

35 EDGE PUNCHED CARD READER

INSTALLATION

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Also, special care should be taken to avoid electrical shock when working near polarized electrolytic capacitors.

CAUTION: POWER SHOULD BE DISCONNECTED. WHERE PROCEDURES CALL FOR POWER TO BE CONNECTED, APPROPRIATE PRECAUTIONARY MEASURES SHOULD BE TAKEN TO AVOID ACCIDENT.

1. GENERAL

1.01 This section provides installation procedures for the 35 edge punched card reader (3A READER). It is reissued to accommodate engineering changes. Since this is a general revision, marginal arrows to indicate changes or additions are omitted.

1.02 References made to left or right, top or bottom, and front or rear apply to the set in its normal position as viewed from the front.

1.03 If necessary, refer to Section 574-242-702 for removal of cover, top plate, and any internal mechanisms associated with the reader (Figures 1 through 5). For any further information regarding location of parts, refer to the exploded views in Section 574-242-800.

1.04 Special care should be taken to avoid accident if the reader is to be operated when it is separated from its housing (Figure 6).

1.05 When mechanisms and parts, such as the cover (Figure 5), are removed, set them aside in some location where they will not get damaged and where they will not be a hazard to personnel around the area.

1.06 Refer to Maintenance Tools Section 570-005-800 for information covering standard tools.

1.07 Photographs in this section are of current design units. Early design units differ from current design units mainly in the top plate and cover arrangements. Where important to the operation, any difference between units is noted.

2. INSTALLATION

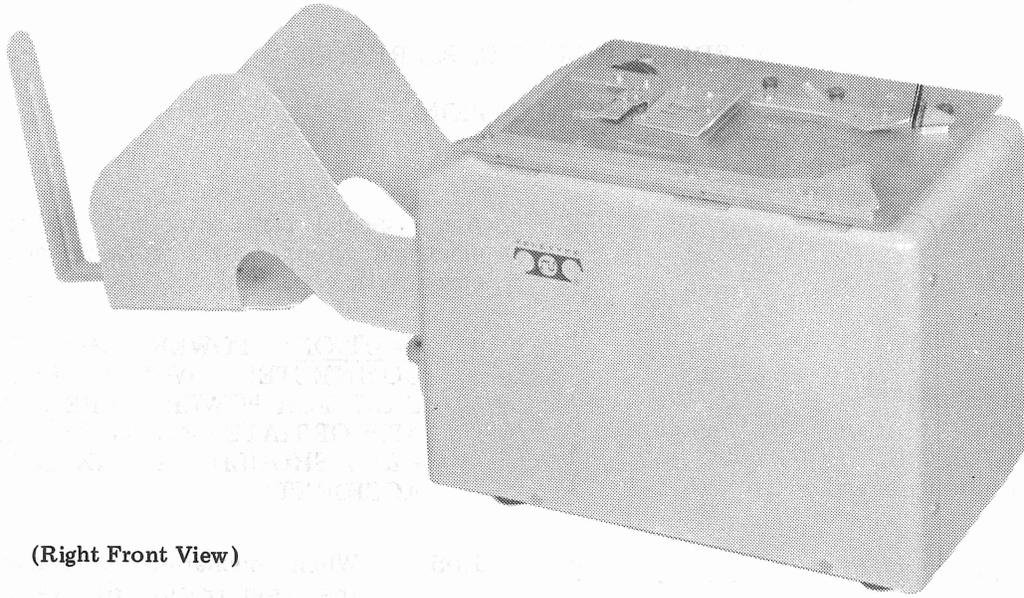
Space Requirements and Weight

2.01 The overall sizes and weight of the reader are approximately:

| | |
|------------------|---------------|
| Height | 7-1/2 inches |
| Width | 10-1/2 inches |
| Depth | 6-3/4 inches |
| Weight | 16 pounds |

