

INDUSTRIAL DATA PROCESSING APPLICATIONS REPORT

Applications Shipping and Billing
Type of Industry Transportation
Name of User Los Angeles-Seattle Motor Express Co., Inc.
Seattle, Wash.

Equipment Used Digitronics Data Communications Terminals
IBM System/360 Model 30 computer

Synopsis

LASME moves freight for some 25,000 customers in four states. A high speed data communications network enables the company to handle the paperwork required for its operations with such speed that freight bills arrive at destination terminals ahead of the trucks which are carrying the freight. Data captured as a result of processing freight bills is used for billing, accounts receivable and management reports, including sales and traffic analyses. The company had used other systems over the past six years, but each was outgrown as the company's volume grew. The present system handles an average of 4,000 freight bills daily and is designed for expansion anticipated as the result of a recent merger.

Background

A high speed data communications system enables Los Angeles-Seattle Motor Express Co. (LASME) to keep its trucks where the profit is--on the road. At the same time, it assures a smooth flow of documents and data required for shipping, delivery and billing. In effect, truckers and terminals concentrate on moving freight while a computer and the data transmission network handle the paperwork.

Los Angeles-Seattle Motor Express Co. (LASME) was incorporated in 1937 under the name Hendricks Refrigerated Truck Lines. Operating under authority of the Interstate Commerce Commission, LASME is a common carrier by motor vehicle of general commodities providing service to municipalities in California, Oregon, Washington and British Columbia. The company serves approximately 25,000 customers in a variety of industries and businesses.

A recent merger made LASME part of the third largest motor carrier in the country. LASME will form the West Coast division of T.I.M.E.-DC, Inc., the new name for the merged operations of T.I.M.E. Freight, Inc., DC International, Inc., and LASME. T.I.M.E.-DC operates in a total of 35 states throughout the U.S. and Canada.

"Considering our growth record, a tight and reliable communications network is virtually mandatory," states C. T. Fallin, secretary-treasurer. "In a recent year, our trucks moved freight for 25,000 customers over 20 million miles of road in California, Oregon, Washington and British Columbia. Yet, no single customer accounted for more than 3 percent of our business, indicating the vast amount of paperwork involved in our operation."

LASME began experimenting with transmitting and receiving equipment in 1958, but found it wanting. "First, we found that noise over the telephone lines caused errors impossible to check," Fallin recalls. "Facsimile transmission was tried and discarded as being too slow and too costly. In 1962, we adopted a system that permitted transmission of data, via punched paper tape, to the data processing center at 100 characters per second. The computer converted the paper tape data to magnetic tape for processing."

The system proved feasibly but had some shortcomings, notably the lack of error detection and correction and slower-than-desirable transmission speeds. As the company grew, the need for something better became evident and evaluations leading to the present system were undertaken.

THE SYSTEM

LASME decided to set up a network of Dial-o-verter data transmission equipment supplied by Digitronics Corp. Freight terminals in Seattle and Tacoma, Wash.; Portland, Ore.; Corning, Oakland and Los Angeles, Calif. were equipped with Model 507 transmitters and Model 401 printers. At the data processing center in Seattle, a Dial-o-verter magnetic tape terminal was installed, eliminating the previously required step of converting punched paper tape to computer-compatible magnetic tape. Magnetic tape from the terminal in the data center is fed directly into an IBM System/360 Model 30 computer. Transmission speed from terminals to data center was tripled to 300 characters per second. Also, the system provides automatic detection of errors that might be caused by interference over the telephone lines.

LOS ANGELES-SEATTLE MOTOR EXPRESS CO.

All transmission is between the terminals and central processing unit at the Seattle office. However, the equipment does have terminal to terminal communication capability when required. In addition, a printer located at Corning, Calif., north of San Francisco, prints out bills for freight to be delivered between the Portland and Oakland terminals. Drivers pick up these bills while enroute with freight destined for customers in that area.

The movement of freight from shipper to receiver can be broken into two types: local and interterminal. Local movement is the pickup or delivery of individual shipments within a close radius of the terminal and is controlled by the terminal. The interterminal movement is controlled and coordinated centrally by the Line Haul Dept. The latter best illustrates the capabilities of LASME's freight moving system.

As freight arrives from a shipper, it is accompanied by a bill of lading which describes the articles being shipped and who is to pay for the freight services -- shipper, receiver or third party. The freight is broken down and assigned to line trailers according to destination. A checker supervises this operation and records on the bills of lading the numbers of the line trailers on which the freight is loaded. Trailers immediately depart for destination terminals.

