

On One of Greatest Wonders

By Kirk Kirkham

The ubiquitous Cox Baby Bee and its siblings probably belong on the list of the seven wonders of the modern world.

Anyone who has ever examined these little jewels has to be impressed with both the precision of their manufacture and, maybe even more so, the price at which they could be sold at a profit. The Baby Bee originally sold for \$3.95. That was another time. They can still be found at yard sales for 50 cents and a whole big jar full of them pickled in Risolone brought, what, \$25 at a Denver auction a couple of years back.

It took me 58 years to learn how to get a mirror-finish, razor-sharp edge on a knife blade. Yet such a blade is still short, of the precision Cox - and now Estes - flaunts in the Baby Bee piston and sleeve match.

Still, anyone who has worked with these mills knows improvements can still be made in them. Removing the tank and gasket and polishing up the back of the crankcase can sometimes greatly improve performance.

Lay a new sheet of 400 grit wet-or-dry sandpaper on a piece of plate glass, then carefully sand the back of that crankcase a couple of strokes and you will see that some high spots around the screw holes have been worn down. This will improve the seating of the tank, hopefully eliminating any chance of an air leak. Air leaks can make a great difference in the performance of one bee over another.

In the process of manufacture, the drilling and tapping of the holes for the tank mount screws distorts the metal of the crankcase. Not much, but enough to sometimes cause air leak problems.

The precision of the piston-sleeve mating seems perfect, especially on the T.D. varieties of Cox. But try taching say three new engines, then switch pistons around and tack again. One of the three may then give even better performance.

The precision with which many things are made will always tend to awe me. Jim Brown's shop is one of my routine stops when visiting Denver. He usually trots out some gadget that astounds. Once it was a set of metal "doughnuts" used for calibrating a micrometer. The top and bottom of each is so perfectly flat that they cling together as if magnetized. Another time, it was a set of parallel bars, tow triangular pieces of tool steel dovetailed together so that they slide, but the top and bottom remains perfectly parallel.

This is an age when almost anything seems possible. Yet, one has to wonder how such perfection was achieved. Imagine a crew of scientists and engineers suddenly marooned on an uninhabited planet. They have the

knowledge, but only stone and wood to begin with. Starting with a stone-age environment, they have only the rest of their lives to recreate what they left behind. How far can they progress?

Theirs would seem to be an impossible task, yet a look at technological history shows the curve of what we call progress climbing ever so gradually from pressure-flaked spear points to the iron age. It's in a near vertical climb now, much of it in the past century.

Yeah, I'm awed. And few things awe me more than a Cox engine.

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020 Replica and 1/4 A Nostalgia Some Thoughts

The two above mentioned events share something in common, the T.D.020. Sure there is the PeeWee .020, and a promised VA.020 which is still being developed but the T.D. is the one, and if you find one "new-in-the-box" or even in great shape it can bring \$125 at a collecto. Since you probably have a few on hand - here is the first step in .020 Replica and 1/4A Nostalgia.

Engine Break-In

- 1) Mount the engine on the red T.D. tank screwed to plywood that has a 90° hand hold nailed or screwed to it.
- 2) Get a good after run lube ready and some castor oil based fuel with 15% or so nitro. Put on a Cox.020 prop - yellow plastic is my favorite with the latest black plastic not far behind.
- 3) A fresh battery - a full tank should help you find the needle valve settling for some easy aces runs - each followed by after lube and cool down. Do this for several tanks and then try faster runs. T.D.020's do not come in on 3 or 4 tanks for me and be patient - electric starters are inhumane on such little guys and not needed anyway.
- 4) Increase nitro - 15-25-40-50-65% Al Heinrick has the 65% which must be kept in the refrigerator because propylene oxide evaporates. If you mix your own - remember castor only.
Note: Keep the cap on tight and let the 65% come to room temperature, before opening and putting in a 2-3 oz. Plastic bottle. This allows the castor to remix, then cap on tight and back in the refrigerator. Curt Stevens' mix is 50% nitro, 15% castor, 35% alky.
- 5) When you have chosen the nitro content you are going to fly with, find the needle valve setting and run the engine every once in while so you can become friends - if the engine becomes cranky check for a leak at the crankcase to tank joint and tighten the backplate down till there is no leak.