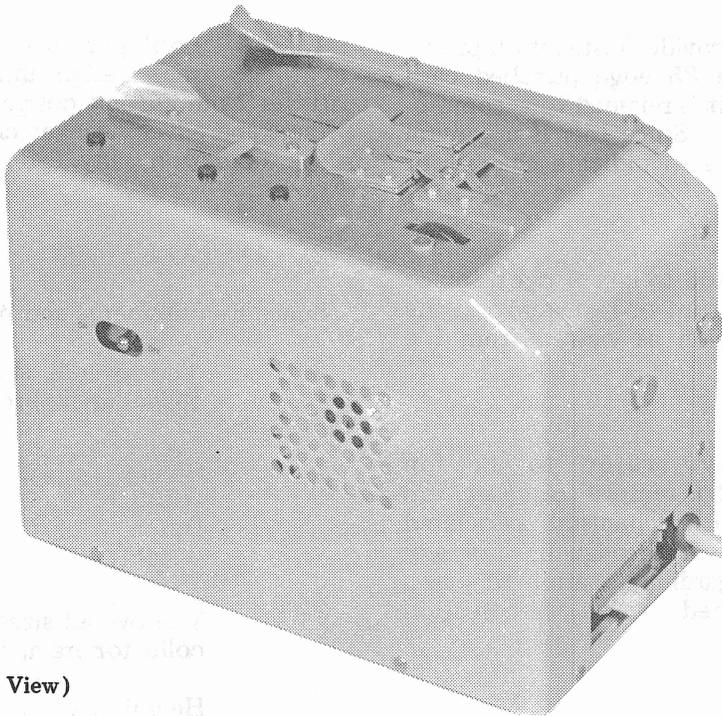
2.02 The overall sizes and weight of the card collector are approximately:

| | |
|------------------|---------------|
| Height | 6-5/8 inches |
| Width | 9-3/16 inches |
| Depth | 4 inches |
| Weight | 12 ounces |



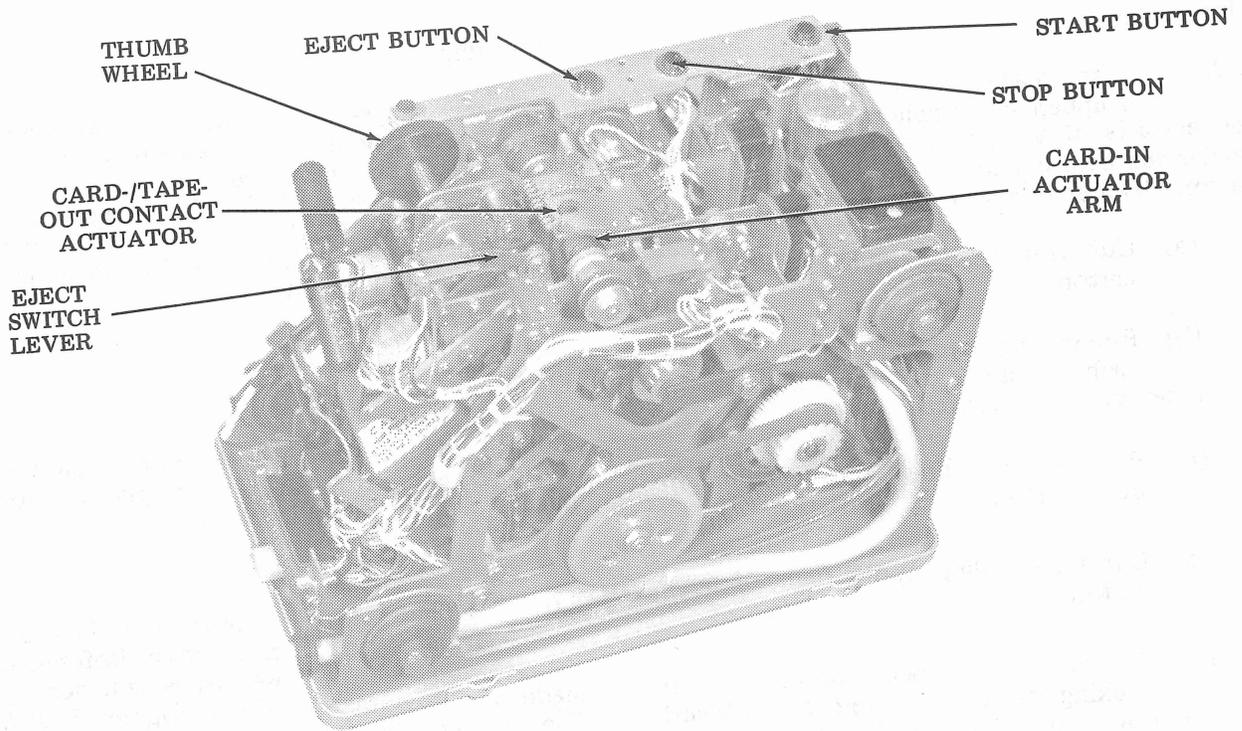
(Right Front View)

