INDUSTRIAL DATA PROCESSING APPLICATIONS REPORT

Applications	Order Processing, Shipping, Invoicing, Inventory Control
Type of Industry	Laboratory Equipment and Apparatus Supplier
Name of User	Van Waters & Rogers Div. VWR United Corp. San Francisco, Calif.

Equipment Used

Two IBM System/360 Model 40's

Three IBM System/360 Model 20's

2501 Card Reader

2540 Card/Read/Punch

IBM 2260 Display Units

Synopsis

Van Waters & Rogers Div. in San Francisco, Calif., is headquarters for a computer network linking the three warehouse-sales offices which make up the nucleus of the organization. Orders are received from some 23 locations via phone or mail and prepared as input to the central computer system at the San Francisco headquarters. Salesmen can use the display units to access the inventory records for each of the three warehouses and rapidly tell customers if merchandise is available. Administrative and inventory reports are generated at San Francisco. The computer system is planned to eventually link all of the division's area offices, and will extend to other division functions, such as accounts receivable.

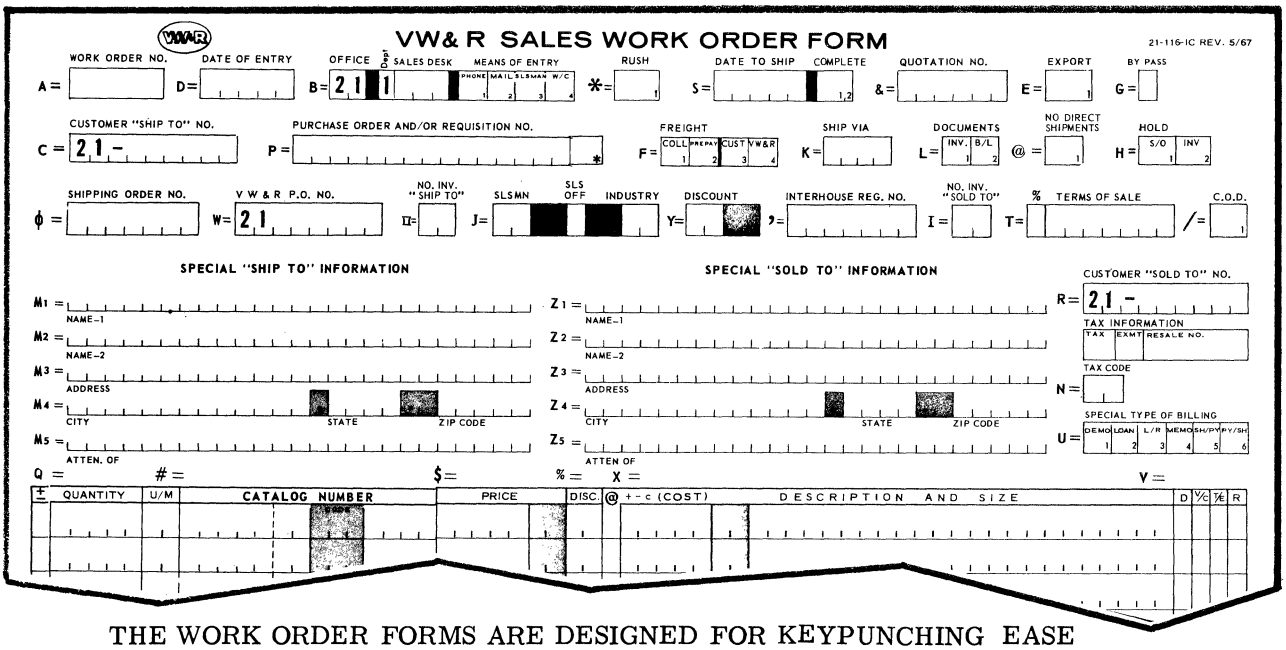
The Van Waters & Rogers Div. of VWR United Corp. entered data processing in 1966. Tab equipment was used previously, until the increasing inventory pressures made the old system unwieldy. The division lists some 52,000 catalog items in the Laboratory Supplies and Apparatus Department alone. The products range from test tubes, corks and filter paper to complex optical and electronic systems for control and analysis procedures. The division, which has annual gross sales exceeding $140 million, sells lab supplies and apparatus to over 15,000 customers in the Western U.S. and in Canada. The firm does not manufacture any of the 52,000 items that they supply. About 30,000 items are maintained in stock at three major warehouses in San Francisco, Los Angeles and Seattle. About 1,800 employes make up Van Waters & Rogers 23 locations throughout the West Coast, Alaska and Hawaii.

