

"DATASPEED*" TAPE-TO-TAPE SYSTEM
TAPE SENDERS 5A AND 5C
INSTALLATION AND CHECKOUT

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1. GENERAL

1.01 This section provides the installation and checkout procedures for the "DATASPEED" Tape Senders 5A, 5A-1, 5C and 5C-1. It is reissued to add information on unit options and on wiring options. No TCNs have been issued for or added to this section, since its last issue.

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Since this is a general revision, marginal arrows ordinarily used to indicate changes and additions have been omitted. This section was formerly 592-807-200.

1.02 Description, trouble shooting, adjustments and lubrication as well as information on apparatus unit options, can be found in appropriate sections.

1.03 The 5A-1 and 5C-1 Senders are the same as the 5A and 5C Senders except that they have a TP198002 recognizer apparatus unit option. This apparatus unit is covered in Section 582-102-115).

1.04 Tables A, B, and C indicate the various types of operation available with the Senders as well as providing information on equipment required, wiring options, and strapping plugs. Figure 1 provides interconnecting information.

2. INSTALLATION

TAPE SENDER 5A

A. Location

2.01 In choosing a site for the Tape Sender 5A, consider the following:

(a) The tape reader unit is 6-1/2 inches wide by 4-1/2 inches high by 14 inches deep (front to back). The apparatus box is 13 inches wide by 16 inches high by 10 inches deep. The complete 5A Sender weighs 42 pounds. The 402C data set is 5-1/2 inches high by 10-3/4 inches wide by 14-1/2 inches deep and weighs approximately 25 pounds.

(b) A table, desk top, or shelf is required for both the tape reader and the data set. A 3-wire grounding, 120 volt ac, receptacle must be available within 6 feet of the data set position. The ac receptacle should be separately fused to preclude unnecessary interruptions in service, and must be capable of supplying a peak current of 6 amps.

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B. Unpacking Information

2.02 The unpacking procedure appears on a label affixed to the shipping carton. Refer to those instructions when unpacking the units.

CAUTION: BEFORE OPERATING THE SET, REMOVE THE FOUR SHIPPING BRACKETS FROM THE FLOATING BASE OF THE READER.

C. Mounting Apparatus Box (TP198022)

2.03 Remove apparatus box cover by turning the two screw type fasteners 1/4 turn counterclockwise.

2.04 To facilitate mounting, remove the entire mounting frame assembly from the apparatus box backboard. The frame assembly is affixed by four screws at the hinge.

2.05 Mount the TP199538 backboard in position on the wall using suitable fasteners (screws, anchors, etc). Four mounting holes are provided in the backboard.

2.06 Remount the mounting frame assembly on the backboard.

D. Options (Tables A, B, and C)

2.07 Check the pushbutton lamp sockets at the front of the set. If the set is to be used in a reverse channel system, the SIGNAL lamp may remain in its socket. If the unit is not to be used in a reverse channel system, this lamp should be removed by first removing the cover which is secured by two screws on the under side of the base, or it will glow continuously.

2.08 If the system is to provide the circuit assurance and break option, the factory furnished (standard) jumper must be removed at pin 32 of P753. Remove the cover from the strapping plug and use a longnose pliers to withdraw pin no. 32 from the rear of the connector body. Do not damage the pin. It may have to be replaced if the circuit assurance and break option is not required. Tape the pin to prevent shorting and replace the plug cover. Connect the strapping plug in its receptacle (J753) in the apparatus unit (Figure 1).

2.09 A set of contacts within the transmitter control apparatus unit can be used to activate an auxiliary signal in the event of a line break or stoppage originated by the Receiver

operator. These contacts close, whenever the SIGNAL lamp is lighted, and are accessible at terminals 1 and 2 of TB753.

TAPE SENDER 5C

A. Location

2.10 In choosing a site for the Tape Sender 5C, consider the following:

(a) The floor mounted cabinet is 16 inches wide, 24-3/8 inches deep and 54-1/4 inches high. Sufficient space should be provided at the front of the cabinet to permit the door covering the lower half of the cabinet to swing open. Allow 3 inches access space at the rear of the cabinet. The sender weighs 160 pounds.

