DATA AUXILIARY SET 811K-L1

IDENTIFICATION

1. GENERAL

1.01 This section provides a physical and functional description of the Data Auxiliary Set (DAS) 811K-L1(Fig. 1). In addition, this section provides information on the applications for the DAS 811K-L1. In this section, the DAS 811K-L1 shall be referred to as DAS 811K.

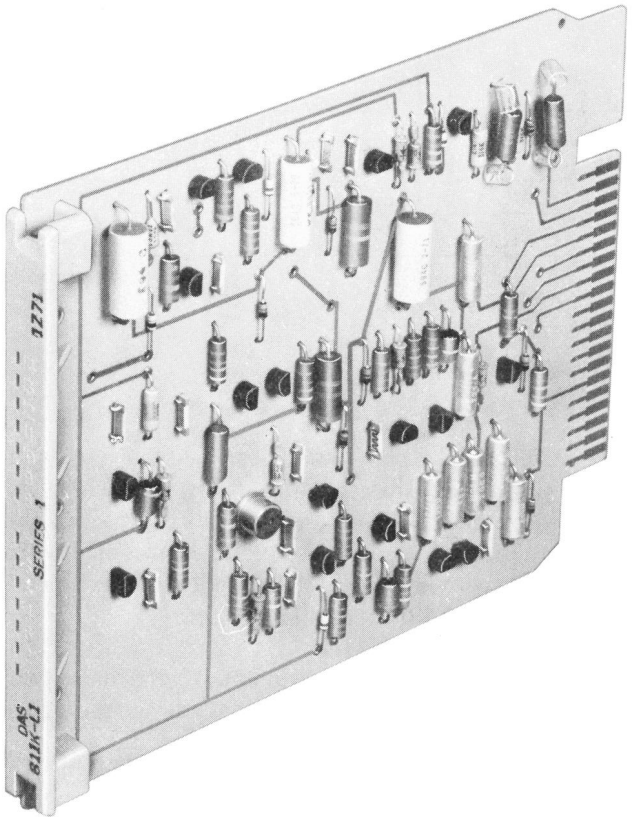

Fig. 1—Data Auxiliary Set 811K

1.02 The DAS 811K is used to interface low-voltage hub Data Sets 108D or 109G to a type 2 hub circuit.

1.03 Data transmission at speeds up to 150 bauds can be provided using the DAS 811K in association with an appropriate data set. Refer to Fig. 2 for a block diagram showing the interconnecting arrangement of the associated data set and data auxiliary sets.

1.04 Data (represented by dc hub voltages) received from other stations connected to the same hub is fed from the hub to the DAS 811K. The DAS 811K has the following functions:

- Provides a means of converting outgoing high voltage hub signals into low voltage EIA-type signals for driving Data Sets 108D or 109G
- Provides a means for converting the incoming low-level dc signals from Data Sets 108D or 109G into high voltage dc signals suitable for driving a No. 2 type hub
- Provides a directional control circuit which prevents the incoming signal from being fed back to the loop when the half-duplex mode of operation is used
- Provides for a carrier fail signal from the data set to actuate an alarm signal, to hold the hub either marking or spacing (depending on the option selected), and to return to the normal operating condition when the carrier fail signal is removed.

1.05 In addition to the ground and power connections, the DAS 811K provides the signal interchange as indicated in Table A.

