOWAG Eagle II	330/166	91/46	95	71	CiH	W(3)	TF3 TS3 TR2 HF4 HS4 HR3
MOWAG Eagle III	310/156	85/43	95	71	CiH	W(3)	TF3 TS3 TR2 HF4 HS4 HR3
MOWAG Eagle IV	244/123	68/34	180	97	CiH	W(4)	TF3 TS3 TR2 HF5 HS4 HR4*
MOWAG Eagle IV (Danish)	243/122	67/34	180	97	CiH	W(4)	TF3 TS3 TR2 HF5 HS4 HR4*
MOWAG Eagle V 4x4	201/102	56/28	180	96	CiH	W(4)	TF3 TS3 TR2 HF5 HS4 HR4*
MOWAG Eagle V 4x4 w/Applique	194/98	54/27	180	96	CiH	W(4)	TF3 TS3 TR2 HF7Sp HS5Sp HR5*
MOWAG Eagle V 6x6	186/94	52/26	180	96	CiH	W(4)	TF3 TS3 TR2 HF5 HS4 HR4*
MOWAG Eagle V 6x6 w/Applique	181/91	50/26	180	96	CiH	W(4)	TF3 TS3 TR2 HF7Sp HS5Sp HR5*

Vehicle	Fire Control	Stabilization	Armament	Ammunition
MOWAG Eagle I	+2	Fair	MAG or M2HB	2000x7.62mm or 1200x.50
MOWAG Eagle II/III	+2	Fair	MAG or M2HB	3000x7.62mm or 1800x.50
MOWAG Eagle IV	+2	Fair	MAG or MG3 or M2HB or HK GMG	4000x7.62mm or 2200x.50 or 700x40mm
MOWAG Eagle V	+2	Fair	MAG or MG3 or M2HB or HK GMG	5200x7.62mm or 2800x.50 or 900x40mm

*Belly AV for these vehicles are 5Sp, in addition to V-hull benefits

OTO Melara Gorgona R2.5

Notes: Described by its crews as an "armored sports car," the Gorgona was designed for rapid road reconnaissance and some off-road work. It is basically an automobile with armor, night vision devices, amphibious capability, and armament. The relatively innocuous appearance is deliberate, the Gorgona being designed for use by Gendarmerie-type forces, and meant to operate in society without a threatening appearance like a standard military vehicle would present. The weapon mount on the roof above the commander's position can mount any weapon designed for an NLT or NMT; a typical weapon is shown below. This weapon can be aimed and fired by the commander without having to expose himself, though the commander must open the hatch and expose himself to reload the weapon. The crew can also hook extended belts to the weapon. The engine is in the rear and there is a large trunk up front; the engine is a 95-horsepower Fiat 8144 82.200 diesel. The suspension uses all-wheel drive with four-wheel disc antilock braking. The transmission is automatic and the Gorgona has power steering and power brakes. The Gorgona is amphibious without preparation and is aided by waterjets in the rear. Armor is aluminum and is shaped to further the non-threatening appearance. The windows are made of bullet-resistant glass. The only users of this vehicle are the Italian Carabinieri, Oman, and Saudi Arabia.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$24,261	D, G, A	329 kg	3 tons	2+2	2	Passive IR (C)	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
220/39	61/11/4	70	28	Stnd	W(2)	HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	MG43/59 (C)	500x7.62mm

Iveco Fiat/OTO Melara B1 Centauro

Notes: Also known as the Centauro Reconnaissance Anti-Tank, the B1 Centauro was developed in response to an Italian Army requirement for a tank destroyer with the firepower of the Leopard 1 then in service with the Italian Army, but with greater mobility and lighter weight. The primary mission of the B1 Centauro is to provide fire support for cavalry and infantry units, and to protect them against enemy tanks and mobile guns. The B1 Centauro is half the weight or less of most main battle tanks and the high power-to-weight ratio gives it excellent mobility, even off-road. Fire control is excellent with the Galileo Avionica TURMS system (the same fire control system as on the Ariete tank), and the gun is fully stabilized. The B1 Centauro has seen combat service in Lebanon, former Yugoslavia, and Somalia, as well as during Iraqi Freedom by both the Italians and Spanish. (Spanish Centauros are designated VRCC-105 Centauro.) Other users of the B1 Centauro include Jordan, Oman (Centauro 120mm) and Brazil. Centauro entered production in 1991 and deliveries of the B1 were complete by 2006. Both the Russians and the US have tested the Centauro; the Russians tested three, one with the standard B1 Centauro configuration, one Centauro 120mm, and one equipped with a Russian 125mm main gun. This potential deal was scuttled by sanctions after the Russian annexation of Crimea in 2014. The US tested 16 B1 Centauros in a Striker Brigade at Ft Lewis which was part of 2ID, for the role eventually filled by the M1128 MGS. The Centauros were returned to Italy in 2002. Columbian company CONPES visited OTO Melara in 2012 to talk about Centauros, but no orders were placed.

There are two hatches on the turret for the gunner and commander, and one on the front deck for the driver. The Centauro can ford 1.5 meters with no preparation, but is not amphibious. The vehicle has an independent auxiliary power unit for basic electrical needs, thus saving fuel while idling. The Centauro is equipped with NBC protective filtration integrated with the vehicle's air conditioner and heater. The gunner and commander share a stabilized thermal imager (both may use it at the same time, but they will have the same field of view). The Centauro is powered by a 520-horsepower Iveco V6 turbodiesel engine. The transmission is automatic. The 8x8 suspension has independent suspension for each wheel. run-flat tires, central tire inflation regulation, and disc antilock brakes on all wheels. Steering is done with the first and second axles, and at speeds below 25 kmh, (Com Mov 35) also on the fourth axle. At low speeds, the Centauro can turn a 9-meter radius circle.

Due to the Centauro's turret blow-out panels, any turret hit that results in an ammunition explosion does not automatically kill the crew and destroy the vehicle. Instead, consider all turret weapons, sensors, and electronics to be damaged and inoperative. Then apply 50 points of concussion damage to the commander, gunner, and loader. (Hull hits which cause an ammunition explosion still destroy the vehicle and kill the crew; 14 rounds are stored in the turret, and 26 in the hull.) Armor is steel, and applique armor is available. There are four smoke grenade launchers on each side of the turret, and the turret is also equipped with a laser warning receiver. There are attachment lugs on the turret front and hull front for reactive armor.

The B1 Centauro is armed with the OTO Melara 150mm/52, a locally developed variant of the L7/M68/NATO-compatible 105mm gun. It is heavily buffered and compensated, with multiple recoil buffers and a large pepperpot-type muzzle brake. The gun can fire all 105mm NATO-compatible rounds. To the right of this on the gun mantlet is the coaxial MG42/59 7.62mm machinegun, an adaptation of the MG42 in 7.62mm NATO. A second such machinegun is on a pintle in front of the loader's hatch. The commander has a pintle-mounted M2HB heavy machinegun; optionally, this pintle could be faced with a light U-shaped gun shield granting AV1 to the front. The main gun and coaxial machinegun may be fired by the gunner or the commander, as the commander has auxiliary controls in his cupola. There is a 6kW APU for running systems while the engine is off, to conserve fuel.

The B2 Centauro

The quest for an upgraded B1 Centauro began in 2000, with nine prototypes of an up-gunned Centauro bring developed. They were not a success; the full-power OTO Melara 120/44 (a NATO-compatible 120mm cannon also used on the Ariete main battle tank) was too much for the light B1 Centauro chassis to handle. Development stalled, until a more urgent request was put in by the Italian Army.

In 2011, a more developed proposal was put forth by CIO (the consortium of Iveco and OTO Melara). This was a heavier vehicle, partially because of the larger turret, partially because of upgraded armor and systems, and partially from a more robust chassis. In 2015, a contract for production was signed by CIO and the Italian government, and this became the B2 Centauro.

The chassis was substantially strengthened and upgraded, with the wheels, axles and suspension extended outwards and beefed up. Though this was meant, along with a V-hull, to increase mine and IED protection, it had along with the increased weight the effect of providing a base that could handle the OTO Melara 120/44 NATO-compatible 120mm cannon. The hull is divided into three sections, each with an automatic fire and explosion detection and suppression system; the turret is also so protected. The power pack is in the front, along with one fuel tank; ammunition and main fuel tanks are in the rear, while the center has the turret. The hatch and position setup are the same as the B1 Centauro, but there is also a door at the rear of the vehicle for emergency exits and to replenish the ammunition supply. The turret carries 12 rounds of the main gun ammunition supply, in a bustle with blow-out panels like those of the B1 Centauro. The remaining 19 rounds are in the rear compartment of the vehicle along the outer walls. The coaxial machinegun is the Italian-standard MG42/59; the loader has another pintle-mounted MG42/59. The commander has a HITROLE L2R RWS mounting the M2HB machinegun; this weapon may be aimed and fired from under armor and uses extended belts of ammunition, with 400 rounds ready to fire. The HITROLE RWS also has a set of 16 80mm smoke grenade launchers. The HITROLE may be aimed and fired by the commander or gunner, using downlinked sights on monitors.

Armor protection consists of a composite ballistic ceramic/steel sandwich on the frontal arcs, along with spaced ceramic faced with thin steel for the side arcs, giving the B2 Centauro excellent protection for its weight. Two levels of applique armor are available. The B2 Centauro is equipped with a Jammer Guardian H3 system which blocks radio and cell communications within 30 meters, stopping for example signals sent to IEDs and remotely detonated mines within the 30-meter radius of the Centauro using a task roll of 14. The smoke grenade launchers may be slaved to the RALM laser warning receivers to trigger them automatically is a targeting beam is detected, or to give a simple alarm with the smoke grenades command detonated by the commander or gunner. The B2 Centauro has two radio jamming antennas that can jam enemy broadcasts (if the frequency is known) on a DIF: Intelligence or Electronics roll from the commander. The B2 Centauro may continue to move at full speed even if it has lost two wheels due to damage, and the tires are run-flat; the B2 Centauro may move at half speed even if all eight tires are flattened. The B2 Centauro is equipped with NBC protective filtration integrated with the vehicle's air conditioner and heater. The Centauro is equipped with an optical chemical sniffer and a Radiac meter on the turret roof. Development is being conducted of an APS (for the B2 Centauro and the Ariete main battle tank) for the B2 Centauro, and the electrical bus is already able to handle the load of an APS. The B2 Centauro can also have lugs installed for ERA, based on experience with ERA on the B1 Centauro in Somalia; this ERA is based on the British ROMOR-A.

The B2's optics and fire control have been upgraded, giving the commander and gunner a hunter/killer capability.

The B2 Centauro is powered by an 8V Iveco-FPT VECTOR 720 hp multifuel engine which may use diesel (the normal fuel in Italian service), gasoline, aviation gasoline, kerosene, alcohol, or JP8 jet fuel. The engine is fuel-injected and has a 20-liter displacement, and meets modern European emission standards. The exhausts are designed to suppress the IR signature and gives the B2 Centauro IR Suppression effects. Turning radius at low speed is 9 meters, and the driver may use a central tire pressure regulation system. The B2 Centauro has a vehicle state system, displayed on LCD screens at each crewmembers' stations, as well as information at the commander's station from a BMS and GPS navigation system. There is a 6kW APU for running systems while the engine is off, to conserve fuel.

Other Variants and Derivatives

In the late 1990s, OTO Melara designed an upgraded version of the Centauro called the Centauro 120mm. This version is armed with a 120mm low-pressure L/45 cannon, which, while it does not have the range of a NATO-standard 120mm gun, does have greater damaging power than the B1 Centauro's 105mm gun. This variant placed that gun in a new turret which was equipped with composite frontal armor and upgraded armor for the rest of the vehicle. This is the variant used by Oman. The Centauro 120mm was also used to test components for the B2 Centauro which was being developed at the time.

The Centauro 155/39 Porcupine is an addition to the Centauro line that first appeared in a parade in 2011, but has yet to enter production as of September of 2024. The Porcupine is a self-propelled howitzer version of the B1 Centauro, meant to be much lighter, more transportable, and more automated than the PzH-2000s that the Italian Army currently uses (it was to have supplemented, but not replaced, all PzH-2000s in Italian service. The B1 hull is topped with a massive turret which houses the main gun and an autoloading system for it, along with the ammunition. The crew themselves consist of only two members, with the driver in the normal place and the commander/gunner in the turret, with much of his normal work automated through the use of an autoloader and fire control computers. The commander/gunner selects the mode of fire through LCD touchscreens to control rate of fire, ammunition to be fired, and method of fire, including charges to be used. Single round fire, semiautomatic fire, automatic fire, and MRSI missions may all be selected. The commander/gunner plots fire using GPS and computerized maps loaded into the computer's memory. The Porcupine includes a full BMS to integrate the vehicle into the unit's master tactical fold. The Porcupine is armed with the FH70 155/39 howitzer, and is compatible with all NATO, Chinese, and Israeli 155mm howitzer rounds. The turret has slightly less of the level of protection as the B1's turret level of protection, but the hull has significant beefing up to increase mine resistance, and the suspension has been strengthened to deal with the howitzer's recoil. The howitzer itself has significant recoil recuperation, and also is tipped with

a large pepperpot-type muzzle brake. Elevation of +75 degrees and depression of -5 degrees can be reached with the howitzer, but the turret only can be traversed left and right 15 degrees from the center, as more than that would potentially tip over the vehicle during firing. First shots can be conducted withing three minutes of reaching a firing position. A sustained fire rate of 8 rounds per minute is possible. The Porcupine would probably have been equipped with the B1's 6kW APU. The B1's applique armor cannot be mounted on the Porcupine.

The Draco, in real life, existed only as an unfinished prototype, with a B1 hull and mock-up turret. The Draco was to be armed with the OTO Melara 76mm OTOmatic autocannon, fed by 12-round revolver-type magazines in the turret, and able to use all standard 76mm OTOmatic ammunition as well as guided DART ammunition, C-RAMtype ammunition, and a special top-attack round, all of which were being devised for this vehicle. The advanced optics and fire control of the B1 Centauro would have been carried over to the Draco. The Draco was to be mostly used in an antiaircraft role, though it also had considerable use as an antiarmor platform, especially with the top-attack ammunition under development, and in an anti-bunker/fortification role. The Draco was to have had a vehicle state system, displaying on LCD touchscreens the vehicle's mechanical and armament readiness. The Draco would probably have been equipped with the B1's 6kW APU. The B1's applique armor cannot be mounted on the Draco.

OTO Melara tested the SIDAM25 turret on a B1 Centauro chassis. Such a vehicle would have had more speed and agility than the standard B1 Centauro due to much lesser weight. This setup was rejected by the Italian military, along with another antiaircraft turret, the Canadian ADATS turret. The ADATS turret was rejected early in the process, while it was still a paper study. Except for the B1 Centauro hull, the setup would have been similar to the M113 mounting. After the rejection by the Italian Army, the projects were dropped, with only the Centauro SIDAM25 prototype being built.

