SABER CARD READER
DESCRIPTION AND USE

1. GENERAL

1.01 The Saber Optic Fiber Reader provides the ability to accurately read both sides of a standard mark read card, 3 1/4 inch by 7 3/8 inch, in one pass through the reader. The card reader uses bifurcated fiber optics, precision mechanical components and advanced integrated circuits to assure high accuracy of card reading.

1.02 Adaptation of the card reader to Southwestern Bell Telephone Company's Repair Service Bureaus (RSB) will allow for transmittal of trouble ticket data to a remote computer which will be programmed for the Mechanized Customer Trouble Report Analysis Plan (M-CTRAP). Section 660-100-017SW and Section 660-100-018SW outline procedure to be followed in adaptation of the card reader to SWBT Co, operation.

1.03 The card reader is designed for desk top or table top operation, and for use in a normal office environment. (Operating temperature should be between +50° to +104°F and the relative humidity between 15% to 80% non-condensing.) The reader measures 24 1/2 by 27 1/2 by 10 1/2 inches and is powered by 115 ± 10% volts AC, 60 hertz, single phase power source. The card reader is also equipped with a three-pocket sorter, with one pocket marked accept and one pocket marked reject, and one unmarked pocket which is not used in the RSB application of the card reader. (Figure 1).

1.04 The card reader has two output data ports. One port outputs data at 100 baud and is intended for use with a local teletype. The other port has switch selectable rates of 110 baud, 300 baud, 600 baud, 1050 baud and 1200 baud. This port is intended for use with a type 202C (or equivalent) data set. Furthermore, this port is capable of receiving data from the telephone line through the data set. The first port is called the TTY PORT; the second, DATA PORT. (The teletype and data set are not part of the Reader.)

1.05 The card reader has four basic operating modes: Transmit, Edit, Compare, and Receive. The Transmit and Receive modes are used ON LINE with a data set connected to the remote computer through standard telephone lines. The Edit and Compare modes are used OFF LINE. When in either the Edit or Compare modes the card reader is capable of sorting cards at a rate of 150 cards per minute.

2. OPERATOR CONTROLS

2.01 Power - Operation of this button supplies electrical power to the card reader.

2.02 Reset - This button is used to take the reader out of any of the four operating modes. Operation of the reset button does not reset the display counter.

NOTE: Operation of the reset button will cause the data set line to disconnect when the reader is in the Transmit/Receive mode.

2.03 Operate - This button activates the card reader feed mechanism. The operate button is used to begin reading and sorting cards while the card reader is OFF LINE in either the Edit or Compare modes. This button can be activated only after the Edit or Compare mode button is operated.

2.04 Halt - If it is necessary to stop the card reader while it is operating, depress this button. The reader will then stop functioning until you depress the operate button. The card reader will start reading again without changing the mode of operation. The halt button functions only when the reader is in the Edit, Compare, or Transmit modes. The card currently being read when the halt button is activated will be completed prior to stopping operation of the card reader.

2.05 Compare - This button is used to activate the Compare mode operation of the card reader. The Compare mode is used only when the reader is OFF LINE.

2.06 Edit - This button is used to activate the Edit mode operation of the card reader. The Edit mode is used only when the reader is OFF LINE.

2.07 Transmit (XMIT) - This button is used to activate the Transmit mode operation of the card reader. Activation of the Transmit button places the card reader ON LINE.

2.08 Data Print - This button controls the data printout to a local TTY machine when the reader is used OFF LINE during either the Edit or Compare modes.

2.09 All of the operating buttons described in 2.01 through 2.08 are illuminated when in operation.

2.10 Counter Selection - A 5-digit display counter is located on the card reader and keeps a count of the number of trouble tickets which have been accepted or rejected by the card reader. The toggle switch located next to the digit display counter selects which count, either accept or reject, will be made by the reader. After the cards have been read it is possible to get the count of the cards in either pocket by just changing the toggle switch to each position.

2.11 Counter Reset - Activation of this button resets the 5 digit display counter to zero. This button does not affect any card reader operational modes.

