113-TYPE DATA STATION

REFERENCE GUIDE

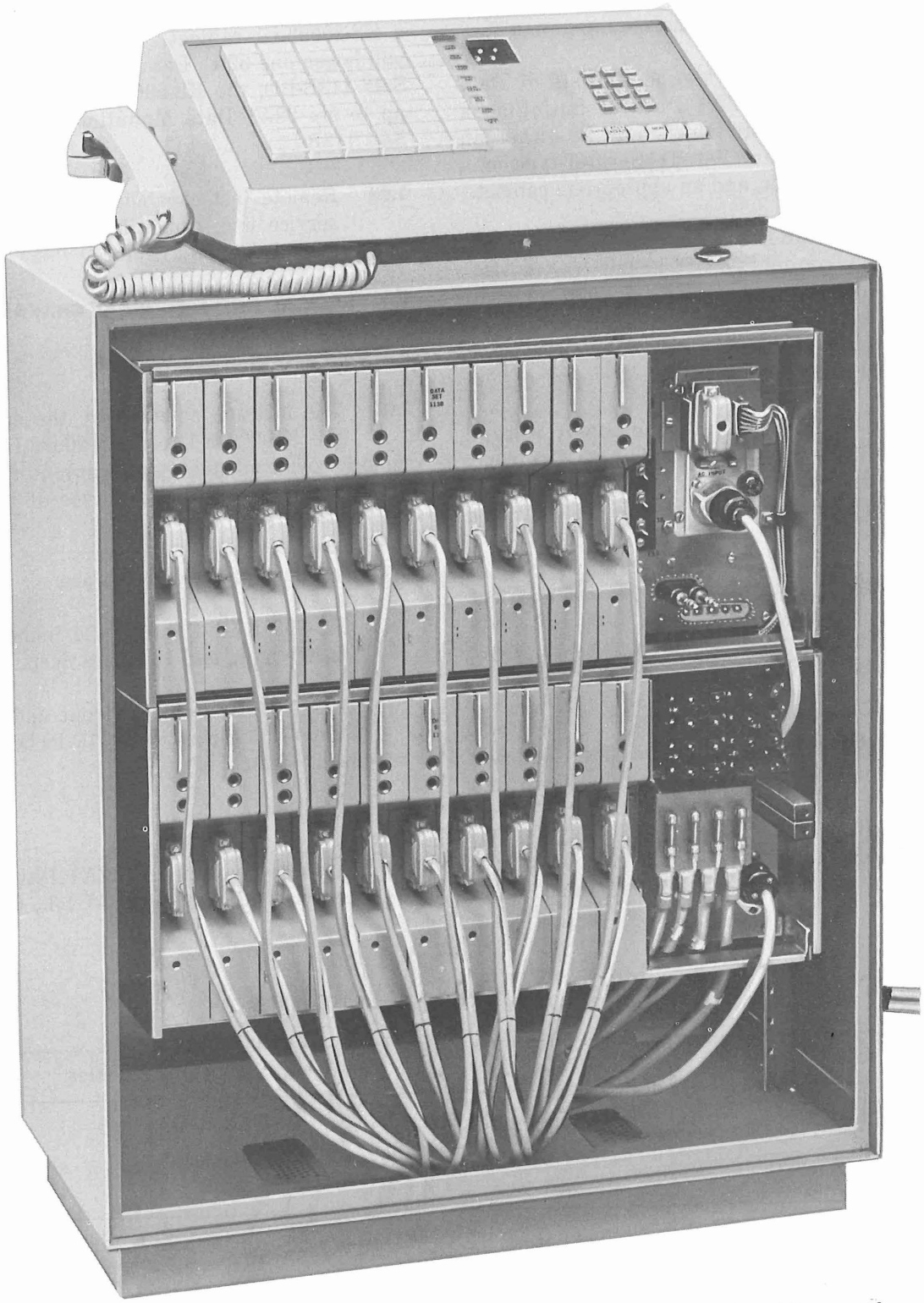

Fig. 1—113-Type Data Station Mounted in a KS-20018-L4 Cabinet—Panel Removed

1. GENERAL

1.01 The purpose of the 113-type data station is to provide a multiple data set arrangement for answer-only service that will be centrally located near customer-provided terminals.

1.02 The 113-type data station consists of Data Sets 113B-L1, 32A1 Data Mounting(s), a telephone arrangement which may be either an optional Data Auxiliary Set (DAS) 804T-type or a 500-type telephone set, and an appropriate cabinet.

1.03 Data Set 113B-L1 is a low speed, asynchronous, serial, frequency-shift keyed transmitter-receiver which operates in the answer-mode at speeds up to 300 bauds over voiceband facilities. It is for use in 2-wire DATA-PHONE® service over switched telephone networks.

