

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

S/N	Assembly machine	Selected quantity	Duration (minute)	Quantity of waste	Percentage of waste	Waste states	Reasons of waste
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 1-3 Low spring stiffness

							2-1 Defect from previous stage
6	A	3000	35	29	0.97	1- (21) empty case 2- (8) 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
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

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

