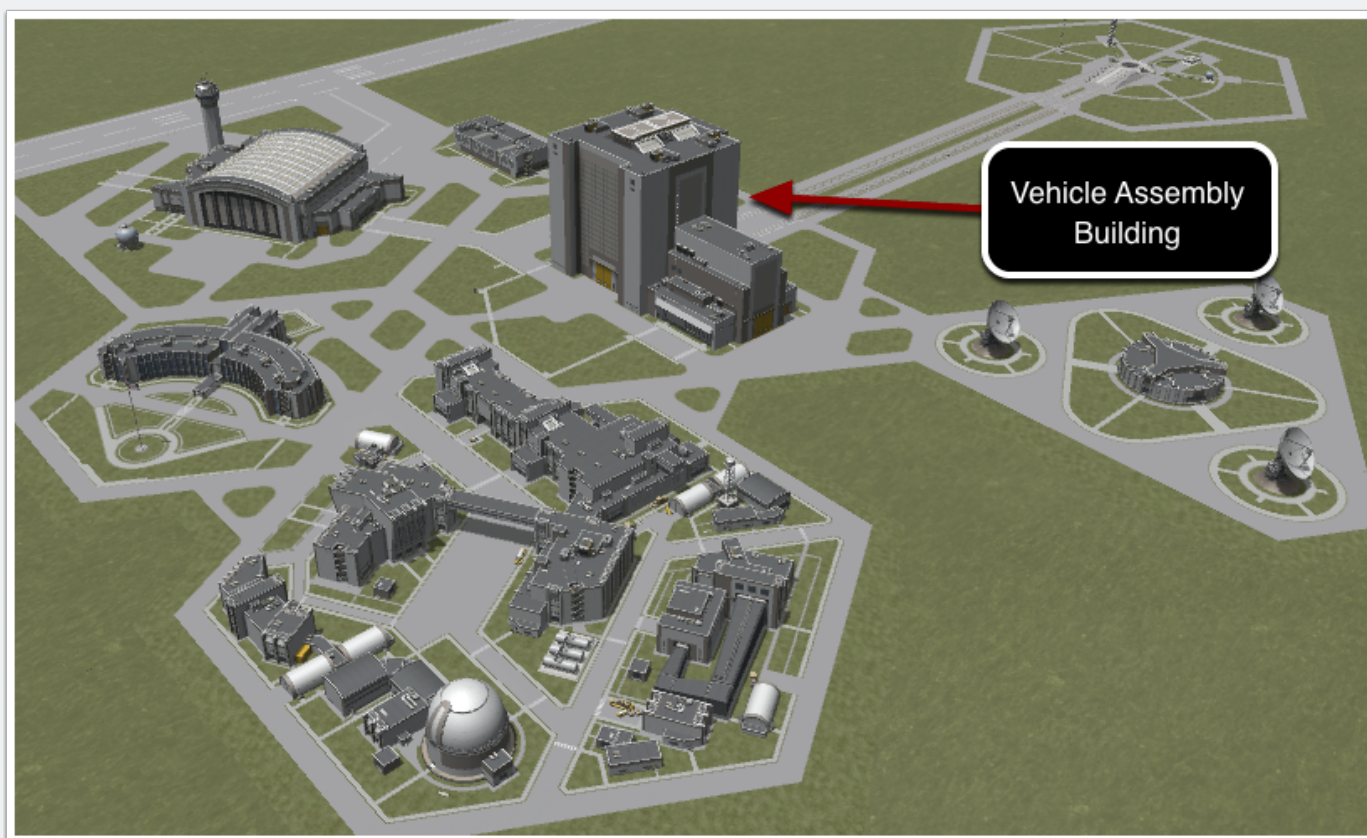


Building Your First Rocket

Building a basic rocket in Kerbal Space Program. Begin by starting a new game in "Sandbox" mode.

Start by heading to the Vehicle Assembly Building



Building Your First Rocket

Begin by choosing a Command Pod to start your rocket assembly.

The Command Pod Mk1 is a great place to start. It holds a single Kerbonaut.



The image shows a screenshot of the Kerbal Space Program parts menu. On the left, a grid of various rocket parts is visible. The Command Pod Mk1 is highlighted in the second row, second column. On the right, a detailed view of the Command Pod Mk1 is shown, along with its technical specifications and a description.

Command Pod Mk1

Mass: 0.84
Drag: 0.2
Crash Tolerance: 14.0 m/s
Max. Temperature: 3400.0°
Crew Capacity: 1

Manufacturer:
Kerlington Model Rockets and Paper Products Inc.

Originally built as a placeholder for a demonstration mock-up of a rocket, the Mk1 Command Pod was heralded as a far safer and more reliable option than its predecessors by rocket scientists throughout the world. It is now commonly seen in active service.

Cost: 600.00 [\[RMB\]: More Info](#)

Building Your First Rocket

Place the Command Pod Mk1 in the center of the screen and left click. You can now start adding additional parts.



Building Your First Rocket

A parachute will be important to the survival of your Kerbal.

Try adding an Mk16 Parachute (from the Utility Menu) to the top of your command pod.

