"DATASPEED*" TAPE-TO-TAPE SYSTEM

TYPE 1 AND TYPE 2 TAPE SENDERS AND RECEIVERS

INSTALLATION AND CHECKOUT

CONTENTS PAGE

1. INTRODUCTION

1.01 This section provides the information necessary to install and checkout a 1A or 2A Tape Sender and a 1B or 2B Tape Receiver. Should any trouble be uncovered in the testing process, refer to the appropriate adjustment or troubleshooting section. No TCNs have been issued for or added to this section, since its last issue. This section was formerly 592-805-200.

1.02 This section is reissued to incorporate information on optional strapping of Data Sets 202C and 202D in tape senders and tape receivers and some minor text changes. Arrows in the margins indicate changes and additions.

2. INSTALLATION

LOCATION

2.01 When selecting a site for the tape sender and/or tape receiver consider the following:

(a) There should be sufficient space surrounding the cabinets so that controls, doors, panels, etc, can be reached easily for operation and maintenance.

(b) An unswitched 120 volt ac (103-127) 60 Hz polarized (3 wire) receptacle must lie within reach of each cabinet power cord.

(c) Ambient temperature variation shall lie within a +40°F to +110°F range.

UNPACKING

A. Tape Sender

2.02 The tape sender is packed in a cardboard box reinforced with wooden slats. To unpack the set, the following procedure is recommended.

(a) Detach the cover panel from the box by removing the nails along the bottom, two sides, and top.

(b) Remove the nails which fasten the bottom of the side panels and the rear panel to the base.

(c) Carefully lift the box assembly from the base, exposing the cabinet.

(d) Remove the base from beneath cabinet.

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(e) Remove the four spacer blocks from between the channels and the motor frame, the block from under the motor mounting vibration mounts, the block from the under side of the power supply transformer, and the three blocks from the rear sides and shelf of the cabinet.

(f) Remove the cardboard box from the data set shelf and open along the sealed edges. Remove the plastic tape reels and install on the cabinet.

B. Tape Receiver

2.03 The unpacking process for the tape receiver is similar to that outlined for the tape sender.

(a) Follow procedure outlined in Paragraphs 2.02, (a) through (d).

(b) Remove the interior wooden packing details from the cabinet.

(c) Remove the cardboard box from the set shelf and open along the sealed edges. Remove the plastic tape reel and install on the winder hub.

INSTALLATION OF DATA SETS

A. General

2.04 The installation of the data set is the same for the tape sender and the tape receiver. Refer to Figures 1 and 2 and to the instruction material supplied with the data set. The instructions under B apply to all data sets.

Note: The preliminary steps under C are required when Data Sets 202C and 202D are installed in the senders and receivers manufactured before December, 1964.

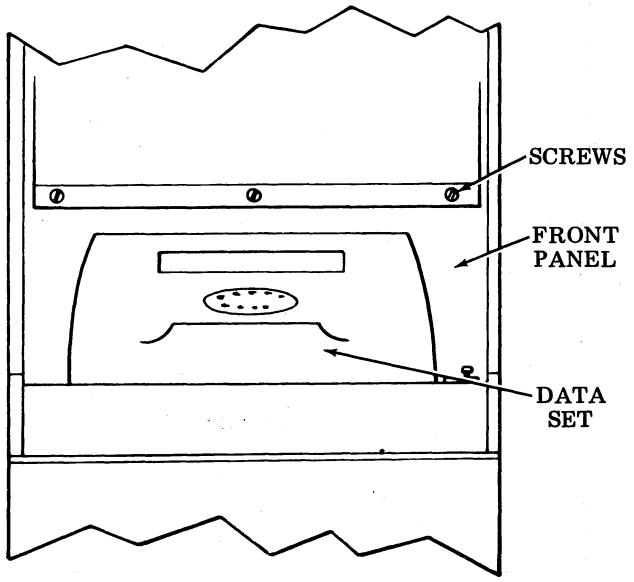
B. All Data Sets

2.05 These steps apply to Data Sets 202A, 202B, 202C, and 202D. See Note in 2.04.

(a) Withdraw the captive screw which secures the rear cabinet panel and lift out the panel.

