

HOW TO REPAIR YOUR Isabella WATER PUMP

By David Stride .

Before deciding to repair your water pump it is sensible to determine that it is actually the water pump which is malfunctioning. A failure of the water pump seal is usually first made apparent by having the battery and bonnet sprayed with water. If this dampness persists it is quite likely that you will find water dripping from the water pump drain hole. This is right underneath the water pump where you can't see it. So stick your finger under there. If it's wet (your finger) you have (probably) a failed seal. Check the water pump bearings by grabbing hold of the fan and waggling it. Does it waggle? If it does and goes "clonk clonk" your water pump bearings are worn out.

Having decided your water pump needs mending you have to take it out. Arm yourself with a couple of 14 mm spanners, a 10 mm spanner and a screwdriver.

1. Drain the radiator and engine block by turning the brass taps.
2. Undo the hoses going into the water pump at both ends and wiggle them loose. Remove the top one.
3. Slacken off the dynamo and remove the fan belt.
4. Take off the fan (4 nuts 10 mm).
5. Remove the thermostat housing complete. Keep the little rubber rings on each end of the connecting pipe.
6. Undo the 4 14 mm bolts holding the water pump in place.
WARNING: your patience may be lost on the bottom ones!
7. Having undone all the bolts the water pump should fall off. If it doesn't, hit it (with your hand or rubber mallet, not a hammer). Watch out for the radiator.

You will have a large lump of greasy wet alloy in your hands, so go and clean it. Use paraffin for the grease. Make a pattern from the paper gasket between the water pump and the block before cleaning up the back of the water pump with a wire brush. Once it's all nice and clean, arm yourself with the following tools to dismantle the thing:

- a hub puller,
- a big screwdriver (possibly an impact driver),
- a couple of drifts (short pieces of iron rod),
- a hammer,
- circlip pliers,
- feeler gauge 0,5 mm,
- a piece of tube with an inside diameter of about $\frac{1}{2}$ inch.

You will also need the following parts to rebuild it:

- 2 bearings 6302 RS (from your local bearing stockist: see yellow pages,
- 1 seal (original Goetze from George or Hoover 627661),
- 1 impeller (or access to a lathe or engineering works to reface the old),
- a sheet of gasket paper to make new gaskets.

1. Pull off fan pulley (pt 1).
2. Unscrew back of pump (parts 12 and 11).
3. Remove circlip and dust shield from front (pts 2 and 3)
4. Using a drift and supporting only the outer edge of the housing front face, hammer the shaft (5) forwards out of the impeller (8) 10 taking with it the front bearing (4).
5. Knock out the inner bearing (6) with a drift, in the same direction.
6. Knock out the old seal from the front.
7. Remove the felt ring (if it's there) and its housing (a steel ring).

8. Examine the impeller. Is the front face smooth? It is very unlikely that it will be, and the impeller must be refaced if you don't have a new one. If you have a lathe: no problem. If you don't, try and find somebody who has, (garage, engineering works, friend). You want as smooth a surface as possible on that seal face.
9. Remove the grease cup and its base and wash out the inside of the pump with paraffin. Make it spotless.
10. Pull the old bearings off the shaft with the puller.
11. Press the new ones on, with the seals facing outwards. The seal takes the place of the felt ring and helps keep the bearings clean. Use the piece of tube to push the bearings down the shaft. Never ever hit the shaft or the bearings directly. Hit the tube, which should bear against the inner race of the bearing only.
12. Press the bearings on the shaft into the pump body. Line things up carefully and don't use too much force. Drive the front bearing home using a large socket as a drift, bearing against the outer race.
13. Replace dust shield and circlip (pts 2 and 3).
14. If you have any water pump grease put it into the space between the rear bearing and where the seal will go. This is not essential. It is only a fail safe precaution. I have never had a water pump with this grease in because I haven't got any water pump grease. In other words, you don't need it.
15. Press the new seal into its housing VERY CAREFULLY. Use a socket with its outer edge bound in tape for this. Be careful not to pinch the rubber as this can puncture it. The socket should bear against the very outer edge of the seal only. The Hoover seal is tougher and can be poked into place with a screwdriver.
16. Press on the refaced impeller. (Rubber mallet or hammer and lump of wood). The gap between the impeller fins and the pump body should be 0,5 mm. This is important.

17. Check the impeller revolves. It should be rather stiff.
18. Press on the fan pulley. Don't forget to put the long bolts into the holes before replacing the pulley, as you can't get them in afterwards. Check the impeller clearance again, as the hammering may have dislodged it.
19. Replace the back cover (not forgetting the new gasket) and tighten the three screws down hard.
20. Screw a grease gun (with its nozzle removed) into the grease cup socket and pump in some grease. Ordinary LHM Castrol grease is ideal. Do not overfill, or it will all spray out of the front and you will have a grease covered engine instead of a wet one.
21. Replace grease cup, and there you are.

