

MULTIPLE ROCKET LAUNCHERS

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CP-30

Notes: Scheduled to be replaced by the VCLC, this vehicle was nowhere near replaced by the VCLC and soldiered on. It is an MRL mounted on a VLRA ACMAT 8x8 chassis. The rockets may be launched one at a time, or ripple-fired. It is otherwise a conventional multiple rocket launcher.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$39,693	D, A	400 kg	14 tons	3	7	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
166/100	35/22	420	77	Std	W(2)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
+1	None	16-Round 127mm Multiple Rocket Launcher	16x127mm Rockets

Pampero

Notes: This is an older Argentine multiple rocket launcher, mounted on the chassis of a Unimog 416 truck. Stabilizers are lowered at the corners of the vehicle before firing. It is otherwise a standard MRL.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$19,620	D, A	400 kg	6.49 tons	3	3	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
169/101	25/15	160	37	Std	W(2)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
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+1	None	16-Round 105mm Multiple Rocket Launcher	16x105mm Rockets
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VCLC

Notes: This Argentine multiple rocket launcher is mounted on a modified TAM light tank chassis. In this role the VCLC is topped with a 2-man turret mounting twin 18-round 160mm rocket launchers or 4 350mm rocket launchers. In the front of the turret is a commander's hatch with a machinegun mount. The vehicle is usually followed by a number of M-809 5-ton trucks with extra rocket pods, each of which has a crane for reloading. The other vehicle accompanying is a truck with a ranging radar. The VCLC was unfortunately the victim of the budget crisis in Argentina and was never built in quantity; in fact, the CAM version was not built beyond mockups.

Twilight 2000 Notes: The few VCLCs that saw some action in Twilight War acquitted themselves well; the CAM-350 proved especially devastating to their targets. They were unfortunately few in number until well after the war.

Merc 2000 Notes: Though the VCLC sold reasonably well, the Argentine Army never saw any; the ones produced were sold to other countries.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
CAL	\$589,986	D, A	350 kg	32.58 tons	3	15	Passive IR	Shielded
CAM	\$596,833	D, A	350 kg	32.58 tons	3	13	Passive IR	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
CAL/ CAM	166/116	35/25	680 +400	267	Trtd	T3	TF4 TS4 TR4 HF32 HS6 HR6

Vehicle	Fire Control	Stabilization	Armament	Ammunition

CAL	None	None	36-Round 160mm Rocket Launcher, MG-3 (C)	36x160mm Rockets, 2500x7.62mm
CAM	None	None	4-Round 350mm Multiple Rocket Launcher, MG-3 (C)	4x350mm Rockets, 2500x7.62mm

ASTROS

Notes: This is a multiple rocket launcher mounted on a VBT-2028 armored truck chassis. It is used by Brazil, Iraq, Qatar, and Saudi Arabia. Four versions are available, with rockets of 127mm, 180mm, 300mm, and long-range 300mm size. The launcher and associated equipment completely fills the load area of the truck, leaving only the cab for the crew and their gear.

Twilight 2000 Notes: Examples captured from Iraq during the 1991 Persian Gulf War were used by Kuwait in the Twilight War.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
127mm SS-30	\$48,218	D, A	1 ton	34.12 tons	4	11	Headlights	Enclosed (Cab Only)
180mm SS-40	\$45,121	D, A	1 ton	31.5 tons	4	10	Headlights	Enclosed (Cab Only)
300mm SS-60/80	\$40,102	D, A	1 ton	26.54 tons	4	7	Headlights	Enclosed (Cab Only)

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
127mm SS-30	163/98	20/15	700	103	Std	W(4)	HF3 HS3 HR3
180mm SS-40	169/102	20/15	700	103	Std	W(4)	HF3 HS3 HR3
300mm SS-60/80	187/112	20/15	700	103	Std	W(4)	HF3 HS3 HR3

Vehicle	Fire Control	Stabilization	Armament	Ammunition
127mm SS-30	None	None	32-Round SS-30 Rocket Launcher, M-2HB (C)	32x127mm Rockets, 500x.50

180mm SS-40	None	None	16-Round SS-40 Rocket Launcher, M-2HB (C)	16x180mm Rockets, 500x.50
300mm SS-60	None	None	4-Round SS-60 Rocket Launcher, M-2HB (C)	4x300mm Rockets, 500x.50
300mm SS-80	None	None	4-Round SS-80 Rocket Launcher; M-2HB (C)	4x300mm Rockets, 500x.50BMG

