Lincoln Mark VII
Basic Alternator Repair

90% of the time, when our alternator needs replacement it is because of bearing noise, worn brushes or a broken brush holder. You can run down to the parts store and pay over $100.00 dollars or you can spend $15.00-$20.00, and about an hour of your time.

Following are basic instructions for an alternator rebuild and includes the most common replacement parts that will come installed in a rebuilt alternator. I used an alternator that I purchased on E-bay and I rebuilt it for a spare.
Typical Ford alternator. This one is OEM on a Lincoln Mark VII. Start by marking the case for future re-alignment.

Using an impact wrench, remove the nut securing the pulley and fan to the armature.
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Remove the pulley, fan, spacer, and nut, and set aside.
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Remove the four bolts, which hold the rear case to the front case.

Separate the front case from the rear case by using a screwdriver.
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Carefully separate the front case from the rear case. Make sure that the stator windings stay with the rear case. The armature usually stays with the front case.

Note that the brushes have popped out of the holder. They are spring-loaded and must be held in place before re-assembly. (See final step.)
Prepare to install the rear bearing.
Using a 3/8” extension, large drift punch or round rod, insert it into the inside of the rear bearing and with a hammer, drive it out of the rear case.
Install the replacement rear bearing using a socket that is the same diameter as the outside of the bearing. Using a hammer, tap the bearing in until flush with boss in the rear case.
Prepare to install the new brush holder. Note that there is a pin holding the brushes into the brush holder. This pin must remain in place and will protrude through a small hole in the rear case. It will remain in place until the last step. If you are re-using the same brushes, or you accidentally remove the pin, the brushes **must** be pushed back into the brush holder and a retaining pin inserted from the rear. I usually use a small drill bit. This process can be frustrating if the brushes are still installed in the case.

New brush assembly
Remove the two screws, which hold the brush holder to the case and heat the connecting wire with a soldering gun. Remove the wire. Install the brush holder and re-solder the new brush wire to the stud.

Set the rear case aside.
Remove the armature from the front case by tapping on it with a soft hammer or block of wood and hammer. I usually use a coffee can to hold the front case when removing the armature. Use caution not to damage the threads. It usually comes right out of the bearing. DO NOT drop the armature, as the brass slip rings or bearing surface may become damaged.
Remove the screws holding the front bearing into the case. There may be screws and washers (shown), or a stamped steel ring used as a bearing retainer.
Tap the bearing out of the case from the front.

Carefully tap the new bearing in from the inside being careful not to hit the seals or inner race. A large socket and hammer works well as a driver or the old bearing can be placed on top of the new one, to protect the new bearing. Re-install retainer or bolts and set aside.
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Apply a light coat of oil or WD 40 to the armature front shaft and re-insert it into the front bearing, sliding it all the way in.

Clean the copper slip rings and rear bearing surface of the armature with a clean rag.
Apply a light coat of grease to the bearing surface of the armature.

Carefully insert the armature and front case into the back case noting the alignment marks made before disassembly. DO NOT force the cases together. If there is any resistance, pull the case halves apart and try again. Verify that the brushes were not damaged or dislodged.

Install the 4 case screws and tighten them down in a cross pattern to insure proper alignment.
Re-install the spacer, fan, pulley and nut, in that order.
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Use an impact wrench to tighten the nut.

Remove the brush-retaining pin from the rear of the case and spin alternator to check for smoothness and alignment.
You can take your alternator to your local parts store for a bench test before installing it if you wish, or you can install it and perform a voltage test at the battery.

That’s it! You just saved over $80.00 in an hour. Pretty good wages for most of us!

The brush-holder, front and rear bearings can be purchased at most parts stores. Napa and AutoZone carry them. I purchased mine on E-bay.

I always keep one rebuilt and ready in case I need it. This one will be waiting on the shelf if it’s needed.