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|--|--|--|---|
| <p>THIS SHIPPING ORDER must be legibly filled in, in ink, in Indelible Pencil, or in Carbon, and retained by the Agent. RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Shipping Order.</p> | | | |
| CONSIGNEE TO Edwards Tube Supply Co. | CODE | CARRIER'S NO. | SHIPPER'S NO. 25971 |
| <p>THIS MEMORANDUM is an acknowledgement that a Bill of Lading has been issued and is not the Original Bill of Lading. RECEIVED, subject to the classifications and tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading.</p> | | | |
| CONSIGNEE TO Edwards Tube Supply Co. | CODE | CARRIER'S NO. | SHIPPER'S NO. 25971 |
| <p>STRAIGHT BILL OF LADING—SHORT FORM—ORIGINAL—Not Negotiable RECEIVED, Subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.</p> | | | |
| CONSIGNEE TO Edwards Tube Supply Co. | CODE | CARRIER'S NO. | SHIPPER'S NO. 25971 |
| DESTINATION CITY & STATE 8713 S. Ventura Ave., Los Angeles, Calif. | ADVANCE | | C.O.D. |
| ROUTE LOS ANGELES-SEATTLE MOTOR EXPRESS, INC. | CAR OR VEHICLE INITIALS & NO. | | AMT. \$ |
| No. Pkgs. 1 | Kind of Package, Description of Articles, Special Marks, and Exceptions Bx of 22 pcs. Wrought Steel tubing | * Weight (Sub. to Corr.) 185 | Subject to section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. Per _____ If charges are to be prepaid write or stamp here "To be Prepaid." Prepaid |
| | under 24 inch dia. under 16 gauge | Class or Rate | |

While the freight is enroute, the bills of lading are given to a rate clerk who uses a Tariff Book and calculator to compute charges. These figures are later audited by the computer.

The rate clerk routes the documents to a biller who prepares punched paper tape and an origin station copy of the delivery receipt on a Friden Flexowriter. Each evening, after all bills at the terminal are typed, the paper tape is transmitted to the Dial-o-verter receiver in Seattle and recorded on magnetic tape. This tape goes through a sorting routine on the computer and a second magnetic tape is produced and fed into a transmitter which sends the data to the appropriate receiving terminals where it is printed out on delivery receipt forms.

LOS ANGELES-SEATTLE MOTOR EXPRESS CO.

LOS ANGELES-SEATTLE MOTOR EXPRESS, INC. ORIGIN STATION COPY
OPERATORS OF BRITISH COLUMBIA — SEATTLE TRANSPORT

VANCOUVER, B. C. SEATTLE TACOMA PORTLAND STOCKTON OAKLAND LOS ANGELES
 CYPRESS 9-3411 MAIN 3-9040 BROADWAY 2-0346 CAPITOL 8-8471 HOWARD 6-9053 GLENCOURT 1-8107 LUDLOW 8-0141

| | | | | | | | |
|---|--|-----------------------|-------------------|------------------------|-------------|----------------------------|------------------------------|
| DATE J 03/15/68JW R501 | | EQUIPT. NO. 010107 | | SHIPPER'S NO. 25971 | | G. B. L. NO. 01-719814 | |
| FROM EDWARDS TUBE SUPPLY CO., 1819 4TH S, SEATTLE WN | | | | | | CITY & STATE LA CALIF | |
| TO EDWARDS TUBE SUPPLY CO., 8713 S VENTURA AVE, LA CALIF | | | | | | SHIPPER CODE 2066239030 | |
| ADVANCE CARRIER | | | | | | CONSIGNEE CODE | |
| BEYOND CARRIER | | | LASME REV. 755 | ORIG. SPLIT | DEST. SPLIT | | |
| PIECES 1 | DESCRIPTION BX OF 22 PCS WROUGHT STEEL TUBING UNDER 24 INCH DIA UNDER | | | WEIGHT 185 | RATE 408 | FREIGHT 755 | TOTAL CHARGES PREPAID 755 |

FROM THE BILL OF LADING, A BILLER PREPARES SIMULTANEOUSLY THE ORIGIN STATION COPY (ABOVE) AND PUNCHED PAPER TAPE FOR TRANSMISSION OF THE DATA TO THE COMPUTER.

