

OBI-WAN LIGHTSABER CANE / STAFF

This is an Obi-Wan style lightsaber cane, ala Peter Mayhew, except his is a lot longer, and different. I modified this when it was clear my wife would occasionally need her cane after hip surgery, yet we wanted to do fun convention things.

WARNING:

This design currently is split in the middle of the handle. You may want some serious glue there for safety, especially if the user puts a lot of weight on it. I might try to address that in a future revision. Inspect often, you don't want to use it if it's falling apart!

Additional Parts:

- You're gonna need a 3/4" acrylic rod, preferably a translucent blue.
- You'll need a 3/4" cane/crutch type foot.

Printed Parts:

A – Pommel

BC – Combined Lower Gear and Clamp

(See below for optional B & C1/C2 variations)

D1 – Lightbulbs

(See below for optional D2 Circuit Board variation)

E – Switch (Short or Long)

F – Pin (May need different sizes or trimming, or without supports)

G – Buttons

H – (unused at the moment)

I – Grenade

J – Flywheel

(See below for optional Luke variations B & C)

K – Emitter Housing

L – Emitter Lens

(See below for optional Luke combined KL variation)

Preparation:

Cane Height:

This cane isn't really designed to be adjustable. Have the user try a "normal" cane, preferably with a knob-type grip, to find a comfortable height. Once they're happy with that, measure the length of their cane, you'll need a rod almost that long.

The Rod:

You're going to need a $\frac{3}{4}$ " rod. They come in cast and extruded. I'm not sure, but cast might be preferable, it's stronger... extruded might be more consistent diameter. Translucent blue might be nice, but whatever color makes you happy. It only needs to be 4-5" shorter than the person's cane height. I'd chop off the bottom end after assembly so the user can try the height. It's easier to make it shorter than longer!

Printing vs Rod Diameter:

Just to be annoying, not all rods are created equal. The 3D models were designed based on the first rod I have, and the tolerances of my printer. I'd be really amazed if those worked for you first try!

A $\frac{3}{4}$ " rod is supposed to be 19.05mm. The model is designed at 19.20mm, which doesn't allow a lot of room.

Try printing the flywheel part J first. The main handle is going to be much harder to get on than the flywheel (more surface area touching the rod). You want it to press fit. If it's not fitting, scale the model a TINY amount, like 101% or 99%. Be careful of the fragile bits. Remember you can sand.

Your rod's not going to be a uniform diameter. My flywheel was very tight in a bit, then loose, then tight again.

Printing

I printed everything with 20% infill, on MakerWare's medium setting (0.2mm layer height). If you can, print the lightbulbs in clear filament, they look really good that way.

Make sure you get the temps right. Someone's going to be leaning on this, you don't want it to delaminate because the print wasn't hot enough!

You may have to fiddle with the clip, I've had a hard time printing it well. It may need a raft to hold it or slow down the printer. They're tiny, print a couple

Print the different pin sizes. You'll want a tight fit.

Assembly

The odd thing is that when Obi-wan holds a lightsaber, the pommel is generally "down" and the blade "up". Like a sword. So we're kinda building it upside down.

A pair of rubber gloves can help hold the rod and whatever part you're trying to move.

Look at the picture to see where the parts go.

- Print and test fit the flywheel (part J). If it you can't get it on, make it bigger (101% maybe). If it's loose, make it smaller (try 99%). If it's really hard to get on then the hilt will probably be a disaster, so maybe try bigger.
- Test fit the Emitter Housing (K) and Lens (L). Sand or whatever to make them work.
- Take them apart (it can be hard to put them on the rod together)
- Put the Emitter Lens on the rod, facing down toward the floor.
- Put the Emitter Housing (K) on the rod. The handle/pommel side should be about 13cm or 5" from the end of the rod.
- Add the flywheel (J), the ridge part goes up, towards where the pommel will be. There/s about a 9mm or 3/8" gap between the flywheel and the emitter.
- Press on the grenade (I). There's a little lip which is where the rod seats, so put the rod through the other end. It should be difficult to install, you don't want the rod falling out when someone's using the cane! If it's really hard (I had to slam mine on the floor), then don't expect to get it off!
- Put the pommel (A) on the Lower Handle (B). This is removable but should fit snugly. If concerned you can glue it.
- One of those 1" LED lights will fit inside the handle/clamp area, the pommel can provide access. (But you'll need a really light colored rod for that to work).
- The buttons go in the holes in the clamp. You may have to glue them.
- If you printed a separate clamp/handle, put the clamp on the lower handle, little button goes away from the pommel. (Though it'll work backwards)
- Shove the grenade (I) into the clamp.
- Slight the lightbulbs (D1) (or circuit board) into the clamp.
- Insert the pin (F) from the button side. You want the pin to be fairly tight to hold the grenade tight.
- Slide the switch clip (E) over the pin end, the end goes toward the pommel. I had to clean mine a little with a hobby knife. Again you want this to be tight.
- Temporarily put the rubber cane foot on the bottom.
- Stress test the cane. If the grenade part is at all loose in the clamp consider a really good adhesive. You don't want this to break when the user slips and needs it for balance!!!
- WARNING: Make sure everything is tight and can't fall apart when someone puts a lot of weight on it. Apply glue if necessary. If uncertain DO NOT USE IT!!!
- Remove the rubber foot and cut the cane to the right length using appropriate tools and safety protection (goggles, etc). Err on the side of too long, you can always cut it again if need be.

Notes

Since the cane is upside down, the lightsaber parts are labeled backwards. The pommel would normally be on the bottom, yet it's the top of the cane.

The clamps have different holder dimensions for either Obi-Wan style lightbulbs or stunt style circuit boards, see variations below.

Stunt clamps have each side narrower by 2.75mm, so if you wanted to put lightbulbs in one, then stretch it by 2.75mm on each side.

If you really want to print a pin without a support there's a file for it.

Diameter of shaft is expected to be $\frac{3}{4}$ " (radius 9.5mm)

Variations

The easiest way to make it yours is the color of the rod. I've also stuck some variant parts in the build in case you want to try something different

Alternate lower handles (consider gluing to clamp for strength)

B – Lower handle with a heatsink gear OR flat variation

C – Graflex Clamp, either the Obi-wan ANH version or variations for the Stunt lightsabers

D1 – Use lightbulbs for the C1 clamp

D2 – C2 clamps have the circuit-board appearance, use the circuit boards for that.

E – Long or short switches.

J – Luke ROTJ type flywheel, "C" is flat, "B" might need supports to print

KL – Luke ROTJ type emitter & Lens.

Note that I don't have the rest of the Luke ROTJ style handle right now. The "lower handle/clamp" area is different, and the "grenade" part has a slightly different pattern. The pommel is probably close enough for most folks though.

Acknowledgements

This is based on the slightly modified Obiwan Lightsaber, which in turn is based off of Ultimaker's complex lightsaber. Thanks for the model.

Main difference here is this one has a hole, it's been reinforced somewhat, and parts have been combined to make it stronger. It's also been tweaked a little where the original's accuracy bugged me.

I also added the bajillion alternate parts.

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