Management Adviser

Volume 8 | Number 5 Article 1

9-1971

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MANAGEMENT ADVISORY SERVICES FORUM

Gentlemen:

As a production planner/scheduler, I am faced with a vexing problem—how to reduce my company's in-process and finished goods inventory, while maximizing labor and machine utilization during our peak selling season. Our product line is electric meter sockets, and the current scheduling procedure is to produce a weekly production schedule regardless of what is or is not completed from previous schedules. The result is an outstanding overlay of approximately 12 schedules, which creates artificial demands on the in-process inventory, consequently, inflating it.

I would like to compress the 12-schedule overlay to one schedule by applying the maximum resources available to solving the daily and weekly production problems. How may I do this in the face of some hostility to change from management personnel, and without adversely affecting customer demands in our peak season?

The reply, received from one of the national firms on our panel:

The problem of reducing in-process and finished goods inventory, while maximizing labor and machine utilization and providing desirable customer delivery service levels, can be among the most difficult operating problems facing management. The peak season always brings the problem to a head since this is the period when customer delivery service falls off and

it is then that the matter is called to the attention of management by the customers if not from within the company. Management often takes action similar to what you describe in an attempt to satisfy the customers regardless of the disruptions and costs in manufacturing. Present state-of-the-art in production scheduling taking into account all the economic and priority factors simultaneously to obtain a balanced optimum solution is very complex and applies only under certain prescribed conditions which your operations may or may not satisfy.

Fortunately, however, there are several very practicable steps that can, at least, alleviate the problems concerning you. As you are surely aware, a good production schedule is dependent upon realistic measurement and recognition of production capabilities and work-in-process inventory status and reasonably reliable demand forecasts. Further, timely and comprehensive feedback on changes in demand and actual production on the shop floor enhance flexibility in scheduling to cover demand at lowest cost. Recognizing the difficulties you mention, we make the following suggestions, some preferred and some that are "just the best under the circumstances," hoping that you may find one or more helpful for both temporary relief and long-term progress.

Suggestion 1. Review actual production accomplished during recent periods and evaluate production capacity standards. Thereafter, only schedule quantities that can actually be completed during each week. To preclude concern with the possibility of completion ahead of schedule, overlap material availability for next schedule period.

Suggestion 2. If you cannot take advantage of Suggestion 1, and must stay with present over-scheduling, set up close control of the release of material to production so that it ties in with the actual completion rate and all units started are actually completed. Then, even though your schedule may show open balances, unnecessary labor will not have been invested and the floor will be clear, facilitating the production of the next items sooner. The production planning and scheduling function will be greatly simplified, because the outstanding overlay of schedules will represent unstarted production the same as any other new schedule quantities.

Suggestion 3. If you cannot effect Suggestion 1 or 2, you may be able to help the immediate situation and bring focus on the magnitude of the problem by physical segregation and control. Set up a special area in stores or other available space out of the path of production work to line up the unfinished work in process from previous periods. Sometimes physical identification by schedule period is very effective to get a point across in addition to the aggregate. Full realization of the magnitude may be your breakthrough with management. In the meantime, production can proceed more efficiently without the obstruction of the unfinished material from old schedules and you can also control which is to be cleaned up first instead of having it completely up to the shop. This approach may also be useful in conjunction with Suggestions 1 and 2.

Suggestion 4. If you cannot carry out Suggestion 3, try the same thing on paper, identifying the space and dollar investment and other unnecessary costs in total and by time period, proposing Suggestion 1 or 2 to correct the situation.

Suggestion 5. If you are not successful with Suggestions 1, 2, 3, or 4, take this approach to preclude any worsening of the situation. Maintain close and accurate readings of the actual material status from schedule overlays and incorporate them into the next schedule for the same item, preferably as *part* of the normal schedule quantity, rather than an additional amount. In this way, you may always have some residue work in process, but it won't be continuously building up.

Suggestion 6. The foregoing suggestions, quite obviously, are aimed at resolving the physical problems creating unnecessary inventory and production costs. Regardless of your success using these approaches, an estimate of the individual and aggregate costs, no matter how approximate, may prove very useful. If the cost differential, i.e., producing weekly production schedule quantities as you now do vs. significantly larger or smaller quantities, is nominal, then you would want to concentrate your efforts on the physical problems as in Suggestions 1 through 5. If, on the other hand, there is significant money going down the drain, you would have the facts in terms management would appreciate to, first, experiment with different possible plans and schedules to find the best and, second, to prepare a convincing package that management might find difficult to reject. But make sure your presentation is complete and be prepared for questions and criticisms. Develop an overall plan of action; describe the improvements and benefits in production costs, inventory investment, customer service, and, perhaps most important of all, how convenient and useful it will be to sales and other members of the management team.