

35 EDGE PUNCHED CARD FEEDER

INSTALLATION

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1. GENERAL

1.01 This section provides installation procedures for the 35 edge punched card feeder (1A HOPPER) (Figure 1). 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 to left or right, top or bottom, and front or rear apply to the feeder in its normal position as viewed from the front.

1.03 If necessary, refer to Section 574-246-702 for removal of cover and any internal mechanisms associated with the feeder. For further information regarding location of parts, refer to the exploded views in Section 574-246-800.

1.04 Special care should be taken to avoid accident if the feeder is operated when separated from its housing (Figure 2). Special care should also be taken to avoid electrical shock when working near polarized electrolytic capacitors.

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

1.05 When mechanisms and parts such as the cover are removed, set them aside in some location where they will not be 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 The card reader and feeder combination is not to be used in unattended installations. An operator should be on hand to assure correct feeding of cards.

1.08 Illustrations in this section are of current design units unless otherwise indicated. Early design units differ from current design units mainly in the top plate and cover arrangements. Current design units also include a sync assurance circuit card (right side) not present in early design units. Where necessary, any difference between units is noted.

2. INSTALLATION

Space Requirements and Weight

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

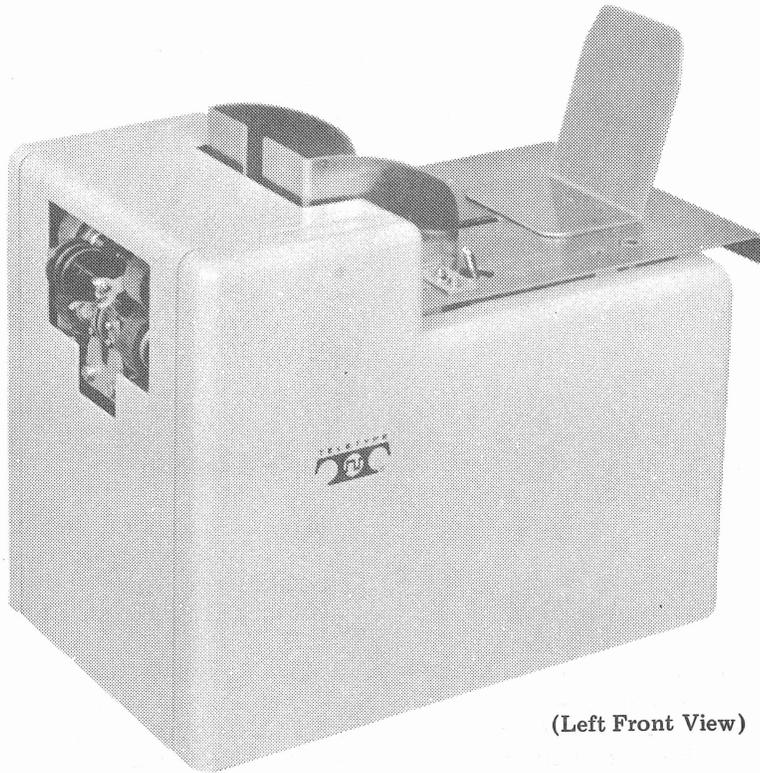
Height	11-1/4 inches
Width	11 inches
Depth	7-1/2 inches
Weight	20 pounds

Unpacking

2.02 The feeder is shipped completely assembled as a single package. This package consists of the inner carton containing the feeder encased in an outer carton. Exercise care when unpacking.

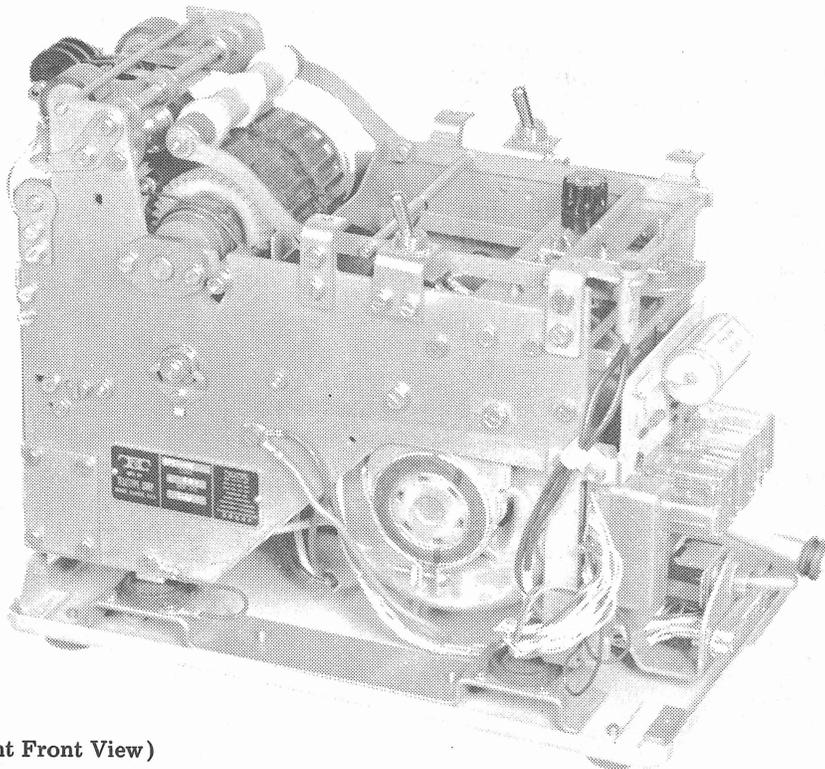
(a) Cut tape sealing upper flaps of outer carton.

(b) Remove the plastic corner packing detail from each of the four corners between the inner and outer cartons.