Type 63-1 MRL

Notes: This Chinese vehicle is a lighter version of the 130mm MRL, mounted on a medium truck chassis. The back of the vehicle is taken up with the MRL and associated equipment. All 19 rockets may be fired within 2 phases. The cab is extended for the crew, which is large as the elevation for the MRL is manual. This vehicle is used by China, North Korea, and Vietnam.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$28,531	D, A	400 kg	6.89 tons	7	4	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
167/100	25/15	180	49	Std	W(2)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	19-round 130mm Rocket Launcher	38x130mm Rockets

Type 70 MRL

Notes: This is the same rocket launcher as mounted on the Type 63-1 MRL, this time mounted on the chassis of a YW-531 APC on an electrically-powered turret. The passenger area of the YW-531 is taken up with the turret for the MRL, fire control equipment, communications gear, an extra rocket pack, and the crew.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$98,534	D, A	500 kg	14 tons	6	8	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor

146/102	30/20/3	450	95	Trtd	T4	TF2 TS2 TR2 HF3 HS2 HR2
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Fire Control	Stabilization	Armament	Ammunition
None	None	19-round 130mm Multiple Rocket Launcher, DShK (C)	38x130mm Rockets, 600x12.7mm

Type 81 107mm MRL

Notes: This is a light multiple rocket launcher on a modified light truck. The cab is enlarged for the crew. About half of the cargo area is taken up with the MRL, but there is an area available for crew equipment, spare tire, tools, and perhaps an extra rocket pack.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$15,085	G, A	400 kg	3.71 tons	4	3	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
298/179	40/25	105	49	Std	W(2)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	12-round 107mm Rocket Launcher	24x107mm Rockets

Type 81 122mm MRL

Notes: This is a Chinese 122mm MRL carried on a CQ-261 chassis. The MRL fills almost the entire cargo area, except for a small space behind the cab for a spare tire, a seat for part of the crew, and crew equipment. This system was replaced in production by the Type 90 MRL, but remains in service with many Chinese units.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$55,435	D, A	500 kg	16.6 tons	5	8	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
120/72	20/10	400	73	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	40-round 122mm Rocket Launcher	40x122mm Rockets

Type 82 MRL

Notes: The Type 82 is a Chinese-built, 30-tube, 130mm multiple rocket launcher mounted on a modified EQ-2102 truck for mobility. Up to all 30 rockets may be discharged in 15 seconds (three combat rounds).

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$44,109	D, A	500 kg	7.5 tons	6	6	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Type	Config	Susp	Armor
228/137	35/20	400	73	Self-Propelled MRL	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	30-round 130mm Rocket Launcher	30x130mm rockets

Type 83 122mm MRL

Notes: This system is primarily used for firing FASCAM rockets, but is also used for conventional shelling. It is a smaller 122mm multiple rocket launcher using a 24-round rocket pack on a CA-30 truck chassis modified to use a larger cab for the crew of the MRL. The MRL takes up the entire cargo area except for a small space for the spare tire and vehicle tools.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$33,438	G, A	300 kg	8.7 tons	6	5	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
111/67	20/10	150	34	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	24-round 122mm Rocket Launcher	24x122mm Rockets

Type 83 273mm MRL

Notes: This is a multiple rocket launcher based on a Type 60-1 tracked prime mover. The load area in this variant is completely taken up with the rocket launch box and associated equipment, leaving only the cab for the crew. The DShK commander's machinegun is retained. When the MRL is fired, two stabilizers are lowered at the rear of the vehicle. This system is used only by China.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$89,077	D, A	500 kg	17.54 tons	6	11	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
109/76	25/15	375	105	Std	T2	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	4-round 273mm Rocket Launcher, DShK (C)	4x273mm rockets, 500x12.7mm

Type 85 MRL

Notes: This is the same multiple rocket launcher as the Type 82 MRL, this time mounted on a Type 85 APC chassis. In this role, the Type 85 does not carry passengers, instead carrying additional communications and fire control equipment, allowing the MRL to operate without an FDC. The turret is removed and replaced with one mounting the MRL.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$247,513	D, A	500 kg	14.5 tons	5	12	Active/Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
147/103	30/20/3	400	94	Trtd	T4	TF2 TS2 TR2 HF4 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	30-round 130mm Rocket Launcher, DShK (C)	60x130mm Rockets, 1000x12.7mm