THE SYSTEM

The data processing system network employs two large-capacity System/360 Model 40's as the central processing system. On-line disc storage, shared by the two CPUs, is provided by a 2314 direct access storage facility. One 1443 printer and one 1403 N1 printer are available to the system as well as a 2501 card reader and a 2540 card/read/punch. A 2701 data adapter unit links 2260 display units and 2780 data transmission terminals at the remote locations of the VWR network. This configuration provides complete backup for the on-line order processing function. Moreover, it provides the necessary capacity for the planned expansion of data processing activities over the next three to five years. Additional 2780 units will be added to the network as other offices are assimilated into the system.

Order Processing

As orders are received at the three offices (Los Angeles, San Francisco and Seattle) either by telephone or mail, the order data is entered on specially designed work order forms which call for a minimum amount of identifying information, such as customer identification, shipping instructions, an 8-digit catalog number for each item and quantities ordered.

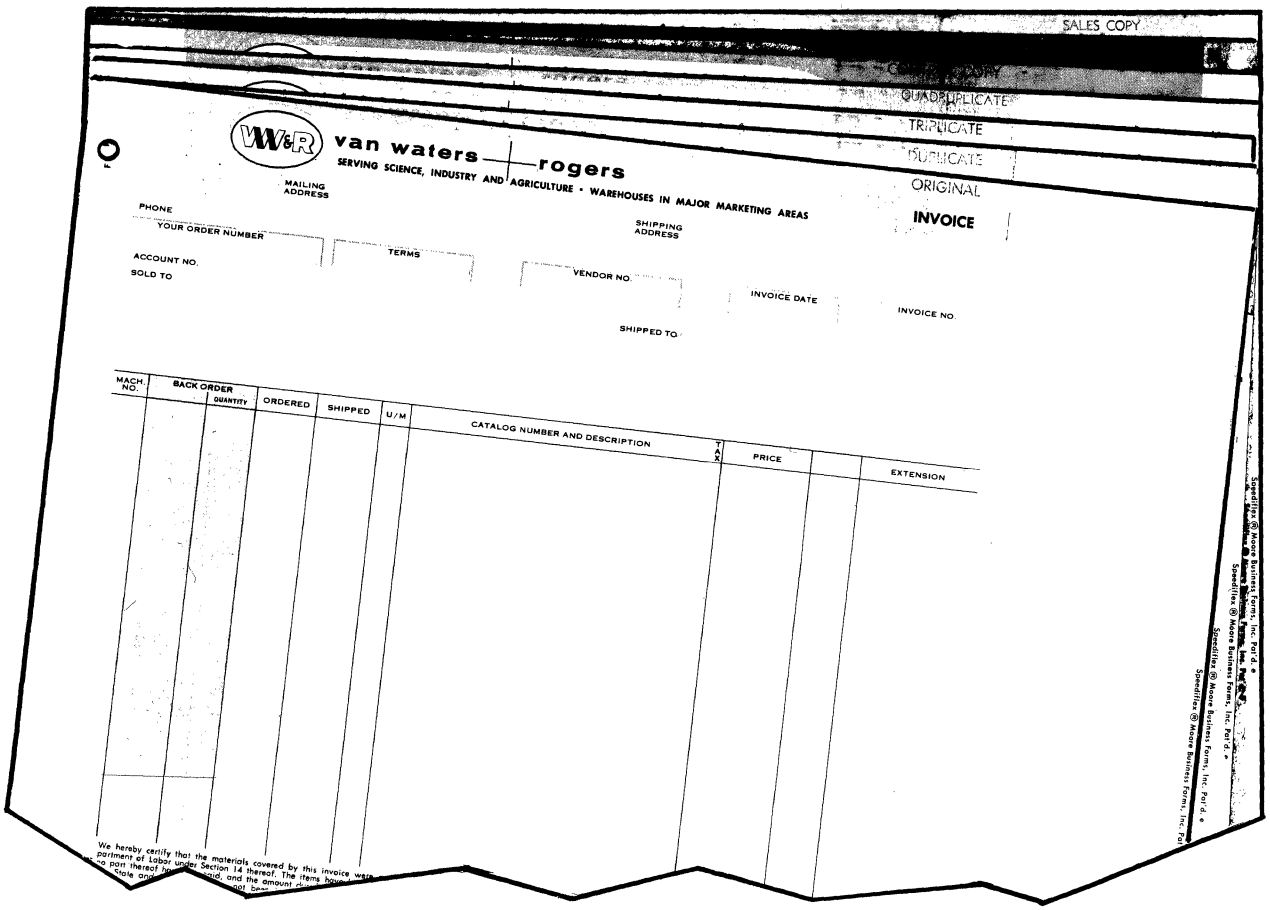


THE WORK ORDER FORMS ARE DESIGNED FOR KEYPUNCHING EASE

