

ADDENDUM

Filing Instructions:

File this complete addendum ahead of Page 1 of the section.

“DATASPEED®” PRINTER

RECEIVE-ONLY STATION

CHECKOUT AND TROUBLESHOOTING

1. GENERAL

1.001 This addendum, which supplements Section 578-500-300, Issue 3, is issued to correct some errors and cover the engineering changes incorporated in recent units. These include a new built-in test character generator circuit, a new recorder access lid (added to simplify cleaning paper dust from the recorder nozzles and electrodes), redesign of the paper jam/paper out alarm circuit to substitute a paper-out switch for detection of a paper-out condition using electronic logic, redesign of the line feed motor regulator circuit to allow increasing the fuse value in the paper brake circuit, redesign of the power supply to shut off the high voltage when the +6 v dc fuse is blown and to permit the high voltage to come on immediately after the interlocks are closed, redesign of the paper tensioner mechanism and paper release lever in the paper transport, and modification of the paper unwinder and paper winder.

1.002 - Changes are described in the order they would appear in Section 578-500-300. Paragraphs in this addendum which replace paragraphs in Section 578-500-300 are given the same number as in this section; new paragraphs in this addendum are given the number of the preceding paragraph in the section plus an additional number (for example, 2.061 follows 2.06). Only those portions of Section 578-500-300 which have changes are repeated here.

2. OPERATIONAL CHECKS

LOCAL CHECKS

2.06 For early design units, place the paper release lever at the top right of the transport in the OPEN position and make a pencil mark on the line feed disc (top left of transport). Hold the line feed drive belt to keep it from moving and press the PAPER ADVANCE button for a few seconds. The red paper jam lamp (top left rear of paper transport) should light after the line feed disc has rotated from 1-1/2 to 1-3/4 turns, and the line feed disc should stop rotating at the same time. Depress the lens cap of the paper jam lamp to extinguish the lamp and reset the circuit. Close the paper release lever.

2.061 For late design units a different procedure should be followed. Release the paper bail latch at either side of the transport. The red paper jam lamp (top left rear of paper transport) should light. Raise the paper bail and press up on the paper-out switch so that it clicks. The paper jam lamp should extinguish when this happens. Pull up on the loop forming slide of the paper guide bail (Section 578-500-700) so that the pre-paper puller motor turns on. After a delay of about 1.2 seconds the paper jam lamp should light again. Release both switches and close the paper bail. Depress the lens cap of the paper jam lamp

to extinguish the lamp and reset the circuit. Make a pencil mark on the line feed disc (top left of transport). Hold the line feed drive belt to keep it from moving and press the PAPER ADVANCE button for a few seconds. The line feed disc should rotate from 1-1/2 to 1-3/4 turns and then stop.

2.07 If the requirement in 2.06 or 2.061 that the line feed disc stop rotating after 1-1/2 to 1-3/4 turns is not met, remove the knurled cover and adjust the potentiometer on the right side of the transport frame (clockwise decreases rotation, counterclockwise increases rotation). Press the PAPER ADVANCE button several times before rechecking this requirement.

2.11 Close the front door of the cabinet. The READY lamp should light (approximately 15 to 45 seconds after the front door is closed, on early design units, or immediately after the front door is closed, on late design units), provided there is no paper jam and the door and lid interlock circuit is complete. (The interlock circuit must be complete if the PRINTER ON lamp lights when the PRINTER ON button is depressed while waiting for the READY lamp to light.)

3. TOOLS AND TEST EQUIPMENT

3.02 The ink aspirator (TP334500) is used to clear clogged nozzles and electrodes in the recorder. It may be used with the high voltage on or off, but should only be used after the recorder has been fully warmed up and in the printing mode for about five minutes. To use the aspirator, proceed as follows:

- (1) Remove the cover and the recorder cover and insert the TP330131 jumper in the cover interlock socket (early design units) or open the cover and raise the recorder access lid (late design units).

CAUTION: BE CAREFUL NOT TO COME IN CONTACT WITH THE HIGH VOLTAGE ELEMENTS OF THE PLATEN AND RECORDER, INCLUDING THE CONDUCTIVE STRIP ON THE FRONT EDGE OF THE RECORDER COVER.

- (2) Clean the end of the aspirator with a clean tissue or shop towel.
- (3) Squeeze the bulb, place the slot in the tube over the nozzle to be cleaned, and release the bulb (Figure 3). Do not remove the tube from the nozzle until the bulb is fully released.
- (4) On early design units, connect the DATS1 simulator (3.08) and send continuous characters, send a message from a local sender, or request a message from a remote sender to determine whether the nozzle is cleared. On late design units, release the access lid, close the cover, and depress the PAPER ALARM button (generating continuous W or 2 characters) to determine whether the nozzle is cleared.
- (5) Repeat as required to clear the nozzle.

CAUTION: USE WITH CARE TO AVOID DAMAGE TO THE NOZZLES OR ELECTRODES.

3.061 On late design units, both the nozzle wiper and the electrode cleaner may be used with the cover open and the access lid raised, without removing either the set or recorder cover. Also, as soon as the cover is closed, the nozzle or electrodes can be checked for correct printing by pressing the PAPER ALARM button to generate continuous W (or 2) test characters.

3.07 Add the following note following 3.07:

Note: All power supply fuses have plastic knockouts in the center of the cap (Figure 19). A meter can be used to measure voltages at fuses (through knockouts) with respect to frame to determine whether any voltages are missing or too low.

4. TROUBLESHOOTING PROCEDURE

4.03 Add the following trouble to the end of the list:

Trouble No. 43 Extra line feeds (intermittent)

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART

TROUBLE NO. 2

ANALYSIS AND CORRECTION

- b. If READY lamp does not light while button is depressed, either +48 v is not present or READY lamp is burned out. Check +48 v by depressing PAPER ALARM button. If PAPER ALARM lamp lights, but READY lamp does not, the READY lamp is burned out. If neither the PAPER ALARM lamp nor the READY lamp lights, check fuses F2, F9, and (on late design units only) F8 of power supply.

TROUBLE NO. 11

ANALYSIS AND CORRECTION

Check PAPER THROAT adjustment in Section 578-500-700. Check fuse on TP331197 dynamic brake card and fuse F102 on back of transport (3/10 amp SL-BL on early design units, 1/2 amp SL-BL on late design units). If fuses are good, the card is defective.

TROUBLE NO. 12

ANALYSIS AND CORRECTION

Defective TP330152 paper jam card on transport or (on late design units only) paper-out switch out of adjustment.

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|-------------|---|-------------------------|
| 12a | Test characters not generated when PAPER ALARM button depressed (late design units only). | Replace card TP322192. |



“DATASPEED®” PRINTER

RECEIVE-ONLY STATION

CHECKOUT AND TROUBLESHOOTING

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1. GENERAL

1.01 This section provides operational checks and troubleshooting procedures for the DATASPEED Printer (Receive-Only). It is being reissued to add a checkout procedure, incorporate current troubleshooting information, and to accommodate the latest engineering changes in the electronic circuitry and mechanical components. Since this is a general revision, marginal arrows ordinarily used to indicate additions and changes are omitted. This section was formerly designated 592-820-300, but this number is now cancelled. Since this issue of Section 578-500-300 is a revision of Section 592-820-300, Issue 2, it is designated Issue 3.

2. OPERATIONAL CHECKS

2.01 The following operational checks should be performed after a station is completely assembled and properly programmed. All checks should be performed upon initial installation or whenever a system trouble condition or routine maintenance requires an operational checkout. Refer to Part 4 of this section for analysis and correction of any trouble which appears during checkout.

LOCAL CHECKS

2.02 Remove the cover assembly from the base and front panel assembly at the top of the printer cabinet, and insert the TP330131 jumper in the cover interlock socket at the front left of the cover base.

2.03 Load the transport with a roll of standard KS1920 teletypewriter paper. Do not use KS8621 paper or any other paper which is not identical in characteristics to KS1920.

2.04 With the power cord plugged into the ac line, open the front door of the cabinet and place the ON/OFF switch in the ON position. The ventilating fans should turn on. Close the front door. The READY lamp should light approximately 15-45 seconds after the door is closed.

2.05 Depress the PAPER ADVANCE pushbutton. The PAPER ADVANCE and PRINTER ON lamps should light, and the printer should feed paper.

Note: Observe proper braking action of the paper puller and paper winder motors during paper advance.

2.06 Place the paper release lever at the top right of the transport in the OPEN position and make a pencil mark on the line feed disc (top left of transport). Hold the line feed drive belt to keep it from moving and press the PAPER ADVANCE button for a few seconds. The red paper jam lamp (top left rear of paper transport) should light after the line feed disc has rotated from 1-1/2 to 1-3/4 turns, and the line feed disc should stop rotating at the same time. Depress the lens cap of the paper jam lamp to extinguish the lamp and reset the circuit. Close the paper release lever.

2.07 If the requirement in 2.06 is not met, remove the knurled cover and adjust the potentiometer on the right side of the transport frame (clockwise decreases rotation, counterclockwise increases rotation). Press the PAPER ADVANCE button several times before rechecking this requirement.

2.08 Lift the paper roll on the paper unwinder assembly to verify that the PAPER ALARM lamp lights when the paper supply is low.

2.09 Open the front door of the cabinet and turn off the ac ON/OFF switch. Remove the paper from the transport, and remove the jumper from the interlock

connector on the left side of the base. Place the cover assembly on the top of the printer, making sure it is properly seated on the base and front panel. Load the printer with paper.

2.10 Turn on the ac ON/OFF switch. The ventilating fans should turn on and the copyleft in the cover assembly should light.

2.11 Close the front door of the cabinet. The READY lamp should light approximately 15-45 seconds after the front door is closed, provided there is no paper jam and the door and lid interlock circuit is complete. (The interlock circuit must be complete if the PRINTER ON lamp lights when the PRINTER ON button is depressed while waiting for the READY lamp to light.)

2.12 When the READY lamp is on and the paper supply is not low, the station should be ready for an on-line check.

2.13 If a sender is part of the station (for example, if the DATASPEED printer is directly interfaced with a DATASPEED sender and receiver), a local receiving test can be performed. For a type 2 DATASPEED installation (serial operation) the rotary switch on the switch panel of the printer must be set to the LOCAL position, and the rotary switch on the sender cabinet must be set to the SEND position. For a type 5 DATASPEED installation (parallel operation) the rotary switch on the switch panel of the printer must be set to the MONITOR OFF LINE position. A test tape on the sender can then be used to check the operation of the printer.

2.14 A test tape used to check the operation of the DATASPEED printer should include both printing and nonprinting functions. For example, there should be a program to test the line feed function in the printer. A burst of at least 30 consecutive line feed codes is desirable for this test. The tape should include all letters of the alphabet plus symbols. Full lines of 80 characters should be included to check uniformity of character formation across the line. Also, lines of more than 80 characters without a line feed or carriage return code should be a part of the test in order to check the automatic carriage return and line feed feature after the 80th character. With this function the 81st character will be missing and the 82nd character, which will appear as the 1st character of the next line, may be distorted. If the printer has been strapped to provide options such as carriage return and line feed on line feed, these options should be checked in the test.

2.15 Example printouts of these test messages are shown in Figure 1 for ASCII (United States of America Standard Code for Information Interchange) and Figure 2 for Baudot. Test tapes to produce these messages are available; TP325897 for ASCII and TP325899 for Baudot.

ON-LINE CHECKS

2.16 If the printer has a data set for dial-up or private line operation, a remote sender must be called to arrange for the test. In a dial-up system, the printer station should be placed in the talk mode, and the remote station dialed. When the remote station answers the call, a test should be requested. The two operators should agree on the nature and duration of the test, with provisions to go back to the talk mode at a specific time. Information on baud rate and type of code - ASCII, communications Baudot, etc - should be specified. The operator at the remote sending station must then go into the data mode, and the printer station must be placed in the data mode before the 2025 Hz recognition tone ends.

2.17 The procedure is similar for a private line installation. However, the original call must be placed over the regular phone lines to arrange for the test.

2.18 If the printer station is equipped with special modifications (discrete calling generator, etc), these functions must be tested by a sender similarly equipped. To check the operation of a discrete calling generator (TP325200, mounted on DAIF module frame), depress the TRANS START button on the printer function strip after the PRINTER ON light has turned on. This should enable the remote sender, if it is identically coded, and transmission should begin from remote sender to printer within 5 seconds after the TRANS START button is depressed. For generator coding information, see Section 578-500-200 (formerly Section 592-820-200).

