

**VEHICLE
COLLECTION
FOR
GURPS
Fourth Edition**

Stopgap Volume 2

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Ground Vehicles

Family Cars

1932 Ford Model B (USA, 1932-1934)

In 1932, Ford replaced its Model A cars with new model, available with multiple body options and two engine options – 4-cylinder Model B and Model-18 with V-8 engine (also known as Ford V-8). Both variants were comparable in power, and V-8 was mostly chosen for marketing reasons. Ford Model 18 was one of the first affordable V-8 cars; all 1932-1934 models also became popular with hot-rodders. 1934 Ford V-8 is infamous as “death car” of the Bonnie and Clyde. 4-cylinder Model B was also license-built in USSR with minor modifications as GAZ M-1; it was produced until 1943 and widely used as passenger car and pickup truck.

FIAT 124 (Italy, 1966-1974)

Even though this family car was originally a stopgap model based on older design, it soon became popular due to its modern looks and low price. In attempt to increase profits even more, FIAT began to license it abroad (and soon ended up competing against its own design). Most well-known license copy was a Soviet VAZ-2101, known as “Zhiguli” or “Lada” (export name). It was redesigned to withstand rough Russian conditions, receiving stronger body, different engine, improved suspension and brakes, as well as tow hooks and trailer hitch. Station wagon bodies were also available. It immediately became extremely popular, and its improved versions such as VAZ-2106 and VAZ-2107 (Move 2/42*) remained in production until 2012, despite AvtoVAZ introducing completely new family car designs.

DRIVING (AUTOMOBILE)

| <i>TL</i> | <i>Vehicle</i> | <i>ST/HP</i> | <i>Hnd/SR</i> | <i>HT</i> | <i>Move</i> | <i>Lwt.</i> | <i>Load</i> | <i>SM</i> | <i>Occ.</i> | <i>DR</i> | <i>Range</i> | <i>Cost</i> | <i>Locations</i> | <i>Notes</i> |
|-----------|----------------|--------------|---------------|-----------|-------------|-------------|-------------|-----------|-------------|-----------|--------------|-------------|------------------|--------------|
| 6 | Ford Model B | 55 | -1/3 | 10f | 1/29* | 1.5 | 0.5 | +3 | 1+5 | 4 | 250 | \$7K | G4W | |
| 7 | FIAT 124 | 50 | -1/3 | 11f | 2/39* | 1.5 | 0.4 | +3 | 1+4 | 4 | 280 | \$7K | G4W | |

Light Commercial Vehicles

UAZ-452 (Russia, 1965-present)

This off-road 4×4 van is neither pretty nor comfortable, but it gets the job done. Affectionately nicknamed “Bread loaf”, it is still being produced and is in high demand in the country that is famous for its bad roads. Ambulance version (“Pill”) can carry one attendant and either 4 stretchers or 6 sitting patients. It has multitude of body options available – passenger van, panel van, pickup truck with regular and crew cabs. Prototype 6×4 bus and semi tractor exist. Aftermarket cash-in-transit van conversions are available in TL-8 for \$55K (DR 25, Occ. 1+4, load 0.5).

Isuzu Elf 150 (Japan, 1993-present)

Light and medium Isuzu trucks are produced since 1959, but they became popular world-wide in 1980s. Elf 150 is a fifth-generation model, and it is available in several versions – truck, truck with crew cab, van.

Mercedes-Benz Sprinter (Germany, 1995-present)

The Sprinter is produced and sold all over the world. It is used primarily for business, and it is available in innumerable versions (vans, minibuses, pickup trucks, box trucks) and sizes (short, long, high-roof, low-roof). Bigger versions may have SM+4 and Occ 1+19. It is used by Hong

Kong police, while Europe employs it as ambulance.

DRIVING (AUTOMOBILE)

| TL | Vehicle | ST/HP | Hnd/SR | HT | Move | Lwt. | Load | SM | Occ. | DR | Range | Cost | Locations | Notes |
|----|---------------|-------|--------|-----|-------|------|------|----|------|----|-------|-------|-----------|-------|
| 7 | UAZ-452 | 64 | 0/3 | 12f | 1/28 | 3.4 | 1.1 | +3 | 1+9 | 4 | 350 | \$15K | G4W | |
| 8 | Isuzu Elf 150 | 64 | 0/3 | 12f | 2/30* | 4.1 | 1.6 | +3 | 1+1 | 4 | 700 | \$25K | G4W | |
| 8 | Sprinter | 68 | 0/3 | 11f | 2/39* | 4.3 | 2 | +3 | 1+11 | 4 | 405 | \$30K | G4W | |

Buses and Motor-Coaches

Ikarus 250 (Hungary, 1971-2003)

Ikarus 250 was one of the most popular coaches used in Eastern Bloc countries, and exported to other countries. It had 43 large passenger seats, as well as additional seat used by second driver or tour guide. Ikarus 260 is a somewhat smaller city bus with less powerful engine (HP 105, Move 1/18, Load 7.7, Occ. 1+22) – it has 22 seats and can carry up to 102 passengers. Ikarus 280 is an articulated bus (HP 120, Hnd/SR -3/5, Lwt. 22.7, Load 8.8, SM +7 Occ 1+37), that can carry up to

160 passengers.

PAZ-3205 (Russia, 1989-present)

This midibus is ubiquitous in Russian cities – in addition to its role in public transport, it is also used as crew van by various organizations (including police), or even as “ritual vehicle” (hearse). It has 25 seats and can carry up to 41 passengers. Different versions use petrol or diesel engines, and there are also aftermarket natural gas conversions (HT 11fx), with gas tanks mounted on roof.

DRIVING (HEAVY WHEELED)

| TL | Vehicle | ST/HP | Hnd/SR | HT | Move | Lwt. | Load | SM | Occ. | DR | Range | Cost | Locations | Notes |
|----|------------|-------|--------|-----|-------|------|------|----|------|----|-------|-------|-----------|-------|
| 7 | Ikarus 250 | 115 | -2/4 | 11f | 2/33* | 17.6 | 5.5 | +6 | 2+43 | 4 | 500 | | G4W | |
| 8 | PAZ-3205 | 92 | -1/3 | 11f | 1/25* | 8.4 | 2.2 | +4 | 1+25 | 4 | 350 | \$25K | G4W | |

Tractors

KhPZ Komintern (Russia, 1934-1940)

“Komintern” was a medium artillery tractor used by Red Army before and during WW2 to tow artillery such as A-19 guns and ML-20 howitzers. It can tow a 13.2 ton trailer and has a 13-ton winch. “Stalinets-2” was a similar, but somewhat lighter vehicle (SM+3, Occ 2+8, Load 3.3) – it can tow 11-ton trailer.

Morris Commercial C8 FAT (Britain, 1939-1945)

C8 Field Artillery Tractor was a 4×4 vehicle used by British and Commonwealth forces to tow field artillery and anti-tank guns. It can pull a 9-ton trailer. Mark I, Mark II and early Mark III vehicles had sloped “beetle back” body, while late

production units had new square body with canvas roof.

Raupenschlepper Ost (Germany, 1942-1945)

“Caterpillar Tractor East” was a lightweight, fully-tracked artillery tractor developed by Nazi Germany as the response to poor performance of their wheeled and half-track tractors on Eastern Front. It can pull a 3.3 ton trailer. It was also converted into tank destroyer carrying PaK 40 gun (DR 20, X2C).

MTZ-80 “Belarus” (Belarus, 1974-present)

Minsk Tractor Factory presented this universal tractor with a fully enclosed cab as replacement for

its older MTZ-50 design. Even though MTZ produces more advanced and modern tractors now, old Belarus is still in high demand due to its low price and ease of maintenance. It can pull 7-ton trailers, has a power take-off for agricultural equipment and hydraulic system that allows dozer

blades, front loaders and backhoes to be mounted – such makeshift diggers are often used by Russian communal services. Axle track of back wheels can be changed from 4.6 to 6.9 feet. MTZ-82 is a 4×4 version.

