GURPS VEHICLES LITE

STEVE JACKSON GAMES

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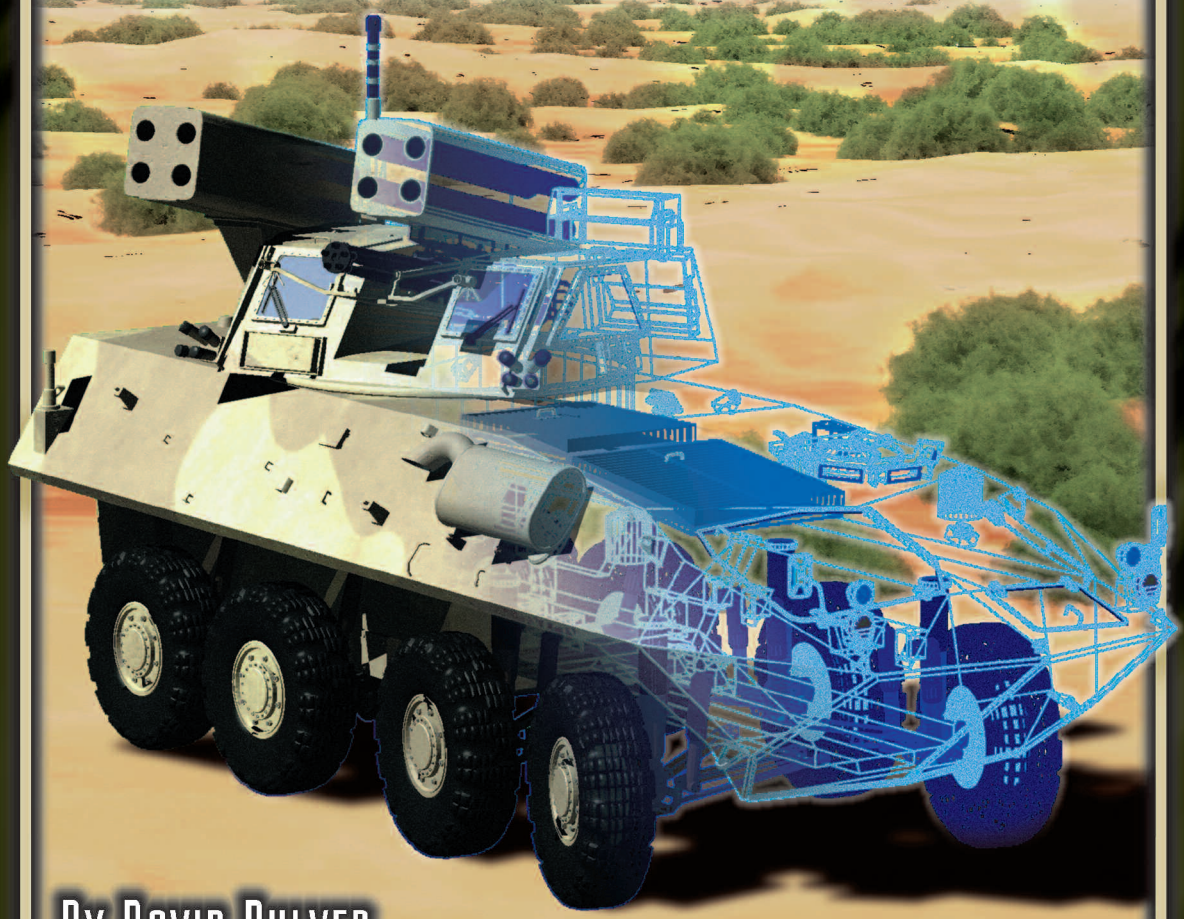
VEHICLES™

LITE



By David Pulver

STEVE JACKSON GAMES

Hot Wheels and Heavy Metal!

GURPS Vehicles Lite is a streamlined version of ***GURPS Vehicles***, packed with new design tips and shortcuts to make vehicle design faster and easier than before! Create cars, cycles, trucks, helicopters, and armored fighting vehicles – everything from racing bikes to battle tanks.

Vehicles Lite lets you add modern land vehicles and helicopters to games like ***Hellboy***, ***GURPS Cops***, and ***GURPS Special Ops***. In addition to the vehicle design system, it includes:

- Rules for land and air action.
- Stats for an arsenal of contemporary weapons, from 125mm Russian tank guns to Hellfire missiles.
- A half-dozen ready-to-use vehicles, including the GSX1100R Hayabusa superbike and the Marine Corps' LAV-25 APC.

