ABSTRACT

PT XYZ *are one of many industries that mainly focusing on textile production*. The Jet-Dyeing *machine are one of many machines that operates in* PT XYZ. *The Jet-Dyeing machine carry a quite important role in* PT XYZ *production process which used for dyeing purposes, i.e. coloring woven fabrics. The Jet-Dyeing machine if seen from the perspective of its total production data, it is known that the* Jet-Dyeing *machine total production from June – August* 2016 *doesn't meet the production target of that month*. *This happens due to high amount of downtime frequency and duration of* all 17 Jet-Dyeing *machine, with the* K Jet-Dyeing *machine as the object of study with the longest downtime duration which amount to 256 hours and the third highest downtime frequency which amount to 125 times. Any failure received by the* Jet-Dyeing *will affect its spare parts, therefore, determining the appropriate amount of spare part needed are very important to bolster* PT XYZ *productivity. This study are done based several methods like* RCS *(Reliability Centered Spares) to determine the spare part needs and modified* EOQ *(Economic Order Quantity) to determine re-order point and actual purchasing of the spare part. This study focused on critical system and sub-system of the* Jet-Dyeing *machine based on how many failures happened which processed using* RPN *(Risk Priority Number) analysis to determine the critical sub-system based on the amount of risk it holds. After completing the calculation using* RCS, *the amount of spare parts needed for circulation pump sub-system amount to 34 units for pumps motor, 10 units for pumps bearing, 141 units for pumps packing, and 26 units for pumps mechanical seal. There's also for other critical sub-system, which includes valve, driving reel, nozzle valve, and heat exchanger. The spare parts needed for these critical sub-systems amount to 134 units for valve teflon, 469 units for valve packing, 45 units for driving reel bearing, 163 units for driving reel mechanical seal, 34 units for driving reel motor, 34 units for nozzle valve pressure setting, 29 units for heat exchanger site glass, and 70 units for heat exchanger packing. The comparison result between* RCS *and modified* EOQ *was that modified* EOQ *results are usable for sub-system that possess another identical sub-system within the system*. *With the implementation of the proposed spare part needs,* PT XYZ *are hoped to take it into consideration for determining the* Jet-Dyeing *machine spare part needs*.

Keywords: *Reliability Centered Spares, Economic Order Quantity, RPN, Jet-Dyeing Machine*