2.12 Motor On/Off Switch - A toggle switch used to control the card drive motor. Operation of this switch turns the drive motor on. This switch should be turned on prior to operation of any control button. Allow approximately two minutes for warm-up.

2.13 Invert - A rotary switch located in the rear of the card reader which is used to select the reading of either normal or inverted Hollerith card data. This switch will <u>always</u> be in the inverted position when the card reader is used for any of the RSB applications. <u>NOTE</u>: Accidental switching of this switch to the normal position will cause error conditions to be experienced when using the card reader.

2.14 Baud Rate Selection - This 5 position rotary switch is mounted on the rear of the Reader. This switch selects the baud rate (transmit and receive) of the DATA PORT to be 110 baud, 300 baud, 600 baud, 1050 baud Or 1200 baud. (The TTY PORT is unaffected.) This switch should <u>always</u> be set at 1200 baud.

2.15 Alarm - There is an alarm on the Reader. The alarm lamp flashes and there is a beeping audio tone with the flashing lamp. Push the ALARM switch to turn off the tone. Push it again to reset the alarm tone. There are two alarm conditions: One condition is a Reader error and the ALARM lamp flashes. The other condition is a transmission line error and the XMIT and ALARM lamps both flash. A Reader error is either a card jam or an empty hopper, while a transmission error either is a failure to successfully transmit data to the remote computer, or an invalid condition as detected by the remote computer.

3. OPERATING MODES

Operation of Reader in the Edit Mode

3.01 The EDIT function of the card reader is used to check the trouble tickets for marking errors before the data is transmitted to the remote computer. The EDIT check is used to reduce the number of errors that are transmitted. Use of the Edit mode will reduce on-line computer time, therefore reducing computer cost.

3.02 The card reader is placed in the Edit mode when the Edit control button is depressed. The operation of the Edit mode requires the preparation of an Edit Control Card which defines what items on the trouble ticket are to be edited.

3.03 Determine what items are to be edited on the trouble ticket. Procedures outlined in Section 660-100-017SW should be followed in preparing the Edit Control Card.

3.04 After the Edit Control Card is prepared place the Edit Control Card into the input hopper of the card reader. Place all other tickets that are to be edited on top of the Edit Control Card. Operate the Edit control button. The Edit Control Card is read and placed in the reject pocket. Depress the Operate button to start the reader.

3.05 Trouble tickets that meet the Edit requirements of the Edit Control Card are dropped into the accept pocket of the sorter while trouble tickets that do not meet the Edit requirements are dropped into the reject pocket of the sorter.

3.06 During the Edit mode the local TTY is in operation. If the Data Print control button has not been depressed, error messages regarding the trouble tickets rejected will be printed on the local TTY. If the Data Print control button has been depressed all the data on the trouble tickets in the accept pocket will be printed. Normally during the Edit mode the Data Print control button will not be depressed.

3.07 Trouble Tickets not meeting the Edits should be corrected and then re-edited. The Edit Control Card is dropped into the reject pocket of the sorter. The Edit Control Card may be saved and reused as long as the items that are to be edited are not changed.

3.08 When in the Edit mode, the reader is OFF LINE and the TTY PORT controls the reader Baud rate. The Baud Rate Selection Switch has no function in the Edit mode. Whenever the card reader is in the transmit/receive modes the baud rate selection switch must be set at the 1200 baud rate.

Operation of Reader in the Compare Mode

3.09 The Compare Mode of the card reader is a sort function. Trouble tickets are compared to a Compare Control Card and appropriately sorted. This mode of operation allows the RSB personnel to sort out of any group of trouble tickets any particular item of interest, for example, the number of OOS reports taken on a given date.

3.10 As in the Edit mode, the Compare mode requires the preparation of a Compare Control Card, To prepare the Control Card the RSB personnel will determine what item of information is desired to be sorted and code the control card so that the reader sorts out the tickets with this item. Section 660-100-017SW describes the procedures to be followed in preparing a control reference card.

3.11 After the Compare Control Card is prepared, place it into the input hopper of the card reader. Place all of the other tickets which are to be compared on top of the Compare Control Card, and then operate the Compare control button. If a printout

of the tickets is required depress the Data Print control button.