Figure 1 - 35 Edge Punched Card Reader



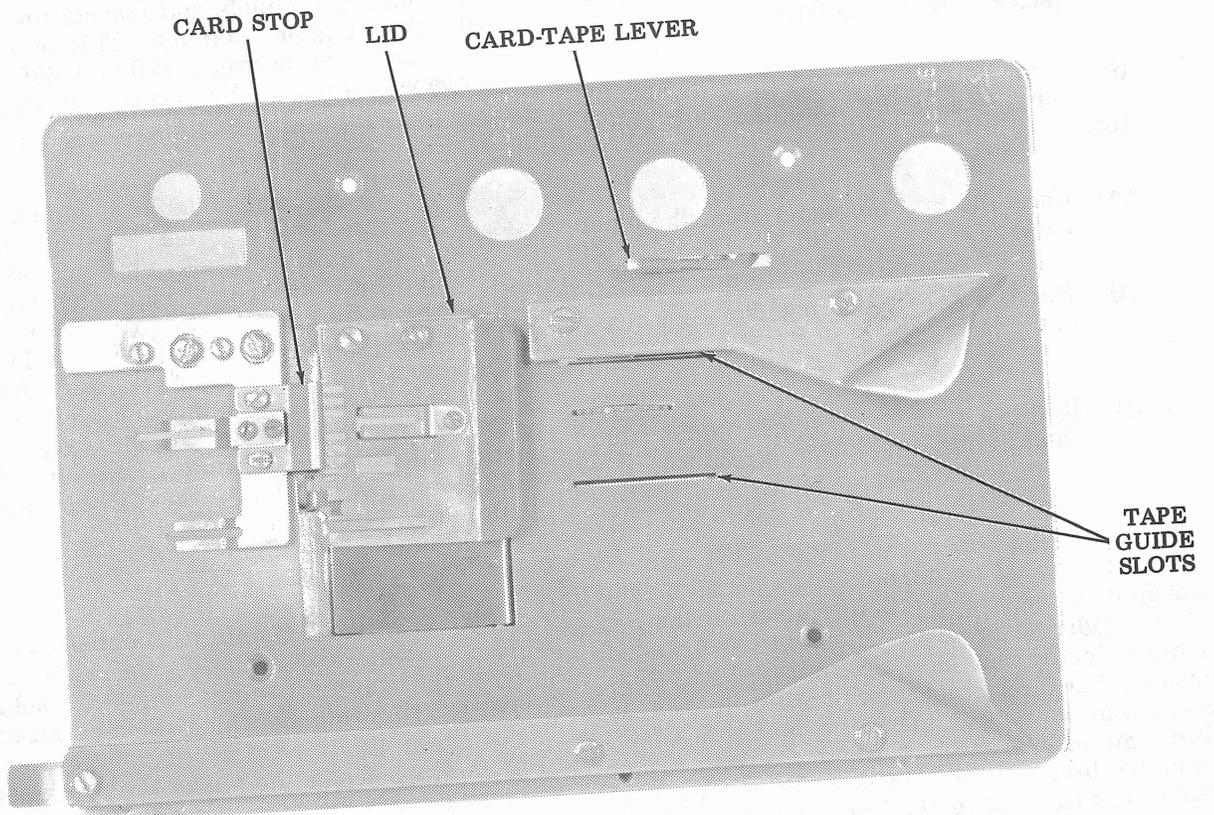
(Left Rear View)

Figure 2 - 35 Edge Punched Card Reader



(Front Top View)

Figure 3 - 35 Edge Punched Card Reader Without Top Plate and Cover



(Front Top View)

Figure 4 - Top Plate Assembly

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Unpacking

2.03 The reader with card collector is shipped in a single package. This package consists of the inner carton containing the reader and card collector, encased inside an outer carton. Exercise care when unpacking.