(b) The cabinet should be placed near a 3-wire grounding, 120 volt ac receptacle. The ac receptacle should be separately fused to preclude unnecessary interruptions in service, and must be capable of supplying a peak current of 6 amps.

B. Unpacking Information

2.11 The unpacking procedure appears on a label affixed to the shipping carton. Refer to those instructions when unpacking the unit.

2.12 Eight immobilizing blocks are used to secure the tape reader and its drawer during shipment. Remove the cabinet back panel. Remove the four blocks from between the channels and motor frame. Remove the block from between the motor vibration mounting bracket and frame rails, and the three blocks from the shelf and rear sides of the cabinet.

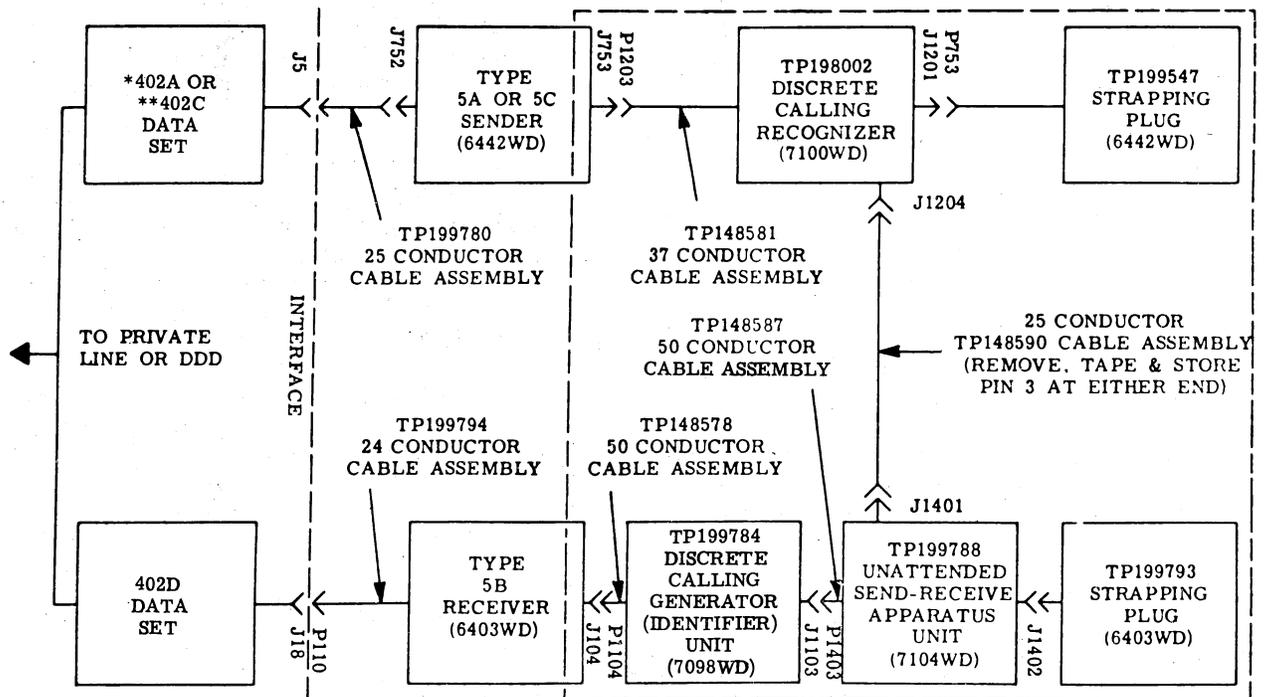
2.13 Remove the two shipping screws from the rear of the receiver module.

C. Installing Data Set (Figure 1)

Send-Only Stations

2.14 The Tape Sender 5C has a mounting shelf for the 402C data set. The installation procedure is given in the following paragraphs. Refer also to cabling diagram 7101WD in the related "Schematic and Actual Wiring Diagrams" and to the instruction material supplied with the data set. If optional apparatus units are used, refer to the sections appropriate to those units.

