



NOTE: NOT ALL PARTS ARE DRAWN. SEE DESCRIPTIONS AT RIGHT FOR SOME COMPONENTS

**FLYWHEEL(1):** Brass 1.125dia x 0.188 thick. Ream central hole 0.125dia. Upon assembly place slip of paper between flywheel and bearing to create running clearance then Loctite to shaft.

**CYLINDER(2):** Brass 0.438 O.D. x 0.5 long. Ream thru 0.375dia I.D. Chamfer top edge 45deg 15thou deep for rod clearance. Solder cylinder onto cradle in frame with top (chamfered) edge flush with frame edge.

**CRANK PIN(3):** Stainless 0.062dia. x 0.375 long. Press fit or Loctite into crank disk.

**SHAFT(4):** Stainless 0.125dia, x 0.460 long. Drill one end .070 x 0.25 deep and tap 2-56. See flywheel note then Loctite un-threaded end into flywheel.

**CRANK DISK(5):** Brass 0.375dia x 0.100 thick. Ream central hole 0.125 thru and countersunk for 2-56 cap screw head. Ream crank pin hole 0.063 dia thru offset from center 0.125

**CYLINDER CAP(6):** Brass 0.5dia O.D. x 0.120 thick. Create .020 high x 0.375dia raised center section to locate into cylinder end while soldering in place. Ream central hole thru 0.125dia. for smooth pipe fit.

**AIR FEED PIPE(7):** Brass hobby pipe 0.125O.D. x 0.5 long (or to suit). Solder into cap flush inside.

**FRAME(8):** Brass. Most dimensions are critical to proper operation so work carefully. Note the cylinder center point is off the part. The cylinder saddle can be created by drilling a raw block and machining block to size after. Or the point can be located in space and a boring head or end mill used to create the radius (preferred).

**BEARING(9):** Brass 0.188 O.D x 0.25 long. Ream thru 0.125. Solder into hole in frame with 0.020 protruding beyond inside wall of frame.

**PISTON(10):** Brass as shown smooth fit in cylinder. Round the edges of piston but do not reduce outside diameter.

**SOCKET HEAD CAP SCREW (11):**  
#2-56 X 0.25 long

**MOUNTING HOLES (12):** Two #2-56 mounting holes or to suit.

## OFFSET CRANK ENGINE

Drawn by Dave Sage Rev. Nov.17/2013 (SHT. 1 of 1)