THE LOWLY VOUCHER--DATED AND UPDATED

The voucher is one of the documents most important to the successful operation of a manufacturing plant. But in spite of the fact that it serves as the key communication link between planning, production control and accounting, no one seems to pay very much attention to designing it for overall efficiency. This failure to coordinate the voucher with effective manufacturing control practices is often the stumbling block preventing data processing mechanization.

The worst error in voucher design is in putting elaborate operation instructions on a document whose purpose is basically statistical. The voucher data naturally separates itself into these two areas:

1. Factual, statistical information describing quantity, job number, drawing number, operation number, piece rate and set-up, station and date.

2. Descriptive or pictorial data showing what operations must be done and delineating in words how they are to be performed.

Let's plan to take advantage of this difference in data when we provide the operator with his paperwork. For instance, a copy of a blueprint and a planning sheet will cover the operation description and give a pictorial representation of the process he is to perform. The voucher, then, just has to give him the factual data which is needed for production control, inspection, cost accounting, etc.

Planning The System

Processing the statistical data on punched card machines can often result in minimum operating costs yet maximum system control. To do this most efficiently, effective reference files must be established. By combining the order card and planning card files, all the data needed, both for material requirements determination and factory paperwork preparation, is in one location ready to be used either for purchase or factory orders.

While the voucher descriptive data is not readily handled on punched cards or computers, there are various duplicating processes (Ozalid, Bruning, Verifax) which can make copies quickly and inexpensively. One effective way to do this is by maintaining a tracing file where all master blueprints and planning sheets are kept.

Translating These Plans To Action

The specific system adopted should be designed around the individual department's problems and needs; but in all departments, extensive clarification and standardization must precede the actual system installation. This will cover drawing numbers, station identification, raw materials, operator pay numbers, etc.

Then, a master blueprint and master planning file will have to be set up from existing documents, though, on a going basis, the data should be prepared directly on the proper type of forms. There would be some side benefits from this phase through file condensation, elimination of obsolete prints and planning sheets and through having set up a method whereby up-to-date engineering and planning change information would go out as a matter of course rather than through a difficult follow-up procedure.

With the master files established, certain specific operating problems will have to be solved. These include:

- When to make the voucher.
- How to enter the operator's pay number and validated quantity.
- The method of communication between voucher making, dispatching and payroll.
- The need for the usual follow-up and expediting.

An Actual Case

To illustrate how these principles can be used in designing an effective, inexpensive system, we have summarized below the voucher phase of the mechanized production plan in use at Light Military Electronic Equipment's Utica plant.

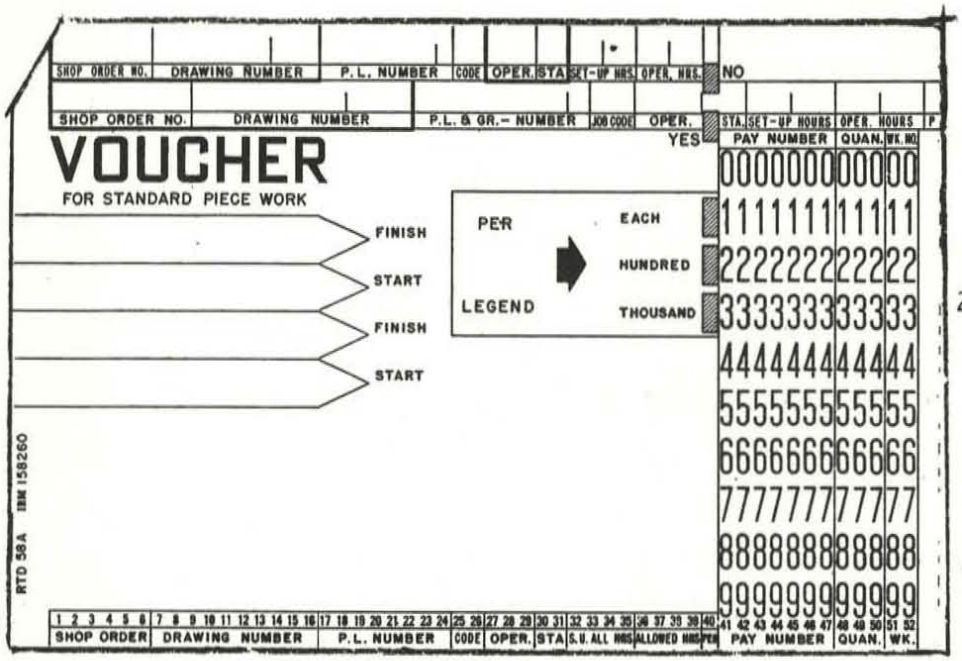
After the Fab Sheet and Operation Cards (punched) are prepared by Ordering, they are forwarded to PAPERMAKING. This group has the Planning Card File, two Verifax machines, two IBM key punches, an interpreter and a reproducer. The necessary planning cards are duplicated (3-5 copies on Verifax) to make Process Sheets (drawing number, raw material data and operation planning information).

