



The Pontani Sisters use multiple weapons in their super-secret after-hours life of crimefighting.

HEAD-MOUNTED WATER CANNON

Use steel fire-extinguisher power to pummel plastic squirt toys. By John Young

Let's face it: At some point this summer, you're going to be in a water fight. Whether it's at a family barbecue or an office picnic, some 12-year-old is going to leer at you from behind 25 bucks worth of store-bought plastic, and that little punk is going to think that the orange and blue Mega Awesome Hydrolator 9000 they're clutching is the last word, the *ultima ratio regnum*, in neighborhood water warfare.

Think again, punk. With about two hours of effort and the parts listed on the next page, you can hack together a water weapon of such power, such style, such extraordinary and exuberant overkill, that you'll be out of the store-bought leagues forever.

Lock yourself in the garage, play the *A-Team* theme, and emerge at the end of your build montage with a pressurized, stainless steel, head-mounted water cannon that packs five gallons of icy-cold water at 100 psi.

Sourcing the Main Components

The big pieces in this project are the extinguisher, the backplate, and the helmet. For the fire extinguisher, you're looking for a standard, stainless steel water extinguisher with a wide collar. Water extinguishers aren't legal for fighting fires anymore, but many fire safety companies have a dozen of these old models in the back room. So

Photograph by Julie Gottesman

Make: 111





100 OUTDOORS

MATERIALS

Fire extinguisher Water type with wide collar
Plastic scuba backplate These can run \$150 new, but most dive shops have battered old ones that they'll let you have for a few dollars, or for free.

Motorcycle helmet

Bicycle brake lever assembly, brake cable, and cable housing

Wire nut, small

Wooden rod Bicycle tubing width, cut from a plunger, broomstick, or similar

5" x 5" x 1½" wood block

Jigsaw Or other way of cutting wood to fit curve of helmet

Wood screws

Epoxy (optional)

Angle brackets and pop rivets (optional)

⅝" garden hose repair fittings, male (5)

Quick-coupler (aka quick-connect) sets for standard ⅝" garden hose (2)

Standard garden hose nozzle

4' length of ½" vinyl tubing Should be strong but stretchy enough to fit tight over the hose fittings

Duct tape

Drill and drill bits

Scissors, pencil, index card

Bicycle pump or air compressor

Vacuum grease From an HVAC supply store (or your building's facilities office)

handles! Dangerous neoprene glue! Every project is cooler with scuba parts.

Any motorcycle helmet will do, but to really nail the Evel Knievel look, search eBay or your local Elks lodge for a '70s Buco or Bell metalflake helmet with a bubble visor. You want something that looks like it could have been used to jump the Snake River Canyon. With any luck, your neighbor will have a vintage stars-and-stripes Shoei sitting on top of some dusty water skis above the garage. You can offer a trade with a new, cheap helmet — or just offer to use your new hydro-offensive powers to keep their lawn free of dogs for a while.

Assembly

1. Attach the bicycle brake lever to the wooden rod, and install the cable in the lever. Drill a ⅜" hole through the ends of both handles of the fire extinguisher so that the two holes line up. Clip off the other end of the brake cable, thread it through the housing, and then thread it up and out through the extinguisher handles, with the housing tight against the inner lever. Trim the cable so it just emerges from the outer handle, crimp a wire nut onto it, and cover it with duct tape. When you're done, you'll be able to squeeze the extinguisher's handle by working the brake lever.

2. Drill a ⅝" hole the long way through the wooden block, parallel to one side. The hose will run through this hole. Cut the index card until it matches the curve of the helmet, trimming away until the fit is right. Transfer the curve to the block with a pencil, along the side opposite the hole, and cut the block to fit. (Using a cardboard template without measuring is known as "the Jesse James method.")

3. Depending on how handy you are with wood tools, you can either carve the block to match the lateral curve of the helmet, or you can simply caulk in some two-part hardening epoxy, like PC-7, to mate the block of wood to the helmet. Finish by either screwing angle brackets onto the block, then pop-riveting them onto the helmet, or running wood screws from the inside of the helmet up into the block. Either way, the mount should be strong: eventually, everyone gets tackled by sore losers.

4. Cut the extinguisher's rubber tube a few inches from where it leaves the extinguisher and add one repair fitting to the stub. Attach one half of a

the best way to find one is just open your phone book to "Fire Safety" and start calling. Be sure to explain that you don't want it to fight fires, but to fight injustice (or to cool welds, which is what most folks buy these old extinguishers for). A water extinguisher by itself puts you in the Big Leagues of water combat, and you can recharge it with a bicycle pump or air compressor. Haul one out, and you've already won the water-fight arms race; the rest is all about style.

The wider the collar on the extinguisher, the easier it will be to recharge; avoid models with narrow necks that require a pipe wrench to remove. A working air gauge is also a plus. Avoid antiques; you're looking for something in good, serviceable shape.

The scuba backplate will clamp directly onto the extinguisher, and hold it on your back, making you look like a cross between a firefighter and some kind of vigilante astronaut. Get an old backplate at a dive shop. Note also — and this is very important — that making friends at a dive shop will give you access to a whole new category of deeply awesome spare parts for noodling around with. Speargun power bands! Waterproof thruster



**A****B****C**

Fig. A: Bicycle brake cable snakes up from brake-lever trigger and threads through the extinguisher handles. **Fig. B:** Cable guide keeps the vinyl tubing in place at the base of the helmet.

Fig C: Extinguisher, extender, backplate, and trigger rod are assembled and ready to go. Screw the garden hose quick-connect onto the helmet tube, and you're ready for combat.

hose quick-coupler to that fitting.

5 Cut the vinyl tubing into two 2' pieces. On one piece, add repair fittings and quick-couplers to both ends; that's your extender, which will run from the tank to the helmet. On the other piece, add a repair fitting to one end, connect it to the hose nozzle, and run the other end through the wooden block on your motorcycle helmet, from front to back. You'll have to really jam it in there, and friction will probably hold it in place, or else you can always use epoxy.

6 Attach the last repair fitting to the tube running through the back of the helmet, put on the last quick-disconnect, and your helmet is ready to go. You might want to stabilize the tube by running it through a cable guide at the base of the helmet.

(Optional) Epoxy a scrub brush to the top if you want a Roman centurion look. Or clip on some Pelican flashlights if you're going to battle after dark.

Now Go Have Some Adventures
Fill the extinguisher to the index mark on the inside, spin on the collar (some vacuum grease

will help you keep a tight seal), and pressurize the tank to 100 psi. Snap the extender to the tank and the helmet, attach the backplate, strap it onto your back, don the helmet, and you're ready to rock and roll. You can rule your block, sell justice to the highest bidder, or loan your rig out to those supplicants whose cause is worthy.

Just try to keep your eyes on your opponent when you pull the cable release: the water pressure tends to snap your head back a bit! You probably couldn't hurt someone with a store-bought water gun (unless you clubbed them with it), but you could definitely hurt someone with your water cannon if you shot them in the eyes at close range. Or if you ask them to carry it for you — it's heavy. Be careful out there!

+ The author lends his head-mounted water cannon on a two-week basis to those whose causes he deems worthy. Read more at ultimatewatergun.com.

John Young is a technologist at Digitas in New York. He enjoys web development, motorcycles, and heavy metal music about European history.

