

ABSTRACT

PT. Dirgantara Indonesia is a company that focus on aircraft manufacture. One of production in PT. DI is Machining, Medium Persimatic Machine (MPM) that has the most number of machines and receives the most number of orders than other especially for Airbus program. In MPM especially Main operation has bottleneck of part work in process. The cause is it has the longest processing time than others especially in Deckel Maho work center because it has the biggest processing load of order. Bottleneck does not happen because Deckel Maho capacity can not fulfill order completion but because operations before Deckel Maho work based on its utility so orders are released to shop floor without checking Deckel Maho's load. Bottleneck causes the increase of queue time that makes manufacturing lead time become longer. Beside that, the problem of order completion lateness is also happened in MPM because sequencing rule that used is First Come First Served. This rule does not consider latest finish date in Quality Control and total time in processing part at shop floor.

In order to reach the goal of timely completion and minimizing of MLT, so proposed scheduling with drum buffer rope approach that schedule constraint (bottleneck station) as control point Deckel Maho and then others non bottleneck resource follow Deckel Maho schedule. Buffer time as 10% can help to keep constraint from idle in work center Deckel Maho. Based on that lateness problem, rule Earliest Due date is appropriate as first priority because it can minimize the number of lateness problem. If there are orders with same due date in Quality Control then consider the smallest total time in Deckel Maho with rule Shortest Processing Time as second priority to minimize flow time. If there are orders with same total time in Deckel Maho then choose order randomly. The average of MLT in actual condition is 47,66 hours and queue time before Deckel Maho is 24,47 hours. After using drum buffer rope scheduling, the average of MLT becomes 20,39 hours and queue time becomes 2,71 hours. In actual condition, orders in February with rule sequencing FCFS are 5 orders but with rule sequencing EDD, SPT and random there are no lateness orders.

Keywords : Drum buffer rope, sequencing, manufacturing lead time, Priority Dispatching Rules