- (1) Remove the single screw which secures the rear cabinet panel and lift out the panel.
- (2) Mount a standard telephone terminal block backboard, terminal block, and cover, on the electrical service panel at the rear of the cabinet. Two mounting holes on the left side of the panel (looking from the rear) are provided (Figure 2).
- (3) Remove the three screws holding the front panel and remove the panel.
- (4) Place the data set in the cabinet on the shelf provided and reinstall the front panel.
- (5) Connect the data set power cord from J1704 on the electrical service panel to the mating receptacle on the data set or if continuous power is required plug the set into a wall receptacle.
- (6) Open the door (below the data set) by pulling on the upper left hand corner. Withdraw the apparatus unit mounting frame. Connect the TP199780 cable from J752 on the transmitter apparatus unit to its mating receptacle at the data set.
- (7) Make connection between the data set telephone line signal output and the terminal board installed in step (2).



Legend: J=Connector Attached to Equipment
 P=Strapping Plug or Connector Attached to a Cable
 >> Represents Multiple Connector in Drawing
 --- Area Pertinent to Sender is Outlined by Broken Line
 *402A Can be Used With Manual Send Station Only
 **402C1 - Without Reverse Channel Receiver
 **402C2 - With Reverse Channel Receiver

Figure 1 - Send-Receive Terminal Interconnecting Diagram

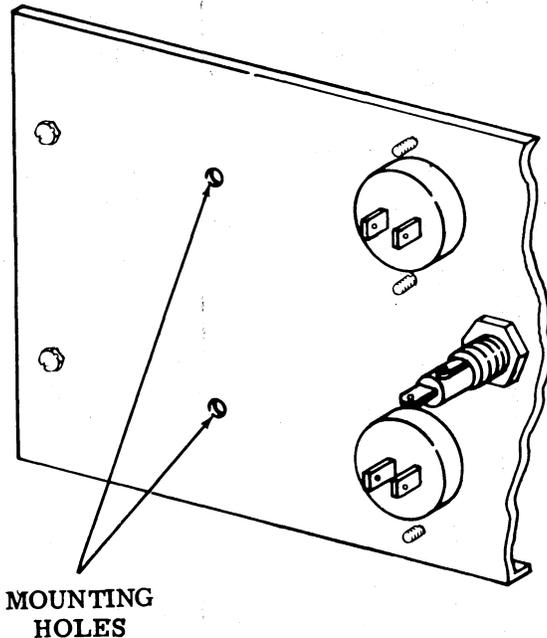


Figure 2 - 44A Terminal Block Mounting Holes

(8) Unless the following checkout procedures (Part 3) are to be performed immediately, replace the rear cabinet panel.

Send-Receive Station

2.15 The procedure followed when installing a Tape Sender as part of a send-receive station (ie, a Sender and Receiver at the same site sharing a common telephone line) is essentially as outlined in 2.14 except that the data set connections differ as follows:

2.16 The data set 402C, when intended for send-receive installation, will be fitted with a different cable assembly than that used for send-only applications. Rather than making connection directly from the data set to the installed terminal block, connection is made to the data set 402D at the Receiver as called for in the instruction material supplied with the data sets (refer to appropriate data set section).

D. Options (Figures 1 and 3, Tables A and B)

2.17 Check the pushbutton lamp sockets at the right of the data set. If the set is to be used in a reverse channel system the signal lamp may remain in its socket. If the unit is not to be used in a reverse channel system this lamp should be removed or it will glow continuously. The lamp sockets can be reached by removing the four cover plate mounting screws and lifting the entire switch assembly upward.

2.18 If the system is to provide the circuit assurance and break option the standard strapping must be removed at pin 32 of P753. Remove the cover from the strapping plug and use a longnose pliers to withdraw pin no. 32 from the rear of the connector body. Do not damage the pin. It may have to be replaced if the circuit assurance and break option is not required. Tape the pin to prevent shorting and replace the plug cover. Connect the strapping plug in its receptacle (J753) in the apparatus unit.

2.19 A set of contacts within the transmitter apparatus unit can be used to activate an auxiliary signal in the event of a line break or a stoppage originated by the Receiver operator. These contacts close whenever the signal lamp is lighted, and are accessible at terminals 1 and 2 of terminal board TB753 (Figure 3).