(Left Front View)

Figure 1 - Edge Punched Card Feeder



(Right Front View)

Figure 2 - Edge Punched Card Feeder Without Top Plate and Cover

- (c) Remove the inner carton from the outer carton.
- (d) Cut tape sealing upper flaps of inner carton.
- (e) Remove the wiring diagrams and cloth bag containing parts.
- (f) Remove the corrugated packing details.
- (g) Remove feeder encased in plastic bag from inner carton. Remove feeder from plastic bag.

Optional Features

2.03 A TP323471 support bracket assembly is included in the cloth bag. This assembly consists of a TP321645 bracket and TP321647 spring. It is required only if 7 inch cards will be fed through the reader. To mount the assembly, proceed as follows:

- (a) Remove the cover from the feeder (Section 574-246-702).
- (b) Mount the support bracket assembly on the TP320135 detector pivot support with two TP151632 screws, TP2191 lock-washers, and TP7002 flat washers (Figure 3). Tighten the screws friction tight.

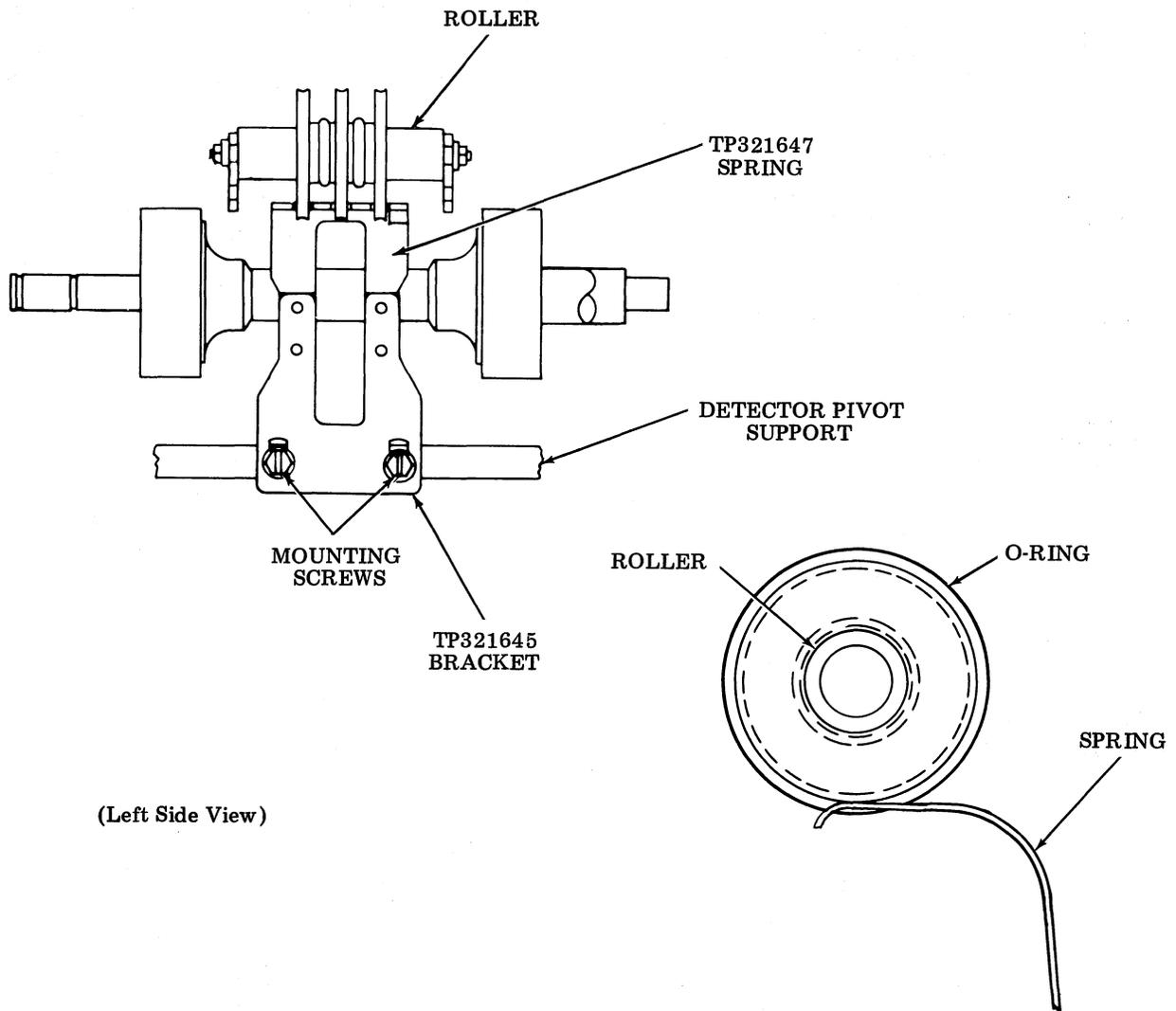


Figure 3 - Optional Support Bracket Assembly Required for Feeding 7 Inch Cards

- (c) Position the assembly so the spring is centrally located about the TP321649 rollers and the top of the spring is approximately 1/32 inch above the bottom of the O-rings in the rollers.
- (d) Manually shift the clutch stop solenoid plunger to its energized position. The rollers should be lifted above the fingers of the spring. If not, adjust the assembly.
- (e) When the assembly is positioned to meet the requirements in (c) and (d), tighten the mounting screws and replace the cover on the feeder.

2.04 A TP343726 bracket may be ordered as an option to provide additional card support. This bracket is attached to the TP320163 card support plate as follows:

- (a) Remove the right TP151722 screw, TP2191 lockwasher, and TP8330 flat washer from the underside of the card support plate.
- (b) Place the TP343726 bracket on the card support with the higher edge to the right (away from the separator stones).
- (c) Insert the TP151722 screw, TP2191 lockwasher, and TP8330 flat washer (removed in Step (a)) through the hole in

the top of the bracket into the card support plate. Make sure the bracket is firmly seated, then tighten the screw.

