

## **WHEELED SELF-PROPELLED ANTI-AIRCRAFT**

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Shorland S-53

Notes: This is a version of the Shorland Mk3 (S-52) armored car carrying a triple launcher for Javelin SAMs. The missiles are mounted on the roof and fired by a gunner standing up in a hatchway. The system is simple and lightweight.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$75,538	G, A	300 kg	3.36 tons	3	3	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
188/76	47/19	128	54	CiH	W(2)	TF1 TS1 TR1 HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	3xJavelin SAM launchers	9xJavelin SAMs

## LAV-AD

Notes: The LAV-AD is the ultimate design that came from a 1987 contract from the US Army for a LAV with air defense capabilities. It is equipped with a turret, which has a brace of eight fire-and-forget Stinger SAMs, as well as a 30mm Gatling gun that is married to a computerized fire control system with a laser rangefinder. The LAV-AD progressed and developed until 1992, when the design reached its final stage. It was first chosen, after a series of tests, by the US Marine Corps to meet their standards. The turret is capable to be fitted on not only the LAV-25 frame, but also the M-113 and M-2 Bradley frames.

Twilight 2000 Notes: The LAV-AD was in production when the US entered the war and elements of the 4th Marine Division, 23rd Regiment, and the 31st Marine Expeditionary Unit were equipped with the LAV-AD. The US Army and Air Force began integrating the LAV-AD into service by the time of the November nuclear strikes. It is not known, however, which units of the US Army and Air Force received these models before the strikes began.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$311,730	D, A	400 kg	13 tons	3	6	Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
144/58	36/15/4	300	84	Trtd	W(6)	TF6 TS4 TR4 HF6 HS4 HR4

Fire Control	Stabilization	Armament	Ammunition
+3	Good	8xStinger Launchers, 30mm-3 Autocannon, MAG	16xStinger SAMs, 2000x30mm, 750x7.62mm

## LAV-AD II

Notes: This version of the LAV-AD is in common use by Canadian and various European forces, especially Swiss, Austrian, Belgian, and Dutch armies. The basic chassis is the same, but the turret is a Blazer turret modified to carry Mistral missiles, upgraded fire control and night vision, and an autocannon. It retains the shoot and scoot capability of the standard LAV-AD, but is decidedly more deadly.

Twilight 2000 Notes: The US Marines tested this version, but all but four were returned to the Canadians before the Twilight War; those four were deployed to Norway, and later the three survivors were sent to Poland. Other users of the LAV-AD II included the Australians and New Zealanders; the Australians credit them with a 90% kill rate once the target came within range.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$319,274	D, A	400 kg	12.9 tons	3	6	Passive IR, Image Intensification, FLIR, Radar	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
142/56	36/14/4	300	83	Trtd	W(6)	TF6 TS4 TR4 HF6 HS4 HR4

Fire Control	Stabilization	Armament	Ammunition
+4	Good	4xMistral Launchers, 30mm-3 Bushmaster II, MAG	8xMistral SAMs, 2000x30mm. 750x7.62mm

## HN-5C

Notes: This Chinese system is a light antiaircraft vehicle mounting 8 launchers for HN-5, QW-1, or QW-2 surface to air missiles. The launchers are mounted on a light truck chassis known as the HRB-230. The gunner can control the missiles by their IR guidance system, or control them manually for a high-countermeasure environment.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$208,402	D, A	400 kg	4.2 tons	4	4	Passive IR, Image Intensification	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
240/96	60/24	135	51	Trtd	W(2)	TF1 TS1 TR1 HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
+2	None	8xHN-5/QW-1/QW-2 launchers	8xHN-5/QW-1/QW-2 SAMs

Strijela 10 CROA1

Notes: This was at first thought to be based on a stretched chassis of a LOV armored personnel carrier, but it is now understood to be a separate chassis. Like the LOV, it is based on an armored version of a cargo truck, in this case the TAM 150 T11 BV, with a raised suspension for better off-road performance. On top of this chassis is the entire turret of the SA-13 (MT-LB) SAM vehicle; as Croatia's MT-LB-based vehicles were getting rather old and worn, it was felt that it would be better to scrap these vehicles and simply use the turrets on a vehicle that was newer and had better on-road performance. To these vehicles were added better targeting systems, night vision, and computers. At the rear of the vehicle is a short-range radar set with a range of 20 km.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$175,912	D, A	1 ton	13.2 tons	4	7	Radar, Passive IR, Image Intensification	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
122/48	31/12	150	49	Trtd	W(4)	TF4 TS4 TR3 HF5 HS3 HR3