- (a) Cut tape sealing upper flaps of outer carton.
- (b) Remove the corner packing detail from each of the four corners between the inner and outer cartons.
- (c) Remove the inner carton from the outer carton.
- (d) Cut tape sealing upper flaps of inner carton.
- (e) Remove the wood holding down packing detail, and remove cardboard enclosure containing card collector from inner carton.
- (f) Remove cardboard enclosure and tissue paper from card collector.
- (g) Remove the cloth bag of parts and the wiring diagrams from the card collector.
- (h) Carefully lift the reader from the inner carton.
- (i) Remove the plastic bag from the reader.
- (j) Remove tape and wooden blocks from the top plate and cover of reader.

2.04 A set of parts (TP343724) can be ordered as an option to install a filter attachment over the ventilating holes on the rear of the reader cover. If this filter is to be installed, remove the cover (see Section 574-242-702). Position the filter bracket symmetrically over the ventilating holes and mark the positions of the three mounting holes. Drill three 0.093 inch diameter holes in the cover at these positions. Place the filter pad in the bracket and attach the bracket to the cover with three TP153103 round head screws.

Mounting

2.05 The reader, including a card collector, can be used as a table mounted unit. It can also be mounted to an Automatic Send-Receive Set (ASR) by means of the modification kit TP310172. The card collector is mounted to the reader cover by means of two thumbscrews TP70593.

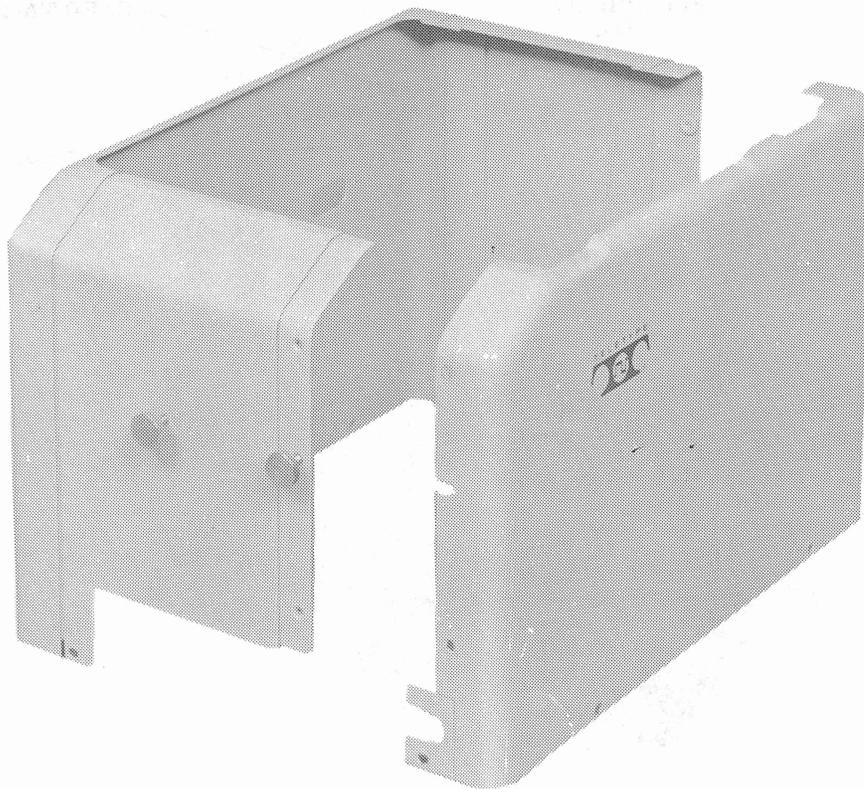
Electrical Connections

2.06 The cloth bag contains a 50-pin female connector and a supply of straps, push-in terminals, and insulator sleeves.

2.07 The straps TP193465 are to be used on the Z and B receptacles. Reference to the positions which these straps will occupy is made in the notes on wiring diagram 7336WD. The wiring diagram indicates that the code reading contacts be connected between B20 and B36 when ejection of a card by code is desired. This is done by wiring the eject code into the code reading contacts and placing them in series with the auxiliary contacts. This series string is then connected between B20 and B36. All of the above wiring is done by means of straps.

2.08 If the code reading contacts are to be used for parallel wire output or for other functions, external wiring is soldered to push-in terminals TP173716, which are inserted into the appropriate holes of 50-pin connector TP192014. This wiring will be used in place of the straps. The reader, as received by the customer, will have two straps installed in the Z connector TP145913. These straps will be attached between terminals Z13 and Z25, and Z23 and Z11. This connects the internal dc supply in the circuit.