2.20 Replace rear cabinet cover, close the lower compartment, and slide the reader drawer into the cabinet.

3. CHECKOUT

PRELIMINARY INSPECTION AND CONNECTION

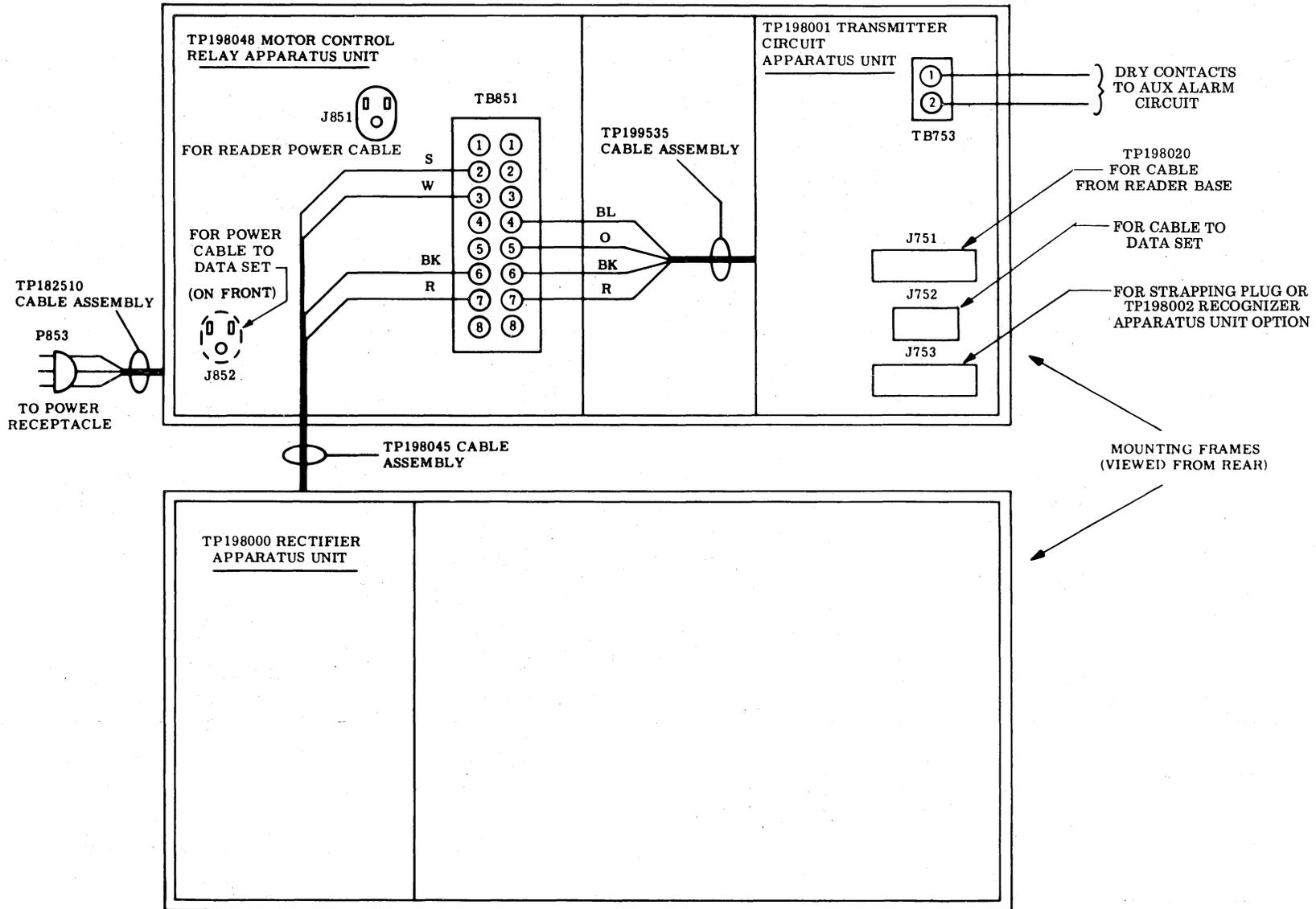
A. General

3.01 The following tests and connections do not require operation of the equipment on-line. They may be made at the company shop or warehouse prior to actual installation.

B. Tape Sender 5A

3.02 Lift the left cover plate from the reader by pulling up on the outer edges of the plate. Loosen the two captive screws at the rear of the base. Lift the rear of the cover slightly, and push the cover toward the front of the unit. The cover may then be lifted off of the unit.

