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REVIEW ON WORK MEASURMENT BY MOST (MENORD OPERATION SEQUENCING TECHNIQUE)

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ABSTRACT

MOST stands for Maynard operation Sequence technique. it\`s one in all the vital work measuring technique. the target of any work measuring technique is to cut back the work content and thereby improve the productivity of the method. Work measuring used for management choices like designing, scheduling, estimation of prices and analysis of performance. MOST could be a complete study of operation or a sub operation consisting of 1 or many methodology steps and corresponding sequence model, parameter time values and normal time values for the operation or sub operation. It additionally includes the Basic , Mini, and maxi versions; it makes the measuring of labor a sensible, efficient, and cheap task for producing trade.

I. INTRODUCTION

MOST is easy and faster action based system known as user friendly work predetermined motion time system. It is a breakthrough work measurement technique that allows a greater variety of work (both repetitive and non-repetitive) for manufacturing, engineering to administrative service activities to be measured quickly with ease and accuracy.

MOST is a system to measure work therefore, MOST concentrates on the movement of objects. Efficient, smooth, productive work is performed when the basic motion patterns are tactically arranged and smoothly choreographed commonly known as methods engineering. It was noticed that the movement of objects follows certain consistently repeating patterns, such as reach, grasp, move, and position the object. These patterns were identified and arranged as a sequence of events (or sub activities) followed in moving an object. A model of this sequence is made and acts as a standard guide in analyzing the movement of an object. In other words, to move an object, a standard sequence of events occurs. Consequently, the basic pattern of an object's movement is described by a universal sequence model instead of random, detailed basic motions. For each type of move, different sequence models of events occurs therefore a separate MOST activity sequence model applies. The use of tool is analyzed through a separate activity sequence model that allows the analyst the opportunity to follow the movement of a hand tool through a standard sequence event which is a combination of two basic sequence models. The technique helps in benchmarking the methods and activities followed in various operations in the industry with world class standards. It eliminates the subjective performance rating and has a much better acceptance of workers/unions because it is totally transparent and easy to demonstrate. This concept provides the basis for MOST sequence models. The primary work units are no longer basic motions as in MTM, but fundamental activities dealing with moving objects. These activities are described in terms of sub activities

fixed in sequence. Therefore, it is a powerful analytical tool that helps to increase productivity, improve methods, facilitate planning, establish workloads, estimate labor costs, improve safety and maximize resources.

II. HISTORY

Motion Time Analysis (MTA) was developed in 1920. Method Time Measurement (MTM) published in 1948 was one of the base methods for many simplified and more efficient techniques. MOST is one of the recent MTM based techniques that is used for work measurement. MOST is the activity based work measurement system that enables us to calculate the length of time required to perform a task i.e. a system to measure work. The concept of MOST was developed in 1967 and Basic MOST system was introduced in Sweden in 1972 and in the United States in 1974.

Evaluation: A combination of the time study technique and the motion study philosophy was arranged to form the predetermined motion Time systems (PMTS). Since in PMTS the catalogs of predetermined times already leveled to 100%, there no need to rate an operator and hence focus shifted from operator to actual work. These drawbacks lead to evolution of Methods-Time Measurement (MTM) which was developed by Harold B. Maynard, G. J. Stegemerten, and J. L. Schwab and published in 1948. Synthesized versions of MTM were developed to reduce applicator errors and the time of analysis. Further advanced version of MTM technique were developed and named as MTM-2 and MTM-3. Many efforts have been made to simplify the work measure merit analyst's task. This has led to a establishment of variety of higher level MTM data systems like MOST Maynard Operation Sequence Technique (MOST) is a system to measure work; therefore, MOST concentrates on the movement of objects. A model of this sequence is made and acts as a standard guide in analyzing the movement of an object. It was also noted that the sub activities in that sequence vary independently of one another in their actual motion content. The operation time may be kept in TMU or converted to minutes or hours. This time reflect the work content without allowances at the 100% performance level.

III. THE MOST SYSTEMS

The MOST Systems has grown significantly advanced since its evolution in 1967. It now provides a comprehensive set of practical work measurement tools that have been put to use in many situations. Because of its excellent reputation, MOST is used as top choice for tasks related to work measurement in industries. Figure shows the basic MOST systems:

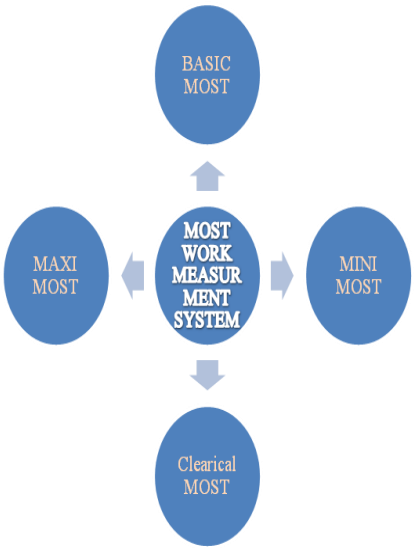


Fig3.1 Most Work Measurement System

3.1 Maxi MOST

At the highest level Maxi MOST is used to analyze operations that are likely to be performed fewer than 150 times per week. An operation in this category may be less than 2 minutes to more than several hours in length. Maxi MOST index ranges accommodate the wide cycle-to-cycle variations that are typical in such work as setups or heavy assembly. Even at this level, the method descriptions resulting from Maxi MOST are very practical for instructional purposes.

3.2 Basic MOST

At the intermediate level, operations that are likely to be performed more than 150 but less than 1500 times per week should be analyzed with Basic MOST. An operation in this category may range from a few seconds to 10 minutes in length, (Operations longer than 10 minutes may be analyzed with Basic MOST, with 0.5-3 minutes being typical cycle time for Basic MOST). The majority of operations in most industries fall into this category. Basic MOST index ranges readily accommodate the cycle-to-cycle variations typical at this level. The method descriptions that result from Basic MOST analyses are sufficiently detailed for use as operator instructions.

