Application of Maynard Operation Sequence Technique (M.O.S.T) at Tata Motors and Adithya Automotive Application Pvt Ltd. Lucknow for Enhancement of Productivity-A Case Study

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Abstract

There are millions of jobs and everyone feels that his/her job is unique to them, their product and finally to their organization. But the fact remains that all the jobs are just combinations of 19 basic motions that are used to perform any task. The productivity is key to survival of any organizations and hence profitability. The productivity is defined as ?Optimum Utilization of Available Resources?. To achieve productivity of the highest order, The consumption of all the resources viz Men, Material, Machine, Money and Methodology? have to be optimized. There are primarily three methods of determining the ?Standard Time? in which a worker should perform a task: i) Maynard Operation Sequence Technique (M.O.S.T) is a predetermined motion time system that is used primarily in industrial settings to get the standard time in which a worker should perform a task. ii) Time Study is a traditional Work Measurement technique which is involved to calculate the time of the operation in an assembly line with the help of instrument (Stopwatch). iii) Taylorism, System of scientific management advocated by Fred W. Taylor. In Taylor?s view, the task of factory management was to determine the best way for the worker to do the job, to provide the proper tools and training, and to provide incentives for good performance. He broke each job down into its individual motions, analyzed these to determine which were essential, and timed the workers with a stopwatch. With unnecessary motion eliminated, the worker, following a machinelike routine, became far more productive. In the present work, comparative case study of the ?M.O.S.T.? and ?Traditional Time Study? was carried out for Fitment of particular parts at M/S Adithya Automotive Application Pvt Ltd. Lucknow and Assembly Line-3 at Tata Motors Ltd, Lucknow and there was appreciable decrease in time taken by M.O.S.T. in accomplishment of task in both the cases. A total decrease of 16.8

Index terms— productivity of the highest order, The consumption of all the resources viz Men, Material, Machine, Money and Methodology.

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should perform a task: i) Maynard Operation Sequence Technique (M.O.S.T) is a predetermined motion time system that is used primarily in industrial settings to get the standard time in which a worker should perform a task.

ii) Time Study is a traditional Work Measurement technique which is involved to calculate the time of the operation in an assembly line with the help of instrument (Stopwatch). iii) Taylorism, System of scientific management advocated by Fred W. Taylor. In Taylor's view, the task of factory management was to determine the best way for the worker to do the job, to provide the proper tools and training, and to provide incentives for good performance. He broke each job down into its individual motions, analyzed these to determine which were essential, and timed the workers with a stopwatch. With unnecessary motion eliminated, the worker, following a machinelike routine, became far more productive.

In the present work, comparative case study of the "M.O.S.T." and "Traditional Time Study" was carried out for Fitment of particular parts at M/S Adithya Automotive Application Pvt Ltd. Lucknow and Assembly Line-3 at Tata Motors Ltd, Lucknow and there was appreciable decrease in time taken by M.O.S.T. in accomplishment of task in both the cases.

A total decrease of 16.8% was observed in M/S Adithya Automotive Application Pvt Ltd. Lucknow and 32.2% in Assembly Line-3 at Tata Motors Ltd, Lucknow with the application of M.O.S.T.as compared of Traditional Time Study.

From the above analysis, it is concluded that M.O.S.T Study has a clear advantage over the traditional time Study and higher productivity can be achieved by application of M.O.S.T. It is also known as method for establishing employee productivity standards in which:

? a complex task is broken into small, simple steps,

? the sequence of movements taken by the employee in performing those steps is carefully observed to detect and eliminate redundant or wasteful motion, and

? precise time taken for each correct movement is measured.

From these measurements production and delivery times and prices can be computed and incentive schemes can be devised. Generally appropriate only for repetitive tasks, time and motion studies were pioneered by the US industrial engineer **??**1868 **??**1924 **??** and Dr. Lillian Gilbreth (1878 **??**1972).

