

DATA SET 113A-TYPE REFERENCE GUIDE



Fig. 1—Data Set 113A-L1



Fig. 2—Data Set 113A-L1A

1. GENERAL

1.01 Data set 113A-type is a low-speed (up to 300 baud), originate-only, full-duplex (FDX), frequency-shift-keying, serial data set. It is designed for use with Bell System- or customer-provided data terminals, as an originate-only station, to provide DATA-PHONE® service over the switched telephone network.

1.02 This section is reissued to rearrange the customer option information into a more usable format. Information which was previously contained in Table B has been incorporated into Table A.

1.03 The data set interface circuitry is similar to that required in the Electronics Industries Association (EIA) Standard RS-232-C. Deviations from EIA Standard RS-232-C exist because the data set is line-powered and should not affect normal operation. Data set 113A-type will still interface with most business machines conforming to EIA Standard RS-232-C.

1.04 Data set 113A-type is available with four different list numbers as follows:

(a) **Data Set 113A-L1 (Fig. 1):** Consists of a handset, rotary dial telephone apparatus unit, control keys, and an ER1 circuit pack which contains the necessary electronic circuitry to transmit and receive data. Options are not available with this data set.

(b) **Data Set 113A-L1/A (Fig. 2):** Contains the same equipment as data set 113A-L1 with one exception. The rotary dial telephone apparatus unit is replaced with a TOUCH-TONE® dial telephone apparatus unit. Options are not available with this data set.

(c) **Data Set 113A-L1/2:** Consists of the same equipment as data set 113A-L1 with the following additions: a lamp strip added to the key strip equipped with one lamp, an external transformer, and an HH1 circuit pack which

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contains the electronic circuitry necessary for the optional data-terminal-ready (CD) lead control and for the optional data lamp. See 4.03 for option information.

(d) **Data Set 113A-L1A/2:** Contains the same equipment as data set 113A-L1A with the following additions: a lamp strip added to the key strip equipped with one lamp, an external transformer, and an HH1 circuit pack which contains the electronic circuitry necessary for the optional data-terminal-ready (CD) lead control and for the optional data lamp. See 4.03 for option information.

1.05 Remote test capability is provided, permitting the data set to be tested from a data test center (DTC).

2. PHYSICAL AND ELECTRICAL CHARACTERISTICS

A. Data Sets 113A-L1 and 113A-L1A

2.01 These data sets are 3-3/4 inches high, 8-3/4 inches wide, 11-1/2 inches deep, and weigh 8 pounds. The plastic housing is 2-tone gray in color.

2.02 The power required to operate these data sets is obtained from the telephone line.

B. Data Sets 113A-L1/2 and 113A-L1A/2

2.03 The dimensions and the plastic housing of these data sets are the same as those described in 2.01; however, they weigh approximately one-half pound more.

2.04 When data sets 113A-L1/2 and 113A-L1A/2 function with either data lamp or CD lead control, their power is obtained from both the telephone line and an externally mounted power transformer. The externally mounted power transformer must be plugged into a standard ac outlet. When neither feature is required, the power is obtained only from the telephone line.

3. OPERATION

A. General

3.01 Data set 113A-type always operates in the originate mode; therefore, it always transmits frequencies in the f_1 band and receives frequencies

in the f_2 band. Normal frequencies for the f_1 band are 1270 Hz for a mark and 1070 Hz for a space. Normal frequencies for the f_2 band are 2225 Hz for a mark and 2025 Hz for a space.

B. Call Origination

3.02 To originate a call, the attendant must lift the handset from the switchhook and operate the TALK/CLEAR key. When dial tone is received, the attendant dials the number of the station being called.

3.03 If the attendant at the answering station manually answers the call, the attendant should operate the DATA key, initiating the handshaking sequence by transmitting an f_2 mark answer tone back to data set 113A-type.

3.04 If the data set at the answering station automatically answers the call, it will initiate the handshaking sequence by transmitting an f_2 mark answer tone back to data set 113A-type.

Note: If the 113A-type data set is a 113A-L1/2 or 113A-L1A/2 equipped with option X, the customer business machine **must** turn on the CD lead before the data set can be placed in the data mode.

3.05 In either case, the f_2 mark answer tone is sent first to disable any echo suppressors that may be present on the transmission facilities over which the call is routed.

3.06 When the f_2 mark answer tone is heard at the 113A-type data set, the attendant must momentarily operate the DATA button and then replace the handset on the switchhook. This must be done within 4 seconds after receiving the f_2 mark answer tone to assure that the abort timer of the answering station will not automatically disconnect the call. In addition, at least 0.3 second is required between releasing the DATA button and placing the handset on-hook to allow start-up transients to subside.

3.07 After the DATA button is operated and the handset is on-hook, an f_1 mark tone is transmitted back to the answering station. The answering station receives the f_1 mark tone and signals its business machine via the EIA interface that the data connection has been completed. Data transmission can now begin.