3.3 Mini MOST

At the lowest level, Mini MOST provides the most detailed and precise methods analysis. In general, this level of detail and precision is required to analyze any operation likely to be repeated more than 1500 times per week. Operations having an occurrence frequency this high have cycle times of less than 1.6 minutes (10 seconds or less is typical). Such operations usually have little variation from cycle to cycle owing to the operator's high level of practice and to management efforts to improve the design, Layout, and method. Opportunities for small but significant improvements in these areas are often highlighted by a Mini MOST analysis. Regardless of the cycle length, Mini MOST should also be used to analyze any operation in which nearly all reach and move distances for an operation are less than 10 inches (25 cm). However, since its focus is on highly repetitive work within reach of the operator, Mini MOST was not designed for analyzing operations in which the operator

action distances exceed two steps, body motions other than Bend and Arise occur, or the weight or resistance per hand exceeds 10 pounds (5 kg). Basic MOST would normally be used to analyze these situations.

IV. BASIC MOST METHOD:

The Basic MOST system is the most common and practical work measurement system used in industries. Since the objects or materials follows General move sequence model of Basic MOST system is used by the researcher to measure the time required to perform activities by all the selected respondents in their respective sections.

4.1 Basic MOST Work Measurement technique:

There are various basic MOST work measurement techniques as shown in chart

Sr.No.	Activity	Sequence Model	Sub-Activity / Parameter
1	General Move	A B G A B P A	A - Action Distance B- Body Motion G- Gain Control P – Placement
2	Controlled Move	A B G M X I A	A - Action Distance B- Body Motion G- Gain Control M - Move Control X - Process Time I – Alignment
3	Tool Use	A B G A B P _ A B P A	A - Action Distance B- Body Motion G- Gain Control P - Placement **Blank Space (_) is filled with below tool use parameter:** F-Fasten L - Loosen S - Surface Treatment M - Measure R - Record T – Think

4.2 Selection of Basic MOST General Move sequence Model:

If the objects or material displacement follows spatial displacement or unrestricted path through the air under manual control general move sequence model is used.

4.3 Parameters of Basic MOST General Move Sequence Model:

The parameters are the series of letters representing various activity elements.

The parameters of the Basic MOST General Move Sequence consist of 5 step pattern as below:

A B G A B P A

Where,

A = Action Distance

B = Body Motion

G = Gain Control

P = Placement

- **Action Distance (A):**
  This parameter is used to analyze all the movements of operator related to handsor feet for either loading or unloading of the material.
- **Body Motion (B):**
  This parameter is used to analyze the body motion of the operator like bend arise, sit or stand while performing activity.
- **Gain Control (G):**
  This parameter is used to analyze the complete control of the material beforemoving the material to another place.
- **Placement (P):**
  This parameter analyzes the material placement, alignment, adjustment withpressure.

4.4 Phases of Object Movements For Basic Most General Movesequence Model

G	E		T	P	U		T	
A	B	G		A	B	P	A	

4.4.1. First Phase GET:

It is the action that is performed by the labour to reach to the object in combination with the body motion and gain control of the object. The A parameter indicates the distance the hand or body must travel to reach the object. The B parameter indicates the body motion while performing the action and the G parameter indicates the control gained by the labour on the object.

4.4.2. Second Phase PUT:

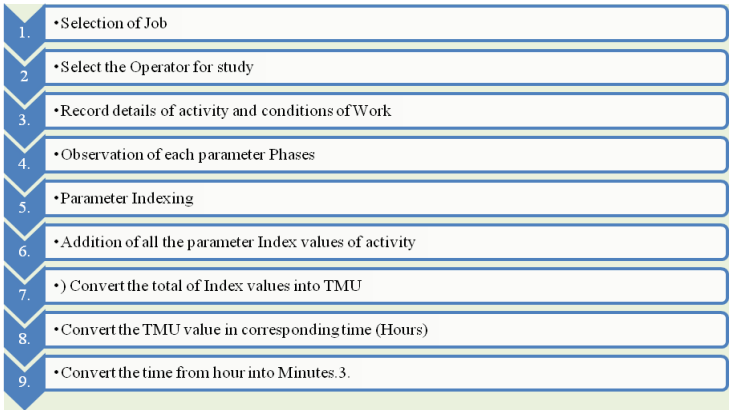
This phase indicates the action to move or place the object to another location. Parameter A and B indicates the same function as mentioned in first phase (GET) to place the object at required place. The parameter P indicates the way in which the object is placed at the desired place.

4.4.3. Third Phase RETURN:

This phase indicates the distance travelled by the labour to return to the work placeafter the object is placed at the desired place.

4.5 Procedure of Basic MOST Method:

Generally, 9 steps are used for applying basic MOST methods such as:



V. ADVANTAGES

The advantages of M.O.S.T. over other work measurement technique are:

- It is faster than other work measurement techniques.
- It has controlled accuracy
- It reduces paper work.
- The time can be calculated in advance.
- Easy to learn and understand, it is workman-friendly.
- It is a universal application
- Rating factor is not required.
- It can establish work measurement independently.
- The staff requirement is less than other methods and hence economical.
- It is consistent therefor more acceptable of management, engineer, supervisor &workman.

VI. CONCLUSION

With the help of MOST method, It's possible to achieve major times reduction in the manufacturing of the products. MOST nearly gives non-machining time reduction of 55% to 65% which is measure achievement for MOST application. MOST gives alternative to the Time Study method.

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