2.19 In systems where the DATASPEED printer is directly interfaced with type 2 or type 5 DATASPEED equipment, the various functions of the DATASPEED installation can be checked after the printer operation has been verified. Normal operation for each setting of the selector switch on the printer switch panel, for each type of DATASPEED installation, is described in Tables A through F.

2.20 If the results of the local and on-line checks are satisfactory, the station is ready for operation. If the results are unsatisfactory, refer to the appropriate steps in the troubleshooting chart.

TABLE A

TYPE 2 SEND ONLY "DATASPEED" INSTALLATION

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|--------------|---|
| 1 | OFF | Printer inactive. Sender operates as conventional type 2 send only station. |
| 2 | MONITOR SEND | Printer provides page copy of data transmitted on line by sender. |
| 3 | LOCAL | Sender transmits data to printer without going on line. |

TABLE B

TYPE 2 RECEIVE ONLY "DATASPEED" INSTALLATION

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|----------|---|
| 1 | TAPE | Printer inactive. Receiver operates as conventional type 2 receive only station |
| 2 | PAGE | Station provides printed copy only. |
| 3 | BOTH | Receiver provides tape and printer provides page copy of received data. |

TABLE C

TYPE 2 SEND/RECEIVE "DATASPEED" INSTALLATION

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|-----------|--|
| 1 | REC. TAPE | Printer inactive. Sender and receiver operate as conventional type 2 send/receive station. |

TABLE C

TYPE 2 SEND/RECEIVE "DATASPEED" INSTALLATION (Continued)

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|-------------------------------------|--|
| 2 | REC. TAPE REC. PAGE | Printer inactive in send mode. In receive mode, printer provides page copy and receiver provides tape. |
| 3 | REC. PAGE | Printer inactive in send mode. In receive mode, printer provides page copy but receiver does not provide tape. |
| 4 | LOCAL | With rotary switch in sender set to SEND, sender transmits data to receiver and printer without going on-line. |
| 5 | MON. SEND REC. TAPE | Printer provides page copy of transmitted data in send mode. Printer inactive in receive mode, and receiver operates as conventional type 2 receive station. |
| 6 | MON. SEND REC. TAPE REC. PAGE | Printer provides page copy of data transmitted by sender and received by receiver, and receiver provides tape of received data. |
| 7 | MON. SEND REC. PAGE | Printer provides page copy of data transmitted by sender and received by receiver, but receiver does not provide tape of received data. |

TABLE D

TYPE 5 SEND ONLY "DATASPEED" INSTALLATION

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|------------------|---|
| 1 | MON. OFF LINE | Sender transmits data to printer without going on-line. |

TABLE D

TYPE 5 SEND ONLY "DATASPEED" INSTALLATION (Continued)

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|----------------|---|
| 2 | SEND TAPE | Printer inactive. Sender operates as a type 5 send only station. |
| 3, 4 | MONITOR SENDER | Printer provides page copy of data transmitted on-line by sender. |

TABLE E

TYPE 5 RECEIVE ONLY "DATASPEED" INSTALLATION

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|-----------|--|
| 2 | REC. TAPE | Printer inactive. Receiver operates as a type 5 receive only station. |
| 3 | REC. PAGE | Station provides printed copy only. |
| 4 | REC. BOTH | Receiver provides tape and printer provides printed copy of received data. |

TABLE F

TYPE 5 SEND/RECEIVE "DATASPEED" INSTALLATION

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|---------------------|---|
| 1 | MONITOR OFF LINE | Sender transmits data to printer without going on-line. |
| 2 | REC. TAPE SEND TAPE | Printer inactive. Sender and receiver operate as conventional type 5 send/receive station. |
| 3 | REC. PAGE MON. SEND | Printer provides page copy of data transmitted by sender and received by receiver, but receiver does not provide tape of received data. |

TABLE F

TYPE 5 SEND/RECEIVE "DATASPEED" INSTALLATION (Continued)

| SWITCH POSITION | FUNCTION | OPERATION |
|-----------------|--------------------------|--|
| 4 | REC. TAPE PAGE MON. SEND | Printer provides page copy of data transmitted by sender and received by receiver, and receiver provides tape of received data. |
| 5 | REC. PAGE SEND TAPE | Printer inactive in send mode. In receive mode, printer provides page copy but receiver does not provide tape. |
| 6 | REC. TAPE PAGE SEND TAPE | Printer inactive in send mode. In receive mode, printer provides page copy and receiver provides tape of received copy. |
| 7 | MON. SEND REC. TAPE | Printer provides page copy of transmitted data in send mode. Printer inactive in receive mode, and receiver operates as conventional type 5 receive station. |

3. TOOLS AND TEST EQUIPMENT

3.01 Tools required to service the printer are included in the TP330048 Tool Kit supplied with the printer. This kit contains the following items:

- TP310425 Gauge (0.280")
- TP310426 Gauge (0.320")
- TP331041 Gauge (0.589")
- TP108805 Lubriplate
- TP330131 Jumper Cable Assembly
- TP336152 Magnet Assembly (Used for KSR Set Only)
- TP310394 Nozzle Wiper
- TP334500 Ink Aspirator
- TP334510 Electrode Cleaner
- TP334503 Filter
- TP325896 Tool Roll
- TP145867 Grease
- TP334508 Hand Cleaner

3.02 The ink aspirator (TP334500) is used to clear clogged nozzles and electrodes in the recorder. It may be used with the high voltage on or off, but should only be used after the recorder has been fully warmed up and in the printing mode for about five minutes. To use the aspirator, proceed as follows:

- (1) Remove the cover from the recorder.

CAUTION: BE CAREFUL NOT TO COME IN CONTACT WITH THE HIGH VOLTAGE ELEMENTS OF THE PLATEN AND RECORDER, INCLUDING THE CONDUCTIVE STRIP ON THE FRONT EDGE OF THE RECORDER COVER.

- (2) Clean the end of the aspirator with a clean tissue or shop towel.
- (3) Squeeze the bulb, place the slot in the tube over the nozzle to be cleaned, and release the bulb (Figure 3). Do not remove the tube from the nozzle until the bulb is fully released.
- (4) Repeat as required to clear the nozzle.

CAUTION: USE WITH CARE TO AVOID DAMAGE TO THE NOZZLES OR ELECTRODES.

3.03 The aspirator may also be used to clear valving or deflection electrodes blocked by a film of ink. After wiping the tip with a clean tissue or shop towel, squeeze the bulb, place the tip over the electrode to be cleaned (but not the mask) and release the bulb (Figure 3).

3.04 The aspirator contains a felt filter which becomes saturated after extensive use. To replace the filter, remove the tube from the check valve. Replace the old filter with a new one (TP334503) and reposition the tube over the correct check valve (Figure 3).

3.05 The nozzle wiper (TP310394) may be used to start a clogged nozzle by carefully wiping the end of the nozzle as shown in Figure 3. The wiper may also be used to clear a valving or deflection electrode blocked with a film of ink. The film is wiped from the electrode as shown in Figure 3. Always clean the wiper before using.

3.06 The electrode cleaner is a liquid spray used to clear lint and residue from the electrodes (Figure 3). This cleaner may be used with the high voltage on or off. Directions are on the can. If a nozzle fails to start after using, repeat the application or clean the nozzle further with the ink aspirator or nozzle wiper.

3.07 Test equipment required for troubleshooting the DATASPEED printer consists of a DATS1 simulator and KS14510 volt-ohm-milliammeter or equivalent. The meter above can be used to measure low voltages throughout the printer circuit, and when used in conjunction with the DATS1 simulator, can also be used to measure the high voltages. References to the meter scales used for voltage measurements, and the reading obtained, are based on the KS14510 meter. If another meter is used, appropriate scales should be selected. The measured values will vary accordingly, but should be within reasonable limits of those indicated.

3.08 The DATS1 serves as a signal source for the DATASPEED printer, and also works in conjunction with the meter to provide both high and low voltage measurements throughout the printer circuits. To connect the DATS1 to the printer, proceed as follows:

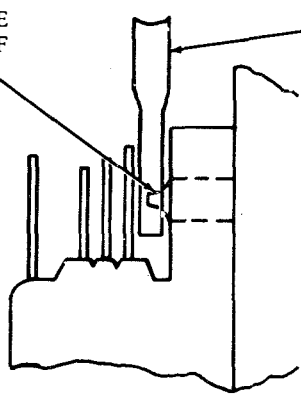
- (1) Open the front door of the printer cabinet, and place the ON/OFF switch in the OFF position.
- (2) Release the thumbscrews securing the DAG and DAIF modules and slide the modules forward.
- (3) Remove the DAIF/AA1 connector from the right rear of the DAIF module.
- (4) Connect the DATS/A1 connector of the simulator cable to the DAIF/AA1 cable connector (not to the module).
- (5) Connect the meter to the METER terminals of the DATS1. If a volt-ohm-milliammeter is used, set the meter for voltage measurements.
- (6) Set the DATS1 switches as follows:

REC. MSG. ---- OFF
 CHAR. AVAIL. ---- OFF
 OUTPUT ---- L. V.
 POLARITY ---- NORM.

(The settings of the CODE LEVEL switches are not critical.)

- (7) Place the cabinet interlock switch in the bypass position and set the ac ON/OFF switch to ON. The fans and copylight should turn on and the READY lamp should light in 15-45 seconds.
- (8) Check the voltages at the four test jacks across the bottom of the DATS1 panel, using the red, low voltage probe of the DATS1 (polarity may be reversed for the -12 v measurement by switching the POLARITY switch to INV.). The meter must be set to an appropriate voltage range for each measurement. The +48 v

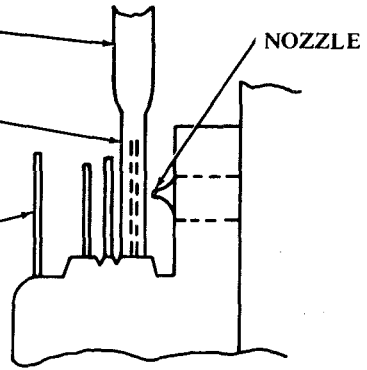
SLOT IN TUBE
OVER END OF
NOZZLE



Aspirator Used to
Clean Nozzle

ASPIRATOR
ASPIRATOR TUBE
OVER VALVING
ELECTRODE

MASK

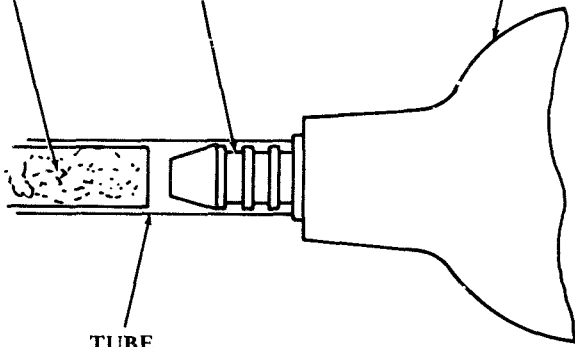


Aspirator Used to Clean
Valving Electrode

FILTER

CHECK
VALVE

BULB



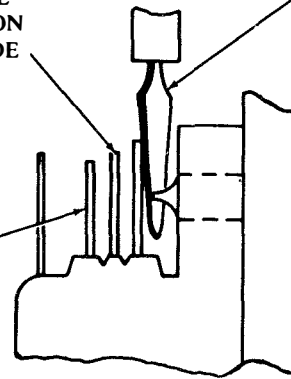
TUBE

Internal View of Filter
and Check Valve

VERTICAL
DEFLECTION
ELECTRODE

NOZZLE
WIPER

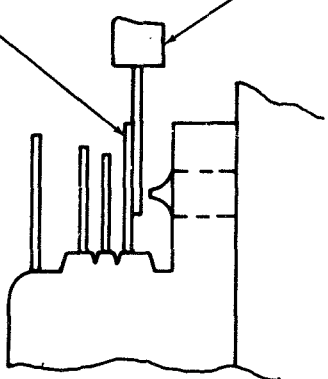
HORIZONTAL
DEFLECTION
ELECTRODE



Nozzle Wiper Used
to Clean Nozzle

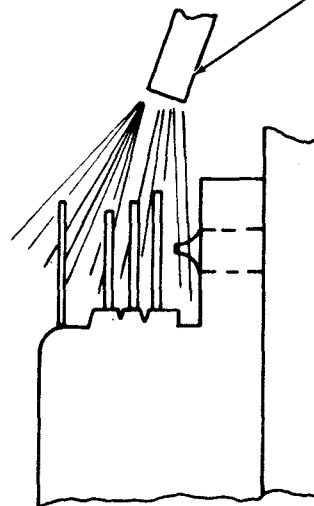
VALVE

NOZZLE
WIPER



Nozzle Wiper Used to
Clean Valving Electrode

ELECTRODE
CLEANER



Spraying Electrodes With
Electrode Cleaner

Figure 3 - Aspirator, Nozzle Wiper, and Electrode Cleaner as Used in Troubleshooting the Recorder Elements

reading will not be present for up to 45 seconds, when the READY lamp turns on.