Fire Control	Stabilization	Armament	Ammunition
+3	Basic	4xSA-13 launchers, M-2HB (C)	8xSA-13 SAMs, 600x.50

M-53/59

Notes: This older Czech self-propelled anti-aircraft gun is mounted on an armored and much-modified Praga V3S truck (see Czech Medium Unarmored Vehicles). The guns are fed from vertical magazines holding 50 rounds for each gun. The entire gun platform can be removed and deployed away from the carrier vehicle, but this was not normally done unless the vehicle was damaged beyond moving. The M-53-59 is a clear weather system, as no radar or night vision equipment is provided. This vehicle is used by Czech reserve forces, Yugoslavia, and Libya.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$49,981	D, A	1 ton	10.3 tons	5	3	Headlights	Enclosed (Open for Gun Crew)

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
124/50	31/13	120	32	Trtd	W(3)	TF1 TS1 TR1 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+1	Basic	Twin 30mm M-53 Autocannons	800x30mm

BTR-152/M-53

Notes: This is an Egyptian modification of the BTR-152, mounting a quad M-53 (the Czech version of the DShK) machinegun installation. A small number of these systems have turned up in Afghanistan, used as convoy escort vehicles, and normally used in the antipersonnel role.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$65,805	G, A	400 kg	7.65 tons	2+3	3	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
120/48	30/12	300	79	Std	W(3)	HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	4xDShK	4600x12.7mm

### Jantronics J-1000

Notes: Built on the same chassis as the XA-181 Crotale vehicle, the J-1000 is an Ericsson Giraffe radar of French make mounted on an XA-180-series chassis. The radar dish is mounted on a mast that can be raised 15 meters above the roof of the vehicle. The radar has a range of 50 km. This vehicle is used to increase the detection and tracking range of vehicles such as the XA-181 or certain anti-aircraft guns, or provide radar to missile and gun systems that require a separate radar unit or do not otherwise have radar. Before raising the radar mast, four outriggers are deployed, one at each corner of the vehicle.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$117,709	D, A	400 kg	14.85 tons	4	7	Radar, Passive IR	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
126/50	32/13/3	290	79	CiH	W(4)	TF1 TS1 TR1 HF8 HS3 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	PKT (C)	2000x7.62mm

### MOWAG Piranha III/TriAD

Notes: This Finnish anti-aircraft vehicle, chosen by the Finnish government over the protests of the Finnish Army, is a 10x10 Piranha III topped with the same turret as the Swedish TriAD self-propelled anti-aircraft gun. The Finnish government's analysis told them that this chassis was able to carry more ammunition than a comparably equipped XA-180-series vehicle, and would be better despite the increased weight, decreased mobility, and increased fuel consumption.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$149,773	D, A	1.5 tons	24 tons	4	9	Radar, Passive IR, Thermal Imaging	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
136/54	34/14/4	400	116	Trtd	W(8)	TF14 TS8 TR6 HF6Sp HS4Sp HR4

Fire Control	Stabilization	Armament	Ammunition
+3	Good	40mm Bofors L/70, PKT	475x40mm, 4500x7.62mm

### XA-181

Notes: This Finnish anti-aircraft vehicle is an XA-180 with a turret mounting a Crotale NG (New Generation) missile system. As a New Generation vehicle, it does not require a separate radar unit to make intercepts, though it often uses one to increase the detection range, as the range on the on-board radar is about 20 km. The launcher consists of two 4-round launcher tubes. In this version, passengers are not carried, the rear area being taken up by turret mechanisms, computers and fire control equipment, and a small crew.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$303,006	D, A	500 kg	15.1 tons	4	7	Radar, Passive IR, Thermal Imaging, Image Intensification	Shielded



Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
128/52	32/13/3	290	82	Trtd	W(4)	TF6 TS4 TR3 HF8 HS3 HR2

Fire Control	Stabilization	Armament	Ammunition
+3	None	8xCrotale Launchers	8xCrotale SAMs

