

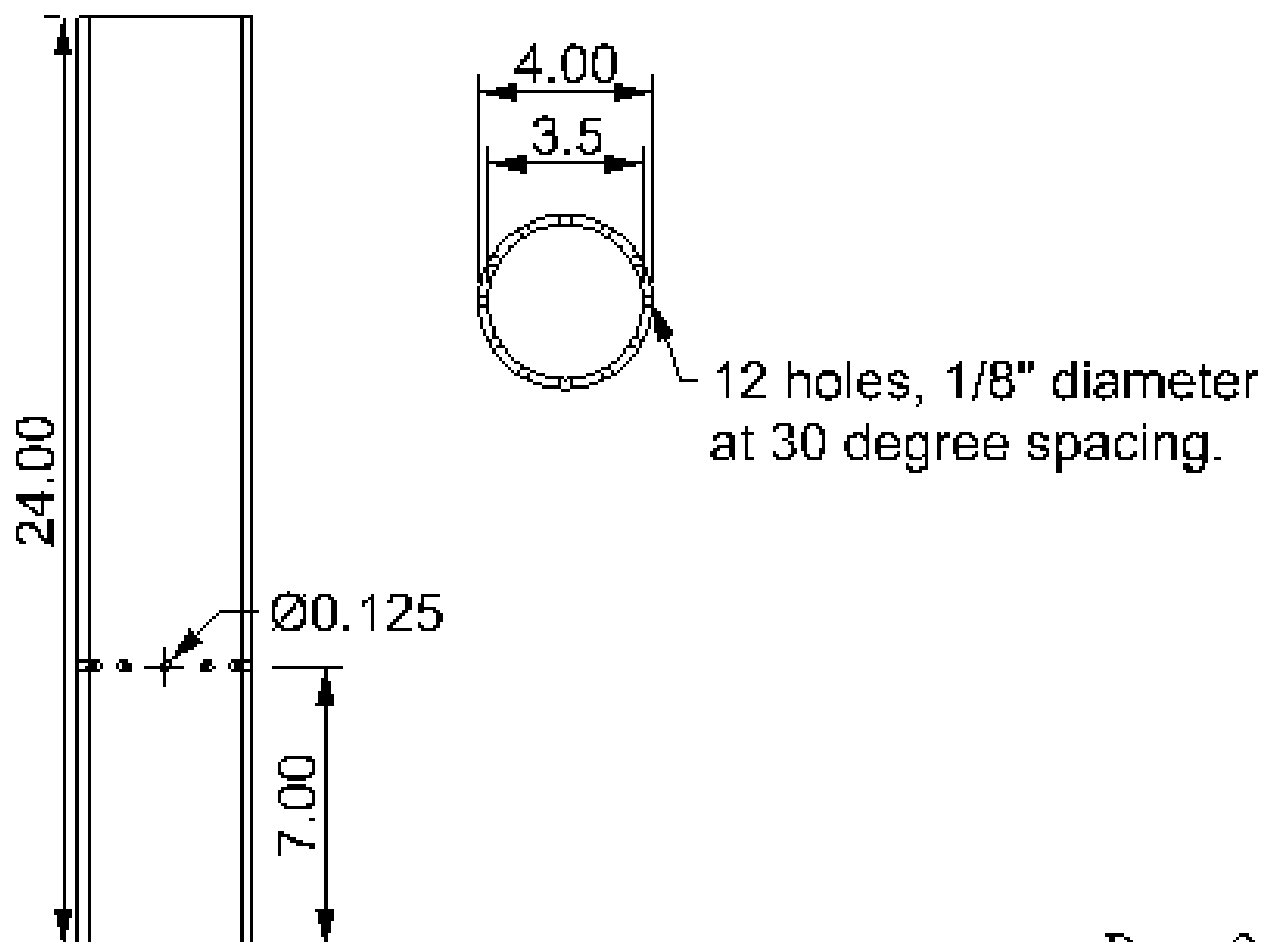
# 3G-I Building instructions

# 3G-I Building instructions

## Step 1.

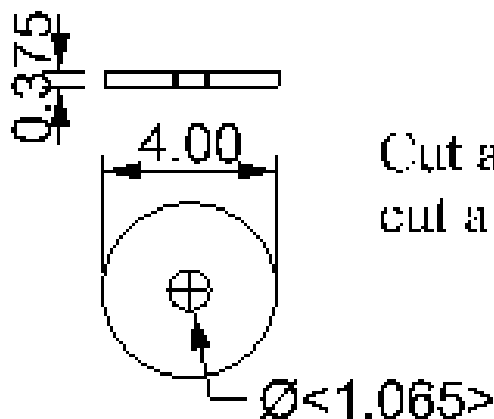
Take a section of thick wall pipe 24" long with an O.D. of 4" and an I.D. of 3.5".