The VBM Freccia (Italian Wheeled APCs) and the Centauro VBM Recovery are also variants of the B1 Centauro chassis.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
B1 Centauro	$463,485	D, A	336 kg	25 tons	4	16	WL Searchlight (C), Passive IR (D). Thermal Imaging (G), Image Intensification (G, C)	Shielded
With Applique	$476,603	D, A	330 kg	30 tons	4	18	WL Searchlight (C), Passive IR (D). Thermal Imaging (G), Image Intensification (G, C)	Shielded
B2 Centauro	$765,257	D, G, AvG, K, JP8, A	462 kg	30 tons	4	20	Passive IR (D). Thermal Imaging (G, C), Image Intensification (G, C)	Shielded
With L1 Applique	$790,812	D, G, AvG, K, JP8, A	411 kg	32 tons	4	22	Passive IR (D). Thermal Imaging (G, C), Image Intensification (G, C)	Shielded
With L2 Applique	$794,580	D, G, AvG, K, JP8, A	411 kg	35 tons	4	24	Passive IR (D). Thermal Imaging (G, C), Image Intensification (G, C)	Shielded
Centauro 120mm	$504,454	D, A	306 kg	28 tons	4	24	WL Searchlight (C), Passive IR (D). Thermal Imaging (G), Image Intensification (G, C)	Shielded
Porcupine	$622,366	D, A	341 kg	26 tons	2	16	Passive IR (D, C), Image Intensification (C)	Shielded
Draco	$457,797	D, A	318 kg	30 tons	3	20	Passive IR (D). Thermal Imaging (G), Image Intensification (G, C), Radar (20 km) (G, C)	Shielded
Centauro SIDAM25	$396,214	D, A	342 kg	21 tons	3	12	Passive IR (D). Image Intensification (G, C), Radar (10 km) (G, C)	Shielded
Centauro ADATS	$395,523	D, A	373 kg	25 tons	3	16	Passive IR (D). Thermal Imaging (G), Image Intensification (G, C), Radar (20 km) (G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
B1 Centauro	176/89	49/25	540	193	Trtd	W(8)	TF11 TS11 TR10 HF14 HS9 HR7
With Applique	141/71	39/20	540	193	Trtd	W(8)	TF15Sp TS13Sp TR10 HF20Sp HS12Sp HR7
B2 Centauro	183/92	51/26	520	267	Trtd	W(8)	TF20Cp TS15Sp TR12 HF25Cp HS15Sp HR10
With L1 Applique	180/91	50/26	520	267	Trtd	W(8)	TF22Cp TS17Sp TR12 HF27Cp HS17Sp HR10
With L2 Applique	168/85	47/23	520	267	Trtd	W(8)	TF25Cp TS20Sp TR12 HF30Cp HS20Sp HR10
Centauro 120mm	149/75	41/21	540	193	Trtd	W(8)	TF15Cp TS13Sp TR10 HF20Cp HS12Sp HR7
Porcupine	158/80	44/22	540	193	Trtd	W(8)	TF9 TS9 TR7 HF14 HS9 HR7
Draco	141/71	39/20	540	193	Trtd	W(8)	TF11 TS11 TR10 HF14 HS9 HR7

Centauro SIDAM25	188/94	52/26	540	193	Trtd	W(8)	TF5 TS5 TR5 HF14 HS9 HR7
Centauro ADATS	176/89	49/25	540	193	Trtd	W(8)	TF5 TS4 TR4 HF14 HS9 HR7

Vehicle	Fire Control	Stabilization	Armament	Ammunition
B1 Centauro	+4	Good	105mm OTO Melara 105mm/52 gun, MG42/59, M2HB (C), MG42/59 (L)	40x105mm, 3000x7.62mm, 1000x.50
B2 Centauro	+4	Good	120mm OTO Melara 120mm/44 gun, MG42/59, M2HB (RWS), MG42/59 (L)	31x120mm, 3250x7.62mm, 1150x.50
Centauro 120mm	+4	Good	120mm OTO Melara 120/45 gun, MG42/59, M2HB (C), MG42/59 (L)	35x120mm, 3000x7.62mm, 1000x.50
Porcupine	+2	Fair	155mm FH70 155/39 gun, MG42/59 (C)	30x155mm, 1000x7.62mm
Draco	+4	Good	76mm OTOmatic Autocannon, MG42/59, M2HB (C)	36x76mm, 3000x7.62mm, 1000x.50
Centauro SIDAM25	+2	Fair	4x25mm KBA Autocannons	600x25mm
Centauro ADATS	+3	Basic	8xADATS Missile Launchers	16xADATS Missiles

Type 82

Notes: This Japanese vehicle is a command and communications vehicle on the Type 87 reconnaissance vehicle chassis. In this hull, the vehicle has no turret; instead, the Type 82 has a raised superstructure. The command post version has at least 4 radios, and the communications vehicle can literally have as may radios as can fit in the vehicle, often carrying 8 or more. Command vehicles are typically fitted with an inertial land navigations system and battle management computers, as well as map boards and other electronics, while communications have many antennas and rolls of wire and other relay devices. The driver sits to the right front, and one of the radio operators to the left front, and there are two hatches in the roof of the troop compartment, one with a heavy machinegun mount, and one with a light/medium machinegun mount. There is also a door in the rear of the hull, and two small windows in the each side of the hull.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$121,818	D, A	1.6 tons	13.5 tons	8	6	Passive IR, Image Intensification	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
168/68	42/17	415	96	Stnd	W(4)	HF11 HS6 HR5

Fire Control	Stabilization	Armament	Ammunition
None	None	MAG, M-2HB (C)	300x.50, 1350x7.62mm

Type 87

Notes: This is a Japanese vehicle designed for reconnaissance and scouting, as well as spotting for field artillery. It is well appointed with observation devices, as well as extra radios, an inertial land navigation system, and some have been upgraded with a fire solution computer. The Type 87 has a laser designator for guiding missiles and smart weapons. The driver sits in the right front of the hull, there are hatches on the turret roof for the commander and gunner, and the sides of the turret have bullet resistant observation windows. The radio operator has a hatch on the front left of the hull.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$114,552	D, A	1 ton	15 tons	5	4	Passive IR, Image Intensifier	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
158/64	40/16	415	96	Trtd	W(4)	TF9 TS7 TR7 HF11 HS6 HR5

Fire Control	Stabilization	Armament	Ammunition
+2	Fair	25mm KBA, MAG	800x25mm, 3000x7.62mm

Sedena DN-V Bufalo/Toro

Notes: These two vehicles are related in the use of the same chassis and hull, but are topped by different turrets, and the Toro carries passengers in addition to crew. The hull looks like that of the Cadillac Gage LAV150, but is in fact an indigenous design not related to the LAV150 except by their outer appearance. The engine is a derivative of a Cummins diesel truck engine, the DINA V8-504, which develops 210 horsepower; it is in the rear of the vehicle. There is a door on each side of the vehicle for crew and/or passenger ingress and egress. Both have a cluster of three smoke grenade launchers on either side of the turret. The DN-V may be thought of as an upgrade of the DN-IV Wheeled APC, somewhat larger and with a more powerful engine. The DN-V looks like a blend of the LAV-150 and the Swiss MOWAG Roland, but has a beefier suspension than either of those vehicles, with bigger tires. The vehicle has only light armor, relying on armor sloping to provide the little armor protection that it does. That said, the hull could probably stop a 23mm slug to the front. It is believed that there are only five Bufalos in Mexican Army service.

The Bufalo is a fire support version of the DN-V, and is topped with the turret of the M8 self-propelled howitzer, armed with a variant of the 75mm Pack Howitzer. The turret is open-topped, and the M2HB is on a pintle mount on the front of the turret.

The Toro scout vehicle is similar to APC versions of the DN-IV Wheeled APC, and carries a scout squad in addition to its crew and the turret. The center of the vehicle holds the scout squad, and they exit and enter via the side doors. The turret is armed with light autocannon and coaxial machinegun along with a commander's machinegun.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Bufalo	$163,503	D, A	530 kg	10.8 tons	4	8	Passive IR (D, G)	Enclosed
Toro	$115,313	D, A	779 kg	10.5 tons	3+6	8	Passive IR (D, G)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Bufalo	168/85	47/23/5	320	62	Trtd	W(3)	TF9 TS6 TR5 HF6 HS5 HR4
Toro	171/86	48/24/5	320	62	Trtd	W(3)	TF3 TS3 TR3 HF6 HS5 HR4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Bufalo	+1	Basic	75mm Howitzer, M2HB (C)	50x75mm, 500x.50
Toro	+1	Basic	20mm Rh202 Autocannon, M240E1, HK21 (C)	425x20mm, 3400x7.62mm

Cheeta

Notes: These Pakistani light armored vehicles are perhaps an idea of what can be done with an armored "Technical" type vehicle. They are 4x2 tractors fitted with an armored body and a variety of weapons mounts. Accommodations are basic, with a door on the rear of the vehicle and doors on either side of the cab. No night vision is installed and there is no NBC system or radiation shielding. Off-road performance is hampered by the 4x2 suspension and limited horsepower of its engine, but torque is considerable. On either side of the hull, just forward of the cab, is a cluster of three smoke grenade launchers. The commander and driver sit in the cab, with a large bullet-resistant windshield in front of them and windows to the side in the cab doors.

Cheetas tend to have numerous small differences, depending upon the base chassis used and which shop manufactured the vehicle. I have based these stats on an average Euro Ford N-Series farm tractor with a 140-horsepower engine and a suspension which is an average Wheel 4x2 suspension.

Twilight 2000 Notes: The vehicles were originally designed for training, to save wear and tear on actual combat vehicles, but they were thrown into action against Indian forces to replace vehicle losses and bolster numbers.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
TOW Carrier	$38,056	G, D, A	445 kg	4.8 tons	3+2	4	Headlights	Enclosed
RBS-70 Carrier	$77,099	G, D, A	417 kg	4.85 tons	3+2	4	Headlights	Enclosed
Anza Carrier	$54,561	G, D, A	422 kg	4.75 tons	3+2	4	Headlights	Enclosed
MG Carrier	$26,548	G, D, A	393 kg	5 tons	3+2	3	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
TOW Carrier	205/36	57/10	90	41	Stnd	W(2)	HF2 HS2 HR2
RBS-70 Carrier	204/36	57/10	90	41	Stnd	W(2)	HF2 HS2 HR2
Anza Carrier	207/36	57/10	90	41	Stnd	W(2)	HF2 HS2 HR2
MG Carrier	199/35	55/10	90	41	Stnd	W(2)	HF2 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
TOW Carrier	None	None	TOW II Launcher	8xTOW II ATGM
RBS-70 Carrier	None	None	RBS-70 SAM Launcher	8xRBS-70 Missiles
Anza Carrier	None	None	4xHN-5 SAM Launchers	8xHN-5 Missiles
MG Carrier	None	None	KPV	2200x14.5mm

Chaimite V-400

Notes: This is a Chaimite V-200 fitted with a turret mounting a 90mm NATO gun. The passenger compartment is taken up with the larger turret and ammunition for the main gun. The vehicle is otherwise like the Chaimite V-200, though it has no rear deck hatches. The hull is all-welded by lasers, an advanced technique for the time. The driver has a hatch on the left front deck, and the commander and loader have hatches on the turret deck. There are two-part clamshell doors on either side of the passenger compartment, and a door on the right rear of the hull, with one of the firing ports. The top of the clamshell doors can be locked open outwards, or locked open inwards to form a window. The firing ports of the V-200 are deleted on the V-400. The turrets are derived from the Panhard EBR.

The Chaimite was originally powered by a Chrysler gasoline engine, but these were quickly replaced by a 155-horsepower Cummins diesel engine. Transmission is manual. Suspension is 4x4 off-road-type, with a spare tire normally mounted at the front of the vehicle. The front of the hull has a winch with a capacity of 4.53 tons, with 38.1 meters of cable. The Chaimite is amphibious, propelled in the water by its wheels. Armor is painfully light.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$253,684	D, A	448 kg	8.5 tons	4	8	Passive IR (D, G), Image Intensification (G)	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
176/70	44/18/5	300	46	Trtd	W(3)	TF3 TS3 TR3 HF3 HS3 HR2

Fire Control	Stabilization	Armament	Ammunition
+2	Fair	90mm Cockerill Mk 3 Gun, MG3, MG3 (C)	52x90mm, 4750x7.62mm

Automecanica Moreni ABI

Notes: This is a light wheeled armored car designed by Romania for scouting purposes. It is similar in appearance and concept to the US Cadillac-Gage Ranger armored car, and it is also used for airfield protection and for security at places like reactors and ammunition depots. The Romanian Army ended up passing on the ABI, but the Romanian National Police did employ the two prototypes for patrolling the Bucharest International Airport. Ten examples were bought by Algeria in 1987 for use by their National Police. Algerian vehicles have a more powerful 82.5-horsepower VAMO Model D 3900 A engine, but are otherwise stock ABIs. Five were delivered to Liberia in 1986; their eventual disposition is unknown, though they took part in a military parade in Monrovia in November 1986.

The driver is on the front left side and the commander to his right. Both are behind bullet resistant windshields. These windows can be covered by an armored flap, and these flaps did not have vision slits in them, being provided for additional protection only. The commander has a firing port to the right of the windshield. The driver and commander have firing ports at the outside of their windows; the commander also has a firing port to the right of him in the side window. The gunner sits in a small turret on the roof, and has a hatch. The turret has manual traverse. The scout/security team enters and exits through two doors in the rear of the hull; each of these doors has a firing port. There are also two firing ports in either side of the hull. Two additional vision blocks are also found over the rear hull. The turret has two vision blocks to the front and a telescopic gunsight. Stock ABIs are powered by a 68-horsepower D-127 diesel engine; as noted, Algerian ABIs have a much more powerful engine. Armor protection is mostly nothing to write home about, though there is a marked increase in protection at the front hull of the vehicle, using steel and sloping.

The ABI is known for its brutal use by Ceausescu's Army to put down riots during the 1989 revolt, such as the massacre of USLA students in front of the Ministry of Defence. Romania's ABIs were retired to museums after the Revolution.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
ABI	$32,298	D, A	519 kg	4 tons	3+3	3	Active/Passive IR (D), WL Searchlight (G)	Enclosed
AM 100 ALG	$32,342	D, A	527 kg	4 tons	3+3	3	Active/Passive IR (D), WL Searchlight (G)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
ABI	137/24	38/7	107	20	Trtd	W(3)	TF2 TS2 TR2 HF5 HS2 HR2
AM 100 ALG	158/28	44/8	107	24	Trtd	W(3)	TF2 TS2 TR2 HF5 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+1	Basic	PKT	2500x7.62mm

GAZ BA-64

Notes: This light Russian armored car was designed during World War 2, based on the chassis of the GAZ-64 light truck and, to a certain extent, on captured German Sd Kfz 221 armored cars. It was designed to replace the pre-war BA-20, and in postwar service they served as the basis for the East German Garant SK-1. LRIP did not begin until 1942 and full production not until 1943; bombing of the factory in Moscow didn't help.

The BA-64 has a surprising amount of armor protection for its light weight, and a good amount of mobility and maneuverability. The turret is, however, open-topped. It was not meant to do any major fighting, but instead for reconnaissance, command, and convoy escort duties. The A model is a bit heavier than the base BA-64, due to an additional radio, but is not otherwise different from the base BA-64. The "D" model brought a wider track (to combat the tendency for the vehicle to tip on rough terrain or in tight turns), and a larger turret with heavier armament and powered traverse, first fitted to the BA-64B. Based on the GAZ-67B, the engine horsepower was increased to 54 horsepower, though the BA-64 was not otherwise altered except what was required to mate it to the new chassis. Only small amounts of the BA-64B were produced, as the turret was too heavy for reliable rotation, and by 1945, the Red Army had no interest in producing such light armored cars. Most BA-64Bs were also fitted with inferior communications equipment, as they were not large enough to mount the better radios available. The BA-64D included one firing port in either side of the hull, wider-track tires, improved carburetor, sheet metal exhaust shields, an additional air intake for the engine, and an air intake for the driving compartment The BA-64 was noted for its ability to burn almost any sort of gasoline, including very low-octane gas. The engine powering the BA-64 is a GAZ-MM 4-cylinder 50-horsepower engine.

The BA-64ZhD was an unusual model, produced on a GAZ-67 chassis, and fitted with railroad wheels, enabling it to scout ahead of railway trains. (A very similar vehicle was produced by the Soviet Army in World War 2 through field modifications.) Another rare variant is the BA-64E, which is the BA-64 modified into an APC. It was rejected as being too small for proper APC use (six passengers is being a bit optimistic; four are a better fit) and did not enter service. It was open-topped. The BA-64 PTRS was a World War 2 field modification, removing the turret and replacing it with a frame for a PTRS-41 antitank rifle. This frame functions as a soft mount, reducing the recoil of the PTRS-41 to one. The BA-64-126 is a turretless staff car variant, with a lowered roofline and windshields salvaged from captured Volkswagen Schwimmwagens. It seated three and has additional radio equipment, but was rejected as it could not mount the radios the Russians wanted in them due to a lack of space. The BA-64Sh was similar, but has a raised roofline, and had the same space detriments. The BA-64KA was an APC variant for Russian paratroopers, and featured no turret and a very low roofline to save weight. The BA-64E-37 is also turretless and mounted a 37mm antitank gun; the BA-64KA and BA-64E-37 were meant to complement each other. It too was rejected due to lack of space for ammunition. The BA-64B SG-43 replaced the DT in the turret with an SG-43 medium machinegun; it was produced as a prototype only, though similar field modifications were produced during World War 2. The BA-64Z replaced the rear wheels with tracks and the front wheels with skis, for use in the high Arctic. It was rejected due to slow road speed and high fuel consumption. The BA-69 was a BA-64 built on a GAZ-69 light truck chassis. Only one prototype was built, as the Russians elected to go with heavier armored cars. The BA-69 has a 65-horsepower engine, but has a heavier chassis.

