

Zoltan Vaskó

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PRACTICAL BENEFITS OF LUBRICATION MANAGEMENT SYSTEM

Abstract

Nowadays the importance of equipment maintenance is getting very important. The primary accent is prevention of failures. There are a lot of tools that can help us in our work efficiently. These things can be the following: vibration and thermo analysis, leakage measurement, ferrography and lubricant analysis. We can offer a complex system, which can be a tool for preventive maintenance, on the field of lubricants. This consist of an overall lubrication audit. The main steps are learning the conditions of lubricants and equipment, preparing suggested lubricants range and making proposal for decision. We can support this task with our WearCheck service, preventive maintenance tool based on oil analysis. All collected information can be filled into a Lubrication Management System that can help the work of Maintenance Department (planning, analysis, solving and monitoring) actively.

Fields in co-operation

Application and use of lubricants in the praxis, the management with them and utilization of information from testing of lubricants need to solve logistical, economical, technical and informatics tasks all at once. These tasks are not so easy especially in the case of a huge number of equipment without proper support. In order to expect any improvements from such a complex system need co-ordinated activities of fields mentioned above. We must think over what kind of activities and demands in each field need to be fulfilled and how these are connected with each other and where efficiency improvement can be reached.

- A. Logistics (in this case focused on activities of use of lubricants) have to provide the adequate lubricant, in necessary quantity, in proper quality, on the right place and in time has to be available.

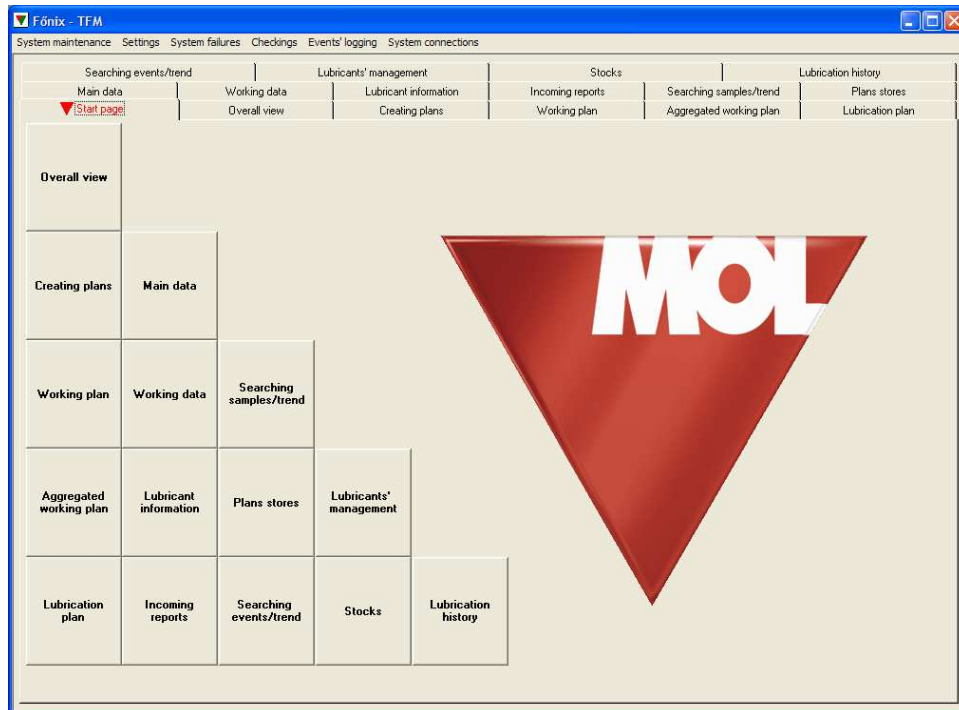
- B. Objective functions of economic field disagree with these logistic principals partially or completely in many cases. Business manager and management of company are engaged to improve continuously financial indicators (profit, financial rate of return, cash flow, etc.) and operating indicators (production rate, stock levels, operation costs), in order to get the company stronger, more stable and competitive on the market. The companies have to comply with some strict regulations including legislations to improve these indicators. The business efficiency can be provided with low level of operation and production costs among the others (higher stock rotation, cutback of inventories, maybe Just-in-Time deliveries, etc.).
- C. The aim of provisions of leaders who are responsible for technical field (maintenance) is to increase efficiency and reliability of operation and decrease of breakdown due to failures. This is not so easy challenge and has to be combined with cost efficiency and re-duction. To find the golden way needs responsible and systematic thinking in the most cases.
- D. Information resources have a strong connection to this systematic thinking. Nowadays one of the most important resources is information in economy. This information means value and assets. It is not enough to have information, but it is needed to manage this information efficiently because success of business operation is getting to depend from this management more and more. The more we have increased number of information the more sophisticated information system we need to clean up and keep order among our information. Due to higher and more efficient use of information the production processes will be productive, the quality and competitiveness will improve as well.

Practical results of co-operation

Due to conformed operation of fields mentioned above the companies will be able to work more efficient in lubricants' management. To this task MOL-LUB Ltd. is in the position to provide these companies a unique system. This renewed system is recommended to those industrial companies who would like to use a complete system to manage information, tasks, scheduling and documents of their lubricants.

Introduction of such a system does not mean that amount of tasks relating to use of lubricants will decrease. The advantages can be observed in another way. The work will significantly be more planned and difficult. Information will not be lost but will be delivered to the appointed colleague at once. The collected systematized information will improve collective knowledge of the company and give more background for the decisions.