### AML-S530

Notes: This is a Panhard AML with a turret mounting twin 20mm autocannons. The new turret has hatches in the roof for the commander and gunner.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$64,092	D, A	300 kg	5.5 tons	3	2	Passive IR, WL Searchlight	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
156/62	39/16	156	34	Trtd	W(3)	TF3 TS3 TR3 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+1	Good	Twin 20mm Giat M 621 Autocannons	600x20mm

### Crotale

Notes: Crotale is a light SAM launcher used by France, Abu Dhabi, Chile, Egypt, Libya, Pakistan, Saudi Arabia, and South Africa (where it is known as the Cactus). The system has two parts: the launcher vehicle and the radar vehicle. (Crotale New Generation does not require the radar unit.) The unit is mounted on a lightly armored 4x4 chassis. The launcher and radar units may be up to 3000 meters apart, linked by radio.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Radar Unit	\$89,315	D, A	400 kg	12.62 tons	2	7	Radar, Passive IR	Enclosed
Firing Unit	\$165,481	D, A	400 kg	14.95 tons	2	7	Radar, Passive IR	Enclosed
Crotale NG	\$185,481	D, A	400 kg	14.95 tons	2	8	Radar, Thermal Imaging	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Radar Unit	184/74	46/19	200	103	CiH	W(3)	TF1 TS1 TR1 HF4 HS3 HR3
Firing Unit/NG	170/68	43/17	200	107	Trtd	W(3)	TF2 TS2 TR2 HF4 HS3 HR3

Vehicle	Fire Control	Stabilization	Armament	Ammunition
Radar Unit	None	None	MAG (C)	750x7.62mm
Firing Unit/NG	+3	None	4xCrotale Launchers	4xCrotale SAMs

### Panhard ERC-20 Kriss

Notes: This is a version of the ERC-90 fitted with a SAMM TAB 220 antiaircraft turret mounted in place of the normal turret. This is a clear-weather system that is not equipped with radar. This version had sales only to Gabon. The Kriss has twin smoke grenade launchers on either side of the turret.

Twilight 2000 Notes: ERC-20s were diverted from shipments to Gabon and placed in Service with the Foreign Legion.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$99,340	D, A	300 kg	8.3 tons	3	3	Passive IR, Image Intensification	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
108/44	27/11/3	242	33	Trtd	W(3)	TF3 TS3 TR3 HF8 HS6 HR4

Fire Control	Stabilization	Armament	Ammunition
+3	Fair	Twin 20mm Giat M621 Autocannons	1080x20mm

### Panhard ERC Santal

Notes: This is a version of the ERC-90 fitted with a two-man SANTAL turret with two 3-round Matra Mistral launchers and four smoke grenade launchers. This version is equipped with radar. The Santal is used only by France.

Twilight 2000 Notes: As they were still at the prototype stage at the November nuclear exchange, they are rare.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$315,200	D, A	300 kg	8.3 tons	3	6	Radar, Passive IR, Thermal Imaging	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
96/38	24/10/3	242	26	Trtd	W(3)	TF3 TS3 TR3 HF8 HS6 HR4

Fire Control	Stabilization	Armament	Ammunition
+3	Fair	6xMistral SAM launchers	18xMistral SAMs

### Panhard M-3/VDA

Notes: This is an antiaircraft version of the Panhard M-3 shown in French Armored Personnel Carriers on this web site. In this role, the M-2 has a turret mounting twin 20mm autocannons in a light turret. The system is equipped with radar for all-weather use. Sales include the Ivory Coast, Niger, and United Arab Emirates.

Twilight 2000 Notes: This vehicle was not used by France before the Twilight War, but some shipments to other countries were diverted to Foreign Legion use when the Legion deployed to the Middle East.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$115,766	G, A	400 kg	7.2 tons	3	5	Radar	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
86/34	22/9/2	165	30	Trtd	W(2)	TF2 TS2 TR2 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition

+3	Fair	Twin Giat M621 Autocannons, AAT-F1	600x20mm, 200x7.62mm
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VAB HML

Notes: This is a 4x4 VAB armored personnel carrier topped with the SANTAL turret, as mounted on some versions of the Panhard ERC. The turret has a small hatch in between the missile launchers with a light machinegun mount, and is equipped with target acquisition radar. Inside the vehicle are the guidance system, a radar interface, and the launching electronics. The missiles are aimed by a periscopic sight.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$287,384	D, A	400 kg	11.5 tons	3	6	Radar, Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
142/58	36/15/4	300	74	Trtd	W(3)	TF3 TS3 TR3 HF6 HS4 HR3