Figure 3 - Tape Senders 5A and 5C Apparatus Unit Connections



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3.03 Check that the reader and motor mounting screws are tight. Turn the brass flywheel on the front of the reader by hand. A slight resistance to turning will be felt at one point, but there should otherwise be no binding or dragging.

3.04 Check that the motor and reader "float" freely in their rubber mountings and that all shipping hardware has been removed. There should be only a perceptible amount of play in the gears. If necessary, move the reader to set the gear play to the required amount. (Refer to Adjustment Section 582-100-710.)

3.05 Check that the 37-pin cable plug is securely connected to the mating receptacle at the reader.

3.06 Replace the reader cover and plate. Plug the reader power cord on the rear of the unit to the ac power source. Note that the reader runs without excessive noise or rattles.

3.07 Connect the reader power cord into the tape reader outlet on the back of the motor control relay apparatus unit (Figure 3). Plug the multiple conductor cable from the tape reader to the 37-pin receptacle (J751) on the transmitter apparatus unit (Figure 3). The plug is fitted with a slide latch locking device.

3.08 Make connection between the 25-pin receptacle J752 on the transmitter apparatus unit and the receptacle at the data set. Connect the power cord from the data set to the data set receptacle (J852) at the motor control apparatus unit (Figure 3).

3.09 Plug the power cord from the apparatus box into the outlet supplied by the subscriber.

3.10 Place a test tape in the reader and place the reader control switch in the RUN position. Remove the hand set on the data set and press the DATA button on the data set. Observe that the AS, MS and RC relays in the transmitter circuit apparatus unit operate briefly, then release as the PD relay operates. Observe that the tape reader starts reading about 10 seconds after the DATA button is pressed. Place the handset on-hook, disconnect the apparatus box power cord.

Note: In those units modified for circuit assurance and line break option (2.08), release of the RC relay will prevent the

reader from starting. To check the tape reader operation, hold down the relay armature manually.

3.11 Position the cover on the apparatus box and lock it in place by turning the quarter turn fasteners clockwise.

C. Tape Sender 5C

3.12 Lift the left cover plate from the tape reader by pulling up on the outer edge of the plate. Slide open the drawer assembly on which the reader is mounted. A hand hold is provided immediately beneath the reader.

3.13 Check that the reader and motor mounting screws are tight. Turn the brass flywheel on the front of the reader by hand. A slight resistance to turning will be felt at one point, but there should otherwise be no binding or dragging.

3.14 Check that all shipping fastenings (2.12) have been removed, and note that the reader and motor "float" freely in their rubber mountings.

3.15 There should be only a perceptible amount of play in the gears. If necessary, move the reader to set gear play to the required amount. (Refer to Adjustment Section 592-801-700.)

3.16 Check that the 37-pin cable plug is securely connected to the mating receptacle at the reader.

3.17 Replace the reader plate and remove the back of the cabinet. The entire back is held by a single screw near the top.

3.18 Disconnect the reader power cord from the reader power outlet (J851, Figure 3) on the motor control relay apparatus unit and plug it into any convenient ac outlet. Plug the power cord from the electrical service panel into the outlet supplied by the subscriber.

3.19 Note that the reader runs without excessive noise or rattles.

3.20 Reconnect the reader power cord to J851.

3.21 Place a test tape in the reader and place the reader control switch in the RUN position.

3.22 Lift the chad depressor arm and move tape-tension arm to the extreme left. Release the chad depressor to lock the tension arm in place.

3.23 Press the POWER switch if it is not already lighted. Lift handset and press the DATA button on the data set and observe that the MS, AS and RC relays in the transmitter circuit apparatus unit operate briefly, then release as the PD relay operates. Observe that the tape reader starts reading about 10 seconds after the DATA button is pressed. Place the data set on-hook.

Note: In those units which have been altered for circuit assurance and line break operation (2.18), release of the RC relay will prevent the reader from starting. To check the tape reader operation, hold down the relay armature manually.