Drill 12 holes 0.125" in diameter, spaced equally, 7" from one end of the pipe.



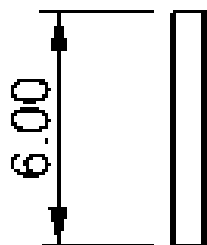
# 3G-I Building instructions

## Step 2.

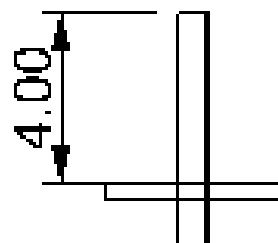


Cut a 4" circle from 3/8" plate and cut a hole 1.065" inside the center.

## Step 3.



Take a 3/4" black pipe nipple 6" long and weld it with one end of the pipe 4" from the base.



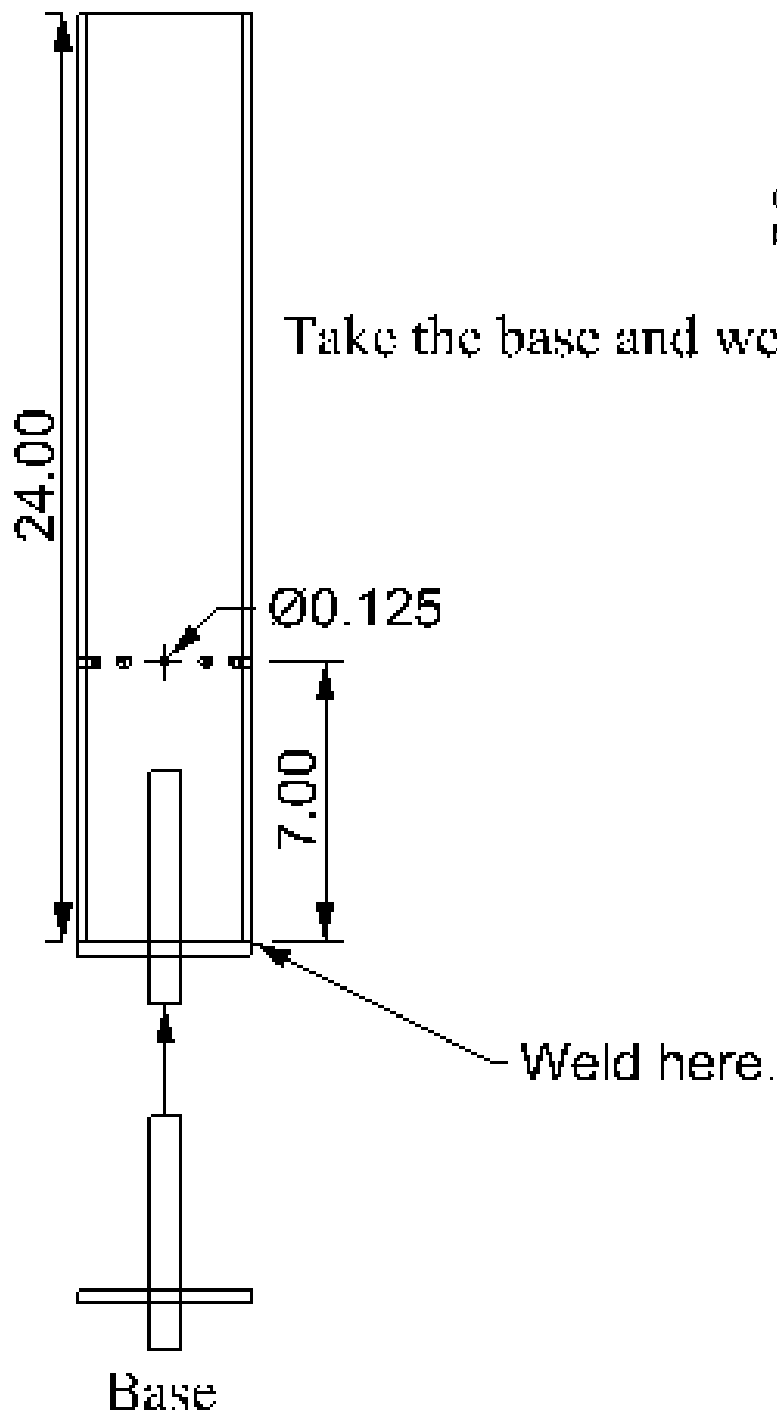
Base

Like this.

# 3G-I Building instructions

## Step 4.

Take the base and weld it to the bottom of the pipe.