Vehicles Lite requires the ***GURPS Basic Set***, *Third Edition Revised*, or a stand-alone ***Powered by GURPS*** book such as ***Hellboy*** or ***Transhuman Space***.

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www.sjgames.com

GURPS Basic Set, *Third Edition, is required* to use this supplement in a ***GURPS*** campaign. ***GURPS Vehicles Lite*** can be used with *any* roleplaying system.

The Engineers:

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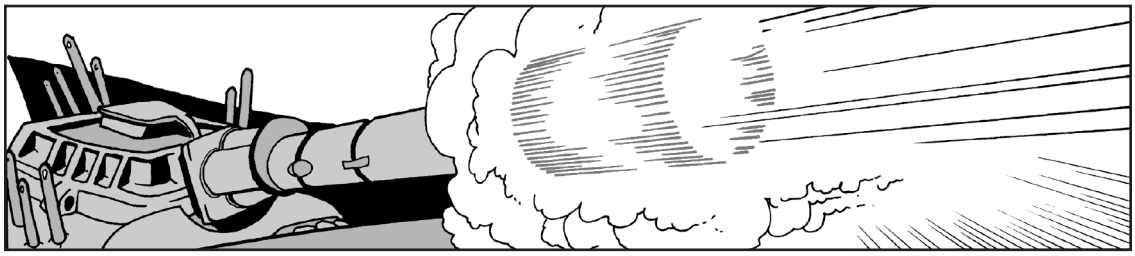
VEHICLES LITE™

HOT WHEELS AND HEAVY METAL



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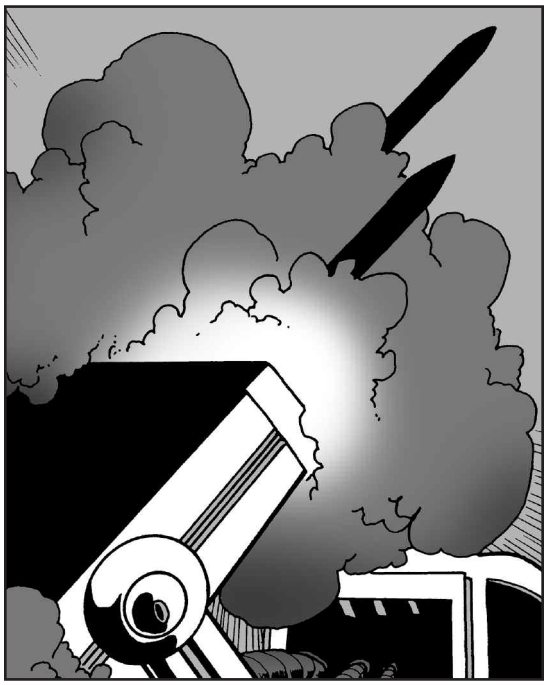

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STEVE JACKSON GAMES

INTRODUCTION

About GURPS

Steve Jackson Games is committed to full support of the ***GURPS*** system. Our address is SJ Games, Box 18957, Austin, TX 78760. Please include a self-addressed, stamped envelope (SASE) any time you write us! Resources include:

Pyramid (**www.sjgames.com/pyramid/**). Our online magazine includes new ***GURPS*** rules and articles. It also covers ***Dungeons and Dragons, World of Darkness, Call of Cthulhu,*** and many more top games – and other Steve Jackson Games releases like ***In Nomine, Illuminati, Car Wars, Toon, Ogre Miniatures,*** and more. *Pyramid* subscribers also have access to playtest files online!

New supplements and adventures. ***GURPS*** continues to grow, and we'll be happy to let you know what's new. A current catalog is available for an SASE. Or check out our website (below).

Errata. Everyone makes mistakes, including us – but we do our best to fix our errors. Up-to-date errata sheets for all ***GURPS*** releases, including this book, are available from SJ Games; be sure to include an SASE. Or download them from the Web – see below.

Gamer input. We value your comments, for new products as well as updated printings of existing titles!

Internet. Visit us on the World Wide Web at **www.sjgames.com** for an online catalog, errata, updates, Q&A, and much more. ***GURPS*** has its own Usenet group, too: rec.games.frp.gurps.

GURPSnet. This e-mail list hosts much of the online discussion of ***GURPS.*** To join, e-mail majordomo@io.com with "subscribe GURPSnet-L" in the body, or point your web browser to **gurpsnet.sjgames.com**.

