

INDUSTRIAL DATA PROCESSING APPLICATIONS REPORT

Applications Inventory Control, Order Processing, Billing
Type of Industry National Retail Drugstore Chain
Name of User Walgreen Drug Stores
Chicago, Ill.

Equipment Used IBM System/360 Model 30
IBM System/360 Model 40 (2)
IBM 1440 Computer System
NCR 315 Computer System
NCR 420-2 Optical Scanner (2)
Digitronics Data-Verters

Synopsis

The Chicago headquarters for the Walgreen Company processes and maintains records for approximately 520 Walgreen stores, 16 large Globe discount and 6 Danburg department stores in the southwest, and some 1,900 Walgreen Agency stores. Warehouse inventory control, order processing and billing for approximately 40,000 items in six warehouses is accomplished with the several data processing systems. Order processing throughout the U.S. is initiated at store level through the use of optical font adding machines which transcribe transaction data to tapes. The tapes are sent to Walgreen headquarters where the data is transferred to magnetic tape by an optical font character reader. The magnetic tape is processed by the computer which checks for out-of-stock items, creates invoices and warehouse picking copies, reduces inventories and updates sales history. Invoice information is transmitted to remote warehouses where orders are picked, packed and shipped to Walgreen, Globe, Danburg and Walgreen Agency stores.

The Walgreen Co., founded in 1902, has 549 units in operation, including drug stores, super centers, department stores, 307 restaurant units within or connected to company stores, prescription shops and Corkey's drive-ins. The company manufactures approximately 400 drug and toiletry products in its own laboratories in Chicago.

The System

The major portion of Walgreen's order processing, inventory control and billing is assigned to an IBM System/360 Model 40 with 256K characters of core storage capacity, a 2314 disc unit (8 drives) and 6 magnetic tape drives on-line. A second Model 40, currently a 128K machine with four 2311 disc drives and four magnetic tape drives plus two 1,100 lpm printers is being upgraded to 256K. Input/output devices, including disc drives comprising the 2314 and the magnetic tape drives, will be shared by coupling the two Model 40's through switching devices. The objective is backup for the system.

The 128K system supports a variety of applications including a large payroll system, sales and gross profit analysis systems, and a progressive and comprehensive retail accounting system. The Model 30 is a 32K system. This system is used for miscellaneous independent jobs and serves as an off-line slave to the larger computers for printing, punching, sorting, etc.

The Depletion Cycle

At each of the Walgreen Drug Stores, store orders are recorded on computer-produced pre-printed order forms, checked by store management, and then transferred to adding machine tape using an NCR 10-bank electric adding machine equipped with optical font. Once a week, each store sends its order to the data processing center at Chicago headquarters on a scheduled day. The adding machine tapes are collected by the Walgreen Company mail service or mailed in via the U. S. mail. In the data processing center, the tapes are registered (time stamped and logged), batched, spliced to decrease through-put time and processed through an NCR-420-2 optical scanner on-line to an NCR 315 computer. Scanning is accomplished at a rate of approximately 56 lines (items) per second. An average store order can be scanned in 30 to 40 seconds.

The computer validates the input, prints control messages on the console typewriter and writes each transaction onto magnetic tape. The magnetic tape, which consists of 100 to 140 store orders, is then sorted into item code sequence before being processed on the main system against the disc inventory master file. The purpose of this sort is to minimize the number of seeks, thus reducing processing and through-put time. Another optical scanner is on-line to the IBM 1440 to share the scanning load and to provide backup.

During processing, several activities are triggered. As each store header recorded on the tape is read, a "seek" is initiated by store number against the store address master file on disc. From this file is pulled the complete store address, an alternate costing factor to accommodate local taxing requirements where necessary, and the delivery handling charge rate, which is a component in the development of the extended cost of the merchandise.

As each detail (item ordered) record is read, a seek is initiated by item code against the inventory master file, extracting the corresponding warehouse item inventory record. Once this record is in core, all orders for that particular item are processed. For example, if 50 stores ordered a particular item, only one seek would be made. During processing, if a store has ordered quantities below the established minimum order quantities, the computer program automatically increases the order to the minimum or the next multiple of the minimum. Items ordered in quantities that equal or exceed the warehouse case pack quantities are converted to full cases and "splits" for billing and packing purposes.

