Maintenance Data History:

The raw material warehouse includes the following machine types and process flows. M0001 is CNC Milling, M0002 is CNC Lathing, M0003 is Shot Peening, M0004 is Metrology Measurement or CMM and M0005 is EDM. There are three machines/lines for EDM, CNC Milling, and Shot Peening, and two machines/lines for CNC Lathing and CMM.

The Overall Equipment Effectiveness (OEE) percentages, excluding non-idle time losses, for the machines are as follows. M0005 (EDM) has 89%, M0002 (CNC Lathing) has 83%, M0001 (CNC Milling) has 83%, M0003 (Shot Peening) has 88%, and M0004 (CMM) has 85%.

The percentages for unplanned work orders for the machines are as follows. M0005 (EDM) has 30%, M0002 (CNC Lathing) has 40%, M0001 (CNC Milling) has 50%, M0003 (Shot Peening) has 40%, and M0004 (CMM) has 30%.

The annual maintenance cost per line in thousand CAD is as follows. M0005 (EDM) costs 15 k CAD, M0002 (CNC Lathing) costs 20 k CAD, M0001 (CNC Milling) costs 65 k CAD, M0003 (Shot Peening) costs 35 k CAD, and M0004 (CMM) costs 21 k CAD.

The percentages for planned work orders for the machines are as follows. M0005 (EDM) has 21%, M0002 (CNC Lathing) has 14%, M0001 (CNC Milling) has 25%, M0003 (Shot Peening) has 20%, and M0004 (CMM) has 21%.

The cycle time per part in minutes for the machines are as follows. M0005 (EDM) has 8 minutes, M0002 (CNC Lathing) has 8 minutes, M0001 (CNC Milling) has 10 minutes, M0003 (Shot Peening) has 8 minutes, and M0004 (CMM) has 8 minutes.

The bottleneck index, which is the cycle time divided by the product of OEE and the number of machines, for the machines are as follows. M0005 (EDM) has an index of 70, M0002 (CNC Lathing) has an index of 60, M0001 (CNC Milling) has an index of 50, M0003 (Shot Peening) has an index of 60, and M0004 (CMM) has an index of 70.