2.09 All other external connections such as the signal line, signal regenerator contact, the start-stop contact, etc are soldered to TP173716 terminals which are then inserted into the appropriate holes of 50-pin connector TP192014. When the reader is to be operated in manually fed installations, straps TP193465 must be inserted in the B connector between the following terminals: Connect B19 to B18, B6 to B35, and B17 to B49.



(Left Front View)

Figure 5 - Cover

2.10 If the feeder is to be used with the reader, connect between terminals B18 and B19, and B6 and B35 in the B50 pin connector. Insert a strap into the Z connector TP145913 between Z7 and Z20. This strap will cause the reader to start upon the insertion of a card. A cable supplied with the feeder unit is connected to the B connector.

2.11 The reader is equipped with gold plated signal generator contacts. These contacts are used in low voltage current signal applications. As delivered, the unit is supplied with an arc suppressor TP154166 partially connected in the signal generator box. If standard 0.020 or 0.060 ampere circuits are to be used, the connection of the arc suppressor should be completed.

Lubrication

2.12 Before placing this unit into service, the oil reservoir TP160091 (Figure 6) must be filled. Remove the top plate assembly by following procedure outlined in Section 574-242-702. When the oil reservoir is accessible, remove the screw TP151692 (round head) from the top of the reservoir assembly and fill with oil to a maximum depth of 3/4 inch. Replace screw and top plate.

2.13 Lubricate the reader before placing it into service or prior to storage. After a short period of service, relubricate it to make sure no areas have been missed. Thereafter, lubricate the reader at regular intervals as indicated in Section 574-242-701.

