



Replacement Anemometer for Ambient Weather WS-1200

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Summary

Replacement Anemometer for Ambient Weather WS-1200

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Tags: [ambientweather](#) [ws1400](#) [ws1000](#) [ws1001](#) [ws1200](#)
[ws1201](#)

The anemometer (wind-speed detector) on my WS-1200 was destroyed in a hailstorm. The rest of the weather station was completely undamaged, so I didn't want to just trash it. This is my replacement part.

I don't have them to compare with, but this part should probably work in the other similarly-shaped Ambient Weather stations, like the WS-1000, WS-1001, WS-1201, and WS-1400.

Printing

While this part can be printed from any hard plastic, most common thermoplastic materials (PLA, PETG, ABS) will photodegrade from UV exposure if left in the sun. ASA would probably work fine, although it is tricky to print without a heated enclosure, as it otherwise warps pretty badly.

I settled on using PCTG for its high UV resistance and ease of printability. It is also highly resistant to impacts, so it should stand a better chance of weathering the next hailstorm intact.

The shape of the cups is likely to have an impact on the accuracy of wind speed measurement. I've printed mine at a 0.1mm layer resolution to make the shape as accurate as reasonably possible.

You'll want to print this upside-down, with supports.

Installation

Removing the Old Anemometer

Getting to the original anemometer to remove it can be quite tricky.

First, using a 1/16th-inch allen wrench, loosen the screw that holds the wind direction vane on. Remove the vane.

Under the vane is a small, c-shaped clamp attached to a metal rod. You'll need to lift this up with a small screwdriver, and push it off the rod. Then, find the two small screws holding the plastic column on. Remove these, and lift the plastic column off.

The next plastic part is held on with another screw that requires a 1/16th-inch allen wrench. This screw can be very difficult to turn. Loosen it, and remove the plastic part.

Finally, the anemometer is held on using another c-shaped clamp that you'll need to push off. Remove the clamp and lift the anemometer off.

Removing metal parts from the old anemometer

You'll need to remove and re-use three parts from the old anemometer. The first is a small, round magnet at the bottom. You should be able to pull this out with a moderate amount of force using a pair of needle-nosed pliers.

The second item to remove is the bearing at the bottom. You should be able to pull this out by inserting a small screwdriver into the hole in the middle, wrenching it sideways, and pulling out.

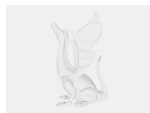
Finally, there is a bearing at the top. I removed this by inserting a screwdriver through the bottom of the assembly, pressed against the wall of the hole, and pushing it out.

Putting it back together

The three parts you removed from the old anemometer should simply push into place on the replacement anemometer you've printed. You might want to take the opportunity to lubricate the bearings with some light oil (e.g., 3-in-one) at this time. (Please keep in mind that WD40 is not a lubricant -- it'll remove the original lubrication and eventually cause the bearings to freeze up.)

After you've put the three metal parts into the new anemometer, reassembly should be simply reversing the steps required for disassembly.

Model files



anemometer.scad



anemometer.3mf



anemometer.stl

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