3.12 Depress the operate button. The trouble tickets that match the Compare Control Card are dropped into the accept pocket of the sorter while those which do not compare are dropped into the reject pocket of the sorter. The Compare Control Card will be dropped into the accept pocket of the sorter.

Operation of the Reader in the Transmit/ Receive Mode

3.13 The Transmit (XMIT) mode is entered by the activation of the XMIT control button, and then the operate button. This mode is used when the RSB is ready to transmit data. When the XMIT button is activated and the baud rate selector switch is set at a rate of 1200, the reader will be ON LINE and will automatically wait for the ring from the remote computer, i.e., a telephone line hook-up from the centralized minicomputer. The computer will ring the data set at the RSB. After establishment of the call, the reader and data set will transmit the data off of the trouble tickets in the hopper to the computer. (See Section 660-100-018SW for preparation of trouble tickets.)

3.14 After the transmission of each card, the reader will wait for a code from the computer to inform the reader to go to the next card. If the acknowledge code is received the reader will go to the next card. If the negative acknowledge code is received the reader will retransmit the previous trouble ticket. If a receive code is transmitted by the computer the reader will automatically go the the Receive mode for Error Transmission. No ticket will be retransmitted more than once. If the card reader does not receive an acknowledge code, negative acknowledge code, or a receive code from the remote computer after each trouble ticket is transmitted, the XMIT and Hopper Alarm lamps will flash, and the card reader will disconnect the line.

3.15 Since the computer automatically rings the reader on a prescribed polling schedule, it is necessary for the RSB to be sure that the reader controls are set as prescribed in 3.13 after the hopper is loaded and that no change in controls are made until after the polling is completed. (See Section 660-100-017SW for polling procedures.)

3.16 The Receive mode is entered automatically through the data set. In this mode, received error messages are stored in the reader until each individual error message has been received. After receiving a line of data the information is transmitted to the local teletype. This mode allows the remote polling system to print on the local TTY without changing the established baud rate between the reader and the remote polling system.

3.17 The Receive mode cannot be entered if the Reader is in either the Edit or Compare modes. After use of either the Edit or Compare modes the card reader controls must be set for use in the receive or transmit modes.

4. MAINTENANCE AND CALIBRATION

4.01 Saber Management System, Inc. under a lease agreement with SWBT Co. provides both preventive and remedial maintenance required to keep the Card Reader/Sorters in good operating condition. These maintenance charges include the cost of all labor (both service time and travel time), expenses and replacement parts.

4.02 Maintenance will take place at the customer locations specified. Maintenance on all units of equipment is available under this agreement on a twenty four (24) hour , seven (7) days per week basis for the first twelve (12) months of this contract.

4.03 Maintenance on the Card Readers for the second and third years of the contract will be on an 8:00 A.M. to 5:00 P.M. normal-working day basis. If SWBT elects to extend to twenty four (24) hour, seven (7) days per week maintenance coverage for the Card Reader units an additional maintenance surcharge will be negotiated at such time. General Plant has the responsibility for negotiation of the maintenance contract with Saber Management, Inc.

4.04 Trouble tickets are placed in the card hopper with the top part of the card facing upward and the black strobe marks lined up with the left side of the hopper. If a card jams, first lift the top of the pocket sorter and remove the jammed card. It may be necessary to remove the guard from around the card hopper to remove the jammed trouble ticket. Under no circumstances will the plant personnel attempt to remove a card jammed inside the reader itself. In this case the local plant personnel will call the Saber System Management, Inc. representative.

NOTE: Insure that no bent or torn trouble tickets are placed in the card hopper.

4.05 Questions concerning the card reader maintenance agreement should be referred to the General Repair Supervisor, General Plant Staff, St. Louis, Missouri, Telephone 314-247-4857.

4.06 Other than clearing a hopper jam, local plant personnel will not perform any maintenance or calibration on the card reader. Refer card reader malfunctions immediately to the designated Saber Management System, Inc. representative for the area.

FIGURE 1