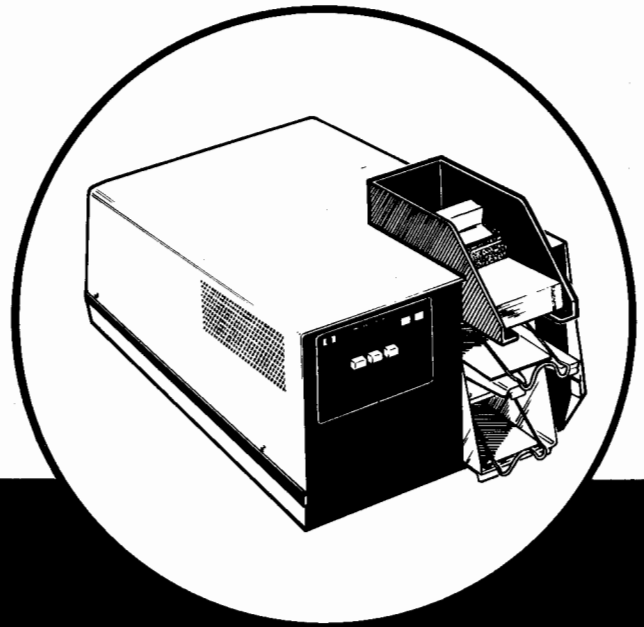


HP 7261A

OPERATING AND SERVICE MANUAL



HEWLETT-PACKARD 7261A OPTICAL MARK READER

HP 7261A



OPERATING AND SERVICE MANUAL

7261A OPTICAL MARK READER

SERIAL PREFIX: 1527

This Operating and Service Manual applies to HP
Model 7261A Optical Mark Readers having the Serial
Prefix 1527

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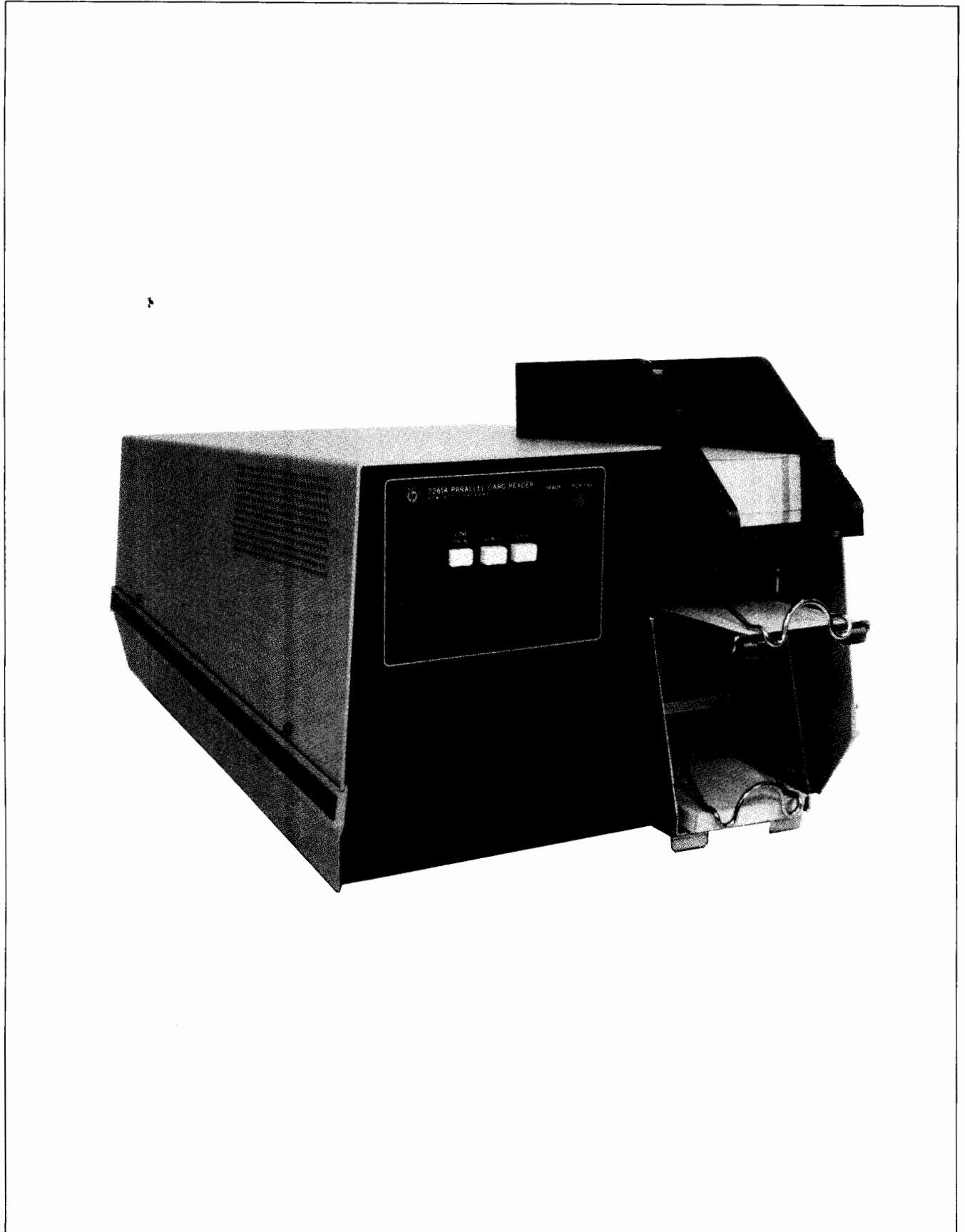


Figure 1-1. HP 7261A Optical Mark Reader

SECTION I

INTRODUCTION

1-1. DESCRIPTION.

1-2. READER.

1-3. The HP 7261A Optical Mark Reader is a computer-operated data transmission instrument. The Reader optically (photo-reflectively) reads standard 3-1 / 4-inch wide paper information processing cards. Cards of lengths from 7-3/8 inches to 11 inches, having 40- or 80-column marked or key-punched information, and using on-data or after-data clocking are accepted. (Refer to Appendix A, Tab Card Specifications.) With Option 003, the Reader can also read cards without clock marks. The Reader can handle 450 processing cards at a time at feed rates of up to 300 cards-per-minute. Information is transmitted by the Reader in a parallel, 12-channel format. The Reader operates off 100 Vac or 120 Vac (220 Vac or 240 Vac with Option 005) power lines of frequencies between 48 and 66 Hz; average running power consumption is 135 watts (72 wats standby). Figure 1-1 shows the Model 7261A Card Reader.

1-4. This instrument has a two-part serial number. The first four digits and the letter comprise the serial number prefix. The last five digits form the sequential suffix that is unique to each instrument. The contents of this manual apply directly to instruments having the same serial number prefix(es) as listed under SERIAL NUMBERS on the title page. An instrument manufactured after the printing of this manual may have a serial prefix that is not listed on the title page. This unlisted serial prefix indicates that the instrument is different from those documented in this manual. The manual for this instrument is supplied with a yellow Manual Change supplement that contains "change information" for correcting errors in the manual. To keep this manual as current and accurate as possible, Hewlett-Packard recommends that you periodically request the latest Manual Change supplement. The supplement for this manual is keyed to this manual's print date and part number, both of which appear on the title page. Complimentary copies of the supplement are available from Hewlett-Packard. For information concerning a serial number prefix not listed on the title page or in the Manual Change supplement, contact your nearest Hewlett-Packard Sales/Service Office. The addresses are tabulated on the last two pages of this manual.

NOTE

On the title page of this manual, below the manual part number, is a Microfiche part number. This number may be used to order 4 x 6-inch microfilm transparencies of the manual. The microfiche package also includes the latest Manual Change supplement, as well as all pertinent service notes.

1-5. Printed circuit assembly (PCA) revisions are identified by a letter and a division code marked beneath the part number on the PCA. The letter identifies the revision of the etched-trace pattern on the unloaded PCA. The two-digit division code identifies the division of Hewlett-Packard that manufactured the PCA. See Table 1-1.

1-6. SPECIFICATIONS.

1-7. Table 1-2 lists the specifications supplied with the Reader.

1-8. ACCESSORIES.

1-9. An accessory kit is packaged with each Reader so the Reader can be used immediately with minimum preparation. The items in this kit are listed in Table 1-3.

1-10. CARD HANDLING.

1-11. General-purpose cards for information processing are affected by variations in temperature, and most significantly, humidity. Humidity changes increase the tendency of a card to change dimension and warp. Do not use cards that are dirty, warped, bent, or are otherwise damaged. Take care to not damage or mark cards with paper clips or similar items.

1-12. CARD STORAGE.

1-13. Cards should be stacked upright (top edge up) in a carton for storage and stored in a stable environment similar to the environment of the Reader. For protection against bending, cartons of cards should be stacked flat. They should not be placed directly on the floor, but should be squarely supported at the bottom and not stacked more than three high.

Table 1-1. Part Numbers of Printed Circuit Assemblies

PART NUMBER	PRINTED CIRCUIT ASSEMBLY
07261-61110	Head Preamplifier PCA (A1)
07261-61120	Read Head Assy (A9)
07261-61030	Parallel Input/Output PCA (A3)
07261-61050	Power Supply PCA (A5)
07261-61060	Parallel Mother Board PCA (A6)
07261-61070	Power Input PCA (A7)
07261-61080	28V Rectifier PCA (A8)
07261-61100	Encoder Logic PCA (A10)
07261-61106	Encoder Phototransistor (A11A2)
07261-20105	Lamp Encoder (A11A1)

Table 1-2. Specifications for the HP 7261A Optical Mark Reader

GENERAL SPECIFICATIONS

Size: 24 x 14 1/2 x 12 inches (or, 61 x 36.8 x 30.5 cm)

Weight: Net, 54 lb (24.5 kg); Shipping, 72 lb (32.8 kg)

Environment: Storage Temperature: -40°C to +75°C
 Operating Temperature: 0°C to +55°C (except for cards)
 Humidity: 5% to 95% at 25°C to 40°C (less cards)



Power Requirements: Line Voltage: 100/200 Vac (Option 005: 220/240 Vac)
 Line Frequency: 48 Hz to 66 Hz
 Average Running Power: 135W
 Standby Power: 72W
 Main Fuse: 4 amperes T (time-lag or slow-blow)
 Transformer Fuse: 2 amperes T

PERFORMANCE SPECIFICATIONS

UL approved, CSA approval pending; meets IEC specifications.

Lamp Fail Protection: The Reader goes not-ready (unable to read cards) when a lamp in the read head burns out, and will not go ready (being unable to pick cards) until the lamp is replaced. (If the failure occurs while a card is being read, the card will finish being read before the Reader goes not-ready.)

Options (all options are field-installable except Options 002 and 005):

- 002 Select Hopper (separate hopper for storing cards selected by computer control).
- 003 Encoder (allows reading of 80- or 40-column punched or 40-column marked cards without clock marks; maximum of 35 spaces between columns of information. Rear panel switch allows reading of standard marked cards with clock marks).
- 004 Bell (audible event indicator activated under computer control).
- 005 220/240 Vac +5% -10% (main fuse 2AT, transformer fuse 1AT).
- 006 50 Hz Pulley (maintains nominal feed rate at 50 Hz).
- 016 HP Part No: 07261-80016 Interface kit for HP 21000 Series Computer.
 Interface kit Manual PN 07261-90006.

Internal Jumper Connections:

Jumper DEV: Select Negative/Positive Device Command (normally negative).

Jumper JH: Select Stop/Continue if Select Hopper Full (normally continue).

Card Style and Size: Twelve-row information processing cards, 3-1/4-inch wide and lengths from 7-3/8 inches to 11-1/8 inches. (Refer to "HP Optical Mark Reader Tab Card Specifications" in Appendix A for more details.)

Card Clock-Mark Requirements: Clock-on-data or clock-after-data marks with 80-column type minimum clock-mark spacing. (40- or 80-column punched cards, or 40-column marked cards without clock marks can be read by Readers with Option 003.) (Refer to "HP Optical Mark Reader Tab Card Specifications" in Appendix A for more details.)

Table 1-2. Specifications for the HP 7261A Optical Mark Reader (Continued)

Card-Marking Medium: Ordinary soft pencil, preprinted marks (using non-reflective ink), standard key-punched holes, or any combination of the three.

Card-Reading Technique: Loss-of-reflection sensing.

Nominal Card-Feed Rates: Minimum card-feed rates depend on powerline frequency as follows:

POWER LINE FREQUENCY		NOMINAL CARDS-PER-MINUTE	
		SHORTEST (7-3/8-INCH) CARD	LONGEST (11-INCH) CARD
60 Hz	Low (54 Hz)	270	201
	Normal (60 Hz)	300	224
	High (66 Hz)	330	246
50 Hz	Low (45 Hz)	225	167
	Normal (50 Hz)	250	186
	High (55 Hz)	275	205
50 Hz with Opt 006	Low (45 Hz)	270	201
	Normal (50 Hz)	300	224
	High (55 Hz)	330	246

Card-Hopper Capacity: Input Hopper: **450 cards**
 Output Hopper: **450 cards**.
 Select Hopper (with Option 002): 30 cards, nominal.

Read Head Type: Photo-reflective, twelve-row (plus clock channel) reading with channels read from left to right, R(12), X(11), Ø, 1, 2, 3, 4, 5, 6, 7, 8, 9, then clock channel.

Table 1-3. Accessory Kit

1.	Operating and Service Manual . . .07261-90001
2.	Mating Connector 1251-0084
3.	Card Weight07261-60380
4.	Power Cord (7.5 ft/228 cm) . . . 8120-1348
5.	Dust Cover 4040-0529

SECTION II

INSPECTION AND INSTALLATION

2-1. INTRODUCTION.

2-2. This section provides information for incoming inspection, installation, storage, and shipping of the Reader.

2-3. INCOMING INSPECTION.

2-4. MECHANICAL CHECKS.

2-5. Inspect the instrument for mechanical damages, scratches, dents, defective switches, or other malfunctions. Also, check the cushioning materials for signs of severe stress.

2-6. ELECTRICAL CHECKS.

2-7. The electrical performance of the instrument should be verified as soon as possible after receipt. Detailed tests are presented in Section V.

2-8. DAMAGE CLAIMS.

2-9. If the Reader is mechanically damaged in transit, or fails to meet specifications on receipt, notify the carrier and the nearest Hewlett-Packard Office immediately. A list of field offices is conveniently located in the rear of this manual. Retain the shipping carton and padding material for the carrier's inspection. The field office will arrange for replacement or repair of your instrument without waiting for claim settlements against the carrier.

2-10. STORAGE.

2-11. When the Reader is to be stored for a period of time, seal the instrument in a moisture-proof cover and repackage in a container similar to the original factory carton.

2-12. SHIPPING.

2-13. Before returning the Reader for any reason, notify the local field sales office of the difficulty encountered, the model and serial number of the Reader, and request shipping instructions. The container should be sufficiently durable to prevent damage to the Reader during handling. If in doubt, request shipping carton from the nearest Hewlett-Packard Sales Office.

2-14. Precautions should be taken when repacking the Reader. Wrap the Reader in heavy paper or plastic,

and surround with three to four inches of shock-absorbing material to cushion it and prevent its movement inside the shipping container. Place packing material firmly around hopper bails to ensure that they remain stationary during shipment. The container should be sufficiently durable to prevent damage to the Reader during handling. Shipping cartons can be requested from the Sales and Service Office.

2-15. POWER REQUIREMENTS.

2-16. The Reader operates on 100 and 120 Vac (selectable; 220 and 240 Vac with Option 005) (50 Hz with Option 006 to optimize card reading speed). The Reader is factory set for 120 Vac and fused with a 4AT (amperes time-lag, or slow-blow) main fuse and a 2AT transformer fuse; for 220 or 240 Vac operation (Option 005), a 2AT main fuse and 1AT transformer fuse. Both fuses are operator-replaceable and located with the line-voltage selector switch, power connector, and fan filter on the Reader's rear panel (see Figure 2-1).

2-17. POWER CONNECTIONS AND SETTINGS.

2-18. Figure 2-2 shows the power-cable plug configurations that are used throughout the United States and in other countries. The plug rating and Hewlett-Packard part number are shown beside each plug configuration. The part numbers are for the power cables with the plug configurations shown. If the appropriate power cable is not included with the Reader, notify the nearest Hewlett-Packard Sales and Service Office and a replacement cable will be provided.

2-19. The power cord (Part Number 8120-1348) furnished with the Reader complies with Underwriters' Laboratories, Inc., (UL), requirements only when used for 100V and 120V operation. For 220V and 240V operation (Readers with Option 005), the power cord must be replaced or modified. To modify the cord, replace the standard 120V plug with a UL-approved 240V plug as shown in Figure 2-3.

2-20. With the power off, set the line selector switch (located on the rear panel of the Reader) to agree with the line voltage used as shown in Figure 2-4.

2-21. SYSTEM CONNECTORS.

2-22. The Reader provides a connector on its rear panel, labelled DATA INPUT/OUTPUT (see Figure

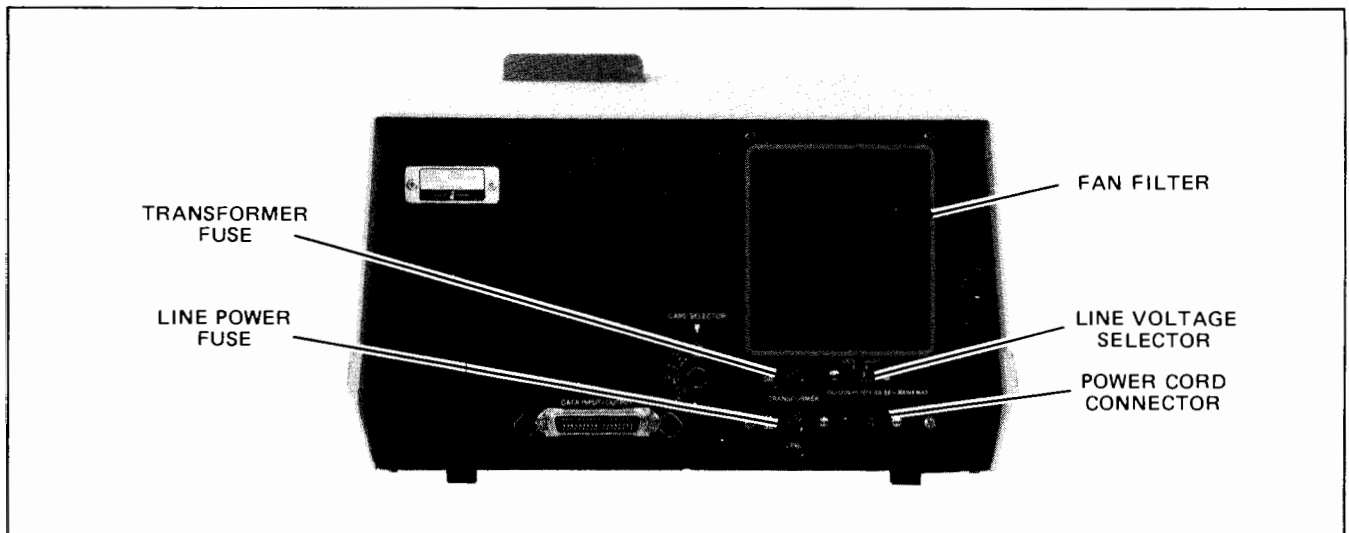


Figure 2-1. Power Components of HP 7261A Reader

2-5). Refer to Appendix B of this manual for detailed interface instructions.

2-23. INTERNAL JUMPER CONNECTIONS.

2-24. There are two plug-in jumper connectors (jumpers) inserted into the orange-tabbed A3 printed circuit assemblies of the Reader and are factory installed into their normal positions. (See Figure 2-6 for jumper insertion positions.) The jumpers can easily be removed and reinserted into alternate positions for modifying the operation of the Reader. The following paragraphs explain the use of these jumpers.

2-25. JUMPER DEV (SELECT NEGATIVE/ POSITIVE DEVICE COMMAND).

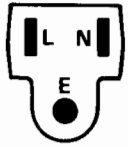
2-26. Jumper DEV (select negative/positive device command) is normally installed in the N (for negative) position. When installed in the N position,

jumper DEV determines that the Reader uses the "low" logic state of the device command line for a pick command; when installed in the P (for positive) position, the "high" logic state of the line is used.

2-27. JUMPER RH (SELECT STOP/CONTINUE IF SELECT HOPPER IS FULL).

2-28. Jumper RH (select stop/continue if select hopper is full) is normally installed in the C (for continue) position. When installed in the C position, jumper RH determines that the Reader can continue reading cards if the optional select hopper (Option 002) becomes full (30 cards nominal); when installed in the S (for stop) position, the Reader will stop reading cards if the hopper becomes full.

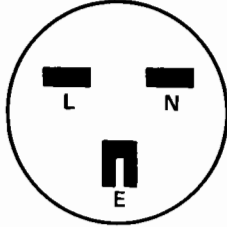
NEMA 5-15P



HP Part Number 8120-1348; 125V, 15A, 1 ϕ plug rating.

(UL approved; furnished with standard Reader for use in United States, Canada, Japan, Mexico, Philippines, Taiwan)

NEMA 6-15P



No HP Part Number (see Figure 2-3); 250V, 15A, 1 ϕ plug rating.

(UL approved; for use in United States)

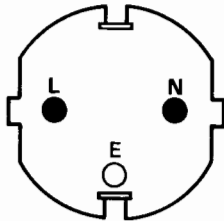
BS 1363



HP Part Number 8120-1351; 250V, 13A, 1 ϕ plug rating.

(Furnished for use in Great Britain, Cyprus, Nigeria, Rhodesia, Singapore)

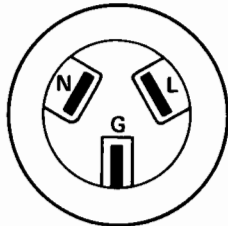
CEE 7-VII



HP Part Number 8120-1689; 250V, 10/16A, 1 ϕ plug rating.

(Furnished for use in East and West Europe, Saudi Arabia, United Arab Republic)

AS C112



HP Part Number 8120-1369; 250V, 10A, 1 ϕ plug rating.

(Furnished for use in Australia, New Zealand)

NOTE: All plugs are viewed from connector end; E is earth or safety ground, N is neutral or identified conductor, and L is line or active conductor.

Figure 2-2. Power Cable Plug Configurations

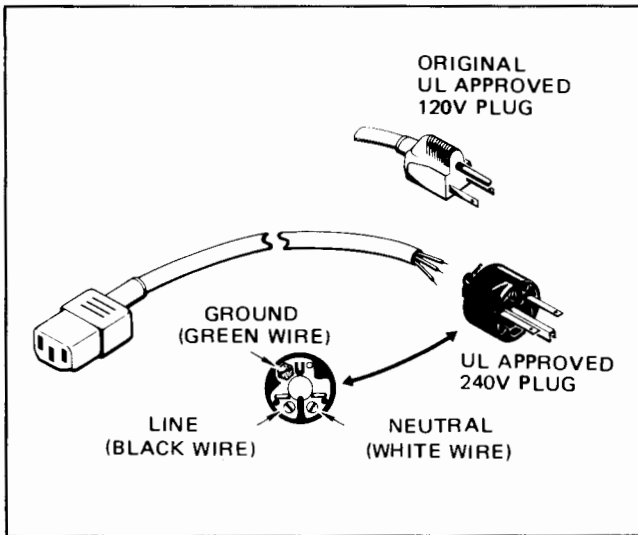


Figure 2-3. HP Power Cord Modification for 240V

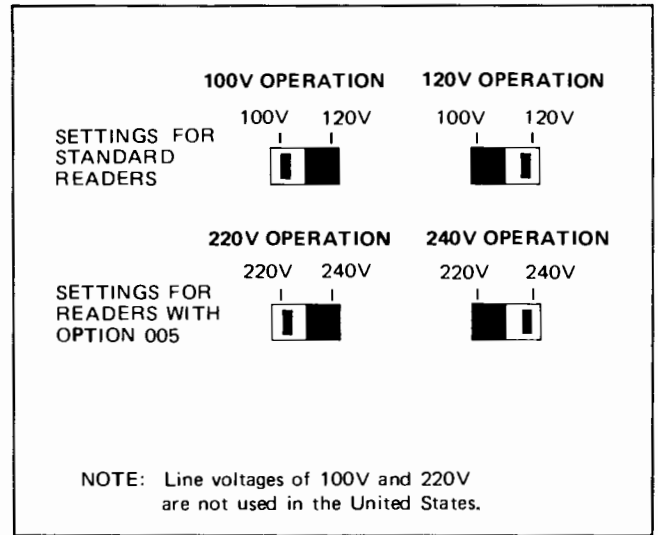


Figure 2-4. Line Selector Switch Settings

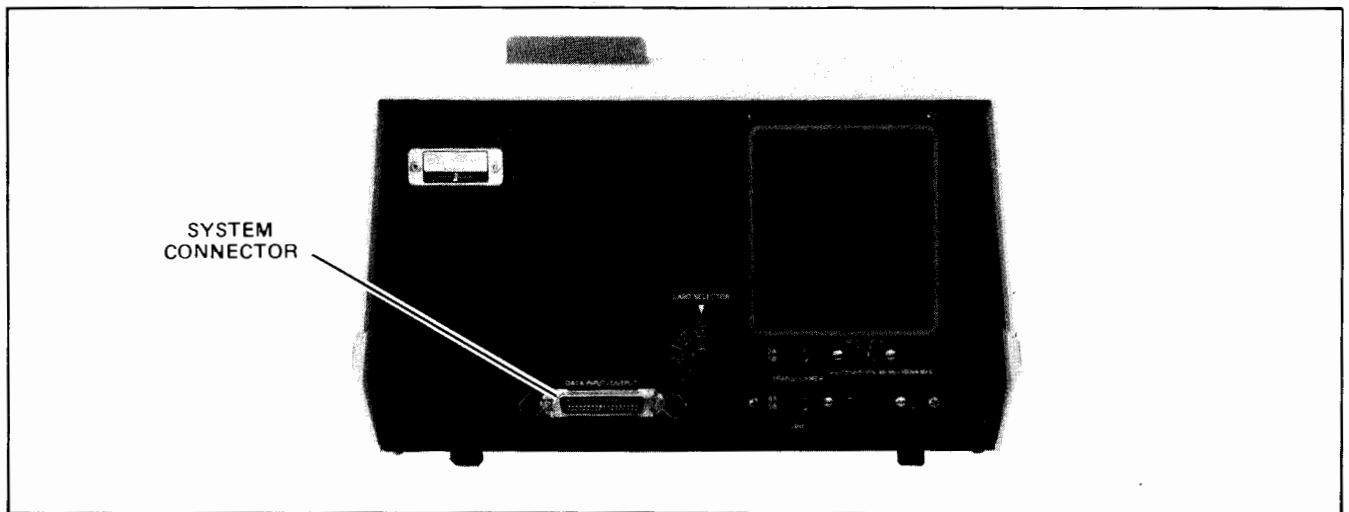


Figure 2-5. System Connection

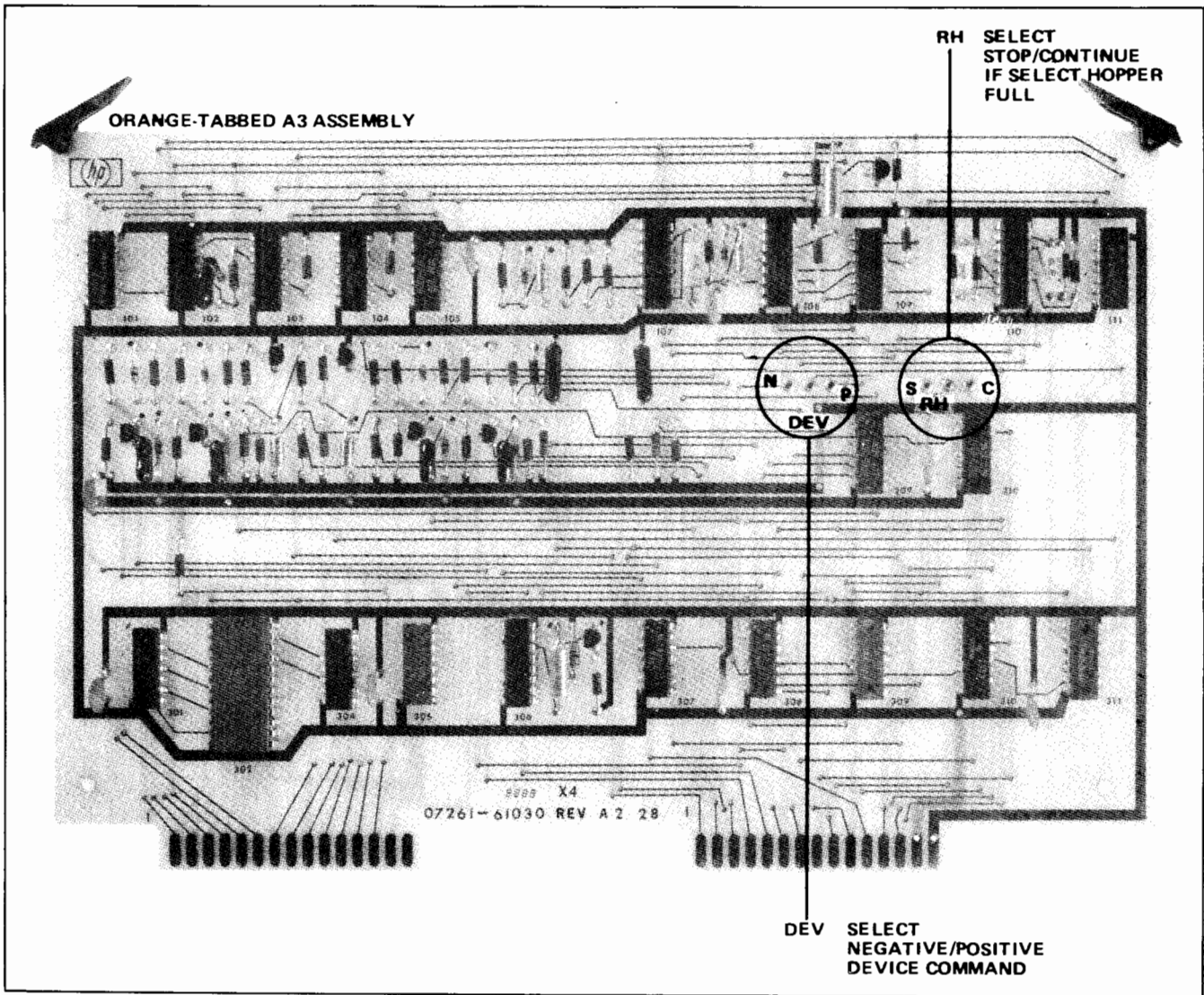


Figure 2-6. Internal Jumper Connections



SECTION III

OPERATING INSTRUCTIONS

3-1. INTRODUCTION.

3-2. This section provides the basic information required to operate the HP 7261A Optical Mark Reader. All Reader controls and indicators are illustrated and described in detail so that you can fully understand them. If additional information is required, contact your nearest Hewlett-Packard Sales and Service Office for assistance. A list of offices is included at the back of this manual.

3-3. MARKING CARDS.

3-4. The HP 7261A Reader reads cards photo-optically; i.e., light reflected off the card is ignored by the Reader, whereas the loss of reflection caused by a mark or a hole creates a signal.

3-5. CONTROLS AND INDICATORS.

3-6. All controls required to operate the Reader are mounted on the front and rear panels. These controls and indicators are illustrated in Figure 3-1 and the use or function of each is given in Table 3-1.

3-7. OPERATOR MAINTENANCE.

3-8. The Reader is nearly maintenance free, as far as the operator is concerned. The filter should normally be cleaned about every three months. (Push down hard and pull out as shown in Figure 3-2.) Clean the filter by holding it under running water or by washing it in warm soapy water followed by rinsing in clean water. (Dry thoroughly before reinstalling.) Clean the card dust from the read head as required.

3-9. OPERATION.

3-10. The Reader is a computer-peripheral device, which means that it operates mostly under the control of a computer. All an operator has to do is set up the Reader to read cards, load the cards to be read, push the READY button, and turn the power on and off. The operator can also start and stop the reading of cards.

3-11. READER SETTINGS.

3-12. Before reading cards, the Reader must be set up for the type of card to be read. The Reader can read cards with clock marks on (coincident with), or after,

data columns with 80-column clock spacing and wider. Set the CARD SELECTOR switch on the rear panel for clock-after-data or clock-on-data, or if using the encoder (Option 003) for 40- or 80-column cards without clock marks.

3-13. LOADING CARDS.

3-14. Up to 450 cards can be loaded into the input hopper for reading. Stack the cards evenly, with all edges flush, and load the cards face-down into the input hopper as shown in Figure 3-3. Place the card weight on top of the card stack as shown in Figure 3-4. The cards are now ready to be read. Cards will be returned into the output hopper or optional select hopper oriented the same way as they went in. Figure 3-5 shows the mechanics and operation of internal card travel.

NOTE

Care must be taken not to damage the spring on the card weight. Do not drop.

3-15. TURN-ON PROCEDURE.

3-16. When all appropriate jumper selections and settings are made and the cards to be read are loaded, the Reader is ready to be operated. Turn on the Reader by pressing the LINE (power) switch. (The Reader is turned off by pressing the LINE switch again to release it.) If cards are loaded in the hopper, the output hopper is not full, all read-head lamps are on, and the power is on, the Reader is ready to read cards.

3-17. OPERATING PROCEDURE.

3-18. Press the READY pushbutton to signal that cards can be read, and the system will take over. The reading of cards can be stopped at any time by pressing the STOP pushbutton, but restarted only by pressing the READY pushbutton. If a pick failure occurs, the reading of cards is automatically stopped, and the PICK FAIL indicator will go on. Remove the damaged card or obstruction preventing card reading, reload the cards, and press the READY pushbutton to continue reading.

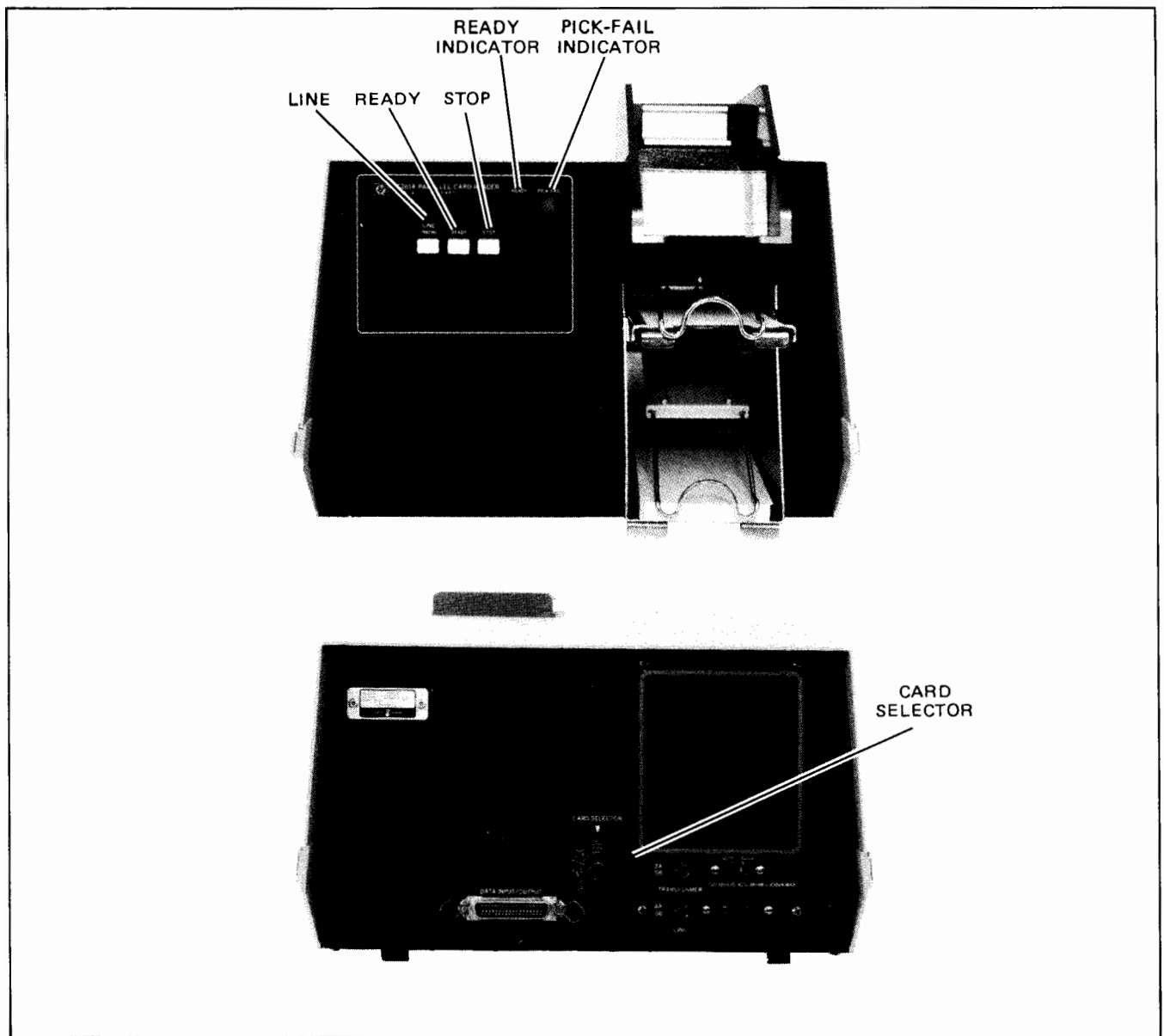


Figure 3-1. Operator Controls and Indicators

Table 3-1. Operator Controls and Indicators

CONTROL OR INDICATOR	USE OR FUNCTION
LINE Pushbutton	Turns power on and off.
READY Pushbutton	Signals system that cards can be read.
STOP Pushbutton	Stops the reading of cards.
READY Indicator	Indicates that cards can be read.
PICK-FAIL Indicator	Indicates failure to pick a card after a predetermined time.
CARD Selector	Sets the Reader for reading specific kinds of cards.



Figure 3-2. Filter Removal

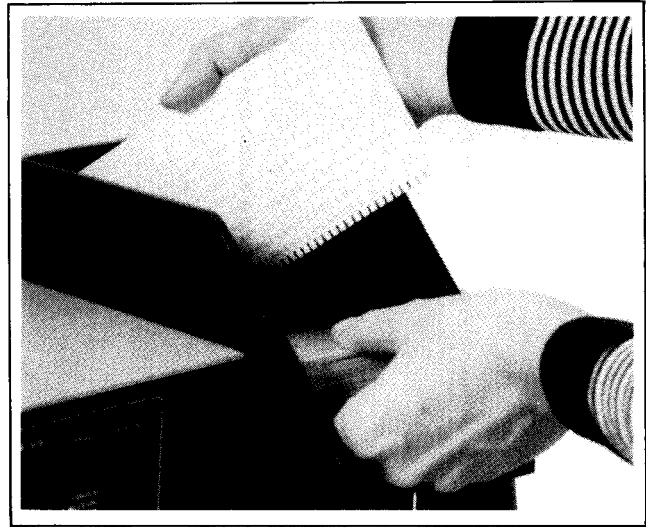


Figure 3-3. Loading Cards

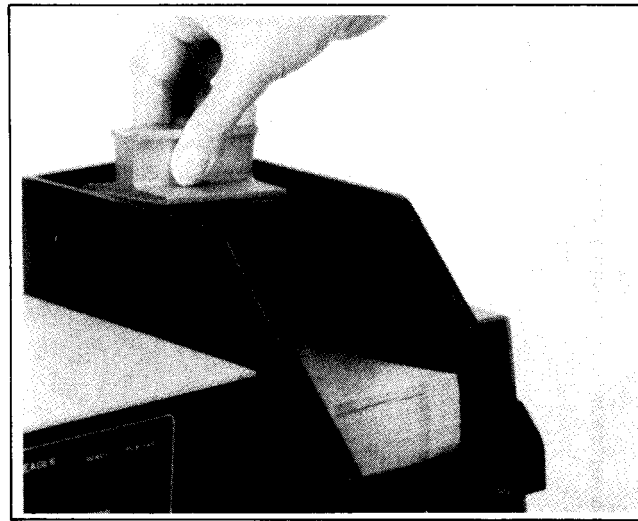


Figure 3-4. Placing Card Weight

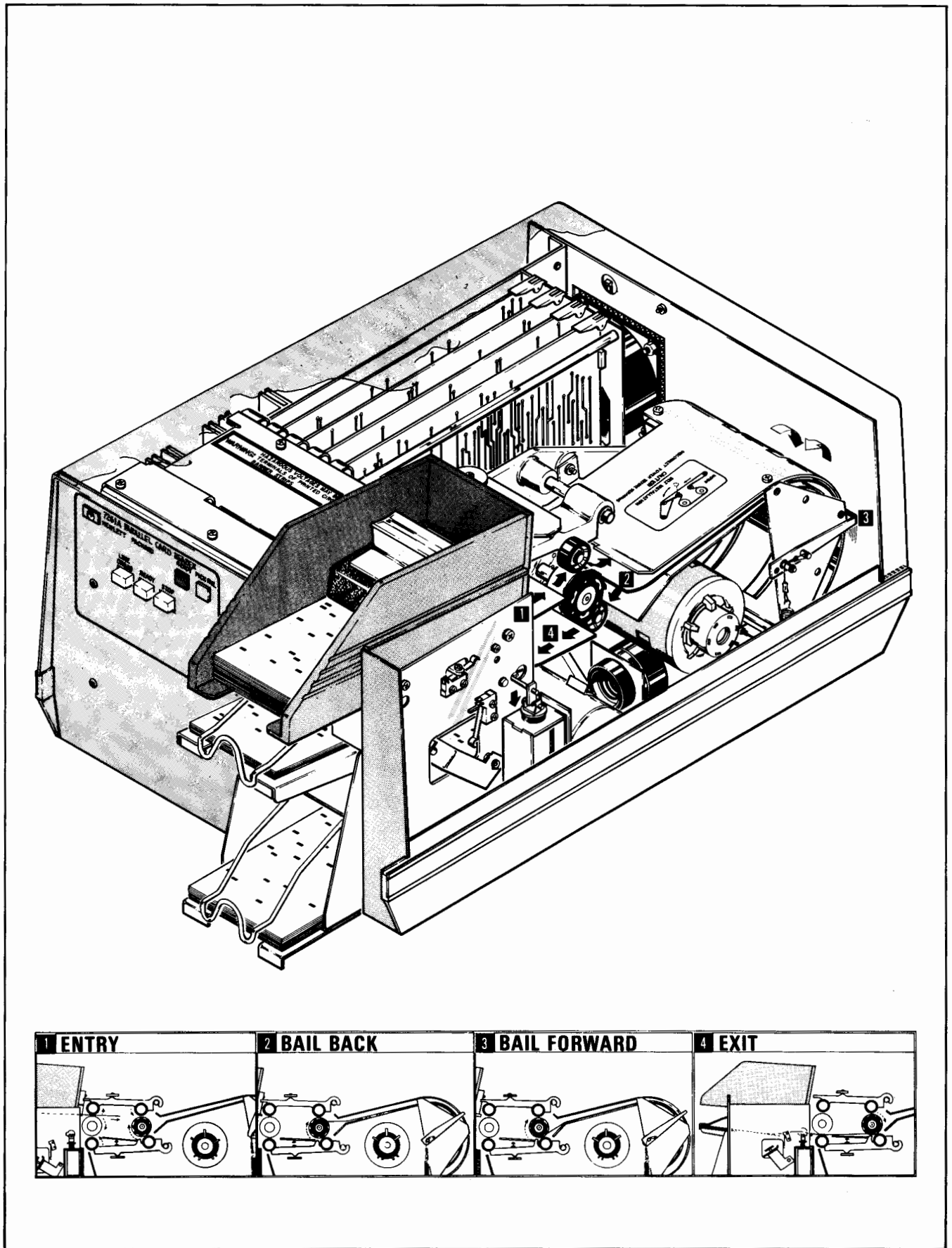


Figure 3-5. Card Travel Mechanics and Operation

SECTION IV

THEORY OF OPERATION

4-1. INTRODUCTION.

4-2. This section provides the theory of operation for the HP 7261A Optical Mark Reader. A description of circuit assemblies and functional block diagrams are included.

4-3. The schematic diagrams in Section VII illustrate the individual circuits in schematics and photographs and can be folded out for reference. Illustrations and truth tables of special devices are located in Appendix C.

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4-5. The 7261A Optical Mark Reader is a source document data entry device. The Reader photo-optically reads parallel 12-bit key-punched coding from data processing cards. Information is transmitted by the Reader in a parallel, 12-channel format.

4-6. OVERALL OPERATION.

4-7. The Reader is operated remotely from a computer. To interface the Model 7261A with HP 2100 Series computer, Option 016 must be used. To interface the 7261A with the 12602B Interface Card, Option 017 must be used. For interfacing with a computer other than HP 2100 Series, refer to Appendix B, Interface. The process of reading cards is initiated by a pick command whereby the Reader's mechanics are activated to pick a card out of the input hopper, drive it through the read head to be read, and then deposit it into the output hopper. The Reader's controls, indicators, and mechanics are shown in Figures 3-1 and 3-5 and presented in operational sequence from card entry to exit.

4-8. CARD ENTRY CONTROLS.

4-9. Data processing cards are placed in the input hopper to be read. The input-hopper-empty status switch senses the absence or presence of cards in the hopper. In operation, the front panel READY pushbutton is pressed to signal the system that cards are ready to be read. The READY indicator goes on when the READY pushbutton is pressed. The STOP pushbutton can be pressed to stop the picking operation. The READY indicator goes out whenever the STOP pushbutton is pressed.

4-10. CARD PICKING OPERATION.

4-11. The drive motor turns on when a ready or pick command is given. The motor's drive belt drives the pick

wheel, the entry drive roller, and the exit drive roller. When a pick command is given, the pick wheel clutch is engaged to drive the pick wheel to pick a card. The pick wheel is a grooved gumrubber cylinder fixed at the floor of the input hopper. The pick wheel clutch is disengaged as soon as the card is pulled into the read head.

4-12. PICK-FAIL DETECTION.

4-13. If, after a predetermined time, after picking the card, the card is still not in the read head, the PICK FAIL indicator turns on and the Reader goes "not ready." The operator then clears the card entrance gate of any obstructions and then restacks the cards in the input hopper. When the cause of the pick fail is resolved, another pick command can be given. If no pick failure then occurs, the card is fed through the read head where it is photo-optically read.

4-14. CARD RETURN OPERATION.

4-15. The card is carried further by the top of the exit drive roller which sends the card into the spring-loaded card-return bail. The exit drive roller's protruding-tooth reversing ratchets, which are plastic teeth at either end of the roller, grab the trailing edge of the card once it has gone into the card return bail and direct it down. The card is driven back again to the bottom of the exit and entry drive rollers and finally deposited into the output hopper. The output-hopper-full status switch detects when the hopper is filled to capacity (about 450 cards).

4-16. CARD SELECT (OPTION 002) OPERATION.

4-17. Readers equipped with the Option 002 Card Select feature have a select hopper that can be used for selecting particular cards from a larger group of cards. Card selection is made by holding each card picked back in the card-return bail by clutching off the exit roller. Then, after a card has been read, the decision whether or not to select it into the select hopper can be made. The exit roller clutch disengages after the card has left the read head to hold the card in the return bail. When the decision has been made to select the card or not, the clutch reengages and the card is directed into either the select hopper or the output hopper as determined by the select-deflector solenoid. When energized, this solenoid directs the card into the select hopper. The select-hopper-full status switch senses when the hopper is filled to capacity (about 30 cards).

4-18. ELECTRONIC ASSEMBLIES.

4-19. The Reader's electronics are on nine electronic assemblies, two of which are for Encoder Option 003 (allows reading cards without clock marks). Seven of these assemblies are printed circuit assemblies (PCAs) and two of the seven make up the head assembly. See Figure 7-1 for location of assemblies.

4-20. A1 HEAD PREAMPLIFIER PCA.

4-21. The A1 Head Preamplifier PCA (see Figures 4-1 and 7-3) accepts 12 parallel channels of analog information from Read Head PCA A9, converts the information into TTL data, provides a parallel output of the data to Input/Output PCA A3 and sends status signals to other units in the Card Reader. Figure 4-1 illustrates signal flow through Channel 2 of the preamplifier.

4-22. A punch or mark on a tab card is transformed into an analog signal by Read Head Assembly A9 and passed to amplifier AR201 on preamplifier assembly A1. After amplification, the signal is compared in AR202 with the CSW (center reference switch) reference voltage provided by AR5 and its associated circuit. The output of AR202 is a TTL pulse which is switched into latch U45A by either a DCW (data clock window) or an ENG (encoder gate) signal. The DCW signals are an output of U12B and occurs when clock marks are being read from the cards with COD (clock on data) and CAD (block after data). When cards do not have clock marks (Option 003 installed), the ENG signal allows data to strobe data latch U45A.

4-23. As cards with clock marks are being read (clock after data or clock on data), the analog clock input is amplified in AR1, compared with the CSW reference voltage, and converted to TTL pulses in AR2. Each clock input triggers four microsecond one-shot U22A which parallel loads registers U302 and U305 on Input/Output PCA A3 with the output levels of the 12 data latches, including U45A which is illustrated. After time out, U22A triggers one microsecond one-shot U22B to clear all data latches.

4-24. During Option 003 operation with Encoder Logic PCA A10 and Encoder Head Assembly A11 installed, the Reader is used to process cards without clock marks. The clock (ECK) is now provided by PCA A10 and is applied to one-shot U22A by the active ENG (encoder gate) signal. The ENG signal also clocks the data latches including Row 2 latch U45A illustrated in the block diagram. Row 4 data is used to provide control and status signals to Encoder Logic PCA A10 during Option 003 operation. The output of Row 4 amplifier AR401 is used to develop the CIH (card in head) signal indicating a card read function is starting. Row 4 input data also is used to produce the STA (start encoder) signal that is used by PCA A10 in conjunction with the CIH signal to start an encoder clock cycle.

4-25. A lamp failure in either the read head or in Encoder Head Assembly A11, when Option 003 is installed,

is registered by the lamp fail circuit on PCA A1. A LFS (lamp fail sense) indication from either source provides a LFL (lamp fail logic) signal to Input/Output PCA A3, lights the LED on PCA A1, and inhibits Card Reader operations until corrected.

4-26. A3 INPUT/OUTPUT PCA.

4-27. The A3 Input/Output PCA interfaces the Optical Mark Reader and a computer installation, providing parallel data transfer to the computer under controlled conditions. Figure 4-2 is a simplified block diagram of PCA A3, and reference can be made to Appendix B (Interface Section) for further interfacing information.

4-28. The Device Command signal (DEV) initiates Card Reader operation. DEV jumper allows selection of either negative (normal) or positive device command signals. (It can also be used to check Card Reader pick operation without external device commands by placing this jumper in the P position and pushing the READY pushbutton on the front panel. Cards in the input hopper will then be picked automatically.) Upon receipt of the device command, the Reader may pick a card depending on the state of the READY flop A3U109B. If the Reader is not ready, a single flag will be returned with the four status lines indicating the status (see Interface Section, Appendix B). If ready the pick timer A3U306A and pick fail timer A3U108A are started. A pick fail occurs if a card has not reached the read head (CIH signal) before the pick fail timer times out (300 ms). (It takes the card approximately 50 ms to reach the read head.) In this event, again a single flag will be returned, and the status lines will indicate a pick fail. For the case when a card is picked, each column of data is read, passed through the A1 PCA, and stored in a latch (A3U302A/B, A3U305) with a corresponding timing flag being sent. As the card leaves the read head, an additional flag is generated indicating end-of-card on the status lines. The clear-to-send signal can be used to disable the motor and flag generation. The select command logic delays activating the solenoid if the command comes prior to the end of CIH, otherwise it immediately activates the solenoid, thus the proper card is selected. See Figures 4-2 and 7-5 for flow and circuit illustration.

4-29. A5 POWER SUPPLY PCA.

4-30. The A5 Power Supply PCA (see Figure 7-7) provides the voltage regulator circuits and test points for the +12V, +6.2V, +5V, -5V, -12V, and -19V supplies. The power supply PCA also contains various drive circuits used during Card Reader operation that are under control of flip-flop circuits in the A3 Input/Output PCA (see Figure 4-2). Transistors Q27 and Q28 drive the optional select hopper solenoid, transistors Q29 and Q30 drive the pick clutch, Q31 and Q32 drive the front panel ready light, Q33 and Q34 drive the optional select clutch, and Q35 drives the motor. A foldback circuit consisting of Q11, Q12, and Q13 in the +5V regulator circuit limits current while Q14, CR14, and associated components provide over voltage protection. The power supply PCA also contains

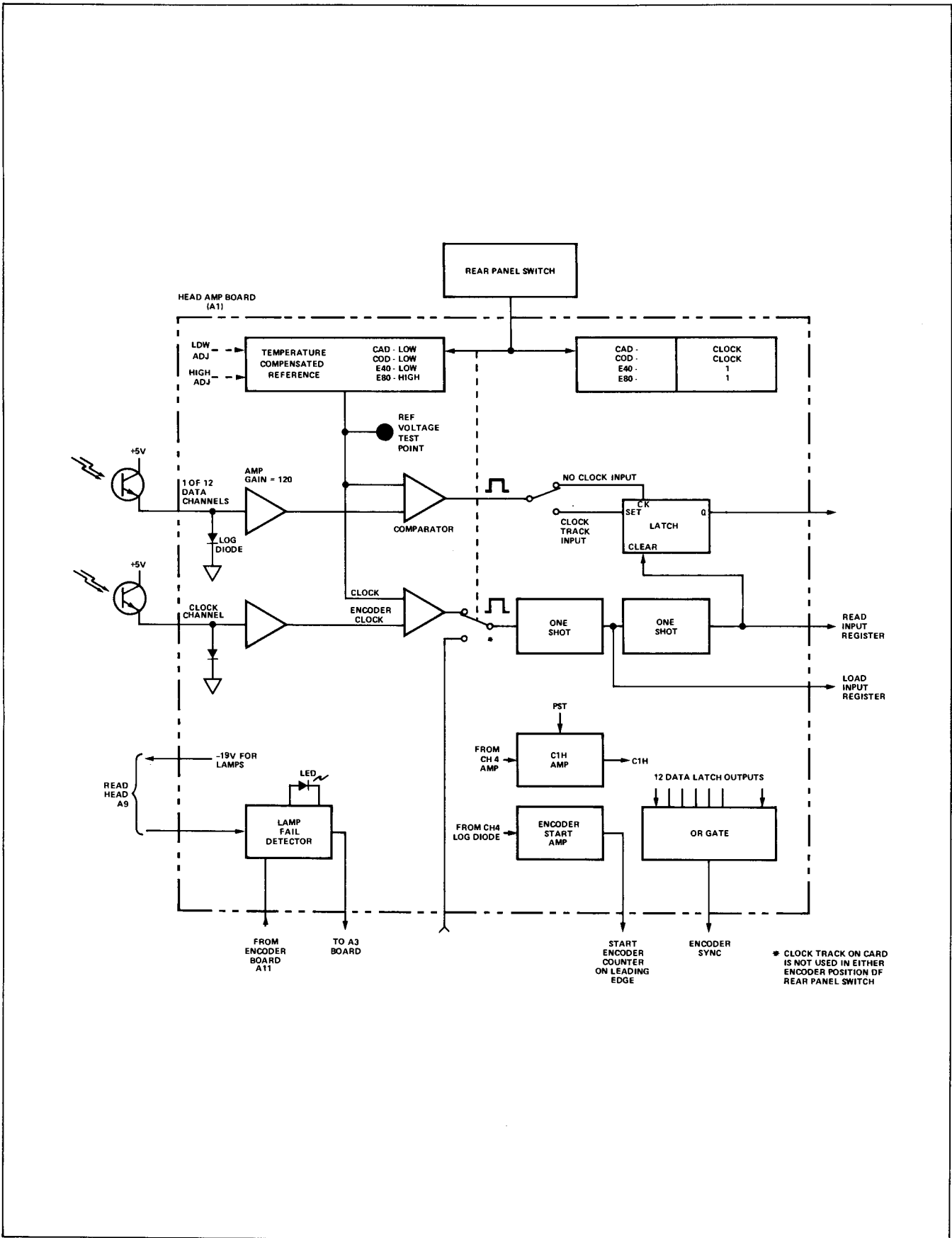


Figure 4-1. A1 Head Preamplifier, Block Diagram

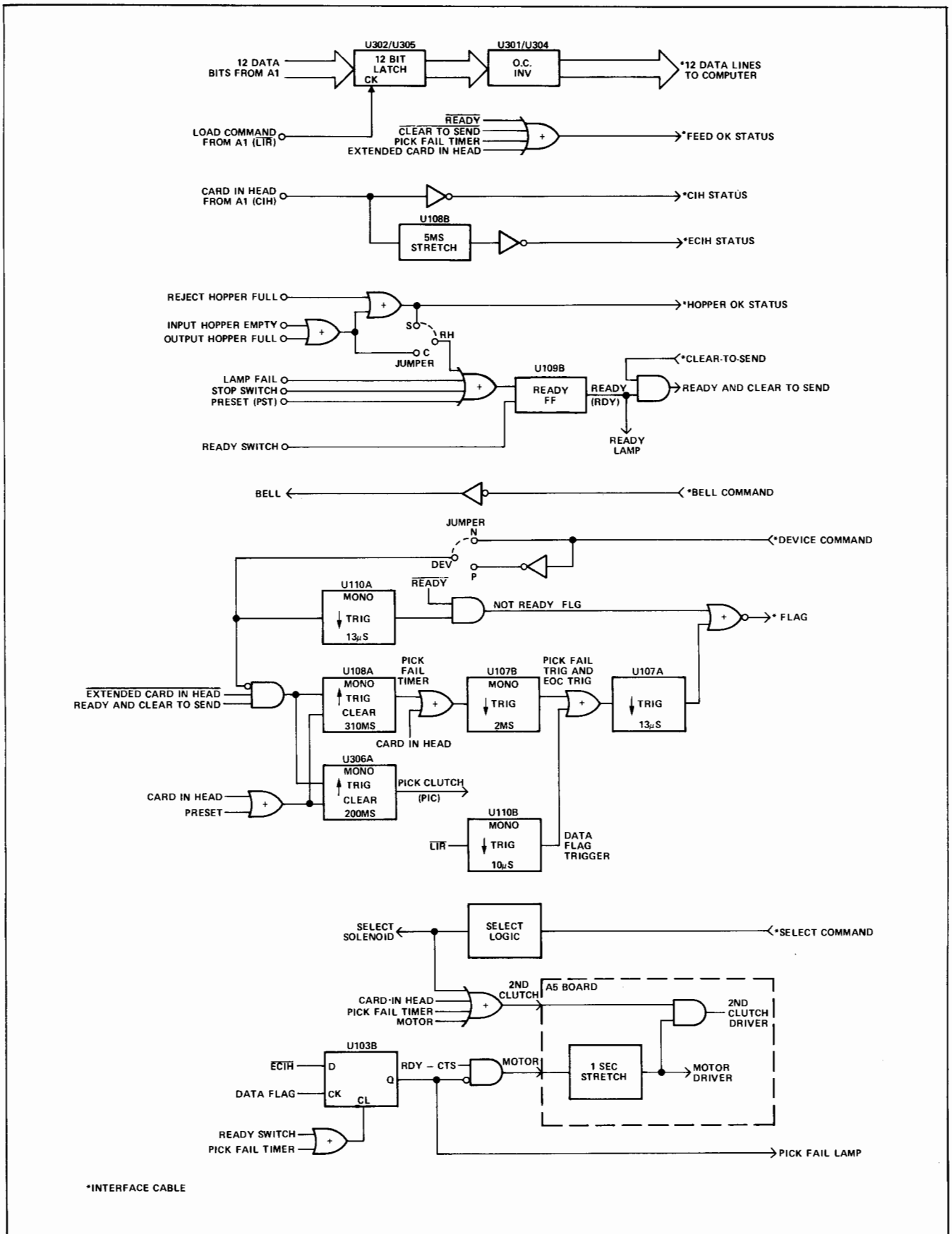


Figure 4.2. Model 7261A Functional Block Diagram of A3 PCA

a bell driver circuit that is used when Option 004 is installed. One-shot U2A provides a 60 millisecond pulse that turns on Q36 and Q37 to provide a bell drive output to the bell circuit. One-shot U2B provides a one-second pulse to Q35 to drive the motor for one second after the motor command is turned off or power is applied to ensure the return bail is clear of a card left from a previous operation.

4-31. A6 MOTHER BOARD PCA.

4-32. The Mother Board PCA (see Figure 7-11) provides terminal connectors for PCA's A1, A3, A5, and A10, and inter-circuit board signal traces as well as connections for chassis-mounted units. All signals entering or leaving the Card Reader can be easily monitored at square-pin connectors on the Mother Board.

4-34. The Power Input PCA (see Figure 7-11) provides interface between the AC line power applied to the rear of the unit and rectification circuits in the Card Reader. The motor control circuit for drive motor B1 also is located on the power input board.

4-35. A8 28V RECTIFIER PCA.

4-36. The 28V Rectifier PCA (see Figure 7-11) contains a rectifier circuit which supplies 28 Vdc to Power Supply PCA for development of the +12V, -12V, and -19V supply voltages. The board also provides a convenient test point for checking the power transformer secondary voltages.

4-37. A9 READ HEAD ASSEMBLY PCA.

4-38. The Read Head Assembly (see Figure 7-13) contains A9A1, the lamp PCA, and A9A2, the photo-transistor PCA. As a card is passed under the read head, each marked or punched entry on the card develops a signal using loss-of-reflection sensing. Each row on a card provides 12 channels of information through the read head to PCA A1 for amplification and transformation into TTL data.

4-39. A10 ENCODER LOGIC PCA.

4-40. The A10 Encoder Logic PCA (see Figure 4-3) is installed when the instrument is configured for Option 003 operation and generates clock pulses which replace those supplied by tab card clock marks used during normal operation. Rear-panel CARD SELECTOR switch S12 is set for either 40-column or 80-column no clock operation and provides an E80 (40 column) or E80 (80 column) input to encoder logic. This discussion and the block diagram assume an 80-column operation.

4-41. Encoder pulses from Assembly A11 are detected and amplified in zero-crossing detector AR3 and doubled in one-shot U81A and flip-flop U71A. This function provides a resolution of 0.00435 inches on a card. The

pulses are then applied to U61/U71B/U72A/U27B which are connected as a modulo 80 counter. When a card is under the read head, a CIH (card in head) signal is developed in PCA A1 that is sent to PCA A10 and applied to latch U32B to enable the latch circuit. As the leading edge of a card is sensed, a STA (start encoder) signal is developed in PCA A1 and passed to PCA A10 where it is compared with a calibrated reference developed in operational amplifier AR1. The output of start circuit AR2 triggers the encoding counter reset one-shot U81B to reset the modulo counter to 0, set the CIH latch, and start a count from that point as indicated in the timing diagram in Figure 4-3. An output from CIH latch U32B also turns off the input start circuit. At count 53, data latch U12 is set by an output from decoder U51 to provide an enabling signal to gate U21B in the output circuit. After the decoder counts an additional 10 pulses, gate U21B toggles to provide the ECK (encoder clock) read pulse to PCA A1 where the input is used to clock first column data into parallel registers located on PCA A3. The ECK pulse also is applied to columns read counter U11 and increments the counter by one (for column 1).

4-42. At the leading edge of columns 2 data, the modulo counter can be reset to 0 by the input SYNC (resynchronize on data) signal from PCA A1. The counter now counts to 10 and again provides an output to gate U21B which is still enabled by the output of data latch U12. A second ECK pulse output is sent to PCA A1 and columns read counter U11 is incremented. Each column of data read and processed in PCA A1 resets the counter to 0, which then counts to 10 and provides an ECK output until column 80 is reached. If no data is present, the counter passes automatically back to 0 at a count of 20. The trailing edge of column 80 data resets columns read counter U11 which clears data latch U12. After the card has passed under the read head, the CIH signal goes low to reset the counter and CIH latch U32B. An enable-first-column-detect latch, which is not shown in Figure 4-3, prevents decoding clock 53 except at the beginning of the card.

