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Production Control in Manufacturing Companies Engaged in Repetitive Production of a Broad Product Line

—Cases, Their Analyses and a Technical Note—

Keinosuke ONO*

This thesis consists of three parts, namely, (I) cases, (II) analyses of the cases, and (III) a technical note.

This thesis attempts to explore the general function of production control and to clarify some of the main problems that confront the current production control activities in manufacturing companies that are engaged in the repetitive production of a very wide range of product line. A parts-manufacturer is a good example of such a company.

There are three cases in Part I. The cases illustrate the actual production control situations observed in an electrical parts manufacturer of medium sized (1,000 employees).

Part II shows the analyses of the cases illustrated. Here the main emphasis is placed on the analysis of the following problems :

Case 1 : One of the factors that are often neglected in production control is the element of time needed for the planning. This case shows that it is possible to shorten planning period in many cases.

Case 2 : Problems of adjusting extra capacity or overload often arise from such causes as ; inadequate index used to compare load and capacity, incorrect timing of production schedule especially when production cycle is fairly long, changes in production planning, and inaccurate time standards.

Case 3 : Most of such companies are troubled with two common problems of missing delivery dates and holding too much inventory. But these two problems are not independent of each other. They are the results of many correlated problems caused mainly by the variety and complexity of products and manufacturing processes, order changes on specifications, lot sizes and delivery dates, lack of the capacity of subcontract factories and poor production control activities. Thus we must settle two problems concurrently in relation to the problems cited above.

Part III is the technical note for Part I and Part II.

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In Chapter One, the concept of production control is presented by proposing two main ideas.

(1) Production control activity is a system composed of seven component parts; goals, objectives, external information, internal information, standardized information, processer and instruction.

(2) We can consider production activity as the transformation of materials into products through production constitutions (composed of facilities, labor techniques and power). Any demand for a product calls for function or quality, a volume, a delivery date and a price.

The function of production control is to achieve the objectives on volume and delivery date by planning and controlling the flow of materials through production constitutions at proper volume and timing.

In Chapter Two and the followings, some of typical scheduling or dispatching methods are described and appraised on practicability under current conditions of seven components of production control system.

Lastly several ideas on executing production control activity is proposed.