REPLACING PAGE ADDENDUM
Filing Instructions:

1. REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.
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8A1 AND 8B1 DATA SELECTIVE CALLING

STATION SETS

INSTALLATION AND CHECKOUT

1. GENERAL

1.001 This addendum, which supplements Section 581-122-200, Issue 1, is issued to add information pertaining to the reception and implementation of a group CDC. The group CDC is used to enable two or more data selective calling stations to receive a broadcast transmission.

1.002 Insert the attached pages in accordance with the filing instructions above. Arrows in the margins indicate changes and additions.

Attached:
Page 1 dated August 1966, revised
Page 2 dated August 1966, reissued
Page 5 dated August 1966, reissued
Page 6 dated August 1966, revised
Page 6.1 dated August 1966, added
Page 6.2 dated August 1966, added
Page 6.3 dated August 1966, added
Page 7 dated August 1966, revised
Page 8 dated August 1966, reissued

Prepared for American Telephone and Telegraph Company by Teletype Corporation

8A1 AND 8B1 DATA SELECTIVE CALLING

STATION SETS

INSTALLATION AND CHECKOUT

CONTENTS PAGE

1. GENERAL

1.01 This section provides installation instructions and checkout procedures for an 8A1 (half duplex) or 8B1 (full duplex) Teletypewriter Set. Installation of factory assembled or field assembled sets with either a friction feed or sprocket feed typing unit is covered.

1.02 An 8A1 or 8B1 ASR, KSR, or RO Teletypewriter Set is normally shipped in three cartons. One carton contains an assembled and adjusted set less the typing unit and answer-back assembly. The second carton contains the typing unit (either friction or sprocket feed). The third carton contains the answer-back assembly.

1.03 When reference is made to the location of parts, the equipment is in its normal operating position as viewed from the front.

1.04 The wiring diagrams are located in the section entitled 8A1 and 8B1 Data Selective Calling, Station Sets, Wiring Diagrams.

Prepared for American Telephone and Telegraph Company by Teletype Corporation

2. UNPACKING

2.01 When unpacking an assembled set, make certain that the packing carton is standing upright. Then follow the procedure given below.

(a) Cut the metal strap at the bottom of the carton.

(b) Remove the main body and top cap of the packing carton by lifting up.

(c) Remove the lower compartment panel and offset copyholder which are packaged separately within the carton.

Note: The offset copyholder is included with ASR and KSR sets, only.

(d) Tip the set on its back, resting it on a soft surface to prevent scratching. Remove the bolts which fasten the feet to the pallet, and remove the pallet.

(e) Restore the set to its upright position. Remove the tape which fastens the cover to the pedestal and all tape placed on the cabinet to prevent scratching during shipment. Remove all other protective wrappings from the components.

(f) Remove the four shipping screws, washers, lockwashers, and spacers which fasten the base mounting brackets rigidly to the cradle for shipment.

(g) Install the offset copyholder previously removed from the packing carton.

2.02 Open the other shipping cartons carefully. Clip any metal strapping. Carefully cut or slit paper tape or fiber carton seals to avoid damage to finished surfaces of the equipment. The typing unit and answerback assembly may be lifted with the pallet from the carton. Remove and discard any hardware which mounts the unit to the pallet. Set aside the form guide and rear paper guide included with the sprocket feed typing unit.

3. INSTALLATION

LOCATION

3.01 There should be a minimum clearance of 13 inches between the back of the cabinet and the wall to permit the upper cover to be opened without striking the wall. A clearance of three feet is required for removal of the cover.

FACTORY ASSEMBLED SETS

3.02 Except for installation of the typing unit and answer-back assembly, factory assembled sets are delivered with all components in place and properly adjusted in the cabinet.

A. Cabinet Covers

3.03 Each 35-type cabinet is equipped with a cover assembly consisting of a bubble, upper cover, and lower cover. When the lower cover is open, complete access is provided to the equipment from the top, front, and sides. If access from the rear is desired, it is necessary to remove the cover assembly. Instructions for opening the lower cover or removing the cover assembly are given in the following paragraphs.

3.04 Opening the Lower Cover: When some components are already in position, always open the upper cover first. Proceed as follows:

(a) Depress the buttons on each side of the upper cover to release the latches, and detent in partially open position with the cover latches.

(b) Unfasten the lower cover lock screws in each front corner.

(c) Release the lower cover latch (under the right corner of the upper cover) by pushing rearward on the latch, and lift the front of the lower cover. Raise the lower cover to its vertical lock position.

3.05 Removing the Cover Assembly: The KSR and RO cover assemblies weigh approximately 30 pounds. The ASR cover assembly weighs approximately 39 pounds. Proceed as follows:

(a) Open the lower cover as instructed in 3.04.

(b) Close and latch upper cover.

(c) Remove the upper retaining shoulder screw from the right hand stop arm bracket.

(d) Loosen the hinge-lock bracket mounting screw, and slide the bracket away from the hinge.

(e) Support the cover from the rear. Remove the acorn-type nut from the left upper stop arm stud, and disengage stop arm from cover.

(f) Supporting the cover from the rear, remove by sliding sideways to separate the hinges.

B. Friction Feed Typing Unit

3.06 With the typing unit on the base, make the intermediate gear assembly and signal generator adjustments. Refer to the appropriate adjustment literature. Secure the typing unit using the four mounting screws furnished with the base. Then perform the following cabinet adjustments.

(a) Make the final front and rear bubble position adjustment.

(b) Make the final bubble latch plate adjustment.

(c) Make the friction feed paper guide adjustment.

(d) Make the final window adjustment.

(e) Install the paper roll.

C. Sprocket Feed Typing Unit

3.07 Install the separately edited TP192260 modification kit to equip a 35 cabinet with a paper supply and accumulating shelf.

3.08 Install the rear paper guide modification kit. Substitute the form guide furnished in the sprocket feed typing unit packing carton for the paper guide attached to the bubble on the cabinet cover.

3.09 With the typing unit on the base, make the intermediate gear assembly and signal generator adjustments. Refer to the appropriate adjustment literature. Secure the typing unit using the four mounting screws furnished with the base. Perform the following cabinet adjustments.

(a) Make the final front and rear bubble position adjustment.

(b) Make the final bubble latch plate adjustment.

(c) Make the sprocket feed form guide adjustment.

3.10 Install the sprocket feed paper, making certain that the paper out and low paper levers rest on top of the paper. Make the final window adjustment.

D. Answer-Back Assembly

3.11 The answer-back assembly is installed on the station controller panel within the pedestal of the set. Refer to Figure 1. Install the TP198401 answer-back assembly over the threaded studs of the four rubber isolation mounts on the station controller panel, and fasten with the four nuts and lockwashers provided in the muslin bag. Connect the answer-back assembly cable as shown in Figure 1.

3.12 Install the lower compartment panel by sliding it into place over the pivots on each side of the pedestal, and fasten it at the top by means of the push button fasteners.

FIELD ASSEMBLED SETS

3.13 In the event a set is to be assembled in the field, follow the procedure given below. Items (a) through (l) apply to an ASR set; the items denoted with an asterisk (*) apply to either a KSR or RO set.

