

More Workbench Silencers
by George M. Hollenback

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WARNING

It is against the law to manufacture, purchase, or possess a firearm silencer without proper authorization from and registration with the Bureau of Alcohol, Tobacco, and Firearms (BATF) of the U.S. Treasury Department. Inquiries regarding the procedures for applying for a license to construct, purchase, or possess a silencer and for paying the appropriate tax must be directed to that office.

In addition, many state and local jurisdictions have restrictions on the possession of silencers, even if appropriately taxed and registered with federal authorities. Also be advised that some authorities maintain that adapters and couplings in and of themselves count as suppressors if they are used to hold improvised silencer components.

Do not attempt to construct a silencer without proper authorization from federal, state, and local authorities. This book is presented for academic study only.



The technical data presented here, particularly concerning the use, adjustment, and alteration of firearms, inevitably reflects the author's beliefs and research with particular firearms, equipment, components, and techniques under specific circumstances which the reader cannot duplicate exactly. The information in this book should therefore be used for guidance only. Neither the author, publisher, or distributors of this book assume and responsibility for the use or misuse of the information contained herein.

Introduction

This book is a continuation of an earlier tome, *Workbench Silencers: The Art of Improvised Designs*. No sooner had the former gone to press when the creative juices—which I thought had pretty well dried up—began flowing again with even more improvised silencer designs. For those not familiar with the earlier work, a few words of explanation are in order.

I'm a part-time inventor who became interested in silencer design. My background research included material on improvised silencers as well as patented designs and expensively machined models. In spite of my credentials as a legitimate inventor and my impeccable police record, the local chief of police would not sign my federal "Application to Make and Register a Firearm" form. Without his signature, I wouldn't be able to get BATF (Bureau of Alcohol, Tobacco, and Firearms) permission to build and test a prototype of my silencer design which, if successful, I had hoped to patent.

Since I couldn't manufacture my prototype, I decided to write a book instead—a book on improvised silencer designs that I had dreamed up myself after having been inspired by the work of others that I had come across in my research. Of course, I couldn't legally fabricate any of these designs, so I simply showed how the components could be assembled and illustrated the "finished" silencers with plaster of Paris dummies mounted on the barrels of the guns. The same procedure has been followed here. I also invited licensed

silencer manufacturers to test my designs and send the results of their research to me in care of the publisher. Ditto for this volume.

What's new this time around? The most important development is three designs embodying the "perforated tube" principle, in which the expanding gases following the bullet down the bore of the silencer are vented off through perforations in the tube that makes up the core of the silencer. In my earlier work, I had described perforated tube silencers but had also advised that none of my designs incorporated the principle because it required near perfect alignment that is very difficult to achieve. That problem has since been overcome by a technique that involves sliding a snug-fitting tube over a cylindrical gun barrel minus sights. Two of these designs involve nesting tubes within tubes to form a silencer bore that is smaller than the outside diameter of the gun barrel but slightly larger than the inside diameter of the gun barrel.

There are four designs for slip-on silencers that can be friction-fitted directly onto the Ruger .22 bull barrel pistol, a new design for a Makarov 9x18/.380 pistol, and a couple of new angles on muffler and plastic bottle silencers. The final design is for a silenced shotgun that fires subsonic slugs.

Tools and Materials

Most of the tools required for these designs are the same as those listed in the first book. They include hacksaw, modeling knife, screwdriver, punch, scissors, electric drill, and Dremel Moto-Tool (for cutting slots in PVC). Additional tools include a drill guide (indispensable for the perforated tube designs), round and flat files (for shaping PVC fittings and neoprene washers to size), and a paper punch (for making holes in cardboard washers). Adhesives—tapes and glues—are the most commonly used materials. Tape on hand should include metal repair tape, black electrician's tape, and masking tape; glues should include epoxy, all-purpose glue, and white shop glue. Other material components will be listed separately at the beginning of each silencer description.

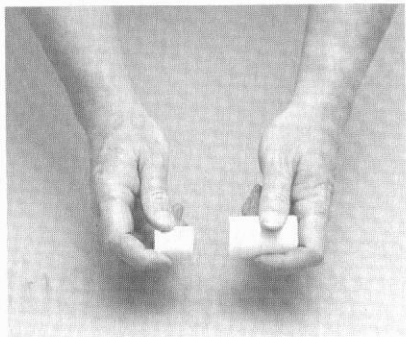
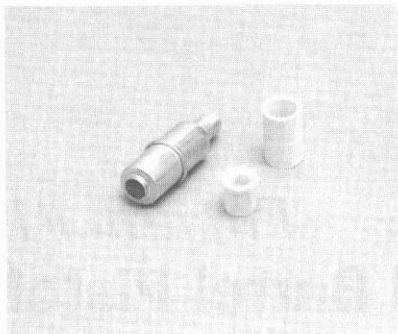
Firearm #1

Ruger Bull Barrel Pistol



The front sight on the Ruger bull barrel pistol can be removed by taking out a single screw, leaving a perfectly cylindrical barrel onto which to fit a silencer or adapter.

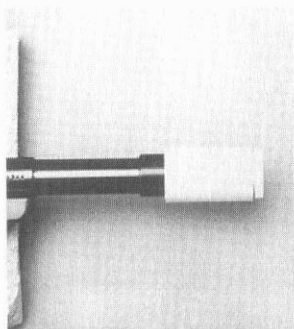
MUFFLER SILENCER AND ADAPTER



Materials needed:

- 3/4" coupling
- 3/4" x 1/2" PVC bushing (threaded)
- lawnmower muffer

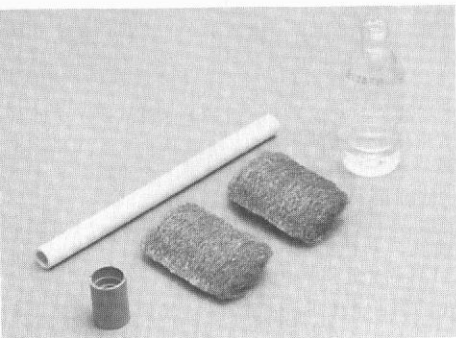
Insert bushing into coupling to create adapter.



Wrap end of barrel with tape and friction-fit adapter into place.

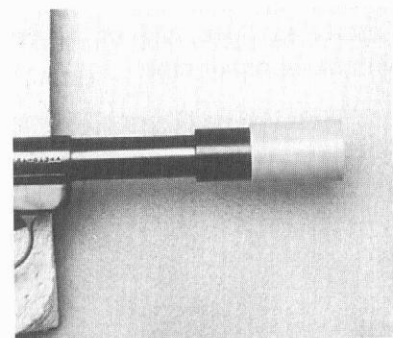
Screw muffer into adapter.