Mounting

- 2.05 The feeder attached to an associated reader unit normally rests on a table.
- 2.06 The cloth bag included with the feeder contains three coupler brackets and two adapter guides. The purpose of these brackets is to facilitate and preserve the initial alignment of the feeder and reader. Once aligned, the adjusted reader and feeder should be maintained as an aligned pair. If another reader or feeder is substituted for one of the original units, the alignment must be rechecked.

2.07 The reader and feeder are coupled by one of the following methods, depending on whether or not a master card gauge (TP343730) is available:

Coupling Method using Master Card Gauge

- (a) Attach the TP320102 and TP320103 coupler brackets to the feeder base pan as shown in Figure 4. Use the four TP151632 screws, TP2191 lockwashers, and TP7002 flat washers already attached to the base pan. Set the brackets to the center of their adjusting range and tighten the screws friction tight.

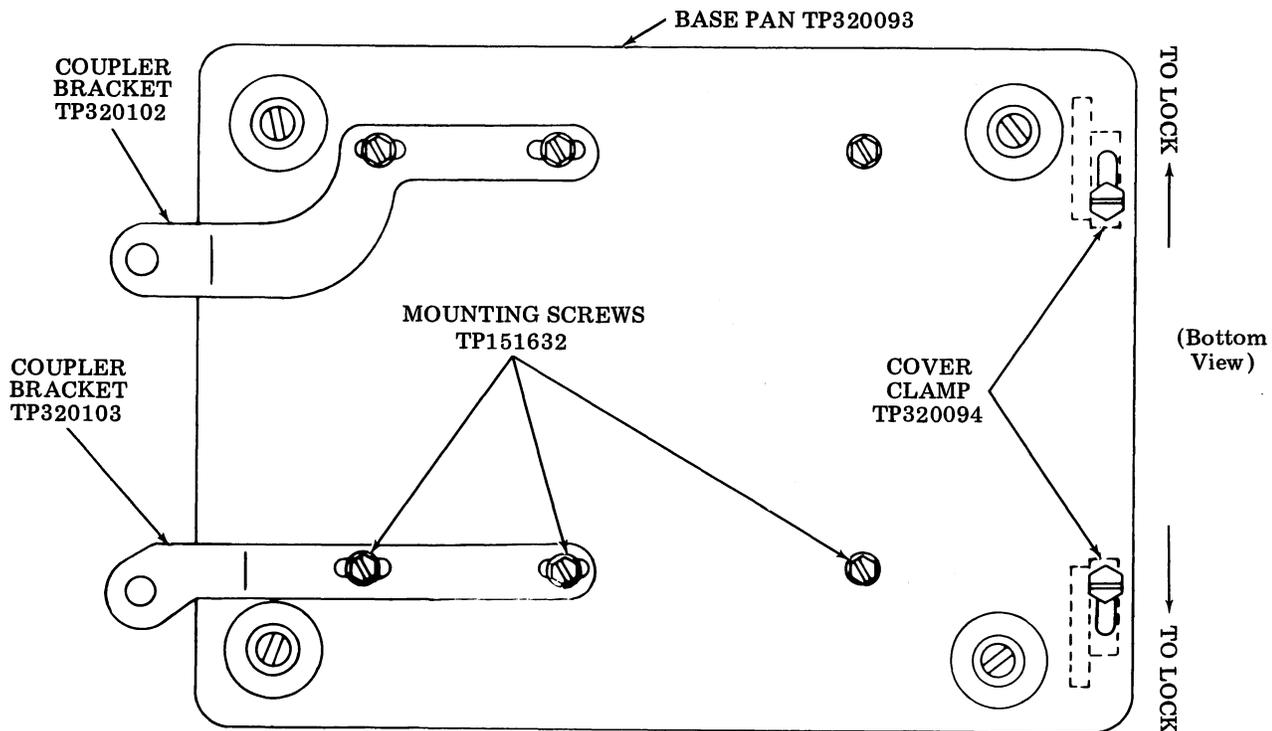


Figure 4 - Feeder Base Pan and Coupler Brackets

(b) Attach the TP320101 feeder connector bracket to the reader base pan (Figure 5) with two TP151632 screws, TP2191 lockwashers, and TP7002 flat washers (supplied in cloth bag). Set the bracket to the center of its adjusting range and tighten the screws friction tight.

(c) Remove the TP321617 (right) and TP321619 (left) card guides from the reader top plate, and replace them with the TP320099 (right) and TP320100 (left) feeder adapter guides (Figure 6) supplied in cloth bag. Tighten the guide mounting screws friction tight.

(d) Manually insert the TP343730 master card gauge between the feeder adapter guides on the reader top plate as shown in Figure 6.

(e) Adjust the left and right adapter guides to provide clearance of some to 0.005 inch on either side of the master card gauge (Figure 6). Tighten the adapter guide mounting screws and remove the master card gauge from the reader.

(f) Couple the reader and feeder together by mating the coupler brackets on the feeder base pan with the connector bracket on the reader base pan (Figure 5).

(g) Raise the separator stones on the feeder to the open position by turning the stone adjusting wheel to the right as viewed from the right end of the feeder.

CAUTION: DO NOT OPERATE THE READER OR FEEDER UNDER POWER WHEN THE MASTER CARD GAUGE IS WITHIN THE GUIDES OF THE READER OR FEEDER.

Note: If the stone adjusting port is covered by a plate on the inside of the cover, remove one of the mounting screws and loosen the other so the plate pivots down to provide access to the adjusting wheel.