*(a) Install the keyboard perforator base, keyboard, or receive-only base to the base-mounting brackets of an ASR, KSR, or RO cabinet. Use the four mounting posts that are provided in place.

*(b) Install the motor using the four screws provided with the base.

*(c) Install the gear set using the hardware provided in place and included with gear set to mount the driven gear and motor pinion.

*(d) Set the typing unit in place. Do not complete installation at this time.

*(e) Make the final cradle height adjustment. See the appropriate section for adjustment information.

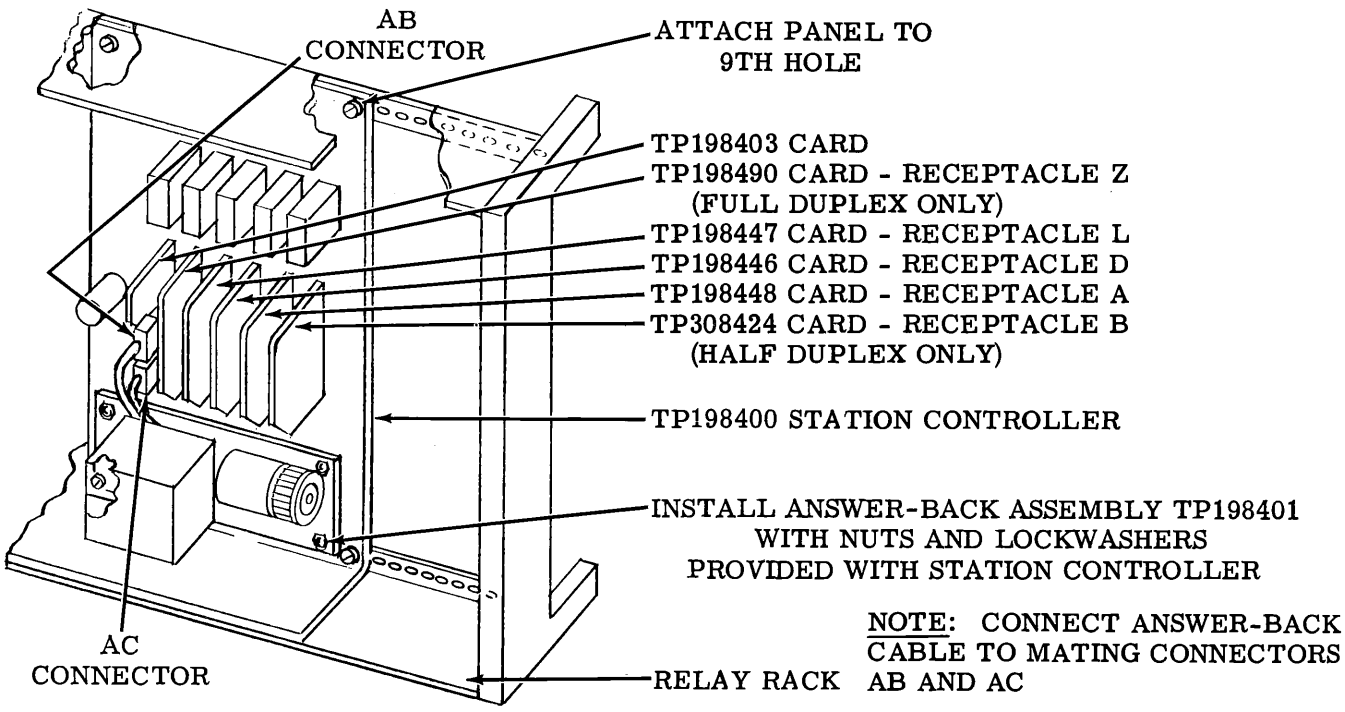


Figure 1 - Installation of Station Controller Assembly

*(f) Mount the electrical service unit with the nuts, screws, lockwashers, and flat washers provided with the unit. Attach the ground wires to the cabinet ground screw and to the right rear screw of the motor.

(g) Install the tape reader base and tape reader (transmitter distributor).

*(h) Install the cover. Do not secure the cover locking screws at this time.

*(i) Using the appropriate adjustment literature, perform the following adjustments.

*(1) Front height adjustment of the lower cover. Cradle front to rear adjustment.

*(2) Lower cover latch adjustment

(3) Tape reader (transmitter distributor) control panel.

*(4) Control panel adjustment.

(5) Tape reader (transmitter distributor) and cover clearance adjustment.

(j) Install the tape guide on the tape punch (reperforator). This guide is included with the keyboard perforator base.

(k) Make the following adjustments using the appropriate literature.

(1) Adjust the tape tearing edge above the tape punch.

(2) Make the tape chute adjustment.

(l) Install the set of chad handling parts.

3.14 Complete the installation of the typing unit according to the instructions given in 3.06 for friction feed units and 3.07 through 3.10 for sprocket feed units.

STATION CONTROLLER AND DATA SET

3.15 Remove the lower compartment panel by pressing the two press-to-release buttons. Hold the panel so that it does not fall to the floor; lift the panel up and off its pivots.

3.16 Place the relay rack assembly upright on the floor, and install the TP198400 station controller assembly as shown in Figure 1 using the four speed nuts and four screws

provided in the muslin bag attached to the assembly. Install the station controller assembly with the relays and card assemblies extending toward the front of the set. To provide space for a 130C1 subset (or other similar type) attach the station controller assembly to the ninth hole from the right side of the relay rack (refer to Figure 1).

3.17 If the card assemblies are in place, check to see that the cards are seated firmly in their sockets. If the card assemblies are packed separately, they must be inserted in their respective sockets as indicated in Figure 1.

3.18 Install or replace the TP198440, TP198428, and TP198427 plug assemblies, identified by X, Y, and W, respectively, according to the specific application of the set. The teletypewriter set can be used as a terminal or relay station set, with or without a data set.

(a) H/L Converter Station: If the station set is to operate in conjunction with a high-to-low converter, replace the TP198440 plug identified by X, with the TP193279 converter cable.

(b) L/H Converter Station: If the station set is to operate in conjunction with a low-to-high converter, replace the TP198428 plug identified by Y, with the TP193278 converter cable.

(c) Terminal Station: If the station set is to operate solely as a terminal set, install both the TP198440 and TP198428 plug assemblies identified by X and Y, respectively, in their respective sockets.

(d) Use of a Data Set: Plug TP198427 identified by W, is replaced by the TP198441 cable when the signal line requires the use of a data set. The TP198441 cable provides the connection between the station set and the TP198420 data set coupler for a 103-type data set. The installation procedure for the TP198420 data set coupler and 103-type data set is as follows:

(1) The TP198420 data set coupler is installed in place of a 130-type subset. See Figure 2.