(Note: There is not an unimpeded passage through the muffer for the bullet; drill or punch through partition in muffer before installing. Criss-cross muffer opening with metal repair tape for smaller exit hole. Also be advised that some authorities consulted maintain that adapters in and of themselves count as suppressors if they are used to hold improvised silencer components.)

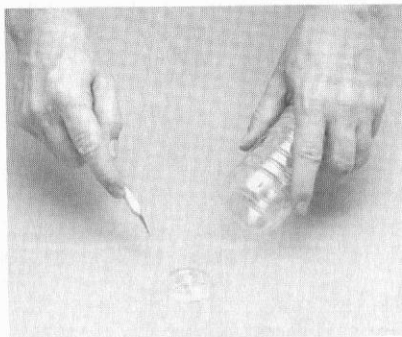
"TORNADO TUBE" BOTTLE SILENCER*Materials needed:*

- "Tornado Tube"
- plastic water bottle (11.2 fl oz/330 ml)
- medium-coarse steel wool pads (2)
- section of 1/2" PVC pipe

This silencer takes its name from the adapter fashioned from an educational toy sold in teacher supply stores. The Tornado Tube is a short plastic cylinder threaded in both ends and used to connect two large plastic soft drink bottles mouth to mouth. By filling one of the bottles with water and inverting it over the other bottle according to instructions, a tornado-like whirlpool vortex can be created as the water drains from the upper bottle, through the Tornado Tube, and into the lower bottle.

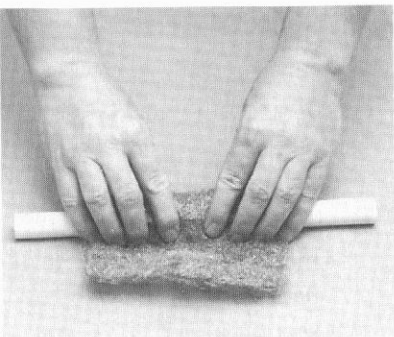


Wrap end of barrel with tape and friction fit Tornado Tube into place.

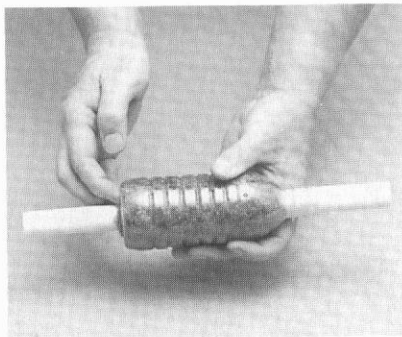


Cut out bottom of bottle.

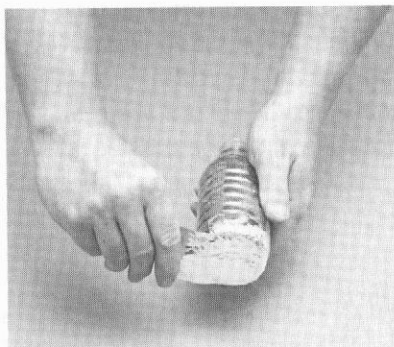
More Workbench Silencers



Unfold steel wool pads and wrap around pipe.



Insert wrapped pipe into bottle as shown; pull pipe out through bottle mouth.



Criss-cross open end of bottle with metal repair tape.



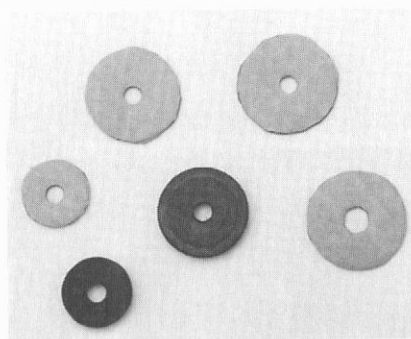
Screw bottle into adapter.

SLIP-ON SILENCERS

The following four designs are for silencers that slip onto the Ruger bull barrel without benefit of adapters or couplings. The only barrel preparation involves making a few tape wraps to insure a snug friction fit into standard 1-inch aluminum tubing.



The tubes can be packed solid with cardboard washers or interspersed with neoprene washers that serve as baffles or wipes. (Masking tape was used in place of black electrician tape for photo contrast.)



Prepare cardboard washers by laying out a grid of squares on cardboard stock, criss-crossing them with diagonals to find their centers, and then drawing in the circles for washer and hole diameters. Cut out separate squares, then cut off corners until washer is roughly circular.

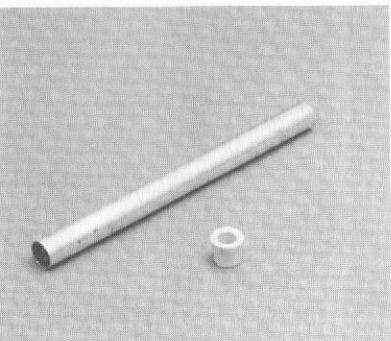
(The remaining small corners on the multisided round polygon make for a more forgiving fit than that of a washer intentionally cut out as a circle; the latter's fit is usually too loose or too tight.)

Punch out center holes with paper punch. Note larger hole in washer for larger caliber firearm; several punches are required.

Some neoprene washers can be made to fit very tightly into certain metal tubes, either by forcing them in or by first filing down their perimeters until they can be forced in. The smaller washer can be filed down to fit inside standard 1" aluminum tubing. The larger washer can be forced into a 1 1/4 " chrome-plated plumbing tube with no filing required. Wrap the top of a large dowel with tape to the same inside diameter as the tube and use it as the piston-like ramrod to force the washers down the tube. Measure the tube and make appropriate marks on the dowel for spacing the washers at given intervals.

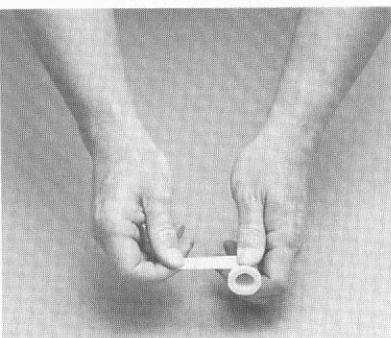
In order to keep washers from being knocked askew by slightly off-center bullets, it might be a good idea to glue two washers together into one thick washer and then countersink the hole on one side to form a larger opening for the bullet to enter.

SLIP-ON SILENCER TUBE #1

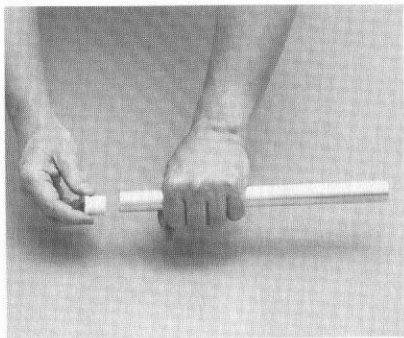


Materials needed:

- 12" section of 1" aluminum tubing
- 3/4" x 1/2" CPVC bushing



Wrap bushing with tape for friction fit into tube.