The work orders are conveyed on a belt to the keypunch area at the local sales office where the data is punched into cards and then entered into the local Model 20 which generates an order tape. In the case of orders originating in Los Angeles or Seattle, the order data on tape is first transmitted by the 2780 data terminals at those locations to the San Francisco Model 20 which inputs to the San Francisco Model 40. The tape is edited to eliminate any erroneous data missed during the card punching operation. The processed data is eventually transmitted from the headquarters computer back to the terminal at the originating sales office when necessary for invoicing and shipping. The data is held in San Francisco, because there is no capacity at Los Angeles or Seattle for on-line storage. Sales orders originating in the San Francisco sales office are processed in a similar manner, except that the punched card data is input via a Model 20 directly into the local Model 40.

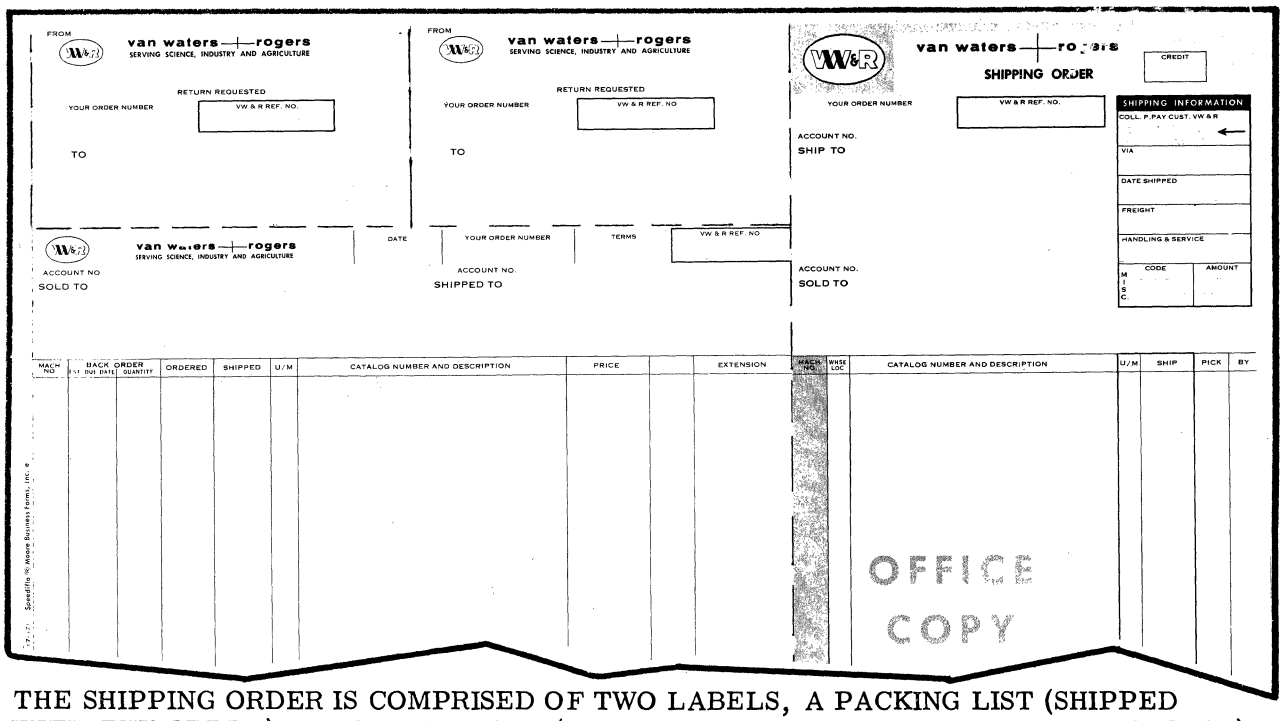
Invoicing and Shipping

The same data used to process orders is also used by the Model 40 to produce the customers' invoices. As part of the invoicing cycle, the computer uses current price data maintained on its magnetic disc file and then extends prices, figures applicable taxes, and computes the total amount due. Any on-line data can be changed by a manual entry on the work order form. As with order processing, the formatted data is transmitted back via the remote 2780 terminals for local printing and mailing of invoices. The invoicing is done locally because of the complication of forms, possible short shipments and the diversity of accounts.