(2) Connect the data set coupler cable, TP198441, to the station controller assembly (if not already connected) as

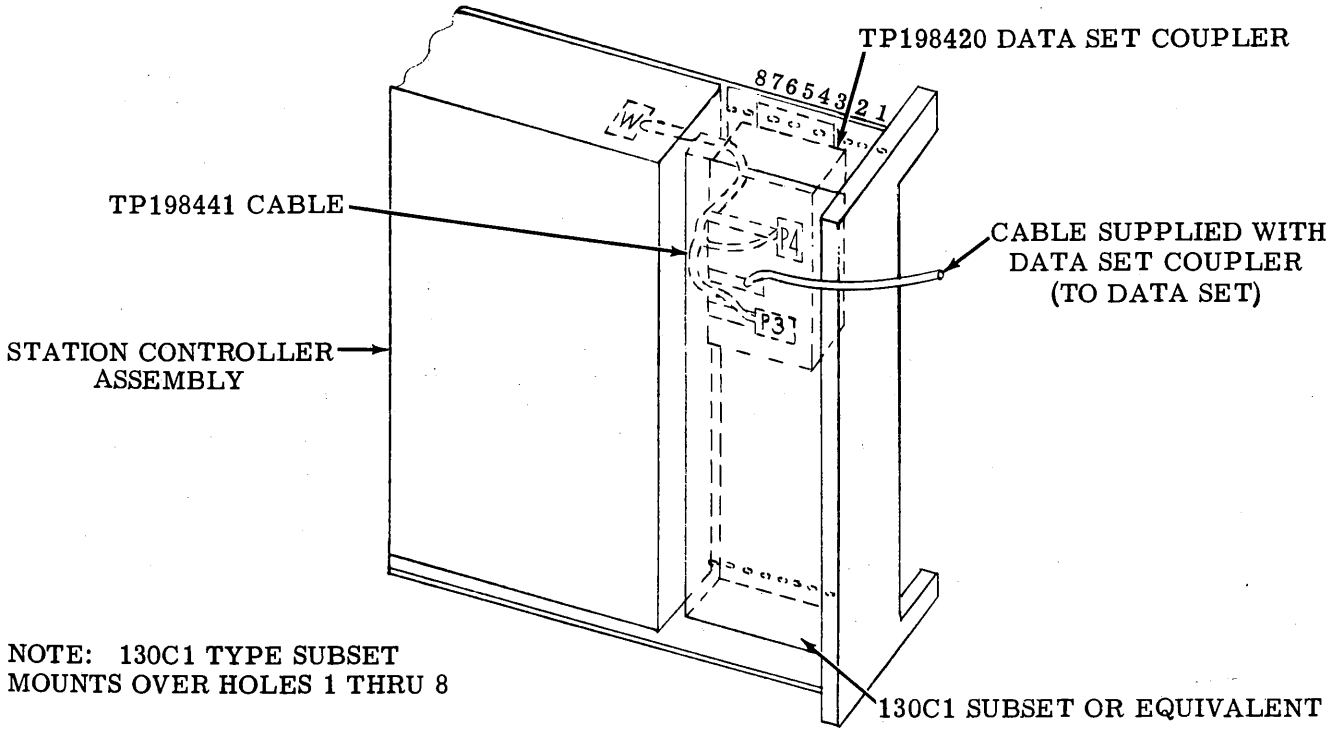


Figure 2 - Location of Subset or Dataset Coupler

described in (d) above. Plugs P3 and P4 on the cable connect to receptacles J3 and J4, respectively, on the data set coupler. Make the frame ground connection between the ground wire on the data set coupler cable and the ground terminal in the station controller.

(3) The data set coupler is equipped with a 25-foot cable (TP198419) for connecting the J2 connector to the associated 103-type data set.

(4) The 103-type data set may be wall mounted using a 180A backboard.

3.19 Connect the plug on the electrical service unit to the receptacle on the station controller. Make the ground connection using the wire with the friction terminal.

3.20 Connect the plug attached to the cable of the keyboard panel to the station controller. The receptacle on the station controller and the plug on the keyboard cable are identified by the letter P.

3.21 Install the TP198401 answer-back assembly over the threaded studs of the four rubber isolation mounts on the station controller panel, and fasten with the four nuts and lockwashers provided in the muslin bag. Connect the answer-back assembly cable as shown in Figure 1.

ENCODING FUNCTION BARS

3.22 The stunt box function bars must be coded for suitable TSC (Transmitter Start Code) and CDC (Call Directing Code) operation. There are two uncoded function bars associated with the station TSC, two uncoded function bars for the typing unit CDC, and two uncoded function bars for the tape punch CDC. The uncoded TSC and CDC function bars should be coded to operate when the typing unit is in either the PRINT or NONPRINT condition. Both the spacing (PRINT) and marking (NONPRINT) tines in the suppression level of each TSC and CDC function bar, should be removed.

3.23 Remove the stunt box from the typing unit. Refer to the appropriate section for instructions concerning the removal of the stunt box.

3.24 Remove the TSC uncoded function bars from stunt box positions 2 and 10. Code each bar with the second alphabetic character of the TSC according to standard function bar coding practices. The first character of the TSC is DC_O which has been factory coded and is in place.

3.25 Remove the typing unit CDC uncoded function bars from stunt box positions 15 and 16. The bar in slot 15 should be coded with the first CDC character and the bar in slot 16 with the second. The CDC's should be comprised of any of the alphabetic characters or symbols where code level 6 is spacing and code level 7 is marking. It is suggested, however, that only alphabetic characters be used for CDC's.

3.26 Remove the tape punch CDC uncoded function bars from stunt box positions 13 and 14. The bar in slot 13 should be coded with the first CDC character and the bar in slot 14 with the second.