DRIVING (TRACKED)

| TL | Vehicle | ST/HP | Hnd/SR | HT | Move | Lwt. | Load | SM | Occ. | DR | Range | Cost | Locations | Notes |
|----|-----------|-------|--------|-----|------|------|------|----|------|----|-------|------|-----------|-------|
| 6 | Komintern | 113 | -3/5 | 12f | 1/8 | 13.8 | 2.2 | +4 | 2+12 | 4 | 100 | | g2C | |
| 7 | RSO | 70 | -3/5 | 11f | 1/6 | 4.6 | 1.8 | +3 | 2 | 4 | 110 | | g2C | |

DRIVING (HEAVY WHEELED)

| | | | | | | | | | | | | | | |
|---|-----------|----|------|-----|------|---|-----|----|-----|---|-----|--|-----|--|
| 7 | Morris C8 | 76 | -1/4 | 11f | 2/24 | 4 | 0.8 | +3 | 1+5 | 4 | 160 | | G4W | |
|---|-----------|----|------|-----|------|---|-----|----|-----|---|-----|--|-----|--|

DRIVING (CONSTRUCTION EQUIPMENT)

| | | | | | | | | | | | | | | |
|---|--------|----|------|-----|-----|---|-----|----|---|---|----|-------|-----|--|
| 7 | MTZ-80 | 80 | -1/4 | 11f | 1/9 | 4 | 0.1 | +3 | 1 | 4 | 80 | \$15K | G4W | |
|---|--------|----|------|-----|-----|---|-----|----|---|---|----|-------|-----|--|

Armoured Cars

These lightly armoured vehicles are usually used for reconnaissance and infantry support. They usually lack transport capabilities. Historically, they were one of the first fighting vehicles, often being made out of existing passenger cars, and sometimes used as police vehicles.

Rolls-Royce Armoured Car (Britain, 1914-1917)

In 1914, Royal Naval Air Service requisitioned all available Rolls-Royce Silver Ghost chassis to raise first British armoured car squadron. After the end of mobile period on the Western Front, most cars were sent to the Middle East, where they remained in service until 1941. 13 vehicles were also used in Irish Civil War. Reliable armoured car, carrying a single water-cooled Vickers gun (High-Tech, p. 131) in rotating turret (6 seconds to change facing) and 8400 round of ammunition, was often praised as most successful WW1 armoured car. Lawrence of Arabia called his unit of nine Rolls-Royces “more valuable than rubies”.

Garford-Putilov (Russia, 1915-1916)

This heavy, overweight and underpowered armoured truck with no off-road capabilities was the closest thing Russian Empire had to the tank. 30 of them made out of 5-ton Garford 4×2 truck in 1915. Each carried a manually rotating turret (30

seconds to change facing) with 76mm version of Schneider-Danglis 06/09 cannon (44 HE shells) and Maxim gun (High-Tech, p. 131). Another two Maxim guns were mounted in forward-facing sponsons; all machine guns had twenty 250-round belts between them. Crew included commander, driver, two 2-man machine gun crews in sponsons, gunner for main gun, loader and ammo carrier, who was often omitted. Later versions added second set of controls in rear, adding another driver and machine gun commander, and removing one machine gunner, with another acting as ammo carrier. Navy ordered another 18 vehicles – “naval” “Garfords” had more powerful engines and stronger armor, and carried more ammunition (Lwt. 12.1; DR 25 in front, including turret; ammunition is 60 HE shells and 36 machine gun belts). Several trucks were captured by Germany or “inherited” by Poland and Baltic countries; remaining vehicles fought against each other in Russian Civil War.

GAZ BA-20 (Russia, 1936-1942)

Broneavtomobil-20 (“Armoured car”) was built in 1930s on GAZ M-1 chassis. Those light armoured cars were used in Soviet-Japanese conflicts, Winter War and WW2. Partially sloped armor provides DR 25 on the front and turret, DR 10 on roof and bottom and DR 20 everywhere else. DT machine

gun (High-Tech, p. 132) is installed in manually rotating turret (changing facing takes 6 seconds); ammunition includes 22 63-round drums. Crew consists of driver and gunner. Vehicle can mount 71-TK-1 radio with 25-mile range (6-18 miles on the move); in that case it also requires radio operator in the crew. BA-20M is upgraded version (Move 1/15, DR 30/20, Range 280).

Sd.Kfz. 222 (Germany, 1935-1944)

Leichter Panzerspähwagen (“Light armoured reconnaissance vehicle”) was a series of light armoured cars used by Nazi Germany in WW2. They were widely used in Western Europe, but they were less useful in Eastern Europe and North Africa due to poor off-road capabilities. Sd.Kfz. 222 mounts 2 cm KwK 30 L/55 autocannon (High-Tech Pulp Guns, Vol. 2, p. 27) and 7.92mm MG-34 (High-Tech, p. 132) in manually rotated open-top turret with mesh roof (6 seconds to change facing). Ammunition includes 200 cannon shells and 2000 7.92mm rounds, but it can easily carry more. Roof and bottom armor is DR 15. Crew consists of gunner, commander and driver. Earlier Sdkfz. 221 was armed with single machine gun and had two-man crew and 4-wheel drive. Sdkfz. 223 mounts medium radio. Sdkfz. 260/261 (Location 4W) is an unarmed vehicle with large radio.

Engesa EE-9 Cascavel (Brazil, 1974-1993)

In 1960s, Brazil was mostly using surplus American military equipment, but when Vietnam War broke out, USA put restrictions on military exports, and Brazil began import substitution program to reproduce US equipment already in service. Engesa company originally designed EE-9 Cascavel (“Rattlesnake”) as replacement for M8 Greyhound armoured car. Later it was equipped with the turret adapted from French Panhard AML-90, and later with licensed copy of Cockerill 90mm gun – those versions were widely exported

all over the world, providing neutral alternative for NATO and Warsaw Pact equipment.

Cascavel Mk I used turret with 37 mm M6 gun from M8 Greyhound (6 seconds to change facing) and coaxial 7.62mm machine gun; ammunition is 80 37mm rounds. Another 7.62mm machine gun is on pintle mount, and turret also mounts four smoke launchers. Higher DR armor is for body front and turret; underbody armor is DR 17. Crew consists of gunner and commander in turret (both can operate weapons) and driver in the hull. Cascavel Mk II has powered turret (3 seconds to change facing, 12 if unpowered) with 90mm GIAT F1 gun – ammunition is 44 shells. Cascavel Mk III is fitted with diesel engine and uses EC-90 gun. Cascavel Mk IV adds CTIS, run-flat tires and automatic fire extinguishers.

EE-11 Urutu (Load 2, Occ 1+12, Range 600, Location t6W) is an APC based on EE-9; it has Water Move 1/2 and mounts 7.62mm machine gun in small turret.

LGS Fennek (Germany, 2001-present)

Fennek is a four-wheeled armoured reconnaissance vehicle used by Germany and Netherlands. Its main equipment is observation package mounted on extendable mast – it includes thermal imager, daylight camera and laser rangefinder. Vehicle is equipped with GPS and inertial navigation system to accurately mark targets and pass the data to the digital battlefield network. Many German Fenneks are equipped with Aladin UAVs (SM -1, HP 8, Move 1/56, weight 7 lbs, Range 10). Weaponry mounted on remote-controlled turret includes HK GMG grenade launcher or MG3 machine gun (High-Tech, p. 134) on German version, M2 Browning HMG (High-Tech, p. 133) on Dutch reconnaissance version; Dutch Stinger Weapon Platform also mounts four Stinger missiles (High-Tech, p. 152).

DRIVING (AUTOMOBILE)

| TL | Vehicle | ST/HP | Hnd/SR | HT | Move | Lwt. | Load | SM | Occ. | DR | Range | Cost | Locations | Notes |
|----|-----------------|-------|--------|-----|-------|------|------|----|------|-------|-------|--------|-----------|-------|
| 6 | Rolls-Royce | 84 | -1/3 | 12f | 1/20* | 5.2 | 0.4 | +3 | 3 | 25/20 | 150 | \$40K | T4W | |
| 6 | Garford-Putilov | 100 | -2/4 | 11f | 1/5* | 9.5 | 1.5 | +4 | 9 | 20 | 75 | \$200K | T2t4W | |
| 6 | BA-20 | 67 | -1/3 | 11f | 1/25* | 2.8 | 0.4 | +3 | 3 | 25/20 | 180 | \$50K | t4W | |
| 6 | Sd. Kfz. 222 | 88 | -1/3 | 11f | 1/19* | 5.3 | 0.4 | +3 | 3 | 30 | 110 | \$120K | t4W | |
| 7 | EE-9 Cascavel | 115 | -1/3 | 11f | 2/30 | 14.7 | 1 | +4 | 3 | 70/40 | 450 | \$500K | T6W | |
| 8 | Fennek | 106 | -1/3 | 11f | 2/32 | 10.8 | 0.4 | +4 | 3 | 50/40 | 540 | \$1M | tG4W | |

Armoured Personnel Carriers

Universal Carrier (Britain, 1936-1960)

This tracked, open-topped vehicle was produced by Britain and USA in extraordinary numbers, and used as weapon platform, artillery tractor and troop carrier, among other things. Several versions were developed originally, but they were replaced by single, universal design. Main armament was a Bren gun (High-Tech, p. 133). Carriers were usually used in 3-vehicle sections, with one vehicle carrying a radio and another carrying a Boys anti-tank rifle. By 1943, Boys rifle was replaced with PIAT, and last vehicle began to carry 2-inch mortar (High-Tech, p. 146) with 36 rounds. "Wasp" variant was equipped with the same flamethrower that was used on M4 tanks (High-Tech, p. 179). Some versions mounted QF 2 Pounder anti-tank guns with 122 rounds of ammunition, or 3-inch mortar ((High-Tech, p. 145).