4-43. The encoder logic operates in a similar manner during 40-column card reading. The original count of 53 is used to track card travel from the leading edge to the first column of data. The counter then counts to 19 instead of 10 before providing the ECK read pulse. The counter successively resets to 0 and counts to 19 for each column of data until the trailing edge of column 40 is reached. Columns Read Counter U11 is set for column 40 operation and resets the data latch at count 40 instead of count 80. Resynchronize in the 40-column mode is not required.

4-44. A11 ENCODER HEAD ASSEMBLY PCA.

4-45. The A11 Encoder Head Assembly (see Figure 7-15) photo-optically generates timing pulses for the encoder logic on PCA A10. This assembly is only installed in instruments configured for Option 003 operation.

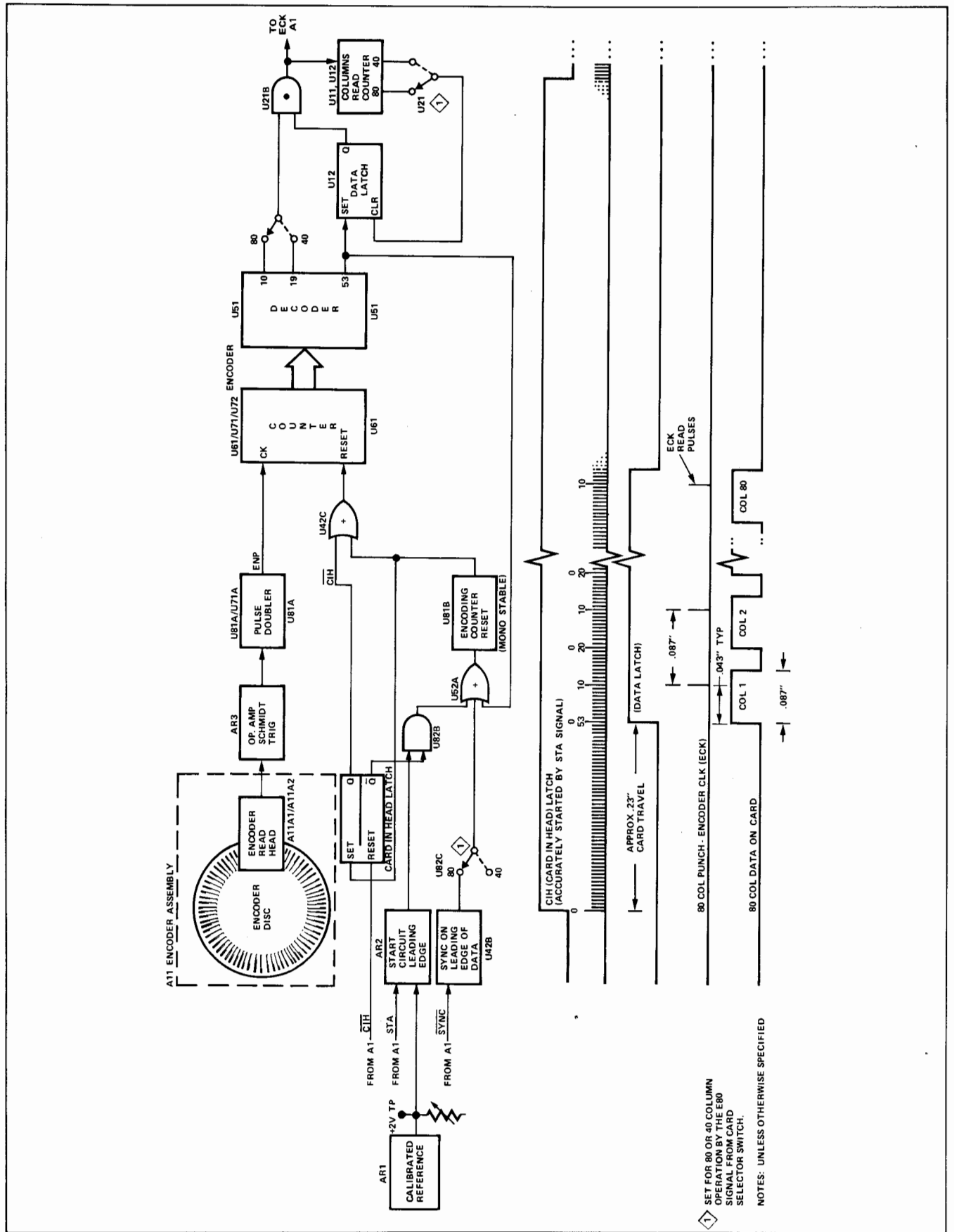


Figure 4-3. A10 Encoder Logic PCA, Block Diagram



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4-22. A punch or mark on a tab card is transformed into an analog signal by Read Head Assembly A9 and passed to amplifier AR201 on preamplifier assembly A1. After amplification, the signal is compared in AR202 with the CSW (center reference switch) reference voltage provided by AR5 and its associated circuit. The output of AR202 is a TTL pulse which is switched into latch U45A by either a DCW (data clock window) or an ENG (encoder gate) signal. The DCW signals are an output of U12B and occurs when clock marks are being read from the cards with COD (clock on data) and CAD (block after data). When cards do not have clock marks (Option 003 installed), the ENG signal allows data to strobe data latch U45A.

4-23. As cards with clock marks are being read (clock after data or clock on data), the analog clock input is amplified in AR1, compared with the CSW reference voltage, and converted to TTL pulses in AR2. Each clock input triggers four microsecond one-shot U22A which parallel loads registers U302 and U305 on Input/Output PCA A3 with the output levels of the 12 data latches, including U45A which is illustrated. After time out, U22A triggers one microsecond one-shot U22B to clear all data latches.

4-24. During Option 003 operation with Encoder Logic PCA A10 and Encoder Head Assembly A11 installed, the Reader is used to process cards without clock marks. The clock (ECK) is now provided by PCA A10 and is applied to one-shot U22A by the active ENG (encoder gate) signal. The ENG signal also clocks the data latches including Row 2 latch U45A illustrated in the block diagram. Row 4 data is used to provide control and status signals to Encoder Logic PCA A10 during Option 003 operation. The output of Row 4 amplifier AR401 is used to develop the CIH (card in head) signal indicating a card read function is starting. Row 4 input data also is used to produce the STA (start encoder) signal that is used by PCA A10 in conjunction with the CIH signal to start an encoder clock cycle.

4-25. A lamp failure in either the read head or in Encoder Head Assembly A11, when Option 003 is installed,

is registered by the lamp fail circuit on PCA A1. A LFS (lamp fail sense) indication from either source provides a LFL (lamp fail logic) signal to Input/Output PCA A3, lights the LED on PCA A1, and inhibits Card Reader operations until corrected.

4-26. A3 INPUT/OUTPUT PCA.

4-27. The A3 Input/Output PCA interfaces the Optical Mark Reader and a computer installation, providing parallel data transfer to the computer under controlled conditions. Figure 4-2 is a simplified block diagram of PCA A3, and reference can be made to Appendix B (Interface Section) for further interfacing information.

4-28. The Device Command signal (DEV) initiates Card Reader operation. DEV jumper allows selection of either negative (normal) or positive device command signals. (It can also be used to check Card Reader pick operation without external device commands by placing this jumper in the P position and pushing the READY pushbutton on the front panel. Cards in the input hopper will then be picked automatically.) Upon receipt of the device command, the Reader may pick a card depending on the state of the READY flop A3U109B. If the Reader is not ready, a single flag will be returned with the four status lines indicating the status (see Interface Section, Appendix B). If ready the pick timer A3U306A and pick fail timer A3U108A are started. A pick fail occurs if a card has not reached the read head (CIH signal) before the pick fail timer times out (300 ms). (It takes the card approximately 50 ms to reach the read head.) In this event, again a single flag will be returned, and the status lines will indicate a pick fail. For the case when a card is picked, each column of data is read, passed through the A1 PCA, and stored in a latch (A3U302A/B, A3U305) with a corresponding timing flag being sent. As the card leaves the read head, an additional flag is generated indicating end-of-card on the status lines. The clear-to-send signal can be used to disable the motor and flag generation. The select command logic delays activating the solenoid if the command comes prior to the end of CIH, otherwise it immediately activates the solenoid, thus the proper card is selected. See Figures 4-2 and 7-5 for flow and circuit illustration.

4-29. A5 POWER SUPPLY PCA.

4-30. The A5 Power Supply PCA (see Figure 7-7) provides the voltage regulator circuits and test points for the +12V, +6.2V, +5V, -5V, -12V, and -19V supplies. The power supply PCA also contains various drive circuits used during Card Reader operation that are under control of flip-flop circuits in the A3 Input/Output PCA (see Figure 4-2). Transistors Q27 and Q28 drive the optional select hopper solenoid, transistors Q29 and Q30 drive the pick clutch, Q31 and Q32 drive the front panel ready light, Q33 and Q34 drive the optional select clutch, and Q35 drives the motor. A foldback circuit consisting of Q11, Q12, and Q13 in the +5V regulator circuit limits current while Q14, CR14, and associated components provide over voltage protection. The power supply PCA also contains

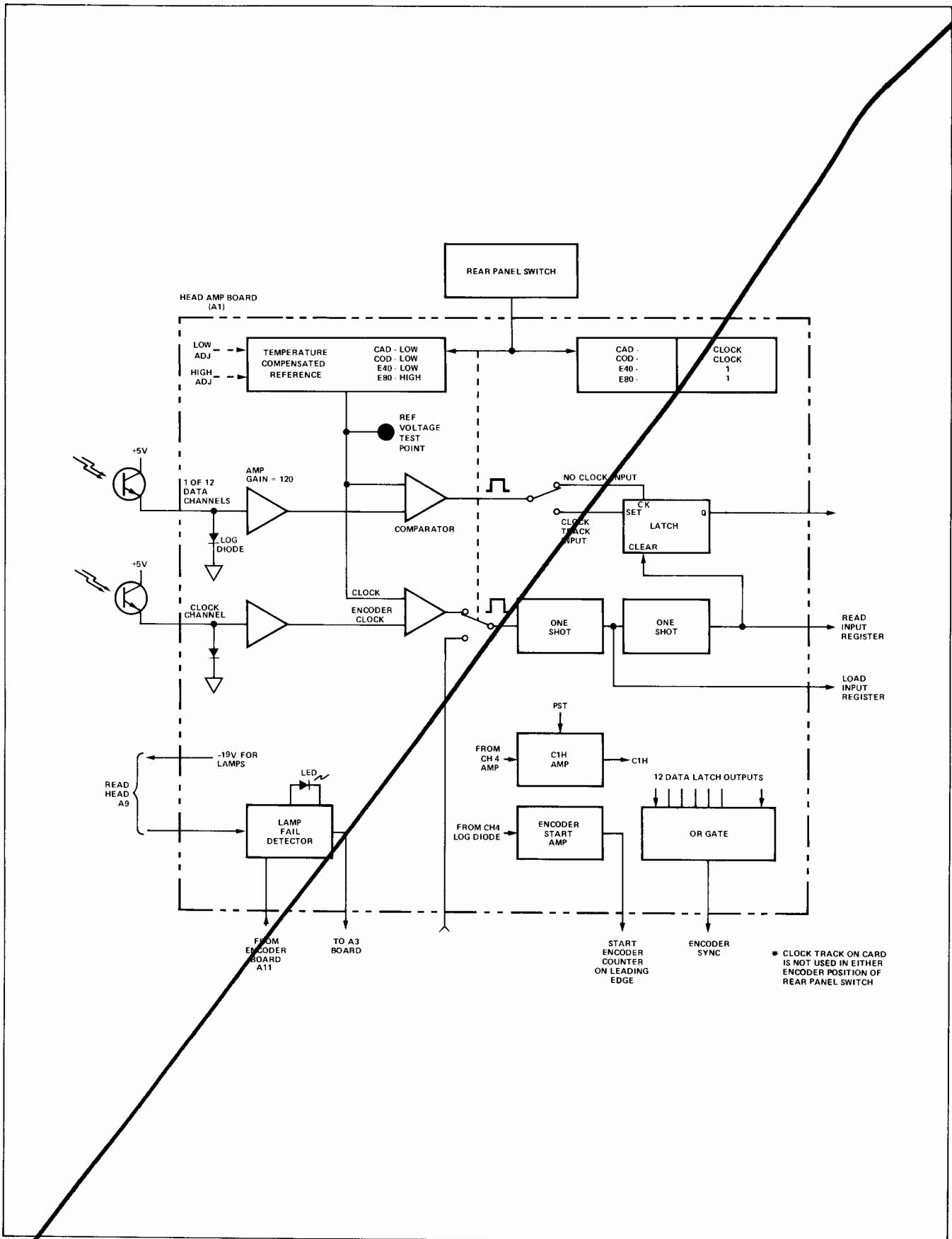


Figure 4-1. A1 Head Preamplifier, Block Diagram

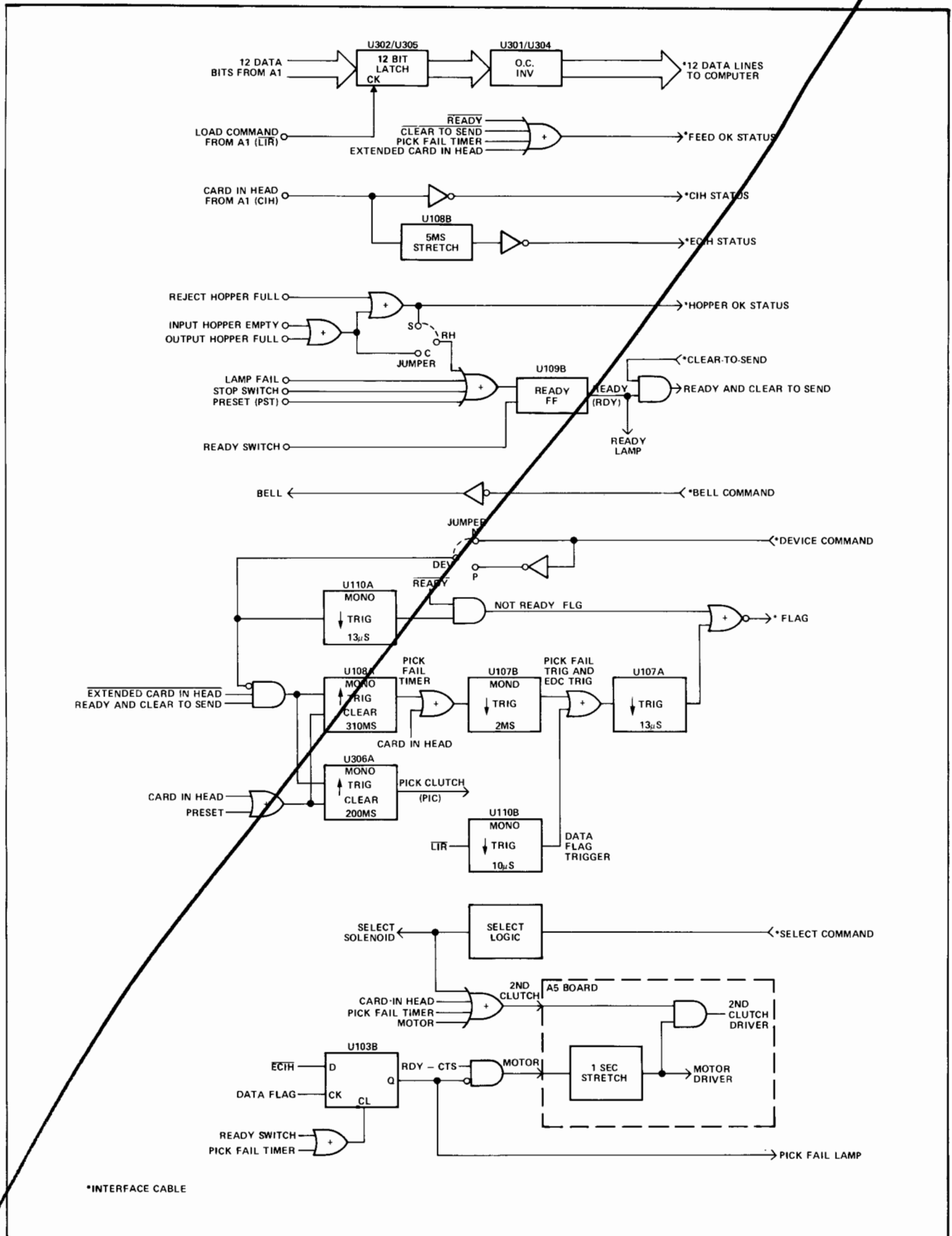


Figure 4-2. Model 7261A Functional Block Diagram of A3 PCA

a bell driver circuit that is used when Option 004 is installed. One-shot U2A provides a 60 millisecond pulse that turns on Q36 and Q37 to provide a bell drive output to the bell circuit. One-shot U2B provides a one-second pulse to Q35 to drive the motor for one second after the motor command is turned off or power is applied to ensure the return bail is clear of a card left from a previous operation.

4-31. A6 MOTHER BOARD PCA.

4-32. The Mother Board PCA (see Figure 7-11) provides terminal connectors for PCA's A1, A3, A5, and A10, and inter-circuit board signal traces as well as connections for chassis-mounted units. All signals entering or leaving the Card Reader can be easily monitored at square-pin connectors on the Mother Board.

4-34. The Power Input PCA (see Figure 7-11) provides interface between the AC line power applied to the rear of the unit and rectification circuits in the Card Reader. The motor control circuit for drive motor B1 also is located on the power input board.

4-35. A8 28V RECTIFIER PCA.

4-36. The 28V Rectifier PCA (see Figure 7-11) contains a rectifier circuit which supplies 28 Vdc to Power Supply PCA for development of the +12V, -12V, and -19V supply voltages. The board also provides a convenient test point for checking the power transformer secondary voltages.

4-37. A9 READ HEAD ASSEMBLY PCA.

4-38. The Read Head Assembly (see Figure 7-13) contains A9A1, the lamp PCA, and A9A2, the photo-transistor PCA. As a card is passed under the read head, each marked or punched entry on the card develops a signal using loss-of-reflection sensing. Each row on a card provides 12 channels of information through the read head to PCA A1 for amplification and transformation into TTL data.

4-39. A10 ENCODER LOGIC PCA.

4-40. The A10 Encoder Logic PCA (see Figure 4-3) is installed when the instrument is configured for Option 003 operation and generates clock pulses which replace those supplied by tab card clock marks used during normal operation. Rear-panel CARD SELECTOR switch S12 is set for either 40-column or 80-column no clock operation and provides an E80 (40 column) or E80 (80 column) input to encoder logic. This discussion and the block diagram assume an 80-column operation.

4-41. Encoder pulses from Assembly A11 are detected and amplified in zero-crossing detector AR3 and doubled in one-shot U81A and flip-flop U71A. This function provides a resolution of 0.00435 inches on a card. The

pulses are then applied to U61/U71B/U72A/U27B which are connected as a modulo 80 counter. When a card is under the read head, a CIH (card in head) signal is developed in PCA A1 that is sent to PCA A10 and applied to latch U32B to enable the latch circuit. As the leading edge of a card is sensed, a STA (start encoder) signal is developed in PCA A1 and passed to PCA A10 where it is compared with a calibrated reference developed in operational amplifier AR1. The output of start circuit AR2 triggers the encoding counter reset one-shot U81B to reset the modulo counter to 0, set the CIH latch, and start a count from that point as indicated in the timing diagram in Figure 4-3. An output from CIH latch U32B also turns off the input start circuit. At count 53, data latch U12 is set by an output from decoder U51 to provide an enabling signal to gate U21B in the output circuit. After the decoder counts an additional 10 pulses, gate U21B toggles to provide the ECK (encoder clock) read pulse to PCA A1 where the input is used to clock first column data into parallel registers located on PCA A3. The ECK pulse also is applied to columns read counter U11 and increments the counter by one (for column 1).

4-42. At the leading edge of columns 2 data, the modulo counter can be reset to 0 by the input SYNC (resynchronize on data) signal from PCA A1. The counter now counts to 10 and again provides an output to gate U21B which is still enabled by the output of data latch U12. A second ECK pulse output is sent to PCA A1 and columns read counter U11 is incremented. Each column of data read and processed in PCA A1 resets the counter to 0, which then counts to 10 and provides an ECK output until column 80 is reached. If no data is present, the counter passes automatically back to 0 at a count of 20. The trailing edge of column 80 data resets columns read counter U11 which clears data latch U12. After the card has passed under the read head, the CIH signal goes low to reset the counter and CIH latch U32B. An enable-first-column-detect latch, which is not shown in Figure 4-3, prevents decoding clock 53 except at the beginning of the card.

4-43. The encoder logic operates in a similar manner during 40-column card reading. The original count of 53 is used to track card travel from the leading edge to the first column of data. The counter then counts to 19 instead of 10 before providing the ECK read pulse. The counter successively resets to 0 and counts to 19 for each column of data until the trailing edge of column 40 is reached. Columns Read Counter U11 is set for column 40 operation and resets the data latch at count 40 instead of count 80. Resynchronize in the 40-column mode is not required.

4-44. A11 ENCODER HEAD ASSEMBLY PCA.

4-45. The A11 Encoder Head Assembly (see Figure 7-15) photo-optically generates timing pulses for the encoder logic on PCA A10. This assembly is only installed in instruments configured for Option 003 operation.

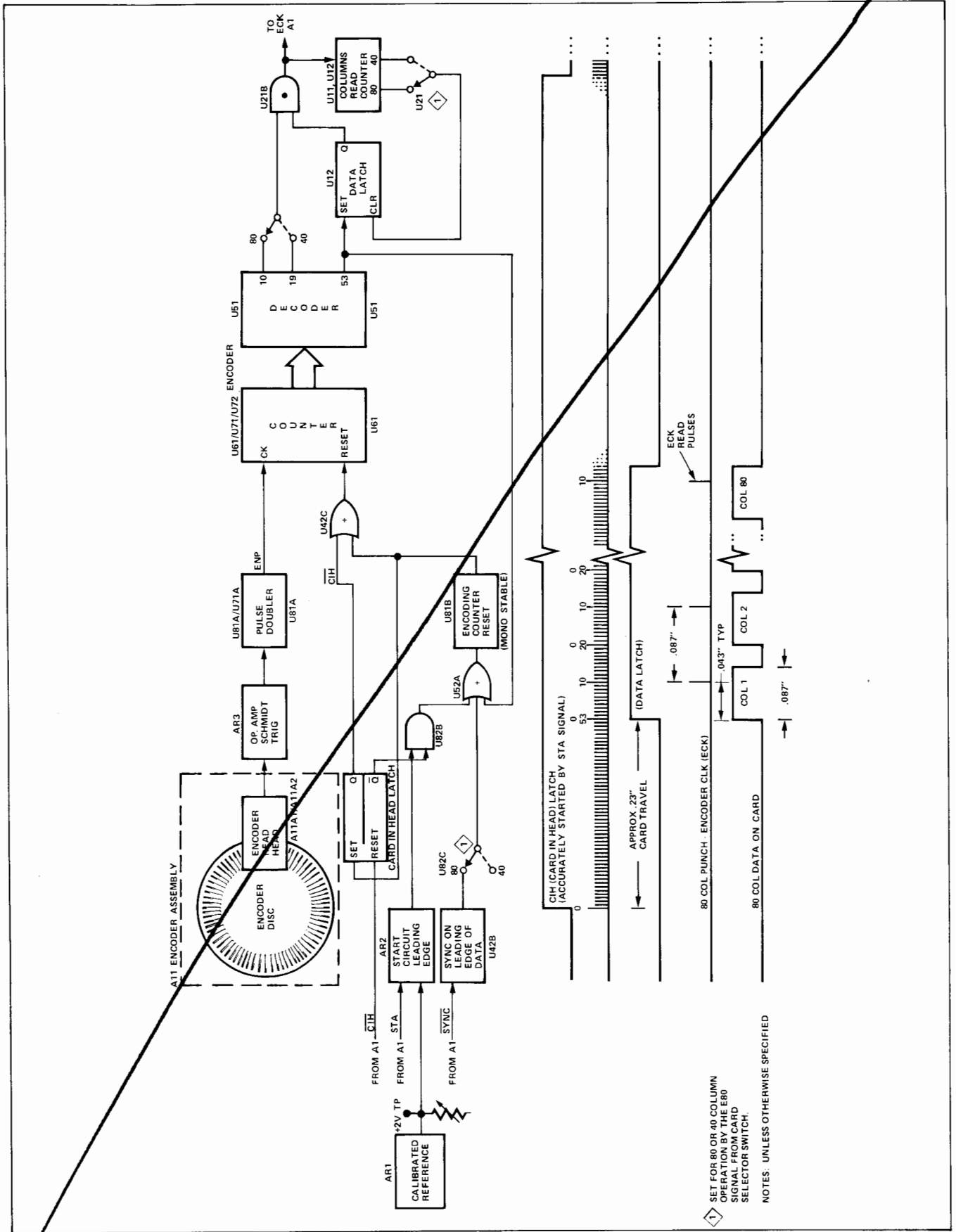


Figure 4-3. A10 Encoder Logic PCA, Block Diagram

1 SET FOR 80 OR 40 COLUMN OPERATION BY THE E80 SIGNAL FROM CARD SELECTOR SWITCH.
 NOTES: UNLESS OTHERWISE SPECIFIED



SECTION V

MAINTENANCE, PERFORMANCE CHECKS, AND ADJUSTMENTS

5-1. INTRODUCTION.

5-2. REQUIREMENTS.

5-3. This section provides information for maintenance, performance testing, functional checks, and adjustments of the 7261A Optical Mark Reader. Maintenance procedures, performance tests, and adjustments will ensure that the instrument conforms to specifications. Functional checks maintain the instrument in an operational condition.

WARNING

Some of the maintenance and servicing operations described herein are performed with protective covers removed. Be careful when performing these operations. Line voltage is always present on terminals including the power input connector, fuse holder, power switch, A7 PC Board, etc. There are voltages present elsewhere in the Reader which could be lethal, depending on humidity conditions and intrinsic resistance of body tissues. Therefore, it is good practice to avoid personal contact with interior circuits.

5-4. PERFORMANCE TESTS.

5-5. GENERAL.

5-6. Performance checks are in-cabinet tests designed to compare the Reader's performance with its specifications (see Table 1-2). If a performance test on the instrument does not meet specifications, refer to the appropriate parts of Section VII, Troubleshooting, for corrective action. An HP Model 427 VTVM or equivalent is needed to make performance checks. The checks may be used for the following purposes:

- a. As part of an incoming inspection check of instrument specifications.
- b. Periodically for instruments used in systems as part of a preventive maintenance program to provide maximum reliability.

- c. To aid in diagnosing malfunctions.
- d. To verify performance after any repairs or adjustments, before returning the instrument to regular service.

5-7. POWER SUPPLY CHECK.

5-8. Perform the following steps:

- a. Reader LINE off.
- b. A5 Power Supply Circuit Board (Part Number 07261-61050) in Reader.
- c. Range switch positioned to 120V (220V – Option 005).
- d. Turn Variac down to zero output.
- e. Connect power cord between Variac and Reader.

5-9. SUPPLY VOLTAGE CHECK.

5-10. Perform the following steps:

- a. Remove top cover. Reader LINE ON (IN).
- b. Variac to 120V rms.
- c. Reader rear fan operating.
- d. Current approximately 1.1 amps.
- e. Use voltmeter and record supply voltages at low and high line (108V and 127V). Table 5-1 lists voltage readings.
- f. Disconnect. Turn off Reader.

5-11. FRONT PANEL CHECKOUT.

5-12. This procedure is as follows:

- a. LINE ON (IN).
 1. Press LINE button.
 2. Power turned on; motor runs for one second and shuts off.
 3. Fan turns on and remains running.

Table 5-1. Voltage Readings

SUPPLY	MEASUREMENT POINTS	LIMITS (VOLTS)	
		MINIMUM	MAXIMUM
+28	A6 Mother Board 918	22.4	33.6
+12	A5 Board ± 12 TP	10.8	13.2
+ 6.2	A5 Board +6.5 TP	5.75	6.65
+ 5	A5 Board +5	4.75	5.25
- 5	A5 Board -5 TP	- 4.75	- 5.25
-12	A5 Board -12 TP	-11.4	-12.6
-19	A5 Board -19 TP	-17.1	-20.9

4. Read head lights come on.
- b. READY light.
 1. Place cards in input hopper.
 2. Place card weight on top of cards.
 3. Press READY button.
 4. Green READY light should illuminate.
 5. Motor will start up again.
- c. STOP button.
 1. Press STOP button.
 2. Motor will stop running.
 3. READY light will go out.
 4. The Card Reader is now in a "not ready" state.
- b. Remove A3 board.
- c. Place jumper (labelled DEV) on A3 board in P position.
- d. Replace A3 board.
- e. Load cards.
- f. Turn Reader ON.
- g. Press READY button.
- h. Cards will be picked continuously until input hopper is empty, at which time the READY light goes out.
 - i. Hold input hopper switch down and push READY button. The READY lamp goes on; a pick attempt is made; the READY light goes out, and the pick fail lamp goes on.

5-13. MECHANICAL OPERATION CHECKOUT.

5-14. To check the mechanical operation of the 7261A, perform the following steps:

WARNING

Be sure power is turned off before removing the top cover of the Card Reader.

- a. Remove top cover.
 1. To remove top cover, remove four screws (two at each side). Slide back and off.
- 5-15. HEAD REFERENCE.
- 5-16. To check:
 - a. Top cover removed.
 - b. Use voltmeter.
 - c. CARD SELECTOR switch to CLOCK-AFTER-DATA or CLOCK-ON-DATA or 40-COLUMN NO CLOCK.
 - d. Adjust MARK SENSE potentiometer while monitoring voltage on REF and GND Test Points. (Head Amplifier Board, Part Number 07261-61010.) See Figure 5-1.

e. Adjust to lower voltage (minus dc) marked on Read Head used with Head Amplifier Board being adjusted. Adjustment should be made with ambient temperature between 20°C to 30°C.

NOTE

For particular needs in distinguishing marked data from erasures, this adjustment can be readjusted. As voltage increases, sensitivity decreases.

5-17. ENCODER ADJUSTMENT – OPTION 003.

5-18. To check:

- a. Set CARD SELECTOR switch to 80-COLUMN NO-CLOCK.
- b. Adjust PUNCH SENS potentiometer on A1 PCA while monitoring voltage on REF and GND Test Points. See Figure 5-1.
- c. Adjust to higher voltage (minus voltage) marked on Read Head (20°C to 30°C ambient temperature).
- d. Adjust START potentiometer on A10 PCA while monitoring voltage on Test Point START CAL. (Encoder Board, Part Number 07261-61100.)
- e. Adjust voltage to +2.0V (20°C to 30°C ambient temperature).
- f. Remove voltmeter.

5-19. PREVENTIVE MAINTENANCE.

5-20. GENERAL.

5-21. The Reader must be maintained properly to obtain accurate trouble-free operation. This requires periodic cleaning, performance checks, and visual and electrical checks. This also requires the covering of the instrument when not in use.

5-22. ENVIRONMENTAL OPERATION.

5-23. The instrument is designed to operate over an ambient temperature range of approximately 0°C to 55°C. The area of operation should also be free of air contamination (dirt, dust, pollutants). Excessive air contamination will require frequent cleaning.

5-24. DISASSEMBLY/ASSEMBLY.

5-25. To gain access for maintenance or testing:

- a. Top Cover – Remove four screws (two each side). Slide back and off.

5-26. CLEANING.

5-27. Cleaning should be performed periodically. Intervals are determined by usage. Use vacuum cleaner to clean out dust accumulation in inaccessible areas. Read Head is cleaned with a vacuum cleaner. The fan filter should be cleaned every three months or as required. After popping out filter from back (see Figure 3-3) clean filter with soap and water.

5-28. LUBRICATION.

5-29. Five lubrication points exist on the Reader. These are the drive belt idler arm, constant-tension return bail, output hopper bail extension mechanism, output hopper bail hinge, and the select hopper bail extension/hinge mechanism used when Option 002 is

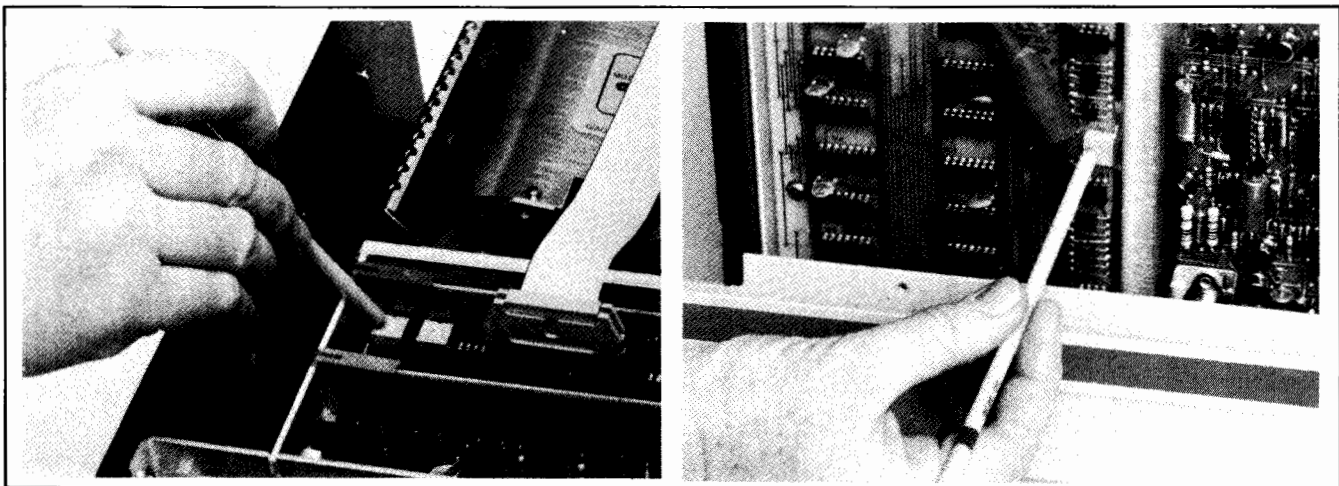


Figure 5-1. Electrical References and Adjustments

installed. Use Silicon Grease, Part Number 6040-0297. Figure 5-2 shows all the lubrication points.

5-30. MECHANICAL MAINTENANCE.

5-31. INPUT HOPPER REMOVAL/REPLACEMENT.

5-32. To remove:

- a. Remove Top Cover. See paragraph 5-25.
- b. Remove two screws from right side plate. See Figure 5-3.
- c. Remove two screws inside hopper. See Figure 5-3.
- d. Remove hopper. See Figure 5-3.
- e. Replace and ensure hopper mounted correctly per paragraph 5-60.

5-33. UPPER TRUCK ASSEMBLY REMOVAL/REPLACEMENT.

5-34. To remove:

- a. Remove Top cover. See paragraph 5-25.
- b. Loosen screw holding upper truck spring. See Figure 5-4.
- c. Slide spring to side.
- d. Remove upper truck assembly. See Figure 5-4.

5-35. READ HEAD ASSEMBLY REMOVAL/REPLACEMENT.

5-36. The procedure is as follows:

- a. Remove Top Cover. See paragraph 5-25. Remove metal bar holding down boards. Remove four PC Boards.

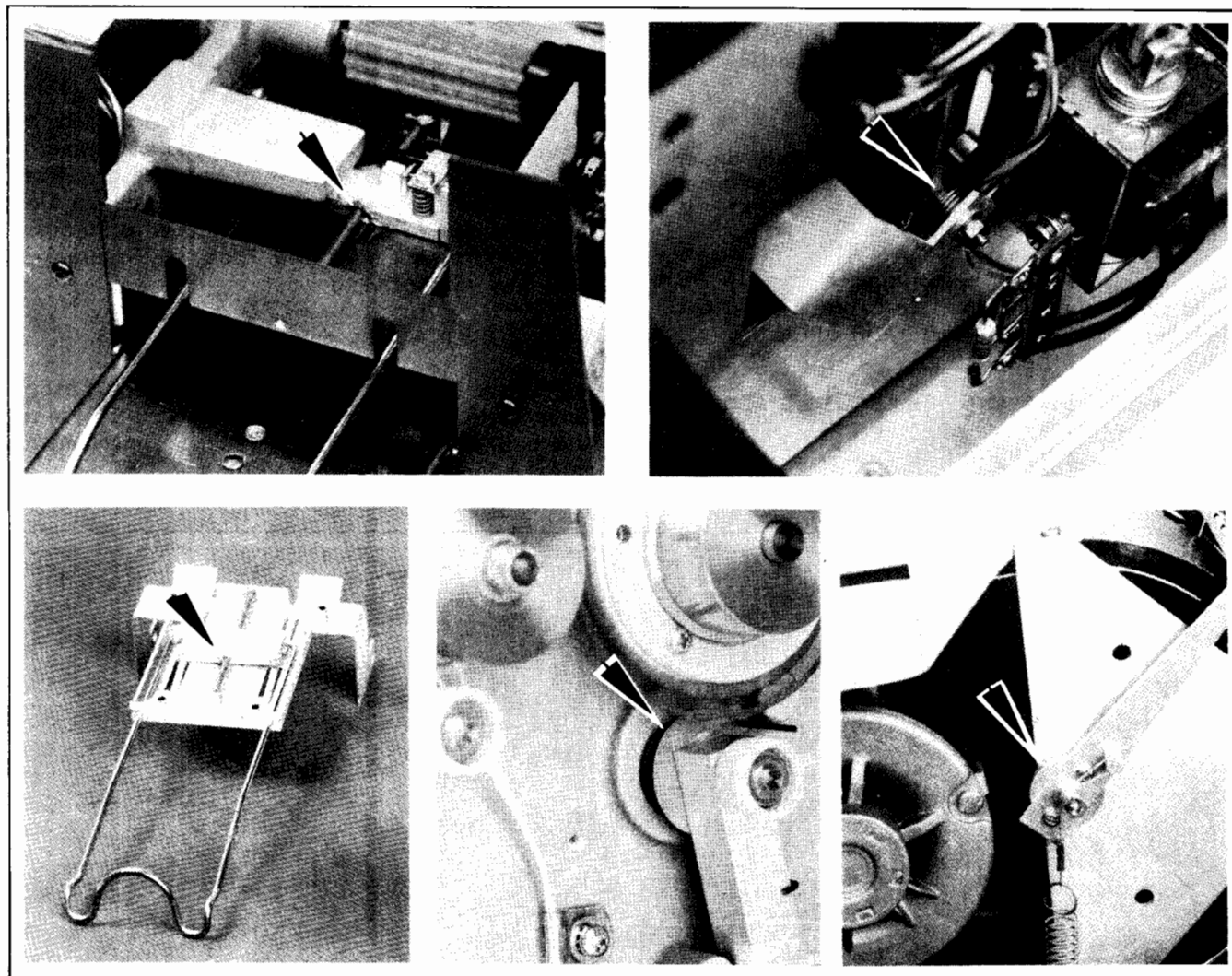


Figure 5-2. Lubrication Points

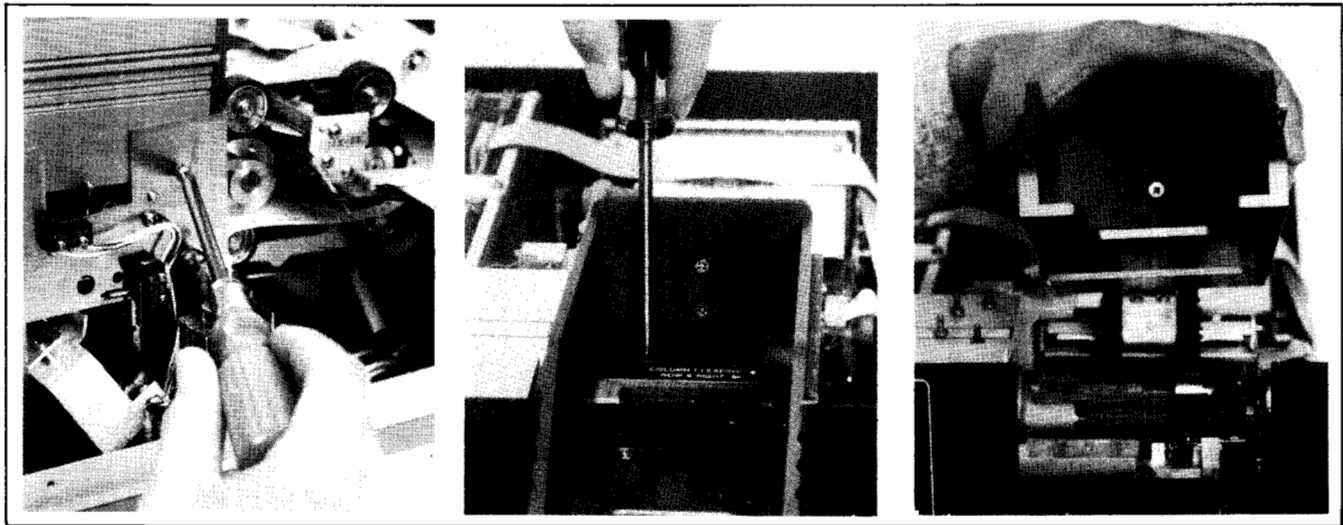


Figure 5-3. Input Hopper Removal/Replacement

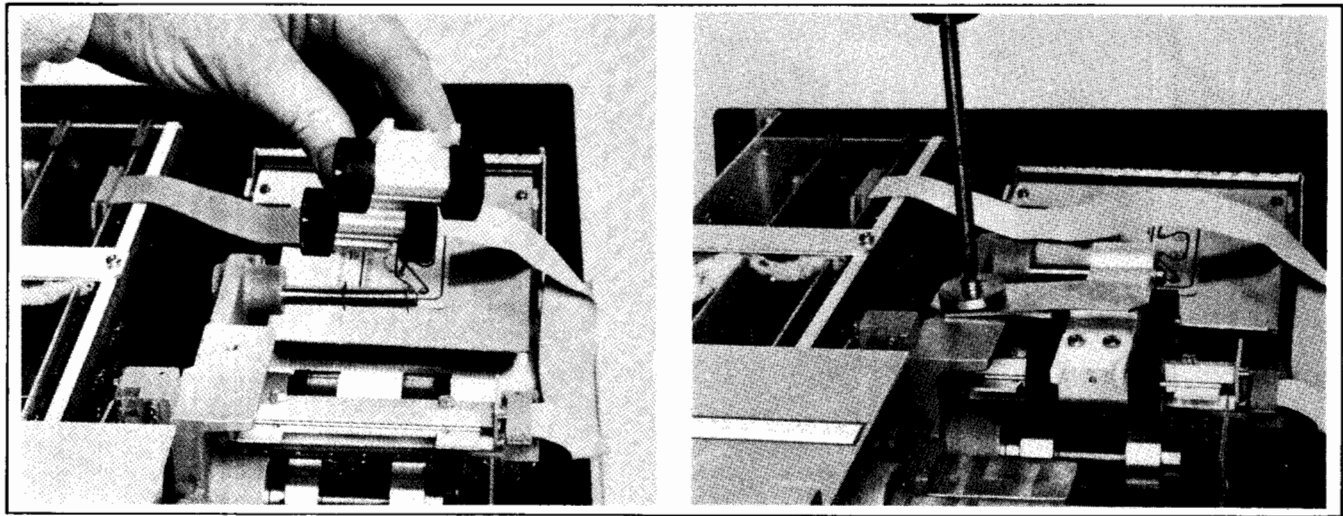


Figure 5-4. Upper Truck Assembly Removal/Replacement

- b. Remove upper truck. See paragraph 5-33.
- c. Remove two set screws located on left casting. See Figure 5-5. (If Encoder, Option 003, installed, remove second set screw through provided hole in pulley.)
- d. Disconnect cable assembly from A1 Board. Use cable extractor (or small screwdriver) to prevent damage to connector and cable. See Figure 5-5.
- e. Remove read head assembly (pull up and out). See Figure 5-5.

- c. Remove read head assembly. Turn read head upside down.
- d. Turn read head right side up. See Figure 5-6. Push tab aside. Lamp drops out. See Figure 5-6.

CAUTION

Ensure power is off to prevent shorting.

- e. Check tab for proper seating without shorting.
- f. Replace.

5-37. READ HEAD LAMP REPLACEMENT.

5-38. If bulb burns out:

- a. Remove Top Cover. See paragraph 5-25.
- b. Perform steps b, c, and e, paragraph 5-36.

5-39. LOWER TRUCK ASSEMBLY REMOVAL/REPLACEMENT.

5-40. To accomplish:

- a. Remove Top Cover. See paragraph 5-25.

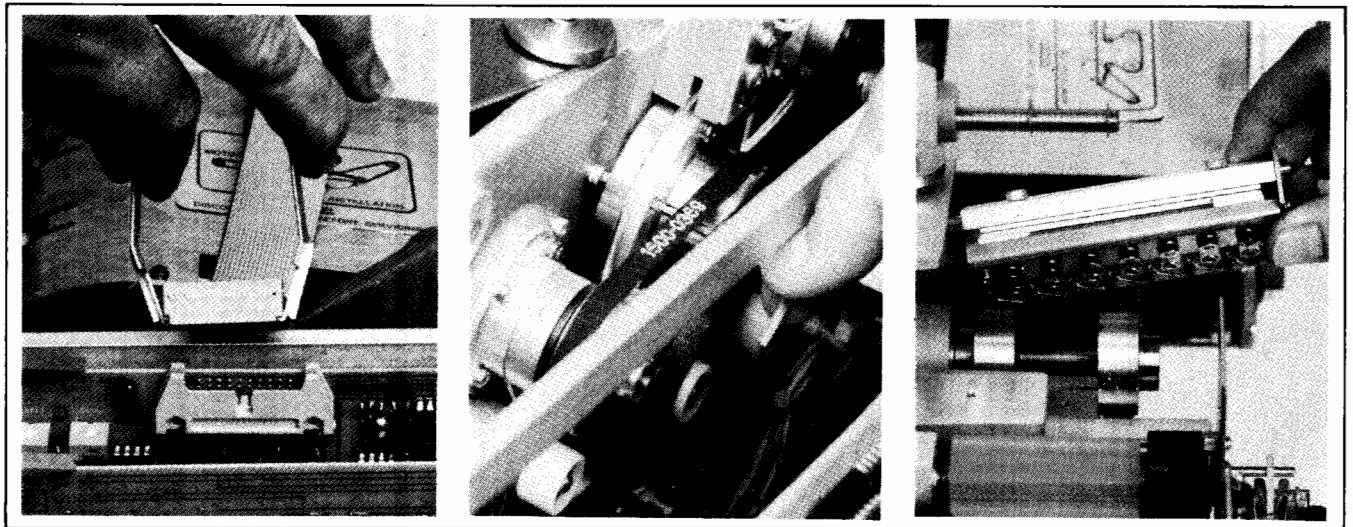


Figure 5-5. Read Head Assembly Removal/Replacement

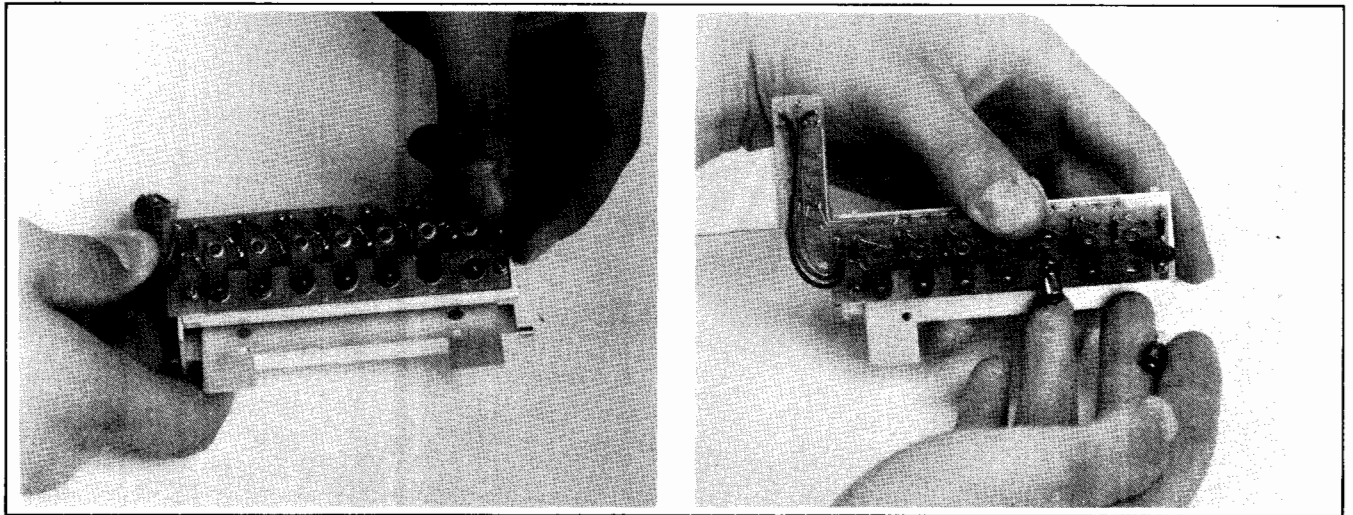


Figure 5-6. Read Head Lamp Replacement

b. Remove Upper Truck Assembly and Read Head Assembly, paragraphs 5-23 and 5-35.

c. Remove upper screw and loosen bottom screw on spring. See Figure 5-7.

d. Turn spring 180° clockwise. Pull lower truck down and out. See Figure 5-7.

5-41. LAMP PLATE/Front PANEL LAMP REMOVAL/REPLACEMENT.

5-42. To make the lamp replacements:

a. Remove Top Cover. See paragraph 5-25.

b. Remove AC Protective Cover (three screws). See Figure 5-8.

WARNING

Ensure ac primary circuits on board, motor capacitor mounted on bottom panel, and two 28V rectifier capacitors under protective cover are discharged before attempting maintenance. Ensure power is off.

c. Insert screwdriver between front panel and lamp holder and pry out lamp plate. See Figure 5-8.

d. Insert screwdriver in provided slot on lamp holder to pry out lamp. See Figure 5-8.

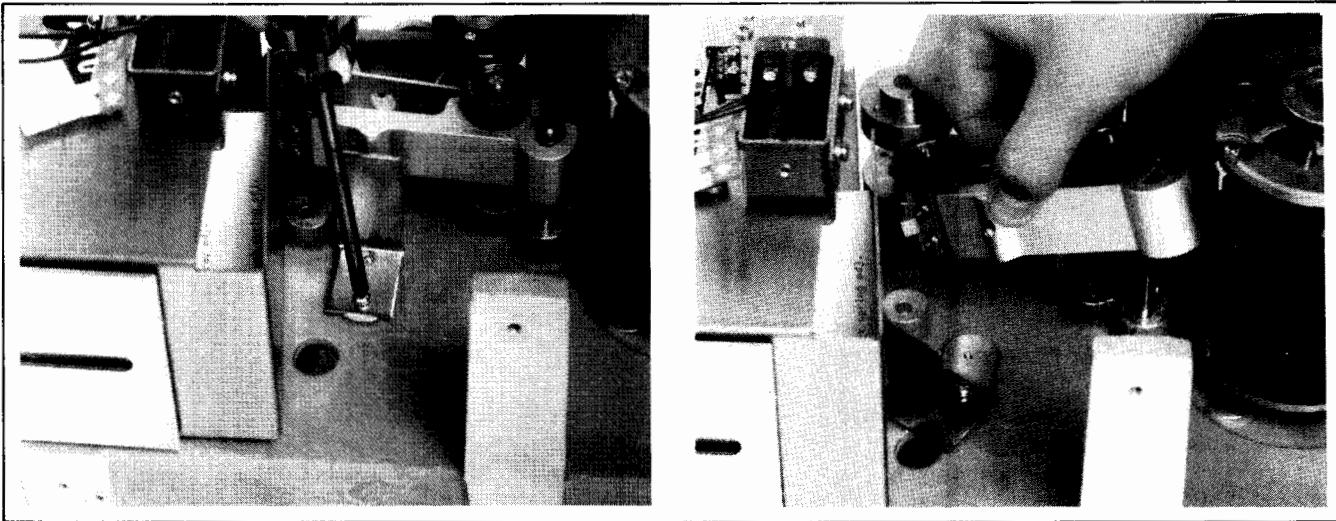


Figure 5-7. Lower Truck Assembly Removal/Replacement

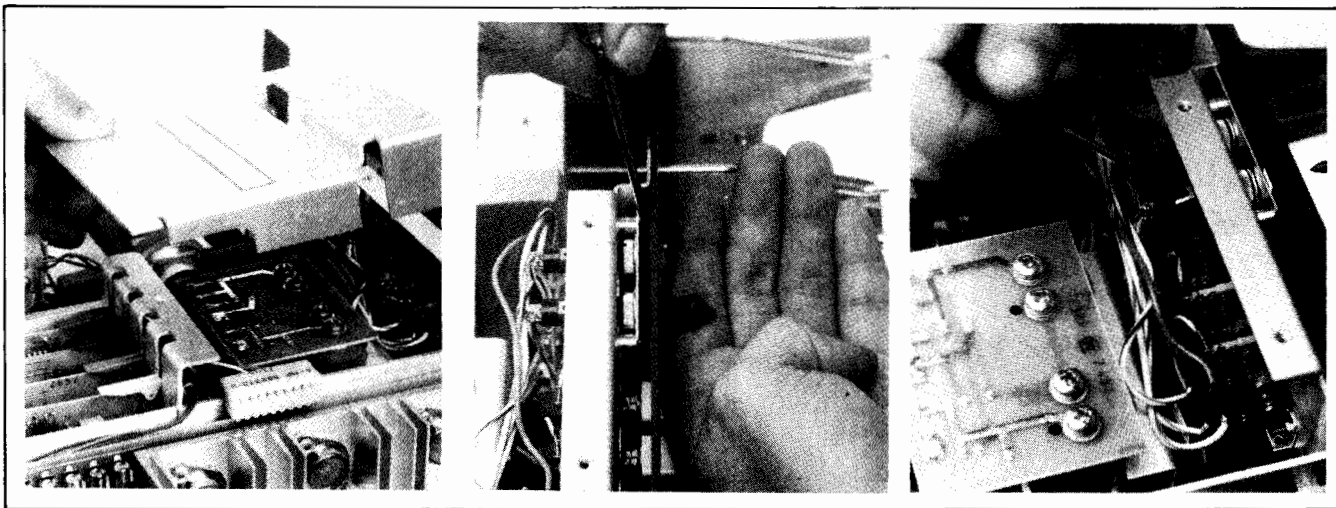


Figure 5-8. Lamp Plate/Front Panel Lamp Removal/Replacement

e. Replace.

5-43. MECHANICAL ADJUSTMENTS.

5-44. PROCEDURE.

5-45. Any adjustment to the instrument is deemed necessary only when it is determined the instrument is out of adjustment per specification requirements, but not malfunctioning due to circuit failure. Table 5-2 lists the tools needed to make adjustments and Figure 5-9 points out the location of the mechanical adjustments.

5-46. LOWER TRUCK SPRING ADJUSTMENT.

5-47. To adjust:

a. Remove Upper Truck and Read Head. See paragraphs 5-33 and 5-35.

b. Turn set screw (A) (Figure 5-10) out if truck assembly does not move up and down freely.

c. Tighten set screw (A) until truck is no longer free but has not yet depressed spring.

d. Turn set screw (A) four complete turns clockwise for desired spring tension ($\pm 1/8$ turn). See Figure 5-10.

5-48. READ HEAD MOUNTING.

5-49. The Read Head should be mounted in such a manner that a straight edge spanning two drive wheels lies flat across the top of read head. To adjust:

a. Loosen read head mounting screws. See Figure 5-11.

b. Check second drive wheel to ensure it rotates freely without hitting read head pc boards.

Table 5-2. Tools Needed for Mechanical Adjustments

DESCRIPTION	EXAMPLE BRAND
Hopper Adjustment Gauge	Hewlett-Packard, 07261-20005
150-gram Tension Gauge	Hewlett-Packard, 8750-0091
10-mil Feeler Gauge	Hewlett-Packard, 8750-0045
1-point Pozidriv Screwdriver	Stanley, 2951
2-point Pozidriv Screwdriver	Stanley, 2952
3/32-inch Allen Wrench	Allen (by description)
Two Data Processing Cards, One with Hole Punched in One End	(from common stock)

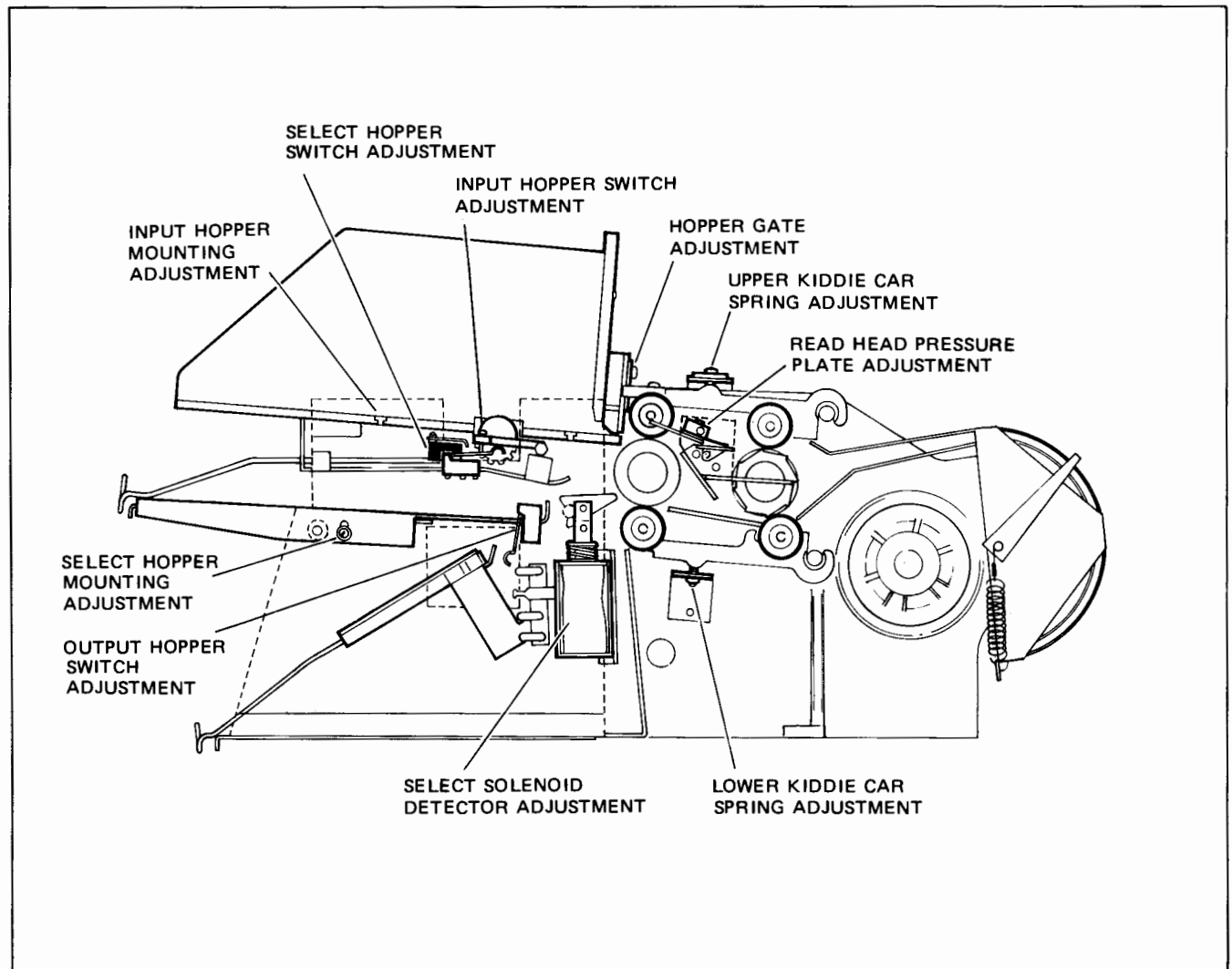


Figure 5-9. Mechanical Adjustment Locations

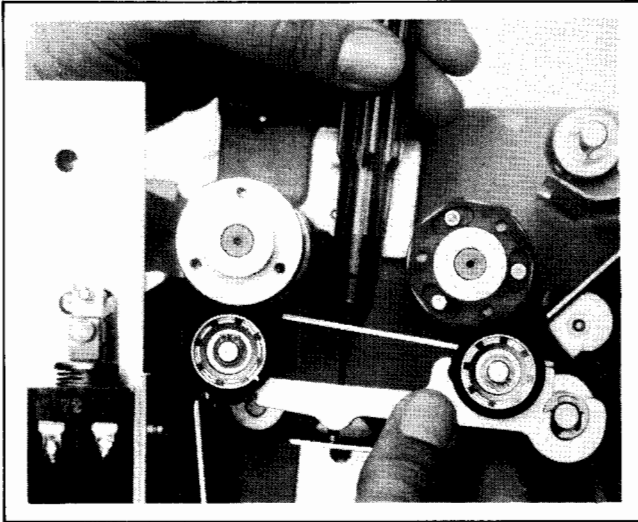


Figure 5-10. Lower Truck Spring Adjustment

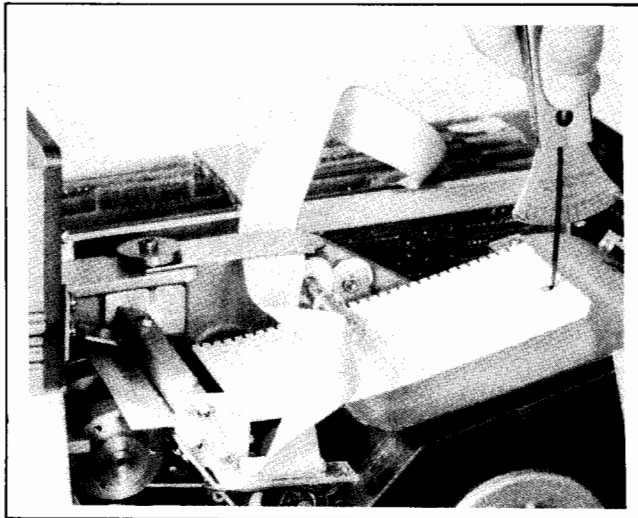


Figure 5-11. Read Head Pressure Plate Adjustment

- c. Tighten mounting screws.

5-50. READ HEAD PRESSURE PLATE ADJUSTMENT.

5-51. To adjust:

- a. Remove Upper Truck. See paragraph 5-33.
- b. Slide data processing card, with hole at one end, under read head pressure plate. See Figure 5-11.
- c. Place gram gauge (Part Number 8750-0091) into card hole.
- d. Pull card through read head. Between 50 to 100 grams needed to keep card moving.
- e. Loosen screw (A). Move pressure plate up and down. Check tension to ensure 50 to 100 gram reading. See Figure 5-11.

5-52. UPPER TRUCK SPRING ADJUSTMENT.

5-53. To adjust:

- a. Insert assembly in place.
- b. Position spring adjacent to adjustment screw (C).
- c. Firmly tighten spring down in this position (Screw B, Figure 5-12). Spring should not contact truck assembly.
- d. Turn screw (C) in or out until top of screw is even with top of spring. (See Figure 5-12.) Follow by returning screw (C) two turns counterclockwise ($\pm 1/8$ turn) to produce desired spring tension. (See Figure 5-12.)
- e. Position spring on top of screw, thus giving spring action.

5-54. INPUT HOPPER SWITCH ADJUSTMENT.

