43 TELEPRINTER 8-LEVEL BUFFERED SEND/RECEIVE (BSR) STATION

TROUBLESHOOTING

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1.01 This section provides troubleshooting information for the 43 Teleprinter 8-Level Buffered Send/Receive (BSR) Station, Friction Feed and Tractor Feed.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

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 paragraphs in the related component sections of the manual.

Note: When ordering replaceable components, unless otherwise specified, prefix each part number with the letters "TP" (ie, TP410205).

1.04 Component troubleshooting sections are:

574-500-300 — 43 Friction and Sprocket (Pin) Feed Printer
574-501-301 — 43 Tractor Feed Printer
574-502-301 — 43 Buffered Keyboard

1.05 Trouble isolation provided in this section is intended for use by the craftsperson at the station location. Troubles may occur either during an installation, a routine maintenance visit or as the result of a customer trouble report.

1.06 Trouble isolation for the user is provided in the How to Operate Manual 999-300-135.

1.07 To facilitate trouble correction, the recommended maintenance spares listed in Section 574-500-800, 43 Teleprinter, Parts, should be available.

1.08 Refer to Section 574-500-720, 43 Teleprinter, Disassembly/Reassembly for component access.

1.09 For location and identification of terminal components, refer to Section 574-500-800, 43 Teleprinter, Parts.

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

4340 BZJ — 43 Teleprinter, Tractor Feed
4340 BZD — 43 Teleprinter, Friction Feed
4240 BZD — 43 Teleprinter, Friction Feed

43K202GAB — Keyboard
43K202GAG — Keyboard

410745 — Card, Logic
410785 — Card, Logic
411901 — Card, Controller
430700 — Power Supply
430780 — Power Supply

411952 — Application Program Card Assembly in 43FG210/AA/01
411954 — Application Program Card Assembly in 43FG210/BA/01
411955 — Application Program Card Assembly in 43FG110/BA/01

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 directives provided, go to the last question.

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1.12 Circuitry used in the keyboard can be damaged by high static voltage discharge. The 346392 wrist strap is available to ground service personnel.

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

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

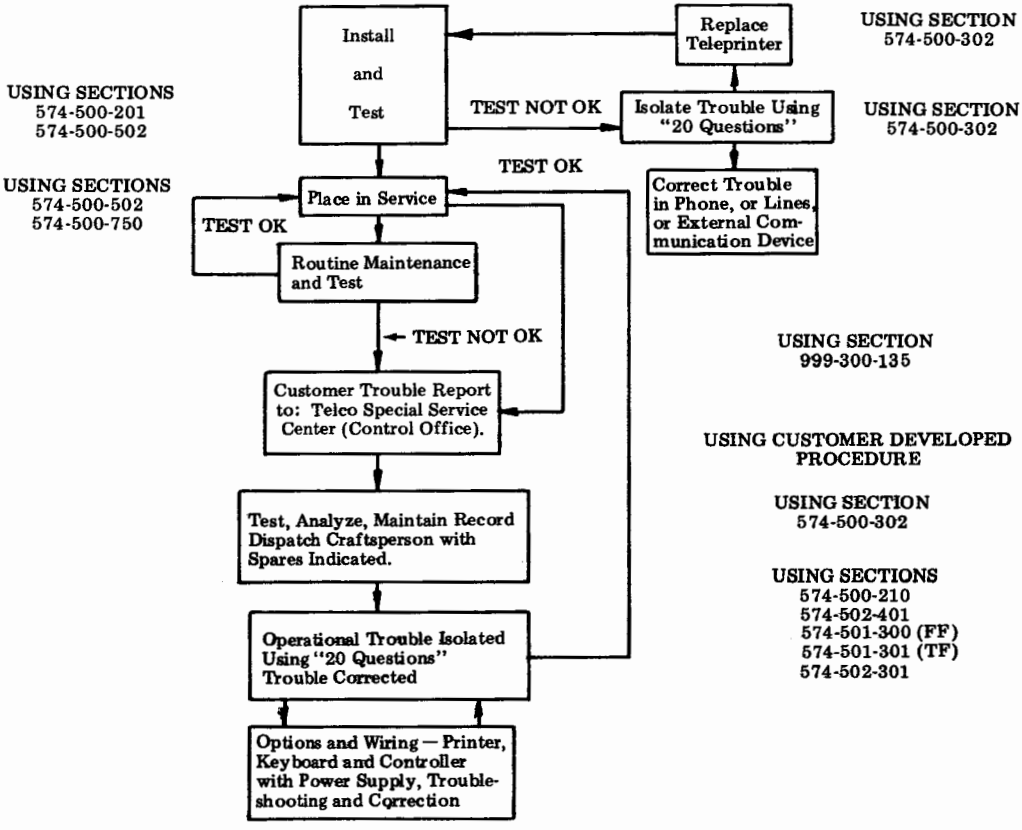
1.15 Refer to 2. TROUBLESHOOTING FLOW DIAGRAM for the intended flow of troubleshooting.

1.16 Trouble analysis is presented in the form of a "20 Questions" routine in 3. 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.

