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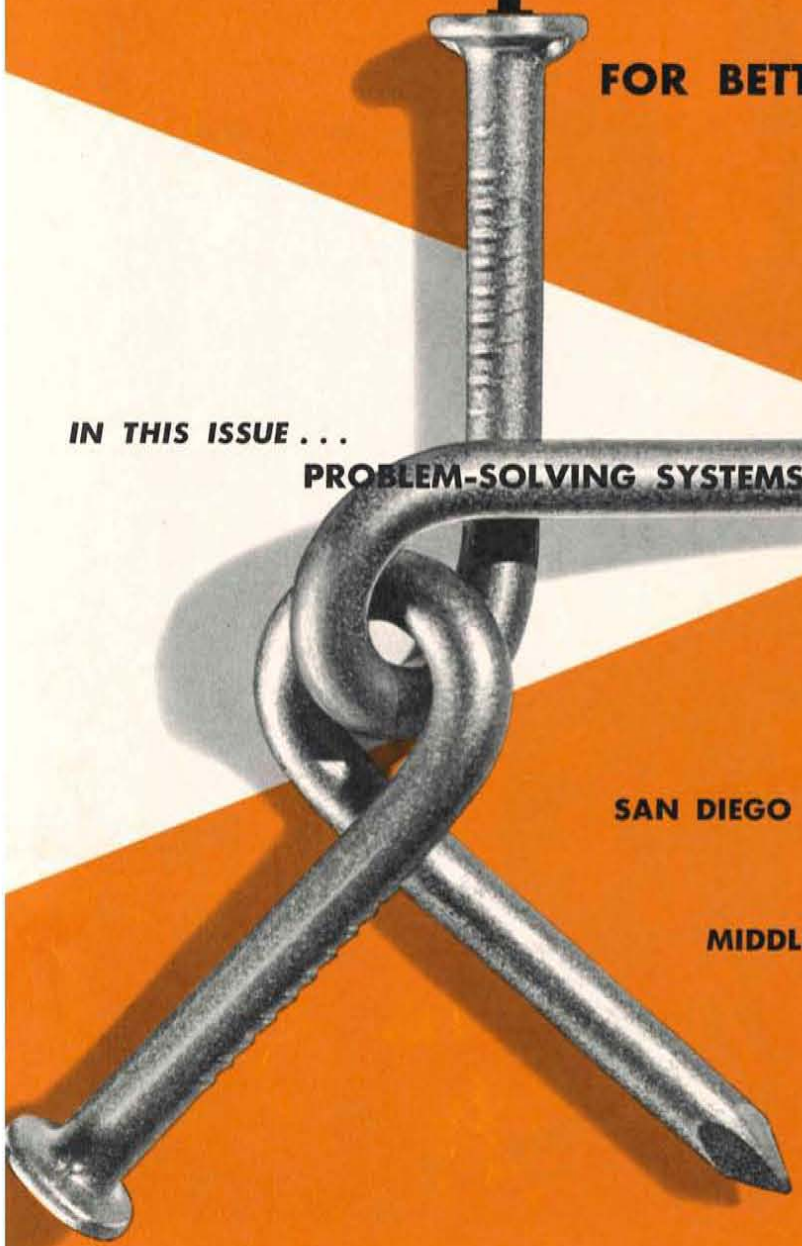
Paperwork Simplification

FOR BETTER MANAGEMENT CONTROL



IN THIS ISSUE . . .

PROBLEM-SOLVING SYSTEMS AT—

GENERAL ELECTRIC APPARATUS

THE MERRYWELL CORPORATION

ROTARY ELECTRIC STEEL COMPANY

WORCESTER COUNTY TRUST COMPANY

SAN DIEGO JANITOR & CHEMICAL SUPPLY COMPANY

MIDDLE ATLANTIC TRANSPORTATION COMPANY

BUSINESS FORMS and business clothes have one important thing in common: when it's time to "measure-up" for the reorder one may discover certain basic changes have become necessary.

The tailor who knows most about construction features of business forms* and how to make them fit your needs is your Standard Register representative. Ask him to show you what can be accomplished with special construction features, a few of which are listed below.

HOW TO TAILOR A BUSINESS FORM

DUPLICATING. A master (any kind) in a forms set, provides for unlimited extra copies.

