

ABSTRACT

PT XYZ is a manufacturing company that produces seats, upholstery components, interior components, and engine unit components for cars. One type of car seat component produced by PT XYZ is the Leg Assy RR1 Model D2XX. Leg Assy RR1 Model D2XX is part of the leg of the MPV (multi purpose vehicle) car seat. The company's production data for the period October 2021 to July 2022 shows that there are defective products consisting of 13 types of defects. The percentage of defective products each period exceeds the tolerance limit set by the company, which is 3%. There are six processes in the production of Leg Assy RR1 Model D2XX, namely receiving, welding, painting, assembly, final inspection, and packing. Defects that can occur are caused by the CTQ (critical to quality) process that is not fulfilled. The assembly process is the process with the highest number of defects. One of the CTQ processes that is not fulfilled is the leg sub assy parts collide with each other when moved with the trolley caused by human factors, namely the operator placing the parts close to each other because there is no tool to separate parts and equipment factors, namely there is no bulkhead or separator between parts on trolley. This final project will improve the assembly process by designing a trolley used in the assembly process. The design of the trolley was chosen because it can overcome the problem of the human factor, namely the operator placing the parts close to each other because there is no tool to separate the parts and the equipment factor, namely there is no bulkhead or separator between parts on the trolley.

Problem solving is done using the DMAI method (define, measure, analyze, improve). The define stage consists of identification of production data, product CTQ, production process flow and process CTQ to define the scope of research and obtain information where the problem occurs. The measure stage consists of measuring process performance by calculating process stability and capability to determine the current process performance. The analyze stage consists of an analysis to find out the causes of the unfulfilled CTQ process using a fishbone diagram and 5 whys. The selection of alternative solutions for improvement is done by choosing alternative solutions that can solve the root cause of the human factor and other factors based on the analysis that has been done. The improve

stage consists of designing the selected alternative solutions in order to solve the existing problems. The design of the proposed product uses the quality function deployment (QFD) method which consists of the needs identification stage, determining product technical requirements, determining product specification targets, making a client grid matrix, making a planning matrix, describing the relationship between need statements and technical requirements, describing the relationship between technical requirements. , making a house of quality, concept design, concept selection, and determining the final specifications of the designs made.

The proposed trolley design has dimensions of length 100 cm, width 51 cm, height 135 cm, and handle height 91 cm. The trolley has a capacity of 30 units and has separator on each part support or a place for placing parts to separate parts from one another and to avoid collisions or friction between parts.

The results of this proposed trolley design are expected to help reduce the number of product defects in the Leg Assy RR1 Model D2XX product and increase the sigma level value from 3.255 sigma to 3.55 sigma with the assumption that the proposed product design has been implemented and the paint scratch defect type has disappeared completely.

Keywords: DMAI, Defect, CTQ, QFD