5-55. The hopper switch should be adjusted so that it is actuated when the lobe is .020 to .040 inches above the pick wheel and the lobe over travel is at least .005 inches. If adjustment is necessary, raise or lower adjustment screw (D). See Figure 5-13.

5-56. OUTPUT HOPPER SWITCH ADJUSTMENT.

5-57. To adjust:

- a. Hopper should be in extended position.
- b. Hold up lower card stop using Hopper Adjustment Gauge (Part Number 07261-20005).
- c. Position microswitch towards card stop lever until switch closes. Tighten microswitch down. See Figure 5-14.

5-58. HOPPER GATE ADJUSTMENT.

5-59. The Hopper Gate is adjusted so that it falls flat, not favoring either corner, tightly onto a 10 mil feeler gauge. To adjust:

- a. Slide feeler gauge (Part Number 8750-0045) under gate.
- b. Loosen holddown screws (2) and slide gate down firmly against gauge. See Figure 5-15.
- c. Tighten screws. Check for gap across width of gate. It should be uniform.
- d. As a check:
 - 1. Slide one card under gate.

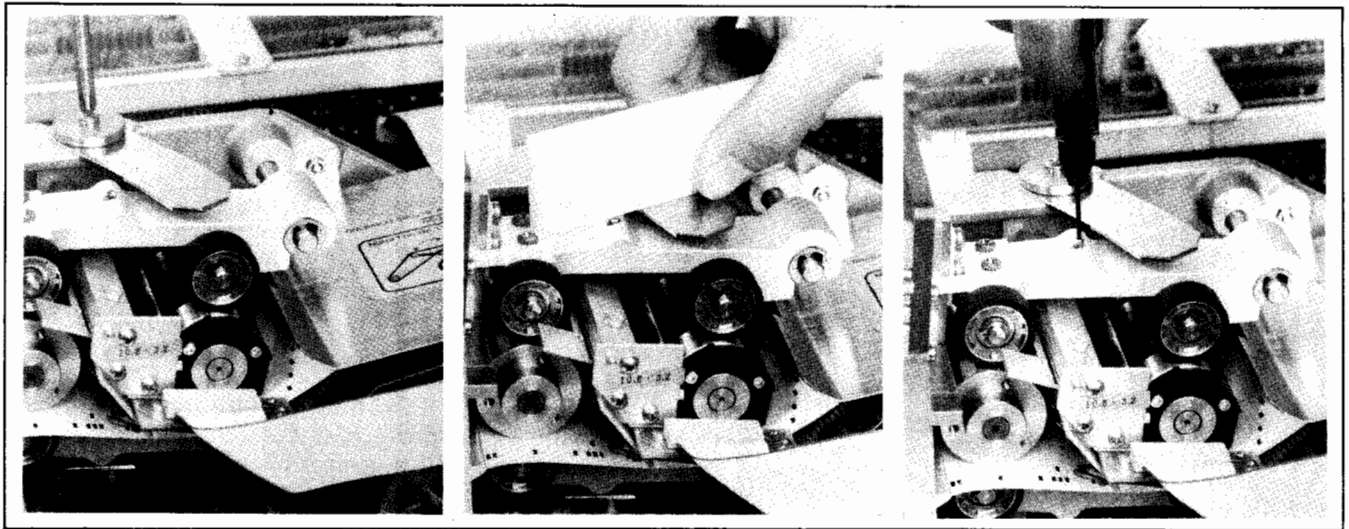


Figure 5-12. Upper Truck Spring Adjustment

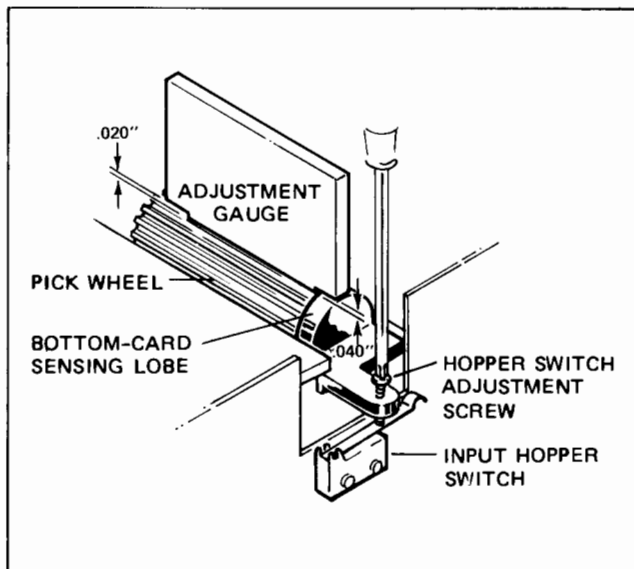


Figure 5-13. Input Hopper Switch Adjustment

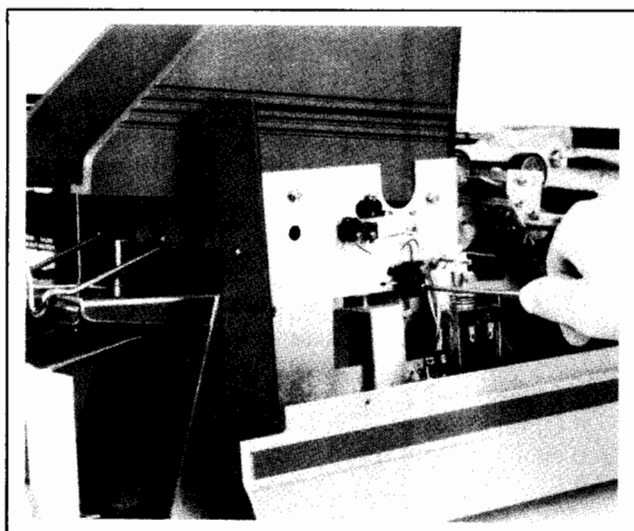


Figure 5-14. Output Hopper Switch Adjustment

2. Slide second card under and through gate. Second card will not pass through gate. If it does, repeat adjustment.

e. Run a stack of 100 cards ten times, bow in, in one direction then the other. Check for scuffing and pick fails.

5-60. HOPPER MOUNTING.

5-61. Ensure the hopper is flush against the reference set screws which are factory adjusted and permanently affixed. Figure 5-16 shows the position of the hopper relative to the stops.

5-62. MOTOR PULLEY.

5-63. To adjust:

a. Position pulley .03 inch \pm .01 inch out from end of shaft.

b. Turn pulleys in correct direction until belt establishes its natural position. It should not overlap any of pulley edges. (Belt tracking.) See Figure 5-17.

5-64. CARD DEFLECTOR SOLENOID ADJUSTMENT – OPTION 002.

5-65. To adjust:

a. Insert Hopper Adjustment Gauge (Part Number 07261-20005) between hopper and card deflector. See Figure 5-18.

b. Loosen screws (D) and slide solenoid up until compression spring is fully compressed.

c. Tighten screws. Remove tool. Check card deflector for freedom of movement up and down.

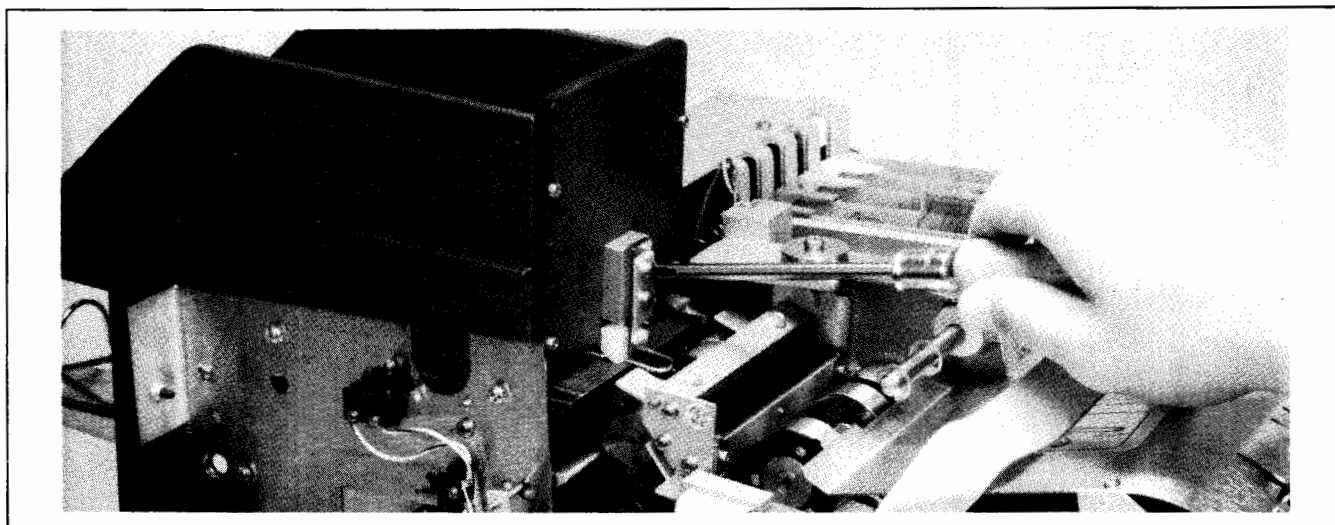


Figure 5-15. Hopper Gate Adjustment

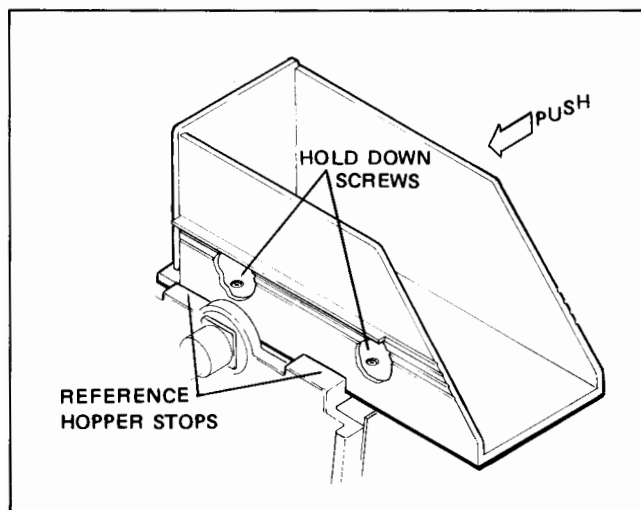


Figure 5-16. Input Hopper Mounting Adjustment

5-66. CARD SELECT TRAY.

5-67. The tray is adjusted properly when the forward-mounting screw's access holes are aligned with one another. To make adjustment if out of alignment:

- a. Loosen holding screws (E).
- b. Move tray until smaller hole approximately centered in larger surrounding hole. See Figure 5-19.
- c. Tighten holding screws (E).

5-68. CARD SELECT SWITCH.

5-69. To make this adjustment:

- a. Adjust select hopper switch adjustment screw located underneath input hopper (F) (Figure 5-20) until switch trips when card stop is lifted .005 to .015 inches off reject hopper gauge with hopper set for 7-3/8-inch cards.

NOTE

Each time this measurement is made, it will be necessary to slide the select hopper gauge out allowing the card stop to drop down to reset the switch.

- b. When sliding select hopper back in for next measurement position, place gauge in hopper in position A and slide it to position B (Figure 5-20) without raising card stop above gauge at any time.

- c. Extend tray and card stop to 11-inch position. Slide gauge under card stop.

- d. Switch should trip as card stop is lifted .005 to .070 inches off gauge.

- e. If measurement not correct, readjust per paragraph 5-71 and repeat this procedure.

5-70. RETURN BAIL SPRING TENSION.

5-71. Use gram gauge (Part Number 8750-0091) to ensure tension is between 25 and 35 grams when moved approximately an inch. See Figure 5-21.

5-72. GATE SHOE PRESSURE.

5-73. The force needed to pull a card under gate shoe requires between 25 and 40 grams. See Figure 5-22.



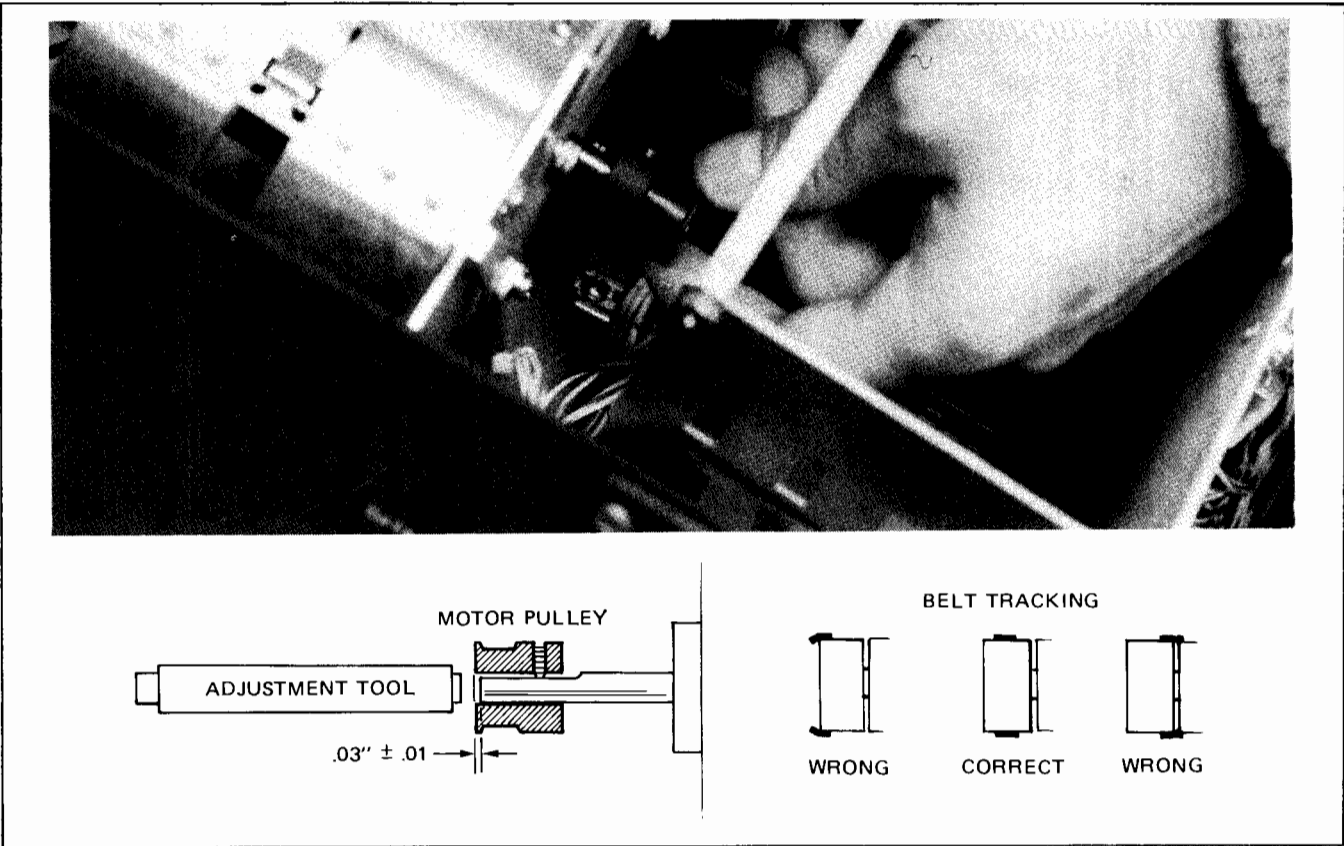


Figure 5-17. Motor Pulley and Belt Tracking

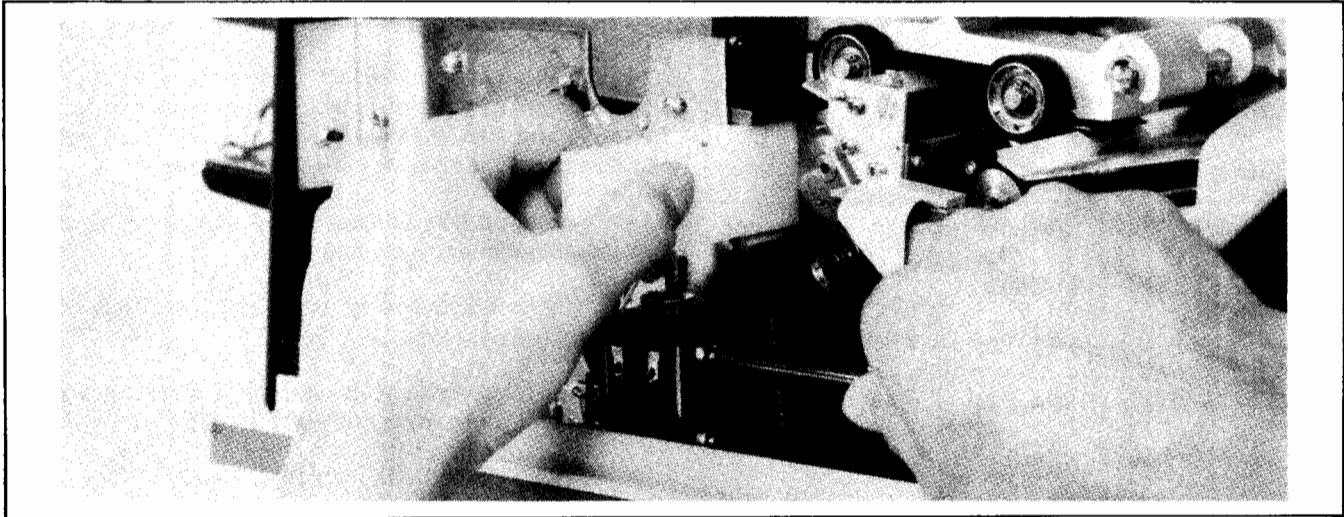


Figure 5-18. Card Deflector Solenoid Adjustment

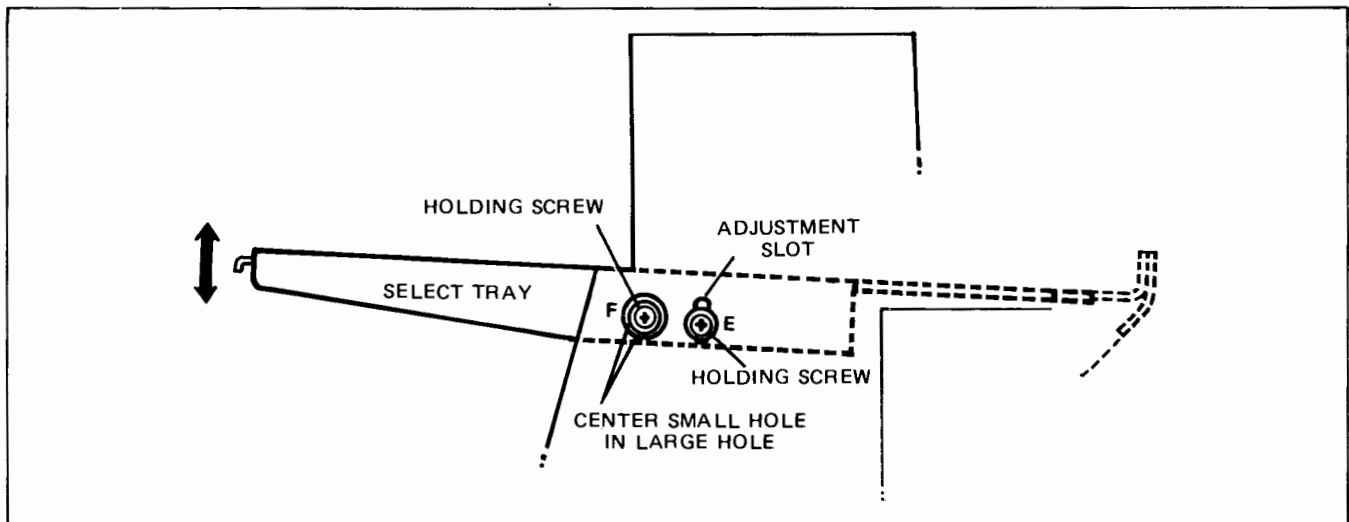


Figure 5-19. Select Tray Adjustment

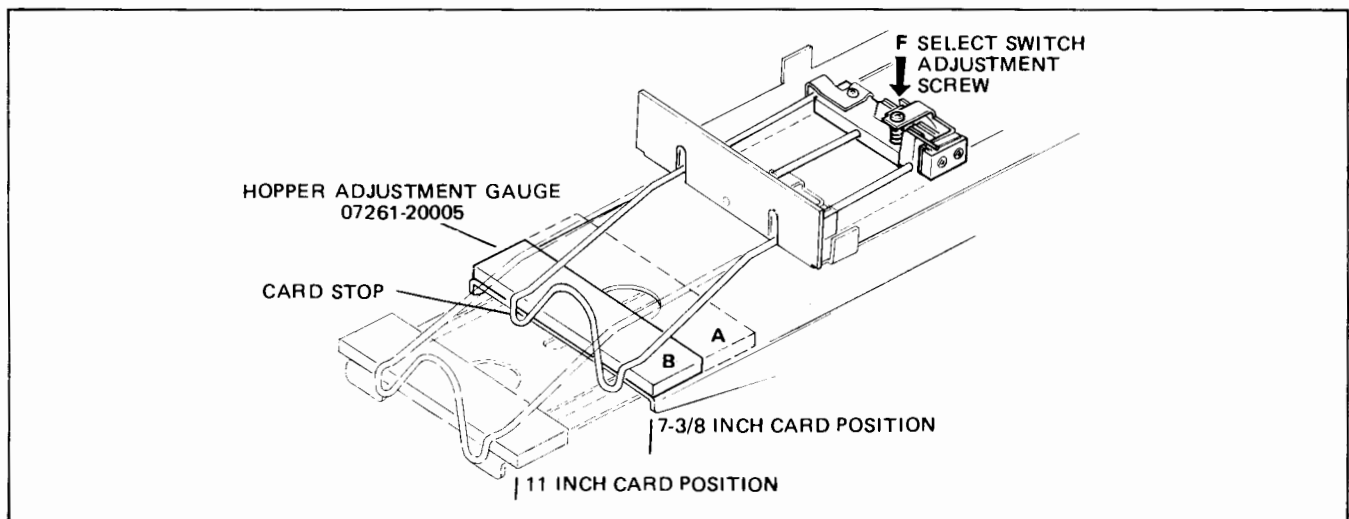


Figure 5-20. Select Switch Adjustment

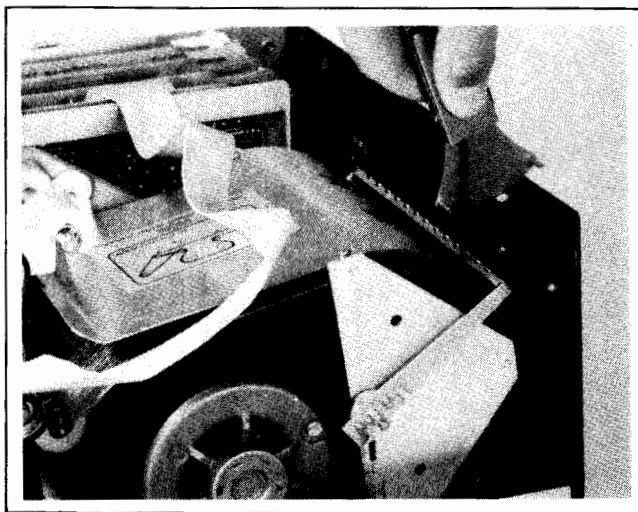


Figure 5-21. Return Bail Tension Check

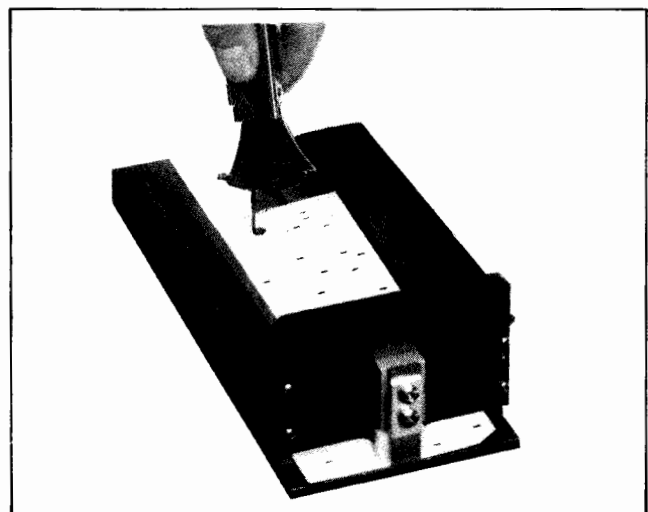


Figure 5-22. Gate Shoe

SECTION VI

PARTS LIST

6-1. INTRODUCTION.

6-2. This section contains complete information on the Model 7261A parts list presented in an alphabetical and numerical order. The procedure for ordering replacement parts for the models is also contained in this section.

6-3. PARTS LIST.

6-4. ALPHANUMERICAL TABLE.

6-5. Table 6-1 lists parts in alphabetical order of their referenced designations of circuit symbols, the HP stock number of each part, the quantity (total quantity appears the first time the HP stock number appears), a five-digit manufacturers' code, and the manufacturer's part number. If a part does not have a designation, it will be listed at the end of the appropriate circuit symbol list (A1, A3, etc.).

6-6. MISCELLANEOUS PARTS.

6-7. Table 6-2 lists miscellaneous items. They will be listed by a part number and description.

6-8. CODE LIST OF MANUFACTURERS.

6-9. Table 6-3 lists the five-digit numbers assigned to a specific manufacturer. The table is a cross-reference

to Table 6-1 in that the five-digit number listed in Table 6-1 is identified by name in this table.

6-10. ILLUSTRATED PARTS BREAKDOWN.

6-11. Additional parts information is included to identify other subassemblies. This information is presented as parts breakdown illustration with accompanying legend. See Figures 6-1 through 6-6.

6-12. RECOMMENDED SPARES.

6-13. To obtain recommended spare parts for maintaining an instrument for a one-year period, contact the local Hewlett-Packard Sales/Service Office (see insert pages at rear of the manual for addresses).

6-14. ORDERING INFORMATION.

6-15. To obtain replacement parts, address order or inquiry to your local Hewlett-Packard Sales/Service Office (see insert pages at rear of manual for address of nearest HP Office). The order should include part number and description used in this section, model and serial number, description of the part, and function and location of the part.

Table 6-1. Parts List

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A1	07261-61110	1	READ HEAD AMPLIFIER, PCA	28480	07261-61110
A1AR1	1820-0477	29	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR2	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR3	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR4	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR5	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR101	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR102	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR201	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR202	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR301	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR302	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR401	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR402	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR501	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR502	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR601	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR602	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR701	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR702	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR801	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR802	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR901	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR902	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR1001	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR1002	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR1101	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR1102	1820-0477	1	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR1201	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1AR1202	1820-0477	14	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A1C1	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C2	0180-0100	2	CAPACITOR,FXD, 4.7UF+-10% 35VDC TA	56289	150D475X9035B2
A1C3	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C4	0180-0100	1	CAPACITOR,FXD, 4.7UF+-10% 35VDC TA	56289	150D475X9035B2
A1C5	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C6	0180-0137	2	CAPACITOR,FXD, 100UF+-20% 10VDC TA	56289	150D107X0010R2
A1C7	0160-0939		CAPACITOR,FXD, 450PF+-5% 300WVDC	28480	0160-0939
A1C8	0160-0155	1	CAPACITOR,FXD, .0033UF+-10% 20VDC	56289	292P33292
A1C9	0140-0198	201	CAPACITOR,FXD, 200PF+-5% 500WVDC	72136	DM15F201J0300WVLCR
A1C10	0160-2146		CAPACITOR,FXD, .02UF+-20% 100WVDC	28480	0160-2146
A1C11	0160-2199	1	CAPACITOR,FXD, 30PF+-5% 300WVDC	28480	0160-2199
A1C12	0160-2146		CAPACITOR,FXD, .02UF+-20% 100WVDC	28480	0160-2146
A1C13	0180-0374	1	CAPACITOR,FXD, 10UF+-10% 20VDC TA-SOLID	56289	150D106X9020B2
A1C14	0150-0093	9	CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C15	0150-0093		CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C16	0150-0093	1	CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C17	0150-0093		CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C18	0150-0093	1	CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C21	0160-2146		CAPACITOR,FXD, .02UF+-20% 100WVDC	28480	0160-2146
A1C22	0180-0116	1	CAPACITOR,FXD, 6.8UF+-10% 35VDC TA	56289	150D685X9035B2
A1C23	0160-2146		CAPACITOR,FXD, .02UF+-20% 100WVDC	28480	0160-2146
A1C24	0180-0137	1	CAPACITOR,FXD, 100UF+-20% 10VDC TA	56289	150D107X0010R2
A1C25	0150-0093		CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C26	0150-0093	1	CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C27	0150-0093		CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C28	0150-0093	1	CAPACITOR,FXD, .01UF+-20% 100WVDC	28480	0150-0093
A1C101	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C102	0180-0197	13	CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C201	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C202	0180-0197	1	CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C301	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C302	0180-0197	1	CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C401	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C402	0180-0197	1	CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C501	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C502	0180-0197	1	CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C601	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C602	0180-0197	1	CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C701	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C702	0180-0197	1	CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C802	0180-0197		CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C901	0160-0205	1	CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C902	0180-0197		CAPACITOR,FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A1C1001	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C1002	0180-0197		CAPACITOR-FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C1101	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C1102	0180-0197		CAPACITOR-FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C1201	0160-0205		CAPACITOR,FXD, 10PF+-5% 500WVDC	28480	0160-0205
A1C1202	0180-0197		CAPACITOR-FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1C1202	0180-0197		CAPACITOR-FXD, 2.2UF+-10% 20VDC TA	56289	150D225X9020A2
A1CR1	1901-0040	44	DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR2	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR3	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR4	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR5	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR6	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR7	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR9	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR101	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR102	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR103	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR201	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR202	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR203	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR301	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR302	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR303	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR401	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR402	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR403	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR501	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR502	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR503	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR601	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR602	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR603	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR701	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR702	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR703	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR801	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR802	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR803	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR901	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR902	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR903	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR18	1902-3150	1	DIODE, VREG, 9.0V VZ, .4W MAX	28480	1902-3150
A1CR1001	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR1002	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR1003	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR1101	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR1102	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR1103	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR1201	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR1202	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1CR1203	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A1DS1	1990-0326	1	PHOTO-DEVICE, DIO VSBL LT EMTR 20UMW PD	28480	1990-0326
A1J1	1251-3109	1	CONNECTOR, 20-CONT, MALE, RECTANGULAR	75037	3428-1003
A1L2	9140-0114		COIL, FXD, MOLDED 4F CHOKE, 10UH 10%	42226	15/102
A1Q1	1854-0071	3	TRANSISTOR, NPN SI	28480	1854-0071
A1Q2	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A1Q3	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A1R1	0698-3266	13	RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R2	0757-1094	13	RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R3	0757-0346	13	RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10R0-F
A1R4	0757-0438	13	RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R5	0757-0458	13	RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R6	0698-3441	2	RESISTOR, FXD, 215 OHM1% .125W F	16299	C4-1/8-T0-215A-F
A1R7	0698-0084	2	RESISTOR, FXD, 2.15K1% .125W F TUBULAR	16299	C4-1/8-T0-2151-F
A1R8	0757-0442	3	RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-T0-1002-F
A1R9	0757-0200	5	RESISTOR, FXD, 5.62K1% .125W F TUBULAR	24546	C4-1/8-T0-5621-F
A1R10	0757-0401	3	RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-T0-101-F
A1R11	0757-0442	3	RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-T0-1002-F
A1R12	0698-3454	1	RESISTOR, FXD, 215K1% .125W F TUBULAR	16299	C4-1/8-T0-2173-F
A1R13	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-T0-1002-F
A1R14	0757-0401		RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-T0-101-F
A1R15	0757-0200		RESISTOR, FXD, 5.62K1% .125W F TUBULAR	24546	C4-1/8-T0-5621-F
A1R16	0698-3260	1	RESISTOR, FXD, 464K1% .125W F TUBULAR	30983	MF4C1/8-T0-4643-F
A1R17	0757-0200		RESISTOR, FXD, 5.62K1% .125W F TUBULAR	24546	C4-1/8-T0-5621-F

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A1R18	0757-0395	1	RESISTOR, FXD, 50.2 OHM1% .125W F	24546	C4-1/8-T0-56R2-F
A1R19	0698-0064		RESISTOR, FXD, 2.15K1% .125W F TUBULAR	16299	C4-1/8-T0-2151-F
A1R20	0757-0401		RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-T0-101-F
A1R21	0698-3449	2	RESISTOR, FXD, 28.7K1% .125W F TUBULAR	16299	C4-1/8-T0-2872-F
A1R22	0698-3441		RESISTOR, FXD, 215 OHM1% .125W F	16299	C4-1/8-T0-2154-F
A1R23	0698-3449		RESISTOR, FXD, 28.7K1% .125W F TUBULAR	16299	C4-1/8-T0-2872-F
A1R24	0757-0420	2	RESISTOR, FXD, 750 OHM1% .125W F	24546	C4-1/8-T0-751-F
A1R25	0757-0274	1	RESISTOR, FXD, 1.21K1% .125W F TUBULAR	24546	C4-1/8-T0-1213-F
A1R26	0698-3439	1	RESISTOR, FXD, 178 OHM1% .125W F	16299	C4-1/8-T0-1781-F
A1R27	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-T0-10J2-F
A1R28	2100-3274	1	RESISTOR, VAR, TRMR, 1JKOHM 1% C	28480	2100-3274
A1R29	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-T0-10J2-F
A1R30	2100-3353	1	RESISTOR, VAR, TRMR, 20KOHM 1% C	7138	2XR203
A1R31	0757-0422	1	RESISTOR, FXD, 909 OHM1% .125W F	24546	C4-1/8-T0-909R-F
A1R32	0698-3229	2	RESISTOR, FXD, 1K1% .125W F TUBULAR	30983	MF4C1/8-T2-10J1-F
A1R33	0698-3229		RESISTOR, FXD, 1K1% .125W F TUBULAR	30983	MF4C1/8-T2-10J1-F
A1R34	0757-0420		RESISTOR, FXD, 750 OHM1% .125W F	24546	C4-1/8-T0-751-F
A1R101	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R102	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R103	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R104	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R105	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R201	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R202	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R203	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R204	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R205	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R301	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R302	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R303	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R304	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R305	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R401	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R402	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R403	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R404	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R405	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R501	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R502	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R503	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R504	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R505	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R601	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R602	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R603	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R604	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R605	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R701	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R702	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R703	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R704	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R705	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R801	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R802	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R803	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R804	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R805	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R901	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R902	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R903	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R904	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R905	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R1001	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R1002	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R1003	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R1004	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R1005	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R1101	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R1102	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R1103	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F
A1R1104	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R1105	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1R1201	0698-3266		RESISTOR, FXD, 237K1% .125W F TUBULAR	16299	C4-1/8-T0-2373-F
A1R1202	0757-1094		RESISTOR, FXD, 1.47K1% .125W F TUBULAR	24546	C4-1/8-T0-1471-F
A1R1203	0757-0346		RESISTOR, FXD, 10 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-10RJ-F

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A1R1204	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A1R1205	0757-0458		RESISTOR, FXD, 51.1K1% .125W F TUBULAR	24546	C4-1/8-T0-5112-F
A1U11	1820-0537	1	INTEGRATED CIRCUIT, DCTL, TTL DUAL 4	01295	SN7413N
A1U12	1820-0539	1	INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7437N
A1U13	1820-0054	5	INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7400N
A1U14	1820-0068	1	INTEGRATED CIRCUIT, DCTL, TTL TRIPLE 3	01295	SN7410N
A1U22	1820-0579	1	INTEGRATED CIRCUIT, DCTL, TTL	01295	SN74123N
A1U23	1820-0054		INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7400N
A1U24	1820-0028	1	INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7432N
A1U31	1820-0511	3	INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7408N
A1U32	1820-0069	1	INTEGRATED CIRCUIT, DCTL, TTL DUAL 4	01295	SN7420N
A1U33	1820-0054		INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7400N
A1U34	1820-0511		INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7408N
A1U35	1820-0054		INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7400N
A1U36	1820-0070	1	INTEGRATED CIRCUIT, DCTL, TTL 8-INPUT	01295	SN7430N
A1U37	1820-0511		INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7408N
A1U38	1820-0054		INTEGRATED CIRCUIT, DCTL, TTL QUAD 2	01295	SN7400N
A1U41	1820-0077	5	INTEGRATED CIRCUIT, DCTL, TTL DUAL D	01295	SN7474N
A1U42	1820-1042	2	INTEGRATED CIRCUIT, DCTL, TTL 8-BIT	01295	SN74165N
A1U43	1820-0077		INTEGRATED CIRCUIT, DCTL, TTL DUAL D	01295	SN7474N
A1U44	1820-0077		INTEGRATED CIRCUIT, DCTL, TTL DUAL D	01295	SN7474N
A1U45	1820-0077		INTEGRATED CIRCUIT, DCTL, TTL DUAL D	01295	SN7474N
A1U46	1820-1042		INTEGRATED CIRCUIT, DCTL, TTL 8-BIT	01295	SN74165N
A1U47	1820-0077		INTEGRATED CIRCUIT, DCTL, TTL DUAL D	01295	SN7474N
A1U48	1820-0077		INTEGRATED CIRCUIT, DCTL, TTL DUAL D	01295	SN7474N



See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A3	07261-61030	1	PARALLEL INPUT/OUTPUT, FCA	28480	07261-61030
A3					
A3					
A3C1	0180-2205	2	CAPACITOR-FXC, .33UF+-10% 35VDC TA	56289	1500334X9035A2
A3C2	0180-2205		CAPACITGR-FXC, .33UF+-10% 35VDC TA	56289	1500334X9035A2
A3C3	0160-0161	2	CAPACITOR-FXC, .01UF+-10% 200WVDC	56289	292P10392
A3C4	0160-0161		CAPACITOR-FXC, .01UF+-10% 200WVDC	56289	292P10352
A3C5	0180-0374	2	CAPACITOR-FXC, 10UF+-10% 20VDC TA-SGLID	56289	1500106X902082
A3C6	0180-0291	2	CAPACITOR-FXC, 1UF+-10% 35VDC TA-SGLID	56289	1500105X9035A2
A3C7	0160-0157	2	CAPACITOR-FXC, .0047UF+-10% 200WVDC	56289	292P47252
A3C8	0180-0291		CAPACITOR-FXC, 1UF+-10% 35VDC TA-SGLID	56289	1500105X9035A2
A3C9	0150-0093	5	CAPACITOR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C10	0150-0093		CAPACITGR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C12	0150-0093		CAPACITGR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C13	0150-0093		CAPACITOR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C14	0150-0093		CAPACITGR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C15	0150-0093		CAPACITGR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C16	0160-0153	1	CAPACITOR-FXC, .001UF+-10% 200WVDC	56289	292P10292
A3C17	0160-0157		CAPACITGR-FXC, .0047UF+-10% 200WVDC	56289	292P47252
A3C18	0150-0093		CAPACITGR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C19	0150-0093		CAPACITGR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C25	0150-0093		CAPACITGR-FXC, .01UF+-10% 100WVDC	28480	0150-C053
A3C26	0140-0191	5	CAPACITGR-FXC, 56PF+-5% 300WVDC	72136	DM15E56JC300WV1CR
A3C27	0140-0191		CAPACITGR-FXC, 56PF+-5% 300WVDC	72136	DM15E56JC300WV1CR
A3C28	0140-0191		CAPACITGR-FXC, 56PF+-5% 300WVDC	72136	DM15E56JC300WV1CR
A3C29	0140-0191		CAPACITGR-FXC, 56PF+-5% 300WVDC	72136	DM15E56JC300WV1CR
A3C30	0180-0374		CAPACITOR-FXC, 10UF+-10% 20VDC TA-SOLID	56289	1500106X902082
A3C31	0180-0161	1	CAPACITOR, SOLID TANTALUM, 3.3UF+-20% 35WVDC	56289	1500335X0035B2-DYS
A3CR1	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR2	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR3	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR4	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR5	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR6	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR9	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR10	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR11	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3CR12	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A3J1	1251-0580	1	SHORTING PLUG-CONNECTOR 0.200" SPACING	28480	1251-0580
A3Q1	1854-0071	8	TRANSISTOR, NPN SI	28480	1854-0071
A3Q2	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A3Q3	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A3Q4	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A3Q5	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A3Q6	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A3R1	0757-0438	16	RESISTOR, FXD, 5.1K1% .125W F TUBULAR	24546	C4-1/8-TC-5111-F
A3R2	0757-0442	7	RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-TC-1002-F
A3R3	0698-3151	4	RESISTOR, FXD, 2.87K1% .125W F TUBULAR	16299	C4-1/8-TC-2871-F
A3R4	0757-0438		RESISTOR, FXD, 5.1K1% .125W F TUBULAR	24546	C4-1/8-TC-5111-F
A3R5	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-TC-1002-F
A3R6	0698-3151		RESISTOR, FXD, 2.87K1% .125W F TUBULAR	16299	C4-1/8-TC-2871-F
A3R7	0757-0438		RESISTOR, FXD, 5.1K1% .125W F TUBULAR	24546	C4-1/8-TC-5111-F
A3R8	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-TC-1002-F
A3R9	0698-3151		RESISTOR, FXD, 2.87K1% .125W F TUBULAR	16299	C4-1/8-TC-2871-F
A3R13	0757-0438		RESISTOR, FXD, 5.1K1% .125W F TUBULAR	24546	C4-1/8-TC-5111-F
A3R14	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-TC-1002-F
A3R15	0698-3151		RESISTOR, FXD, 2.87K1% .125W F TUBULAR	16299	C4-1/8-TC-2871-F
A3R16	0757-0280	2	RESISTOR, FXD, 1K1% .125W F TUBULAR	24546	C4-1/8-TC-1001-F
A3R17	0698-0085	2	RESISTOR, FXD, 2.61K1% .125W F TUBULAR	16299	C4-1/8-TC-2611-F
A3R18	0698-3155	6	RESISTOR, FXD, 4.64K1% .125W F TUBULAR	16299	C4-1/8-TC-4641-F
A3R19	0698-3155		RESISTOR, FXD, 4.64K1% .125W F TUBULAR	16299	C4-1/8-TC-4641-F
A3R20	0757-0280		RESISTOR, FXD, 1K1% .125W F TUBULAR	24546	C4-1/8-TC-1001-F
A3R21	0698-0085		RESISTOR, FXD, 2.61K1% .125W F TUBULAR	16299	C4-1/8-TC-2611-F
A3R22	0698-3155		RESISTOR, FXD, 4.64K1% .125W F TUBULAR	16299	C4-1/8-TC-4641-F
A3R23	0698-3155		RESISTOR, FXD, 4.64K1% .125W F TUBULAR	16299	C4-1/8-TC-4641-F
A3R24	0757-0436		RESISTOR, FXD, 5.1K1% .125W F TUBULAR	24546	C4-1/8-TC-5111-F
A3R25	0698-3155		RESISTOR, FXD, 4.64K1% .125W F TUBULAR	16299	C4-1/8-TC-4641-F
A3R26	0757-0401	2	RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-TC-101-F
A3R27	0698-3155		RESISTOR, FXD, 4.64K1% .125W F TUBULAR	16299	C4-1/8-TC-4641-F
A3R28	0757-0401		RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-TC-101-F
A3R29	0757-0449	3	RESISTOR, FXD, 20K1% .125W F TUBULAR	24546	C4-1/8-TC-2002-F
A3R30	0757-0467	1	RESISTOR, FXD, 121K1% .125W F TUBULAR	24546	C4-1/8-TC-1213-F
A3R31	0757-0441	1	RESISTOR, FXD, 8.25K1% .125W F TUBULAR	24546	C4-1/8-TC-8251-F
A3R32	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-TC-1002-F

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number	
A3R33	0757-0449		RESISTOR, FXD, 20K1% .125W F TUBULAR	24546	C4-1/8-T0-2002-F	
A3R34	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R35	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R36	0757-0403	1	RESISTOR, FXD, 121 OHM1% .125W F	24546	C4-1/8-T0-121R-F	
A3R37	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R38	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R39	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-T0-1002-F	
A3R40	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R41	0757-0442		RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-T0-1002-F	
A3R42	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R43	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R44	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R45	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R47	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R48	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F	
A3R49	0757-0449			RESISTOR, FXD, 20K1% .125W F TUBULAR	24546	C4-1/8-T0-2002-F
A3R50	0757-0462	1		RESISTOR, FXD, 75K1% .125W F TUBULAR	24546	C4-1/8-T0-7502-F
A3U101	1820-0068	1		INTEGRATED CIRCUIT, DGTL, TTL TRIPLE 3	01295	SN7410N
A3U102	1820-0077	4	INTEGRATED CIRCUIT, DGTL, TTL DUAL D	01295	SN7474N	
A3U103	1820-0077		INTEGRATED CIRCUIT, DGTL, TTL DUAL D	01295	SN7474N	
A3U104	1820-0077		INTEGRATED CIRCUIT, DGTL, TTL DUAL D	01295	SN7474N	
A3U105	1820-0026		3	INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7402N
A3U107	1820-0575		4	INTEGRATED CIRCUIT, DGTL, TTL	01295	SN74123N
A3U108	1820-0575		INTEGRATED CIRCUIT, DGTL, TTL	01295	SN74123N	
A3U109	1820-0077			INTEGRATED CIRCUIT, DGTL, TTL DUAL D	01295	SN7474N
A3U110	1820-0575	INTEGRATED CIRCUIT, DGTL, TTL		01295	SN74123N	
A3U111	1820-0054	3		INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7400N
A3U209	1820-0028	INTEGRATED CIRCUIT, DGTL, TTL QUAD 2		01295	SN7402N	
A3U210	1820-0328	INTEGRATED CIRCUIT, DGTL, TTL QUAD 2		01295	SN7402N	
A3U301	1820-0471	3		INTEGRATED CIRCUIT, DGTL, TTL HEX	01295	SN7406N
A3U302	1820-0614	1	INTEGRATED CIRCUIT, DGTL, TTL LP DUAL	07263	U6N93LC859X	
A3U304	1820-0471		INTEGRATED CIRCUIT, DGTL, TTL HEX	01295	SN7406N	
A3U305	1820-0701		1	INTEGRATED CIRCUIT, DGTL, TTL LP 4-BIT	07263	U7893L1459X
A3U306	1820-0579		INTEGRATED CIRCUIT, DGTL, TTL	01295	SN74123N	
A3U307	1820-0174		2	INTEGRATED CIRCUIT, DGTL, TTL HEX	01295	SN7404N
A3U308	1820-0174		INTEGRATED CIRCUIT, DGTL, TTL HEX	01295	SN7404N	
A3U309	1820-0054		INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7400N	
A3U310	1820-0471		INTEGRATED CIRCUIT, DGTL, TTL HEX	01295	SN7406N	
A3U311	1820-0054		INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7400N	

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A5	07261-61050	1	PCB POWER SUPPLY	2848C	07261-61050
A5C1	0180-0116	6	CAPACITOR-FXC, 6.8UF+-10% 35VDC TA	56289	150D685X9C35B2
A5C2	0180-C097	6	CAPACITOR-FXC, 47UF+-10% 35VDC TA-SOLID	56289	150D476X9C35S2
A5C3	0180-0116		CAPACITOR-FXC, 6.8UF+-10% 35VDC TA	56289	150D685X9C35B2
A5C4	0180-0097		CAPACITOR-FXC, 47UF+-10% 35VDC TA-SOLID	56289	150D476X9C35S2
A5C5	0180-0116		CAPACITOR-FXC, 6.8UF+-10% 35VDC TA	56289	150D685X9C35B2
A5C6	0180-0106	1	CAPACITOR-FXC, 60UF+-20% 6VDC TA-SOLID	56289	150D606X0006B2
A5C7	0180-0159	1	CAPACITOR-FXC, 220UF+-20% 10VDC TA	56289	150D227X0010S2
A5C8	0180-0116		CAPACITOR-FXC, 6.8UF+-10% 35VDC TA	56289	150D685X9C35B2
A5C9	0180-0097		CAPACITOR-FXC, 47UF+-10% 35VDC TA-SOLID	56289	150D476X9C35S2
A5C10	0180-0116		CAPACITOR-FXC, 6.8UF+-10% 35VDC TA	56289	150D685X9C35B2
A5C11	0180-0097		CAPACITOR-FXC, 47UF+-10% 35VDC TA-SOLID	56289	150D476X9C35S2
A5C12	0180-0116		CAPACITOR-FXC, 6.8UF+-10% 35VDC TA	56289	150D685X9C35B2
A5C13	0180-0097		CAPACITOR-FXC, 47UF+-10% 35VDC TA-SOLID	56289	150D476X9C35S2
A5C14	0180-1943	1	CAPACITOR-FXC, 1000UF+-75-10% 25VDC AL	56289	390106G025GL4
A5C15	0180-0098	1	CAPACITOR-FXC, 100UF+-20% 20VDC TA	56289	150D107X0020S2
A5C16	0180-0374	2	CAPACITOR-FXC, 10UF+-10% 20VDC TA-SOLID	56289	150D106X9020B2
A5C17	0180-0374		CAPACITOR-FXC, 10UF+-10% 20VDC TA-SOLID	56289	150D106X9020B2
A5CR1	1902-0052	2	DIODE, VREG, 6.81V VZ, .4W MAX	2848C	1902-C052
A5CR2	1901-0040	33	DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR3	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR4	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR5	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR6	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR7	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR8	1902-3077	3	DIODE, VREG, 4.42V VZ, .4W MAX	2848C	1902-3077
A5CR9	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR10	1901-0158	5	DIODE, PWR RECT, SI, 200V MAX VRM 750MA	2848C	1901-0158
A5CR11	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR12	1902-3077		DIODE, VREG, 4.42V VZ, .4W MAX	2848C	1902-3077
A5CR13	1901-0158		DIODE, PWR RECT, SI, 200V MAX VRM 750MA	2848C	1901-0158
A5CR14	1884-0015	1	THYRISTOR, SCR, JEDEC 2N3669	02735	2N3669
A5CR15	1902-3077		DIODE, VREG, 4.42V VZ, .4W MAX	2848C	1902-3077
A5CR16	1901-0158		DIODE, PWR RECT, SI, 200V MAX VRM 750MA	2848C	1901-0158
A5CR17	1902-0052		DIODE, VREG, 6.81V VZ, .4W MAX	2848C	1902-0052
A5CR18	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR19	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR20	1902-0594	1	DIODE, VREG, 18.2V VZ, 1W MAX	2848C	1902-0594
A5CR21	1902-3231	1	DIODE, VREG, 19.1V VZ, 1W MAX	2848C	1902-3231
A5CR22	1901-0158		DIODE, PWR RECT, SI, 200V MAX VRM 750MA	2848C	1901-0158
A5CR23	1901-0158		DIODE, PWR RECT, SI, 200V MAX VRM 750MA	2848C	1901-0158
A5CR24	1902-0084	1	DIODE, VREG, 6.81V VZ, 1W MAX	2848C	1902-0084
A5CR25	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR26	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR27	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR28	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR29	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR30	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR31	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR32	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR33	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR34	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR35	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR36	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR37	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR38	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR39	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR40	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR41	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR42	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR43	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR44	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR45	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR46	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5CR47	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A5F1	2110-0002	1	FUSE, 2A 250V	71400	AGC-2
A5F2	2110-0012	1	FUSE, .5A 250V	71400	AGC 1/2
A5F3	2110-0056	1	FUSE, 6A 250V	71400	MTH-6
A5F4	2110-0004	1	FUSE, .25A 250V	71400	AGC-1/4
A5F5	2110-0063	1	FUSE, .75A 250V	71400	AGC-3/4
A5Q1	1854-0530	4	TRANSISTOR, NPN SI	28480	1854-0530
A5Q1	1200-0043	8	INSULATOR, XSTR, TC- 3, .02 THK	7653C	322047
A5Q2	1854-0039	5	TRANSISTOR, 2N3053 NPN SI	04713	2N3053

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A5Q3	1854-0225	4	TRANSISTOR, NPN SI	28480	1854-0225
A5Q3	1200-0043		INSULATOR, XSTR, TO-	7653C	322047
A5Q4	1854-0071	11	TRANSISTOR, NPN SI	28480	1854-0071
A5Q5	1854-0225		TRANSISTOR, NPN SI	28480	1854-0225
A5Q5	1200-0043		INSULATOR, XSTR, TO-	7653C	322047
A5Q6	1854-0225		TRANSISTOR, NPN SI	2848C	1854-0225
A5Q6	1200-0043		INSULATOR, XSTR, TO-	7653C	322047
A5Q7	1854-0225		TRANSISTOR, NPN SI	2848C	1854-0225
A5Q7	1200-0043		INSULATOR, XSTR, TO-	7653C	322047
A5Q8	1854-0530		TRANSISTOR, NPN SI	28480	1854-0530
A5Q8	1200-0043		INSULATOR, XSTR, TO-	76530	322047
A5Q9	1853-0041	6	TRANSISTOR, PNP SI	2848C	1853-0041
A5Q10	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A5Q11	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A5Q12	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A5Q13	1854-0071		TRANSISTOR, NPN SI	2848C	1854-0071
A5Q14	1853-0041		TRANSISTOR, PNP SI	2848C	1853-0041
A5Q15	1853-0342	2	TRANSISTOR, PNP SI	02735	40831
A5Q16	1853-0041		TRANSISTOR, PNP SI	28480	1853-0041
A5Q17	1853-0342		TRANSISTOR, PNP SI	02735	40831
A5Q18	1853-0041		TRANSISTOR, PNP SI	2848C	1853-0041
A5Q19	1854-0039		TRANSISTOR, 2N3053 NPN SI	04713	2N3053
A5Q20	1853-0041		TRANSISTOR, PNP SI	28480	1853-0041
A5Q21	1854-0530		TRANSISTOR, NPN SI	2848C	1854-0530
A5Q21	1200-0043		INSULATOR, XSTR, TO-	7653C	322047
A5Q22	1853-0041		TRANSISTOR, PNP SI	28480	1853-0041
A5Q24	1854-0039		TRANSISTOR, 2N3053 NPN SI	04713	2N3053
A5Q25	1854-0530		TRANSISTOR, NPN SI	28480	1854-0530
A5Q25	1200-0043		INSULATOR, XSTR, TO-	7653C	322047
A5Q26	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A5Q27	1854-0071		TRANSISTOR, NPN SI	2848C	1854-0071
A5Q28	1854-0347	1	TRANSISTOR, 2N4923 NPN SI	04713	2N4923
A5Q29	1854-0071		TRANSISTOR, NPN SI	2848C	1854-0071
A5Q30	1854-0300	2	TRANSISTOR, NPN SI	2848C	1854-0300
A5Q31	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A5Q32	1854-0039		TRANSISTOR, 2N3053 NPN SI	04713	2N3053
A5Q33	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A5Q34	1854-0300		TRANSISTOR, NPN SI	2848C	1854-0300
A5Q35	1854-0087	2	TRANSISTOR, NPN SI	28480	1854-0087
A5Q36	1854-0071		TRANSISTOR, NPN SI	28480	1854-0071
A5Q37	1854-0087		TRANSISTOR, NPN SI	2848C	1854-0087
A5Q38	1854-0039		TRANSISTOR, 2N3053 NPN SI	04713	2N3053
A5R1	0757-0394	4	RESISTOR, FXD, 51.1 OHM1% .125W F	24546	C4-1/8-T0-51R1-F
A5R2	0757-0821	1	RESISTOR, FXD, 1.21K1% .5W MF TUBULAR	30983	MF7C1/2-T0-1211-F
A5R3	0757-0833	2	RESISTOR, FXD, 5.11K1% .5W MF TUBULAR	30983	MF7C1/2-T0-5111-F
A5R4	0757-0428	2	RESISTOR, FXD, 1.62K1% .125W F TUBULAR	24546	C4-1/8-T0-1621-F
A5R5	0698-3151	2	RESISTOR, FXD, 2.87K1% .125W F TUBULAR	16295	C4-1/8-T0-2871-F
A5R6	0757-0394		RESISTOR, FXD, 51.1 OHM1% .125W F	24546	C4-1/8-T0-51R1-F
A5R7	0757-0280	5	RESISTOR, FXD, 1K1% .125W F TUBULAR	24546	C4-1/8-T0-1001-F
A5R8	0698-0001	1	RESISTOR, FXD, 4.7 OHM5% .5W CC TUBULAR	01121	E847G5
A5R9	0757-0416	3	RESISTOR, FXD, 511 OHM1% .125W F	24546	C4-1/8-T0-511R-F
A5R10	0812-0017	3	RESISTOR, FXD, .25 OHM5% 3W PW TUBULAR	2848C	0812-CC17
A5R11	0812-0017		RESISTOR, FXD, .25 OHM5% 3W PW TUBULAR	2848C	0812-0017
A5R12	0812-0017		RESISTOR, FXD, .25 OHM5% 3W PW TUBULAR	2848C	0812-CC17
A5R13	0757-0416		RESISTOR, FXD, 511 OHM1% .125W F	24546	C4-1/8-T0-511R-F
A5R14	0811-1853	1	RESISTOR, FXD, .25 OHM5% 5W PW TUBULAR	56285	243E25R5
A5R15	0757-0401	4	RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-T0-101-F
A5R16	0757-0442	1	RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-T0-1002-F
A5R17	0757-0283	1	RESISTOR, FXD, 2K1% .125W F TUBULAR	24546	C4-1/8-T0-2001-F
A5R18	0698-3432	1	RESISTOR, FXD, 26.1 OHM1% .125W F	03888	PME55-1/8-T0-26R1-F
A5R19	0698-3441	2	RESISTOR, FXD, 215 OHM1% .125W F	16295	C4-1/8-T0-215R-F
A5R20	0757-0441	1	RESISTOR, FXD, 8.25K1% .125W F TUBULAR	24546	C4-1/8-T0-8251-F
A5R21	0761-0038	1	RESISTOR, FXD, 5.6K5% 1W MQ TUBULAR	24546	FP32-1-T00-5601-J
A5R22	0698-3442	4	RESISTOR, FXD, 237 OHM1% .125W F	16295	C4-1/8-T0-237R-F
A5R23	0698-3150	1	RESISTOR, FXD, 4.37K1% .125W F TUBULAR	16295	C4-1/8-T0-2371-F
A5R24	0811-2490	1	RESISTOR, FXD, .1 OHM3% 5W PPW TUBULAR	2848C	0811-2490
A5R25	0757-0839	1	RESISTOR, FXD, 10K1% .5W MF TUBULAR	30983	MF7C1/2-T0-1002-F
A5R26	0757-0401		RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-T0-101-F
A5R27	0698-0093	1	RESISTOR, FXD, 10 OHM5% 1W MQ TUBULAR	16295	FP32-1-10R0-J
A5R28	0757-0197	1	RESISTOR, FXD, 1.5K1% .5W MF TUBULAR	30983	MF7C1/2-T0-1501-F
A5R29	0757-0843	2	RESISTOR, FXD, 15K1% .5W MF TUBULAR	30983	MF7C1/2-T0-1502-F
A5R30	0757-0394		RESISTOR, FXD, 51.1 OHM1% .125W F	24546	C4-1/8-T0-51R1-F
A5R31	0698-3441		RESISTOR, FXD, 215 OHM1% .125W F	16295	C4-1/8-T0-215R-F
A5R32	0757-0394		RESISTOR, FXD, 51.1 OHM1% .125W F	24546	C4-1/8-T0-51R1-F
A5R33	0757-0816	1	RESISTOR, FXD, 681 OHM1% .5W MF TUBULAR	30983	MF7C1/2-T0-681R-F

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A5R34	0757-0833		RESISTOR, FXD, 5.11K1% .5W MF TUBULAR	30983	MF7C1/2-T0-5111-F
A5R35	0757-0428		RESISTOR, FXD, 1.62K1% .125W F TUBULAR	24546	C4-1/8-T0-1621-F
A5R36	0698-3151		RESISTOR, FXD, 2.87K1% .125W F TUBULAR	16295	C4-1/8-T0-2871-F
A5R37	0757-0449	2	RESISTOR, FXD, 20K1% .125W F TUBULAR	24546	C4-1/8-TC-2002-F
A5R38	0757-0398	1	RESISTOR, FXD, 75 OHM1% .125W F TUBULAR	24546	C4-1/8-T0-75R0-F
A5R39	0757-0843		RESISTOR, FXD, 15K1% .5W MF TUBULAR	30983	MF7C1/2-T0-1502-F
A5R40	0757-0280		RESISTOR, FXD, 1K1% .125W F TUBULAR	24546	C4-1/8-T0-1001-F
A5R41	0757-0401		RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-T0-101-F
A5R42	0812-0086	1	RESISTOR, FXD, 5 OHM5% 3W PW TUBULAR	91637	CW281-3W-T2-5R0-J
A5R45	0698-0089	1	RESISTOR, FXD, 1.78K1% .5W MF TUBULAR	03888	PME-65-1/2-T0-1781-F
A5R46	0757-0401		RESISTOR, FXD, 100 OHM1% .125W F	24546	C4-1/8-T0-101-F
A5R47	0757-0159	1	RESISTOR, FXD, 1K1% .5W MF TUBULAR	30983	MF7C1/2-T0-1R0-F
A5R48	0757-0804	1	RESISTOR, FXD, 200 OHM1% .5W MF TUBULAR	30983	MF7C-1/2-T0-201-F
A5R49	0757-0290	1	RESISTOR, FXD, 6.19K1% .125W F TUBULAR	30983	MF4C1/8-T0-6191-F
A5R50	0757-0284	1	RESISTOR, FXD, 150 OHM1% .125W F	24546	C4-1/8-T0-151-F
A5R51	0757-0274	1	RESISTOR, FXD, 1.21K1% .125W F TUBULAR	24546	C4-1/8-T0-1213-F
A5R52	0757-0280		RESISTOR, FXD, 1K1% .125W F TUBULAR	24546	C4-1/8-T0-1001-F
A5R53	0698-3458	1	RESISTOR, FXD, 348K1% .125W F TUBULAR	3C983	MF4C1/8-T0-3483-F
A5R54	0757-0438	13	RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R55	0757-0280		RESISTOR, FXD, 1K1% .125W F TUBULAR	24546	C4-1/8-T0-1001-F
A5R56	0757-0449		RESISTOR, FXD, 20K1% .125W F TUBULAR	24546	C4-1/8-T0-2002-F
A5R57	0698-0084	1	RESISTOR, FXD, 2.15K1% .125W F TUBULAR	16295	C4-1/8-T0-2151-F
A5R58	0698-3439	1	RESISTOR, FXD, 178 OHM1% .125W F	16295	C4-1/8-T0-178R-F
A5R59	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R60	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R61	0698-3442		RESISTOR, FXD, 237 OHM1% .125W F	16295	C4-1/8-T0-237R-F
A5R62	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R63	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R64	0757-0280		RESISTOR, FXD, 1K1% .125W F TUBULAR	24546	C4-1/8-TC-1001-F
A5R65	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R66	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R67	0698-3442		RESISTOR, FXD, 237 OHM1% .125W F	16295	C4-1/8-T0-237R-F
A5R68	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R69	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-TC-5111-F
A5R70	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R71	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-TC-5111-F
A5R72	0698-3442		RESISTOR, FXD, 237 OHM1% .125W F	16295	C4-1/8-T0-237R-F
A5R73	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R74	0757-0419	1	RESISTOR, FXD, 681 OHM1% .125W F	24546	C4-1/8-T0-681R-F
A5R75	0757-0438		RESISTOR, FXD, 5.11K1% .125W F TUBULAR	24546	C4-1/8-T0-5111-F
A5R76	0757-0416		RESISTOR, FXD, 511 OHM1% .125W F	24546	C4-1/8-T0-511R-F
A5TP2	5020-0495		PIN:SQUARE (TEST POINTS)	2848C	5020-C495
A5TP3	5020-0495		PIN:SQUARE (TEST POINTS)	2848C	5020-C495
A5TP4	5020-0495		PIN:SQUARE (TEST POINTS)	2848C	5020-C495
A5TP5	5020-0495		PIN:SQUARE (TEST POINTS)	2848C	5020-C495
A5TP6	5020-0495		PIN:SQUARE (TEST POINTS)	2848C	5020-C495
A5TP7	5020-0495		PIN:SQUARE (TEST POINTS)	2848C	5020-C495
A5XF1	2110-0269	10	CLIP:FUSE 0.250" DIA	91506	6008-32CN
A5XF2	2110-0269		CLIP:FUSE 0.250" DIA	91506	6008-32CN
A5XF3	2110-0269		CLIP:FUSE 0.250" DIA	91506	6008-32CN
A5XF4	2110-0269		CLIP:FUSE 0.250" DIA	91506	6008-32CN
A5XF5	2110-0269		CLIP:FUSE 0.250" DIA	91506	6008-32CN
A5Z	2200-0091	2	SCREW,MACHINE, 4-40 UNC-2A .562 IN PAN	7725C	
A5Z	2200-0147	16	SCREW,MACHINE, 4-40 UNC-2A .5 IN PAN	7725C	
A5Z	2260-0009	18	NUT, HEX 4-40 .094 X .25, STL, NI PL	78185	
A5Z	07261-20150	1	HEAT SINK	2848C	07261-20150

