DATA SET 202B
TRANSMITTER-RECEIVER
IDENTIFICATION AND OPERATION

1. GENERAL

1.01 This section is reissued to:

(a) Change Fig. 1, 2, and 4.

(b) Change Tables A and B.

(c) Add Table C.

(d) Add Fig. 5, 6, 7, and 8.

(e) Add information on data set cover removal and replacement procedures.

1.02 This section does not include information concerning the business machine used with the data set.

1.03 Data sets coded 202B, List A are Manufacture Discontinued and are no longer available.

1.04 Data set 202B is compatible with data set 202D type when available.

2. IDENTIFICATION

2.01 Data set 202B (Fig. 1 and 2) consists of a modulator, a demodulator, a power supply, a control circuit, automatic answer, and test circuits — all enclosed in a two-tone gray plastic housing. Fig. 3 shows a block diagram of the data circuits.

2.02 Data sets 202B are coded with letter and numerical list designations. This designation is stamped on the underside of the data set base pan (Fig. 2). Numerical codes indicate use of the set. Letter codes indicate wiring changes made for improvement in design and operation of the data set. Table A shows current lettered list numbers and corresponding wiring and apparatus designation.

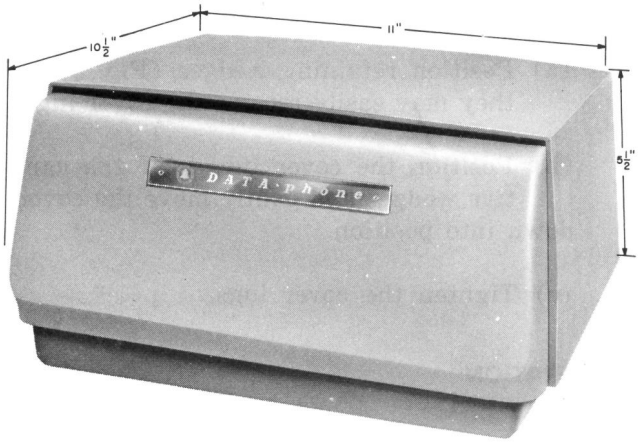

Fig. 1 — Data Set 202B, Lists 1 and 2

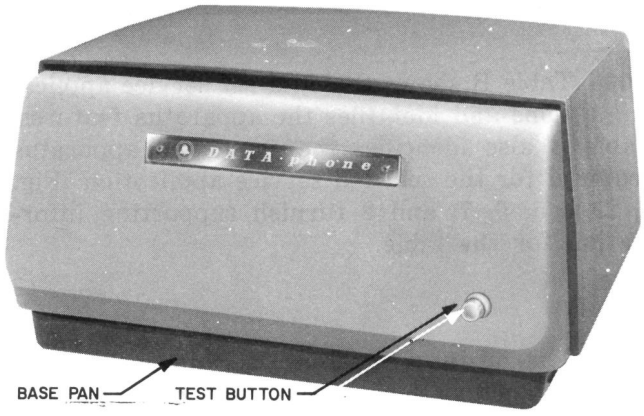

Fig. 2 — Data Set 202B, Lists 1 and 3

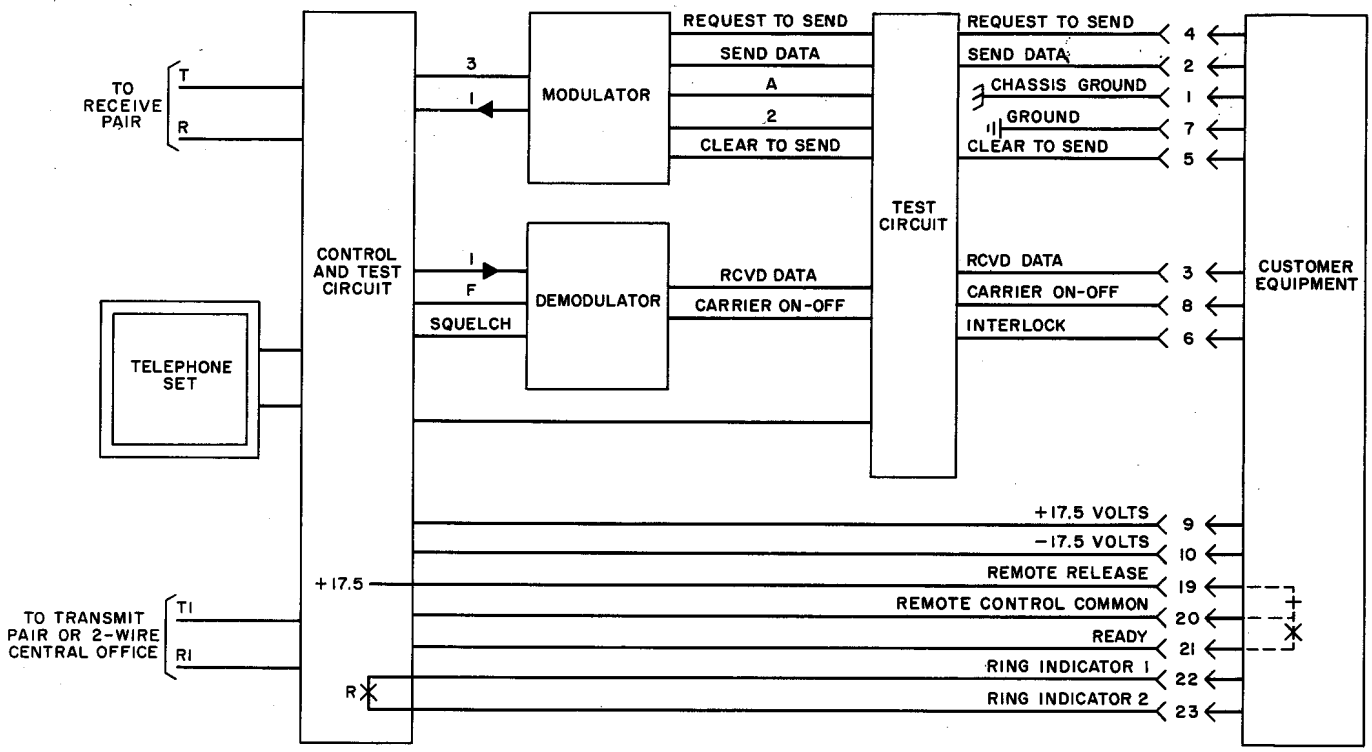

Fig. 3 — Data Set 202B — Block Diagram

TABLE A

Letter List Number	Schematic Drawing Wiring, or Apparatus Option
None	P
A and B	R and ZA
WA	ZE
C	ZF

2.03 Table B shows the data set service applications and identifies the apparatus features. Table B also identifies the associated apparatus required for the selected service application. Fig. 1, 2, 4, 5, 6, 7, and 8 furnish supporting information for the table.

2.04 The business machine is connected to the data set at the interface connector (Fig. 4). The connecting cord must be furnished by the customer.

2.05 ***Cover Removal and Replacement Procedure***

(1) Remove cover as follows:

(a) Loosen but do not remove the 4 captive cover screws located around the base (Fig. 4).

(b) Remove cover.

(2) Replace cover as follows:

(a) Position retaining wedges (Fig. 5) so they may easily receive the cover lugs.

(b) Position the cover lugs over the captive wedges and gently move the cover down into position.

(c) Tighten the cover lugs.

3. OPERATION

3.01 For detailed operation of the data set, refer to latest issue of CD- and SD-1D019-01.

TABLE B

Service Applications	2-Wire Private Line without Telephone Set	4-Wire Private Line without Telephone Set	2-Wire Switched Network with Telephone Set without Key Tel System	2-Wire Switched Network with Telephone Set with Key Tel System	4-Wire Switched Network with Telephone Set	4-Wire Private Line with Telephone Set
Data Set 202B	L1 and L3 (see Fig. 2)	L1 and L3 (see Fig. 2)	L1 and L2 (see Fig. 1)	L1 and L2 (see Fig. 1)	L1 and L2 (see Fig. 1)	L1 and L2 (see Fig. 1)
Transmission Speed	1800 bits per second on Equalized P.L.	1800 bits per second on Equalized P.L.	1200 bits per second	1200 bits per second	1800 bits per second on Equalized P.L.	1800 bits per second on Equalized P.L.
Modulation Technique	FM Serial (Voice Band)					
Mark Freq Space Freq	1200 cps 2200 cps					
Temperature Humidity Limits	+40 to 120 F 20% to 95%					
Interface Signals	Bi-polar Voltage (RS-232) Except for RI, RE, RY, and RC Leads					
AC Power Requirement	3-Wire 60-Cycle 117-Volt AC About 7 Watts Required					
Power Cord Furnished	KS-14532, L15 10 Foot—3-Wire (see Fig. 4)					
Power Supply Fusing	2¼ amp Bussman MDL 1⅛ amp Bussman MDL (see Fig. 5)					
Mounting Cord Furnished	D24B-61 5½ Foot (see Fig. 4)					
Provision For Automatic Answer	Yes	Yes	Yes	Yes	Yes	Yes
Provision For Automatic Calling Units	No	No	No	No	No	No
Associated Control Tel Set Required	None	None	569NB	569NB	568HB	568HB
Associated Key Tel Units Required	None	None	None	229B KTU (see Fig. 6)	3-229B KTU 1-243A KTU (see Fig. 6 and 8)	3-229B KTU 1-248A KTU (see Fig. 6 and 9)
Other Associated Apparatus Required	None	6017AP Key (see Fig. 7)	None	None	None	6017AP Key (see Fig. 7)