A. Group CDC Coding

3.27 When implementing a group CDC, modification of the following two logic circuits must be considered:

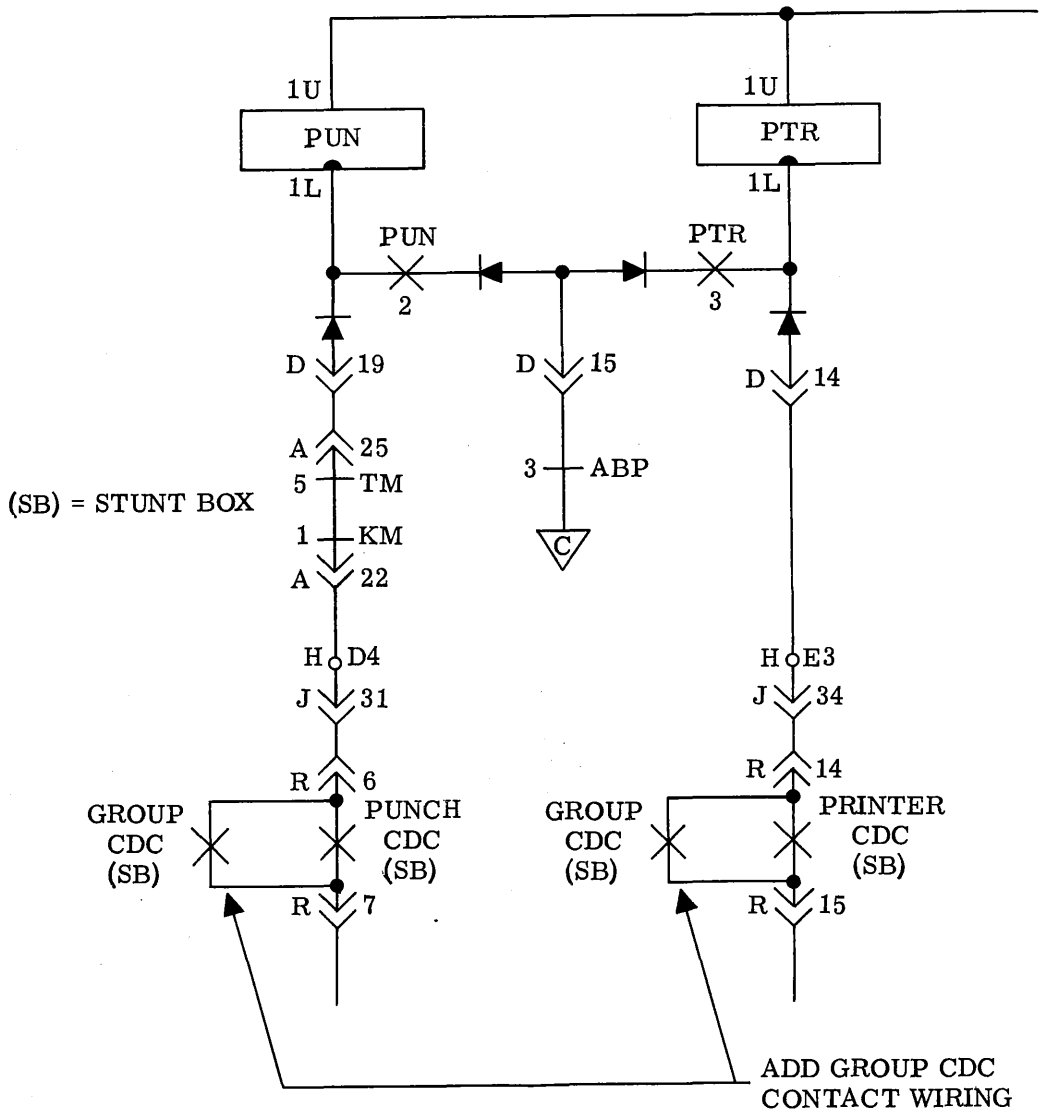
(a) CDC SELECT — Selection of tape punch and/or typing unit upon receipt of a group CDC.

(b) ANSWER-BACK — Suppression of answer-back response at stations where response to the group CDC is undesired. No answer-back circuit modification is required at the one station where the response is desired.

3.28 The suggested circuit modifications are shown in Figures 2A and 2B. The group CDC contact wiring involves the stunt box wiring, only. The group CDC answer-back suppression wiring involves the stunt box and the station controller.

3.29 The stunt box parts required for implementing a group CDC are listed in Figure 2C. Stunt box positions 19 through 26 are available for two-character CDC coding. An arrangement is shown in Figure 2D.

Note: If only one receiving unit is to receive a broadcast transmission, only one contact switch assembly, TP172581, is required to provide contact operation for: (1) selecting the receiving unit and, (2) suppressing the answer-back response.



Note: Circuit less group CDC modification, shown on 6471WD-B5.

Figure 2A - Group CDC Contact Wiring

3.30 Upon completion of coding and/or modification, replace the stunt box in the typing unit.

SIGNAL AND POWER LINE CONNECTIONS

CAUTION: MAKE SURE THE POWER CORD IS DISCONNECTED FROM THE 115 VAC POWER SOURCE WHEN MAKING SIGNAL LINE CONNECTIONS.

3.31 Open the cover assembly. Two four-position terminal strips are located at the right end of the electrical service unit. Remove the insulating cover and connect the signal line as indicated below:

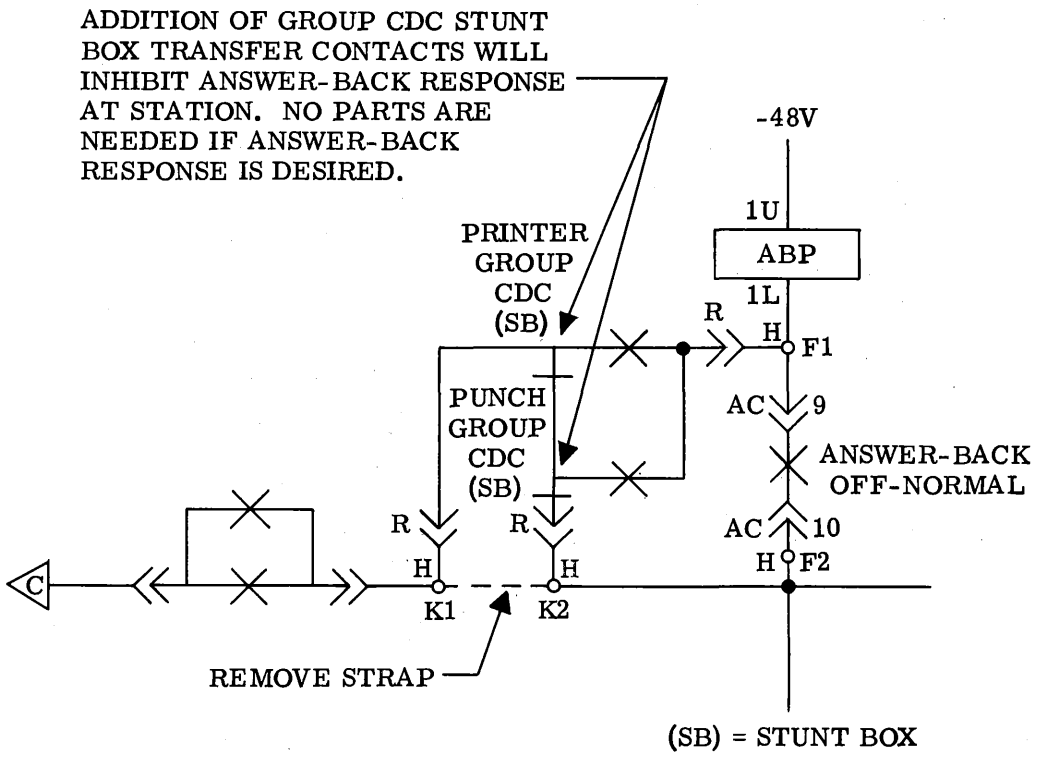
(a) For half duplex connect the positive side to terminal 5 and the negative side to terminal 8.

(b) For full duplex remove the strap between terminals 6 and 7. Attach the send leg to terminals 5 and 6 and the receive leg to terminals 7 and 8.

3.32 Connect the power cord to a 115 v ac source.

AUXILIARY TAPE READER

3.33 An auxiliary tape reader can be connected to a station set by using the TP305464 modification kit, consisting of a cable assembly, two strap assemblies, and one clamp and screw.



Note: Circuit less group CDC modification, shown on 6471WD-B3.

