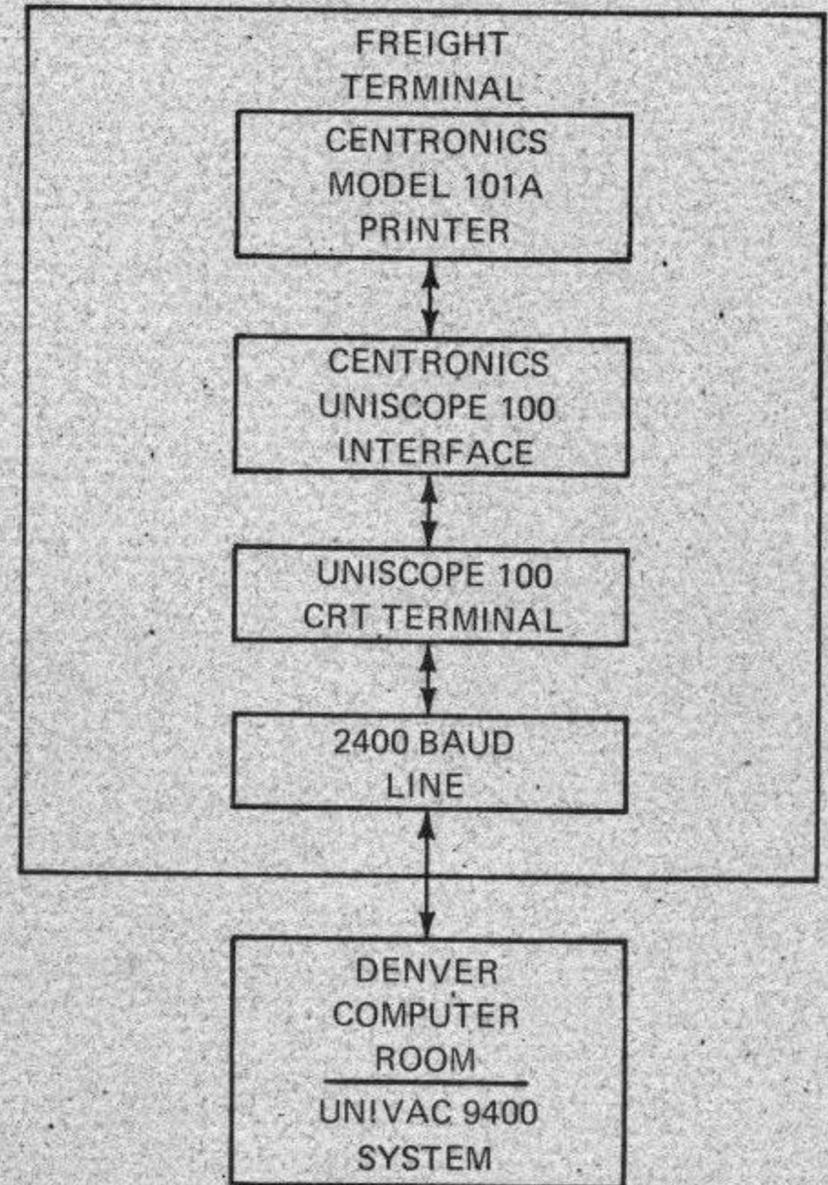


Illinois-California Express Corporation (ICX), a large freight transporter, has cut the printing time of its freight bills at remote terminals by substituting twenty-six, 165 character per second Centronics 101A matrix impact printers for the standard 30 character per second printers available with the Univac Uniscope 100 (U-100) CRT terminal. Centronics was selected for reliability, speed, printer quality, and cost, plus the availability of the Centronics supplied U-100 interface.

ICX operates in twenty-eight different locations with their main headquarters in Denver where they have installed a Univac 9400 computer system. All remote terminals in the various city locations use the Univac U-100 CRT terminal. Many of these freight terminals use more than one U-100 per site, and most locations have the Model 101A printer connected to a U-100. The Univac printers, which operate at 30 characters per second, are used at terminals where there is a lower printing volume. The Centronics maintenance centers available in each of the cities where the 101A's are located also played an important part in convincing ICX that its 24-hour on-line operation could make use of the fast, low-cost Centronics printer.

