Rebuilding Tip:
Reclaiming Mitsubishi Rectifiers

BY BOB THOMAS

One of the most common failure points in Mitsubishi rectifiers has nothing to do with the diodes. It is a poor or failed positive heat-sink-to-B+ connection. When you test the diodes in this type of rectifier, test from the diode stems to the heat sink. If they all test good and you plan to reuse it, you must inspect and clean the heat-sink-to-B+ connection. Mitsubishi rectifiers differ in that some have a B+ stud pressed through the heat sink (*see Figure 1*) while others have a B+ tab in the lead frame, as in this case (*see Figures 2 and 3*). The B+ tab is held against the positive heat sink and is soldered to a strap that connects it to the B+ terminal (*see Figure 3*) There is a small contact area on the back of the lead frame to make the connection between the B+ tab and the heat sink (*see Figure 4*). Here you have an aluminum heat sink pressed against a tinned copper tab. This is an invitation to galvanic corrosion, especially when exposed to moisture and road salts which combine to form an electrolyte. We will explain galvanic corrosion further in a future issue, but for now, lets just say that it takes place when dissimilar metals or alloys are fastened together.

The repair for this rectifier is quite simple and low cost. First, you have to clean both parts to ensure a good electrical connection, assuming that the surfaces are not pitted. Remember that the entire output of this alternator has to pass through this connection. Second, re-assemble it using dielectric grease, which will inhibit future corrosion by sealing out air, moisture and other contamination (*see Figure 5*).