Figure 2B - Group CDC Answer-Back Suppression Wiring

Station Answer-Back	Call In	Quantity of Parts Required			
		TP153440	TP153915	TP153916	TP172581
Suppressed	Tape Punch	4	2	2	1
	Typing Unit	4	2	2	1
	Tape Punch & Typing Unit	8	4	4	2
Not Suppressed	Tape Punch	2	1	1	1
	Typing Unit	2	1	1	1
	Tape Punch & Typing Unit	4	2	2	1

TP153440 - universal function bar.
TP153915 - modification kit to provide sequential function lever operation in first slot.
TP153916 - modification kit to provide sequential function lever operation in second slot.
TP172581 - contact switch assembly.

Figure 2C - Stunt Box Parts Required for Group CDC

Slot	Code Character	Contact Type	Function
19	Graphic	-	Suggested location for detecting group CDC code sequences. Select tape punch and/or typing unit.
20	Graphic	Make (Mom.)	
21	Graphic	-	
22	Graphic	Make (Mom.)	
23	Graphic	-	Suggested location for detecting group CDC code sequences. Suppress answer-back response at stations where response must be prevented. NOT REQUIRED AT STATION WHERE RESPONSE IS DESIRED.
24	Graphic	Transfer (Mom.)	
25	Graphic	-	
26	Graphic	Transfer (Mom.)	

Figure 2D - Stunt Box Arrangement for Group CDC

→3.34 Clamp the terminal end of the cable against the side of the electrical service unit using the clamp and screw provided in the kit. Use the hole already occupied by existing clampscrew. Discard the original mounting screw.

→3.35 Remove the straps between the C wiring field terminals B2 and B3 in the electrical service unit (6936WD), and between the H wiring field terminals M5 and M6 in the station controller assembly (6471WD-W2, coordinates E4; 6471WD-B4, coordinates D6). Connect the terminal ends of the cable to the C wiring field in the electrical service unit as indicated in Table I.

→3.36 Route the connector end of the cable through the hole in the base of the station set to the remote reader. The interconnecting cable will allow approximately 5 feet of space between the apparatus.

4. FULL DUPLEX CONVERSION (ASR AND RO SETS)

4.01 The TP198400 station controller assembly is normally wired for half duplex operation. The station controller assembly can be converted for full duplex operation by removing the TP308424 timer circuit card; adding the TP198490 circuit card; and adding, removing, and shifting the wiring field straps indicated below.

Note: The TP198490 circuit card and required electrical straps are available in modification kit TP198495 (full duplex conversion kit). Remove, but do not discard, the TP308424 timer circuit card and half duplex wiring straps.

4.02 Convert the Automatic Send-Receive or Receive-Only Teletypewriter Set using the following procedure.

TABLE I
CABLE CONNECTIONS TO ELECTRICAL SERVICE UNIT
FOR AUXILIARY TAPE READER

Item	Tape Reader Component	Wire Color	Terminal on C Wiring Field (Refer to 6936WD)
1	Signal generator contacts	W-R	B6
2		Y	B2
3		G	B3
4	Clutch magnets	P	D5
5		O	B1
6	Tape-out contacts	S	E5
7		BR	E6
8		R	D2
9	On-off and tight-tape contacts	W-O	E1
10		W-Y	F6
11	Regenerator timer contacts	BL	B5
12		BK	B6

(a) Insert the TP198490 circuit card into the station controller socket identified in Figure 1.

(b) Remove the timer circuit card, TP308424.

(c) Perform the wiring changes in the H wiring field of the station controller assembly as listed in Table II.

(d) Make the wiring changes in the C wiring field of the electrical service unit. Use Table III for an ASR set or Table IV for an RO set.

(e) If a remote tape reader is associated with the set, disable the DELETE sensing mechanism as shown in Figure 3.

(f) If no answer-back response is desired when the receiving device is called, remove the strap between K2 and K1 in the station controller wiring field, H.

5. CHECKOUT

AUTOMATIC SEND-RECEIVE SET

5.01 The following operational checks should be made in the given sequence after the ASR set is completely assembled and connected

TABLE II
WIRING CHANGES FOR FULL DUPLEX CONVERSION
OF STATION CONTROLLER ASSEMBLY

Item	Function	Terminals Within H Wiring Field*		
		Add Strap (A)	Remove Strap (B)	Shift Wire
1	NULL Contact Shunt		L3 and L4 (2-B3, 3-E4)	
2	Tape-Out Latch, BD and SD Relays	H3 and H5 (2-E4, 3-E6) H3 and M3 (2-E4, 3-E6)	H3 and H2 (2-E4, 3-E6)	
3	Low Tape, PFA Relay	D5 and D6 (1-E5, 3-D4)	D5 and E5 (1-E5, 3-D4)	
4	Sending EOT (SB)		L5 and L6 (5-E5)	
5	Sending Monitor Inhibit		K5 and L4 (5-C5)	
6	CDC Recognition		J1 and J2 (5-C3)	
7	Blocking Diode		M1 and M2 (3-C6)	
8	TSC Answer-Back On Paper Failure		G4 and F3 (3-C5)	
9	Alarm Bypass	K4 and K3 (3-C6)		
10	Manual Entry		L2 and L1 (3-D1)	
11	Paper Failure		J5 and J6 (3-C1)	
12	Reader Magnet Blocking Diode		H5 and H6 (2-E4)	
13	TSCI Shunt	J3 and G4 (3-C5)		
14	O-S Wire			From E2 and connect to B1 (5-E3).

*Wiring diagram reference in parenthesis. See 6471WD-B1 through B10.
Example: (2-B3) means 6471WD-B2; coordinates B3.

TABLE III
WIRING CHANGES FOR FULL DUPLEX CONVERSION OF
ASR ELECTRICAL SERVICE UNIT

Item	Wire or Strap	Terminals*	Equipment Location
1	Remove Strap	Between T6 and T7 (6-F8)	Basic Facilities Terminal Block
2	Add Strap	Between 4K and 5K (2-F1)	C Wiring Field
3	Move R-BL Wire	From 6G to 5H (3-C5)	C Wiring Field
4	Move BK Wire	From 4G to 3D (5-D1)	C Wiring Field
5	Move BR-G Wire	From 2K to 5J (2-C5)	C Wiring Field
6	Move W-BK-G Wire	From 5J to 3K (2-C5)	C Wiring Field
7	Move O-S Wire	From 3K to 3D (2-C5)	C Wiring Field
8	Move W-O-BR Wire	From 3D to 2K (2-C5)	C Wiring Field
9	Add Strap	Between 4E to 1G (6-E6)	C Wiring Field

*Wiring diagram reference in parenthesis. See 6471WD-B1 through B10.
Example: (6-F8) means 6471WD-B6; coordinates F8.

TABLE IV
WIRING CHANGES FOR FULL DUPLEX CONVERSION OF
RO ELECTRICAL SERVICE UNIT

Item	Wire or Strap	Terminals*	Equipment Location
1	Remove Strap	Between T6 and T7 (7-F8)	Basic Facilities Terminal Block
2	Add Strap	Between 5D and 2E (2-F1)	C Wiring Field
3	Move R-BL Wire	From 4E to 3E (3-C5)	C Wiring Field
4	Move BK Wire	From 6D to 6F (5-D1)	C Wiring Field
5	Move R-Y Wire	From 2B to 6G (7-D8)	C Wiring Field
6	Add Strap	Between 2B and 3C (7-D7)	C Wiring Field

*Wiring diagram reference in parenthesis. See 6471WD-B1 through B10.
Example: (7-F8) means 6471WD-B7; coordinates F8.

to a 20 milliampere signal line. Precondition the set by placing the mode switch, power switch, and other station controls in their designated positions.