Type 89 MRL

Notes: This is a large-capacity multiple rocket launcher on the same chassis as the Type 83 gun/howitzer. The turret is removed and replaced with the MRL and associated equipment and an extra rocket pack and a crane to reload the MRL. The driver sits up front on the left, and the rest of the crew is in the rear under the rocket launcher. Unlike most heavy MRLs, the Type 89 has full armor protection for the crew; however, the rocket packs themselves are unarmored. This vehicle has automatic laying and reloading systems that allow the MRL to fire accurately without the assistance of an FDC if the target location is known. This vehicle is in service only with China.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$301,542	D, A	500 kg	32 tons	5	17	Passive IR	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
133/93	30/20	885	192	Std	T4	HF16 HS6 HR6

Fire Control	Stabilization	Armament	Ammunition
None	None	40-round 122mm Rocket Launcher	80x122mm Rockets

Type 90 MRL

Notes: This is the same 122mm multiple rocket launcher as mounted on the Type 89 MRL, this time mounted on a heavy truck chassis. The Type 90 was designed to produce a cheaper MRL than the Type 89, and to equip light divisions. The vehicle has automatic laying and reloading systems that allow the MRL to fire accurately without the assistance of an FDC if the target location is known. This vehicle is in service only with China.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$90,082	D, A	500 kg	20 tons	5	11	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
109/65	20/10	270	73	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	40-round 122mm Rocket Launcher	80x122mm Rockets

Type 90 Tracked MRL

Notes: This is a 122mm multiple rocket launcher on a stretched version of the Type 90 armored personnel carrier. The normal turret is replaced with a turntable mounting a 30-round MRL. A complete set of reloads is carried on the hull. This is the same launcher and fire control equipment mounted to the Type 89 MRL, but in a lighter chassis.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$121,465	D, A	500 kg	20 tons	5	11	Passive IR, Image Intensification	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
116/82	25/15/3	520	118	Trtd	T4	TF2 TS2 TR2 HF4 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	40-Round 122mm Rocket Launcher, W-85 (C)	80x122mm Rockets, 1050x12.7B

Type 762 MRL

Notes: This Chinese multiple rocket launcher was designed to clear minefields by blast, but can also be used to destroy large troop concentrations and structures. It consists of a pair of short-ranged 425mm rockets with fuel-air explosive warheads to create overpressure for predetonating minefields, on a tracked, armored chassis. There is a machinegun mount by the commander's hatch and one firing port on each side of the crew compartment.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$121,215	D, A	400 kg	27 tons	4	11	Passive IR	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
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150/105	30/25	885	192	Std	T4	HF16 HS6 HR6
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Fire Control	Stabilization	Armament	Ammunition
None	None	Twin 425mm Rocket Launchers, PKT (C)	2x425mm Rockets, 500x7.62mm

WM-80

Notes: This is a Chinese multiple rocket launcher system mounted on an 8x8 heavy truck chassis. It is used only by China. The MRL and its associated equipment take up most of the cargo bay, though there is a small space behind the cab for crew equipment, and some room in the cab. This is the standard heavy rocket launcher of Chinese forces. It is also used by Turkey.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$88,017	D, A	600 kg	34 tons	6	11	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
125/75	20/10	770	91	Std	W(4)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	8-Round 273mm Rocket Launcher	8x273mm Rockets

WS-1B

Notes: This is a Chinese large-caliber multiple rocket launcher on a Steyr 24M-34 truck chassis. The MRL and association erection equipment completely fills the cargo area, except for a small area behind the cab.

Twilight 2000 Notes: This vehicle was just beginning to be produced before the Twilight War and was in short supply.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$79,658	D, A	500 kg	17.2 tons	4	7	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
182/109	30/15	400	126	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	4-Round 320mm Rocket Launcher	4x320mm Rockets

LOV RAK-24/128

Notes: This is a multiple rocket launcher based on the LOV armored personnel carrier. In this role, the passenger space of the LOV is taken up with a turret for the MRL, the crew, fire control equipment, and an extra rocket pack. The rockets may be controlled on board the vehicle or by a hand-held computer connected to the vehicle via a 50-meter cable.