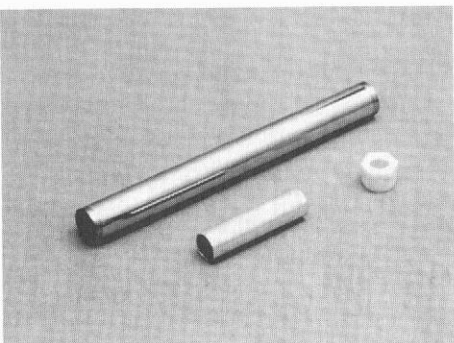


Insert bushing into tube.



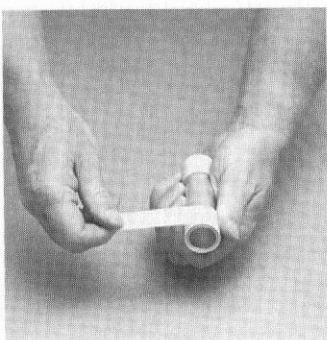
Install on firearm.

SLIP-ON SILENCER TUBE #2

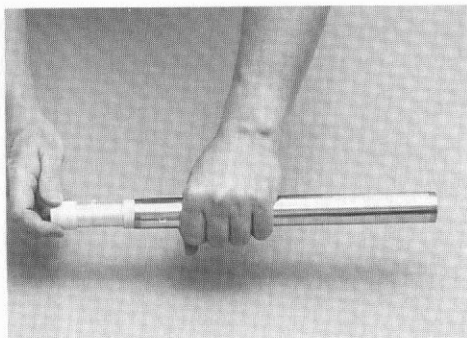


Materials needed:

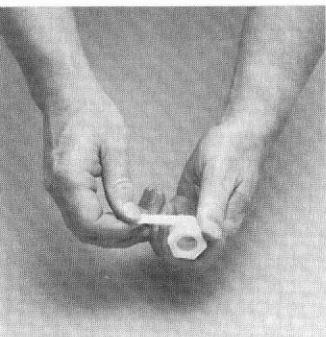
- 12" x 1 1/4" chrome-plated plumbing tube
- 4" section of 1" aluminum tubing
- ballcock nut



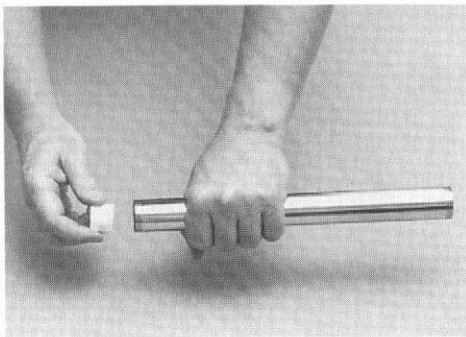
Wrap each end of aluminum tube with tape for friction fit into plumbing tube.



Insert aluminum tube flush into one end of plumbing tube.



Wrap ballcock nut with tape for friction fit into plumbing tube.



Insert nut into other end of plumbing tube.



Install on firearm.



Install on firearm.

(Note: PVC bushing and nested tube assembly were glued into brass tube because the fit was so close that even a single wrap of tape would have made them too big to be friction-fitted back into the brass tube. If friction-fitted, take-apart components are desired. Try spray painting PVC components with layers of primer to make them fit tightly into brass tube.)

Firearm #2

9x18/.380 Makarov Pistol with Threaded Barrel



The 9x18 Makarov is yet another of those durable, relatively inexpensive Eastern Bloc handguns that became readily available in this country after the dissolution of the Evil Empire. Its fixed barrel can be removed with a pin punch and special barrel press to allow the installation of an extended threaded barrel. The threaded portion of the barrel can be protected from damage by a small screw-on sleeve appropriately called a “thread protector.”

MAKAROV SILENCER

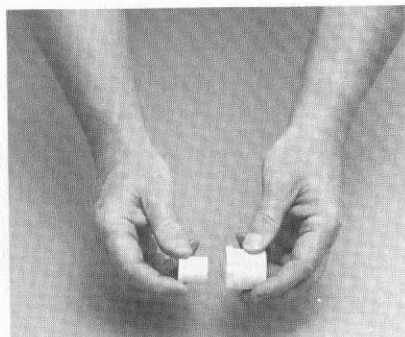


Materials needed:

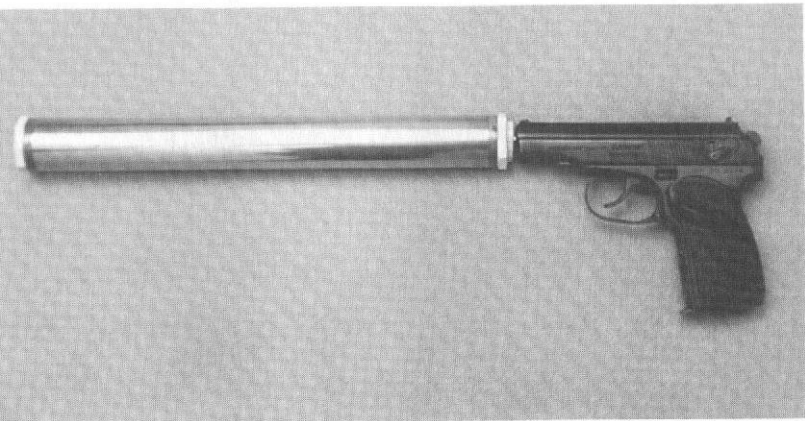
- 12" x 1 3/8" brass plumbing tube
- thread protector
- 3/4" x 1/2" CPVC bushing
- 1" x 3/4" PVC bushing (threaded)
- 1" x 1/2" PVC bushing



Epoxy thread protector into 3/4" x 1/2" bushing.



Glue 3/4" x 1/2" bushing into 1" x 3/4" bushing.



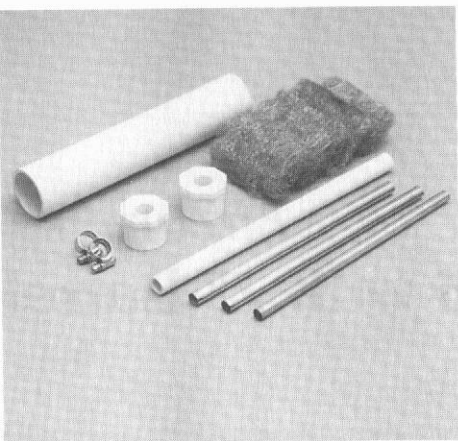
Glue one 1" bushing into tube, pack tube with cardboard washers, glue other 1" bushing into tube, and install on firearm.