Mitsubishi rectifiers with B+ terminals press-fitted through the

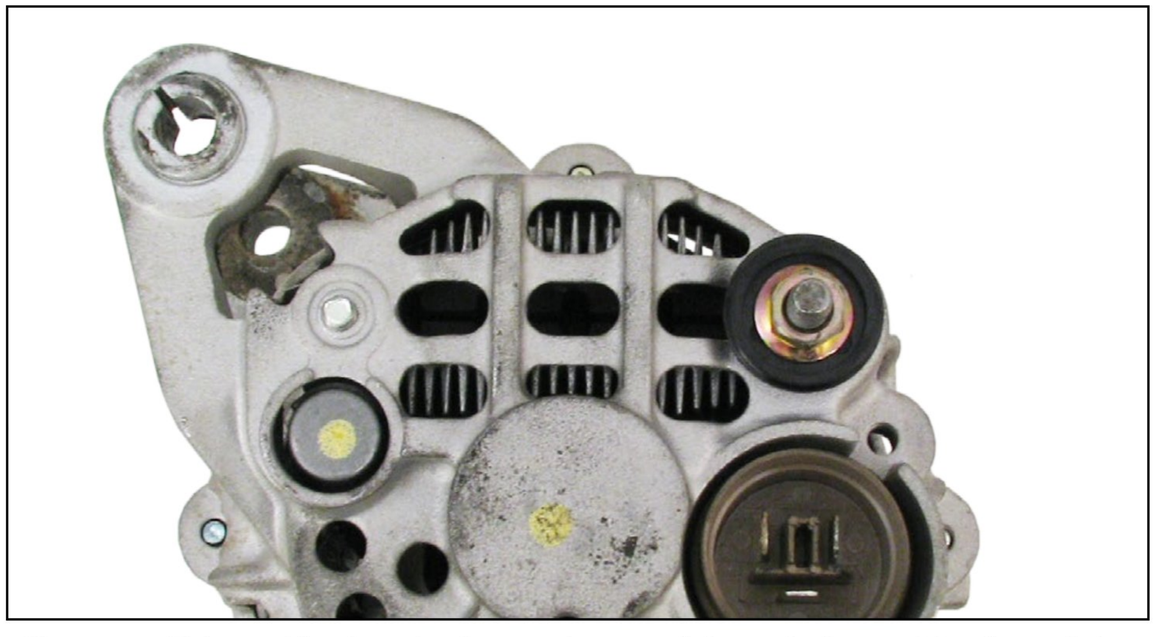

Figure 1—This rectifier has the B+ stud pressed through the positive heat sink

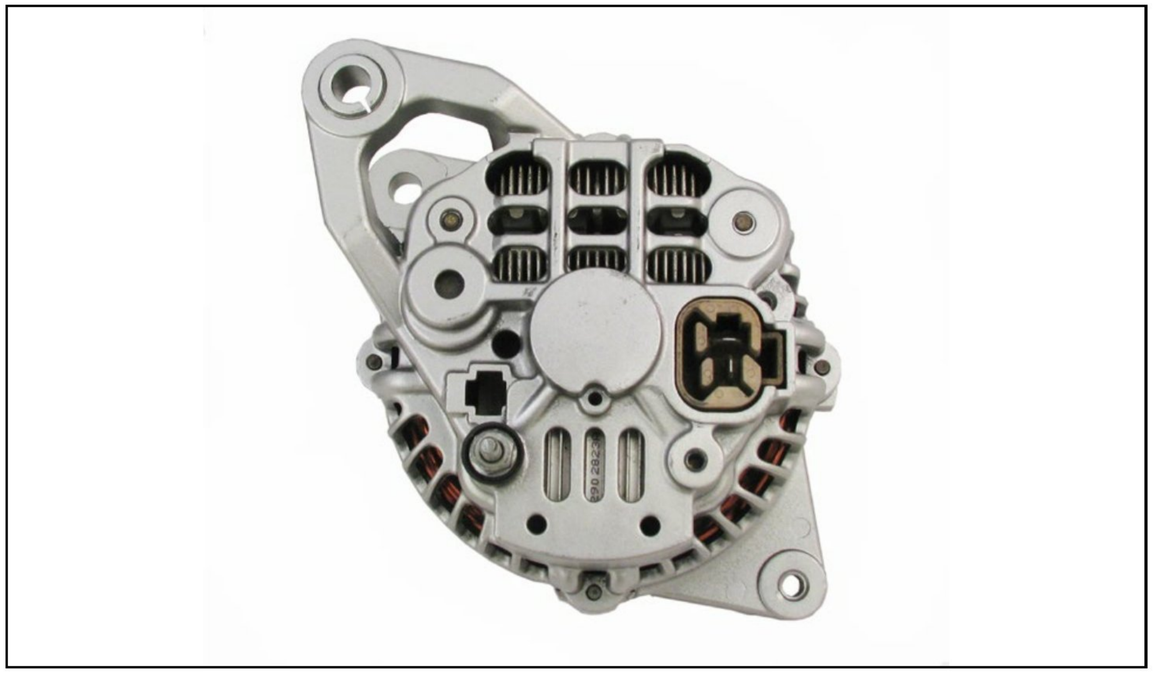

Figure 2—This rectifier has the B+ stud attached to a strap.

