

# Debugging Operation of Automated Assembly Line using Signal Noise Ratio

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## Abstract

Various breakdowns occur in the first stage of operation in an automatic machine and the plant newly introduced. A lot of defective goods are produced along with it. For this reason, the installed equipment must perform the debugging operation for a certain period of time before production. And, after the failure rate is reduced, it is necessary to shift to this operation. When transferred to the production with a high failure rate stage, adjustment work is increased by machine trouble occurs. Then, it becomes possible to produce a defective product. Therefore, the debugging operation is ended when reaching the failure rate of the target. And, it shifts to this operation. We led the formula that calculated the failure rate of the target that the total of the adjustment work cost and the debugging work cost is minimized. However, it is necessary to collect a lot of data for the measurement of the failure rate. Therefore, it is impossible that the worker decides the failure rate of the target while doing the adjustment work in the shop floor. This paper shows the method of evaluating the performance of the machine with a small number of data, while performing the adjustment operation. It proposes the method to evaluate from small number of data used by the adjustment work by Dr. Taguchi's signal noise ratio method and omega ( $\Omega$ ) conversion method. As a result, it can be calculated evaluation index, which corresponds to the machine failure rate by the decibels from a small number of data. Then, this paper show that can determine the target failure rate of the machine in SN ratio instead of the failure rate.