Data Mode to Talk Mode Transfer

3.08 If it has been mutually agreed to go to the talk mode, the attendant at the data set 113A-type should wait for the answering station to switch to the talk mode. The data set 113A-type attendant then removes the handset from the switchhook before operating the TALK/CLEAR button. Failure to pick up the handset prior to operating the TALK/CLEAR button will result in disconnecting the data set from the telephone line.

Disconnect

3.09 The data set is returned to the idle on-hook condition from the data mode by operating the TALK/CLEAR button or, if option X is provided, by turning off the CD interface lead. When in the test mode, the data set can be returned to the idle on-hook condition only by operating the TALK/CLEAR button.

Test Mode

3.10 Data set 113A-type should only be placed in the test mode when a data test center (DTC) has called and requested a remote test.

3.11 When instructed by the DTC to enter the test mode:

- (1) Await an f_2 mark answer tone.
- (2) Momentarily operate the DATA button.

Note: Data lamp lights on data sets 113A-L1/2 and 113A-L1A/2 equipped with option V or X

- (3) Operate the TEST button.
- (4) Replace the handset on-hook.

3.12 After a prearranged length of time, place the handset off-hook and operate the TALK/CLEAR button. Failure to go off-hook before operating the TALK/CLEAR button will result in a disconnect. After receiving the results of the test, replace the handset on-hook to disconnect the call.

4. SERVICE ORDER INFORMATION

4.01 Service orders for data services should describe the desired service by the Uniform

Service Order Code (USOC). Service orders *should not* specify data set codes. The *encoding* procedure to determine the appropriate USOC is described in Section 590-000-100. 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 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 codes specified or suggested on the service order. To achieve maximum reuse of data set apparatus, the oldest unit that will perform the service as described by USOC should be utilized first. The use of an available substitute from telephone company stocks (field or Class C) is strongly preferred over the purchase of a new unit.

4.03 Service offerings and customer options are outlined in Table A. The following information pertains to customer options listed in Table A.

- **Option V:** When the data set is equipped with this option, the data lamp will light when the data set enters the data or test mode and will extinguish when the data set goes on-hook or reverts to the talk mode.
- **Option W:** When the data set is equipped with this option, both options V and X are disabled.
- **Option X:** When the data set is equipped with this option, it cannot be placed in the data mode unless the business machine turns on its CD lead. Once in the data mode, the call will be disconnected if the business machine turns off the CD lead or if the data set loses power.

4.04 Telco Options: The only Telco option is the transmit level. For descriptive information pertaining to this option, see Item C2 of Section 590-000-101. Information pertaining to setting the transmit power level is provided in Section 591-033-200.

◆ TABLE A ◆
SERVICE OFFERINGS

USOC	FEATURE	DATA SET	PROVIDE CUSTOMER OPTION
DBZ00	Rotary Dial	113A-L1 113A-L1/2	None W
DBY00	TOUCH-TONE Dial	113A-L1A 113A-L1A/2	None W
DBP01	Rotary Dial Data-Terminal-Ready (CD) Lead Control Data Lamp	113A-L1/2	X
DBP02	Rotary Dial Data Lamp	113A-L1/2	V
DBQ01	TOUCH-TONE Dial Data-Terminal-Ready (CD) Lead Control Data Lamp	113A-L1A/2	X
DBQ02	TOUCH-TONE Dial Data Lamp	113A-L1A/2	V

5. SUBSTITUTION, CONVERSION, AND DISPOSITION INFORMATION

5.01 Data sets listed in Table A may be substituted to supply the services previously described in this section.

5.02 Series change information and disposition and conversion information are found in Tables B and C, respectively.

6. REFERENCES

6.01 The following references provide additional information on data set 113A-type:

- (a) 591-033-Series Bell System Practices
- (b) CD- and SD-1D267-01

TABLE B
SERIES CHANGE INFORMATION

DATA SET	*SERIES	PURPOSE
113A-L1 113A-L1A	1	Apparatus Code
113A-L1 113A-L1A	2	Added Spacer Bracket
113A-L1 113A-L1A	3	Changed Filter Bracket; Added capabilities of upgrading to a 113A-L1/2 or 113A-L1A/2
113A-L1/2 113A-L1A/2	3	Added CD Lead Control Option; Added Data Lamp Option

* Stenciled on bottom of data set.

◆TABLE C◆
DISPOSITION AND CONVERSION INFORMATION

DATA SET	MFG STATUS	REPLACED BY	CONVERTIBLE TO	RECOMMENDATIONS
113A-L1 (A), Series 1 and 2	MD	113A-L1 (A), Series 3	*L1/2	Use for DBZ00 or DBY00 service, or return to factory for conversion to L1 (A)/2 or junk.†
113A-L1 (A), Series 3	Std	—	L1/2	Use for DBZ00 or DBY00 service, or convert to L1 (A)/2
113A-L1 (A)/2, Series 3	Std	—	—	—

*Factory Modification

†Return to Western Electric Company, Inc. for best salvage allowance.