STURDY STOCKS. Create tags, job tickets, ledger cards, etc. in one-shot writing of records.

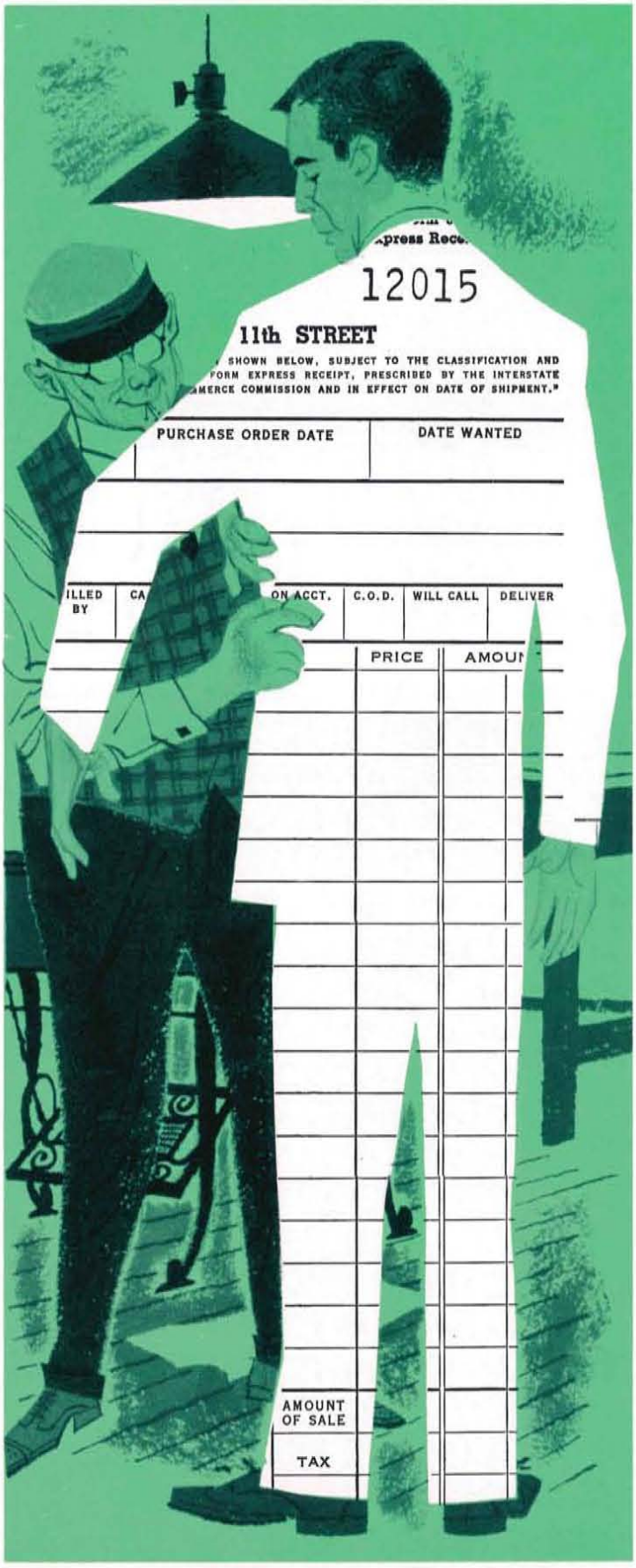
"SELECTIVE" FORMS. Techniques with carbon, etc. eliminate any portion of record data from any copy as desired.

TWO-STEP RECORDS. For a secondary writing, parts of form are held intact as a unit.

COPY UTILITY. Any part or parts can be perforated, punched, slit or glued to serve special needs.

DOUBLE VALUE. Back printing may double a copy's life (posting), reduce form size, add to utility.

**Kant-Slip* continuous forms or *Zipset*



Standard Register
BUSINESS FORMS
Paperwork Simplification

THE STANDARD REGISTER CO., DAYTON 1, OHIO
PACIFIC DIVISION, OAKLAND 6, CALIF.
Sales and Service Offices in Principal Cities
Plants at Dayton; Oakland and Glendale, Calif. and York, Pa.