Firearm #3
Colt .45 with 7" Barrel



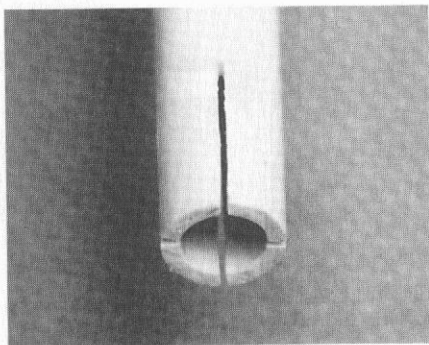
The easily installed 7-inch barrel provides 2 inches of exposed cylindrical stock on which to mount a silencer.

PERFORATED TUBE SILENCER #1



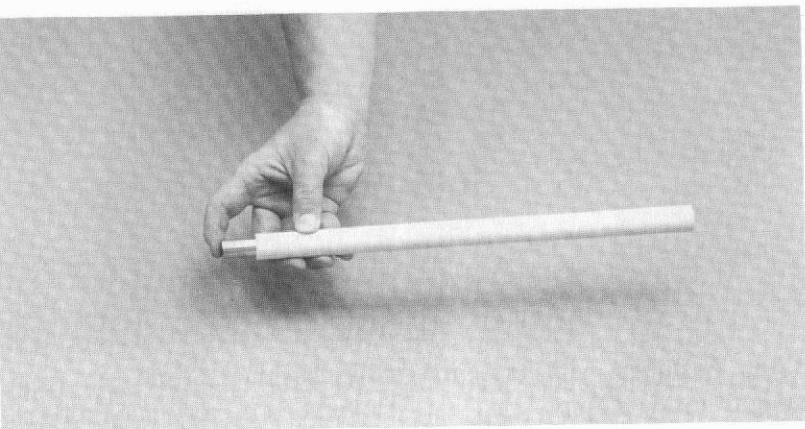
Materials needed:

- 12 1/4" section of 2" PVC pipe
- 14" section of 1/2" PVC pipe
- 12" x 19/32" brass tube
- 12" x 9/16" brass tube
- 12" x 17/32" brass tube
- 1 1/2" PVC bushings (2)
- 7/8" band clamps (2)
- medium-coarse steel wool pads (5)

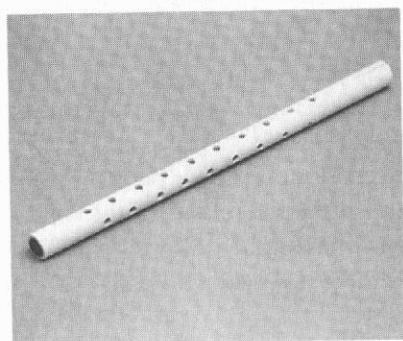


Wrap barrel in 2" metal repair tape for friction fit into 1/2" PVC pipe.

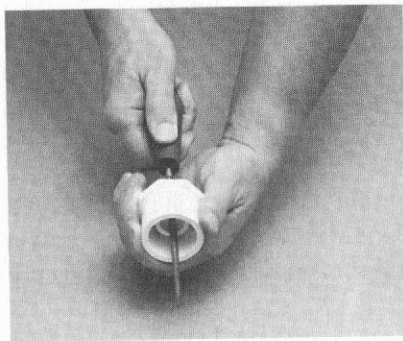
Cut four 1 3/8" slots in end of 1/2 pipe as shown.



Beginning with the smallest brass tube, coat each tube with white shop glue and insert flush into the next larger tube size. Coat nested assembly of brass tubes with glue and insert flush into unslotted end of 1/2" PVC pipe. Allow ample drying time for glue. (An even smaller 1/2" brass tube—having an inside diameter of approximately 15/32" or .47"—could have been nested inside the 17/32" brass tube; the smaller silencer bore, however, would increase the chance of the bullet making contact with the tube.)

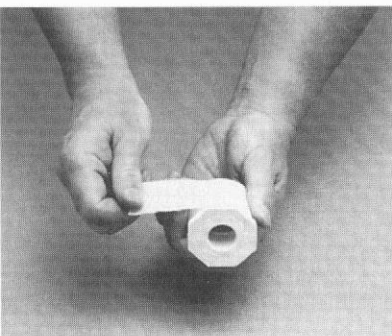


Drill 1/4" holes 1" apart in nested tube assembly as shown.

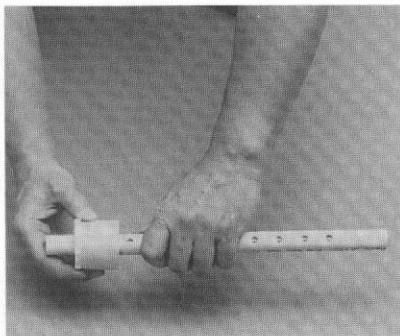


Remove inner "lip" of bushings with round file so that PVC tubing can be inserted clear through each bushing.

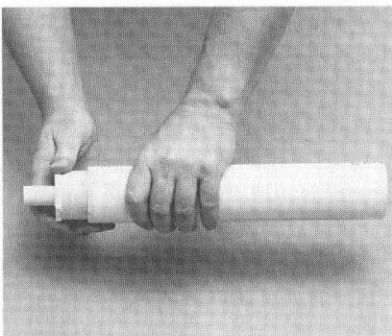
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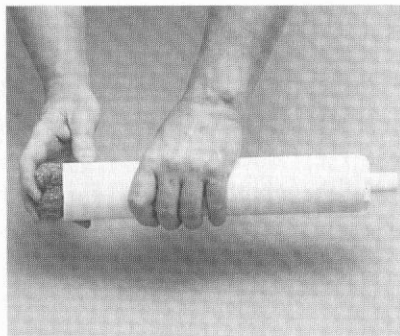
Wrap bushings with tape for snug fit inside 2" pipe.



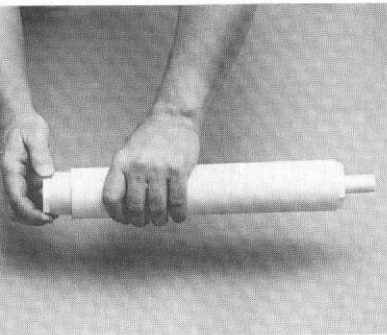
Glue bushing 1 3/8" up from slotted end of perforated tube as shown.



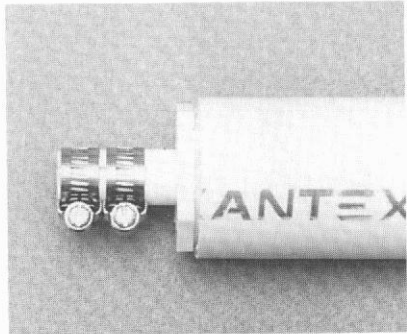
Glue bushing and tube into 2" pipe.



