

# Solar Stirling Engine



## **What's included:**

- 1 x Solar Stirling Engine
- 1 x Adapter plate
- 1 x Dish screws to attach motor to the gyroscope

## **What you are likely to need:**

- Pliers or small spanner
- Camera Tripod

## **IMPORTANT:**

The Stirling engine will get very hot when in use. This can be as much as a few hundred degrees C. Do not touch when in use and leave plenty of time to cool down. Keep away from young children and make sure older children are supervised.

## **About the Solar Stirling engine**

This solar powered Stirling engine offers a dramatic demonstration of energy conversion. The Stirling engine with its parabolic mirror can be attached to any conventional camera tripod. When properly aimed at the sun, incoming solar energy is focused on the heat cap of the engine and is converted to rotary motion.

## **Running the engine**

The Stirling engine will not self start. You will need to direct the dish towards the sun. The light should be directed onto the stainless steel cap. Leave for a minute or two until the cap is very hot. Now flick the flywheel with your finger. It may take a few attempts to start. The unit requires strong direct sunlight to work. It is unlikely to work during a cloudy day.

## Assembling the Stirling Engine

Before being used for the first time the dish needs to be installed onto the Stirling engine. When completed the disk will reside just behind the ribbed section (heat sink) of the Stirling engine.



1. Undo nut the shown in the centre of the picture above (only one or two turns to loosen)
2. Remove stainless steel cap from the front of the Stirling engine by unscrewing it.
3. This will reveal the displacer piston. Carefully unscrew the displacer piston. You will see its shaft is connected to the nut and displacer.
4. Before you remove the displacer piston you will need to completely remove the nut from the shaft.
5. Carefully slide out displacer piston and its shaft.
6. Unscrew the heat sink (black ribbed section). The graphite piston will come out.
7. Unscrew the back section from heat sink.
8. Place dish between front and back of heat sink
9. Screw heat sink sections back together
10. Screw heat sink and dish onto the rest of engine ensuring graphite piston is carefully placed back into cylinder.
11. Carefully slide displacer piston back in.
12. Put nut back onto the shaft. Turn until on the end of the thread. Don't over tighten. Leave loose.
13. Screw the shaft back into the joint it was originally in.
14. Tighten the nut up (should only be half a turn)
15. Screw on stainless steel cap tightly
16. The unit is now ready to run.