



## **Installation Instructions for the PMR3A Voltage Regulator**

The B&C Specialty Products PMR3A is a solid-state, series-type rectifier-regulator that permits continuous operation at full alternator output of the B&C BC433-H three-phase permanent magnet alternator. Because these regulators handle the alternator's full output current (as opposed to a small controlling current), they therefore generate more heat than a conventional regulator. Certain precautions should be observed in their application:

- 1) The PMR3A does not contain over-voltage protection. Use of the 505-1 (14V) over-voltage protection kit is required. Consult B&C drawing 505-501 (included with the kit) for proper wiring.
- 2) The PMR3A external case temperature is limited to 221°F. The PMR3A does have internal over-temperature protection. If the limit temperature is reached, the regulator will shut down until the temperature drops. To assure continuous operation and highest reliability, maintain a margin below this maximum temperature, at maximum continuous load. If there is doubt as to whether this limit may be approached, use a small thermocouple bonded at the center of the regulator, between the cooling fins, to determine actual operating temperature. Consideration should be given to the ambient temperature at which the test is conducted, with correction made to a 100°F ambient temperature.
- 3) The PMR3A's aluminum case is of sufficient thickness to serve as a thermal conductor for heat transfer to a mounting surface. It is best not to mount the PMR3A to a composite surface that is a poor heat conductor. Aluminum is preferred. Contact area with the mounting surface is a factor in heat transfer. If you are mounting the regulator to a thin fuselage bulkhead or former that is not perfectly flat because of previous forming operations, it may be possible to use a piece of thicker material on the opposite side of the mounting surface to clamp the mounting surface flat against the regulator base.
- 4) The PMR3A has cooling fins to increase the surface area for dissipation of heat. Ambient air movement greatly improves regulator cooling. If possible, use a SCAT or a small avionics fan to circulate air. Do not install the PMR3A in a confined area where cool air is not available. Try not to install it in an area with other heat sources.
- 5) Use the mating connectors provided to make connections with the regulator connectors. Mount the regulator so that water or oil will drain from the regulator connectors. We suggest crimping and soldering the wires to the metal terminals. Use a minimum amount of solder to solder the wire ends to the terminal and not wick the solder up the wire past the crimp.