Engine preheating is accomplished through electrical resistance heat in the form of thin pads sized and shaped to fit various parts. The pads are surface mounted with a bonding material to the airframe skin, flaps, cowlings, access doors and other similar areas. The pads are totally enclosed in a protective covering to prevent damage to the electrical system. Power is routed to the heat elements through a dedicated wiring assembly with power indication and circuit overload protection. System is self-regulating through design. Heated components reach an average state of thermal equilibrium in approximately six hours.