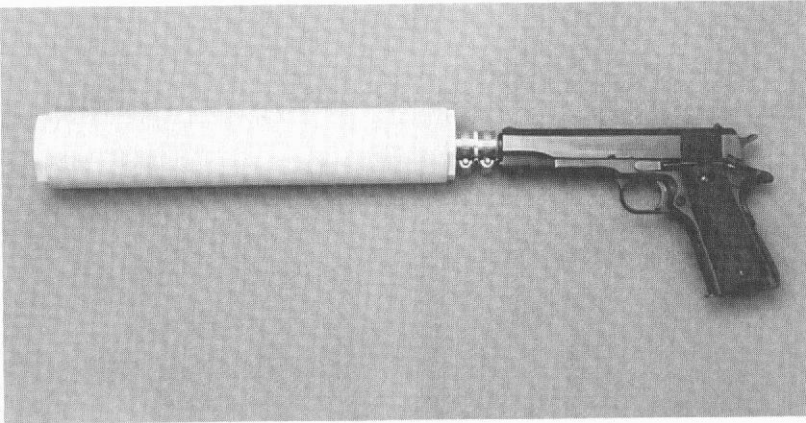
Pack steel wool pads around perforated tube. (More expensive copper pot scrubber pads may be substituted here and in the other perforated tube designs.)



Glue other bushing onto 1/2" pipe and into 2" pipe.

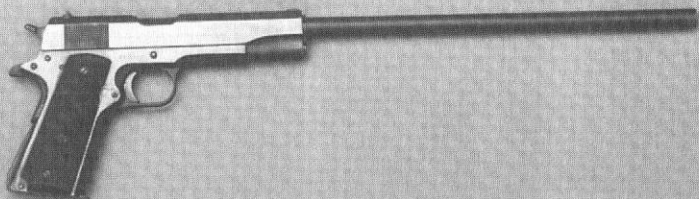


Fit band clamps over slots in 1/2" pipe.



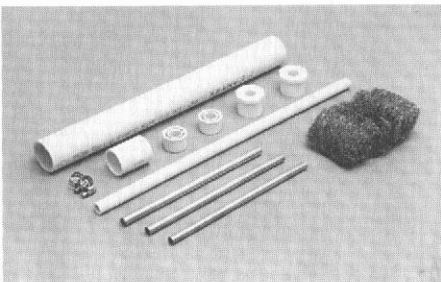
Install on firearm; tighten band clamps. (To give the clamps more "grab" here and in the other perforated tube designs, try dabbing something sticky on the taped portion of the barrel before installing the silencer.)

Firearm #4
Colt .45 with 16" Barrel



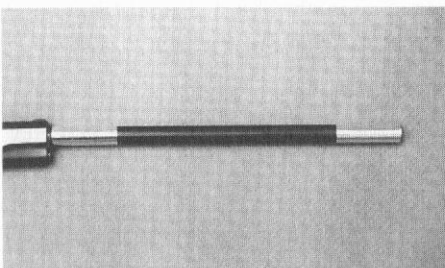
This longer barrel provides a full 11 inches of exposed cylindrical stock on which to mount a silencer. In addition to providing greater accuracy for longer shots, the longer barrel gives the gases traveling behind the bullet time to burn more completely. Theoretically, this should give the bullet a little more zip while at the same time decreasing the amount of still-burning gases escaping from the muzzle. In other words, the bullet should be both faster and quieter.

PERFORATED TUBE SILENCER #2

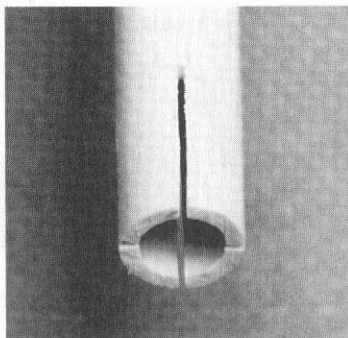


Materials needed:

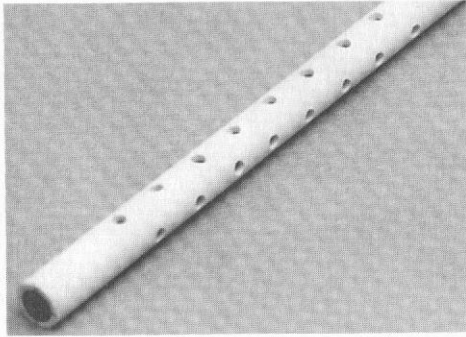
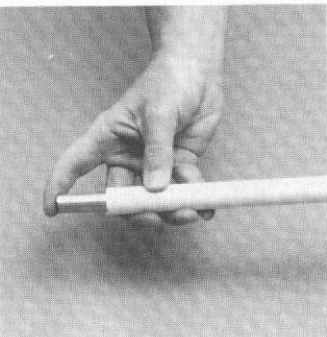
- 21 1/4" section of 2" PVC pipe
- 23" section of 1/2" PVC pipe
- 12" x 19/32" brass tube
- 12" x 9/16" brass tube
- 12" x 17/32" brass tube
- 1 1/2" x 1/2" PVC bushings (2)
- 1 1/4" x 1/2" PVC bushings (2)
- 1 1/4" coupling
- 7/8" band clamps (2)
- medium-coarse steel wool pads (5)



Wrap barrel with 2" metal repair tape as shown for friction fit into 1/2" PVC pipe.

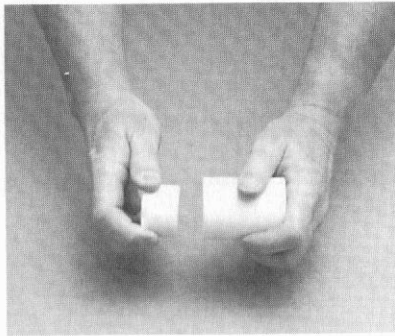
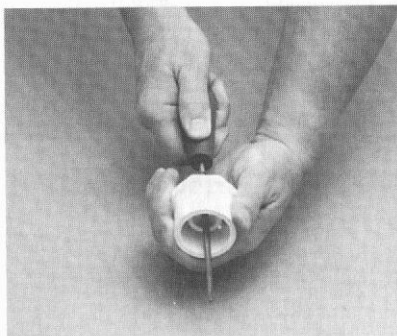


Cut four 1 3/8" slots in end of 1/2" PVC pipe as shown.



Beginning with the smallest brass tube, coat each tube with white shop glue and insert flush into the next larger tube size. Coat nested assembly of brass tubes with glue and insert flush into unslotted end of 1/2" PVC pipe. Allow ample drying time for glue.

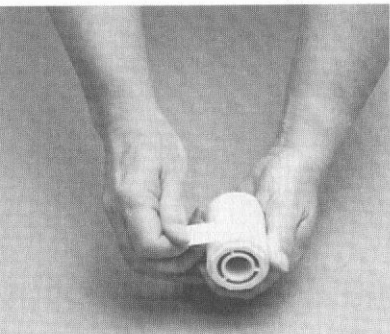
Drill 1/4" holes 1" apart in nested tube assembly as shown.



