Optimization of make ready related time with relation to the job change over time in multi-colour sheet Fed offset presses

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Abstract

Sheet-fed offset is important method which is used in the printing industry. In the sheet-fed offset presses, the time consumes during job change. The makeready operations also effects the job change overtime in the sheet-fed offset presses. Therefore, it becomes very important to find out the various factors influencing the makeready operations. In this research, various factors taken into account and measured/observed on each job day-to-day basis. We have found that few factors are more responsible those influenced makeready process.

Keywords: Sheet-fed offset, makeready, feeding unit, inking unit, plate mounting, dampening solution unit

1. Introduction

All printing processes reproduce lines and dots that form of an image. Sheet-fed offset is most widely used method in the printing industry. The makeready operations is very important in every printing press. In makeready operations includes various operation which generally performed during the production of the job. In makeready operations, we checked/setting the machine's different units. So that, the print production cycle will perform the task smoothly and easily.

There are different steps of makeready process: Load the feeder stack, Set the sheet control system, Set the delivery section, Run the press to confirm setting, Mount the plate, Change the blanket and blanket cylinder packing, Set the impression cylinder, Set the dampening system, Set the inking system, take test prints and prepare for production run.

2. Literature Review

The purpose of makeready is to reduce the downtime in production. Downtime is the time from the primary hardware breakdown to full running production. Obviously if whenever production isn't creating quality prints, benefits are lost. Reducing machine downtime has a moment the useful impact on assembling production effectiveness and yield. Based on platemaking time reduction, ink utilization reduction, and pre-

makeready time reduction fragments issues concerning were dissected and day-by-day reports was gathered with the goal that every single issue is checked and separate altered activities are created.

3. Research Objective

The main objective of this research work is to find out & optimization of the various factors influencing job change overtime in makeready operation in sheet-fed printing press.

4. Research Methodology

The whole research work is job-to-job basis. Makeready operations are followed. The main factors of makeready are feeding unit setting, dampening unit setting, ink unit setting, plate mounting, blanket cleaning, plate cleaning and check registration etc. We prepared a check list of makeready operations listed above.

5. Data Collection & Analysis

The data collection is main part of the research. The whole research is carried out at "Dora Offset Printers, Hisar". The data collection is based on day-to-day observations. The data is collected with the keen observations and with the help of company members/workers.

5.1. Makeready

Makeready is most important in every printing process. In makeready operations includes various operation which performed on the press i.e. feeding unit setting, dampening unit setting, proper color registration, inking unit setting, blanket cleaning, plate mounting etc.

Makeready Time Consumption (Min.)									
M.O	Feeding Unit Setting	Dampening Unit Setting	Ink Unit Setting	Plate Mount	Blanket Cleaning	Plate Cleaning	Check Registration	Plate Remove	Other Setting
Avg.	5.36	2.21	3.27	3.69	5.60	2.31	6.09	1.45	0.73

M.O = Makeready Operations

5.2. Data Analysis

The date obtained in 121 jobs was analyzed using various statistical tools and techniques as shown suitable chart.

5.2.1. Makeready Time Consumption

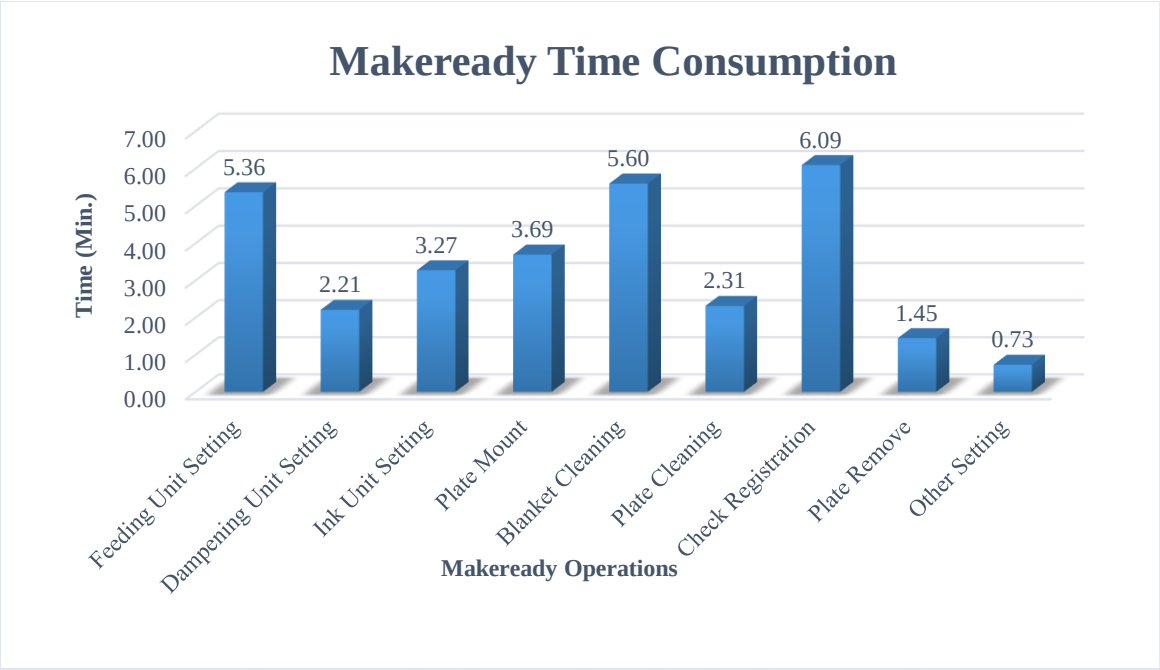

Chart 1. Makeready Time Consumption

6. Result & Discussion

Operations like feeding unit setting, dampening unit setting, ink unit setting, plate mount, blanket cleaning, registration checking, plate remove and other setting is very in the makeready operations. The chart 1 clearly shows that the makeready operation job change overtime consumption. According to this chart, the maximum average time is consumed by registration process. The registration check average time is 6.09 min per job change followed by blanket cleaning (avg. 5.60 min) and feeding unit setting (avg. 5.36 min). The minimum time is consumed by other setting. The other setting average time consumption is 0.73 minute per job change. The dampening unit setting average time consumption is 2.21 min per job change, the ink unit setting average time consumption is 3.27 min per job change, the plate mount average time consumption is 3.69 min per job change, the plate cleaning process average time consumption is 2.31 min per job change and the plate removing process average time consumption is 1.45 min per job change.

7. Conclusion

The above study clearly shown that the registration checking process consumes the maximum time followed by feeding unit setting and blanket cleaning. Although, registration checking process is the important process of a printing press. Therefore, due care & attention is required of checking the registration. To meet the customer satisfaction enough time must be given to be perform the checking of registration. Due to this, the time consumption in makeready operation will increase. To manage this time, a printer may increase the skilled manpower and utilize them for maintain output.

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