By 2000, the BA-64 was used only by Yugoslavia, China, and North Korea, and in China, they were generally used only in small numbers by local police forces instead of by the Army. The BA-64 was superseded in Russian service by scout versions of the BTR-40 and BRDM-1.

Twilight 2000 Notes: The BA-64 was nicknamed the Bobbie by US, British, and Australian troops that encountered them in North Korean hands during the 1950-53 Korean War; this nickname came back during the Twilight War.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
BA-64	$13,137	G, A	190 kg	2.36 tons	2	2	Headlights	Enclosed
BA-64A	$13,437	G, A	190 kg	2.43 tons	2	2	Headlights	Enclosed
BA-64B/D	$17,163	G, A	190 kg	2.43 tons	2	2	Headlights	Enclosed
BA-64ZhD	$13,496	G, A	187 kg	2.32 tons	2	2	Headlights	Enclosed
BA-64E	$5,089	G, A	318 kg	2 tons	1+6	2	Headlights	Enclosed
BA-64 PTRS	$11,699	G, A	187 kg	2.13 tons	2	2	Headlights	Enclosed
BA-64-126	$4,269	G, A	228 kg	2.13 tons	1+3	2	Headlights	Enclosed
BA-64Sh	$4,269	G, A	228 kg	2.25 tons	1+3	2	Headlights	Enclosed
BA-64KA	$4,509	G, A	317 kg	2.08 tons	1+6	2	Headlights	Enclosed
BA-64E-37	$39,042	G, A	234 kg	2.29 tons	2	2	Headlights	Enclosed
BA-64B SG-43	$17,192	G, A	182 kg	2.46 tons	2	2	Headlights	Enclosed
BA-64Z	$13,437	G, A	200 kg	4.05 tons	2	2	Headlights	Enclosed
BA-69	$17,206	G, A	192 kg	2.7 tons	2	2	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
BA-64	159/28	44/8	90	22	CiH	W(2)	TF3 TS3 TR3 HF4 HS2 HR2
BA-64A	156/27	43/8	90	22	CiH	W(2)	TF3 TS3 TR3 HF4 HS2 HR2
BA-64B/D	156/27	43/8	90	22	CiH	W(2)	TF3 TS3 TR3 HF4 HS2 HR2
BA-64ZhD	171*	47*	90	24	CiH	W(2)	TF3 TS3 TR3 HF4 HS2 HR2
BA-64E	191/34	53/9	90	24	Stnd	W(2)	HF4 HS2 HR2
BA-64	182/32	51/9	90	24	Stnd	W(2)	HF4 HS2 HR2

PTRS							
BA-64-126	182/32	51/9	90	24	Stnd	W(2)	HF4 HS2 HR2
BA-64Sh	175/31	49/9	90	24	Stnd	W(2)	HF4 HS2 HR2
BA-64KA	186/33	52/9	90	24	Stnd	W(2)	HF4 HS2 HR2
BA-64E-37	172/30	48/9	90	24	Stnd	W(2)	HF4 HS2 HR2
BA-64B SG-43	154/27	43/8	90	22	CiH	W(2)	TF3 TS3 TR3 HF4 HS2 HR2
BA-64Z	110/77	31/21	90	22	CiH	W(2)	TF3 TS3 TR3 HF4 HS2 HR2
BA-69	175/31	49/9	75	28	CiH	W(2)	TF3 TS3 TR3 HF4 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
BA-64/BA-64A/ZhD/Z	None	None	DT	1260x7.62mm
BA-64B/D/-69	None	None	DShK	750x12.7mm
BA-64E/-126/Sh/KA	None	None	None	None
BA-64 PTRS	None	None	PTRS-41	400x14.5mm
BA-64-37	None	None	37mm M1930 Gun	60x37mm
BA-64 SG-43	None	None	SG-43	1260x7.62mm

*This vehicle's movement figure only applies to on-rail driving; off rails, movement is no more than an 11 Travel Move and 3 Combat Move, will triple Maintenance figures, and increase Wear Velue by 1 per period spent off rails.

Dedkov BRDM-1

Notes: This vehicle replaced earlier vehicles like the BA-64 and a host of small and medium jeep-like vehicles in Russian service for scouting purposes, and was itself replaced in service by most countries by the later BRDM-2 and 4 series vehicles. The BRDM-1 was based on the BTR-40, with the chassis and drive train being from that vehicle; amphibious capability was added, along with a pair of retractable auxiliary wheels for additional traction in soft terrain. Some 10,000 were built from 1957-1966, and it supplied the Red Army as well as numerous allies in the rest of the world. The BDRM-1 was the first purpose-built scout car produced by the Soviet Union since the BA-64 during World War 2. Long out of the service of most former Pact countries, it is still used in 2000 by Afghanistan, Albania, Bulgaria, Cuba, Vietnam, and several African nations.

The BRDM-1 is a basic armored car with a pintle-mounted weapon (or sometimes up to 3). The BRDM-1 features a characteristic set of retractable belly wheels to increase mobility over soft ground and makes the BRDM-1 adept at crossing tranches. It is a highly adaptable vehicle that has been modified into a number of variants. The initial variant, the BRDM-1 M1957, was open-topped over the rear passenger area, but the M1958 added a roof over the rear with twin hatches over the driver's and commander's station and two hatches over the rear area. The driver in on the front left, with the commander on the front right. The vehicle has four IR headlights and an Active IR night vision block for the driver; the IR headlights illuminate the way for the driver, who can see about 100 meters with all IR headlights burning. The commander controls a single WL searchlight. The driver and commander sit behind large windscreens; these can be covered by flip-down armored shutters, with vision slits in them. The BRDM M1958 and 1959 were armed with a single pintle-mounted SGMB machinegun. The M1960 had mountings for two more SGMBs at the rear deck hatches. M1961s had a DShK or KPVT on the forward pintle while the two SGMBs were retained at the rear hatches.

The GAZ-40PB V-6 90-horsepower gasoline engine is based on a Dodge truck engine, the plans for which Russia acquired during World War 2 Lend-Lease. The engine is controlled by a manual transmission with four forward and one reverse gear. The driver, in addition to the retractable belly wheels, has controls for tire pressure regulation for use in soft or rough terrain. The BRDM-1 is amphibious, propelled by a waterjet at the rear. A trim vane much be erected at the front, something the driver can do from his seat. From the M1958, the crew compartment was sealed against NBC threats and topped off with an Overpressure system. The tires are not run-flat or puncture resistant and are a vulnerable area of the suspension. The BRDM-1 has two firing ports in each side of the vehicle and one at the rear.

The BRDM-RKh is a special variant for NBC reconnaissance; it has chemical sniffers, Geiger counters and two KZO-2 flag dispensers at the rear with 40 flags for planting. The BRDM-RKh has extra communications equipment, including a very long-range radio.

The 2P27 antitank vehicle is an extensive modification of the BRDM-1. The rear is rebuilt to house a retractable launcher for three 3M6 Shmel (AT-1 Snapper) ATGM. When the launcher was retracted, the 2P27 looks almost like a standard BRDM-1 from most angles; even the firing ports are retained, though it is impossible to man them due to the size of the launcher. The vehicle must be stationary when the launcher is operating, and the crew must remove the top steel plates to deploy the launcher (moving the plates to the sides of the launcher). The 2P32 antitank vehicle is almost identical, but is armed with 9M11 Falanga (AT-2 Swatter) missiles in a four-launcher cluster. The 9P110 is also similar, but is armed with six 9M14 Malyutka (AT-3 Sagger) missiles. However, as this launcher is smaller than the 9P27 and 9P32 launchers, the rear machineguns can still be manned and the firing ports are usable.

The BRDM-1 soldiered on for more than a decade, and still operates in some countries today. However, the Red Army never liked the BRDM-1, citing its poor armor protection and lack of a turret-mounted armament; machinegun fire could not be returned while the crew was under armor protection. Nonetheless, the BRDM-1 remained in service with the Red Army until the early 1970s. BRDM-1s saw combat in the Middle East and in African brushfire wars, as well as Southeast Asian skirmishes. Of the 10,000 BRDM-1s produced, it is believed that only 200 remain in service worldwide.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
BRDM-1 M1958	$43,531	G, A	570 kg	5.2 tons	2+3	3	Active IR (D), WL Searchlight	Enclosed
BRDM-1 M1959	$94,179	G, A	566 kg	5.52 tons	2+3	3	Active IR (D), WL Searchlight	Enclosed
BRDM-1 M1960	$110,004	G, A	562 kg	5.63 tons	2+3	4	Active IR (D), WL Searchlight	Enclosed
BRDM-1 M1961	$113,790	G, A	562 kg	5.63 tons	2+3	4	Active IR (D), WL Searchlight	Enclosed
BRDM-RKh	$154,348	G, A	470 kg	7 tons	5	7	Active IR (D), WL Searchlight	Enclosed
2P27	$158,266	G, A	300 kg	5.8 tons	3	5	Active IR (D), WL Searchlight	Enclosed
2P32	$180,492	G, A	312 kg	5.6 tons	3	5	Active IR (D), WL Searchlight	Enclosed
9P110	$223,707	G, A	342 kg	5.83 tons	3+2	5	Active IR (D), WL Searchlight	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
BRDM-1 M1958	153/77	42/22/4	150	39	Stnd	W(4)	HF4 HS2 HR2*
BRDM-1 M1959	147/74	41/21/4	150	39	Stnd	W(4)	HF4 HS2 HR2
BRDM-1 M1960	144/73	40/20/4	150	39	Stnd	W(4)	HF4 HS2 HR2
BRDM-1 M1961	144/73	40/20/4	150	39	Stnd	W(4)	HF4 HS2 HR2
BRDM-RKh	125/63	34/18/3	150	39	Stnd	W(4)	HF4 HS2 HR2
2P27	142/71	39/20/4	150	39	Stnd	W(4)	HF4 HS2 HR2
2P32	145/74	40/20/4	150	39	Stnd	W(4)	HF4 HS2 HR2
9P110	141/71	39/20/4	150	39	Stnd	W(4)	HF4 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
BRDM-1 M1958	None	None	SGMB (C)	1000x7.62mm
BRDM-1 M1959	None	None	SGMB (C)	1000x7.62mm
BRDM-1 M1960	None	None	SGMB (C), 2xSGMB (Rear)	2500x7.62mm
BRDM-1 M1961	None	None	DShK or KPVT (C), 2xSGMB (Rear)	750x12.7mm or 650x14.5mm, 1260x7.62mm
BRDM-RKh	None	None	SGMB (C)	1000x7.62mm
2P27	None	None	3x3M6 Shmel Launchers, SGMB (C)	3x3M6 Shmel Missiles, 750x7.62mm
2P32	None	None	4x9M11 Falanga Launchers, SGMB (C)	4x9M11 Falanga Missiles, 750x7.62mm
9P110	None	None	6x9M14 Malyutka Launchers, SGMB (C), 2xSGMB (Rear)	6x9M14 Malyutka Missiles, 1250x7.62mm

GAZ BRDM-2

Notes: This replacement for the BRDM-1 was first seen in public in 1966. It features a more powerful engine for better speed, a better suspension for improved off-road maneuverability, heavier armament in a fully enclosed turret, a more powerful waterjet for higher amphibious speeds, an NBC system, and improved night vision equipment. Like the BRDM-1, the chassis is very adaptable and has spawned numerous variants. The turret uses manual traverse and elevation and can be a bit slow in a tense situation. The BRDM-2 is or was used in its history by 45 countries and is quite a common sight throughout the world, with thousands still in service. As of 2022, Poland was still manufacturing the BRDM-2; I have not been able to find out if this production continues today. The BRDM-2 has seen combat service ranging from Vietnam, African brushfire wars, and as of late, service with the Polish and Czech in Iraq and Afghanistan. They continue to fight on in Syria, Ukraine, and Africa.

The BRDM-2 has a crew of four: commander. gunner, driver, and assistant driver. Layout is in many ways like that of the BRDM-1, with the suspension being largely the same idea, with four drive wheels and a set of two retractable chain-driven belly wheels to

increase mobility on soft ground and when crossing trenches. This is complemented by a central tire pressure regulation system. The engine is a much more powerful GAZ-41 V-8 140-horsepower gasoline engine. The transmission is manual. The hull is larger and boxier than the BRDM-1, with larger fuel tanks. The BRDM-2 is much heavier than the BRDM-1, hence the more powerful engine. The suspension is 4x4 and uses leaf spring with hydraulic shock absorbers.

The commander and driver are in the front of the vehicle, behind large bullet-resistant windshields. The windshields may be protected further by flip-down shutters with vision slits in them. The driver has four vision blocks to the front, one of which may be replaced with a night vision block. The commander has five vision blocks to the front and one to the right side; one of his frontal blocks is a night vision block. The commander also controls an IR spotlight, and the vehicle has four IR headlights. The BRDM-2 has an NBC Overpressure system to protect the crew, with a collective NBC backup. When stuck in difficult terrain or required to aid another vehicle, the BRDM-2 can use a 4-ton capacity winch in the front hull with 30 meters of cable. The BRDM-2 is fully amphibious, propelled in the water by a propeller/waterjet at the rear of the vehicle, which is covered by an armored shutter when not swimming. The BRDM-2 is capable of extended swimming stints of 17-19 hours, and is given a swimming speed under Travel Move. A trim board must be erected at the front of the vehicle before swimming, something which can be done from the driver's position and takes only 20 seconds to deploy or secure from use. The late production BRDM-2 has a TNA-2 navigation system, which combines radio beam navigation and inertial navigation.

The turret is the same as mounted on the BTR-60PB. (The BPU-1 turret used was originally first designed for use on the BRDM-1 and not the BTR-60PB.) A spare tire can be mounted on top of the turret; this is most often seen in Polish service. The turret has no actual hatch in the top, merely openings for the gunsight and a vision block in front and in each side. Armament is a heavy and light machinegun. The guns may be elevated for use against aircraft; most have a maximum elevation of +30 and depression of -5 degrees, but some late production lots have a maximum elevation of +60 degrees. The gunner uses a PP-61AM gunsight, which has a field of view of 23 degrees and a 2.6x magnification.

The BRDM-2 also has well-known flaws, such as lack of space for the crew due to the large belly wheels. The only entrance to the vehicle is by the front driver's and commander's hatches, which makes an emergency exit under fire possibly impossible. This was addressed in later Polish, Czech, and Ukrainian production, which removed the belly wheels (which were discovered to be ineffectual) and the mounting of side hatches.

Minor Variants

In Afghanistan, Russian soldier Alexander Metla improvised a fire support vehicle by bolting a helicopter's UB-32-57 rocket pod onto the BRDM-2's roof. This was a one-off modification by a Soviet soldier in Afghanistan, but it is believed that the Taliban have since carried out similar modifications, and similar such "upgrades" have surfaced in the current Russian invasion of Ukraine, on both sides. These modified vehicles fire 32 55mm S-5 rockets, usually with HE or HE-FRAG warheads for breaking up infantry in the open or attacking fortified positions. I have designated this the BRDM-2-57 in the stats below, but this is not an official designation in any sense (nor do I think there is an official designation).

The Belarusian BRDM-2MB1 is equipped with a new D245 30E2 155-horsepower diesel engine. The BRDM-2MB1 has a modified night vision viewer for the driver. (The BRDM-2MB1 is not related to the BRDM-2MB below.)

Hungarian BRDM-2s deployed as a part of ISAF has rear-view mirrors for the driver added.

There are perhaps 40 BRDM-2s in the hands of collectors worldwide (some 20 in the US alone), and an unknown number are present in museums and on display in various states of repair. The US, NATO, and South Korea operate an unknown number of BRDM-2s in the OPFOR role.

Czech Variants

The Czech LOT-B is an upgraded BRDM-2 powered by a Renault DC! 4C turbocharged diesel with an output of 162 horsepower. The turret is modified to include up-to-date night vision and fire control equipment in square side lobes off the turret. The vehicle has side hatches instead of belly wheels and has boxed in exhausts which have the effect of IR Suppression. The LOT-B has an updated NBC Overpressure system with integrated air conditioning and GPS navigation. On each side of the turret are three MB smoke grenade dischargers, and the radio antenna is relocated to the left side of the driver's hatch. The turret armament is replaced with an NSVT and PKT combination. There is a command version of this vehicle called the LOT-VR, which has additional radios and a 1kW generator under armor at the expense of passenger space.