(b) Mount a standard telephone terminal block back board, terminal block, and cover, on the shelf to the rear of, and below the shelf provided for the data set. Holes are provided for mounting.

(c) Remove the three screws holding the front panel and remove the panel, see Figure 1.



(Front View)

Figure 1 - Front Panel Installation

(d) Place the data set in the cabinet and reinstall the front panel.

(e) Connect the ac plug from the line filter into the mating receptacle at the rear of the data set see Figure 2. On Data Set 202C and 202D, instead of using the filtered power supply cord provided with the sender and receiver cabinets, the power cord supplied with the data set should be plugged into the utility outlet in the lower front portion of the cabinet.

(f) Connect the multipin plug from the module circuitry into the mating receptacle at the rear of the data set. Lock the plug into place.

(g) Open the hinge mounted front panel (below the data set) by pressing on the upper left hand corner. Turn the POWER switch on the power supply module to the OFF position.

(h) Make connection between the data set and the data line in accordance with instructions supplied with the data set. Make these connections at the terminal board installed in Step (b).

(i) Unless the checkout procedure following is to be performed immediately, replace the rear cabinet panel.

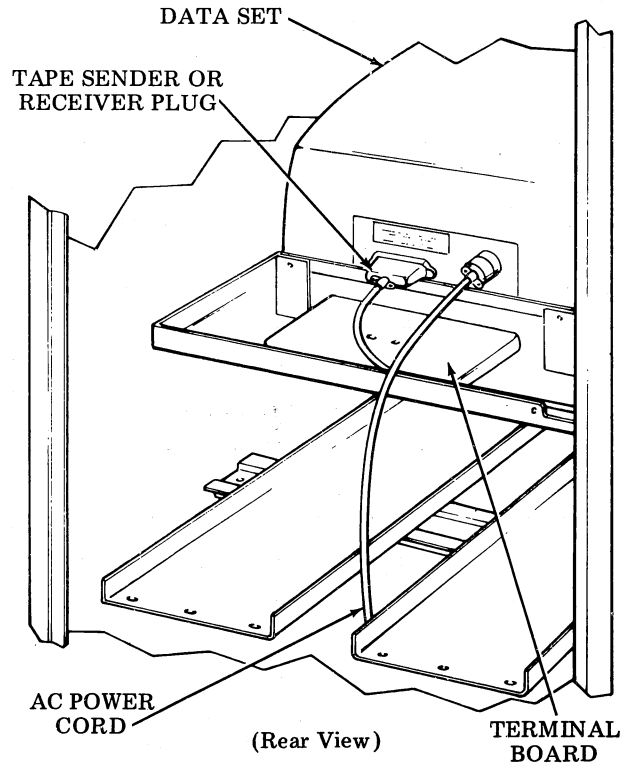


Figure 2 - Data Set Installation

C. Preliminary Instructions for Data Sets 202C and 202D

2.06 The following steps are required when Data Sets 202C and 202D and the break feature are installed in senders and receivers manufactured before December, 1964. The data set must be strapped for ZC and/or M contact options. The application also involves the use of TP146532 or TP199610 "Y" connector kit. These instructions are identical for the manual and the unattended service. No field modifications are required on units manufactured after December, 1964.

2.07 Data sets used in conjunction with the tape sender or receiver terminals provide the strapping options specified in Tables A or B — Strapping Options for Data Sets.

Type 2A Send-Only Terminals

2.08 No wiring changes are required in send-only terminal 2A equipped with the recognizer kit TP199551. The following changes are required, if TP199551 is not used.

(a) Remove the data set cable connector and disassemble the cable clamp. Remove terminal 22 (white-slate lead) from connector and place the removed terminal into position 12.

(b) Remove terminals 4 and 9 from the connector. This removes the strapping of these terminals.

(c) Solder one lead of a 2700 ohm, 1/2 watt resistor to a male terminal TP173715 using sleeving when needed. Insert the terminal into position 9 of the connector.

(d) Solder a male terminal TP173715 to the other lead of the resistor using sleeving when needed. Insert this terminal into position 4 of the connector.