Six Western Union 2400 baud dedicated data lines plus one in-house line are used by the overall system. Each location has a multiplexer so multiple CRT's can have access to a given line. The 132 column, 60 to 200 line per minute Centronics printers are used in this system to fulfill two main purposes.

The first requirement is for message switching, which acts as a TWX/Telex substitute between



the Denver computer room and any terminal location. Over 1,000 administrative messages are presently handled during a typical 24 hour period.

The second and most active use is in the freight billing area. This is completed as a four step function. The first step is the input of the skeleton freight bill keyed on the U-100 CRT at a terminal-office and transmitted to the Denver based Univac 9400 computer. This generally occurs between the hours of 4 p.m. and 2 a.m. local time. Batching is used for each station. Extensions and other information are added by the computer as the second step. The third step involves the computer transmission of the completed freight bill back to its original input source. The printed output appears on a six part form. The final step is the batch transmission of data to the terminal where the freight will be received. This is also printed out on a similar six part form. Each printing cycle takes a maximum of one and one-half hours, which was ICX's design criterion. Around 7,000 billing transactions a day are processed using this system.



x ORIGINAL FREIGHT BILL (1) **ILLINOIS CALIFORNIA EXPRESS, INC.**

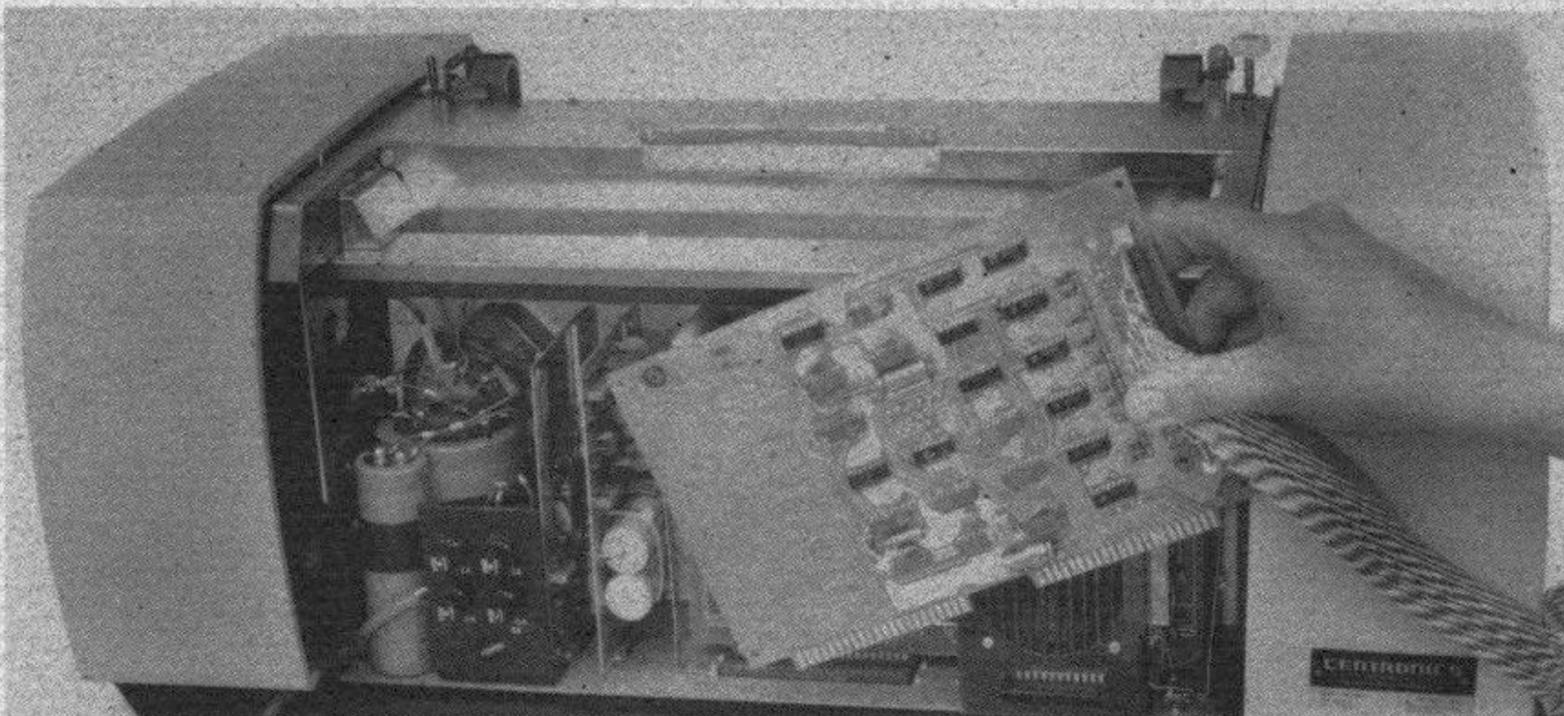
PRO. NUMBER 1267 893327	TRLR. 3507	C.O.D. - ICX	AMT. DUE ICX 9421	ACCT. PAY. 5734	REVENUE 3687	TAX
ALWAYS REFER TO THIS NUMBER						
SHIPPER XYZ ENTERPRISES 1051 D ST SOMEWHERE NJ SN 5440						
CONSIGNEE ABC DIST 1795 RIVER ST NW ACITY NM 2/19/73AP						
SK 78 876 659 2 13 73						
CL - CL PRO. NO.			INTERCHANGE POINT, ROUTE			
NO. OF PIECES	DESCRIPTION OF ARTICLES	WEIGHT	RATE	CHARGES		
12	STL RACK NOIBN KDF	96	11.22			
20	GYM APPR NOIBN KDF	328				
17	PL3TC 12 LB PCF	316	12.29			
49	TTL	740	COL	89.92		