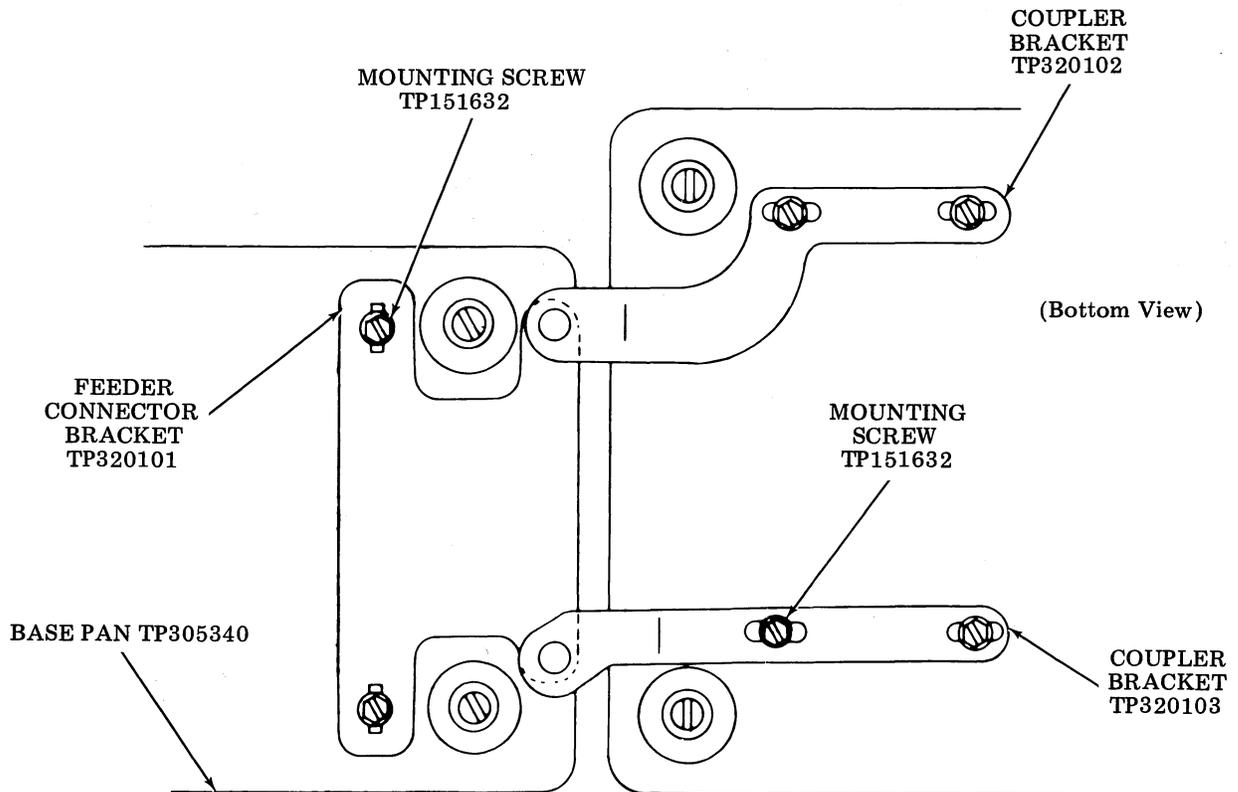


Figure 5 - Reader and Feeder Base Pans and Coupler Brackets

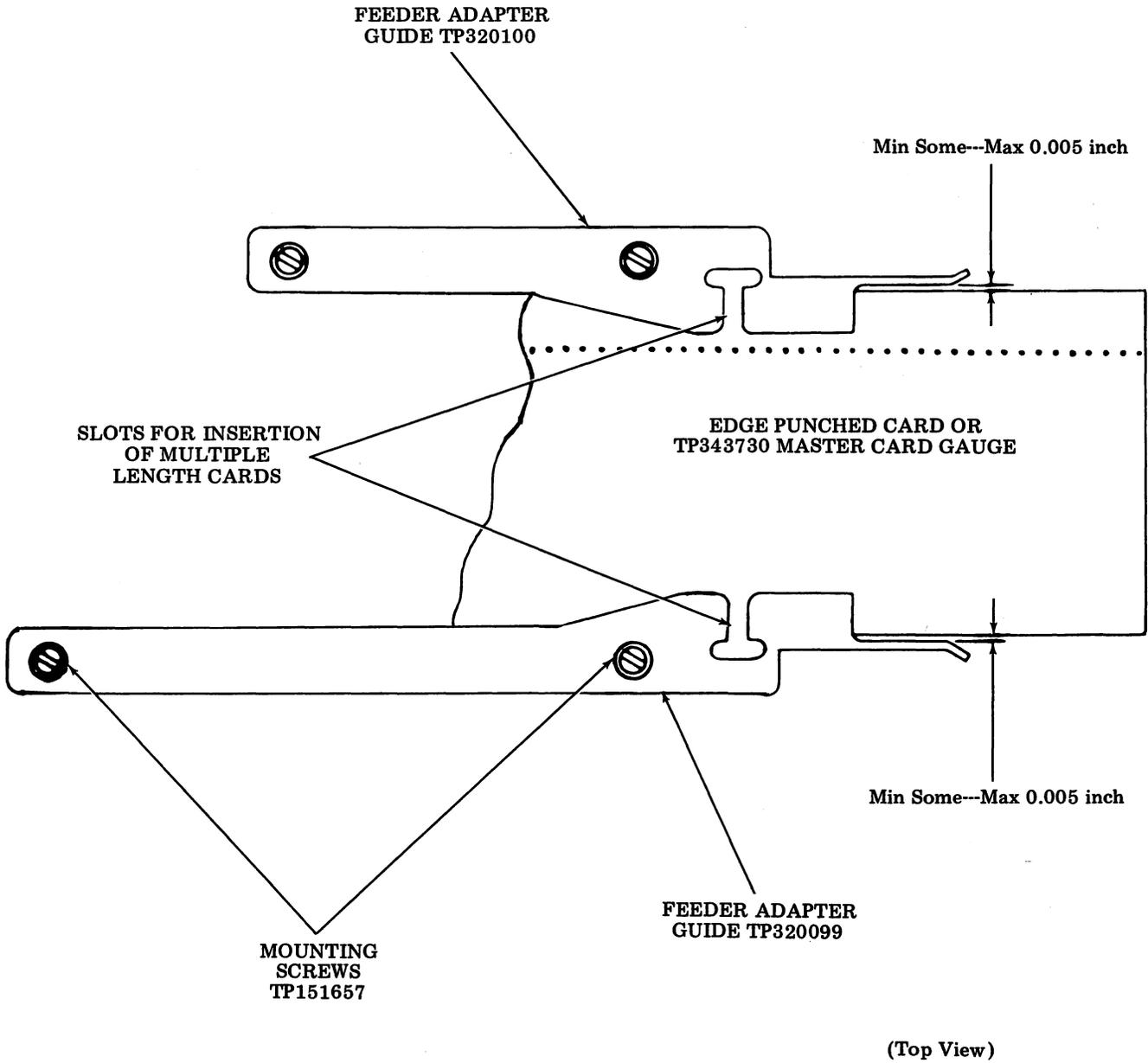


Figure 6 - Feeder Adapter Guides Mounted on Reader Unit

(h) Slide the master card gauge (narrow end first) from feeder to reader as shown in Figure 7. Position the reader and feeder on the coupler brackets so the master card gauge forms a direct line from feeder to reader and the holes on the gauge align with the feedwheels on the reader. Maintain approximately 1/8 inch clearance between the reader cover and the lower eject rollers on the feeder. Remove the master card gauge.

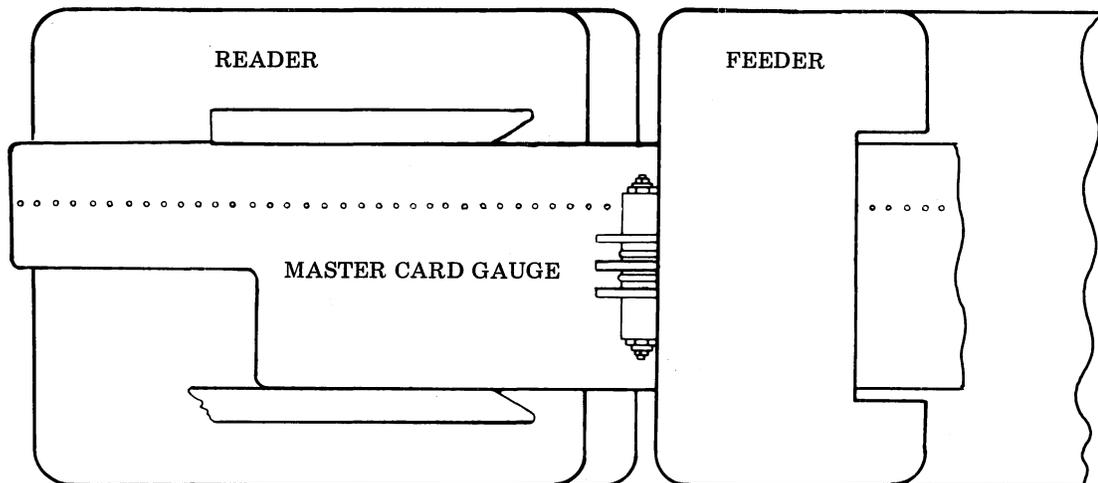
(i) Tighten the reader and feeder bracket mounting screws with the units in their upright aligned position. A TP199413 wrench is available as an aid in tightening the screws.

