

43 BASIC RO TELEPRINTER

TROUBLESHOOTING

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1. GENERAL	1	occur either during an installation, a routine maintenance visit or as the result of a customer trouble report.
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1. GENERAL		For the Test Centers:
1.01 This section provides troubleshooting information for the 43 Basic RO Teleprinter.		Section 668-130-500
1.02 This section is reissued to include troubleshooting information for Basic RO Teleprinters with Terminal Auxiliary Unit (TAU1) and answer-back modification kits.		1.07 To facilitate trouble correction, the recommended maintenance spares as listed in the parts Section 574-500-800 should be available. In addition, parts for the repair of components as listed in Section 574-501-800, 574-502-800 and 574-503-800 for the printer, operator console and enclosures and paper handling should be available.
1.03 Troubleshooting is based on isolation of troubles to major components and the correction of troubles by replacement of these components or by reference to the component troubleshooting sections.		1.08 For component access, refer to the Disassembly/Reassembly Section 574-500-720 and Engineering Options Section 574-500-210.
<i>Note:</i> Except for the 153A1 Terminal Data Unit and the 861B1 Terminal Auxiliary Unit which are Western Electric components, when ordering replaceable components, prefix each part number with the letters "TP" (ie, TP346392).		1.09 For location and identification of station components, refer to the parts Section 574-500-800.
1.04 Component troubleshooting sections are:		1.10 When replacement of the print head, logic card or opcon corrects the trouble, additional checks should be made to isolate and possibly correct the trouble without returning for repair.
Section 574-501-300 43 Printer		On the print head — check cable continuity.
Section 574-502-300 43 Basic Operator Console (Opcon)		On the logic card — check TDU or Terminal Unit, power supply cables or fuse.
1.05 Trouble isolation provided in this section is intended for use by the craftsperson at the same location as the station. Troubles may		On the opcon — check the cable and key-switches per opcon troubleshooting.

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1.11 When replacement of a component does not correct the trouble, the original component should be reinstalled before going to the next step of the trouble analysis. If there are no more steps provided, go to the last question.

1.12 When returned to the WECO Service Center for repair, the set or components should be packed in the container in which the replacement is received. This includes the conductive (black) plastic bag used with the logic card for static protection.