DELIVERY RECEIPT

LOS ANGELES-SEATTLE MOTOR EXPRESS, INC.
OPERATORS OF INTERSTATE FREIGHT LINES

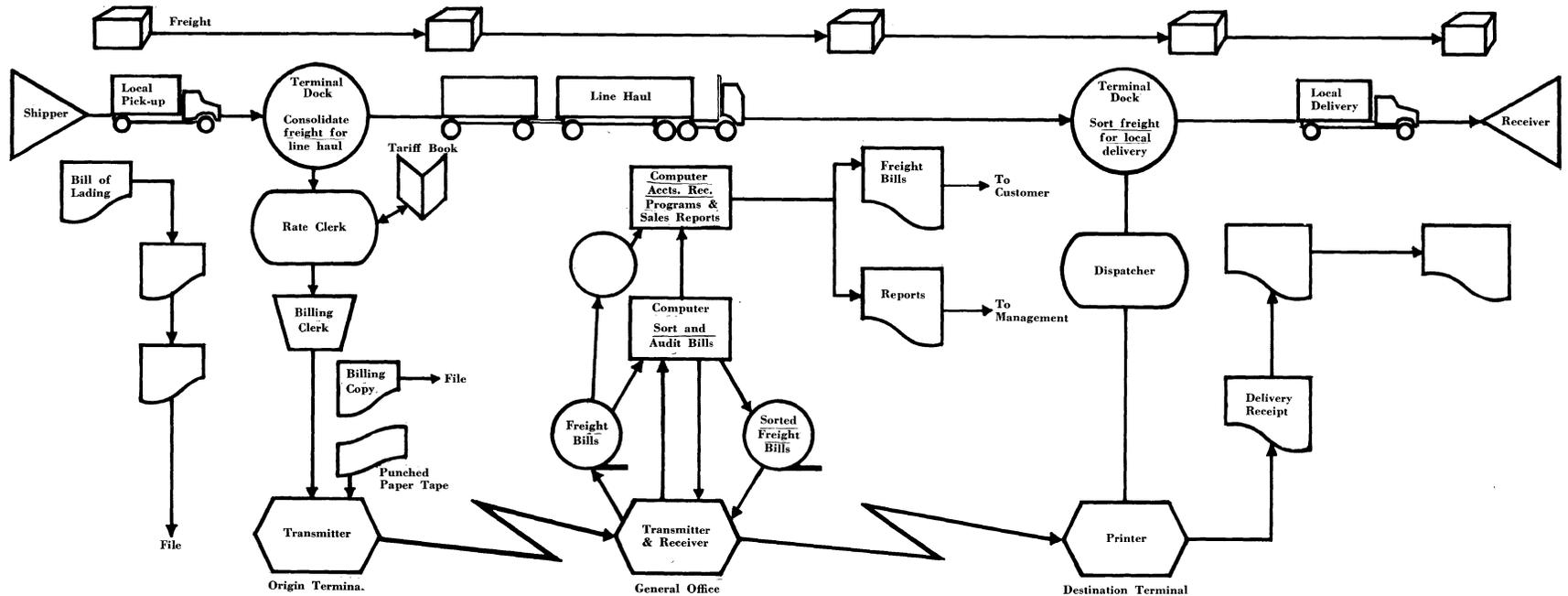
VANCOUVER, B.C. SEATTLE TACOMA PORTLAND STOCKTON OAKLAND LOS ANGELES
 CYPRESS 9-3411 MAIN 3-9040 BROADWAY 2-0346 285-0431 466-9053 451-8107 588-0141

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|---|--|----------------------|--|------------------------|-------------|-------------------|------------------------------|----------------------------------|--------------|----------------------------|--|
| DATE J 03/15/68JW R501 | | EQUIP. NO. 010107 | | STATION CODE 010107 | | COMMODITY CODE | | SHIPPER'S OR G.B.L. NO. 25971 | | PRO. NUMBER 01-719814 | |
| FROM EDWARDS TUBE SUPPLY CO., 1819 4TH S, SEATTLE WN | | | | | | | | CITY & STATE LA CALIF | | SHIPPER CODE 2066239030 | |
| TO EDWARDS TUBE SUPPLY CO., 8713 S VENTURA AVE | | | | | | | | LA CALIF | | CONSIGNEE CODE | |
| ADVANCE CARRIER | | | | BEYOND CARRIER | | LASME REV. 755 | ORIG. SPLIT | DEST. SPLIT | PAYABLE CODE | | |
| PIECES 1 | DESCRIPTION BX OF 22 PCS WROUGHT STEEL TUBING UNDER 24 INCH DIA UNDER | | | WEIGHT 185 | RATE 408 | FREIGHT 755 | TOTAL CHARGES PREPAID 755 | | | | |

DATA RECEIVED VIA PUNCHED PAPER TAPE IS PROCESSED AND OUTPUT TO A MAGNETIC TAPE WHICH IS THEN MOUNTED ON A TERMINAL FOR TRANSMISSION OF THE DATA TO THE RECEIVING TERMINAL. AT THE TERMINAL, THE DATA IS PRINTED OUT ON DELIVERY RECEIPT FORMS.