Fire Control	Stabilization	Armament	Ammunition
+3	Fair	6xMistral SAM Launchers, AAT-F1 (C)	18xMistral SAMs, 1000x7.62mm

VAB VDAA

Notes: This is a 6x6 VAB APC fitted with the same turret as the Panhard M-3/VDA. The vehicle carries a large amount of ammunition and the gun crew and the gun turret, and some extra communications gear. Passenger space is deleted. The vehicle is equipped with radar for all-weather use. This vehicle, though built in France, is used only by Oman.

Twilight 2000 Notes: Some were diverted from those shipments for French Foreign Legion use during the War, and sent to the Middle East.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$114,417	D, A	500 kg	14.2 tons	3	8	Radar, Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
126/50	32/13/3	300	76	Trtd	W(3)	TF2 TS2 TR2 HF6 HS4 HR3

Fire Control	Stabilization	Armament	Ammunition
+3	Fair	Twin Giat M621 Autocannons, AAT-F1	3500x20mm, 4000x7.62mm

VBL LWB Air Defense Vehicle

Notes: This is a Long Wheelbase VBL carrying a mount for twin Mistral launchers.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$29,400 (R/R)	G, AvG, A	300 kg	4 tons	3	6	Passive IR	Enclosed

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Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Type	Config	Susp	Armor
185/80	45/19/6	130	40	SP Antiaircraft Missile Launcher	Trtd	W(2)	TF1 TS1 TR1 HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+2	None	Twin Mistral Launcher, MAG (C)	6xMistral, 1000x7.62N

## ADAMS

Notes: ADAMS (Air Defense Advanced Mobile System) is a version of the HVSD (High-Value Site Defense) system mounted on a Mercedes-Benz heavy truck chassis and lightly armored. The cargo bed is fitted with a Phalanx CIWS anti-aircraft gun system behind the cab; this is basically a 20mm Vulcan autocannon with an integrated radar system and a highly moveable base with very high rates of elevation and traverse, to be able to keep pace with fast aircraft and incoming missiles. To the rear of this gun is a control module with fire control electronics and crew positions. On the back of the truck is a module containing 12 Israeli-made Barak-1 anti-aircraft/anti-missile missiles. Both weapons of the system are useful against both aircraft and weapons like precision-guided munitions and tactical missiles. This vehicle is said to be in the advanced testing phase in Israel, and will probably eventually be deployed there; however, the US military appears to have passed on it due to budgetary reasons.

Twilight 2000 Notes: This weapon system was highly effective, but very rare, in the Twilight War, with perhaps 12 systems being made for Israel and 20 for the US (split in about half for the Middle Eastern and European theatres).

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$452,768	D, A	700 kg	16 tons	6	8	Radar, Thermal Imaging, Image Intensification	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
152/62	38/16	300	96	Std	W(3)	HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+4	None	20mm Vulcan, 12xBarak-1 SAM launchers	1550x20mm, 12xBarak-1 SAMs

## MOWAG Eagle Air Defense Vehicle

Notes: This vehicle was designed to provide highly mobile air defense, and was used primarily by the Swiss and Danish Air Forces for defense of airfields. The vehicle consists of a standard Eagle chassis modified with a rotating mount for Mistral missiles, and a downlinked fire control suite inside the vehicle for aiming and firing the missiles. Additional missiles are carried inside the vehicle.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$196,707	D, A	600 kg	4.8 tons	3	4	Thermal Imaging, Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
222/88	56/22	95	57	Trtd	W(3)	TF2 TS2 TR2 HF5 HS5 HR4

Fire Control	Stabilization	Armament	Ammunition
+2	Basic	4xMistral launchers	8xMistral SAMs

BTR-152/TCM-20

Notes: In the course of her wars with her neighbors, Israel captured many vehicles, including dozens of BTR-152s. A few of these were used as APCs by Israeli police, but most were converted as weapons carriers, including a carrier for the TCM-20 anti-aircraft gun. These vehicles have no integral radar, but may be linked to radar provided by outside sources.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$59,375	G, A	400 kg	7.66 tons	2+3	3	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
120/48	30/12	300	79	Trtd	W(3)	TF2 TS1 TR0 HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+1	None	TCM-20 Twin 20mm Autocannons	3000x20mm