A. Offline

5.02 Rotate the power switch to the LCL position to start the motors. Rotate the mode switch to the K position. The keyboard and typing unit should be in the local signal line circuit, the tape punch should be isolated in the auxiliary local circuit, and the tape reader should be disabled. Manually depress each key and determine that the proper character is printed or the proper function is performed.

(a) With either SHIFT key depressed, manually depress each key which has a graphic symbol in the upper half of the keytop. The correct symbol should be printed on the page copy. With the other SHIFT key depressed, manually depress any two graphic

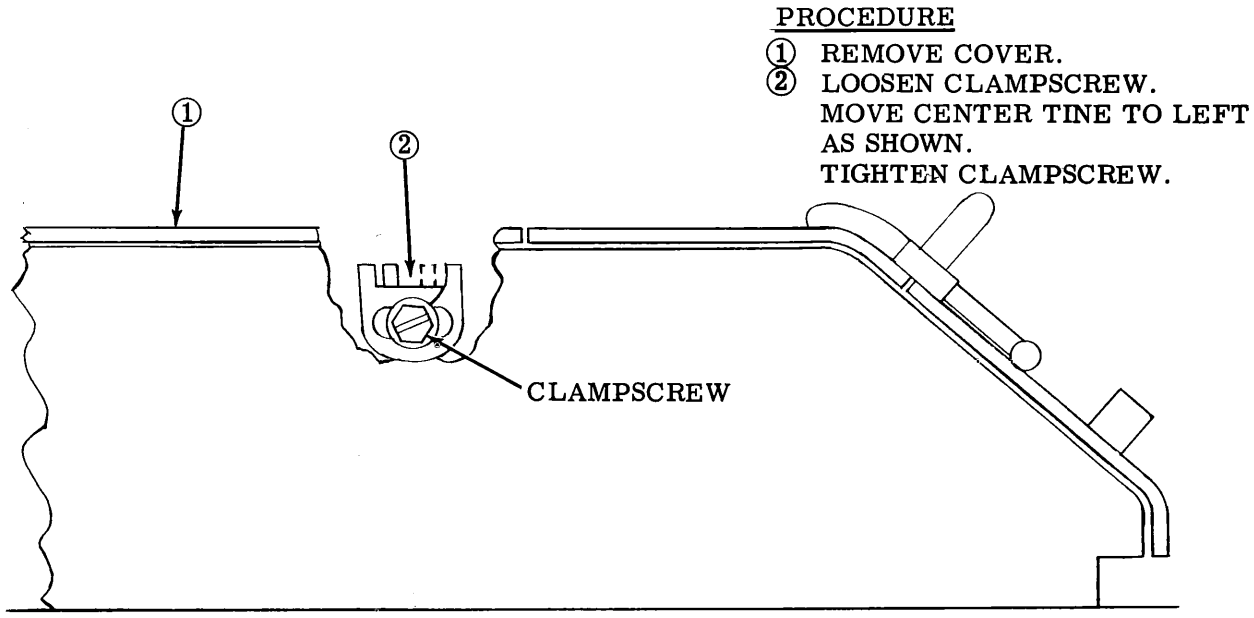


Figure 3 - Disabling Reader DELETE Sensing Mechanism for Full Duplex Service

keys, eg, $ and ? keys; the proper character should be printed by the typing unit.

(b) It should be possible to alternately operate any two keys by a rolling action. To check this requirement, place a 12-ounce weight over a keytop and alternately release and apply pressure (manually to another keytop). Each selection should be correctly completed without binding and jamming.

(c) The LCL LF key, when depressed, should cause paper to feed out at a rate three times as fast as when the LF and REPT keys are depressed continuously.

(d) The REPT key, when depressed together with any other key except local function keys, should cause repeated opertions to be performed by the typing unit.

(e) The CR key, when depressed, should cause the carriage to return.

(f) The bell should ring clearly on single or repeated operation of the CTRL and BELL key.

(g) Depressing the LF key should feed paper out of the typing unit one or two lines at a time depending on the position of the line feed lever.

(h) The CTRL key, when depressed with any control function key, should perform the function but should suppress printing and spacing (except in the case of TAB).

(i) The RUBOUT key, when depressed, should provide a nonprinting and nonspacing function in the typing unit.

(j) When the E (or any other alpha character) and REPT keys are depressed simultaneously, the character counter should not count. The end of line indicator lamp, controlled by the margin indicator switch, should light when the type box has traversed about 72 characters. When the CR key is depressed, the lamp should be extinguished as the carriage returns.

(k) Operation of the LCL BSP key should cause the tape punch to backspace the tape one character.

(l) The following checks apply to sets equipped with sprocket feed typing units only.

(1) Simultaneous operation of the CTRL and TAB keys should provide horizontal tabbing in the typing unit.

(2) Simultaneous operation of the CTRL and VT keys should provide vertical tabbing in the typing unit.

(3) Simultaneous operation of the CTRL and FORM keys should provide the form-out function in the typing unit.

(m) Depress the ESC key. The typing unit should not print. With an alternate mode function (customer's option), operation of a function key should provide the specific nonprinting function.

(n) Place the bat-handle switch in the ON position. The tape reader should not run.

(o) The BREAK key should be inoperable in the LCL power switch mode. (A signal line break can only be initiated when the station is receiving traffic ONLINE.)

5.03 With the power switch retained in the LCL position, rotate the mode switch to the KT position. The keyboard, typing unit, tape reader, and tape punch should be in a common, local signal line circuit.

(a) If tape has been inserted in the tape reader and the bat-handle switch is placed in the ON position, the tape reader should operate. If the tape reader does not operate in full duplex, depress the CTRL and D keys to generate an EOT and again move the bat-handle switch to the ON position. The NULL or BREAK key may have been operated, latching up the NULL stunt box contact. If this were the case, the reader magnet circuit would have been open.

(b) Transmission from the keyboard or tape reader should be monitored by both the typing unit and tape punch.

(c) When the E (or any other alpha character) and REPT keys are depressed simultaneously, the character counter should count. The end of line indicator lamp, controlled by the margin indicator switch, should light when the type box has traversed about 72 characters.

5.04 With the power switch retained in the LCL position, rotate the mode switch to the T position. The tape reader and typing unit should be in the local signal line circuit, and the keyboard and tape punch should be in the local auxiliary circuit. The tape reader should be operative. Accuracy of transmission should be tested using a prepared message tape; the transmission should be correctly monitored by the typing unit.

(a) When the tape reader senses TAB, VT, or FORM code characters, it should turn off until the function has been completed.

(b) The keyboard should be capable of transmitting to the tape punch. The character counter should count each character transmitted from the keyboard. The end of line indicator lamp, controlled by the character counter switch, should light at about the 70th character.