D. Tape Senders 5A-1 and 5C-1

3.24 Checkout procedures for Tape Sender 5A-1 or 5C-1 are covered in a separate Section 582-102-116.

SIGNAL LINE HOOKUP

3.25 Make the connection between the data set and telephone line in accordance with the instructions supplied with the data set. The terminal board which was mounted on the electrical service panel at the rear of the 5C or 5C-1 Sender is provided expressly for this purpose. Perform whatever data set tests are called for in that literature.

TEST CENTER TESTS

3.26 Make use of the system test centers (where available) to make on-line tests of the system.

FINAL TESTING

3.27 Test the customer's data transmission network to insure the sender will send properly to all receivers on the network.

TABLE A
SERVICE ARRANGEMENTS

The following table summarizes the apparatus required for various types of service arrangements. The use of suffixes in the coding scheme permits initial ordering of the arrangements needed. The addition of apparatus unit options to existing standard equipments can provide the same arrangements.		
SERVICE	SENDER APPARATUS STATION 1	RECEIVER APPARATUS STATION 2
Attended at both stations	5A or 5C Sender data set 402C or 402A	5B Receiver data set 402D and data auxiliary set 804A
Sender attended Receiver unattended	5A or 5C Sender data set 402C or 402A	5B Receiver - use auto answer feature in data set 402D and data auxiliary set 804A
Sender unattended Receiver attended	5A-1 or 5C-1 Sender - use auto answer feature in data set 402C	5B-1 Receiver data set 402D and data auxiliary set 804A
Unattended Send-Receive Stations	5A-1 or 5C-1 Sender - use auto answer feature in data set 402C	5B-2 Receiver - use auto answer and send-receive features in data set 402D
Unattended Send-Receive stations. Receiver in manual condition and capable of calling unattended Sender	5A-1 or 5C-1 Sender - use auto answer feature in data set 402C	5B-3 Receiver - use auto answer and send-receive features in data set 402D
<p>For the table-mounted Sender, the TP198002 recognizer option for discrete calling and unattended service mounts beside the other apparatus units in the wall mounted apparatus box. For the floor mounted sender, this unattended service apparatus unit option is mounted in a space provided in the equipment cabinet.</p> <p>Unattended Send/Receive Station</p> <p>This station consists of a Sender arranged for unattended service and a Receiver containing an unattended send/receive apparatus unit option (TP199788). The send/receive station will automatically arrange itself to send or receive as appropriate to the type of calling station. A send/receive station used in placing a call can be manually switched to function as a sender or as a receiver; and a remote unattended send/receive station will follow these switching operations.</p>		

Note: Refer to text paragraphs covering options.

TABLE B

SEND ONLY TERMINAL

TYPE OF OPERATION		EQUIPMENT REQUIRED	WIRING OPTIONS REQUIRED	STRAPPING PLUG AND LOCATION
1.	Manual service without circuit assurance and break feature	5A or 5C Sender	None (standard factory wiring). Remove signal lamp from sender.	TP199547 in 5A or 5C Sender J753
2.	Manual service with circuit assurance and break feature	5A or 5C Sender	In TP199547 strapping plug, remove and tape pin 32.	TP199547 in 5A or 5C Sender J753
3.	Unattended service with discrete calling and without circuit assurance and break feature	5A-1 or 5C-1 Sender (TP198002 recognizer included)	In TP199547 strapping plug, remove and tape pins 11 and 16. Remove signal lamp from sender.	TP199547 in TP198002 recognizer J1201
4.	Unattended service with discrete calling and with circuit assurance and break feature	5A-1 or 5C-1 Sender (TP198002 recognizer included)	In TP199547 strapping plug, remove and tape pins 11 and 32. Remove pin 16 and push it into position 21.	TP199547 in TP198002 recognizer J1201
5.	Unattended service with no answer when there is no tape in reader	5A-1 or 5C-1 Sender (TP198002 recognizer included)	Same as 3 or 4 above, plus; remove Z wiring in recognizer: Remove, twist together and tape two wires from 12M of K1203 relay. Remove and tape wire from 3B of 1201-L relay, remove and tape wire from 8M of K1201-U relay	TP199547 in TP198002 recognizer J1201
6.	Unattended service with all-space transmitted when there is no tape in reader	5A-1 or 5C-1 Sender (TP198002 recognizer included)	Same as either 3 or 4 above, retain Z wiring.	TP199547 in TP198002 recognizer J1201
Note: Any of the above types of operation may be used with a send-receive terminal.				
Equipment Descriptions:				
5A - Table Mounted Sender without Options.		5C - Floor Mounted Sender without Options.		
5A-1 - Table Mounted Sender with TP198002 Recognizer Apparatus Unit Option.		5C-1 - Floor Mounted Sender with TP198002 Recognizer Apparatus Unit Option.		