Merc 2000 Notes: This vehicle does not exist.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$58,546	D, A	500 kg	10 tons	4	6	Passive IR	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
130/78	31/19	170	47	Trtd	W(3)	TF2 TS2 TR2 HF5 HS3 HR3

Fire Control	Stabilization	Armament	Ammunition
None	None	24-round 128mm Rocket Launcher, M-2HB (C)	48x128mm Rockets, 450x.50

M-96 Typhoon

Notes: This is a Croatian multiple rocket launcher vehicle, with 122mm rockets on a Tatra 813 chassis. The rocket launcher is controlled by a fire control computer that allows the weapon to fire accurately without the assistance of an FDC if the target location is known. A land navigation computer featuring GPS aids in this task. The MRL is fired, four stabilizers are lowered at the corners of the load area. The entire load area is taken up by the MRL, an extra pack of rockets, and the fire control computer.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological

\$75,290	D, A	400 kg	23.5 tons	4	11	Headlights	Open
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Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
109/66	27/16	520	86	Std	W(4)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	32-round 122mm Rocket Launcher	64x122mm Rockets

RM-70

Notes: This is a Czech multiple rocket launcher, using the same launcher as the Russian BM-21 MRL on a Tatra T-815 Kolos heavy truck, and also carrying an extra pack of rockets in the cargo bed. The MRL has typical, but not advanced, fire control systems, and is equipped with front-mounted winch with a capacity of 12 tons and 85 meters of cable. The cab has an integral NBC filter system that the crew may plug their vehicular protective masks into. Some of these vehicles are fitted with a front-mounted dozer blade. The cargo area is largely taken up by the MRL and extra rocket pack, but there is a small space between the cab and extra rocket pack for crew equipment.

Twilight 2000 Notes: Former East German RM-21 systems were used by Germany during the Twilight War, and Germany also sold some of them to Greece before the war.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$90,994	D, G, AvG, A	800 kg	25.3 tons	6	12	Headlights	Enclosed (Cab Only)

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
106/64	20/10	460	99	Std	W(4)	HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	40-round 122mm Rocket Launcher	80x122mm Rockets

RC-21

Notes: This is the same multiple rocket launcher as the RL-21, mounted on an ATG-59G tracked prime mover vehicle for added cross country mobility. The entire crew is carried in the cab for this version, with lockers behind the cab for crew equipment.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$147,214	D, A	750 kg	25.6 tons	6	12	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
81/56	15/10	580	106	Std	T2	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	30-round 122mm Rocket Launcher	30x122mm Rockets

RL-21

Notes: This is an Egyptian multiple rocket launcher on an Ural-4320-10 medium truck chassis. It is a basic rocket launcher using largely manual aiming. Half the crew is carried in the cab, and the other half in seats behind the cab, and there is a small space for vehicle and crew equipment.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$42,642	D, A	550 kg	11.17 tons	6	6	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
145/87	25/15	300	65	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition

None	None	30-round 122mm Rocket Launcher	30x122mm Rockets
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LARS 110mm

Notes: This is a German artillery rocket launcher, first fielded in 1969. With the acquisition of some MLRS systems from the United States in the early 1990s, many of these systems were taken out of service or sold to other members of NATO, but some 55 of these launchers remained in service with Germany by 2003. The launcher is mounted on a modified MAN 6x6 truck chassis, consisting of dual pack of 18 rounds. Fire control equipment is carried on a separate modified MAN 630 chassis, though the MRL is capable of inaccurate fire without this vehicle.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$46,687	D, A	875 kg	17.48 kg	5	7	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
176/106	25/15	450	129	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	36-round 110mm Rocket Launcher, MG-3 (C)	36x110mm Rockets, 700x7.62N

Pinacha

Notes: This is an Indian multiple rocket launcher mounted on a Tatra T815 Kolos heavy 8x8 truck. The fire control is advanced, with computerized land navigation, target acquisition, and laying, and the vehicle may operate independently of an FDC. The computer takes into account wind, weather, elevation, and target motion, to produce very accurate fire. The Kolos truck, in this role, has an NBC overpressure system for the cab.

Twilight 2000 Notes: This vehicle was first used in action against the Pakistani Army in 1997.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$115,526	D, G, AvG, A	675 kg	21.8 tons	5	7	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
110/66	20/10	460	81	Stnd	W(4)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	12-round 214mm Rocket Launcher	12x214mm Rockets

FIROS-6

Notes: This is a light Italian multiple rocket launcher on a Land Rover LWB chassis. The rockets are small-caliber and electrically controlled, either directly on the launcher, or as is more often the case, via a 30-meter cable with a control box. The rockets are the same as the 51mm Italian air-to-ground rockets.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$27,882	G, A	250 kg	2.98 tons	3	4	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
208/124	50/30	55	49	Std	W(2)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	48-round 51mm Rocket Launcher	48x51mm Rockets