WALGREEN DRUG STORES

Disc inventories and sales areas are updated and if an item is found to be out of stock, the lost or deferred sales are increased. The output from this operation is two reels of magnetic tape. One, the billing output tape, has all the information necessary to produce a complete extended line invoice and warehouse picking copy for each store. The second highlights all items that the system could not satisfy. From this tape, reorder notifications are printed and mailed directly to each store so that store personnel can take whatever immediate action is necessary to maintain proper "in stock" conditions.

FORM 454 (REV. 1-65)		DATE	STORE NO.		WAREHOUSE BILLINGS 38-9		ORDER NO.	PAGE						
		01/28/66	06-104		6101 W ARCHER, CHICAGO 38, ILL		A4035	0262015						
WHSE LOCATION	MOSE NUMBER	ITEM CODE	BILLED		FILLED		WHSE CASE PACK	ITEM DESCRIPTION	SUGGESTED RETAIL	* BK COST CODE F.R.E.T.	MEMO ONLY %/C OR DISC.	MOSE COST %/C OR DISCOUNT	UNIT	EXTENDED
			CASE	ONLY'S	CASE	ONLY'S								
41104		740296		3	3		36	SHAMP BLONDEX	15					
41104		740297		2	2		72	SILK/SILV C/ROL SILV/MIST						
41104		740300		2	2		72	SILK/SILV C/ROL SILV/SLATE						
41105		740306		3	3		72	COL/LOT C/ROL L/CARE NAT/BLK						
41105		740307		6	6		72	COL/LOT C/ROL L/CARE D/BRN						
41105		740308		6	6		72	COL/LOT C/ROL L/CAR D/W/BR						
41107		740312		6	6		72	COL/LOT C/ROL L/CAR L/A/BR						
41108		740315		6	6		72	COL/LOT C/ROL L/CAR M/G/BR						
41111		740495		2	2		24	H/TNT GRECIAN FORMLA 16	40Z					
41112		740529		2	2		12	WASH N TINT L/PLUS BLONDE						
41112		740601		1	1			H/TNT MARCH RNS 1 PLATINUM						
41113		740619		2	2			H/TNT MARCH RNS 8 AUBURN						
41116		740712		2	2		72	H/TNT NES COL/RNS 1520 CHES BROWN						
41116		740715		2	2		72	H/TNT NES COL/RNS 1520 LT/GLD/BLD						
41117		740723		3	3		72	H/TNT NES COL/TNT 2010 BLOND						
41118		740740		2	2		36	COL/TONE NEST RINSE BLONDE						
41201		740771		6	6		36	H/TNT NES STRK/TIP SIL AER						
41201		740785		6	6		144	H/TNT NOREEN RINSE 1 BL/TOPAZ	8S					
41202		740787		6	6		144	H/TNT NOREEN RINSE 3 SUN/BRNZ	8S					
		740789		6	6		144	H/TNT NOREEN RINSE 5 DK/COPPER	8S					

THE WAREHOUSE BILLINGS REPORT ARE THE PROCESSED ORDERS USED FOR PICKING WAREHOUSE ITEMS. A REPORT, PROCESSED AGAINST THE DISC FILE, IS PRODUCED FOR EACH WAREHOUSE.

The billing output tape is sorted by warehouse location within the store and prepared for transmission to respective warehouses. The order tape (billing output tape) is transmitted twice each day via WATS line using an IBM 7711 data communication device in data processing headquarters and an IBM 1973-1980 automatic send-receive unit stationed at the remote Walgreen warehouses. The receiving equipment lists the incoming data on store invoice forms in warehouse location sequence (within each warehouse) for picking convenience. A warehouse employe may tear off one store order at a time for picking. Full case picks are separated from shelf picks (this separation is a function of the warehouse location sort) and these picking lists are channeled to each warehouse picking office. As an invoice is being worked--or picked--items that cannot be supplied as requested, are noted on the invoice. For example, the letter "F" placed by an item indicates that it is out of stock.

These adjustments are transferred to an adjustment worksheet in the warehouse office and then transmitted back to the data processing center. There, the data is keypunched into adjustment cards and fed back into the system to produce additional charge and/or credit invoices which will be mailed to the store to adjust disc inventory and sales records. This same procedure is followed for items added to the store order at the warehouse levels. Such a situation occurs if a store manager calls directly to the warehouse with additional items or larger quantities to be added to his order.

