

SELECTING ELEMENT TIMES

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ENGINEERS have advanced several solutions for the selection of element times and the determining of standard times. Some have used average times, mean times, average times averaged with the best time and selected times. The method shown here differs slightly from these, and proposes to select the time which most nearly predicts characteristic and habitual action.

The operation used for illustrating the method shown is stamping paste-board boxes. These boxes are 8 inches square by 4 inches deep and are used as containers for garments. The work is done by a girl operating a motor driven machine with a fixed base upon which the box is placed. The head of the machine contained adjustable dies having letters and numbers, the head being actuated by the motor drive when released by a foot pedal.

The operator is given job cards specifying the characters to be stamped, and the number of boxes required. She places the job cards in a wire clip on the head of the machine, obtains the boxes from a stock about 30 feet distant, loads them on a truck and wheels them to the machine. She then places a bundle of boxes on a truck at the left of the machine, adjusts the letters and numbers in the movable head of the machine, as specified by the job card, and then stamps the quantity of boxes required. She then places the job card on the pile of boxes for identification, resets the letters and numbers in the movable head according to the next job card and proceeds as before.

When the operation was first studied the elements were as follows.

1. Pick up box from stock pile.
2. Lay lid at left hand of machine on stock pile.
3. Place box in machine, holding with both hands against guide.
4. Trip machine with left foot.
5. Pick up lid, place on box.
6. Step to right and place box on truck.

It was noted that the guide on the machine was defective, and if a suitable guide were attached, the motions of laying the lid down and picking it up again might be eliminated. A new guide, modified to locate the box in the correct position beneath the head was installed. Then the stamping was tried while holding the lid in the left hand, and was found to be easily learned by the operator.

These methods enabled the box to be placed more quickly and eliminated laying down and picking up the lid.

It was also noted that after the boxes were stamped and placed on the truck, the operator had to straighten the pile frequently to prevent them from toppling over and to get the maximum number on the truck, and a stand on which to pile the boxes was designed. The stand consisted of a base 7 inches square, supported about 30 inches from the floor, so the operator would not have to stoop when placing the first stamped box. In order to keep the boxes from toppling over, two uprights, slightly inclined backward, were nailed to two adjacent sides of the base so that the boxes when stacked on the base and against the guides were kept straight and did not fall out.

This stand was then placed close to the right hand of the machine so that the operator did not have to step to the truck in order to pile the stamped boxes.

The operator was then shown how to stand with her right foot adjacent to the machine trip-lever, and with her left foot straight back from the right. In this position, without moving either foot, she could pick up the box, stamp it and place it on the stand without moving either foot. Since the operator was relieved of strain by frequent trips to the stock pile for truck loads of boxes, this position did not cause fatigue.

The detail of stamping the box lid then consisted of the following elements:

1. Pick up box, bottom down, with left hand.
2. Remove lid with right hand and place in machine against guides, left hand holding bottom and steady-ing lid.

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TIME STUDY OBSERVATION SHEET													FORM NO. 122		D. [REDACTED] BROS. BUFFALO, N. Y.		SHEETS 4 SHEET NO. 1											
REMARKS: Element times are shown per box but computed per order													PRODUCT: Boxes		OPERATION: Stamp		DEPT: Boxng		OPER. NO. 4 E		ORDER NO.		STYLE NO.		SIZE		QUANTITY	
REF. NO.	ELEMENT	1 A	2 B	3 C	4 D	5 E	6 F	7 G	8 H	9 I	10 J	11 K	12 L	TOTAL	REF.	EXCEPTION	REF.	EXCEPTION										
1	Place Truck	1.11																										
2	Place Boxes	1.69																										
3	Place Orders	2.10																										
4	Adjust Machine	2.78				4.46				.68																		
5	Stamp Box	2.92	3.14	3.39	3.59	4.61	.68	.30	5.00	.14	.76	6.07	6.18															
6	Place On Truck									.39																		
7																												
8																												
9	Stamp Box	.35	.47	.57	.68	.79	.704																					
10	Place Orders					.92																						
11	Place On Truck						.26																					
12																												
13	Place Boxes	2.68																										
14	Adjust Mach	.87																										
15	Stamp Box	.99	8.04	.15	.32	.39	.47	.55	.71	.87	9.01	45	.55															
16	Place On Truck									.57																		
17																												
18	Adj. Mach.																											
19	Stamp Box	.68	.78	.87	10.01	.21	.32	.47	.57	.71	.96	12.20	.31															
20	Place On Truck									11.47																		
21																												
22	Place Boxes												16.90															
23	Adj. Mach																											
24	Stamp Box	.41	.55	.67	.80	.89	.98	13.72	.19	.32	.92	9.4	17.16															
25	Place Boxes on Truck																											
26																												

Fig. 1. Time-Study Observation Sheet.