Material Composition

Washing Machine

Scrap Value In Agbogbloshie

Urban Mining

The outer case and majority part of a washing machine are made of steel, coated with zinc to protect the steel against corrosion (rust). The inner tub of some models is made of stainless steel. The tub guard, water pump and the drum housing are made from plastics like blends of acrylonitrile butadiene styrene (ABS) and polycarbonate. The plastics can also be grounded into small pieces for reuse. Note: The smaller the better.

The electric motor and the cables contain copper. Cast aluminium is used to form the transmission. The tub guard, water pump and the drum housing are made from plastics like blends of acrylonitrile butadiene styrene (ABS) and polycarbonate. The plastics can also be grounded into small pieces for reuse. Note: The smaller the better.

The tub and agitator parts are also taken apart. Then the motor, located at the back is carefully removed. By using mallet, spanner and screws, the outer casing (steel) is removed.

Tools For Disassembly

The tools required for processing: chisel, mallet, pliers, screwdriver, and wire cutters.

Step by Step Disassembly

1. All copper wires are cut off and separated. Take out the switches carefully.
2. Then the motor, located at the back is carefully removed.
3. By using mallet, spanner and screws, the outer casing (steel) is removed.
4. The parts made of plastics such as the water tubes, soap drawer and drum housing, are then removed by unscrewing the bolts.
5. The tub and agitator parts are also taken apart.
6. Isolate the parts according to the type of material.
7. After disassembly, components should be documented via photography and labelling.

Health

Lead (Pb) - Anaemia, kidney and brain damage, infertility (in men and women), cancer, headache and behaviour disruption of children.

Mercury (Hg) - Brain and DNA damage, disruption of nervous system, sperms damage, birth defects, skin rashes and headaches.

Safety Gear

The disassembly process exposes the worker to various levels of potential harm. There is a need for protective gear to reduce impact of these practises. Safety gear include gas masks to protect e-waste workers from dust and toxic gases, safety boots, hand gloves and mostly HazMat suits, which are full garments with footwear and masks, worn to protect workers from dangerous chemicals.

Health Hazards

Tools For Disassembly

The tools required for processing: chisel, mallet, pliers, screwdriver, and wire cutters.

Step by Step Disassembly

1. All copper wires are cut off and separated. Take out the switches carefully.
2. Then the motor, located at the back is carefully removed.
3. By using mallet, spanner and screws, the outer casing (steel) is removed.
4. The parts made of plastics such as the water tubes, soap drawer and drum housing, are then removed by unscrewing the bolts.
5. The tub and agitator parts are also taken apart.
6. Isolate the parts according to the type of material.
7. After disassembly, components should be documented via photography and labelling.

Safety Gear

The disassembly process exposes the worker to various levels of potential harm. There is a need for protective gear to reduce impact of these practises. Safety gear include gas masks to protect e-waste workers from dust and toxic gases, safety boots, hand gloves and mostly HazMat suits, which are full garments with footwear and masks, worn to protect workers from dangerous chemicals.

Health Hazards

Tools For Disassembly

The tools required for processing: chisel, mallet, pliers, screwdriver, and wire cutters.

Step by Step Disassembly

1. All copper wires are cut off and separated. Take out the switches carefully.
2. Then the motor, located at the back is carefully removed.
3. By using mallet, spanner and screws, the outer casing (steel) is removed.
4. The parts made of plastics such as the water tubes, soap drawer and drum housing, are then removed by unscrewing the bolts.
5. The tub and agitator parts are also taken apart.
6. Isolate the parts according to the type of material.
7. After disassembly, components should be documented via photography and labelling.

Safety Gear

The disassembly process exposes the worker to various levels of potential harm. There is a need for protective gear to reduce impact of these practises. Safety gear include gas masks to protect e-waste workers from dust and toxic gases, safety boots, hand gloves and mostly HazMat suits, which are full garments with footwear and masks, worn to protect workers from dangerous chemicals.

Health Hazards

Tools For Disassembly

The tools required for processing: chisel, mallet, pliers, screwdriver, and wire cutters.

Step by Step Disassembly

1. All copper wires are cut off and separated. Take out the switches carefully.
2. Then the motor, located at the back is carefully removed.
3. By using mallet, spanner and screws, the outer casing (steel) is removed.
4. The parts made of plastics such as the water tubes, soap drawer and drum housing, are then removed by unscrewing the bolts.
5. The tub and agitator parts are also taken apart.
6. Isolate the parts according to the type of material.
7. After disassembly, components should be documented via photography and labelling.

Safety Gear

The disassembly process exposes the worker to various levels of potential harm. There is a need for protective gear to reduce impact of these practises. Safety gear include gas masks to protect e-waste workers from dust and toxic gases, safety boots, hand gloves and mostly HazMat suits, which are full garments with footwear and masks, worn to protect workers from dangerous chemicals.

Health Hazards

Tools For Disassembly

The tools required for processing: chisel, mallet, pliers, screwdriver, and wire cutters.

Step by Step Disassembly

1. All copper wires are cut off and separated. Take out the switches carefully.
2. Then the motor, located at the back is carefully removed.
3. By using mallet, spanner and screws, the outer casing (steel) is removed.
4. The parts made of plastics such as the water tubes, soap drawer and drum housing, are then removed by unscrewing the bolts.
5. The tub and agitator parts are also taken apart.
6. Isolate the parts according to the type of material.
7. After disassembly, components should be documented via photography and labelling.

Safety Gear

The disassembly process exposes the worker to various levels of potential harm. There is a need for protective gear to reduce impact of these practises. Safety gear include gas masks to protect e-waste workers from dust and toxic gases, safety boots, hand gloves and mostly HazMat suits, which are full garments with footwear and masks, worn to protect workers from dangerous chemicals.
Re-make

Most scrap parts of a washing machine are valuable. The scrap metals can be sold to recycling companies and metalwork industries, where such parts are remelted and reformed. Examples of such remake projects are shown here.

References & Notes

Made in Agbogbloshie

In Agbogbloshie, the stainless steel covering washing machines are used for coal pots and other household items.

What is a Washing Machine

A washing machine is an electronic appliance used for washing clothes. To use a washing machine, key parameters are set by the user the total, including number/weight of the clothes, the temperature of operation during the wash-rinse cycle and the duration of operation. The washing machine has an electric motor fixed to a concrete slab set at the base, which accounts for its heavy weight.

How it works

A washing machine consists of components like: the agitator, water feed tube, electric motor, drive, wash tubs, and hose. Inside the tub, is the agitator which plays an important role in a washing cycle. The agitator is made of steel that is perforated on its sides. The agitator allows water to leave the tub during the washing cycle. It works by rotation powered by an electric motor. The rotation induces current and the clothes are made to rub against one another. This results in the removal of dirt from the clothes.

References & Notes


*Calculation on estimated value:
Prices of materials vary in Agbogbloshie depending on the local market. Also the state of the materials also influences the price, that’s the price of burnt copper differs from that of the unburned by 1 Ghana cedis per pound. In Agbogbloshie, copper and aluminium are weighed in pounds (lbs) and iron/steel is weighed in kilograms (kg). The prices we used in this calculation are that charged as at July, 2014.

Calculation inputs:
Total weight of equipment (W): 35 kg
Weight percent of material (W%): %
Weight of material (Wm): W% * W:
Price per material = Wm * amount in GHC per kg
(1 kg = 2.204 pounds)

** These types of EEE are mostly found and dismantled in Agbogbloshie.

For more information, visit:
http://qamp.net/washing machine