1.13 Components returnable for repair and referred to in this section for replacement are:

430850 Print Head
43K001/AAA Operator Console
430700 Power Supply
410710 Answer-Back Card

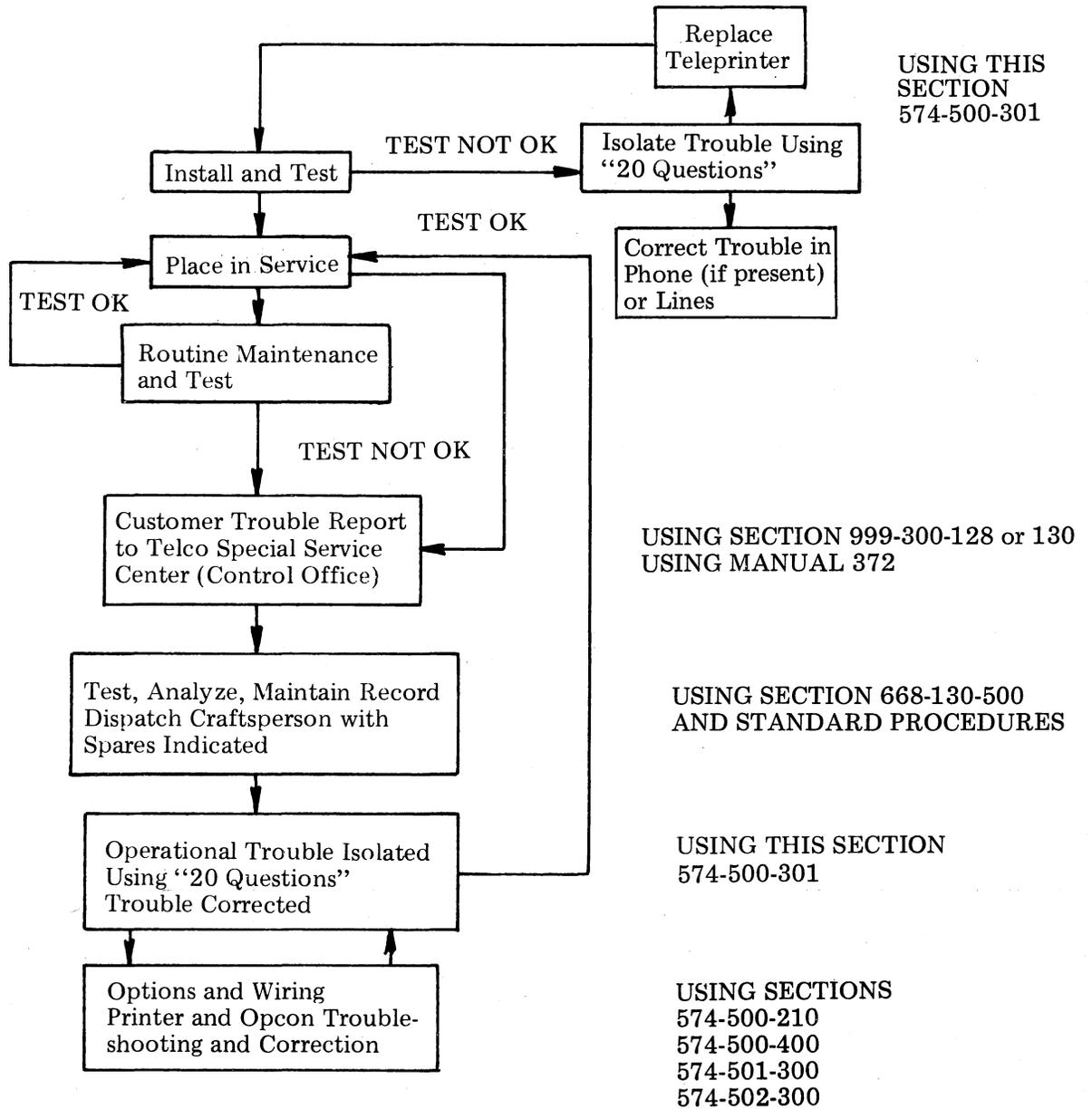
410755 Terminal Auxiliary Unit (TAU1)
410740 Logic Card
153A1 Terminal Data Unit
861B1 Terminal Auxiliary Unit

1.14 Before disconnecting internal cables or replacing circuit cards, turn off ac power. Make certain power cord is connected to a properly polarized and grounded ac outlet.

1.15 Refer to 2. TROUBLESHOOTING FLOW DIAGRAM for the intended flow of troubleshooting procedures.

1.16 Trouble analysis is presented in the form of a "20 Questions" routine in 3. and 4. TROUBLESHOOTING GUIDE. The guide, with questions and yes or no columns, should be used always starting with the first question and proceeding according to the "yes" or "no" directive.

2. TROUBLESHOOTING FLOW DIAGRAM



3. TROUBLESHOOTING GUIDE (Teleprinter With TDU)

QUESTIONS	YES	NO
1. Are any of the 3 mode indicators lit? (Power available and set power on.) (Depress other indicators if proper indicator is not lit.)	Go to 2.	Go to 1a.
1a. Is there any indication of power in the set? (Indicators flash when power is turned on and off, red lamp on power supply, etc.)	Go to 1b.	Check and replace set F1 fuse if blown. Replace power supply if fuse blows again. If not blown go to 1b.
1b. Is red lamp on power supply lit?	Check P107 opcon cable connector. Replace logic card. Replace opcon.	Disconnect power supply cable. Go to 1c.
1c. Does red lamp on power supply now light?	Unplug TDU, answer-back card (if present), opcon and printer cables (6). Reconnect power supply cable. Go to 1d.	Check F2 fuse on power supply. Replace if blown. Replace power supply. Replace rear frame assembly.
1d. Does red lamp on power supply still light?	Go to 1e.	Replace logic card.
1e. Does red lamp on power supply go out after the TDU, opcon, answer-back card and printer cables are reconnected one at a time?	Replace the TDU, opcon, answer-back card or the printer component (refer to printer troubleshooting) that caused lamp to extinguish.	Intermittent short. Check for foreign objects between circuit lands or terminals.
2. Does TERM READY indicator light when power is turned on?	Go to 3.	Go to 2a.
2a. Does ALARM indicator: 1. Flash? 2. Light (cover closed and paper installed)?	1. Replace logic card. 2. Replace opcon or refer to printer troubleshooting.	Go to 3.
3. Does RESET indicator cause the printer to carriage return and line feed and turn on the TERM READY indicator when depressed (ALARM indicator off)?	Go to 4.	Replace opcon. Replace logic card.