CAUTION: DO NOT ATTEMPT ANY FURTHER TESTS WITH THE DATS1 IF THE PROPER VOLTAGES (+48 V, +18 V, +6 V, -12 V) ARE NOT PRESENT. REPLACE DAPS POWER SUPPLY MODULE. NEVER ATTEMPT TO USE THE DATS1 SIMULATOR PROBES UNLESS THE UNIT IS PROPERLY CONNECTED AND THE POWER IS ON.

3.09 With the switch settings described in 3.08, the DATS1 and voltmeter can be used for low voltage measurements in the printer. For high voltage measurements, all switch settings remain the same except for the OUTPUT switch, which is set to the H. V. position. This switches in the 1000:1 voltage divider in the DATS1 circuit, and all voltages at the METER terminal are 1/1000 of the voltages measured with the black, high voltage probe. Therefore, readings on the meter scale must be multiplied by 1000 to determine the actual voltage.

3.10 Low voltage pulses can be measured by placing the OUTPUT switch in the PULSE position and using the red, low voltage probe for the measurement. The meter will give an indication of either +6 v or 0 v when no pulse is present, and will switch to the opposite value when a single pulse is applied. For a series of pulses, the meter will average the changes, giving a reading of about +3 v.

3.11 To use the DATS1 as a signal source, proceed as follows:

- (1) Select a printing character by means of the CODE LEVEL switches. (See Figure 4 for ASCII and Baudot Codes.)
- (2) Place the REC. MSG. switch in the ON position. The PRINTER ON lamp and motors should turn on and the HIGH VOLTAGE POWER ON lamp on the DAPS power supply should light. The printer may line feed once.
- (3) Place the CHAR. AVAIL. switch in the ON position. The printer should print continuous lines of the selected character.
- (4) Place the CHAR. AVAIL. switch in the MAN position. Depress and release the MAN. STEP button. The printer should print the selected character once for each operation.

3.12 If the printer fails to turn on or print selected characters when operated from the DATS1, refer to the troubleshooting chart for analysis and correction of the trouble. If the printer operates satisfactorily from the DATS1, yet fails to function normally when operated on-line, the trouble is in the data set or interface area. The data set can be checked by calling a sending station or test center and requesting a remote data set test. Interface troubles are covered in the troubleshooting chart.

3.13 A complete set of wiring diagrams (WDP 0194) is supplied for each printer installation. These diagrams show actual and schematic connections of all circuits and electrical components in the printer.

4. TROUBLESHOOTING PROCEDURE

4.01 Preliminary tests should be used to locate the source of trouble either in the logic and printer area or the data set and interface area. They can also eliminate minor troubles caused by burned out fuses or lamps, or poor electrical connections. Visually inspect cables, connectors, and components. Make sure all plug-in connectors are firmly seated, and where latching connectors are involved, that the latches are locked.

4.02 The troubleshooting chart provides step-by-step procedures to isolate troubles to a particular component or circuit card. For troubles other than data set or interface troubles, troubleshooting can be facilitated in many cases by use of the DATS1 simulator in conjunction with a meter.

4.03 The troubleshooting chart is arranged according to the sequence in which troubles would occur in a normal checkout procedure. To simplify troubleshooting, troubles should be identified in this manner. That is, if the station is not printing and the READY light is not on, the trouble would be identified as "READY light not on" rather than "No printing." The numbers of related groups of troubles on the troubleshooting chart are as follows:

- Trouble Nos. 1-12 Local troubles only – no connection to sender
- Trouble Nos. 13-16 On-line turn-on troubles
- Trouble Nos. 17-21 No printing
- Trouble No. 22 No line feed when on-line
- Trouble Nos. 23-41 Defective printing
- Trouble No. 42 Automatic carriage return/line feed failure

ASCII CODE

| Bits | | | | b7 | b6 | b5 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
|------------|----|----|----|----|-----|-----|----|---|---|----|---|---|---|---|-----|
| b4 | b3 | b2 | b1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |
| Column Row | | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | |
| 0 | 0 | 0 | 0 | 0 | NUL | DLE | SP | 0 | " | P | | | | | |
| 0 | 0 | 0 | 1 | 1 | SOH | DC1 | ! | 1 | A | Q | | | | | |
| 0 | 0 | 1 | 0 | 2 | STX | DC2 | " | 2 | B | R | | | | | |
| 0 | 0 | 1 | 1 | 3 | ETX | DC3 | # | 3 | C | S | | | | | |
| 0 | 1 | 0 | 0 | 4 | EOT | DC4 | \$ | 4 | D | T | | | | | |
| 0 | 1 | 0 | 1 | 5 | ENQ | NAK | % | 5 | E | U | | | | | |
| 0 | 1 | 1 | 0 | 6 | ACK | SYN | & | 6 | F | V | | | | | |
| 0 | 1 | 1 | 1 | 7 | BEL | ETB | ' | 7 | G | W | | | | | |
| 1 | 0 | 0 | 0 | 8 | BS | CAN | (| 8 | H | X | | | | | |
| 1 | 0 | 0 | 1 | 9 | HT | EM |) | 9 | I | Y | | | | | |
| 1 | 0 | 1 | 0 | 10 | LF | SUB | * | : | J | Z | | | | | |
| 1 | 0 | 1 | 1 | 11 | VT | ESC | + | : | K | | | | | | |
| 1 | 1 | 0 | 0 | 12 | FF | FS | . | < | L | \ | | | | | |
| 1 | 1 | 0 | 1 | 13 | CR | GS | - | = | M | | | | | | |
| 1 | 1 | 1 | 0 | 14 | SO | RS | . | > | N | ^ | | | | | |
| 1 | 1 | 1 | 1 | 15 | SI | US | / | ? | O | SP | | | | | DEL |

Divided Boxes: ASCII designations shown to left of diagonal line; functions performed by DATASPEED Printer shown to right of diagonal line.

Shaded Boxes: Upon receiving these code characters the DATASPEED Printer will be in a nonprint, nonspacing mode.

COMMUNICATIONS BAUDOT CODE

| Figures | - | ? | : | \$ | 3 | ! | & | # | 8 | ' | (|) | . | , | 9 | 0 | 1 | 4 | 5 | 7 | ; | 2 | / | 6 | " | Letters | Figures | Space | Carr. Ret. | Line Feed | Blank | | | | | |
|-------------|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|---------|-------|------------|-----------|-------|---|---|---|---|---|
| Letters | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | | | | | | | | | | |
| Information | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | |
| Levels | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 4 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |

Figure 4 - ASCII and Communications Baudot Code Tables as Used in DATASPEED Printer

4.04 Figure 5 shows the location of fuses, connectors, switches, etc, designated in the chart, and Table G lists the circuit card locations. Figures 6 through 17 show the test points and connector pins at the front and rear of the DAG and DAD modules. Signals should be checked at these points only, as described in the troubleshooting chart.

CAUTION: USE EXTREME CARE WHEN REMOVING AND REPLACING CONNECTORS, AND IN CONNECTING METER PROBES FOR MEASUREMENTS AT VARIOUS TERMINALS, TO AVOID SHORTING TERMINALS. TURN ALL POWER OFF TO REMOVE OR REPLACE CIRCUIT CARDS.

4.05 Because it is difficult to locate and correct failures in industrial microcircuits on location, it is intended that defective circuit cards will be replaced by the serviceman and will be repaired at a central location.

Note: The DAPS power supply, DAR recorder, and the core plane assembly (memory) should be replaced with complete units and returned to the manufacturer or an authorized service center for repair.

4.06 When trouble analysis indicates a defective circuit card, its connectors and associated interconnecting cables should be examined for defects prior to card replacement.

4.07 Components of a redesigned version (designated 2101AB) of the receive-only printer can be used as replacements in 2101AA DATASPEED Printer (RO) sets in some cases, if 2101AA components are not immediately available. The interchangeability of these redesigned components is summarized in Table K.

TABLE G
CIRCUIT CARD LOCATIONS

| MODULE | CARD NUMBER | DESCRIPTION | CONNECTOR LOCATION |
|----------------------|-------------|-----------------------|--------------------------------------|
| DAIF 1 (Serial) | 322130 | Shift Register Card | ZAU |
| | 322132 | Data Set Control Card | ZAN |
| | 322180 | 1050 Baud R/D Card | ZAS |
| | 322181 | 1200 Baud R/D Card | ZAS |
| | 322182 | 890 Baud R/D Card | ZAS |
| | 322183 | 840 Baud R/D Card | ZAS |
| | 322184 | 600 Baud R/D Card | ZAS |
| DAIF 2 (Parallel) | 322134 | Station Control Card | ZAN |
| DAG | 322150 | Output Logic Card | DAG/D1, 2, 3, & 4 |
| | 322151 | Input Logic Card | DAG/A1, 2, 3, & 4 |
| | 322152 | ASCII Control Card | On 322151 card |
| | 322153 | Baudot Control Card | On 322151 card |
| | 303929 | Output Board | DAG/C1 & C2 |
| | 303927 | ASCII Program Board | DAG/B1 |
| | 303928 | Baudot Program Board | DAG/B1 |
| | | Character Sheets | Between program board & output board |
| DAD | 322145 | Spacing Drive Card | DAD/D3 & D4 |
| | 322146 | Tracing Drive Card | DAD/C1, 2 & /A2 |
| | 300469 | Tubes | On 322146 |

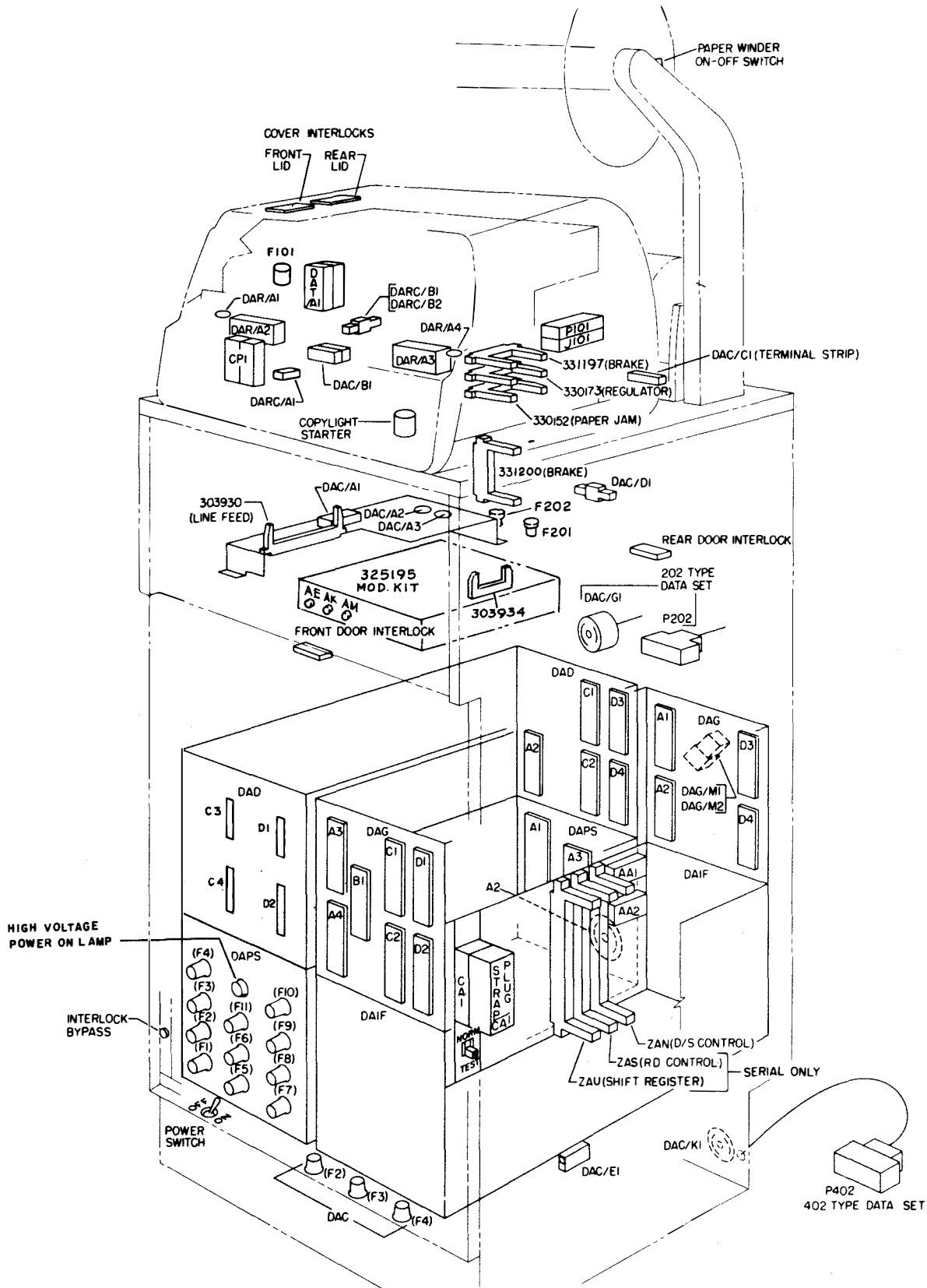


Figure 5 - Positioning of Connectors on DATASPEED Printer (Receive-Only)