B. Half Duplex Online

5.05 The 8A1 ASR logic package is checked by using the local keyboard for generating the station TSC and unit CDCs. With the set turned off, remove the strap from terminals M5 and M6 in the H wiring field of the station controller assembly. (Removal of this strap places the keyboard sending contact directly online. Otherwise, the shunt is removed from the keyboard sending contact after a bid is entered, and the station has received its TSC and is not sending from tape. Refer to 6471WD-B4, coordinates D6.) Then rotate the power switch to the ONLINE position. Place the mode switch in the KT position. The COPY ALL twist key should be in the NORM position. With the station set connected to a half duplex loop, the following checks should be performed at the station.

(a) Generate an EOT by depressing the CTRL and D keys simultaneously. An EOT will disconnect any latched logic and return the local station and remote stations to neutral.

(b) Place a message tape containing the standard format (with CDCs of the station receiving units) in the tape reader. Place the bat-handle switch in the ON position. Move the BID lever to the SINGLE position and release. Generate the station TSC sequence by operating CTRL and P simultaneously, and then depress the required keylever for the second character.

(1) The SEND lamp should light and the tape reader should transmit a two character CDC, DELETE, and stop.

(2) The called station (here, it would be its own ASR station set) should respond with the \ ACK sequence. The \ should appear on the local page copy.

(3) The reader should start again, send the text, and stop on the DELETE trailer at the end of the message. The local typing unit should have copied the CDC, reverse slant, and text.

(c) With the mode switch in the KT position, generate an EOT from the keyboard by depressing the CTRL and D keys simultaneously. Place the COPY ALL twist key in the COPY ALL position. Generate the station typing unit CDC from the keyboard by depressing the two graphic keys. Pause for the \ acknowledgement (to appear on the page copy), keyboard a DELETE (or RUBOUT) character, and generate the punch CDC.

(1) The CDC codes, each followed by a reverse slant, should appear on the page copy. Keyboard an EOA (CTRL and B), a typical text, and an EOT. Only the text and EOT should be punched in the tape.

Note: If the COPY ALL switch were not operated, only the text would be printed. Restore the COPY ALL twist key to the NORM position.

(d) Operation of the station BREAK key when the station is receiving should cause the sender to stop and should light the BREAK lamp. Depressing the BK RLS key should extinguish the BREAK lamp and reset the keyboard receive-break contacts.

CAUTION: REPLACE STRAP BETWEEN TERMINALS M5 AND M6 IN STATION CONTROLLER H WIRING FIELD.

C. Full Duplex

5.06 The station set is factory wired for half duplex operation. Before attempting full duplex operation, perform the wiring and circuit card changes as instructed in Part 4.

5.07 With the mode switch in the K position and the power switch in the LCL position, perform the checkouts listed in 5.02 (a) through (o).

5.08 Rotate the mode switch to the KT position and perform the checkout given in 5.03 (a).

5.09 Rotate mode switch to the T position and perform the checkout given in 5.04 (b).

5.10 In full duplex the sending devices are isolated from the receiving devices; therefore, it is not easily possible to send to a receiver from the keyboard or reader. In order to effect a suitable full duplex arrangement, it is suggested that the online checkout be performed when a full duplex system is completely installed. This installation should include a line controller or computer at a master station, several tape reader units on the send leg, and several receiving units on the receive leg. Under these conditions, rigid conformance to the line controller format must be maintained. Keyboard online transmission is not permitted; therefore, codes cannot be generated from the station for checking the reader and receiving units.

5.11 With the station set connected to a full-duplex signal circuit the following checkout procedure should be performed at the station. Rotate the power switch to the LINE position. Place the mode switch in the KT position.

(a) Insert a message tape in the tape reader. Place the bat-handle switch in the ON position. Move the BID lever to the single position and release. The computer (line controller) should generate the station TSC. The reader should start, transmit the entire tape (CDCs, EOA, TEXT, EOT, and DELETE trailer) and stop when the tape runs out and the tape-out pin rises.

(b) Insert a long message tape in the reader. Turn the bat-handle switch ON, and move the BID lever to the single position and release. The computer should regenerate the station TSC. The reader should start. After the reader moves into TEXT in the tape, the computer should generate a single NULL code. The reader should stop. While the reader is stopped, the computer should generate an EOA code. The reader should restart and read the entire tape.

(c) Again insert a tape in the reader, turn the reader switch ON, and enter a single BID. The computer should generate a TSC to start the reader. A NULL code should be generated while the reader is operating; the reader should stop. The computer should generate an XOFF code and an

EOA code; the reader should not restart on the EOA. The computer should generate an EOT code and a TSC code; the reader should start on the TSC.

Note: Neither the typing unit nor the tape punch should print or punch tape during the above three tests.

(d) The computer should call the typing unit with a CDC and follow with an EOA and TEXT. Only the TEXT should be copied. An EOT code should place the typing unit in a NONPRINT, SELECT condition.

(e) Again call the typing unit with a CDC and follow with an EOA and a long text. Generate a NULL code from the computer. The typing unit should enter the NONPRINT mode. A subsequent TSC, generated by the computer, should start a waiting reader. An EOA should restore the typing unit to the PRINT condition. The typing unit should not record any of the graphic codes which may appear between NULL and EOA.

(f) The computer should generate the punch CDC and follow with an EOA and text. Only text should be perforated by the punch. An EOT code should place the tape punch in the NONPUNCH mode; however, the EOT should be punched in the tape before the tape punch is blinded by the EOT. An EOT should place the tape punch in the SELECT, NONPUNCH mode.

(g) Again call the tape punch with a CDC and follow with an EOA and a long text. The computer should generate a NULL code. Upon receipt of a NULL code at the stunt box, the station controller will shift the tape punch to the NONPUNCH mode but will retain the memory of its previous selection. A TSC following the NULL code will start a waiting reader and an EOA code following a TSC will restore the tape punch to the PUNCH mode. The NULL code followed by a DELETE will be recorded in tape; a subsequent TSC, EOA, or any other code between the DELETE (following the NULL code) and the EOA code should not be recorded in the tape.

KEYBOARD SEND-RECEIVE SET

5.12 The following operational tests should be made in the given sequence after the KSR set is completely assembled and connected to a 20 milliampere signal line. Precondition the set by placing the power switch and other station controls in their designated positions.

A. Offline

5.13 Rotate the power switch to the LCL position. Perform the checkout procedures listed in 5.02 (a) through (o) except items (k) and (n).

B. Half Duplex Online

5.14 The 8A1 KSR logic package is checked by using the local keyboard for generating the station TSC and unit CDC. With the set turned off, remove the strap from terminals M5 and M6 in the H wiring field of the station controller assembly. (Removal of this strap places the keyboard sending contact directly online. Otherwise, the shunt is removed from the keyboard sending contact after a bid is entered and the station has received its TSC. Refer to 6471WD-B4, coordinates D6.) Rotate the power switch to the ONLINE position. The COPY ALL twist key should be in the NORM position. With the station set connected to a half duplex loop, the following checks should be performed at the station.

(a) Generate an EOT by depressing the CTRL and D keys simultaneously. An EOT will disconnect any latched logic and return the local station and remote stations to neutral.