(e) Reassemble the cable clamp and reconnect the data set cable connector.

(f) Use circuit board EC520 furnished with the sender.

(g) Move the TEST/OPERATE switch to OPERATE position.

Type 2B Receive-Only Terminals

2.09 No wiring changes are required in receive-only terminals equipped with the TP199550 generator kit. Otherwise the following changes are required.

(a) Remove the data set cable connector and disassemble the cable clamp.

(b) Solder both leads of a 2700 ohm, 1/2 watt resistor to individual male terminals TP173715. Use sleeving when necessary. Insert the terminals into terminal positions 9 and 11 of the connector.

(c) Reassemble the cable clamp and reconnect the data set connector.

Type 2A and 2B Send-Receive Terminals

2.10 Terminals to be Equipped With TP199610 "Y" Cable Connector-Sender Terminal Kit. No change is involved in the "Y" connector but the sender terminal is modified.

(a) Disconnect the sender terminal data set cable connector from the "Y" cable connector. Disassemble the sender terminal

TABLE A

STRAPPING OPTIONS FOR 202C DATA SET

FEATURE DESCRIPTION			WIRING OPTION	STRAP TERMINALS ON TB2	
Auto Answer Feature	Key Controlled (Contact Interface)		ZC	49-50	
	Permanent (Contact Interface)		ZD	50-51	
Bit Rate	Greater than 900 bits/sec		ZB	15-16	
Amplitude Equalizer		IN	F*	18-19	
		OUT	E	17-18	
Delay Equalizer		IN	B*	61-62, 64-65	
		OUT	A	62-63, 63-64	
Interface	Contact		M	2-3, 5-6, 9-10, 12-13	
Squelch		IN	R*	46-47	
		OUT	ZM	47-55 (Remove R Wiring)	
Demodulator Clamp		ON	V*	20-21	
		OFF	U	21-22	
2-Wire Operation			Z*	27-28, 31-32, 33-34, 35-36, 38-39, 41-42, 53-54, 56-57	
Termination	600 ohm		X	44-45	
Data Transmit Levels (Select Best)**	0 dbm		K	11-12	
	-3 dbm		J	24-25	
	-6 dbm		H*	22-23	
	-9 dbm		G	23-24	
				TERMINAL NUMBERS	TERMINAL BOARD
Reverse Channel (202C1,C5,C7,C9, C11—OUT, 202C2, C6,C8,C10,C12—IN)	IN		T	1-2, 6-7	TB3
	OUT		S	2-3, 7-8	TB3
Reverse Channel Transmit Level (Select Best)**	-3 dbm		ZF	White lead to 1	TB4
	-6 dbm		ZG*	White lead to 2	TB4
	-9 dbm		ZH	White lead to 3	TB4
801 Type Auto Calling Unit	Provided		ZJ	19-23	TB1
	Not Provided		—	17-20	TB1
6017 AP Key	Not Provided		ZV*	7-9	TB1
Carrier Soft Turn Off	IN		ZY*	1-2	ON CP AS39

*Factory-furnished option. **Potentiometer in new data set.

TABLE B

STRAPPING OPTIONS FOR 202D DATA SET

FEATURE DESCRIPTION		WIRING OPTION	STRAP TERMINALS ON TB2	
Automatic Answering Feature	IN	Q	59-60	
	OUT	—	Remove 59-60	
Data Set Test Key	IN	ZE*	44-45, 47-48, 50-51	
	OUT	ZF	45-46, 48-49, 51-52	
Bit Rate — Greater than 900 bits/sec		ZB	15-16	
Amplitude Equalizer	IN	F*	18-19	
	OUT	E	17-18	
Delay Equalizer	IN	B*	61-62, 64-65	
	OUT	A	62-63, 63-64	
Contact Interface		M	2-3, 5-6, 9-10, 12-13	
Squelch	IN	R*	Remove 25-35	
	OUT	ZL	25-35	
Demodulator Clamp	ON	V*	20-21	
	OFF	U	21-22	
2-Wire Operation		Z*	27-28, 31-32, 33-34, 35-36, 38-39, 41-42, 53-54, 56-57	
Termination	600 ohm	X	44-45	
Data Transmit Levels (Select Best)**	0 dbm	K	11-12	
	-3 dbm	J	24-25	
	-6 dbm	H*	22-23	
	-9 dbm	G	23-24	
			TERMINAL NUMBERS	TERMINAL BOARD
Reverse Channel	IN	T	1-2, 6-7	TB3
	OUT	S	2-3, 7-8	TB3
Reverse Channel Transmit Level (Select Best)**	-3 dbm	ZK	White lead to 1	TB4
	-6 dbm	ZM	White lead to 2	TB4
	-9 dbm	ZN	White lead to 3	TB4
Carrier Soft Turn Off	OUT	ZZ	3-4	ON CP AS 39
	IN	ZY*	1-2	ON CP AS 39