QUESTIONS	YES	NO
4. Does PRINTER TEST key cause the printer to carriage return and line feed and turn on the TERM READY indicator when released?	Go to 5.	Replace opcon. Replace logic card.
5. Does test message print and perform properly while the PRINTER TEST key is depressed?	Go to 6.	Check option 431 and 432. Go to 5a.
5a. Is red lamp on power supply lit?	Go to 5c.	Disconnect power supply cable. Go to 5b.
5b. Does red lamp on power supply now light?	Reconnect power supply cable. Unplug print head and motor cables then reconnect one at a time to isolate cause of lamp not lit. Replace defective component (refer to printer troubleshooting).	Replace power supply.
5c. Does anything print or perform?	Go to 5d.	Place the printer test bypass switch SPD4-2 on logic card to ON position. If ok, replace opcon. Replace logic card.
5d. Does anything print?	Go to 5e.	Replace logic card. Refer to printer troubleshooting.
5e. Are characters properly formed?	Go to 5f.	Refer to printer troubleshooting. Replace logic card.
5f. Are the proper characters printed?	Go to 5g.	Replace logic card.
5g. Is print density acceptable (good.. ribbon)?	May be undefined printing problem. Refer to printer troubleshooting. Replace logic card. Go to 5h.	Refer to printer troubleshooting.

QUESTION	YES	NO
5h. Does paper feed properly (paper supply free)?	Go to 5i.	Check F3 fuse on logic card. Replace line feed motor if fuse blows again. Refer to printer troubleshooting. Replace logic card.
5i. Does print head space and return properly?	Undefined problem in printer test functions. Refer to printer troubleshooting.	Refer to printer troubleshooting. Replace logic card.
6. Did ALARM indicator light during printer test?	Go to 7.	Go to 6a.
6a. Does ALARM indicator light when cover is opened?	Replace logic card.	Replace opcon.
7. Does ALARM indicator light when 1. paper is out and when 2. cover is opened?	Go to 8.	1. Check printer troubleshooting. 2. Replace opcon. 3. Replace logic card.
8. Does signal bell ring on received CTRL G?	Go to 9.	Go to 8a.
8a. Did signal bell ring during printer test?	Replace logic card.	Check P106 bell connector. Refer to printer (bell) troubleshooting. Replace logic card.
9. Does signal bell ring eight characters before right margin and at left and right margins?	Go to 10.	Replace logic card.
10. Are margins set and cleared properly?	Go to 11.	Check column indicator positioning adjustment. Replace logic card.

QUESTION	YES	NO
11. Does DATA indicator light following a received call in automatic answer mode?	Go to 12.	Remote station must also go to data mode. Check that modular cords are not reversed. Replace TDU. Replace logic card. Go to 18.
12. Are data messages properly sent and received in the data mode?	Go to 13.	Check options 436b and 437b. Go to 13.
13. Can any data be received?	Go to 13a.	Replace logic card. Replace TDU. Go to 18.
13a. Is answer-back message properly send and/or printer under all conditions?	Go to 14.	Check options 438 through 444. Replace answer-back card.
14. Does substitute character print on some characters (option 437a enabled)?	Remote station may be sending incorrect parity or be at different speed. Go to 17.	Go to 15.
15. Does the carriage return automatically when characters to the right of the right-hand margin are received (DATA indicator lit)?	Go to 16.	Check option 435. Replace logic card.
16. Does call disconnect on received EOT and when carrier is not received (in data mode)?	Go to 17.	Check option 433. Replace logic card. Replace TDU.
17. Does station pass on-line end-to-end tests with Testing Station or Test Center?	Trouble (if any) is in remote station.	Perform distortion, dBm level, or other parameter tests including digital loopback under control of Test Center to isolate trouble to line, TDU, answer-back card, if present or logic card (904G, Section 668-400-300).
18. Is trouble present but not defined by Questions 1 to 17?	Refer to printer or opcon troubleshooting for other symptoms. Replace opcon, power supply, TDU, logic card, answer-back card and/or print head to correct trouble.	