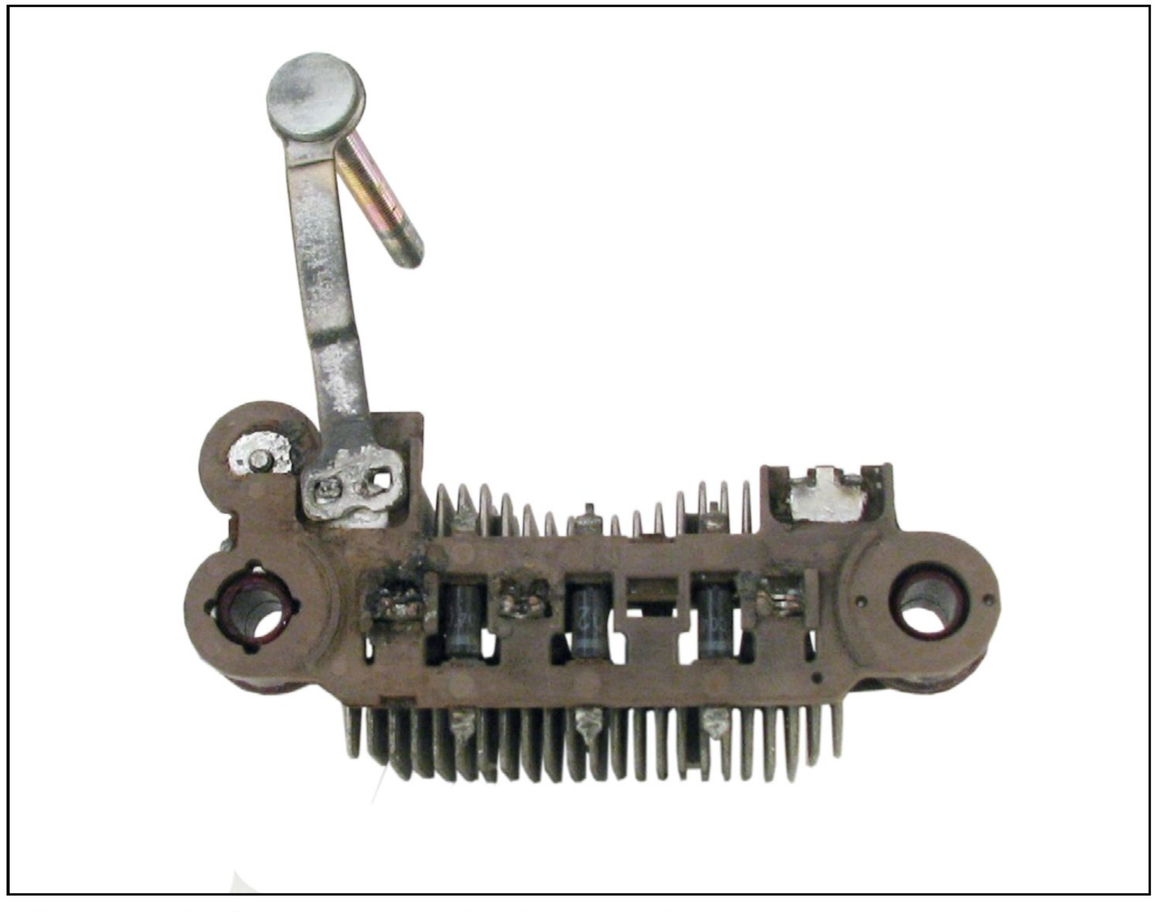

Figure 3—The "strap-style" rectifier from the alternator in Figure 2.

positive heat sink, as in the first photo, are just as susceptible to corrosion. To re-establish a good connection in this type of rectifier, the terminal must be removed and cleaned, along with the hole in the positive heat sink.

Like any weak point in an alternator's design, Mitsubishi rectifiers with bad connections are a money-saving opportunity for rebuilders who are wise enough to repair and reclaim them.

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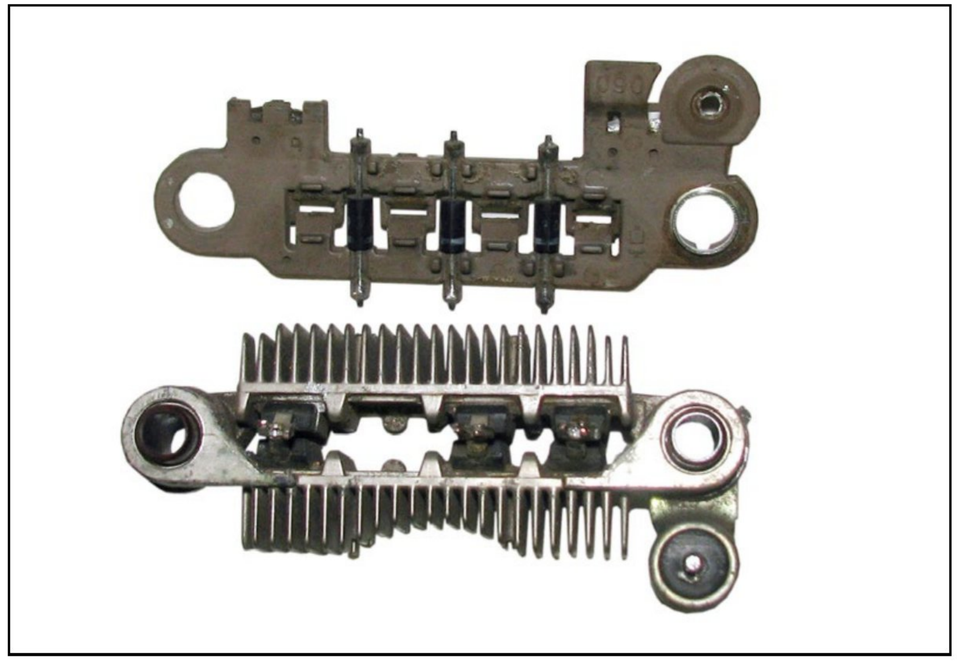

