

COLD SPACE

VEHICLE DESIGN GUIDE

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Vehicles in the Cold Space game are of necessity mostly based on the vehicles in our world. Any vehicle which existed in our world would be available in Cold Space at the same approximate time. In the back of this Guide are examples of such vehicles from the real world with their real statistics. With this guide, however, you can create new vehicles just for Cold Space, using the example vehicles as guidelines.

HOW IT WORKS

In this guide, the vehicles you create are variations on the standard types, which have varying parameters which you control. These parameters can be modified, so long as any collective increase is covered by an equal decrease in the other parameters collectively. Here are the basic vehicle parameters.

BASIC VEHICLE PARAMETERS:

RANGE

Range is how far the vehicle can travel at cruising (not top) speed without refueling. Each step is a 10% change in the initial listed range. Each step costs one more point than the step before, and each step is counted separately.

FOR EXAMPLE:

10% change = 1 step

20% change = 2 steps + 1 step = 3 steps

30% change = 3 steps + 2 steps + 1 step = 6 steps

40% change = 4 steps + 3 steps + 2 steps + 1 step = 10 steps

Increases in range are positive steps, and decreases in range are negative steps.

MASS

Mass is the vehicle's resistance to change in velocity. Mass is identical to weight at one G acceleration. Each step is a 10% change in the initial listed range. Each step costs one more point than the step before, and each step is counted separately.

FOR EXAMPLE:

10% change = 1 step

20% change = 2 steps + 1 step = 3 steps

30% change = 3 steps + 2 steps + 1 step = 6 steps

40% change = 4 steps + 3 steps + 2 steps + 1 step = 10 steps

Decreases in mass are positive steps, and increases in mass are negative steps.

MOUNTED WEAPONRY

Mounted weaponry are the weapons which are part of the vehicle, as opposed to towed or carried weapons. Each type of weapon and mount is worth a differing amount of points. The following are viable weapon types and mounts:

WEAPON TYPES

Light Machine Gun (app .30 cal/7.62 mm)	+25 dam/rnd	WF 1	1 step
Heavy Machine Gun (app .50 cal/12.7 mm)	+40 dam/rnd	WF 2	2 steps
Mini Gun (small motorized gatling gun)	+25 dam/rnd	WF 2	2 steps
Light Autocannon (app 20 mm)	+80 dam/rnd	WF 4	4 steps
Heavy Autocannon (app 40 mm)	+160 dam/rnd	WF 8	8 steps
Light Cannon (app 75 mm)	+190 dam/rnd	WF 10	10 steps
Medium Cannon (app 100 mm)	+380 dam/rnd	WF 20	20 steps
Heavy Cannon (app 120 mm)	+570 dam/rnd	WF 30	30 steps
Bomb (25 kg/factor)	+20 dam/factor	1 step/factor	
Rocket (25 kg/factor)	+10 dam/factor	1 step/factor	
Missile (33 kg/factor)	+10 dam/factor	1 step/factor	

MOUNT TYPES

Fixed Mount - fires in one direction	Steps = 0 X Weapon Type Steps
Limited Traverse - 30 degree arc of fire	Steps = 0.25 X Weapon Type Steps
Turret - 360 degree arc of fire	Steps = 0.5 X Weapon Type Steps
Ball Turret - 360 degree hemispherical arc of fire	Steps = 1 X Weapon Type Steps

EXAMPLE:

Heavy machinegun on a turret mount = 2 steps + (2 X 0.5 = 1 step) = 3 steps
Light cannon in a turret mount = 10 steps + (10 X 0.5 = 5 steps) = 15 steps
Mini-gun in a Ball Turret mount = 2 steps + (2 X 1 = 2 steps) = 4 steps

Removing weapons gives negative steps
Adding weapons gives positive steps

MOUNTED WEAPON ACCURACY

Each +1 in accuracy is worth 5 steps. Increasing accuracy gives positive steps. Decreasing accuracy gives negative steps.

ARMOR

Each point of Armor (AP) is worth 5 steps. Increasing AP gives positive steps. Decreasing AP gives negative steps.

SPEED

Speed applies to both cruising and maximum speed. Increasing the Speed gains positive steps, while decreasing the speed gains negative steps.

Each +5% gains +1 step. Each -5% gains -1 steps.

CARRYING CAPACITY

Carrying Capacity is the ability of the vehicle to carry mass over and above its own mass. Increasing the Carrying Capacity gains positive steps, while decreasing the carrying

Capacity gains negative steps. Carrying Capacity is rated in percent of the vehicle's total mass

Each +1% gains +1 step. Each -1% gains -5 steps.