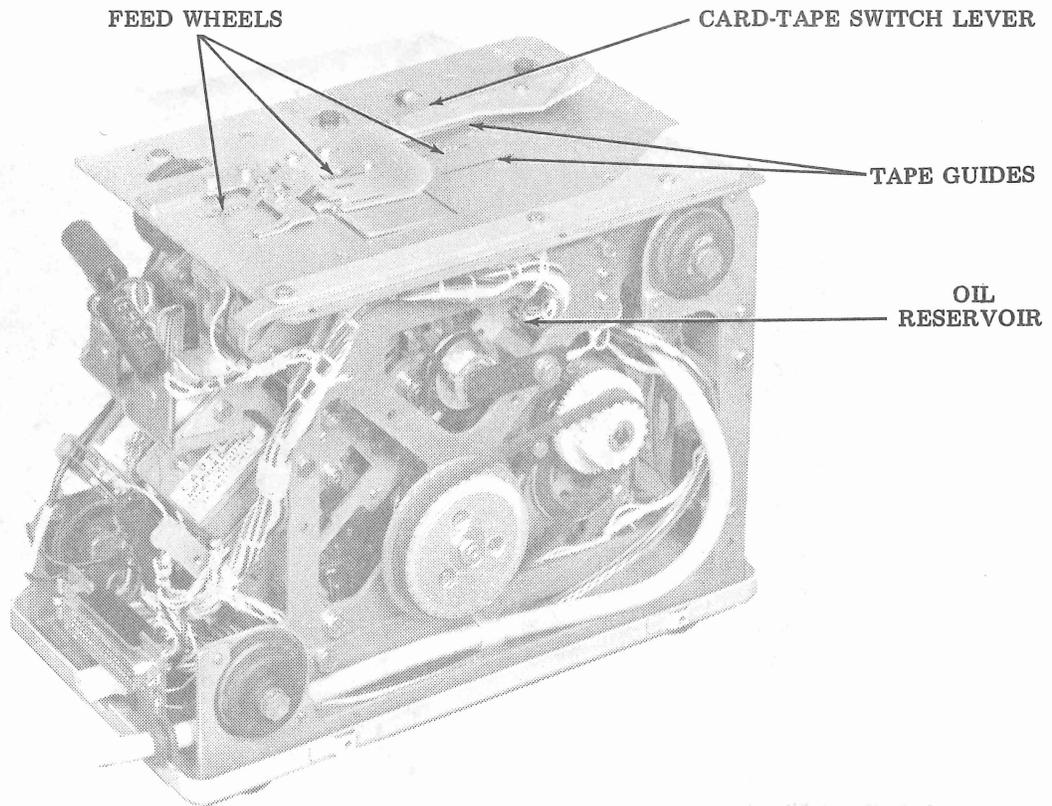


Figure 6 - 35 Edge Punched Card Reader Without Cover

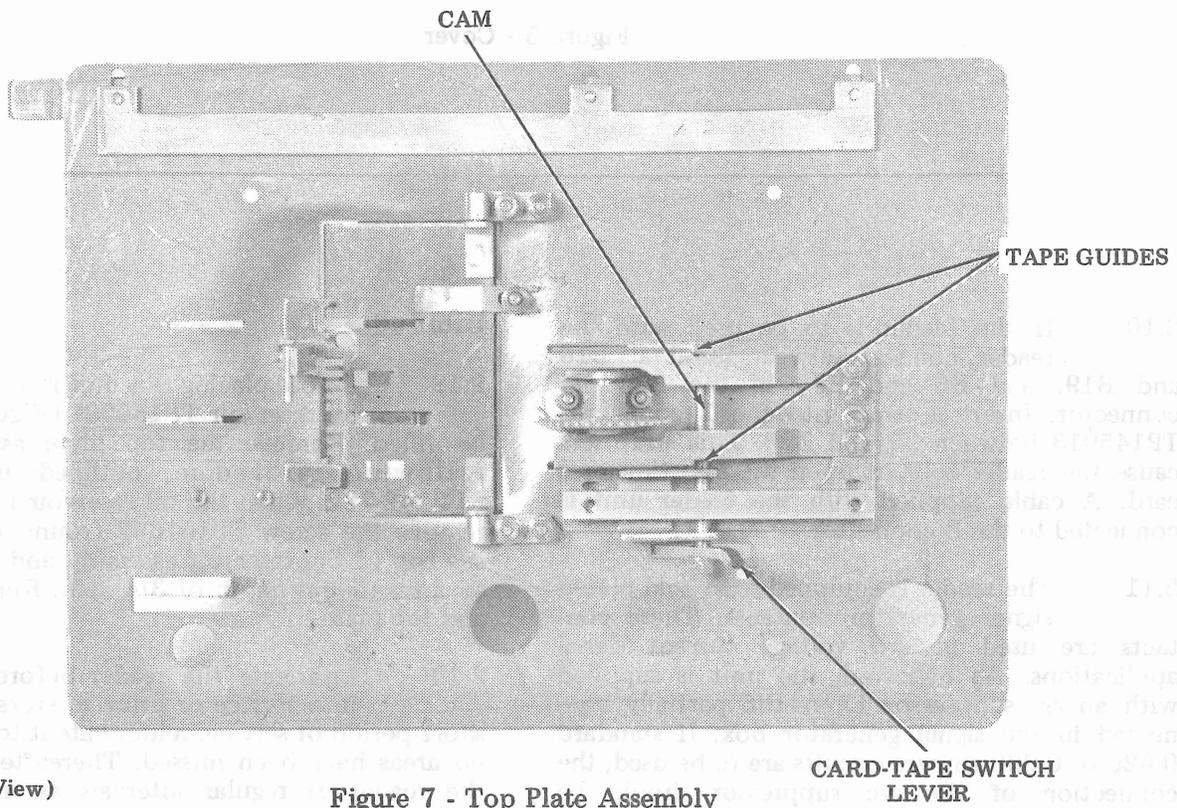


Figure 7 - Top Plate Assembly

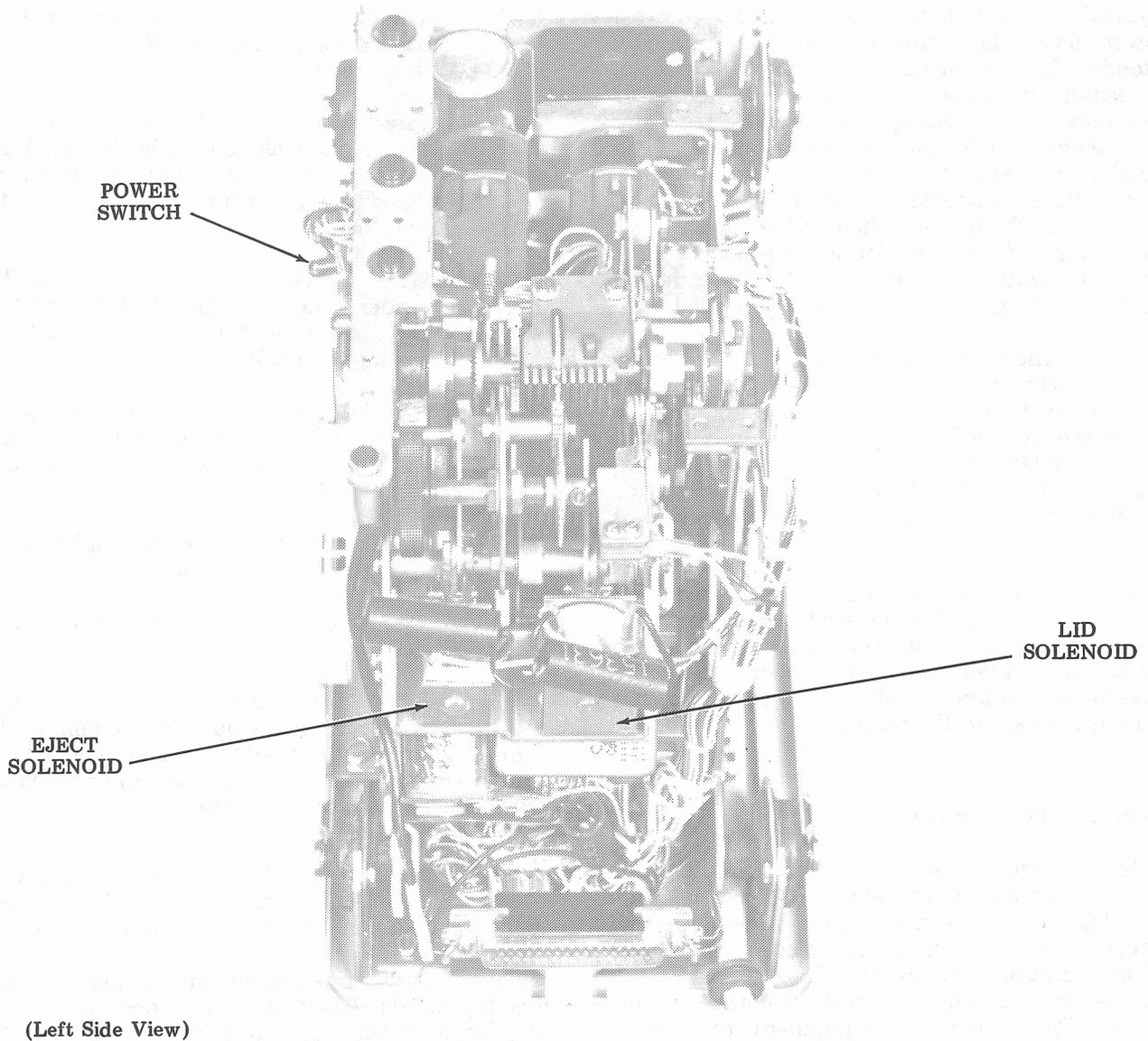


Figure 8 - 35 Edge Punched Card Reader Without Top Plate and Cover

3. OPERATING TESTS

Operating Speeds

- 3.01 The operating speed is:
- 100 Words per minute
 - 110 Bits per second
 - 110 Bauds
 - 600 Operations per minute
 - 10 Characters per second

Electrical Requirements

- 3.02 The reader is able to operate under environmental conditions of 40 degrees to 110 degrees Fahrenheit when supplied with 115 volts ac, $\pm 10\%$, 60 hertz.
- 3.03 The signal line requirement for low voltage applications using gold plated signal generator contacts is 3 to 20 volts dc at a current level not to exceed 60 milliamperes. Between 20 to 70 volts dc, the current should be

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adjusted so as not to exceed a 120 milliwatt power level. The contacts are not normally intended for use on voltages above 70 volts dc. Exceeding this level for an appreciable length of time may result in damage to the gold plating and make them unfit for low voltage applications. The signal circuit consists of gold plated signal generator contacts connected in series with the signal regenerator which relays their output and insures low voltage (3 volts dc, 70 microamperes) signal circuit continuity. A timing contact is provided for use when signal regeneration is employed.