Figure 4—Disassembled rectifier showing trouble spots.

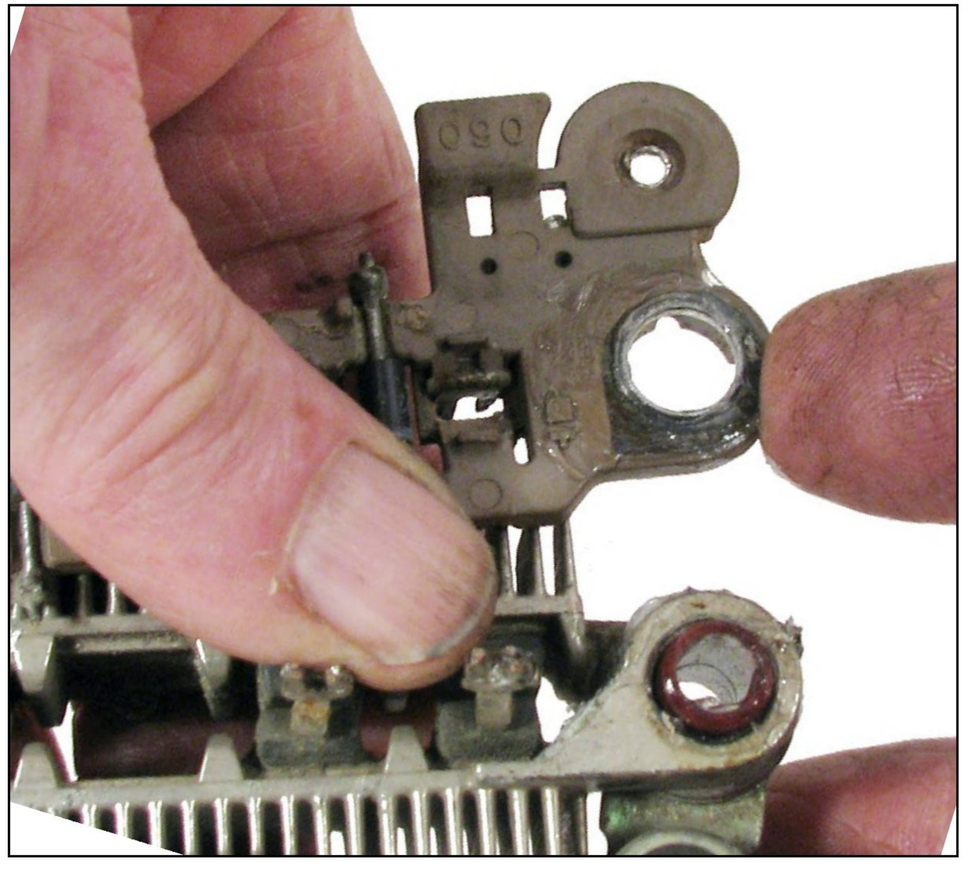

Figure 5—Apply dielectric grease to slow down future corrosion.