

Replacing the Diode Pack on a Denso Discovery 3 Alternator

99.9% of the time the only thing stopping a Denso Alternator from charging is the diode pack, you can purchase the pack and replace it in about 1 hours time with the Alternator removed.

Tools Required

Philips Screw Driver
8mm Socket
Soldering Iron
Optional Solder Sucker
Small Pin for Re- Inserting Carbon Brush Holder

Ok first thing to remove is the black plastic cover on the rear by removing the three 8mm nut's holding the cover in place.

You should see this view now exposing the diode pack base plate.



Now remove the two screws holding the brown carbon brush holder in the centre of the unit, then just lift it off and put it somewhere safe out of the way.

Now remove the six screws that are ringed in the picture below.



Once removed store in safe place. Also remove the black plastic bobbin on the main battery lead terminal and store in a safe place.

Now comes the tricky bit you need to remove the solder from the 3 places ringed below this is the hard solder so it takes some melting, use a screw driver in between the diode base plate and the body of the unit to keep pressure upwards while melting the solder to help remove the base plate, just work your way around, a good tool if you have one is a solder sucker.



Once you have removed the solder you can now remove the diode pack from the main body of the alternator by lifting it off the three studs, you should now have this view.



This is the diode pack removed



You now need to remove the silver vaned rectifier by removing the solder from the connection from the copper tag, this needs to be re-soldered on to the new diode pack.

See Picture below.



As you can see in the picture below there are two diodes that have blown apart there was a total of 5 that were in this condition.



Ok now to refit the new diode pack.



Slide the new diode pack over the three studs making sure the six copper wires come through in to the three connectors that you will now re-solder back on to the diode base plate.

Replace the four main screws holding the diode base plate to the alternator body to make sure its fully down before re-soldering the three connections. Solder the three connections, use some flux on the copper wires to make sure you have good joints.

Now refit the silver vaned rectifier with the other two screws and re-solder the copper tag in the centre of the unit. See below picture.



Now this is where you need the small pin to keep the brushes in the fitting position while you refit the brushes holder.

See picture below.

This is the view of the holder with the pin in position ready to fit.



Slide the holder back on to the main shaft and secure using the two screws then once all secure pull out the pin and you should here the brushes click against the main shaft.

Now replace the main battery terminal bobbin on to the shaft, and then make sure all connections and screws are back in place then continue to replace the black plastic rear cover with the three 8mm nuts.

There is no way of testing the alternators until its back on the car as its controlled by the cars ecu, but like I said it is always the diodes that fail.

When its all back together it should look like this.



The total cost of this was £30.00 plus vat for the diode pack and the time taken to do the job approx one hour.

Flack