(j) Reset the separator stones to their original position. The feeder adjustments can be refined in the operating tests at the end of this section.

Coupling Method Without Master Card Gauge

(a) Attach the TP320102 and TP320103 coupler brackets to the feeder base pan as shown in Figure 4. Use the four TP151632 screws, TP2191 lockwashers, and TP7002 flat washers already attached to the base pan. Set the brackets to the center of their adjusting range and tighten the screws friction tight.

(b) Attach the TP320101 feeder connector bracket to the reader base pan (Figure 5) with two TP151632 screws, TP2191 lockwashers, and TP7002 flat washers (supplied in cloth bag). Set the bracket to the center of its adjusting range and tighten the screws friction tight.



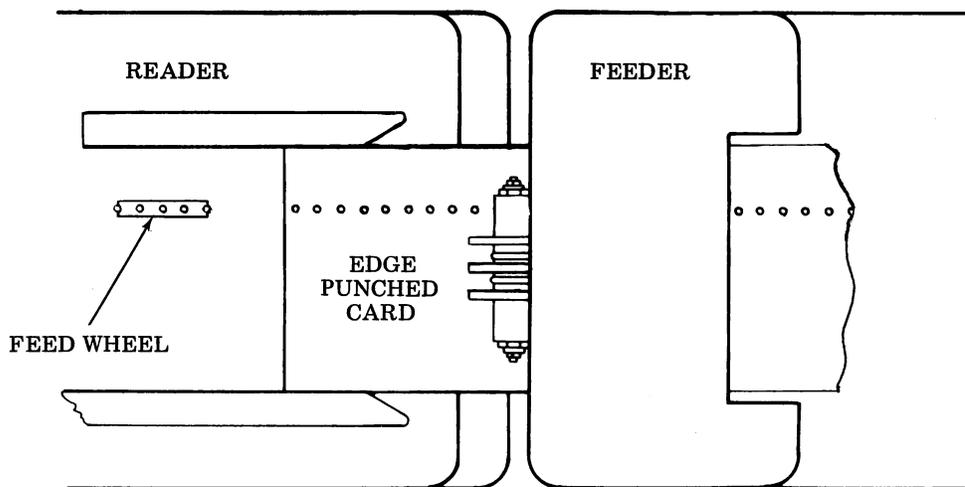
(Top View)

Note: Feeder adapter guides omitted on reader top plate.