RAM TCM-20

Notes: This is a version of the RAM V-2 fitted with a turntable-mounted twin 20mm light anti-aircraft gun. The guns are partially stabilized. No radar is fitted, so it is a clear-weather system.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$39,198	D, A	300 kg	5.75 tons	4	2	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
172/68	43/17	160	49	CiH	W(2)	TF2 TS1 TR1 HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+1	Fair	TCM-20 Twin 20mm Autocannons, MAG (C)	720x20mm, 1000x7.62mm

### Chaimite V-300 Antiaircraft Variant

This is the same as the the V-300 Recon Variant, except for the turret armament.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$63,007	D, A	800 kg	8.81 tons	3	3	Passive IR, Image Intensification	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
212/127	45/30/5	300	79	Trtd	W(3)	TF2 TS2 TR2 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+2	Fair	Twin Giat Type 20 M 621 autocannons, MG-3, MG-3 (C)	450x20mm, 4750x7.62mm



TABC-79/SA-9

Notes: Just as Romania's MT-LB-based SA-13 carriers were getting old, so were their BRDM-2-based SA-9 vehicles. As with the SA-13s, the SA-9 turrets were placed on TABC-79 chassis. Again, the TABC-79 in this role does not carry passengers, the space now taken up by the turret and reload missiles and firing electronics.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$112,688	D, A	400 kg	9.25 tons	3	5	Passive IR	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
138/54	35/14/4	200	56	Trtd	W(3)	TF2 TS2 TR2 HF3 HS3 HR2

Fire Control	Stabilization	Armament	Ammunition
+2	None	4xSA-9 SAM launchers	8xSA-9 SAMs

TABC-79/SA-13

Notes: As Romania's MT-LBs were getting a little long in the tooth and harder to maintain, Romania removed the SA-13 launchers from the MT-LB base vehicles and mounted them on modified TABC-79 scout vehicle chassis. The vehicle, in this role, does not carry passengers, the space now taken up by the turret machinery and reloads for the missile launcher. It is otherwise a standard TABC-79, except for the armament.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$156,438	D, A	400 kg	9.55 tons	4	6	Radar, Active IR	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
128/50	32/13/3	200	51	Trtd	W(3)	TF2 TS2 TR2 HF3 HS3 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	4xSA-13 SAM Launchers	8xSA-13 SAMs

## BTR-40A

Notes: This is a BTR-40 armed with a ZPU-2 mount in a manually operated turret. This vehicle was developed at the same time as the APC version of the BTR-40, and was often used in a ground-support role as well as an anti-aircraft gun.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$31,847	G, A	300 kg	5.5 tons	2+3	4	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
122/48	31/12	120	58	ClH	W(2)	TF1 TS1 TR1 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	ZPU-2	2400x14.5mm

## BTR-152 AA Vehicles

Notes: The BTR-152A is a BTR-152 (open-topped version) with a ZPU-2 manually operated turret. This vehicle was developed at the same time as the APC version of the BTR-152, and was often used in a ground-support role as well as an anti-aircraft gun.

The BTR-152D is a BTR-152A with a ZPU-4 mount instead of a ZPU-2 (four KPVs instead of two).

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
BTR-152A	\$31,352	G, A	400 kg	7.38 tons	2+3	2	Headlights	Open
BTR-152D	\$58,928	G, A	400 kg	7.64 tons	2+3	2	Headlights	Open
BTR-152/ZU-23	\$51,374	G, A	400 kg	7.63 tons	2+3	3	Headlights	Open

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
(All)	122/48	31/12	300	80	Trtd	W(2)	TF1 TS1 TR1 HF2 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
BTR-152A	None	None	ZPU-2	2000x14.5mm
BTR-152D	None	None	ZPU-4	4000x14.5mm
BTR-152/ZU-23	None	None	ZU-23-2	2500x23mm

## Pantzyr-1 ADA

Notes: This is a truck mounted anti-aircraft/missile launcher on a KamAZ 8x8 truck frame. It is normally deployed in conjunction with the various ZSU self-propelled anti-aircraft guns. The system is derived from that of the ZSU-30-2.