4. TROUBLESHOOTING GUIDE (Teleprinter Without TDU)

QUESTIONS	YES	NO
1. Are any of the 3 mode indicators lit? (Power available and set power on.) (Depress other keys if proper key not lit.)	Go to 2.	Go to 1a.
1a. Is there any indication of power in the set? (Indicators flash when power is turned on and off, red lamp on power supply, etc.)	Go to 1b.	Check and replace set F1 fuse if blown. Replace power supply if fuse blows again. If not blown go to 1b.
1b. Is red lamp on power supply lit?	Check P107 opcon cable connector. Replace logic card. Replace opcon.	Disconnect power supply cable. Go to 1c.
1c. Does red lamp on power supply now light?	Unplug terminal unit and answer-back card if present, opcon and printer (6) cables. Reconnect power supply cable. Go to 1d.	Check F2 fuse on power supply. Replace if blown. Replace power supply. Replace rear frame assembly.
1d. Does red lamp on power supply still light?	Go to 1e.	Replace logic card.
1e. Does red lamp on power supply go out after the terminal unit, opcon, answer-back card and printer cables are reconnected one at a time?	Replace the terminal unit, opcon, answer-back card or the printer component (refer to printer troubleshooting) that caused lamp to extinguish.	Intermittent short. Check for foreign objects between circuit lands or terminals.
2. Does ALARM indicator: 1. Flash? 2. Light (cover closed and paper installed)?	1. Replace logic card. 2. Replace opcon or refer to printer troubleshooting.	Go to 3.

QUESTIONS	YES	NO
3. Does RESET key cause the printer to carriage return line feed and turn on the TERM READY indicator when depressed (ALARM indicator off)?	Go to 4.	Replace opcon. Replace logic card.
4. Does PRINTER TEST key cause the printer to carriage return and line feed and turn on the TERM READY indicator when released?	Go to 5.	Replace opcon. Replace logic card.
5. Does test message print and perform properly while the PRINTER TEST key is depressed?	Go to 6.	Check option 431 and 432. Go to 5a.
5a. Is red lamp on power supply lit?	Go to 5c.	Disconnect power supply cable. Go to 5b.
5b. Does red lamp on power supply now light?	Reconnect power supply cable. Unplug print head and motor cables then reconnect one at a time to isolate cause of lamp not lit. Replace defective component (refer to printer troubleshooting).	Replace power supply.
5c. Does anything print or perform?	Go to 5d.	Place the printer test bypass switch SPD4-2 on logic card to ON position. If ok, replace opcon. Replace logic card.
5d. Does anything print?	Go to 5e.	Replace logic card. Refer to printer troubleshooting.
5e. Are characters properly formed?	Go to 5f.	Refer to printer troubleshooting. Replace logic card.
5f. Are the proper characters printed?	Go to 5g.	Replace logic card.
5g. Is print density acceptable (good ribbon)?	May be undefined printing problem. Refer to printer troubleshooting. Replace logic card. Go to 5h.	Refer to printer troubleshooting.