Associates: R. L. Crain Limited, Ottawa, Ontario, Canada • W. H. Smith & Son (Alacra) Ltd., London, England • Gemah Formas Continuas, Caracas, Venezuela • Impresora Ariel, S. A., Havana, Cuba • Sten Dahlander, Stockholm, Sweden.

D. F. CROPSEY
Office Procedures Specialist
General Electric Company
Finance and Service Operations Department

Studies made during the course of this project indicated that expensive and complicated equipment is not essential in every system. Detailed procedures analysis and the practice of work simplification best determine the amount and type of equipment required in any integrated data processing plan. Equipment desires and equipment purchases cannot be permitted to dictate the procedures to be followed. Grass roots procedures analysis must always come first.—D. F. CROPSEY.

Inventory Control VIA IDP

Mechanizing bill writing, GE Apparatus speeds a wealth of information in workable form for successful warehouse stock control system.

INTEGRATED Data Processing has enabled the Finance and Service Operations department, Apparatus Sales Division of General Electric Company, to change inventory control from a "crystal ball gazing" problem into an effective plan of balanced stock control and automatic replenishment of warehouse inventories. Mechanization in the system of handling warehouse orders swiftly and economically provides to each product department concerned, a major segment of the complete, current data essential for such control.

Improved customer service is a result —in same-day warehouse shipments, with the right stock in the right place at the right time.

This IDP system is the outcome of progressive attacks on an inventory problem natural to a company comprising numerous product departments, with plants, warehouses and district sales offices from coast to coast. One will recognize the symptoms: violent fluctuations in inventory, over the years, from one extreme to the other; inventory reduction "drives"; then mad scrambles to build up stocks again to support sales.

Guesswork vs. Clerical Load

The successive plans of GE's Apparatus Sales Division, and the product departments for which it provides sales and service, all proved the need of a wealth of information at a product department headquarters. It used to be the function of district sales offices to keep data on warehouse stocks, to prepare district inventory reports (in a variety of forms depending on the different product departments' wishes) and to write stock replenishing requisitions. District clerical expenses rose out of proportion to the results obtained or to the dollar value of the inventory itself. Product departments had to depend on periodic reports which showed only gross changes of individual items of stock over relatively long periods. Loading, scheduling and replenishment were too much a matter of guess-work.

Then under a "bill copy" plan, the product departments—who are actually responsible for replenishment—were asked to compile the records, prepare reports and automatically replenish stocks—from memoranda on factory shipments to warehouses and from warehouse bills covering shipments out. But from the clerical load standpoint this was seen to be little more than a transfer of manual posting operations from sales offices to product departments. Here was the point at which the possibilities of a mechanized warehouse control plan were explored, tried out and proved. The resulting system integrates sales office "bill" writing not only with stock control and replenishment, but also with warehouse shipments, accounts receivable and the preparation of marketing and financial statistics.

Data in Machine Language

In a nutshell, the writing of an invoice on a Western Union teleprinter in a sales office (largely by the use of pre-punched tapes) simultaneously produces a set of shipping papers on a receiving printer in the selected warehouse. In the same operation, the sales office machine perforates two tapes, one for the sales office and the other for the responsible product department. Each tape is converted automatically into IBM tabulating cards, one group for accounts receivable and the other for stock control and replenishment purposes.

This "tape operation" was applied, as of 1956, to eight product departments, making up more than 80% of the district warehouse activity: Distribution Transformer, Meter, General Purpose Motor, Instrument, General Purpose Control, Capacitor, Outdoor Lighting and Small Integral Motor. There are 13 Apparatus Sales Offices which are also warehouse-order service processing centers, serving the respective districts in New York City, Boston, Philadelphia, Cleveland, Chicago, St. Louis, Dallas, Denver, San Francisco, Los Angeles,

ERRATUM

Page 7, photos of Die Cutter and of Listomatic Camera are transposed.

Automation in the Graphic Arts

Continuous forms processing in new equipment simplifies type composition.

COLD TYPESETTING via a new system explained in PS. a year ago (*Simplifies List Printing,* PS. 41, pg. 15) is now being made available to publishers of catalogs, lists, guides and directories by The Merrywell Corporation, New York City.

