



**PIPER MEMORIAL AIRPORT
353 PROCTOR STREET
LOCK HAVEN PA 17745**

Preheat for a Pittance (revised 5 February 2014)
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Chief Flight Instructor, AvSport of Lock Haven

It's the dead of winter as I write this, with temperatures in my T-hangar plummeting well below zero Fahrenheit. Cranking up my plane on a day like this could result in a dead battery at best, or a dead engine at worst. Clearly, 'tis the season to be preheating.

My device to deice can be fabricated easily for \$30 in materials. It consists of a 120 VAC heat gun, warming the engine through three feet of high-temperature SCEET tubing. The heat gun I chose is a Drillmaster 1500 Watt, dual heat unit, sold by Harbor Freight and Tool Company as Item #96289 (see Photo 1). Normally priced around \$25, it is frequently found on sale for the unbeatable price of \$7.99. To direct warm air to where it's needed most, I chose a length of 1 ½ inch diameter silicon SCEET aircraft ducting, Aircraft Spruce and Specialty Co. part number 05-30606-6, which sells for \$7.65 per foot. The two are seen together in Photo 2.

Notice the specifications on the heat gun, clearly displayed on the box (Photo 3). It draws either 6.6 or 12.1 Amperes from the electrical mains, resulting in output temperatures of 1112 degrees F on high heat, or 572 degrees on low. The Aircraft Spruce catalog states that SCEET tubing can be used "at temperatures from -80 degrees to over 550 degrees F." How much over? Well, I wouldn't chance subjecting it to 1112 F, but the low setting on my heat gun doesn't seem to be a problem. So, remember to set your switch to "low."

Assembly consists simply of sliding one end of the SCEET over the heat gun's nozzle. Photo 4 shows the finished pre-heater doing its toasty best. Note that the SCEET tubing is inserted through an open cowl flap, or other orifice in the lower engine cowling, with its open end directing warm air toward the bottom of the engine's crankcase. That warm air rises, of course, so throwing a blanket over the upper cowling (and using it to seal off the engine's normal cooling air intakes) will help to bring all critical engine parts up to a cozy temperature.

And now, reality intrudes with a smattering of sensible safety suggestions, prudently proffered by a few flying forum friends at SportPilotTalk.com:

Photo four shows a heater hunched on its hindquarters, nozzle proudly pointed skyward. Such a stance would naturally block off the air intake. So, in reality, I lay the heat gun on its side.

Photo four shows the heat gun perched on the hangar floor, precisely where petrol vapors pool, patiently awaiting a single spark to set them ablaze. So, in reality, I elevate the heat gun on a step-stool.

Photo four shows a six-foot power cord which, when stretched in search of socket, forms a perfect snare for the unsuspecting airman. So, in reality, I employ a 25 foot extension cord.

Let us now suspend reality, and return to the business of flying. But first (this being the dead of winter), we must of necessity preheat. But, for how long?

If it's only moderately frigid, you can preheat for as long as a preflight inspection takes you. Depending upon how cold-soaked your engine may be, you may opt for the better part of an hour of preheating before flight. Just don't forget to remove the preheater, and the aforementioned step-stool and extension cord, before you holler "Clear Prop!"

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Photo 1 (<http://avsport.org/publicat/nonfict/preheat1.jpg>)

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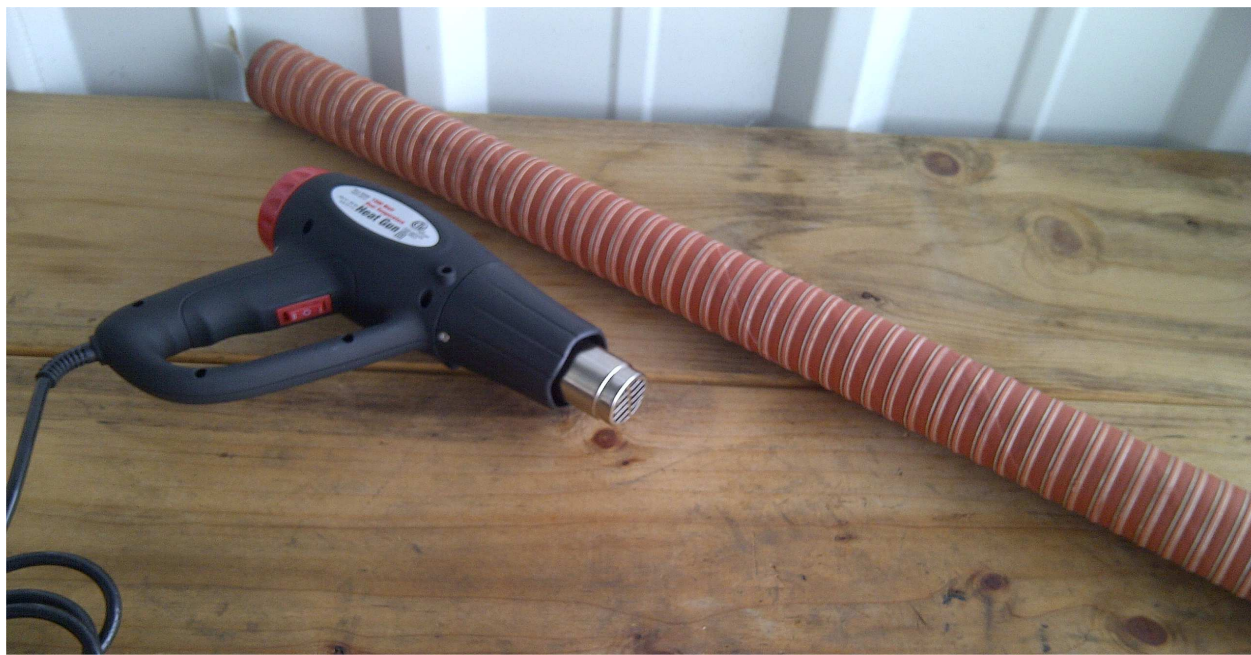


Photo 2 (<http://avsport.org/publicat/nonfict/preheat2.jpg>)

- Six foot power cord
- Powerful 1500 watt moter
- Loop pistol grip for easy hang-up
- Two heat settings for a wide variety of jobs
- Superior coil design heats more quickly and maintains even tempera

6.6 AND 12.1 Amps **120V** **120 Volts** **1112°F High**
572° Low

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Photo 3 (<http://avsport.org/publicat/nonfict/preheat3.jpg>)

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Photo 4 (<http://avsport.org/publicat/nonfict/preheat4.jpg>)