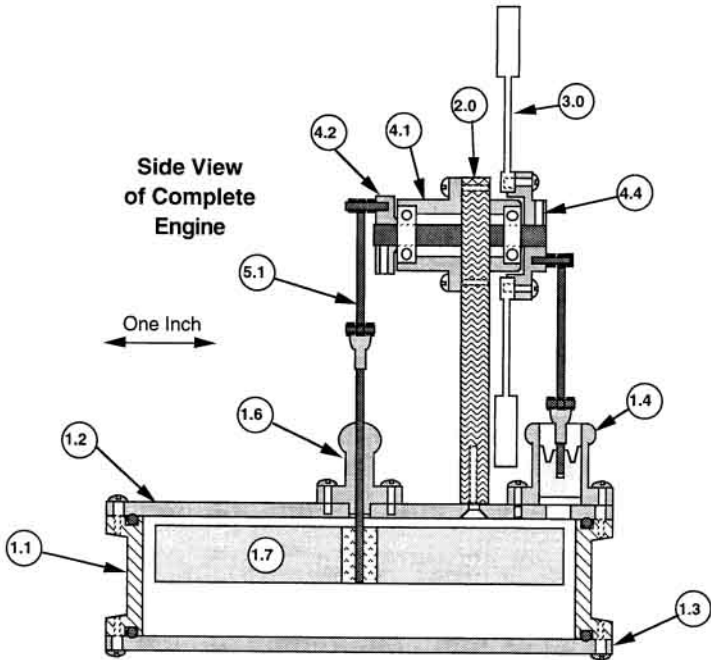
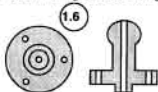


**Side View
of Complete
Engine**

One Inch
↔



Displacer Gland turned from Al. center hole is .0625 to fit displacer mounting rod. Locating shoulder on bottom is .1875" dia. Attach with 3 #2-56 screws (which do not penetrate top cover), seal bottom with gasket or o-ring.

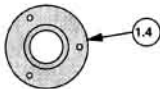


1.6



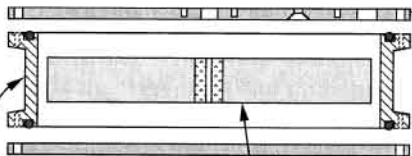
1.5

Power Piston is .375" dia Delrin or Teflon, .4 inches long. Center-drilled for light force fit with .375" long .0625" dia brass rod.



1.4

Power Cylinder Al. turned as shown, carefully fitted to piston. Attached with 3 #2-56 screws, bottom sealed with gasket or o-ring.



1.2

Top Cover .125 inch Al, 4.5 inches OD to fit chamber. Attached by six #4-40 screws. Screw holes are # 33, spaced 60 degrees at 2.125 inch radius.

Chamber body Plexiglas cylinder, 4.5 inch OD, approx. 3.875 inch ID. Outside walls thinned as shown to .125 inch. Grooves for o-ring seals are just inside the circle of mounting screws.

1.1

Bottom Cover same as top cover, but has no holes other than the 6 for mounting screws.

1.3

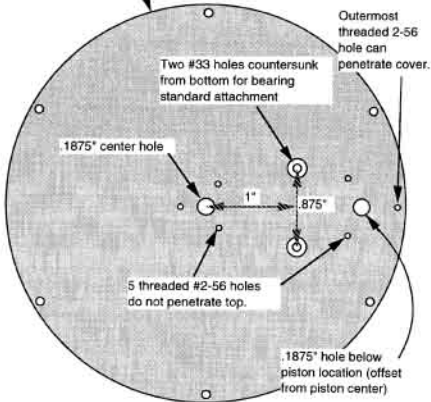
1.7

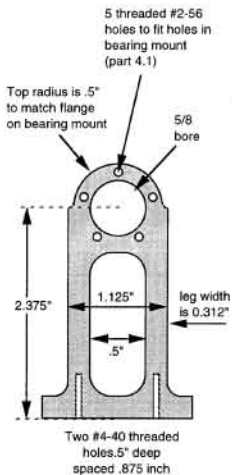
Displacer Assembly is .5" thick, 3.625" dia disk of foam building insulation with .375" dia wood center plug. Plug center drilled for light force fit with .0625" dia brass rod.