A copy of the original invoice with picking notations (for out of stock conditions, etc.) accompanies the merchandise to the store. At the store, merchandise is checked in against the accompanying invoice. Discrepancies must be checked against additional charge and/or credit invoices and after that, if there are remaining discrepancies, a claim is filed against the warehouse. At the present time, the newest Walgreen warehouse in Berkeley, Ill., has been able to fill approximately 95 percent of all orders with the inventory control system.

Globe stores' data entry

The Globe stores use a slightly different media for the entry of their orders into the system. Each of the Globe stores is equipped with a Digitronics' ten-key adding machine, magnetic tape recorder and transmitter. As orders are recorded through the adding machine, a small magnetic tape cartridge is written. At Walgreen computer headquarters, a Digitronics Data-Verter accepts data transmitted from the cartridges acoustically via telephone lines and creates punched paper tape. The paper tape is converted to magnetic tape and the data is submitted to the system along with the rest of the store orders.

The replenishment cycle

At the end of each week, a mathematical analysis is performed by the computer for each item record and for each warehouse. Through calculations involving quantities on order, quantities on hand, current movement, lead time, order interval and safety stock, etc., a forecast is developed for each warehoused item. If the inventory level for an item has reached an established reorder point, the program generates a purchase order requisition -- a card. The requisition data -- in card form -- is then re-entered into the computer and a search is initiated for additional items supplied by the same vendor, which, while not at a critical order point, should, for economic reasons, be ordered at the same time. (See Stock Status Report, symbol column). Thus, both critical and semi-critical items are flagged and requisitioned. Printed requisitions are forwarded to warehouse inventory control personnel and corresponding decks of requisition cards are filed in the Ordering and Price Control Dept. at Walgreen headquarters.

Stock status reports reflecting complete vendor lines are also printed. These reports outline all items, those requisitioned and those not requisitioned. All components of the "forecast" calculations are displayed. (Quantities on order, on hand, sales, safety stock factors, vendor lead time, desired order intervals, etc.)

PAGE NO. 289 DATE 12/31/65		STOCK STATUS REPORT										BERKELEY				VENDOR ORDER		S
ITEM CODE	ITEM DESCRIPTION	HOW DEPT.	RES.	LEAD	INT.	BACK ORDER		ON ORDER		ON HAND		SALES			QUANTITY	ORDER	SYMBOL	
						UNITS	NO. OF WEEKS	UNITS	NO. OF WEEKS	UNITS	NO. OF WEEKS	LAST WEEK	2 WEEKS AGO	3 WEEKS AGO				4 WEEKS AGO
49560 W	BREATH-CARDS BX/12S		02	1	2					100	14	8		1	7	CS	36	
50650 W	CHARLES N MILLER CO																	
266490	MARY JANE 6 1/2 CZ *		2	2	2					648	4	144	144	192	163	14 CS	24 *	
52450 W	M AND M CANDIES																	
214885	M AND M CHOC WAFER BAR 24S		2	2	2			144	1	423	4	125	77	130	118	5 CS	24 *	
214900	M & M FRUIT CHEWIES BX/24S		2	2	2			72	1	257	6	50	14	71	51	CS	24	
214905	M & M MINT CHEWIES 24S		02	2	2					238		2				CS	24	
214910	M AND M LENTILS 24S		2	2	2					1552	7	263	133	230	234	CS	24	
214920	M AND M PEANUTS 24S		2	2	2					1008	6	189	119	197	181	CS	24 *	
214925	M & M PLAIN 10 PACK DISTRIBUTION-----01451		00	0	0					4512		1200				CS	48	
214927	M & M PEANUTS 10 PACK DISTRIBUTION-----01452		00	0	0					2400		672				CS	48	
264670	M&M FAMILY MIX 5.75 CZ *		2	2	2			2160	2	2712	3	936	648	1128	960	40 CS	24 *	
264672	M&M FRUIT CHEWIES 7.5 CZ *		2	2	2			432	1	1176	3	432	240	336	365	31 CS	24 *	
264680	M&M PEANUTS FAM PK 5 3/4CZ *		2	2	2			720	1	2544	4	720	384	744	658	28 CS	24 *	
52955 W	MURRAY ALLEN IMPCRTS																	
208675	REGAL SCUR CHERRY DRCS 24 S		2	1	2					203	5	33	29	33	37	CS	24 *	
	REGAL SCUR FRUIT DRCS 24 S		2	1	2					154	6	14				CS	24 *	

THE STOCK STATUS REPORT BY VENDOR IS GENERATED WEEKLY. IT IS THE FIRST STEP IN THE INVENTORY REPLENISHMENT CYCLE AND IS A REVIEW OF ITEM DATA.

