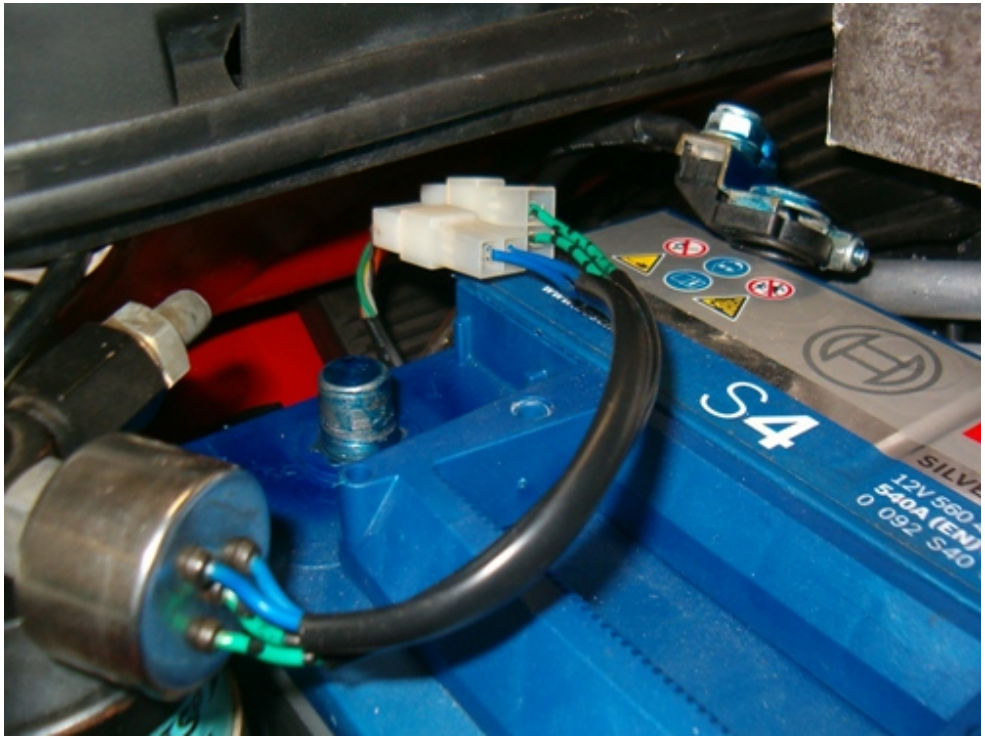
Starter Motor Repair

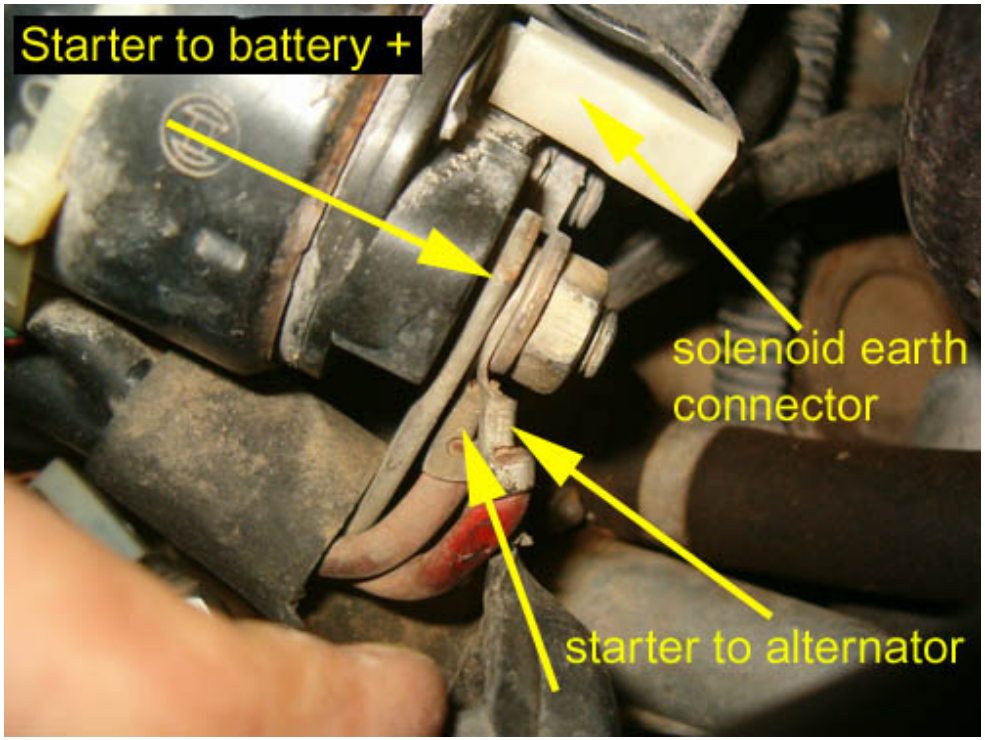
Well... today folks we will unfold the starter motor chapter of our 33. Starter motor is one of the parts that is highly stressed in our car as it has the primary role of starting up the motor; this means very many Amps of current passing through as it while cranking the motor. Generally speaking a good servicing of the starter motor will give many trouble free years of everday use.