FIROS-30

Notes: This is an Italian multiple rocket launcher on a modified IVECO 200-23 ANWM chassis. The truck is modified to carry the MRL and the fire control equipment, and has an armored cab. There is also an armored fire direction center and a resupply vehicle with an armored cab. A version of this vehicle also exists that does not need an FDC; this vehicle has inertial navigation, a computer, and GPS.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
Standard	\$56,321	D, A	800 kg	16.02 tons	5	8	Headlights	Enclosed
Enhanced	\$62,321	D, A	600 kg	16.65 tons	5	9	Headlights	Enclosed

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
(Both)	127/76	20/15	200	85	Stnd	W(3)	HF2 HS2 HR2

Vehicle	Fire Control	Stabilization	Armament	Ammunition
(Both)	None	None	40-round 122mm Rocket Launcher	40x122mm Rockets

Type 75 MRL

Notes: This Japanese vehicle is a multiple rocket launcher based on the chassis of the Type 73 armored personnel carrier. In this role, the passenger compartment is largely taken up by the launcher and mechanism and space for the crew. The Type 75 MRL is normally accompanied by a weather-measuring vehicle that calculates the effect of local weather and wind on the rockets' flight and relays that information to the firing vehicle. The statistics are the same, except that the weather vehicle does not have an MRL and the passenger space is largely taken up by weather instruments.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$104,978	D, A	500 kg	14.4 tons	3	7	Passive IR	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
71/50	15/10/2	450	51	Std	T2	HF6 HS4 HR4

Fire Control	Stabilization	Armament	Ammunition
None	None	30-round 130mm Rocket Launcher, MAG (Bow), M-2HB (C)	30x130mm Rockets, 1300x7.62mm, 500x.50BMG

APR-40

Notes: This is a Romanian multiple rocket launcher mounted on a DAC-665T medium truck chassis. The truck in this case has its cargo bed removed and replaced with the MRL and associated machinery, and a small space for vehicle tools are crew equipment. The vehicle is normally reloaded by a special version of the DAC-665T, which has a crane and special racks for the rocket pods. This resupply vehicle often tows a special trailer with racks for more rocket pods. In addition to Romania, this MRL is used by Bosnia, Christian Lebanese forces, Croatia, Iran, Iraq, Liberia, and Nigeria.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$56,138	D, A	625 kg	17 tons	5	8	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
116/70	20/10	440	78	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	40-round 122mm Rocket Launcher	40x122mm Rockets

Awora

Notes: This Romanian vehicle is a lighter version of the 122mm multiple rocket launcher, carrying fewer and lighter tubes on a light truck chassis. It was just entering service in 1997, often in light and airmobile divisions, as it is light enough to be sling loaded by a medium-lift helicopter. This vehicle is equipped with a small but powerful fire control computer that allows it to fire accurately without an FDC if the target location is known.

Twilight 2000 Notes: This vehicle does not exist.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$16,964	D, A	300 kg	3.13 tons	2	3	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
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254/153	35/20	105	29	Stnd	W(2)	HF1 HS1 HR1
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Fire Control	Stabilization	Armament	Ammunition
None	None	12-round 122mm Rocket Launcher	12x122mm Rockets

BM-9A52 Smerch

Notes: This is a heavy Russian artillery rocket system on a MAZ-543A heavy truck chassis. The system consists of a battery FDC on a Kamaz-4310 truck, a MAZ-543A resupply vehicle, and a command and staff vehicle based on another version of the Kamaz-4310. This system is relatively rare, since it was designed to be employed at the Front level and used only to attack artillery and missile concentrations and stubborn enemy resistance points. Besides Russia, this system is used by the United Arab Emirates and India.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$145,267	D, AvG, A	800 kg	43.7 tons	4	14	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
119/71	29/17	550	190	Std	W(5)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	12-round 300mm Rocket Launcher	12x300mm Rockets

BM-9P140 Uragan

Notes: This heavy artillery rocket system is normally deployed at Division level, to attack artillery and rocket positions, strongpoints, and particularly stubborn points of enemy resistance. In some units, it has replaced the BM-21 MRL. It is mounted on a Zil-135 chassis, and the system includes a battery FDC based on a BTR-80 command vehicle chassis, and a resupply vehicle based on a Zil-135 chassis, with a crane and special racks for the rocket packs. The FDC vehicle has a fire direction computer that takes into account position, elevation, target location, wind, and weather, and automatically relays that information to the firing vehicle. Fire is normally very accurate. This system is used by Russia, Syria, and Afghanistan.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$41,942	G, A	650 kg	20 tons	4	8	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
162/97	36/21	768	130	Std	W(4)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	16-round 220mm Rocket Launcher	16x220mm Rockets