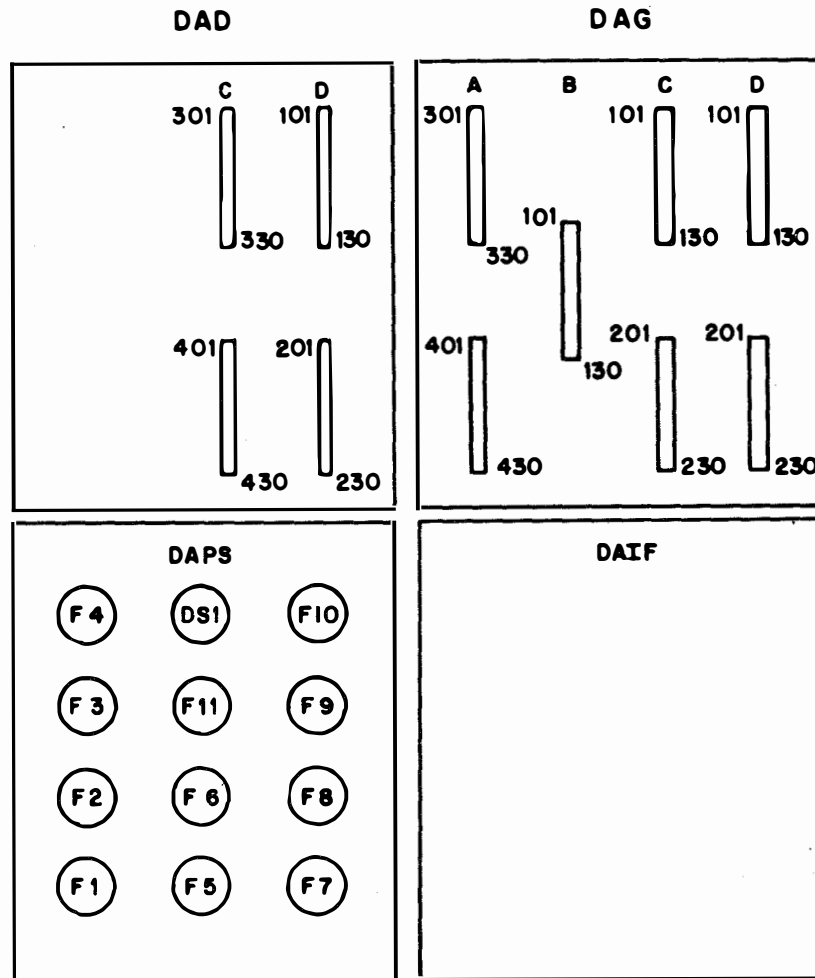


Figure 6 - Front Connectors for Modules

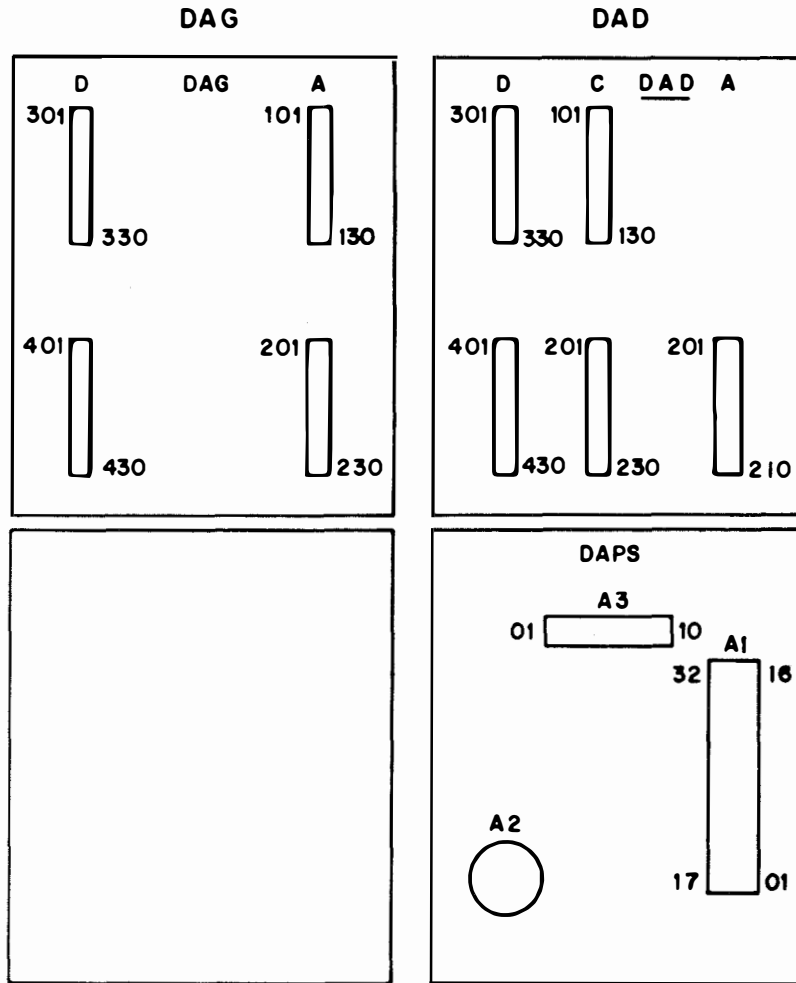


Figure 7 - Rear Connectors for Modules

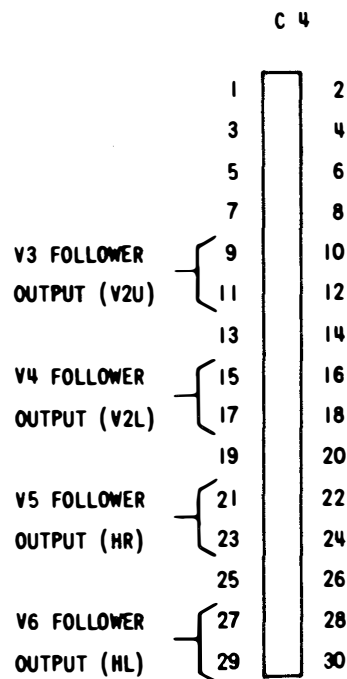
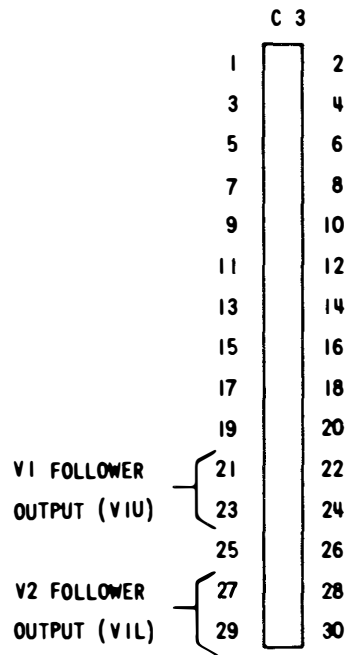


Figure 8 - Printer Drive Test Points – Front of DAD Module

D 1

| EVEN | 1 | 2 | ODD |
|--------------|----|----|--------------|
| LOGIC CKT 33 | 3 | 4 | LOGIC CKT 18 |
| LOGIC CKT 37 | 5 | 6 | LOGIC CKT 26 |
| LOGIC CKT 34 | 7 | 8 | LOGIC CKT 17 |
| LOGIC CKT 38 | 9 | 10 | LOGIC CKT 25 |
| LOGIC CKT 35 | 11 | 12 | LOGIC CKT 16 |
| LOGIC CKT 39 | 13 | 14 | LOGIC CKT 8 |
| LOGIC CKT 36 | 15 | 16 | LOGIC CKT 15 |
| LOGIC CKT 40 | 17 | 18 | LOGIC CKT 7 |
| LOGIC CKT 24 | 19 | 20 | LOGIC CKT 14 |
| LOGIC CKT 32 | 21 | 22 | LOGIC CKT 6 |
| LOGIC CKT 23 | 23 | 24 | LOGIC CKT 13 |
| LOGIC CKT 31 | 25 | 26 | LOGIC CKT 5 |
| LOGIC CKT 22 | 27 | 28 | LOGIC CKT 12 |
| LOGIC CKT 30 | 29 | 30 | LOGIC CKT 4 |

D 2

| | | | |
|--------------|----|----|--------------|
| LOGIC CKT 21 | 1 | 2 | LOGIC CKT 11 |
| LOGIC CKT 29 | 3 | 4 | LOGIC CKT 3 |
| LOGIC CKT 20 | 5 | 6 | LOGIC CKT 10 |
| LOGIC CKT 28 | 7 | 8 | LOGIC CKT 2 |
| LOGIC CKT 19 | 9 | 10 | LOGIC CKT 9 |
| LOGIC CKT 27 | 11 | 12 | LOGIC CKT 1 |
| | 13 | 14 | |
| | 15 | 16 | |
| | 17 | 18 | |
| | 19 | 20 | |
| | 21 | 22 | |
| | 23 | 24 | |
| | 25 | 26 | |
| | 27 | 28 | |
| | 29 | 30 | |

Figure 9 - Spacing Drive Test Points – Front of DAD Module

A3

| | | | |
|------------|---------------------------|----|----|
| (DAG/D123) | C. R. | 1 | 2 |
| (DAG/D125) | L. F. | 3 | 4 |
| (DAG/D127) | PAPER ADV. | 5 | 6 |
| (DAG/D129) | MEM. CLR. \overline{MC} | 7 | 8 |
| (DAG/D108) | OSCILLATOR | 9 | 10 |
| (DAG/D121) | HORIZ. TAB | 11 | 12 |
| (DAG/D104) | PRINT INH. | 13 | 14 |
| (DAG/D115) | REED INH. | 15 | 16 |
| (DAG/D112) | BIT $\overline{5M}$ | 17 | 18 |
| (DAG/D113) | BIT 5 | 19 | 20 |
| (DAG/D103) | START OF CYCLE | 21 | 22 |
| (DAG/D110) | PRINT INTERVAL | 23 | 24 |
| | | 25 | 26 |
| | | 27 | 28 |
| | | 29 | 30 |