This "Merrywell System" takes advantage of equipment manufactured by Eastman Kodak Company, Commercial Controls Corporation, The Standard Register Company and IBM Corporation. Starting with the material for composition, the service delivers photo negatives of pages ready for printing.

Continuous, automatic processing of special forms over the several machines makes the procedure fast and economical—cutting composition time, it is said, by as much as 75%. Standing composition for an entire volume can now be contained in a few file drawers. On single cards, matter for any directory, parts list, price book, catalog or other form of item listings, can easily be kept current and ready for reprinting. Here's how it works:

THE OPERATOR of a Justowriter Recorder (Photo A) copies original edited material for the directory onto a proof copy. Simultaneously the machine produces a punched tape. Operator can delete from it any error made in typing.

A. Proof copy and punched tape are prepared from original matter.

The operator codes end line justification and interior line justification, if desired, into the tape.

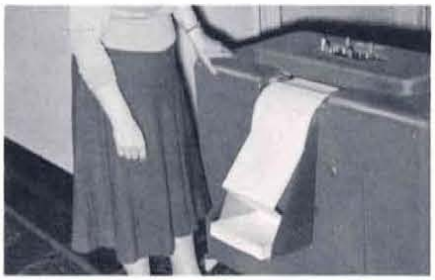
B. Reproducers set listings on Kant-Slip forms.

ROLLS OF TAPE from Recorders are fed into Justowriter Reproducers, equipped with Standard Register *Electric Linefinders* (Photo B). Machine automatically sets the copy on cards in *Kant-Slip* continuous form, at the rate of 100 words a minute with end line justification. Automatic forms advance by the Electric Linefinder exactly positions one listing, which may be one, two or three lines, on each card.

C. Die cutter converts forms into tabulating cards.

CONTINUOUS cards from the Reproducer are fed into Standard Register *Card Forms Die Cutter* (Photo C) which converts them to standard size tabulating cards for IBM equipment. The copy-cards can then be sorted by hand or key punched for machine sorting.

KEY PUNCH (not illustrated) is used to code cards for camera processing and to punch them for automatic sorting and collating operations. Almost any arrangement of listings is possible—geographically, alphabetically, by age, catalog number, etc.



D. Listomatic Camera photographs cards onto continuous film.

LISTOMATIC CAMERA (Photo D) receives cut cards for photographing continuously at the rate of 230 cards, or up to 690 lines of composition, per minute. Controlled by key punch in each card, camera puts one-, two-, or three-line listings on continuous film, with uniform space between listings. Copy can be reproduced anywhere from the same size down to a 50% reduction (type size range from 12 point to 5½ point).

ROLL FILM produced in this system is ready for processing into negative which can then be cut and stripped into page make-up. From negative offset printing plate, or high-etch plate for letterpress, is made.

E. Revisions of listing are typed directly on card forms.

ADDITIONS, corrections, changes in standing listings are made simply by insertions of newly typed cards and removals from file. Using IBM proportional spacing typewriter equipped with *Electric Automatic Linefinder* (Photo E) operator types copy directly onto *Kant-Slip* continuous card forms.

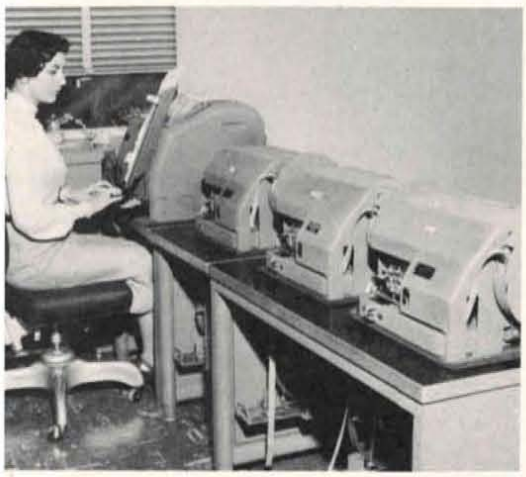
Integrated Data Processing in the past had one major objective—to put your office source data in machine-sensible language the first time you used it, so that common language machines could use it in subsequent processing and thereby eliminate wasteful repeat copying. But today IDP goes much further. Now it introduces a systems concept of automation, calling first for analysis and planned improvement of your present system —and then employing common language equipment only where necessary. —D. C. MILLER, Production Control Service.