At the destination terminal, the dispatcher sorts the delivery receipts according to delivery zones of the receivers and assigns a route number on each delivery receipt. These receipts are then sorted in line haul trailer number sequence so that the receipt can be matched with the freight as it is being unloaded from the trailer. This serves as a control check for all freight and directs the unloaded freight to the proper loading point for delivery trucks.

LASME'S FREIGHT HANDLING SYSTEM



BILLS OF LADING, DROPPED OFF AT ORIGIN TERMINALS, PROVIDE INPUT TO DATA COMMUNICATIONS NETWORK. AS FREIGHT MOVES ON TO DESTINATION TERMINALS, INPUT DATA IS CONVERTED TO COMPUTER-COMPATIBLE FORM AND TRANSMITTED TO HEADQUARTERS FOR PROCESSING. FOLLOWING COMPUTER PROCESSING, DATA FOR FREIGHT BILLS IS TRANSMITTED TO THE TERMINAL DOCK AND HARD COPY FREIGHT BILLS ARE OUTPUT TO ACCOMPANY SHIPMENTS TO LOCAL DELIVERY POINTS. MEANWHILE, ORIGINAL DATA FROM BILLS OF LADING IS USED IN OTHER APPLICATIONS, SUCH AS ACCOUNTS RECEIVABLE AND MANAGEMENT REPORTING.

Meanwhile, in the data center, the data captured from the delivery bill transmission is merged with the accounts receivable file during a semiweekly billing cycle. At this time, new bill copies are printed out and mailed to the debtor -- shipper, receiver or third party as indicated on the original bill of lading. Billing and accounts receivable are centralized.

REMITTANCE COPY
LOS ANGELES-SEATTLE MOTOR EXPRESS, INC.

BILLING COPY
LOS ANGELES-SEATTLE MOTOR EXPRESS, INC.

ORIGINAL FREIGHT BILL
LOS ANGELES-SEATTLE MOTOR EXPRESS, INC.
OPERATORS OF INTERSTATE FREIGHT LINES

VANCOUVER, B. C. SEATTLE TACOMA PORTLAND STOCKTON OAKLAND LOS ANGELES
CYPRESS 9-3411 MAIN 3-9040 BROADWAY 2-0346 285-0431 466-9053 451-8107 588-0141

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|---|--|---------------------|--------------------------|------------------------------------|---------------------------------|
| DATE J 03/15/68 | | EQUIPT. NO. R501 | STATION CODE 010107 | SHIPPER'S OR G. B. L. NO. 25971 | PRO. NUMBER 01-719814 |
| FROM EDWARDS TUBE SUPPLY CO, 1819 4TH S, SEATTLE | | | CITY & STATE WN | SHIPPER CODE 2066239030 | |
| TO EDWARDS TUBE SUPPLY CO, 8713 S VENTURA AVE, | | | CITY & STATE LA CALIF | CONSIGNEE CODE | |
| ADVANCE CARRIER | | BEYOND CARRIER | LASME REV. 755 | ORIG. SPLIT | DEST. SPLIT |
| PIECES 1 | | WEIGHT 185 | RATE 408 | FREIGHT 755 | TOTAL CHARGES PREPAID 755 |
| BX OF 22 PCS WROUGHT STEEL TUBING UNDER 24 INCH DIA UNDER 6 GAUGE | | | | | |

DATA CAPTURED DURING PROCESSING OF DELIVERY DOCUMENTS IS MERGED WITH AN ACCOUNTS RECEIVABLE FILE USED FOR SEMI-WEEKLY BILLING. OUTPUT FROM THE BILLING RUN IS A 3-PART FREIGHT BILL.

Data captured from the system also is used to prepare various management reports, such as sales and traffic analyses.

"It is important that the freight bills arrive at the terminals ahead of the trailers. This enables the dispatchers to set up schedules and, knowing in advance which shipments they are to receive, they can plan their work load accordingly," Fallin explains.

"Our trucks are kept rolling. They are not detained while documents are prepared since we use high speed data transmission lines and computers to handle paper flow. Our computer has been put to its most efficient use at a cost less than previous methods with greater reliability."