ZIS BTR-152 (Russia, 1950-1962)

Bronetransporter-152 ("Armoured transporter") is an open-top 6×6 armored vehicle based on ZIS-151 off-road truck. Despite being replaced in APC role in 1960s by BTR-60 in USSR, it remained in service until 1993, and is still in service in more than 28 countries. It is armed with SG-43 medium machine gun with five 250-round belts. Higher DR value applies to the front; underbody armor is DR 10. BTR-152A carries twin-linked KPV machine guns (High-Tech, p. 134) on anti-aircraft mount (Occ. 3+6). BTR-152K version, introduced in 1957, has DR 20 roof (Occ. 3+13). Vehicles produced after 1957 have TVN-2 night vision optics for driver and CTIS. Some vehicles mount ST 47 winch.

FMC M113 (USA, 1960-present)

M113 was developed to provide US Army with light, fully tracked "battle taxi". It has amphibious capabilities (Water Move 1/2) and aluminum alloy armor. Commander operates a pintle-mounted M2 Browning machine gun (High-Tech, p. 133) with 2000 rounds of ammunition in 10 belts. Many vehicles were based on M113 chassis. During Vietnam War, some of them were converted into Armoured Cavalry Assault Vehicles (ACAV), mounting two M60 machine guns (High-Tech, p. 134) and single M2 Browning, all of them with makeshift shields made from scrap armor. Several mortar carriers were made, with the open roof and mortars such as M29, M30 and M120 mounted on turntables. M164 SPAAG mounted M61 Vulcan (High-Tech, p. 135) on a rotating turret. M132 carried M10-8 flamethrower and 7.62mm machine gun in a small rotating turret. Countless other variants were made, including unarmored cargo carriers, TOW carriers, command vehicles, recovery vehicles. Late versions are equipped with slat armor, effectively giving it a spaced armor.

Renault VAB (France, 1976-present)

Véhicule de l'avant blindé ("Armoured vanguard vehicle") is a lightly armored amphibious (Water Move 1/2) troop transport in active service by French Army. It can mount either M2 Browning heavy machine gun (High-Tech, p. 133) or French 7.62mm AA52 machine gun (High-Tech, p. 135). Army began mounting Protector Remote Weapon Station on VAB in 2008. In 1990s, armor upgrade was introduced (DR 50 from front, Lwt. 15.8, loses Water Move, double DR against explosions underside). All versions are equipped with CTIS.

VAB can also pull 4-ton trailer.

GAZ BTR-80 (Russia, 1984-present)

New Soviet armored personnel carrier was developed in 80-s to address several issues with previous BTR-70 model, such as slow disembarkation and low gun elevation angles. Troops now can disembark from two side doors and two top hatches and fire from eight forward-facing gun ports in ball mounts. It has amphibious capabilities (Water Move 1/3), CTIS and ST 60 winch. Driver, commander and gunner all have night-vision optics. Turret mounts KPV machine gun (High-Tech, p. 134) with 500 rounds of ammunition in ten belts and coaxial PKT medium machine gun (High-Tech, p. 135) with 2000 rounds of ammunition in 8 belts.

BTR-80A has a new turret with 2A72 30mm autocannon. Modernized BTR-82 was developed in 2010 and adopted by Russian Army in 2013 – DR 50/40, Move 1/28; remote-controlled turret can mount 2A72 gun or KPV. BRDM-3 is a reconnaissance vehicle (Occ. 6) based on BTR-80A – it carries same equipment as BRM-1K. 2S23

“Nona-SVK” (Occ. 4) is an SPG carrying 120mm 2A60 gun-howitzer-mortar.

General Dynamics IAV Stryker (USA, 2002-present)

Interim Armored Vehicle Stryker is a wheeled APC based on Canadian LAV III and Swiss Pirahna III designs. Higher DR applies to front; many vehicles also mount slat armor or ERA, while some newer vehicles have double v-hull (double DR against explosions underside). Several versions of this example are built – ICV (Infantry Carrier Vehicle) is armed with Protector remote weapon station that can mount M2 Browning machine gun (High-Tech, p. 133) or MK19 grenade launcher (High-Tech, p. 143). M1128 Mobile Gun System (Occ 3, Locations T8W) has a remote weapon station that mounts 105mm M68A2 rifled cannon with autoloader, two smoke launchers and coaxial M2 and M240 machine guns. M1129 Mortar Carrier is armed with Soltam 120mm mortar and carries additional 81mm M252 mortar for dismounted use. Other versions include TOW carriers, reconnaissance, med-evac and command vehicles.

DRIVING (TRACKED)

| TL | Vehicle | ST/HP | Hnd/SR | HT | Move | Lwt. | Load | SM | Occ. | DR | Range | Cost | Locations | Notes |
|----|-------------------|-------|--------|-----|------|------|------|----|------|-------|-------|------|-----------|-------|
| 6 | Universal Carrier | 77 | -3/5 | 11f | 1/13 | 4.1 | 0.6 | +3 | 1+4 | 30/20 | 140 | | X2C | |
| 7 | M113 | 120 | -3/5 | 11f | 1/19 | 15.1 | 1.5 | +3 | 2+11 | 50/35 | 300 | | X2C | |

DRIVING (HEAVY WHEELED)

| TL | Vehicle | ST/HP | Hnd/SR | HT | Move | Lwt. | Load | SM | Occ. | DR | Range | Cost | Locations | Notes |
|----|-------------|-------|--------|-----|------|------|------|----|------|-------|-------|--------|-----------|-------|
| 7 | BTR-152 | 103 | -1/4 | 11f | 1/18 | 12 | 2 | +4 | 2+17 | 50/30 | 300 | | X6W | |
| 7 | VAB | 115 | -1/4 | 11f | 2/30 | 13.8 | 2 | +4 | 2+10 | 35 | 750 | | X4W | |
| 8 | BTR-80 | 115 | -1/4 | 11f | 1/22 | 15 | 2 | +5 | 2+8S | 40/30 | 370 | \$150K | t8W | |
| 8 | IAV Stryker | 128 | -1/4 | 11f | 1/26 | 18.6 | 2 | +4 | 2+9S | 70/50 | 310 | | t8W | |

Infantry Fighting Vehicles

KMZ BMP-1 (Russia, 1966-1988)

Boyevaya Mashina Pekhoty-1 (“Infantry Fighting Vehicle”) was the first vehicle of its kind and gave name to entire class of vehicles. Compared to APCs that could only be used as

“battle taxis”, it provided superior protection and weaponry that allowed it to directly support infantry and fight alongside the tanks. Higher DR is for body front and turret. Underbody and top armor is DR 20. BMP-1 is amphibious (Water Move 1/2). Turret armament consists of 73mm

2A28 low-pressure cannon with 40 shells and coaxial PKT machine gun (High-Tech, p. 135) with eight 250-round belts; the gunner has 6× sight (+2 Acc). BMP-1 is equipped with four 9M14M Malyutka missiles (High-Tech, p. 151) – launching rail is mounted on cannon barrel. Hull has nine firing ports – two forward facing ports are used with PKM machine gun, six side ports and one port in the back door are used with AK rifle. Commander and gunner have active IR sights with 400 yards range; driver's night optics have 50 yard range.

BRM-1K is a reconnaissance vehicle based on BMP-1 (Lwt. 14.5, Occ. 6S). It has no missiles and 20 less shells, but instead carries six smoke launchers and wide array of surveillance and communication equipment – radar with 6-mile range, laser rangefinder (5-mile range), several radios with the ranges up to 16 miles (30 miles with 11 yard mast raised), mine detector, navigation equipment, radiation and chemical reconnaissance equipment. Smoke launchers are also mounted on BMP-1 since 1979; some of the vehicles also mount AGS-17 grenade launcher either on pintle or remote-control mount.

BREM-2 is an armoured recovery vehicle based on BMP-1 – it is armed with single PKT machine gun and has 20-ton winch and 1.5 ton crane.