RECEIVED THE ABOVE DESCRIBED PROPERTY IN GOOD CONDITION EXCEPT AS NOTED	DATE DELIVERED	DRIVER'S SIGNATURE
CONSIGNEE BY <small>I.C.C. REGULATIONS REQUIRE PAYMENT OF FREIGHT BILLS WITHIN 7 DAYS AFTER PRESENTATION.</small>		

50255

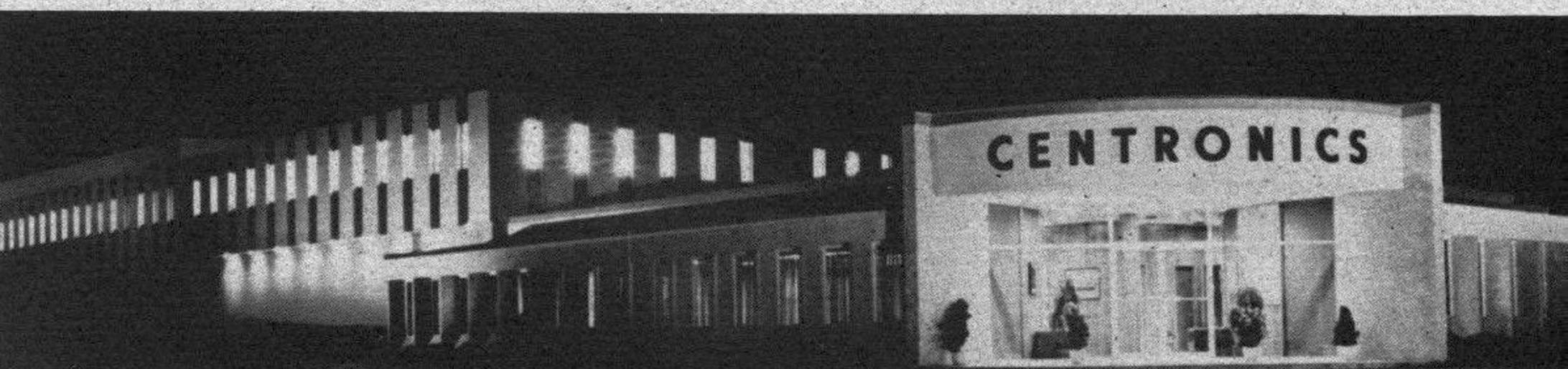
The actual size of this six-part form is 8 1/2" by 5 1/2".



The Centronics interface card for the Univac Uniscope 100 CRT terminal is located within the printer.

U.S. patents and foreign patents pending.

Printed in U. S. A. 7/73
Number 1



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