Refitting

1. Replace the fan.
2. Bolt assembly on to engine block (don't forget the gasket).
3. Replace the thermostat housing with its connecting pipe and ridiculous rubber rings. This is a pest and very awkward. Be prepared for leaks around here. Try new rings or instant gasket.
4. Refit the hoses and tighten up. Fill up with water and anti-freeze (don't forget to shut the taps first!). Check for leaks. Refit the fan belt. Start the engine with the heater on. While running, unscrew the two little bolts on the cross pipes until water bubbles out. This is called "bleeding the system".

There you are. Finished. The pump may leak a very little at first until the seal and impeller have bedded. If leakage persists from inside the pump, you probably damaged the seal in assembly and will have to start again.

All the problems mentioned I have encountered myself, so they do happen! If you have any queries or get stuck do not hesitate to contact me.

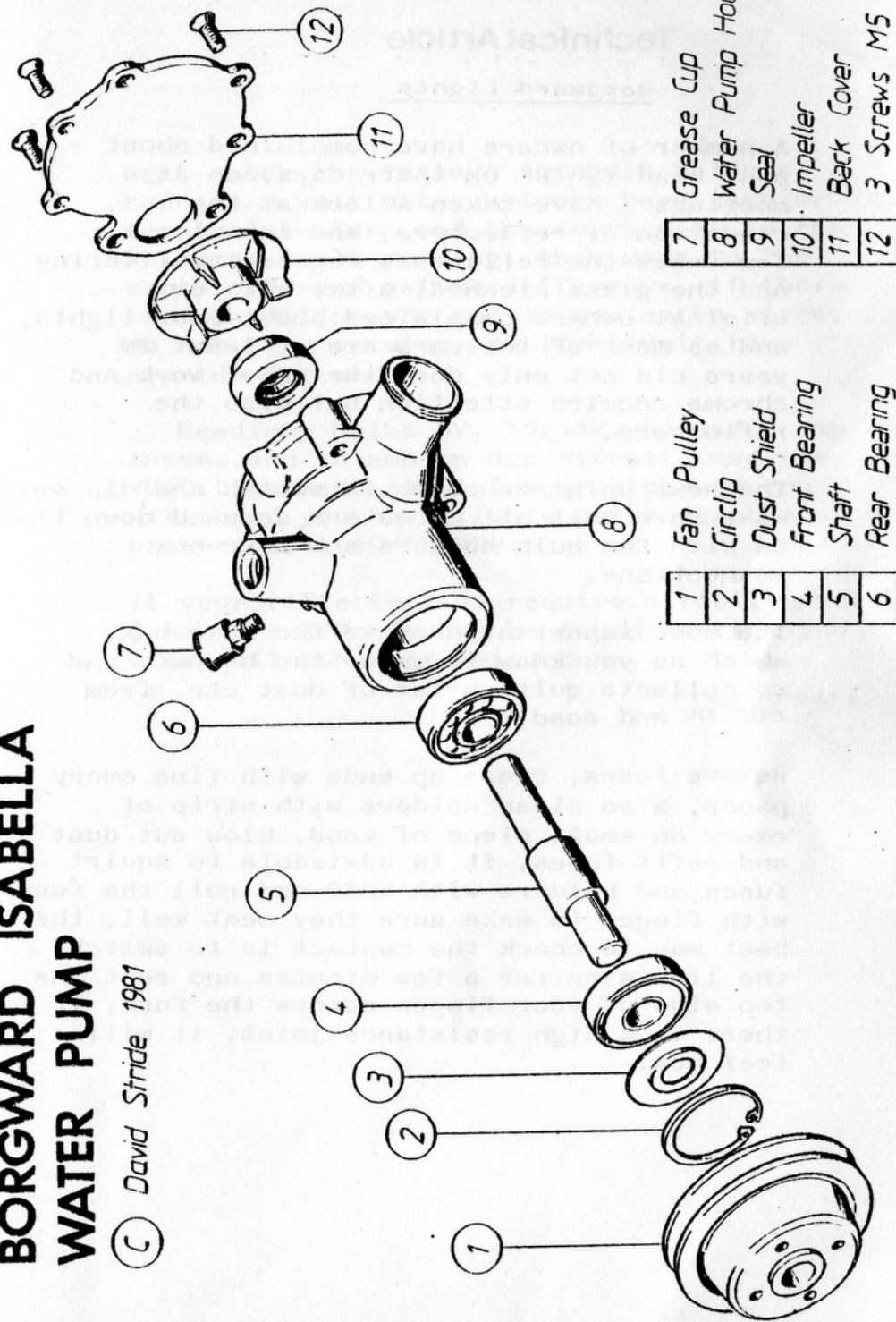
Maintaining your water pump

1. Do not overtighten the fan belt.
2. Make sure the three pulleys are in line. Move them if they aren't.
3. Every 1,000 miles turn the grease cup down a little bit.

David Stride

**BORGWARD ISABELLA
WATER PUMP**

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7	Grease Cup
8	Water Pump Housing
9	Seal
10	Impeller
11	Back Cover
12	3 Screws M5

1	Fan Pulley
2	Circlip
3	Dust Shield
4	Front Bearing
5	Shaft
6	Rear Bearing