The ***GURPS Vehicles Lite*** page is **www.sjgames.com/gurps/books/vehicleslite/**.

Page References

Any page reference that begins with a B refers to the ***GURPS Basic Set***, *Third Edition*. CI refers to ***GURPS Compendium I*** and CII to ***GURPS Compendium II***. The abbreviation for ***GURPS Vehicles Lite*** is VEL. See p. CI181 for a list of abbreviations for ***GURPS*** titles, or see **www.sjgames.com/gurps/abbrevs.html** for the most recent list.

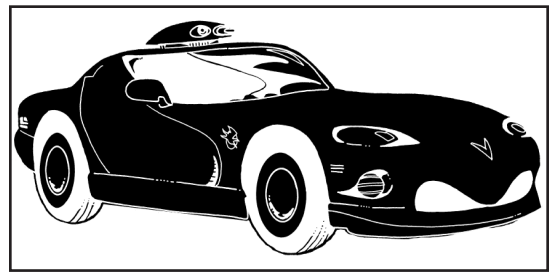
GURPS Vehicles Lite contains rules for using and creating modern-day wheeled, tracked, and rotary-winged vehicles for contemporary campaigns such as ***GURPS Cops, Espionage, Horror, Special Ops,*** or ***Supers***. This book covers both civilian and military designs: You can build cars, trucks, cycles, racing cars, or even attack helicopters and main battle tanks!

Vehicles Lite is intended for contemporary vehicles (roughly 1955-2010), but it's not limited to real-world designs. Use ***Vehicles Lite*** to create customized vehicles for spies and supers, or create unique designs for near-future or alternative Earth settings, or for TL7 societies on other planets.

This book is also intended to provide an accessible primer for the more complex ***GURPS Vehicles,*** *Second Edition,* whose 208 pages provide a comprehensive system for everything from chariots to starships.

Metric Unit Conversions

1 meter	=	1.09 yards or 3.28 feet
1 kilometer	=	0.621 miles
1 cubic meter	=	35.3 cubic feet
1 liter	=	0.264 U.S. gallons
1 horsepower	=	0.746 kilowatts
1 kilogram	=	2.2 pounds
1 kph	=	0.621 mph
1 knot	=	1.15 mph
1 metric ton	=	1.1 tons (2,200 lbs.)



About the Author

David L. Pulver has been a game designer since 1989. The author of ***GURPS Vehicles*** and the creator and editor of the ***Transhuman Space*** line, David lives in Victoria, British Columbia. He has written or co-authored over 50 roleplaying games, adventures, and supplements.

How Vehicles Work 1

GURPS Vehicles Lite concerns itself with modern automotive vehicles, for road and off-road travel, and helicopters. This chapter explains terminology and jargon to make it easier to design and use vehicles based on "real world" technology.

Motor Vehicles

These are wheeled and tracked self-powered ground vehicles: automobiles, motorcycles, trucks, bulldozers, tanks . . .

Wheeled Vehicles

Wheels are the motive system of choice for ground vehicles. Running on rubber tires and with a modern suspension system, they are inexpensive, easy to maintain, and permit high speeds across roads and similar hard-surfaced terrain. Vehicles with all-wheel drive transmissions and/or larger wheels and heavy-duty suspensions can also have credible off-road performance.

Their disadvantages include the vulnerability of their tires – to debris or to hostile fire – and their high ground pressure compared to tracked vehicles, which limits the off-road capabilities of wheeled heavy trucks and armored vehicles.

Most automobile-sized or larger wheeled vehicles have a stable arrangement of four, six, or eight wheel positions (albeit sometimes with multiple wheels on the same axle, as in large semi-tractors). On a large vehicle, six or more wheels mean less agility but greater stability, as it can keep a relatively low profile rather than riding high like a monster truck.

Tracked Vehicles

Tracked vehicles use a pair of caterpillar tracks. The motive system consists of two sets of "road wheels" and smaller bogie wheels, all without tires, collectively known as running gear. Each supports a flexible belt of rubber-coated steel plates that forms a continuous band. These caterpillar tracks are wider than any tire, and have far lower ground pressure. They also allow the vehicle to clamber over ditches and obstacles.

Tracks are used for heavy construction equipment such as bulldozers and power shovels, as well as armored fighting vehicles. They are less vulnerable to damage than tires, although it is possible for material to jam in the running gear, causing the vehicle to "shed" a track. Tracked vehicles can also be built with a lower silhouette than off-road wheeled vehicles. Their disadvantages are a slower road speed, greater weight and expense, and higher maintenance requirements. Heavily loaded tracked vehicles, such as tanks, also tend to wreck road surfaces.

