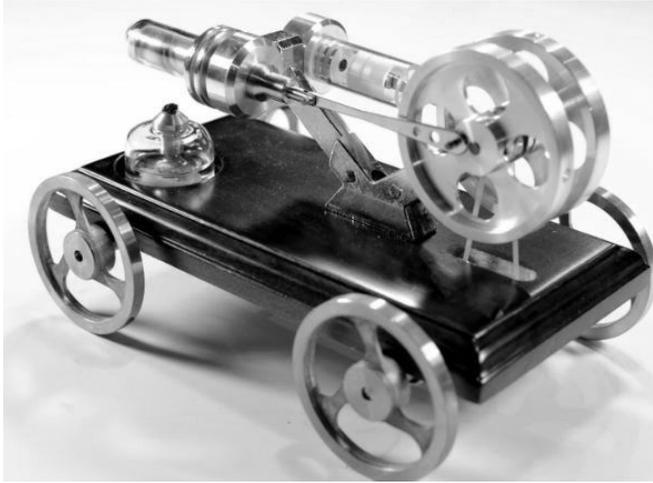


D Star Stirling Engine Vehicle



The Stirling Engine Vehicle demonstrates the power of a Stirling Engine by using the mechanical energy to actually power the wheels the

Components

Your Stirling Engine Vehicle comes with the following:

- 1 - Stirling Engine with axles
- 4 - Metal wheels
- 1 - Glass alcohol lamp, nozzle & wick
- 1 - Plastic filling bottle
- 1 - Bag of replacement parts and tools

Assembly



Tightening the hexscrew

Slide one wheel onto each axle end on the Stirling Engine body. Using the smallest hex wrench, tighten the hex screw until it no longer will slip off the wheel (see image). Do not overtighten the hex screws You may need to loosen one or

more of the hex screws to slide the wheel onto the axle.

Before proceeding, check each wheel to make certain it is secured to the axle and is not rubbing against the wood frame of the Stirling Engine body.

Set-Up

Thread the wick through the alcohol lamp nozzle. The wick is a little larger than the nozzle so you may need to wet the end of the wick or guide it through with the aid of a bent paper clip.

Fill the plastic bottle with either 91% or 99% rubbing alcohol. Use the bottle to fill the alcohol lamp bottle. Then place the nozzle on the bottle. The majority of the wick should be in the alcohol with only a small part of the wick (1/4") sticking out through the top.

Never try to fill the burner while the wick is lit!

Place the lamp in the recessed circle on the base of the Stirling Engine body.

Operation

Caution: If you do have the car move across the floor closely supervise it since it will carry the flame with it. DO NOT use near children or pets. DO NOT use on a table or counter top. It will roll off. Damage from falling off surfaces is not covered by your warranty!

If you would like to run the car without it moving, you can put it on a little stand so the wheel just spins, or take off the connecting band between the top and bottom pulley.

Using a match or a lighter, ignite the wick on the alcohol lamp. The flame will touch the glass of the Stirling Engine's heating chamber. Let the chamber heat up from the flame for a few moments.

Lift the front wheels of the Stirling Engine Vehicle off the surface so they can move freely and build up momentum. Then give the Stirling Engine's operating wheel a good spin. If the chamber has been sufficiently heated the Stirling Engine should 'kick in' and start the vehicle's wheels moving. Gently place the front wheels back to the ground and watch it go!

Once you are finished, extinguish the flame and allow the Stirling Engine time to cool down before moving it or performing any maintenance.

Do not touch the engine or burner when they are hot.

Never leave the flame unattended

Fuel

In addition to 91% or 99% rubbing alcohol. You can also use any alcohol of 180 proof or better.

Alternatively, you can power the Stirling Engine Vehicle with Sterno. Use a metal cap filled with Sterno in place of the alcohol burner.

Maintenance

Use a light machine oil (no more than 5W – knife honing oil works great) on metal parts, only if needed. Use a cotton swab to apply the oil. Do not get oil on glass or plastic parts.

If the glass gets dirty, wait for it to cool and clean it with window cleaner.

How does a Stirling Engine Work?

A Basic Stirling Engine has two cylinders. One of the cylinders is kept under constant heat. This causes the gas in the chamber to expand pushing the cylinder out and moving the wheel. The air in the second chamber is

compressed. While in larger model Stirling Engines a coolant system would be needed to keep the cycle going this model is small enough that the momentum of the flywheel is enough to keep it operating.

When the wheel spins around from momentum it compresses the air in the heating chamber. The heat from the flame quickly expands from the heat of the flame and the process starts over again.

Are There Full-Size Stirling Vehicles?

Historically, Stirling engines were not used for vehicles as they did not scale up very well and had poor efficiency compared to internal combustion engines.

However, several inventors and companies have come up with novel designs changes that may overcome these shortcomings. Time will tell if they are competitive or not.

Warranty

D Star Engines have a limited lifetime warranty. This warranty covers defects in manufacture. It does not cover any defects caused by misuse, modification, or damage.

Parts and repairs to your Stirling Engine are available at reasonable cost from D Star Engines. Please contact the number below for parts and service either in our out of warranty.

Need Help?

Need a hand getting your engine working?
You can call 831-338-8354 or email
rex@dstarengines.com