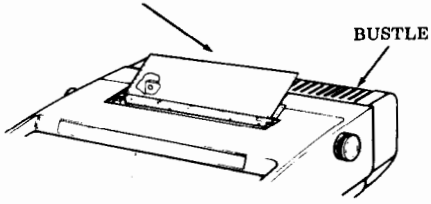
1.17 If a component fails its self-test, replace the component.

1.18 If the trouble cannot be corrected using the "20 Questions" routine, replace the terminal.

2. TROUBLESHOOTING FLOW DIAGRAM



3. TROUBLESHOOTING GUIDE

QUESTION	YES	NO
1. Are any indicators on keyboard lit? (Power available, ac cord plugged in, power switch on, and cover closed.)	Go to 2.	Go to 1a.
1a. Is there any indication of power in the set? (Keyboard lamps flash when power is turned on and off, print head indexes to the left, RED lamp on power supply lit, etc.)	Go to 1c.	With power off, check ac F1 fuse. If fuse is OK, go to 1c. Replace fuse if blown. Go to 1b.
1b. Do any indicators now light when power is turned on?	Original trouble is corrected.	Replace power supply.
1c. Is RED lamp on power supply lit? (Visible through slot in bustle, 6th slot from left.)  	Check cable to controller card assembly. Check seating of power supply output cable. Check keyboard cable plug. Go to 2.	Disconnect power supply cable from power supply and go to 1d.
1d. Does RED lamp on power supply now light?	Unplug controller cable, keyboard and all printer cables (7). Reconnect power supply cable and go to 1e.	Check fuse (F2) on power supply. Replace if blown. Replace power supply.

	QUESTION	YES	NO
1e.	Does RED lamp on power supply still light?	Go to 1f.	Replace logic card.
1f.	Does RED lamp on power supply go out after the controller card assembly, keyboard and printer cables are reconnected one at a time?	Replace the controller card assembly, keyboard or the printer component that caused lamp to extinguish.	Intermittent short. Check for foreign objects between circuit lands or terminals.
2.	Does set continually go to options prep mode when powering up.	Recharge Battery (10 hours for full charge) Replace battery on the controller card assembly. Replace controller card assembly.	Go to 3.
3.	Do all indicators operate properly (ie, light and extinguish under normal operation)?	Go to 4.	Check continuity through depressed interlock switch. Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly. Perform Keyboard Self-Test. See 999-300-135. If alarm indicator fails on paper-out, refer to Printer Troubleshooting.
4.	Can any characters be locally generated from the opcon to the printer?	Go to 5.	Refer to Printer Troubleshooting. Replace logic card.
5.	Are characters properly formed?	Go to 6.	Refer to Printer Troubleshooting. Replace logic card.
6.	Is print density acceptable? (Good Ribbon)	Go to 7.	Refer to Printer Troubleshooting.
7.	Does paper feed properly?	Go to 8.	Check fuse (f3) on logic card. Replace logic card if fuse blows again. Refer to Printer Troubleshooting. Replace logic card.

QUESTION	YES	NO
8. Does print head space and return properly?	Go to 9.	Refer to Printer Troubleshooting. Replace logic card. Replace terminal.
9. Do all characters print, including numeric pad, and functions perform (except bell and keyboard edit cluster), when the keys on the keyboard are operated locally from the keyboard to the printer?	Go to 10.	Perform Keyboard Self-Test. Replace logic card.
10. Does signal bell ring under any conditions? (CTRL G, right margin, received interupt, etc.)	Go to 11.	Refer to Printer Troubleshooting. Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly. Replace logic card.
11. Does signal bell ring under all conditions?	Go to 12.	Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly.
12. Are margins set, cleared and right margin released properly?	Go to 13.	Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly.
13. Are tabs (vert & horz) set, cleared and restored properly.	Go to 14.	Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly.
14. Can options prep mode be entered, options changed and loaded properly?	Go to 15.	Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly.

QUESTION	YES	NO
15. Does answer-back print correctly on CTRL 4?	Go to 16.	Check user programmable options for coded ABmsg? Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly.
16. Can data be entered into buffer, edited, printer out, stored, recalled and cleared properly.	Go to 17.	Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly.
17. Does Term On Line light after entering the data mode (switched network data set — high pitched tone heard when call is originated)?	Go to 18.	Perform Controller Self-Test. Replace 411901 controller card. Replace application program card assembly. Check data set cable. Check external communication equipment.
18. Can any data be both sent and received on-line?	Go to 19.	Go to 18a.
18a. Does data set provide analog loopback feature?	Place in test mode and go to 18b.	Connect an interface loopback arrangement (see paragraph 4, Page 8), then go to 18c.
18b. With teleprinter in full duplex, SR, terminal on-line mode, is sent data received?	Go to 19.	Connect an interface loopback arrangement (see paragraph 4, Page 8), then go to 18c.
18c. With teleprinter in full duplex, SR, terminal on-line mode, is sent data received?	Go to 19.	Replace 411901 controller card.

