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MAINBOSS INSTALLATION: A LOOK INTO THE OPERATION OF COMPUTER MAINTENANCE MANAGEMENT SOFTWARE

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SUMMARY

In the industrial era of the twenty first century, companies are looking for ways to improve their operations as well as reduce their operational costs. This statement poses the question, "How does a company improve its operations and/or reduce its operational costs?" One answer is for the company to introduce new innovations in technology into the facility's processes, plant layout, maintenance structure, etc. The Institute of Ocean Technology has taken this route and converted its traditional hand-written Preventive Maintenance system into a Computerized Preventive Maintenance system by using the Computerized Maintenance Management Software (CMMS) called "MainBoss". (The exact software is Version 2.9 Update 2 Build 2.)

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MAINBOSS INSTALLATION: A LOOK INTO THE OPERATION OF COMPUTER MAINTENANCE MANAGEMENT SOFTWARE

SR-2005-12

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SUMMARY

The enclosed report describes the general operation of MainBoss. It explains the state of disorder of the previous maintenance system at IOT and gives examples of the benefits of MainBoss over this obsolete system. In addition, the report goes on to clarify much of the information required by MainBoss and how it is used in the development of PM work orders.

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1.0 INTRODUCTION

In the industrial era of the twenty first century, companies are looking for ways to improve their operations as well as reduce their operational costs. This statement poses the question, "How does a company improve its operations and/or reduce its operational costs?" One answer is for the company to introduce new innovations in technology into the facility's processes, plant layout, maintenance structure, etc. The Institute of Ocean Technology has taken this route and converted its traditional hand-written Preventive Maintenance system into a Computerized Preventive Maintenance system by using the Computerized Maintenance Management Software (CMMS) called "MainBoss". (The exact software is Version 2.9 Update 2 Build 2.) The following report describes the operation of MainBoss

2.0 History

Before June 2005, all of the IOT's Preventive and Corrective Maintenance work orders were handwritten. For the Preventive Maintenance (PM) work orders, this would be a tedious endeavor requiring time spent on selecting the PM task(s) to be completed as well as reviewing their schedules to ensure that each PM task is completed on time. Likewise, after issuing the work orders time would have to be spent following up on those that were uncompleted and overdue. In addition, all of the Corrective Maintenance work orders were also hand written. This resulted in the accumulation of large amounts of loose copies of issued work orders which management used to keep track of overdue Corrective work orders. These copies required time spent on the organization and separation of the completed work orders from the overdue ones. This took a large amount of time because the due dates of each issued work order had to be calculated based upon the number of hours estimated for the completion of the work.

Note: This time spent needlessly on the organization of Preventive and Corrective Maintenance could be utilized more efficiently if targeted toward maintenance management and improvement.

3.0 Benefits of CMMS

The following is a short list of some of the benefits of implementing CMMS.

3.1 Time Benefits

As shown in the section labeled, "2.0 History", a hand-written maintenance system is extremely time consuming. A major benefit of a CMMS is that it reduces the amount of time spent on organizing maintenance to a minimal. This benefit cannot be seen immediately because it is overshadowed by the large amount of time spent into developing the system's database. This is due to the fact that the software initially requires every detail about every piece of equipment contained within the facility. Once the database is completed, links must be created between the specifications, PM tasks and schedules, equipment labels and asset codes. (This will be discussed in detail later in the report.) This is where the reduction in the time spent on organizing PM is obvious because the software contains the ability to track PM tasks based on the schedules assigned to each of them. This means that PM work orders are automatically generated for the equipment and asset codes linked to the PM tasks. This eliminates the need for the selection of PM tasks and the reviewing of task scheduling, and because CMMS is a database, the software can generate reports on overdue work orders reducing follow up times as well.

3.2 History Benefits

Because a CMMS is a database, then all work orders, open and/or closed, are stored in this database. This means that at any time a report can be generated that gives a detailed description of what work has been completed on any specified piece of equipment. By keeping such a detailed history, exact dates can be pinpointed for such things as major overhauls and part replacements. In addition, a financial record can be kept, describing the cost of each piece of equipment to the company. From this, costly and obsolete equipment can be identified and replaced.