In my case the starter motor was making grinding noise as it looked like the solenoid was not able to disengage; it was rubbing against the flywheel moments after cranking. This had to be addressed as grinding noise can create serious problems if left unresolved like worn out flywheel ger ring or worn out starter motor engaging gear. All these are translated to costy repairs which can be avoided if the actual problem is solved quickly.

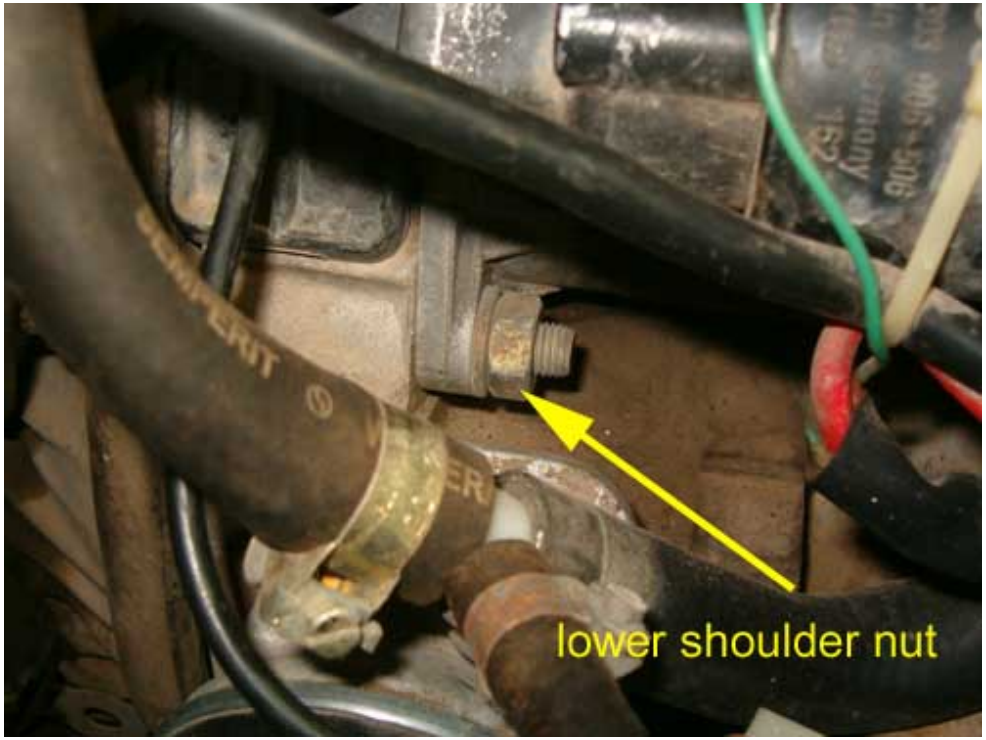


First disconnect battery negative terminal.

Remove ECU/AFM and intake sleeve in order to free up some space to work on



Move protective rubber sleeve out of the way so that positive current leads are exposed. These are the leads that "feed" the starter with current; red leads connect starter to alternator whereas the metal bar on the left of the red leads connect starter to battery +. In addition the white connector lead is the earth connector for the solenoid. The solenoid is the device that acts on the starter gear and engages it to the flywheel; once the engine is cranked the solenoid is triggered, the starter motor gear is engaged on the flywheel and the starter motor cranks the engine. After the key is released the solenoid is pushed back and simultaneously the current is cut off from the starter.



Now remove the starter motor shoulder nuts. One on the top of the shoulder and one on the bottom; note that the upper bolt keeps the earth bracket attached to the starter itself.