Figure 7 - Master Card Gauge in Position on Coupled Reader and Feeder

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- (c) Remove the TP321617 (right) and TP321619 (left) card guides from the reader top plate, and replace them with the TP320099 (right) and TP320100 (left) feeder adapter guides (Figure 6) supplied in cloth bag. Tighten the guide mounting screws friction tight.
- (d) Insert an edge punched card between the feeder adapter guides on the reader top plate as shown in Figure 6.
- (e) Adjust the left and right adapter guides to provide clearance of some to 0.005 inch on either side of the card (Figure 6). Tighten the adapter guide mounting screws and remove the card from the reader.
- (f) Couple the reader and feeder together by mating the coupler brackets on the feeder base pan with the connector bracket on the reader base pan (Figure 5).
- (g) Turn on the reader and feeder and place the switch on the feeder top plate in the STOP/TAPE position.
- (h) Place one edge punched card in the feeder and operate the FEED CARDS — STOP/TAPE switch to advance the card part way into the guides on the reader (Figure 8).
- (i) Position the reader and feeder on the connector brackets so the card positions itself between the reader guides and centers on a straight line from the feeder, and the feed holes on the card align with the feedwheels on the reader. Maintain approximately 1/8 inch clearance between the reader cover and the lower eject rollers on the feeder.
- (j) Tighten the reader and feeder bracket mounting screws with the units in their upright aligned position. A TP199413 wrench is available as an aid in tightening the screws.
- (k) Feed the card out of the feeder and turn off the reader and feeder. The feeder adjustment can be refined in the operating tests at the end of this section.



(Top View)

Note: Feeder adapter guides omitted on reader top plate.

Figure 8 - Edge Punched Card in Position on Coupled Reader and Feeder

Lubrication

2.08 Lubricate the feeder 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 feeder at regular intervals as indicated in Section 574-246-701.

Electrical Connections

Note: Refer to Section 574-246-400 for wiring diagrams.

2.09 Observe the polarity, as indicated on the schematic wiring diagram, when connecting the dc supply to J1-15 and J1-2. Incorrect polarity at this point will cause the diode TP181654 (1N647) across the feeder relay TP147437 to be damaged.

2.10 A 25-point connector is mounted on the right side of the feeder and is accessible through the opening in the cover. Power is supplied through this connector to the control circuits.

2.11 The ac power for the motor and clutch solenoid is brought into the feeder through a separate power cord.

2.12 Two external manual controls are provided for operator's use:

- (a) The POWER ON switch.
- (b) The FEED CARDS — STOP/TAPE switch.

2.13 A number of internal circuit elements control the starting and stopping of the feed mechanism as well as the detection of double cards. These controls are described in the appropriate section.

3. OPERATING TESTS

Operating Speeds

3.01 The speed of the feed rollers is reduced by means of gears, so that the insertion speed of the edge punched card is approximately 12 inches per second.

Electrical Requirements

3.02 The feeder is able to operate under normally encountered environmental conditions when supplied with 115 volts ac ± 10 percent, 60 hertz.

3.03 The feeder motor is protected with a thermal cutout device which can be reset. It is accessible when the feed deck is removed. The thermal cutout is located directly above the motor assembly. The 1/40 horsepower motor furnishes the driving force for the feeder. This motor is a nonsynchronous type with a speed of 1725/1425 revolutions per minute. A 1/2 ampere SL-BL fuse protects the clutch stop solenoid.

OPERATING TEST PROCEDURES

Operating Checks

3.04 Close the circuits in the power and control lines and exercise the feeder for at least fifteen minutes by running a stack of cards through the feeder. 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.

Card-In Switch

3.05 This step is concerned with causing the card to be inserted the correct distance in the card reader by the feeder. The feeder is controlled by the card-in contact on the card reader. When a card has been inserted into the reader a given distance, its leading edge will cam down the card-in actuator arm and break the card-in contact. This is the signal for the feeder relay to fall out and cause feeding to stop. The object then is to position the actuator arm so that the card is driven firmly against the card stop (Figures 9 and 10). Remove the cover from the card reader. With the feeder and the card reader running, place a card in the feeder. By holding down on the STOP switch on the card reader top plate, a card may be inserted into the reader without the lid solenoid causing the sensing to start. By this means it is easy to determine if the drive of the feeder is sufficient to cause the card to move against the card stop. If the card is not completely up to the card stop, or if it is overdriven so as to damage the card, it will be necessary to proceed as follows:

- (a) If the feeder is shutting off early, loosen the nut TP3598 of the eccentric TP305219 and position the actuating arm TP305227 to the left so that the card-in contact breaks later. This will allow the card to be further into the reader when the feeder shutoff occurs. Keep the eccentric in the lower-left quadrant.