*Factory-furnished option. **Potentiometer in new data set.

connector cable clamp. Remove terminal 22 (white-slate lead) and place the removed terminal into terminal position 12.

(b) Reassemble cable clamp.

2.11 Terminals Equipped With TP146532 "Y" Cable Connector-Sender Terminal Kit. This modification involves both the "Y" connector and the sender terminal. For use on early design units, superseded by TP199610 "Y" cable.

(a) Remove the data set cable connector. Disassemble the cable clamp from the connector.

(b) Remove terminal 4 from the connector. Remove the terminal from the (slate) lead. Solder one lead to a 2.7K ohm, 1/2 watt resistor. Solder a male terminal TP173715 to the other lead of the resistor. Use sleeving when necessary. Insert into terminal position 4 of the connector.

(c) Remove terminal 11 (white-purple lead) and place the removed terminal into terminal position 12, of the connector.

(d) Remove terminal 9 (white lead). Solder one lead of a 2.7K ohm, 1/2 watt resistor to the terminal and white lead. Use sleeving when necessary. Replace into terminal position 9 of the connector. Solder the other lead of the resistor to a male terminal TP173715. Use sleeving when necessary. Insert the terminal into terminal position 11 of the connector.

(e) Reassemble cable clamp and reconnect the "Y" cable to the data set.

(f) Remove the "Y" cable connector from the sender terminal connector. Disassemble the "Y" cable clamp from the connector.

(g) Remove terminal 11 (white-purple lead) and replace into terminal position 12 of the connector.

(h) Reassemble the cable clamp.

(i) Disassemble the sender terminal cable clamp from the connector. Remove terminal 22 (white-slate lead) and replace into terminal position 12 of the connector.

(j) Reassemble the cable clamp.

(k) Reconnect the sender terminal to the "Y" cable.

(l) Use EC520 circuit board assembly supplied with the sender terminal.

(m) Move the TEST/OPERATE switch to OPERATE position.

3. CHECKOUT

SPECIAL EQUIPMENT REQUIRED

3.01 Aside from the usual tools, the following special equipment is required at the installation site.

Test Tape TP146606 (8-Level) or TP146861 (6-Level Advanced Feed Hole)

PRELIMINARY INSPECTION

3.02 Before plugging in the power cord, check the following points visually:

(a) Cabinets are properly grounded.

(b) Fuses are of correct value and firmly in place.

(c) Cables are connected and securely locked.

(d) Circuit cards are firmly in place in their correct positions.

(e) Doors and panels are working freely.

(f) Modules are properly located.

(g) Moving parts are free of any interference or obstructions.

(h) Noise and vibration reduction material is not damaged or out of adjustment.

(i) All mechanical requirements and adjustments are met.

(j) Recheck tape reel widths with regard to tape size (11/16, 7/8, or 1 inch).

LOCAL TESTS

A. Tape Sender

3.03 Though the following tests can be made at the installation site, they can also be made at the company shop or warehouse, thereby saving time in the field.

(a) Plug the power cord into the ac receptacle. Place the POWER switch at the power supply module to the ON position. Observe that the power indicator lamps on the module and at the cabinet control panel are lit.

(b) Rotate the selector switch on the power supply module to check each voltage. (Nominal voltage requirements are tabulated in the Power Supply 1A Wiring Diagram Section 582-100-415.)