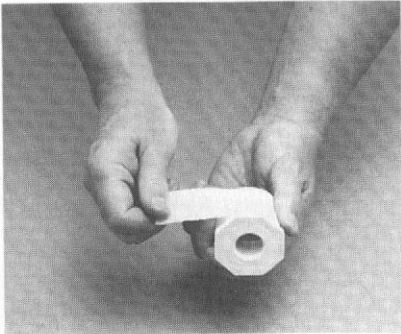
Remove inner lip of bushings with round file so that 1/2" PVC pipe can be inserted clear through each bushing.

Insert 1 1/4" x 1/2" bushings into each end of coupling. File down any raised bumps or seams on coupling.

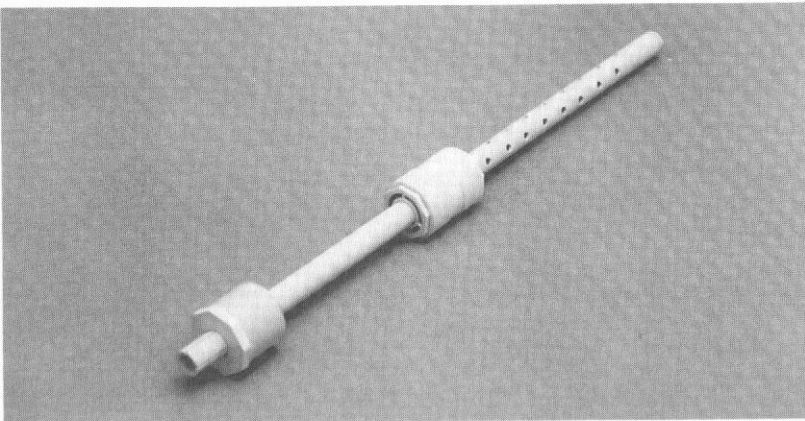
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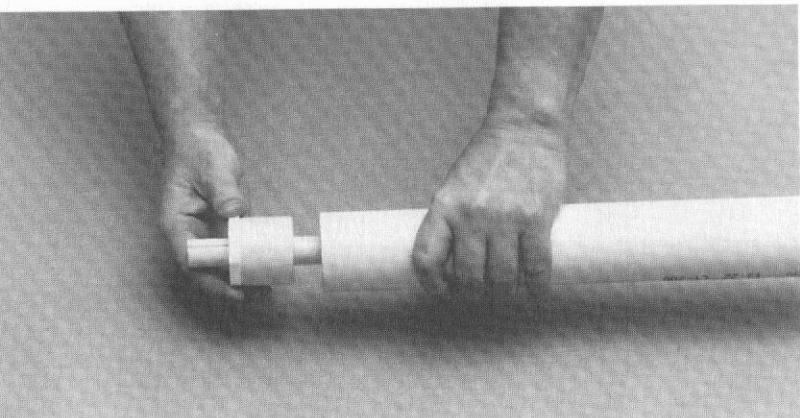
Wrap each end of coupling with tape for friction fit inside 2" PVC pipe.



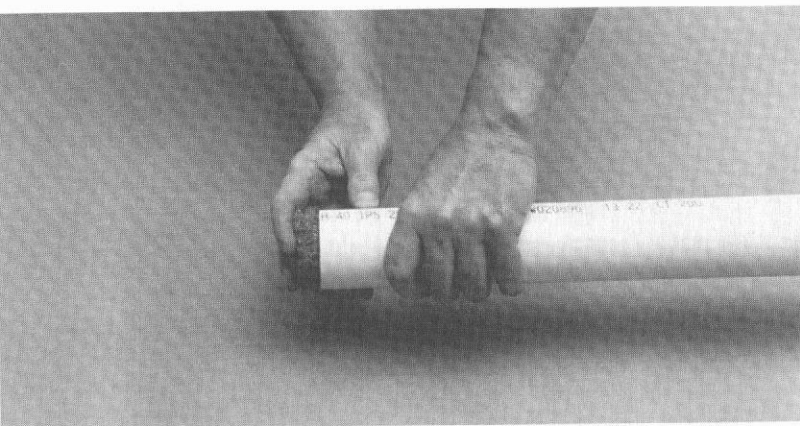
Wrap 1 1/2" x 1/2" PVC bushings with tape for snug fit inside 2" PVC pipe.



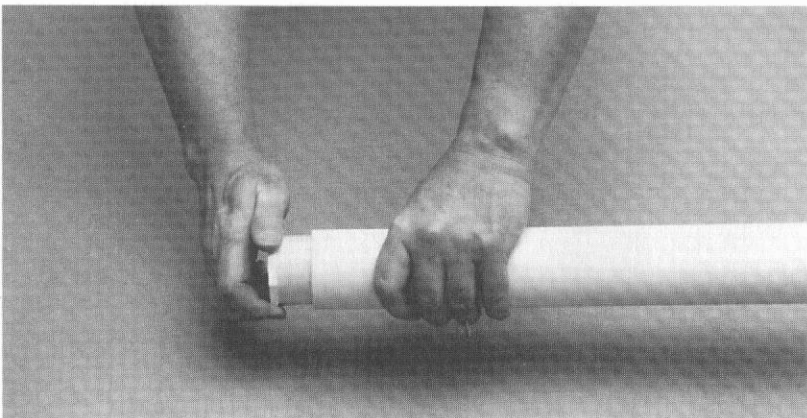
Glue one bushing and the coupling assembly onto 1/2" PVC pipe as shown.



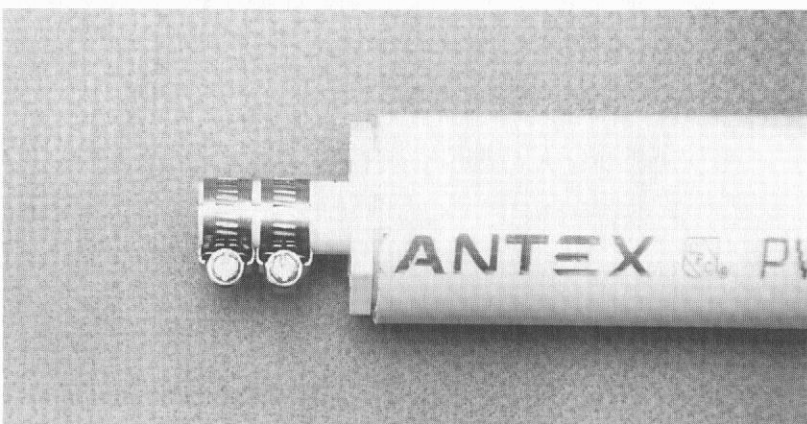
Glue bushing on 1/2" pipe into end of 2" pipe.



