

Partial Reconditioning Instructions - Myles Garmonsway

Cooling Fan from 1990 Porsche 928 S4

PN 928 624 145 00

Bosch PN 0 130 304 210

Please note that I am an amateur mechanic with limited tools. I carried out the reconditioning on my garage floor. Once out of car allow 2 to 3 hours to complete the work for the first time.

Tools I used:

10mm socket
medium flat screwdriver
cold chisel
Pin punch
Centre punch
4 20mm brads
2mm, 3mm & 3.3mm drill bits
Variable speed drill
Pop rivet gun
Hammer
Two blocks of 4 by 2 wood
Penetrating oil
Cloths.

Remove fan.

I removed my left one, complete with blades, by manipulating the fan shroud into a suitable position.

Others have suggested removing the blades first then the motor by pressing off the fan retaining clip with a long lever. My blades were stuck fast to the motor so this wasn't an option.

Assembly is held on to fan shroud by 3 bolts (M6) with 10mm heads and a flat washer. Don't overtighten.
To remove the right fan requires removal of the shroud.

Disassemble fan.

Remove clip from fan onto shaft using screwdriver.

Press, tap, pull or shake fan blade off shaft.

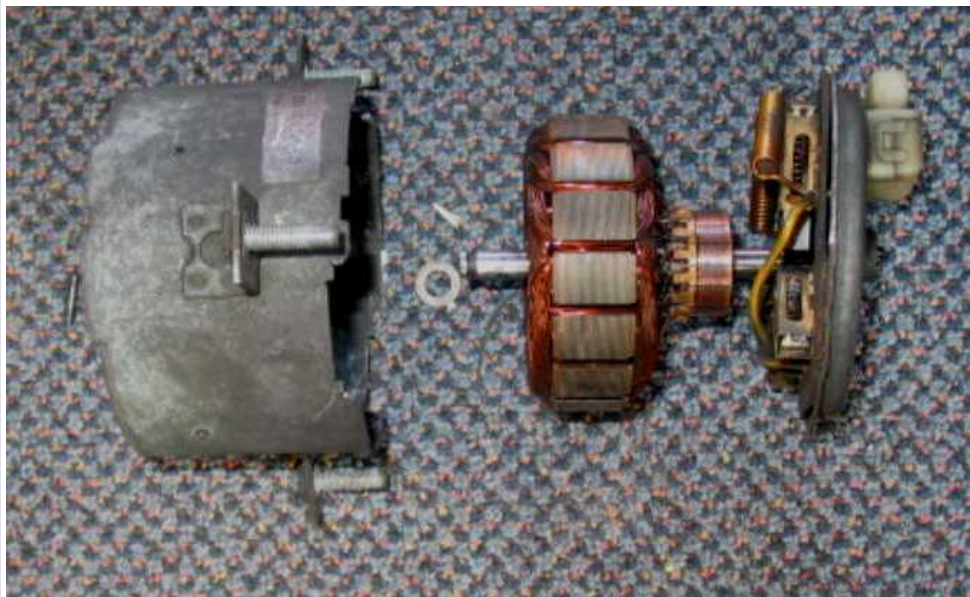
Remove pin from shaft with punch.

Carefully bend back tabs holding rear cover of motor onto housing. I ended up using a punch to close up the V groove that had been created when the tabs were made.

Pull off rear of motor. Careful of the small spring tab by the connector plug.

Press, pull, tap motor out of housing. I moved the windings on the shaft during this process so be careful. I reset mine flush at front of motor.

A small washer sits over shaft as a spacer between the motor & housing (against the bearing).



Remove Bearing

Centre punch the spot welds.

Mark position of plate for correct position on reassembly.

Drill out, in increments, to suitable size for rivets. I found this to be soft and easy to adjust for off centre starts.

Remove retaining plate.

Push out bearing. Mine was a NSK 608Z2 C4 which was shielded both sides and had an off centre groove running the circumference. The groove was towards the fan on

mine. The replacement bearing was a NSK 608V with no groove.

Cleaning

Clean all the carbon & metal filings out of everything. In the end I drilled out the rivets holding two opposite magnet retaining plates and removed all the magnets to ensure I got all the metal filings.
I marked the magnets prior to this to ensure that I installed them in the same place.



Brushes

I was told that the brushes were not able to be replaced (NLA?) so I had to leave mine in. I think they are probably a bit over half worn (100,000 km). This was the fan that comes on with the air con. If doing both fans you may find the brushes in the other motor are less worn. I would consider swapping the motors around if this was the case.

Reassembly

I used open aluminium 3.2mm diameter by 3.2mm grip rivets as these were locally available. Clearance to the windings did not seem to be an issue.

I used four small nails to retain the brushes during reassembly.



Lightly lubricate rear bush.

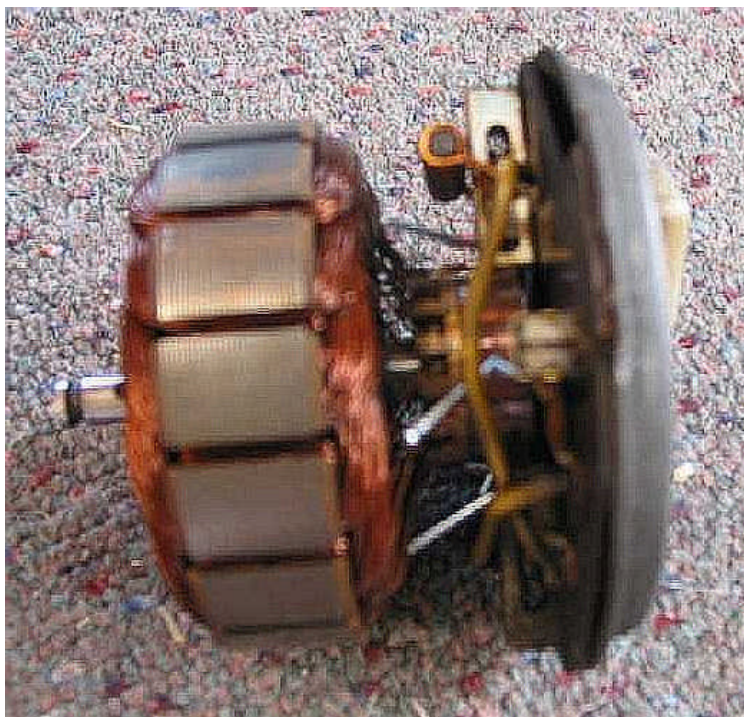
Place new bearing in position & rivet retaining plate in position (head of rivet on outside of housing). I pressed all the rivets through the holes before I started tightening

to ensure that a small change in position did not mean I could not get the last rivet in.

Replace magnets & the two retaining plates. I put two plates in place, pushed the rivet through the hole and then compressed the plate against the side of the housing with a pair of vice grips & a suitable rod before tightening the rivet. This can be fiddly.



Reassemble rear plate onto motor with brushes retained. Remove nails. If you only just put the nails through the top hole on the brush housings they are very easy to remove.



Place assembly into housing, remembering the washer and the small spring tab on the side.



Place holding tabs back in position. I used a cold chisel for this.

Plug in & test.

Put pin through shaft.



Put on fan & retaining clip.



Reinstall in car.

Go and ENJOY!

1990 S4 Stone Grey Metallic
RUF steering wheel
Cup 1 17" rims
Custom interior in progress