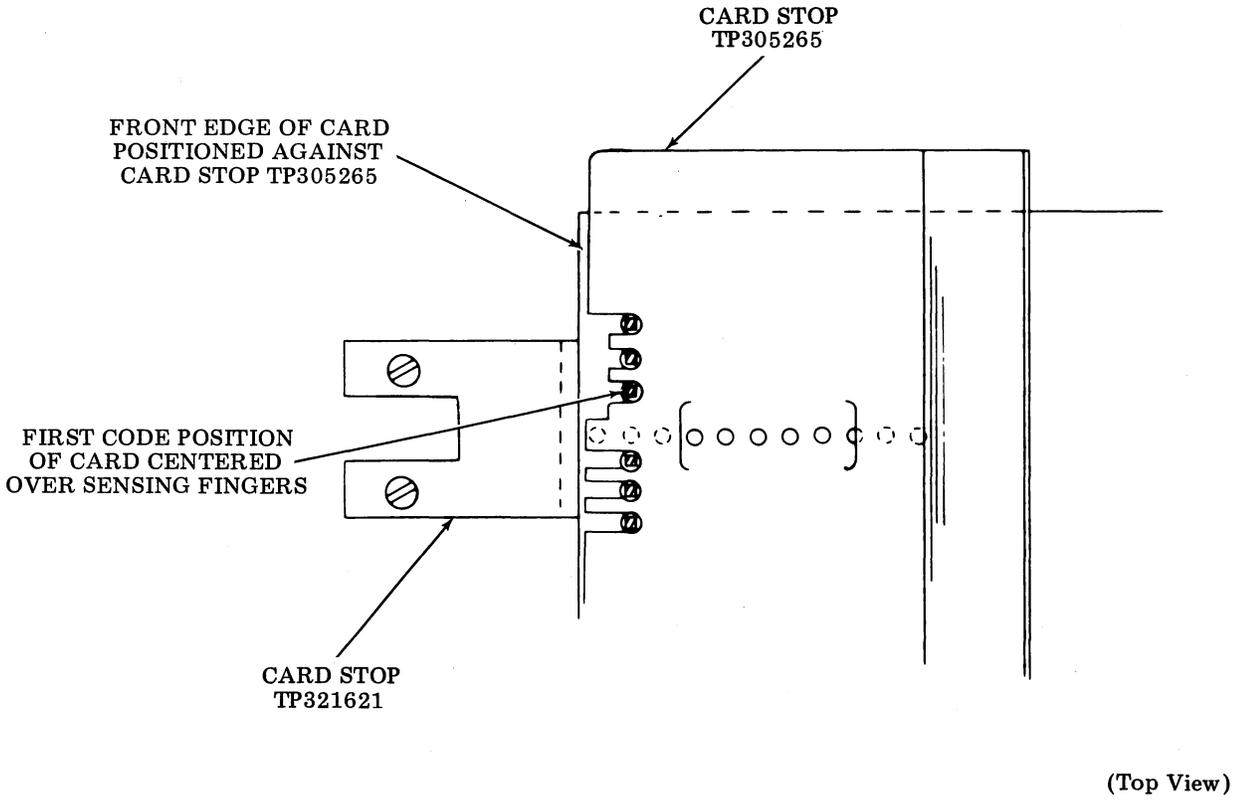


Figure 9 - Reader Stop Plate

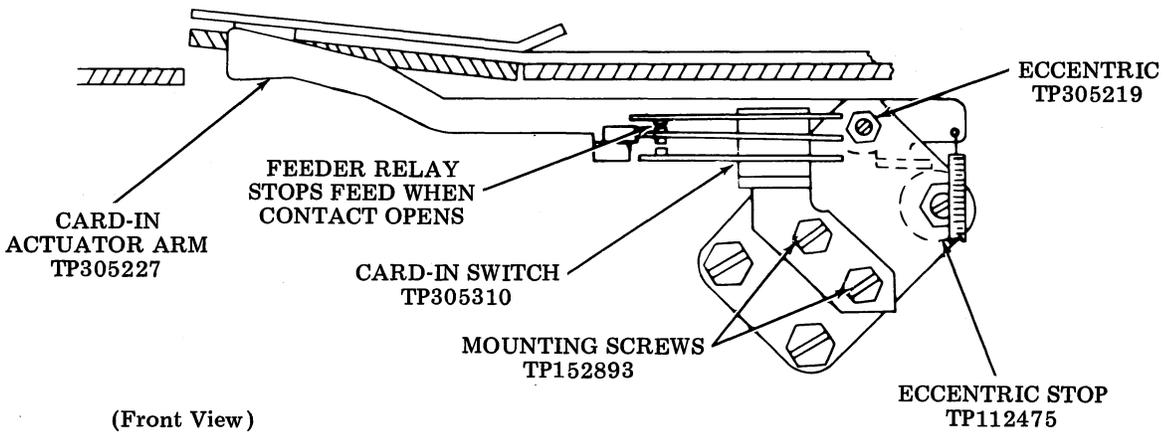


Figure 10 - Reader Card-In Contact Mechanisms

(b) If the feeder is driving the card into the card stop TP321621 and tearing or otherwise damaging the card, move the actuating arm TP305227 to the right by means of the eccentric TP305219. This will cause the card-in contact to break earlier and advance the feeder shutoff. Run several cards through the feeder to assure consistent feeding.

(c) A correctly aligned feeder-reader should allow a card to pass freely into the stop position without striking the leading edge of the card guides. If some adjustment is still required to refine the insertion of the card, loosen the four mounting screws on the feeder coupling brackets TP320102 and TP320103. Move the card reader right or left in relation to the feeder to attain the greatest accuracy of insertion (Figure 11). Tighten the mounting screws.

(d) If the eccentric TP305219 was moved, it will be necessary to check the reader card-in contact adjustments as outlined in Section 574-242-700.

(e) Replace the cover on the reader.

Separator Stones

3.06 The separator stones must be adjusted to a height which will minimize the possibility of more than one card at a time being pulled from the card stack. To adjust the separator stones, proceed as follows:

(a) Physically separate the reader and feeder so the card feeding action may be observed independent of the reader.

