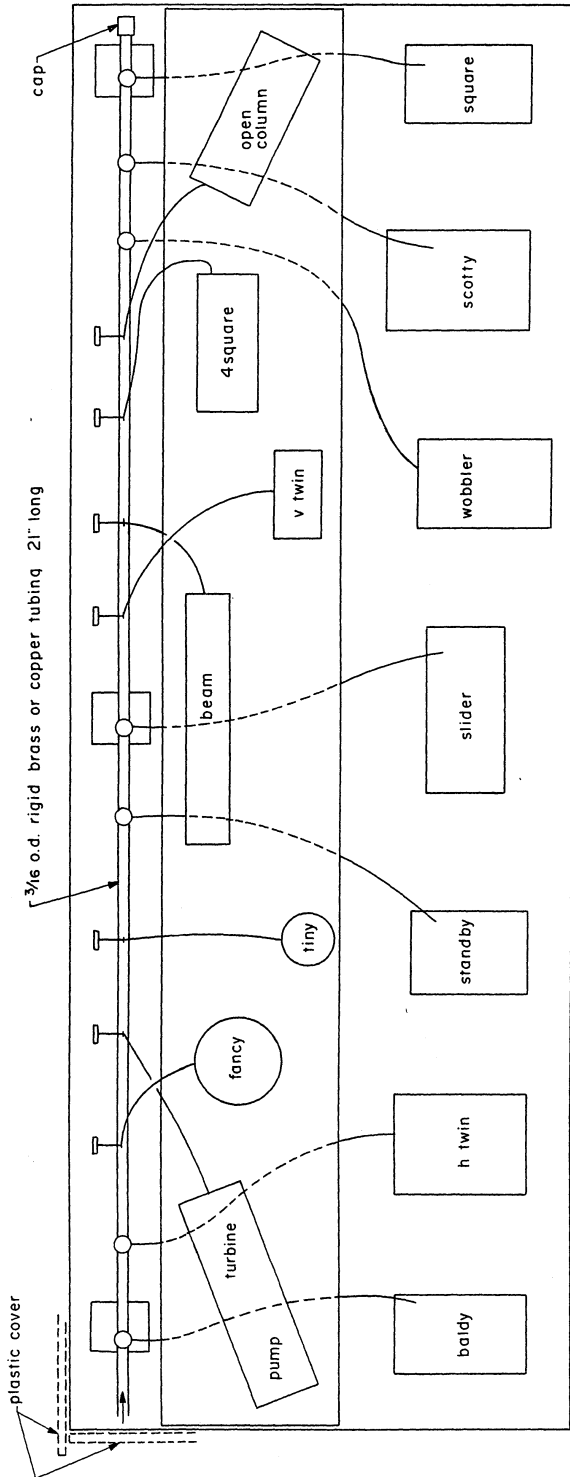


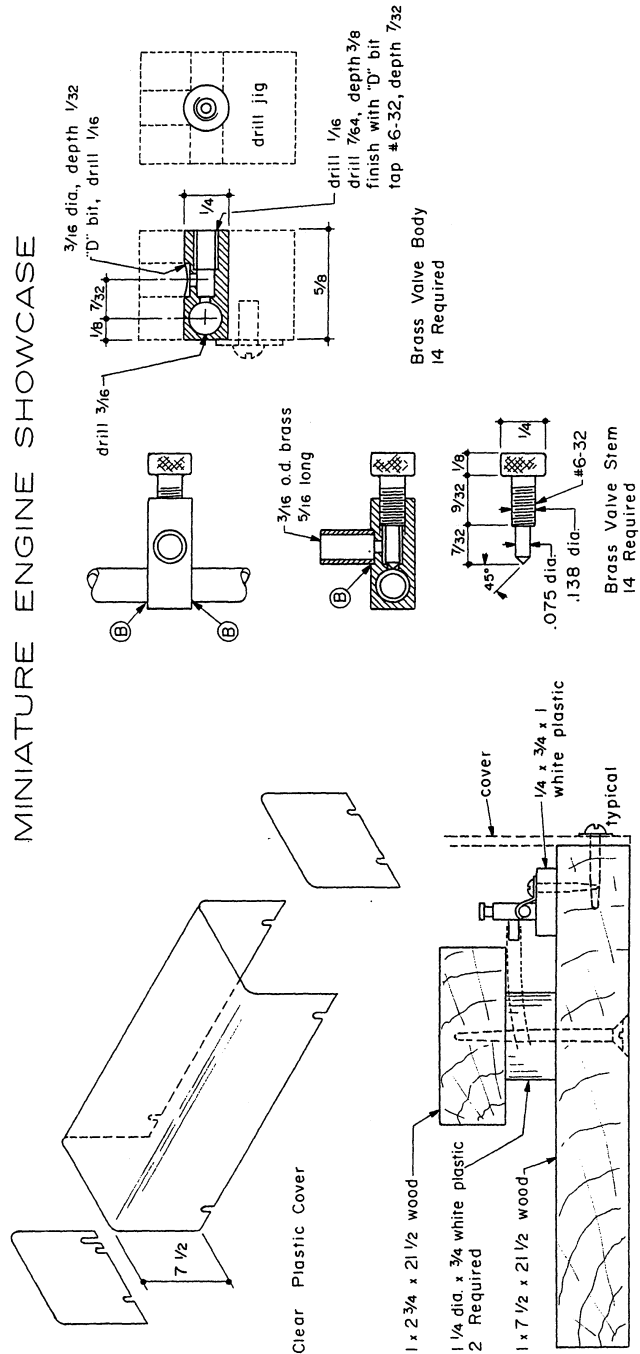
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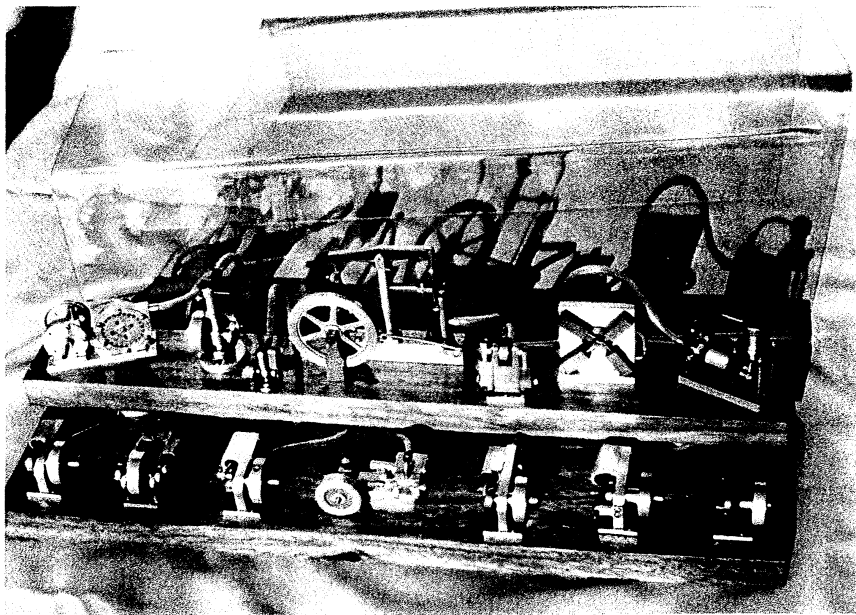
Display and operate them all in