BM-14

Notes: This multiple rocket launcher was first placed in service in 1964. By 2000, it is in limited use by Russian and Pact Airborne forces, but its primary use is in the armies of a variety of Russian client and former-client states. The vehicle consists of either a 16-tube (BM-14-16) or 17-tube (BM-14-17) launcher for 140mm RPU-14 artillery rockets, which have been in use since World War 2. The launcher is mounted on a GAZ-63 light truck chassis. The rockets may be fired individually or ripple-fired at a rate of 2 rounds per second (10 per phase). A control box attached to the vehicle by a 20-meter cable gives the launch commands. It is designed to be airdropped and slung from helicopters. In most countries, more versatile 122mm-based launchers have superseded the BM-14.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
16-Round	\$26,555	G, A	500 kg	6.43 tons	7	4	Headlights	Open
17-Round	\$28,109	G, A	500 kg	6.74 tons	7	4	Headlights	Open

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
16-Round	127/76	30/18	300	33	Std	W(2)	HF1 HS1 HR1
17-Round	122/73	27/15	300	33	Std	W(2)	HF1 HS1 HR1

Vehicle	Fire Control	Stabilization	Armament	Ammunition
16-Round	None	None	16-round 140mm Rocket Launcher	16x140mm Rockets
17-Round	None	None	17-Round 140mm Rocket Launcher	17x140mm Rockets

BM-21 Grad

Notes: This vehicle is one of dozens of 122mm multiple rocket launcher vehicles, perhaps the most common of those in service. Though it is not related to the Katyushas of World War 2 fame, these launchers (and their towed counterparts) were often referred to by that name by the press and by some Western military personnel; the Russian name is the Grad (Hailstorm). The system consists of 40 tubes for 122mm rockets mounted on a Ural-375 truck chassis. Two of the crew are carried in the cab; the other ride in a seat on the outside of the vehicle forward of the MRL array. Before the MRL is fired, the vehicle is stopped and the launcher turned obliquely or perpendicularly to the cab; if this is not done, the cab, engine and rear crew seat will be destroyed. The launcher is connected to a launching box by a 20-meter cable; alternatively, the BM-21 may be connected by a cable to an FDC vehicle that fires the MRL with more precise information. The rockets may be fired singly or ripple fired at the rate of 2 rockets per second (10 rockets per phase).

Twilight 2000 Notes: The BM-21 was in use by some 50 countries during the Twilight War, perhaps being the most common artillery piece of the war.

Merc 2000 Notes: Plentiful and cheap, the Grad could be found almost everywhere in the world.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$56,017	G, A	600 kg	13.7 tons	6	8	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
120/72	29/17	360	66	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
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None	None	40-Round 122mm Rocket Launcher	40x122mm Rockets
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FROG-7

Notes: The FROG (Free Rocket Over Ground)-7 is a large artillery rocket that looks more like a small missile, but is in fact an unguided rocket. Accuracy is very poor with these weapons (-2 to skill rolls). Though this weapon was largely replaced in Russia by the SS-21 tactical missile, it is still used by Afghanistan, Algeria, Bulgaria, Cuba, Czechoslovakia, Egypt, Iraq, North Korea, Libya, Poland, Romania, Syria, Yemen, and Yugoslavia. The FROG-7 is capable of carrying nuclear warheads, but these will not be dealt with here or in the Artillery Rockets section. The rocket is carried on a modified Zil-135 heavy truck chassis, almost completely filling the cargo area, and with the end extending over the cab. A resupply vehicle exists, based on the same Zil-135 chassis; this vehicle has cranes for transferring the rockets, and carries 3 rockets in special racks.

Twilight 2000 Notes: Some of these missiles were also used during the Twilight War by Category 3 and Mobilization-Only units.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$93,058	G, A	600 kg	19 tons	4	7	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
167/100	36/22	768	132	Std	W(4)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	FROG-7 Launcher	1xFROG-7 Rocket

TOS-1 Buratino

Notes: The TOS-1 consists of an armored launch structure mounted on a highly modified T-72 tank chassis. The vehicle was designed to provide a well-protected fire support capability to highly mobile tank and motorized infantry divisions. The rockets normally fired by the TOS-1 are thermobaric-warhead rockets; a salvo by a TOS-1 is capable of causing an incredible amount of damage to all but heavily-armored targets.