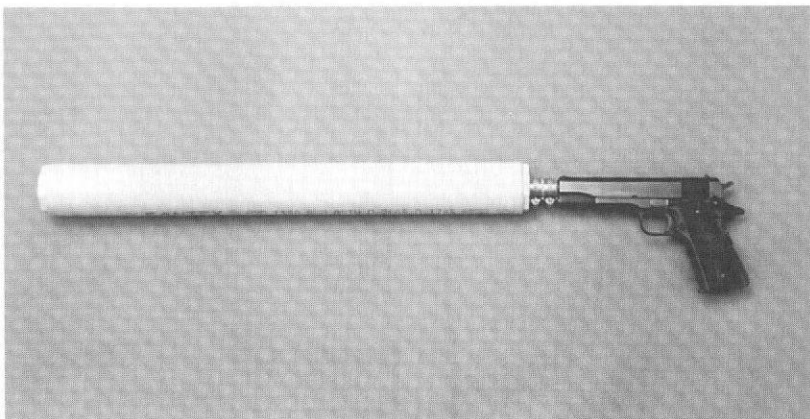
Pack steel wool pads around perforated tube.



Glue other bushing onto 1/2" pipe and into 2" pipe.



Fit band clamps over slots in 1/2" pipe.



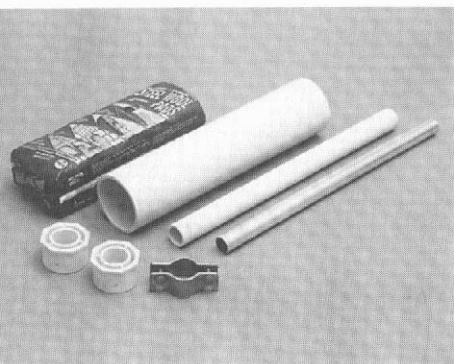
Install on firearm; tighten band clamps.

Firearm #5
**Maverick Model 88
Bullpup Shotgun**

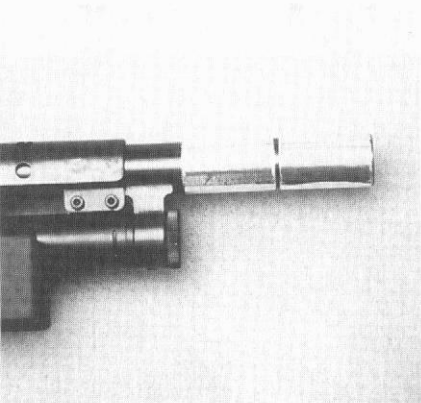


Loaded with 575 grain subsonic Blockbuster slugs, this 12 gauge shotgun is perfect for silencing. Its short bullpup configuration and double pistol grips make handling a snap when there's a long, heavy silencer on the end of the barrel. The 3 inches of exposed cylindrical barrel stock is free of beads or front sights, making it ideal for clamping a silencer onto. The sights atop the carrying handle are high enough that a big, fat silencer won't interfere with the sight picture. A compact, silenced shotgun can also be loaded with frangible slugs for blasting locks and hinges off doors, especially in confined areas.

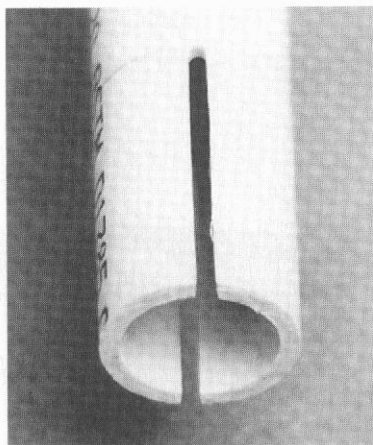
PERFORATED TUBE SILENCER #3



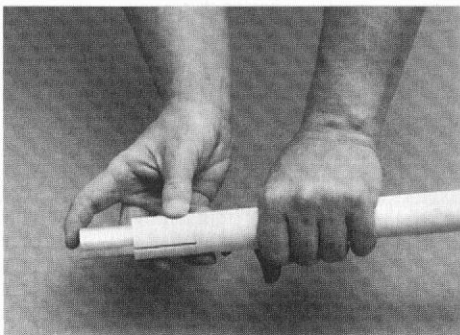
- 15" section of 3" PVC pipe
- 17 3/8" section of 1" PVC pipe
- 17 3/8" section of 1" aluminum tubing
- 2" x 1" PVC bushings (2)
- fork latch clamp
- bag of coarse steel wool pads



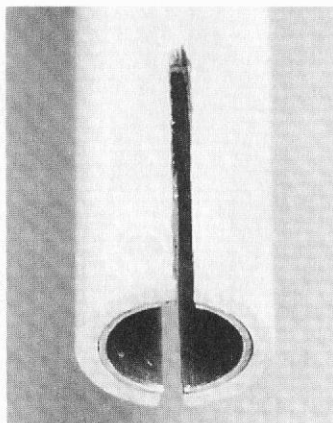
Wrap end of barrel with metal repair tape for friction fit into aluminum tubing.



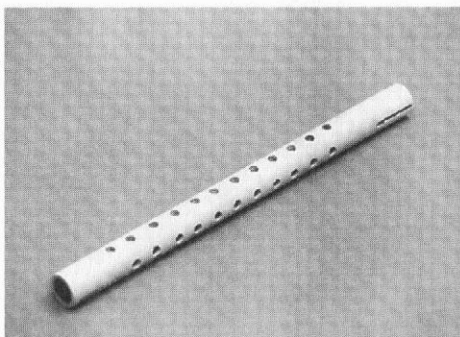
Cut two 2" x 1/8" slots in end of 1" PVC pipe.



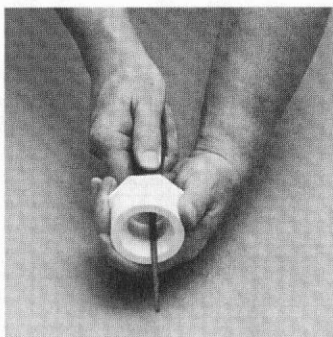
Glue aluminum tubing into 1" PVC pipe. (Shim aluminum tubing with a few wraps of tape in a couple of spots to insure snug fit and good alignment.)



Cut slot in aluminum tubing.

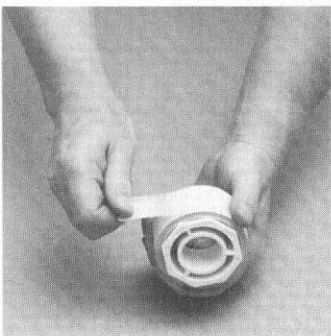


Drill 3/8." holes 1" apart as shown.