MANEUVERABILITY

Maneuverability is the bonus or penalty to the Driving skill for everything except planes. Planes are rated in a number of G's the vehicle can take in a maneuver.

PLANES:

Each G is worth 10 steps. Increases in G-rating are positive steps, decreases are negative steps.

EVERYTHING ELSE:

Each percentage point is worth one step. Increasing the Maneuverability is a positive step, while decreasing the Maneuverability is a negative step.

SIMPLICITY

Simplicity is the bonus or penalty to a skill check to repair the vehicle. Each percentage point of Simplicity is one step. Increasing the Simplicity is a negative step, while decreasing the Simplicity is a positive step.

TERRAIN RATING

Terrain Rating is a rating of the type of terrain the vehicle can traverse. Each category between the start and end condition must be gone through. Each change in category will cost the higher of the two listed step costs. Changes in the rougher direction are positive Steps, while changes in the smoother direction are negative Steps.

TERRAIN RATING

STEP COST

City/Highway	0 Steps
Country Road	5 Steps
Smooth Unsurfaced	10 Steps
Rough Unsurfaced	20 Steps
Very Rough Unsurfaced	40 Steps

FOR EXAMPLE:

Change from Country Road to Rough Unsurfaced: Country Road to Smooth Unsurfaced = 10 Steps. Smooth Unsurfaced to Rough Unsurfaced = 20 Steps. 10+20 = 30 Steps total.

COST

Cost is the monetary price for buying the vehicle. Each step is 10% of the base cost. Lowering the Cost is a negative step, while raising the Cost is a positive step.

MODIFYING A BASIC VEHICLE

Select the basic weapon from the list in the book. Let us use, as an example, an Army Jeep. From the list at the back of the book, a Jeep's parameters are:

Range:	550 km
Mass:	1000kg
Mounted Weaponry:	None
MW Accuracy:	0%
Armor:	0 AP
Speed:	95 kph max/65 kph cruise
Carrying Capacity:	33%
Maneuverability:	+0%
Simplicity	+20%
Terrain Rating	Rough Unsurfaced
Cost:	\$1000 (Surplus)

The first Variation we will make is Ford's Model 44 GPV. First we will arm the vehicle with a heavy machinegun in a pintle (turret) mount. This will be +3 Steps. Next we will increase the Range by 20% to 660 km. This will cost +3 Steps. Then we will put some light armor on it to 2 AP for +10 Steps. This is a total of 16 Steps so far. Next, we will increase the Mass by 30% to 1300 kg for -6 Steps, bringing us down to +10 Steps. We'll increase the Cost by 50% to \$1500 for -5 Steps, bringing us to +5 Steps. Last, we will decrease the Speed by 25% to 71/49 kph for another -5 Steps, balancing us out. Here are the new Stats:

1949 FORD MODEL 44 GPV

Range:	660 km
Mass:	1300kg
Mounted Weaponry:	Pintle mounted Heavy Machine Gun - 2 WP
MW Accuracy:	0%
Armor:	Light Armor - 2 AP
Speed:	71 kph max/49 kph cruise
Carrying Capacity:	33%
Maneuverability:	+0%
Simplicity	+20%
Terrain Rating	Rough Unsurfaced
Cost:	\$1500 (Surplus)

The Ford GPV was built for light scouting duties in rough terrain. It's pintle mounted HMG gives it a punch, and the light armor protects it from small arms fire. Built on a Jeep chassis, the GPV has a diesel engine rather than a gasoline engine, and a larger fuel tank. While heavier and slower than a Jeep, the GPV is well liked for its rugged simplicity and general utility.

ANOTHER EXAMPLE:

1951 F-86F SABRE, NORTH AMERICAN

Range:	2010 km
Mass:	5046 kg
Mounted Weaponry:	6 X Fixed Mount Heavy Machine Gun - WF 2 X 6 16 X Factor 4 (HVAR) Rockets
MW Accuracy:	+0%
Armor:	Very light - AF 1
Speed:	1091 kph max/870 kph cruise
Carrying Capacity:	54%
Maneuverability:	4 G
Simplicity	-20%
Terrain Rating	N/A
Cost:	\$427,222.00

We'll create the F-86F-A1 Sabre Interceptor. Let's begin editing by increasing the maneuverability in Gs to 5 for +10 steps. Then we can remove the 6 X .50 calibre machine guns (-12 Steps) and substitute 4 X 20 mm autocannon (+16 Steps) for a net gain of +4 steps. Then we'll increase the Armor to 3 AF for +10 Steps, for a total gain of +24 Steps. We'll also increase the accuracy by +5% for 25 Steps, for a grand total of +49 Steps. Now, to work this off, let's increase the Mass by 40% to 7064 kg for -10 Steps. We can decrease Carrying Capacity by 20% to 34%, and gain -20 Steps. We are at +19 so far. We can increase Simplicity by 5% to gain -5 Steps. Now we are down to +14. We'll decrease the Range by 30% to 1407 km for -6 Steps leaving us with 8 steps. Now, we'll increase the price by 80% to \$769,000.00 for -8 Steps, leaving us at 0 and balance.