Twilight 2000 Notes: The Pantzyr-1 was spotted by reconnaissance elements of the 1st Brigade, 40th Infantry Division in June 1997. Designed with a surface radar system to track incoming aircraft, the Pantzyr-1 initially proved to be very effective against aircraft. It is capable of engaging up to three aerial targets at the same time, a feature that made it very difficult to engage. The vehicle was nicknamed the "Firecracker" by NATO pilots. Only 100 are known to have been produced and deployed before the November nuclear exchanges.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$399,247	D, G, AvG, A	500 kg	20 tons	3	9	Radar, Passive IR	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
160/64	40/16	375	129	Trtd	W(4)	TF1 TS1 TR1 HF2 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
+2	Fair	12xSA-19 SAM launchers, 2x30mm Autocannons	12xSA-19 SAMs, 750x30mm

### SA-8b Gecko

Notes: The Russian designation is the ZRK-SD Romb, while the missiles are called Strela-3. It is based on a chassis known as Transporter 5937, which is fully amphibious and very mobile cross-country for a wheeled vehicle. The vehicle carries surveillance and tracking radar for target acquisition. Reloads are carried on another Transporter 5937, modified for cargo carrying; this vehicle carries 18 SA-9 SAM missiles and a crane for reloading the launcher vehicle. This system is used by Russia, Algeria, Angola, Czechoslovakia, India, Iraq, Libya, Poland, Syria, and Yugoslavia.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$268,076	D, A	500 kg	17.5 tons	5	9	Passive IR, Radar	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
122/50	31/13/3	350	67	Trtd	W(3)	TF1 TS1 TR1 HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
+3	None	6xSA-8 Launchers	6xSA-8b SAMs

### SA-9 Gaskin

Notes: The Russian designation for this system is Strela-1. The missiles are mounted on a modified BRDM-2 scout car. Some of these vehicles are equipped with radar for enhanced target detection capabilities, though the SA-9 missiles are IR-guided. The SA-9 is used by many countries, including Russia, Algeria, Angola, Benin, Cuba, Croatia, Egypt, Ethiopia, India, Iraq, Libya, Mauritania, Mozambique, Nicaragua, Syria, Vietnam, Yemen, Yugoslavia, and the members of the Warsaw Pact. It's low cost allowed it to be bought by many smaller countries.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Standard	\$129,409	G, AvG, A	600 kg	7 tons	3	4	Passive IR	Shielded
Radar-Equipped	\$171,409	G, AvG, A	600 kg	7.1 tons	3	6	Radar, Passive IR	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
Standard	150/60	38/15/4	290	81	Trtd	W(3)	TF2 TS2 TR2 HF6 HS3 HR2

Radar-Equipped	140/56	35/14/4	290	83	Trtd	W(3)	TF2 TS2 TR2 HF6 HS3 HR2
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Vehicle	Fire Control	Stabilization	Armament	Ammunition
(Both)	+2	None	Quadruple SA-9 Launcher	6xSA-9 Missiles

## Ystervark

Notes: This is a South African self-propelled antiaircraft gun, based on an armored and mine-protected version of the SAMIL 20 truck. This vehicle has a much higher and beefier suspension than the basic truck, leading to better cross-country performance, and the vehicle is used to protect truck convoys as well as for antiaircraft use. The Ystervark has an armor rating of twice the highest face against mines, and the suspension rating is one higher against mines. The sides of the fighting compartment are droppable if necessary, but the fighting compartment has no overhead protection.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$32,543	D, A	700 kg	7.7 tons	5	3	Headlights	Open, Enclosed (Cab)

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
136/54	34/14	200	37	Trtd	W(3)	TF1 TS1 TR1 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+1	None	20mm GAI-CO1 Twin 20mm Autocannon	300x20mm

## ZA-HVM

Notes: This South African surface-to-air missile system is based on a modified Rooikat chassis. On top of this chassis is a turret containing multiple sensors, fire-control equipment, and 4 launchers for SAHV-3 SAMs (a South African improvement of the French Crotale missile). The radar on this vehicle has a range of 25 km. The vehicle was generally used to combat faster and higher-flying enemy aircraft.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$246,042	D, G, A	500 kg	25.75 tons	4	9	Thermal Imaging, Image Intensification, Radar	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
174/70	44/18	540	194	Trtd	W(8)	TF8 TS4 TR4 HF20 HS7 HR6