(c) Select the proper transmitting code level for the test tape to be used by turning the level selector switch to desired level. Rotate the level select dial on the tape reader to match the level selector switch setting.

(d) Place test tape in reader, with RUN-STOP switch in STOP position. (Refer to Section 582-100-100 for tape insertion instructions.)

(e) Depress the READER button on the control panel. The reader motor should start.

(f) Move RUN-STOP-FREE lever to RUN position; tape should feed through reader.

(g) Move RUN-STOP-FREE lever to STOP. Tape should stop.

(h) Depress READER button. Reader motor should stop.

(i) Move WINDER switch to ON. Winder motor should start.

(j) With winder motor running, move tape tension arm toward chad depressor. The motor should stop. As motor arm is moved away from chad depressor, motor will start.

(k) Move WINDER switch to OFF. The winder motor should stop.

(l) Station an assistant at the tape sender and dial the tape sender number from a nearby telephone.

(m) The data set at the tape sender should ring. Have an assistant at the tape sender lift the handset (off-hook) and press the TALK button, a voice path should be established.

(n) Request that the DATA button at the tape sender be depressed. The data set should go to the data mode and the data lamp on the data set should light. The data carrier tones should now be heard.

(o) Ask the assistant to observe the data lamp and hang up the calling telephone. The data lamp should go out.

3.04 On those tape senders equipped for automatic answering, the following checks should also be performed.

(a) Depress the AUTO button on the data set and place the AUTO-MANUAL button on the sender control panel to the AUTO position.

(b) Place the TEST-OPR switch (behind the front panel) to the OPR position.

(c) Dial the data set number from a nearby phone.

(d) The bell at the called data set should ring, and the reader motor should start.

Note: Unless the sender is equipped with the interim unattended answering option, or is used with a reverse channel data set, the reader will not transmit regardless of the position of the RUN-STOP switch.

(e) Hanging up at the calling station should stop the reader motor.

B. Tape Receiver

3.05 Though the following tests can be made at the installation site, they can also be made at the company shop or warehouse thereby saving time in the field.

(a) Plug the power cord into the ac receptacle. Place the POWER switch at the power supply module to the ON position. Observe that the power indicator lamps on the module and at the cabinet control panel are lit.

(b) Rotate the voltage selector switch at the power supply module to check each voltage. (Nominal voltage requirements are

tabulated in the Power Supply 1A Description and Wiring Diagram Section 582-100-415.)

(c) Thread tape as outlined in Section 582-100-100, adjust the tape guides and position the OMIT switches, for tape size being used.

(d) Depress PUNCH button and move WINDER switch to ON, to start motors.

(e) Move TEST/OPERATE switch in the receiving distributor to TEST. Blank tape should feed from tape punch. Observe movement of tape tension arm. The movement of the arm should cause the winder motor to stop and start as tape is wound by take-up reel.

(f) Momentarily depress the LTRS FO button and observe that the tape punch is punching letters tape.

(g) Depress PUNCH button and move WINDER switch to OFF, to stop motors.

(h) Station an assistant at the tape receiver and dial the tape receiver number from a nearby telephone.

(i) The data set at the tape receiver should ring. Have the assistant at the tape receiver lift the handset (off-hook) and press the TALK button, a voice path should be established.

(j) Request that the DATA button be pressed. The data set will go into data mode and the data lamp on the data set should light.

(k) Ask the assistant to observe the data lamp and hang up the calling telephone. The data lamp should go out.

3.06 On those tape receivers equipped for automatic answer, the following checks should also be performed.

(a) Depress the AUTO button on the data set, and again dial the tape receiver number from a nearby phone. Within 3 to 7 seconds after ringing begins the data lamp should light (indicating that the data set is in the data mode) and the tape punch motor should start.

(b) A 2 to 7 second answer-back tone should be heard at the calling station.

(c) Hanging up at the calling station should stop the tape punch motor, allowing the telephone connection to time out, and extinguishing the data light.

TEST CENTER TESTS

3.07 Having successfully completed the local tests outlined in the preceding paragraphs, make use of the Bell System test center facilities where available to make the final tests. See Section 582-100-315 for the complete procedure on using the test equipment, in conjunction with the test center tests.