In the 1980, modernized version called BMP-2 entered service (Lwt. 15.4, Occ 3+7S). It has bigger two-man turret that mounts 30mm 2A42 autocannon with 500 shells and elevation up to

75°; 9M14M missiles are replaced by 9K111 Konkurs missiles (Pyramid 3-57, p. 20). BMP-2D (Lwt. 16) has additional DR 15 on the sides and under the driver and commander, but loses Water Move.

United Defense M2 Bradley (USA, 1981-present)

M2 Bradley was a result of 17-year program to provide troops with replacement for M113 APC and outdo the Soviet BMP. It can fight alongside Abrams tanks and serve as tank killer. Armor is spaced with layers of aluminum and steel; higher DR is for front and turret. Large turret mounts 25mm M242 Chain Gun (High-Tech, p. 136) with 900 rounds of ammunition and coaxial 7.62mm M240 machine gun (High-Tech, p. 134) with 2200 rounds of ammunition. It also carries seven BGM-71 Tow anti-tank missiles (High-Tech, p. 151) with two launchers mounted on side of the turret. Four firing ports in sides and two firing ports in the back have built-in M231 Firing Port Weapons, allowing the infantry to fire without breaching the seal. It also carries 8 smoke launchers. Original M2 is also amphibious (Water Move 1/2); it requires calm water and special flotation curtain deployed.

“But it's a troop carrier, not a tank!”

“Do you want me to put a sign on it in fifty languages that says “I am troop carrier, not a tank, please don't shoot at me”?”

- Col. Smith and designer, *The Pentagon Wars*

DRIVING (TRACKED)

| TL | Vehicle | ST/HP | Hnd/SR | HT | Move | Lwt. | Load | SM | Occ. | DR | Range | Cost | Locations | Notes |
|----|------------|-------|--------|-----|------|------|------|----|------|--------|-------|--------|-----------|-------|
| 7 | BMP-1 | 120 | -3/5 | 11f | 2/17 | 14.3 | 1.5 | +4 | 3+8S | 105/50 | 270 | \$500K | T2C | [1] |
| 8 | M2 Bradley | 141 | -3/5 | 11f | 2/18 | 25.1 | 1.5 | +4 | 3+6S | 120/60 | 300 | \$3M | T2C | |

[1] Auxiliary fuel tanks in back doors increase range by 100

Light Tanks

GIAT AMX-13 (France, 1945-1987)

Cold War French tanks were exact opposite of their pre-war designs. AMX-13, for example, was a mobile light tank with thin armor and relatively powerful gun. One of its most notable features is oscillating turret – gun is fixed inside and lacks

mantlet, while the entire upper part of turret can change elevation. Turret can change direction in two seconds if powered, in 30 seconds if not. CN 75-50 gun (French copy of German 75mm KwK guns) is automatically fed by two revolving six-round drum magazines (RoF 1, Shots 6(3i)) – while the tank can carry up to 37 rounds of

ammunition, it is impossible to reload magazines from inside; tank has to retreat into cover to allow crew to reload drums from outside. Reload usually takes around 90 seconds with trained crew. 4 smoke launchers and two AA-52 machine guns (High-Tech, p. 135) are mounted on turret – one is coaxial, one is on pintle mount, with 3600 rounds of ammunition between both. Crew consists of gunner and commander sitting in turret and driver in the hull. Some early AMX-13 tanks use M24 Chaffee turret, while AMX-13 turret was also installed on Egyptian M4A4 Sherman tanks (which, in turn, had to fight against Israeli Shermans armed with CN 75-50 gun).

From 1966, 75mm gun was replaced by 90mm F3 medium velocity gun firing HEAT ammunition – all French AMX-13 tanks were upgraded to AMX-13/90. Since 70s, export models were available with CN-105/57 main gun and two FN MAG machine guns. Same gun was also used on similar Austrian light tank/tank destroyer SK-105 Kürassier (Lwt. 19.5, Move 2/20, SM +4, Range 310), produced by Steyr, and its Argentine derivative Patagon that uses AMX-13 turret. Radio provides 16-mile range. Some AMX-13/90 mount laser rangefinder. AMX-VCI (SM +4, Occ 3+10, Location t2C) is an APC armed either with M2 Browning or AA-52 machine gun. AMX-D is an armoured recovery vehicle (Location X2C) – it has 5-ton crane and 17-ton winch, as well as single AA-52 machine gun. AMX-13 PDP is an unarmed bridge layer (SM +5, Location 2C) – it carries a 15-yard scissor bridge.

STZ PT-76 (Russia, 1951-1967)

One of the difficulties that Soviet Army met in Central Europe was large amount of water barriers. So after the WW2 they commissioned development of wide range of bridging equipment and amphibious vehicles, including the light tank and APC on unified chassis. Most successful was the project of Josef Kotin's design bureau – Obyekt 740 light tank, that was almost immediately adopted as PT-76 (“*Plavayuschii Tank*” - “Swimming Tank”). Even though Soviet Army eventually replaced it by BMP series of vehicles, it was widely exported and participated in many conflicts, including Vietnam War, Indo-Pakistani

wars and even Balkan Wars.

Higher DR in table applies to body front and turret front and sides. Top and underbody armor is DR17. Tank uses waterjet propulsion in water, giving it Water Move 1/3. Rotating turret mounts 76mm D-56T gun that has identical ballistics and uses same ammunition as F-34 cannon used on T-34 tank, with 40 shells (24 HE, 4 APEX-T, 4 APDS-T and 8 HEAT-T), as well as coaxial SGM machinegun with four 250-round belts. Cannon and machine gun both have 5× sights (Acc +2). Changing the turret facing takes 3 seconds, 30 without power. Crew includes driver, commander (who also operates weapons) and loader. Tanks produced after 1959 have stabilized gun, automatic fire extinguishers as well as night-vision optics and IR-projector with 60-yard range for driver.

BTR-50 (Occ 2+20, Location X2C) was an APC based on PT-76 chassis. It had open-topped troop compartment, SGM machine gun mount and could carry 2 tons of cargo on the roof – two mounting rails allowed it to carry towed guns and fire them even while swimming. BTR-50PK was a later version – it lacks mounting rails, but has roof with three hatches over the troop compartment. Russia, Belarus and Serbia separately designed upgrades with turrets that mount 30mm autocannons – Russian and Belorussian vehicles have more powerful engines that give it Move 1/18, while Serbian version mounts 4 smoke dischargers and two Malyutka missile launchers (High-Tech, p. 151).

ASU-85 was a Soviet airborne assault gun – it lack turret and Water Move, but mounts 85-mm gun and anti-aircraft DShKM heavy machine gun (High-Tech, p. 133). It has DR 330 in front. GSP is a Soviet self-propelled ferry – it consists of two tracked vehicles based on PT-76 chassis (Move 12, Lwt 18, Occ 3, SM+6, DR 5) that attach to each other in the water and deploy floats to form a 12×12 yard ferry that can carry up to 57 tons of cargo and has Water Move 1/2. Type 63 (Lwt 20, Move 2/19, Occ 4S) is a Chinese amphibious tank similar to PT-76 – it mounts a turret with 85mm gun from Type 62 light tank.

General Motors M551 Sheridan (USA, 1966-1970)

M551 Sheridan was developed in 1967 to provide military with airborne, amphibious fighting vehicle. Since light-medium-heavy tank classification was no longer used by US Army, they classified it as an “Armored Reconnaissance/Airborne Assault Vehicle”. Its performance during Vietnam War was a mixed bag – infantry appreciated fire support from its 152mm low velocity gun, but combination of weak armor and powerful high-explosive ammunition made it extremely vulnerable, leading to high losses. Still, it was the only airborne vehicle in US Army, so it was used by 82nd Airborne Division until 90s. It was also used in training, visually modified to resemble Soviet vehicles.

