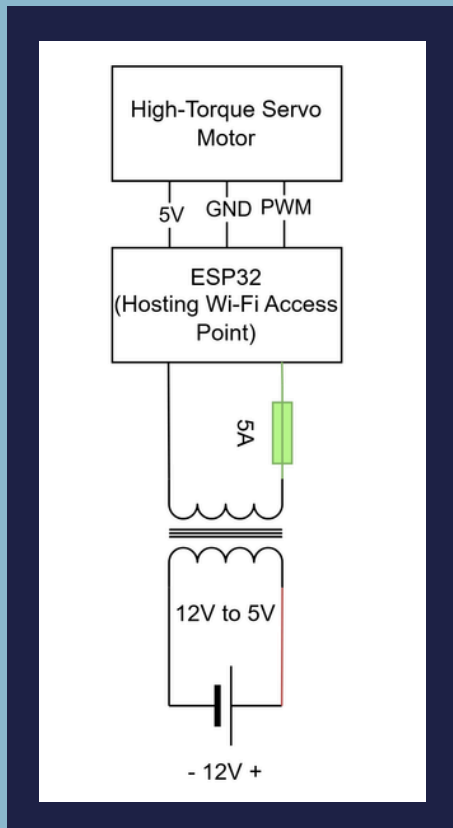


Float Document



SID by F. Chapman

The battery used in Morag is a 12V Lead-Acid 1.2AH battery, mounted using a 3D printed casing, using the rigid structure of the tube and a series of metal rods that keep the structure intact. This battery provides the float with enough power to run for far longer than it needs to, as the whole system draws a relatively small amount of current, with higher current draws only being used by the main mechanical function – the high torque continuous servo responsible for the movement of the syringes – for brief periods of time.



Battery photo by P. George

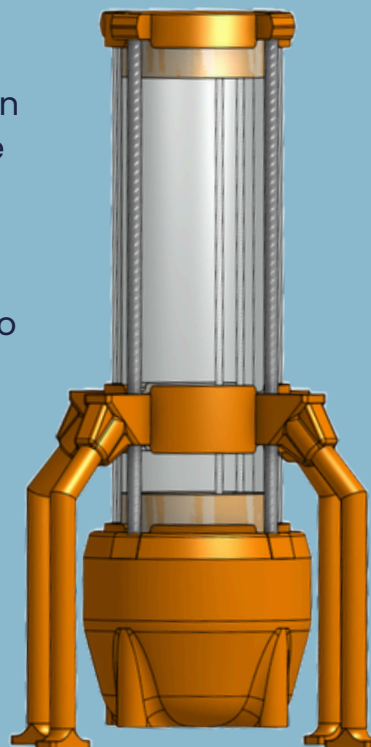
Morag MkII, our float, consists of an acrylic tube that is 5mm thick and 100 mm in diameter, housing three 60ml syringes to control its movement. The syringes are operated by a high-torque continuous servo motor, compressing or extending them to displace the water. By adjusting the water in the syringes, Morag Mk II changes her mass and sinks or rises depending on what is required. She is equipped with pressure, temperature and depth sensors to collect data during vertical profiles.



Fuse photo by P. George

Sequence of operation	Full Load Analysis (FLA)
Pre-profile	~0.2A
During profiling	~2.9A
Transmission of Data	~0.2A

Table of Measurements by F. Chapman



3D Model of Morag Mk II by E. Milne

The data is transmitted from an ESP32 to a poolside computer via Wi-Fi. The computer then displays the data as a depth-versus-time graph for easy monitoring. Once the data is received, the computer sends a signal back to Morag MkII, prompting it to begin another vertical profile.