As merchandise is received at the warehouse, it is checked in against order quantities on the receiving reports. Exceptions, if any, are noted and the information is recorded on punched paper tape by means of a Teletype machine. Twice each day, each warehouse is polled by the order and price control dept. and transmissions are made over WATS lines to Chicago via high speed paper tape transmitters and receivers. Punched tape is converted to hard copy in the ordering and price control dept., and card decks are pulled and forwarded to data processing with the hard copy transmission.

Quantities received are punched into the cards and the decks are fed into the computer to update the master inventory disc, and produce extended receiving reports which will be matched against vendor invoices in the accounts payable department before the invoice is paid.

VENDOR STERNO INC KEYSTONE MIDWEST CORP 2544 W PETERSON AVE CHICAGO ILL		DATE OF TAX PROCESSING 01/26/66	ORDER NO. 045265	BUYER F	PAGE 1	DEPT. NO. 80	DATE RECEIVED 01/25/66	REC. REPT. NO. 11041	WAREHOUSE BERKELEY	WISE NO. 2	VENDOR NO. 77150	REC. REPT. NO. 11041	DEPT. NO. 80	PUNCH X-80 IN ALL CARDS			
SHIP TO WALGREEN DRUG CO. 5300 ST. CHARLES RD. BERKELEY, ILLINOIS		INVOICE TO WALGREEN CO. ILL. 4300 W. PETERSON AVE. CHICAGO 46, ILLINOIS		EXTENDED RECEIVING REPORT										ITEM ADJUSTMENT SHEET PER EXTENDED RECEIVING REPORT			
CURRENT DISCOUNT TERMS 2 30 DAYS		CURRENT PRE-TERM & SHIPPING INSTR. PPD ON 10 CS ASSTO		PRICE PER ORDER UNIT				EXTENSIONS ORDERED CURRENT OR DISTRIBUTION		OPC MEMO		NET CHANGE PLUS - BLACK MINUS - RED ORDERED CURRENT INVOICE PRICE DEPT'L COST EXTENSION EXTENSION					
QUANTITY RECEIVED	VENDOR	CASH PRICE	ITEM DESCRIPTION	ORDERED	CURRENT OR DISTRIBUTION	INVOICE PRICE	DEPT'L COST	CURRENT DISC INVOICE PRICE PER ORDER UNIT	M/U ACCT.	ITEM CODE	M/U ACCT.	X IN 24 IF RED	X IN 32 IF RED				
15	CS	144	STERNO HEAT NO 4006					11	642836	11							
10	CS	72	STERNO HEAT NO 4008					11	642838	11							
5	DZ	12	STERNO STOVE NO 33					11	642840	11							

THE EXTENDED RECEIVING REPORT IS GENERATED DAILY. IT IS MATCHED AGAINST THE VENDOR INVOICE.

During this process the inventory master disc is updated by reducing "quantities on order" portions of the disc and increasing "quantities on hand" by the actual quantities received. Back ordered merchandise is transferred from "on order" to "back order" in the disc file. Back orders are examined periodically by inventory control personnel who are in a position to expedite or decide on other solutions.

DATE	BUYER	DAILY OUT OF STOCK REPORT										PAGE	5	WAREHOUSE	BERKELEY
01/20/66	KEATING														
VENDOR NO.	ITEM CODE	ITEM DESCRIPTION	DATE OF LAST ORDER	UNITS				STORE ORDER QTY NOT FILLED	EXTENDED DEPT'L COST	SALES					
				BACK ORDER	ON ORDER	ON HAND	NO OF WEEKS			LAST WEEK	WEEKS AGO	WEEKS AGO	WEEKS AGO	WEEKS AGO	
49157	610697	M/J DEXTRI MALT 3	1 LB 12165					5	43	12					
63975	615165	SOLARCAINE PLAST/BOTL	3 OZ 01056		144			7	36	16	67		17	3	
14900	619741	PERTUSSIN	8 OZ 01136		5760			141	298	736	407	24	388	2	
28250	621247	HEAR-HEAR EAR WAX REMOVER	01136		48			6	44	53	31	21	6	2	
15850	621528	COLGATE CREAM	GNT 12285		2880			192	1140			264	477	3	
15850	621638	CUE TOOTHPASTE KING	01076		432			24	12	33	84	12	48	3	
69155	622318	KLUTCH POWDER	2 OZ 01146	216	1152			31	129	293	209	31	161	2	
10700	623864	AERO SHAVE REGULAR	11 OZ 01136		1188			27	150	257	180	144	492	1	
				540								29			