A4

| | | | | | |
|------------|------|----|----|------|------------|
| | | 1 | 2 | Y1-1 | (DAG/B129) |
| | | 3 | 4 | Y1-2 | (DAG/B127) |
| | | 5 | 6 | Y2-1 | (DAG/B125) |
| | | 7 | 8 | Y2-2 | (DAG/B123) |
| (DAG/B121) | Y3-1 | 9 | 10 | X16 | (DAG/B101) |
| (DAG/B119) | Y3-2 | 11 | 12 | X15 | (DAG/B102) |
| (DAG/B117) | Y4-1 | 13 | 14 | X13 | (DAG/B106) |
| (DAG/B115) | Y4-2 | 15 | 16 | X14 | (DAG/B104) |
| (DAG/B118) | X7 | 17 | 18 | X2 | (DAG/B128) |
| (DAG/B120) | X6 | 19 | 20 | X1 | (DAG/B130) |
| (DAG/B112) | X9 | 21 | 22 | X3 | (DAG/B126) |
| (DAG/B114) | X10 | 23 | 24 | X4 | (DAG/B124) |
| (DAG/B110) | X11 | 25 | 26 | X8 | (DAG/B116) |
| (DAG/B108) | X12 | 27 | 28 | X5 | (DAG/B122) |
| | | 29 | 30 | | |

Figure 10 - Input Logic Connector Pins - Front of DAG Module

BI

| | | | | | |
|------------|------|----|----|-----|------------|
| (DAG/A410) | X16 | 1 | 2 | X15 | (DAG/A412) |
| | | 3 | 4 | X14 | (DAG/A416) |
| | | 5 | 6 | X13 | (DAG/A414) |
| | | 7 | 8 | X12 | (DAG/A427) |
| | | 9 | 10 | X11 | (DAG/A425) |
| | | 11 | 12 | X10 | (DAG/A421) |
| | | 13 | 14 | X9 | (DAG/A423) |
| (DAG/A415) | Y4-2 | 15 | 16 | X8 | (DAG/A426) |
| (DAG/A413) | Y4-1 | 17 | 18 | X7 | (DAG/A417) |
| (DAG/A411) | Y3-2 | 19 | 20 | X6 | (DAG/A419) |
| (DAG/A409) | Y3-1 | 21 | 22 | X5 | (DAG/A428) |
| (DAG/A408) | Y2-2 | 23 | 24 | X4 | (DAG/A424) |
| (DAG/A406) | Y2-1 | 25 | 26 | X3 | (DAG/A422) |
| (DAG/A404) | Y1-2 | 27 | 28 | X2 | (DAG/A418) |
| (DAG/A402) | Y1-1 | 29 | 30 | X1 | (DAG/A420) |

Figure 11 - Program Board Connector Pins – Front of DAG Module

| | | C1 | | | |
|------------|--------|----|----|-----|------------|
| (DAG/D201) | DC COM | 1 | 2 | Z16 | (DAG/D215) |
| (DAG/D229) | H4 | 3 | 4 | Z14 | (DAG/D228) |
| (DAG/D227) | H2 | 5 | 6 | Z12 | (DAG/D224) |
| (DAG/D225) | H1 | 7 | 8 | Z10 | (DAG/D220) |
| (DAG/D223) | V8 | 9 | 10 | Z8 | (DAG/D216) |
| (DAG/D221) | V4 | 11 | 12 | Z6 | (DAG/D212) |
| (DAG/D219) | V2 | 13 | 14 | Z4 | (DAG/D208) |
| (DAG/D217) | V1 | 15 | 16 | Z2 | (DAG/D204) |
| | | 17 | 18 | | |
| | | 19 | 20 | | |
| | | 21 | 22 | | |
| | | 23 | 24 | | |
| | | 25 | 26 | | |
| | | 27 | 28 | | |
| | | 29 | 30 | | |

| | | C2 | | | |
|------------|--------|----|----|-----|------------|
| | | 1 | 2 | | |
| | | 2 | 4 | | |
| | | 5 | 6 | | |
| | | 7 | 8 | | |
| | | 9 | 10 | | |
| | | 11 | 12 | | |
| | | 13 | 14 | | |
| (DAG/D217) | V1 | 15 | 16 | Z1 | (DAG/D202) |
| (DAG/D219) | V2 | 17 | 18 | Z3 | (DAG/D206) |
| (DAG/D221) | V4 | 19 | 20 | Z5 | (DAG/D210) |
| (DAG/D223) | V8 | 21 | 22 | Z7 | (DAG/D214) |
| (DAG/D225) | H1 | 23 | 24 | Z9 | (DAG/D218) |
| (DAG/D227) | H2 | 25 | 26 | Z11 | (DAG/D222) |
| (DAG/D229) | H4 | 27 | 28 | Z13 | (DAG/D226) |
| (DAG/D201) | DC COM | 29 | 30 | Z15 | (DAG/D230) |

Figure 12 - Output Board Connector Pins – Front of DAG Module

| | | D1 | | | |
|--------------------------------------|--|----|----|---------------------|------------|
| (DAG/A321) START OF CYCLE | | 1 | 2 | | |
| | | 3 | 4 | PRINT INHIBIT | (DAG/A313) |
| | | 5 | 6 | | |
| | | 7 | 8 | OSCILLATOR | (DAG/A309) |
| | | 9 | 10 | PRINT INTERVAL | (DAG/A323) |
| (DAG/A319) BIT 5 | | 11 | 12 | BIT $\overline{5M}$ | (DAG/A317) |
| (DAG/A315) REED INH | | 13 | 14 | | |
| | | 15 | 16 | | |
| | | 17 | 18 | | |
| (DAG/A311) HORIZ. TAB | | 19 | 20 | | |
| (DAG/A301) C.R. | | 21 | 22 | | |
| (DAG/A303) L.F. | | 23 | 24 | | |
| (DAG/A305) PAPER ADV. | | 25 | 26 | | |
| (DAG/A307) MEM. CLR. \overline{MC} | | 27 | 28 | | |
| | | 29 | 30 | | |

| | | D2 | | | |
|------------------------|--|----|----|-----|------------|
| (DAG/C101-C209) DC COM | | 1 | 2 | Z1 | (DAG/C216) |
| | | 3 | 4 | Z2 | (DAG/C116) |
| | | 5 | 6 | Z3 | (DAG/C218) |
| | | 7 | 8 | Z4 | (DAG/C114) |
| | | 9 | 10 | Z5 | (DAG/C220) |
| | | 11 | 12 | Z6 | (DAG/C112) |
| | | 13 | 14 | Z7 | (DAG/C222) |
| (DAG/C102) Z16 | | 15 | 16 | Z8 | (DAG/C110) |
| (DAG/C114-C215) V1 | | 17 | 18 | Z9 | (DAG/C224) |
| (DAG/C113-C217) V2 | | 19 | 20 | Z10 | (DAG/C108) |
| (DAG/C111-C219) V4 | | 21 | 22 | Z11 | (DAG/C226) |
| (DAG/C109-C221) V8 | | 23 | 24 | Z12 | (DAG/C106) |
| (DAG/C107-C223) H1 | | 25 | 26 | Z13 | (DAG/C228) |
| (DAG/C105-C225) H2 | | 27 | 28 | Z14 | (DAG/C104) |
| (DAG/C103-C227) H4 | | 29 | 30 | Z15 | (DAG/C230) |

Figure 13 - Output Logic Connector Pins - Front of DAG Module

D 3

| | | |
|----|----|------------------------------|
| 1 | 2 | |
| 3 | 4 | +6V DC |
| 5 | 6 | DC COM |
| 7 | 8 | |
| 9 | 10 | |
| 11 | 12 | MONOSTABLE SUPPLY (DAG/A118) |
| 13 | 14 | |
| 15 | 16 | |
| 17 | 18 | |
| 19 | 20 | |
| 21 | 22 | |
| 23 | 24 | +48V DC |
| 25 | 26 | |
| 27 | 28 | +6V DC |
| 29 | 30 | DC COM |

D 4

| | | | |
|------------------------------|----|----|---|
| (DAG/D417) HORIZ. TAB | 1 | 2 | |
| (CP1/18-DAD/C228) PAPER ADV. | 3 | 4 | |
| (OAD/D304) COLUMN SELECT "E" | 5 | 6 | COLUMN SELECT $\bar{9}$ (DAD/D307-DAG/D422) |
| (DAD/D315) COLUMN SELECT "D" | 7 | 8 | COLUMN SELECT 9 (DAD/D306) |
| (DAD/D303) COLUMN SELECT "C" | 9 | 10 | COLUMN SELECT $\bar{8}$ (DAD/D309) |
| (DAD/D305) COLUMN SELECT "B" | 11 | 12 | COLUMN SELECT 8 (DAD/D308) |
| (DAD/D313) COLUMN SELECT "A" | 13 | 14 | COLUMN SELECT $\bar{7}$ (DAD/D311) |
| | 15 | 16 | COLUMN SELECT 7 (DAD/D310) |
| (DAG/D401) HORIZ. TAB | 17 | 18 | BIT 6 (L/R) (DAD/C223) |
| (DAD/D301) HORIZ. TAB ODD | 19 | 20 | LINE FEED (DAC/A116-DAD/C230) |
| (DAD/D302) HORIZ. TAB EVEN | 21 | 22 | PAPER ADV. CLOCK $\bar{9}$ (DAG/D406) |
| (DAD/C222) JET DOWN | 23 | 24 | VERT 8 (DAD/C215) |
| (DAD/C221) VERT 1 | 25 | 26 | HORIZ. 1 (DAD/C229) |
| (DAD/C219) VERT 2 | 27 | 28 | HORIZ. 2 (DAD/C227) |
| (DAD/C217) VERT 4 | 29 | 30 | HORIZ. 4 (DAD/C225) |