Higher DR in table applies to the front of the hull and turret. Tank has Water Move 1/2 – it has to

deploy floatation curtain to swim. Crew consists of commander, gunner, loader and driver. Rotating turret (2 seconds to change facing when powered) mounts stabilized 152mm M81 Gun/Launcher with 20 rounds of conventional ammunition and 9 MGM-51 Shillelagh missiles, as well 7.62mm M73 coaxial machine gun with 3000 rounds of ammunition and pintle-mounted M2 Browning machine gun (High-Tech, p. 133) with 1000 rounds of ammunition. Due to Shillelagh missiles being expensive and delicate, vehicles were shipped to Vietnam without them – ammo racks were modified to carry conventional ammunition and guidance systems being replaced with more machine gun rounds – this modification was known as “Two Box”. M2 Browning machine guns were also often modified with makeshift ACAV shields. M551A1 TTS is a version with laser rangefinder and thermal sights.

| <i>TL</i> | <i>Vehicle</i> | <i>ST/HP</i> | <i>Hnd/SR</i> | <i>HT</i> | <i>Move</i> | <i>Lwt.</i> | <i>Load</i> | <i>SM</i> | <i>Occ.</i> | <i>DR</i> | <i>Range</i> | <i>Cost</i> | <i>Locations</i> | <i>Notes</i> |
|-----------|----------------|--------------|---------------|-----------|-------------|-------------|-------------|-----------|-------------|-----------|--------------|-------------|------------------|--------------|
| 7 | AMX-13 | 124 | -3/5 | 10fx | 2/18 | 14.5 | 1 | +3 | 3 | 150/60 | 250 | | T2C | |
| 7 | PT-76 | 120 | -3/5 | 10fx | 2/13 | 16 | 2.2 | +4 | 3S | 60/35 | 160 | | | |
| 7 | Type 62 | 140 | -3/5 | 10fx | 2/20 | 22.5 | 1 | +4 | 4 | 150/70 | 280 | | XT2C | |
| 7 | M551 Sheridan | 120 | -3/5 | 9fx | 1/21 | 16.8 | 1 | +4 | 4 | 60/35 | 350 | \$1.5M | XT2C | |

Medium Tanks

Uralvagonzavod T-54 (Russia, 1948-1974)

During WW2, Soviets developed several tank projects to replace T-34, but they were only able to begin the production after the war ended. T-44 tank (Lwt. 34.1, Move 2/17, DR 500/210, Range 120) was produced in small numbers, but it was obvious that its 85-mm S-53 gun is no longer a sufficient weapon. So the new tank was developed, with slightly stronger heavily sloped armor and larger turret with 100mm gun. Resulting vehicle, known as T-54, became the main tank of Soviet army, was produced in large numbers, served as base for several modifications and foreign copies and is still used all over the world. Higher DR armor is for front of hull and turret, lower number is for sides of hull and sides and back of turret, rear armor is DR 120 and top and underbody armor is DR 70. Main armament is D-10T gun in rotating turret (1

second to change facing with power, 30 seconds without), with 34 rounds of ammunition. One SGMT machine gun is mounted as coaxial, and another is mounted in glacis, with 1500 rounds of ammunition for each – early tanks had no hull gun and instead mounted two fixed machine-guns over tracks (Acc 0). Anti-aircraft DShK gun (High-Tech, p. 133) with collimator sight is pintle-mounted on turret – they were removed from all tanks in late 50s, but brought back in 60s for use against helicopters. Ammunition is six 50-round belts. SGMT machine guns are also replaced with PKT (High-Tech, p. 135) in 60s. Radio has 16-mile range when standing, 11 miles on the go. Tank is also equipped with semi-automatic CO2 fire extinguishers and two smoke grenades in the back – moving tank can generate 100-yard long smoke screen that lasts up to 40 seconds. Crew consists of driver in the hull, and gunner, loader and

commander in the turret.

Several modernizations were made, eventually resulting in T-55 tank (Occ. 4S, Range 310), which was produced in 1958-1979. It now mounts stabilized D-10T2S gun with 43 rounds of ammunition, has automatic fire extinguishers and ability to use wading snorkel, which allows it to drive 5-yards deep underwater. It can also generate smoke screens by injecting fuel into exhaust – it can only be used on a move, and each minute of use reduces range by 3. Radio has range of 16-25 miles. T-62 tank (Ewt. 40.7, Occ 4S, Range 400) was introduced in 1961 – it uses 115mm smoothbore U-5TS gun and carries 40 shells. Night vision optics provide up to 400-yard range with IR illuminator. Some T-55 and T-62 carry “Drozd” active protection system. In 1983, T-55M and T-62M modernized versions became available – they carry laser rangefinders (+3 Acc) and targeting computers (+1 Gunner), freon fire extinguisher that can put out napalm fire and spaced armor on front and sides (front DR is 600). Some modernized tanks also carry NSVT machine gun instead of DShK.

SU-122-54 (Occ 5, Location X2C) is an assault gun based on T-54 – it carries 122-mm gun similar to A-19 with 35 rounds of ammunition, as well as two KPV machine guns with 600 rounds of ammunition – one is coaxial, and one is on anti-aircraft mount. OT-54 and TO-55 are flamethrower versions of T-54 and T-55 tanks – they mount ATO-200 flamethrower instead of coaxial gun. Type 59 is Chinese copy of T-54 – newer versions are available with slat armor or spaced armor on sides and 105 mm L7, 120 mm Rheinmetall Rh-120-44 or unlicensed copy of 120mm 2A46 guns. Type 62 is Chinese light tank based on T-54 hull. It uses 85mm gun with 46 shells as its main ammunition. Higher DR applies to hull and turret front; it has DR 40 on top, rear and underside, and DR 100 on turret sides and rear. Both vehicles have versions with ERA and laser rangefinders. Finland built ltPsv 90 SPAAG (Lwt 41, Occ 3S) based on the hull of Polish T-55 and British Marksman turret with two 35 mm Oerlikon autocannons.

MTU-10 (Occ 2, SM +6) is a bridge layer based on T-54 – it can lay 12-yard bridge that can support 50-ton vehicles. MTU-55 (Occ 2S, SM +5) is

based on T-55, carries 17-yard scissor bridge (two of them can be connected to double the length) and can work underwater. IMR-1 (Occ 2S, Location 2C) is an engineering vehicle based on T-55 – it is equipped with dozer blade and 2-ton crane/digger; that vehicle was used in the clean-up of Chernobyl disaster.

Chrysler M48 Patton III (USA, 1952-1959)

M48 was an American tank of new generation that replaced older Pershing-based designs. It was actively used in Vietnam War and exported to NATO countries and Israel. Higher DR is for front of hull and turret, while lower DR is for sides of hull and turret top, and rear and underbody armor is DR 70. Rotating turret mounts 90mm M41 gun (based on M1 anti-aircraft gun) with 60 shells of ammunition; it takes three seconds to change facing, 30 seconds when unpowered. M2 Browning machine gun (High-Tech, p. 133) is installed on small turret on top of the tank, while M73 machine gun is mounted as coaxial. Crew includes driver in the hull, and gunner, commander and loader in turret.

M48DB variant mounts dozer blade. M67, also known as “Zippo”, was a flamethrower tank used by USMC – it mounts M7-6 flamethrower instead of cannon. In 1960, M60 main battle tank entered service (Ewt 50.7, Range 300) – it mounts a new turret with British-designed 105mm L7 Gun, 63 rounds of ammunition and a ballistic computer (+1 Gunner); changing facing takes 4 seconds. Most M48 in American service were also upgraded up to M60 standards. M60A1 version that entered service in 1962 is sealed, has thicker armor (DR 600 on front hull and turret) and carries IR sights and automatic fire extinguishers; since 1972, gun stabilizers also installed. M60A2 “Starship” mounts a new turret with 152mm gun/launcher and laser rangefinder (+3 Acc, Range 5000). It carries 33 conventional rounds and 13 Shillelagh missiles. M60A3 is a final variant – it brings back stabilized 105mm gun and mounts smoke dischargers, laser rangefinder and ballistic computer, as well as external phone that allowed infantry to talk to the crew. M60-2000, also known as M60-120S, is an upgrade package available for foreign M60

operators – it has Move 1/14 and has same turret and 120mm gun as M1 Abrams, albeit without a depleted uranium panels. M60AVLB (SM +5,

location 2C) is a bridge-layer – it can lay a 20-yard bridge and retrieve it from any side.

| <i>TL</i> | <i>Vehicle</i> | <i>ST/HP</i> | <i>Hnd/SR</i> | <i>HT</i> | <i>Move</i> | <i>Lwt.</i> | <i>Load</i> | <i>SM</i> | <i>Occ.</i> | <i>DR</i> | <i>Range</i> | <i>Cost</i> | <i>Locations</i> | <i>Notes</i> |
|-----------|----------------|--------------|---------------|-----------|-------------|-------------|-------------|-----------|-------------|-----------|--------------|-------------|------------------|--------------|
| 7 | T-54 | 168 | -3/5 | 10fx | 2/14 | 39.7 | 1.5 | +4 | 4 | 530/210 | 185 | \$400K | XT2C | |
| 7 | M48 Patton | 185 | -3/5 | 10fx | 2/13 | 49.3 | 1.5 | +4 | 4 | 550/200 | 160 | \$2M | tT2C | |

Aircraft

Light Helicopters

Flettner Fl.282b Kolibri (Germany, 1940-1945)

One of the first production helicopters in the world, this open-cockpit twin-rotor synchropter was used by Kriegsmarine as liaison and reconnaissance vehicle. Fl.282b version had a second seat in the back for observer. 1000 machines were ordered by Nazi Germany, but due to interruption caused by Allied bombings only 24 helicopters were finished, and only three survived and were divvied between USA and USSR.