Portland, Oregon and Seattle. Principal warehouses are located in the same cities, with one or more smaller "satellite" warehouses also in each district. GE's Western Union leased wire network interconnects processing centers, warehouses, and product departments. Thus far, consolidated tapes are air mailed by the sales office to each product department rather than wire-transmitted.

So from sales offices, in machine-workable form, product departments receive full and timely data on warehouse-to-customer orders. In the product department area other records originate, necessary in the stock control program, such as replenishment orders on the factory to refill warehouse stocks and shipments from factory to warehouse.

Elements of Stock Control

In GE's book, a comprehensive solution of the stock control problem has these salient features:



DISTRICT sales office operator, in creating invoice on teleprinter, puts data for stock control and other purposes into tapes from reperforators. Tapes are converted into tabulating cards.

Daily Analysis—determining the stock position every day after all current transactions and adjustments have been reflected.

Automatic reordering—creating a stock replenishment order whenever the available balance at a warehouse drops below a specified level.

Opportunity for adjustment—allowing flexibility by requiring personal approval of replenishment orders and decisions to make inter-warehouse transfers.

Automatic over-or-under pickup—creating records indicating when the stock balance of an item is below the protective level or in excess of maximum warehouse authorization.

Frequent usage re-determination—developing a realistic, up-to-date usage rate at regular intervals, incorporating current trends and historical patterns of warehouse stock activity, for improved scheduling, loading and stock control.

Punched Card System

Warehouse stock control in those product departments represented by the Apparatus Sales Division and having the greatest activity, is on IBM punched card accounting. Each transaction has its numeric code punched into the tabulating card or cards produced, denoting the type of transaction and with whom. The most commonly used stock control system has these four phases:

1. Transactions from the sales office-warehouse system are sorted by transaction code to yield: orders, order cancellations, shipments (previous order), order-and-shipments, transfers and returns.

2. The Unfilled Order File is cleared and adjusted by eliminating shipments and cancellations and inserting new orders; a "negative" unfilled order card is prepared for each order cleared and an order "duplicate" card for each new order added.

3. Unfilled Orders are summarized by warehouse, by week, incorporating the previous unfilled balance and modifying it by the "negative" unfilled orders and order "duplicates."

4. Finally, the Master Balance File is brought up to date by processing all the significant transactions, including factory shipments and replenishment orders. The Master File contains for each warehouse: on hand and in transit; current usage rate; authorization level; protective stock; and reorder point, for each catalog number.

Precise Format for Data

To trace the flow of the warehouse order data from its source, we revert to the write-up of a customer's order by the sales office, in the form desired. This will be on a 9-part *Kant-Slip* continuous INVOICE, the teletypewriting of which produces a 4-part PACKING SLIP-BILL OF LADING in the warehouse simultaneously.

IDP is as strict as it is beneficial. Scientific form design was mandatory, and certain rearrangements of data on the bills were made. The 8½" x 11" invoice form provides four main divisions or blocks of information.

The statistical block includes product department code, destination, tax code, office taking the order, office receiving, customer code, user code, collection number, collection district and terms code. This is followed by charging and shipping instructions—Sold to and Ship to names and addresses.

In the order identification block appear GE requisition number, invoice number (the first three digits of which identify warehouse making shipment), invoice date, customer's order number and date—followed by mark, prepaid/collect and shipped from and via.

The item block or body of the form provides for the entry of item number, quantity, catalog number and description, unit price, unit of measure and type-of-transaction code, followed by the fiscal date (date shipped or date required) and the extended amount.

The bottom area of form is reserved for tax, extra charges and finally total amount.

Original Typing Simplified

The bill writing follows receipt of a completely edited order by the invoice typist, who employs a Western Union sending-receiving teleprinter with reperforator units.

The operator selects a pre-punched customer tape, which includes machine-programming codes and places it in the transmitter. After hand-typing the variable product department code, she reactivates the transmitter and the whole remaining *statistical* block of data is typed automatically.

The *order identification* data, being variable, are now typed manually, after which the customer tape is replaced in the machine by a product tape.

Item number and quantity are entered from the keyboard. Catalog number, unit price and unit of measure are inserted from the product tape, which then stops to allow the operator to enter type-transaction code, fiscal date and item amount. The machine does a carriage return and automatically types the item description. Discount percent is entered.