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A6	07261-61060	57	PARALLEL PCTHER BOARD, PCA	2848C	07261-61060
A6XA5	1251-2035	4	CONNECTOR, PC EDGE, 15-CONT, DIP SOLDER	71785	252-15-30-300
A6XA10	1251-2034	2	CONNECTOR, PC EDGE, 10-CONT, DIP SOLDER	71785	252-10-30-300
A6XA1P1	1251-2035		CONNECTOR, PC EDGE, 15-CONT, DIP SOLDER	71785	252-15-30-300
A6XA1P2	1251-2034		CONNECTOR, PC EDGE, 10-CONT, DIP SOLDER	71785	252-10-30-300
A6XA3P1	1251-2035		CONNECTOR, PC EDGE, 15-CONT, DIP SOLDER	71785	252-15-30-300
A6XA3P2	1251-2035		CONNECTOR, PC EDGE, 15-CONT, DIP SOLDER	71785	252-15-30-300

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Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A7	07261-61070	1	LINE INPUT, PCA	2848C	07261-61070
A7C1	0150-0093	43	CAPACITOR,FXC, .01UF+80-20% 100WVDC	28480	0150-0093
A7C2	0160-3586	1	CAPACITOR,FXC, .22UF+-10% 400WVDC	2848C	0160-3586
A7C3	0180-1819	1	CAPACITOR-FXC, 100UF+75-10% 50VDC AL	56285	30D107G050DH2
A7CR1	1901-0040	3	DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A7CR2	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A7CR3	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	2848C	1901-0040
A7CR5	1884-0227	1	THYRISTOR, SI TRIAC	2848C	1884-0227
A7K1	0490-0310	1	COIL:PEED RELAY 2500 OHM 24V	71707	U-24-P
A7K1	0490-0189	1	SWITCH, MAG REED, FORM A 12VA .5A 30CV	9534E	MR-306-1
A7Q1	1854-0035	1	TRANSISTOR, 2N3053 NPN SI	04713	2N3053
A7R1	0757-0442	1	RESISTOR, FXD, 10K1% .125W F TUBULAR	24546	C4-1/8-TC-1002-F
A7R2	0757-0379	1	RESISTOR, FXD, 12.1 OHM1% .125W F	30983	MF4C1/8-TC-12R1-F
A7R3	0757-0198	1	RESISTOR, FXD, 100 OHM1% .5W MF TUBULAR	30983	MF7C1/2-TC-101-F
A7R4	0761-0026	1	RESISTOR, FXD, 220 OHM5% 1W MC TUBULAR	24546	FP32-1-TC0-221-J
A7R5	0698-0089	1	RESISTOR, FXC, 1.78K1% .5W MF TUBULAR	03888	PME65-1/2-TC-1781-F
A7T81	0360-1753	2	TERMINAL, BARRIER BLOCK, 7-TERM	75382	599-2-7
A7T82	0360-1753		TERMINAL, BARRIER BLOCK, 7-TERM	75382	599-2-7

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A8	07261-61080	2	28V RECTIFIER, PCA	28480	07261-61080
A8CR1	1901-0200		DIODE, PWR RECT, SI, 100V MAX VRM 1.5A	28480	1901-0200
A8CR2	1901-0200		DIODE, PWR RECT, SI, 100V MAX VRM 1.5A	28480	1901-0200
A8CR3	1901-0200		DIODE, PWR RECT, SI, 100V MAX VRM 1.5A	28480	1901-0200
A8CR4	1901-0200		DIODE, PWR RECT, SI, 100V MAX VRM 1.5A	28480	1901-0200
A8R1	0761-0005	2	RESISTOR, FXD, 2.2K 5% 1W MO TUBULAR	24546	FP32-1-2201-J
A8R2	0761-0005		RESISTOR, FXD, 2.2K 5% 1W MO TUBULAR	24546	FP32-1-2201-J

See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A9A1D1	07261-60180	5	READ LAMP, PCA	28480	07261-60180
A9A1D2	0180-0197		CAPACITOR, FXD 2.2UF +10% 20VDC TA	56289	150D225X9020A2
A9A1D3	1901-0040	7	DIODE, SWITCHING, SI	28480	1901-0040
A9A1D4	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A9A1D5	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A9A1D6	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A9A1D7	1901-0040		DIODE, SWITCHING, SI, 30V MAX VRM 50MA	28480	1901-0040
A9A1DS1	2140-0256	7	LAMP INCD 18V	71744	320
A9A1DS2	2140-0256		LAMP INCD 18V	71744	320
A9A1DS3	2140-0256		LAMP INCD 18V	71744	320
A9A1DS4	2140-0256		LAMP INCD 18V	71744	320
A9A1DS5	2140-0256		LAMP INCD 18V	71744	320
A9A1DS6	2140-0256		LAMP INCD 18V	71744	320
A9A1DS7	2140-0256		LAMP INCD 18V	71744	320
A9A1D1	0757-0394	7	RESISTOR, FXD, 51.1 OHM 1% .125W F	24546	C4-1/8-TO-51R1-F
A9A1D2	0757-0394		RESISTOR, FXD, 51.1 OHM 1% .125W F	24546	C4-1/8-TO-51R1-F
A9A1D3	0757-0394		RESISTOR, FXD, 51.1 OHM 1% .125W F	24546	C4-1/8-TO-51R1-F
A9A1D4	0757-0394		RESISTOR, FXD, 51.1 OHM 1% .125W F	24546	C4-1/8-TO-51R1-F
A9A1D5	0757-0394		RESISTOR, FXD, 51.1 OHM 1% .125W F	24546	C4-1/8-TO-51R1-F
A9A1D6	0757-0394		RESISTOR, FXD, 51.1 OHM 1% .125W F	24546	C4-1/8-TO-51R1-F
A9A1D7	0757-0442	1	RESISTOR, FXD, 10K 1% .125W F TUBULAR	24546	C4-1/8-TO-1002-F
A9A1D1	07261-61090		PHOTO-TRANSISTOR, PCA	28480	07261-61090
A9A1D2	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D3	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D4	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D5	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D6	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D7	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D1	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D2	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D3	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D4	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D5	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D6	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D7	1990-0409		PHOTO-TRANSISTOR	28480	1990-0409
A9A1D1	1810-0218		NETWORK RESISTOR 7x10 M	11236	004-572-029
A9A1D2	1810-0218		NETWORK RESISTOR 7x10 M	11236	004-572-029
<p>NOTE: No parts on read head other than the lamps should be replaced. If a failure occurs in other parts, replace the Read Head Assembly (HP Part No 07261-61120)</p>					
<p>No pts on read head assembly A9 other than lamps should be replaced. If a failure occurs in other parts, replace the read head assembly HP Part No 07261-61090.</p>					

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Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A10	07261-61100	1	ENCODER LOGIC, PCA	2848C	07261-61100
A10AR1	1820-0477	3	INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27C14	LM301AN
A10AR2	1820-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A10AR3	1620-0477		INTEGRATED CIRCUIT, LIN, OP AMPL 8-PIN	27014	LM301AN
A10C1	0170-0C66	1	CAPACITOR,FXC, .027UF+-10% 200WVDC	56285	292P27392
A10C2	0160-0C39	1	CAPACITOR,FXC, 430PF+-5% 300WVDC	2848C	0160-C939
A10C3	0150-0C93	16	CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10C4	0160-2202	1	CAPACITOR,FXC, 75PF+-5% 300WVDC	2848C	0160-22C2
A10C5	0160-0205	1	CAPACITOR,FXC, 10PF+-5% 500WVDC	2848C	0160-C2C5
A10C6	0150-0C93		CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10C7	0150-0093		CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10C8	0150-0093		CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10C9	0150-0093		CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10C10	0150-0093		CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10C11	0150-0093		CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10C12	0150-0C93		CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10C13	0150-0C93		CAPACITOR,FXC, .01UF+80-20% 100WVDC	2848C	0150-C093
A10CR1	1901-0C40	5	DIGDE, SWITCHING, S1, 30V MAX VRM 50MA	2848C	1901-0040
A10CR3	1901-0C40		DIGDE, SWITCHING, S1, 30V MAX VRM 50MA	2848C	1901-0040
A10CR4	1901-0040		DIGDE, SWITCHING, S1, 30V MAX VRM 50MA	2848C	1901-0040
A10CR5	1902-3150	1	DIGDE, VREG, 9.09V V2, .4W MAX	2848C	1902-3150
A10CR6	1901-0040		DIGDE, SWITCHING, S1, 30V MAX VRM 50MA	2848C	1901-0040
A10CR7	1901-0040		DIGDE, SWITCHING, S1, 30V MAX VRM 50MA	2848C	1901-0040
A10R1	0757-0394	1	RESISTOR, FXC, 51.1 OHM1% .125W F	2454E	C4-1/8-TG-51R1-F
A10R2	0757-0280	5	RESISTOR, FXC, 1K1% .125W F TUBULAR	2454E	C4-1/8-TG-1001-F
A10R3	0698-3157	1	RESISTOR, FXC, 19.6K1% .125W F TUBULAR	16299	C4-1/8-TG-1962-F
A10R4	0696-0085	1	RESISTOR, FXC, 2.61K1% .125W F TUBULAR	16299	C4-1/8-TG-2611-F
A10R5	0757-0346	1	RESISTOR, FXC, 10 OHM1% .125W F TUBULAR	2454E	C4-1/8-TG-10R0-F
A10R6	0757-0449	1	RESISTOR, FXC, 20K1% .125W F TUBULAR	2454E	C4-1/8-TG-2002-F
A10R7	0757-0442	2	RESISTOR, FXC, 10K1% .125W F TUBULAR	2454E	C4-1/8-TG-1002-F
A10R8	0757-0280		RESISTOR, FXC, 1K1% .125W F TUBULAR	2454E	C4-1/8-TG-1001-F
A10R9	0757-0466	1	RESISTOR, FXC, 110K1% .125W F TUBULAR	2454E	C4-1/8-TG-1103-F
A10R10	0757-0280		RESISTOR, FXC, 1K1% .125W F TUBULAR	2454E	C4-1/8-TG-1001-F
A10R11	0698-3260	1	RESISTOR, FXC, 464K1% .125W F TUBULAR	3C983	MF4C1/8-TG-4643-F
A10R12	2100-3252	1	RESISTOR, VAR, TRMR, 5KOHM 10% C	80294	3389P-1-5C2
A10R13	0757-0283	1	RESISTOR, FXC, 2K1% .125W F TUBULAR	2454E	C4-1/8-TG-2001-F
A10R14	0757-0422	1	RESISTOR, FXC, 909 OHM1% .125W F	2454E	C4-1/8-TG-909R-F
A10R15	0698-3439	1	RESISTOR, FXC, 178 OHM1% .125W F	16299	C4-1/8-TG-178R-F
A10R16	0757-0274	1	RESISTOR, FXC, 1.21K1% .125W F TUBULAR	2454E	C4-1/8-TG-1213-F
A10R17	0757-0420	1	RESISTOR, FXC, 750 OHM1% .125W F	2454E	C4-1/8-TG-751-F
A10R18	0757-0280		RESISTOR, FXC, 1K1% .125W F TUBULAR	2454E	C4-1/8-TG-1001-F
A10R19	0757-0280		RESISTOR, FXC, 1K1% .125W F TUBULAR	2454E	C4-1/8-TG-1001-F
A10R20	0757-0442		RESISTOR, FXC, 10K1% .125W F TUBULAR	2454E	C4-1/8-TG-1002-F
A10U11	1820-0055	2	INTEGRATED CIRCUIT, DGTL, TTL DECADE	01295	SN749CN
A10U12	1820-0099	1	INTEGRATED CIRCUIT, DGTL, TTL 4-BIT	01295	SN7493N
A10U21	1820-0054	3	INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7400N
A10U22	1820-0328	3	INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7402N
A10U31	1820-0328		INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7402N
A10U32	1820-0054		INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN740CN
A10U41	1820-0069	1	INTEGRATED CIRCUIT, DGTL, TTL DUAL 4	01295	SN742CN
A10U42	1820-0328		INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7402N
A10U51	1820-0214	1	INTEGRATED CIRCUIT, DGTL, TTL	01295	SN7442N
A10U52	1820-0068	1	INTEGRATED CIRCUIT, DGTL, TTL TRIPLE 3	01295	SN7410N
A10U61	1820-0055		INTEGRATED CIRCUIT, DGTL, TTL DECADE	01295	SN749CN
A10U62	1820-0070	1	INTEGRATED CIRCUIT, DGTL, TTL 8-INPUT	01295	SN7430N
A10U71	1820-0075	2	INTEGRATED CIRCUIT, DGTL, TTL DUAL J-K	01295	SN7473N
A10U72	1820-0075		INTEGRATED CIRCUIT, DGTL, TTL DUAL J-K	01295	SN7473N
A10U81	1820-0579	1	INTEGRATED CIRCUIT, DGTL, TTL	01295	SN74123N
A10U82	1820-0054		INTEGRATED CIRCUIT, DGTL, TTL QUAD 2	01295	SN7400N



See introduction to this section for ordering information

Table 6-1. Parts List (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A11A2	07261-21106	1	PHOTO-TRANSISTOR EN PCB	28480	07261-21106
A11A1	07261-20105	1	LAMP BD EN PCB	28480	07261-20105
A11AZ	07261-20490	1	HEAD ENCODE	28480	07261-20490
A11Q1	1990-0409	1	TSTR-PHOTO	07263	PT 5030
A11DS1	2140-0256	1	LAMP INCD 18V	71744	320

See introduction to this section for ordering information

Table 6-2. Miscellaneous Parts

HP PART NO.	DESCRIPTION	MANUFACTURER	QTY
ACCESSORY KIT – 07261-60441			
0350-0128	Knob Decal, Skirt	G.M. Nameplate, Inc.	2
0350-0129	Knob Decal, Skirt	G.M. Nameplate, Inc.	2
0350-0130	Knob Decal, Skirt	G.M. Nameplate, Inc.	2
0491-0069	Solenoid – Reject (Option 002)	Hewlett-Packard	1
1400-0084	Fuseholder	Littlefuse	1
1410-0015	Ball Bearing (Pick Roller)	Fafnir Bearing	2
1410-0041	Ball Bearing .312 ID	Fafnir Bearing	2
1410-0300	Steal Ball	Hartford Steel Ball Co.	5
1450-0483	Square Flat Plate Lens – Green (READY)	International Electro Exchange Co.	2
1450-0485	Lens – Cap – Yellow (PICK FAIL)	International Electro Exchange Co.	2
1450-0496	Lampholder Assembly	International Electro Exchange Co.	1
1480-0116	Pin – Extractor	Groov-Pin Corporation	16
1500-0360	Clutch Rotor EMU	General Time Corporation	2
1500-0361	Clutch Rotor EMU	General Time Corporation	1
1500-0363	Clutch Field EMU	General Time Corporation	1
1500-0369	Belt Flat (Drive)	Walters Belting Industries, Inc.	1
1906-0043	Rectifier Bridge	Motorola	1
2110-0002	Fuse 2A NM BL	Littlefuse	10
2110-0004	Fuse 0.25A NM BL	Littlefuse	10
2110-0007	Fuse 1A SL BL	Bussman Manufacturing	10
2110-0012	Fuse 0.5A NM BL	Littlefuse	10
2110-0056	Fuse 6A NM BL	Littlefuse	10
2110-0063	Fuse 0.75A NM BL	Littlefuse	10
2110-0303	Fuse 2A SL BL	Bussman Manufacturing	10
2110-0365	Fuse 4A SL BL	Bussman Manufacturing	10
2140-0256	Incand. Lamp 18V (Read Head)	Chicago Mini Lamp Works	20
2140-0386	Incand. Lamp 30V (READY/PICK)	International Electro Exchange Co.	4
3100-3221	Switch Rotary	Oak Switch	1
3100-3223	Switch Rotary	Oak Switch	1
3101-1304	Switch – Micro	Micro Switch	1
3101-1629	Switch – Button	Centra Lab	2
3101-1821	Switch – Micro	Honeywell	2
3101-1824	Switch PB 4 Sta.	International Electro Exchange Co.	1
3101-1825	Switch PB 4 Sta.	International Electro Exchange Co.	1

Table 6-2. Miscellaneous Parts (Continued)

HP PART NO.	DESCRIPTION	MANUFACTURER	QTY
ACCESSORY KIT – 07261-60441 (Continued)			
3140-0517	Encoder Disc	Hewlett-Packard	2
4040-0749	Extractor – Brown	Hewlett-Packard	4
4040-0750	Extractor – Red	Hewlett-Packard	4
4040-0751	Extractor – Orange	Hewlett-Packard	4
4040-0752	Extractor – Yellow	Hewlett-Packard	4
8710-0580	Extractor Connector	3M Company	1
8750-0045	Feeler Gauge	Hewlett-Packard	1
8750-0091	Gram Gauge	Hewlett-Packard	1
07260-90001	Service Manual	Hewlett-Packard	1
07261-00790	Weight Spring	Hewlett-Packard	2
07261-20005	Hopper Adjustment Gauge	Hewlett-Packard	1
07261-20110	Gate	Hewlett-Packard	2
07261-40060	Gate Shoe	Hewlett-Packard	1
07261-20850	Key	Hewlett-Packard	4
07261-60020	Pick Wheel Pull Assembly	Hewlett-Packard	1
07261-60060	Idler Assembly	Hewlett-Packard	1
07261-60410	Pick Wheel Assembly	Hewlett-Packard	1
07261-60450	Foam Assembly – Filter	Hewlett-Packard	1
SERVICE KIT – 17132A			
07260-60020	BAUD Rate Switch Assembly	Hewlett-Packard	1
07261-62110	A1 Head Amp. PCB – Rebuilt	Hewlett-Packard	1
07260-62020	A2 Control Logic PCB – Rebuilt	Hewlett-Packard	1
07260-62030	A3 Serial I/O PCB – Rebuilt	Hewlett-Packard	1
07261-62030	A3 Parallel I/O PCB	Hewlett-Packard	1
09869-62030	A3 Calculator I/O PCB	Hewlett-Packard	1
07260-62040	A4 Serial Int. PCB – Rebuilt	Hewlett-Packard	1
07261-62050	A5 Power Supply PCB – Rebuilt	Hewlett-Packard	1
07261-62120	A9 Read Head PCB – Rebuilt	Hewlett-Packard	1
07261-62100	A10 Encoder PCB – Rebuilt	Hewlett-Packard	1
07261-61106	A11 Encoder Phototransistor PCB – Rebuilt	Hewlett-Packard	1
07261-60441	Accessory Kit	Hewlett-Packard	1

TYPICAL CARD TRAVEL FOR SELECT OPTION

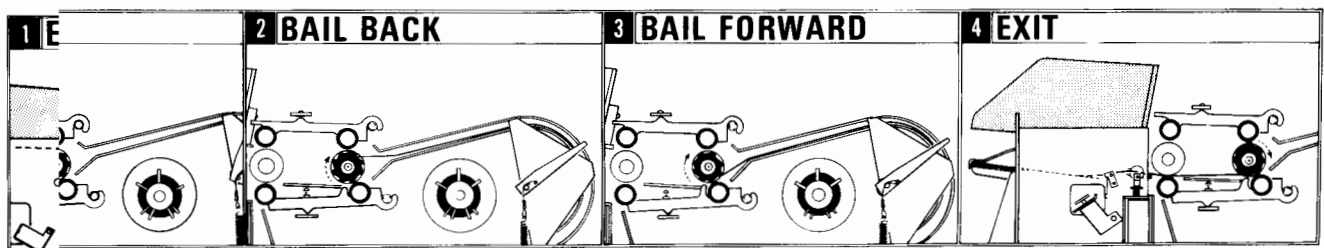
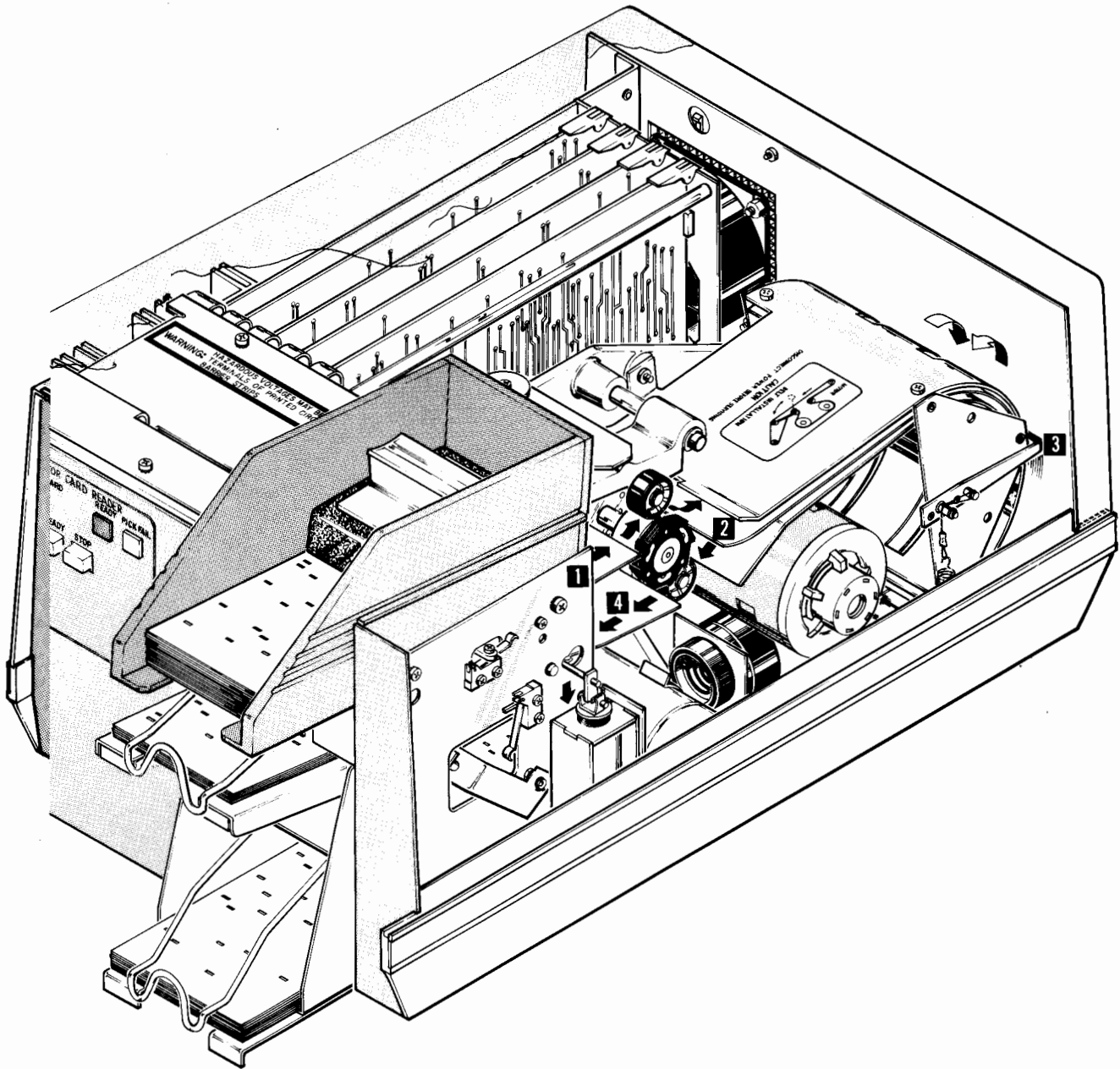
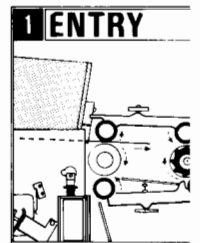
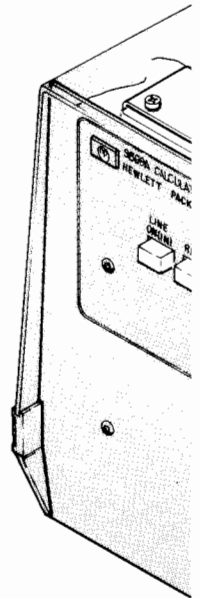
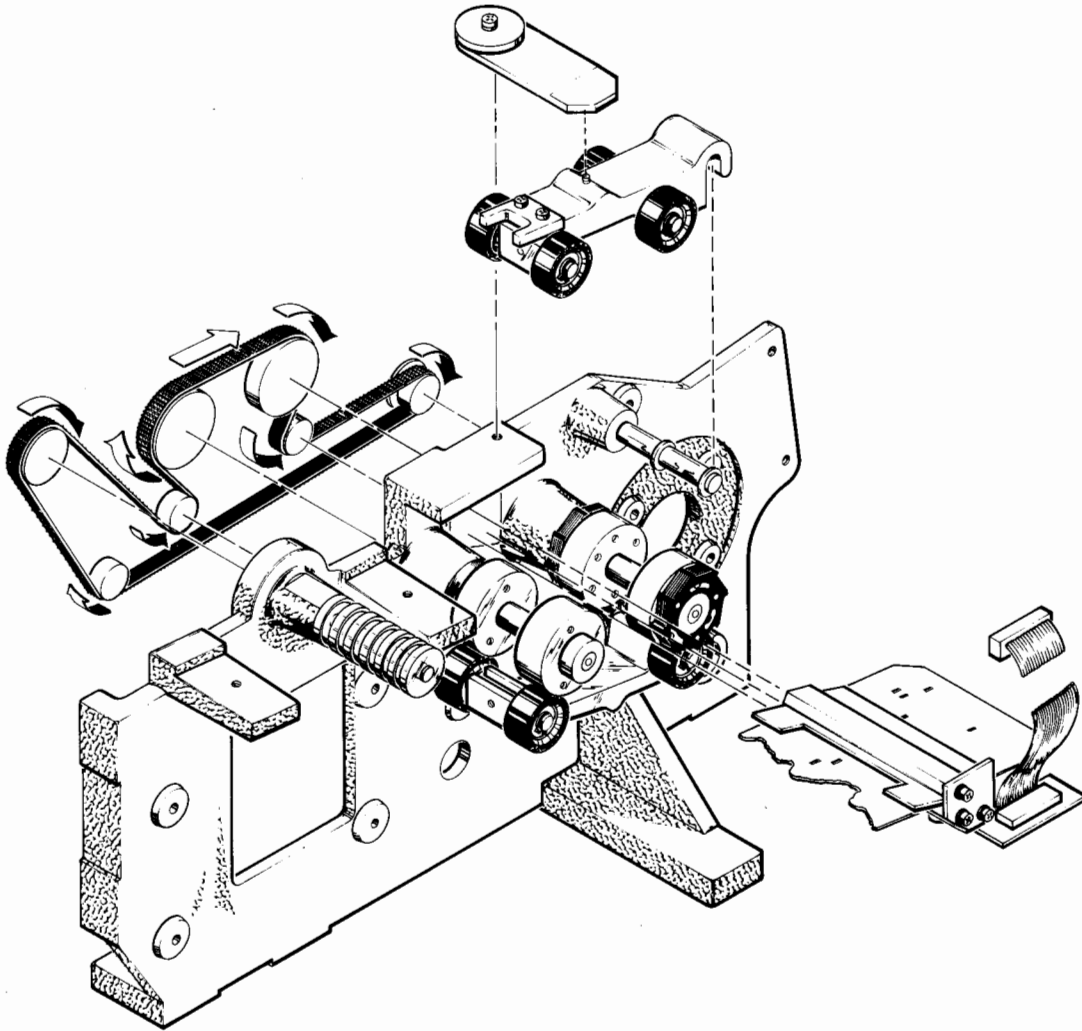


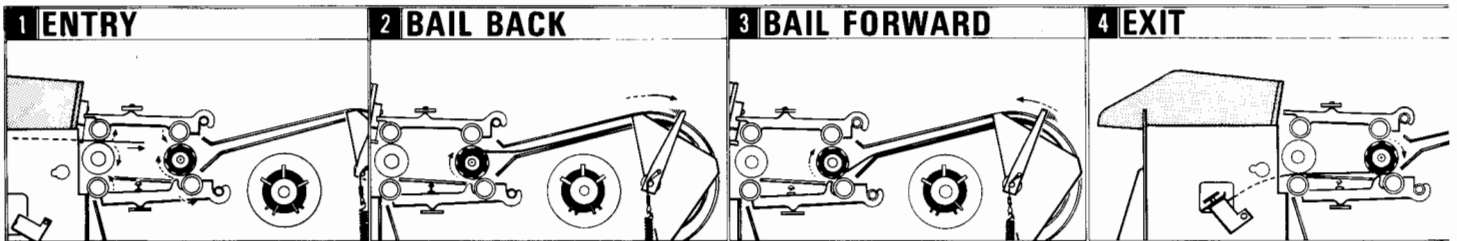
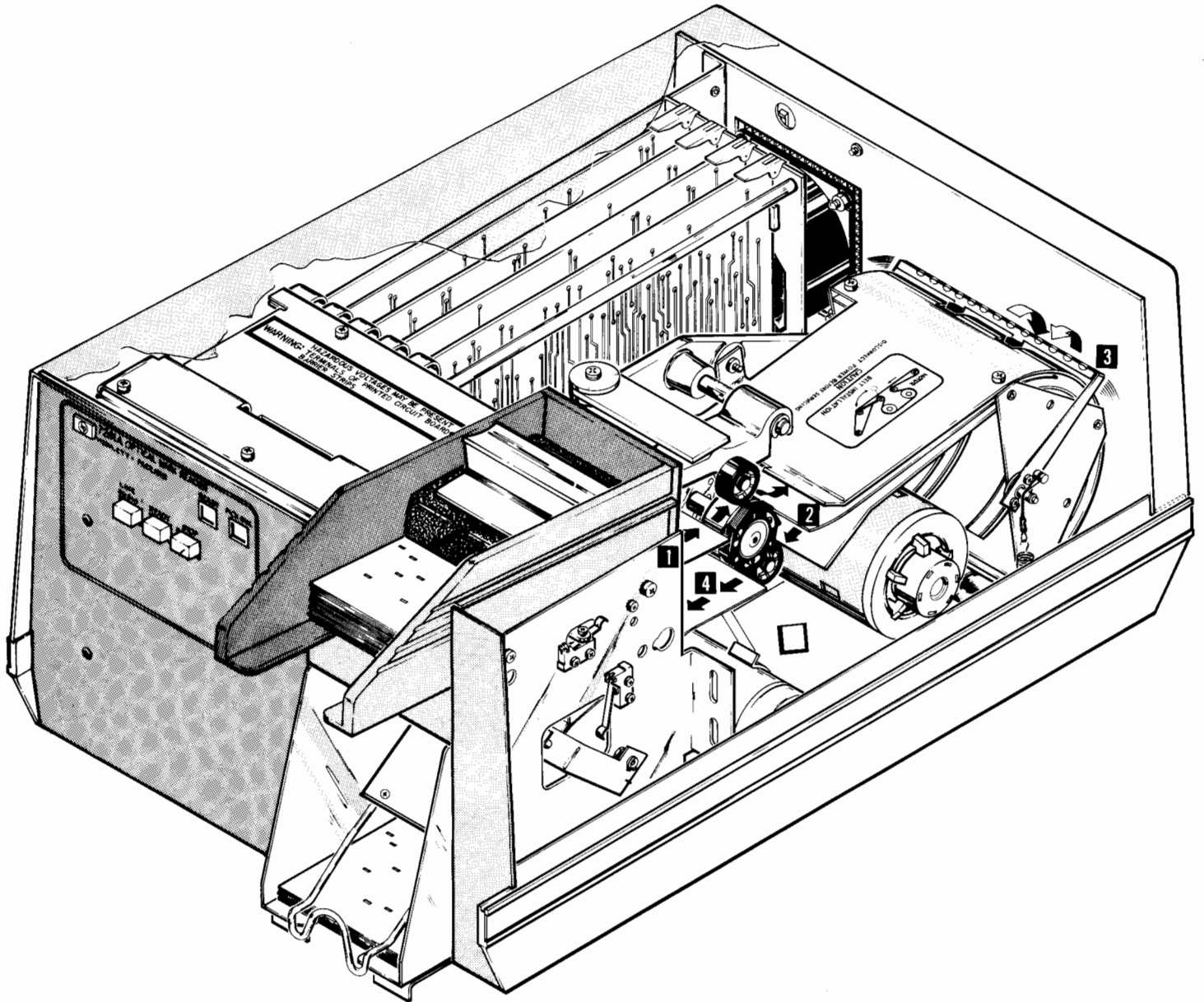
Figure 6-1. Model 7261A Card Reader
(Standard and Options)

BELT DRIVE AND READHEAD ASSEMBLY

nber



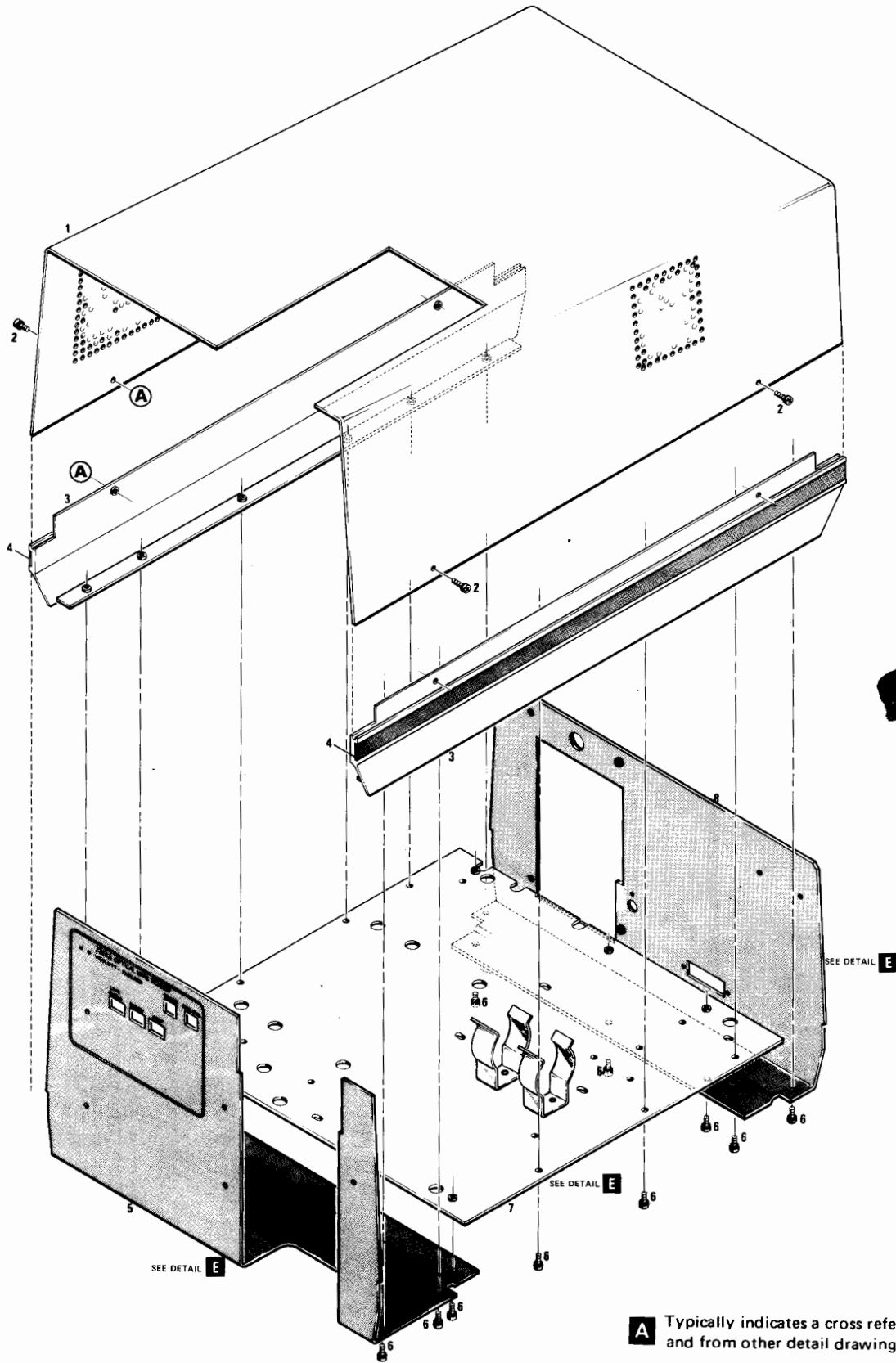
STANDARD CARD TRAVEL FOR 7261A



Ref Des	Item No.	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A1MP	1	07261-63020	1	SPOTWELD ASSY. COVER	28480	07261-63020
A2HD	2	2360-0113	2	SCREW,MACHINE; 6-32 UNC-2A .25 IN PAN	28480	2360-0113
A3MP	3	07261-60200	2	TRIM ASSY, CABINET (LH)	28480	07261-60200
A4MP	4	07261-00500	2	TRIM ASSY, CABINET (LH)	28480	07261-00500
A5MP	5	07261-00540	1	FRONT PANNEL PARALLEL	28480	07261-00540
A8MP	5	07261-00700	1	REAR PANEL	28480	07261-00700
A10HD	6	2360-0117	12	SCREW,MACHINE; 6-32 UNC-2A .312 IN PAN	28480	2360-0117
A11MP	7	07261-00600	1	BASE CABINET ASSY	28480	07261-00600

Figure 6-2. Case Assembly (Sheet 1 of 2)

DETAIL
A



A Typically indicates a cross reference to and from other detail drawings.

(A) Typically indicates a reference within the drawing itself.

NOTE: Gray lines for reference only.

Figure 6-2. Case Assembly (Sheet 2 of 2)

Ref Des	Item No.	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
B1MP	1	7120-0553	1	LABEL, BLANK	28480	7120-0553
B2MP	2	07260-20470	1	HANDLE, WEIGHT	28480	07260-20470
B3MP	3	4040-0515	1	CARD, COVER, WT	28480	4040-0515
B4MP	4	07261-20460	1	WEIGHT, CARD	28480	07261-20460
B5HD	5	2190-0105	4	WASHER; LCCCK; HELICAL; 6 .141 ID .239	28480	2190-0105
B6HD	6	2360-0205	2	SCREW; MACHINE; 6-32 UNC-2A .75 IN PAN	28480	2360-0205
B7MP	7	07261-00790	1	SPRING, WEIGHT	28480	07261-00790
B8HD	8	2200-0107	1	SCREW; MACHINE; 4-40 UNC-2A .375 IN PAN	28480	2200-0107
B9HD	9	2360-0115	2	SCREW; MACHINE; 6-32 312LG PAN HD POZI	28480	2360-0115
B10MP	10	1480-0065	2	PIN, DOWEL	28480	1480-0065
B11MP	11	07261-00560	1	CARD HOPPER, MARKED	28480	07261-00560
B13MP	13	1480-0065	2	PIN, DOWEL	28480	1480-0065
B14HD	14	2360-0185	1	SCREW; MACHINE; 6-32 UNC-2A .5 IN 62	28480	2360-0185
B15MP	15	07261-20620	1	WALL, 500 CARD HOPPER	28480	07261-20620
B17HD	17	2190-0108	2	WASHER; LCCCK; HELICAL; 4 .115 ID .226	28480	2190-0108
B18HD	18	2200-0147	2	SCREW; MACHINE; 4-40 UNC-2A .5 IN PAN	28480	2200-0147
B19MP	19	07261-20100	1	SPACER; GATE	28480	07261-20100
B20MP	20	1460-0529	1	SPRING, COMPRESSION, CYLINDER	28480	1460-0529
B21MP	21	07261-20120	1	SHCE-GATE	28480	07261-20120
B22MP	22	07261-20110	1	GATE	28480	07261-20110
B23MP	23	07261-00780	1	WASHER, GATE	28480	07261-00780
B24HD	24	2190-0017	5	WASHER; LCCCK; HELICAL; 8 .168 ID .31 OD	28480	2190-0017
B25HD	25	2510-0103	2	SCREW; MACHINE; 8-32 UNC-2A .375 IN PAN	28480	2510-0103
B26MP	26	07261-60080	1	LOWER HOPPER ASSY	28480	07261-60080
B27MP	27	07261-20390	8	STUD	28480	07261-20390
B28MP	28	07261-00060	1	DEFLECTOR, LC-HCP	28480	07261-00060
B29HD	29	2260-0001	2	NUT, HEX 4-40 .094 X .25, SST, PSVT	80120	
B30HD	30	2190-0891	2	WASHER; FLAT; 4 .125 ID .312 OD	28480	2190-0891
B31MP	31	1460-0542	1	SPRING; GRCONC	00000	080
B32HD	32	2360-0193	1	SCREW; MACHINE; 6-32 UNC-2A .25 IN PAN	28480	2360-0193
B33HD	33	0590-0718	2	NUT, SH MET 6-32 .109 X .312, SST, PSVT	08082	42-0632-03
B34HD	34	2200-0140	1	SCREW; MACHINE; 4-40 UNC-2A .25 IN 100	28480	2200-0140
B35HD	35	2200-0143	1	SCREW; MACHINE; 4-40 UNC-2A .375 IN PAN	28480	2200-0143
B36MP	36	07261-00460	1	COVER, CARD STOP	28480	07261-00460
B37MP	37	07261-20750	1	GUIDE	28480	07261-20750
B38MP	38	07261-20740	1	BLCCCK, SLIDER	28480	07261-20740
B39MP	39	07261-40050	1	SUPPCRT, CARD STGP	28480	07261-40050
B40MP	40	1460-0593	1	WIRE FORM	28480	1460-0593
B41MP	41	1410-0300	2	BALL; BEARING TYPE STL, 0.125" DIA	00000	080
B42MP	42	1460-0531	2	SPRING, COMPRESSION, CYLINDER	28480	1460-0531
B43HD	43	3030-0001	2	SCREW; SET; 8-32 UNC-3A .188 IN	28480	3030-0001
B44HD	44	0520-0127	2	SCREW; MACHINE; 2-56 UNC-2A .188 IN PAN	28480	0520-0127
B45HD	45	2190-0103	1	WASHER; LCCCK; INT; 2 .089 ID .185 OD	78185	1702-00
B46MP	46	07261-00440	1	MOUNT, CARD STOP ASSY	28480	07261-00440
B47HD	47	0510-0005	1	RING, RETAINER, 250 DIA	28480	0510-0005
B48MP	48	07261-60410	2	PICK WL ASSY	28480	07261-60410
B49HD	49	0510-0015	2	RETAINER, RING, .125 DIA, CAD PLT STL	79136	5133-12-S-MD-R
B50HD	50	2200-0774	1	SCREW; MACHINE; 4-40 UNC-2A .437 IN	28480	2200-0774
B51MP	51	07261-40020	1	LEVER, ACTUATOR	28480	07261-40020
B52MP	52	07261-20730	1	PIVOT, ACTUATOR	28480	07261-20730
B53HD	53	2190-0112	4	WASHER; LCCCK; HELICAL; 2 .088 ID .175	28480	2190-0112
B54MP	54	3101-1821	2	SWITCH, SENSITIVE, MINTR, SPDT SIM	91929	3115M705T
B55HD	55	0520-0131	1	SCREW; MACHINE; 2-56 UNC-2A .438 IN PAN	28480	0520-0131
B56MP	56	07261-00180	2	LINK, SOLENOID	28480	07261-00180
B57MP	57	3101-1821	1	SWITCH, SENSITIVE, MINTR, SPDT SIM	91929	3115M705T
B58HD	58	0520-0133	1	SCREW; MACHINE; 2-56 UNC-2A .5 IN PAN	28480	0520-0133
B59MP	59	07261-20840	1	STUD	28480	07261-20840
B60MP	60	1460-0544	1	SPRING, TCRSION, CYLINDER AND RING	28480	1460-0544
B61MP	61	07261-20410	12	PAD, PRESSURE	28480	07261-20410
B62MP	62	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B63HD	63	2190-0726	6	WASHER; SPRING; CURVED .256 ID .4 OD	28480	2190-0726
B64MP	64	07261-20390	1	STUD	28480	07261-20390
B65MP	65	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B66MP	66	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B67HD	67	2190-0726	1	WASHER; SPRING; CURVED .256 ID .4 OD	28480	2190-0726
B68MP	68	07261-20390	1	STUD	28480	07261-20390
B69MP	69	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B70MP	70	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B71HD	71	2190-0726	1	WASHER; SPRING; CURVED .256 ID .4 OD	28480	2190-0726
B72MP	72	07261-20390	1	STUD	28480	07261-20390
B73MP	73	07261-00070	1	EXTENDER, HOPPER	28480	07261-00070
B74MP	74	07261-20390	1	STUD	28480	07261-20390
B75MP	75	07261-60250	1	CARD DEFLECTOR ASSY	28480	07261-60250

Figure 6-3. Card Hopper (Sheet 1 of 3)

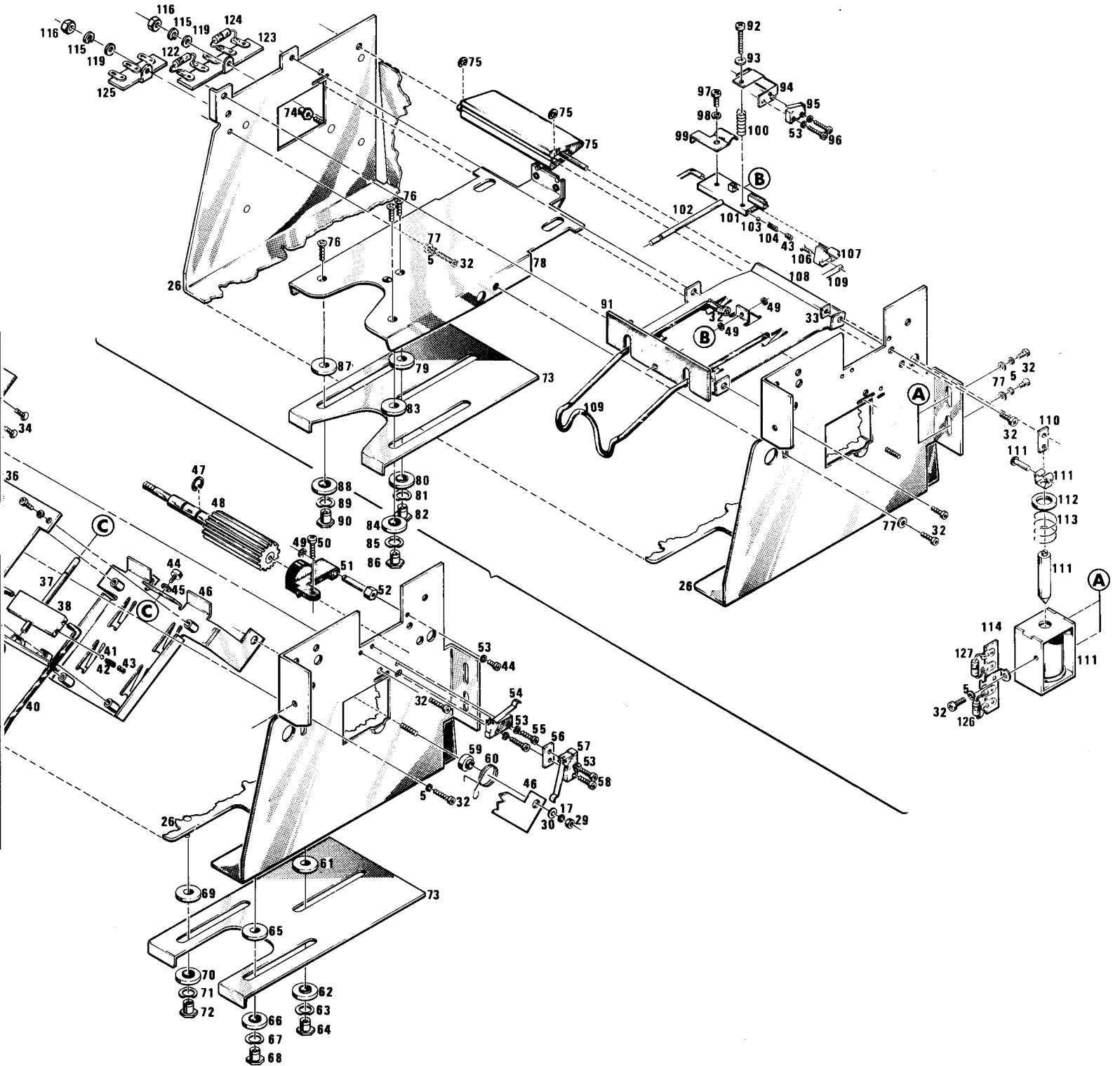
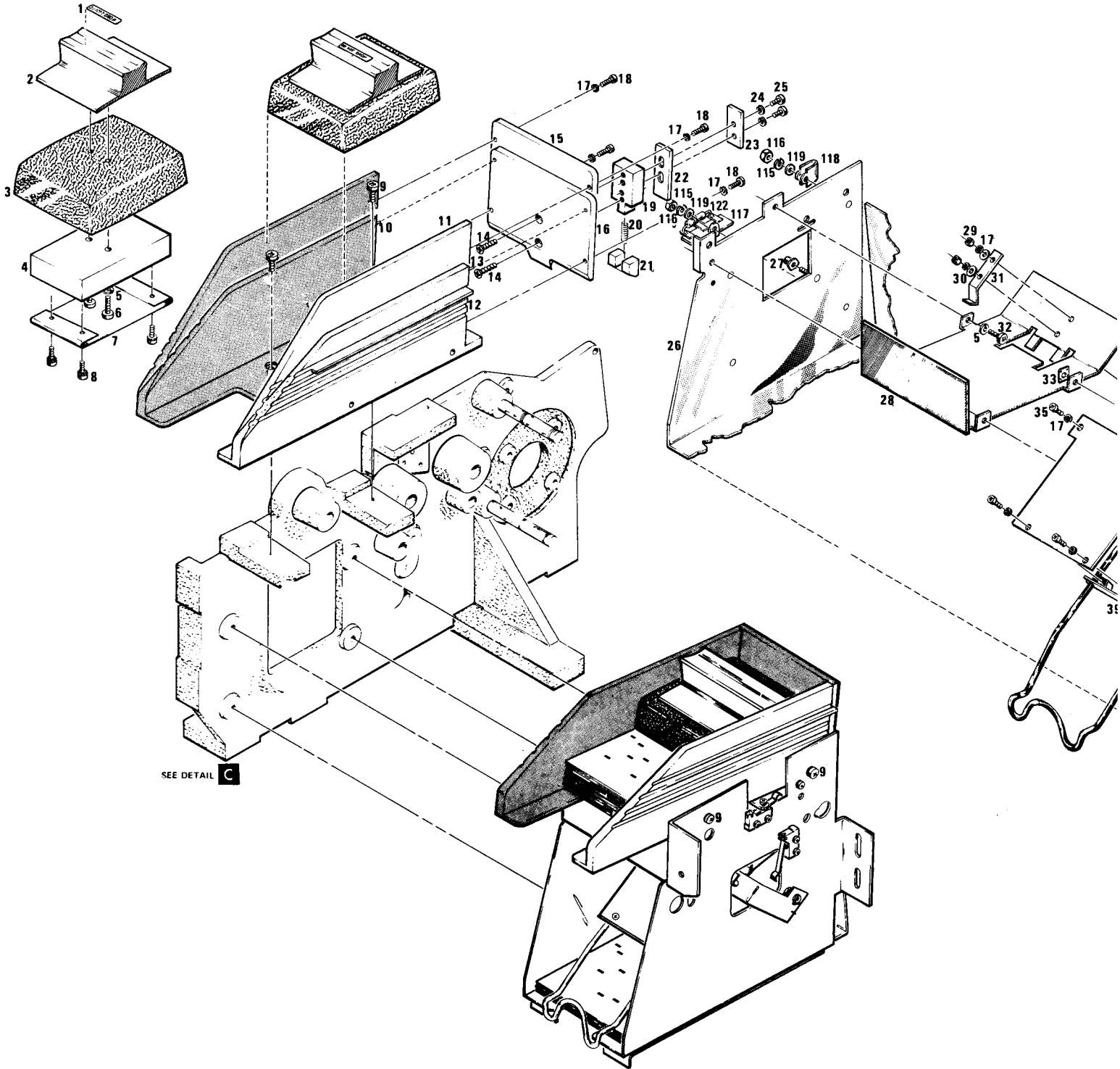


Figure 6-3. Card Hopper
(Sheet 3 of 3)

DETAIL

B



Ref Des	Item No.	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
B76HD	76	2200-0167	1	SCREW; MACHINE; 4-40 UNC-2A .375 IN 82	28480	2200-0167
B77HD	77	2190-0418	3	WASHER; FLAT; 6 .156 ID .312 OD	28480	2190-0418
B78MP	78	07261-60090	1	SHELF	28480	07261-60090
B79MP	79	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B80MP	80	J7261-20410	1	PAD, PRESSURE	28480	07261-20410
B81HD	81	2190-0726	1	WASHER; SPRING; CURVED .256 ID .4 OD	28480	2190-0726
B82MP	82	07261-20390	1	STUD	28480	07261-20390
B83MP	83	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B84MP	84	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B85HD	85	2190-0726	1	WASHER; SPRING; CURVED .256 ID .4 OD	28480	2190-0726
B86MP	86	07261-20390	1	STUD	28480	07261-20390
B87MP	87	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B88MP	88	07261-20410	1	PAD, PRESSURE	28480	07261-20410
B89HD	89	2190-0726	1	WASHER; SPRING; CURVED .256 ID .4 OD	28480	2190-0726
B90MP	90	07261-20390	1	STUD	28480	07261-20390
B91MP	91	07261-00770	1	TRAY, REJECT	28480	07261-00770
B92HD	92	2200-0149	1	SCREW, 4-40 x .62	28480	2200-0149
B93HD	93	2190-0418	1	WASHER, .156 ID	28480	2190-0418
B94MP	94	1600-0381	1	SWITCH, CRADLE	28480	1600-0381
B95MP	95	3101-1304	1	SWITCH, SENSITIVE, SUBMIN, SPDT FLAT	91929	1115M1
B96HD	96	0520-0129	1	SCREW; MACHINE; 2-56 UNC-2A .312 IN PAN	28480	0520-0129
B97HD	97	2200-0761	1	SCREW, 4-40 x .25	28480	2200-0761
B98HD	98	2190-0108	1	WASHER, .115 ID	28480	2190-0108
B99MP	99	07261-00730	1	CLAMP	28480	07261-00730
B100MP	100	1460-0540	1	SPRING, COMPRESSION, CYLINDER	83553	C0240-038-05005
B101MP	101	07261-20820	1	BLOCK, SWITCH	28480	07261-20820
B102MP	102	07261-20630	1	GUIDE, REJECT	28480	07261-20630
B103MP	103	1410-0300	1	BALL BEARING TYPE STL, 0.125" DIA	00000	080
B104MP	104	1460-0531	1	SPRING, COMPRESSION, CYLINDER	28480	1460-0531
B105HD	105	2190-0153	2	WASHER; FLAT; 0 .065 ID .16 OD	28480	2190-0153
B106HD	106	0520-0165	1	SCREW, 2-56 x .31	28480	0520-0165
B107MP	107	07261-20810	1	SWITCH ACTUATOR ASSY	28480	07261-20810
B108MP	108	07261-00120	1	COVER, REJECT	28480	07261-00120
B109MP	109	1460-0594	1	WIRE FORM	28480	1460-0594
B110MP	110	07261-00180	1	LINK, SOLENOID	28480	07261-00180
B111MP	111	0491-0069	1	SOLENOID; LINEAR; 24V	28480	0491-0069
B112MP	112	3050-0196	3	WASHER - .315 ID .657 OD <i>CURVED</i>	28480	3050-0196
B113MP	113	1460-0541	1	SPRING, COMPRESSION, CYLINDER	28480	1460-0541
B114MP	114	0360-0018	2	TERMINAL STRIP 5 - TERMINAL PHEN PHEN	28480	0360-0018
B115HD	115	2190-0105	4	WASHER - LK HLCL, No. 6, .141 ID, .239 OD	28480	2190-0105
B116HD	116	2420-0010	4	NUT - HEX DBL CHAM. 6-32 THD. .125 THK	73734	
BTB2	117	0360-0015	1	TERMINAL STRIP, 3 TERM PHEN	71785	332-14-03-011
B118HD	118	0510-0800	1	CLAMP - CA .5 IN. WD, ETH-CELL	79136	
B119HD	119	2190-0418	1	WASHER - FLT MTLC No. 6, .156 ID, .312 OD	28480	2190-0418
B120HD	120	0610-0001	1	NUT - NEX DBL CHAM, 2-56 THD, .062 THK	73734	
B121HD	121	2190-0153	1	WASHER - FLT MTLC No. 0, .065 ID, .160 OD	28480	2190-0153
BCR2	122	1901-0158	2	DIODE, 200 PIV .75	04713	SR 1358-3
BTB2	123	0360-0018	1	TERMINAL STRIP, 5 TERM PHEN (OPTION 002)	71785	332-14-05-035
BCR3	124	1901-0158	1	DIODE, 200 PIV .75 (OPTION 002)	04713	SR 1358-3
BTB3	125	0360-0015	1	TERMINAL STRIP, 3 TERM PHEN (OPTION 002)	71785	332-14-03-011
BCR4	126	1901-0158	1	DIODE, 200 PIV .75 (OPTION 002)	04713	SR 1358-3
BR2	127	0757-0159	1	RESISTOR, 1K, 1%, 5W TUBULAR (OPTION 002)	19701	MF7C-1

Figure 6-3. Card Hopper (Sheet 2 of 3)

Ref Des	Item No.	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
C1HD	1	0590-0364	1	NUT, HEX 10-22 .234 X .375, STL, CD PL	72962	22NM-02
C2HD	2	2190-0176	1	WASHER; FLAT .188 ID .312 OD	28480	2190-0176
C3MP	3	07261-60020	1	PICK WL PULL AY	28480	07261-60020
C4HD	4	3050-0470	1	WASHER; FLAT; 1/4 .281 ID .625 OD	28480	3050-0470
C5MP	5	1500-0360	1	DRIVE ROTOR EM CL: 0.250-IN ID; 1.13-IN	27780	FH1-1016-902
C6HD	6	2190-0857	1	WASHER; FLAT .260 ID .385 OD	28480	2190-0857
C7HD	7	07261-20850	1	KEY	28480	07261-20850
C8HD	8	2200-0009	1	SCREW, MACHINE: 4.40. 26mm. 312LG FIL HD PHL	28480	2200-0009
C9MP	9	1500-0363	2	DRIVE FIELD ELECTROMAGNETIC CLUTCH; PER	28480	1500-0363
C10MP	10	07261-20660	1	MOUNT, CLUTCH	28480	07261-20660
C11MP	11	1410-0015	2	BEARING:BALL	21335	F400F558115
C12HD	12	0510-0238	1	RETAINER, RING, .188 DIA, BE CU	97464	3100-18-BC
C13MP	13	07261-60060	3	IDLER ASSY	28480	07261-60060
C14MP	14	07261-60060	2	IDLER ASSY	28480	07261-60060
C15HD	15	0510-0005	1	RETAINER, RING, .25 DIA, CAD PLT STL	79136	5100-25-5-MD
C16HD	16	0510-0238	1	RETAINER, RING, .188 DIA, BE CU	97464	3100-18-BC
C17MP	17	07261-60050	1	IDLER ARM ASSEMBLY	28480	07261-60050
C18HD	18	3050-0592	1	WASHER; FLAT; METALLIC; 1/4 .265 ID 1	28480	3050-0592
C19MP	19	1460-0952	1	SPRING	00000	080
C20HD	20	3030-0001	1	SCREW;SET; 8-32 UNC-3A .188 IN	28480	3030-0001
C21MP	21	07261-20210	2	PULLEY:MOTOR 60H	28480	07261-20210
C22MP	22	1410-0041	4	BEARING:BALL 5/16 ID	28480	1410-0041
C23MP	23	07261-60060	1	IDLER ASSY	28480	07261-60060
C24MP	24	07261-20210	1	PULLEY:MOTOR 60H	28480	07261-20210
C25MP	25	1410-0041	1	BEARING:BALL 5/16 ID	28480	1410-0041
C26MP	26	07261-20640	1	PULLEY:MOTOR 50 H	28480	07261-20640
C27HD	27	2220-0009	1	SCREW;MACHINE; 4-40 UNC-2A .312 IN	28480	2220-0009
C28HD	28	2190-0108	1	WASHER; LOCK; HELICAL; 4 .115 ID .226	28480	2190-0108
C29HD	29	2260-0209	1	SCREW;MACHINE; 6-32 UNC-2A 1 IN PAN	28480	2360-0209
C30HD	30	2190-0105	1	WASHER HELICAL; 6 .141 ID .239 (OPTION 003)	28480	2190-0105
C31MP	31	07261-21106	1	PCB, ENCODER PHOTO	28480	07261-21106
C32MP	32	1990-0409	1	PHCTC-DEVICE; XSTR NPN-SI 20V 100mw PD	07263	FPT130A
C33MP	33	07261-20490	1	ENCODER HEAD	28480	07261-20490
C34MP	34	2140-0256	1	LAMP, INCAND, BULB T-1-3/4, 18V	08806	370
C35MP	35	07261-21105	1	PCB, ENCODER LAMP	28480	07261-21105
C36HD	36	3050-0082	1	WASHER; FLAT; 4 .116 ID .188 OD	76854	8942-3
C37HD	37	2200-0141	1	SCREW;MACHINE; 4-40 UNC-2A .312 IN PAN	28480	2200-0141
C38MP	38	07261-20380	1	RING, DISC CLAMP	28480	07261-20380
C39MP	39	3140-0517	1	DISC ENCODER	28480	3140-0517
C40MP	40	07261-20440	1	ENCODER PULLEY	28480	07261-20440
C41MP	41	1410-0041	1	BEARING:BALL 5/16 ID	28480	1410-0041
C42MP	42	07261-60040	1	ROLLER, PULLEY ASSY	28480	07261-60040
C43MP	43	1500-0361	1	DRIVE ROTOR EM CL: 0.313-IN ID; 1.13-IN	27780	FH1-1016-911
C44MP	44	1500-0363	1	DRIVE FIELD ELECTROMAGNETIC CLUTCH; PER	28480	1500-0363
C45MP	45	07261-20650	1	MOUNT, REJECT CLUTCH	28480	07261-20650
C46MP	46	1410-0041	1	BEARING:BALL 5/16 ID	28480	1410-0041
C47MP	47	07261-20830	1	PULLEY	28480	07261-20830
C48HD	48	2510-0119 2360-0119	1	SCREW;MACHINE; 6-32 302 IN-LG PAN-HD-POZI	28480	2510-0119 2360-0119
C49HD	49	2190-0017	1	WASHER; LCCCK; HELICAL; 8 .168 ID .31 OD	28480	2190-0017
C50MP	50	07261-20580	1	SPACER:SPRING	28480	07261-20580
C51MP	51	07261-00280	1	SPRING, UPPER TRUCK	28480	07261-00280
C52HD	52	2360-0119	1	SCREW;MACHINE; 6-32 438 IN LG PAN HD-POZI	28480	2360-0119
C53MP	53	07261-20560	1	FRK-TRUCK	28480	07261-20560
C54HD	54	3030-0009	1	SCREW;SET; 6-32 UNC-3A .375 IN	28480	3030-0009
C55MP	55	07261-20550	2	TRUCK, FLOATING	28480	07261-20550
C56MP	56	07261-20290	4	SPACER	28480	07261-20290
C57MP	57	07261-20290	1	SPACER	28480	07261-20290
C58MP	58	07261-20290	1	SPACER	28480	07261-20290
C59MP	59	07261-20290	1	SPACER	28480	07261-20290
C60MP	60	07261-60210	8	PINCH WL ASSY	28480	07261-60210
C61MP	61	07261-60210	1	PINCH WL ASSY	28480	07261-60210
C62MP	62	07261-60210	1	PINCH WL ASSY	28480	07261-60210
C63MP	63	07261-60210	1	PINCH WL ASSY	28480	07261-60210
C64MP	64	1500-0369	1	DRIVE, BELT 29.5 L .25 W	28480	1500-0369
C65MP	65	0510-0812	2	RETAINER, RING, .312 DIA, CAD PLT STL	28480	0510-0812
C66HD	66	3030-0208	1	SCREW;SOCKET HEAD CAP; 4-40 UNC-3A .25	28480	3030-0208
C67MP	67	07261-40040	4	RATCHET, CARD	28480	07261-40040
C68HD	68	0510-0083	1	RETAINER, RING, .25 DIA, CAD PLT STL	07953	5133-25-MF
C69MP	69	07261-60160	1	DRIVE WL ASSY, CL	28480	07261-60160
C70MP	70	07261-40040	1	RATCHET, CARD	28480	07261-40040
C71MP	71	07261-40040	2	RATCHET, CARD	28480	07261-40040
C72MP	72	07261-60140	1	DRIVE WL ASSY	28480	07261-60140
C73MP	73	07261-40040	1	RATCHET, CARD	28480	07261-40040
C74MP	74	07261-60140	1	DRIVE WL ASSY	28480	07261-60140
C75MP	75	1410-0015	1	BEARING:BALL	21335	F400F558115

