

Product Dissection & Benchmarking Project Handout III
Dissection. Estimated time: 2 hours

Preparation before beginning the Lab:

Read *Product Teardown and Experimentation* by Otto and Wood Handout.

Section: 004
Team #: 5
Team Name: Ready Ready Ready!
Members: Nabeel Dahod
 Mike McGarvey
 Camila Proffitt
 Kati Shea

Lab II Assignments:

Complete data sheet 3.

Laboratory Tools:

1. Camera
2. Hack saw
3. Screw driver
4. Pliers
5. Ziplock bags

I. Dissection:

Note: This lab should only be done if all interviews and Lab II are complete!!!

Tasks:

1. Disassemble, measure, and analyze function of each component. Record your findings in the Bill of Materials (BOM) table in data sheet 3.
2. Insert pictures to the visuals table in data sheet 3. Indicate names of the components as you have given in the previous table.
3. Study and indicate (using a tree structure) how components, subassemblies, and final assembly relate to each other on data sheet 3.

DATA SHEET III

Bill of Materials

Product Manufacturer/Model Number: Colgate/NAEMPSBPBA4

Date: 1/27/10

Team #: 5

**Disassembly method: pulled apart using picks
Subtract and Operate Procedure (SOP): Yes, No.**

Part#	Part Name	QTY	SOP Effect	Function	Mass (lb)	Material	Manuf. Process	Dimensions	Cost - estimate
1	Outer casing	1	yes	Hold everything together	0.038	plastic	Injection molding	8 in tall 1.25 in (bottom) 0.5 in (top)	
2	battery	2	no	Supply power	0.026 each	N/A	purchased	1.75 in x 3/8 in	
3	Battery case	1	no	Hold batteries/ complete circuit	0.012	Plastic and metal	Injection molding and wire form	1 5/8 in x 1 1/8 in	
4	o-ring	1	yes	Keep out water	N/A	rubber	purchased	1 in diameter	
5	Screw	1	yes	Fasten holder to casing	N/A	metal	purchased	3/16 in x 1/8 in	
6	Motor	1	No	Rotates shaft	0.048	Metal	Purchased	1.5 in x 7/8 in	
7	Wires	2	No	Complete circuit		N/A	purchased	1 in	
8	Switch	1	No	Complete circuit		Metal	Purchased	7/8 in x 5/16 in	

Visuals: Component pictures, sketches and/or solid models

9	Motor casing	1	No	Connects motor, switch and wires		plastic	Injection molding	3 in 15/16 in (bottom) 3/8 in (top)	
10	shaft	1	No	Oscillates brush	0.002	Metal	Wire form	3 in	
11	Outer Circular brush head	1	yes	Cleans teeth	0.002	Plastic and nylon	Extrusion and injection molding	11/16 in x 0.5 in	
12	Inner Circular brush head	1	Yes	Cleans teeth	N/A	Plastic and nylon	Extrusion and injection molding	11/16 in x 3/16 in	
13	Pin	1	Yes	Holds inner set of bristles	N/A	metal	Wire form	7 mm x 1 mm	
14	fastener	1	yes	holds shaft in place	N/A	metal	stamped	1/8 in x 1/8 in	
15	Lower brush head	1	Yes	Cleans teeth	0.002	Plastic and nylon	Extrusion and injection molding	0.75 in x 0.5 in	
16	Nipple	1	Yes	Keeps water out of motor	N/A	rubber	purchased	0.5 in x 0.25 in	

DATA SHEET III

Sketch how your toothbrush works. Label drawing.