From one copy of the process sheet a labor record card is key punched for each operation including operation number, job code, work station, piece price and set-up charge. This master is then hand collated with a blank voucher, job record card and the various other punched card documents needed. The information from the labor record card is then gang-punched (automatically reproduced) onto the other documents which are finally interpreted so that they can be proofread against the Process Sheet.

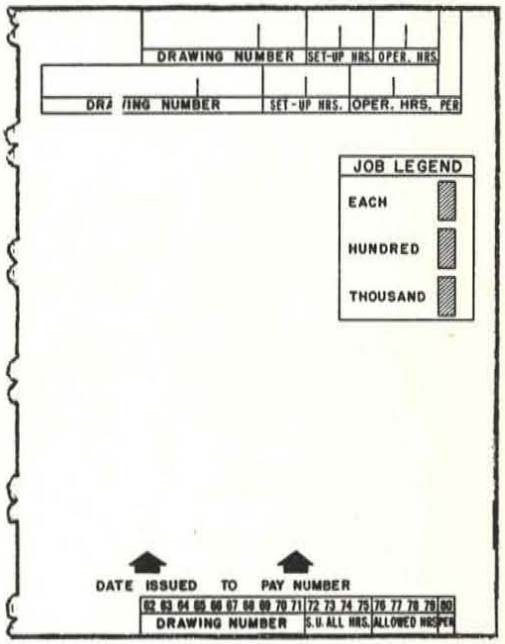
The complete paperwork book is forwarded to Production Control and then dead-load filed.

When the material is available, the paperwork book is sent to DISPATCHING. At each dispatching station there is a manual IBM key punch and each group of four adjacent stations shares the use of a duplicating printing punch.

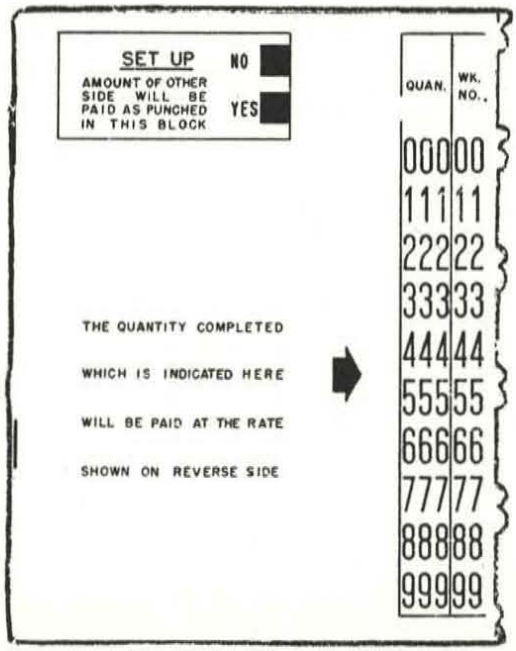
1. Here is the voucher form which is used.



2. This is the tear off stub for the operator's record.



3. Here is the reverse side of the tear off stub.



For each operation the dispatcher writes the date and the operator's check number on the voucher and job record card. He then puts the voucher in the operator's "slot" on the dispatch board and gives the operator the job record card, the process sheet, and the blueprint. After the operator completes the necessary work, he returns the job record card to the dispatcher, who pulls the voucher from the operator's "slot", folds the stub portion back, and key punches on both the voucher and stub the quantity made, the set-up (yes or no), pay number and date (week number). The voucher stub is given to the operator as his receipt which leaves a 51 column card for payroll use. When "come-back", balance or second shift multiple vouchers are required, the dispatcher prepares them on the duplicating printing punch, using the original voucher as a master.

Summary

The following principles are recommended for planning a voucher system:

- Establish separate processes for statistical and descriptive data.
- Use a mechanized approach for statistical data.
- Use low-cost reproducing equipment for blueprints and planning sheets.
- Streamline present identification techniques.
- Consolidate master files.
- Design the voucher system as an integrated entity considering its impact on all functions of the business.

This integrated voucher approach is designed especially for the job shop or semi-job shop where often it seems that "paper is our most important product". This can serve as a tremendous initial step justifying the introduction of punched card equipment and providing a firm foundation for later data processing installations.

Burton Grad
Specialist--Production Control Services
8/2/55