The Engine Showcase



MINIATURE ENGINE SHOWCASE





Once you have built several of these engines you will want to display and operate them. An Engine Showcase is just what you need. You have a lot of leeway in mounting these units on a base. Use your own ideas and materials. The base shown is a simple piece of wood with a second narrower piece elevated on some round blocks. 3/16" tubing runs the full length at the rear and fourteen Valves are soldered to it. Each Valve has a 3/16" projection for 3/16" aquarium tubing going to each engine. If you can find them in the pet department, aquarium Valves will serve. Gangs of 5 Valves on one tube have been available in the past. Three of these will give you 15 outlets. These were brass and imported so the they may sometimes be scarce.

The VALVES shown call for a production setup and a turret tool post is handy. A tailstock turret adds still more convenience. However, these are not common on 3" lathes so it will take a bit of time. After soldering each Valve in the desired position, drill through into the long tube. All of the soldering on each Valve must be done in one pass and a heat sink may be needed to avoid softening the last Valve attached. The Valves are attached either vertically or horizontally, depending on the direction the plastic tubing has to go.

When making the Valve bodies, use the jig to drill the 3/16" through hole. Run about a 1" length of 3/16" rod through this hole and do the shallow 3/16" spot. It is very handy, if the short 3/16" tube has to be forced into this shallow cut so it will cling while soldering. Chuck into the 3-jaw and complete the seat and threading.

The Valve Stems for these Valves

are also a simple production setup.

The matter of cases for displaying models is a subject in itself.

The **PLASTIC COVER** was made without wide knowledge or experience in this material. If you have worked with Plexiglas, you will be able to make a fine looking case. The material used was non-shattering storm door stock bought at the local hardware store.

One problem was to make the width of the case equal the base width. On the case shown, the base width was made to fit the plastic already bent, which may be getting the cart before the horse. The misfit can be as much as 1/8" or 1/4" and not ruin the appearance of the case. Just taper the end pieces to match.

The 1/8" (approximately) stock was cut to length, about 3/4" longer than the base (note it projects beyond the end pieces). The other dimension is about 1/2" to 5/8" more than the sum of the front, top and back. The fine tooth circle saw was used to cut this material using slow feed.

The protective paper was removed and scratches avoided from then on. The stock was squarely clamped to a piece of 3/4" plywood on a table with an amount equal to the case height plus 1/4" overhung. The medium to small flame of a propane torch was played on the plastic in very uniform passes right at the edge of the board which was visible through the plastic. The flame was run several inches past the edge of the plastic so as not to overheat when reversing at the end of the pass. Overheating causes roughness and bubbles. The torch was kept in motion at all times until it uniformly heated a narrow strip

right on, or a bit away, from the edge of the board. It took a little time but, when enough heat entered the plastic, its own weight showed it would bend. Squareness was checked before it set.

The bend had a fair-size radius. Its size was noted so as to allow for this on the second bend. The best method is to make a trial run on a 2" wide trimming to see how it acts and how much to allow for the bend. Next it was mounted as before on the plywood. This time the bend that was completed was pointed down and the board mounted so this completed bend would clear under the table, or whatever, when making the second bend. It was heated the same way and the overhang supported and held squarely until set.

Uniformity in applying the heat was important. If one end got more heat than the other, it would have a different radius and affect the width of the case.

When set, the front and back were cut to a uniform height. Notches were made for bright wood screws and flat washers. With this piece mounted on the base, cardboard patterns were made for each end, the end pieces cut from plastic and notched for screws. A notch was added for the air line. These pieces were not cemented together. The photos show holes rather than notches, but I believe you would be most satisfied with notches.

A fine file and fine emery dressed the edges. When operating these engines, the case is easily removed. A small identifying mark was added so the cover could easily be returned to match the ends to which it was fitted.