Figure 14 - Output Logic Connector Pins - Rear of DAG Module

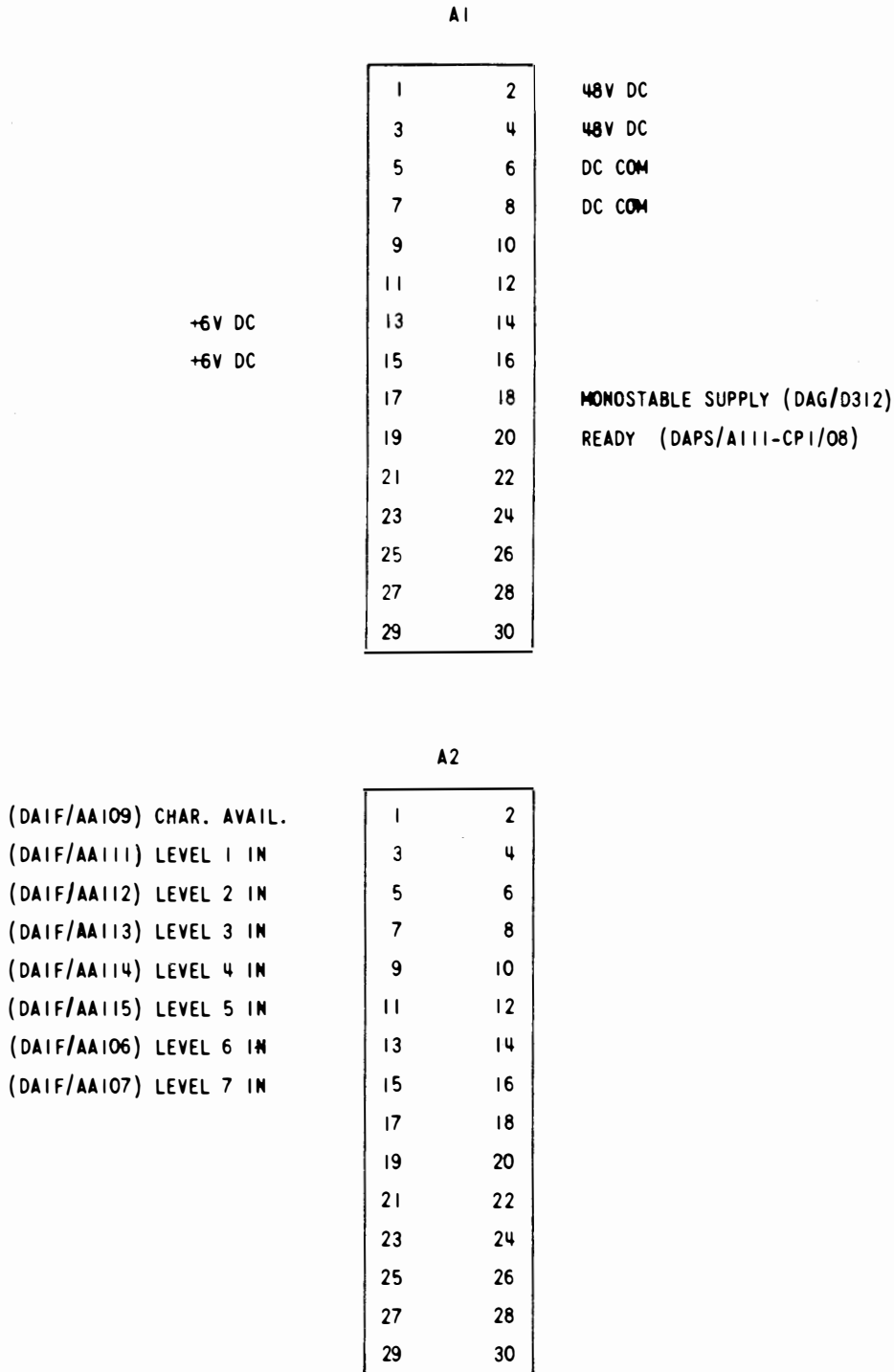


Figure 15 - Input Logic Connector Pins – Rear of DAG Module

D3

| | ODD | 1 | 2 | EVEN (DAG/D421) |
|------------|------------------------------|----|----|------------------------------|
| (DAG/D419) | | 1 | 2 | |
| (DAG/D409) | COLUMN SELECT "C" | 3 | 4 | COLUMN SELECT "E" (DAG/D405) |
| (DAG/D411) | COLUMN SELECT "8" | 5 | 6 | COLUMN SELECT 9 (DAG/D408) |
| (DAG/D406) | COLUMN SELECT $\overline{9}$ | 7 | 8 | COLUMN SELECT 8 (DAG/D412) |
| (DAG/D410) | COLUMN SELECT $\overline{8}$ | 9 | 10 | COLUMN SELECT 7 (DAG/D416) |
| (DAG/D414) | COLUMN SELECT $\overline{7}$ | 11 | 12 | +6V DC |
| (DAG/D413) | COLUMN SELECT "A" | 13 | 14 | |
| (DAG/D407) | COLUMN SELECT "D" | 15 | 16 | DC COM |
| | DC COM | 17 | 18 | 550V DC |
| | | 19 | 20 | VALVE 33 (DAR/A341) |
| | | 21 | 22 | VALVE 37 (DAR/A337) |
| (DAR/A318) | VALVE 26 | 23 | 24 | VALVE 34 (DAR/A340) |
| (DAR/A327) | VALVE 17 | 25 | 26 | VALVE 38 (DAR/A336) |
| (DAR/A319) | VALVE 25 | 27 | 28 | VALVE 35 (DAR/A339) |
| (DAR/A328) | VALVE 16 | 29 | 30 | VALVE 39 (DAR/A335) |

D4

| | | 1 | 2 | |
|------------|----------|----|----|---------------------|
| (DAR/A306) | VALVE 8 | 1 | 2 | VALVE 36 (DAR/A338) |
| (DAR/A329) | VALVE 15 | 3 | 4 | VALVE 40 (DAR/A334) |
| (DAR/A307) | VALVE 7 | 5 | 6 | VALVE 24 (DAR/A320) |
| (DAR/A330) | VALVE 14 | 7 | 8 | VALVE 32 (DAR/A342) |
| (DAR/A308) | VALVE 6 | 9 | 10 | VALVE 23 (DAR/A321) |
| (DAR/A301) | VALVE 13 | 11 | 12 | VALVE 31 (DAR/A343) |
| (DAR/A309) | VALVE 5 | 13 | 14 | VALVE 22 (DAR/A322) |
| (DAR/A302) | VALVE 12 | 15 | 16 | VALVE 30 (DAR/A344) |
| (DAR/A310) | VALVE 4 | 17 | 18 | VALVE 21 (DAR/A323) |
| (DAR/A303) | VALVE 11 | 19 | 20 | VALVE 29 (DAR/A345) |
| (DAR/A311) | VALVE 3 | 21 | 22 | VALVE 20 (DAR/A324) |
| (DAR/A304) | VALVE 10 | 23 | 24 | VALVE 28 (DAR/A346) |
| (DAR/A312) | VALVE 2 | 25 | 26 | VALVE 19 (DAR/A325) |
| (DAR/A305) | VALVE 9 | 27 | 28 | VALVE 27 (DAR/A347) |
| (DAR/A313) | VALVE 1 | 29 | 30 | VALVE 18 (DAR/A326) |

Figure 16 - Spacing Drive Connector Pins – Rear of DAD Module

C1

| | | |
|--------------------------|----|----|
| DC COM | 1 | 2 |
| | 3 | 4 |
| | 5 | 6 |
| -12V DC | 7 | 8 |
| +30V DC | 9 | 10 |
| +120V DC | 11 | 12 |
| | 13 | 14 |
| +18V DC | 15 | 16 |
| (DAPS/A123) OVER VOLTAGE | 17 | 18 |
| -6V DC | 19 | 20 |
| +120V DC | 21 | 22 |
| +120V DC | 23 | 24 |
| 6.3V AC | 25 | 26 |
| 6.3V AC | 27 | 28 |
| +6V DC | 29 | 30 |

C2

| | | | |
|---------------------------|----|----|-----------------------------|
| | 1 | 2 | SPARE (DA1F/AA137) |
| (CPI/15) READY LAMP | 3 | 4 | |
| (DAPS/A113) REC. MSG. | 5 | 6 | |
| (DAG/D414) VERT.CNTL. 1-2 | 7 | 8 | |
| (DA1F/AA126) REC. MSG. | 9 | 10 | |
| | 11 | 12 | |
| (DAG/D416) VERT.CNTL. 1-2 | 13 | 14 | OVER VOLTAGE RESET (CPI/16) |
| (DAG/D424) V8 | 15 | 16 | |
| (DAG/D429) V4 | 17 | 18 | |
| (DAG/D427) V2 | 19 | 20 | |
| (DAG/D425) V1 | 21 | 22 | JET DOWN (DAG/D423) |
| (DAG/D418) L/R | 23 | 24 | |
| (DAG/D430) H4 | 25 | 26 | |
| (DAG/D428) H2 | 27 | 28 | PAPER ADV. (CPI/18) |
| (DAG/D426) H1 | 29 | 30 | LINE FEED (DAG/D420) |