Figure 6-4. Drive Rollers (Sheet 1 of 3)

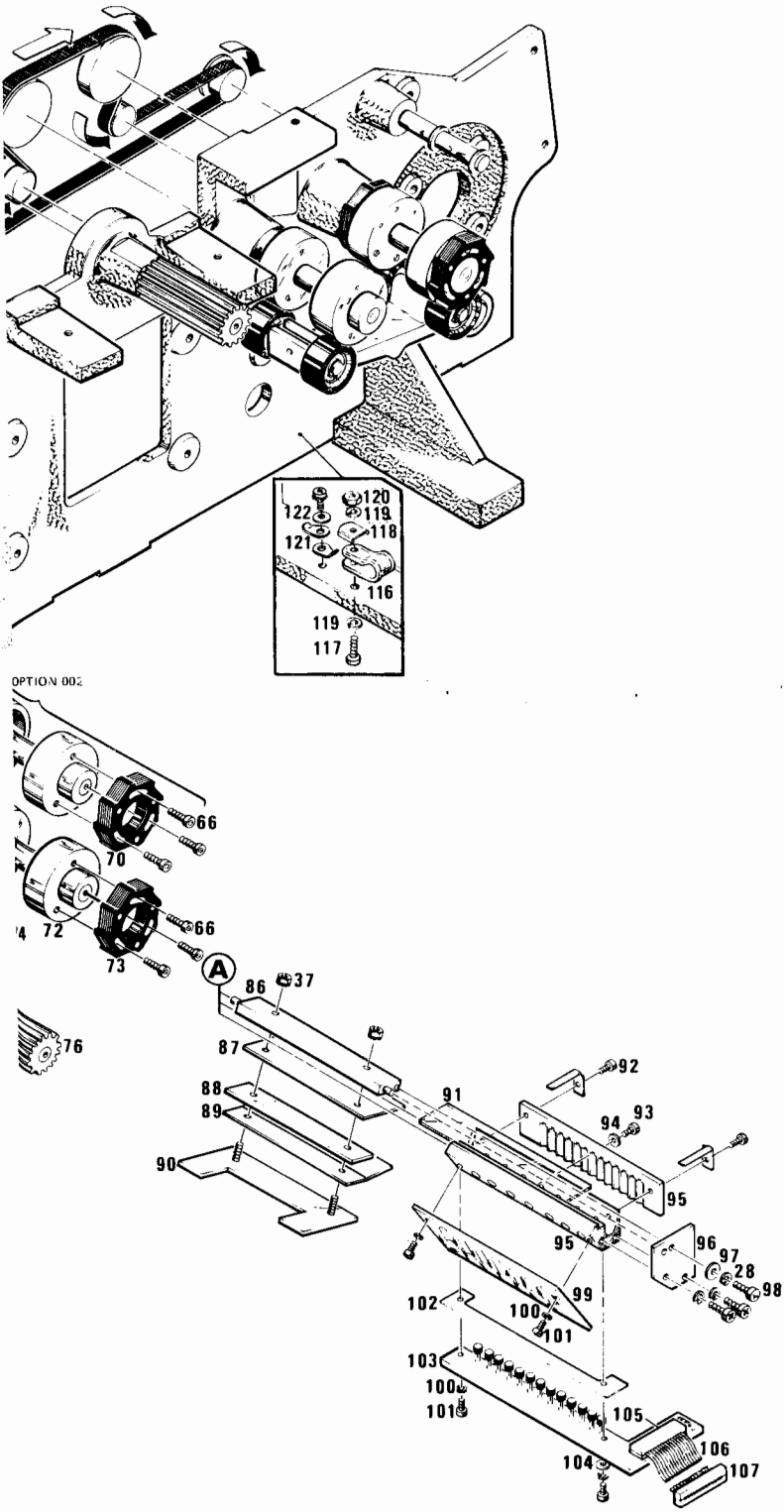
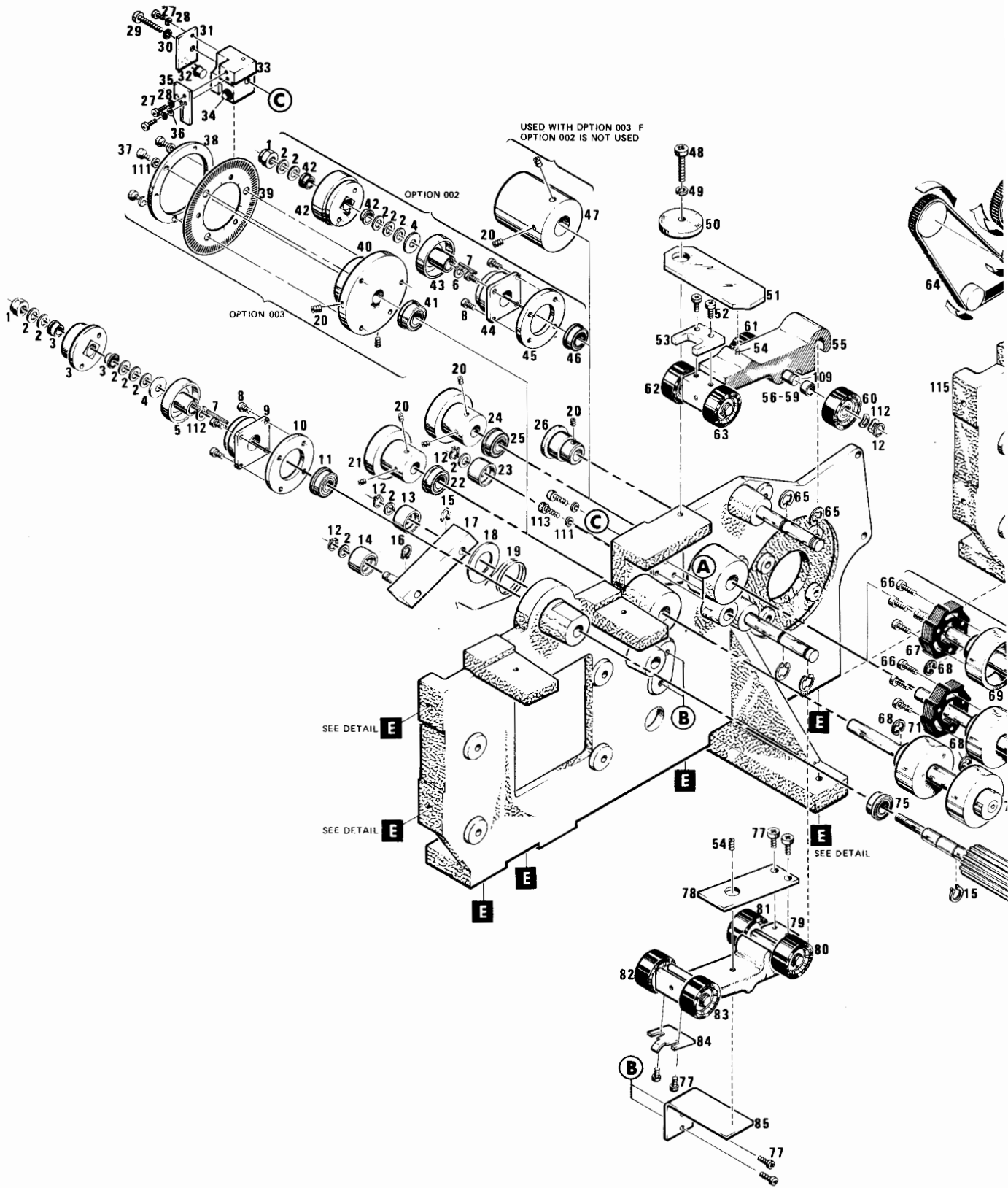


Figure 6-4. Drive Rollers
(Sheet 3 of 3)

DETAIL

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Ref Des	Item No.	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
C76MP	76	J7261-6041J		PICK WL ASSY	28480	07261-60410
C77HD	77	2360-0115	1	SCREW;MACH .312 LG PAN HD POZI	28480	2360-0115
C78MP	78	07261-00320	1	DEFLECTOR, LOWER	28480	07261-00320
C79MP	79	07261-20550		TRUCK, FLOATING	28480	07261-20550
C80MP	80	07261-60210		PINCH WL ASSY	28480	07261-60210
C81MP	81	07261-60210		PINCH WL ASSY	28480	07261-60210
C82MP	82	07261-60210		PINCH WL ASSY	28480	07261-60210
C83MP	83	07261-60210		PINCH WL ASSY	28480	07261-60210
C84MP	84	1600-0387	1	STAMP BRKT, TRUCK	28480	1600-0387
C85MP	85	07261-00480	1	SPRING, LOWER TRUCK	28480	07261-00480
C86MP	86	07261-20710	1	BAR, PRESSURE PLATE ASSY	28480	07261-20710
C87MP	87	07261-00360	1	PRESSURE PLATE, BOT.	28480	07261-00360
C88MP	88	07261-00380	1	SPACER, PRESSURE PLATE	28480	07261-00380
C89MP	89	07261-00351	1	PRESSURE PLATE, TOP	28480	07261-00351
C90MP	90	07261-00370	1	BRACKET, PRESSURE PLATE	28480	07261-00370
C91MP	91	4330-0604	1	GLASS SHEET	28480	4330-0604
C92HD	92	3030-0044	1	SCREW; SOCKET HEAD CAP; 2-56 UNC-3A .375	28480	3030-0044
C93HD	93	0516-0010	1	SCREW; MACHINE; 0-80 UNF-2A .375 IN PAN	28480	0516-0010
C94HD	94	2190-0153		WASHER; FLAT; 0 .065 ID .16 OD	28480	2190-0153
C95MP	95	07261-20700	1	HEAD ASSY MACHINED	28480	07261-20700
C96MP	96	07261-00390	1	PLATE, END	28480	07261-00390
C97HD	97	2190-0891		WASHER; FLAT; 4 .125 ID .312 OD	28480	2190-0891
C98HD	98	2200-0139	1	SCREW; MACHINE; 4-40 UNC-2A .25 IN PAN	28480	2200-0139
C99MP	99	07261-60180	1	READ LAMP, PCA	28480	07261-60180
C100HD	100	2190-0112		WASHER; LOCK; HELICAL; 2 .088 ID .175	28480	2190-0112
C101HD	101	0520-0128	2	SCREW; MACHINE; 2-56 UNC-2A .25 IN PAN	28480	0520-0128
C102MP	102	0340-0504	1	INSULATION	28480	0340-0504
C103MP	103	07261-20190	1	PCB, CIRCUIT BOARD	28480	07261-20190
C104MP	104	2190-0769	1	WASHER; FLAT; 2 .091 ID .219 OD	28480	2190-0769
C105MP	105	0360-1786	1	TERMINAL, CRP, TERMINATION PC BD TC	75037	3422-0000
C106MP	106	8120-1893	1	CABLE, UNSHLD 20-COND 28AWG	75037	3365/20
C107MP	107	1251-3118	1	CONNECTOR, 20-COND, FEM, RECTANGULAR	75037	3421-0000
C108MP	108	07261-60110	1	CASTING, MACHINED	28480	07261-60110
C109HD	109	07261-20300	1	PINCH WHEEL SHAFT	28480	07261-20300
C110HD	110	3050-0161	16	WASHER - SPR WAVY No. 1/4 .265 ID, .367 OD	28480	3050-0161
C111HD	111	2190-0108	5	WASHER: LK HLCL No. 4, .115 ID, .226 OD	28480	2190-0108
C112HD	112	3050-0017	1	WASHER: FLT MTCL, .26 ID, .385 OD	28480	3050-0017
C113HD	113	3030-0209	2	SCREW: SKT HD CAP 4-40, 5 IN LG	28480	3030-0209
C114HD	114	3050-0431	1	WASHER: FLT .323 ID, .438 OD	28480	3050-0431
C115MP	115	07261-60110	1	CASTING ASSEMBLY	28480	07261-60110
C116MP	116	0510-0787	1	CLAMP - CA .5 IN. WD ETH-CELL	79136	
C117HD	117	2510-0059	1	SCREW: MACH. 8-32, 1.125 LG PAN HD POZI	28480	2510-0059
C118HD	118	2190-0453	1	WASHER - RECT. .191 ID, .516 In. WD, .578	28480	2190-0453
C119HD	119	2190-0087	2	WASHER - LK, HLCL No. 8, .168 ID, .296 OD	28480	2190-0087
C120HD	120	2580-0004	1	NUT: HEX DBL CHAM 8-32 THD .125 THK	78189	
C121HD	121	0360-0365	1	TERMINAL, LUG SLDR 6 SCR .143/.093 ID	78189	2104-06-00
C122HD	122	2190-0418	1	WASHER - FL MTCL No. 6 .156 ID, .312 OD	28480	2190-0418

Figure 6-4. Drive Rollers (Sheet 2 of 3)

Ref Des	Item No.	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
D1HD	1	2360-0201	2	SCREW;MACHINE; 6-32 UNC-2A .5 IN PAN	28480	2360-0201
D2HD	2	2190-0105		WASHER; LOCK; HELICAL; 6 .141 ID .239	28480	2190-0105
D3HD	3	3050-0399		WASHER, FL-143 ID .375 IN.-OD.	28480	3050-0399
D4MP	4	07261-60170	1	ARM ASSY;CARD RET	28480	07261-60170
D5HD	5	2360-0119	2	SCREW;MACHINE; 6-32 UNC-2A .438 IN PAN	28480	2360-0119
D6MP	6	1410-0262	1	CLAMP, CBL	28480	1410-0262
D7MP	7	07261-20020	1	PIVOT, CARAFORM	28480	07261-20020
D8MP	8	07261-60010	2	END PLATE ASSY	28480	07261-60010
D9HD	9	3030-0015	1	SCREW; SOCKET HEAD CAP; 8-32 UNC-3A .75	28480	3030-0015
D10HD	10	2190-0017		WASHER; LOCK; HELICAL; 8 .168 ID .31 OD	28480	2190-0017
D11HD	11	2360-0203	2	SCREW;MACHINE; 6-32 UNC-2A .625 IN PAN	28480	2360-0203
D12HD	12	2200-0147		SCREW;MACHINE; 4-40 UNC-2A .5 IN PAN	28480	2200-0147
D13MP	13	7120-3887	1	LABEL; INFO; *CAUTION DISCONNECT POWER	28480	7120-3887
D14MP	14	07261-00020	1	CARD RETURN, OUTER	28480	07261-00020
D15MP	15	07261-00030	1	CARD RETURN, INNER	28480	07261-00030
D16HD	16	2190-0004	1	WASHER; LOCK; INT; 4 .115 ID .27 OD	78189	SF 1904-00
D17HD	17	2260-0001		NUT, HEX 4-40 .094 X .25, SST, PSVT	80120	
D18MP	18	07261-60010		END PLATE ASSY	28480	07261-60010
D19MP	19	07261-20530	1	AXLE	28480	07261-20530
D20MP	20	07261-20540	1	BUSHING, ARM	28480	07261-20540
D21HD	21	2190-0112		WASHER; LOCK; HELICAL; 2 .088 ID .175	28480	2190-0112
D22HD	22	0520-0127		SCREW;MACHINE; 2-56 UNC-2A .188 IN PAN	28480	0520-0127
D23HD	23	0510-0015		RETAINER, RING, .125 DIA, CAD PLT STL	79136	5133-12-5-MD-R
D24MP	24	3140-0510	1	MOTOR, ELEC, INDUCTION 115VAC 1670 RPM	28480	3140-0510
D25MP	24	3140-0509	1	MOTOR, ELEC, INDUCTION 230VAC 1670 RPM	28480	3140-0509
D26MP	25	07261-60300	1	CABLE ASSEMBLY	28480	07261-60300
D27MP	26	1460-0528	1	SPRING, EXTENSION, LOOP EACH END	28480	1460-0528
D28HC	27	7120-3887	1	PLATE IDENTIFICATION		

Figure 6-5. Return Bail (Sheet 1 of 2)

DETAIL
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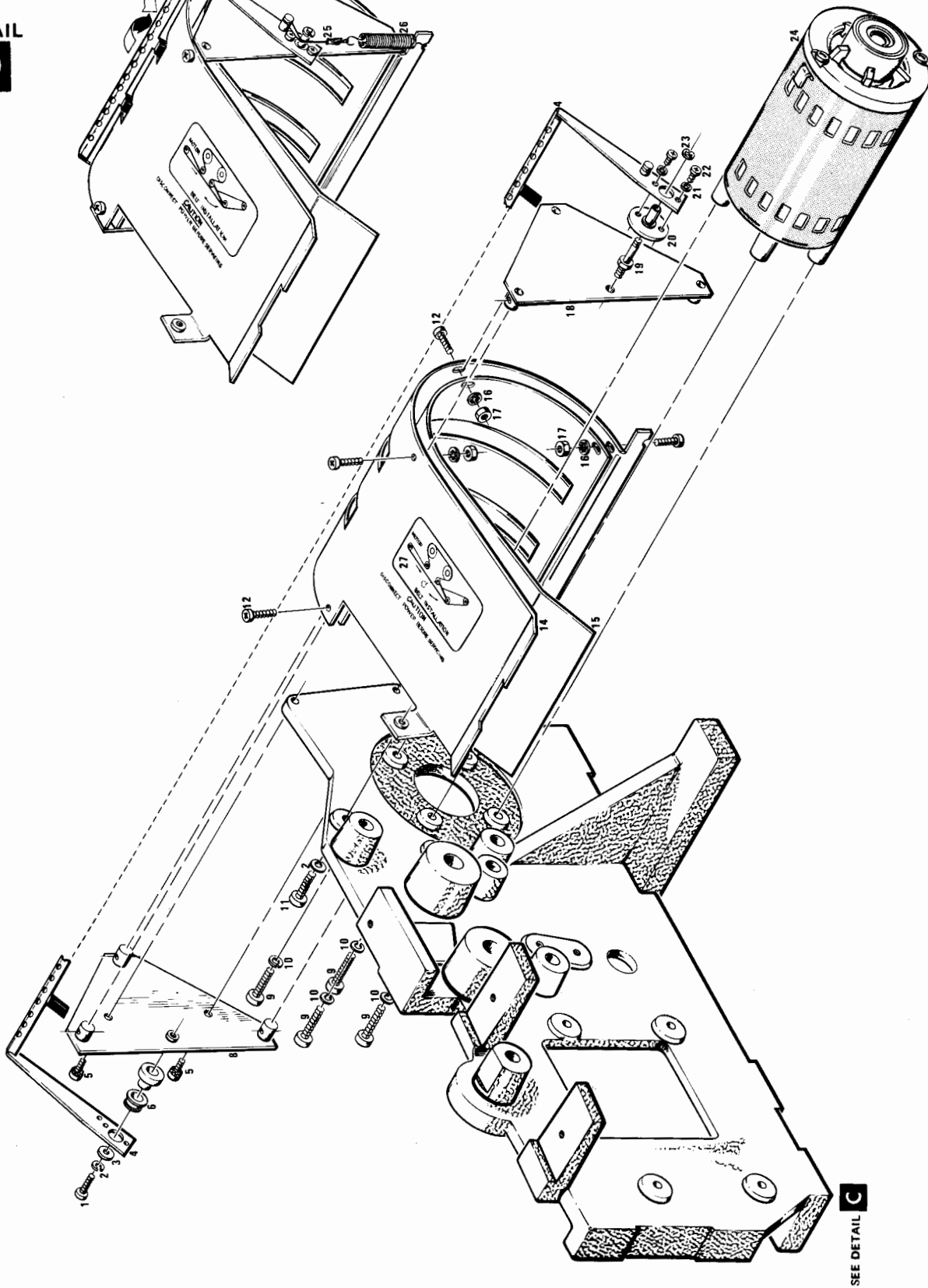


Figure 6-5. Return Bail (Sheet 2 of 2)

Ref Des	Item No.	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
E1HD	1	268J-1128	1	SCREW;MACHINE; 1J-32 UNF-2A .25 IN PAN	2848C	2680-0128
E2HD	2	2190-0011	1	WASHER; LCKK; INT; 10 .195 ID .381 OD	78189	1910-00
E3MP	3	07261-61060	1	28V RELTIFIER, PCA	2848C	07261-61080
E4MP	4	0160-2317	1	CAPACITOR-FXC; 3600UF+75-10% 40VDC AL	56289	360362G040AB2A
E5MP	5	09862-00050	1	CLAMP, CAPACITOR	28480	09862-00050
E6HD	6	2190-0087	1	WASHER; LOCK; HELICAL; 8 .168 ID .296 OD	28480	2190-0087
E7HD	7	2510-0067	1	SCREW;MACHINE; 8-32 UNC-2A 2 IN PAN	28480	2510-0067
E8MP	8	07261-00640	1	CAPACITOR SUPPORT ASSY	28480	07261-00640
E9MP	9	07261-61070	1	LINE INPCT, PCA	2848C	07261-61070
E10HD	10	2190-0105	1	WASHER; LCKK; HELICAL; 6 .141 ID .239	28480	2190-0105
E11HD	11	2360-0203	1	SCREW;MACHINE; 6-32 UNC-2A .625 IN PAN	28480	2360-0203
E12MP	12	0510-0788	4	CLAMP, CABLE, .25 DIA .5 W .892 L ETH	28480	0510-0788
E13MP	13	0510-0793	2	CLAMP, CABLE, .375 DIA .5 W 1.026 L ETH	28480	0510-0793
E14HD	14	2190-0418	1	WASHER; FLAT; 6 .156 ID .312 OD	28480	2190-0418
E15HD	15	2360-0205	1	SCREW;MACHINE; 6-32 UNC-2A .75 IN PAN	28480	2360-0205
E16HD	16	2360-0113	1	SCREW;MACHINE; 6-32 UNC-2A .25 IN PAN	28480	2360-0113
E17MP	17	7120-3070	1	LABEL, WARNING	28480	7120-3070
E18MP	18	07261-00650	1	COVER, INTERNAL	28480	07261-00650
E19HD	19	0610-0001	1	NUT, HEX 2-56 .362 X .188, STL, CD PL	28480	0610-0001
E20HD	20	2190-0112	1	WASHER; LCKK; HELICAL; 2 .088 ID .175	2848C	2190-0112
E21MP	21			NOT USED		
E22MP	22	07261-60190	1	SWITCH ASSY (STD) (3 SWITCHES)	28480	07261-60190
E23MP	22			NOT USED		
E25MP	23	07261-60310	1	SWITCH SUPPORT ASSY	28480	07261-60310
E26HD	24	352J-1128	1	SCREW;MACHINE; 2-56 UNC-2A .25 IN PAN	2848C	0520-0128
E27MP	25	1450-0496	2	LIGHT, IND, LAMPHOLDER	31918	389-1
E28MP	26	1450-0496	1	LIGHT, IND, LAMPHOLDER	31918	389-1
E29MP	27	1450-0482	1	LIGHT, IND, LENS CAP, GRN TL LENS	31918	388.3
E30MP	28	1450-0485	1	LIGHT, IND, LENS CAP, YEL TL LENS	31918	388.3
E31HD	29	3030-0492	1	SCREW;SOCKET HEAD CAP; 6-32 UNC-3A .375	2848C	3030-0492
E32HD	30	2360-0115	1	SCREW;MACHINE; 6-32 UNC-2A .312 IN PAN	28480	2360-0115
E33HD	31	2510-0109	1	SCREW;MACHINE; 8-32 UNC-2A .625 IN PAN	2848C	2510-0109
E34HD	32	2360-0117	1	SCREW;MACHINE; 6-32 UNC-2A .375 IN PAN	28480	2360-0117
E35MP	33	0510-0076	1	NUT, SH MET 6-32 .63, STL, CD PL	78553	C8599-632-248
E36MP	34	07261-60230	1	FRONT GUIDE ASSY, CIRCUIT BOARD	28480	07261-60230
E37MP	35	051J-3636	2	CLAMP, CABLE, .125 DIA .5 W .732 L ETH	2848C	0510-6800
E38MP	36	07261-20350	1	ROD, SUPPORT	28480	07261-20350
E39MP	37	9220-2011	1	FOAM, PAD	28480	9220-2011
E40MP	38	07261-00740	1	SUPPORT, CIRCUIT BOARD	28480	07261-00740
E41HD	39	2510-0137	1	SCREW;MACHINE; 8-32 2.75 IN PAN HD POZI	28480	2510-0137
E42HD	40	2190-0087	1	WASHER; LOCK; HELICAL; 8 .168 ID .296 OD	28480	2190-0087
E43HD	41	3050-0139	1	WASHER-FL MTLG No. 8-32 .172 ID .375 OD	28480	3050-0139
E44MP	42	0510-0793	1	CLAMP, CABLE, .375 DIA .5 W 1.026 L ETH	28480	0510-0793
E45MP	43	9100-1584	1	TRANSFORMER	28480	9100-1584
E46MP	44	0510-0790	1	CLAMP-CA .312 IN, WD. STL	28480	0510-0790
E47HD	45	2360-0119	1	SCREW;MACHINE; 6-32 UNC-2A .438 IN PAN	28480	2360-0119
E48MP	46	07261-61050	1	PCB PCWER SUPPLY	28480	07261-61050
E49MP	47	0510-0800	1	CLAMP, CABLE, .125 DIA .5 W .732 L ETH	28480	0510-0800
E50HD	48	07261-61100	1	ENCODER LOGIC, PCA	28480	07261-61100
E51HD	49	2190-0107	1	WASHER; FLAT; 6 .141 ID .312 OD	32159	7856
E52MP	50	07261-60230	1	SIDE CHASSIS ASSY	28480	07261-60230
E53MP	51	07261-60240	1	REAR GUIDE ASSY CIRCUIT BOARD	28480	07261-60240
E54MP	52	0510-0787	3	CLAMP, CABLE, .312 DIA .5 W .964 L ETH	16174	
E55MP	53	07261-61060	1	PARALLEL PCTHER BOARD, PCA	28480	07261-61060
E56MP	54	2190-0452	2	WASHER:RECTANGULAR #6	95987	D6-140
E57MP	55	0510-0787	1	CLAMP, CABLE, .312 DIA .5 W .964 L ETH	16174	
E58MP	56	0360-0365	2	TERMINAL, SLDR LUG, 6 SCR, .143/.093 ID	78189	2104-06-00
E59MP	57	2190-0452	1	WASHER:RECTANGULAR #6	95987	D6-140
E60MP	58	0510-0787	1	CLAMP, CABLE, .312 DIA .5 W .964 L ETH	16174	
E61HD	59	2420-0010	1	NUT, HEX 6-32 .125 X .25, SST, PSVT	73734	
E62MP	60	1906-0043	1	DIODE, MULT, FULL WAVE BRIDGE RECTIFIER	28480	1906-0043
E63MP	61	07261-60220	1	BOTTOM CHASSIS ASSY	28480	07261-60220
E64HD	62	0590-0718	1	NUT, SH MET 6-32 .109 X .312, SST, PSVT	08082	42-0632-03
E65MP	63	1400-0513	1	BRACKET, MTG, CAP, 1.168 DIA .03 THK .75	28480	1400-0513
E66MP	64	0160-0670	1	C:FXD PAPER 7.5 UF 10% 330 VACW	56285	500P9046
E67MP	65	0340-0517	1	INSULATOR; CAP; TERMINAL	2848C	0340-0517
E70HD	68	0360-0037	1	TERMINAL, SLDR LUG, 6 SCR, .141/.078 ID	79963	75-H-.141
E71MP	69	0960-0349	1	BELL:2900 MHZ	28480	0960-0349
E72HD	70	0360-0270	1	TERMINAL, SLDR LUG, 1J SCR, .195/.093	79963	807
E73MP	71	0180-2421	1	CAPACITOR-FXC; 15000UF+75-10% 20VDC AL	56285	320153G0208C68
E74MP	72	07261-00001	1	BRACKET, BELL	28480	07261-00001
E75MP	73	0510-0788	1	CLAMP, CABLE, .25 DIA .5 W .892 L ETH	28480	0510-0788

Figure 6-6. Electronics Assembly (Sheet 1 of 3)

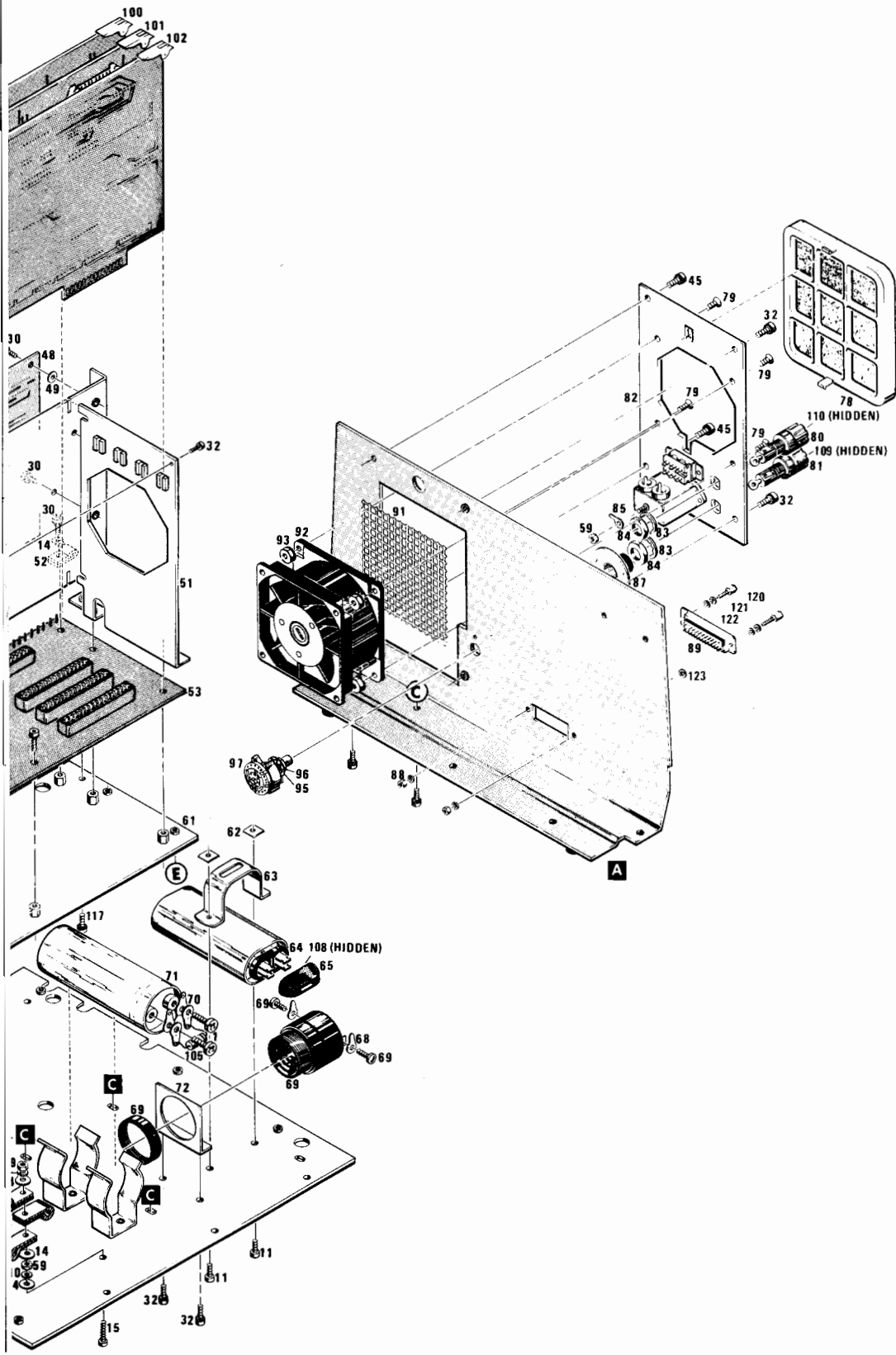
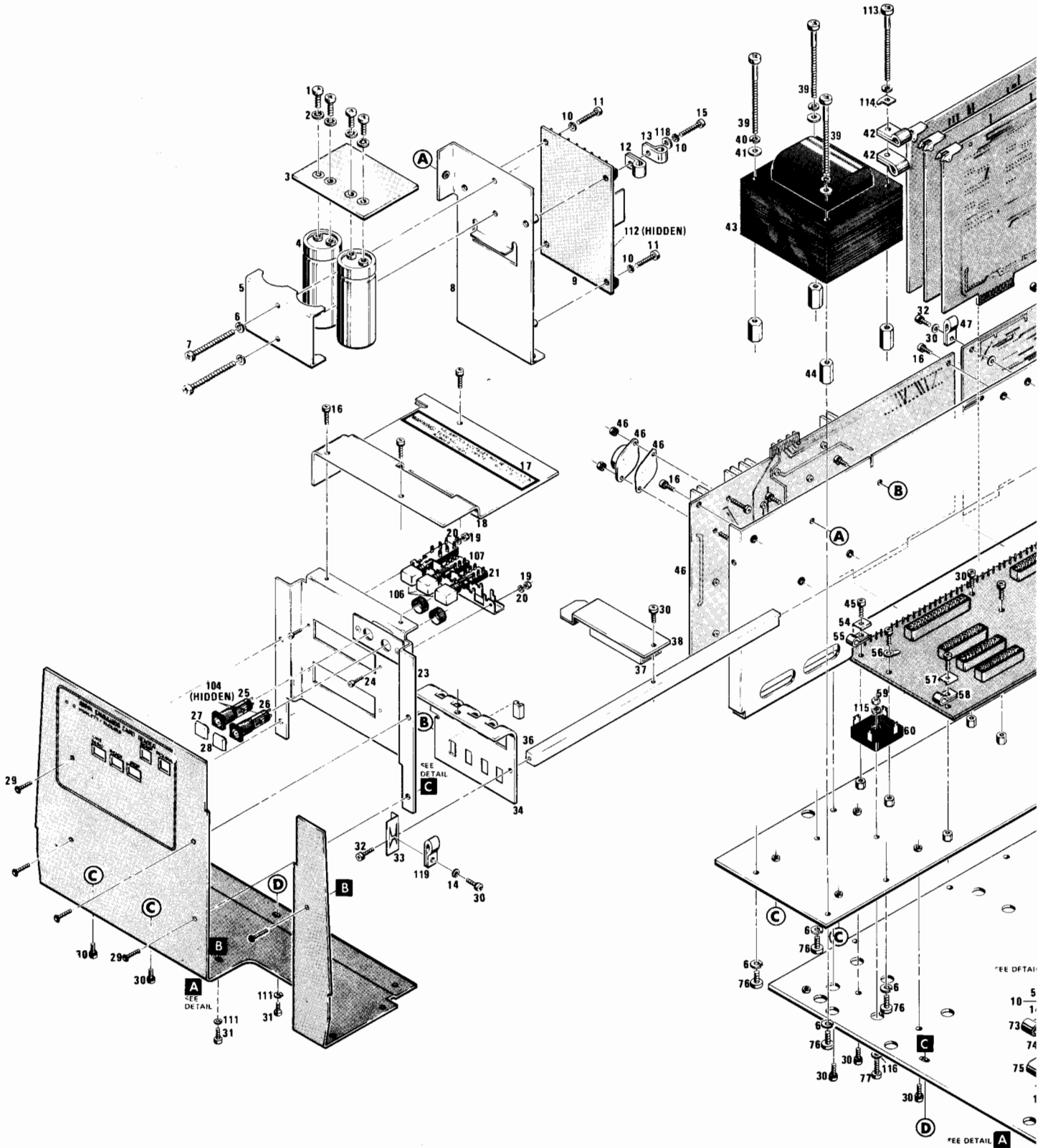


Figure 6-6. Electronics Assembly
(Sheet 3 of 3)

DETAIL

E



Model 7261A

Ref Des	Item No.	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
E76MP	74	0510-0788		CLAMP, CABLE, .25 DIA .5 W .892 L ETH	28480	0510-0788
E77MP	75	0510-0788		CLAMP, CABLE, .25 DIA .5 W .892 L ETH	28480	0510-0788
E78HD	76	2510-0103		SCREW/MACHINE: 6-32 UNC-2A .375 IN PAN	28480	2510-0103
E79HD	77	2360-0203		SCREW; MACHINE: 6-32 625LG IN PAN HD POZI	28480	2360-0203
E80MP	78	07261-60450	1	FILTER	28480	07261-60450
E81HD	79	2360-0185	1	SCREW; MACHINE: 6-32 5LG 82 DEG FL HD POZI	28480	2360-0185
E82MP	80	1400-0084	2	FUSEHOLDER; EXTR POST; FAY CAP; 15A	28480	1400-0084
E83MP	81	1400-0084		FUSEHOLDER; EXTR POST; FAY CAP; 15A	28480	1400-0084
E84MP	82	07261-60260	1	REAR 110 AC PL	28480	07261-60260
E85MP	82	07261-60270	1	REAR 220 AC PANEL	28480	07261-60270
E86HD	83	2190-0164	1	WASHER; LOCK; INT .472 ID .607 OD	28480	2190-0164
E87HD	84	2190-0038	1	WASHER; LOCK; HELICAL; 5/16 .319 ID	28480	2190-0038
E88HD	85	0100-0005		TERMINAL, SLDR LUG, 6 SCR, .143/.053 ID	78185	2104-06-00
E89MP	86	0.70-1207	2	KNEE, BASE, FNU, SKT, .5 IN, DRP, CRP	28480	0370-1207
E90MP	86	0.50-0130	1	LOCAL KNEE	28480	0350-0130
E91MP	87	0370-1207		DECAL-KNOB SKIRT 2 POS (STD)	28480	0370-1207
E92MP	87	0350-0128	1	DECAL:KNEE 2 POSITION	28480	0350-0128
E93MP	87	0350-0129	1	DECAL: KNOB SKIRT 4 POS (OPTION 003)	28480	0350-0129
E95MP	89	1251-0085	2	CONNECTOR, 36 PIN	71785	08M-255
E96MP	90			NOT USED		
E97MP	91	07261-00680	1	SCREEN: PAN	28480	07261-00680
E98MP	92	3160-0088	1	FAN, TMAX, 35 CFM 115V 57/60 HZ	28480	3160-0088
E99MP	93	2420-0001	1	NUT, HEX 6-32 .109 X .312, STL, NI PL	83385	
E100MP	94	3100-3222	2	SWITCH: ROTARY 7	28480	3100-3222
E101HD	95	2190-0163	1	WASHER; LOCK; INT .58 ID .567 OD	78185	1220-05
E102HD	96	2950-0043	1	NUT, HEX 3/8-32 .094 X .438, BRS, NI PL	73743	2X 28200
E103MP	97	3100-3222		SWITCH, ROTARY 7	28480	3100-3222
E104MP	97	3100-3221	1	SWITCH: ROTARY	28480	3100-3221
E105MP	98	3101-1235	2	SWITCH; SL; DPDT NS; 3A 125VAC	00010	5W 322
E106MP	99	3101-1235		SWITCH; SL; DPDT NS; 3A 125VAC	00010	5W 322
E108MP	100	07261-61030	1	PARALLEL INPUT/OUTPUT, PCA	28480	07261-61030
E109MP	101			NOT USED		
E110MP	102	07261-61010	1	REAR FEED AMPLIFIER, PCA	28480	07261-61010
E111MP	104	2140-0836	2	LAMP, INCD 90V		
E112MP	105	0757-0159	1	RESISTOR, 1K, 1% .5W TUBULAR (R1)		
E113MP	106	3101-1629	3	SW-BUTTON, WHT PLASTIC MLD		
E114MP	107	07261-60190	1	SWITCH ASSEMBLY		
E115HD	108	1251-2256	3	LUG, CRIMP		
E116MP	109	2110-0365	1	FUSE: 4 AMP SB		
E117MP	110	2110-0303	1	FUSE: 2 AMP SB		
E118HD	111	2190-0087	2	WASHER-LK HLCL No. 8 .168 ID, .296 OD		
E119HD	112	0362-0124	3	TERMINAL-CRP SPD FK FLG 6-SCR 22-18 AWG		
E120HD	113	2510-0137	1	SCREW-MACH 8-32 2.75 IN. LG PAN HD POZI		
E120HD	114	2190-0453	1	WASHER-RECT. .191 ID, .516 WD, .578		
E120HD	115	2190-0007	1	WASHER-LK INTL T No. 6, .141 ID, .288 OD		
E121HD	116	2190-0105	1	WASHER-LK HLCL No. 6, .141 ID, .239 OD		
E122HD	117	2360-0119	1	SCREW-MACH 6-32, 438 LG PAN HD POZI		
E123HD	118	3050-0399	1	WASHER-FL MTLCL No. 6, .143 ID, .375 OD		
E124HD	119	0510-0791	1	CLAMP-CA .5 IN. WD ETH-CELL		
E125HD	120	0520-0133	2	SCREW-MACH 2-56, .5 IN. LG PAN HD POZI		
E126HD	121	3050-0098	2	WASHER-FL MTLCL No. 2, .094 ID, .25 OD		
E127HD	122	2190-0427	2	WASHER-LK HLCL No. 2, .088 ID, .165 OD		
E128HD	123	0610-0001	2	NUT-HEX DBL CHAM 2-56 THD .062 THK		

Figure 6-6. Electronics Assembly (Sheet 2 of 3)

Table 6-3. Code List of Manufacturers

MFR NO.	MANUFACTURER NAME	ADDRESS	ZIP CODE
01121	Allen Bradley Company	Milwaukee, Wisc.	53204
01295	Texas Instruments, Inc., Semiconductor Components Div.	Dallas, Texas	75231
02735	RCA Solid State & Receiving Tube Division	Somerville, N.J.	08876
03888	Pyrofilm Corporation	Whippany, N.J.	07981
04713	Motorola Semiconductor Products, Inc.	Phoenix, Ariz.	85008
07263	Fairchild Camera & Inst. Corp., Semiconductor Div.	Mountain View, Calif.	94040
16299	Corning Glass Works, Electronic Components Div.	Raleigh, N.C.	27604
20940	Micro-Ohm Corporation	El Monte, Calif.	91731
24226	Gowanda Electronics Corporation	Gowanda, N.Y.	14070
27014	National Semi-conductor Corporation	Santa Clara, Calif.	95051
28480	Hewlett-Packard Company, Corporate Hq.	Your Nearest HP Office	
30983	Electra/Midland Corp., Potentiometer Div.	San Diego, Calif.	92121
34649	Intel Corporation	Mountain View, Calif.	94040
56289	Sprague Electric Company	N. Adams, Mass.	01247
71400	Bussmann Mfg., Div McGraw-Edison Company	St. Louis, Mo.	63017
71707	Coto Coil Company, Inc.	Providence, R.I.	02905
71785	Cinch Mfg. Company, Div. TRW Inc.	Elk Grove Village, Ill.	
72136	Electro Motive Mfg. Co., Inc.	Willimantic, Conn.	06226
73138	Beckman Inst. Inc., Helipot Div.	Fullerton, Calif.	92634
75037	Minnesota Mining and Manufacturing Co., Electro Products Div.	St. Paul, Minn.	55101
75382	Kulka Electric Corporation	Mt. Vernon, N.Y.	10550
76530	Cinch Monadnock Mills, Div. TRW Inc.	City of Industry, Calif.	91746
77250	Pheoll Manufacturing Co., Div. Allied Products Corp.	Chicago, Ill.	60650
78189	Shakeproof Div. Illinois Tool Works	Elgin, Ill.	60120
80294	Bourns Inc.	Riverside, Calif.	92507
91506	Augat Inc.	Attleboro, Mass.	02703
91637	Dale Electronics Inc.	Columbus, Neb.	68601
95348	Gordos Corporation	Bloomfield, N.J.	07003

SECTION VII

TROUBLESHOOTING

7-1. INTRODUCTION.

7-2. CONTENT.

7-3. This section contains instructions for troubleshooting the Model 7261A. Component location photographs, schematics, and troubleshooting table are supplied to aid in troubleshooting.

7-4. TROUBLESHOOTING.

7-5. REQUIREMENTS.

7-6. Troubleshooting should be performed in a logical manner. The concept of bracketing should be established,

such as determining which circuits or sections are not operating or are operating abnormally. This is generally the fastest method to locate trouble in a closed loop circuit. When troubleshooting, utilize the photographs and schematics presented in this section, Figures 7-1 through 7-15.

7-7. TROUBLESHOOTING TABLE.

7-8. The troubleshooting table, Table 7-1, lists other possible malfunctions, suspected reasons, and remedies. Use component location photographs and schematics for back-up when searching out problem area.



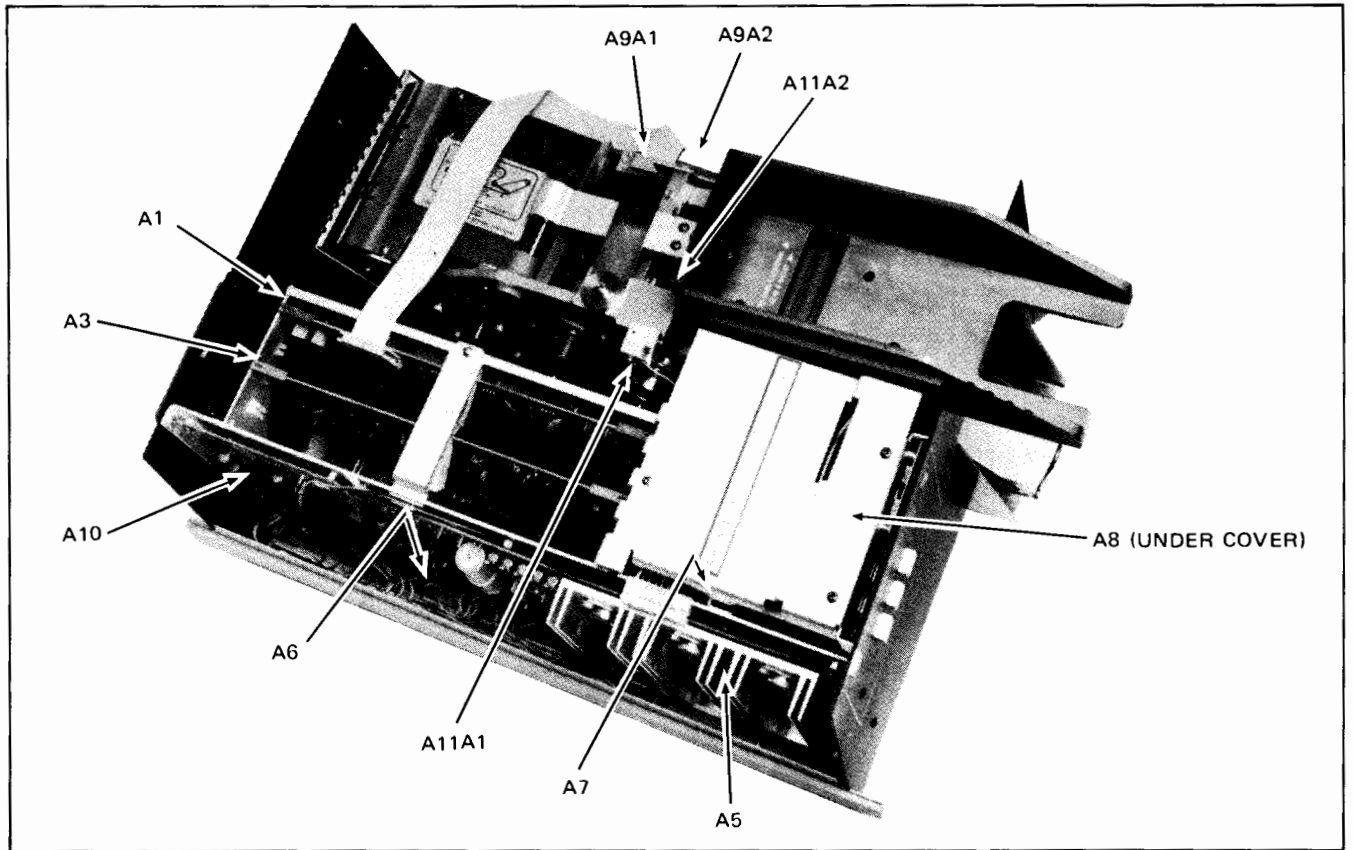
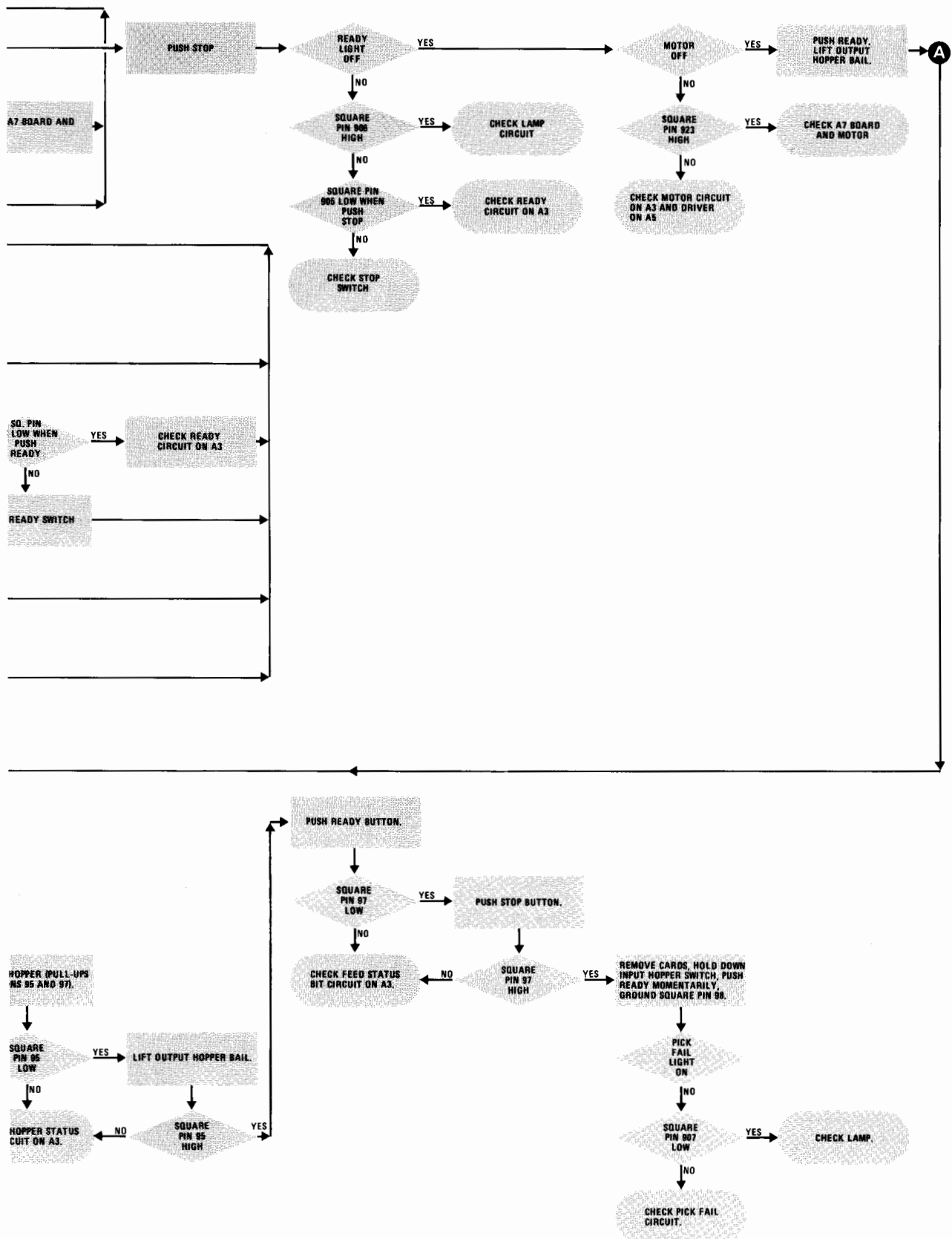
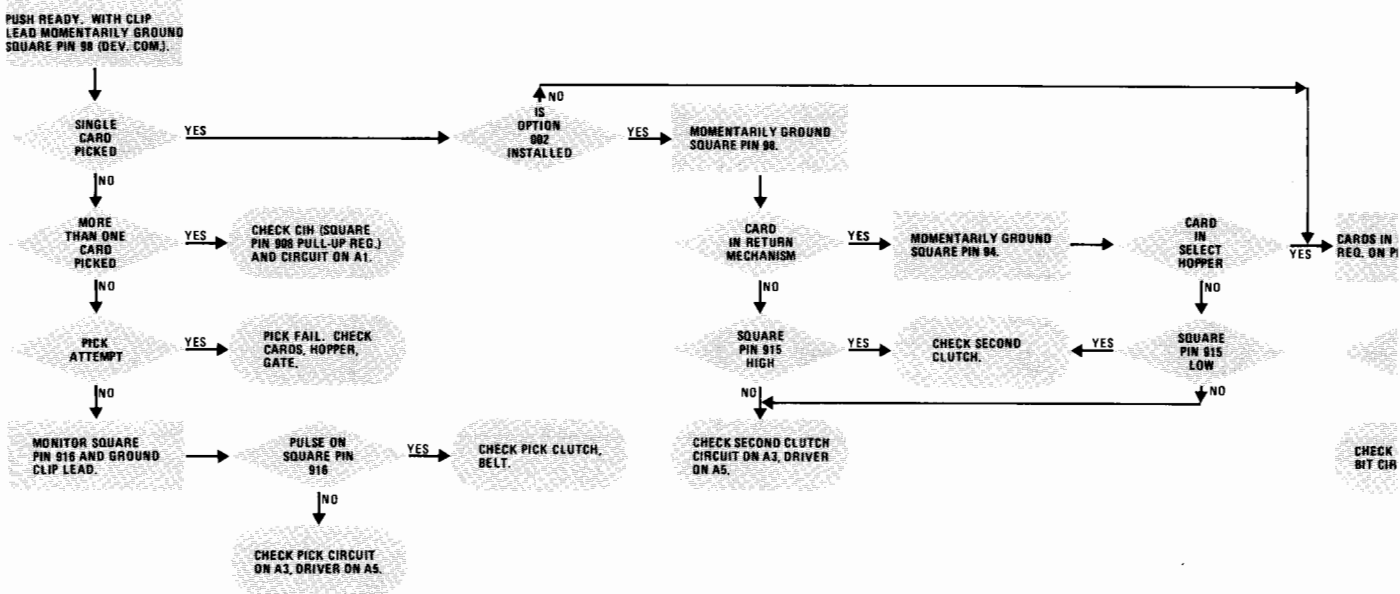
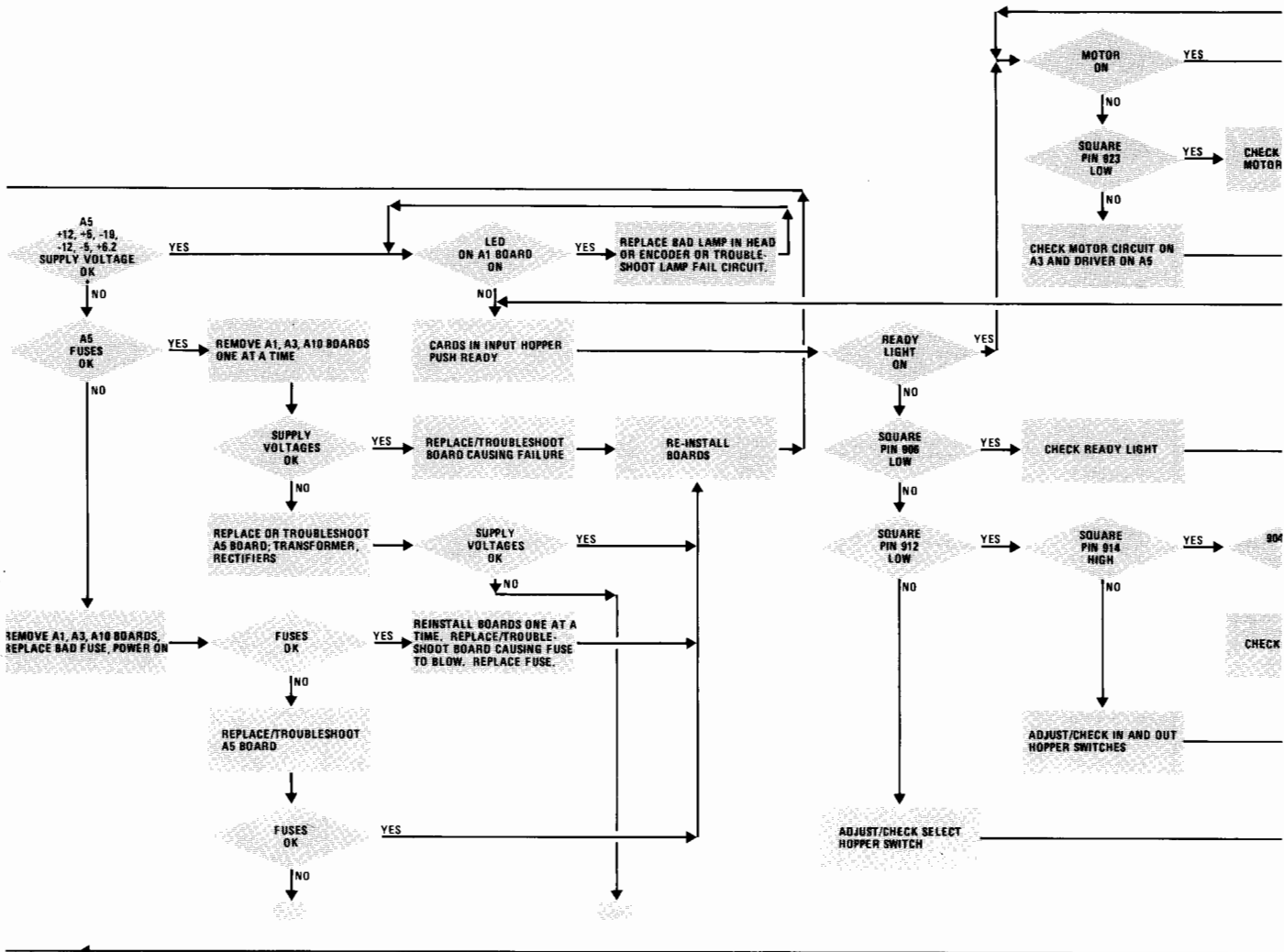
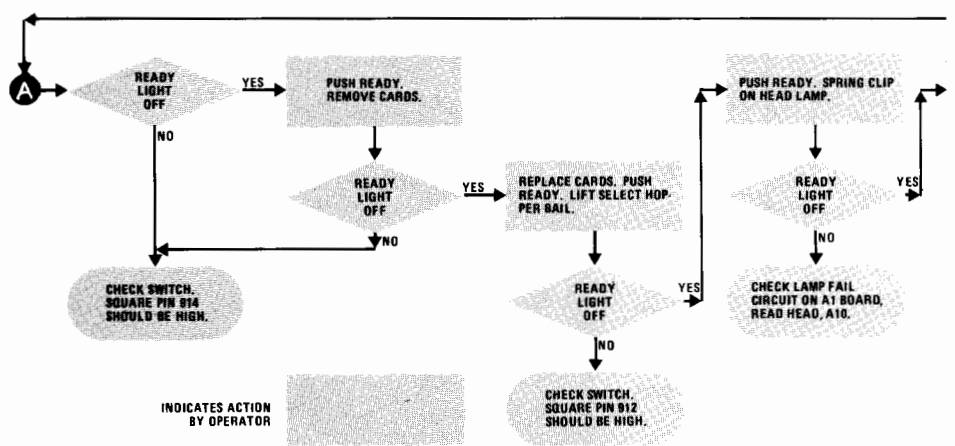
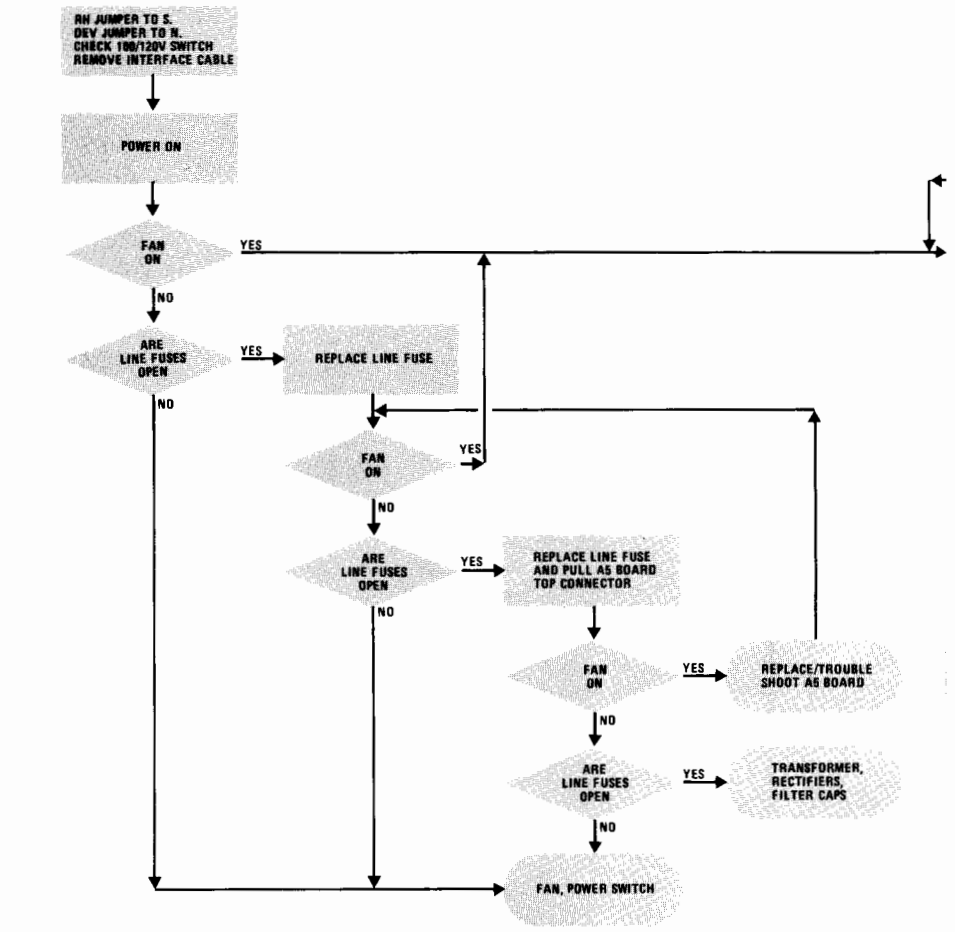


