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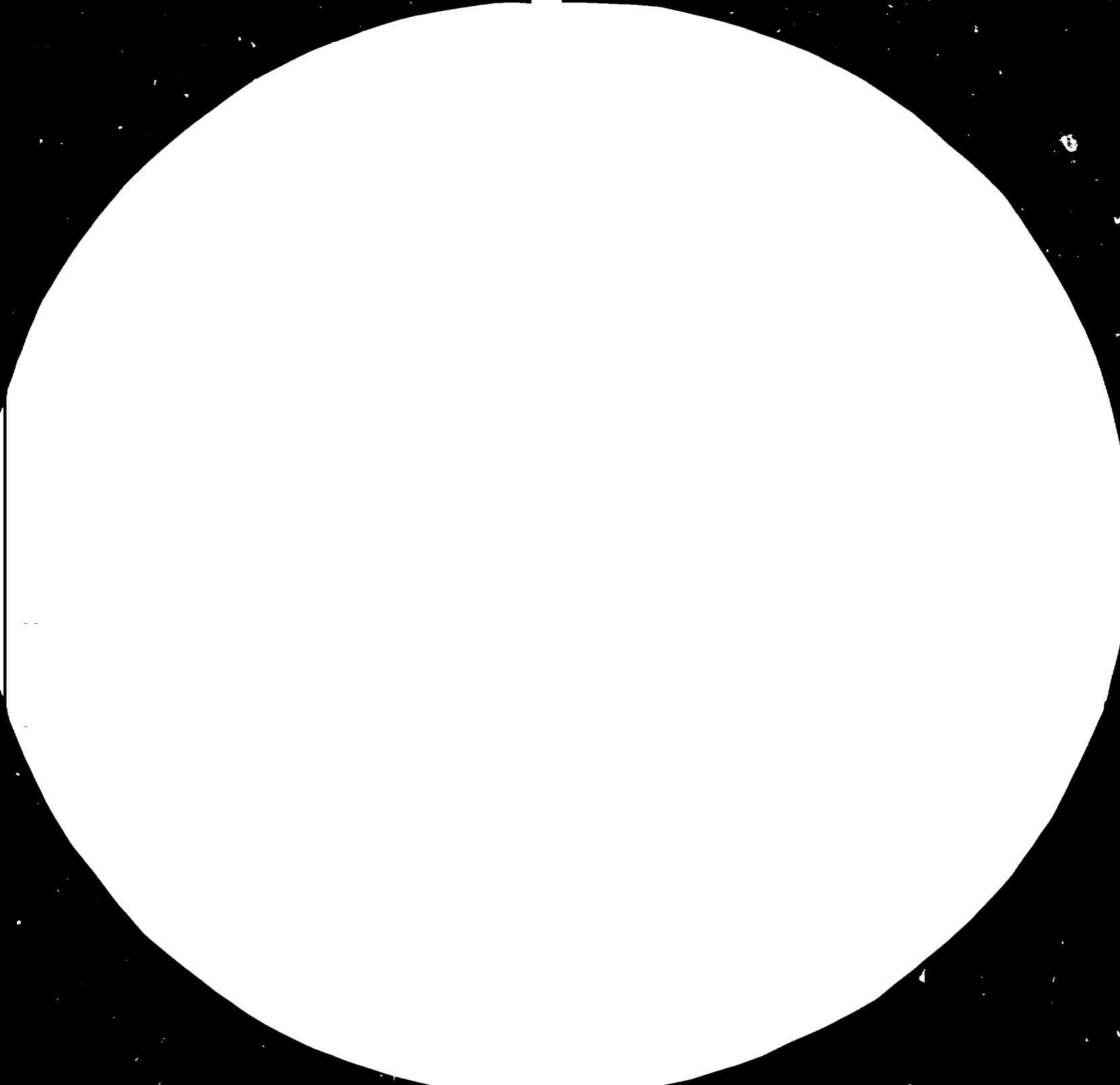
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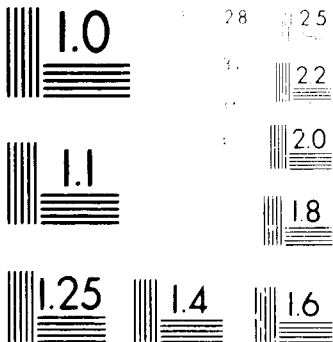
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LIBYAN CEMENT COMPANY, BENGHAZI
TF/LIB/82/002

LIBYA

Technical report: Machine maintenance *

Prepared for the Libyan Cement Company
by the United Nations Industrial Development Organization

Based on the work of Donald W. Jeffries,
expert in paper bag machinery

United Nations Industrial Development Organization
Vienna

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Abstract

Title Machine Maintenance

Number of Project PRU 84 PPRS/APP/NO84-369/MM/EKB

Objective To assist the paper bag factory in planning and executing an appropriate repair and adjustment of the production line.