The starter is now off the vehicle and ready to be serviced. It is a high opportunity to have it also painted

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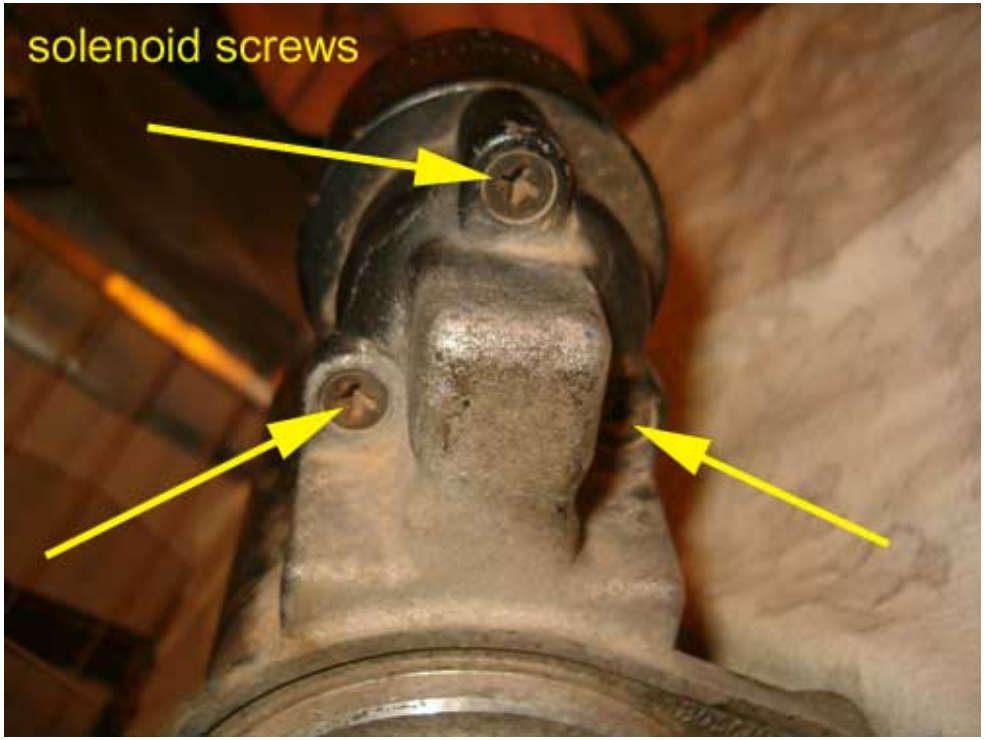
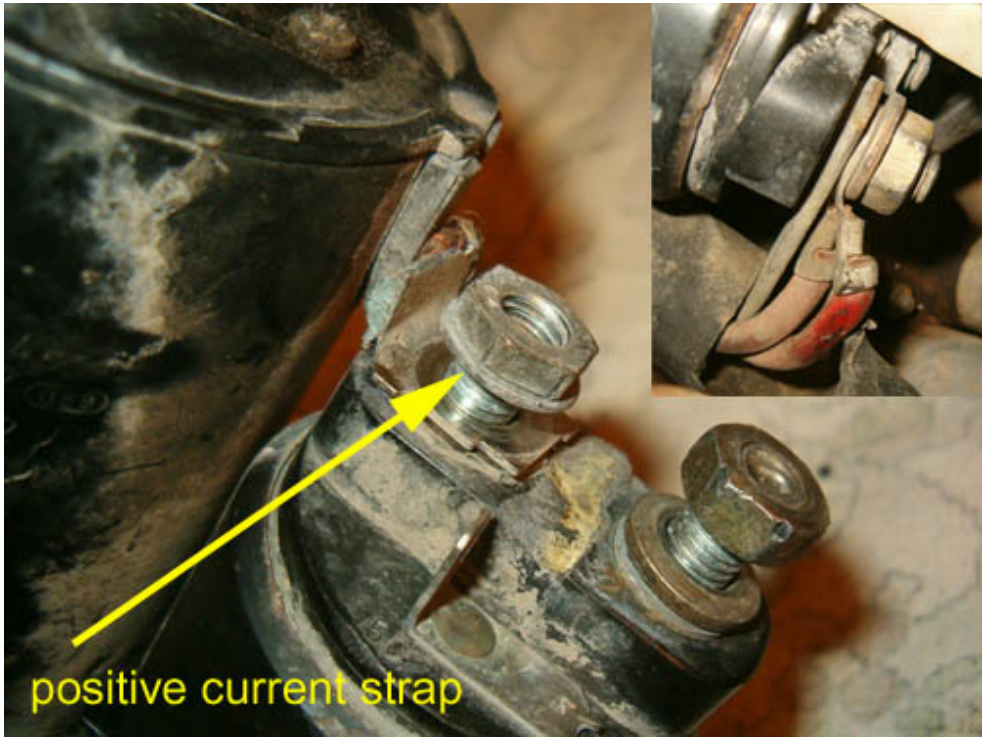
Here is the Bosch part number stamped on the starter body. Write down the part number in order to be able to source parts for the starter motor like brush holders, gears etc.

Let's now start disassembly. Start by loosening the shaft dust cover ...



Remove three bolts securing solenoid to motor body. These were the toughest ones to remove and I nearly ruined the heads. For sure these need to be replaced with new screws.