Motor Vehicles Classification

There are numerous different kinds of motor vehicles, including . . .

Passenger Cars and Light Trucks

The dominant vehicles on the roads are four-wheeled autos and light trucks, typically powered by a gasoline internal combustion engine (p. 7). Subtypes include:

Coupe: A two-door automobile, with a seat for driver and passenger in front, and usually cramped or no rear seats. Coupes are often sports cars.

4×4 Vehicle: A jeep or other off-road vehicle with four-wheel or all-wheel drive and a rugged suspension. May have an open or enclosed cabin.

Limousine: A chauffeur-driven luxury sedan, with its back-seat passenger compartment partitioned off from the front seats. Very roomy "stretched" limousines exist.

Vehicle Design 2

This chapter provides a comprehensive metasystem for creating modern ground vehicles and helicopters. Use scratch paper (or a simple spreadsheet) to keep track of the vehicle's characteristics as they are designed. Afterwards, record the necessary essentials of the finished design as per the sample vehicle format on pp. 60-64.

Concept

First, come up with a general concept of the vehicle. Decide if you want to make up your own vehicle, or attempt to reproduce some or all of the characteristics of a real vehicle. What's it for? What should it look like? Examples of concepts are provided in Chapter 1 and Chapter 5.

The Design Process

A vehicle is designed by choosing the major *subassemblies* (like wheels, rotors, or turrets), along with any *body features* like streamlining. This determines its shape. The major part of vehicle design is the selection (and in some cases, design) of various components, like engines or seats, and their placement within the body or subassemblies. Then the volume of the body and each subassembly is determined, and the size, weight, and cost of the structure and any armor are calculated. (Alternatively, this can be done before choosing the components, with components selected to fill the "empty" body and subassembly spaces). Last of all, the vehicle's statistics are determined. If it's a made-up vehicle, it can be given a name. If it's a real vehicle, you may wish to tweak any statistics for which you possess complete data, so that it more precisely matches its real-world equivalent.

Tech Level

GURPS Vehicles Lite is intended for TL7 vehicles, those designed and built with technology equivalent to that used in the Earth period 1950-2000. Since it often takes several years to go from concept to production, this actually means that "real world" designs from the late 1950s to the first decade of the 21st century are the best match for "TL7 designs." Unless otherwise noted, assume all components are TL7. In a few cases, early TL8 components have been made available (as "improved" systems) for increased cost. The terms "early TL7" and "late TL7" differentiate between the items available in the first or second half of the period, notably vehicle electronics.

Subassemblies

Every vehicle has a main *body*. But many vehicles have subassemblies attached to their body, such as wheels, wings, or turrets.

Motive Subassemblies

First, pick *one* motive subassembly for the vehicle; this also includes not only the actual wheels, tracks, or skids, but also the suspension, brakes, and steering:

Small Wheels: Used on helicopters, as landing gear.

Skids: An alternative to small wheels for helicopter landing gear.

Pontoons: Skids alternative for water landing.

Standard Wheels: Used by most cars, vans, trailers, SUVs, and cycles.

Heavy Wheels: Used by many oversized vehicles, like trucks and tractor-trailers.

Off-Road Wheels: Used on all-terrain vehicles, dirt bikes, and wheeled AFVs.

Tracks: Used on caterpillar tracked vehicles, like bulldozers or tanks.

A single subassembly represents *all* wheels, skids, tracks, etc. on the vehicle. Vehicles with skids or tracks are assumed to have two tracks or two skids. In the case of wheels, choose the number of wheel positions: one, two, three, or any even number.

Flight Subassemblies

To create a helicopter, also select *one* of these rotor types:

Top-and-Tail Rotor (TTR): One large top rotor and one small tail rotor, plus a tail.

Multiple Main Rotor (MMR): Two large rotors, a system used mostly on larger helicopters.

Electronic controls (fly or drive by wire) give better maneuverability, but cost $5,000 or 10% of the drivetrain's cost, whichever is more.

Weight, Volume, and Location: Maneuver controls have no extra weight or volume, but they should be assigned a location – usually in the body of the vehicle.

Duplicate Controls: Helicopters may have a second set of controls, to allow a co-pilot to fly the aircraft without leaving his seat. Duplicate maneuver controls weigh 50 lbs., occupy 1 cf; duplicate mechanical controls cost $100 or 1% of the drivetrain's cost, whichever is more; duplicate electronic controls cost half what the electronic controls cost.