Bell H-13 Sioux (USA, 1946-1974)

This is military version of Bell-47, single-engine twin-blade light helicopter with 3-seat bubble canopy. It was used for observation and training during Korean War, as well as med-evac vehicle capable of carrying two litters protected by acrylic shield. It became iconic due to its role in M.A.S.H. movie and TV series. It was also widely exported.

Kamov Ka-26 (Russia, 1969-1985)

This light utility helicopter was designed as modular “flying chassis” that could be used in a

variety of civilian roles. Its bad aerodynamics and piston engines make it relatively slow, but it is cheap, reliable, maneuverable and highly versatile vehicle. It was most widely used as cropduster, being able to spray a strip 20-60 yards wide (undead hunters with too much holy water on hand will no doubt find a use for it), but it could also mount a transport compartment (carrying 6 passenger or up to 2000 pounds of cargo) or external cargo platform. It was also used as ambulance (carrying two stretchers, two sitting patients, one medic and medical equipment), police heli (winch, loudspeakers, TV camera), flying crane and amphibious search-and-rescue vehicle. Two or three technicians can refit one version into another in less than 8 hours!

Bell 407 (USA, 1995-present)

This is modern version of popular Bell 206 civil utility helicopter. It has 5 seats in the main cabin and can carry up to 2600 lb of cargo on external hook. Variants include unmanned autonomous MQ-8C Fire Scout helicopters and military ARH-70.

PILOTING (HELICOPTER)

| <i>TL</i> | <i>Vehicle</i> | <i>ST/HP</i> | <i>Hnd/SR</i> | <i>HT</i> | <i>Move</i> | <i>Lwt.</i> | <i>Load</i> | <i>SM</i> | <i>Occ.</i> | <i>DR</i> | <i>Range</i> | <i>Cost</i> | <i>Locations</i> | <i>Notes</i> |
|-----------|-----------------|--------------|---------------|-----------|-------------|-------------|-------------|-----------|-------------|-----------|--------------|-------------|------------------|--------------|
| 7 | Fl.282b Kolibri | 47 | +2/2 | 10f | 1/46 | 1.1 | 0.3 | +3 | 1+1 | 3 | 300/180 | | O2H3W | [1] |
| 7 | H-13 Sioux | 49 | +2/2 | 11f | 2/51 | 1.5 | 0.4 | +4 | 1+2 | 3 | 258 | \$280K | GH2R | [2] |
| 7 | Ka-26 | 65 | +2/2 | 12f | 1/52 | 3.6 | 1.2 | +4 | 2+6 | 3 | 323/248 | \$500K | G2H4W | [1] |
| 8 | Bell 407 | 56 | +1/2 | 11f | 2/79 | 3 | 1,2 | +5 | 1+6 | 3 | 372 | \$2.3M | gH2R | |

[1] If flying with passengers, use second range number

[2] Can take 2 litters

Medium Helicopters

Mil Mi-8 (Russia, 1965-present)

One of the most ubiquitous helicopters in the world – more than 12000 units were built, and production is still going on. This medium multi-purpose helicopter has single 5-blade rotor and two turboshaft engines. It was designed as replacement for Mi-4 transport helicopter, and original versions included passenger Mi-8P with 28 seats in 4 rows, and Mi-8T troop transport that carried either 24 passengers or 12 litters. Other variants include amphibious Mi-14, modernized Mi-17 with more powerful engine, and executive Mi-8AMT-1 which can comfortably seat up to 9 passengers.

Aerospatiale SA 330G Puma (France, 1968-present)

French military realized importance of helicopters in the mobile warfare relatively early on, and ordered a new *helicoptere de manoeuvre* to replace Sikorsky H-34. SA 330 was designed with survivability in mind – two turboshaft engines were redundantly powerful, allowing it to operate with single engine, hull was aerodynamic, making it faster and more maneuverable, many elements were rugged. Disembarkation time was reduced as

much as possible – there were two sliding side doors in addition to back ramp. Soon the British company Westland was brought on board to help with design and production, as the United Kingdom also needed a new medium helicopter. Later on, Aerospatiale tried to produce several civilian versions of the Puma – and most of them ended adopted by third-world militaries. SA 330G was one of such civilian helicopters, and naturally it can be equipped with weapons. It can carry 20 soldiers or 6 litters and 6 sitting casualties, or up to 6000 pounds of cargo in the cabin or 6400 pounds of cargo on hook. Typical armament includes two 7.62 mm coaxial machine guns and M261 autocannon in door.

Sikorsky S-61N Mk II (USA, 1969-present)

After providing US Navy with amphibious anti-submarine helicopter SH-3 Sea King, Sikorsky quickly developed two commercial civilian versions – S-61L and amphibious S-61N, which became more popular due to its versatility. It was used as airliner, cargo transport and sky crane. Mk II version has more powerful engines and reduced level of noise and vibration.

PILOTING (HELICOPTER)

| <i>TL</i> | <i>Vehicle</i> | <i>ST/HP</i> | <i>Hnd/SR</i> | <i>HT</i> | <i>Move</i> | <i>Lwt.</i> | <i>Load</i> | <i>SM</i> | <i>Occ.</i> | <i>DR</i> | <i>Range</i> | <i>Cost</i> | <i>Locations</i> | <i>Notes</i> |
|-----------|----------------|--------------|---------------|-----------|-------------|-------------|-------------|-----------|-------------|-----------|--------------|-------------|------------------|--------------|
| 7 | Mi-8 | 99 | 0/2 | 11f | 2/76 | 13.2 | 4.4 | +6 | 3+28 | 4 | 298 | \$7M | gH3W | |
| 7 | SA 330G Puma | 80 | +1/2 | 12f | 3/82 | 8.3 | 3.3 | +5 | 3+20 | 4 | 355 | | gH3Wr | |
| 7 | S-61N Mk II | 92 | 0/2 | 11f | 2/81 | 9.5 | 3 | +6 | 2+30 | 4 | 517 | \$7M | gH3W | |
| 8 | Mi-17 | 100 | 0/2 | 11f | 2/76 | 14.3 | 4.4 | +6 | 3+32 | 4 | 590 | \$13M | gH3W | |

Weapons

Rifles

RSAF Boys Anti-Tank Rifle, .55 Boys (Britain, 1937-1943)

This heavy, bipod-mounted weapon was used by British army in WW2. It fired APHC rounds which were rather ineffective against contemporary armor, and it had a tremendous recoil, so it was almost always fixed to some support.

RIA M231 Firing Port Weapon (USA, 1980-present)

M231 FPW is a version of M16 assault rifle

adapted for firing from the ports on M2 Bradley. Even though modern Bradley versions lack side ports, it is still used as crew weapon and for firing from rear ports. Compared to M16, it has much faster rate of fire and heavy barrel. Early versions had flip-up sights, wire stock and no locking mechanism; late versions do away with stock and sights and add a screw lock on handguard to fix it in the firing port. Only the tracer rounds are authorized for use, and regular rounds can be used in emergency; +P rounds are not allowed and give -1 to Malf.

GUNS (RIFLE)

| TL | Weapon | Damage | Acc | Range | EWt. | RoF | Shots | ST | Bulk | Rcl | Cost | LC | Notes |
|----|-------------------------|----------|-----|----------|-------|-----|---------|-----|------|-----|------------|----|-------|
| 6 | Boys AT Rifle, .55 Boys | 9d(2) pi | 3 | 500/ | 35/ | 1 | 5(3) | 20B | -9 | 4 | | 1 | |
| 8 | M231 FPW, 5.56×45mm | 4d+2 pi | 3 | 750/2900 | 7.3/1 | 20! | 30+1(3) | 9M | -4 | 2 | \$900/\$34 | 1 | |

Machine Guns and Autocannons

KMZ SG-43 (Russia, 1943-1961)

Stankovy, Goryunova (“Mounted, Goryunov’s”) medium machine gun was developed in 1943 to replace obsolete Maxim gun and failed DS-39 MMG. Despite its heavy weight and somewhat complicated action, it was reliable weapon, and it was modernized several times before it was replaced by PK general-purpose machine gun. SGM is a post-war upgrade with air-cooling ridges on barrel and dust covers. SGMB version was used as pintle-mounted weapon on APCs and SGMT is a coaxial version. All versions include spare barrel. Two-wheeled carriage mount weighs 60 lb; tripod mount is 30lb.

