Engine preheater for cold days

… a do-it-yourself suggestion by nord_tom from the ulForum.

Preheater designed for aircraft „SFG“ - do-it-yourself - 2000W, ceramic heating element
Status: February 2021

Process:

Blowing warm air under the cowling via the exhaust cut-out,
Additional covering of the cowling ventilation openings if necessary
Preheating time depending on outside temperature <30 min.

Total costs: approx. 65€

- Performance ++ (very good air flow, very good heating performance)
- Safety ++ (no glow wires due to ceramic heating element)
- Handling + (small, handy, long supply line, flexibly adjustable air hose)

And this is what the finished box looks like:

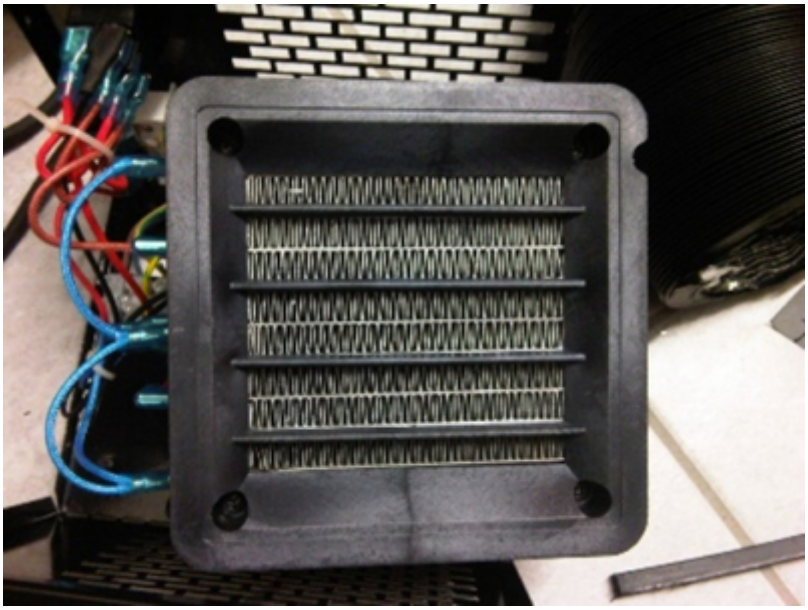
Components:

Heizgerät, keramisches Heizelement, ca. 37,00€ bei ebay
Wall flange 100 mm plate 250mm x 250mm, approx. 14€,at ebay
Alu / PVC hose 100mm, Aluflex pipe, flexible ventilation pipe, Combiflex / 3 running meters, approx. 7.50€ on ebay
Hose clamp Aluflex pipe clamp Pipe clamp 50 - 315 mm, approx. 6,00€ at ebay

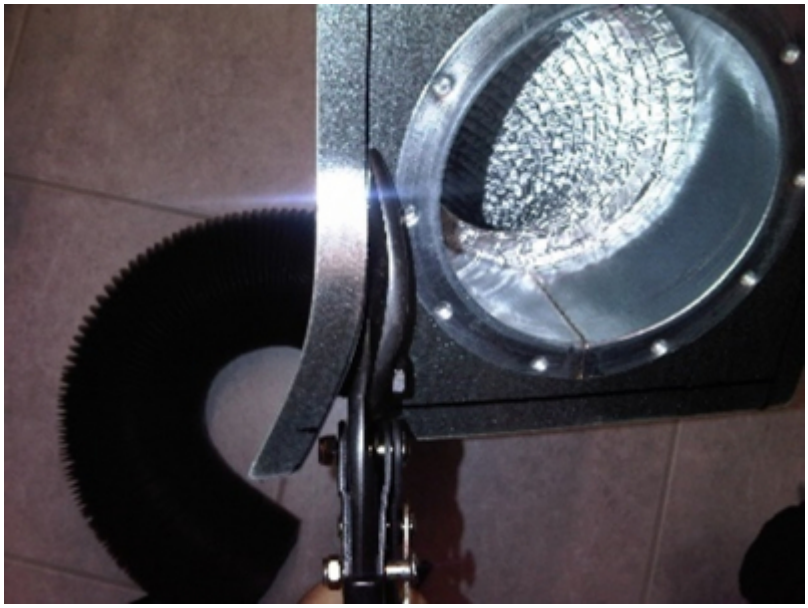
Conversion:

The conversion must be adapted to the corresponding heater available.

1. open the heater



2. cut the outer wall flange to the width of the heating element using tin snips



3. cut the front panel with tin snips 10cm opening for wall flange

4. mount the adapted wall flange with the cut-out ventilation grille on the heater and push on the hose

5. attach the clamp (optional)

Addendum:

The heater described in the assembly instructions is hardly available on the market.
The heater linked in the parts list is also an alternative.
Here is another heater, slightly more expensive but probably better

Ready-made device:

A ready-made device can be bought here

Operation with Y-piece and two hoses

A variant of the preheater is a version with Y-piece (Amazon approx. 20€) and two hoses to the engine.

There are also pictures of the arrangement in the ulForum:

Safety warning

… The following note has reached me via the ulForum and should definitely be observed / implemented for security reasons:

Uwe wrote:
I recently discovered the topic of engine preheating in the forum and am also building a system according to these instructions. However, I noticed something that you may have overlooked. According to the instructions, the grille of the fan is cut open in order to insert the 100 mm flange from behind.

There are 2 problems with this (in any case with the Trotek device):

1. You can easily reach through the hole to the conductive electrical heating element in the device. If the plug of the device is plugged in, there is a 50% probability / risk of electric shock even when the device is switched off. This is simply because the internal switch only switches off with one pole. It therefore depends on how the plug is inserted as to whether it touches 230 V or 0 V. The hole overrides the protection concept of the device. It must therefore be prevented somehow that you can reach through the pipe to the heater. For example, by securely fastening the cut-out piece of the grille in the pipe.

2.The inserted bottle must not only be secured in the appliance / on the grille, but must also be properly connected to the earthed housing in an „electrically safe“ manner. Otherwise, in the event of a fault, there is a risk that the protection concept will be undermined by an excessive contact resistance between the fan housing and the flange, which cannot be ruled out.

The easiest way around these two points is probably not to insert the flange into the housing, but simply to attach it to the grille of the housing from the outside.

Another tip: the suggested flexible hoses with PVC coating are probably not designed for more than 80-100 °C. However, with 2 kW heating power, the Trotek heater will most likely get warmer directly at the outlet at maximum heating power. So do not leave the device unattended and preferably do not operate it at full heating level.

Many thanks to Uwe !