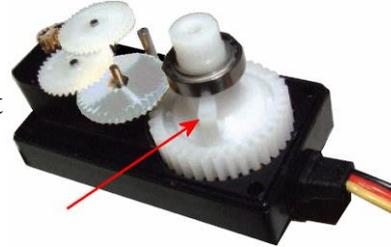


## Continuous Rotation Servos

A servo has a DC motor with a gearbox. It can be converted into a useful continuous rotation motor. It is also a useful way to re-purpose a servo that has a burnt out control board. As long as the motor and the gearbox are OK, the servo can be converted.



To make a simple motor, open the case and cut off the plastic tab that restricts the motor's rotation.

Remove the control board and connect 5V power wires directly to the motor, or use 12V with a suitable dropper resistor (say 220 ohms).

Reverse the power leads to make the motor rotate in the opposite direction.

With this method you now have a working motor – but with a fixed speed.

Another type of servo is available commercially.

It does not restrict its movement to between two points on an arc. It also provides continuous rotation.

They are commonly used in fighting robots (e.g. Robot Wars).

They look like an ordinary servo but they use a different electronic board inside.

They still receive the standard servo pulses but treat them differently.

In a standard servo, the different incoming pulse widths are translated into motor rotation to fixed points in the 90° or 180° arc.

In continuous rotation servos, the pulse widths are translated into motor speeds and direction.

- With a 1.5mS pulse, the motor is stationary.
- Pulses longer than 1.5mS makes the motor rotate counter-clockwise.
- The longer the pulse widths the faster the motor speed.
- Pulses shorter than 1.5mS makes the motor rotate clockwise, with speed increasing as the pulse narrows.

In some servos, the process is reversed – narrow pulses result in clockwise rotation.

These servos rotate at relatively slow speeds, with models varying from maximums of 43rpm to 108rpm.

For example, the SpringRC SM-S4303R has a maximum speed of 54rpm. As you can see, it looks like a standard servo, although it is larger and more robust (handy for fighting robots).



You can convert your servo to this type and achieve both speed and direction from the servo's existing controller.

Full instructions can be found here:

<https://www.youtube.com/watch?v=zZGkkzMBL28>