General Electric M73 (USA, 1959-1970s)

M73 was developed to replace Browning M1919 in the role of coaxial gun, and was used on M48, M60 and M551 tanks. Original version was prone to jamming (Malf -1), improved M73E1 was developed in 90s to address this problem.

GIAT M261, 20×102 mm (France, ???-???)

M261 is an autocannon used on French vehicles. It shares ammunition with M61A1 Vulcan (High-Tech, p. 135). M693 is a similar autocannon mounted on AMX 30 tanks.

KBP 2A42 (Russia, 1980-present)

2A42 autocannon is used on Russian IFVs and helicopters. It feeds from two 250-round belts and can switch between them. It has 3 pyrotechnic charges for reloading and to clear jams – reloading without them requires ST-4 roll. It uses APFSDS-T (in table) and SAPHE-I (6d×3 pi++ with 5d [2d] follow-up) shells.

GUNNER (MACHINE GUN)

| TL | Weapon | Damage | Acc | Range | EWt. | RoF | Shots | ST | Bulk | Rcl | Cost | LC | Notes |
|----|---|----------------------------|-----|-----------|----------|-----|---------|-----|------|-----|--------|----|-------|
| 7 | SG-43, 7.62×54mm R | 7d pi | 5 | 1000/4200 | 29.7/22 | 11! | 250(5) | 17M | -6 | 2 | \$5000 | 1 | |
| 7 | M73, 7.62×51mm | 7d | 5 | 1000/4200 | 31/Var. | 10! | Var. | 17M | -6 | 2 | \$6000 | 1 | |
| 7 | GIAT M261, 20×102mm <i>follow-up</i> | 6d×3 pi++ 2d [1d] cr ex | 5 | 1250/5300 | 100/Var. | 13! | Var. | | | 2 | | 1 | |
| 8 | 2A42, 30×165mm | 6d×4(2) pi++ | 5 | 1000/5000 | 254/1.8 | 9 | 500(10) | | | | | 1 | |

Grenade Launchers

HK GMG (Germany, 1996-present)

Belt-fed automatic grenade launcher was developed by Heckler & Koch for the German Army in 1990s; now it is in use by many NATO

countries. It can be loaded from either side, making it easy to mount on most platforms. It uses iron sights and collimator sights by default; it can also mount variety of day and night optical sights. Tripod weighs 24 lbs.

GUNNER (MACHINE GUN)

| TL | Weapon | Damage | Acc | Range | EWt. | RoF | Shots | ST | Bulk | Rcl | Cost | LC | Notes |
|----|-------------------|---------------|-----|---------|---------|-----|-------|-----|------|-----|-------|----|-------|
| 8 | HK GMG, 40×54mmSR | 5d [2d] cr ex | 2 | 35/2200 | 63.5/44 | 6 | 32(5) | 21M | -8 | 2 | \$12K | 1 | |

Light Antitank Weapons

ICI PIAT (Britain, 1942-1950)

Unlike other contemporary and modern light antitank weapons, *Projector, Infantry, Anti-Tank* was not a recoilless rifle, but a spigot mortar – instead of a barrel, it had a rod that gets rammed by a heavy spring into a hollow tube in the shell that is filled with propellant, blasting off the projectile. Thus it had no backblast, but suffered from heavy recoil. Spring was also cocked by recoil, which required the soldier to hold the weapon tight against shoulder: make ST roll when firing it – on failure, spring is not cocked. Manually cocking the spring requires prone position, 5 seconds and ST-2 roll. It is possible to use this weapon as makeshift mortar, to indirect fire shells at 350 yards.

GUNS (LAW)

| TL | Weapon | Damage | Acc | Range | EWt. | RoF | Shots | ST | Bulk | Rcl | Cost | LC | Notes |
|----|-------------------|---------------|-----|---------|---------|-----|-------|-----|------|-----|-------|----|-------|
| 8 | HK GMG, 40×54mmSR | 5d [2d] cr ex | 2 | 35/2200 | 63.5/44 | 6 | 32(5) | 21M | -8 | 2 | \$12K | 1 | |

Cannons

76 mm Mountain Gun Model 1909 (Russia, 1909-1939)

75mm Schneider-Danglis 06/09 mountain gun was developed by two Greek engineers, Lykoudis and Danglis, and then manufactured for Greek army by French Schneider company. In 1909 Imperial Russian Army adopted it as 76mm Mountain Gun. It remained in production until 1939; some guns were used in fortresses and on gun trucks. Gun weighs 1380 lbs on two-wheel carriage with DR 15

shield. Two-wheel limber carries 70 shells and weighs 1210 lbs (242 lb empty). Gun can be split into 7 packs, but some of the parts weigh more than 260 lbs, which was too heavy for horses – only 220 lb ammo packs (14 shells) can be carried on horseback.

122-mm howitzer M1938 (M-30) (Russia, 1939-1955)

M-30 howitzer was one of the most successful

examples of Soviet artillery, with almost 20000 units being produced. It is mounted on two-wheel carriage (5511 lb with gun); when drawn by horses, it also uses 1322-lb limber. In addition to HE shells (in table), HEAT shells were sometimes used on M-30S assault gun versions (damage 6d×2 (10) cr ex with 6d×4 cr ex linked). Chemical shells can carry up to 6.8 lb of payload (usually choking agents such as phosgene and sarin) and are LC 0. Smoke, illumination and leaflet propaganda shells are also available.

Watervliet 37-mm Gun M3 (USA, 1940-1943)

In the 30's, US Army had no dedicated anti-tank artillery and used M2 Browning machine gun as anti-tank weapon. However the Spanish Civil War shown the importance of anti-tank guns. Thus, two German 37 mm PaK guns were acquired and studied, and light 37 mm gun was developed – infantry insisted that it should be possible to move the gun around solely by its crew. Each infantry battalion had anti-tank platoon with four 37 mm guns, with jeeps being used to move them. However, later in the war they were mostly replaced by tank destroyers and 57 mm guns, but Marines retained them until 1945. Gun is mounted on M4 carriage (total weight 912 lb) and has 60° traverse. In addition to AP-T ammunition in the table, it fired HE (Dmg 6d×3(0.5) cr with 3d+2 [2d] cr ex linked) and canister (Acc 3+1, Dmg 4d pi, RoF 1×122, Rcl 1) rounds. Gun M6 is a version that was mounted on some light tanks and armoured cars.

90mm Gun M1 (USA, 1942-???)

90mm Gun M1 was an anti-aircraft gun developed in USA in 1942. Carriage weighs 19000 lb with gun. It was usually used in groups of four, controlled by M7 or M9 directors. SCR-268 radars with 10-mile range were also used, and later on SCR-584 microwave radars with M3 computers became available, being able to search targets at 40 miles and provide artillery control at 16 miles. Original M1 guns couldn't be depressed for anti-tank use, so M2 dual-purpose gun was designed. Later on, it was also used as M3 tank gun, getting mounted on Sherman-based M36 tank destroyers, as well as M26 Pershing tank and many post-war

American tanks. In addition to HE-T and HEAB-T shells (in table), there are APEX-T shells (Dmg 6d×11(2) pi++ with 6d [4d-2] cr ex follow-up), HEAT-T shells (Dmg 6d×5(10) cr ex with 6d×2 cr ex linked), APDS-T shells (Dmg 6d×13(2) pi++), WP shells (892 grams of WP), shrapnel (Dmg 5d pi+, RoF 1×1281, range 200/2000, Rcl 1), beehive (Dmg 2d+1 cut, RoF 1×5600, Range 300/4400, Rcl 1).

GIAT CN 90 F3, 90×617mm (France, ???-???)

This medium-velocity cannon is used on some of the French AFVs. In addition to HEAT shells (in table), it also fires HE shells (damage 6d×6 (0.5) pi++ with 6d×4 [4d-1] cr ex). GIAT F1 lacks autoloader (Shots 1(5)). Belgian Cockerill MK3M-A1 and its Brazilian copy Engesa EC-90 are similar guns that use compatible ammunition.

Royal Ordnance L7, 105×607 mm R (Britain, 1959-present)

In 1956, T-54 tank was driven into British Embassy in Hungary, and after examination, it became obvious that QF 20-Pounder gun is incapable of defeating it. Soon, 105-mm L7 gun was developed. It was produced under different names in several countries, and was installed in many AFVs, such as M60 Patton, M1A1 Abrams, Stryker, and even Chinese Type 88 tanks and upgraded T-54 and T-55 tanks used by Israel and Egypt. Default ammunition is APDS-T (in table), with APFSDS shells, HESH-T shells (Dmg 6d×13(0.5) pi++ with 6d×6 cr ex linked), HEAT-T shells (Dmg 6d×4(10) cr ex with 6d×4 cr ex linked), WP-T shells and beehive rounds (Dmg 2d+2 cut, Range 300/4400, RoF 1×5000, Rcl 1). 105 mm Modele F1 is an indigenous French design, but it has similar ballistics and its ammunition is compatible with L7. CN-105-57 is similar French gun, but it uses different ammunition.