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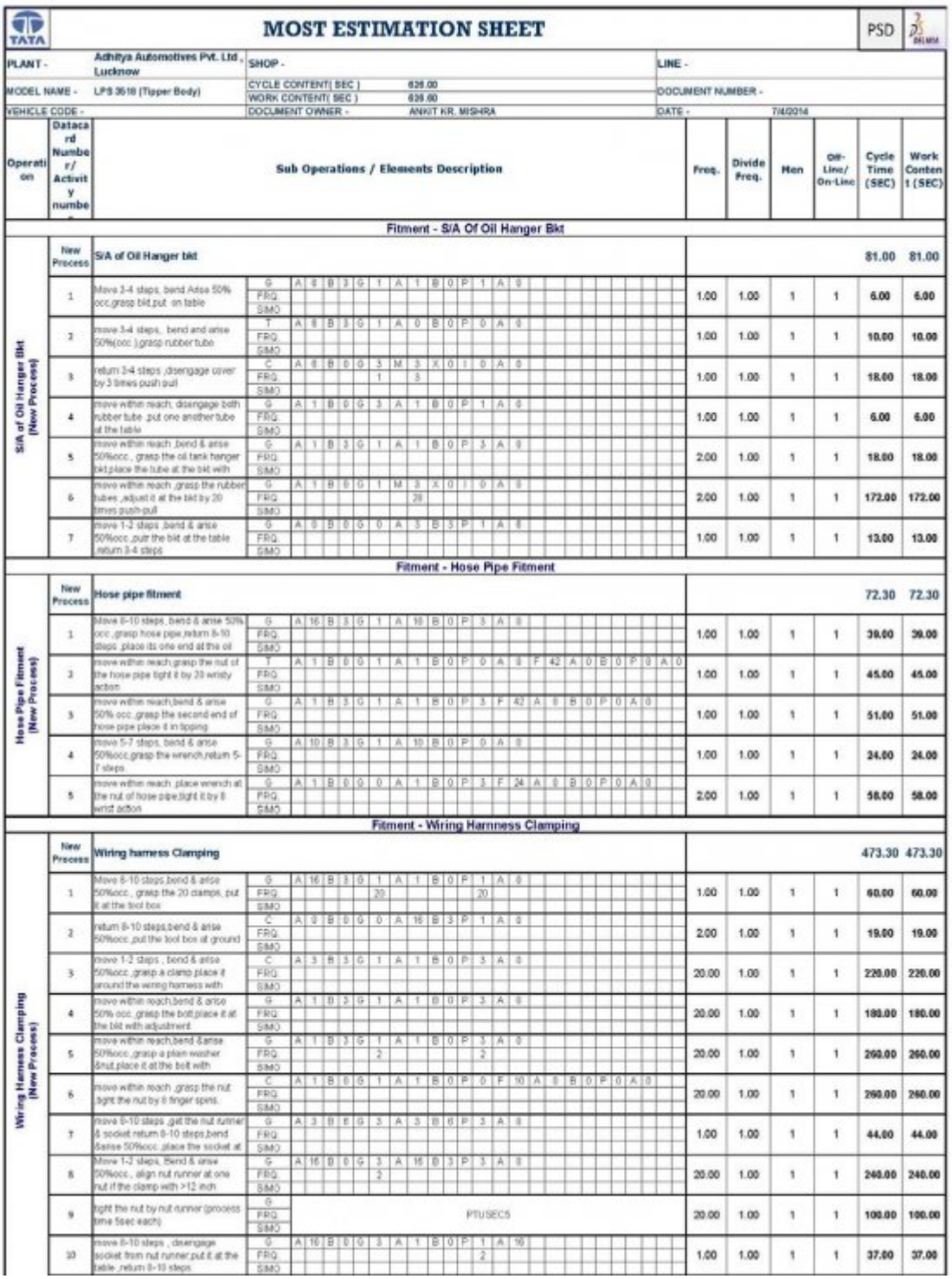
[1]

[2] Application of Maynard Operation Sequence Technique (M.O.S.T) at Tata Motors and Adithya Automotive Application Pvt Ltd. Lucknow for Enhancement of Productivity-A Case Study

Figure 1: Fitments

Figure 2:



MOST ESTIMATION SHEET

PSD

PLANT - Adithya Automotives Pvt. Ltd., Lucknow	SHOP -		LINE -
MODEL NAME - LPS 3518 (Tipper Body)	CYCLE CONTENT(SEC) 626.00		DOCUMENT NUMBER -
	WORK CONTENT(SEC) 626.60		
VEHICLE CODE -	DOCUMENT OWNER - ANKIT KR. MISHRA		DATE - 7/4/2014