Figure 17 - Printer Drive Connector Pins – Rear of DAD Module

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|-------------|--|--|
| 1 | Copylight and/or fans do not turn on when power is turned on (cover closed). | <ul style="list-style-type: none"> a. If neither fans nor copylight turn on, check ac power to printer. Check fuse F4 in power supply and F2 at bottom front of cabinet. b. If copylight is on but fans are off, check fuse F4 at bottom front of cabinet. c. If all fuses are good, replace DAPS power supply module. d. If fans are on but copylight is off, trouble is either defective starter or burned out copylight. |
| 2 | READY lamp does not turn on 15 to 45 seconds after turning power on (doors and lids closed). | <ul style="list-style-type: none"> a. Depress READY button. If READY lamp lights and stays lit after releasing, a temporary overvoltage condition has been reset. b. If READY lamp does not light while button is depressed, either +48 v is not present or READY lamp is burned out. Check +48 v by depressing PAPER ALARM button. If PAPER ALARM lamp lights, but READY lamp does not, the READY lamp is burned out. If neither the PAPER ALARM lamp nor the READY lamp lights, check fuses F2 and F9 of power supply. |
| 3 | PRINTER ON lamp lights instead of READY lamp after 15-45 second time delay. | Replace fuse F8. |
| 4 | READY lamp lights when button is depressed, but does not remain lit when button is released. | <ul style="list-style-type: none"> a. Interlock may be open. Depress the PRINTER ON button. If the PRINTER ON lamp lights, interlocks are complete. If not, operate cabinet bypass switch, and/or bypass cover with TP330131 assembly and recheck. If PRINTER ON lamp lights, interlock switch in front door, rear door, or cover is open. Replace if necessary. b. Paper out or paper jam may have occurred. Check for a paper jam indication (red light on left side frame of transport). If paper is jammed or out, or if the pressure roller is in the open position, clear the condition and reset the circuit by depressing the red paper jam indicator button. If jam occurs repeatedly, see Trouble Nos. 9, 10, and 11. c. If no jam condition exists and jam indicator cannot be reset, check 1/4 amp fuse (F101) on left side frame of transport. |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|--------------|--|---|
| 4 (contd) | | <p>d. Check for GND at DAD/C2-03 (rear of DAD module). If present when the READY button is depressed, yet the READY light goes out when button is released, replace the TP322146 tracing drive circuit card.</p> <p>e. If a circuit card is not available immediately, connect the DATS1 to the printer as explained in 3.08. Operate the REC. MSG. switch on the DATS1 and observe whether the HIGH VOLTAGE POWER ON light on the DAPS module of the printer turns on. If it does, the printer may be returned to service and will operate without the READY light turning on until a circuit card becomes available.</p> |
| 5 | Set fails to line feed when PAPER ADVANCE button is depressed. | <p>a. Depress PAPER ADVANCE button. If the line feed motor is not operating but the line feed escapement can be heard, refer to Trouble No. 6.</p> <p>b. If the line feed motor is operating but the line feed escapement operation cannot be heard with the PAPER ADVANCE button depressed, check fuse F10 in the power supply. If F10 is good, trouble is in the TP303930 line feed driver card.</p> <p>c. Check for presence of paper advance pulse at DAG/D4-03 and DAG/D1-20. If present at DAG/D4-03, but not at DAG/D1-20, TP322150 output logic card is defective.</p> <p>d. If the motor is running and the line feed escapement mechanism can be heard while depressing the PAPER ADVANCE button, check adjustments in the line feed area as described in Section 578-500-700 (formerly Section 592-820-700).</p> |
| 6 | Line feed motor does not run, or number of stored line feeds cannot be controlled by line feed torque potentiometer. | Defective TP330173 voltage regulator card on transport. ✓ |
| 7 | Paper winder and transport motors do not run. | Check fuse F3 in cabinet. |
| 8 | Paper winder motor does not brake immediately when slack paper is wound. | Check two 3/8 amp SL-BL fuses (F201, F202) at rear of cabinet. If good, the TP331200 dynamic brake card at the rear of the cabinet is defective. |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|-------------|--|--|
| 9 | Paper jam – loop does not form when paper is installed and pulled tight or when power is turned on. | Check loop forming switch or brake card TP331197. |
| 10 | Paper jam – loop of insufficient size (should be approximately 20 line feeds) develops. | Check loop sensing switch on transport. |
| 11 | Paper jam – excessive paper being developed in paper loop. | Check <u>PAPER THROAT</u> adjustment in Section 578-500-700 (formerly Section 592-820-700). Check fuse on TP331197 dynamic brake card and 3/10 amp SL-BL (F102) on back of transport. If fuses are good, the card is defective. |
| 12 | Paper jam alarm is activated at wrong time or does not operate on jam or paper out condition. | Defective TP330152 paper jam card on transport. |
| 13 | DATA lamp does not come on when DATA button is depressed with carrier being received, or call is dropped immediately if data set is equipped for auto answer. (READY lamp on and printer equipped with 202C data set.) | <ul style="list-style-type: none"> a. If PAPER ALARM lamp is on, the low paper condition must be corrected before a call can be completed. b. If PAPER ALARM lamp is on, but a low paper condition does not exist, check <u>LOW PAPER SENSING ARM</u> adjustment as described in Section 578-500-701 (formerly Section 592-820-701). c. If PAPER ALARM lamp is not on, check pin 33 of TP322132 data set control card for data terminal ready signal. If approximately +6 v is present, trouble is in data set. If +6 v is not present, the data set control card is defective. |
| 14 | Station will not answer call in auto answer mode (option ZE on 202C and option E on 804A). | Trouble is in data set if station can be manually connected in data mode. Refer to Section 592-015-500 for information on tests for 202C data set, and 592-016-500 for information tests on 202D data set (used with 804A data auxiliary set). |
| 15 | PRINTER ON lamp does not light after READY lamp is on and data set is in data mode. | <ul style="list-style-type: none"> a. Depress PRINTER ON button. If lamp does not turn on while depressed, bulb is burned out. |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|---------------|---|--|
| 15 (contd) | | <p>b. Set NORM./TEST switch on interface module to TEST position. If PRINTER ON lamp does not light, the TP322146 tracing drive card is defective if GND does not appear at receive message lead DAD/C2-5. If GND appears at DAD/C2-5, the trouble is in the power supply (KB2 relay circuit). If PRINTER ON lamp lights, return NORM./TEST switch to NORM. position.</p> <p>c. NORM./TEST switch in NORM. position. Repeat call and go into data mode. If pin 27 (sets with dial-up operation) or 25 (sets with private line operation) reads from +5.5 to +18.5 v, the TP322132 data set control card is defective. If not present, the data set is defective. Refer to Section 592-015-500 for data set tests.</p> |
| 16 | READY lamp goes out when DATA button on data set is depressed with carrier being received or when call is answered automatically. | <p>a. Check fuse F10 in power supply.</p> <p>b. Set NORM./TEST switch of interface module to TEST position. Depress READY lamp. If arcing in the DAR is observed, release the READY lamp immediately. Trouble is in the TP322146 tracing drive card or one of its tubes is defective. If no arcing occurs, replace DAPS power supply module.</p> <p style="text-align: center;">CAUTION: TURN OFF POWER WHEN REPLACING TUBES.</p> |
| 17 | No printing – PRINTER ON light on. | <p>a. If set has a DAIF1 interface, check pin B29 of the TP322130 shift register card for receive data pulses. If receive data is not present, see Trouble No. 18 or 19. If receive data is present, check the following for source of trouble. If set has a DAIF2 interface, check pin 2 of the TP322134 station control card for receive data pulses. If receive data is not present, see Trouble No. 20.</p> <p>b. Check for inverted receive data pulses at pin B31 of TP322130 shift register card. No pulses – defective TP322180-87 card.</p> <p>c. If stop pulses do not appear at pin B28 of TP322130 or inverted start pulses do not appear at pin B11 of TP322130 with clock pulses at pin B30, the shift register TP322130 is defective. If clock pulses are not present, the TP322180-87 R/D (Receiving Distributor) control card is defective.</p> |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|---------------|---|---|
| 17 (contd) | | <p>d. If the stop, inverted start and clock pulses are all present but the character available pulses do not appear at pin B26 of TP322180-87 R/D control card, the R/D control card is defective.</p> <p>e. If all cards are good, see Trouble No. 21.</p> |
| 18 | No receive data – serial interface (printer equipped with 202C data set). | <p>a. Check pin 26 of TP322132 data set control card. If +5.5 to +18.5 v is present, a false ring indication is coming from the data set. Data set is defective. Refer to Section 592-015-500 for information on data set tests.</p> <p>b. Check pin 24 of TP322132 data set control card. If inverted receive data pulses are present, the TP322132 card is defective. If inverted receive data pulses are not present, the data set is defective or no data is being received. Refer to Section 592-015-500 for information on data set tests.</p> |
| 19 | No receive data – serial interface (printer equipped with 202D data set). | If inverted receive data pulses are not present at pin 24 of TP322132, the data set is defective or no data is being received. (Refer to Section 592-016-500 for data set tests.) If inverted receive data pulses are present, the TP322132 data set control card is defective. |
| 20 | No receive data – parallel interface. | All logic contained on one circuit card (TP332134) in DAIF2 module. Replace card and recheck. |
| 21 | No printing – DAIF operation correct and PRINTER ON light on. | <p>a. Check ink level and flow of ink from pump. If ink is not flowing, see Trouble No. 23. If pump leads (bottom of pump) are exposed, add ink. DO NOT OVERFILL – SCREWS ON TOP OF PUMP SHOULD NEVER BE COVERED.</p> <p>b. Connect DATS1 to DAIF/AA1 connector and generate repeat character A (ASCII) or E (Baudot) after sending a LETTERS shift. If the set prints, refer to Trouble No. 17. If the set does not print, proceed as follows:</p> <ol style="list-style-type: none"> 1. Check for loss of high voltage. Should be +10,000 v on platen (DATS1 will read approximately 6000 v), +5000 v on mask (DATS1 will read approximately 4000 v), and -1900 v on manifold (DATS1 will read approximately -1800 v). |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|---------------|------------------|--|
| 21 (contd) | | <ol style="list-style-type: none"> 2. If all of these voltages are missing, check for 167 v ac from DAPS power supply at DAT/A1-6 and 7. If 167 v is not present, check fuse F5 in DAPS power supply. If 167 v ac is present but high dc voltages are not the TP330190 high voltage power supply is defective. 3. If the platen or mask voltage is missing, but not both, the high voltage power supply is defective. 4. If the platen and mask voltages are present but the manifold voltage is not, turn off the high voltage and remove the TP331010 high voltage cover and regulator. Turn on the high voltage and check for -2500 v at the 2.5 kv terminal of the high voltage power supply (DATS1 will read approximately 2000 v). If not present, the high voltage supply is defective. If present, yet -1900 v is not available at manifold, the regulator assembly is defective. 5. Check for +550 v at DAD/D3-18. If not present, replace DAPS power supply. <p>c. If high voltage section is normal, proceed as follows:</p> <ol style="list-style-type: none"> 1. Check for SOC pulses at DAG/A3-21. No pulses – defective TP322151 input logic card. 2. Check for oscillator pulses at DAG/A3-9. No pulses – defective TP322150 output logic card. 3. Check for print interval pulses at DAG/A3-23. No pulses – defective TP322150 output logic card. 4. Check for print inhibit pulses at DAT/A3-13. This pin should be approximately +6 v. If 0 v or pulses occur – defective TP322152 control card. 5. Check for reed inhibit pulses at DAG/A3-15. No pulses – defective TP322151 input logic card. 6. Check for odd Y-driver pulses at DAG/A3-19. No pulses – defective TP322150 output logic card. 7. Check for X-driver pulses at DAG/A4-9. No pulses – defective TP322151 input logic card. |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|---------------|--|--|
| 21 (contd) | | <p>8. Check for memory clear pulses at DAG/A3-7. No pulses – defective TP322151 input logic card.</p> <p>9. Check for vertical output (V2) pulses at DAG/D4-27. No pulses – defective TP322150 output logic card.</p> <p>10. Check jet down voltage at DAG/D4-23. If 0 v – defective TP322150 output logic card. <i>OR 322158</i></p> <p>11. Check for +120 v at DAD/C1-11, 21, and 23. If any or all are missing, replace DAPS power supply.</p> <p>If all of the above No Printing checks have been made, TP322146 tracing drive card is the probable cause of trouble.</p> |
| 22 | No line feed while receiving traffic but set will line feed from PAPER ADVANCE button. | Defective ASCII or Baudot control card in character generator. Replace TP322152 (ASCII) or TP322153 (Baudot) control card. |
| 23 | Light printed copy. | <p>a. Check for proper ink level and fill if necessary (see Trouble No. 21).</p> <p>b. If both ink heater (tank not warm to touch 15 minutes after main power is turned on) and ink pump are not operating (ink not flowing), check fuse F3 on power supply.</p> <p><u>Note:</u> If heater has not operated for at least 15 minutes, tank may not be warm to touch. Turn off power, remove cover, and touch manifold to see if it is warm.</p> <p>If F3 is good, turn power off, remove tank cover, and depress ink heater thermostat reset button (Figure 18). If tank does not heat up or stay warm, and pump still does not operate, check for 26 v ac at pins 32 and 33 of the DAR/A3 connector. If not present, trouble may be in transformer at ink heater and line feed bracket assembly.</p> <p>c. If 26 v ac is present at DAR/A3, yet tank does not heat and pump does not operate, replace DAR.</p> |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|---------------|--|---|
| 23 (contd) | | d. If either heater or pump is operating, but not both, replace DAR. |
| 24 | Printing trouble confined to a particular nozzle – adjacent odd and even characters, (i.e. 1 and 2, 7 and 8, etc). | <p>a. If both characters are missing, the jet may be clogged or the valving electrode may not be turning on (550 v not present). Clean according to instructions in Part 3. If cleaning does not clear the trouble, cause is probably defective TP322145 spacing drive card.</p> <p>b. If characters are partly formed or distorted, trouble may be dirty electrodes or defective recorder. If cleaning does not clear trouble, replace recorder.</p> |
| 25 | A number of characters partially or totally missing in any location on the page. | <p>If it can be determined that this group is controlled by the same X- or Y-driver, the TP322151 input logic card is defective or the wiring is bad on the DAG connectors.</p> <p>a. If three or four particular characters are totally missing regardless of their position on the line, an X-driver or connector is bad. Refer to Table H to determine which X-drivers affect which characters. Set up one of the missing characters on the DATS1 simulator and check for signal voltage at the points indicated in Table H. If voltage is not present at the indicated DAG/B1 connector, the X-driver is bad and the input logic card (TP322151) should be replaced. If the voltage is present at the DAG/B1 connector, but not at the corresponding DAG/A4 connector, the wiring or connectors between these points should be checked.</p> <p>b. If a group of 15 or 16 characters are partially missing, regardless of their position on the line, a Y-driver or connector is bad. Refer to Table I to determine which Y-drivers affect which characters. Set up one of the missing characters on the DATS1 simulator and check for signal voltage at the points indicated in Table I. If the voltage is not present at the indicated DAG/A4 connector, the Y-driver is bad and the input logic and (TP322151) should be replaced. If the voltage is present at the DAG/A4 connector, but not at the corresponding DAG/B1 connector, the wiring or connectors between these points should be checked.</p> |
| 26 | Every other character missing. | Trouble is in TP322146 tracing drive card. Replace and recheck. |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|-------------|---|--|
| 27 | A character is malformed or missing regardless of location on page. | Trouble is likely to be on individual character sheet in the DAG module or open diode on program board. Replace appropriate core plane assembly (entire memory assembly – program board, output board, and character sheets): TP325740 ASCII TP325760 Baudot Communications TP325770 Baudot Weather |
| 28 | Character groups missing in uniformly spaced locations across a line of copy (except as indicated in Trouble No. 30). | Trouble is probably in TP322150 output logic card. |
| 29 | Defective printing – missing pair or pairs of characters. | Defective reed switch or driver circuit. With power off, ground pin A3-11 of the DAG front panel, taking care that no other pins are grounded. Turn the ac power on. When the READY lamp comes on, set the REC. MSG. switch on the DATS1 to ON, the CHAR. AVAIL. switch to MAN, and the OUTPUT switch to H.V. Depress the PAPER ADVANCE button and release. Using the MAN. STEP switch, step the printer to the suspected column, and with the high voltage probe, check for +550 v at the rear of the spacing drive circuit card TP322145. If +550 v is not observed, replace the circuit card. Take care that the +550 v is present at the suspected column and not during the printing of the two previous characters. If +550 v does appear, yet the characters are not printing, the problem could be a clogged jet or blocked electrodes which should be cleaned as described in Part 3. |
| 30 | Defective printing – every other pair of characters missing. | <ol style="list-style-type: none"> a. If +550 v is not appearing at the valve (DAR/A3) where the characters are missing, at the time they should be printing, the trouble is in the TP322150 output logic card. Check by connecting DATS1 simulator and using MAN. STEP pushbutton to step simulator to defective column position. Ground connector DAG/A3-11 and measure dc voltage at valve. b. If +550 v is appearing at the valves in question, the trouble is on the TP322146 tracing drive card. c. Try to correct the trouble by replacing high voltage tubes V3 or V4, if the trouble is confined to odd numbered nozzles. If the trouble is confined to even numbered nozzles, the cause could be V1 or V2. If tube replacement does not correct the trouble, the TP322146 tracing drive card is defective. |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|-------------|--|---|
| 31 | Distorted printing – improper vertical alignment with underscoring. | Check fuse F7 |
| 32 | Distorted printing – narrow characters. | <p>Defective horizontal amplifier tube or circuit. Remove the DAR/A2 connector from the recorder. Set the OUTPUT switch on the DATS1 to the H.V. position, the CHAR. AVAIL. switch to MAN, and the REC. MSG. switch to ON. Set the meter to the 12-volt dc range.</p> <ol style="list-style-type: none"> To check the right horizontal amplifier (V5), insert the high voltage probe into pin 8 of the DAR/A2 connector. Depress and release the PAPER ADVANCE key on the printer. The meter should read about 1350 v. Depress and release the MAN. STEP button of the DATS1 once. The meter reading should be about 2200 v. Set the REC. MSG. switch to OFF. To check the left horizontal amplifier (V6), insert the high voltage probe into pin 10 of the DAR/A2 connector, and turn the REC. MSG. switch ON. Depress and release the PAPER ADVANCE key on the printer. The voltmeter should read about 2850 v. Depress and release the MAN. STEP button of the DATS1 once. The meter should read about 2000 v. Set the REC. MSG. switch to OFF, remove the high voltage probe from the DAR/A2 connector, and reconnect the connector to the recorder. If the proper voltages are not observed in these tests, replace the appropriate horizontal amplifier tube and recheck the operation. If the proper voltages are still not present, yet the tubes are known to be good, replace the TP322146 printer drive circuit card and recheck the operation. ^{TRACING} |
| 33 | Distorted printing – every other pair of characters distorted or out of line vertically. | <ol style="list-style-type: none"> If character pairs associated with odd numbered valves are distorted, the cause could be high voltage tube V3 or V4. If character pairs associated with even numbered valves are distorted, V1 or V2 could be the cause. If the tubes are found to be good, the cause is the TP322146 tracing drive card. |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|-------------|--|---|
| 34 | All characters malformed. | <p>a. TP322150 output logic card is defective.</p> <p>b. Manifold cover TP330022 is loose on manifold, causing pressure fluctuations in nozzles. Carefully tighten screws on manifold cover.</p> <p>CAUTION: DO NOT OVERTIGHTEN – COVER MAY WARP AND CAUSE FURTHER MALFORMING OF CHARACTERS.</p> |
| 35 | All characters in one column malformed (usually at bottom of character). | TP322145 spacing drive card defective. |
| 36 | Every other character missing. | Trouble is in TP322146 tracing drive card. |
| 37 | All characters dark and distorted. | Trouble may be caused for a short period by overheating of the manifold which should result in operation of the thermal cutout, followed by light printing. See Trouble No. 23. |
| 38 | Overprinting. | <p>a. If overprinting occurs in one character pair location (associated with one jet), the trouble is probably in the TP322145 spacing drive card.</p> <p>b. If overprinting occurs in all locations across the page, and line feed is operating normally, the TP330308 high voltage regulator located in the cover assembly of the high voltage power supply may be at fault. Check the dc voltage at DAR/A4-1. If this voltage exceeds -1900 v by a significant amount, replace high voltage regulator.</p> <p>c. If overprinting occurs in every second column, the TP322146 tracing drive card is probably the cause.</p> |
| 39 | Errors in copy – wrong character printing. | If it can be determined that one level is always marking or spacing (see code charts of Figure 4), TP322151 input logic card is defective. |

