43 TELEPRINTER 8-LEVEL BUFFERED SELECTIVE CALLING (BSC) STATION

TROUBLESHOOTING

CONTENTS PAGE

1. GENERAL

1.01 This section provides troubleshooting information for the 43 Teleprinter 8-Level Buffered Selective Calling (BSC) Station.

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 sections.

Note: When ordering replaceable components unless otherwise specified, prefix each part number with the letters "TP" (ie, TP410745).

1.04 Component troubleshooting sections are:

574-501-300	43 Friction and Sprocket 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 attendant is provided in the 999-300-137 How To Operate Manual and for the Test Center in Section 668-130-504.

1.07 To facilitate trouble correction, the recommended maintenance spares as listed in Section 574-500-800, Parts, should be available. In addition, parts for the repair of components as listed in Section 574-501-800, 574-501-801, 574-502-800 and 574-503-800 for the printer, keyboard and enclosures and paper handling should be available.

1.08 For component access, refer to Section 574-500-720, Disassembly/Reassembly and Section 574-500-210, Engineering Options.

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

1.10 When replacement of the print head, logic card or keyboard corrects the trouble, additional checks should be made to isolate and possibly correct the trouble without returning for repair.

On the print head — check cable continuity.
On the logic card — check SSI interface and power supply cables or fuse.
On the keyboard — check the cable and keyswitches per keyboard troubleshooting.

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.

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.

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

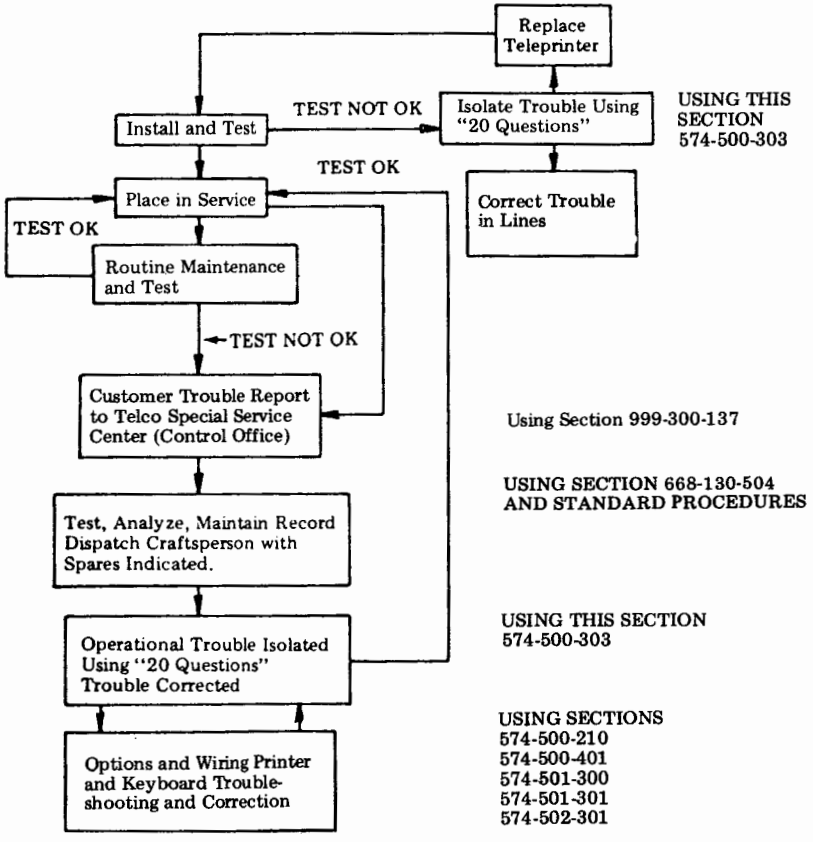
430850 Print Head
43K202 Type Keyboard
430780 Power Supply
410745 Logic Card
410785 Logic Card
411901 Controller Card Assembly
43FG210/BA/01 Circuit Card Portion Only

1.15 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.