Another Czech modification is the OKV-P, designed for use by police forces in riot control and SWAT-type raids. This variant has no turret and has side hatches instead of belly wheels; the turret is replaced by a simple cupola and hatch for observation. There are armored windows on the sides and larger armored windows in the front and sides of the driver's and commander's positions. The OKV-P has a police lighting array, a siren, and a PA system. There are telescopic vision blocks with heads above the passenger compartment and above the commander's position, along with a thermal imager for the commander. The exhaust is boxed in and gives the effect of IR Suppression. OKV-Ps figure heavily in security arrangements for visiting dignitaries and Czech national leaders, such as in the 2007 visit of George W Bush.

Polish Variants

Polish BRDM-2M-96s had their belly wheels removed and the space used to transport a 2-man scout dismount team, along with more room for cargo and crew equipment. They have upgraded day/night vision, crash-resistant seats for the crew, a better heater for both the crew and engine, a GPS navigation system, and updated radios and internal communications equipment. The BRDM-2M-96i

is the same variant, but powered by an Iveco Aifo 8040 165-horsepower diesel engine, This variant also has revised stowage, a two-circuit power braking system, additional protection for its headlights, and rear-view mirrors for the driver. The BRDM-2M-96ik Szakal, designed for Polish troops in Iraq and Afghanistan, builds on the BRDM-2M-96is, adding air conditioning (mounted on the left side of the hull), updated communications, and a WKM-B (an NSVT chambered for .50 BMG) in place of the KPVT to take advantage of the logistical chain in Iraq and Afghanistan. Some Szakals were fitted with improvised armor skirts on the sides, but these were not a standard feature. A further, prototypical upgrade, the Szakal Plus, adds anti-RPG mesh screens around the entire vehicle, and internal antispalling liners, as well as a strengthened suspension and antilock brakes. The drawback of the Szakal Plus is the greatly increased weight.

The Polish BRDM-2M-97 Zbik-B is a BRDM-2M-96i fitted with the Iveco Aifo SRC-21 11 turbocharged diesel engine. It has the same horsepower as the BRDM-2M-96i's engine, but has superior torque, and high-altitude and hot weather performance. The Zbik-B is also fitted with an additional fuel tank inside the rear of the (extended) vehicle, a Deugra fire and explosion protection system, a 1kW battery-based APU (provides 8 hours of power, takes 2 hours to fully charge), an air compressor, a GPS/inertial navigation system, a radiation detection system, and a laser warning system. The turret is heavily modified; it is a bit larger and has a hatch in the top of the turret, and is armed with an NSVT or WKM-B heavy machinegun and a PKT coaxial, with a depression of -4.5 degrees and an elevation of +32.5 degrees. The turret also has a mount for a 9P135M launcher, which can fire 9M111 Fagot (AT-4) and 9M113 Konkurs (AT-5) ATGMs. The turret also has a cluster of six smoke grenade launchers on the front above the vision block. The BRDM-2M-97C Zbik-P is a minor variant of the Zbik-B which has footplates over the side vision blocks; it is otherwise identical to Zbik-B. The BRDM-2M-98 Zbik-A is a Scout company command vehicle version of the Zbik-B which has more advanced day/night vision gear including a ground surveillance radar, as well as an extra long-range radio. It does not have the ATGM launcher or missiles.

Polish command variants of the BRDM-2 include the BDRM-2-R-1A, which is equipped with two medium-range and two long-range radios. This variant is used by the commanders of antitank missile companies. The BRDM-2-R-5 is used by the commanders of reconnaissance battalions, and has two long-range radios and two long range receivers for use in obtaining intelligence from drones and reconnaissance aircraft; the receivers are data-capable. The BRDM-2-R-5 may be distinguished by its two sword antennas and its AZI frame antenna. Another frame antenna may also be mounted on the right side of the top of the hull. Both are equipped with NBC detection gear and laser warning receivers, as well as GPS/inertial navigation systems.

Polish BRDM-2s, BRDM-2M-96s and BRDM-2M-96is deployed with SFOR had an IR spotlight on the front hull in front of the turret. BRDM-2M-96s deployed with KFOR had a small IR spotlight above the armament on the turret, as did BRDM-2M-96is deployed with SFOR.

Russian Variants

BRDM-2M is a designation actually conferred on several Russian variants of the BRDM-2. All have diesel engines installed instead of the BRDM-2's gasoline engine, usually a GAZ-562 175-horsepower engine; the rear of the vehicle's hull roof is raised to accommodate the new engine, and the exhaust is only on the right rear of the vehicle. The turrets are either a standard BRDM-2 turret, a BTR-80-type turret, or the modified turret of the MT-LBM. Six MB smoke grenade launchers are mounted on the rear of the turret. Most are equipped with a GLONASS navigation system, usually with inertial navigation backup. Some have new wheels taken from the BTR-80.

The BRDM-2MS is an improved BRDM-2M, made for export to Myanmar, Serbia, Laos, Kyrgyzstan, and Tajikistan. Applique armor means the BRDM-2MS is much better protected, and the belly armor and suspension are also improved. The engine used is a 150-horsepower diesel, which saves fuel and still provides respectable speed and agility. A newer fire control system has the armament fully stabilized and a stabilized three-channel sight with improved night vision. Six day/night cameras are mounted on the front corners, rear corners, and sides, and four multifunctional panels are mounted one at each crewmember position. Tight integration of new systems as well as the removal of the belly wheels makes the BRDM-2MS actually lighter than most BRDM-2 variants.

The BRDM-2MB Bekas is a modified form of the BRDM-2MS. The applique armor is increased in effectiveness while being more tightly integrated with the base armor and vehicle structure. Air conditioning has been added, and integrated with the vehicle's NBC Overpressure system. The brake and fuel systems have been improved, with better filters and allowing less debris to get into the systems. Crash resistant seats have been installed. Like many BRDM-2 upgrades, the belly wheels have been removed from the BRDM-2MB. The gearbox has received synchronization, making gears easier to shift. The BRDM-2 is still amphibious, but the swimming speed is substantially reduced due to unbalancing. The suspension is further upgraded from the BRDM-2MS, and the BRDM-2MB is noted for its smooth ride. There is a sealed bulkhead between the crew compartment and engine compartment, instead of the flat plate bolted on of most other BRDM-2s. This protects the crew in the case of an engine fire, and prevents a problem suffered by many other BRDM-2s: exhaust and fume infiltration into the crew compartment. The BRDM-2MB is heavier than the BRDM-2MS, with a reduction in agility and speed.

Other Variants and Updates

The BRDM-2-RKh is a BRDM-2 fitted out as an NBC reconnaissance vehicle. In this role, there are two dispensers of 40 pennants at the back corners of the vehicle for marking pennants. The vehicle has an optical chemical sniffer, a Geiger counter, a computerized land navigation system, and extra radios. The BRDM-2RKhb is similar, but also has a biological agent detector and mounts only one pennant dispenser. The RKhb also has no firing ports and carries two light machineguns instead of the heavy/light machinegun combination. A Czech upgrade of the RKhb, the BRDM-2ch, carries updated, automatic NBC agent detection devices, a long-range data-capable radio, a KPO Area Marking System and a MK-3 Area Marking System, with two 48-round pennant dispensers. The turret

armament is replaced by a single PKT. The Hungarian VS BRDM-2 is similar to the BRDM-2-RKhb, but has only one pennant launcher on the right rear of the vehicle with 50 pennants, and has a small collection and analysis lab inside the vehicle.

The Polish use the BRDM-2RKhb, but designate it the BRDM-2RS.

The BRDM-2U is a command version of the BRDM-2, normally found in artillery units and in scout regiments. The turret is removed, and on the roof is a 1kW generator to power the five radios. The BRDM-2U has inertial positioning for navigation. The BRDM-2U is actually a rather rare variant built primarily for export.

The Azeri ZKDM is a BRDM-2 extensively upgraded and modified. Armament is almost completely changed, with the KPVT replaced with a 23mm GSh-23 autocannon; while the PKT is retained, these two weapons are supplemented with a 30mm AGS-17 grenade machinegun and a four-tube 55mm S-5 rocket launcher. On each side of the vehicle are two smoke grenade launchers. The weapons are controlled via a downlinked weapons control station; the turret is also fitted with an advanced fire control system. The weapons have a maximum elevation of +15 degrees and a depression of -30 degrees. The ZKDM is fitted with an advanced land navigation system based on GLONASS. The belly wheels are removed and side doors are located on either side of the vehicle; two additional roof hatches are located just behind the driver's and commander's hatches. The engine is replaced by the same engine as on the BRDM-2MB1 above, a 155-horsepower diesel engine. External armor is replaced with a more advanced armor suite, and the turret is completely replaced with a new one mounting vision blocks twice the normal size, and the front windshield is likewise replaced with a larger one. The lower hull has been modified into a V-hull for antimine resistance.

The Caiman is a Belarusian variant of the BRDM-2, which entered service with Belarus in 2017 and has been exported to Ivory Coast and Angola. The turret is replaced with an Adunok RWS mounting a PKT, NSVT or AGS-17 grenade machinegun; by a rear hatch is another PKM. The Caiman also has an enhanced communications suite. The Caiman is powered by the same engine as the BRDM-2MB1.

The Cuban Black Wasp special forces unit have converted some of their BRDM-2s into mortar fire support vehicles by removing and cutting away the center roof of the vehicle to mount a 120mm mortar and boxes for ammunition. The front of the fighting compartment mounts a PKM on a pintle mount. (The Black Wasps also use standard BRDM-2s.)

The Georgian STC Delta-built BRDM-2 replaces the turret with a DWRS-2 RWS developed by Israel's Elbit, mounting a 2A14 autocannon and PKT combination; this module provides basic stabilization and automatic target tracking. Enhanced armor is mounted to the front, enhanced day/night vision gear, and a folding front-mounted wire cutter to help keep the crew safe. The engine powering the Delta BRDM-2 is an enhanced GAZ-41 developing 160 horsepower. The transmission is manual with 4 forward and one reverse gear. Crew requirements are reduced, though passengers may be carried. Day/night cameras are installed on the right and left rear corners. On the right and left sides behind the doors are clusters of four smoke grenade launchers. The belly wheels are removed and side doors installed. The base ammunition supply is small, but more is usually carried as cargo.

The Iraqis have two variants of the BRDM-2, one which was in service before OIF and is now only in service in small numbers, and one currently in main line service with the Iraqi Army. The first variant has a 23mm GSh-23 autocannon installed in place of the KPVT, and retains the PKT coaxial machinegun. This was produced as a fire support vehicle. The second variant is designed as an AAA vehicle; it is armed with ZPU-2 twin KPVT machineguns in place of the turret and the top roof of the vehicle. The first variant I will designate the BRDM-2-23, and the other the BRDM-2-ZPU. These are not official designations.

The Serb Kurjak RCV replaces the turret with an RWS, and the crew is reduced to 3. The commander has downlinked viewers for the gunner's sights. The hulls go through a maintenance process that reduces the hull, engine, and transmission to a "zero miles" condition (Wear Value of 1).

The Sudanese Amir-2 replaces the BRDM-2's engine with a 210-horsepower Isuzu 6HH1 diesel engine. Though offered for export in addition as an upgrade for Sudanese BRDM-2s, no export orders have been forthcoming.

In 2001, Ukraine announced the development of an updated version of the BRDM-2, the BRDM-2D. Chief among these updates is the replacement of the engine with a slightly more powerful 145-horsepower diesel engine; while this may increase performance somewhat, the fuel savings are enormous. The engine also has more torque and a one-third longer service life. The new engine makes the vehicle longer, but armor protection is also slightly improved. The BRDM-2D also has had an automatic transmission added and updated radios. The belly wheels have been removed and side hatches added and the BRDM-2D usually carries passengers.

Twilight 2000 Notes: The BRDM 2M (of all variants) does not exist in the Twilight 2000 timeline, nor does the ZKDM or Caiman.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
BRDM-2	$79,628	G, AvG, A	644 kg	7 tons	4	4	Passive IR (D), IR Spotlight	Shielded
BRDM-2-57	$121,460	G, AvG, A	644 kg	7.58 tons	4	6	Passive IR (D), IR Spotlight	Shielded
BRDM-2MB1	$82,076	D, A	684 kg	7.04 tons	4	4	Passive IR (D), IR Spotlight	Shielded
LOT-B	$211,727	D, A	802 kg	6.96 tons	3+3	4	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded
LOT-VR	$215,747	D, A	702 kg	6.99 tons	3+2	5	Image Intensification (D, G, C), Thermal Imaging (G)	Shielded

OKV-P	$68,411	D, A	748 kg	6.86 tons	2+4	3	Image Intensification (D, C), Thermal Imaging (C)	Shielded
BRDM-2M-96	$107,348	G, AvG, A	736 kg	6.93 tons	3+2	4	Image Intensification (D, G, C)	Shielded
BRDM-2M-96i	$84,023	D, A	740 kg	7 tons	3+2	4	Image Intensification (D, G, C)	Shielded
BRDM-2M-96ik Szakal	$82,588	D, A	740 kg	7.5 tons	3+2	6	Image Intensification (D, G, C)	Shielded
BRDM-2M-96ik Szakal Plus	$84,210	D, A	738 kg	8.5 tons	3+2	6	Image Intensification (D, G, C)	Shielded
BRDM-2M-97 Zbik-B	$109,421	D, A	738 kg	8 tons	2+3	7	Image Intensification (D, G, C)	Shielded
BRDM-2M-97 Zbik-A	$123,874	D, A	656 kg	8 tons	3+1	7	Image Intensification (D, G, C), Radar (10 km)	Shielded
BDRM-2-R-1A	$66,584	D, A	690 kg	6.74 tons	2+3	5	Image Intensification (D, C)	Shielded
BRDM-2-R-5	$67,340	D, A	692 kg	6.8 tons	2+3	5	Image Intensification (D, C)	Shielded
BRDM-2M (BRDM Turret)	$107,331	D, A	680 kg	6.9 tons	4	4	Image Intensification (D, G, C)	Shielded
BRDM-2M (BTR-80 Turret)	$133,731	D, A	680 kg	7.3 tons	4	4	Passive IR (G, C), Image Intensification (D, G, C)	Shielded
BRDM-2M (MT-LBM Turret)	$123,003	D, A	678 kg	6.8 tons	4	4	Image Intensification (D, G, C), WL/IR Searchlight	Shielded
BRDM-2MS	$175,172	D, A	690 kg	6.9 tons	4	5	Image Intensification (D, G, Front Corners, Rear Corners, Sides)	Shielded
BRDM-2MB Bekas	$96,574	D, A	696 kg	7.2 tons	4	7	Image Intensification (D, G, Front Corners, Rear Corners, Sides)	Shielded
BRDM-2-RKh	$174,161	G, AvG, A	670 kg	7.35 tons	4	8	Passive IR (D), IR Spotlight	Shielded
BRDM-2-RKhb	$175,048	G, AvG, A	676 kg	7.35 tons	5	8	Passive IR (D), IR Spotlight	Shielded
BRDM-2ch	$213,648	G, AvG, A	658 kg	7.6 tons	5	8	Passive IR (D), IR Spotlight	Shielded
VS BRDM-2	$261,947	G, AvG, A	702 kg	6.97 tons	5	7	Passive IR (D), IR Spotlight	Shielded
BRDM-2U	$243,882	G, AvG, A	696 kg	7.5 tons	5	4	Passive IR (D, C), WL/IR Searchlight	Shielded
ZKDM	$229,757	D, A	611 kg	7.4 tons	4	6	Passive IR (D, G), Image Intensification (D, G, C)	Shielded
Caiman	$169,559	D, A	770 kg	8.5 tons	4	6	Passive IR (D), Thermal Imaging (G), Image Intensification (G, C)	Shielded
Black Wasp BRDM-2 Mortar Carrier	$269,890	G, AvG, A	668 kg	7.21 tons	5	5	Passive IR (D)	Shielded
Delta BRDM-2	$474,244	D, A	704 kg	7.5 tons	2+4	6	Thermal Imaging (D, C, 2xRear)	Shielded
BRDM-2-23	$171,659	G, AvG, A	668 kg	7.1 tons	4	4	Passive IR (D), IR Spotlight	Shielded
BRDM-2-ZPU	$154,660	G, AvG, A	784 kg	7.2 tons	5	4	Passive IR (D), WL/IR Searchlight	Shielded
Kurjak RCV	$90,308	G,	614	6.68	3	4	Passive IR (D), Image Intensification (G),	Shielded