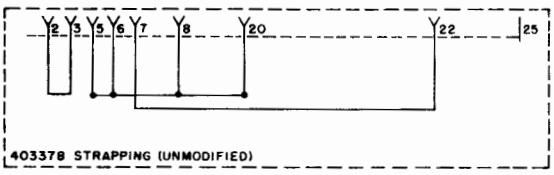
QUESTION	YES	NO
19. Are data messages properly sent and received in terminal on-line mode (both batch and S/R)?	Place in service.	Check user programmable options — Speed, StopU, PrTyp, etc. Perform Keyboard Self-Test. See How to Operate Manual. If test fails, replace keyboard. If test is OK, perform Controller Self-Test. If controller LED is not lit (test fails), replace 411901. If self-test is OK, trouble is in external communication device or remote terminal. (If interface loopback test was not performed the trouble may be in either the teleprinter or external communications device.)

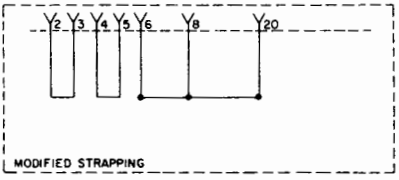
4. INTERFACE LOOPBACK ARRANGEMENTS

4.01 Connect a 921A Data Test Set (DTS), or equivalent, with the interface lead jacks connected as follows: 2 to 3, 4 to 5 and 6 to 8 to 20.

4.02 If a 921A DTS or equivalent interface adapter is not available, a 403378 interface loopback connector may be modified.

Modification Instructions





(a) Disassemble the 403378 interface loopback connector.

(b) Cut the strap between terminals 5 and 6 at terminal 6.

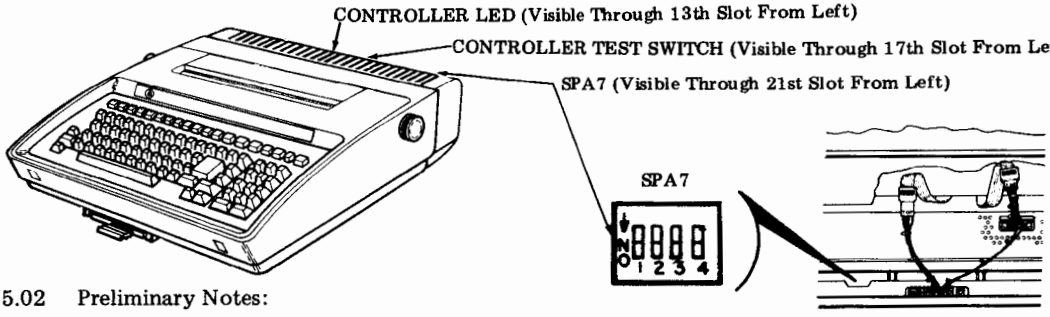
(c) Using the 341983 contact tool, remove terminal 5 and the attached strap.

(d) Using the 341983 contact tool, remove the strap between positions 7 and 22 and install between positions 4 and 5.

(e) Reassemble the connector.

5. CONTROLLER SELF-TEST

5.01 An LED, located under the thirteenth bustle air vent slot from the left, is used to indicate controller operation and the result of the self-test routine. The round, black test switch actuator is located under the seventeenth bustle air vent slot from the left.



5.02 Preliminary Notes:

(a) The controller self-test is independent of the keyboard and the printer.

(b) Information stored in the volatile memory will be lost when this test is performed and the terminal may be unresponsive to the modem for about one minute.

(c) Ignore any data that may print as a result of this test.

(d) If the controller LED continues to flash (approximately every seven seconds), the controller test switch may be in its "locked" position. To release the switch, rotate the actuator 1/8-turn counterclockwise.

A. Controller Test

(1) Momentarily depress the controller test switch actuator by reaching through the air vent slot with a small, nonmetallic tool such as an orange stick or a plastic rod.

(2) The controller LED will flash periodically during the test (approximately 30 seconds) indicating the test is in progress.

(3) When the test is concluded (all flashing stops) the LED will be lit indicating that the test passed and normal operation may be resumed.

(4) If the LED is not lit after conclusion of the test (all flashing stopped) the controller failed the test. Proceed to B. Controller — Application Card Isolation Test.

Caution: Depression of the controller test switch or turning off ac power while the controller is performing a self-test can result in the loss of all programmed options. In this case, default (factory furnished) values will be loaded.

B. Controller — Application Card Isolation Test

Note: Perform this test only if controller failed A. Controller Test.

(1) Remove the application program card from the controller assembly. Reassemble and place the controller without the application program card into the rear frame. Reconnect cable plug to top of controller assembly. Place SPA 7 switches as follows:

1, 2, and 3 — OFF
4 — ON

(2) Momentarily depress the controller test switch actuator.

(3) The controller LED will flash periodically during the test (approximately 30 seconds) indicating the test is in progress.

(4) If the LED is ON at the end of the test, replace the defective application program card. If the LED is OFF at the end of the test, replace the 411901 controller card assembly.

Note: After testing, return controller switches to their former position.