3.04 The direct current for the 48 volts dc control operations is normally provided by a diode bridge rectifier which is fed from a center tapped winding in the motor of the unit. The center tapped rectifier source can be disconnected from the circuit when an external source of 48 volts dc is used to control the operation of the reader.

3.05 If the parallel wire output is used as an input into associated equipment, the reader cannot use a function code to control its operation internally. The function code has to be recognized externally and a command signal has to be fed back into the reader.

Operating Test Procedures

3.06 Place the reader on a test circuit with a receiving set known to be in good working order. Close the circuits in the power and signal lines and exercise the reader for at least fifteen minutes. This is done by running a stack of prepunched cards or test tape through the reader. This allows the equipment to reach a normal operating condition and allows the installer to determine if all connections have been properly completed before testing. The equipment performance in conjunction with test procedures will help to isolate any equipment troubles.

Operating Checks

3.07 The power switch (Figure 8) is located on the back of the reader and controls all ac electrical service into the equipment. In the ON position the motor and mechanical feature of basic components should operate.

3.08 Check the card-tape mode selector lever and the retractable tape guides (Figures 4 and 6).

3.09 The thumb wheel (Figure 3) which is used for easy insertion of a card or tape should operate freely.

3.10 Insert a prepunched card or tape into the reader making certain that the feed wheels (Figure 6) engage the card or tape properly. The reader will accept cards of 3-1/4 to 3-1/2 inch widths.

3.11 When a card or tape is present in the reader, pressing the START button (Figure 3) will cause the lid solenoid to pull the lid down starting the reading cycle.

3.12 Check the operation of the three switches which are controlled directly by the card (the card-in switch, the card-out switch, and the card-eject switch).

3.13 Check the accuracy of transmission on the receiving equipment.

3.14 The prepunched card or tape should be accurate.

3.15 The STOP button (Figure 3), when pressed, will stop the reading cycle. This stopping of the reading cycle applies to both cards and tape. If the reading is stopped, the lid will remain in the down position.

3.16 Depress the STOP button first and then the EJECT button (Figure 3). When the EJECT button is pressed (after the reading cycle has stopped) a card will be ejected from the reader at a fast rate (many times faster than the reading speed). This fast ejection operation is not applicable to tape. The tape is removed from the reader by using the hand wheel.

3.17 A card-/tape-out contact actuator (Figure 3) will sense the end of a card or tape and stop the reading operation after the last code position has been read. A preselected card can be ejected automatically when a preselected code is read by the reader. Otherwise, it will be ejected after the last code position in the card has been read.

3.18 Placing the card-tape switch lever (Figure 6) into the card position, which is marked by a C designation on the top plate, causes the cam (Figure 7) connected to the lever to retract the tape guides to below the surface of the top plate. Simultaneously, the switch lever causes a switch to de-energize the lid solenoid and

the spring loaded lid (Figure 4) moves to its open position. This is the idle position of the reader when conditioned to read cards.

3.19 The reader can either accept cards which are inserted manually or it can accept cards fed automatically from an automatic card feeder. The operation is slightly different for each mode.

3.20 When a card is inserted into the reader manually, the card can be pushed to the card stop (Figure 4). However, the lid solenoid will not be energized until the manual START button in the top plate is pushed or an external start signal is received. This serves to prevent card damage due to premature triggering of the reading process. This feature is required because of the uncertain speed of manual insertion of a card. At the same time, it allows the card to be in a position ready for reading from which the reading cycle can be started instantly either by local or external control.

3.21 In the automatic feed mode, the card is inserted into the reader at a constant and known speed. In this case, the card-in actuator (Figure 3) is used to signal that a card has been inserted. The lid solenoid (Figure 8) energizes and the reading cycle starts immediately upon the complete insertion of the card. In the automatic feed mode, the reader will call for a new card as soon as the ejection of a card begins.

3.22 With a card in the reader and the lid in the down position, the card may be moved to any desired position by means of the thumb wheel. If a card is moved backward past its starting position until the card-out actuator is allowed to come up, the lid will de-energize and the reader will assume its idle condition. If the card is moved forward with its last code hole position passing the sensing finger area, the card-out actuator will again be allowed to come up, but the eject solenoid (Figure 8) will be energized and the card will be ejected from the reader at a fast rate of speed.