

TECHNO STUFF**STARTING AN ENGINE BY HAND**

By Ed Moorman

Starting an engine by hand seems to be a lost art. Many years ago, the only electric starters were the ones the control line speed guys used. These were made from an old car starter and a car battery. They were wheeled around on a hand truck type affair. Needless to say, all the regular guys hand started their engines. In the late 60's or early 70's, electric starters using motorcycle batteries were introduced. Sullivan had the first one I remember seeing. Now, electric starters are universal. Much of the time, I find myself the only one on the flight line who hand starts.

Let's look at the lost art of hand starting. First, you need a good engine to hand start. ABC engines are best because they have good compression. The large Super Tigre and Moki engines are easy to hand start, too. An old K&B .40 with a Dykes ring which has no compression until it is running, is a poor candidate-spin it over electrically. Next, you need to prime the engine correctly. And lastly, you need to flip it smartly. Finally, most engines don't hand start well when hot.

The secret to hand starting is: Do not pull the engine through compression! If you do, you will probably get a bashed finger or a nicked chicken stick. Then how do you get it to run? There is a trick! Here's the procedure.

1. CHOKE.

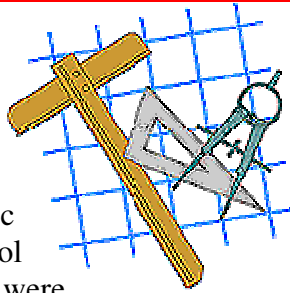
- a. Open the throttle to full power.
- b. Cover the carb and turn prop over 3 to 5 times. After some practice, you'll get to know the correct number of times. When they're cold, some engines require a lot of choking.

2. FLIP.

- a. Uncover the carb and flip the prop over 8 to 12 times. This is important. You flip the prop until you get a "squish" sound along with the compression "pop." This tells you the cylinder is wet. If it isn't wet, the engine will not fire. If you don't get the "squish" you need to choke some more.
- b. Close the throttle and set trim to high.

3. SLAP.

- a. Hook up your glow plug battery.
- b. Rotate the prop counter clockwise so it is up against compression just like you would if you were



going to use a chicken stick.

c. Slap or flip the prop smartly **BACKWARDS.**

Note you do not flip through compression. When you slap the prop backwards, it rotates until it hits compression in the other direction. If you have flipped it fast enough, (*and if you have the proper amount of fuel/air in the cylinder*) the engine will fire and kick back, starting itself forwards.

That's all there is to it. As I said, this technique works well with ABC engines and the big glow engines.

Sanding (Wood, Metal and Plastic)

by Walt Ludwig

No matter what aspect of our hobby you belong to, you need to know something about how to sand wood, metal & plastic. I'm sure that everyone reading this knows that sand paper comes in sheets, rolls & discs. Rolls & discs are special in that they can make life a bit easier. They also need special equipment plus sticky stuff.

That leaves us with sheets. Sheets can be bought as 1/4 sheet assortments. I don't use these instead I buy full sheets - 9 x 11 inches.

Sand paper is numbered as to its coarseness or grit. Low numbers such as 40 & 60 are real grinders and will make short work shaping a round cowl out of a square balsa block. Higher numbered sand paper will be used to get smoother finishes. The sand paper I try to keep on hand are 40, 60, 180, 220, 400, & 600. My finishes usually stop at 220 which is fine for film or cloth but still a little rough for paint. If you can keep people 10' away they will think you're an expert.

To store your sheets of sand paper get a large corrugated box and flatten it. Cut from a folded edge a 12" x 12" folder. You can keep your paper neat either flat or on edge on a shelf.

Now that we have the sandpaper stored in a neat manner, we should think about how we are going to use it. For many years, when sanding was required, I would simply grab a flat block of wood, wrap sand paper around it, and go to work. That didn't work to well, the paper would go one way and block another way. My hand would cramp holding it tight. I tried gluing the sand paper to the block. That worked well until the paper wore out. It took too long for the glue to set on a new block.