Fire Control	Stabilization	Armament	Ammunition
+3	Fair	4xSAHV-3 launchers	8xSAHV-3 SAMs

## Zumlac

Notes: This South African SPAAG is based on an armored and mine-protected version of the SAMIL 100 truck. It has an armored cab and flatbed floor for the crew, and mounts a ZU-23-2 antiaircraft gun on the flat rear section. The vehicle is considered to have an armor value of twice the highest face against mines, and the suspension rating is one higher against mines. The cab has two entry doors on each side, with two sitting in the front and three in the rear. Half of the flatbed section is taken up by the gun, and most of the rest is taken up by large lockers for ammunition, camouflage nets, and crew equipment. Note that when operating the gun, the crew has no side, front, or rear armor protection.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$47,537	D, A	2 tons	17 tons	5	4	Headlights	Open, Enclosed (Cab)

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
150/60	38/15	500	98	Trtd	W(3)	TF1 TS1 TR1 HF4 HS4 HR3

Fire Control	Stabilization	Armament	Ammunition
+1	None	ZU-23-2 Autocannon	400x23mm

BMR-3560/SIDAM

Notes: This Spanish anti-aircraft vehicle is a BMR-600 armored personnel carrier with the machinegun cupola deleted and the turret of the SIDAM-25 (see Italian Tracked Self-Propelled Anti-aircraft) mounted on the rear deck. The passenger area is taken up with the turret mechanism and ammunition, the rear deck hatches are removed in favor of the turret, and there is a simple hatch in place of the commander's cupola.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$91,710	D, A	400 kg	14.05 tons	3	4	Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
164/66	41/17/4	400	114	Trtd	W(4)	TF5 TS5 TR5 HF8 HS4 HR4

Fire Control	Stabilization	Armament	Ammunition
+1	Fair	4x25mm KBA autocannons	1400x25mm

## Tridon 4

Notes: In 1995, the Swedish found themselves with a large number of Bofors L/70 anti-aircraft guns that they wished to be more mobile. Rather than design a new anti-aircraft gun from scratch, they designed a system based on a large all-terrain truck chassis common in civilian use and an advanced fire control system. The truck consists of a cab with the engine and accommodations for the driver and target designator while traveling, while the rear section has the gun and a control center with fire control computers and a radar unit. The system can also be datalinked to a more powerful radar unit located separately. The vehicle also has night vision for the gunner and a laser designator. Tridon is also equipped with an IFF receiver and the radar is capable of tracking 6 targets simultaneously. The Tridon has a 10kW APU so it can function with the engine shut off.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$131,781	D, A	800 kg	23 tons	5	9	Radar, Thermal Imaging	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
126/50	32/13	450	84	Trtd	W(3)	TF2 TS2 TR2 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+3	Fair	40mm L/70 Autocannon	400x40mm



### Cobra Antiaircraft Vehicle

Notes: This is a Cobra armored personnel carrier with the turret removed and a mount for a 4-round Stinger launcher mounted on the roof ahead of the rear deck hatches. The missiles are aimed and fired from inside the hull.

Twilight 2000 Notes: This is a small, fast vehicle that gave Greek, Iraqi, and Russian pilots no end to trouble during the Twilight War due to its ability to fire and then quickly disappear into the terrain.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$194,753	D, A	500 kg	6.3 tons	5	4	Thermal Imaging, Image Intensification	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
210/84	53/21/6	145	63	Trtd	W(3)	TF1 TS1 TR1 HF4 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+3	None	4xStinger launchers	12xStinger SAMs

### Zipkin

Notes: This is a Turkish air defense vehicle intended for use by light divisions and special operations units. It is a Land Rover chassis fitted with a light version of the Turkish variation of the PMSS. In this version, the mount has only 4 launchers instead of 8, to fit the lighter Land Rover chassis.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$112,224	D, A	350 kg	3.96 tons	3	4	Passive IR	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
212/84	53/21	90	41	Trtd	W2)	TF1 TS1 TR1 HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
+2	None	4xStinger launchers, M-2HB	8xStinger SAMs, 175x.50BMG