Figure 7-1. Printed Circuit Board Location

Table 7-1. Troubleshooting







INDICATES ACTION BY OPERATOR

INDICATES QUESTION

ERROR CAUSED BY WIRING, AND/OR MOTHER BOARD AND/OR NOTE IN QUAL

NOTE: BOARD REPLACEMENT DONE WITH POWER OFF

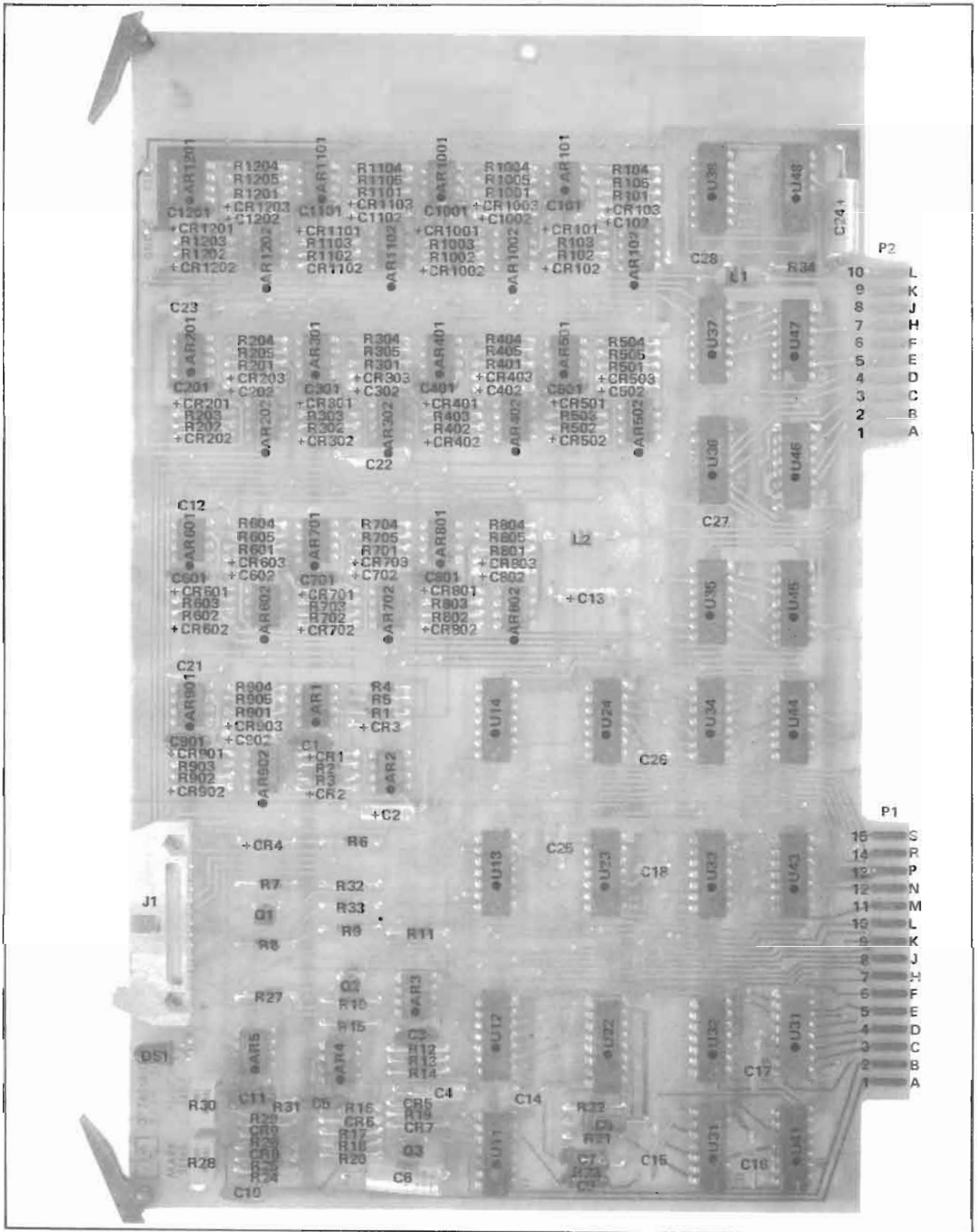


Figure 7-2. AI Head Assembly PCA

Reference Designation	HP Part Number	Reference Designation	HP Part Number	Reference Designation	HP Part Number	Reference Designation	HP Part Number
A1	07261-61110	A1C10G1	0160-0205	A1R18	0757-0395	A1R12C4	0757-0438
A1		A1C10G2	0180-0197	A1R19	0698-0064	A1R12G5	0757-0458
A1		A1C11G1	0160-0205	A1R20	0757-0401	A1U11	1820-0537
A1AR1	1820-0477	A1C11G2	0180-0197	A1R21	0698-3449	A1U12	1820-0559
A1AR2	1820-0477	A1C12G1	0160-0205	A1R22	0698-3441	A1U13	1820-0054
A1AR3	1820-0477	A1C12G2	0180-0197	A1R23	0698-3449	A1U14	1820-0068
A1AR4	1820-0477	A1C12G2	0180-0197	A1R24	0757-0420	A1U22	1820-0579
A1AR5	1820-0477	A1C6A1	1501-0040	A1R25	0757-0274	A1U23	1820-0054
A1AR101	1820-0477	A1CR2	1501-0040	A1R26	0698-3439	A1U24	1820-0328
A1AR102	1820-0477	A1CR3	1501-0040	A1R27	0757-0442	A1U31	1820-0511
A1AR201	1820-0477	A1C6A	1501-0040	A1R28	2100-3274	A1U32	1820-0069
A1AR202	1820-0477	A1C6A5	1501-0040	A1R29	0757-0442	A1U33	1820-0054
A1AR301	1820-0477	A1C6A6	1501-0040	A1R30	2100-3353	A1U34	1820-0511
A1AR502	1820-0477	A1C6A7	1501-0040	A1R31	0757-0422	A1U35	1820-0054
A1AR401	1820-0477	A1C6A9	1501-0040	A1R32	0698-3229	A1U36	1820-0070
A1AR402	1820-0477	A1CR101	1501-0040	A1R33	0698-3229	A1U37	1820-0511
A1AR501	1820-0477	A1CR102	1501-0040	A1R34	0757-0420	A1U38	1820-0054
A1AR502	1820-0477	A1CR103	1501-0040	A1R101	0698-3266	A1U41	1820-0077
A1AR601	1820-0477	A1CR201	1501-0040	A1R102	0757-1094	A1U42	1820-1042
A1AR602	1820-0477	A1CR202	1501-0040	A1R103	0757-0346	A1U43	1820-0077
A1AR701	1820-0477	A1CR203	1501-0040	A1R104	0757-0438	A1U44	1820-0077
A1AR702	1820-0477	A1CR301	1501-0040	A1R105	0757-0458	A1U45	1820-0077
A1AR801	1820-0477	A1CR302	1501-0040	A1R201	0698-3266	A1U46	1820-1042
A1AR802	1820-0477	A1CR303	1501-0040	A1R202	0757-1094	A1U47	1820-0077
A1AR901	1820-0477	A1CR401	1501-0040	A1R203	0757-0346	A1U48	1820-0077
A1AR902	1820-0477	A1CR402	1501-0040	A1R204	0757-0438		
A1AR1001	1820-0477	A1CR403	1501-0040	A1R205	0757-0458		
A1AR1002	1820-0477	A1CR501	1501-0040	A1R301	0698-3266		
A1AR1101	1820-0477	A1CR502	1501-0040	A1R302	0757-1094		
A1AR1102	1820-0477	A1CR503	1501-0040	A1R303	0757-0346		
A1AR1201	1820-0477	A1CR601	1501-0040	A1R304	0757-0438		
A1AR1202	1820-0477	A1CR602	1501-0040	A1R305	0757-0458		
A1C1	0160-0205	A1CR603	1501-0040	A1R401	0698-3266		
A1C2	0180-0100	A1CR701	1501-0040	A1R402	0757-1094		
A1C3	0160-0205	A1CR702	1501-0040	A1R403	0757-0346		
A1C4	0180-0100	A1CR703	1501-0040	A1R404	0757-0438		
A1C5	0160-0205	A1CR801	1501-0040	A1R405	0757-0458		
A1C6	0180-0137	A1CR802	1501-0040	A1R501	0698-3266		
A1C7	0160-0939	A1CR803	1501-0040	A1R502	0757-1094		
A1C8	0160-0155	A1CR901	1501-0040	A1R503	0757-0346		
A1C9	0140-0198	A1CR902	1501-0040	A1R504	0757-0438		
A1C10	0160-2146	A1CF903	1501-0040	A1R505	0757-0458		
A1C11	0160-2149	A1CR18	1502-3150	A1R601	0698-3266		
A1C12	0160-2146	A1CR1001	1501-0040	A1R602	0757-1094		
A1C13	0160-0374	A1CR1002	1501-0040	A1R603	0757-0346		
A1C14	0150-0093	A1CR1003	1501-0040	A1R604	0757-0438		
A1C15	0150-0093	A1CR1101	1501-0040	A1R605	0757-0458		
A1C16	0150-0093	A1CR1102	1501-0040	A1R701	0698-3266		
A1C17	0150-0093	A1CR1103	1501-0040	A1R702	0757-1094		
A1C18	0150-0093	A1CR1201	1501-0040	A1R703	0757-0346		
A1C21	0160-2146	A1CR1202	1501-0040	A1R704	0757-0438		
A1C22	0180-0116	A1CR1203	1501-0040	A1R705	0757-0458		
A1C23	0160-2146	A1DS1	1990-0326	A1R801	0698-3266		
A1C24	0180-0137	A1J1	1251-3109	A1R802	0757-1094		
A1C25	0150-0093	A1L2	9140-0114	A1R803	0757-0346		
A1C26	0150-0093	A1Q1	1854-0071	A1R804	0757-0438		
A1C27	0150-0093	A1Q2	1854-0071	A1R805	0757-0458		
A1C28	0150-0093	A1Q3	1854-0071	A1R901	0698-3266		
A1C101	0160-0205	A1R1	0698-3266	A1R902	0757-1094		
A1C102	0180-0197	A1R2	0757-1094	A1R903	0757-0346		
A1C201	0160-0205	A1R3	0757-0346	A1R904	0757-0438		
A1C202	0180-0197	A1R4	0757-0438	A1R905	0757-0458		
A1C301	0160-0205	A1R5	0757-0458	A1R1001	0698-3266		
A1C302	0180-0197	A1R6	0698-3441	A1R1002	0757-1094		
A1C401	0160-0205	A1R7	0698-0084	A1R1003	0757-0346		
A1C402	0180-0197	A1R8	0757-0442	A1R1004	0757-0438		
A1C501	0160-0205	A1R9	0757-0200	A1R1005	0757-0458		
A1C502	0180-0197	A1R10	0757-0401	A1R1101	0698-3266		
A1C601	0160-0205	A1R11	0757-0442	A1R1102	0757-1094		
A1C602	0180-0197	A1R12	0698-3454	A1R1103	0757-0346		
A1C701	0160-0205	A1R13	0757-0442	A1R1104	0757-0438		
A1C702	0180-0197	A1R14	0757-0401	A1R1105	0757-0458		
A1C802	0180-0197	A1R15	0757-0200	A1R1201	0698-3266		
A1C901	0160-0205	A1R16	0698-3260	A1R1202	0757-1094		
A1C902	0180-0197	A1R17	0757-0200	A1R1203	0757-0346		

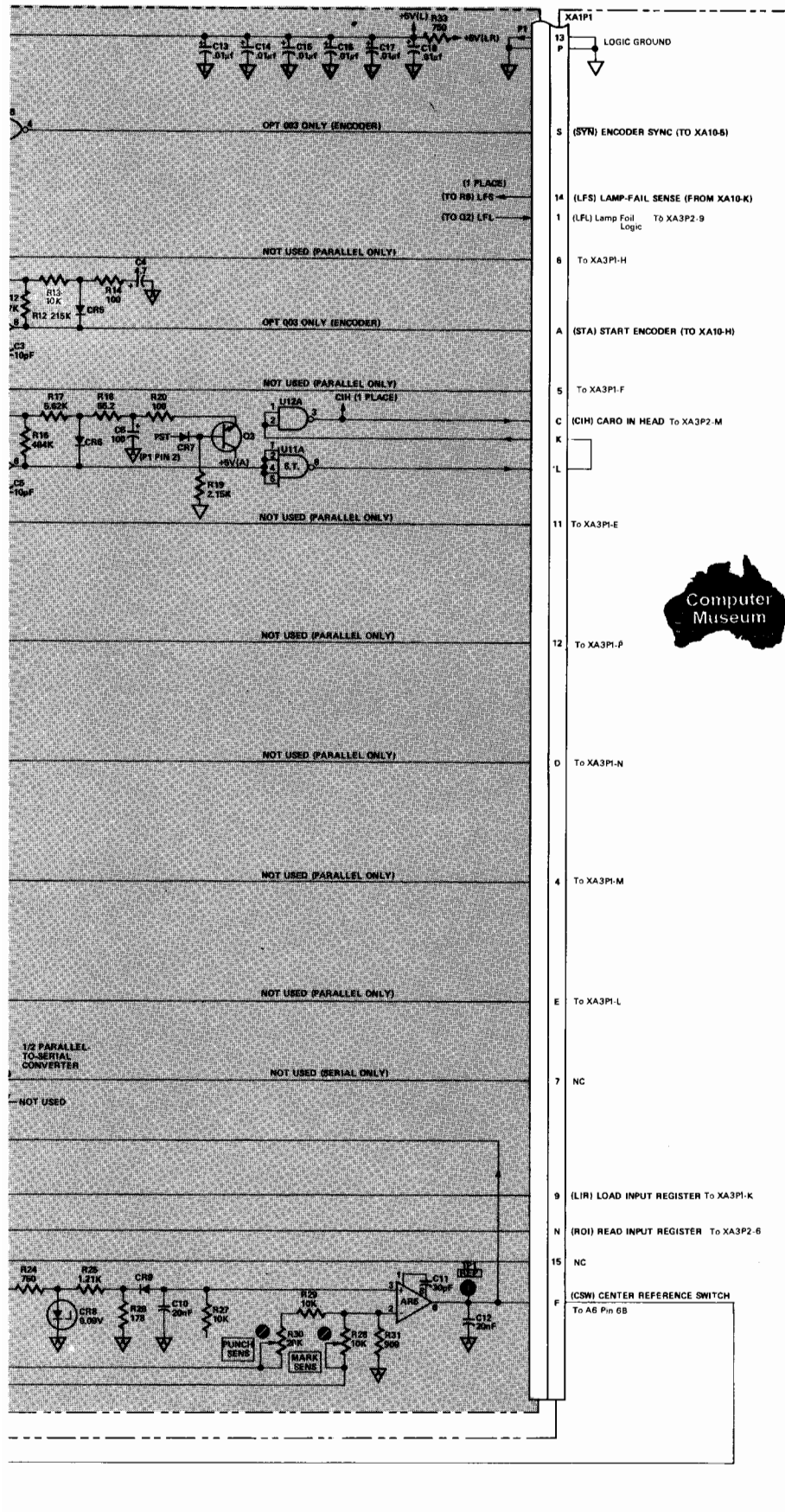
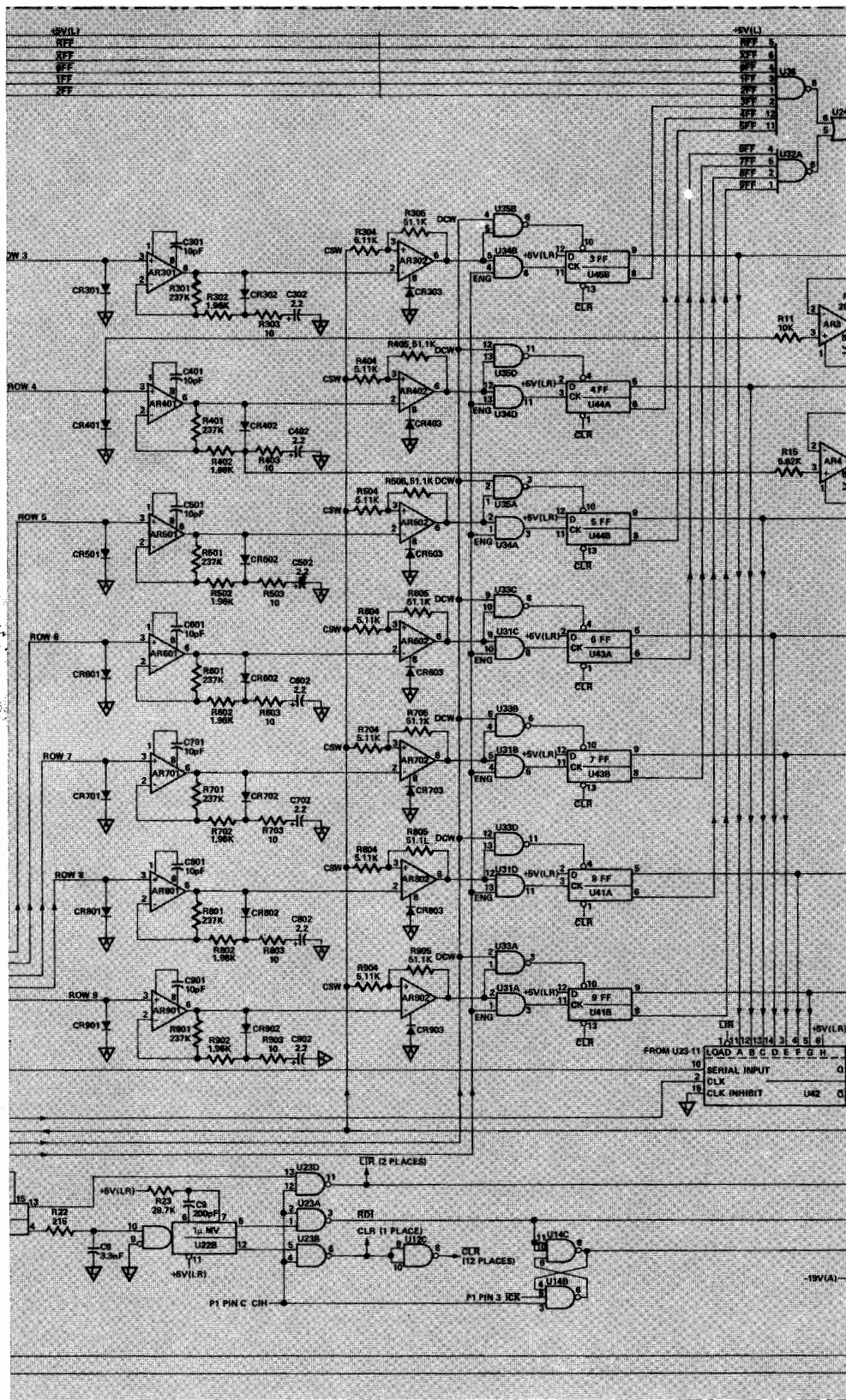
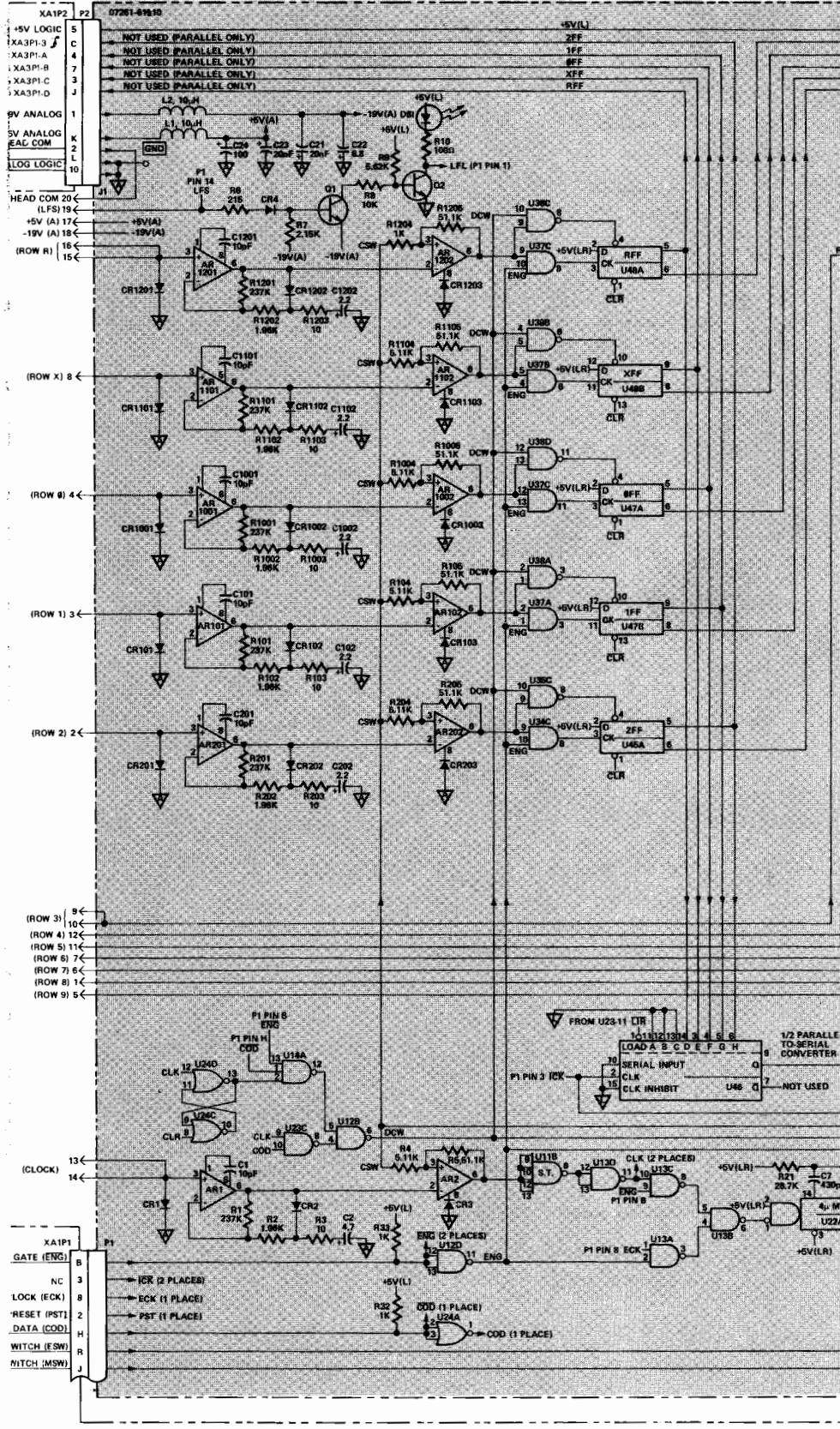


Figure 7-3. A1 Head Assembly PCA Schematic



AI-HEAD AMPLIFIER PCA



P/O A6 - MOTHERBOARD

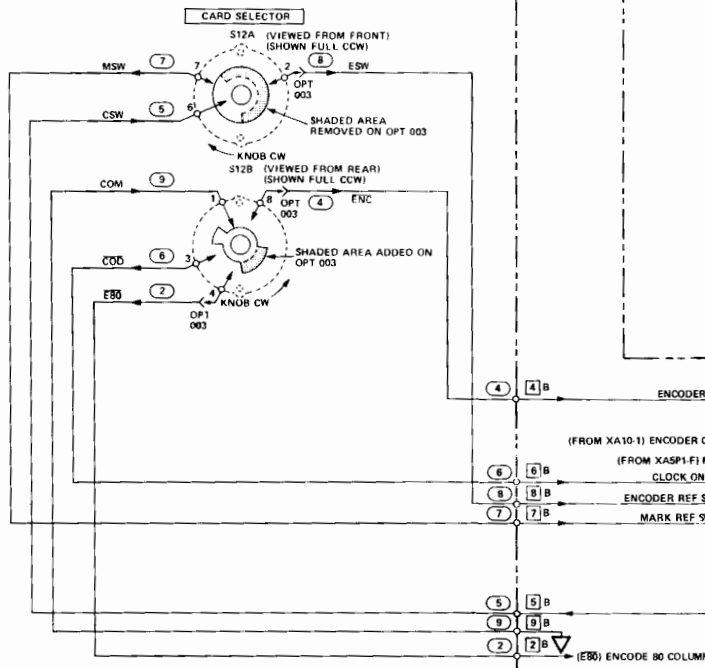
07200-61060

to
to
to
to
to
-Y
H
H
ANA

CARD SELECTOR SWITCH

S12 SWITCH POSITION	S12A TERMINALS CONNECTED	S12B TERMINALS CONNECTED
CLOCK AFTER DATA	6 AND 7	NONE
CLOCK ON DATA	6 AND 7	1 AND 3
40 COLUMN NO CLOCK	6 AND 7	1, 4, AND 8
80 COLUMN NO CLOCK	6 AND 2	1 AND 8

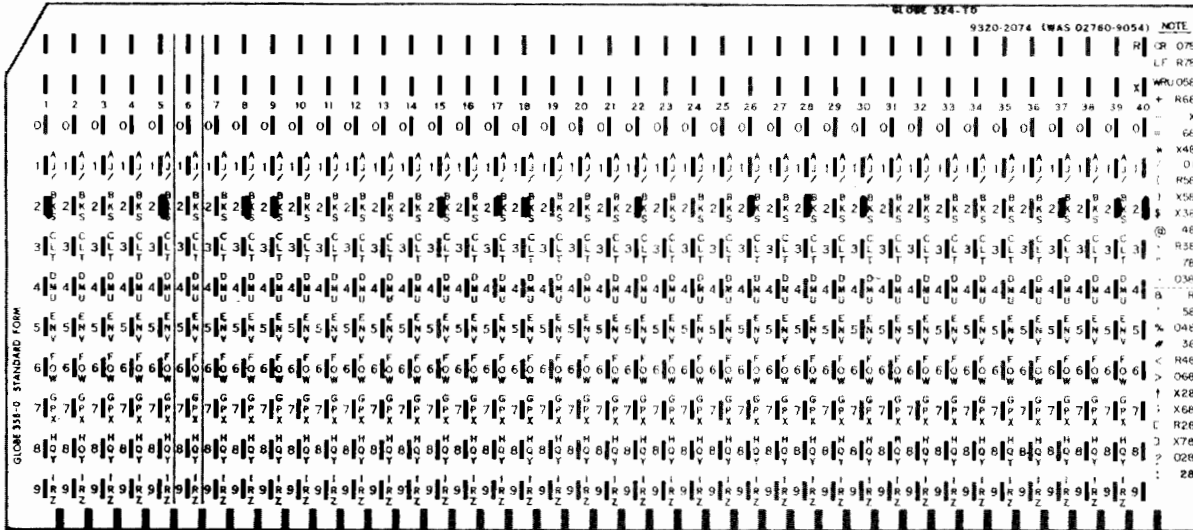
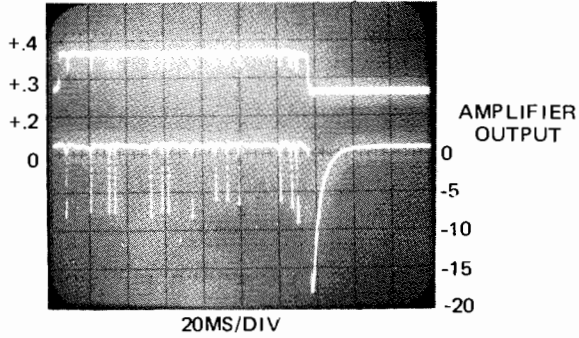
OPT 003



Model 7261A

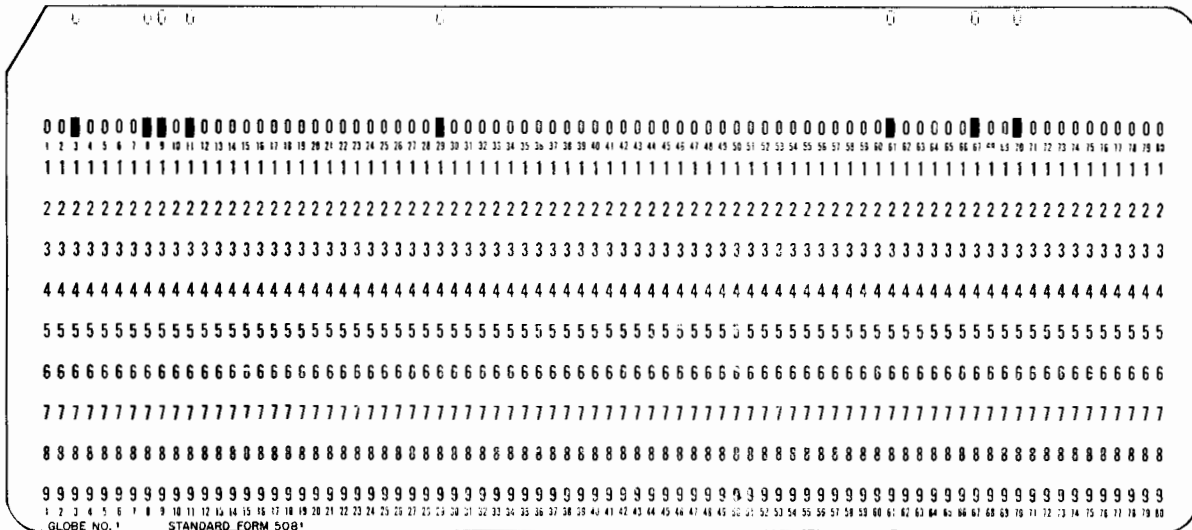
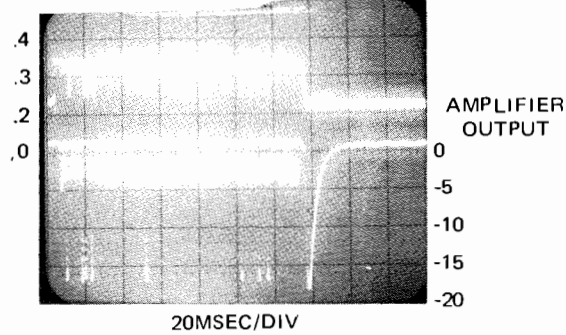
MARKED CARD DATA
CHANNEL NO. 2 ON CARD
TRIGGER = LEADING EDGE
OF CARD-IN-HEAD

INPUT LOGGING
DIODE (A1 BOARD)



STANDARD TAB CARD
CHANNEL NO. 0
TRIGGER = LEADING EDGE
OF CARD-IN-HEAD

INPUT LOGGING
DIODE (A1 BOARD)



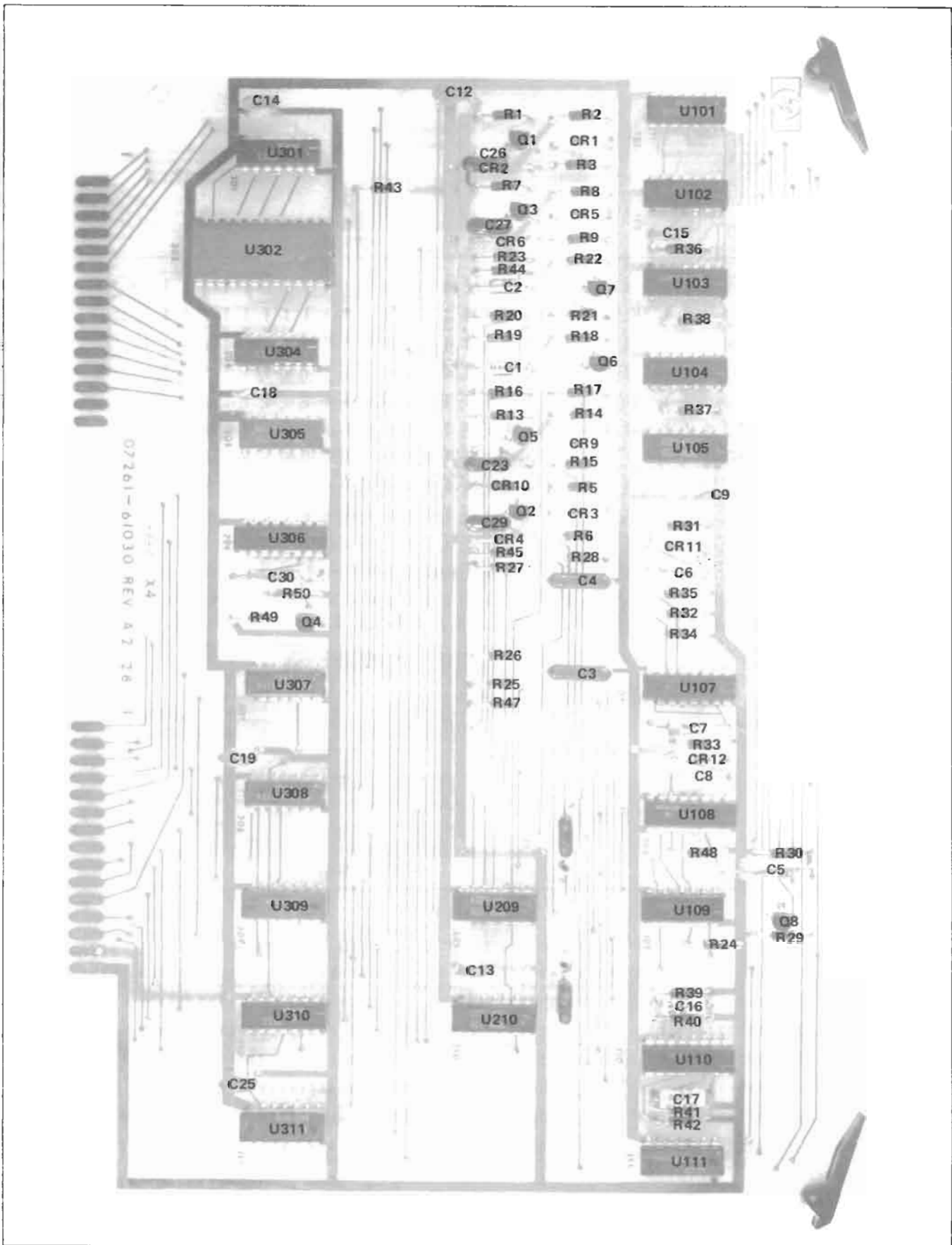


Figure 7-4. A3 Input/Output PCA

Reference Designation	HP Part Number	Reference Designation	HP Part Number
A3	07261-61030	A3K33	0757-0449
A3		A3K34	0757-0438
A3		A3K35	0757-0438
A3C1	0180-2205		
A3C2	0180-2205	A3K36	0757-0403
A3C3	0160-0161	A3K37	0757-0438
A3C4	0160-0161	A3K38	0757-0438
A3C5	0180-0374	A3K39	0757-0442
A3C6	0180-0291	A3K40	0757-0438
A3C7	0160-0157	A3K41	0757-0442
A3C8	0180-0291	A3K42	0757-0438
A3C9	0150-0093	A3K43	0757-0438
A3C10	0150-0093	A3K44	0757-0438
A3C12	0150-0093	A3K45	0757-0438
A3C13	0150-0093	A3K47	0757-0438
A3C14	0150-0093	A3K48	0757-0438
A3C15	0150-0093	A3K49	0757-0445
A3C16	0160-0153	A3K50	0757-0462
A3C17	0160-0157	A3U101	1620-0062
A3C18	0150-0093	A3U102	1620-0077
A3C19	0150-0093	A3U103	1620-0077
A3C25	0150-0093	A3U104	1620-0077
A3C26	0140-0191	A3U105	1620-0528
A3C27	0140-0191	A3U107	1620-0579
A3C28	0140-0191	A3U108	1620-0579
A3C29	0140-0191		
A3C30	0180-0374	A3U109	1620-0077
A3C31	0180-0181	A3U110	1620-0579
A3CR1	1901-0040	A3U111	1620-0054
A3CR2	1901-0040	A3U209	1620-0528
A3CR3	1901-0040	A3U210	1620-0328
A3CR4	1901-0040		
A3CR5	1901-0040	A3U301	1620-0471
A3CR6	1901-0040	A3U302	1620-0614
A3CR9	1901-0040	A3U304	1620-0471
A3CF10	1901-0040	A3U305	1620-0701
A3CR11	1901-0040	A3U306	1620-0579
A3CR12	1901-0040	A3U307	1620-0174
A3J1	1251-0360	A3U308	1620-0174
A3Q1	1854-0071	A3U309	1620-0054
A3Q2	1854-0071	A3U310	1620-0471
A3Q3	1854-0071	A3U311	1620-0054
A3Q4	1854-0071		
A3Q5	1854-0071		
A3Q6	1854-0071		
A3Q7	1854-0071		
A3Q8	1854-0071		
A3R1	0757-0438		
A3R2	0757-0442		
A3R3	0698-3151		
A3R4	0757-0438		
A3R5	0757-0442		
A3R6	0698-3151		
A3R7	0757-0438		
A3R8	0757-0442		
A3R9	0698-3151		
A3R13	0757-0438		
A3R14	0757-0442		
A3R15	0698-3151		
A3R16	0757-0280		
A3R17	0698-0085		
A3R18	0698-3155		
A3R19	0698-3155		
A3R20	0757-0280		
A3R21	0698-0085		
A3R22	0698-3155		
A3R23	0698-3155		
A3R24	0757-0436		
A3R25	0698-3155		
A3R26	0757-0401		
A3R27	0698-3155		
A3R28	0757-0401		
A3R29	0757-0449		
A3R30	0757-0467		
A3R31	0757-0441		
A3R32	0757-0442		

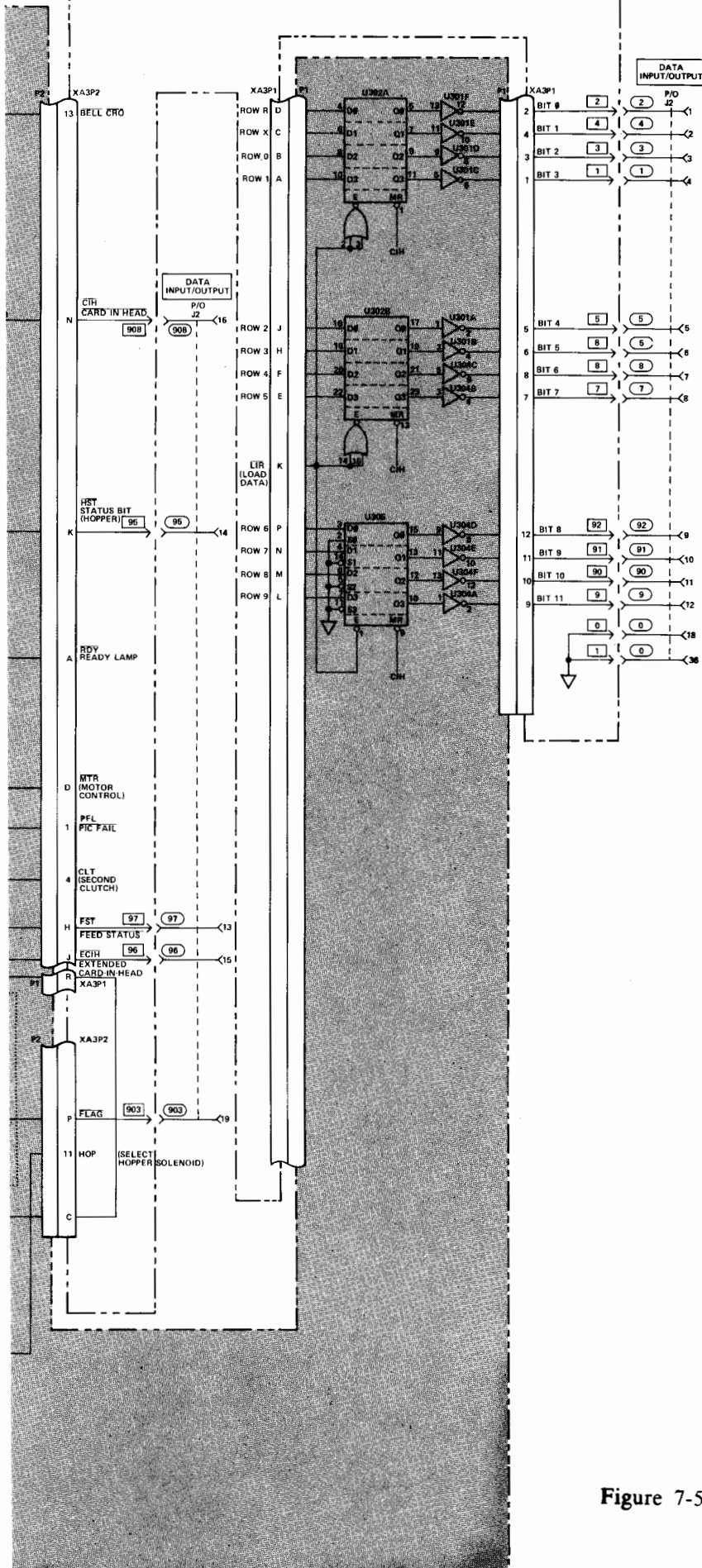
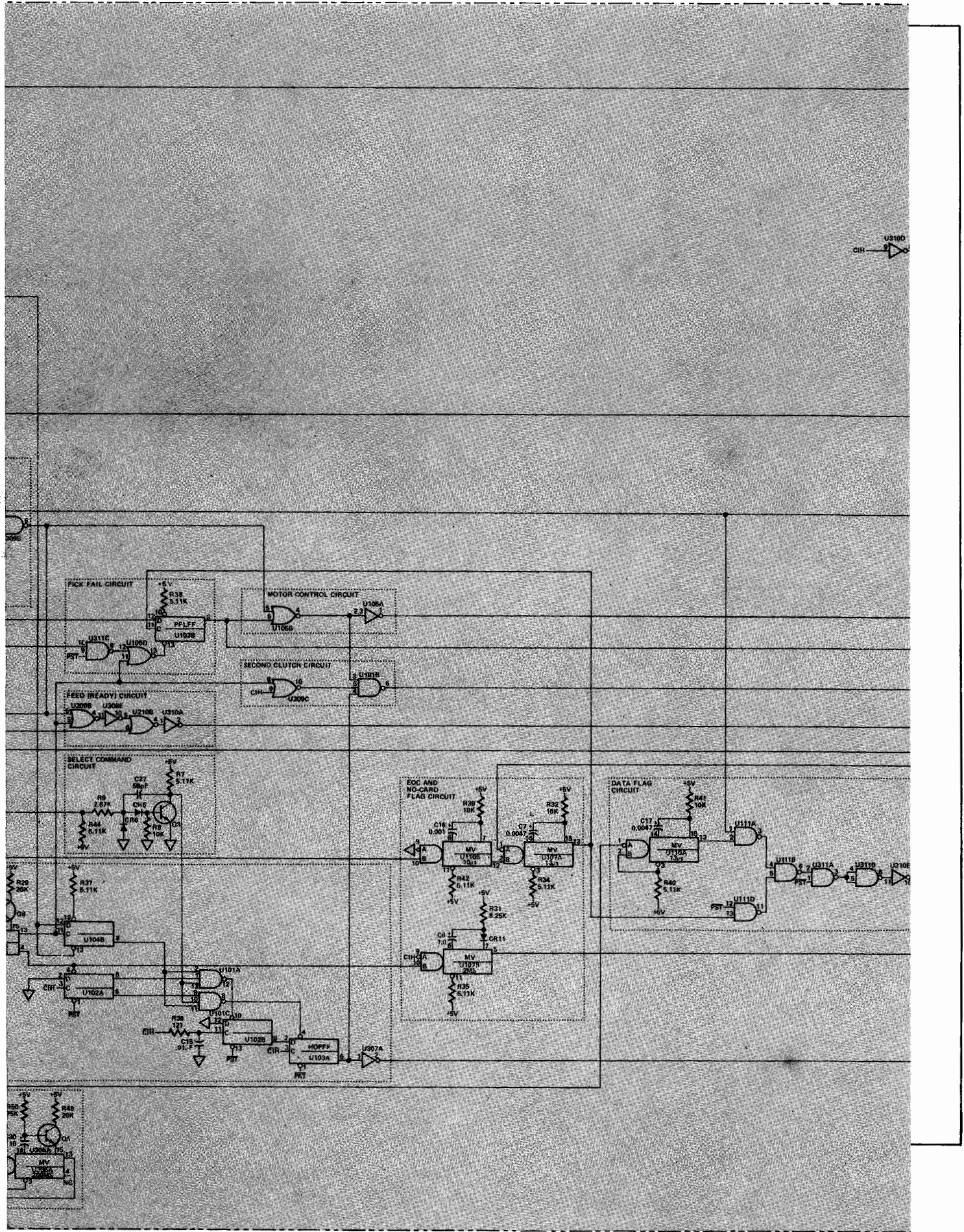
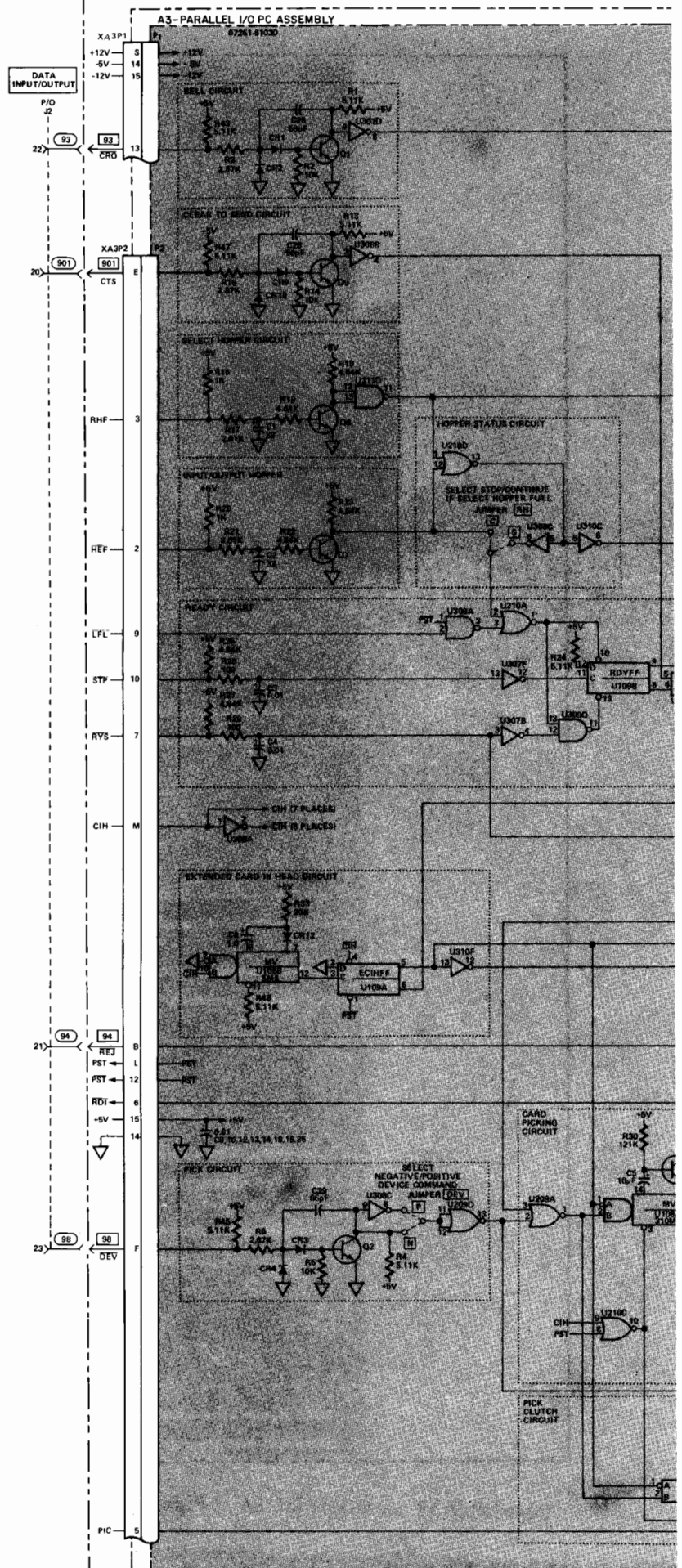


Figure 7-5. A3 Input/Output PCA Schematic



P/O A6-MOTHERBOARD



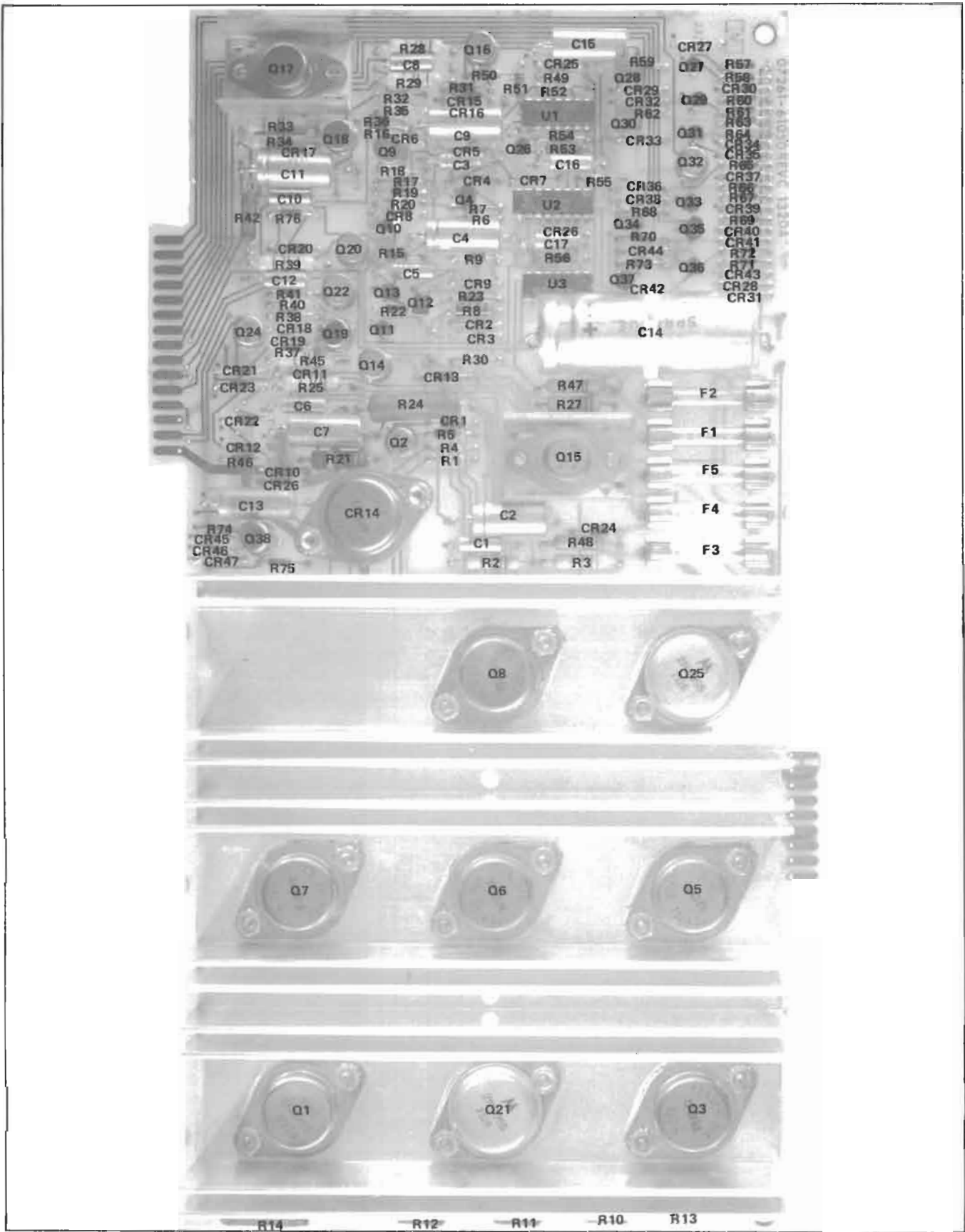


Figure 7-6. A5 Power Supply PCA

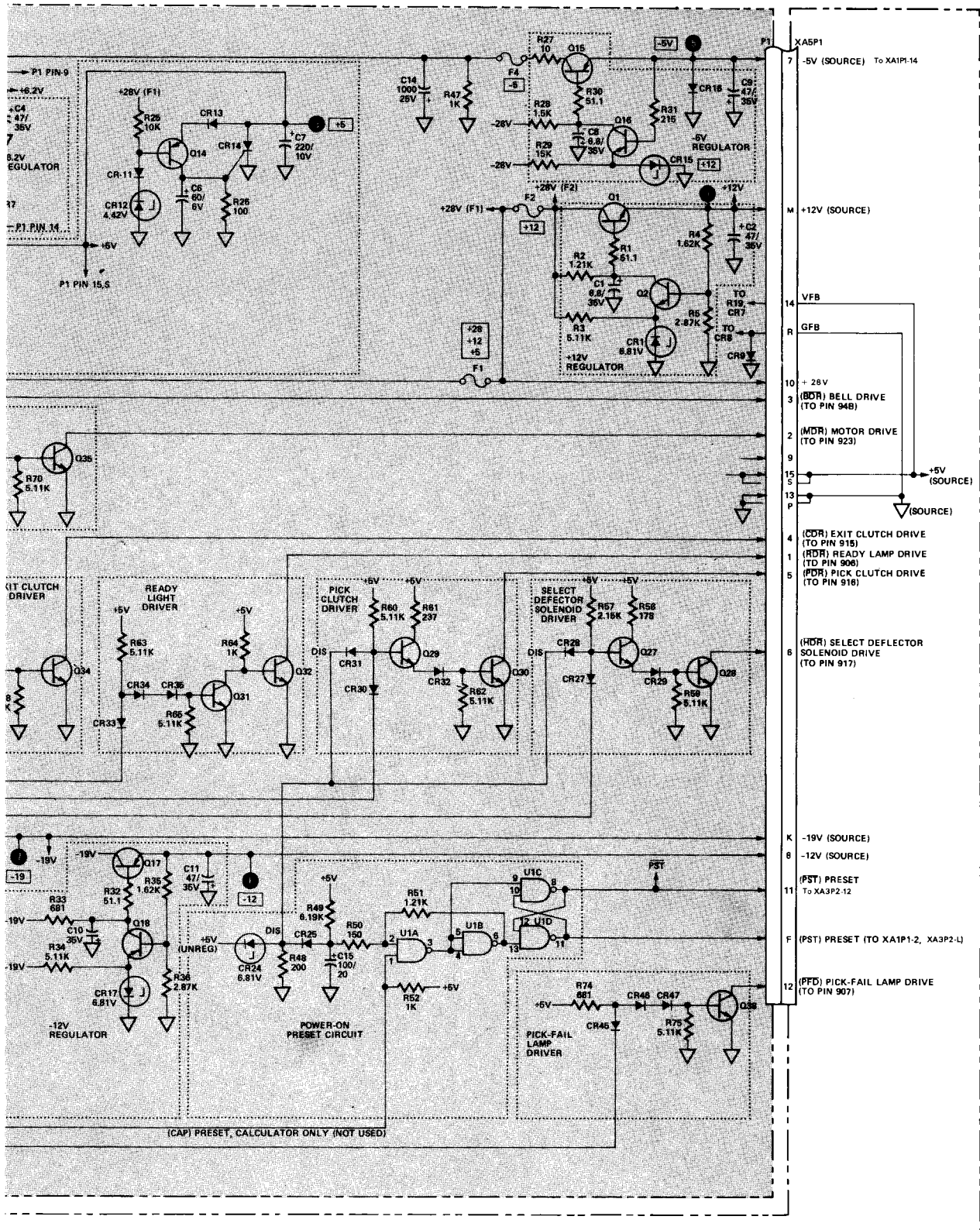
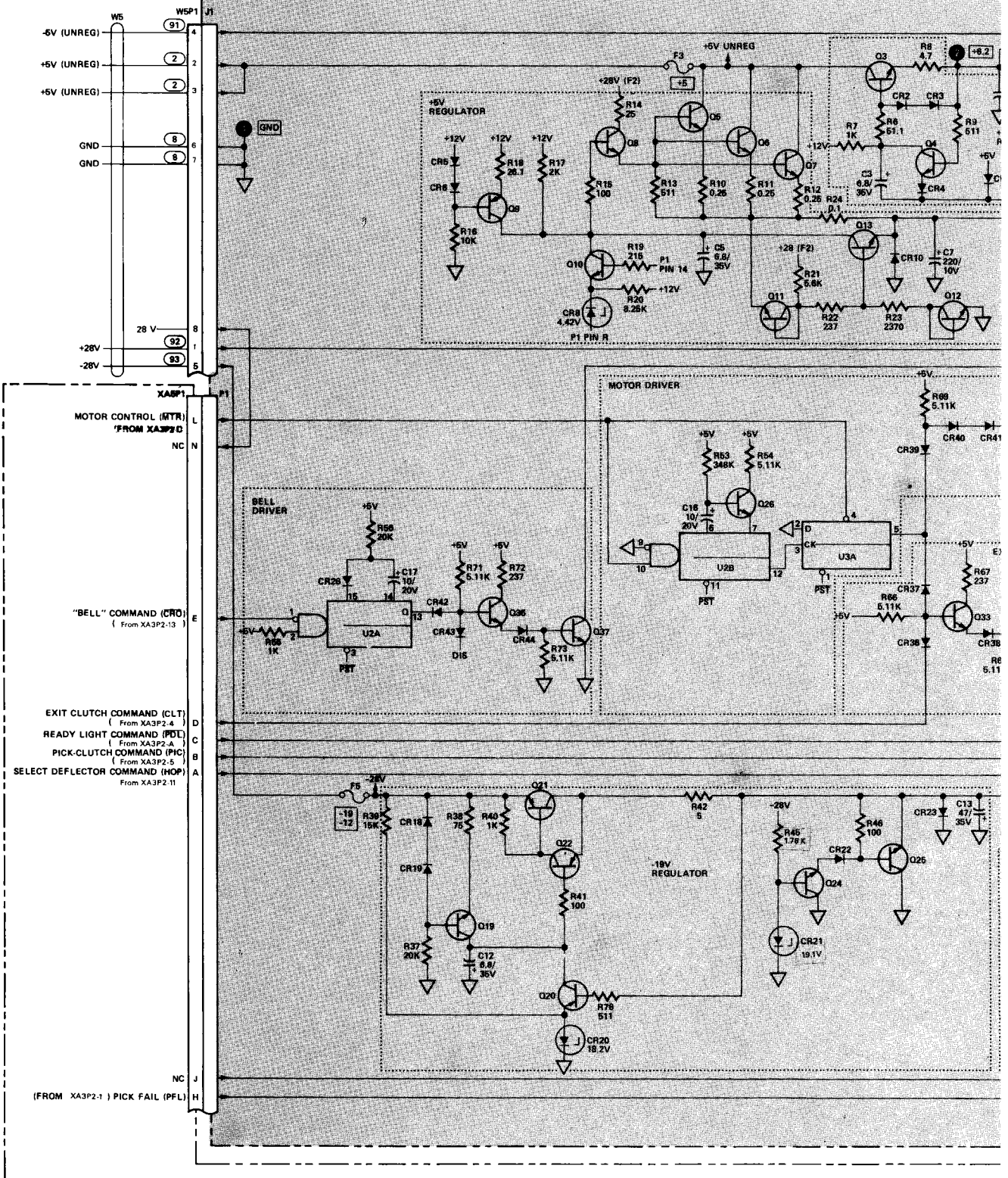


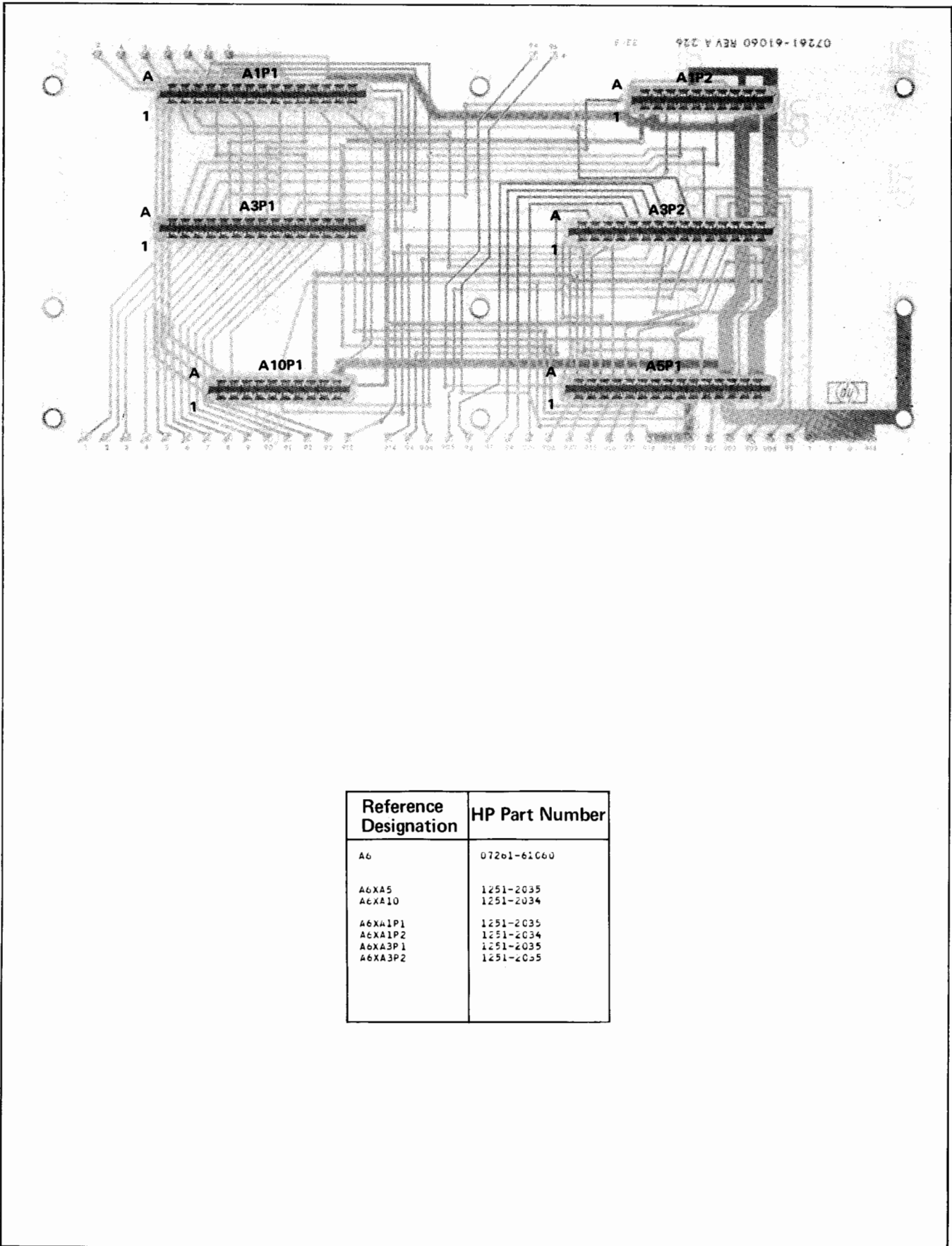
Figure 7-7. A5 Power Supply PCA Schematic