1.04 Data Set 113B-L1 uses unipoplar voltage interface signals conforming to Electronic Industries Association (EIA) Standard RS-232-B and -C. These bipolar voltage signals are converted to voice-frequency tones for transmission.

1.05 The 32A1 Data Mounting provides power and mounting space for up to 20 Data Sets 113B-L1. It also provides connections and power for the optional DAS 804T-type or 500-type telephone set.

1.06 The DAS 804T-type, which provides monitoring and control functions for up to 60 Data Sets 113B-L1, can be obtained as a surface mounted unit (Fig. 1) or as a flush mounted unit to be located in a customer console. In either case the desired color must be specified. See Table A for the surface mounting color schemes and Table B for the flush mounting equipment and color schemes.

1.07 The 113-type data station will normally be installed in either a KS-20018-L4 cabinet or a KS-20093-L1 cabinet. The KS-20018-L4 cabinet will house one 32A1 Data Mounting (up to 20 Data Sets 113B-L1); the KS-20093-L1 cabinet will house up to six 32A1 Data Mountings (up to 120 Data Sets 113B-L1).

1.08 Remote test capability is provided over the service line, permitting the data sets to be tested from a data test center.

2. PHYSICAL AND ELECTRICAL CHARACTERISTICS

A. Cabinets

2.01 The location selected by the customer for the KS-20018-L4 or KS-20093-L1 cabinet(s) should provide adequate space around the cabinet(s) for disassembly and maintenance of the 113-type data station.

The dimensions of the cabinets are:

(a) KS-20018-L4 Cabinet—24 inches wide, 30 inches high, and 12 inches deep

(b) KS-20093-L1 Cabinet (front and rear doors open)—55 inches wide, 75 inches high, and 55 inches deep.

B. 32A1 Data Mounting

2.02 Each fully equipped 32A1 Data Mounting requires 125 watts of 117-volt, 60-Hz power

TABLE A

SURFACE MOUNTING COLOR SCHEMES

PART	ORDER NO.	GREEN	WHITE	BEIGE	GRAY
Surface Mounting Housing	ED-1E023-50 GR-____*	1	2	3	4

* Insert the number for the correct color in the space provided.

TABLE B

FLUSH MOUNTING EQUIPMENT AND COLOR SCHEMES

PART	ORDER NO.	COLOR			
		GREEN	WHITE	BEIGE	GRAY
FACEPLATE Rotary Dial	49__-__*	A1-71	B1-73	C1-75	D1-85
TOUCH-TONE Dial	254__-__*	A1-71	B1-73	C1-75	D1-85
FLUSH MOUNTING FRAME	P-49M91_*	6	7	8	9
HANDSET	G5KR-__*	51	58	60	61
HANDSET MOUNTING	G8-__*	51	58	60	61
BRACKETS (one each)	P-49M641 P-49M642				
SCREWS (8 required)	P-247227				

* Insert the number(s) for the correct color in the space provided.

which must be supplied by the customer through a 3-wire grounded receptacle. The data mounting is approximately 20 inches high, 23 or 25 inches wide, 11 inches deep, and without data sets, weighs 50 pounds.

2.03 The 32A1 Data Mounting contains a service line on a cord reel, mounting space, and fusing for 20 Data Sets 113B-L1. It also contains a TALK-CLEAR/DATA key for control of the voice/data feature on the service line from the 32A1 Data Mounting.

C. Data Set 113B-L1

2.04 Data Set 113B-L1 measures 9-1/3 inches high, 1-1/2 inches wide, 9-3/4 inches deep, and weighs 2-1/4 pounds. It is powered by the 32A1 Data Mounting.

2.05 Mounted on the faceplate of the data set is the service line twin jack and the EIA interface connector. When the data set is transferred to the service line the voice/data feature of the data station is provided to facilitate testing.

2.06 The business machine is connected to each data set by means of a 25-conductor cord and plug provided by the customer. These cords should not exceed the EIA limitation of 50 feet in length.

D. DAS 804T-Type

2.07 The DAS 804T-type is approximately 7 inches high, 20 inches wide, 12 inches deep, and weighs 20 pounds. It is powered by the 32A1 Data Mounting.

2.08 From two to six keys, consisting of ten buttons each, make up the status field. The status field is used to monitor up to 60 Data Sets 113B-L1.

2.09 The key located beneath the dial contains six buttons of which three are used to control the TALK-CLEAR, DATA, and MON (Monitor) functions of the DAS 804T-type. This is designated as the control field.

2.10 The DATA SET SELECTOR switch is used to select the interface leads of a particular data set. When used in conjunction with the MON button in the control field, the condition of the interface leads of the selected data set will be displayed by the INTERFACE MONITOR lamps.