		AvG, A	kg	tons			Thermal Imaging (G)	
Amir-2	$115,839	D, A	652 kg	7.18 tons	4	4	Passive IR (D), IR Spotlight	Shielded
BRDM-2D	$60,083	D, A	800 kg	6.8 tons	3+3	4	Image Intensification (D, G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
BRDM-2	157/79/14	43/22/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2-57	147/74/13	41/21/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2MB1	170/86/15	48/24/4	290	37	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
LOT-B/VR	178/90/16	49/25/4	290	60	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
OKV-P	180/90/16	50/26/5	290	60	Stnd	W(3)	HF6 HS3 HR2
BRDM-2M-96	158/79/14	43/22/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2M-96i	179/90/16	50/25/5	290	49	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2M-96ik Szakal	170/86/15	47/24/4	290	49	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2M-96ik Szakal Plus	153/78/14	42/22/4	290	49	CiH	W(3)	TF2 TS2 TR2 HF9Sp HS6Sp HR5Sp
BRDM-2M-97 Zbik-B	161/82/15	44/22/4	435	61	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2M-97 Zbik-A	161/82/15	44/22/4	435	61	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BDRM-2-R-1A	189/95/17	52/26/5	290	49	Stnd	W(3)	HF6 HS3 HR2
BRDM-2-R-5	186/94/17	52/26/5	290	49	Stnd	W(3)	HF6 HS3 HR2
BRDM-2M (BRDM Turret)	190/96/17	53/26/5	290	51	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2M (BTR-80 Turret)	181/91/16	50/26/5	290	51	CiH	W(3)	TF4 TS4 TR4 HF6 HS3 HR2
BRDM-2M (MT-LBM Turret)	192/97/17	53/27/5	290	51	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2MS	168/85/15	47/23/4	290	44	CiH	W(4)	TF4 TS4 TR4 HF8 HS5 HR2**
BRDM-2MB Bekas	162/82/11	46/22/3	290	44	CiH	W(4)	TF5Sp TS5Sp TR4 HF10Sp HS7Sp HR3***
BRDM-2RKh/RKhb	154/79/14	42/21/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2ch	153/78/14	42/21/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
VS BRDM-2	163/82/15	46/23/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2U	152/77/14	42/22/4	290	62	Stnd	W(3)	HF6 HS3 HR2
ZKDM	163/82/15	46/23/4	290	37	CiH	W(4)	TF5Sp TS5Sp TR4 HF10Sp HS7Sp HR3****
Caiman	147/74/13	41/21/4	290	37	CiH	W(3)	TF3 TS3 TR2 HF8 HS5 HR4
Black Wasp	157/79/14	43/22/4	290	62	Stnd	W(3)	HF6 HS3 HR2
BRDM-2 Mortar Carrier							
Delta BRDM-2	169/85/15	47/24/4	290	47	CiH	W(3)	TF3 TS2 TR2 HF7 HS3 HR2
BRDM-2-23	154/78/14	43/22/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2-ZPU	153/78/14	42/22/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
Kurjak RCV	162/82/15	46/23/4	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
Amir-2	215/109/19	60/30/5	290	62	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
BRDM-2D	165/83/15	46/23/4	290	42	CiH	W(3)	TF2 TS2 TR2 HF6 HS3 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
BRDM-2/RKh/MB1/2M-96/2M-96i/Amir-2/BRDM-2D	+2	Basic	KPVT, PKT	500x14.5mm, 2000x7.62mm
BRDM-2-57	+2*	Basic*	KPVT, PKT, UB-32-57 Rocket Pod	500x14.5mm, 2000x7.62mm, 32x55mm S-5 Rockets
LOT-B/VR	+3	Fair	NSVT, PKT	550x12.7mm, 2000x7.62mm

BRDM-2M-96ik Szakal/Szakal Plus	+2	Basic	WKM-B, PKT	550x.50, 2000x7.62mm
BRDM-2M-97 Zbik-B	+2	Good	NSVT or WKM-B, PKT, 9P135M ATGM Launcher	480x12.7mm or .50. 2000x7.62mm, 4x9M111 or 9M113 Missiles
BRDM-2M-97 Zbik-A	+2	Good	NSVT or WKM-B, PKT	480x12.7mm or .50. 2000x7.62mm
BRDM-2M (BRDM Turret)	+2	Basic	KPVT, PKT	500x14.5mm, 2000x7.62mm
BRDM-2M (BTR-80 Turret)	+1	Basic	KPVT, PKT	500x14.5mm, 2000x7.62mm
BRDM-2M (MT-LBM Turret)	None	None	NSVT	1500x12.7mm
BRDM-2MS/MB Bekas/Kurjak RCV	+2	Good	KPVT, PKT	500x14.5mm, 2000x7.62mm
BRDM-2-RKhb/VS BRDM-2	+2	Basic	2xPKT	2000x7.62mm
BRDM-2ch	+2	Basic	PKT	2000x7.62mm
BRDM-2U/OKV-P/-R-1A/-R-5	None	None	PKM (C)	1000x7.62mm
ZKDM	+3	Fair	23mm GSh-23 Autocannon, PKT, AGS-17, UB-4-57 Rocket Launcher	300x23mm, 2000x7.62mm, 150x30mm Grenades, 4x55mm S-5 Rockets
Caiman	+2	Fair	NSVT or PKT or AGS-17, PKM (Rear)	550x12.7mm or 2000x7.62mm or 150x30mm Grenades
Black Wasp BRDM-2 Mortar Carrier	None	None	120mm 2B11 Sani Mortar, PKM (C)	58x120mm, 1000x7.62mm
Delta BRDM-2	+2	Good	23mm 2A14 Autocannon, PKT	100x23mm, 500x7.62mm
BRDM-2-23	+2	Basic	23mm GSh-23 Autocannon, PKT	300x23mm, 2000x7.62mm
BRDM-2-ZPU	+1	Basic	2xKPVT	1000x14.5mm

*The Fire Control and Stabilization mods do not apply to the rocket pod, which is None/None.
**Belly armor for the BRDM-2MS is 6Sp.
***Belly Armor for the BRDM-2MB is 7Sp.
****Belly Armor for the ZKDM is 7Sp, and the hull is a V-hull.

GAZ-39344 Siam

Notes: This light armored car is in use by Russian police, paramilitary, and KGB units. It is primarily used for internal security and riot control; the Siam is not used by the Russian Army and is not a replacement for military vehicles like the BRDM-2. It was not designed with heavy combat in mind, as it is primarily a police vehicle and not a military vehicle. As of 2024, the Siam is still in LRIP.

On either side of the hull is a large door for crew access; these doors open to the front and there is a step below the door. Two firing ports are on the right side of the hull, one on either side of the door, and one firing port is on the left side of the hull. On the roof is the same turret as mounted on the BTR-80, with the addition of a searchlight mounted so that it moves with the weapons' point of aim. Like the BTR-80, the Siam's weapons may be elevated to +60 degrees and depressed to -5 degrees, but turret rotation is manual. All windows are bullet resistant. The GAZ-39344 has air conditioning, heating, a GLONASS-based land navigation system, a siren, a PA system, a ramming bumper, and a police lighting array.

The 125-horsepower diesel engine is at the rear of the vehicle. The suspension is 4x4, switchable to 4x2 for road travel. All windows are bullet resistant. The Siam has a central tire pressure regulation system. Minimum turning radius is 9.5 meters.

Twilight 2000 Notes: This vehicle was never produced.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$98,160	D, A	1.99 tons	7 tons	3+4	3	Passive IR (G), WL/IR Searchlight	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
129/23	36/6	145	28	CiH	W(3)	TF4 TS4 TR4 HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	KPVT, PKT	500x14.5mm, 2000x7.62mm

Kerametal Limited Aligator 4x4

Notes: This is a common vehicle, which has been sold to numerous countries in what was formerly Warsaw Pact-held Europe. It has also seen use by the UN in their numerous peacekeeping operations across the globe. The Aligator is usually encountered as a scout or patrol vehicle depending upon its role. The Slovakian military originally planned to go all in on procurement of the Aligator, but heavy casualties during UN peacekeeping missions from mines and IEDs led the Slovakian Armed Forces to look at MRAP-type vehicles and procurement for the Slovakian Army was cut short at 44 Aligators. Production ended in 2008, but some are still in use as liaison vehicles and by various international aid organizations. Tires are run-flat and bullet-resistant, but the original Michelin-made run flat tires were not reliable and in one case in 2007, caused a serious car accident involving a civilian car, a truck, and the Aligator in Slovakia. The only export customer was the Indonesian Marines, who bought small numbers of the Aligator 4x4 DPP for use in their single RM70 MLRS regiment.

The vehicle is amphibious, propelled in the water by a small propeller. It is NBC-sealed (though it doesn't have Overpressure) and is fast. The Aligator is capable of swimming in up to Beaufort Scale 3 wind or Sea State 2 turbulence. There is a firing port on each side. The Aligator can be equipped with explosive reactive armor (HF, HS) upon request, but the ERA able to be used on the Aligator is specially made for it. The vehicle is designed to shield against shell fragments and small arms fire. Armor is of steel with ballistic ceramic cladding. Military versions have six smoke grenade launchers on the front of the roof. The engine is a Mercedes 196-horsepower turbocharged diesel, connected to a 6-speed automatic transmission.

Police (PCM) variants have the addition of a ramming bumper, siren, PA system, and police lighting array; they have roof hatches, but not usually a mount for a weapon by the hatch like military versions.

There are several military subtypes and variants; most differ primarily in the communications suite and ancillary equipment carried. They include the PV basic reconnaissance vehicle, PVS command vehicle with enhanced communications and a ruggedized laptop computer connected to the military internet; DPP forward observer vehicle with a laser rangefinder and hand-held vision devices and GPS mounted in brackets on the roof by the hatch; ZV engineer reconnaissance vehicle, with an inflatable rubber raft and magnification devices as well as a laptop computer and long-range radios, cans of spray paint and marking tools, a basic tool kit, and excavation tools; RCHBO NBC reconnaissance vehicle, with dosimeters, Radiac meters, and testing devices and sampling equipment for NBC contamination, as well as NBC Overpressure protection; and PLN forward air controller vehicle, similar to the DPP except for the radios installed (one extra ground-to-air radio).

Unsold variants include the PPS observation/reconnaissance vehicle, with a MOWAG MBK-2 turret containing a weapon and a day/night camera, a thermal imager, and 500GB digital recording equipment (connected to the day/night camera); and the Mini-Samson, topped with an Israeli-made Rafael Mini-Samson turret, and being the heaviest-armed version of the Aligator, with a heavy machinegun and dual missile launcher. The Aligator 4x4 Master II was produced only as several prototypes; it is about a meter longer than the standard Aligator PV and is fitted with an RWS mounting a MAG or M2HB, along with downlinked sights and controls for use by the commander. The engine of the Master II is a 248-horsepower turbocharged Cummins diesel (probably Slovakian manufacture), giving the Aligator 4x4 Master II decent performance and the ability to haul much heavier loads and larger amounts of troops. The Master II has a winch in the front bumper with a capacity of 5.8 tons and 100 meters of cable. Development of the Aligator stopped in 2008, and similar variants of the Master II would have been produced if orders were forthcoming.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
PCM	$6,285	D, A	621 kg	6.6 tons	2+5	2	Headlights	Shielded
PV	$23,748	D, A	572 kg	6.7 tons	2+4	3	Headlights	Shielded
PVS	$31,788	D, A	514 kg	6.8 tons	2+3	4	Headlights	Shielded
DPP	$37,380	D, A	454 kg	6.8 tons	2+2	4	Image Intensification (C)	Shielded
ZV	$37,282	D, A	454 kg	6.9 tons	2+2	5	Image Intensification (C)	Shielded
RCHBO	$52,728	D, A	480 kg	6.85 tons	2+2	5	Headlights	Shielded
PLN	$37,980	D, A	454 kg	6.8 tons	2+2	4	Image Intensification (C)	Shielded
PPS	$72,200	D, A	592 kg	7.2 tons	2+4	4	Image Intensification (C), Thermal Imaging (C)	Shielded
Mini-Samson	$128,864	D, A	576 kg	8.2 tons	2+3	8	Image Intensification (C), Thermal Imaging (C)	Shielded
Master II	$73,637	D, A	3.13 tons	12 tons	2+9	8	Image Intensification (C), Thermal Imaging (C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor

PCM	218/110	60/30/3	150	72	Stnd	W(2)	HF4 HS2 HR2
PV	215/109	60/30/3	150	72	Stnd	W(2)	HF4 HS2 HR2
PVS	213/107	59/30/3	150	72	Stnd	W(2)	HF4 HS2 HR2
DPP	213/107	59/30/3	150	72	Stnd	W(2)	HF4 HS2 HR2
ZV	210/106	59/30/3	150	72	Stnd	W(2)	HF4 HS2 HR2
RCHBO	211/106	59/30/3	150	72	Stnd	W(2)	HF4 HS2 HR2
PLN	213/107	59/30/3	150	72	Stnd	W(2)	HF4 HS2 HR2
PPS	202/102	57/28/3	150	72	CiH	W(2)	TF3 TS3 TR2 HF4 HS2 HR2
Mini-Samson	182/92	51/26/3	150	72	CiH	W(2)	TF3 TS3 TR3 HF4 HS2 HR2
Master II	162/82	46/22/2	175	81	CiH	W(3)	TF2 TS2 TR2 HF5 HS4 HR3*

Vehicle	Fire Control	Stabilization	Armament	Ammunition
PV/PVS/DPP/ZV/RCHBO/PLN	None	None	PKT or MAG or NSVT or M2HB ©	1000x7.62mm or 12.7mm or .50
PPS	+2	Fair	MAG or MG3 or M2HB or HK GMG	4000x7.62mm or 2200x.50 or 700x40mm
Mini-Samson	+3	Fair	M2HB, 2xSpike LR ATGM Launchers	2200x.50, 4xSpike-LR or MR Missiles
Master II	+2	Fair	MAG or M2HB	4000x7.62mm or 2200x.50

*Belly and Roof AV are 4.

Duiker

Notes: This version of the Casspir APC is an armored fuel tanker. Instead of a passenger space, it has a 5000-liter armored fuel tank in the rear. The roof of the cab has a weapon mount. The Duiker is protected from mines in the same manner as the Casspir. This vehicle is used by South Africa, Namibia, and Peru.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$13,385	D, A	5000 L + 300 kg	11.1 tons	3	3	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
130/52	33/13	220	62	Stnd	W(3)	HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	SS-77 (C)	1000x7.62mm

RG-32 Scout Weapons Carrier

Notes: This is a version of the military 4x4 diesel-powered RG-32 Scout armored personnel carrier. In this version, the back half of the vehicle is cut away to form a flatbed; on this flatbed is mounted one of a variety of heavy weapons. The roof hatch is moved to the rear seat and also mounts one or two of a variety of weapons. The vehicle has additional armor protection; including antimine features that allow it to withstand mine blasts with the equivalent of twice the normal armor value, and the suspension is one greater against mine blasts. Note that the heavy weapons platform is not under armor, though it is protected against mine blasts.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
MRL Carrier	$114,973	D, A	700 kg	4 tons	2+3	2	Headlights	Enclosed
Recoilless Rifle Carrier	$112,808	D, A	700 kg	3.94 tons	2+3	2	Headlights	Enclosed
Mortar Carrier	$68,410	D, A	700 kg	3.55 tons	2+3	2	Headlights	Enclosed
Autocannon Carrier	$44,922	D, A	700 kg	3.66 tons	2+3	2	Headlights	Enclosed
ATGM Carrier	$53,356	D, A	700 kg	3.6 tons	2+3	3	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
(All)	242/96	61/24	125	49	Stnd	W(3)	HF2 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
MRL Carrier	None	None	12-Round 107mm MRL; 2xMG-4 or 2xMGL-40 or AGL Striker or M-2HB or 20mm KAA (C)	24x107mm Rockets; 650x7.62mm or 125x40mm or 400x.50 or 250x20mm
Recoilless Rifle Carrier	None	None	M-40A2 106mm Recoilless Carrier; 2xMG-4 or 2xMGL-40 or AGL Striker or M-2HB or 20mm KAA (C)	28x106mm Rockets; 650x7.62mm or 125x40mm or 400x.50 or 250x20mm

Mortar Carrier	None	None	60mm Gun/Mortar or Mortar; 2xMG-4 or 2xMGL-40 or AGL Striker or M-2HB or 20mm KAA (C)	50x60mm; 650x7.62mm or 125x40mm or 400x.50 or 250x20mm
Autocannon Carrier	None	None	2x20mm KAA; 2xMG-4 or 2xMGL-40 or AGL Striker or M-2HB or 20mm KAA (C)	400x20mm; 650x7.62mm or 125x40mm or 400x.50 or 250x20mm
ATGM Carrier	None	None	4-Round ZT-3 Launcher; 2xMG-4 or 2xMGL-40 or AGL Striker or M-2HB or 20mm KAA (C)	16xZT-3 ATGM; 650x7.62mm or 125x40mm or 400x.50 or 250x20mm

Rinkhals

Notes: This is a South African armored ambulance based on the SAMIL 50 truck. The Rinkhals is mine protected; the vehicle is considered to have double its armor rating from mine attacks, and the suspension rating is one higher when considering mine attacks. The vehicle is otherwise an armored truck, though it is appointed with lockers for medical supplies, stretchers, oxygen gear, and medical monitors. The vehicle's higher and beefier suspension allows it better cross-country performance than its SAMIL 50 base. Crew access is through a rear door or two doors on the cab. Three firing ports are on each side of the passenger compartment, and there is a roof hatch with a weapon mount.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
$17,477	D, A	3.3 tons	9 tons	3+3 stretchers+4	5	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
158/64	40/16	400	57	Stnd	W(3)	HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	SS-77 (C)	500x7.62mm

Rooikat

Notes: The Rooikat armored car was produced in South Africa in the late 1980s. Designed for deep reconnaissance and raiding operations of the African Veldt, much emphasis was placed on mobility and endurance, even down to the 76mm Cockerill main gun instead of the more usual 105mm (48 reloads instead of 25-35 at most). It is highly mine-resistant and can lose two wheels, even on the same side (it has eight total), and maintain top speed.