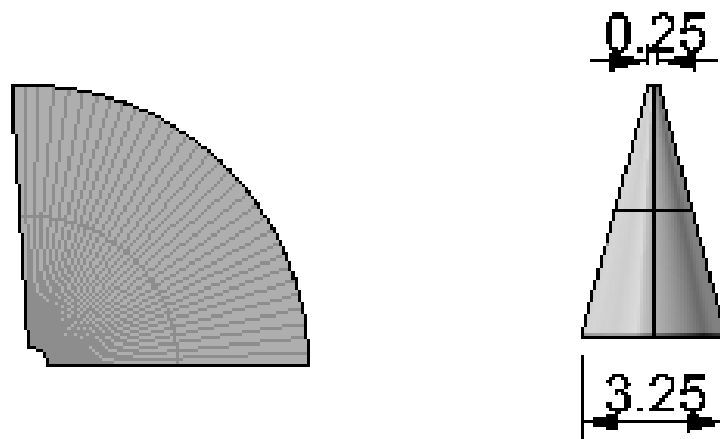


# 3G-I Building instructions

## Step 5.

Make a cone from 1/16" stainless steel.  
Don't use sheet metal as it will not last.  
Roll the cone such that the base is 3.25"  
in diameter and the height of the cone is 6.5".

Weld shut the top of the cone and grind it flat.

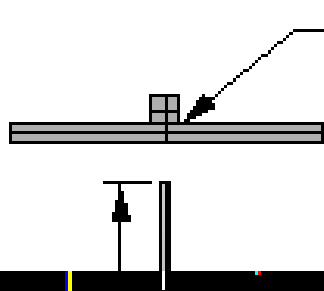


You can find many sources online that provide software to layout cones of any shape and size. The following site is but one of them, but seems to work well.

<http://www.pulserate.com/>

## 3G-I Building instructions

Step 6.



- Weld nut

Make a handle with 3/4" box tubing 8" long.

Drill a hole through the center and weld a 3/8" nuts.

$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

1. *Journal of the American Medical Association*, 2000; 283: 2689-2693.

### Step 8:

1. *Journal of the American Medical Association*, 2000; 284: 2689-2695.



**Figure 1**

## 3G-I Starting instructions

The G3-I is a down draft gasifier so you'll need a blower motor or air ejector setup to generate a vacuum. Personally, I like the air ejector type because of it's simplicity and reliability.

You'll have to decide that on your own but have a look at Stephen Sabbadess's ejector design on the "Wood Gas" group, or Jim Mason's later version on his latest GEK model.

I recommend visiting Jim's site as you'll also need to make a manometer. Jim has a very elegant and simple design solution that replaced the more expensive and sensitive vacuum dial gauge.

This is the starting procedure that I have found has worked best for me thus far. Eventually, you may find a better method, but this will get you going fairly quickly.

Before starting the unit, insert the cone and adjust the T handle so that it lifts the cone 1/4" above the bottom.

You can play around with this height later, but this will give you a good starting point.

## 3G-I Starting instructions

Add a small hand full of pellets. You don't want to add too many at the start, otherwise you're going to get a lot of unnecessary smoke and tar. However, try to get an even layer at base of the cone. This will insure that when the unit start you'll get an even burn around the entire base of the cone.

Once the pellets are in place, take your local newspaper. Here we have a local rag that is distributed freely. Remove the glossy insert that is useally present in all newspapers.

Hold it side ways with the your right hand on the folded end and tear half inch strips. What you'll get are a number of strips bundles together. You can tear about 4 or five of these as extras and set them aside in case you need more.

Take two bundled strips and drop them down folded end first. They should fall to the bottom easily. If they don't it's not that critical. Add one more bundled strip so that your torch flame can reach the paper.



## 3G-I Starting instructions

Adjust the vacuum to 3 inch of water. At this point if you don't have a vacuum gauge you're going to have to go by feel by placing your hand over the top of the unit. You should feel a good draft. If it's not strong enough it will take longer to reach flash point and the unit will produce a lot of unnecessary smoke. If the draft is too strong, all of the heat will be taken away too quickly and you'll have to use more paper to start it.

You'll know when you're ready to add more pellets when you hear the gases flash. When this happens the cone will start to glow red and it will sound like a rocket just started inside.

If you have a thermocouple installed in the exit gas stream, wait until the temperature climbs to 400C before adding more pellets. Otherwise, let the heat build up for a few seconds before adding more pellets. Once you have proper ignition, go ahead and add several hand full of pellets. You can fill the entire unit at this point, but I encourage you to start slowly and fill it only to the top of the cone.

# 3G-I Starting instructions

Get a feel for how the unit operates and then go from there.

The 3G-I currently runs my wood splitter that uses a 6.5 hp engine. Although I have not run larger engines as of yet, I am confident that this unit is capable of running twice that size possibly even larger.

I hope you enjoy working with the 3G-I.

Looking forward to hearing about you're results, success and suggestions for making this unit better.

Best regards.

Luc Gosselin  
elevatorman@@shaw.ca