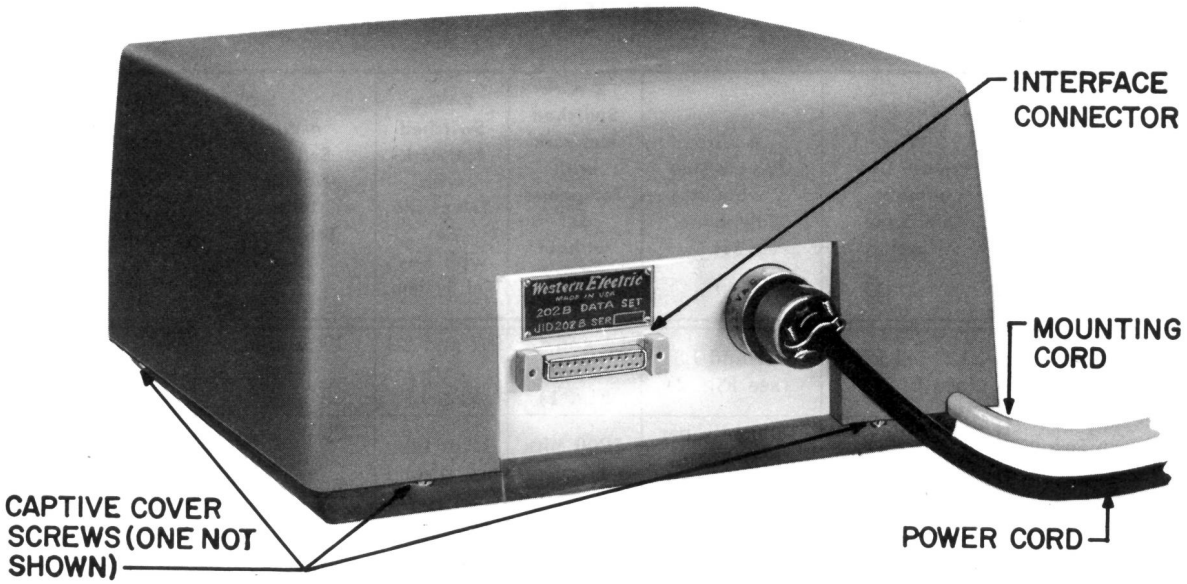

Fig. 4 — Data Set 202B — Rear View

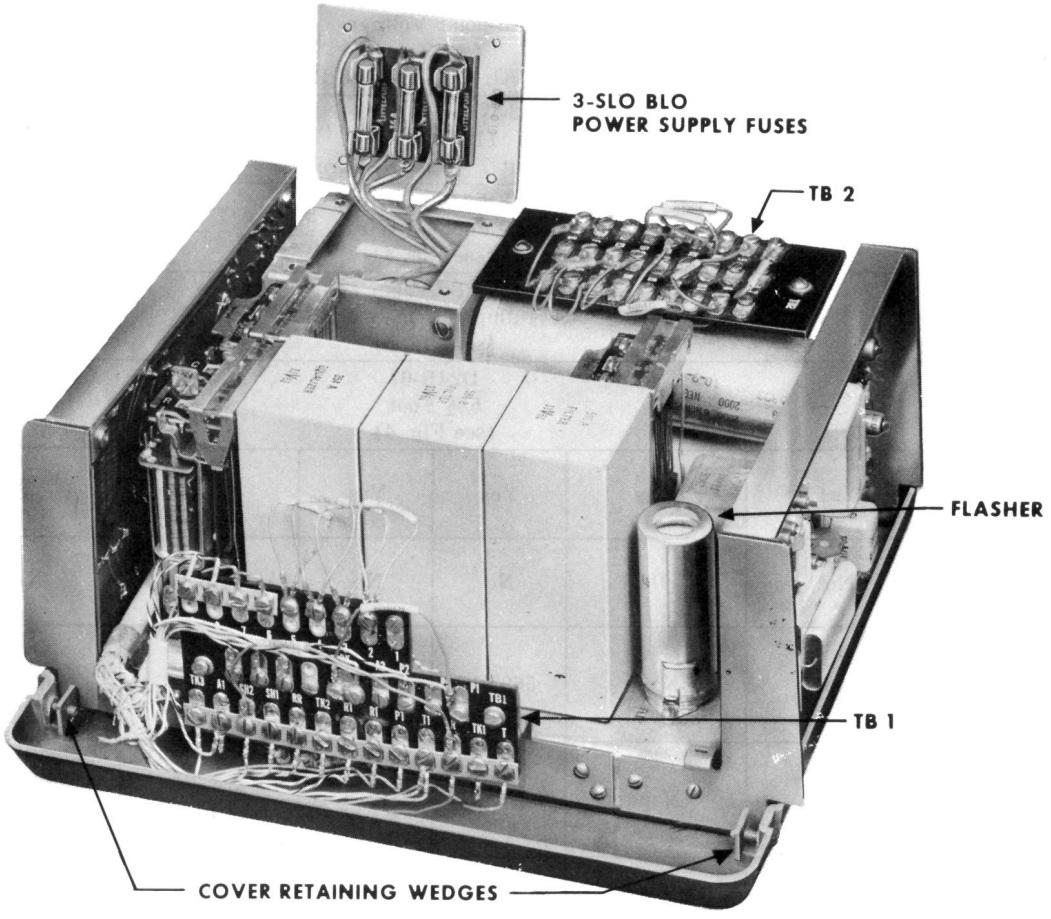

Fig. 5 — Data Set 202B — Inside View

TABLE C

Key Designation	Function	Button	
		568HB	569NB-61
Data-Hold	To place the data set in the data mode or as a hold key for key-equipped lines connected to the last three buttons of this table. Illuminated when in the data mode.	1	1
Talk	Connects the data line to the telephone circuit for normal telephone service.	2	2
Test	Used to permit a general test of the data set from the data test center. Illuminated when in use.	6	3
Line 1	For pickup of central office or PBX line. Arranged for use with 1A or 1A1 key telephone systems. May be illuminated.	3	4
Line 2 or Signal	For pickup of a central office or PBX line or as a signal key. May be illuminated.	4	5
Automatic Answer, Line 3, or Signal	May be arranged to condition the data set for automatic answer of the data line or may be used as additional line or signal.	5	6

3.02 Data set 202B can be used to transmit and receive data alternately on 2-wire operation or simultaneously on 4-wire operation. The operation of the business machine determines whether the set is used to transmit and/or receive.

3.03 Data is received from the business machine in the form of dc pulses. The data set converts these pulses into voice-frequency signals. These signals are transmitted over the telephone line to the distant station. The receive data set converts the signals back into dc pulses and delivers them to the business machine as received data.

3.04 Table C assigns key buttons of 569NB and 568HB telephone sets and gives their functions.

3.05 Data set 202B, Lists 1 and 3, is required for connection to 2- or 4-wire data only private lines. A TEST BUTTON (Fig. 2) is provided for use in testing the data set from the data test center.

3.06 When the data set is connected to a 4-wire private line, a 6017AP key should be provided. This key, when operated, provides a termination toward the central office and connects data set transmit and receive leads together through a fixed pad. This permits the business machine to receive its own transmitted data through the data set.

Note: On a 4-wire private line with a telephone set, depress DATA key with telephone receiver off hook until DATA lamp comes on. This puts data set in data mode. Handset may be replaced and test continued.

3.07 ***Originating a Data Call***

(1) Depress TALK button of the telephone set and establish connection with the distant station in the usual telephone manner.

(2) Agree verbally with the called station to begin data transmission.

Note: If a called station is arranged for automatic answer, a 1200-cps tone will be heard for 1 to 3 seconds in the calling station hand-