The Rooikat 105 was designed for export, and the only sales were to Abu Dhabi and Malaysia. The vehicle is basically the same as the normal Rooikat, with the exception of the mounting of a 105mm NATO gun instead of the normal 76mm, and a few other minor improvements.

The Rooikat 35 is a standard Rooikat 76 chassis with the turret replaced with one mounting a 35mm autocannon. It was designed for scouting and escort duties as well as infantry fire support. A pod with 4 ZT-3 Swift ATGM launchers is mounted on the turret roof on the left side. The missiles can be aimed and fired from within the vehicle, but the crew must expose the upper body to reload missiles. This was designed primarily as a proof-of-concept vehicle and not meant for actual production.

Twilight 2000 Notes: Remaining examples of the Rooikat 105 were requisitioned from the factories and depots when the Twilight War picked up and used by South African forces to replace combat losses. The Rooikat 35 was also placed into production, in order to serve as a scout and infantry support vehicle, as well as a tank destroyer.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Rooikat 76	$181,763	D, G, A	700	28 tons	4	8	Passive IR, Image	Enclosed

			kg				Intensification	
Rooikat 105	$282,191	D, G, A	700 kg	28.5 tons	4	8	Passive IR, Thermal Imaging	Enclosed
Rooikat 35/ZT-3	$125,000 (R/-)	D, G, A	700 kg	26 tons	3	6	Passive IR, Thermal Imaging	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Rooikat 76	174/70	44/18	540	208	Trtd	W(8)	TF16 TS8 TR8 HF20 HS7 HR6
Rooikat 105	164/66	41/17	540	194	Trtd	W(8)	TF16 TS8 TR8 HF20 HS7 HR6
Rooikat 35/ZT-3	174/70	44/18	540	194	Trtd	W(8)	TF16 TS8 TR8 HF20 HS7 HR6

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Rooikat 76	+2	Good	76mm GT-4 Gun, MG-4, MG-4 (C)	48x76mm, 3600x7.62mm
Rooikat 105	+3	Good	105mm GT-7 Gun, MG-4, MG-4 (C)	32x105mm, 3200x7.62mm
Rooikat 35/ZT-3	+4	Good	35mm Bushmaster III autocannon, MG-4, 4xZT-3 Launchers	200x35mm, 3600x7.62mm, 8xZT-3 ATGM

Pegaso VEC Cavalry Scout Vehicle

Notes: The VEC CSV is the standard reconnaissance vehicle of the Spanish military. It has had no known exports, but 340 were produced for the Spanish Army. It is based on the Pegaso BMR APC. The VEC saw combat service in the Balkans, Lebanon, and the Iraq War, and further service in Sinai peacekeeping operations, where they acquitted themselves well.

The standard version is fitted with an OtoBreda TC25 turret armed with a 25mm Bushmaster cannon of the same type on the Bradley and LAV-25; originally, the armament was to be a 25mm KBA autocannon, but in 1987, the Spanish Army announced that they had selected the M242 as the VEC's armament. There is another, rarer version that mounts a 90mm French gun, using the same H90 turret as a Panhard AML-90; this variant was phased out of Spanish service by 1986, and 100 were produced. The first 32 were fitted with OtoBreda TC20 turret armed with the Rheinmetall Rh-202 20mm autocannon; these were placed in storage after deliveries of the other VECs commenced.

The original VEC was developed by Pegaso as a variant of the BMR APC, and was originally designated the BMR-625 VEC. They were upgraded in the late 1990s to the VEC-M1 standard; the primary upgrade was from the 306-horsepower Pegaso diesel to the Scania DS9 315-horsepower engine and hydrojets to propel the vehicle in water instead of just propulsion in the water by rotating wheels. The engines of this vehicle are very quiet, with baffles in the exhaust system and soundproofing for the engine compartment to quiet the vehicle to about 60% of normal engine noise for a vehicle of this type and size. The VEC has a 4.5-ton capacity winch at the front of the vehicle. The three axles have independent suspension and have locking differentials. Steering is power assisted. The engine compartment and transmission have automatic fire extinguishing systems, and there are two portable fire extinguishers protect the crew compartment. Tires are run-flat.

The driver has a hatch on the front left deck, and the commander and gunner have hatches on the turret deck. There is a hatch on the rear right face for the crew as well, as well as two hatches on the roof of the passenger compartment. These hatches are also fitted with vision blocks for the dismount scouts. One scout is seated in the hull to the rear of the turret on the right side; the second scout is on the right rear of the hull. The VEC is fitted with extra radios (3 in all) and a computerized land navigation system. The VEC also has air conditioning and heating for the crew. Armor is of all-welded aluminum for the hull, with the frontal arc able to shrug off light autocannon hits, and the rest of the vehicle able to take 7.62mm Nagant or NATO AP hits. The turrets, however, are of steel construction.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
VEC-20	$132,573	D, A	755 kg	13.27 tons	3+2	10	Image Intensification (D, G)	Shielded
VEC-25	$137,362	D, A	611 kg	13.75 tons	3+2	10	Image Intensification (D, G)	Shielded
VEC-90	$220,625	D, A	626 kg	16.6 tons	3+2	10	Image Intensification (D, G), WL Searchlight	Shielded
VEC-M1	$127,191	D, A	611 kg	13.75 tons	3+2	10	Image Intensification (D, G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor*
VEC-20	190/96	53/26/5	400	90	Trtd	W(4)	TF4 TS4 TR4 HF12Sp HS6 HR5
VEC-25	185/94	51/26/5	400	90	Trtd	W(4)	TF10Sp TS7 TR7 HF12Sp HS6 HR5
VEC-90	162/82	44/22/4	400	90	Trtd	W(4)	TF3 TS3 TR3 HF12Sp HS6 HR5
VEC-M1	190/96	53/26/5	400	93	Trtd	W(4)	TF10Sp TS7 TR7 HF12Sp HS6 HR5

Vehicle	Fire Control	Stabilization	Armament	Ammunition
VEC-20	+2	Fair	20mm Rh202 Autocannon, MG3, MG3 (C)	900x20mm, 3100x7.62mm
VEC-25/M1	+2	Fair	25mm M242 Bushmaster Autocannon, MG3, M2HB (C)	720x25mm, 1850x7.62mm, 750x.50
VEC-90	+1	Basic	90mm DEFA D921 Gun, MG3, MG3 (C)	45x90mm, 5000x7.62mm

*Belly AV is 6.

MOWAG Shark

Notes: The Shark was designed as sort of a universal weapons carrier for light and medium weapons systems and turrets. The Shark is based on the Piranha I chassis, but greatly modified for its role as a weapons carrier. (There is a rumor, however, that an APC variant of the Shark was also designed.) Despite several variants tested or on paper, the Shark was never adopted by any country's armed forces, and never put into production. In the end, only three Shark hulls were produced as prototypes; turrets were swapped out on these hulls to show the versatility of the chassis. The variants shown below were three variants which fit the definition of light combat vehicles, but variants ranging from ATGM carriers to heavy antiaircraft vehicles were tested, and several other versions were conceived of on paper.

Vehicles were produced (at least to the prototype stage) with a 35mm autocannon in a modified GDD-BOE turret, a 105mm French gun in an FL-12 turret (the same as on the SK-105), and the 105mm Rh-105 low recoil gun in an experimental Rheinmetall turret were also tested. Both of the 105mm versions can fire standard NATO ammunition; the FL-12 turret included the SK-105/AMX-13 12-round autoloader/magazine, with more reloads carried inside the hull. The Rheinmetall turret carried 15 rounds in an internal band-type autoloader with the rest carried inside the hull. The chassis is a lightweight 8x8 chassis that, while not offering lots of armor protection, does give good mobility and speed. The engine is a Detroit Diesel 8V71T providing 560 horsepower with an Allison HT 750 ORD automatic transmission, providing five forward and one reverse gears. The Shark is an 8x8 vehicle, with front and rear axles steering and the center two axles staying straight; the Shark has a 12.5-meter turning radius. All wheels have independent suspension, with built-in shock absorbers on the front and rear pair of wheels in addition to leaf springs, and the center pairs of wheels having torsion bar springs and external shock absorbers. The front and rear wheels have locking differentials. Brakes and steering are power assisted. Tires are run-flat and puncture-resistant.

The driver is in the front left of the hull; a passenger seat is located to the right of the driver. The remaining crew members will have hatches on the turret roof, with the hatch layout depending on the turret used.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
GDD-BOE Turret	$227,265	D, A	612 kg	21 tons	3+1	14	Passive IR (D), Image Intensification (G, C)	Shielded
FL-12 Turret	$320,559	D, A	564 kg	22 tons	4+1	16	Passive IR (D), Image Intensification (G, C)	Shielded
Rheinmetall Turret	$327,558	D, A	566 kg	23 tons	4+1	18	Passive IR (D), Image Intensification (G, C)	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
GDD-BOE Turret	213/108	59/30	400	208	Trtd	W(6)	TF13 TR7 TR6 HF16 HS6 HR4
FL-12 Turret	205/104	58/29	400	208	Trtd	W(6)	TF6 TS5 TR3 HF16 HS6 HR4
Rheinmetall Turret	199/100	56/28	400	208	Trtd	W(6)	TF9 TS6 TR4 HF16 HS6 HR4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
GDD-BOE Turret	+3	Fair	35mm KDE Autocannon, MAG	1000x35mm, 2800x7.62mm
FL-12 Turret	+3	Fair	105mm CN105G1 Gun, MG3	45x105mm, 2800x7.62mm
Rheinmetall Turret	+3	Fair	105mm RH-105-11 LR Gun, MG3	45x105mm, 2800x7.62mm

MOWAG Spy

Notes: This is basically a greatly scaled-down version of the MOWAG Piranha wheeled armored personnel carrier. It is a small, light, quick vehicle without a great deal of armor protection, but a lot of agility. It is designed primarily for local security forces, but is also useful for scouts. The Spy is supposed to be light and inexpensive. An undisclosed Asian country placed an order for 20-50 Spies in the early 1980s, but MOWAG has not divulged the actual customer; however, it is believed that the customer was Indonesia or Myanmar. Various other customers have placed small orders for the Spy, mostly for internal security and police SRT-type forces. The Spy is still being built for various customers and is offered for export.

The hull roof may be fitted with a cupola that allows a light machinegun to be aimed and fired from within the vehicle. The V 042 turret has a remotely operated M2HB on an external mount on a small cupola. The M2HB has a maximum elevation of +45 degrees, depression of -8 degrees, and 360-degree rotation. The V 041 small turret has a hatch on top and is armed with an M2HB/MAG combo. The machineguns have a maximum elevation of +50 degrees and depression of -10 degrees. The gunner has a PERI Z-11 sight with a magnification of x2/x6 with seven vision blocks on his cupola.

Armament for the Spy is very light, primarily to keep weight down. The driver has a hatch on the front left deck; a windshield may be fitted in front of this that also gives splash protection when fording. The four wheels have independent suspension and are fitted

with run-flat puncture-resistant tires. The engine is a Detroit Diesel 295-horsepower engine with an Alison AT-545 automatic transmission. Steering is only on the front axle. The axles have locking differentials.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Cupola	$37,415	D, A	362 kg	7.15 tons	3	6	Image Intensification (G)	Enclosed
V 042 Turret	$43,900	D, A	252 kg	7.5 tons	3	8	Image Intensification (G)	Enclosed
V 041 Turret	$52,340	D, A	253 kg	7.4 tons	3	3	Image Intensification (G)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Cupola	304/154	84/42	200	110	CiH	W(3)	TF2 TS2 TR2 HF8 HS4 HR3
V 042 Turret	293/147	81/41	200	110	Trtd	W(3)	TF6 TS5 TR4 HF8 HS4 HR3
V 041 Turret	296/150	82/42	200	110	CiH	W(3)	TF3 TS3 TR2 HF8 HS4 HR3

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Cupola	+1	None	MAG	4000x7.62mm
V 042 Turret	+2	Fair	M-2HB	3000x.50
V 041 Turret	+2	Basic	M-2HB, MAG	2500x.50, 1650x7.62mm

Otokar Akrep

Notes: The Akrep (Scorpion) is a Turkish armored car used by that country's internal security and military police forces, and also by Morocco and Pakistan. It is basically an armored version of the Land Rover Defender 90/110 (see British Unarmored Vehicles). The Akrep uses a cupola armed with twin or single machineguns, which can be aimed and fired from under armor protection. Most versions of this vehicle have night vision devices. A special feature is the fuel tank; a fuel tank fire will not catch fire to the rest of the vehicle unless 100% fuel tank damage is taken. Note that though normal armament is MAG machineguns, the twin MAGs may be removed and a single M-2HB or ATGM launcher may be mounted in its place.

The MGSS is an Akrep chassis fitted with a ground surveillance/air surveillance radar system. (MGSS stands for Mobile Ground Surveillance System.) The radar has a range of up to 38 km against vehicle convoys, 30 km against single vehicles and aircraft, and 15 km against personnel. The vehicle is equipped with a 1.5kW generator to power the radar when the engine is off and has a computerized communications system to gather the data and send it to higher headquarters.

Engine power is a 134-horsepower diesel engine, with 4x4 suspension. Nonetheless, the Akrep is best suited for road use instead of off-road use. The vehicle has a winch in the front bumper with a capacity of 3.6 tons. Optional equipment includes sirens, flashing lights, loudspeakers, smoke grenade launchers, and other such equipment. The roof of the MGSS has a hatch surrounded by a rotating gun AV 2 shield, and the rear hull has a large door for troops to enter and depart. The gunner has a raisable platform for him to stand on. The Patrol variant has a small manually rotating turret armed with an M2HB or a MAG combo. The steering and brakes are power assisted. Tires are run-flat and puncture-resistant.

Crew appointments include air conditioning, NBC sealing (not Overpressure), a heater, a defogger for the windshield, IR headlights, a blackout lighting system, and a roof-mounted smoke extraction fan. There is thick polyurethane foam on the roof of the vehicle, a nod to crews hitting their heads on the roof when a mine explodes under the vehicle. Options include a crew intercom, smoke grenade launchers, pioneer tools, and a land navigation system. (These options are not included in the stats below.) The driver and commander are in a front cab, behind the engine compartment. The commander and driver have a large two-piece bullet-resistant windshield to the front and good-sized bullet-resistant windows to their sides. They enter and exit through doors on the sides of the cab, and can also reach their position through the rear compartment. There is a firing port on each side of the hull and one in the rear door.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Patrol	$39,052	D, A	932 kg	3.52 tons	3	4	Passive IR (G)	Enclosed
MGSS	$84,347	D, A	366 kg	3.53 tons	3	6	Passive IR (G), Radar (38 km)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Patrol	284/72	79/20	110	75	CiH	W(2)	TF2 TS2 TR1 HF3 HS2 HR2
MGSS	283/71	79/20	110	75	CiH	W(2)	TF1 TS1 TR1 HF3 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Patrol	None	None	2xMAG or 1xM2HB	3200x7.62mm or 1950x.50
MGSS	None	None	MAG (C)	2000x7.62mm

Otokar Cobra (Reconnaissance Variants)

Notes: The Cobra LRSU Vehicle is a variant of the Cobra armored personnel carrier designed for use by LRSUs (Long-Range Surveillance Units). The Cobra LRSU is more lightly armed, but has a 2-meter elevating pod carrying a FLIR sensor, ground surveillance radar, an image intensifier, a shotgun microphone, and a TV camera. Inside the vehicle are the controls for the pod, a data recorder, and extra radios.