3. OPERATION

A. General

3.01 Data Set 113B-L1 always operates in the answer-mode, therefore it always receives frequencies in the f_1 band and transmits 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. Normal Operation

3.02 During normal operation, the incoming ringing voltage will cause the data set to answer automatically and initiate the handshake sequence by sending an f_2 mark tone to the originating station. If the f_1 mark tone is not received from the originating station within approximately 22 seconds, the data set will disconnect and return to the on-hook condition. No actions are necessary by an attendant during normal operation.

C. Attended Station Operation

Answering a Call on the Service Line

3.03 An incoming call to the service line may be answered by lifting the handset and then operating the TALK-CLEAR button.

> ***Note:*** The TALK-CLEAR/DATA key on the 32A1 Data Mounting should be placed in the TALK-CLEAR position at data stations utilizing a 500DR or 2500D telephone set to inhibit the automatic answer feature.

Originating a Call on the Service Line

3.04 To originate a call, lift the handset and operate the TALK-CLEAR button. When dial tone is received, dial the number of the station being called, such as a data test center.

Talk Mode to Data Mode Transfer

3.05 Connect the service line twin plug to the twin jack on the data set of interest. Instruct the distant end attendant to listen for tone, and when tone is heard, to enter the DATA mode. At the 32A1 Data Mounting (DAS 804T-type or key telephone set), momentarily operate the TALK-CLEAR/DATA key to DATA and replace handset on switch hook.

> ***Note:*** The DATA button must be operated at the same place that the TALK-CLEAR button was operated (ie, if the TALK-CLEAR button was operated at the DAS 804T-type, the DATA button ***must*** be operated at the same DAS 804T-type, etc).

3.06 The data set is now in the data mode and data may be transmitted and received by either or both stations simultaneously.

Terminating a Data Call on the Service Line

3.07 To terminate a data call, operate the TALK-CLEAR button.

> ***Note:*** The handset should already be on-hook.

Terminating a Voice Call on the Service Line

3.08 To terminate a voice call, operate the TALK-CLEAR button, and place the handset on-hook.

Make-Busy Feature

3.09 To make a data set busy, operate the make-busy button in the status field of the DAS 804T-type associated with the data set of interest.

3.10 To make a data set busy when the 113-type data station is not provided with DAS 804T-type (or it is not convenient to use the DAS 804T-type), insert a 258C plug (provided with the

data station) into the lower receptacle of the data set twin jack.

D. Testing

3.11 To place a data set in the test mode, proceed as follows:

(1) Insert the service line twin plug (grooves up) into the twin jack on the data set of interest.

(2) Replace the business machine interface connector with the test mode (TM) connector.

(3) The data set can automatically answer a call; or upon having established a call in the talk mode the attendant can operate the DATA button.

3.12 To check the interface leads of a data set, set the DATA SET SELECTOR switch on the DAS 804T-type to the number of the data set of interest. Then operate the MON (monitor) button in the control field. The condition of the data set interface leads will be displayed on the INTERFACE MONITOR lamps.

> ***Note:*** A lighted lamp denotes an ON or SPACE condition on the lead. An extinguished lamp denotes an OFF or MARK condition on the lead.

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. Customer option decisions which must be made to determine the USOC suffix 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 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 offering and customer options are outlined in Table C and Table D, respectively. The following information pertains to customer options listed in Table D.

4.04 To provide the feature desired by the customer, one of the two options under each of the following decisions must be selected.

(a) ***Decision A—Common Signal and Frame Grounds or No Common Grounds:***

(1) ***1. Common Signal and Frame Grounds:*** With this customer option, all data set signal grounds (AB) are connected to frame ground (AA).

(2) ***2. No Common Grounds:*** With this customer option, all data set signal grounds are connected together, but are not connected to frame ground.

(b) ***Decision B—Common or Discrete Clear-to-Send (CB) and Data Carrier Detector (CF) Indication:***

(1) ***3. Common Clear-to-Send (CB) and Data Carrier Detector (CF) Indication:*** With this customer option, the clear-to-send (CB) signal will be the same as the Data Carrier Detector (CF) signal.

(2) ***4. Discrete Clear-to-Send (CB) and Data Carrier Detector (CF) Indication:*** With this customer option, the clear-to-send (CB) lead will remain ON in the absence of carrier signal until the data set disconnects.