Crew Stations

A crew station (sometimes called a "workspace" or a "station") is a position manned by a single crew member. It controls one or more vehicle systems, and includes a seat and console. Each station is assigned control of certain vehicular components, such as maneuver controls, weapons, or electronics, and these can only be controlled from that station.

Determine how many crew stations the vehicle needs and what they control. (In many vehicles, this is unnecessary: just assume the vehicle operator controls everything.) Each of these components must be assigned to a particular crew station: each set of maneuver controls, each ranged weapon, each electronic system. A station can be assigned to control multiple systems as long as no station controls a component assigned to another, different station. For most civilian vehicles, there's only one crew station: the driver or pilot.

Decide how many crew stations the vehicle requires, give each a descriptive name, and decide what each controls. E.g., a crew station in an automobile with maneuver controls would probably be named "driver." One in a modern tank that controlled the radio and sensors might be "commander." Then decide what type of crew stations are used:

Cramped Crew Station (CCS): This is a seat or workspace with little room. Typical of vehicles like race cars, small helicopters, or Russian tanks, where space is at a premium.

Normal Crew Station (NCS): This has somewhat more elbow room and is more comfortable to work at. Typical of most military ground vehicles and some civilian craft.

Roomy Crew Station (RCS): Roomy crew stations are typical of vehicles built for comfort, such as most civilian automobiles.

Exposed Cramped (XCCS), Normal (XNCS), or Roomy (XRCS) Crew Station: The same as any of the above crew stations, but open to the elements, with no side or top protection. It is typical of crew stations in vehicles like jeeps, race cars, or convertibles.

Cycle Crew Station: A compact control panel and seat entirely outside the vehicle. It is used on small vehicles like motorcycles. It can only be used on vehicles that require only one crew station, do not have streamlining, and which, at this stage in the design process, have less than 30 cf of components. The occupant is unprotected by vehicle armor.

Crew Requirements

Driver/Cyclist/Pilot: The only actual requirement is a vehicle operator. In a pinch, he can usually operate other vehicle systems, though he may be overworked if has to do too many tasks simultaneously (e.g., drive, fire weapons, *and* use the radar). For this reason, military vehicles (and some civilian ones) may have larger crews.

Co-Pilot or Relief: Common on helicopters, a co-pilot takes turns flying the aircraft, and when not doing so may act as a lookout, navigate, or operate sensors or weapons. Semi-tractors and long-haul vehicles may have a relief driver for round-the-clock driving.

Gunner: AFV and attack helicopters often have a gunner. He fires the main weapons on the vehicle, freeing the vehicle operator to maneuver instead of shooting.

Loader: If a weapon requires loaders, a crew member may be assigned to do the job, usually serving as a mechanic, and possibly operating a secondary weapon when not busy.

Commander: AFVs usually have one person as commander; in addition to supervising the other crew, he will serve as a lookout, operate radios, and man the vehicle's sensors. In vehicles with two-man crews, he may double as the vehicle's gunner.

Other vehicles may carry extra crew to perform specialized tasks. A tour bus may have a conductor or guide, an ambulance may have 1-2 attendants or paramedics, and so on.

Vehicle Combat 4

This chapter describes how the ***GURPS*** combat rules handle attacks made by or against vehicles. For ramming, see the *Vehicle Operations* chapter.

Firing Vehicular Weapons

Vehicle gunners take their turns normally, unless movement penalties prohibit them from firing. They may take the Wait maneuver to fire later, even in the middle of their vehicle's move.

Vehicle gunners may aim while firing and take no Recoil penalty. Unless provided with special mounts (p. 24-25), vehicular weapons can only fire within 15 degrees of straight out from their facing; however, a turret (or rotating open mount) and its weapons may vary their facing independently from the body.

Normal vehicle weapons use direct fire, and are limited to attacks on targets that can be seen by the gunner, not hidden by intervening terrain or objects nor over the horizon. This usually limits its range to under 5,000 yards, if both firer and target are on the ground or flying just above it.

Indirect fire is possible at greater ranges and for targets outside line of sight if performed by vehicles with weapons in high angle or universal mounts with the assistance of a forward observer. Mortars may *only* fire indirectly. See p. CII60. Do not apply the indirect fire range multiple; this is already included in the maximum ranges listed for mortars, guns, etc.