The software filled with proper information sends messages about tasks in proper time, stores information of tasks with either performed or not fulfilled. In this way it will be possible to avoid damages caused by filling in improper quality or quantity of lubricants and their cost of prevention will considerably decrease.



Introduction process of lubrication management system

After having a management decision about the introduction of Lubrication Management System in the company, a complex and all-round data collecting process could start. This process covers connections between colleagues, getting to know field experience of equipment, gathering all data of used lubricants. During the introduction phase of this system it identifies the actually used lubricants and rationalizes the number of them and that is a very important task.

There is often and relative easy possibility to reduce the number of used lubricants. It can happen that a company buys products to each equipment from different lubricant producers with the same technical features, of course with different trade names. If we can cancel these redundancies the number of used lubricants can be reduced and the proper stock can be achieved with a lower stock level (i.e. less bounded money). The risk of improper fillings will decrease with reduction of the number of used lubricants.

After data collection methodisation of data can start. We have to put into hierarchical tree-structure the whole plant (including all units, equipment and lubricating points). When this structure is done, we make systematization and verification of lubricants'

specification of each equipment. These specifications in this software consist of two parts:

- *Lubrication data sheet.* Here can be found OEMs' lube requirements of each lubrication point (quality and quantity), and the name of formerly used, the recommended and an alternative lubricant with quantity, of course. The latest one is important if the recommended lubricant is not available.
- *Lubrication plan.* The system can handle 4 types of tasks. These are the followings: service, replacement, sampling, event-driven tasks. A plan contains how often or in which cases a task needs to be arranged at an equipment (e.g. in a gear the OEM's specification is oil change yearly or in every 2,000 work. h.).

The software provides possibility to fix and follow up working hours of equipment to arrange oil changes according to the specified working hours. This is needed for continuously working equipment when calendar intervals can cause either too early or too late execution.

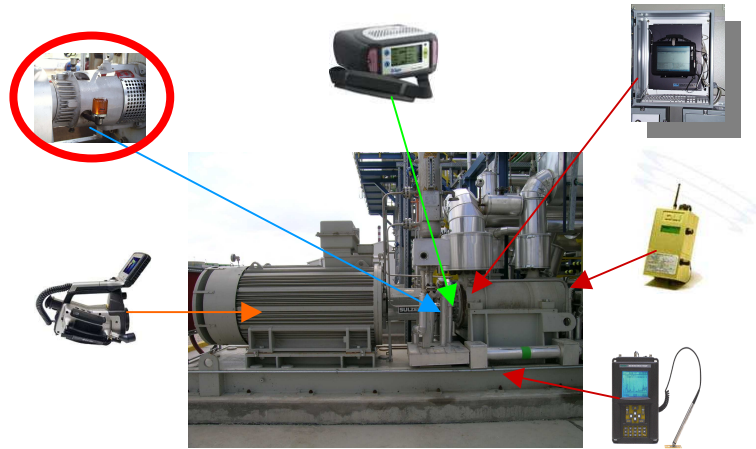
Operation of system

After filling the data into software mentioned above we can install this system. After this the next step is to educate assigned colleagues. The software is able to handle several levels of rights. There is administrator rights level with that all features of software can be available and all required changes can be achieved. But these rights can be limited to writing and/or reading. It depends on for what kind of purpose the colleagues use it.

After installation and education the first working plans can be created by the software. These plans by production units contain all tasks that are needed to be performed with unique identification of each equipment, lubrication points, lubricants and its quantity. These plans can be made manually to an optional interval ahead (in the level of plant or unit or equipment), and automatically (e.g. weekly), as well. These ones are generated automatically by software based on working hours and/or calendar cycles. These tasks are sent to assigned colleagues via e-mail automatically as well but it is possible optionally to build these tasks into Enterprise Management System (like SAP).

We have to know that this system has a weak point. It is necessary to get feedbacks. Without these ones none of any systems are able to transform real status. In lack of feedbacks the generated database will be inadequate so information from this system cannot give us relevant help to make good decisions. This software is connected to accredited used oil diagnosis laboratory (WearCheck) of MOL-LUB Ltd. So results of samples sent to the lab will be visible immediately in this software after their evaluations. If condition of oil is not suitable or any failures of equipment can be determined based on our expert's report this can help to advise colleagues about necessity of actions. Our Lubrication Management System can support efficiently our customers' Enterprise Maintenance Systems. The software allows to run checking queries like lack of lubrication plans, accuracy of starting

data, overriding any tasks of working plans, collecting of failed or unperformed tasks and running data of whole equipment fleet (optional).



Summary

MOL-LUB Ltd. firstly introduced its renewed Lubrication Management System in Refineries of MOL Plc. in Hungary. Experiments are very encouraging.

MOL-LUB Ltd. is ready to survey equipment fleets of our customers and then to install our Lubrication Management System for them. If necessary we can make company-specific changes in our software before installation. After education of our customers' colleagues, Lubrication Management System can provide efficient technical support in a cost-effective way of using lubricants and maintenance based on monitoring of status, and in this case availability of equipment can be increased indirectly with this system. This system allows the prolongation of lifetime of individual equipment due to the adequate lubrication. Less downtime provides increased efficiency of the whole company in order to be more competitive on the market place.

UDK	ključne riječi	key words
62-72	sustav upravljanja podmazivanjem i održavanjem	lubrication and maintenance management system
681.3.065	program za računalo	application computer programe

Author

Zoltan Vaskó, e-mail: zvasko@mol.hu
MOL-LUB Ltd., Almásfüzitő, Hungary

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