DATA SET 202G
TRANSMITTER
DESCRIPTION AND OPERATION

1. GENERAL

1.01 This section contains information concerning the description, installation, operation, and testing of Data Set 202G. Information concerning the associated business machine is not included.

1.02 Data Set 202G is a portable FM transmitter used for DATAPHONE® service. This set accepts serial digital data in the form of positive and negative voltages, and converts this data to a frequency-modulated tone. The tone is acoustically coupled through the handset of a telephone to the telephone line.

1.03 An input voltage of +3 to +25 volts causes the Data Set 202G to produce a 2100-Hz tone (space). A −3 to −25 volt input will produce a 1300-Hz tone (mark). Data Set 202G conforms to requirements in EIA Standard RS-232-B.

1.04 Data Set 202G produces an output signal level and frequency which is compatible with standard Data Set 202-type receivers at speeds up to 1200 bits per second (bps).

2. DESCRIPTION

2.01 Data Set 202G (Fig. 1) is 12-3/4 inches long, 8-1/2 inches wide, and 4 inches deep. It is housed in a 2-tone gray plastic carrying case and weighs approximately 5 pounds with the power cord and transformer in place. This set is designed to operate in a temperature range of 0 to +125°F.

2.02 At the front of the set, the two sliding latch retainers are squeezed together to permit the cover to release and open. The top of the case opens to provide access to the receiver and transmitter platform and to the operating and testing controls. At the rear of the data set is the interface connector (J1) which is protected by a hinged cover. Refer to Table A for a description of leads at the interface connector J1.

Fig. 1—Data Set 202G

TABLE A

INTERFACE LEAD DESIGNATIONS

J1 PIN	DESIG-NATION	DESCRIPTION
2	BA1	Transmitted Data
7	AB	Signal Ground
12	SB	Supervisory Received Data
10	+V	+6 Volts for Test
9	−V	−6 Volts for Test

2.03 Power for Data Set 202G is obtained from any 117 (±10) volt ac source at 60 (±5) Hz. This voltage is reduced to approximately 25 volts by the transformer associated with the power cord. This reduced voltage is used by the power supply in the data set. The power switch for the data set is mounted under the pivoted receiver platform. When a telephone handset is positioned in the data set, the weight of the handset will close the power switch and put the data set into operation.

2.04 The pushbutton switches on Data Set 202G are used for testing the data set. These switches are labeled TEST 1, TEST 2, RC ON, and RC OFF. Refer to Table B for an explanation of the functions of these switches.

TABLE B

SWITCH FUNCTIONS

SWITCH	DESCRIPTION
TEST 1	Transmits mark frequency, 1300 Hz
TEST 2	Transmits space frequency, 2100 Hz
RC ON	Enables reverse channel function (locking key)
RC OFF	Disables reverse channel function (locking key)

2.05 Figure 2 illustrates a transmitting station arrangement utilizing the Data Set 202G. The business machine provides a voltage input to the data set through interface connector J1. Within the data set, the transmitter converts these signals to audible mark and space tones. These signals are acoustically coupled to the handset of a 300-type, 500-type, or TRIMLINE® telephone set. A Data Set 202-type receiver at the other end of the telephone line can reconstruct the received signal to a replica of the original serial digital data.

2.06 The reverse-channel receiving function provided by Data Set 202G enables the remote receiving terminal to signal the transmitting station attendant. When the reverse channel signal is interrupted, the test lamp will light and a negative voltage indication will appear on the Supervisory Received Data (SB) lead. The reverse-channel can be used for coordination purposes between the receiving station and the transmitting station. A degree of circuit assurance is also provided, since an interruption in the telephone circuit will cause an interruption in the reverse channel signal.

It is not unusual for the alarm lamp to flicker, or for the output voltage to vary instead of giving a steady indication when the reverse channel signal is interrupted. This is still a valid indication, because the flickering may be caused by some acoustic room noise or combinations of data which will produce noise in the reverse-channel receiver.

3. INSTALLATION

3.01 Data Set 202G must be located within range of the interface connector cord attached to the business machine, and must be within convenient range of a standard telephone set. There must also be a source of 117-volt ac power available within 10 feet of the data set.

The data set should not be placed in an environment with a high ambient noise level. The noise or vibration could be picked up through the acoustic coupling and cause erroneous data transmission. Noise and vibration may also inhibit the reverse-channel signal and cause false indications.

3.02 Connect the power cord to a 117-volt ac power source. Connect the customer-provided business machine cord to the data set interface jack. Data Set 202G is acoustically coupled to the telephone line by the use of a standard 300-type, 500-type, or TRIMLINE telephone handset.

4. OPERATION

4.01 Data Set 202G is a portable set; therefore, the operator must first install the set as instructed in Part 3.

4.02 To couple the data set to the telephone line, dial the remote station and verbally agree to begin transmission. After the remote station has entered the data mode and a 2025-Hz tone has

