

“I Spy” Steam Engine Plans

Sheet 1: Base Plate, Cylinder Block, Air Intake Nipple

Sheet 2: Piston & Wrist Pin, Piston Connecting Rod, Valve, Valve Connecting Rod

Sheet 3: Bearing Block, Crankshaft, Crank, Eccentric

*The three lines above are links to the sheets of interest. On each sheet is a **red box**, which is a link back to this page.*

Not Shown in Plans:

- Flywheel
- Flywheel Hub
- Spacer
- Bronze Bushings

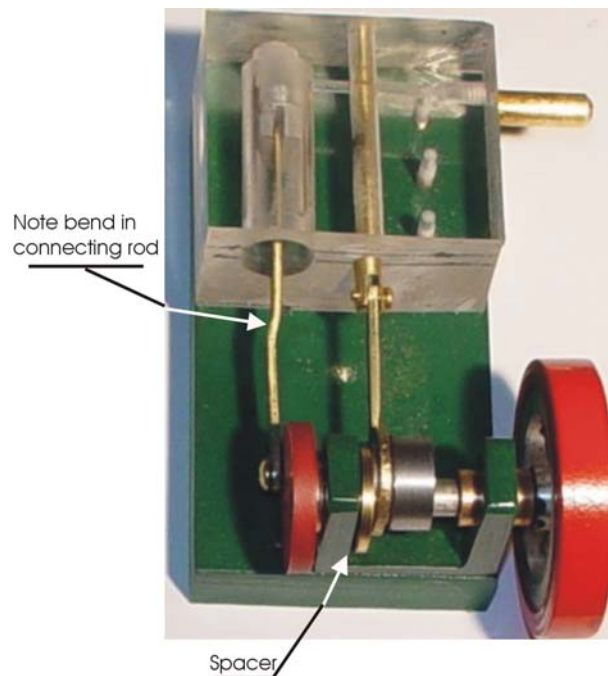
The flywheel was done as a separate project, and is thoroughly discussed at –

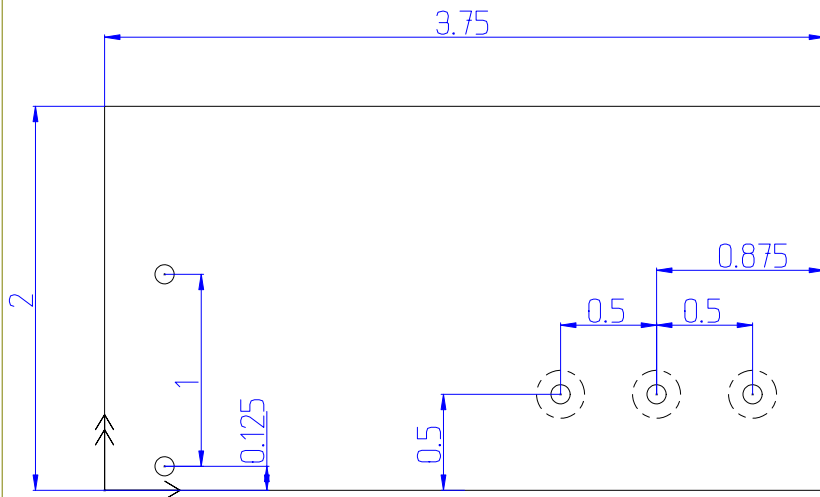
www.good-fellow.net/flywheel.html

The hub is brass, rounded with a file on the lathe, turned to fit the inner ring of the flywheel, and drilled for a 4-40 tapped hole in the crankshaft.

The bronze bushings are $\frac{1}{4}$ " i.d. by $\frac{3}{8}$ " o.d., to be inserted into the bearing block and held with Loktite.

The spacer is a $\frac{3}{32}$ " brass washer, $\frac{1}{2}$ " i.d. by $\frac{11}{16}$ " o.d. used as a retainer to prevent the valve connecting rod from slipping off the eccentric. See photo below.

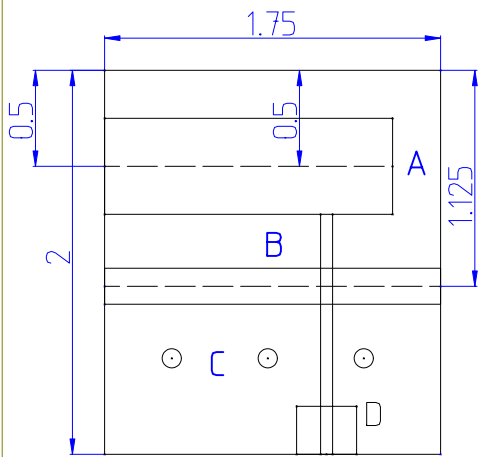




Top View

BASE PLATE

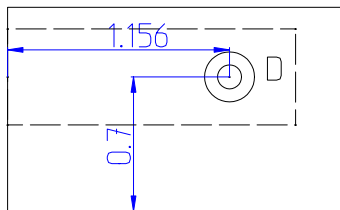
1/2" aluminum plate
 All holes 1/8" through plate
 Countersink 1/4" deep.
 from BOTTOM of plate



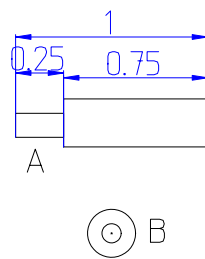
Top View

CYLINDER BLOCK

- 1" Plexiglass
- A: Piston Cylinder
1/2" dia. reamed, 1-1/2" deep
- B: Valve Cylinder
3/16" dia. reamed, through block
- C: Mounting holes
Drill from BOTTOM of block
No. 43 drill, tap 4-40, 1/2" deep
- D: Air Intake
No. 46 hole through to piston cylinder
Countersink 1/4" deep, No. 21 drill, tap 10-32



