

Appendix 3

Some Techniques

A3.1 Rocking Fit.

Locate the part in approximate position, partly tighten up the bolt/grub screw. Rock the part backwards and forwards, and it should feel the flats or locating hole. Tighten some more and repeat. When located correctly tighten the bolt or grub screw.

A3.2 Bolts Tight or Rusted.

Use penetrating oil (cheap alternative is two stroke fuel). If this does not work try heating the bolt. When the bolt starts to move, rock the bolt backwards and forwards to grind up the rust to make it easier to move, apply more oil. Applying excessive force will break the bolt

A3.3 Bolts Tight in Aluminum Castings.

Same as A3.2 but heat the casting. The heat will expand the casting away from the bolt. The same technique can be used to remove aluminum castings on steel shafts. Can use a LPG torch or if the casting is to be replaced, use a arc welder, getting a good weld is not important.

A3.4 Removing Ball Races

When a ball bearing has failed and the ball races have fallen out there is not much left on the outer race to hit to remove it. Weld a little bit of weld on the race. This will give something to hit. The harden steel will not weld successfully and the race may crack, making removal easier. If the ball race in in a plastic fixture (with aluminum insert) use a little weld and cool with water, repeat as required.

A3.5 Parts Replacement

Before replacing the parts compare the original faulty part with the replacement part for any difference. Manufacturer may change the part slightly. Hoover pumps had different size bolt holding the pump. The mounting plate had to be drilled. Sometimes the manufacturer may supply instruction on modifications. Check what parts are supplied and what needs to be used from the original.

A3.6 Wash Bowl Removal.

For Simpson, Hoover and others top suspension Washing machine. Instead of lifting the wash bowl out over the top, lay the machine on a rug to protect the paint, and slide the wash bowl out through the "top" opening. You will have to lift the bowl when it "catches" in the cabinet.

(Some numbers have been left blank)

A3.10 Electrostatic discharge

Electrostatic discharge (ESD) warning!

Electrostatic discharge is a result of electrostatic charges building up on the body and discharging when near a metal object often with a spark. It is a problem with electronic components and flammable liquids.

Remember the science experiment of rubbing a plastic rod or pen on cloth and picking up little bits of paper. This is static electricity.

When pumping petrol the spark can cause ignition of the fuel. Always touch a metal object first to discharge the static electricity. Fuel tanker connect a earth wire before transferring fuel.

The electrostatic discharge can damage electronic components, particularly microprocessor (computer) components. The components are more at risk when removed from the circuits. The risk is greater when the weather is hot and dry and reduced when the weather is cool and damp. The dampness discharges the static electricity. Working on carpet with rubber soled boots creates static electricity. Tiles and concrete tend to be a little conductive. Always touch a earthed metal object before handling a electronic controller. The metal tough or washing machine body (mains lead plug in) will discharge the static electricity.

Some manufactures recommend using a wrist band when working on the electronic controllers. They have a high resistance to earth (about $1\text{M}\Omega$) to prevent an electric shock. They can be purchased from electronic stores (Jaycar, Dick Smith Electronics, etc)