TECHNICAL AND ECONOMICAL ANALYSIS ON THE IMPLEMENTATION OF ROBOTS IN THE MANUFACTURING PROCESS

Ana PANA[1], Professor coordinator: Dana TILINA[2]

Rezumat. *Acest articol prezintă o analiză realizată în interiorul unei linii de fabricație privind evoluția unor indicatori (la nivel de Departament Cutii Viteze - randament operațional, ppm, FIP OC) datorită introducerii roboților industriali (ABB) pe linia de fabricație Pinioane Fixe. Mai mult, este esențial pentru linia de fabricație să fie schimbată datorită creşterii capacitare (la momentul de față se realizează 10000 de pinioane pe săptămână, iar la creşterea capacitară se va ajunge la 12000 de pinioane pe săptămână). De asemenea, pe această linie există probleme de securitate: cantitatea de ulei existentă pe sol este mare şi operatorii sunt în mare pericol. Pentru aceasta, se vor propune diferite tipuri de exemple pentru a avea un bun nivel de măsurare al indicatorului 5 S.*

Abstract. *This article presents an analysis realized inside a manufacturing line: it refers to the evolution of certain indicators (at the level of the Gearboxes Department – operational efficiency, ppm, FIP OC) by introducing industrial robots(ABB) in the line of Fix Gears manufacture. Furthermore, it is essential for the manufacturing line to be changed because the capacity will increase (now they are making 10,000 gearboxes per week and at the increase moment the capacity will be of 12,000 gearboxes per week). Also, in this Manufacturing line there are security problems: the amount of oil is high on the ground and the operators are in great danger. For that reason, different kinds of examples for having a great score in the measurement of the 5 S indicator will be proposed.*

Keywords: operational efficiency, robots, gears, costs.

1. Quick Presentation of Renault Mechanical Romania

Renault Mechanical Romania, situated on the industrial platform of Mioveni as a component of Mechanical and Chassy Dacia Factory, produces gearboxes for Renault – Nissan Alliance. They are used in the Renault factories in France (Maubeuge, Douai, Sandouville), Japan (Oppama) and Turkey (Oyak) [14].

The TL4 gearbox produced at Renault Mechanical Romania is the first conceived and used in common by the Renault Nissan Alliance. It is a manually produced

[1] Student, Faculty of Engineering and Management of Technological Systems, Politehnica University of Bucharest.
[2] Ass. Prof. PhD. Eng., Faculty of Engineering and Management of Technological Systems, Politehnica University of Bucharest, Romania (e-mail: dana.tilina@upb.ro).