Twilight 2000 Notes: This new Russian multiple rocket launcher was first spotted by US Army Ranger reconnaissance teams operating in central Iran in 1997. Subsequent sightings were made in Poland,

Latvia, the Ukraine, Czechoslovakia, and Romania in subsequent months and years.

Merc 2000 Notes: These vehicles were a favorite of dictators throughout the Russian sphere of influence.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$274,931	D, A	400 kg	42 tons	3	19	Active/Passive IR	Shielded

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
139/97	30/20	1000 +400	311	Trtd	T6	TF8 TS8 TR8 HF130Cp HS20Sp HR12

Fire Control	Stabilization	Armament	Ammunition
+2	None	30-round 220mm Rocket Launcher	30x220mm Rockets

RO-107

Notes: This South African multiple rocket launcher is a reverse-engineered version of the Chinese Type 63 MRL, mounted on a Mamba Mk 2 light APC chassis. The rear cargo area is taken up with the MRL, and a complete set of extra rockets are carried below the MRL in a special compartment. In South Africa, this vehicle is used only by airborne units, but it has been sold to several other African nations.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$15,854	D, A	300 kg	6.32 tons	2	3	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
166/100	36/22	200	45	Std	W(3)	HF2 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	12-round 107mm Rocket Launcher, M-2HB (C)	24x107mm Rockets, 500x.50

Valkiri Mk I

Notes: This was South Africa's first indigenous attempt at a multiple rocket launcher, meant for counterbattery work against the BM-21 MRLs fielded by neighboring African nations. It is mounted on a Unimog U-140L chassis. The vehicle is fitted with canopy railings over the launcher box to disguise the vehicle as an ordinary truck. Before firing, two supports are lowered at the rear to stabilize the vehicle. Note that the Mk I is not capable of firing the heavier long-range rockets.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$34,821	D, A	300 kg	6.4 tons	2	4	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor

144/87	33/20	90	36	Std	W(2)	HF1 HS1 HR1
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Fire Control	Stabilization	Armament	Ammunition
None	None	24-round 127mm Rocket Launcher	24x127mm Rockets

Valkiri Mk II

Notes: This is an improved multiple rocket launcher mounted on an armored and mine-protected version of the SAMIL 100 truck. If this vehicle hits a mine, treat the floor armor as double the heaviest face of armor, and the suspension as one point greater. The cab is extended in order to allow for the fire control equipment. The Valkiri Mk II may fire without an FDC if the target location is known. The MRL comes off as an integrated unit, and may be mounted on any vehicle capable of carrying 10 tons or greater. The vehicle includes a 100-liter water tank for the crew. Two 100-liter extra fuel tanks may be added.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$60,087	D, A	600 kg	21.5 tons	3	9	Headlights	Enclosed

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
139/83	32/19	400	111	Std	W(3)	HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	40-round 127mm Rocket Launcher	40x127mm Rockets

Kooryong

Notes: This is a South Korean multiple rocket launcher based on the KM-500 medium truck chassis. In this role, the trucks cargo bed is removed and replaced with the MRL and its mounting machinery and a small space for crew equipment. This vehicle is an older MRL that has been partially replaced by the US-designed MLRS and LARS vehicles, but it is still in use by some reserve and light divisions. For its most accurate fire, the Kooryong requires an FDC/weather unit mounted on a KM-450 chassis.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$53,853	D, A	625 kg	17.1 tons	3	7	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
133/80	31/19	295	87	Stnd	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	36-round 130mm Rocket Launcher	36x130mm Rockets

Teruel

Notes: This Spanish multiple rocket launcher is mounted on a Pegaso 3055 heavy truck. The cab is extended for the crew and the fire control equipment, and the MRL takes up most of the rest of the vehicle. There is also a resupply vehicle for this MRL, based on the same Pegaso 3055 chassis and carrying 80 reloads and a crane. When the rocket launcher is fired, four stabilizers are lowered at the corners of the load area. This vehicle may fire without input from an FDC if the target location is known. Only Spain and Gabon use this vehicle, and Gabon has very few of them.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$63,652	D, A	500 kg	19 tons	5	9	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
117/70	28/17	560	81	Std	W(3)	HF3 HS2 HR2

Fire Control	Stabilization	Armament	Ammunition
None	None	40-round 140mm Rocket Launcher	40x140mm Rockets

HIMARS

Notes: HIMARS (High-Mobility Artillery Rocket System) is a light rocket launcher mounted on an M-1083 MTV 5-ton truck chassis. The rocket launcher uses one module of the same rockets as the MLRS, on a lightweight launcher assembly. The system was designed to be transported aboard C-130 aircraft, or sling loaded below heavy-lift helicopters. The fire control computers, command and control system, and launcher module are all the same as on the MLRS, but the entire system is much lighter. The system may also fire a single ATACMS missile instead of a normal MLRS pod. This vehicle is still officially under evaluation by the US Army.