Release the strap bolt in order to free up the starter from the solenoid. This strap actually transfers current from the battery as the legend shows

... and then the two long bolts that actually run across the motor body

Separate motor body from the drive housing ...

... and move it away for the time being

Solenoid is out and a quick visual inspection shows grease mixed with dirt... That is the origin of the grinding sound coming off the starter upon releasing the ignition key. The starter gear was grinding against the flywheel, a not so good thing to happen.

A quick visit to the hardware store got me a set of screws of various length. Since I couldn't find the exact screw length I got a set of shorter/longer screws in order to decide which to use.

The driving housing along with other bits of the starter motor is thorougly cleaned and degreased before painting

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Solenoid piston

Parts of the starter motor cleaned and awaiting assembly

External parts painted with black high temperature paint from a rattle can

Let's now start assembly! Lubricate the solenoid piston with high temperature grease. I decided to use wheel bearing grease which is designed to sustain high temps; for sure temps under the bonnet are high!

Install piston on solenoid

Then proceed installing the brush holder. Since the brushes are extended by the force of the springs I have used the trick of holding them with small pieces of wire. Install the brush holder on the commutator of the rotor

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Press in the rotor. Be careful as the magnet force is quite strong ...

... and lubricate the shaft end and be sure to have the large washer inserted on the shaft end

lubricate the casing ...

and insert plenty of grease in the dust cover cavity

Fit retaining ring, install dust cover and bolt in the new screws

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Install fork in the starting clutch assembly taking care not breaking it. Do not forget to install the rubber block inside the housing

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Make sure the two halves sit properly between them and then bolt in the two long screws.

The new screws for the solenoid are placed on the casing. These are a little bit longer than the original ones but this is of no problem as there is plenty of space in the solenoid internals.

Tighten the solenoid screws in a cross manner little by little as we want the solenoid to sit properly

Then fully tighten the positive current strap bolt

This is the final result. A nice and neat starter motor which will probably last many years to come

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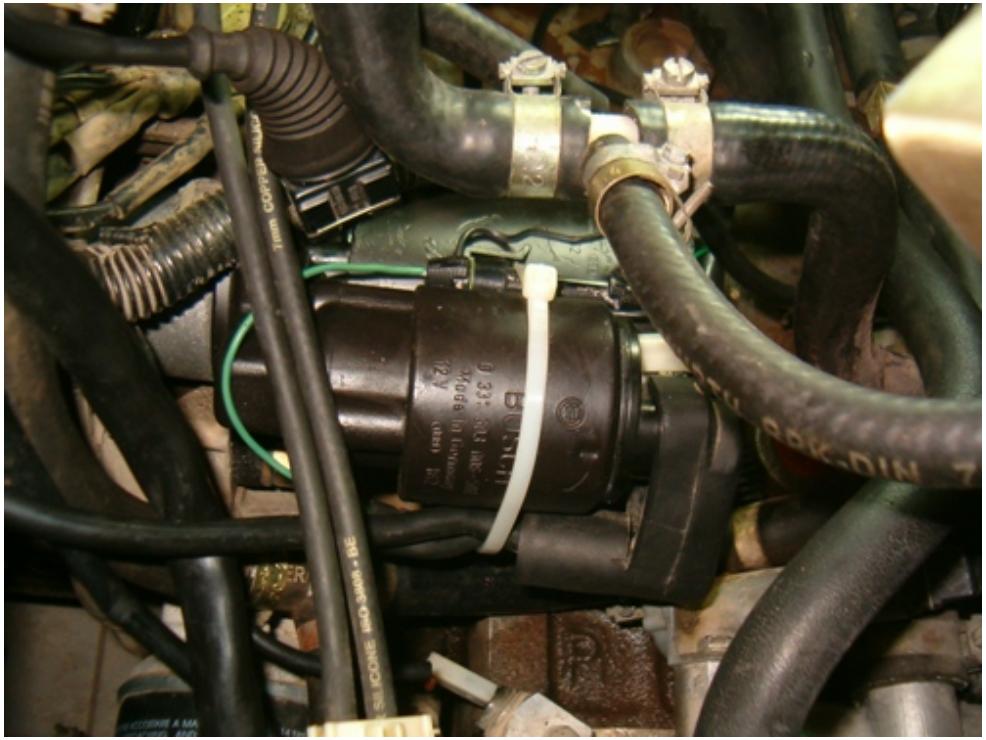

Then proceed installing the starter motor on the motor. The procedure is the same as during removal simply by reversing the steps. The steps are roughly, shoulder bolts, positive current leads and solenoid earth.

Of course everything went as planned ! No grinding noise anymore, so I guess I can call it a success!

1991 Alfa 33 1.4 IE

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