DATA IS TRANSMITTED BACK TO LOCAL OFFICES, WHERE INVOICING IS DONE

Goods are not shipped from the invoice. A separate shipping order is immediately generated and sent to the warehouse. This shipping order has three perforated "tear-off" sections. The first section is a packing list which is shipped with the order, the second is the office copy which is also used for order picking in the warehouse; and the third consists of two address labels to be affixed to the shipping cartons. As the goods are shipped, the office copy section is detached and sent back to the office as an acknowledgement of shipping. The office copy section is also used to update the inventory records.



THE SHIPPING ORDER IS COMPRISED OF TWO LABELS, A PACKING LIST (SHIPPED WITH THE ORDER), AN OFFICE COPY (USED FOR ORDER PICKING IN THE WAREHOUSE)

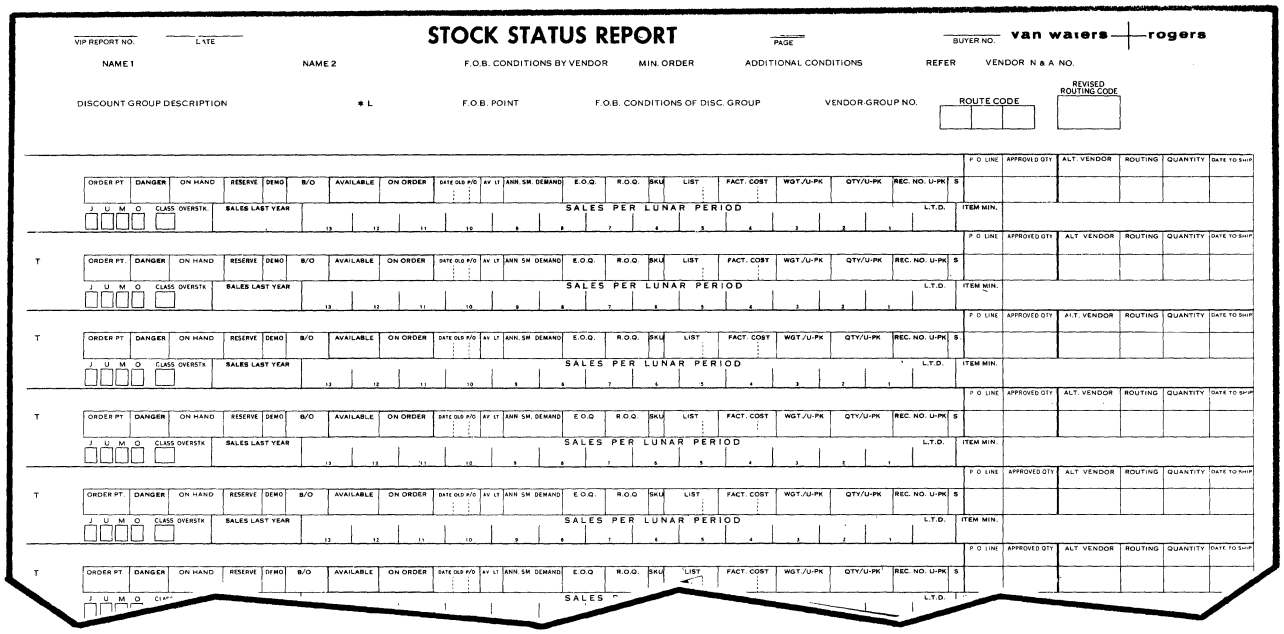
During the processing cycle, the Model 40 arranges the ordered items so that they will appear on the packing list in the same sequence in which they were listed on the original purchase order. This enables customers to conveniently check shipped items against their purchase order. At the same time, the computer automatically re-arranges the items so that they will appear on the office copy in a sequence that allows for most efficient warehouse order picking.

Accounts receivable are not computerized. Presently, they are maintained with Burroughs sensitronic magnetic ledger cards and magnetic tape. Cards are prepared after each day's transactions. Billing is done the following day.

Inventory Control

Automatic inventory control is an important byproduct of the order processing procedure. During order processing, the computer automatically updates magnetic disc inventory files. Twice each week, the computer produces a stock status report using the inventory file data for use by the purchasing department. The stock status report is structured according to vendors' assortment groups so that maximum advantage can be taken of available assortment discounts. The report lists all items of stock that have reached their automatic reorder point, along with all other items in the assortment group. It shows year to date sales on each item by four week periods, as well as total sales for the previous year.

Buyers use the stock status report as a worksheet for issuing purchase orders by entering buying data in blanks provided on the form. After this data is punched on cards, it is used by the computer to print the purchase orders. At the same time, punched cards for each item on order are automatically punched by the computer and are held until shipments are received. At that time, the cards are entered into the computer to update the inventory file.