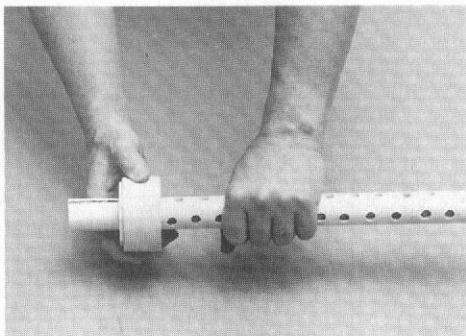


File down lip in bushings so 1" PVC pipe can be inserted clear through each bushing.

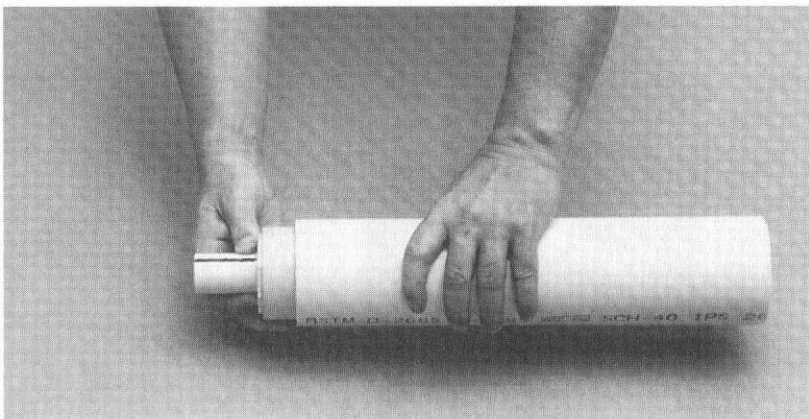
More Workbench Silencers



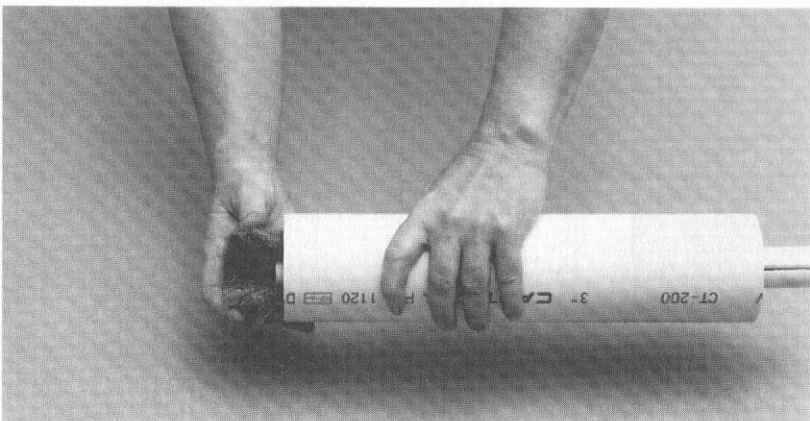
Wrap bushings with masking tape for snug fit into 3" PVC pipe.



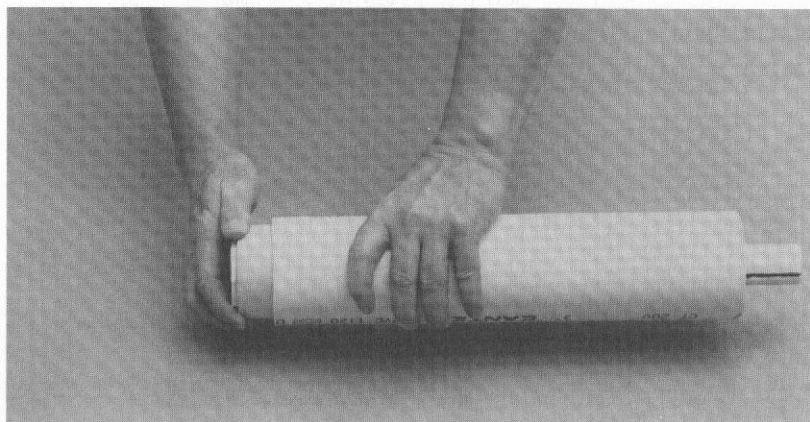
Glue bushing onto perforated tube as shown.



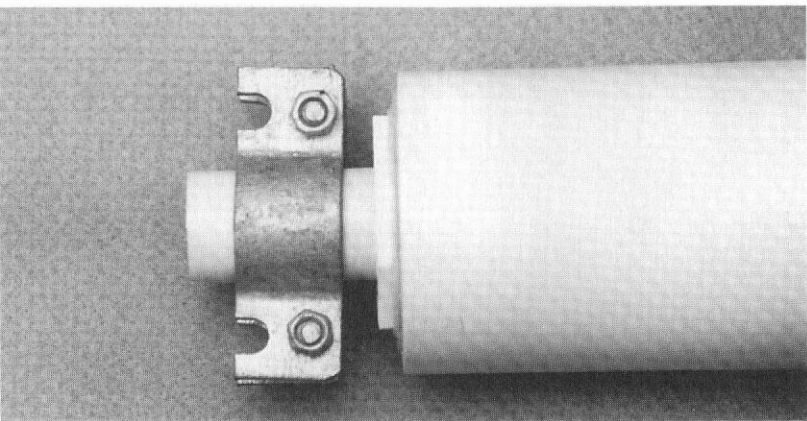
Glue bushing on perforated tube into 3" pipe.



Pack space around perforated tube with steel wool pads.

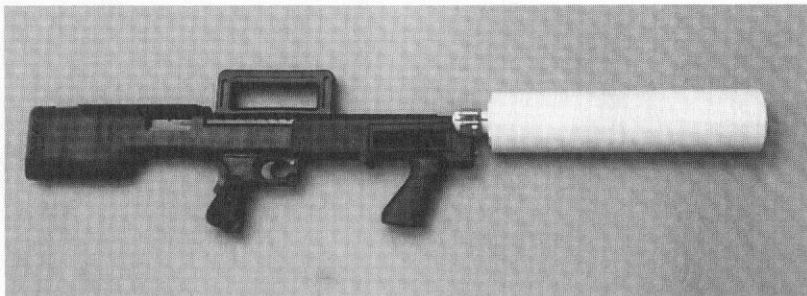


Glue other bushing into end of 3" pipe and onto perforated tube.



Fit fork latch clamp onto slotted end of perforated tube. (This kind of clamp is ordinarily used for attaching a wishbone-shaped latch onto a chain link fence gate.)

Install on firearm.



(Note: I originally nested a section of 3/4" copper tubing inside the aluminum tubing. Unfortunately, my drill would bind every time it made contact with the copper. Maybe you can solve this little problem. You might also be able to find other tubing to nest inside the copper tubing, thereby reducing the inside diameter of the perforated tube even more.)

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