The operator then line feeds to the bottom of the form and types in tax, extra charges if any and the grand total.

This rapid, semi-automatic operation provides the bill, the shipping papers at the warehouse and two selective five-channel tapes.

The continuous INVOICE form includes nine copies in a corner-stapled *Zipset*, titled: *Office Copy, Original Invoice, Duplicate Invoice, Triplicate Invoice, Agent's Statement, Collection District, Inventory Control, Product Department* and *Bill Book*. (Some product departments continue to post from invoice copies.) A black panel printed on the invoice copies prevents the statistical block of data from appearing on them.

WAREHOUSE receives customer order on Bill of Lading simultaneously with Invoice writing in sales office.

MAKE REMITTANCE PAYABLE TO THE COMPANY AND MAIL TO:

SENDING CODES

GENERAL ELECTRIC COMPANY
APPARATUS SALES DIVISION
3 PENN CENTER PLAZA • • • PHILADELPHIA 2, PA.

PROD. DEPT.	DTH.	TAX	OF. TAX.	OF. REC'VG.	CUST.	USER	COLL. NO.	COLL. DIST.	TMS.
173	75	11	320	22380	47896	00000	147896	315	A

SOLD TO
F J JONES AND SONS
4237 N FRONT ST
PHILA PA

SHIP TO
F J JONES AND SONS
4237 N FRONT ST
PHILA PA

G. E. REQ'N. NO.	INVOICE NO. WHSE	INVOICE DATE MO. DAY YR.	CUSTOMER ORDER NUMBER	DATE OF ORDER
320 12965	320 57635	0 1 03 57	12349876	1/2/57

PPD.	COLL.	SHIPPED FROM AND VIA:	DATE SHIPPED: SEE INVOICE DATE, UNLESS INDICATED
X		PHILA	

ITEM	QUANTITY	CATALOG NUMBER AND DESCRIPTION	UNIT PRICE	U/M	TYPE TRANS.	DATE	AMOUNT
	5	7006E 10 1B4 SWITCH	3600	E	31	701	116 10
	4	8 1D540 HEATERS	150	E	31	701	372
	6	8 1D549 HEATERS	150 ALL 38%	E	31	701	558

TAX →
EXTRA CHARGES →

NOTES:
TRANSP NORMAL IW

AMT. CHARGED → 12540
AMT. CREDITED →

FORM NO. AC - 426 - P - TEL. (4 SHTS.) (11-56)

OFFICE COPY

INVOICE is 9-part Kant-Slip continuous form with definite "blocks" of data: statistical, order identification, item block, etc. Typed symbols in shaded areas control selection of data by punch in tape-to-card operation.

The BILL OF LADING operating in the warehouse printer consists of a *Packing Slip* plus *Original, Shipping Order* and *Memorandum* copies of the Bill of Lading. Part 1 is perforated to provide a label bearing Ship to information and the *order identification* block of data. Printed blockouts on all copies obliterate all price information and the statistical block. On the Bill of Lading, quantity, catalog number and description appear on a grey background, to avoid confusion with the "No. Pkgs." and classification "description of articles" inserted at the bottom of form.

Stock Card Produced

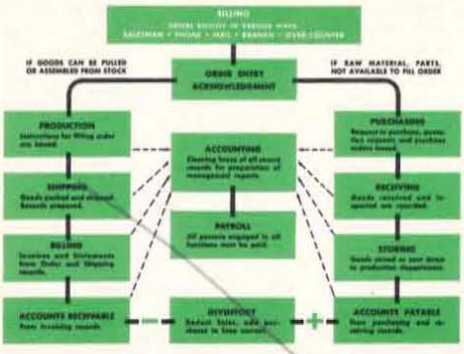
One of the two by-product tapes from invoice writing is mechanically converted in the sales office (or sent for converting, to an office which is a district IBM center) into Accounts Receivable punched cards. The other—each day's tapes for each product department having been consolidated into one roll—is air-mailed to the product department.

At a product department headquarters, the latter is operated in a tape-to-

card punch and for each transaction, two IBM cards are produced. One is an "invoice" card, which is separated and sent directly to Finance for its purposes. The other is an "item" card, containing the complete invoice data.