(b) Position the TP320163 card support plate on the feeder top plate so the trailing edge of a single card placed into the feeder will strike the support plate approximately in the center of the slope on the card support.

(c) Turn on the feeder, and with the switch in the STOP/TAPE position, place a stack of cards into the feeder. Fan the lead edge of the card stack before inserting the cards.

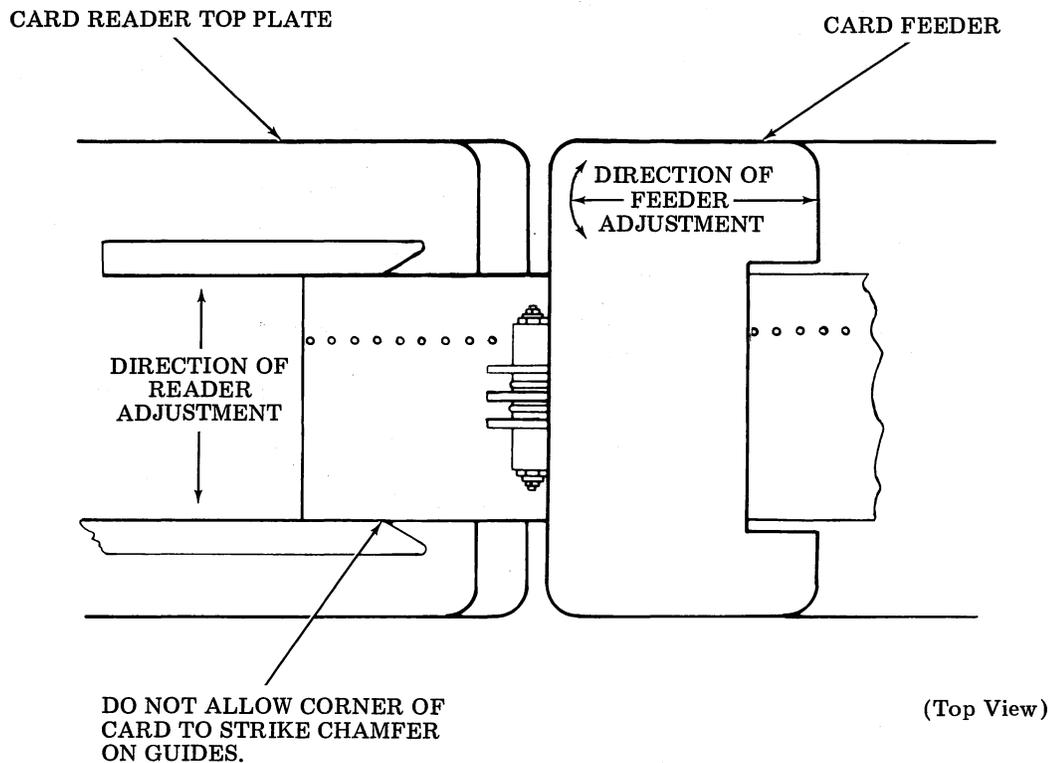


Figure 11 - Correct Card Positioning When Fed to Reader

- (d) Switch to the FEED CARDS position to transport the cards through the feeder. Raise the separator stones until double document (stop condition) occurs.

Note: To raise the stones, reach through the adjustment port on the right end of the feeder and turn the knurled wheel to the right as viewed from the right end. If the adjustment port is covered by a panel, remove one of the panel mounting screws and loosen the other screw so the panel pivots down out of the way. After completing the adjustment, secure the panel back in place.

- (e) Clear the double document condition and rotate the adjusting wheel to lower the separator stones until single feeding occurs. Turn the wheel one additional full turn to the left.

CAUTION: AVOID LOWERING THE SEPARATOR STONES MORE THAN NECESSARY. TOO LOW A STONE SETTING WILL CAUSE HEAVY WEAR ON THE CARDS.

- (f) If separation is erratic, or if card wear is excessive, check the SEPARATOR STONE ORIENTATION adjustment in Section 574-246-700.

Card Width Adjustment

3.07 Early design feeders accept cards with widths of 3 to 3-1/2 inches. Two sets of tapped holes in the TP320162 top plate are provided for mounting each card guide. When feeding the 3-1/2 inch widths, use the outermost holes to mount the card guides. The innermost holes are used when the narrower cards are being fed. Current design feeders equipped with a TP333246 top plate and TP333228 and TP333229 card guides are for use with 3-1/4 inch card width only.

Feeding Multiple Length Cards

3.08 Multiple length cards may be fed into the card reader while it is attached to the feeder. Slots are provided in the feeder adapter guides TP320099 and TP320100 for this purpose (Figure 6).

- (a) To feed a multiple length card, the FEED CARDS — STOP/TAPE switch on the feeder is placed in the STOP/TAPE position. Hold the STOP switch button on the card reader top plate depressed and insert the card into the slots on the adapter guides. Push the card fully into the card reader against the card stop and release the STOP switch button on the card reader. Reading and ejection of the multiple cards will then begin.

- (b) Upon completion of the above operation, returning the FEED CARDS — STOP/TAPE toggle to the FEED CARDS position will cause single card feeding to resume.

Reading Paper Tape

3.09 Paper tape may be read in a card reader while it is attached to the feeder unit by placing the FEED CARDS — STOP/TAPE toggle switch on the feeder top plate into the STOP/TAPE position. Place the TAPE CARD lever on the card reader top plate in the TAPE position. Tape may then be threaded into the card reader. The reader then becomes conditioned to read the tape.

Removing Power from the Feeder

3.10 If the power to the feeder unit is removed, insertion of a card will occur as the feeder comes to a stop. Before the power to the feeder is turned off, all cards should be removed from the feeder unit.