3.3 Inventory Benefits

Once a detailed description of a facility's inventory has been input into the CMMS, the software has the capability to create Purchase Orders based upon the guidelines that it is given. This means that as inventory levels are adjusted to account for the usage of parts and materials, the software will track them and automatically generate a PO when a lower limit for an amount of a particular part is reached and the amount ordered will not exceed the upper limit placed on the part quantity. Note: These upper and lower limits are to be input during the initial development of the inventory database.

3.4 Finance Tracking Benefits

CMMS can generate various reports to track the amount of cash flow expended on each project within the maintenance department. This is achievable only when the software is given enough detail into the cost of replacement parts/items and the personnel's salaries. Once this is completed, it can track the amount of money that is spent on any type of work. This can help in pinpointing areas of large monetary expenditures, which can aid management in determining what equipment is in need of replacement.

3.5 Financial Benefits

As stated in section "3.1 Time Benefits", a large amount of time is spent on PM organization. This time results in a wasted labor cost. Once the software is running, it eliminates this wasted labor cost. These savings will pay for the initial cost of the software itself in future years. (Note: This payback depends on what type of facility is implementing the software.) By eliminating wasted managerial labor related to maintenance, a greater effort can be put into such things as facility improvement. Enabling a greater return on the money spent by the company.

4.0 DEVELOPMENT OF MAINBOSS

All CMMS offer a different level of service and performance, depending upon the level of thoroughness that the purchaser requires. IOT has chosen MainBoss as their CMMS. This database requires a large amount of detailed information in order to operate to its full potential.

The information required includes, but is not restricted to:

- Specifications
- Manufacturer stated PM tasks and schedules as well as those that the management team deem important to ensure proper facility operation
- A detailed list of the facility's inventory
- Types of oils and lubrications required by the equipment
- Personnel information
- Asset codes and Equipment labels
- Meters
- Equipment Location

The following are brief descriptions of some of the information MainBoss utilizes.

4.1 Asset Codes and Equipment Labels

Maintenance management chooses the Equipment Labels required by MainBoss and these labels should be related to what duties are performed by the piece of equipment. This allows for easy identification of the equipment when reading the labels.

In addition, MainBoss requires that Asset Codes be assigned to each Equipment Label. These are recommended to follow the number system, for MainBoss a code system of 1 letter followed by three numbers was chosen. (For example, T###.)   This allows MainBoss to organize the database based on the asset code, enabling codes starting with the same letter to be classified together.

4.2 Specifications

The Specifications of each piece of equipment can help new members of the maintenance team, as well as the already established team, in specifying what and where the equipment is. If there are a number of pieces of similar equipment found in a facility, the only immediate distinguishing fact is the specifications found on the units nameplates. MainBoss has the ability to attach specifications to equipment labels and at the click of a button; it can attach these specifications to any work order being created.

4.3 Equipment Location

The location of the equipment is not necessary for the operation of the MainBoss database, but it is vital to the work that is to be performed. If the maintenance team knows the exact location of the equipment to be serviced, then the time usually taken for finding a piece of equipment can be eliminated. Therefore, knowing the exact location frees up more time to perform maintenance activities. MainBoss automatically attaches the locations specified for equipment to any work order produced.

4.4 Manufacturer Stated PM Tasks and Schedules

These tasks and schedules are instructions given by the manufacturer on how to take care of their equipment. If they are not followed, then the equipment warranties can be voided and the overall life of the unit can (and will) be drastically reduced. MainBoss contains a specific section for PM tasks and schedules. This is where the tasks are linked to their respective schedules as well as the asset codes and equipment labels. If this procedure is not completed then the software cannot generate any scheduled PM work orders.

4.5 PM Tasks and Schedules Deemed Important By Maintenance Management

These tasks and schedules are based upon the importance of a piece of equipment to the operation of the facility or its processes, which alternately means that a failure (by the selected piece of equipment) to perform its required duties would result in unacceptable losses for the company. In turn, Maintenance Management decides if a piece of equipment needs greater attention than the manufacturer specified and where this attention should be focused. MainBoss utilizes these tasks and schedules in the same manner as those specified in section 4.4.

5.0 CONCLUSION

MainBoss was the ideal candidate for the Institute of Ocean Technology in that it doesn't have the cost overhead of more advanced CMMS, it is extremely user friendly which results in quick and easy modifications and improvements to the PM system, and its database structure is not as complicated as that of a CMMS used in a high end manufacturing facility. This means that MainBoss doesn't contain extra tools that cannot be utilized at IOT and therefore reduces the amount of setup and operation time needed for most CMMS.