Motovilikha U-5TS Molot (2A20) (Russia, 1963-1973)

2A20 was the first smoothbore tank cannon, marking the beginning of the MBT age. In 1950s, Soviet military got impressed by the anti-tank

capabilities of their new 100mm smoothbore towed gun, so they considered using it as tank gun. Unfortunately, its ammunition was too large to be used in T-62 tank, so they ended up reboring experimental D-54 100mm gun into 115mm smoothbore gun. 2A20 fires APFSDS-T shells by default. In 1975, modernized APFSDS-T shells were developed, increasing damage to 6d×30(2) pi++. Other shells include HEAT (6d×6(10) cr ex with 6d×4 cr ex linked), HE (6d×12(0.5) pi++ with 6d×5 [4d] cr ex follow-up), beehive (Dmg 3d+2 cut, range 600/9000, RoF 1×4500) and same missiles as D-10T gun. Spent casings are ejected through the roof.

SPG-9 “Kopyo” (Russia, 1962-present)

SPG-9 Kopyo (“Spear”) is a tripod-mounted recoilless gun that fires HEAT and HE(damage 6d×2 [2d+2] cr ex) rocket-assisted projectiles. It can be carried and operated by crew of 4. Tripod

weighs 26.5 lb. Some versions include night vision optics.

2A28 “Grom” (Russia, 1966-1980)

2A28 “Grom” (“Thunder”) is a low-pressure smoothbore cannon used on some Soviet fighting vehicles such as BMP-1. It fires same PG-9V HE and OG-9V HEAT projectiles as SPG-9 recoilless gun.

M81 Gun/Launcher (USA, 1966-1970)

This 152-mm gun firing consumable-casing shells was used on M551 Sheridan tank, with similar gun being used on M60A2 tank. In addition to HE-T shell in table, it also fired HEDP-T (Dmg 6d×5(10) cr ex with 6d×6 [4d+2] cr ex linked) and beehive (Dmg 2d+1 cut, range 200/4000, RoF 10000, Rcl 1) shells, as well as MGM-51 Shillelagh guided anti-tank missiles (Acc +3, Dmg 6d×6 cr ex with 6d×6 cr ex linked, Range 800/3000).

GUNNER (CANNON)

| TL | Weapon | Damage | Acc | Range | EWt. | RoF | Shots | ST | Bulk | Rcl | Cost | LC | Notes |
|----|---|-------------------------------------|-----|------------|----------|-----|-------|-----|------|-----|------|----|-------|
| 6 | 76-mm Mountain Gun 1909 <i>follow-up</i> | 6d×5(0.5) pi++ 5d×3 [4d-1] cr ex | 4 | 500/5000 | 460/14 | 1 | 1(3) | 38M | -10 | 6 | | 1 | |
| 6 | M-30, 122mm <i>follow-up</i> | 6d×8(0.5) pi++ 6d×6 [5d] cr ex | 5+2 | 1000/17000 | 3527/50 | | 1(6) | | | 6 | | 1 | [1] |
| 7 | Gun M3, 37×223mm R | 6d×4(2) pi++ | 5+1 | 1700/6900 | 172/3.5 | 1 | 1(3) | 38M | -10 | 4 | | 1 | |
| 7 | QF 6-pounder, 57×441mm | 6d×6(2) pi++ | 6+1 | 700/4600 | 761/13.8 | 1 | 1(3) | | | 6 | | | |
| 7 | Gun M1, 90×600 mm R <i>Follow-up</i> | 6d×11(0.5) pi++ 6d×4 [4d] cr ex | 6+2 | 2000/18000 | 4520/42 | 1 | 1(3) | | | 7 | | 1 | |
| 7 | D-10 <i>follow-up</i> | 6d×12(2) pi++ 6d [4d-1] cr ex | 7+2 | 2000/15000 | 3170/66 | 1 | 1(3) | | | 7 | | 1 | |
| 7 | 90 mm F3 <i>linked</i> | 6d×3(10) cr ex 6d×3 cr ex | 5+3 | ???/2000 | 4850/22 | 1 | 6(3i) | | | 7 | | 1 | |
| 7 | U-5TS Molot | 6d×15(2) pi++ | 7+2 | 1000/9000 | 5180/66 | 1 | 1(3) | | | 7 | | 1 | |
| 7 | L7, 105×607 mm R | 6d×16(2) pi++ | 7+2 | | | 1 | 1(3) | | | 7 | | 1 | |
| 7 | SPG-9, 73mm <i>linked</i> | 6d×4(10) cr ex 6d×2 cr ex | 3+2 | 10/1300 | 109/9 | 1 | 1(4) | 16M | -8 | 1 | | 1 | |
| 7 | 2A28 “Grom”, 73mm | 6d×3 [3d] cr ex | 4+2 | 200/4400 | 254/9 | 1 | 1(6) | 32M | -12 | 1 | | 1 | |
| 7 | M81 Gun/Launcher, 152mm | 6d×9(0.5) pi++ 6d×6[7d+2] cr ex | 4+2 | 1000/9000 | 1125/49 | 1 | 1(10) | | | | | 1 | |

[1] Ammo weight does not includes propellant charge

Mortars

Motovilikha 2A51 "Nona" (Russia, 1974-present)

This 120mm gun-howitzer-mortar was developed as multi-purpose weapon for airborne troops. It can be used for both direct and indirect fire, and is extremely "omnivorous" - in addition to its own ammunition, it can fire any Russian and foreign 120mm shells. It is mounted on BMD-1 and BTR-80 chassis, or used as 2B16 towed gun (weight 2700 lb with carriage). It uses HE and HE-AB shells (in table), HEAT shells (6d×8(10) cr ex with 6d×5 cr ex linked, range 50/1000), rocket-assisted HE shells (damage 6d×7 [5d] cr ex, range

50/12800), cluster HEDP shells (damage 8d(10) cr ex with 5d×2 [3d] cr ex linked, RoF 1×30, Rcl 1) and precision laser-guided HE munitions (Range 50/12000), as well as smoke and illumination rounds.

Soltam K6 (Israel, ???-???)

This mortar was adopted by US army as M120. It can be carried on 400-lb trailer towed by Humvee, or mounted on mortar carriers based on M113 and IAV Stryker. It fires HE shells (in table; precision GPS-guided version exists), smoke and illuminations rounds.

ARTILLERY (CANNON)

| TL | Weapon | Damage | Acc | Range | EWt. | RoF | Shots | ST | Bulk | Rcl | Cost | LC | Notes |
|----|--------------------|-----------------|-----|----------|---------|-----|-------|----|------|-----|------|----|-------|
| 7 | 2A51 "Nona", 120mm | 6d×9 [6d] cr ex | 4+2 | 40/8855 | 1170/44 | 1 | 1(3) | | | | | 1 | |
| 7 | Soltam K6, 120mm | 6d×7 [5d] cr ex | 2 | 200/7240 | 319/31 | 1 | 1(3) | | | | | 1 | |

Flamethrowers

ATO-200 (Russia, 1958-1962)

This flamethrower was installed on some T-54 and T-55 versions. Unlike ATO-41, it replaced coaxial gun, and had 120 gallons of fuel, using 12-round drum of propellant cartridges to shoot burning 10 gallons of fuel at 200 meters. Each propellant cartridge weighs 3 lb. Flamethrower can be "fired" in full-auto mode.

mounts flamethrower and 7.62mm machine gun in a small rotating turret. M132 carries 200 gallons of fuel and can fire it in 200 1-second bursts or single 32-second stream.

M7A1-6 (USA, ???-???)

This is the main weapon of Flame Thrower Tank M67, based on M48A2 Patton. It replaces main gun, and its nozzle is disguised as cannon.

M10-8 (USA, ???-???)

M132 Armored Flamethrower is an M113 that

LIQUID PROJECTOR (FLAMETHROWER)

| TL | Weapon | Damage | Range | Weight | RoF | Shots | ST | Bulk | Cost | LC | Notes |
|----|---------|--------|-------|--------|-----|--------|----|------|------|----|-------|
| 7 | ATO-200 | 3d | 200 | | Jet | 12×8s | | | | 1 | |
| 7 | M10-8 | 3d | 180 | | Jet | 200×1s | | | | 1 | |
| 7 | M7A1-6 | 3d | 250 | | Jet | 60×1s | | | | 1 | |