The Reconnaissance Car version is a Cobra armored personnel carrier with heavier armament, a smaller crew, better night vision, and extra radios. The autocannon is externally mounted and aimed and fired from inside the vehicle.

The Cobra has been altered almost unrecognizably from its HMMWV roots, though a look under the armor and at the interior would tell the observer that it is a HMMWV wearing armor. The driver and commander ride up front, behind bullet-resistant windshields. They have one bullet-resistant windshield on each side of them. They have no separate doors; they enter and exit through the rear compartment. There are doors on either side of the hull for crew access, and a large door in the rear of the hull. There are two firing ports on either side of the rear compartment. On the roof is a small turret with a weapon. Alternatively, the weapon can be externally mounted and aimed and fired from either a hatch in the roof or remotely from inside the hull. To the rear of the turret are two small hatches on the rear deck. The Cobra is powered by a 190-horsepower turbocharged diesel, coupled to a manual transmission. The Cobra is amphibious, powered by propellers in the water; the driver controls these propellers via joysticks, and can turn them 180 degrees. The frontal armor is sharply raked, and the side armor and rear armor are moderately sloped, providing better protection than might be expected from such a light vehicle. The Cobra has an MRAP hull. Cobras often mount anti-RPG mesh armor, which is lighter (but not as forgiving) than cage armor, and the Cobra has bosses on its hull for the mounting of the mesh armor.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological

LRSU	$113,493	D, A	1.18 tons	6.05 tons	4	7	FLIR, Radar (20 km), Image Intensification, WL/IR Spotlight	Enclosed
Recon Car	$140,373	D, A	538 kg	6 tons	3	5	FLIR (C), Image Intensification (G, C), WL/IR Spotlight (C)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor*
LRSU	243/122	68/34/9	110	71	CiH	W(3)	TF1 TS1 TR1 HF5 HS3 HR3
Recon Car	244/123	68/34/9	110	71	CiH	W(3)	TF3 TS3 TR3 HF5 HS3 HR3

Vehicle	Fire Control	Stabilization	Armament	Ammunition
LRSU	None	None	MAG	850x7.62mm
Recon Car	None	None	25mm M242 Bushmaster Autocannon	500x25mm

*Floor AV is 4Sp, in addition to being an MRAP hull.

Cadillac Gage Commando Scout

Notes: The American firm of Cadillac Gage manufactures a number of vehicles for export, some of which have been picked up for US service. The 4x4 Commando Scout is not one of the latter, but is in service with a number of military and constabulary units throughout the world, including Indonesia (28 vehicles) and Egypt (112 vehicles).

The vehicle has a driver's hatch on the front left deck; he has three vision blocks in front of the hatchway, and his hatch slides out to the front when open. There is a commander's hatch on the turret deck, and an exit hatch on the rear of the vehicle. In addition, the vehicle can be entered through a two-part door in the rear of the vehicle. The Scout may be fitted with a variety of turrets or armament. The command variant does not have turret-mounted weapons, but does have a pintle-mounted weapon on the turret, and has a firing port on the front, rear, and both sides of the turret, as well as three radios in the hull.

The vehicle is armored with Cadloy, a cadmium/aluminum/steel proprietary Cadillac Gage alloy, with the front plate angled at 76 degrees. This allows not only increased protection for minimum weight, but allows the Scout to push its way through thick underbrush and small trees. The fuel tank is in the front of the hull between the wheels, where the heaviest armor is present. The engine is on top of the fuel tank, and is a Cummins 155 horsepower turbocharged diesel which is coupled to a 4-speed Allison automatic transmission. The two are combined into a unitary powerpack, and are accessed through a hatch on the right front of the vehicle, allowing the crew to do maintenance tasks. The entire front of the vehicle may also be hinged open, allowing the powerpack to be removed and replaced in 2 hours. The Scout features power steering and brakes, and the axles have locking differentials. The brakes have backup systems which allow the brakes to continue to operate even in case of engine failure. The turning radius is a tight 8 meters.

Standard equipment sold with the Scout includes two manual fire extinguishers, pioneer tools, basic tools, a first aid kit, and an air compressor. Options include police lights, a siren, a PA system, water and fuel cans, a slave cable, a tow cable, a camo net, and smoke grenade clusters. The command fit adds two extra radios, a map board, office supplies, two hand colored smoke grenades, and two folding chairs with a small folding table.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
7.62mm Turret	$25,199	D, A	237 kg	6.58 tons	2+1	6	Headlights	Enclosed
M2HB Turret	$35,964	D, A	237 kg	6.66 tons	2+1	6	Headlights	Enclosed
M2HB/MAG Turret	$33,935	D, A	237 kg	6.69 tons	2+1	6	Headlights	Enclosed
20mm Turret	$31,028	D, A	239 kg	6.63 tons	2+1	6	Headlights	Enclosed
Mk-19 Turret	$43,996	D, A	240 kg	6.66 tons	2+1	6	Headlights	Enclosed
ATGM Carrier	$48,242	D, A	297 kg	6.56 tons	3	6	Headlights	Enclosed
Recoilless Rifle Carrier	$53,535	D, A	312 kg	7.13 tons	3	6	Headlights	Enclosed
Command Vehicle	$25,580	D, A	297 kg	6.54 tons	3+2	7	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
7.62mm Turret	194/98	54/27	378	45	Trtd	W(3)	TF6 TS4 TR3 HF7 HS3 HR2
M2HB Turret	192/97	53/27	378	45	Trtd	W(3)	TF6 TS4 TR3 HF7 HS3 HR2
M2HB/MAG Turret	192/97	53/27	378	45	Trtd	W(3)	TF6 TS4 TR3 HF7 HS3 HR2
20mm Turret	193/98	53/27	378	45	Trtd	W(3)	TF6 TS4 TR3 HF7 HS3 HR2
Mk-19 Turret	192/97	53/27	378	45	Trtd	W(3)	TF6 TS4 TR3 HF7 HS3 HR2
ATGM Carrier	194/98	54/27	378	45	Stnd	W(3)	HF7 HS3 HR2
Recoilless Rifle Carrier	182/92	51/26	378	45	Stnd	W(3)	HF7 HS3 HR2
Command Vehicle	195/98	54/27	378	45	Stnd	W(3)	HF7 HS3 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
7.62mm Turret	+2	None	2xMAG	2600x7.62mm
M2HB Turret	+2	None	2xM2HB	2200x.50
M2HB/MAG Turret	+2	None	M2HB, MAG	1100x.50, 2400x7.62mm
20mm Turret	+2	Basic	20mm Rh-202 Autocannon, MAG	200x20mm, 2600x7.62mm
Mk-19 Turret	+2	Basic	Mk-19 AGL, MAG	200x40mm Grenades, 2600x7.62mm
ATGM Carrier	None	None	TOW II Launcher, MAG (C)	6xTOW II ATGM, 2000x7.62mm
Recoilless Rifle Carrier	None	None	M40A2 106mm Recoilless Rifle Carrier, MAG (C)	15x106mm Rockets, 2000x7.62mm

Command Vehicle	None	None	MAG (C)	2000x7.62mm

Cadillac Gage LAV-300CS

Notes: The LAV-300 series is a 6x6 wheeled armored vehicle manufactured by Cadillac Gage and used by Kuwait, Philippines, and Panama, but it was not adopted by the US Army. The CS (Combat Support), also known as the FSV (Fire Support Vehicle) version is a type with a 90mm gun turret.

The LAV-300 is powered by a 270-horsepower Cummins VT-504 turbocharged diesel engine, coupled to an automatic transmission. The suspension is 6x6 and of an off-road type, with puncture-resistant tires (though they are not run-flat). Ground clearance is decent and the floor armor is strengthened as a measure against mines. Armor is of Cadillac Gage's proprietary Cadloy (a cadmium/stainless steel/aluminum alloy). The LAV-300 can have added appliqué armor. The LAV-300CS uses a sort of low observable technology, and has the equivalent of IR Suppression, Stealth 0, and half the normal audio signature. The LAV-300 is amphibious after turning on bilge pumps and erecting a trim vane (5 minutes), but speed is quite slow.

The LAV-300 has a driver's position on the front left, with a hatch above him and three vision blocks to the front and one to each side. The center front vision block can be replaced with a night vision block. The vehicle has one small side door on its left side and a rear exit ramp, plus a commander's cupola atop the turret. In the side of the vehicle, at about the center of the vehicle on the right side, is a hatch in the sides of the hull, but it looks like a tight squeeze. On either side of the hull in the troop compartment are three firing ports, and there is one more in each rear door. One of the firing ports on the right side is in this hatch, and the hatch can conceivably be opened to allow the firing of heavier weapons like grenade launchers. At the rear of the hull on the roof are a pair of hatches. On each side of the turret are clusters of four smoke grenade launchers. The turret has two hand fire extinguishers and the driver has another inside his compartment.

Of the ammunition supply, 10 rounds of 90mm ammunition are stored inside the turret bustle, along with 500 rounds of 7.62mm ammunition. The rest of the ammunition is stored in the hull.

Standard equipment sold with the LAV-300CS includes pioneer tools, basic/vehicle tools, a 19-liter water can, a 19-liter fuel can, a first aid kit, a slave cable, a tow cable, and an engine-driven air compressor. In the front hull is a winch with a 9-ton capacity and 46 meters of cable. A snatch block is also provided. Options include upgraded night vision, central tire inflation system, air conditioning, a heater, a wiper kit, a collective NBC system, and an automatic fire extinguishing system.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
LAV-300CS	$253,042	D, A	400 kg	12 tons	4	6	Passive IR (D, G)	Enclosed
w/Applique	$254,043	D, A	400 kg	12.7 tons	4	8	Passive IR (D, G)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
LAV-300CS	186/94	52/26/4	265	88	Trtd	W(4)	TF6 TS6 TR6 HF8 HS5 HR4*
w/Applique	179/90	50/25/4	265	88	Trtd	W(4)	TF7Sp TS7 TR6 HF10Sp HS6Sp HR4**

Fire Control	Stabilization	Armament	Ammunition
+2	Good	90mm Cockerill gun, MAG, MAG (C)	44x90mm, 2400x7.62mm

*Floor AV is 4.

**Roof AV is 3; Floor AV is 5Sp.

AV Technology Dragoon Light Combat Vehicles

Notes: The LFV (Light Forces Vehicle)-90 is designed around a 90mm gun in a two-man turret. The turret is constructed from a hard steel ballistic design that is resistant to 7.62mm NATO armor-piercing rounds. The LFV-90 is equipped with a fire control system that is also coupled with a secondary backup in case of damage or power loss (the rangefinder requires two damaging results to knock it out). The US Air Force adopted the LFV-90 in late 1996; they required a lightweight armored vehicle that was capable of defending Air Force installations around the globe. The Air Force contracted with AV Technology for 125 LFV-90s, but specified that they must also be equipped with ERA (the LFV-90 has lugs for ERA on the HF, HS, TF, and TS). The commander has no dedicated night vision, but the commander has an elbow scope for the gunner's sight. The turret stores 10 rounds of 90mm ammunition and 500 rounds of 7.62mm ammunition.

The MEWS (Mobile Electronic Warfare System) is packed with electronic warfare equipment, including radio and radar-finding equipment and analysis, MIJI (Meaconing, Intrusion, Jamming, and Interference) capability, as well as visual surveillance capability to allow it to act as a scout vehicle. Radio detection range is 50 km, with radar detection range being 30 km. The MEWS can produce a radio jamming signal over three bands (out of a total is six) of radio at a range of 40 km, or simple interference (such as random static or dropped signals) over 50 km. Intrusion, meaconing, and interception of enemy signals can be made at a range of 30 km. The MEWS has an extendable antenna to facilitate these functions, as well as a small computer related to its functions with digital storage. The MEWS has an enlarged turret armed with an autocannon, which houses enhanced night vision gear, day vision gear, and a set of video cameras. The MEWS has a short-range radio and two long-range radios with data capability to transmit the data from its radio interceptions and visual surveillance activities. Atop the commander's position is a ring mount for a light machinegun.

The MEWS carries a 10kW generator on the rear roof to power vehicle systems while the engine is off. This APU has an exhaust and noise dampening system attached to it, and the entire vehicle uses IR dampening measures.

The VOSV (Video Optical Surveillance Vehicle) version of the Dragoon basic APC contains advanced surveillance devices coupled with a radio datalink to higher headquarters. The sensors are contained on a 3-meter mast, and include TV, video, night vision, shotgun microphone, and radio direction finders that work with an ELINT level of 2. The purpose is to provide a scout vehicle that can provide the commander with a real-time picture of a remote area. This requires an equivalent datalink and equipment at the higher headquarters, and is included in the cost of the vehicle. The VOSV is equipped with no less than three radios, one dedicated to the datalink. The VOSV also has a 10kW APU.

The driver and commander are in the front, with the driver on the left and commander beside him. They have a small bullet-resistant windshield in front of them, and vision blocks to the sides. Vision blocks are also present in front of the hatches for use when the vehicle is buttoned up. They have hatches above them and can also reach their stations through the troop compartment. Their hatches have night vision blocks, which can be removed and replaced with an armored block. The driver has a conventional control set, though he has power brakes. The driver and commander have electrically-powered raising and lowering of their seats. On the LFV-90, the commander and loader also have hatches on the turret deck, with the gunner using the loader's hatch.

The crew enters and exits through wide doors on either side. There are two firing ports on each side and one in the rear. These are not true firing ports, but merely shuttered openings in the hull. The Dragoon has air conditioning as standard. The Dragoon has a heater, and this heater has a booster for the driver/commander compartment.

The Dragoon borrows the starter, vision blocks, bilge pumps, control knobs and electrical and hydraulic components from the M113A2 APC; automotively, many components are the same as on the M809 medium truck, particularly in the suspension. The engine of the Dragoon is a Detroit Diesel 6V-53T 300-horsepower turbocharged diesel engine (again, a modified version of that of the M113), coupled to an automatic transmission. The engine and transmission are in a unitary power pack which can be removed from the vehicle in one piece, simplifying replacement. The Dragoon has a flood-type Halon fire suppression system, but this must be manually triggered; in addition, there are two fire extinguisher bottles in the crew compartment. There is one for the troop/front compartment and one for the engine compartment. The suspension is 4x4 and of the off-road-type (switchable to 4x2 for efficient road use), and the Dragoon has run-flat tires and central tire pressure regulation. Armor is moderate, but angling of the front and sides helps the situation, giving it protection greater than might be expected for such a vehicle. Armor is acceptable for such a vehicle, though appliqué armor kits are available. All Dragoons and variants have a front-mounted winch with a capacity of 5 tons and 53.34 meters of cable. The Dragoon is amphibious, powered by wheel rotation in the water, and steered by the front wheels as if on land. Bilge pumps must be turned on before entering the water, but other than that, there is no preparation required for amphibious operations (and turning on the bilge pumps only requires the flipping of a switch by the driver). The driver may also fully inflate the tires using the central tire inflation system before amphibious operations to increase flotation, an operation that requires only 15 seconds. Amphibious speed is slow, and steering response is sluggish.