Duration of the activity 2 weeks, including travel

Main conclusions and recommendations.

Generally the machinery is not well maintained and needs considerable attention over a period of about two years in order to bring it to its optimum efficiency.

It is recommended that an expert be sent to the factory for a period of two years and also that selected local operators and maintenance personnel be sent to a factory in Europe for two to three weeks to gain outside experience.

Introduction

The paper bag factory commenced production in 1975 and was intended to meet the paper bag demands of the whole of the Libyan cement industry. In 1979 the factory machine capacity was increased by the installation of a second line which made it capable of producing in excess of 200,000 bags a day.

It is estimated that the present production is in the region of 80,000 bags a day and this can be attributed to continuous stoppages of the machines for various faults.

Recommendations

1. An expatriate expert in paper bag production be sent to the factory for at least 2 years.
2. Selected personnel from both machine operators and maintenance should be sent on short courses of from two to three weeks to gain outside experience.
3. The machine manufacturers handbooks should be studied thoroughly and the instructions given in them closely followed and diligently carried out.
4. All the machines should be cleaned more frequently and more thoroughly in order to avoid stoppages and malfunctions due to excessive sand and dust.
5. A source be found for the sale of the waste paper either in a baled state or as raw material for another venture.
6. When the new administration building is completed the spare parts stores should be moved from their present position to the factory.

The Libyan Cement Company Sack Plant.

Visit of Donald W. Jeffries - August 1984

The plant consists of two paper sack lines, one being installed in 1975 and one in 1979. Both are fully automatic with one tuber and two bottomers to each line.

It was pointed out that the most urgent immediate problems were on the older of the two lines and it was here that time was spent initially in pointing out faults in the setting of the machines.

Working with the factory staff faults on the printing unit were noted and where possible were rectified others required spare parts and it was suggested that these be ordered especially to make the second printer unit functional. From this second unit parts had been taken to replace broken ones on the first unit.

The tuber reel stands are equipped to allow running splices when reels are changed and these were not being used. The advantages of their use were explained with particular emphasis on saving time when changing reels. Similarly the spreader bars job was explained and the difference it made to sub-standard paper was illustrated.

At the perforating station the number three unit was not working properly and this was dismantled and the fault rectified by the engineer and mechanics. When it was demonstrated that units could be improved by cleaning and lubricating three more units were overhauled by the staff.

The bottomers of the older line were then given attention and the first task performed, together with the operator, was going through the various types of valve which can be made on the machine. It was, however, found that some of the attachments needed to make the valve had not been supplied with the machine in the first place.

The type of valve insert presently in use is known as a cuffed valve having one end turned over to give it additional strength and is especially suited to the three ply paper sack. It was pointed out that the turnover of the paper was at the wrong end of the valve insert and the reason for this is that the valve can only be placed where it is due to complications at the bagging plant where the bags are filled with cement. Considerable thought and discussion was given to this problem, but nothing was finally resolved.

It was then requested that the size of the bottom be changed from 9.5 cms. to 14 cms. and each step of the change over be done in conjunction with the appropriate operator. This involved going back to the perforating station of the tuber and the bar used for the outer ply (No. 1) was set up for a 14 cms. bottom. Unfortunately this used all the spare available cross cutting knife, but even so the remainder of the change over was carried out on the tuber. Proceeding to the bottomer the settings were carried out correctly. Diagonal creasers for the formation of the bag are normally pre-set in the factory of the machine manufacturer and do not need to be altered under any normal conditions. They can be advanced or retarded to various bag widths but this does not interfere with the setting of the creasing bosses. These factory settings had been altered indicating a lack of training of the operators. At the position where the tube was

opened for the initial forming of the bottom it was pointed out how necessary it was to have additional cross cutting at the tuber on both the inner plies of the bag. The proof of this was demonstrated by cutting a bag by hand and folding it to give the properly formed bottom.

Returning to the tuber the changes were made to the inner ply perforators and again the machine made tubes were put through the bottomer and minor adjustments were made to the settings on this machine.

General observations made during the activity included the ineffectiveness of the testing laboratory where none of the equipment seemed to have been used for a considerable time. The compressor room has had ceiling removed and also the electric fans which were originally fitted on the outside wall. The glue mixing room should be kept in a cleaner condition in order to prevent foreign matter getting into the glue storage tanks.

Shortage of time prevented further activity but it was observed that the majority of the factory personnel needed a lot of on the job training.