1952 F-86F-A1 SABRE INTERCEPTOR, NORTH AMERICAN

Range:	1407 km
Mass:	7064 kg
Mounted Weaponry:	4 X Fixed Mount Light Autocannon - WF 4 X 4 16 X Factor 4 (HVAR) Rockets
MW Accuracy:	+5%
Armor:	Light - AF 3
Speed:	1091 kph max/870 kph cruise
Carrying Capacity:	34%
Maneuverability:	5 G
Simplicity	-25%
Terrain Rating	N/A
Cost:	\$769,000.00

The F-86F-A1 Interceptor was introduced in 1952 to counter MiG-15 incursions in Korea. The Sabre-I as it was called, had increased wing area in a new configuration for tighter turns, allowing the Sabre-I to turn inside the MiG-15. Armor was increased to protect vital points, including the pilot, and the M-61 20 mm cannon and Hughes Mk 14 TAS markedly increased the kill ratios at the cost of a smaller operational range.

STOCK VEHICLES

1945 US ARMY JEEP

Range:	550 km
Mass:	1000kg
Mounted Weaponry:	None
MW Accuracy:	0%
Aarmor:	0 AP
Speed:	95 kph max/65 kph cruise
Carrying Capacity:	33%
Maneuverability:	+0%
Simplicity	+20%
Terrain Rating	Rough Unsurfaced
Cost:	\$2000.00

1951 F-86F SABRE, NORTH AMERICAN

Range:	2010 km
Mass:	5046
Mounted Weaponry:	6 X Heavy Machine Gun - WF 2 X 6 16 X Factor 4 (HVAR) Rockets
MW Accuracy:	+0%
Aarmor:	Very light - AF 1
Speed:	1091 kph max/
Carrying Capacity:	54%
Maneuverability:	4 G
Simplicity	-20%
Terrain Rating	N/A
Cost:	\$427,222.00



1944 M24 CHAFFEE LIGHT TANK

Range:	280 km
Mass:	18,500 kg
Mounted Weaponry:	Turret mounted Light Cannon Turret mounted Light Machinegun Limited traverse Light Machinegun Pintle mounted Heavy Machinegun
MW Accuracy:	+0
Aarmor:	Medium AF 8
Speed:	42 kph
Carrying Capacity:	30%
Maneuverability:	-10%
Simplicity	+0%
Terrain Rating	Smooth Unsurfaced
Cost:	\$165,000 (Surplus)

1944 CCKW 2.5 TON "DEUCE AND A HALF" TRUCK

Range:	480 km
Mass:	4704 kg
Mounted Weaponry:	None
MW Accuracy:	N/A
Armor:	None
Speed:	72 kph/ 50 kph
Carrying Capacity:	66%
Maneuverability:	+0%
Simplicity	+0%
Terrain Rating	Smooth Unsurfaced
Cost:	\$1000.00

1956 FORD THUNDERBIRD

Range:	641 km
Mass:	1381 kg
Mounted Weaponry:	None
MW Accuracy:	N/A
Armor:	None
Speed:	150 kph/112 kph
Carrying Capacity:	20%
Maneuverability:	+0%
Simplicity	+0%
Terrain Rating	Country Roads
Cost:	\$3,151.00



1985 CHEVY CORVETTE

Range:	577 km
Mass:	1415 kg
Mounted Weaponry:	None
MW Accuracy:	N/A
Armor:	None
Speed:	224 kph/168 kph
Carrying Capacity:	20%
Maneuverability:	+0%
Simplicity	+0%
Terrain Rating	City Streets
Cost:	\$31,979.00

1943 CONSOLIDATED PBY-5A CATALINA

Range:	4096 km
Mass:	9485 kg
Mounted Weaponry:	3 X Light Machine Gun Limited Traverse mount 2 X Heavy Machine Gun Limited Traverse mount
MW Accuracy:	+0
Aarmor:	Very light - 1 AF
Speed:	288 kph/188 kph
Carrying Capacity:	59%
Maneuverability:	2 G
Simplicity	-10%
Terrain Rating	N/A
Cost:	\$30,000.00

1971 BELL 206B II JET RANGER HELICOPTER

Range:	621 km
Mass:	985 kg
Mounted Weaponry:	None
MW Accuracy:	+0
Aarmor:	None
Speed:	241 kph/175 kph
Carrying Capacity:	56%
Maneuverability:	+30
Simplicity	-10%
Terrain Rating	N/A
Cost:	\$300,000.00