For stock replenishment, in the data processing system above outlined, the product department needs only part of the information — the order identification block, quantity, catalog number and type of transaction. Since marketing and other functions likewise require only part, a reproducer prepares three separate cards from the item card, selecting and rearranging the data each wants and leaving remaining space on the punched card for further processing. One of them, the "stock control" card, is the warehouse transactions record in the system of tabulating the "balance sheets" and reports explained above.

Rating the benefits of this IDP application, probably the primary gain is in improved customer service by having the right stocks at the right warehouse. The second major advantage lies in sound factory loading and scheduling. Production is closer to sales than it has ever been before.



Paperwork in "Storing"

Simplification of one of the basic functions of business.

A STORES department typically has the duties of:

1. Accepting, storing and protecting materials or goods in stock;

2. Issuing specific materials or goods against requirements;

3. Maintaining records of stores transactions.

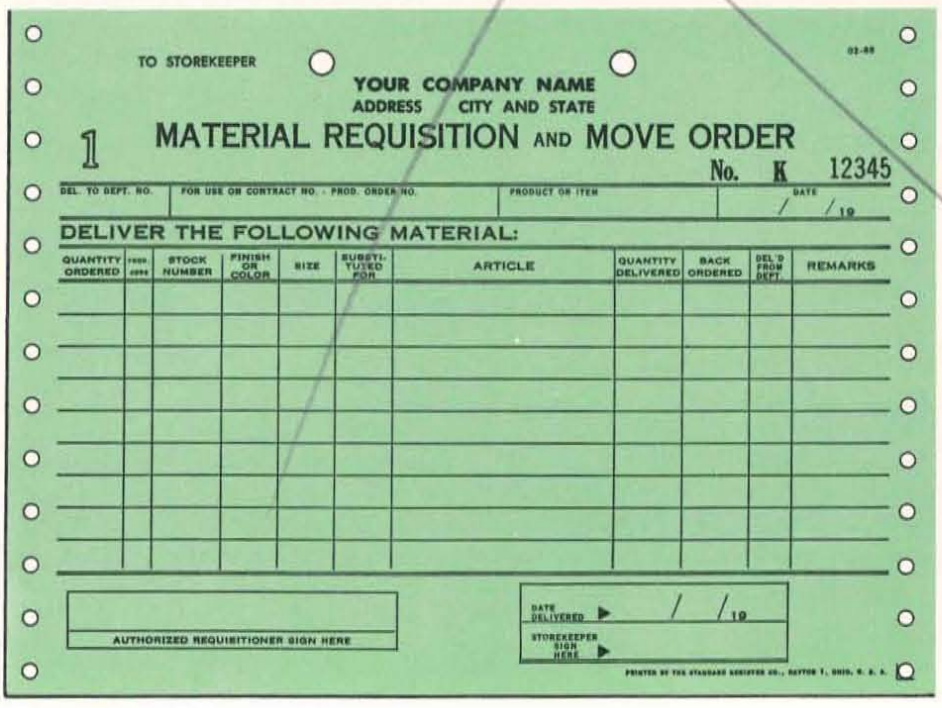
In the industrial organization, Storing may be considered a service of supply for the manufacturing department. Its object is a proper *flow* of material from suppliers . . . in and out of stores . . . to production.

As a part of material control, systematic operation of Storing checks excessive inventory (and material handling costs) by regulating stock withdrawals to actual needs.

Material Requisition

As a means of regulating withdrawals, the writing of *Material Requisitions* is centralized — at the stores department counter, in production planning or otherwise. Issues are based on a numbered production order, job order or other such document. Requests can be telephoned or placed in person.

Possibly by the use of a *Form Flow* Register and *Kant-Slip* continuous forms, all requisitioning is concentrated at the supply source into a continuous, consecutive-numbered series of records, subject to convenient audit or recap. Or, *Zipset* forms in *Zip-Pak* holders give many of the same advantages.