Side View

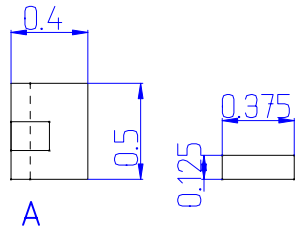


AIR INTAKE NIPPLE

Brass Round, 1/4" x 1"

- A. Turn down to 3/16"; thread 10-32
- B. Drill through No. 46 drill

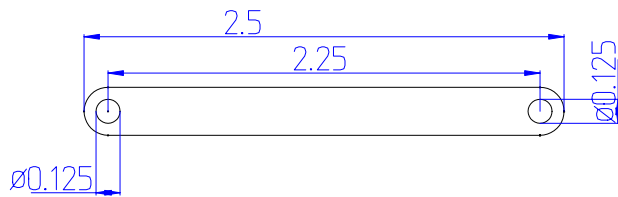
	Not to Scale	Base Plate	I Spy Steam Engine Sheet 1 of 3
	Not to Scale	Cylinder Block	
	Not to Scale	Air Intake Nipple	
	David Goodfellow	12/21/03	A



PISTON & WRIST PIN

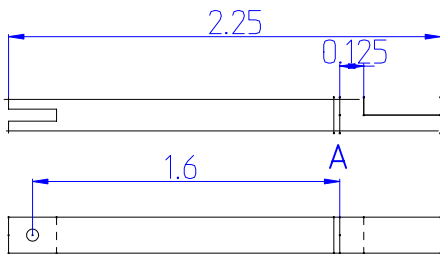
Piston: Turn from Aluminum Round
Drill & ream "A" 1/8"

Wrist Pin: 1/8" Steel Round



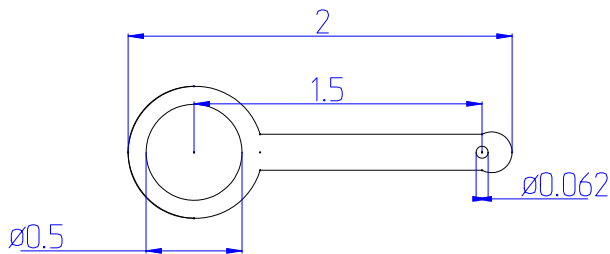
PISTON CONNECTING ROD

1/16" Brass Flat
2 bends as required. See photo of assembled engine.



VALVE

3/16" brass round
Use hacksaw to make groove "A" on lathe, 1/16" deep.



VALVE CONNECTING ROD

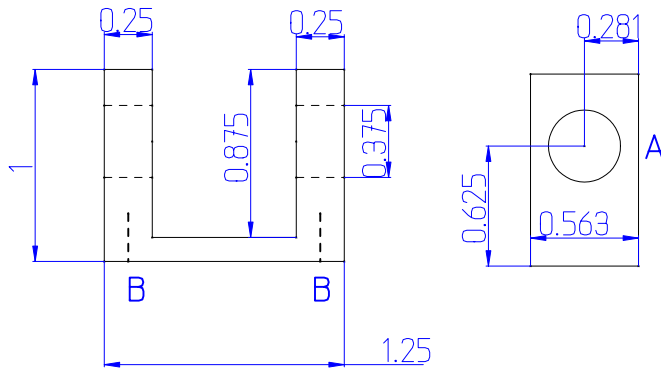
1/16" brass flat



Not to Scale
Not to Scale
Not to Scale

Piston/Wrist Pin
Piston Connecting Rod
Valve, Valve Connecting Rod

I Spy Steam Engine
Sheet 2 of 3



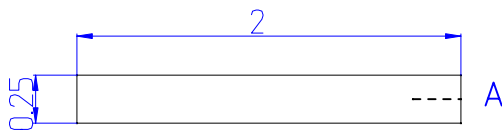
BEARING BLOCK

Brass

Drill hole A first, for 1/4" bronze bushing.

Drill hole B (2) 1/4" deep, tap 4-40.

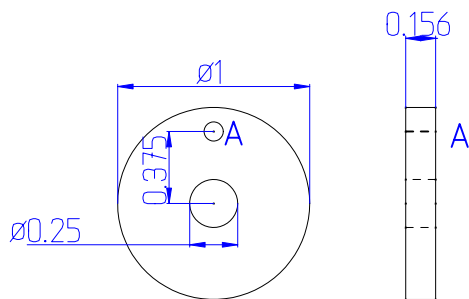
Mill cavity as shown.



CRANKSHAFT

1/4" steel round

Drill hole A and tap 2-56

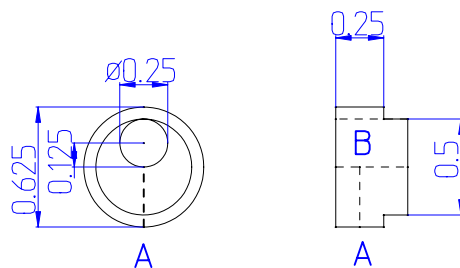


CRANK

Aluminum

Drill hole A and tap 2-56

Ream center hole 1/4"

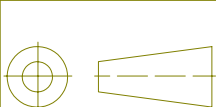


ECCENTRIC

Steel

Ream crankshaft hole 1/4"

Drill hole A into hole B. Tap 6-32.



Not to Scale
Not to Scale
Not to Scale

Bearing Block
Crankshaft, Crank
Eccentric

I Spy Steam Engine
Sheet 3 of 3



David Goodfellow

12/27/03

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