"DATASPEED" PRINTER (RECEIVE-ONLY) TROUBLESHOOTING CHART (Continued)

| TROUBLE NO. | TROUBLE OBSERVED | ANALYSIS AND CORRECTION |
|-------------|--|---|
| 40 | Missing dots on a number of characters. | TP322150 output logic card or its connectors is probable cause. Set up the code letter B on the DATS1 simulator and observe the printed character for dot pattern. See Table J and Figure 19 to determine which dot numbers are missing and which Z-drivers affect these dots. If signal voltage is not present at the indicated DAG/D2 pins, the Z-driver is bad and the output logic card (TP322150) should be replaced. If the signal voltage is present at the DAG/D2 pin, but not at the corresponding DAG/C2 pin, the wiring or connectors should be checked. |
| 41 | Improper spacing – characters appear in pairs or overlay occurs. | See <u>PLATEN-MANIFOLD CLEARANCE</u> adjustment in Section 578-500-700 (formerly 592-820-700). |
| 42 | Set does not automatically line feed and/or carriage return after receipt of 81st character. | Trouble is in TP322150 output logic card. |

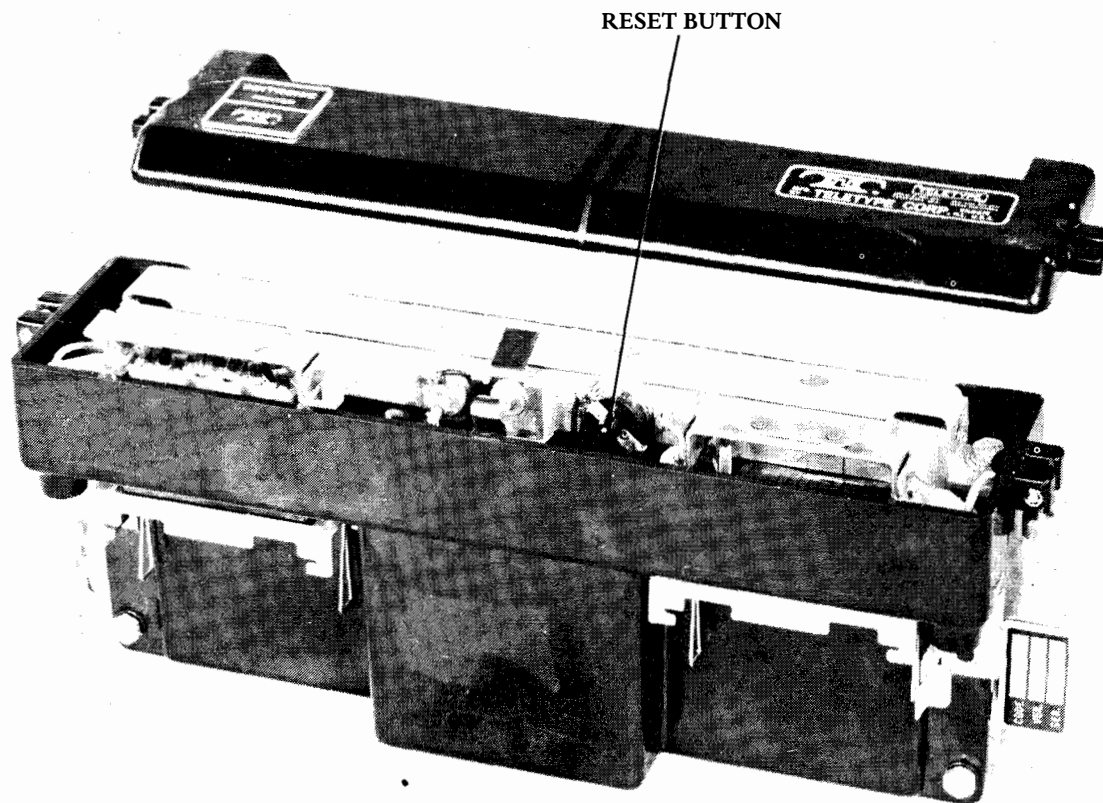


Figure 18 - Location of Ink Heater Thermostat Reset Button

TABLE H
MISSING CHARACTERS WHEN X-DRIVER IS BAD

| DRIVER | CHARACTERS | CHECK DAG FOR NO SIGNAL ON | |
|--------|------------|-------------------------------|---------|
| | | PIN NO. | PIN NO. |
| X1 | @ 0 P | A 420 | B130 |
| X2 | ! A 1 Q | 418 | 128 |
| X3 | " B 2 R | 422 | 126 |
| X4 | # C 3 S | 424 | 124 |
| X5 | \$ D 4 T | 428 | 122 |
| X6 | % E 5 U | 419 | 120 |
| X7 | & F 6 V | 417 | 118 |
| X8 | ' G 7 W | 426 | 116 |
| X9 | (H 8 X | 423 | 114 |
| X10 |) I 9 Y | 421 | 112 |
| X11 | * J : Z | 425 | 110 |
| X12 | + K ; [| 427 | 108 |
| X13 | , L < \ | 414 | 106 |
| X14 | - M =] | 416 | 104 |
| X15 | . N > ^ | 412 | 102 |
| X16 | / 0 ? - | 410 | 101 |

TABLE I
MISSING HALF-CHARACTERS WHEN A Y-DRIVER IS BAD

| DRIVER | CHARACTERS | MISSING HALF OF CHARACTER | CHECK DAG FOR NO SIGNAL ON | |
|--------|---------------------------------|------------------------------|-------------------------------|---------|
| | | | PIN NO. | PIN NO. |
| Y1-1 | ! " # \$ % & ' () * + , - . / | 1st | A402 | B129 |
| Y1-2 | ! " # \$ % & ' () * + , - . / | 2nd | 404 | 127 |
| Y2-1 | 0 1 2 3 4 5 6 7 8 9 ; ; < = > ? | 1st | 406 | 125 |
| Y2-2 | 0 1 2 3 4 5 6 7 8 9 ; ; < = > ? | 2nd | 408 | 123 |
| Y3-1 | @ A B C D E F G H I J K L M N O | 1st | 409 | 121 |
| Y3-2 | @ A B C D E F G H I J K L M N O | 2nd | 411 | 119 |
| Y4-1 | P Q R S T U V W X Y Z [\] ^ - | 1st | 413 | 117 |
| Y4-2 | P Q R S T U V W X Y Z [\] ^ - | 2nd | 415 | 115 |

TABLE J

MISSING DOTS WHEN Z-DRIVER IS BAD

| DRIVER | DOTS | CHECK DAG FOR NO SIGNAL ON | |
|--------|-----------|-------------------------------|---------|
| | | PIN NO. | PIN NO. |
| Z1 | 1 and 17 | D202 | C216 |
| Z2 | 2 and 18 | 204 | 116 |
| Z3 | 3 and 19 | 206 | 218 |
| Z4 | 4 and 20 | 208 | 114 |
| Z5 | 5 and 21 | 210 | 220 |
| Z6 | 6 and 22 | 212 | 112 |
| Z7 | 7 and 23 | 214 | 222 |
| Z8 | 8 and 24 | 216 | 110 |
| Z9 | 9 and 25 | 218 | 224 |
| Z10 | 10 and 26 | 220 | 108 |
| Z11 | 11 and 27 | 222 | 226 |
| Z12 | 12 and 28 | 224 | 106 |
| Z13 | 13 and 29 | 226 | 228 |
| Z14 | 14 and 30 | 228 | 104 |
| Z15 | 15 and 31 | 230 | 230 |
| Z16 | 16 and 32 | 215 | 102 |

| | | | | | | |
|----|----|----|----|----|----|--|
| 9 | 10 | 11 | 12 | 13 | | |
| | 8 | | | 14 | | |
| | 7 | | | 15 | | |
| | 6 | | | 16 | | |
| | 5 | 18 | 19 | 17 | 20 | |
| | 4 | | | | 21 | |
| | 3 | | | | 22 | |
| | 2 | | | | 23 | |
| | 1 | | | | 24 | |
| 30 | 29 | 28 | 27 | 26 | 25 | |

Figure 19 - Dot Sequence Used in Forming Letter B

TABLE K
INTERCHANGEABILITY OF REDESIGNED (2101AB)
COMPONENTS INTO 2101AA "DATASPEED" PRINTER

| 2101AA COMPONENT | 2101AB COMPONENT | REMARKS |
|--|--|---|
| TP322146 | TP322157 | Interchangeable |
| TP322145 | TP322145 | Interchangeable |
| TP322150 | TP322158 | Cut strap J and add strap H on TP322158 when used with card TP303930; cut strap H and add strap J when used with card TP303950 (other strap closed) |
| TP322151 and TP322152 or TP322151 and TP322153 | TP322156 and TP322154 or TP322156 and TP322155 | Interchangeable but only in sets of 2 |
| TP330152 | TP330152 | Interchangeable |
| TP303930 | TP303950 | Interchangeable only when card TP322158 is present |
| DAR2 | DAR2 | Interchangeable using mounting hardware supplied |
| DAPS5 | DAPS8 | Interchangeable only if TP322157 tracing drive card is used, and if control panel wiring is changed as indicated in Table L |
| DAT2 | DAT3 | Interchangeable using jumper cable supply |

TABLE L
WIRING CHANGES REQUIRED ON CONTROL PANEL IF
DAPS5 POWER SUPPLY IS REPLACED BY DAPS8 POWER SUPPLY

| WIRING TO BE CHANGED | ORIGINAL CONNECTION | | | | REVISED CONNECTION | | | |
|----------------------|---------------------|-------|-------|-------|--------------------|-------|-------|-------|
| | FROM | | TO | | FROM | | TO | |
| | COMP. | TERM. | COMP. | TERM. | COMP. | TERM. | COMP. | TERM. |
| Resistor | B | 1NO | LB | 1L | B | 2NO | LB | 1L |
| Orange Wire | B | 2NO | CP1 | 18 | B | 1NO | CP1 | 18 |
| Black Wire | C | 3C | D | 1NO | C | 3C | E | 1C |
| Black Wire | D | 1NO | E | 1C | D | 2NO | D | 2NC |
| Slate Wire | D | 2NO | CP1 | 4 | D | 1NO | CP1 | 4 |