Twilight 2000 Notes: This weapon system was deployed to the 82nd and 101st Airborne Divisions in early 1997, as well as to some light infantry divisions and separate brigades.

Merc 2000 Notes: By 2012, deployment of the HIMARS began to exceed that of the MLRS.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
MLRS	\$63,011	D, A	500 kg	19.61 tons	3	7	Headlights	Open
ATACMS	\$189,033	D, A	500 kg	14.57 tons	3	7	Headlights	Open

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
(Both)	142/85	33/19	300	117	Std	W(3)	HF1 HS1 HR1

Vehicle	Fire Control	Stabilization	Armament	Ammunition
MLRS	None	None	6-Round 227mm Rocket Launcher	6x227mm Rockets
ATACMS	None	None	1-round ATACMS Missile Launcher	1xATACMS Missile

M-993 MLRS (Multiple Launch Rocket System)

Notes: When this vehicle entered US Army service in 1983, it was the first multiple rocket launcher used by the US military since the late 1950s. 12 other countries around the world, mainly in NATO armies, also used it. It is mounted on a lengthened Bradley chassis, and carries a pod with twelve 227mm rockets. The barrage of rockets was known in the US Army as a "Grid Square Weapon," able to bombard an entire 1000x1000 meter 4-digit grid square found on NATO military maps with one pod of rockets. The basic HE rocket was used with great success in the 1991 Persian Gulf War. The MLRS is normally resupplied from modified M-648 logistics carriers or special trailers towed by HEMTT trucks. The M-993 is capable of operating without the assistance of an FDC, needing only coordinates from a FIST team, and able to fire accurately within 30 seconds (6 phases) of a halt.

The ATACMS (Army TACTical Missile System) is a large, guided rocket that has more range and precision than the MLRS. The ATACMS can be fired from any MLRS vehicle, from a two-missile box. The ATACMS is fired using Average: Heavy Artillery at a +4 modifier, or may be fired using Easy: Guided Weapon skill. This launcher is used only by the US, Greece, South Korea, and Turkey.

Vehicle	Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
MLRS	\$117,462	D, A	300 kg	25.19 tons	3	12	Headlights	Shielded
ATACMS	\$352,385	D, A	300 kf	22 tons	3	12	Headlights	Shielded

Vehicle	Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
(Both)	135/95	30/20	617	180	Std	T3	HF1 HS1 HR1

Vehicle	Fire Control	Stabilization	Armament	Ammunition
MLRS	None	None	12-Round 227mm Rocket Launcher	12x227mm Rockets
ATACMS	None	None	2xATACMS Missile Launchers	2xATACMS Missiles

M-77 Oganj

Notes: This Yugoslavian multiple rocket launcher is also used by Iraq, Croatia, and Bosnia. It is 32-round launcher on a heavy truck chassis. The FDC and reloads are carried on separate trucks. The launcher truck itself also carries a set of reloads.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$72,292	D, A	500 kg	22.4 tons	5	10	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
116/70	28/17	310	94	Std	W(3)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	32-round 128mm Rocket Launcher	64x128mm Rockets

M-87 Orkan

Notes: This Yugoslavian multiple rocket launcher is also used by Iraq (where it is known as the Ababeel), Bosnia, and Croatia. It is a heavy rocket launcher in a unique caliber, on a heavy truck chassis. A complete battery consists of 4 launchers, 4 resupply trucks each carrying one set of rockets, a FDC truck with a van body, a light vehicle for surveying, a FIST vehicle (usually a light armored vehicle), and a weather vehicle truck with a van body. The trucks and the light vehicle are all armed with DShKs for the vehicle commanders.

Price	Fuel Type	Load	Veh Wt	Crew	Mnt	Night Vision	Radiological
\$126,937	D, A	500 kg	32 tons	5	10	Headlights	Open

Tr Mov	Com Mov	Fuel Cap	Fuel Cons	Config	Susp	Armor
117/70	28/17	450	130	Std	W(4)	HF1 HS1 HR1

Fire Control	Stabilization	Armament	Ammunition
None	None	12-round 262mm Rocket Launcher, DShK (C)	12x262mm rockets, 500x12.7mm