

worker produces an average of 25 pumps in any given month. There are currently 20 workers in the medium-size pump area.

1. Using the data, develop a level production plan. How much extra cost (inventory and HR costs) are involved in this plan? What additional costs (both financial and nonfinancial) might be involved with such a plan?
2. Using the data, develop a chase production plan. How much extra cost (inventory and HR costs) are involved in this plan? What additional costs (both financial and nonfinancial) might be involved with such a plan?
3. Try to develop a possible hybrid plan that would accomplish the task with smaller total costs than either level or chase.
4. Based on your work, what would you recommend and why? What are some of the pros and cons of the solution you recommend?

MASTER SCHEDULING

INTRODUCTION

After production planning, the next step in the manufacturing planning and control process is to prepare a **master production schedule (MPS)**. This chapter examines some basic considerations in making and managing an MPS. It is an extremely important planning tool and forms the basis for communication between sales and manufacturing. The MPS is a vital link in the production planning system.

- It forms the link between production planning and what manufacturing will actually build.
- It forms the basis for calculating the capacity and resources needed.
- It drives the material requirements plan. As a schedule of items to be built, the MPS and bills of material determine what components are needed from manufacturing and purchasing.
- It keeps priorities valid. The MPS is a priority plan for manufacturing.

Whereas the production plan deals in families of products, the MPS works with end items. It breaks down the production plan into the requirements for individual end items, in each family, by date and quantity. The production plan limits the MPS. Therefore the total of the items in the MPS should not be different from the total shown on the production plan. For example, if the production plan shows a planned production of 1000 tricycles in a particular week, the total of the individual models planned for by the MPS should be 1000. Within this limit, its objective is to balance the demand (priorities) set by the marketplace with the availability of materials, labor, and equipment (capacity) of manufacturing.

The end items made by the company are assembled from component and subcomponent parts. These must be available in the right quantities at the right time to support the master production schedule. The material requirements planning system plans the schedule for these components based on the needs of the MPS. Thus the MPS drives the material requirements plan.

The MPS is a plan for manufacturing. It reflects the needs of the marketplace and the capacity of manufacturing and forms a priority plan for manufacturing to follow.

The MPS forms a vital link between sales and production:

- It makes possible valid order promises. The MPS is a plan of what is to be produced and when. As such, it tells sales and manufacturing when goods will be available for delivery.
- It is a contract between marketing and manufacturing. It is an agreed-upon plan.

The MPS forms a basis for sales and production to determine what is to be manufactured. It is not meant to be rigid. It is a device for communication and a basis to make changes that are consistent with the demands of the marketplace and the capacity of manufacturing.

The information needed to develop an MPS is provided by

- The production plan.
- Forecasts for individual end items.