Operation	Datacard Number / Activity number	Sub Operations / Elements Description		Freq.	Divide Freq.	Men	Off-Line/ On-Line	Cycle Time (SEC)	Work Content (SEC)
Fitment - S/A Of Oil Hanger Bkt									
S/A of Oil Hanger Bkt (New Process)	New Process	**S/A of Oil Hanger bkt**						81.00	81.00
	1	Move 3-4 steps, bend Arise 50% occ,grasp bkt,put on table	G	1.00	1.00	1	1	6.00	6.00
			FRQ						
			SMO						
	2	move 3-4 steps, bend and arise 50%(occ.),grasp rubber tube	T	1.00	1.00	1	1	10.00	10.00
			FRQ						
			SMO						
	3	return 3-4 steps ,disengage cover by 3 times push pull	C	1.00	1.00	1	1	18.00	18.00
			FRQ						
			SMO						
	4	move within reach, disengage both rubber tube ,put one another tube at the table	G	1.00	1.00	1	1	6.00	6.00
			FRQ						
			SMO						
	5	move within reach ,bend & arise 50%occ., grasp the oil tank hanger bkt,place the tube at the bkt with	G	2.00	1.00	1	1	18.00	18.00
			FRQ						
			SMO						
	6	move within reach ,grasp the rubber tubes ,adjust it at the bkt by 20 times push-pull	G	2.00	1.00	1	1	172.00	172.00
			FRQ						
			SMO						
	7	move 1-2 steps ,bend & arise 50%occ.,putr the bkt at the table ,return 3-4 steps	G	1.00	1.00	1	1	13.00	13.00
			FRQ						
			SMO						
Fitment - Hose Pipe Fitment									
Hose Pipe Fitment (New Process)	New Process	**Hose pipe fitment**						72.30	72.30
	1	Move 8-10 steps, bend & arise 50% occ.,grasp hose pipe,return 8-10 steps ,place its one end at the oil	G	1.00	1.00	1	1	39.00	39.00
			FRQ						
			SMO						
	2	move within reach,grasp the nut of the hose pipe tight it by 20 wristy action	T	1.00	1.00	1	1	45.00	45.00
			FRQ						
			SMO						
	3	move within reach,bend & arise 50% occ.,grasp the second end of hose pipe place it in tipping	G	1.00	1.00	1	1	51.00	51.00
			FRQ						
			SMO						
	4	move 5-7 steps, bend & arise 50%occ.grasp the wrench,return 5-7 steps	G	1.00	1.00	1	1	24.00	24.00
			FRQ						
			SMO						
	5	move within reach ,place wrench at the nut of hose pipe,tight it by 8 wrist action	G	2.00	1.00	1	1	58.00	58.00
			FRQ						
			SMO						
Fitment - Wiring Harness Clamping									
Wiring Harness Clamping (New Process)	New Process	**Wiring harness Clamping**						473.30	473.30
	1	Move 8-10 steps,bend & arise 50%occ., grasp the 20 clamps, put it at the tool box	G	1.00	1.00	1	1	60.00	60.00
			FRQ						
			SMO						
	2	return 8-10 steps,bend & arise 50%occ.,put the tool box at ground	C	2.00	1.00	1	1	19.00	19.00
			FRQ						
			SMO						
	3	move 1-2 steps , bend & arise 50%occ.,grasp a clamp,place it around the wiring harness with	C	20.00	1.00	1	1	220.00	220.00
			FRQ						
			SMO						
	4	move within reach,bend & arise 50% occ.,grasp the bolt,place it at the bkt with adjustment	G	20.00	1.00	1	1	180.00	180.00
			FRQ						
			SMO						
	5	move within reach,bend &arise 50%occ.,grasp a plain washer &nut,place it at the bolt with	G	20.00	1.00	1	1	260.00	260.00
			FRQ						
			SMO						
	6	move within reach ,grasp the nut ,tight the nut by 8 finger spins.	C	20.00	1.00	1	1	260.00	260.00
			FRQ						
			SMO						
	7	move 8-10 steps ,get the nut runner & socket return 8-10 steps,bend &arise 50%occ.,place the socket at	G	1.00	1.00	1	1	44.00	44.00
			FRQ						
			SMO						
	8	Move 1-2 steps, Bend & arise 50%occ., align nut runner at one nut if the clamp with >12 inch	G	20.00	1.00	1	1	240.00	240.00
			FRQ						
			SMO						
	9	tight the nut by nut runner (process time 5sec each)	G	20.00	1.00	1	1	100.00	100.00
			FRQ	PTU SECS					
			SMO						
	10	move 8-10 steps , disengage socket from nut runner,put it at the table ,return 8-10 steps	G	1.00	1.00	1	1	37.00	37.00
			FRQ						
			SMO						

Figure 3:

Figure 4:

b) Time Study
i. Definition
Time Study is a Work Measurement technique
which is involved to calculate the time of the operation in
an assembly line with a help of instrument (Stopwatch).

Figure 5:

.1 Conclusion

This Clearly shows that the standard manhours can be better calculated by the application of M.O.S.T.