A5-POWER SUPPLY PCA

07281-01800

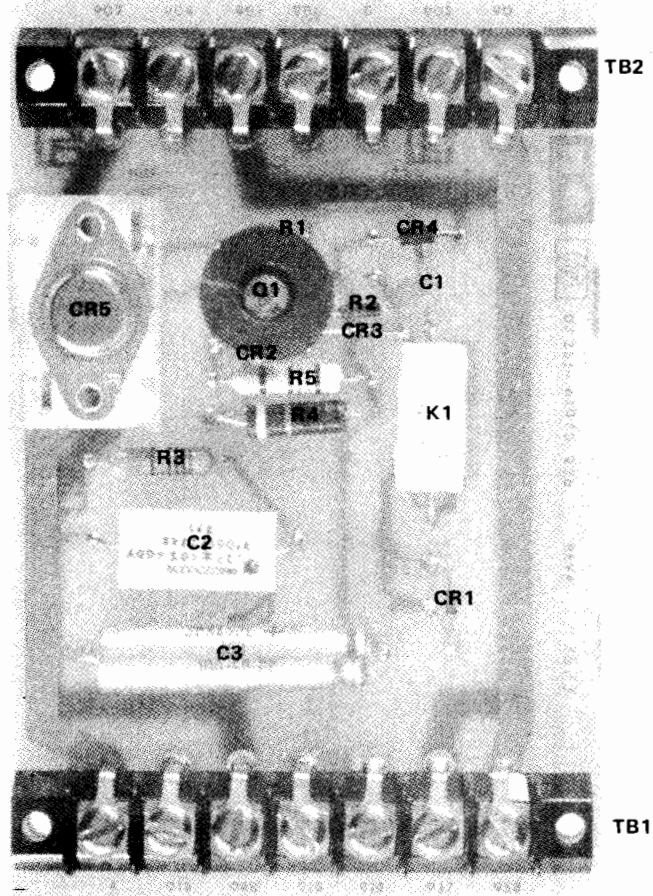


Reference Designation	HP Part Number	Reference Designation	HP Part Number	Reference Designation	HP Part Number
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A5		A5Q3	1200-0043	A5R35	0757-0428
A5		A5Q4	1854-0071	A5R36	0698-3151
A5C1	0180-0116	A5Q5	1854-0225	A5R37	0757-0449
A5C2	0180-CC97	A5Q5	1200-0043	A5R38	0757-0358
A5C3	0180-0116	A5Q6	1854-0225	A5R39	0757-0843
A5C4	0180-0097	A5Q6	1200-0043	A5R40	0757-0280
A5C5	0180-0116	A5Q7	1854-0225	A5R41	0757-0401
A5C6	0180-0106	A5Q7	1200-0043	A5R42	0812-0086
A5C7	0180-0159	A5Q8	1854-0530	A5R45	0698-0089
A5C8	0180-0116	A5Q8	1200-0043	A5R46	0757-0401
A5C9	0180-0057	A5Q9	1853-0041	A5R47	0757-0159
A5C10	0180-0116	A5Q10	1854-0071	A5R48	0757-0804
A5C11	0180-0057	A5Q11	1854-0071	A5R49	0757-0290
A5C12	0180-0116	A5Q12	1854-0071	A5R50	0757-0284
A5C13	0180-0057	A5Q13	1854-0071	A5R51	0757-0274
A5C14	0180-1943	A5Q14	1853-0041	A5R52	0757-0280
A5C15	0180-0098	A5Q15	1853-0342	A5R53	0698-3458
A5C16	0180-0374	A5Q16	1853-0041	A5R54	0757-0438
A5C17	0180-0374	A5Q17	1853-0342	A5R55	0757-0280
A5CR1	1902-0052	A5Q18	1853-0041	A5R56	0757-0449
A5CR2	1901-0040	A5Q19	1854-0039	A5R57	0698-0084
A5CR3	1901-0040	A5Q20	1853-0041	A5R58	0698-3439
A5CR4	1901-0040	A5Q21	1854-0530	A5R59	0757-0438
A5CR5	1901-0040	A5Q21	1200-0043	A5R60	0757-0438
A5CR6	1901-0040	A5Q22	1853-0041	A5R61	0698-3442
A5CR7	1901-0040	A5Q24	1854-0039	A5R62	0757-0438
A5CR8	1902-3077	A5Q25	1854-0530	A5R63	0757-0438
A5CR9	1901-0040	A5Q25	1200-0043	A5R64	0757-0280
A5CR10	1901-0158	A5Q26	1854-0071	A5R65	0757-0438
A5CR11	1901-0040	A5Q27	1854-0071	A5R66	0757-0438
A5CR12	1902-3077	A5Q28	1854-0347	A5R67	0698-3442
A5CR13	1901-0158	A5Q29	1854-0071	A5R68	0757-0438
A5CR14	1884-0019	A5Q30	1854-0300	A5R69	0757-0438
A5CR15	1902-3077	A5Q31	1854-0071	A5R70	0757-0438
A5CR16	1901-0158	A5Q32	1854-0039	A5R71	0757-0438
A5CR17	1902-0052	A5Q33	1854-0071	A5R72	0698-3442
A5CR18	1901-0040	A5Q34	1854-0300	A5R73	0757-0438
A5CR19	1901-0040	A5Q35	1854-0087	A5R74	0757-0419
A5CR20	1902-0594	A5Q36	1854-0071	A5R75	0757-0438
A5CR21	1902-3231	A5Q37	1854-0087	A5R76	0757-0416
A5CR22	1901-0158	A5Q38	1854-0039	A5TP2	5020-0495
A5CR23	1901-0158	A5R1	0757-0394	A5TP3	5020-0495
A5CR24	1902-0084	A5R2	0757-0821	A5TP4	5020-0495
A5CR25	1901-0040	A5R3	0757-0833	A5TP5	5020-0495
A5CR26	1901-0040	A5R4	0757-0428	A5TP6	5020-0495
A5CR27	1901-0040	A5R5	0698-3151	A5TP7	5020-0495
A5CR28	1901-0040	A5R6	0757-0394	A5XF1	2110-0269
A5CR29	1901-0040	A5R7	0757-0280	A5XF2	2110-0269
A5CR30	1901-0040	A5R8	0698-0001	A5XF3	2110-0269
A5CR31	1901-0040	A5R9	0757-0416	A5XF4	2110-0269
A5CR32	1901-0040	A5R10	0812-0017	A5XF5	2110-0269
A5CR33	1901-0040	A5R11	0812-0017	A5Z	2200-0091
A5CR34	1901-0040	A5R12	0812-0017	A5Z	2200-0147
A5CR35	1901-0040	A5R13	0757-0416	A5Z	2260-0009
A5CR36	1901-0040	A5R14	0811-1853	A5Z	07261-20150
A5CR37	1901-0040	A5R15	0757-0401		
A5CR38	1901-0040	A5R16	0757-0442		
A5CR39	1901-0040	A5R17	0757-0283		
A5CR40	1901-0040	A5R18	0698-3432		
A5CR41	1901-0040	A5R19	0698-3441		
A5CR42	1901-0040	A5R20	0757-0441		
A5CR43	1901-0040	A5R21	0761-0038		
A5CR44	1901-0040	A5R22	0698-3442		
A5CR45	1901-0040	A5R23	0698-3150		
A5CR46	1901-0040	A5R24	0811-2490		
A5CR47	1901-0040	A5R25	0757-0839		
A5F1	2110-0002	A5R26	0757-0401		
A5F2	2110-0012	A5R27	0698-0093		
A5F3	2110-0056	A5R28	0757-0197		
A5F4	2110-0004	A5R29	0757-0843		
A5F5	2110-0063	A5R30	0757-0394		
A5Q1	1854-0530	A5R31	0698-3441		
A5Q1	1200-0043	A5R32	0757-0394		
A5Q2	1854-0039	A5R33	0757-0816		



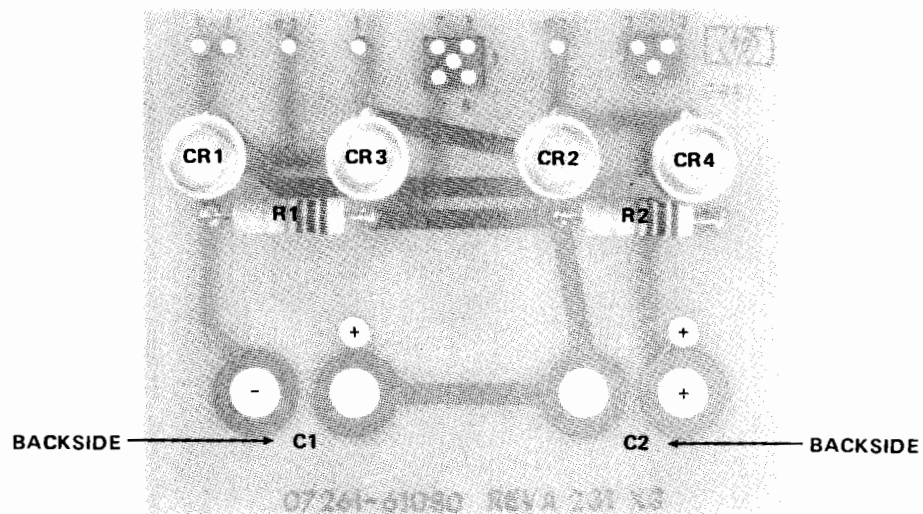
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A6XA5	1251-2035
A6XA10	1251-2034
A6XA1P1	1251-2035
A6XA1P2	1251-2034
A6XA3P1	1251-2035
A6XA3P2	1251-2035

Figure 7-8. A6 Mother Board PCA



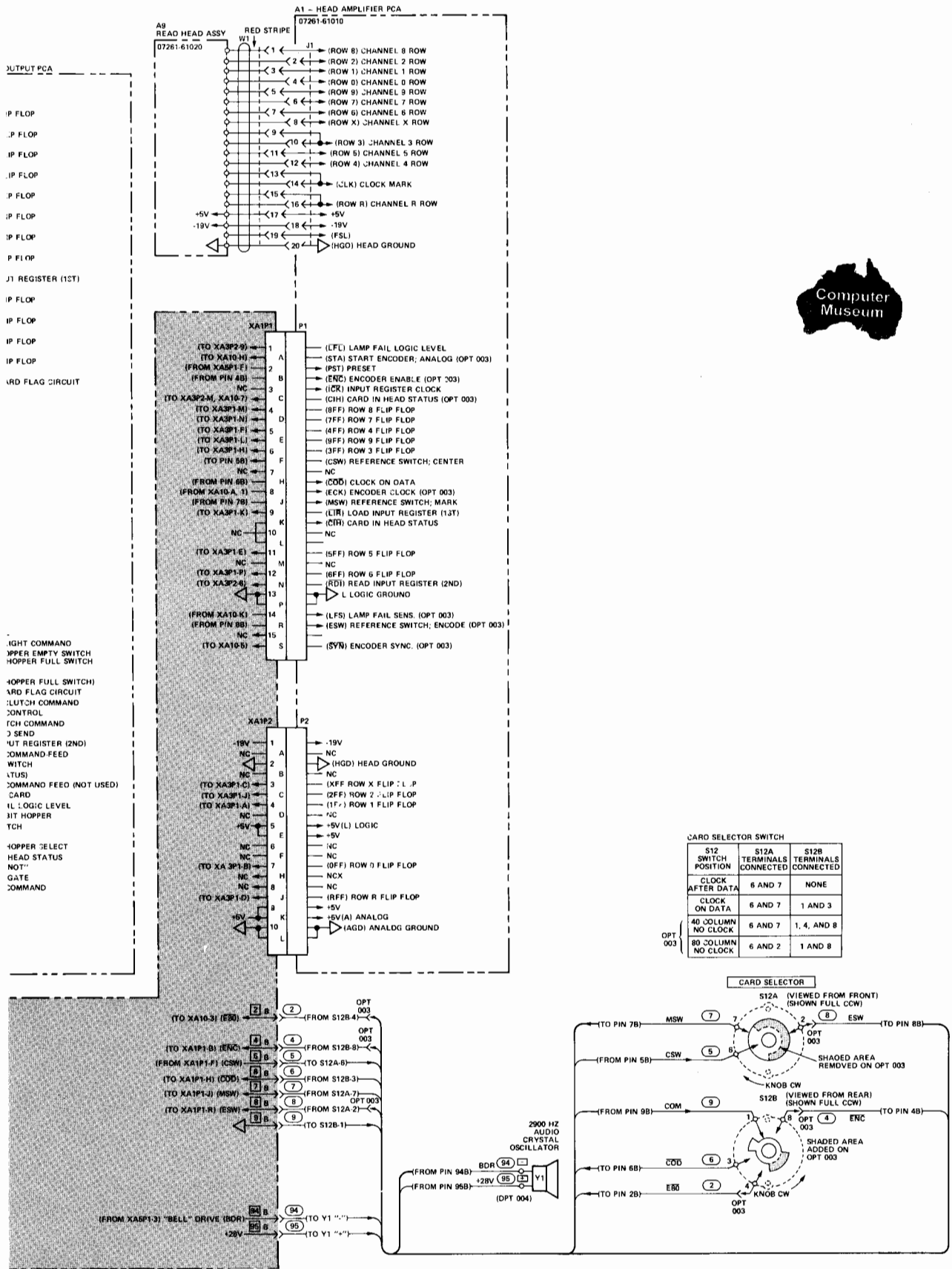
Reference Designation	HP Part Number
A7	07261-61070
A7C1	0150-0093
A7C2	016C-3586
A7C3	0180-1819
A7CR1	1901-0040
A7CR2	1901-0040
A7CR3	1901-0040
A7CR5	1884-0227
A7K1	0490-0310
A7K1	0490-0189
A7Q1	1854-0035
A7R1	0757-0442
A7R2	0757-0379
A7R3	0757-0158
A7R4	0761-0026
A7R5	0698-0089
ATT81	0360-1753
ATT62	0360-1753

Figure 7-9. A7 Power Input PCA



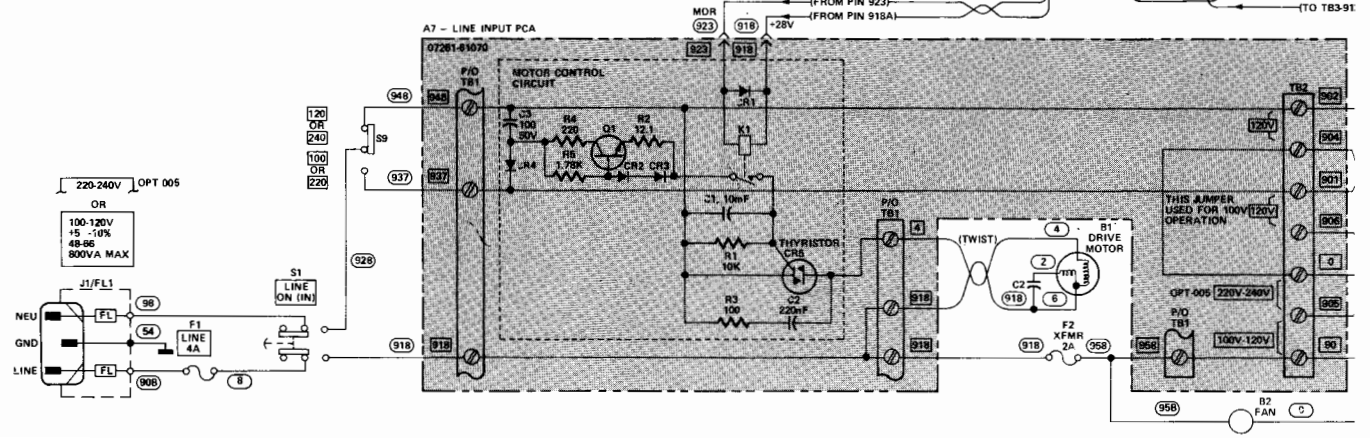
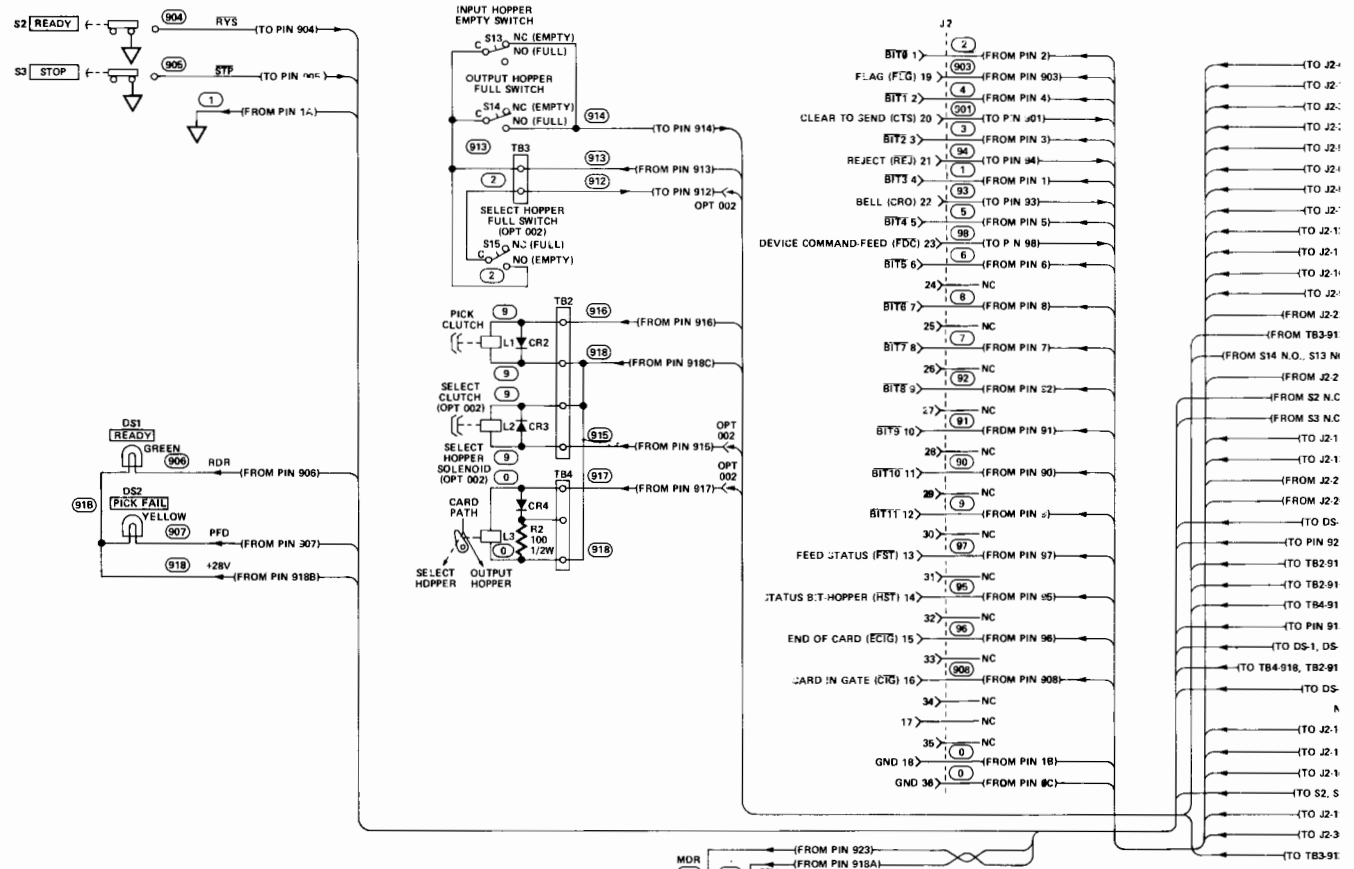
Reference Designation	HP Part Number
A8	07261-61080
A8CR1	1901-0200
A8CR2	1901-0200
A8CR3	1901-0200
A8CR4	1901-0200
A8R1	0761-0005
A8R2	0761-0005

Figure 7-10. A8 28V Rectifier PCA

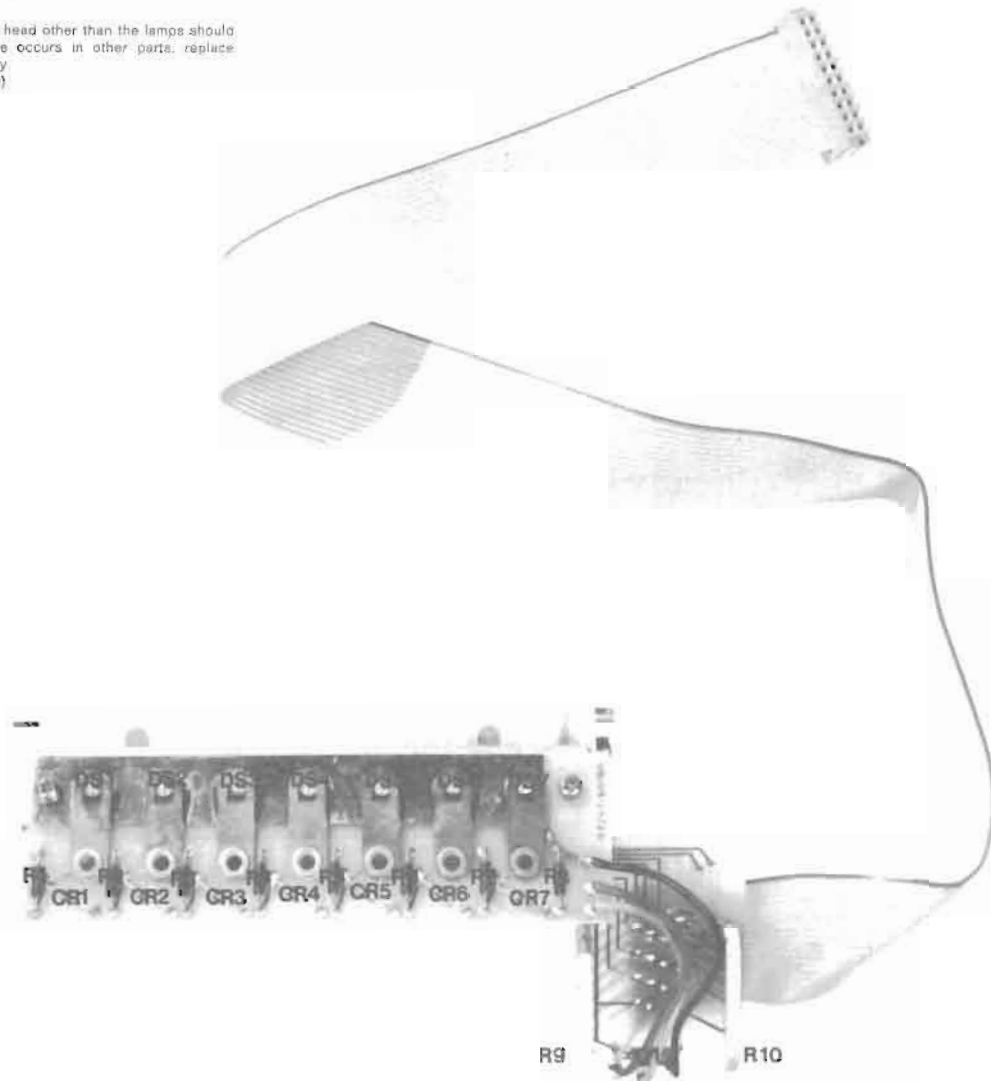


S12 SWITCH POSITION	S12A TERMINALS CONNECTED	
	S12B TERMINALS CONNECTED	S12C TERMINALS CONNECTED
CLOCK AFTER DATA	6 AND 7	NONE
CLOCK ON DATA	6 AND 7	1 AND 3
40 COLUMN NO CLOCK	6 AND 7	1, 4, AND 8
80 COLUMN NO CLOCK	6 AND 2	1 AND 8

Figure 7-11. A6/A7/A8 PCA's Schematic



NOTE: No parts on read head other than the lamps should be replaced. If a failure occurs in other parts, replace the Read Head Assembly (HP Part No. 07261-61120)



*No ps other than the lamps should be replaced. If failure occurs replace Read Head Assembly A9
07261-61090*

Reference Designation	HP Part Number	Reference Designation	HP Part Number
A9A1	07261 60180	A9A2	07261-61090
A9ATC1	0180 0197	A9A2C1	1990 0409
A9ATCR1	1901 0040	A9A2C2	1990 0409
A9A1CR2	1901 0040	A9A2C3	1990 0409
A9A1CR3	1901 0040	A9A2C4	1990 0409
A9A1CR4	1901 0040	A9A2C5	1990 0409
A9A1CR5	1907 0040	A9A2C6	1990 0409
A9A1CR6	1901 0040	A9A2C7	1990 0409
A9A1CR7	1901 0040	A9A2C8	1990 0409
A9A1DS1	2140 0256	A9A2C9	1990 0409
A9A1DS2	2140 0256	A9A2C10	1990 0409
A9A1DS3	2140 0256	A9A2C11	1990 0409
A9A1DS4	2140 0256	A9A2C12	1990 0409
A9A1DS5	2140 0256	A9A2C13	1990 0409
A9A1DS6	2140 0256	A9A2R9	1610-0218
A9A1DS7	2140 0256	A9A2R10	1610-0218
A9ATR1	0757 0394		
A9ALB2	0757 0394		
A9ATR3	0757 0394		
A9ATR4	0757 0394		
A9ATR5	0757 0394		
A9ALB6	0757 0394		
A9ATR7	0757 0394		
A9ALB8	6757 0442		

Figure 7-12. A9A1/A9A2 Head Lamp and Head Phototransistor PCA

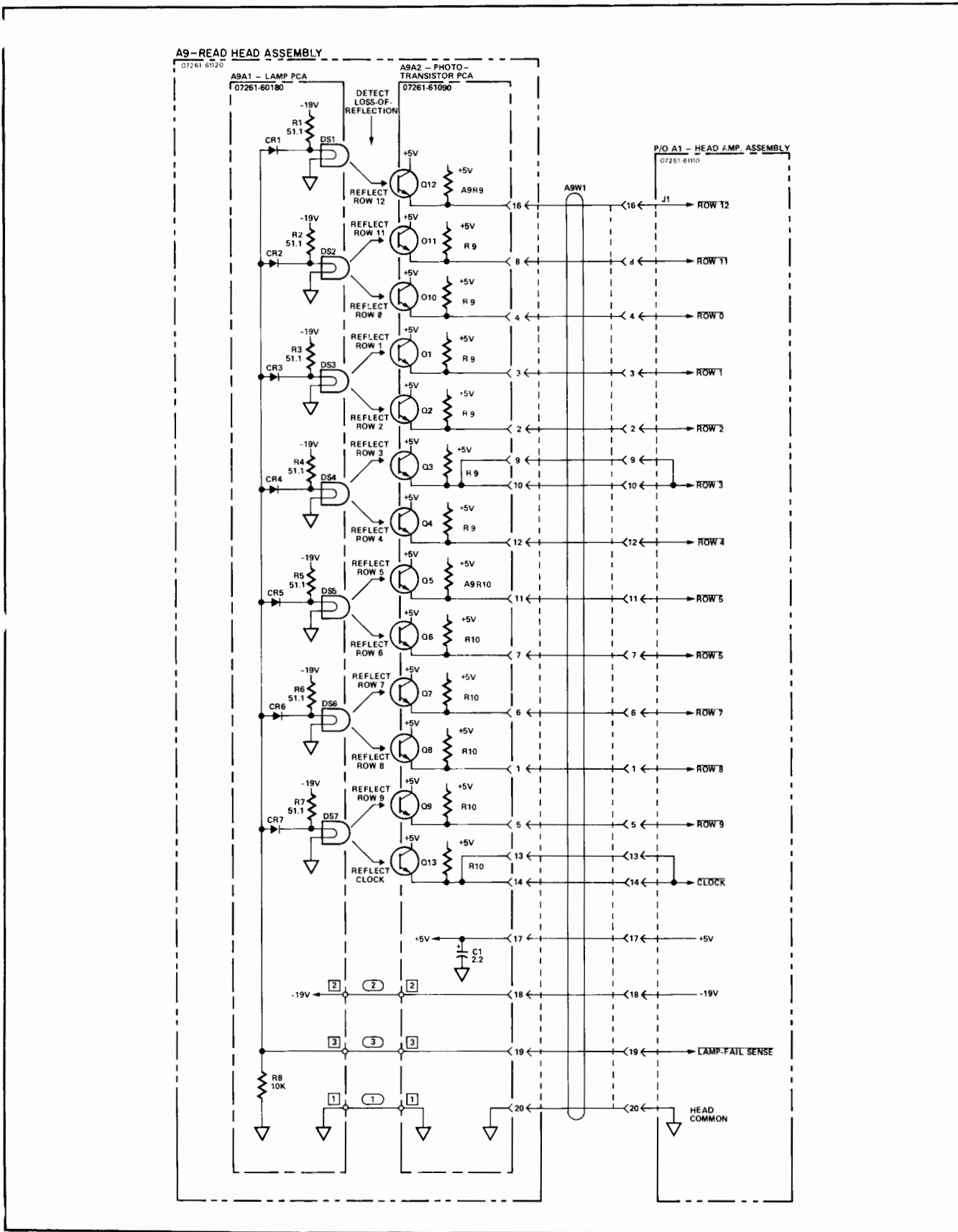


Figure 7-13. A9 Read Head Schematic

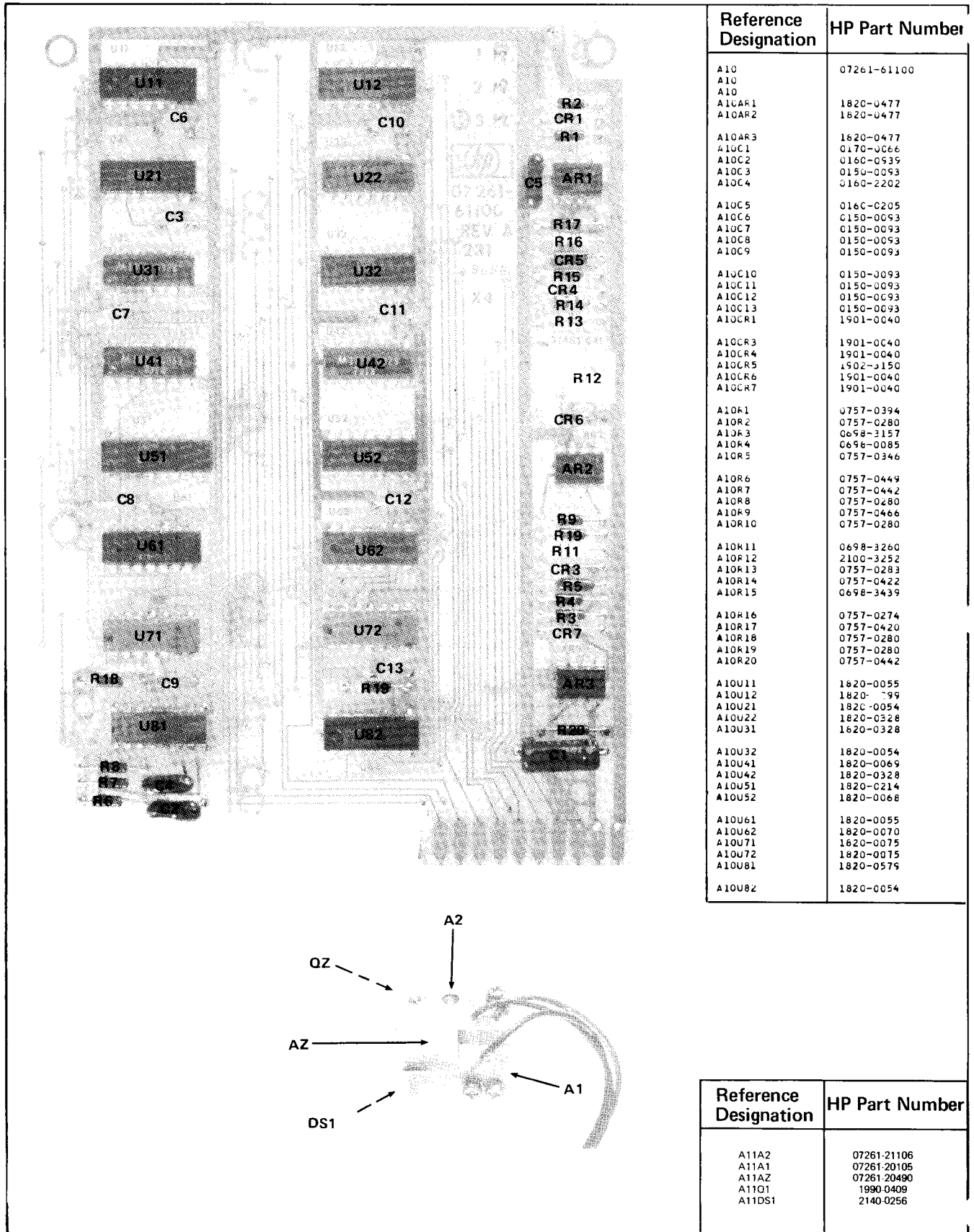


Figure 7-14. A10 Encoder Logic/A11 Encoder Phototransistor PCA

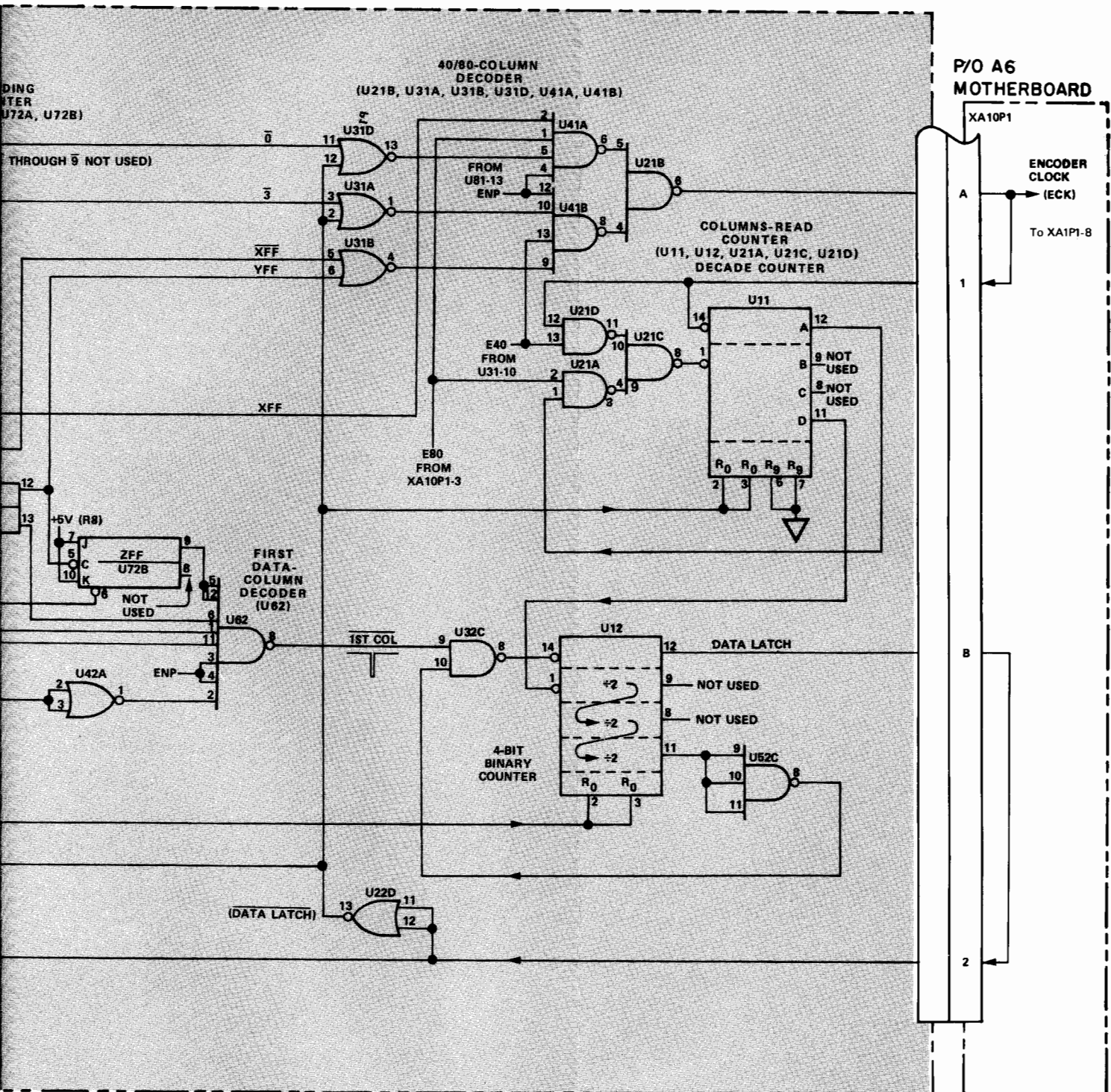
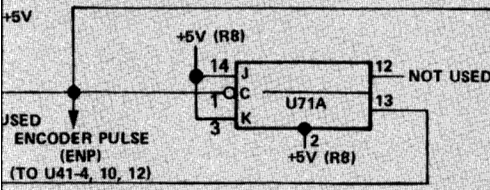
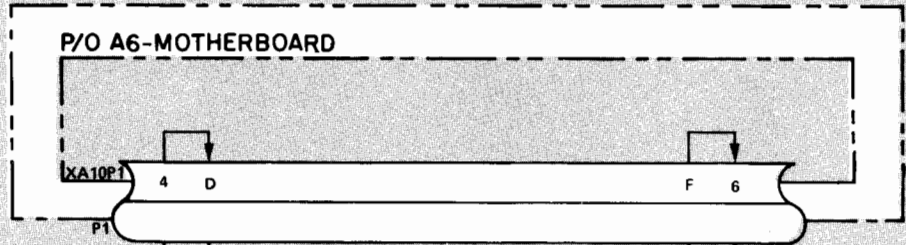
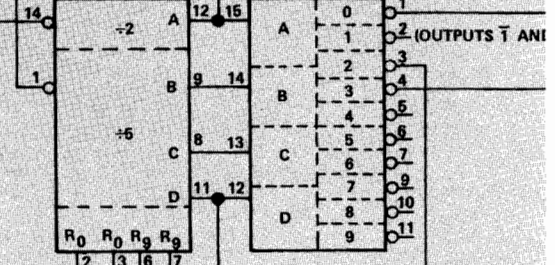


Figure 7-15. A10/A11 Schematic

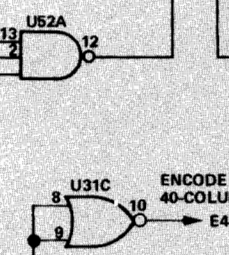
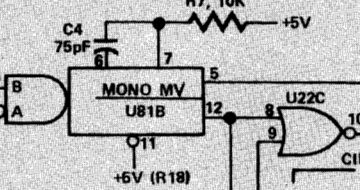
PULSE DOUBLER
(U71A, U81A, U82D)



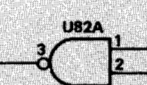
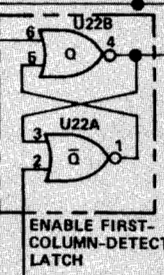
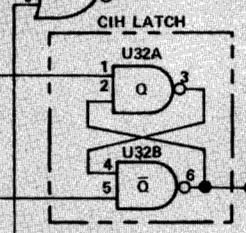
DECADE COUNTER (U61)
4-LINE-TO-10-LINE DECODER (U61)
ENI CO (U61, U71)



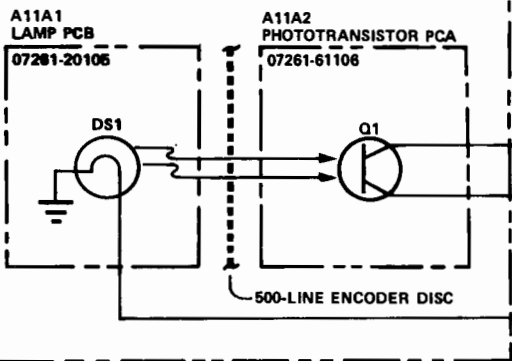
ENCODING-COUNTER RESET (U81B)



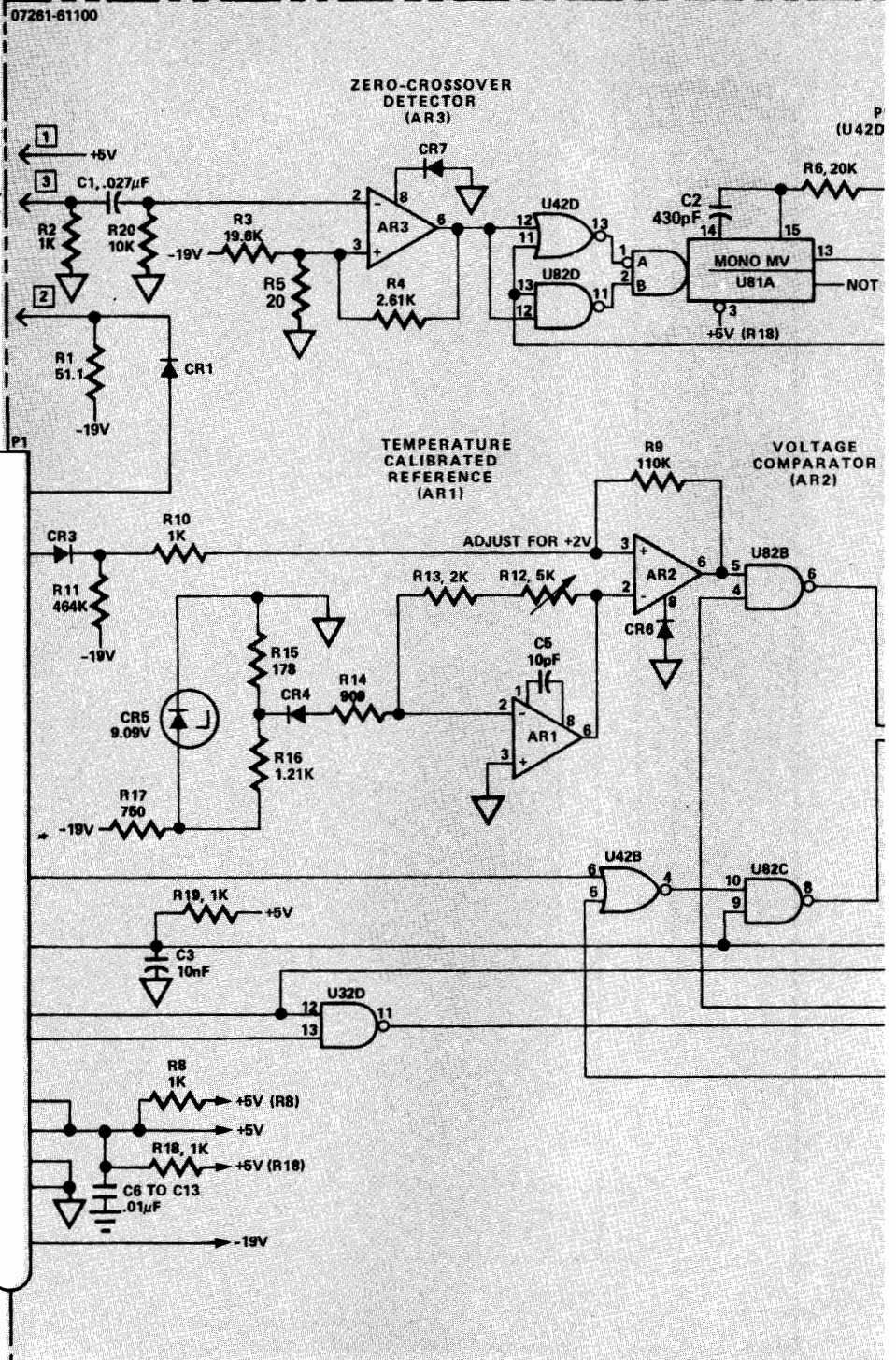
ENCODE FOR 40-COLUMN
E40 TO U21-13
U41-13
E80 TO U21-2
U41-2



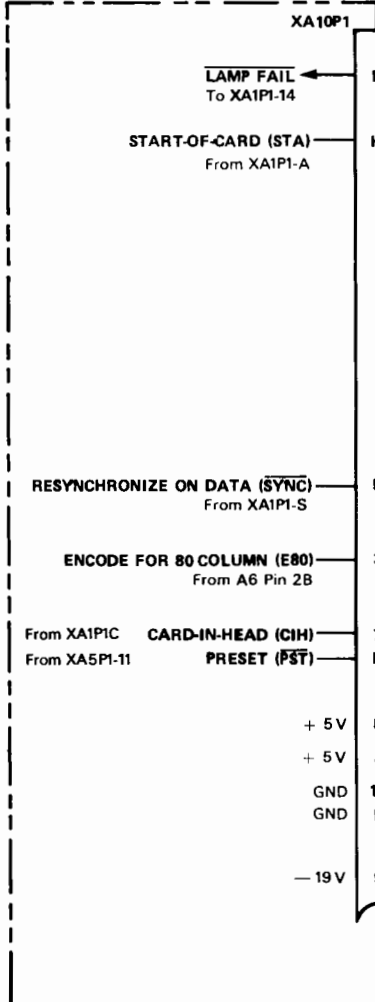
AII-ENCODER HEAD ASSY.



AIO-ENCODER LOGIC PCA



P/O A6-MOTHERBOARD





APPENDIX A

TAB CARD SPECIFICATIONS

A-1. PURPOSE.

A-2. This specification contains essential information required to design and produce tab cards for use in Hewlett-Packard Optical Mark Readers.

A-3. TAB CARD DESCRIPTION.

A-4. The HP Mark Readers use standard size tab cards (3-1/4 inch x 7-3/8 inch) for data entry. Each standard card can contain a maximum of 12 rows and 80 columns of data. Data on the cards may be coded by punch, by marking pre-printed boxes with an ordinary soft-lead pencil or coded by a combination of punched holes and marks. Cards up to 11-1/8 inches with 96 data columns can be read (see Figure A-1; 96 columns maximum per 11-inch card, 80 columns maximum per 7-3/8-inch cards). Reading of columnar data is controlled by clock marks printed along the bottom edge of the card. To properly synchronize sensing of the clock marks with the penciled data marks and/or punched holes, dimension and ink specifications contained in this document must be carefully followed. With the encoder option, (003), some cards can be read without a clock track.

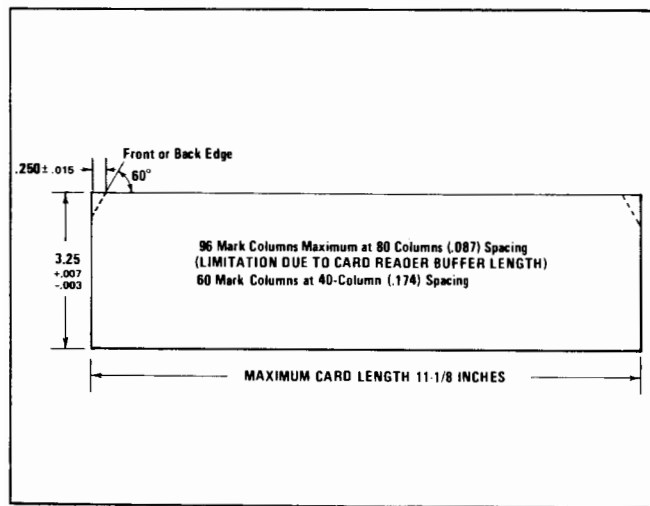


Figure A-1. Dimension Specifications for 11-Inch Cards

A-5. DIMENSION SPECIFICATIONS.

A-6. CLOCK MARKS.

A-7. Each column of data to be read must be either followed by or coincident with a clock mark. Spacing between clock marks may vary to accommodate any number of columns from one to 80 (one to 96 on 11-inch card). Clock mark centerlines are positioned midway between centerlines of consecutive columns of punched holes or pencil-mark boxes on the card for Clock-After-Data and on the centerlines of the data positions for Clock-On-Data. In the case of punched data, clock mark position is fixed precisely by the punching positions. Clock mark positions for marked data are generally not critical since their position is relative to the marking position and not a precise position on the card. For any 80-column card, the distance between clock marks is fixed by the keypunch machine to be 0.087 inch. Figure A-2 shows the dimension specifications for an 80-column tab card with Clock-After-Data; 80-column Clock-On-Data is shown in Figure A-3. Dimension specifications for a 40-column card are shown in Figure A-4. Enclosed marking box dimensions as used for pencil marked cards are also given. Note that the distance between clock marks is twice that for an 80-column card. Because reading is controlled by a clock mark for each column, variable column spacing is possible (see Figures A-5 and A-6).

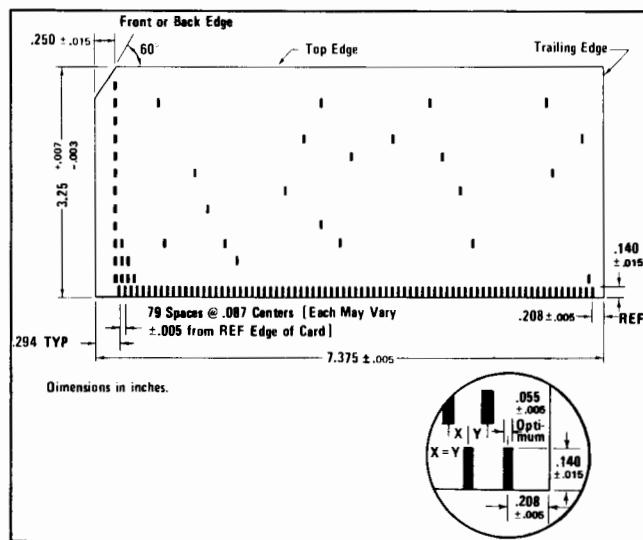


Figure A-2. Clock-After-Data 80-Column Format

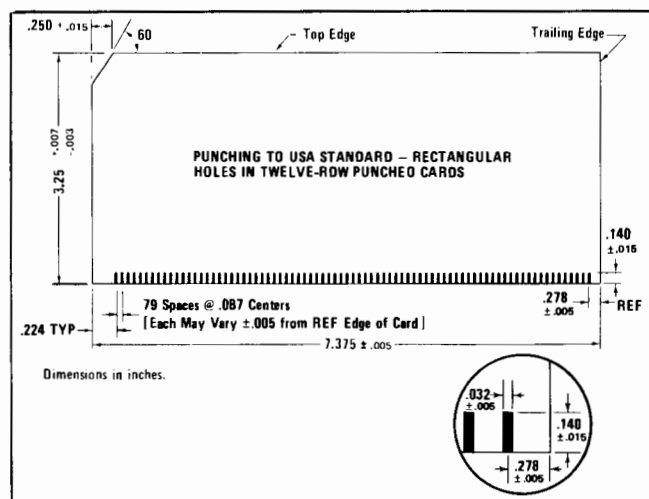


Figure A-3. 80-Column Clock-On-Data

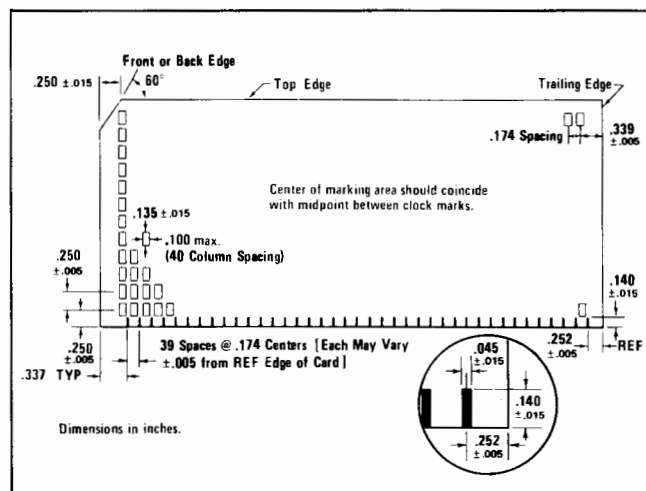


Figure A-4. Dimension Specifications for 40-Column Format

A-8. When using Clock-After-Data, writing is permissible only after the last clock mark on the card. When using Clock-On-Data, writing is permissible any place on the card except directly above clock marks. Typical marking box designs are shown in Figure A-7.

A-9. ENCODER — 40-COLUMN (OPTIONAL).

A-10. See Figure A-8 for dimensional information.

A-11. ENCODER — 80-COLUMN (OPTIONAL).

A-12. Standard data processing card with non-reflective ink. **Punched** cards to ANSI specification for punching cards. The Card Reader can recognize a punch even with black ink on the card.

A-13. CARD LAYOUT.

A-14. Cards may be designed using Hewlett-Packard Card Layout Form 5952-2773. This form gives basic layout information for standard 40- and 80-column formats. It can also be used for other column formats that are within specifications. Reader users who do not wish to complete their own card artwork can use this form as a rough draft for purchasing printed cards. The completed card layout form contains all information necessary for the tab card printer to design and print cards according to customer requirements.

A-15. VARIATIONS OF CARD DIMENSIONS AND HOLE LOCATIONS.

A-16. The stock commonly used for punched cards is inherently subject to changes in dimensions with

changes in temperature and humidity. At a constant temperature of 73°F, a change in relative humidity from 20% to 75%, or from 75% to 20% will change the dimensions of the card as much as 0.018 inch in length and 0.023 inch in width; the location of punched holes will also vary accordingly. These dimension changes become important if they occur during the storage period beginning after the clock marks are printed, and the time the cards are actually keypunched. The clock marks may not line up with the punched holes, thereby affecting the validity of the data punched on the cards. Dimension changes of this type do not affect cards used only for pencil-mark reading, because the marking boxes and clock marks will always remain in the same relative positions. Temperature variations within ranges normally maintained for human comfort will not substantially affect dimension changes. However, for maximum reliability of information interchange, cards should be printed with clock marks, punched, read, transported, and stored at the same temperature and relative humidity levels. The humidity and temperature should be approximately 53% at 73°F at the time of printing.

A-17. INK SPECIFICATIONS.

A-18. Printing of clock marks should be done in non-reflective black ink (i.e., Sinclair and Valentine Black Offset Ink J-24107 or Black Letterpress Ink J-20673 or equivalent). Background printing should be done in reflective ink to be non-readable by the reader (i.e., Sinclair and Valentine Red J-6983, J-25083, J-19410, or J-24882; Yellow J-24185; Light Green J-24185 or J-24554; Dark Green J-22052; Light Blue J-24186 or J-24662; Dark Blue J-18710; Magenta J-20045; Brown J-22053; Black J-20988; Light Blue-Green J-24555; Pink J-24944 or J-24893, or equivalent).

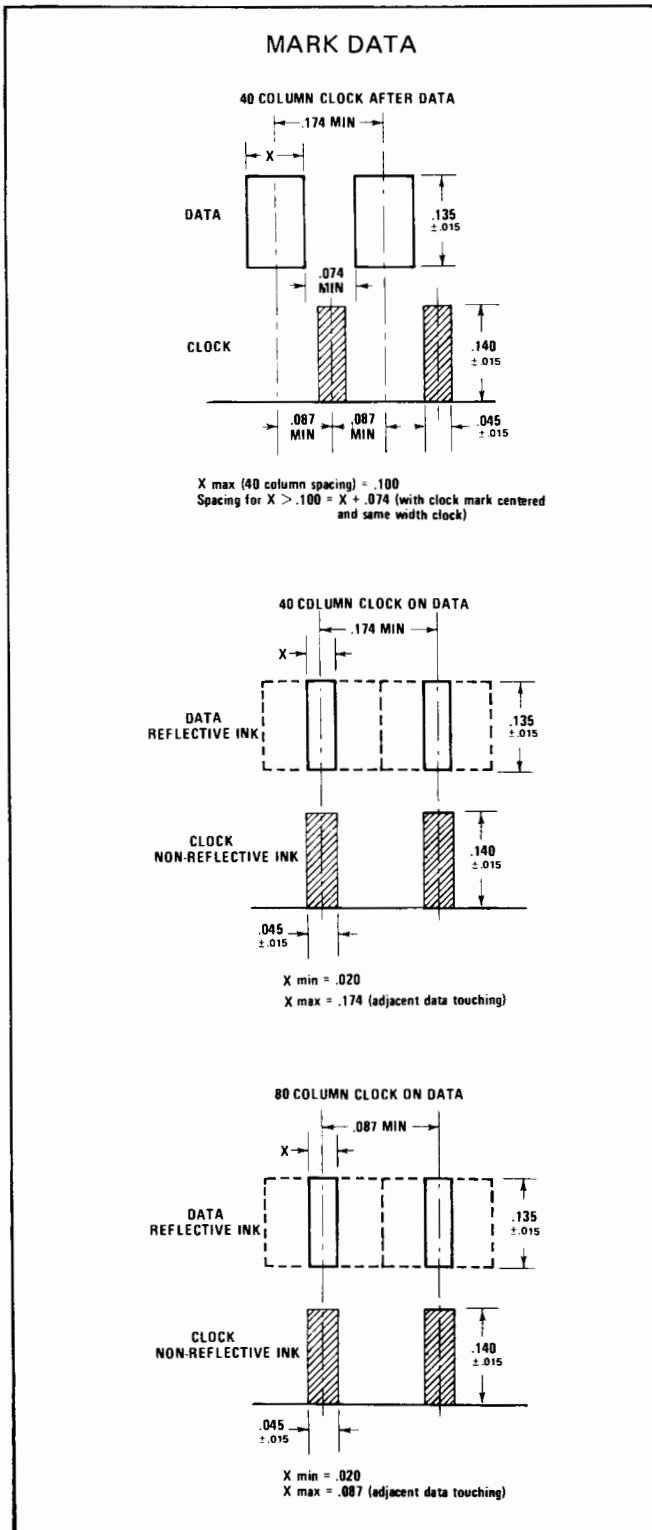


Figure A-5. Data-to-Clock Relationship (Mark Data)

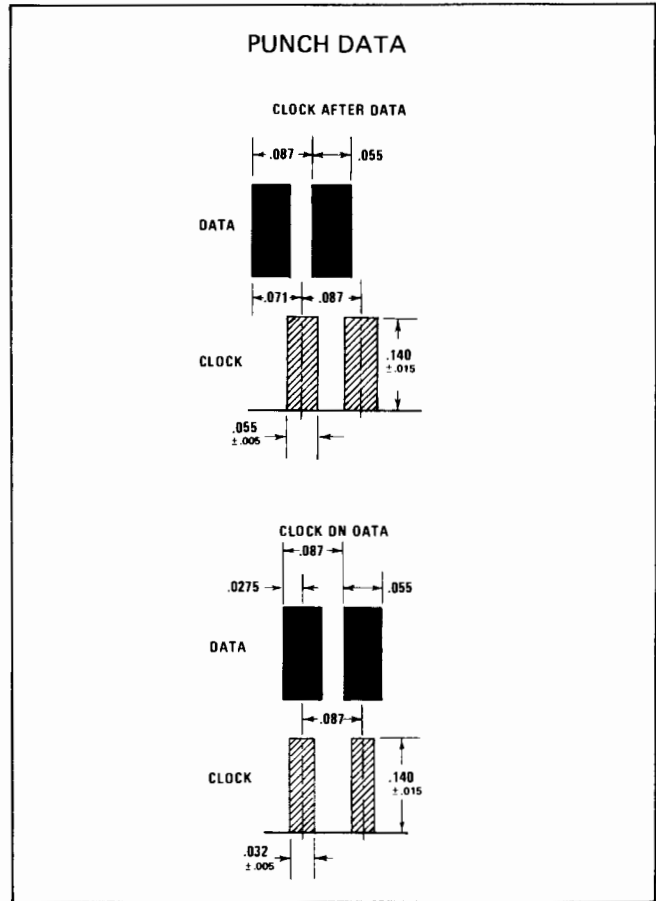


Figure A-6. Data-to-Clock Relationship (Punch Data)

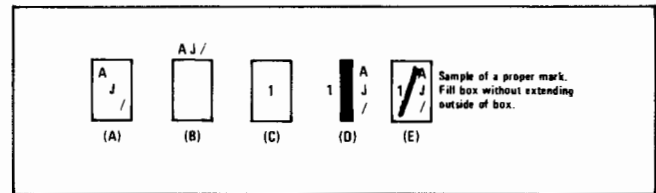


Figure A-7. Typical Marking Box Designs

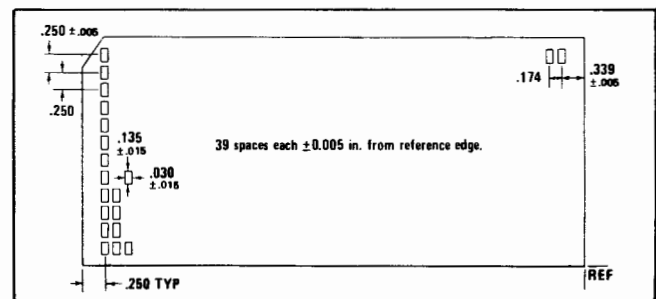


Figure A-8. Encoder 40-Column Mark

APPENDIX B — SECTION I

INTERFACE INFORMATION

B1-1. INTRODUCTION.

B1-2. This manual provides information required to interface the Model 7261A Optical Mark Reader with an information receiver such as a digital computer.

B1-3. GENERAL DESCRIPTION.

B1-4. The Optical Mark Reader is capable of reading punched or marked tab cards under computer control at a rate of 300 cards per minute. Each standard tab card contains up to 80 columns (up to 120 columns for 11-inch card) of data arranged in 12 rows. Card reading is initiated by a control signal from the data receiver (device command). This causes the Reader to pick a card from the input hopper and pass through the read head at a uniform speed. Data is detected by sensing a change in reflected light. A transfer signal from the Reader (flag signal) generated either by clock marks located along the bottom edge of the card or an optional encoder wheel, indicates that a column is ready for transfer from the Reader to the computer. Deciphering the 12 parallel lines into usable data is the responsibility of the computer program.

B1-5. In addition to the 12 data lines, the Reader has four status lines to indicate the operating condition of the Reader. Three command lines are used to control the motor, bell, and select hopper.

B1-6. PANEL CONTROLS.

B1-7. The front panel controls (refer to Figure B1-1) operate as follows:

- a. LINE.
 1. Turns primary power on.
 2. Presets logic circuits.
 3. Forces Reader in not ready mode. Cards cannot be picked in the not ready mode.

- b. READY.

1. Attempts to place Reader in ready mode. The Reader will stay not ready if the input hopper is empty, output hopper is full, select hopper is full or if the read head has a lamp failure.

- c. STOP.

1. Places Reader in not ready mode. Allows operator to stop computer-controlled picking so that hopper servicing may be accomplished.

- d. READY INDICATOR.

1. Indicates when Reader is in ready mode. Ready mode is also indicated on a status line.

- e. PICK FAIL INDICATOR.

1. A pick fail occurs if a card has not reached the read head within approximately 300 ms after a Device Command has initiated the pick sequence. The computer is notified via the status lines and the Reader stays in the ready mode so additional pick attempts can be made. For example, the programmer may notify the operator after a pick fail that the Reader needs attention.

B1-8. The rear panel controls (refer to Figure B1-2) are:

- a. Identification tag.
- b. 36-pin connector (Cinch 57-40360-375 (383)).
- c. Card selector switch (rotary).
- d. Fuse receptacles.
- e. Line voltage selector switch (slide).
- f. Power connector.