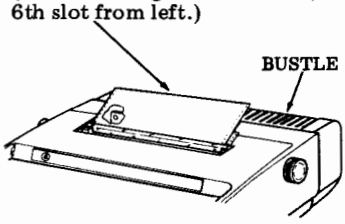
1.16 Refer to 2. TROUBLESHOOTING DIAGRAM for the intended flow of troubleshooting.

1.17 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.

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 set 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. Replace rear frame assembly.
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. Check fuse (F2) on power supply. Replace if blown. Check Controller Self-Test — See Page 8. Check Keyboard Self-Test — See How To Operate Manual. Replace power supply. Replace controller card assembly. Replace logic card.	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 output cable and go to 1e.	Check fuse (F2) on power supply. Replace if blown. Replace power supply. Replace rear frame assembly.

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 object between circuit lands or terminals.
2. Does set continually go to options default mode when powering up (provided power to the set had been on at least 10 hours to charge the controller battery)?	Check Controller Self-Test, see Page 8. 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. Check Controller Self-Test — See Page 8. Check Keyboard Self-Test — See How To Operate Manual. Replace logic card. If alarm indicator fails on paper out, go to Printer Troubleshooting, Section 574-501-300 or 574-501-301.
4. Can any characters be locally generated from the keyboard to the printer?	Go to 5.	Go to Printer Troubleshooting, Section 574-501-300 or 574-501-301. Replace logic card.
5. Are characters properly formed?	Go to 6.	Go to Printer Troubleshooting, Section 574-501-300 or 574-501-301. Replace logic card.
6. Is print density acceptable? (Good ribbon)	Go to 7.	Go to Printer Troubleshooting, Section 574-501-300 or 574-501-301.

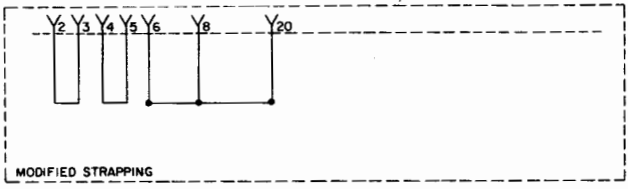
QUESTION	YES	NO
7. Does paper feed properly?	Go to 8.	Check fuse (F3) on logic card. Replace line feed motor if fuse blows again. Go to Printer Troubleshooting, Section 574-501-300 or 574-501-301. Replace logic card.
8. Does print head space and return properly?	Go to 9.	Go to Printer Troubleshooting, Section 574-501-300 or 574-501-301. Replace logic card.
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 to the printer.	Go to 10.	Check Keyboard Self-Test — See How to Operate Manual. Replace logic card.
10. Does signal bell ring under any conditions? (CTRL G, right margin, etc.)	Go to 11.	Go to Printer Troubleshooting, Section 574-501-300 or 574-501-301. Check Controller Self-Test — See Page 8. Replace logic card.
11. Does signal bell ring under all conditions?	Go to 12.	Check Controller Self-Test — See Page 8.
12. Are margins set, cleared and right margin released properly?	Go to 13.	Check Controller Self-Test — See Page 8.
13. Are tabs (vert & horz) set, cleared and restored properly.	Go to 14.	Check Controller Self-Test — See Page 8.
14. Can options prep mode be entered, options changed and loaded properly? (Option 468.a. must be installed.)	Go to 15.	Check Controller Self-Test — See Page 8.