1.0

One Inch

Chamber Assembly

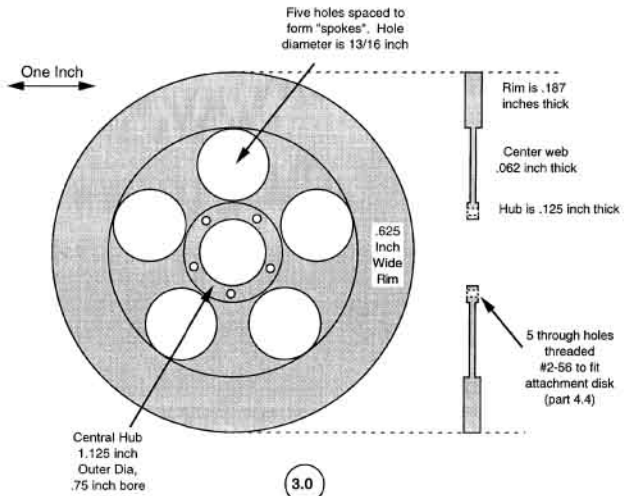




2.0

Bearing Standard

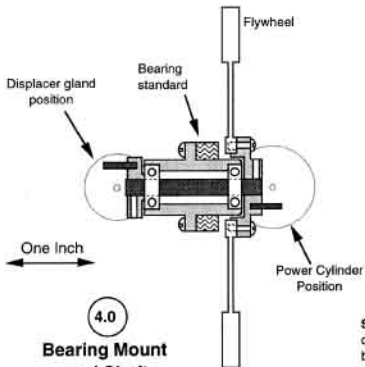
1/4 inch thick aluminum
 Height to bore center 2.375"
 Width at base 1.6875"
 Bore Dia. .625" to fit bearing mount (part 4.1)



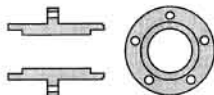
3.0

Flywheel

Made of steel or brass, OD is 4.062 Inch

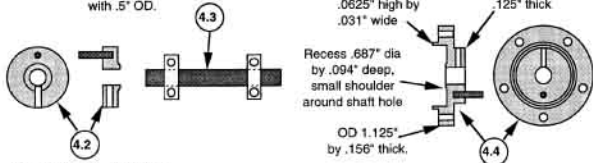


4.0
Bearing Mount
and Shaft
Assembly



- 4.1** **Bearing Mount** is Al. cylinder turned as shown to receive .5" OD ball bearings with finger press fit into recess whose depth is same as bearing thickness (approx .156"). Body length is 1.094", OD is .625". Center bore is .375", flange OD is 1". Five mounting holes are #44 on .406" radius to pass #2-56 screws holding bearing mount to bearing standard (part 2.0).

Shaft and Bearings. Shaft is .1875" dia steel, 1.015" long. Bearings are best quality available for 3/16 shaft with .5" OD.

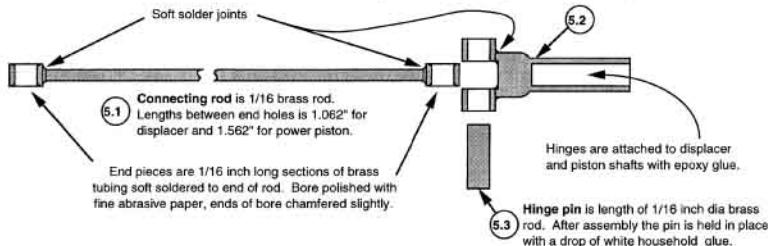


Displacer Crank Disk .625" OD Al, .156" thick. Small shoulder on back rests against end of bearing inner race. Crank pin is .0625" brass rod pressed into disk and extending .25". Crank offset is .240". Disk held to shaft with #4-40 setscrew opposite crank pin.

Locating shoulder
 .0625" high by
 .031" wide
 .625" dia by
 .125" thick
 Recess .687" dia
 by .094" deep,
 small shoulder
 around shaft hole
 OD 1.125"
 by .156" thick.

Power Crank and Flywheel Attachment is 1.125" OD Al, to fit raised flywheel hub. Crank pin and set screw similar to displacer crank disk, pin offset is .215". Five flywheel attachment holes are #44 (to pass #2-56 screws) on 0.469" radius.

Hinge wrist is made from 3/8 inch length of brass tubing squashed flat for last 1/16 inch of length. To this wrist are soldered two 1/16 inch lengths of tubing to form hinge ends. Space left in center for rod end is about .075 inch. Portion of wrist between hinge ends is relieved slightly to prevent rubbing.

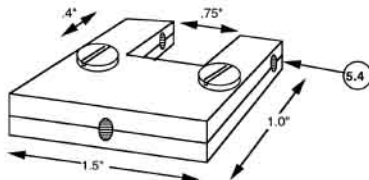


5.0

Connecting Rods

Material is 1/16 inch dia brass rod and brass tubing sized for sliding fit

One Inch for this Drawing



Sketch of the jig made to hold link parts during soldering. Two pieces of 1/8 inch thick aluminum are screwed together and carefully drilled along their interface with perpendicular holes to grasp the brass tubing. A section is then cut out of the upper ends to form the shape shown. The clamp screws allow precise positioning of the parts before torch soldering.