Note: Refer to text paragraphs covering options.

TABLE C

UNATTENDED SEND-RECEIVE TERMINAL

ADDITIONAL TYPES OF OPERATION	EQUIPMENT REQUIRED	WIRING OPTIONS	STRAPPING PLUG AND LOCATION
PERTAINING ONLY TO UNATTENDED SEND-RECEIVE TERMINAL.		Note: Always remove and tape pin 3 at one end of cable between unattended send-receive and recognizer.	
1. Unattended send-receive service using all 3 answer-backs; to indicate no tape, low tape and both (Answer-backs: A = low tape in Receiver. B = no tape in Sender. AB = both conditions). Station will answer automatically with a low tape-no tape condition.	5A-1 or 5C-1 Sender	In recognizer: remove SO wiring: On connector card pin H, remove and tape wire to 1U of K1202-U relay.	TP199547 in TP198002 recognizer J1201
	5B-2 Receiver	In unattended send-receive unit, remove R wiring: (retain ZC-ZD wiring) remove and tape one end of jumper between 9 and 9M on K1405-U relay.	TP199793 in TP199788 unattended send-receive unit J1402
2. Unattended send-receive service using 2 answer-backs (A or B) to indicate low tape in Receiver or no tape in Sender. Station will not answer automatically with a low tape-no tape condition.	5A-1 or 5C-1 Sender	In recognizer: Remove ZC wiring; remove, twist together and tape two wires on 12M of K1203 relay and remove and tape wire on 3B of 1201-L relay. Remove SO wiring (same as 1 sender above)	TP199547 in TP198002 unit J1201
	5-B2 Receiver	In unattended send-receive unit: Remove R wiring (same as 1 receiver above)	TP199793 in unattended send-receive unit J1402
3. Unattended send-receive service using answer-back A to indicate low tape in the Receiver. Station will not answer automatically with a low tape-no tape condition.	5A-1 or 5C-1 Sender	In recognizer: Remove ZC wiring and SO wiring (same as 2 sender above)	TP199547 in TP198002 recognizer unit J1201
	5B-2 Receiver	In unattended send-receive unit, remove ZD wiring: Remove and tape wire on 10B of K1405-U relay. (Retain R wiring).	TP199793 in TP199788 unattended send-receive unit J1402
4. Unattended send-receive service, with Receiver in manual condition, capable of calling unattended Sender.	5A-1 or 5C-1 Sender	In recognizer: Remove SO wiring (same as 1 send above). Either remove or retain ZC wiring (see 2 sender above)	TP199547 in TP198002 recognizer unit J1201
	5B-3 Receiver	In unattended send-receive unit: Remove either R or ZD wiring (same as either 1 or 3 receiver above).	TP199793 in TP199788 unattended send-receive unit J1402

TABLE C (Cont'd)

UNATTENDED SEND-RECEIVE TERMINAL

<p>Note: In addition to the types of operation in this table, any send or receive type of operation listed under the Sender only and Receiver only terminals, or a combination of any send and receive type so listed, may also be used at a send-receive terminal. See following list for descriptions of equipment required. Refer to appropriate BSP section for detailed description of any set or apparatus unit option.</p>		5C	Floor mounted Sender without options.
5A	Table mounted Sender without options.	5C-1	Floor mounted Sender with TP198002 recognizer apparatus unit option.
5A-1	Table mounted Sender with TP198002 recognizer apparatus unit option.	5B	Floor mounted Receiver without options.
		5B-1	Floor mounted Receiver with TP199784 identifier apparatus unit option.
		5B-2	Floor mounted Receiver with TP199788 unattended send-receive apparatus unit option.
		5B-3	Floor mounted Receiver with TP199784 identifier and TP199788 unattended send-receive apparatus unit options.

Note: Refer to text paragraphs covering options.