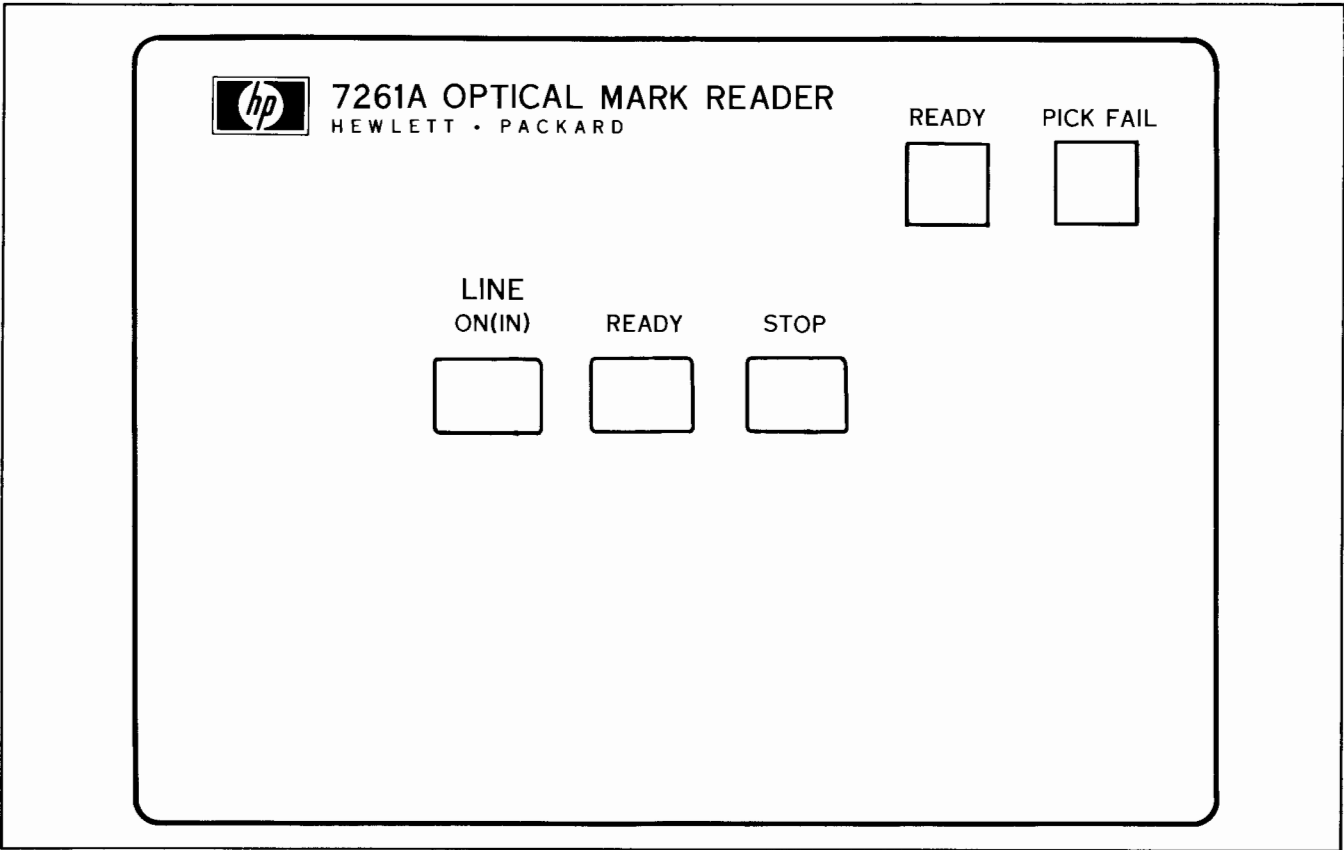


Figure B1-1. Front Panel

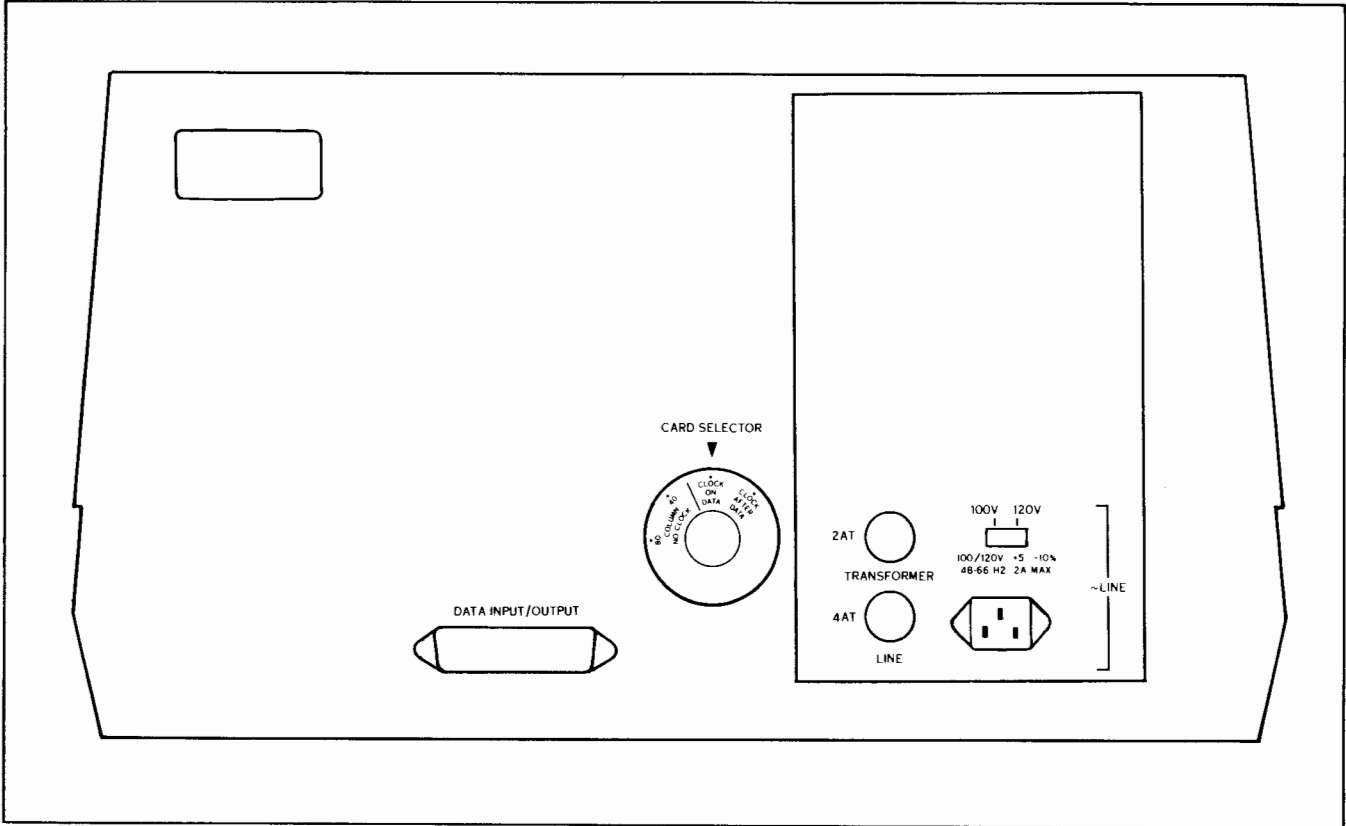


Figure B1-2. Rear Panel

APPENDIX B – SECTION II



INTERFACE

B2-1. 7261A INTERFACE.

B2-2. This section provides information required to interface the 7261A Optical Mark Reader. Complete input/output specifications for the Reader are included.

B2-3. Pin assignments for the interface connector are listed in Table B2-1. These lines grouped by function are:

- a. Command lines (4).
- b. Data Lines (12).
- c. Transfer Lines (1).
- d. Status Lines (4).

B2-4. COMMAND LINES.

B2-5. All command lines originate at the computer. All other lines originate at the Reader.

B2-6. CLEAR TO SEND COMMAND (CTS).

B2-7. CTS high allows normal operation of the Reader. CTS low causes the motor to be off and no Device Flag is generated in response to a Device Command. If CTS is not used, leave the connector pin unconnected and it will be accepted by the Card Reader as high.

B2-8. DEVICE COMMAND.

B2-9. The device command signal starts the Reader pick wheel on the high to low transition. To insure proper operation, the pulse must be greater than 10 microseconds for a single pick. If continuous picking is desired, leave the device command low. The Reader will continue picking cards until the signal is brought high or until a pick fail occurs or when the output hopper is full or input hopper is empty. Each device command causes at least one device flag to be generated by the Reader unless CTS is low. The device command logic may be inverted by changing DEV Jumper on the A3 board from N to P.

B2-10. SELECT COMMAND.

B2-11. For Card Readers equipped with Option 002 (Select Hopper), a select command may be activated

by bringing pin 21 low (logic 1) between Device Commands. The card picked by the preceding device command will be ejected into the select hopper rather than the output hopper. The select command must be deactivated five microseconds prior to the next device command to avoid selecting the following card. Minimum pulse width is 10 microseconds.

B2-12. BELL COMMAND.

B2-13. On Readers equipped with Option 004, the bell is activated on a high to low transition of the bell command on pin 22. The bell duration is 60 milliseconds as controlled by internal timing in the Card Reader. Pulse width of the bell command is 10 microseconds or greater.

B2-14. DATA LINES.

B2-15. A mark or punch on a tab card corresponds to a logic 1 (low) at the interface. Data is valid for a given column from the time a flag goes low until 15 microseconds (minimum) before the next flag (see Figure B2-1).

B2-16. DEVICE FLAG.

B2-17. The Device Flag signal (negative pulse with 12 microseconds $\pm 20\%$ duration) is generated in response to a Device Command. If a Device Command results in a card feed, there will be one flag for each column read on the tab card, each column with a clock mark on standard readers or each column on the card with encoder option, plus one more indicating end of card. For an 80-column card the period between flags is 1.6 milliseconds $\pm 10\%$. If a pick fail occurs, a flag will be sent back after 250-300 milliseconds. If a device command does not result in a card feed, one flag will be generated following the high to low transition, the status line indicating a hopper bad or not ready condition will be low. (See Figure B2-1A for no card condition, B2-1D for pick fail condition, B2-1C for EOC condition, and B2-1B for data OK condition.)

B2-18. STATUS LINES.

B2-19. The status lines are valid at any time power is on and are tested by the computer program to determine the Reader's condition. Flow charts illustrating recommended procedures for evaluating status before

Table B2-1. Connector Pin Assignments

Card Reader Connector Pin	Function		True*	False	
1	Data Output	Row R	0V	+V	Data Lines from CR
2	Data Output	Row X	0V	+V	
3	Data Output	Row 0	0V	+V	
4	Data Output	Row 1	0V	+V	
5	Data Output	Row 2	0V	+V	
6	Data Output	Row 3	0V	+V	
7	Data Output	Row 4	0V	+V	
8	Data Output	Row 5	0V	+V	
9	Data Output	Row 6	0V	+V	
10	Data Output	Row 7	0V	+V	
11	Data Output	Row 8	0V	+V	
12	Data Output	Row 9	0V	+V	
13	Feed OK Status		0V	+V	Status Lines from CR
14	Hoppers OK Status		0V	+V	
15	Extended CIH Status		0V	+V	
16	Card-In-Head Status		0V	+V	
18	Ground		0V	+V	Transfer Line from CR
19	Device Flag		0V	+V	
20	Clear To Send Command**		+V	0	Command Lines to CR
21	Select Command		0V	+V	
22	Bell Command		0V	+V	
23	Device Command		0V	+V	
36	Ground		0V	+V	

*0=0 to +.5; +V = +25V maximum

**All except CTS are ground true.

picking and while reading cards are shown in Figures B2-2, B2-3, and Table B2-2.

B2-20. CARD IN HEAD (CIH) STATUS.

B2-21. When a card enters the read head, the signal present on pin 16 goes low (logic 1) and remains low until the card exits the read head. See Figure B2-1A.

B2-22. EXTENDED CARD IN HEAD (ECIH) STATUS.

B2-23. Pin 15 is low (logic 1) during CIH plus 5 milliseconds $\pm 20\%$. See Figure B2-1C.

B2-24. HOPPERS OK STATUS.

B2-25. Pin 14 is high (logic 0) if the input hopper empty, output hopper is full or the select hopper is full.

B2-26. FEED OK STATUS.

B2-27. Pin 13 is high (logic 0) if the pick timer is on, ECIH = 1, Ready = 0, or Clear to Send = 0, indicating Reader is busy. The select hopper full condition of the Reader makes the Reader not ready when jumper RH on the A3 board is in position S. See Figure 2-6. If the programmer wishes to continue reading a card stack without the select capability, the jumper may be moved to position C. See Figure 2-6. Now when the select hopper goes full, the hopper OK line will indicate hoppers bad, but the Reader will stay ready so that picking can continue.

B2-28. TRANSMITTERS AND RECEIVERS.

B2-29. Command line inputs are TTL compatible with a .5 milliamp load. Input lines may be left open to

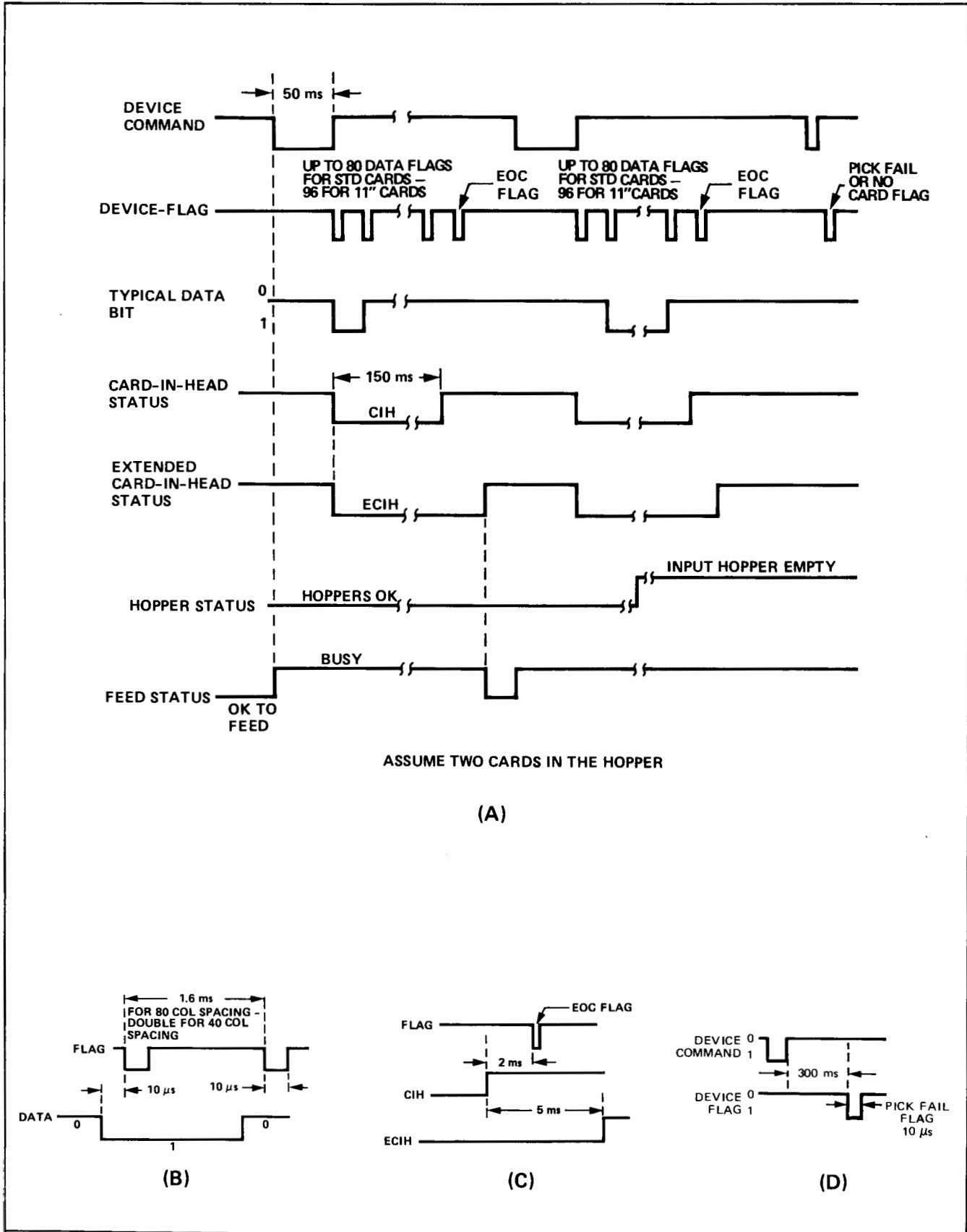


Figure B2-1. Optical Mark Reader Timing

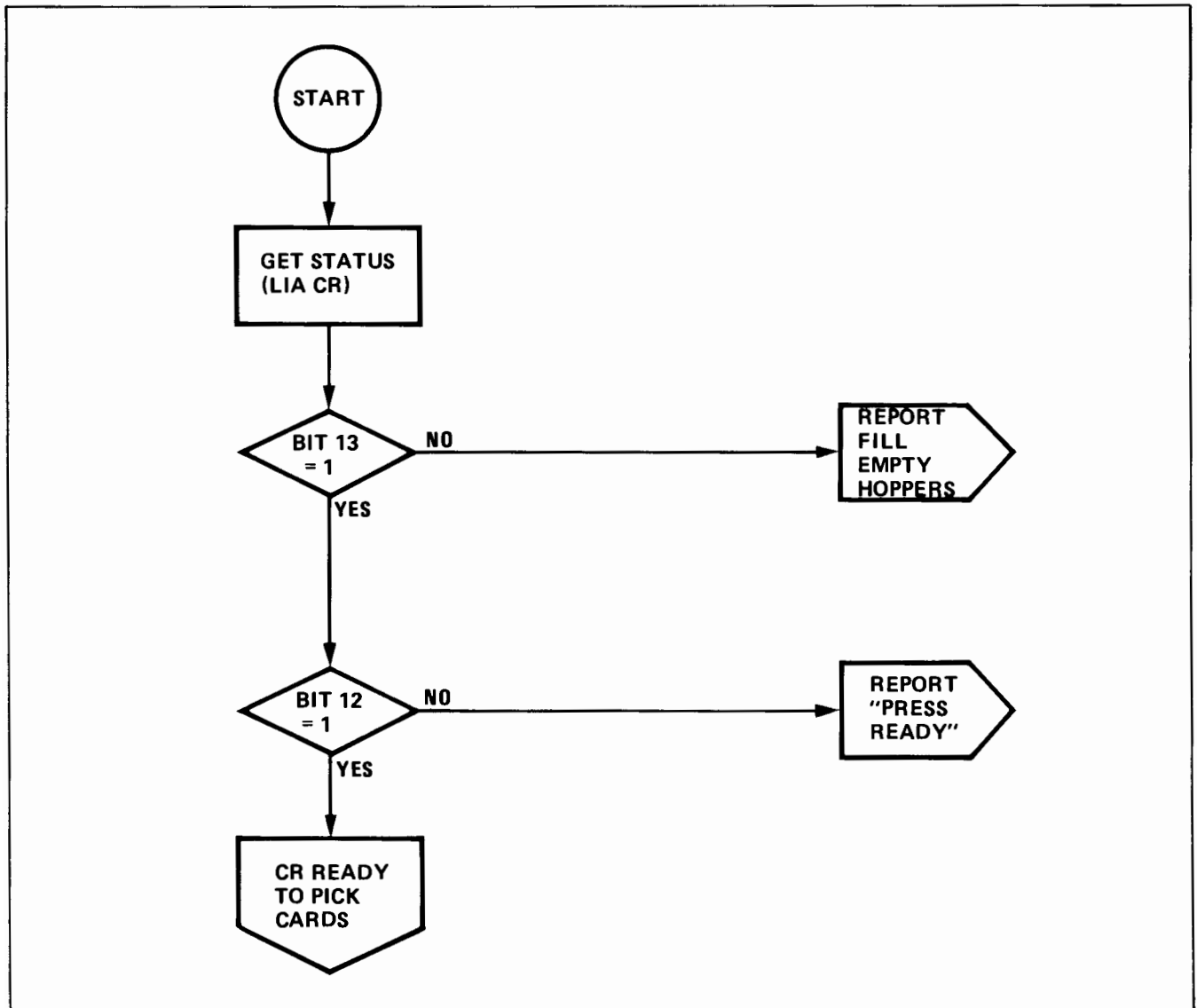


Figure B2-2. Flow Chart for Status Evaluation Prior to Pick

achieve a logic zero. Output lines are driven by open collector TTL gate capable of sinking 40 milliamps at 30 volts. The suggested receiver is shown in Figure B2-4. For the Device Flag receiver, it is recommended that a

Schmitt-trigger gate be used. This configuration is capable of driving cables up to fifty feet.

B2-30. A schematic of the interface is included (Figure 7-5).

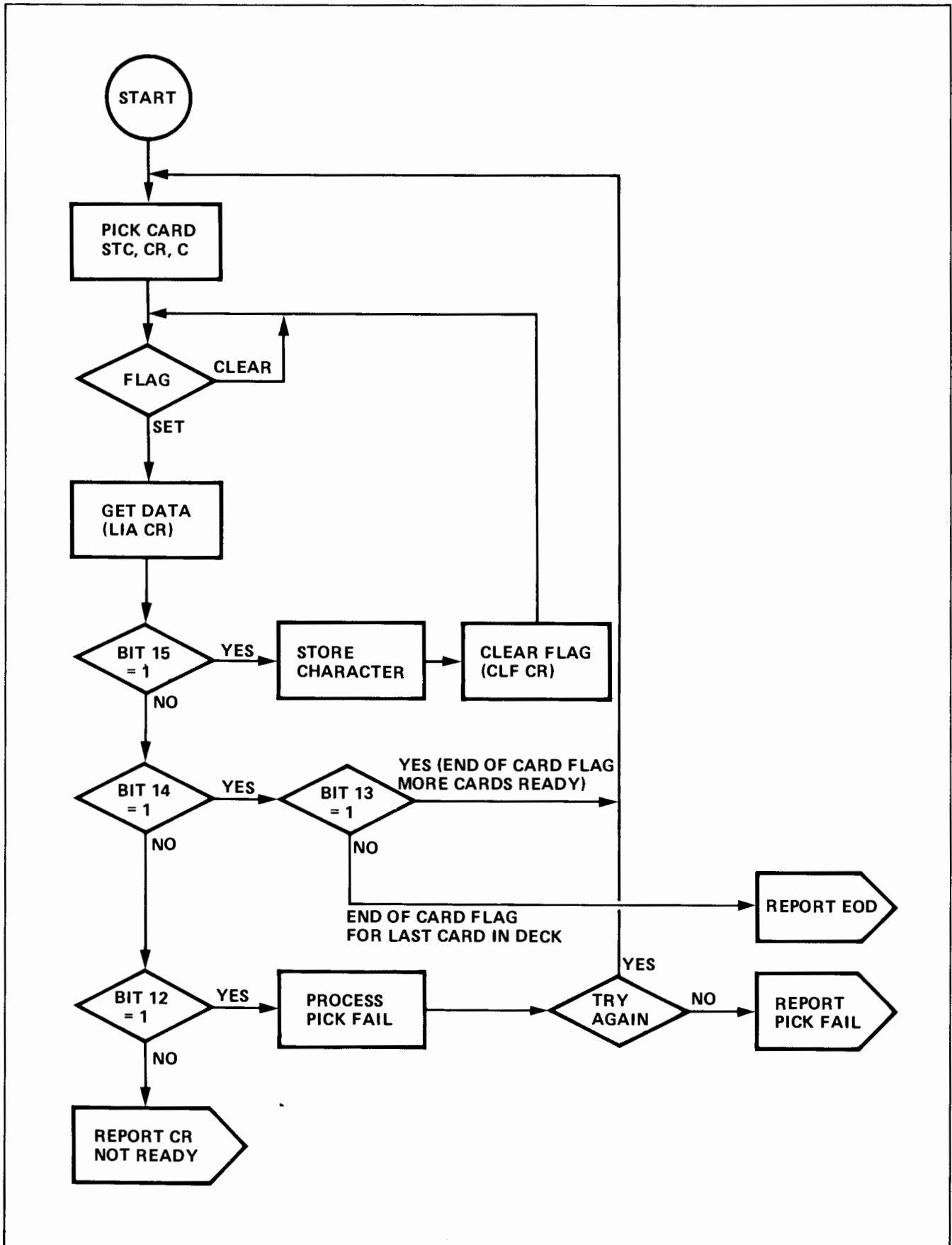


Figure B2-3. Flow Chart for Status Evaluation While Reading Cards

Table B2-2. Status Conditions

PIN NUMBER				CARD READER CONDITION
16	15	14	13	
0	0	0	0	Hoppers bad
0	0	0	1	2 Hoppers bad, OK to feed
0	0	1	0	Hoppers OK, not OK to feed
0	0	1	1	Hoppers OK, OK to feed
0	1	0	0	EOC, hopper bad (last card)
0	1	0	1	1
0	1	1	0	EOC
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	Data, (last card)
1	1	0	1	1
1	1	1	0	Data
1	1	1	1	1

NOTE: 1. Bit combination not possible
 2. Bit combination possible when Card Reader Jumper RH is in position C

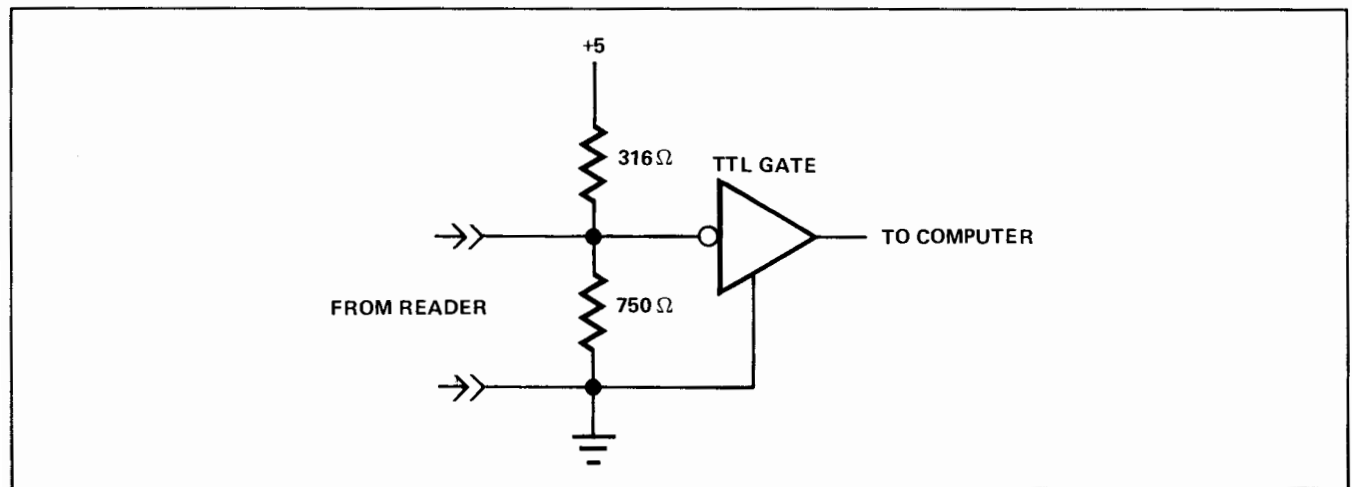


Figure B2-4. Recommended Receiver

APPENDIX C

LOGIC SYMBOLOLOGY

C-1. INTRODUCTION.

C-2. This appendix covers the sequential logic devices used on the 7261A Card Reader. Table C-1 lists the Sequential Logic Devices, and Figures C-1 through C-18 provide truth tables, and schematic symbols for these devices.

C-3. LOGIC STATES.

C-4. The logic signals are always in one of two possible states, a "1" or a "0". These two states are also referred to as high (H) or low (L). The high and low states reflect the relative voltage levels of the signals; the high state is always relatively more positive than the low state. Note that both states may have actual voltage values that are

positive, or both may be absolutely negative; the significance is in the relative levels of the two states. In the text of the manuals, logic states are normally described as "high" or "low."

C-5. The "not" bar associated with signal names is used to indicate whether the "active" state of the signal is high or low. For example, if the presence of data on a signal line is represented by a low signal, the signal name for the line might be "not" Data 1; if a signal clears the output register when the signal is low, the signal might be described as "not" Clear Output Register (COR). The "not" bar must be considered an integral part of the signal name; this means that there are high states for "not" signals and low states for "not" signals, just as there are high and low states for signals without the "not" bar.

Table C-1. Sequential Logic Devices

HP PART NUMBER	MANUFACTURER'S PART NUMBER	DESCRIPTION
1820-0055	SN 7490	BCD (Binary) Decade Counter
1820-0099	SN 7493	4-Bit (BCD) Binary Counter
1820-0261	SN 74121	Monostable Multivibrator
1820-0579	SN 74123	Retriggerable Monostable Multivibrator with Clear
1820-0741	Fairchild 9328	Dual 8-Bit Static (Non-dynamic) Serial Shift Register
1820-0733	Intel 1402A	Quad 256-Bit Dynamic Serial Shift Register
1820-0716	SN 74161	Synchronous 4-Bit Binary Counter
1820-0763	Intel M1404A	1024-Bit Dynamic Serial Shift Register
1820-1064	SN 74164	8-Bit Parallel-out Serial Shift Register
1820-1042	SN 74165	Parallel-load 8-Bit Shift Register
1820-0765	SN 74197	4-Bit Presettable Binary Counter/Latch

TRUTH TABLE

COUNT A INPUT	4-LINE BCD (BINARY) OUTPUT			
	(2^3) D	(2^2) C	(2^1) B	(2^0) A
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1



SCHEMATIC SYMBOL

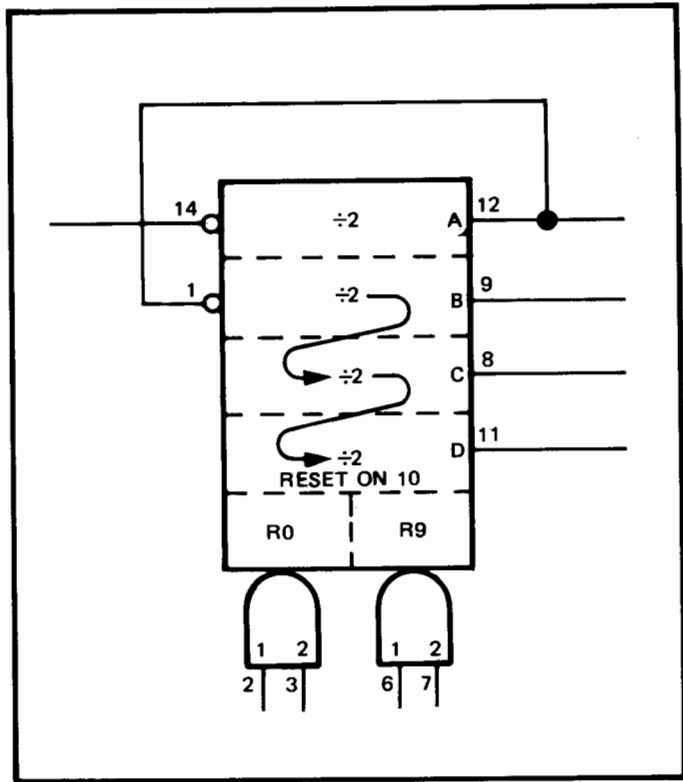


Figure C-1. BCD (Binary) Decade Counter — 1820-0055 — TI: SN 7430

TRUTH TABLE

COUNT A INPUT	4-BIT (BCD) BINARY OUTPUT			
	$D(2^3)$	$C(2^2)$	$B(2^1)$	$A(2^0)$
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

SCHEMATIC SYMBOL

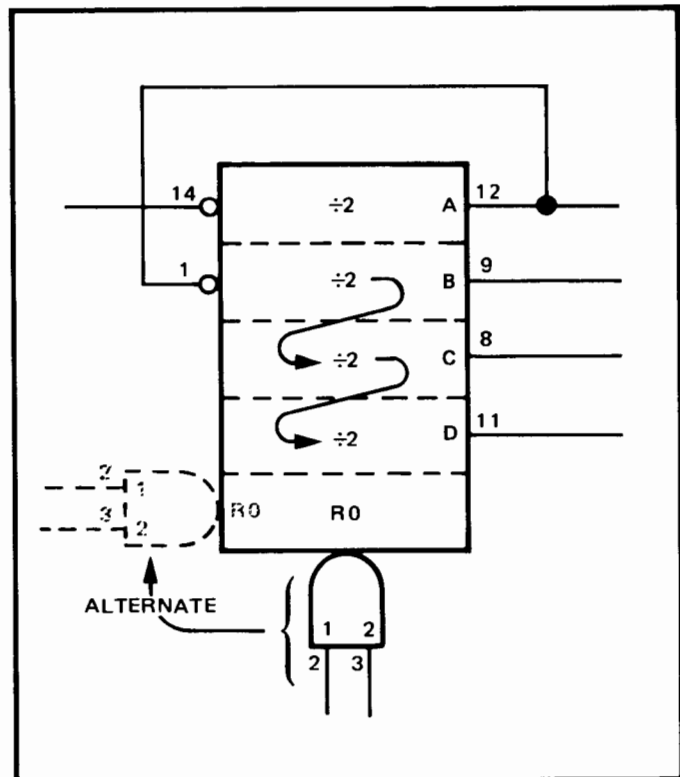


Figure C-2. Four-Bit (BCD) Binary Counter — 1820-0099 — TI: SN 7493

TRUTH TABLE

INPUTS			STATE OR TRANSITION	OUTPUTS	
A1	A2	B		Q	\bar{Q}
1	1	X	INHIBIT	0	1
X	X	0		0	1
\uparrow	X	X	INVALID TRANSITION	0	1
X	\uparrow	X		0	1
X	X	\downarrow		0	1
\downarrow	X	1	ENABLE AND VALID TRANSITION		
X	\downarrow	1			
X	0	\uparrow			
0	X	\uparrow			

X: IRRELEVANT STATE OR TRANSITION

SCHEMATIC SYMBOL

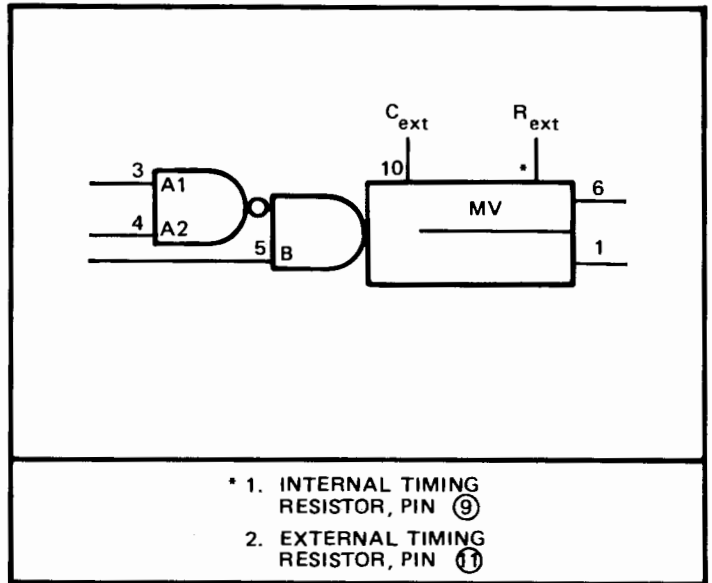


Figure C-3. Monostable Multivibrator – 1820-0261 – TI: SN 74121

TRUTH TABLE

INPUTS		OUTPUTS	
\bar{A}	B	Q	\bar{Q}
1	X	0	1
X	0	0	1
0	\uparrow		
\downarrow	1		

X: IRRELEVANT

SCHEMATIC SYMBOL

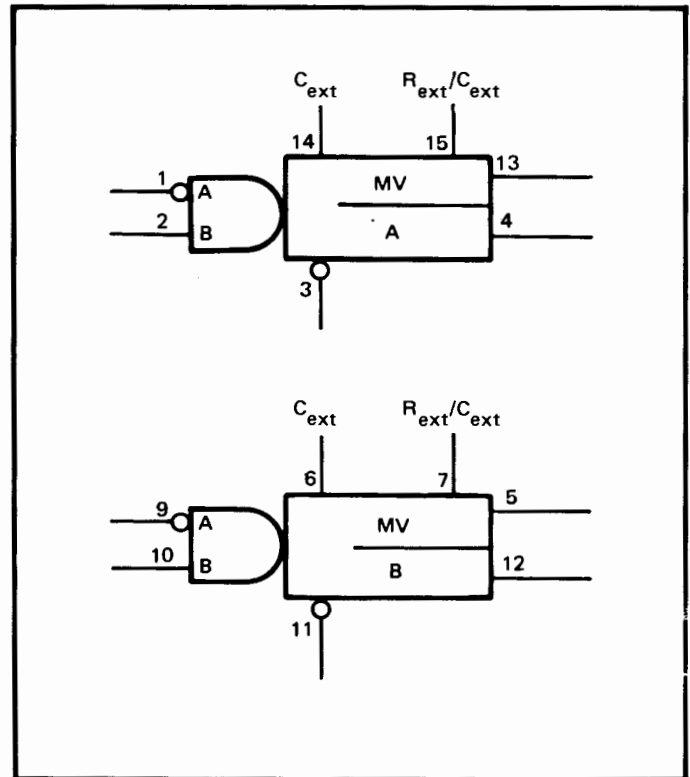


Figure C-4. Retriggerable Monostable Multivibrator with Clear – 1820-0579 – TI: SN 74123

TRUTH TABLES

D1	D0	(SEL) DS	RESULTANT INPUT	EVENTUAL OUTPUTS	
				Q	\bar{Q}
1	X	1	1	1	0
0	X	1	0	0	1
X	1	0	1	1	0
X	0	0	0	0	1

X: IRRELEVANT

INPUT	CLOCK COUNT	OUTPUT
BIT(1)	t_0	BIT(-8)
BIT(2)	t_1	BIT(-7)
⋮	⋮	⋮
BIT(8)	t_7	BIT(-1)
BIT(9)	t_8	BIT(1)

SCHEMATIC SYMBOL

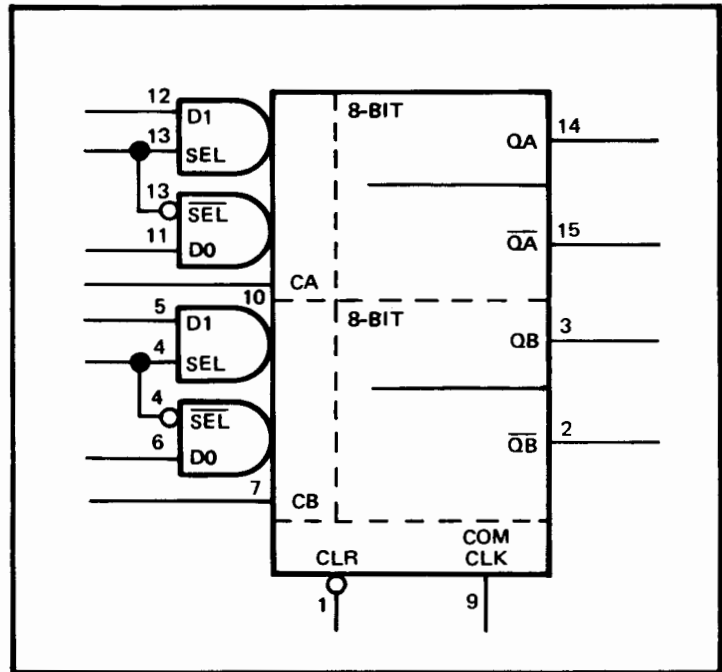


Figure C-5. Dual Eight-Bit Static (Non-dynamic) Serial Shift Register – 1820-0741 – Fairchild: 9328

TRUTH TABLE

INPUT	CLOCK COUNT	OUTPUT
BIT(1)	t_0	BIT(-256)
BIT(2)	t_1	BIT(-255)
BIT(3)	t_2	BIT(-254)
⋮		⋮
BIT(255)	t_{254}	BIT(-2)
BIT(256)	t_{255}	BIT(-1)
BIT(257)	t_{256}	BIT(1)

SCHEMATIC SYMBOL(S)

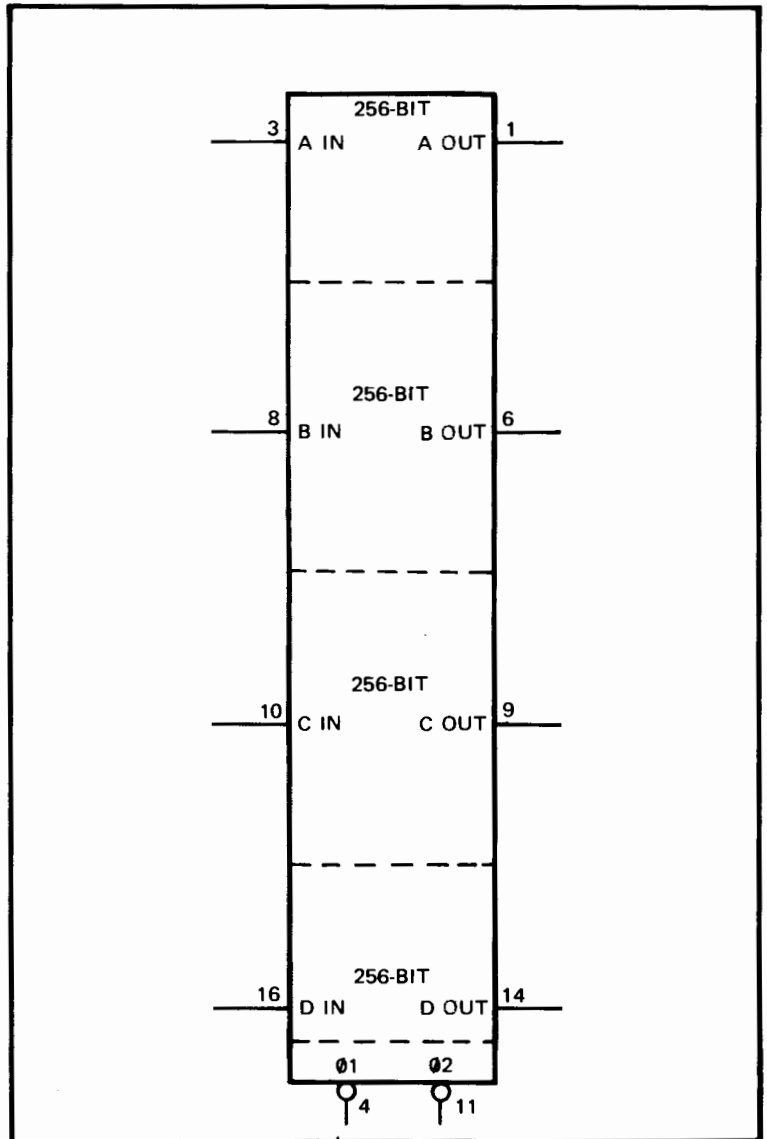


Figure C-6. Quad 256-Bit Dynamic Serial Shift Register – 1820-0733 – Intel: 1402A

TRUTH TABLES

CLEAR	LOAD	OUTPUT
0	1	0000
1	0	(=INPUT)

EN. P	EN. T	COUNT
1	1	ENABLE
1	0	INHIBIT
0	1	INHIBIT
0	0	INHIBIT

SCHEMATIC SYMBOL

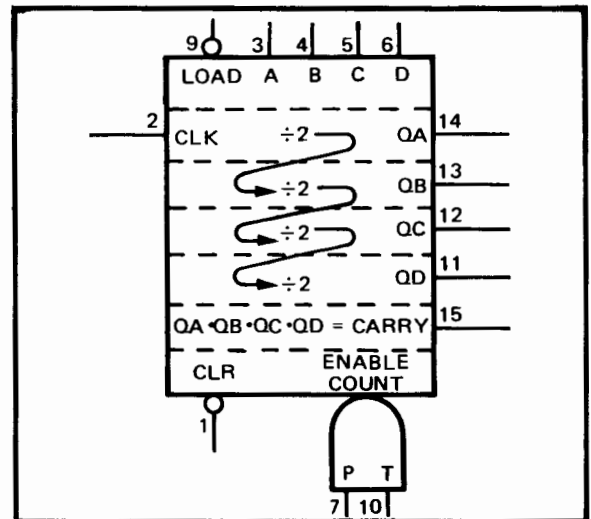


Figure C-7. Synchronous Four-Bit Binary Counter – 1820-0716 – TI: SN 74161

TRUTH TABLE

INPUT	CLOCK COUNT	OUTPUT
BIT(1)	t_0	BIT(-1024)
BIT(2)	t_1	BIT(-1023)
BIT(3)	t_2	BIT(-1022)
⋮	⋮	⋮
BIT(1023)	t_{1022}	BIT(-2)
BIT(1024)	t_{1023}	BIT(-1)
BIT(1025)	t_{1024}	BIT(1)

SCHEMATIC SYMBOL

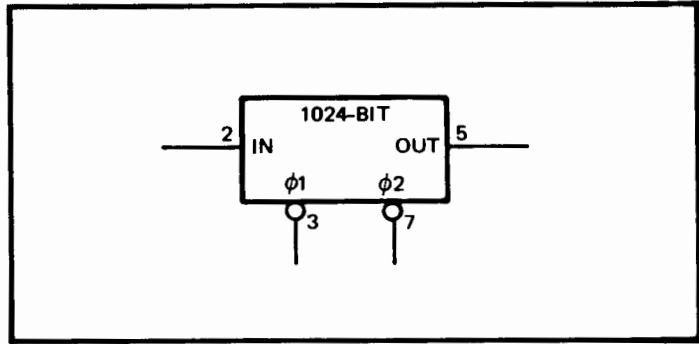


Figure C-8. 1024-Bit Dynamic Serial Shift Register — 1820-0763 — Intel: M1404A

TRUTH TABLE

SERIAL INPUTS (at t_n)		OUTPUT (at t_{n+1})
A	B	QA
1	1	1
1	0	0
0	1	0
0	0	0

SCHEMATIC SYMBOL

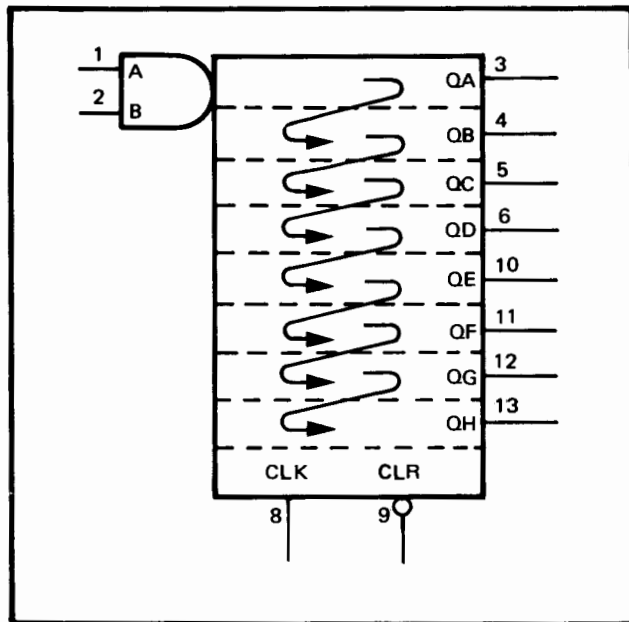


Figure C-9. Eight-Bit Parallel-Out Serial Shift Register — 1820-1064 — TI: SN 74164

TRUTH TABLE

$\overline{\text{LOAD}}$	CLK INH	CLK	OUTPUT	
			Q	$\overline{\text{Q}}$
1	1	X	X	X
0	1	X	1	0
1	0	\uparrow	H	$\overline{\text{H}}$
1	0	\uparrow	G	$\overline{\text{G}}$
1	0	\uparrow	F	$\overline{\text{F}}$
1	0	\uparrow	E	$\overline{\text{E}}$
1	0	\uparrow	D	$\overline{\text{D}}$
1	0	\uparrow	C	$\overline{\text{C}}$
1	0	\uparrow	B	$\overline{\text{B}}$
1	0	\uparrow	A	$\overline{\text{A}}$
1	0	\uparrow	0	1

X: IRRELEVANT

SCHEMATIC SYMBOL

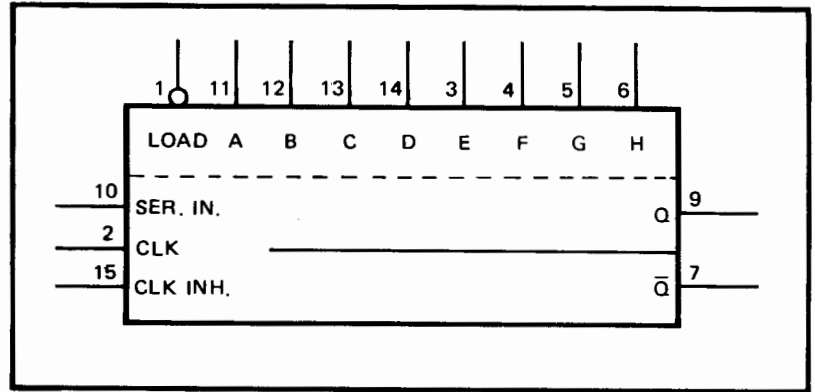


Figure C-10. Parallel-Load Eight-Bit Shift Register – 1820-1042 – TI: SN 74165

TRUTH TABLE

$\overline{\text{CLR}}$	$\overline{\text{LOAD}}$	CLK	QD	QC	QB	QA
0	1	X	0	0	0	0
1	0	X	D	C	B	A
1	1	0	0	0	0	0
1	1	1	0	0	0	1
1	1	2	0	0	1	0
1	1	3	0	0	1	1
1	1	4	0	1	0	0
1	1	5	0	1	0	1
1	1	6	0	1	1	0
1	1	7	0	1	1	1
1	1	8	1	0	0	0
1	1	9	1	0	0	1
1	1	10	1	0	1	0
1	1	11	1	0	1	1
1	1	12	1	1	0	0
1	1	13	1	1	0	1
1	1	14	1	1	1	0
1	1	15	1	1	1	1

X: IRRELEVANT

SCHEMATIC SYMBOL

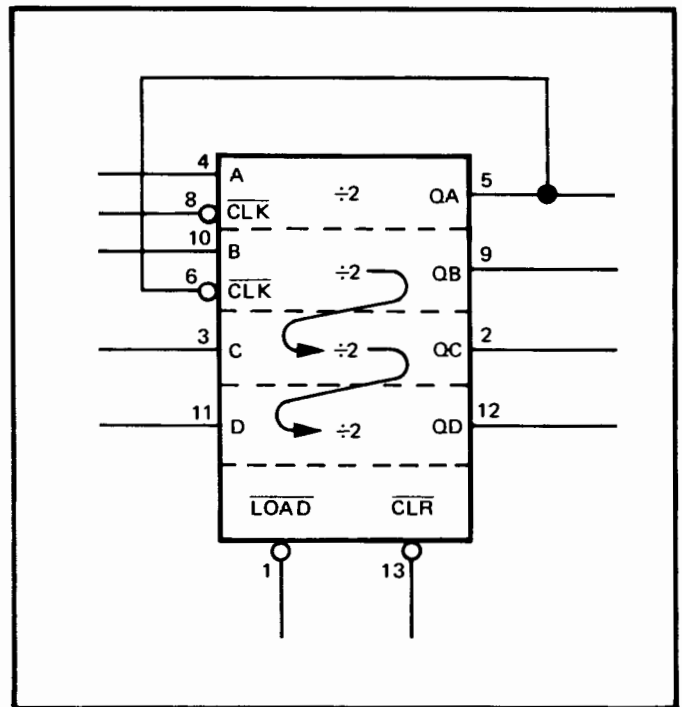


Figure C-11. Four-Bit Presettable Binary Counter/Latch – 1820-0765 – TI: SN 74197

TRUTH TABLE

4-LINE BCD (BINARY) INPUT				10-LINE DECIMAL OUTPUT									
(2 ³) D	(2 ²) C	(2 ¹) B	(2 ⁰) A	$\bar{0}$	$\bar{1}$	$\bar{2}$	$\bar{3}$	$\bar{4}$	$\bar{5}$	$\bar{6}$	$\bar{7}$	$\bar{8}$	$\bar{9}$
0	0	0	0	0	1	1	1	1	1	1	1	1	1
0	0	0	1	1	0	1	1	1	1	1	1	1	1
0	0	1	0	1	1	0	1	1	1	1	1	1	1
0	0	1	1	1	1	1	0	1	1	1	1	1	1
0	1	0	0	1	1	1	1	0	1	1	1	1	1
0	1	0	1	1	1	1	1	1	0	1	1	1	1
0	1	1	0	1	1	1	1	1	1	0	1	1	1
0	1	1	1	1	1	1	1	1	1	1	0	1	1
1	0	0	0	1	1	1	1	1	1	1	1	0	1
1	0	0	1	1	1	1	1	1	1	1	1	1	0

SCHEMATIC SYMBOL

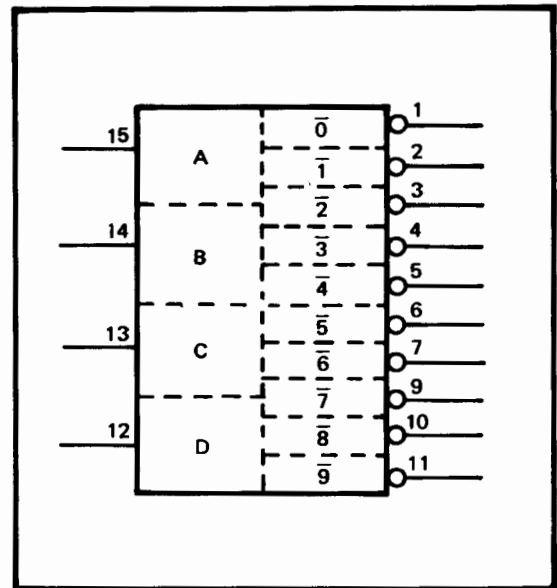


Figure C-12. Four-Line-to-Ten-Line BCD-to-Decimal Decoder – 1820-0214 – TI: SN 7442



TRUTH TABLE

4-LINE BCD (BINARY) INPUT				GATING INPUTS		16-LINE DECIMAL OUTPUT																
D (2 ³)	C (2 ²)	B (2 ¹)	A (2 ⁰)	$\overline{G1}$	$\overline{G2}$	$\overline{0}$	$\overline{1}$	$\overline{2}$	$\overline{3}$	$\overline{4}$	$\overline{5}$	$\overline{6}$	$\overline{7}$	$\overline{8}$	$\overline{9}$	$\overline{10}$	$\overline{11}$	$\overline{12}$	$\overline{13}$	$\overline{14}$	$\overline{15}$	
0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0	0	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0	0	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0	0	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
0	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
0	1	0	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
0	1	1	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1
0	1	1	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1
1	0	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1
1	0	0	1	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1
1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1
1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1
1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

ANY
COMBINATION

SCHEMATIC SYMBOL

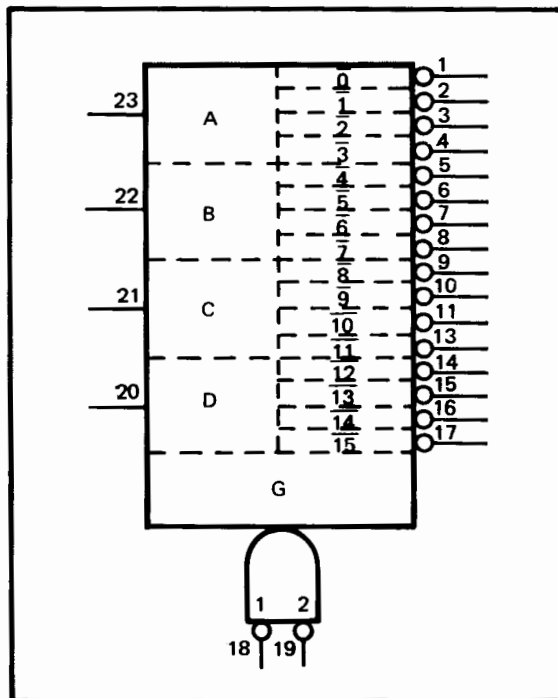


Figure C-13. Four-Line-to-16-Line Decoder — 1820-0495 — TI: SN 74154

TRUTH TABLES

ADDRESS INPUTS		SELECTED DATA INPUT LINE
(2 ¹) B	(2 ⁰) A	
0	0	D0
0	1	D1
1	0	D2
1	1	D3

STROBE LEVEL (\bar{S})	LEVEL OF SELECTED LINE	OUTPUT (Y)
1	1 OR 0	0
0	1	1
0	0	0

SCHEMATIC SYMBOL

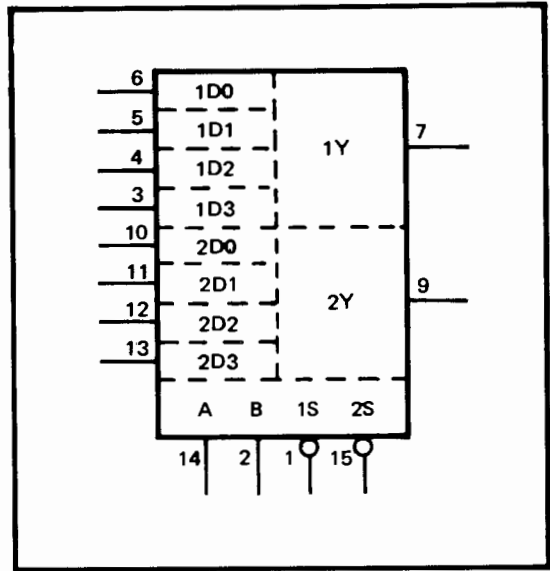


Figure C-14. Dual Four-Line-to-One-Line Data Selector/Multiplexer (Parallel-to-Serial Converter) – 1820-0620 – TI: SN 74153

TRUTH TABLES

SELECT CODE			SELECTED DATA LINE
C(2 ²)	B(2 ¹)	A(2 ⁰)	
0	0	0	D0
0	0	1	D1
0	1	0	D2
0	1	1	D3
1	0	0	D4
1	0	1	D5
1	1	0	D6
1	1	1	D7

STROBE LEVEL	LEVEL OF SELECTED LINE	OUTPUT	
		Y	\bar{Y}
1	1 OR 0	0	1
0	1	1	0
0	0	0	1

SCHEMATIC SYMBOL

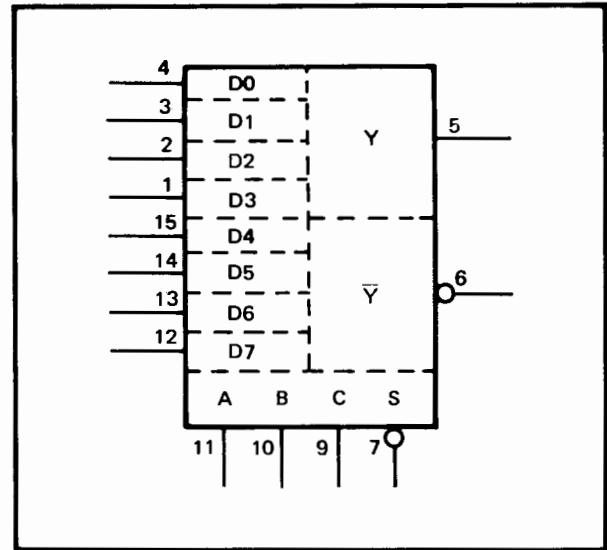


Figure C-15. Eight-Line Parallel-to-Serial Converter – 1820-0622 – TI: SN 74151

TRUTH TABLES

SELECT CODE				SELECTED DATA LINE
D (2 ³)	C (2 ²)	B (2 ¹)	A (2 ⁰)	
0	0	0	0	E0
0	0	0	1	E1
0	0	1	0	E2
0	0	1	1	E3
0	1	0	0	E4
0	1	0	1	E5
0	1	1	0	E6
0	1	1	1	E7
1	0	0	0	E8
1	0	0	1	E9
1	0	1	0	E10
1	0	1	1	E11
1	1	0	0	E12
1	1	0	1	E13
1	1	1	0	E14
1	1	1	1	E15

STROBE LEVEL	LEVEL OF SELECTED LINE	OUTPUT (W)
1	1 OR 0	1
0	1	0
0	0	1

SCHEMATIC SYMBOL

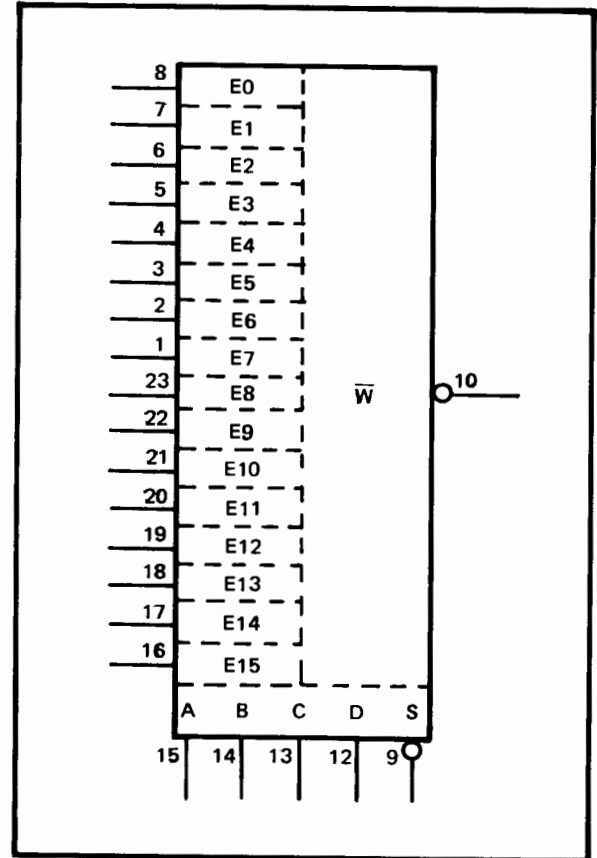


Figure C-16. Sixteen-Bit Multiplexer – 1820-0640 – TI: SN 74150

TRUTH TABLE

INPUTS				CLOCK COUNT	OUTPUTS	
CLEAR	SET	J	K		Q	\bar{Q}
0	1	X	X	X	0	1
1	0	X	X	X	1	0
1	1	1	0	T1	1	0
1	1	0	1	T2	0	1
1	1	1	1	T6	CHANGE	
1	1	0	0	T5	NO CHANGE	

X: IRRELEVANT

SCHEMATIC SYMBOL

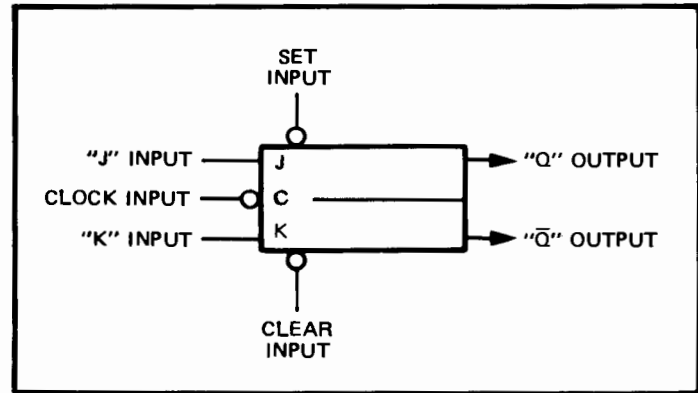


Figure C-17. Dual J-K Flip-Flop with Set and Clear – 1820-0076 – TI: SN 7476

TRUTH TABLE

INPUTS			CLOCK COUNT	OUTPUTS	
CLEAR	SET	D		Q	\bar{Q}
0	1	X	X	0	1
1	0	X	X	1	0
1	1	1	T1	1	0
1	1	0	T2	0	1

SCHEMATIC SYMBOL

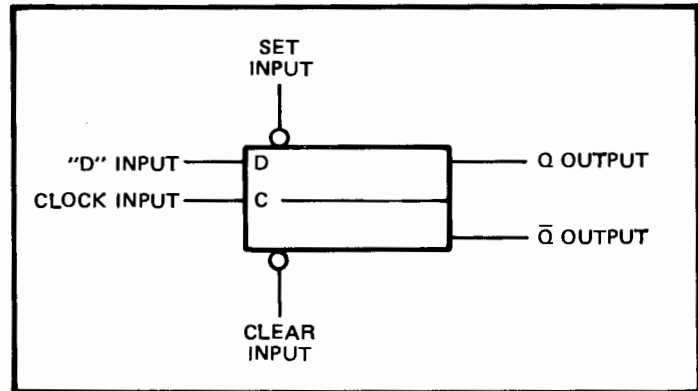


Figure C-18. Dual D-Type Flip-Flop with Set and Clear – 1820-0077 – TI: SN 7474

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