TO STOREKEEPER

YOUR COMPANY NAME
ADDRESS CITY AND STATE

1 MATERIAL REQUISITION AND MOVE ORDER

No. K 12345

DEL. TO DEPT. NO. | FOR USE ON CONTRACT NO. - PROD. ORDER NO. | PRODUCT OR ITEM | DATE / / 19

DELIVER THE FOLLOWING MATERIAL:

QUANTITY ORDERED	QUAN. SHIPPED	STOCK NUMBER	FINISH OR COLOR	SIZE	SUBSTITUTED FOR	ARTICLE	QUANTITY DELIVERED	BACK ORDERED	DEL'D FROM DEPT.	REMARKS

AUTHORIZED REQUISITIONER SIGN HERE

DATE DELIVERED ▶ / / 19

STOREKEEPER SIGN HERE ▶

WASTE ENDED. With purchasing and production governed by a tabulated "material requirement schedule," pro-

jected for nine weeks, a manufacturer of mobile homes still experienced loopholes in material control.

On the line, there was the natural tendency to draw more parts than were needed immediately.

The stockroom might find itself glutted with one item and cleaned out of another.

A worker could substitute parts slightly different, if he preferred one easier to install or more familiar to him.

Without an efficient means of controlling actual withdrawals from stock, the schedule fell short of accomplishing its purpose. Solution of the problem was found when a system of typewriting individual Material Requisitions in advance, from the material schedule, was set up. These are delivered by the material control office to the line supervisors, who use them to draw materials from the warehouse. Control by the warehouse is assured through a Requisition Register produced in the same typing operation, with Standard's *Dual Feed* of forms. *(Parts Waste Ended,* PS. 44.)

• • •

DUPLI-CARD. Where inventory is on punched card accounting, it may be advantageous to produce Material Requisitions on a *Dupli-Card* Register as faithful copies of handwritten original tabulating cards.

Stockkeeping

Through Stores Records, the Storing function may be seen as the stage in material control where *requirements* are viewed against *procurement* activities for matching supply to demand. A balance-of-stores card or sheet for each item can show quantity "on hand," "on order," "apportioned" and "available."

In material control, these accounts are the product of such source records as the Purchase Requisition, Purchase Order and Receiving Report on the one hand, and the Stores Requisition, Bill of Material or Material Requirements report on the other.

• • •

PURCHASE REQUISITION. If control is lodged with the Stores Department, the need for purchasing materials or supplies is logically determined from Material Requisitions and stock status records. Thus the initiating of certain purchases is also centralized here, together with the responsibility of maintaining stocks. Here again a *Form Flow* Register system . . . or *Zipsets* in a *Zip-Pak* forms holder . . . simplify the process of writing.

Goods Inventory

Warehouse stock control or finished goods inventory is affected by sales and shipments along with receipts from manufacture or purchase.

The closer sales can be brought in line with production or procurement, the better for both customer service and business profits. Simplifying paperwork can serve the objective of filling more orders from smaller inventory, by making necessary information available faster.

• • •

ORDER CLEARANCE. A boot company's order-shipping form is set up in a graph showing styles and sizes by location in stockroom. Before it goes to the warehouse, it is cleared through Kardex files and ordered quantities are pre-charged against perpetual inventory records. *(Sales Order Speeds Goods,* P.S. 40.)

By the device of aligning specially-punched ledger copies of brokers' orders in ring binders, a canning company posts inventory automatically and is able to see at a glance the stock status of any item in any of 7 warehouses. *(Orders Control Inventory,* PS. 42.)

The system of a floor and wall covering products wholesaler directs parts of a combined Order-Invoice written on an electric CARBOMATIC Register, to an accounting clerk whose first step is to check an inventory control file and enter the sale. Merchandise is often committed before it leaves warehouse. *(Integrates Functions,* PS. 42.)

MECHANIZATION: IDP. Typical of possibilities when orders and additions-to-stock data are automatically processed, a leading paint and pigments company produces between 4 and 5 P. M. each day a complete inventory accounting on an availability basis. *(Univac Figures,* PS. 44.)

A grocery distributor supplying merchandise for 560 franchised stores, uses punched card tub files for perpetual inventory control. A clerk pulling cards in fulfilling orders gets an automatic notice when inventory falls below reorder level; pulls a punched paper tape from that point in file; inserts tape in automatic writing machine to typewrite purchase order. *(Superfast Purchasing,* PS. 40.)

In this issue, see *Inventory Control via IDP.*