(c) ***Decision C—Data Terminal Controls Make-Busy Feature or Data Terminal Does Not Control Make-Busy Feature:***

(1) ***5. Data Terminal Controls Make-Busy Feature:*** With this customer option, the

TABLE C

SERVICE OFFERINGS

USOC	FEATURE	CODE
LAA++*	Common Equipment (One 32A1 Data Mounting)	32A1 Data Mounting
LAB++	One Data Set 113B-L1	Data Set 113B-L1
LAD00	One DAS 804T-L1/2. Comes equipped with 20 Make-Busy buttons and rotary dial. For use when surface mounting.	DAS 804T-L1/2
LAE00	One DAS 804T-L1A/3. Comes equipped with 20 Make-Busy buttons and TOUCH-TONE dial. For use when surface mounting.	DAS 804T-L1A/3
LAF00	One DAS 804T-L1. Comes equipped with 20 Make-Busy buttons and rotary dial. One Flush Mounting Frame, one Handset Mounting, Mounting Hardware, and one Faceplate.	DAS 804T-L1 (For Flush Mounting Equipment See Table B)
LAG00	One DAS 804T-L1A. Comes equipped with 20 Make-Busy buttons and TOUCH-TONE dial. One Flush Mounting Frame, one Handset Mounting, Mounting Hardware, and one Faceplate.	DAS 804T-L1A (For Flush Mounting Equipment See Table B)
LAJ00	Two 652D4 keys (20 Make-Busy buttons). Expands DAS 804T-type to handle up to 40 Data Sets 113B-L1.	652D4 Key
LAK00	Two 652D4 keys (20 Make-Busy Buttons) in addition to LAJ00. Expands DAS 804T-type to handle up to 60 Data Sets 113B-L1.	652D4 Key
LAL00	One KS-20018-L4 Cabinet. Mounting space for one data mounting.	KS-20018-L4
LAN00	One KS-20093-L1 Cabinet. Mounting space for up to six data mountings.	KS-20093-L1

*One LAA++ must be ordered for every group of 20 data sets.

data set line can be made busy if either a postive voltage or no signal is presented to the terminal busy (CN) lead.

(2) ***6. Data Terminal Does Not Control Make-Busy Feature:*** With this customer option, the data set line cannot be made busy by means of an interface signal on the CN lead.

(d) ***Decision D—Data Terminal Control of Disconnect Only, or Data Terminal or Carrier Detector Control of Disconnect:***

(1) ***7. Data Terminal Control of Disconnect Only:*** With this customer option, the only way of disconnecting the data set is by turning the data-terminal-ready (CD) signal off.

TABLE D

CUSTOMER OPTION DECISION TABLE

DECISION	OPTION	DESIGNATION
A	1. Common Signal and Frame Grounds 2. No Common Grounds	V w/o V
B	3. Common Clear-to-Send (CB) and Data Carrier Detector (CF) Indication 4. Discrete Clear-to-Send (CB) and Data Carrier Detector (CF) Indication	W w/o W
C	5. Data Terminal Controls Make-Busy Feature 6. Data Terminal Does Not Control Make-Busy Feature	w/o X X
D	7. Data Terminal Control of Disconnect Only 8. Data Terminal or Carrier Detector Control of Disconnect	Z w/o Z

(2) ***8. Data Terminal or Carrier Detector Control of Disconnect:*** With this customer option, the data set will disconnect when the data-terminal-ready (CD) signal is turned OFF or when a loss of carrier has been detected continuously for approximately 200 milliseconds.

4.05 Telephone company engineering options are listed in Table E. The ITEM column provides a reference to descriptive information provided in Section 590-000-101.

4.06 Additional information on TELCo options follows:

(a) ***32A1 Data Mounting Equipped With Less Than 10 Data Set:*** This TELCo option is to be installed whenever nine or less data sets are present in the 32A1 Data Mounting to provide sufficient load for the 41D power unit.

(b) ***Tip-Ring Make-Busy Implementation:*** This TELCo option provides the make-busy function on each data set by placing 200 ohms

TABLE E

TELCO ENGINEERING OPTIONS

OPTION	DESIGNATION	ITEM*
32A1 Data Mountings Equipped With Less Than 10 Data Sets	U	
32A1 Data Mountings Equipped With 10 or More Data Sets	w/o U	
Tip-Ring Make-Busy Implementation	Y	
Sleeve Lead Make-Busy Implementation	w/o Y	
Transmit Level		C2

*Descriptive information is provided in Section 590-000-001.

between tip and ring of the associated telephone line. Without this option, a third wire sleeve lead for each line ***must*** be brought into the data station, and the data set line is made busy by connecting 200 ohms between this lead and frame ground.

5. SUBSTITUTE DATA STATIONS

5.01 There are no direct substitutes for the 113-type data station. However, an existing 103E-type data station may be modified to provide answer mode service. For reference information on the 103E-type data station arranged for answer mode service, see 6.02.

6. REFERENCES

6.01 The following references provide additional information on the 113-type data station and its component parts:

(a) Sections 590-102-128, 591-034-100, 591-814-Series and 598-076-100

(b) CD- and SD-1D208-01 and CD-and SD-1D210-01.

(c) EL 590.

6.02 The following references provide information on the 103E-type data station arranged for answer mode service:

(a) Section 591-025-Series

(b) EL 1175.