Table (4-3) observations of assembly machines
Result of machines before modifications

<table>
<thead>
<tr>
<th>S/N</th>
<th>Assembly machine</th>
<th>Selected quantity</th>
<th>Duration (minute)</th>
<th>Quantity of waste</th>
<th>Percentage of waste</th>
<th>Waste states</th>
<th>Reasons of waste</th>
</tr>
</thead>
</table>
| 1   | A                | 1000              | 13                | 47                | 4.7                 | 1- (44) empty case  
|     |                  |                   |                   |                   |                     | 2- (3) long case  
|     |                  |                   |                   |                   |                     | 1-1 Shortest of the lead core  
|     |                  |                   |                   |                   |                     | 1-2 Delay in handling time  
|     |                  |                   |                   |                   |                     | 1-3 Low spring stiffness  
|     |                  |                   |                   |                   |                     | 2-1 Defect from previous stage  |
| 2   | A                | 1000              | 13                | 33                | 3.3                 | 1- (31) empty case  
|     |                  |                   |                   |                   |                     | 2- (3) short case  
|     |                  |                   |                   |                   |                     | 1-1 Shortest of the lead core  
|     |                  |                   |                   |                   |                     | 1-2 Delay in handling time  
|     |                  |                   |                   |                   |                     | 1-3 Low spring stiffness  
|     |                  |                   |                   |                   |                     | 2-1 Defect from previous stage  |
| 3   | A                | 1000              | 13                | 30                | 3.0                 | 1- (28) empty case  
|     |                  |                   |                   |                   |                     | 2- (1) long case  
|     |                  |                   |                   |                   |                     | 3- (1) short case  
|     |                  |                   |                   |                   |                     | 1-1 Shortest of the lead core  
|     |                  |                   |                   |                   |                     | 1-2 Delay in handling time  
|     |                  |                   |                   |                   |                     | 1-3 Low spring stiffness  
|     |                  |                   |                   |                   |                     | 2-1 Defect from previous stage  |
| 4   | A                | 1000              | 16                | 19                | 1.9                 | 1- (16) empty case  
|     |                  |                   |                   |                   |                     | 2- (3) long case  
|     |                  |                   |                   |                   |                     | 1-1 Shortest of the lead core  
|     |                  |                   |                   |                   |                     | 1-2 Delay in handling time  
|     |                  |                   |                   |                   |                     | 1-3 Low spring stiffness  
|     |                  |                   |                   |                   |                     | 2-1 Defect from previous stage  |
| 5   | A                | 3000              | 36                | 42                | 1.3                 | 1- (41) empty case  
|     |                  |                   |                   |                   |                     | 2- (1) long case  
|     |                  |                   |                   |                   |                     | 1-1 Shortest of the lead core  
|     |                  |                   |                   |                   |                     | 1-2 Delay in handling time  
<p>|     |                  |                   |                   |                   |                     | 1-3 Low spring stiffness  |</p>
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<th>2-1 Defect from previous stage</th>
</tr>
</thead>
</table>
| 6 | A | 3000 | 35 | 29 | 0.97 | 1- (21) empty case  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
| 7 | A | 3000 | 34 | 96 | 3.2 | 1- (88) empty case  
2- (6) long case  
3- (2) short case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
| 8 | A | 3000 | 40 | 82 | 2.73 | 1- (66) empty case  
2- (16) long case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
| 9 | B | 1000 | 12 | 15 | 1.5 | 1- (14) empty case  
2- (1) long case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
| 10 | B | 1000 | 13 | 18 | 1.8 | 1- (16) empty case  
2- (2) long case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
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</table>
| 11 | B | 1000 | 15 | 20 | 2.0 | 1- (16) empty case  
2- (4) long case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
| 12 | B | 3000 | 37 | 98 | 3.27 | 1- (94) empty case  
2- (4) long case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
| 13 | B | 3000 | 33 | 88 | 2.9 | 1- (83) empty case  
2- (5) short case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
| 14 | B | 3000 | 34 | 90 | 3.0 | 1- (82) empty case  
2- (6) long case  
3- (2) short case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |
| 15 | B | 3000 | 35 | 92 | 3.06 | 1- (83) empty case  
2- (8) long case  
3- (1) short case  
1-1 Shortest of the lead core  
1-2 Delay in handling time  
1-3 Low spring stiffness  
2-1 Defect from previous stage |