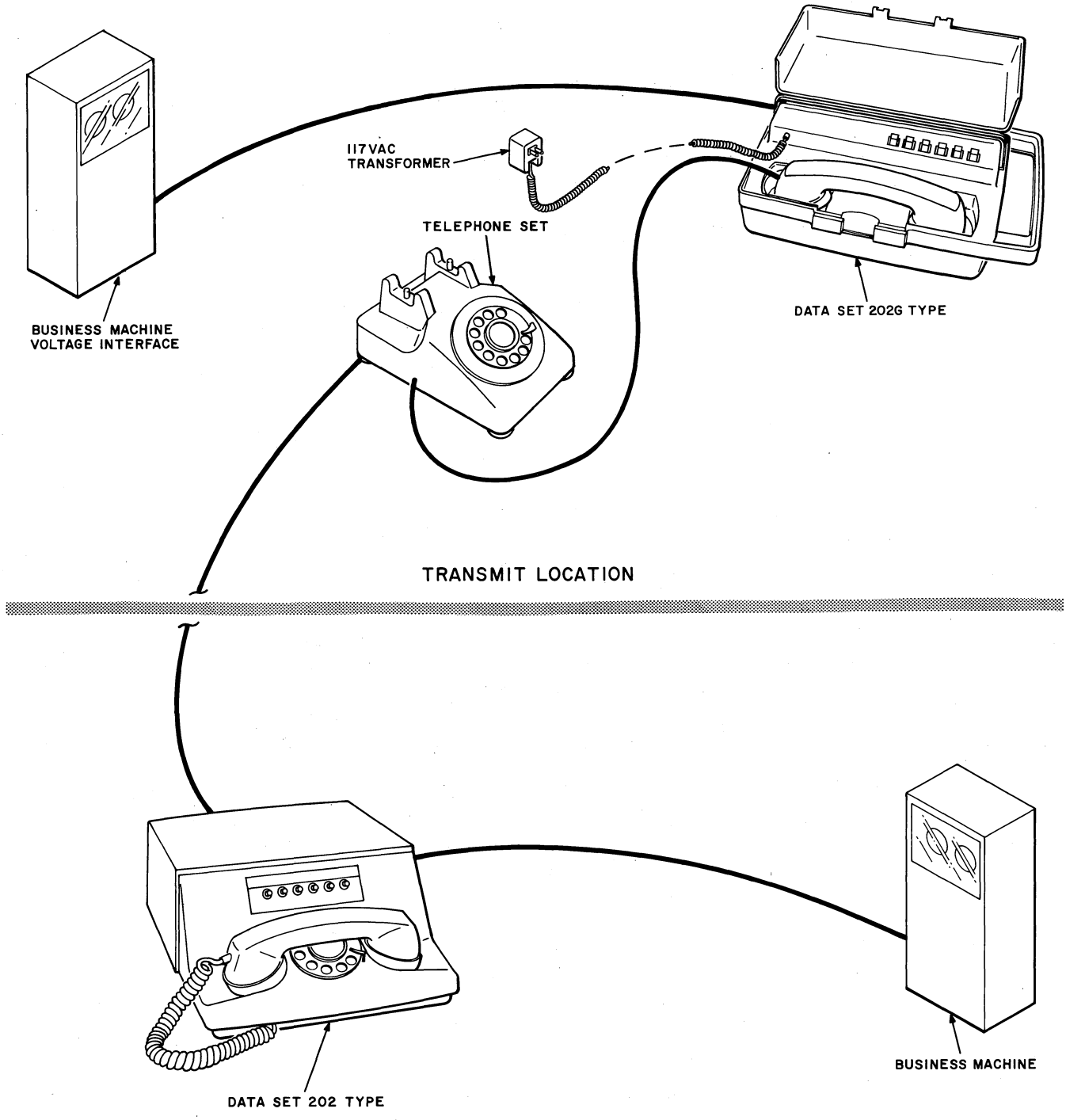

Fig. 2—Typical Data System Utilizing Data Set 202G

been received, place the telephone handset onto the data set pivoting platforms with the handset cord in its provided slot. This will automatically turn the data set on.

Note: Occasionally the carbon in the telephone handset "packs" with a resulting drop in the output level. If this is detected, it is necessary to "unpack" the carbon granules by rotating the telephone handset through several complete revolutions.

4.03 During operation, tighten the strap to hold the handset in place. Close the cover to improve the acoustic isolation required for transmission of data.

Care must be taken when positioning the handset cord in the provided slot, since it may be damaged by pinching when the cover is closed.

4.04 The receiving station attendant may contact the transmitting station attendant by going into the talk mode. This will cause the test lamp to light and the negative voltage to appear on the SB lead.

4.05 The data set is automatically turned off when the telephone handset is removed from the data set, thus opening the power switch.

5. TESTING

5.01 The following tests can be used for clearing routine trouble conditions. Part of the testing will be accomplished from the data test center (DTC). Test instructions will be provided by the data test center when required.

5.02 Dial the DTC and request a loop-back test for a Data Set 202G. The DTC will request the data set attendant to wait until a tone is heard in the handset, then depress the RC ON button and place the telephone handset into the data set. The test lamp should light. When the test lamp extinguishes, the data set attendant must ***immediately*** remove the handset from the data set and inform the DTC of his observations.

5.03 To test the space and mark tones, the DTC will request the data set attendant to depress the TEST 2 button when a tone is heard in the handset and to place the handset into the data set. When the test lamp lights, the data set attendant must pick up the telephone handset and receive further instructions from the DTC. The DTC will then request the data set attendant to depress the TEST 1 button when a tone is heard in the handset and to place the handset into the data set. When the test lamp lights, the data set attendant must pick up the handset. The DTC will then give the data set attendant the results of the test.

6. REFERENCES

6.01 For further information concerning Data Set 202G, refer to CD- and SD-1D083-01. The data test center procedure for the remote test is detailed in Section 668-102-515 entitled Data Test Center—904A- and 904C-Type, Test Procedure—Data Set 202G, Loop-Back Test.