



QUALITY PARTS AND UNITS FOR THE REBUILDER

The Rotating Electrical Experts

...."This the 3rd one"*burn up, why?*

In some cases the conclusion is drawn that "I must be getting poor quality units; they just don't last very long...it works for a while then the light comes on; this is the 3rd one in 6 months!" Or I finally went to the Dealer and got a good one, and it's been working fine"

The health and well being of the alternator is directly affected by the condition of the rest of the system, and as vehicles get older it becomes more of an issue. Unfortunately, all too often it is assumed that throwing another alternator at a problem is the solution; and unless the *real* cause is discovered, all you end up with is frustration and very possibly damaged alternators. "Damaged alternators"? YES!

Interestingly though, while it is true that at times there are more technical issues that come up, **by far** the most common problems are basic and the easiest to diagnose and correct with a few simple tests. A real good yet simple test is with an ammeter connected, all loads off (ignition only), make sure it will settle down to 15 amps or less output after start up. If after say 5-10 minutes you see 20 to 40 amps still going out,..... Guess what? A big part of that is likely being sucked up by a battery that won't come up to full charge (12.6V).

There are two main reasons for replacing an alternator (or starter) in the first place:

1. Simply because it's service life expired, or
2. Some system problem caused premature failure.

Our discussion here is all about no. 2. It is a foregone conclusion that if the first alternator had an induced failure, and the cause was not accurately identified and corrected then guess what?.... You will have repeated failures until it is!

Without a doubt the **most common cause of premature failure is 'excessive demand'**.

Sometimes it is because of added electrical loads that demand that the charging system work harder than normal, but more often little or no attention is paid to the battery. Or it is assumed that because the battery is not that old that it must be OK. Even if the battery is "new" it's condition, state of charge and capacity must be verified! A battery that is discharged (low state of charge) or cannot be brought up to a full charge of 12.6V (indicating poor condition), or is under capacity, will result in a barbecued alternator sooner or later. We've all heard it said: "I put three alternators on before I got a good one" . By the time of the third one he has realized that the battery needs to be replaced,....'probably caused by bad alternators'....or so he thinks.



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There are of course other system faults that will cause alternator failure, both mechanical and electrical which we will have to address another time.

In some cases, misdiagnosis doesn't necessarily spell doom for the alternator. If the alternator is not turning on, perhaps because it is not receiving the initial excitation, the alternator is not damaged; it just doesn't charge. All too often though, 2 or 3 units are tried in hopes of getting one to work; and maybe one finally does. Why? Sometimes it is simply that a poor regulator or other critical connection has been rejuvenated by plugging and unplugging it, and the installer assumes the prior units to be defective and returns them, having correcting the problem without even knowing why....and even then, maybe only temporarily. You would be surprised to learn how many units as well as "cores" are sent to us that are good working units! On many vehicles now days the PCM (Powertrain Control Module), or onboard computer is activating and even controlling the duty cycle of the alternator, the current supplied to activate it is very small and at lower voltages; instead of amps, it might only be 10 milliamps! This means connections to the regulator are very critical; you **cannot afford even a mediocre connection.** (Look for more on this in a future article).

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