

Time Systems in Manufacturing Plants

A PRACTICAL ARTICLE WRITTEN FOR THE CANADIAN MANUFACTURER BY J. A. T. DUNDAS.

I do not intend to write a time system that can be taken in its entirety and applied to the individual need of any establishment, but will describe a system that can be adapted with more or less change to meet conditions to any class of manufacturing establishment. Being best acquainted with the manufacture of machine tools will use this line to illustrate what I may have to write.

The first thing necessary in a manufacturing plant is a reliable time recorder. There are several reasonably reliable ones on the market. Place it in a convenient position at the work-

TURNING DATE April 17/08 10
CLOCK NO. 371 NAME John Jones
ORDER NO. 7285 MACHINE NO. 100 DRAWING NO. 1

ON ACCOUNT OF ORDER NO. 15 30 45

MIN.	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
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Fig. 1.—Card as Filled out, for First Operation.

man's entrance, where each man may record his own time, thus making him his own timekeeper. If your works are large and divided into sections or departments it is then advisable to have a recorder in each of these departments, bringing your employees into the immediate vicinity of their work before they register in. You can easily see the advantage of this. Your pay-roll hours are made up from the record each man has made for himself. This also prevents any differences between man and timekeeper.

Having secured an accurate system for checking the pay-roll hours of the employees you now proceed to arrange for the time in the manufacture of the piece you manufacture, also the time taken on the individual pieces and the different operations on each of these parts. The time can be easily and systematically taken care of by each piece

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Fig. 2.—Card as Filled out for Second Operation.

having a number and an "operation card" being used to indicate the process through which the piece is put. The machine to which the piece belongs should also have a number, and it would be wise to give each job or lot a number as well, so that a job or lot going through your works would be described by the job or lot number, then by the

machine number and the individual piece of the machine by its number.

Now to illustrate we will say that you are manufacturing machine tools and you wish to manufacture twelve 30-in. engine lathes, standard design. Your 30-in. lathes are designated by the number 100. Your last job or lot number was 7,284, so this order would be for job or lot number 7,285; the machine number 100; twelve wanted. Now each piece having a number the part to be machined would be known as job 7,285; machine number 100; piece or drawing number 1. The operation is turning, so that an operation card is furnished as in Fig. 1, upon which the operator puts the date, his shop number, his name, the job number (in this instance called the order number); the machine number and the piece or drawing number upon which he is at work, also, when completed, the number of hours occupied in performing the operation. The hours are recorded by a check mark (V) under the hour of commencing the operation (in this case 7 a.m.), and when completed (say at 4.30 p.m.), he

morning a new card is used as though commencing a new operation or piece.

There are many pieces that occupy but a small amount of time, possibly only five minutes. The wish is to keep

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MIN.	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
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Fig. 3.—First Card Filled out on Second Day.

record of the time on these while you do not charge less than fifteen minutes against any one piece, hence when two or more pieces of different numbers are machined in the fifteen minutes the time of commencing and leaving off each piece will be recorded the same on each

ORDER NO.	DESCRIPTION	TIME SUMMARY							DATE OF ORDER	CARD NO.					
7285	30" Engine Lathe (Standard Design)	72 96							April 18 th 08	1					
CLASS OF WORK	HOURS WEEK ENDING April 17 th 08							HOURS WEEK ENDING April 18 th 08							
	MON	TUES	WED	THURS	FRI	SAT	TOTAL TO DATE	MON	TUES	WED	THURS	FRI	SAT	TOTAL TO DATE	
FORGING AND CUT-UP	1 1/4	3 3/4	-	6	9	-	9	2	5	6	-	9	10	22	
BORING	2	5	9	-	10 1/2	11	11	7	9	-	11	-	-	29	
TURNING	2 1/4	6 1/4	9 1/4	11	16	16	16	3	8	14	17	21	24	40	
PLANING	-	3	5	9	-	9	9	5	10	12 1/2	-	20 1/2	20 1/2	32 1/2	
MILLING & KEY SEATING	-	-	-	5	7	-	7	1	1 1/2	-	3	-	4	11	
GEAR CUTTING	1	3	-	4 1/2	5 1/2	5 1/2	5 1/2	-	3	-	7	-	-	12 1/2	
TRIMMING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
GRINDING	-	-	-	4	-	4	4	-	-	-	-	-	-	4	
SLOTTING	-	-	3	4 1/2	-	7	7	-	-	-	1	3	-	10	
DRILLING	9	11	15	20	22	22	22	5	6	-	7 1/2	11	-	33	
CHUCKING	-	4	-	7	10	10	10	-	-	-	5	-	-	15	
ERECTING	2	10	17	25	30	34	34	9	17	25	30	-	-	64	
TOTAL HOURS ON ORDER							134 1/2	TOTAL HOURS ON ORDER							266

Fig. 5.—Summary Sheet Listed in the Office.

places a cross (X) under the hour and also after the nearest fraction of the hour as measured in quarters in the line headed "minutes," the lapsed time being 8 3/4 hours, which is placed on the lower right-hand corner of the card, under "hours on job" as shown in Fig. 1. The operator then proceeds with his next piece, which may be designated as order or job number 7,285, machine 100, piece or drawing number 5. This time he marks the time of beginning on another card (only one entry being made on a card), with a check mark (V) as before. A card succeeding Fig. 1 is shown Fig. 2, where the check mark is under the hour IV, and also in front of the minute 30. If the operation on which he is working is not completed at the close of the day the operator marks his card as though it were completed, entering the hours occupied during that day. See Fig. 2. And on the following

card, but the time card for the second or more pieces would be marked with number—as in Figs. 3 and 4. The card

TURNING DATE April 18/08 10
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ON ACCOUNT OF ORDER NO. 15 30 45

MIN.	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
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Fig. 4.—Second Card Filled out on Second Day.

suggested also provides for men operating more than one machine. Thus record may be kept of the number of hours each machine is kept in operation.