STOCK STATUS REPORT

VIP REPORT NO. DATE PAGE BUYER NO. van waters — rogers

NAME 1 NAME 2 F.O.B. CONDITIONS BY VENDOR MIN. ORDER ADDITIONAL CONDITIONS REFER VENDOR N & A NO.

DISCOUNT GROUP DESCRIPTION * L F.O.B. POINT F.O.B. CONDITIONS OF DISC. GROUP VENDOR GROUP NO. ROUTE CODE REVISED ROUTING CODE

ORDER PT. | DANGER | ON HAND | RESERVE | DEMO | B/O | AVAILABLE | ON ORDER | DATE OLD P/O | AV. LT | ANN. SM. DEMAND | E.O.Q. | R.O.Q. | SKU | LIST | FACT. COST | WGT./U-PK | QTY/U-PK | REC. NO. U-PK | S | P.O. LINE | APPROVED QTY | ALT. VENDOR | ROUTING | QUANTITY | DATE TO SHIP

J U M O CLASS OVERSTK SALES LAST YEAR SALES PER LUNAR PERIOD L.T.D. ITEM MIN.

13 12 11 10 9 8 7 6 5 4 3 2 1

Inside Sales

The inside salesman's link with the computer is provided by a network of sixteen 2260 display stations which are located in the widely separated sales offices. Connected to the System/360 Model 40 via leased telephone lines, these CRT display terminals give sales as well as purchasing personnel immediate visual access to inventory and order data that is maintained and constantly updated on the computer's magnetic disc files. New receipts from the receiving departments, punched into cards and the office copy picking order provides input for the computer file update.

In response to a customer inquiry regarding availability or price of any inventory item, the man on the order desk turns to the nearby 2260 display station and, using its typewriter-like keyboard, enters the item's 8-digit catalog number. As he enters the number, it automatically appears on the station's screen. After checking his entry for accuracy, he depresses a button which causes the inquiry to be transmitted directly to the computer in San Francisco. Instantly the computer extracts all dataconcerningthe item from its magnetic disc files, and transmits it back to the 2260 where it is projected on the display screen.

The salesman can clearly see the quantity of the item on hand at each of the three warehouses, as well as its current selling price. The visual message indicates if the item is one that is not regularly maintained in warehouse stock, and shows the lead time for shipments from the vendor.

With this information available, the salesman can give an answer to the inquiry while the customer is still on the phone. In most cases an affirmative reply can be made to the question, "Can you ship it immediately?" even if the item is out of stock at his location. If a salesman in San Francisco discovers the local warehouse is temporarily out of a certain item, for example, the display screen advises him if it can be shipped immediately from either Los Angeles or Seattle. The instant ordering ability serves to decrease the lead time.

The message on the display screen also provides the salesman with other possibilities for saving a sale, even though items may not be available from warehouse stock. In many categories of scientific equipment sold by VW & R, for example, several units usually are set aside as demonstrators. The number of such available units is shown on the screen enabling the salesman to offer the customer the alternative of purchasing one of these units immediately, or using it as a demonstrator while awaiting delivery of a new machine.

The 2260 display stations also permit order desk personnel to give customers immediate replies to questions regarding customer orders that are in process. To obtain this information, the salesman enters the customer's identification number and his purchase order number on the keyboard for transmission to the central computer. Immediately the computer checks the customer order suspense file which is also maintained on magnetic disc and continuously updated in the order processing procedure, and transmits the response to the display station. The data projected on the screen lists all items that have been shipped under the purchase order and the date of shipment. All back ordered items are also listed, along with the date the order was sent to the vendor and the vendor's shipping lead time.

RESULTS AND FUTURE PLANS

Since the display station network became operational the service level in laboratory supplies and apparatus has risen sharply (approximately 20 percent), sales have increased, and back orders have been reduced.

In addition to the obvious benefit of improved customer service. Van Waters & Rogers has experienced a significant reduction in its order processing cycle since the computer network went into effect. When orders were processed with conventional tabulating equipment it took an average of two working days from the time an order was received until it could be shipped from the warehouse. That time has now been cut to four hours or less.

The company plans to expand its teleprocessing network with the addition of 2260 display stations at its Portland Oregon sales office and at two additional offices in Los Angeles and Seattle. Eventually, the entire company will be included in the teleprocessing network. In addition to order processing and invoicing for the apparatus department and general accounting work, further expansion of our system is planned to accommodate the entire diversified product line of VWR.