Twilight 2000 Notes: It is believed that all LFV-90s were delivered by November of 1997; they were distributed across the European theater, Korean theater, and Middle Eastern theater.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
LFV-90	$263,103	D, A	417 kg	12.7 tons	3+1	10	Passive IR (D), Thermal Imaging (G)	Enclosed
MEWS	$299,615	D, A	395 kg	11.5 tons	4	12	Passive IR (D)	Enclosed
VOSV	$293,436	D, A	416 kg	11.5 tons	5	10	Passive IR (D), FLIR (Mast), Image Intensification (Mast)	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
LFV-90	194/98	54/27/4	341	111	Trtd	W(4)	TF4 TS4 TR3 HF8 HS4 HF4
MEWS	210/106	58/30/4	341	111	Trtd	W(4)	HF8 HS4 HF4
VOSV	210/106	58/30/4	341	111	Trtd	W(4)	HF8 HS4 HF4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
LFV-90	+2	Fair	90mm Cockerill or Mecar Gun, MAG, MAG (C)	50x90mm, 2000x7.62mm
MEWS/VOSV	None	None	MAG (C)	1000x7.62mm

HMMWV Light Combat Vehicles

Notes: The M1118 HMMWV FSV (Fire Support Vehicle) was an experimental version of the armored HMMWV. Production was greatly hastened in the latter stages of the war, with many conversions made from existing HMMWVs. The FSV is a standard M1114 model armored HMMWV fitted with a casemate-mounted M242 25mm ChainGun of the same type that is mounted on the M2 Bradley IFV. The gunner controls the gun via a downlinked television monitor connected to a sight on the gun. The rear area of the vehicle is largely taken up with the turret mechanism and ammunition for the gun. The vehicles were tested at the 9th ID High Technology Testbed Division in the mid-1980s; The vibrations from firing the autocannon sometimes blew out the windows of the HMMWV base, and rendered the crew stunned. The version here posits an improved model with a properly buffered autocannon. The designation "M1118" I have used here is something I made up; the HMMWV-FS never actually received a type designation. (As far as I can find

out, the M1118 designation was never used by the US Military for a vehicle.)

The M1109 is an armored HMMWV version focusing on crew survivability. Though lacking in payload, the “Oh Niner” has been retained for its protection. Though not issued with a winch, many were back fitted in theater. The M1109 has a NHT mount (C), or it may carry a TOW II ATGM. Damage to crew from mines or HE blast is halved due to extensive installed measures (blast shields. collapsible seats, etc.).

The M1114 is an armored HMMWV version focusing on crew survivability, restoring the favorable payload lost in the M1109. Though not issued with a winch, many were retrofitted with one in theater. The M1114 has a NHT mount (C), or may be fitted with a TOW II launcher. Damage to the crew from mines or HE blast is halved due to extensive installed measures (blast shields, collapsible seats, etc.).

The M1116 is an armored HMMWV version focusing on crew survivability. It was specifically designed for the US Air Force with provisions for crew comfort (better heat and air circulation), and has an armored cupola with an NHT mount (C). Many were retained when air base security needs faded. Though not issued with a winch, many were retrofitted with one in theater. Damage to the crew from mines or HE blast is halved due to extensive installed countermeasures (blast shields, collapsible seats, etc.).

Twilight 2000 Notes: The HMMWV FSV was produced by the thousands for use by Light Infantry Divisions.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
M1118	$39,802	D, G, A	483 kg	4.85 tons	2	4	Passive IR (G)	Enclosed
M1109	$17,508	D, G, A	570 kg	4.53 tons	2+2	3	Headlights	Enclosed
M1114	$17,748	D, G, A	1.04 tons	4.56 tons	2+4	1	Headlights	Enclosed
M1116	$21,298	D, G, A	545 kg	5.1 tons	2+4	1	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor*
M1118	292/147	81/41	95	71	CiH	W(4)	TF2 TS2 TR2 HF4 HS4 HR4
M1109	309/156	85/43	95	71	Stnd	W(4)	HF4 HS4 HR4
M1114	307/155	85/43	95	71	Stnd	W(4)	HF4 HS4 HR4
M1116	280/141	78/39	95	71	CiH	W(4)	TF2 TS2 TR2 HF4 HS4 HR4

Vehicle	Fire Control	Stabilization	Armament	Ammunition
M1118	+2	Basic	25mm ChainGun	297x25mm
M1109/M1114	None	None	M240 or M2HB or TOW II Launcher	850x7.62mm or 500x.50 or 6xTOW II ATGM
M1116	None	None	M240 or M2HB	850x7.62mm or 500x.50

*Belly AV for these versions is 6Sp.

White M3A1 Scout Car

Notes: This is a 4x4 light scout car produced during World War 2 for US forces. It was replaced in US service during World War 2 by the M8 and M20, but some copies remained in service with Columbia, Guatemala, Liberia, Madagascar, Mexico, Paraguay, Uruguay, and the former Yugoslavia until the 1990s, with only the Dominican Republic still using the White Car in 2024. The British that called the M3A1 the White Scout Car; countries who got their M3A1s from the US tended to call them the M3A1, with countries getting them from Britain calling them the White Armored Car. The places in which the M3A1 saw combat service reads like a list of conflicts in the 20th century. They were in service with some 40 countries and the United Nations. However, by 1943, most combatants in World War 2 saw the M3A1 as obsolete, and they were replaced in the scout role by the M8 and M20 Greyhound scout cars, and the M3A1s were relegated to rear-echelon duties. Some 20,918 were produced by 1944.

The M3A1 Scout Car was later used as the basis for the M2 Half Track and BTR-40.

The M3A1 is a simple vehicle with light armor. The driver and commander have bullet resistant windshields to the front and sides. The vehicle is open-topped, but a canvas cover was provided to protect the occupants from the elements. The M1919A4s are mounted on a track around the troop compartment on skate mounts, and can be moved to fire in any direction. The M2HB is on a pedestal mount. Copious amounts of ammunition are carried for the machineguns. (Conceivably, other weapons could be mounted, but the standards are below.) Tripods were carried for all three machineguns. The M3A1 is distinguished from the limited-production early M3 by its wider fenders, the lack of a rear door in the hull, the mounting of a front unditching roller, and the use of a more powerful Hercules JXD I-6 gasoline engine developing 110 horsepower. This was paired with a manual transmission. The brakes were power-assisted. Off-road performance of the M3A1 was unfortunately average at best, though the M3A1 was 4x4 with full-time four-wheel drive.

Armor was nothing to write home about, consisting of face-hardened steel plates from 6.4 to 13mm in thickness. This was considered to be adequate; it was proof from many infantry weapons of the time period as well as shell splinters, and speed and agility were to be the M3A1’s primary defense. The windshield could be covered by a hinged 12.7mm steel plate with vision slits in it. The side windows could also be protected by a hinged steel plate of about 6mm thickness. The rear compartment and the front cab were fitted with bucket seats, a rare comfort in wartime production.

The original M3 version was a development of the M2 Scout Car, and was designated the M2A1 in development. Only 64 M3s were produced, and these all went to the 7th Cavalry Division. The M3 was powered by the 94-horsepower engine of the M2 Scout

Car and was much lighter in weight than the M3A1. They are also distinguished from the M3A1 by the narrower fenders and the lack of an unditching roller at the front.

The M3A1E1 was developed after a Soviet request to increase the range and fuel economy of the M3A1s they had received in Lend-Lease. The M3A1E1 was powered by a Buda-Lanova 6DT-317 diesel engine developing 81 horsepower. 3340 were produced. The M3A1E2 had an armored roof; it was deployed only in small numbers. The M3A1 Command Car differed primarily in internal arrangements and the radios installed, usually several, taking up much of the rear space. The M3 Command Car had an armored screen between the cab and rear compartment, and additional side armor. A noted user was General Patton. The M3A1E3 was a singular prototype, armed with a pedestal-mounted M3 37mm cannon, also found on the M3 Stuart light tank and M8 Greyhound armored car. 100 M3A1s were fitted with the Hercules DJXD 103-horsepower diesel engine; these received considerable testing, but in the end were not adopted, and received no type designation. When the testing was complete, they were recycled for usable parts onto the standard M3A1's production lines.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
M3A1	$54,146	G, A	531 kg	5.62 tons	2+6	4	Headlights	Open
M3	$53,408	G, A	522 kg	3.69 tons	2+6	4	Headlights	Open
M3A1E1	$54,058	G, A	528 kg	5.51 tons	2+6	4	Headlights	Open
M3A1E2	$57,026	G, A	531 kg	5.92 tons	2+6	4	Headlights	Open
M3A1E3	$41,336	G, A	308 kg	6.15 tons	3	5	Headlights	Open
M3A1 Command Car	$21,645	G, A	327 kg	6.52 tons	4	6	Headlights	Open
M3A1 (Diesel)	$54,125	G, A	530 kg	5.42 tons	2+6	4	Headlights	Open

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
M3A1	152/27	42/7	110	49	Stnd	W(2)	HF3 HS2 HR2*
M3	184/32	51/9	110	28	Stnd	W(2)	HF2 HS2 HR2*
M3A1E1	124/22	34/6	110	15	Stnd	W(2)	HF3 HS2 HR2*
M3A1E2	146/26	41/7	110	49	Stnd	W(2)	HF3 HS2 HR2
M3A1E3	142/25	39/7	110	49	Stnd	W(2)	HF3 HS2 HR2*
M3A1 Command Car	136/24	38/7	110	49	Stnd	W(2)	HF3 HS2 HR2*
M3A1 (Diesel)	149/26	41/7	110	30	Stnd	W(2)	HF3 HS2 HR2*

Vehicle	Fire Control	Stabilization	Armament	Ammunition
M3/M3A1/E1/E2/Diesel	None	None	M2HB, 2xM1919A4 or M1917	750x.50, 8000x.30-06
M3A1E3	None	None	37mm M3 Gun, M1919A4	80x37mm, 1500x.30-06
M3A1 Command Car	None	None	M1919A4	1500x.30-06

*The vehicle is open-topped, and overhead hits against the vehicle are against AV0.

Ford M8/M20 Greyhound

Notes: The M8 version of the Greyhound was used as a light scout car. The M8 was originally designed to be a fast and agile tank destroyer, but in World War 2 it quickly became apparent that the M8's 37mm gun could not deal with the tanks being fielded by the Axis at the time. Therefore, the M8's role was changed to a fast and agile scout/reconnaissance vehicle. Its agility suffered due to disappointing off-road characteristics, but 8523 were produced and they saw heavy use in World War 2 by US forces. They entered service in 1943, and Benin, Burkina Faso, Cameroon, Columbia, Guatemala, Madagascar, Paraguay, and Peru still use them, often heavily modified, such as Columbia's M8 TOW carriers, vehicles with diesel engines, and improved communications equipment. M8s saw combat service as late as the Iran-Iraq War, and some are still seeing combat in Africa.

The M8 was not designed for offensive combat, and its armor barely repels infantry small arms. The light armor is especially egregious in the belly armor – or lack thereof, as the hull floor was unarmored. (This led to crews lining the hull floor with sandbags, the extra weight impacting mobility.) The M8 has an partially-topped turret with a 37mm manually fed cannon (not an autocannon) and a coaxial machinegun. Turret traverse is slow, as it is done with a manual crank. Only the front third of the turret roof is armored. The commander and gunner sit in the turret, while the driver has a hatch on the front deck. The radio operator sits on the right side of the driver; in later years, improved radios meant that the radio operator was no longer necessary, and as radios became more compact, the radio operator's position was often replaced with additional cargo or ammunition. During the M8's early years, the vehicle normally carried only one long-range and one short-range radio, due to the long-range radio's size, but some M8's carried two long-range radios, with the ammunition on the right sponson being sacrificed to carry this extra radio, and only 16 rounds of 37mm ammunition

being carried in the turret. This led to a blizzard of field modifications of two radio carrying M8's to increase the amount of main gun ammunition carried. The armament was rounded out with various grenades and crew small arms (normally M1 carbines).

The M8 is powered by the same Hercules JXD I-6 gasoline engine developing 110 horsepower as the White Scout Car. The engine as installed in the M8 was quieter than most vehicle's engines, enhancing stealth. The off-road performance of the M8 was hampered by the high ground pressure, limited wheel travel, and open differentials of its suspension, and the M8 could get bogged town in muddy terrain and severely uneven ground. (Armored cavalry units in World War 2 often preferred the Jeep as a reconnaissance vehicle.) On the other hand, performance on roads and paths was exceptional, though the use of such roads and paths led the M8 to be susceptible to ambush. The M8 was, however, mechanically simple and easy to maintain, part of the reason it was favored by reconnaissance units.

The M8E1 was an attempt to fix the M8's suspension deficiencies; this was only partially successful and only two prototypes were produced. The M8 H-90 was a French upgrade for the M8 first offered in 1971, placing the Panhard AML's turret on the M8 chassis. I have not been able to find out if production of this variant ever took place, leading me to believe that it didn't.

The Brazilian IME produced the VBB-1; this modification removed the center axle and powered the VBB-1 with a Mecedes-Benz OM-321 diesel engine developing 120 horsepower. The VBB-1 was found to have poor off-road performance and only one prototype was produced. IME then produced the CRR Brasileiro, which went back to the 6x6 configuration and used the same engine as the VBB-1. Modern (for the time) radios were installed. Eight vehicles were produced for evaluation. Further modification led to the EE-9 Cascavel.

The Greek Army replaced the gasoline engine with a Steyr 110-horsepower diesel engine; this engine was large and required the rear of the M8 to be extended by 30 centimeters, and also required the hull deck above the engine to be raised slightly. Modern (for the time) radios were installed, a new instrument panel for the driver was installed, and the M1919A4 was replaced by an MG3. The pintle for the M2HB was moved to the right front of the turret. These vehicles were not retired from service until the late 1990s.

The Columbian AM8 replaced the M8's turret with one mounting an M45 quad-M2HB setup. Though the M45 is an antiaircraft rig, the Columbians primarily use theirs as an anti-infantry and anti-light vehicle weapon. The AM8 also used the same engine as the Brazilian VBB-1 above.

The M20 is an unturreted version of the World War II M8 Greyhound reconnaissance vehicle, still used in a number of foreign countries. Its armor is inferior compared to other vehicles, but it is cheap and mechanically reliable. They were designed to be light command vehicles, but also were used for reconnaissance. M20s often carried a Bazooka in addition to their small arms and grenades to deal with unplanned encounters with armored vehicles (not included in the stats below). Without the need for 37mm ammunition, the designers were free to place additional communications equipment on the sponsons. The M20 featured a somewhat raised, but low superstructure to provide armor protection for the crew seated in the vehicle. The space where the turret was is open on the M20, though a canvas cover was issued with the vehicle. The passenger seats could be removed to quickly repurpose the M20 as an armored cargo carrier. The M20 was armed with an M2HB on a raised ring mount.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
M8	$47,529	G, A	319 kg	7.89 tons	4	8	Headlights	Enclosed
M8E1	$48,004	G, A	319 kg	7.89 tons	4	8	Headlights	Enclosed
M8 H-90	$210,611	G, A	331 kg	8.67 tons	4	8	WL Searchlight	Enclosed
VBB-1	$48,410	D, A	611 kg	7.51 tons	3+4	8	Headlights	Enclosed
CRR	$48,278	D, A	522 kg	8.09 tons	3+2	8	Headlights	Enclosed
M8 (Greek)	$48,249	D, A	521 kg	7.5 tons	3+2	8	Headlights	Enclosed
AM8	$61,168	D, A	424 kg	7.67 tons	4	7	Headlights	Enclosed
M20	$29,256	G, A	545 kg	6.58 tons	2+4	6	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
M8	133/42	37/12	212	49	Trtd	W(3)	TF4 TS4 TR4 HF4 HS3 HR2*
M8E1	133/50	37/14	212	49	Trtd	W(3)	TF4 TS4 TR4 HF4 HS3 HR2*
M8 H-90	127/40	36/11	212	49	Trtd	W(3)	TF3 TS3 TR3 HF4 HS3 HR2
VBB-1	145/46	40/13	212	30	Trtd	W(3)	TF4 TS4 TR4 HF4 HS3 HR2*
CRR	139/44	39/12	212	30	Trtd	W(3)	TF4 TS4 TR4 HF4 HS3 HR2*
M8 (Greek)	138/44	38/12	212	27	Trtd	W(3)	TF4 TS4 TR4 HF4 HS3 HR2*
AM8	142/45	40/13	212	30	Trtd	W(3)	TF2 TS2 TR1 HF4 HS3 HR2
M20	132/52	33/13	212	64	Stnd	W(3)	HF4 HS3 HR2**

Vehicle	Fire Control	Stabilization	Armament	Ammunition
M8/M8E1/VBB-1/CRR	None	None	37mm M3 gun, M1919A4, M2HB (C)	80x37mm, 1500x.30-06, 400x.50
M8 H-90	+1	Basic	90mm DEFA D921 Gun, AAT-F1	20x90mm DEFA, 2000x7.62mm
M8 (Greek)	None	None	37mm M3 gun, MG3, M2HB (C)	80x37mm, 1500x7.62mm, 400x.50
AM8	+1	None	4xM2HB	1600x.50
M20	None	None	M2HB (C)	1260x.50

*Only the front third of the turret has a roof; on a 1-2 on a D6, the attacking fire hits that roof. Other hits are against AV0.
**The center deck of the hull is open-topped, and hits against it are against AV0.