

## DATA SET 604B-TYPE REFERENCE GUIDE



**Data Set 604B2**

### 1. GENERAL

**1.01** Data Set 604B-type is an integrated frequency-multiplexed FM analog receiver used for receiving data over the switched network or private line facilities. The receiver will accept three simultaneous signals transmitted from a Data Set 604A-type.

**1.02** This section is reissued to add new coding information and incorporate changes to Tables A, B, and C. Since this reissue constitutes a general revision, arrows ordinarily used to show changes have been omitted.

**1.03** Data Sets 604B1 and 604B2 Series 2 identify the later models of Data Set 604B1 and 604B2. The Series 2 data sets are identical to

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the Series 1 data sets, with the exception that the later models contain the newer 48B power unit and the 3A2 data unit. The 3A2 data unit provides the capability for working with ESS offices and Unigauge lines.

**1.04** The Series 2 models of Data Set 604B-type also have a reduced output level for reverse-channel operation as indicated in Table C.

**1.05** The receiver produces three individual outputs for application to the business machine. These outputs have voltage limits of  $\pm 2.5$  volts peak and frequencies ranging from dc to 105 Hz.

**1.06** The data set can also provide the following features when required and when so arranged:

- Manually (pushbutton) or remotely (interface lead) signal the transmitter while in data mode
- Provide normal voice communications when not receiving data
- Provide a means of testing each of the three channels
- Automatically answer and receive data without an attendant being present.

### 2. PHYSICAL AND ELECTRICAL CHARACTERISTICS

**2.01** Data Set 604B-type is 11 inches wide, 5-5/8 inches high, and 14-1/2 inches deep; it weighs approximately 18 pounds, and has a 2-tone gray finish.

**2.02** The data sets require customer-provided 117-volt 60-Hz commercial power supplied through a 3-wire grounded receptacle.

**2.03** Connections to the business machine are made through a customer-supplied interface connector cord to interface connector J1 on the back of the data set.

### 3. OPERATION

**3.01** Operation of Data Set 604B-type is controlled by means of a 6-button key on the front of the data set and by the data terminal ready (DTR) and automatic answer (AA) interface leads.

**3.02** To initiate a call to the transmitter, the attendant lifts the handset from the cradle of the receiver and depresses the TALK key. With TALK pushbutton locked in TALK position, attendant then dials the telephone number of the transmitter.

**3.03** After receiver and transmitter attendants agree to go to data mode, the receiver *must* be switched first, to assure echo suppressor disabling. The transmitting station must wait for the 2025-Hz signal from the receiver before switching to data mode. The receiver attendant depresses the DATA key, which releases the TALK key and causes the DATA lamp to light dimly. (The DATA key does not lock in the depressed position).

*Note:* The transmitter may be switched first if the receiver location room noise is low or can be reduced during the transmitter quiet interval. If no echo suppressors are in the line (short haul) the two stations may go to data mode without restriction.

After about 4 seconds delay, the DATA lamp will light brightly, indicating that the receiver is ready to receive data. The data set ready (DSR) interface output lead also is grounded at this time.

**3.04** If the transmitter is arranged for automatic answer, the receiver attendant places the call as in 3.02. After the receiver attendant hears the transmitter ringing sound, followed by a pause, then a 2025-Hz tone, the attendant depresses the DATA key. (The 2025-Hz tone indicates that the transmitter is ready to transmit data.) Upon release of the DATA key, the DATA lamp will light dimly and after about 4 seconds delay will light brightly, indicating that the receiver is ready to receive data. Attendant then returns handset to cradle.

*Note:* If the receiver is operating over a line equipped with echo suppressors, the procedure in this paragraph should not be used. In this case, it is recommended that the receiver be placed in the data mode before the transmitter. However, the transmitter may be switched first if the room noise is low or can be reduced during the transmitter quiet interval.

**3.05** After completion of data transmission, the transmitting and receiving station attendants each may lift the handset off the cradle, depress the TALK key, then replace the handset on the

cradle. An alternate method for both stations to hang up is by remote release through the interface; ie, removing ground from the DTR interface input. The receiver will automatically return to on-hook (idle) condition and the DATA lamp will extinguish if central office battery is lost (not to be relied upon for disconnect), or if the business machine opens the grounded contact closure to the 604B via DTR interface lead (the normal method for hanging up automatically).

#### 4. SERVICE ORDER INFORMATION

**4.01** Service orders for data services should describe the desired service by USOC. The encoding procedure to determine the appropriate USOC is described in Section 590-000-100. Customer option decisions which must be made to determine the USOC are listed in 4.04. An explanation of features and options common to most data sets is given in Section 590-000-101. A rapid cross-reference

between USOC, data sets, and reference guides is presented in Section 590-000-102. Intercity Service Manual (ISM) Section 87 gives customer billing nomenclature, shows tariff listings for data services, and provides general reference information.

**4.02** Service orders should not specify data set codes. USOC decoding procedures are described in Section 590-000-100. Engineering or Plant Department personnel responsible for selecting data sets are not compelled to use any particular data set code specified or suggested on the service order. To achieve maximum reuse of data set apparatus, the oldest apparatus that will perform the service as described by the USOC should be utilized first. When the current data set model is not available from telephone company stocks (field or class C), the use of an available substitute is preferred over the purchase of a new current model.

**4.03** Service offerings and substitute data sets are outlined in Table A. Customer options are given in Table B.

**TABLE A**  
**SERVICE OFFERINGS – CURRENT AND SUBSTITUTE MODELS**

| USOC | FEATURE  | MODEL                                  | REMARKS  |
|------|--|--|--|
| D6C  | Rotary dial 3-channel analog receiver with reverse channel     | 604B1 (Standard)                       |  |
| D6D  | TOUCH-TONE dial 3-channel analog receiver with reverse channel | 604B2 (Standard)<br>604B1 (Substitute) | Suitable only for use if necessary to meet service date or restore service |

**TABLE B**  
**CUSTOMER OPTION DECISION TABLE**

| DECISION | OPTION   | USOC SUFFIX |
|----------|--|-------------|
| A        | 1. Signal ground connected to frame ground     | 01*         |
|          | 2. Signal ground not connected to frame ground | 02          |

\*Factory wired.

**4.04** The following paragraphs provide detailed information on customer options for USOC determination.

(a) ***Decision A—Signal and Frame Grounds Connected or Not Connected Together:***

(1) ***1. Signal Ground Connected to Frame Ground:*** This option is normally used.

(2) ***2. Signal Ground Not Connected to Frame Ground:*** This option may be used to reduce ground noise due to ground loops. However, this option should not be used if the receiver is subject to lightning hits.

**4.05** Telephone company engineering options are listed in Table C.

**TABLE C**  
**TELCO ENGINEERING OPTIONS**

| OPTION  | DESIGNATION        | ITEM† |
|---|--------------------|-------|
| Termination:<br>600 ohms<br>900 ohms                            | N<br>Q*            | C-1   |
| Reverse-channel level:<br>-3 dBm<br>-6 dBm<br>-9 dBm<br>-12 dBm | S<br>T*<br>V<br>R‡ | C-3   |

\*Factory wired.

†Refers to descriptive information contained in Section 590-000-101.

‡Data sets identified as Series 1 models have an option level of 0 dBm when option R is designated.

**5. REFERENCES**

**5.01** The following references provide additional information on Data Set 604B-type.

- (a) BSPs 596-018-100, -200, -300, -500
- (b) EL 188
- (c) SD- and CD-1D101-01
- (d) Data Sets 604A and B—Special—Interface Specification.