Very High RoF

Some weapons have rates of fire of 20 or more, up to RoF 100 for miniguns and Gatlings! For identical, linked automatic weapons with a single or combined RoF of 20 or more, resolve fire using 20-round groups instead of normal 4-round groups, using the table below:

Roll Made By	*-3*	*-2*	*-1*	*0-1*	*2-4*	*5+*
Number of Hits	0	1	5	10	15	20

Thus if the roll needed to hit is 14, and a 12 is rolled, 15 rounds hit the target. If the RoF does not divide evenly by 20, either ignore the excess or calculate fire for it in groups of 4 (see p. B120).

If the target gets a PD or Dodge roll, this can also be simplified. Rather than rolling Defense against each shot, make one roll that applies to all shots in the entire 20-shot group.

Scattering

Attacks with CHEM or explosive warheads that miss or were dodged will land *somewhere* and do damage. Look up the amount that the attack missed by on the *Size and Speed/Range Table* (p. B201). The value in the Linear Measurement column indicates how far away the attack landed, with a minimum of 1 yard and a maximum of 10% of the range to the target. Determine direction of miss as per grenades (see *Scatter,* p. B119).

Using Guided Missiles

Modern combat vehicles often carry guided missiles, which use special rules. If successfully launched (see below), missiles take (range to target/missile Speed) turns to reach a target. Modify this if the target is closing or running; e.g., if the target is attempting to flee, it takes (range/missile's Speed advantage).

Once launched, the missile moves toward the target, bending up to 30° each turn to keep on course, until line of sight is broken, maximum range is reached, or it hits. The missile can fly for a number of turns equal to its endurance. If the missile can successfully catch up with and intercept its target, it hits automatically (unless dodged).

Operator-Guided Missiles

These are wire- or radio-guided missiles that are steered toward a target by the gunner. The firer makes a Gunner+4 roll to launch the missile; failure means it crashes. The firer must keep the target in sight, the weapon in wire (WG) or radio (RG) contact, and make an unmodified Gunner roll for each turn of flight for early TL7 (MCLOS) systems or each five turns or fraction for later TL7 (SACLOS) systems. The missile veers off course on a failed roll. A successful roll at -3 on the next turn brings it back on target, otherwise it crashes. Vehicles with gunners using wire guidance must remain stationary or follow the weapon at less than its speed, or the missile will crash.

7.62×54mmR MG [Bod:F] (1,500 rounds) +0.
12.7×108mm MG [OM:F] (500 rounds) +0.

Equipment

Body: Compact fire suppression; smoke-screen; 4-man environmental control; 4-man NBC kit. *Turret:* Full stabilization for 100mm gun and 7.62mm machine gun; medium-range radio; 7× telescope (gunner); 5× telescope (commander); 0.5-mi. IR searchlight; laser rangefinder; dedicated targeting computer w/software for 100mm gun. *Open Mount:* Universal mount for 12.7mm machine gun; 0.25-mi. IR searchlight.

Statistics

Size: 20'×11'×9' *Payload:* 4,612 lbs. *Lwt.:* 41.68 tons
Volume: 768 cf *Maint.:* 29 hours. *Price:* $460,815.

HT: 11. *HP:* 1,200 *Tur:* 750 *Tracks:* 375 each.

*gSpeed:*40 g*Accel:* 3 *gDecel*: 20
gMR: 0.25 *gSR:* 6

Ground Pressure Low. 2/3 Off-Road Speed.

Design Notes

Body is 365 cf with 60° F slope. Turret is 182 cf with rounded design (treated as 30° top slope). Tracks are 219 cf. Open mount is 1.9 cf. Structure is heavy and cheap. Armor is standard metal. Sealed structure. Mechanical controls. There are 2.88 cf of empty space in the body and 1.37 cf in the turret for further upgrades. Empty weight is 78,743 lbs. Typical ammo mix for 100mm gun is 25 APFSDS (5 in turret), 8 HE (3 in turret), and 11 HEAT (6 in turret). 12.7mm MG ammo is in turret.

Most Type 69-IIs are made in countries with cheap labor costs, so the listed price is reasonably accurate for a new-built or slightly used example.

Variants: The older Type 69-I had a 100mm smoothbore gun; treat as 100mm rifled, but -2 to Acc. The newer Type 69-III replaces the 100mm gun with a 105mm rifled gun and substitutes 2-mi thermographs for the IR searchlights. Type-69 statistics can be used for Russian T-55 upgrades: delete the body machine gun.

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