(b) Move the BID lever to the SINGLE position and release. Generate the station TSC code by operating the CTRL and P keys simultaneously for the DC_O. Then depress the second graphic character of the TSC sequence.

(1) The station SEND lamp should light.

(2) Transmit the two character CDC from the keyboard and stop.

(3) The called station (here, it would be its own KSR station set) should respond with the \ ACK sequence. The \ should appear on the local page copy.

(4) Upon receipt of the reverse slant, resume keyboard transmission with a DELETE (same as RUBOUT), EOA, DELETE, TEXT, and EOT. The station typing unit should copy the CDC, reverse slant, and message text.

(c) Generate an EOT from the keyboard by depressing the CTRL and D keys simultaneously. Place the COPY ALL twist key in the COPY ALL position. Generate the CDC for the station typing unit by depressing the two graphic keys.

(1) The CDC code, followed by a reverse slant, should appear on the page copy. Keyboard an EOA (CTRL and B), DELETE, a typical text, and an EOT.

Note: If the COPY ALL switch were not operated, only the text would be printed. Restore the COPY ALL twist key to the NORM position.

(d) Operation of the station BREAK key when the station is receiving should cause the sender to stop and should light the BREAK lamp. Depressing the BK RLS key should extinguish the BREAK lamp and reset the keyboard receive-break contacts.

CAUTION: REPLACE STRAP BETWEEN TERMINALS M5 AND M6 IN STATION CONTROLLER H WIRING FIELD.

RECEIVE-ONLY SET

5.15 The following operational tests should be made in the given sequence after the RO set is completely installed and connected to a 20-milliampere signal line. Precondition the set by placing the power switch and other station controls in their designated positions.

A. Reception of Remote Transmissions

5.16 Rotate the power switch to the ON LINE position. Turn the COPY ALL twist key to the COPY ALL position. The set should be capable of receiving all signal line transmissions. All references to depressing keys are made with respect to the remote sending station.

(a) Perform the checkout procedures listed in 5.02, Items (a), (d), (f), (g), (i), (l), and (m) from a keyboard at a remote sending station.

(b) Manually depress the sending station keys marked with a numeral, letter, or punctuation mark in the upper or lower half of the keytop. The symbol should be printed on the page copy at the receiving station.

(c) Depress the RETURN key. The carriage should return to the left margin without printing a character.

5.17 With the power switch retained in the ONLINE position, return the COPY ALL twist key to the NORM position.

(a) Keyboard the typing unit CDC from the remote sending station. Keyboard an EOA code (CTRL and B), and follow with the graphic character A. The typing unit at the RO station should not print the CDC but should print the A character.

(b) Keyboard an EOT code (CTRL and D) and follow with a graphic character A. The A should not print.

(c) Remove the paper from the typing unit. The ALARM lamp should light and the buzzer should sound. Keyboard the typing unit CDC, an EOA, and follow with the graphic character A. The A should not print.

5.18 For applications where an auxiliary reader is associated with an RO station, keyboard the tape reader TSC from the remote sending station. The SEND lamp should not light, but the answer-back mechanism should operate. Move the BID lever to the SINGLE position and release. Keyboard the tape reader TSC. The SEND lamp should light as the BID lever lamp is extinguished. Keyboard an EOT.

B. Local Functions

5.19 The following checkouts are to be performed at the local RO station. Place the power switch in the ONLINE position and the COPY ALL twist key in the NORM position.

(a) The LOC LF key when depressed, should cause paper or forms to be fed out of the typing unit at approximately three times the speed obtained when a repeat LINE FEED is received.

(b) The LOC CR key, when depressed, should cause the type box carriage to be returned to the left margin.

(c) Operation of the BREAK key after a CDC has been received should cause the remote sender to stop. The BREAK key should be depressed for a minimum interval of two character lengths (200 milliseconds).

C. Full Duplex

5.20 The station set is factory wired for half duplex operation. Before attempting full duplex operation, perform the wiring and circuit card changes as instructed in Part 4.

5.21 In full duplex the sending devices are isolated from the receiving devices; therefore, it is not easily possible to send to the RO receiver from a keyboard. In order to effect a suitable full duplex arrangement, it is suggested the online checkout procedure be performed when the full duplex system is completely installed. This installation should include a line controller or computer at a master station, several tape reader units on the send leg, and several receiving units on the receive leg. Under these conditions, rigid conformance to the line controller format must be maintained. Keyboard online transmission is not permitted; therefore, codes cannot be generated from a keyboard station for checking the receiver.

5.22 With the station set connected to a full-duplex signal circuit the following checkout procedure should be performed at the station. Rotate the power switch to the ON LINE position.

(a) The computer should call the typing unit with a CDC and follow with an EOA and TEXT. Only the TEXT should be copied on the page copy. An EOT code should disconnect the station and place the typing unit in a NONPRINT, SELECT condition.

(b) Again call the typing unit with a CDC and follow with an EOA and a long text. Generate a NULL code from the computer. The typing unit should enter the NONPRINT mode. A subsequent TSC, generated by the computer, should start a waiting auxiliary reader. An EOA should restore the typing unit to the PRINT condition. The typing unit should not record any of the graphic codes which may appear between NULL and EOA.

(c) For applications where an auxiliary tape punch is associated with an RO station, generate a punch CDC, EOA, and TEXT from the computer. Only the TEXT should be perforated by the tape punch. An EOT should place the tape punch in the SELECT, NONPUNCH mode; however, the EOT code will be perforated in the tape before the punch is blinded.

(d) Again call the punch with a CDC and follow with an EOA and a long text. Generate a NULL code from the computer. Upon receipt of a NULL at the stunt box, the station controller will shift the tape punch to the NONPUNCH mode but will retain memory of its previous selection. A TSC following the NULL will start a waiting reader and an EOA following the TSC will restore the tape punch to the PUNCH mode. The NULL code followed by a DELETE will be recorded in tape; a subsequent TSC, EOA, or any other code between the DELETE (following the NULL code) and the EOA code should not be recorded in the tape.

(e) When an auxiliary tape reader is associated with an RO station, place a message tape in the reader. Turn the reader bat-handle switch ON. Move the BID lever to the SINGLE position and release. Generate the tape reader TSC from the computer. The reader should start, transmit the entire tape (CDCs, EOA, TEXT, EOT, and DELETE), and stop after the tape runs out and the tape-out pin rises.

(f) Insert a long message tape in the reader. Turn the reader ON and operate the BID lever. The computer should generate the reader TSC, and the reader should start. After the reader enters the TEXT, generate a single NULL code from the computer. The reader should stop. While the reader is stopped, generate an EOA code from the computer. The reader should restart and read the entire tape.

(g) Again insert a long message tape in the reader. Turn the reader ON and operate the BID lever. The computer should generate the reader TSC, and the reader should start. Generate a NULL code from the computer. The reader should stop. Generate an XOFF code and an EOA code from the computer. The reader should not start on the EOA. Generate an EOT code and a TSC code from the computer. The reader should start on the TSC.

Note: Neither the typing unit nor the tape punch should print or punch during this test.