THE DAILY OUT-OF-STOCK REPORT GOES TO THE BUYER RESPONSIBLE FOR THOSE PARTICULAR PRODUCTS. IT IS GENERATED AT THE END OF THE DAY, AFTER ALL TRANSACTIONS HAVE BEEN MADE.

The cycle count program

A daily cycle count program is used in each warehouse to maintain accurate inventory records. It has been devised to reconcile actual warehouse quantity with inventory quantity on the disc. The two totals may vary in cases where inventory in the warehouse may be damaged and discarded. Since the disc has been updated during the replenishment cycle, changes in inventory occurring in the warehouse (items broken and discarded) change the actual replenishment quantity. It is important that these inventory changes be noted by the system for ordering purposes. Each day, a portion of the items are written onto magnetic tape and transmitted to warehouses where they are printed on cycle count forms. Counts are made of these items and the disc counts are reconciled. Walgreen management believes that the system will facilitate more accurate disc information and establish better audit controls. Plans have been outlined for the implementation of a more sophisticated and comprehensive system. The new system will facilitate more accurate disc information, establish better audit controls, and eventually eliminate giant end-of-year inventory counts.

WHSE 4700 WALGREEN RD, JACKSONVILLE, FLA				QUARTERLY ITEM ANALYSIS REPORT				PERIOD ENDED 10/31/65		PAGE 24					
FORM NO. REV. 1-61	VENDOR NO.	MOSE CLASS	ITEM CODE	ITEM DESCRIPTION	QTY ON HAND	AT END OF QTR.		THIS QUARTER		YEAR TO DATE					
						UNITS	AMOUNT	QTY SHIPPED	EXTENDED BILLING	QTY SHIPPED	EXTENDED BILLING				
					UNITS	AMOUNT	UNITS	AMOUNT	UNITS	AMOUNT	UNITS	AMOUNT			
		300													
8	07302	C 300	339237	WEBSTER FORUM FILTER	50S	40									
8	07302	C 300	339252	WEBSTER QUEEN	50S	24	3	17	-.2	115	-.8	20	-.2	136	-.7
8	30402	C 300	339610	WHITE OWL INVINCIBLE	50S	24	8	4		14		5		18	-.1
8	30402	C 300	339648	WHITE OWL RANGER	50S	24	9	5		17	-.1	11	-.1	38	-.2
8	30402	C 300	339658	WHITE OWL TIP	50S	40									
8	30402	C 300	339673	WHT OWL NEW YORK CIGAR 50S		24	20	3		10		10	-.1	35	

THE QUARTERLY ITEM ANALYSIS REPORT IS A GROUPING OF LIKE ITEMS GENERATED FOUR TIMES DURING THE CALENDER YEAR. SINGLE ITEM MOVEMENT (AS ONE PARTICULAR BRAND OF TOOTHPASTE) IS COMPARED WITH THE GROUP TO DETERMINE WHAT PERCENTAGE OF SALES EACH REPRESENTS.

