

# Pneumatic Antenna-line Launcher

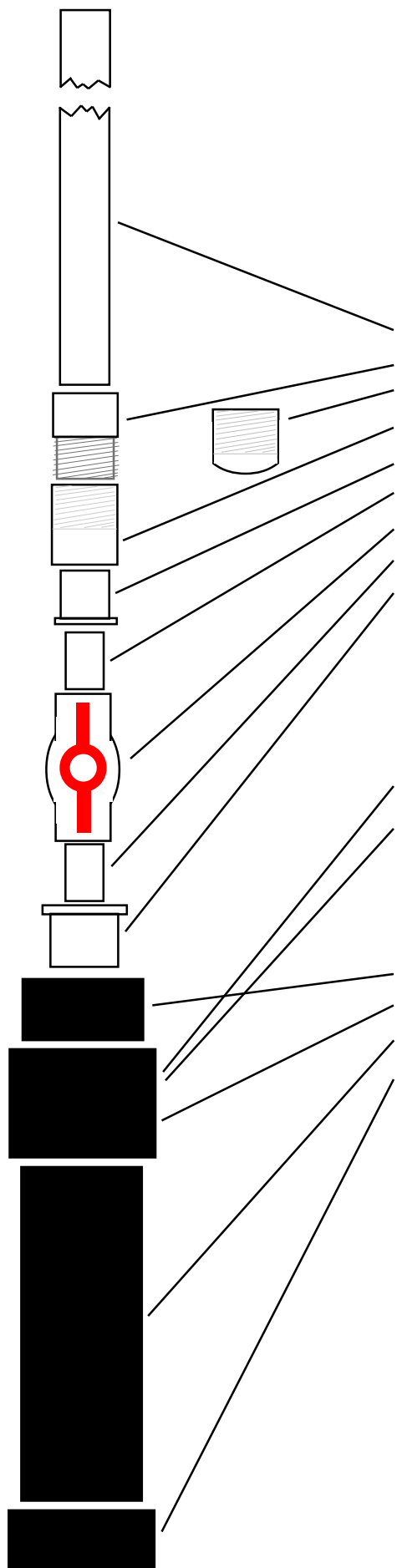
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# Pneumatic Antenna Line Launcher

## Parts List & Diagram

Construction details and other information on page 3



### PVC - Valve, Barrel, & Various Connectors

- 1 - 1 1/4" Pipe Section - 38" long
- 1 - 1 1/4" Male Adaptor (threaded one end - slip on other)
- 1 - 1 1/4" Threaded Pipe Cap - for barrel thread protector (Optional)
- 1 - 1 1/4" Female Adaptor (threaded one end - slip on other)
- 1 - 1 1/4" x 1" Reducing Flush Bushing
- 1 - Length (2 1/2" long) 1" pipe - (connector section)
- 1 - 1" Ball Valve (red handle)
- 1 - Length (2 1/2" long) 1" pipe - (connector section)
- 1 - 2" x 1" Reducing Flush Bushing

- Pressure Gauge - Dial type
- Tire Fill Valve (Shrader Valve)
- Each with 1/8" iron-pipe-size fittings



### ABS - Pressure Tank Section

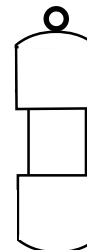
- 1 - 4" x 2" Reducing Flush Bushing (no sholder)
- 1 - 4" (hub x hub) Coupling
- 1 - 24" length ABS pipe
- 1 - 4" Slip Cap

### Shuttle (Projectile)

- 1 - 3/4" PVC pipe section 3" long
- 2 - 3/4" end caps (domed end)
- 1 - Eye-screw

### Glues

- PVC - Clear
- ABS - Black
- PVC/ABS transitional glue - Green



# Construction and Use Details

The Air-Cannon antenna-line launcher shown on the previous page, and on other pages in this website, is constructed from a mix of ABS and PVC plastic plumbing parts. All these parts are readily available from most plumbing parts stores and from the large home building supply houses (Home Depot, for one example).

All the ABS and PVC parts are glued with the exception of the threaded parts at the union of the barrel and the tank/valve sections (and also the filler valve and pressure gauge - which might need to be unmounted for transport or shipping). Three types of glue must be used for the assembly of the parts - Clear PVC, Black ABS, and a Green "transitional glue" used for gluing the ABS part to the next PVC part. If the pipe is very clean or new, then primer or prep solution shouldn't be needed. The air chamber must be completely airtight and be able to maintain a pressure load, so assembly of the glued parts must be done with great care and with total seal integrity. Each of the launchers produced thus far have been tested to 100 pounds air pressure.

A standard 1/8" tire fill valve (Schrader valve) is mounted on the side of the air tank as well as a dial-type air pressure gauge. The gauge shown is part of an inexpensive tire gauge with the chuck end removed, leaving the threaded stem - the stem size of which is expressed as 1/8" Iron Pipe Size. Each of these two devices should be inserted into holes in the upper collar of the tank just behind the ball valve - in the position shown in the diagram above. That location provides the thickest section of pipe to be drilled and thread/tapped to match the valve and gauge stems. These two devices can be obtained from a local hardware store such as ACE or TrueValue. White Teflon pipe tape could be used if needed to provide an adequate seal.

The launcher is charged with compressed air from an air compressor, a CO2 bottle fitted with regulator and tire fill chuck, or even a bicycle tire pump. Nominal pressure for normal line launching will be about 25 to 40 lbs, depending on the height of the trees being mounted and the lateral distance desired for the projectile to draw the lead-line (if surmounting more than one tree or mounting structure in one shot).

The projectile (shuttle) is made from pieces of PVC pipe of a size to just clear the inside dimension of the barrel. No wadding or packing around the shuttle is required. The end of the shuttle has an eye-screw mounted into it, and a "leader line" of some lightweight material is attached. That leader line can be monofilament fishing line, stranded high-test fishing leader line, 50 lb. twisted Dacron kite line, or something similar. It needs to be strong and very lightweight, while being slippery enough to draw over tree branches easily. Weight, in the form of BBs or other internal packing material, to bring the shuttle-weight up to about 4.3 ounces or a little more, is required to insure that the shuttle is heavy enough to bring the leader line all the way back down to the ground or otherwise within reach from the ground.

The leader line can either be wound on a spool such as the 6-inch "Gator Yo-Yo Fishing Reel" - shown in the pictures on the Inverted L Antenna Tutorial page - or can also be reeled off and back onto a standard bale-type fishing pole reel, attached up near the end of the barrel. The Yo-Yo Reel allows for the most effective and unhampered line "payout," and is very easy to use for reeling in the line after a shoot.

The use of the launcher is completely straight forward... pressurize, drop shuttle with line attached into the barrel (eye inward or outward - doesn't matter), aim, and quickly open the red-handled Ball-Valve. Practice shots with a reasonably small amount of pressure to begin with are encouraged, so as to get a feel for the distance and accuracy of the shots. Wind will effect the accuracy somewhat, although the 4 to 5 oz. shuttle will generally travel fairly straight, even in a stiff breeze.

**CAUTION:** Great care and common sense must always be maintained when using this kind of launcher. It must not be used by inexperienced or underage persons, and never for any purpose than that which is described here in this document. NEVER point and shoot any kind of projectile from this launcher at any person or animal. No intent for this device to be used as a weapon is herein expressed or implied.