Mk16 Parachute



63.1cm

Mass: 0.1
Drag: 0.1
Crash Tolerance: 12.0 m/s
Max. Temperature: 3100.0°

Parachute
Stowed Drag: 0.22
Semi-Deployed Drag: 1.0
Fully-Deployed Drag: 500
Deployment Altitude: 500.0
Minimum Air pressure: 0.01

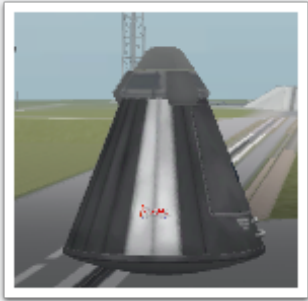
Manufacturer:
Found lying by the side of the road

The Mk16 Parachute might be considered by some to be little more than a random stitching together of the surplus parts it is, in fact, made from. But the fact remains that the Mk16 has been widely accepted as a generally better alternative to being in freefall.

Cost: 422.00 [RMB]: Pin, Less

Building Your First Rocket

**Place the parachute on the top of your rocket.
You're on your way!**



Building Your First Rocket

Next you'll want a way to separate your command pod from your engine.

Let's add a TR-18A Stack Decoupler to the bottom of your command module. You can find it on the "Structural" Menu.

TR-18A Stack Decoupler



Mass: 0.05
Drag: 0.2
Crash Tolerance: 9.0 m/s
Max. Temperature: 3400.0°
No Fuel Crossfeed
Ejection Force: 250.0

Decoupler
Ejection Force: 250.0

Manufacturer:
O.M.B. Demolition Enterprises

The TR-18A Stack Decoupler is equipped with a (hopefully) small explosive charge, that will sever the structural linkage between itself and whatever it's connected to. Painted on its sides are handy arrows indicating which side will detach.

Cost: 400.00 **[RMB]:** Pin, Less

Building Your First Rocket

Place the decoupler on the bottom of the command module.



Building Your First Rocket

Now let's find ourselves some propulsion.

A FL-T400 Fuel Tank should do the trick.

FL-T400 Fuel Tank



Mass: 2.25
Drag: 0.2
Crash Tolerance: 6.0 m/s
Max. Temperature: 2900.0°

Liquid Fuel: 180.0
Oxidizer: 220.0

Liquid Fuel
Amount: 180.0
Mass: 0.90 Cost: 144.00

Oxidizer
Amount: 220.0
Mass: 1.10 Cost: 39.60

Manufacturer:
Jebdiah Kerman's Junkyard and Spaceship Parts Co.

The FL series was received as a substantial upgrade over previous fuel containers used in the Space Program, generally due to its ability to keep the fuel unexploded more often than not. Fuel tanks are useless if there isn't a Liquid Engine attached under it. They can also be stacked with other fuel tanks to increase the amount of fuel for the engine below.

Cost: 850.00 [RMB]: Pin, Less

Building Your First Rocket

Let's actually try adding two of them, one underneath the other.



Building Your First Rocket

Next we'll need a liquid rocket engine to burn the fuel.

Let's choose an LV-T45 Liquid Fuel Engine. It has additional thrust vectoring to help control our rocket, which may come in helpful as we build a simple rocket without some of the more advanced control features available to us as we become more proficient.

LV-T45 Liquid Fuel Engine



Mass: 1.5
Drag: 0.2
Crash Tolerance: 7.0 m/s
Max. Temperature: 3600.0°
Max. Thrust: 200.0

Manufacturer:
Jebediah Kerman's Junkyard and Spaceship Parts Co.

The LV-T45 engine was considered another breakthrough in the LV-T series, due to its Thrust Vectoring feature. The LV-T45 can deflect its thrust to aid in craft control. All these added mechanics however, make for a slightly smaller and less powerful engine in comparison with earlier LV-T models.

Cost: 950.00 [RMB]: Pin, Less

Alternator
Output at Full Power:
- ElectricCharge: 6.0/sec.

Engine
Max. Thrust: 200.0
Min. Thrust: 0.0
Engine Isp: 320 (ASL) - 370 (Vac)

Propellants:
- LiquidFuel: 5.7281/sec. Max.
- Oxidizer: 7.001/sec. Max.
Flameout under: 10%

Gimbal
Vectoring Range: 1.00 ↕

Electric Charge
Amount: 0.0
Mass: 0.00

Building Your First Rocket

Place the liquid fuel engine on the bottom of our assembly.

We now have a functioning rocket. It's not enough yet to get us into orbit, but it's a great place to play around.



Building Your First Rocket

Let's add another (initial) stage of propulsion. Solid Rocket Boosters should do the trick.

First we'll need to add some decouplers so we can jettison our used SRBs. A couple of TT-38K Radial Decouplers should do the trick. Let's add 3 of them all at once by choosing "Symmetry Mode" from the bottom of our selection window.



Building Your First Rocket

Place our radial decouplers along the sides of our liquid fuel engine.



Building Your First Rocket

RT-10 Solid Fuel Boosters should do the trick.

No separate engine required!

RT-10 Solid Fuel Booster



1m

Mass: 3.7475
Drag: 0.3
Crash Tolerance: 7.0 m/s
Max. Temperature: 3600.0°
Thrust: 250.0

Manufacturer:
Found lying by the side of the road

While considered by some to be little more than "a trash bin full o' boom", The RT-10 is used in many space programs, whenever the need to save cash is greater than the need to keep astronauts alive. Use with caution, though. Once lit, solid fuel motors cannot be put out until the fuel runs out.

Cost: 325.00 [\[RMB\]: More Info](#)

Building Your First Rocket

Add the SRBs to the decouplers in symmetry mode as well.

Not very aerodynamic, but it'll work for our purposes.



Building Your First Rocket

Note the staging diagram at the bottom right of your screen.

Each stage is shown from bottom up. We move from one stage to the next by pressing the spacebar after launch.

This basic rocket should allow you to do quite a bit as you get started!