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QUESTION	YES	NO
5h. Does paper feed properly (paper supply free)?	Go to 5i.	<p>Check F3 fuse on logic card. Replace line feed motor if fuse blows again.</p> <p>Refer to printer troubleshooting.</p> <p>Replace logic card.</p>
5i. Does print head space and return properly?	<p>Undefined problem in printer test functions.</p> <p>Refer to printer troubleshooting.</p>	<p>Refer to printer troubleshooting.</p> <p>Replace logic card.</p>
6. Did ALARM indicator light during printer test?	Go to 7.	Go to 6a.
6a. Does ALARM indicator light when cover is opened?	Replace logic card.	Replace opcon.
7. Does ALARM indicator light when 1. paper is out and when 2. cover is opened?	Go to 8.	<ol style="list-style-type: none"> 1. Check printer troubleshooting. 2. Replace opcon. 3. Replace logic card.
8. Does signal bell ring on received CTRL G?	Go to 9.	Go to 8a.
8a. Did signal bell ring during printer test?	<p>Replace logic card.</p> <p>Replace opcon.</p>	<p>Check P106 bell connector.</p> <p>Refer to printer (bell) troubleshooting.</p> <p>Replace logic card.</p>
9. Does signal bell ring eight characters before right margin and at left and right margins?	Go to 10.	Replace logic card.
10. Are margins set and cleared properly on-line?	Go to 11.	Replace logic card.

QUESTION	YES	NO
<p>11. Does external device connected to interface connector go to data mode (data key depressed, exclusion key lifted, etc)?</p> <p>(TTL interface — Data Ready, pin 15 on, 0 V) (EIA interface — Carrier Detect, pin 8 on, +12 V)</p>	Go to 12.	Go to 11a.
<p>11a. Is Terminal Ready pin 5, TTL interface on, 0 V, TERM READY (AUTO ANSW) indicator on?</p>	Go to 11c.	Bypass answer-back card if present, Go to 11b.
<p>11b. Is Terminal Ready pin 5, TTL interface now on, 0 V?</p>	Replace answer-back card.	Reconnect answer-back card. Replace logic card.
<p>11c. Does external device require Request to Send (EIA interface) to be on?</p>	Use Issue 2A logic card or strap ON in cable. (Sets w/TAU) Sets with terminal unit, go to 11d.	Sets without Terminal Unit — Trouble is in external device.
<p>11d. Is Data Term Ready pin 20, EIA interface on, +12 V?</p>	Trouble is in external device.	Replace Terminal Unit if present.
<p>12. Does DATA indicator on opcon light when external device in data mode?</p>	Go to 13.	Go to 12a.
<p>12a. Is EIA interface Clear to Send, pin 5, Carrier Detect pin 8, and Data Set Ready, pin 6 on, +12 V.</p> <p>(Request to Send on if required by external device (strapped or Issue 2A logic card present — Sets w/TAU).</p>	Go to 12b.	Trouble in external device.
<p>12b. Is TTL interface Data Ready, pin 15 on?</p>	Replace logic card.	Bypass answer-back card. Go to 12c.
<p>12c. Is TTL interface Data Ready pin 15 now on?</p>	Replace answer-back card.	Replace Terminal Unit.
<p>13. Are data messages properly sent and received in the data mode?</p>	Go to 16.	Go to 13a.
<p>14. Can any data be received?</p>	Go to 14a.	Replace logic card. Replace Terminal Unit if present. Go to 19.
<p>14a. Is answer-back message properly sent and/or printed under all conditions?</p>	Go to 15.	Check options 438 through 444. Replace answer-back card.

QUESTION	YES	NO
15. Does substitute character print on some characters (option 437a. enabled)?	Remote station may be sending incorrect parity or be at different speed. (Check option 436). Go to 18.	Go to 16.
16. Does the carriage return automatically when characters to the right of the right-hand margin are received (DATA indicator lit)?	Go to 17.	Check option 435. Replace logic card.
17. Does call disconnect on received EOT and when carrier is not received (in data mode)?	Go to 18.	Check option 433. Replace logic card. Replace Terminal Unit if present.
18. Does remote station receive interrupt?	Go to 20.	Go to 19.
19. Does station pass on-line end-to-end tests with Test Center?	Trouble (if any) is in remote station.	Perform distortion, dBm level, or other parameter tests, including digital loopback under control of Test Center to isolate trouble to line, terminal unit, answer-back card if present, or logic card.
20. Is trouble present but not defined by Questions 1 to 19?	Refer to printer or opcon troubleshooting for other symptoms. Replace opcon, power supply, terminal unit, answer-back card if present, logic card and/or print head to correct trouble.	