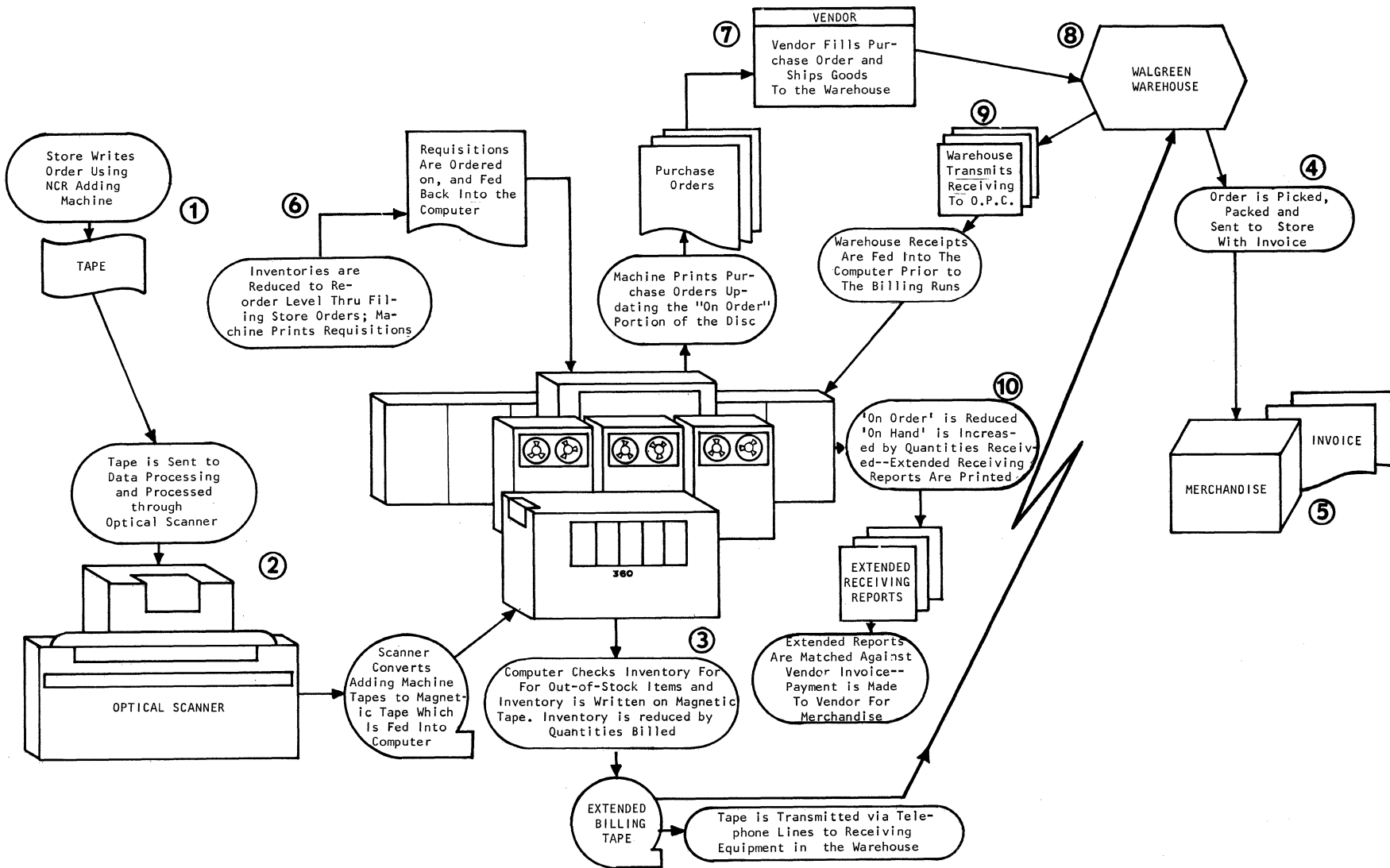
Other systems

Several other systems operate simultaneously in Walgreen's data processing center including a nationwide payroll system which is utilized to process all Walgreen store and office payrolls on a pay-by-check basis. Various city and state tax requirements, repetitive and non-repetitive deductions and, primarily, volume add to the system's complexity. Payroll registers and checks are printed on a biweekly basis for approximately 22,000 Walgreen employees. Earnings records are also maintained by the system which also compiles and prints quarterly Federal Government 941A reports and year-end W2 forms.

Extensive accounting operations by the data processing department provide comparative monthly operating statements for each Walgreen store. In another system, a complete retail ledger is being developed and maintained on disc. In this system, every type of input transaction will be balanced, processed and posted to disc and rebalanced.

"Heavy expansion is in the future for Walgreen," says E. L. Dickey, manager of systems planning and development. Dickey considers the Walgreen Co. to be a pioneer of optical scanning. "And," he adds, "we are constantly expanding this area of operations. Our data processing systems including warehouse inventory store billings, payroll applications and accounting procedures are, we feel, quite progressive. Management reports are timely, informative and are well accepted by all divisions of the company."

INVENTORY CONTROL AND BILLING AT THE WALGREEN CO.



WALGREEN DRUG STORES