QUESTION	YES	NO
15. Does Message Generator print correctly on CTRL 4?	Go to 16.	Check programmable options for Msg Gen coded. Check Controller Self-Test — See Page 8.
16. Can data be entered into buffer, edited, printed out, stored, recalled and cleared properly?	Go to 17.	Check Controller Self-Test — See Page 8.
17. Does Term On Line light, not flash, when depressed? (Connected to modem and modem supplying DSR.)	Go to 18.	Check data set cable. Check external communication equipment. Check Controller Self- Test — See Page 8.
18. Can any data be both sent and received on-line? (Terminal optioned for BROSta or AuxTrm cannot send.)	Go to 19.	Go to 18a.
18a. Does data set provide analog loopback feature?	Place data set in analog loopback test mode and go to 18b.	Remove data set cable and install modified 403378 interface loopback connector (or equivalent*) in teleprinter data set connector, then go to 18c.
18b. With [TERM ON LINE] and [PRINT REC MSG] key lit hold [CTRL] key depressed and depress [~ `] key. Does "TEST 1234" print? (Option 469.a. must be installed.)	Go to 19.	Remove data set cable and install modified 403378 interface loopback connector (or equivalent*) in teleprinter data set connector, then go to 18c.
18c. With [TERM ON LINE] and [PRINT REC MSG] key lit hold [CTRL] key depressed and depress [~ `] key. Does "TEST 1234" print? (Option 469.a. must be installed.) *Note:* Test will not work if terminal is optioned for isochronous operation Trans __ .	If test was originally done with data set in loopback mode, trouble is in data set. Otherwise go to 19.	Check Controller Self-Test — See Page 8.

QUESTION	YES	NO
19. Are data messages properly sent and received. (Terminal optioned for BROSta or Auxtrm cannot send.)	Place in service.	Check programmable options — LinSpd, PAddr1, Poll # 1, etc. Perform Keyboard Self-Test — See How To Operate Manual. If test is OK, perform Controller Self-Test — See Page 8. If self-test is OK, trouble is in external communications device or remote terminal. (If interface loopback test was not performed, the trouble may be in either the teleprinter or external communications device.)

*Go directly to the NO response directive for Step 19 if loopback arrangement is not available.

MODIFIED 403378 INTERFACE † LOOPBACK CONNECTOR



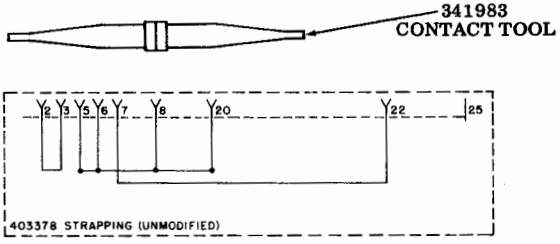
†See instructions for modification below.

4. 403378 INTERFACE LOOPBACK CONNECTOR

Modification Instructions

4.01 The following instructions should be followed to modify the connector if desired, to assure that RTS (Pin 4) turns on.

403378 INTERFACE LOOPBACK CONNECTOR



(a) Disassemble the 403378 interface loopback connector.

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

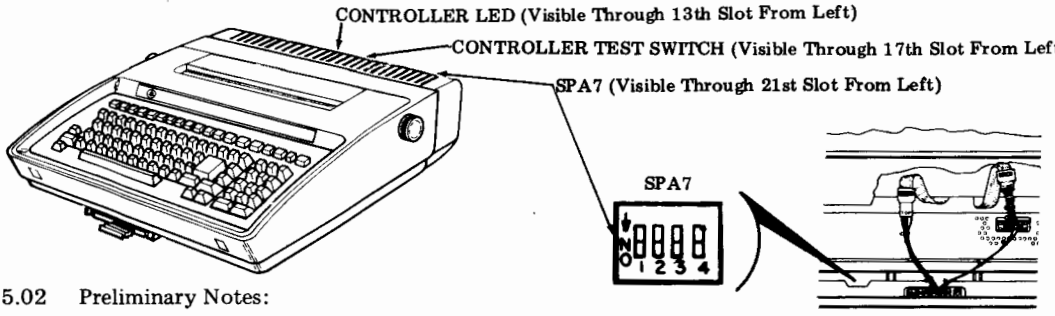
(c) Using the 341983 contact tool, remove terminal 5 and the attached strap.

(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.

5.03 Test Procedure

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 SPA7 switches as follows:

1, 2, and 3 — OFF
4 — ON

(2) 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.

(3) The controller LED will flash periodically during the test (approximately 80 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.