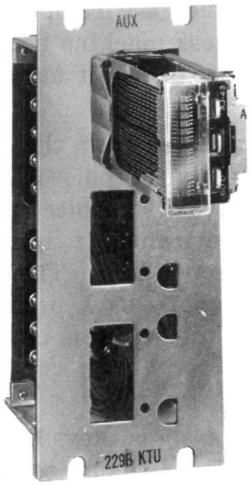

Fig. 6 — 229B KTU

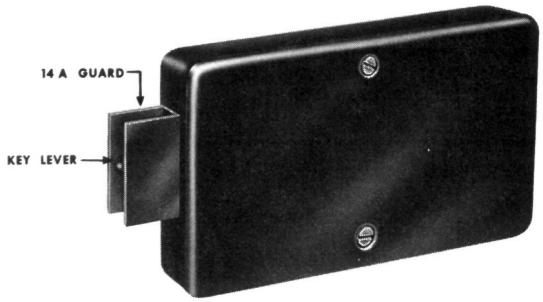

Fig. 7 — 6017AP Key

Switched Network

Private Line

Private Line

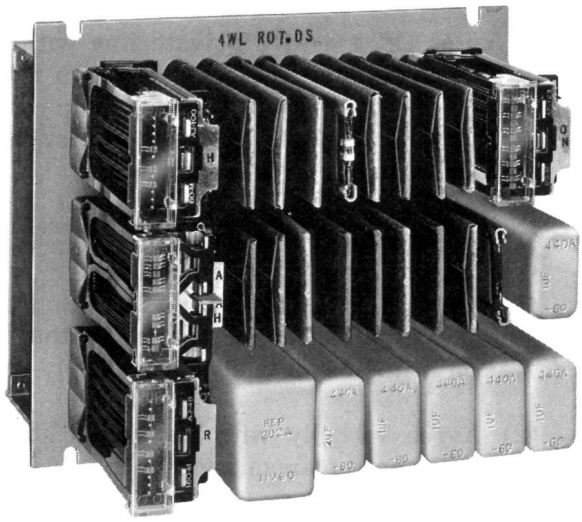

Fig. 8 — 243A KTU

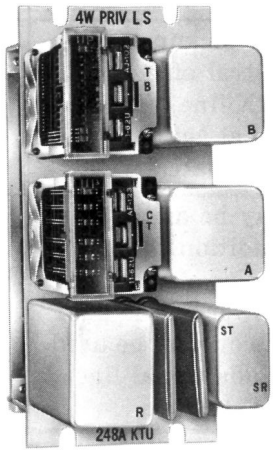

Fig. 9 — 248A KTU

set. This tone indicates that the called station is ready to receive data. The tone may be delayed up to 7 seconds after the ringing trips.

(3) Depress DATA button until DATA lamp lights. The data line will be transferred from the telephone circuit to the data set. (DATA lamp on indicates that the set is in the data mode.) TALK button will release and the handset may be replaced on its mounting.

Remote Control Common and Remote Release leads must be connected together in customer's equipment or data set will not lock in data mode.

(4) At the end of data transmission, the line may be released either through business machine action or by lifting the handset, depressing TALK button, and hanging up.

3.08 *Receiving a Data Call*

Attended Operation

(1) Calls are answered on the data line in the usual manner using TALK button.

(2) Agree verbally with the calling station to begin data transmission. Momentarily depress DATA button. The data line will be transferred to the data set. DATA lamp will light indicating that the set is in data mode. TALK button will release and the handset may be replaced on its mounting.

REMOTE CONTROL COMMON and REMOTE RELEASE leads must be connected together in the customer's equipment or the data set will not lock in the data mode.

(3) At the end of data transmission, the line will be released either through business machine action or by lifting the handset, depressing TALK button, and hanging up. A momentary open or reversal of the line also will release the line.

Unattended Operation

(1) The data set may be arranged to permit unattended answer under control of both the AUTO ANS button of the telephone set and the business machine (V or Z wiring) or under complete control of the business machine (Y or X wiring).

(2) When an incoming call is received, the R relay in the data set will follow the ring cycles and furnish a contact closure on RING INDICATOR 1 and RING INDICATOR 2 leads to the business machine on each application of ringing current. These contact closures may be used by the business machine to time the number of ring cycles or to condition itself to a ready condition before closing the READY lead to provide automatic answer. To permit automatic answer, both READY lead and REMOTE CONTROL COMMON lead must be connected to the REMOTE RELEASE lead. These connections are a part of the business machine operation.

(3) When the business machine connections are complete, ringing will be tripped and a holding bridge connected to the line. TEST lamp lights momentarily. After a delay of 2 to 7 seconds, the data set transmits a 1- to 3-second answer-back tone (1200 cps) to the calling party. This tone indicates that the equipment is ready to receive data. DATA lamp at receive station lights to indicate that the set is in data mode.

3.09 Release of the line may be controlled automatically by the business machine. A momentary open or reversal of the line will also release the line.

3.10 Use of the telephone set for signaling or talking on lines connected to spare buttons has no effect on data transmission or reception.