1968 CHEVY STEPSIDE C-10 PICKUP

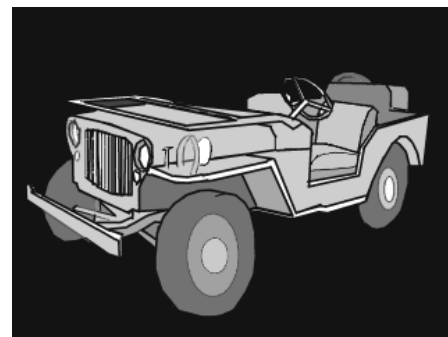
Range:	655 km
Mass:	1520 kg
Mounted Weaponry:	None
MW Accuracy:	+0
Aarmor:	None
Speed:	145 kph/120 kph
Carrying Capacity:	52%
Maneuverability:	+0
Simplicity	+0%
Terrain Rating	Country Roads
Cost:	\$3,000.00

1968 MACK MODEL 22 LOADMASTER CONTRAGRAV AIRSHIP

Range:	3550 km
Mass:	9554 kg
Mounted Weaponry:	None
MW Accuracy:	+0
Armor:	None
Speed:	248 kph/161 kph
Carrying Capacity:	121%
Maneuverability:	-30
Simplicity	+15%
Terrain Rating	N/A
Cost:	\$120,000.00

1968 US NAVY ASA LANSEN CLASS CONTRAGRAV ASSAULT AIRSHIP

Range:	1550 km
Mass:	120,554 kg
Mounted Weaponry:	12 Turret Mounted Light Autocannon 6 Turret Mounted Heavy Autocannon 3 Turret Mounted Heavy Cannon
MW Accuracy:	+10%
Armor:	Medium - AF 8
Speed:	388 kph/321 kph
Carrying Capacity:	31%
Maneuverability:	-30
Simplicity	-25%
Terrain Rating	N/A
Cost:	\$22,250,000.00



1963 GRUMMAN MARS SANDCAT CONTRAGRAV AIRSHIP

Range:	5050 km
Mass:	12,554 kg
Mounted Weaponry:	None
MW Accuracy:	+0%
Armor:	None
Speed:	454 kph/400 kph
Carrying Capacity:	41%
Maneuverability:	-30
Simplicity	-15%
Terrain Rating	N/A
Cost:	\$250,000.00

1964 F-108A RAPIER, NORTH AMERICAN

AEROSPACE INTERCEPTOR - DESIGN BY MICHAEL SCOTT

(Used with permission)

Range:	2010 km
Mass:	46500 kg
Mounted Weaponry:	2 X Fixed Heavy Autocannon - WF 8 X 2 (20mm Vulcan) 4 X Factor 6 Radar missiles (Hughes GAR-9)
MW Accuracy:	+0%
Aarmor:	Light - AF 3
Speed:	4082 kph max/3062 kph cruise
Carrying Capacity:	20%
Maneuverability:	2 G
Simplicity	-40%
Terrain Rating	N/A
Cost:	\$2,277,159.00

North American Aviation FN-108 "Rapier" Aerospace Fighter 5 TU, Date Available: 1964, Size in Tons: 46.5, Crew: 2, Fuel Tonnage: 15, Fuel Type: LH-Reaction Mass, Contragravity Fuel: Nuclear.

Armament: 2 x Fixed Forward Heavy AutoCannon (GE T-171 Vulcan 20mm rotary cannon), 4 x Radar Missiles (Hughes GAR-9 Super-Falcon).

Drives: Contragravity: Bell Labs Mk.65 Solothurn Drive, Engines: 2 x Pratt&Whitney NF.63 Pluto NERVA Scramjets producing 25 tons thrust each. The Plutos are nuclear rocket engines that can function as supersonic ramjets when the intake ramps are opened to allow air to flow through the engines during atmospheric flight. This allows for ambient cooling and a decreased fuel consumption. Standard operating procedure is to take off using the Plutos as rockets. Once operating speed is attained, the ramps are opened and air flows over and through the reactors to provide cooling and to mix with the liquid hydrogen fuel. In vacuum, the ramps are closed and the jet exhaust nozzles are opened fully to ensure maximum thrust.

Maximum airspeed of the F-108 Rapier is Mach 3.5 at 120,000 feet and higher. Contragravity allows the aerospacecraft to achieve orbit (as well as execute VTOL maneuvers- if the pilot is very, very good).

While operating as Scramjets, the NERVA engines are considered "turbojets" for purposes of calculating performance. This gives a speed of 3225.8 kph max.

