i	Name	Duration	Tray	Fixture	Components	Component created	Putting	Mounting	Taking	Moving	Tool needed
1	Take top-button-ring from top-tray	5	5		8				1		1
2	Fixate top-button-ring	15		1	8					1	1
3	Mount top-button-ring on bottom-switch	15			8,5	9		1			1
4	Mount button on top	25		1	3,4	7		1			1
5	Take ring	10	1		6				1		1
6	Put bottom-switch on table	5			5		1				2
7	Take button	5	3		4				1		1
8	Angle top-button	5		1	7					1	1
9	Take bottom-switch	0		1	5				1		2
10	Lift top-button, hold top-button	5			7					1	1
11	Lift top-button, support	5			7					1	
12	Take switch	5	2		2				1		2
13	Turn top-button	20			7					1	1
14	Mount switch in bottom	15		1	1,2	5		1			2
15	Take top	5	5		3				1		1
16	Take bottom	5	4		1				1		2
17	Put top in fixture	10		1	3		1				1
18	Put bottom in fixture	10		1	1		1				2
19	Put top-button-ring in top-tray	5	5		8		1				1
20	Mount ring on top-button, hold	260			7	8		1			1
21	Take top-button from fixture	5		1	7				1		1
22	Mount ring on top-button, mount	260			6	8		1			1

Trays

1. Ring tray

2. Switch tray

3. Button tray

4. Bottom tray

5. top-tray

Fixtures

1. Front fixture

Components

1. Bottom

2. Switch

3. Top

4. Button

5. Bottom-Switch

6. Ring

7. Top-Button

8. Top-Button-Ring

9. Complete

Tools

1. tool1

2. tool2

Time Matrix

	Take top-button-ring from top-tray	Fixate top-button-ring	Mount top-button-ring on bottom-switch	Mount button on top	Take ring	Put bottom-switch on table	Take button	Angle top-button	Take bottom-switch	Lift top-button, hold top-button	Lift top-button, support	Take switch	Turn top-button	Mount switch in bottom	Take top	Take bottom	Put top in fixture	Put bottom in fixture	Put top-button-ring in top-tray	Mount ring on top-button, hold	Take top-button from fixture	Mount ring on top-button, mount	Change tool
Start	3	7	8	7	7	8	7	7	7	0	0	6	0	7	3	4	7	7	3	0	7	0	3
Take top-button-ring from top-tray	0	9	9	8	10	9	7	8	8	3	3	9	3	8	0	7	8	8	0	3	8	3	5
Fixate top-button-ring	9	0	1	1	9	1	4	1	1	7	7	4	7	1	9	7	1	1	9	7	1	7	10
Mount top-button-ring on bottom-switch	9	1	0	2	8	0	5	2	2	8	8	4	8	2	9	7	2	2	9	8	2	8	10
Mount button on top	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Take ring	10	9	8	9	0	8	11	9	9	7	7	4	7	9	10	3	9	9	10	7	9	7	7
Put bottom-switch on table	9	1	0	2	8	0	5	2	2	8	8	4	8	2	9	7	2	2	9	8	2	8	10
Take button	7	4	5	3	11	5	0	3	3	7	7	8	7	3	7	9	3	3	7	7	3	7	10
Angle top-button	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Take bottom-switch	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Lift top-button, hold top-button	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Lift top-button, support	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Take switch	9	4	4	5	4	4	8	5	5	6	6	0	6	5	9	4	5	5	9	6	5	6	8
Turn top-button	3	7	8	7	7	8	7	7	7	0	0	6	0	7	3	4	7	7	3	0	7	0	3
Mount switch in bottom	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Take top	0	9	9	8	10	9	7	8	8	3	3	9	3	8	0	7	8	8	0	3	8	3	5
Take bottom	7	7	7	8	3	7	9	8	8	4	4	4	4	8	7	0	8	8	7	4	8	4	4
Put top in fixture	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Put bottom in fixture	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Put top-button-ring in top-tray	0	9	9	8	10	9	7	8	8	3	3	9	3	8	0	7	8	8	0	3	8	3	5
Mount ring on top-button, hold	3	7	8	7	7	8	7	7	7	0	0	6	0	7	3	4	7	7	3	0	7	0	3
Take top-button from fixture	8	1	2	0	9	2	3	0	0	7	7	5	7	0	8	8	0	0	8	7	0	7	10
Mount ring on top-button, mount	3	7	8	7	7	8	7	7	7	0	0	6	0	7	3	4	7	7	3	0	7	0	3
Change tool	5	10	10	10	7	10	10	10	10	3	3	8	3	10	5	4	10	10	5	3	10	3	0

Tasks that needs to be performed in a certain order

21 Take top-button from fixture

8 Angle top-button

10 Lift top-button, hold top-button

13 Turn top-button

20 Mount ring on top-button, hold

2 Fixate top-button-ring

19 Put top-button-ring in top-tray

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Sets of concurrent tasks

10 Lift top-button, hold top-button

11 Lift top-button, support

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20 Mount ring on top-button, hold

22 Mount ring on top-button, mount

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Tools

Tool change durations

	To tools	
	tool1	tool2
tool1	0	60
tool2	60	0

From tool

Default tool

Machine	Tool
1	1
2	1