### HMMWV Avenger

Notes: In the mid-1980s, General Electric developed an ADA vehicle based on the HMMWV chassis to fill an Army requirement for a light air defense vehicle. The Avenger's only difference from a standard HMMWV is the mounting of a Pedestal- Mounted Stinger System (PMSS) in the cargo bed. The PMSS is a turret housing four twin-tube Stinger launchers (8 tubes altogether) along with an M2HB machinegun. Since the turret's aiming systems are computer-controlled, firing Stingers from a PMSS is an Average (Tac Missile + Computer) task.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$188,778	D, G, A	150 kg	3.9 tons	2	4	Headlights	Open

  

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
264/106	63/27	95	54	Trtd	W(2)	TF1 TS1 TR1 HF1 HS1 HR1

  

Fire Control	Armament	Ammunition
+2	PMSS, M-2HB (Coaxial)	8xStinger, 600x.50

### HUMRAAM

Notes: This vehicle is a ground mounting of the AMRAAM air-to-air missile on a HMMWV chassis, for use as a light SAM mounting. This consists of a 5-missile launcher on an elevating ramp on the back of the HMMWV, and uses the active radar in the nose of the weapon to guide the missile, or the radar of an accompanying vehicle. If only the active radar is used, the AMRAAMs range is limited to 21,000 meters. The rotating mechanism is the same as used on the HMMWV Avenger. In 2006, procurement of the HUMRAAM has just begun for the US Marines.

Twilight 2000 Notes: The HUMRAAM is a rare, but dangerous vehicle to the US Marines' foes.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$142,040	D, A	150 kg	4.13 tons	3	4	Headlights	Open

  

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
252/102	62/26	95	54	Trtd	W(2)	TF1 TS1 TR1 HF1 HS1 HR1

  

Fire Control	Stabilization	Armament	Ammunition
+2	None	5xAMRAAM Launchers	5xAMRAAM

### LAV-150 ADA Vehicle

Notes: This is basically a PIVAD turret mounted on a LAV-150 chassis.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$43,303	D, A	200kg	9 tons	3+6	3	Passive IR	Enclosed

  

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor

198/80	50/20/5	303	96	Trtd	W(3)	TF4 TS4 TR3 HF5 HS3 HR2
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Fire Control	Stabilization	Armament	Ammunition
+1	None	20mm Vulcan Autocannon	400x20mm

LAV-150 SAM Vehicle

Notes: This is an RBS-70 launcher mounted on an elevating pedestal in the rear of a LAV-150 vehicle.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$58,951	D, A	600 kg	7.6 tons	4	5	Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
226/90	57/23/6	303	96	Std	W(3)	HF5 HS3 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	RBS-70 launcher, MAG (C)	8xRBS-70 missiles, 2400x7.62mm

LAV-300 ADA Vehicle

Notes: This is similar in concept to the LAV-150 ADA Vehicle, but based on a larger LAV-300 chassis.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$46,572	D, A	300kg	12 tons	3+6	3	Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
170/68	43/17/5	435	101	Trtd	W(3)	TF4 TS4 TR3 HF8 HS5 HR4

Fire Control	Stabilization	Armament	Ammunition
+1	Fair	20mm Vulcan	600x20mmVulcan

### BOV-3

Notes: This is a Yugoslavian self-propelled antiaircraft gun on the chassis of the BOV-M armored personnel carrier. Instead of passengers, the vehicle carries ammunition and crew for the triple 20mm autocannons. The driver and commander are on the front left and right, with a two-man turret in the center of the vehicle, and engine at the rear. This vehicle was used just as often against ground units, particularly massed infantry and for reconnaissance by fire. As the guns are not radar directed, it is primarily a clear-weather system, though night vision is available.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$63,227	D, A	475 kg	9.4 tons	4	3	Active IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
132/52	33/13	220	53	Trtd	W(3)	TF2 TS2 TR2 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+1	Basic	M-55 20/3 Triple 20mm autocannons	1500x20mm

### BOV-30

Notes: This is a newer version of the BOV-3, this time with a turret mounting twin 30mm Czech-designed autocannons.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$63,252	D, A	475 kg	9.4 tons	4	3	Active IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
132/52	33/13	220	53	Trtd	W(3)	TF3 TS3 TR3 HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
+2	Basic	Twin M-53 30mm autocannons	1000x30mm