1.06 The DAS 811K is designed to operate satisfactorily within the environmental ranges specified below:

- Ambient temperature range, 40° to 120°F

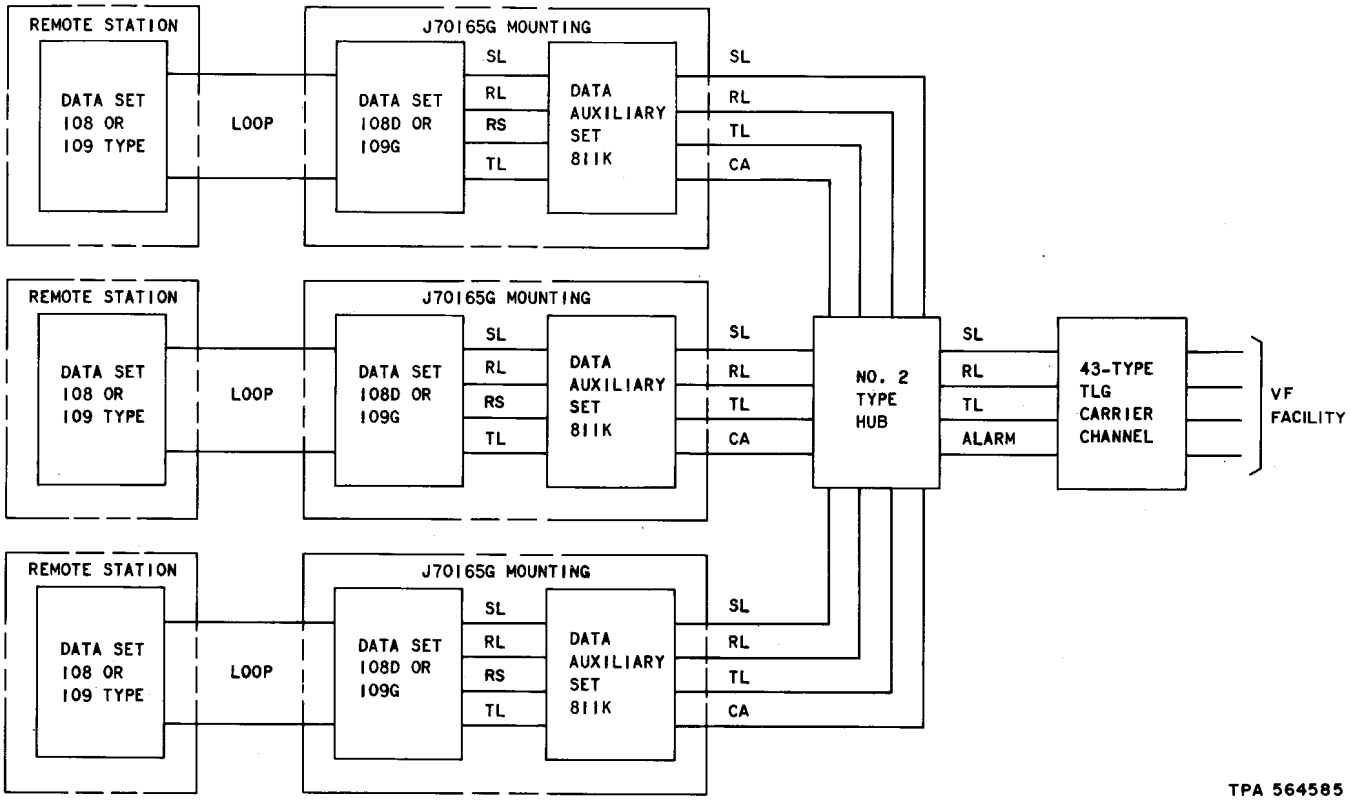

Fig. 2—System Block Diagram

- Relative humidity range, 20 to 95 percent.

1.07 The DAS 811K requires the following power sources for operation:

- +24 ±2 volts filtered battery
- −24 ±2 volts filtered battery
- −130 ±5 volts filtered battery

1.08 The DAS may be operated in either the half-duplex mode (RL lead terminated +60V mark, −30V space) or full-duplex mode (RL lead terminated −10V mark, −60V space). The data set mode of operation therefore depends on the circuit to which it is connected and does not have to be arranged or conditioned to operate either half-duplex (HDX) or full-duplex (FDX).

2. PHYSICAL DESCRIPTION

2.01 The DAS 811K is a printed circuit board that is designed to mount in a J70165G mounting (refer to Fig. 3).

2.02 The DAS 811K and the associated data sets plug into the connectors in the J70165G mounting. The J70165G mounting provides all the required power and signal lead connections in addition to providing for the physical mounting of the data sets and data auxiliary sets.

2.03 The physical arrangement of the data sets and data auxiliary sets depends on the types and combinations of the data sets used.

2.04 A maximum of eleven Data Sets 109G or nine Data Sets 108D with their associated data auxiliary sets can be used in a J70165G mounting.

2.05 When Data Sets 108D and 109G are to be intermixed in the mounting, they must be arranged as indicated by Table B and the following text. Table B shows the maximum number of data sets of each type that can be intermixed and used.

2.06 The following procedure must be used to arrange the data sets and data auxiliary

TABLE A

DATA AUXILIARY SET 811K-L1 SIGNAL INTERCHANGE

INTERFACE	811K LEAD DESIG.	SIGNAL OR DESCRIPTION
HUB AND DAS 811K-L1	SL and RL	HDX Mode +60 volts represents a mark —30 volts represents a space —60 volts indicates the hub is simultaneously receiving a spacing signal from two or more stations. This appears on the 811K RL lead and is defined as a double space. FDX Mode —10 volts represents a mark —60 volts represents a space
	TL	Provides a circuit for the operation of a hit indicator lamp.
	CA	Provides a ground signal for operation of alarms upon loss of carrier.
DAS 811K-L1 AND DATA SET 108D OR 109G	SL	—10 volts represents a mark +10 volts represents a space +22 volts represents a double space
	RL	0 mA represents a mark 10 mA represents a space
	TL1	Lamp driver circuit conforms to EIA RS-232B voltage output.
	RS	Provides for system alarm circuit (positive when loop current exists, negative when a loss of current exists).

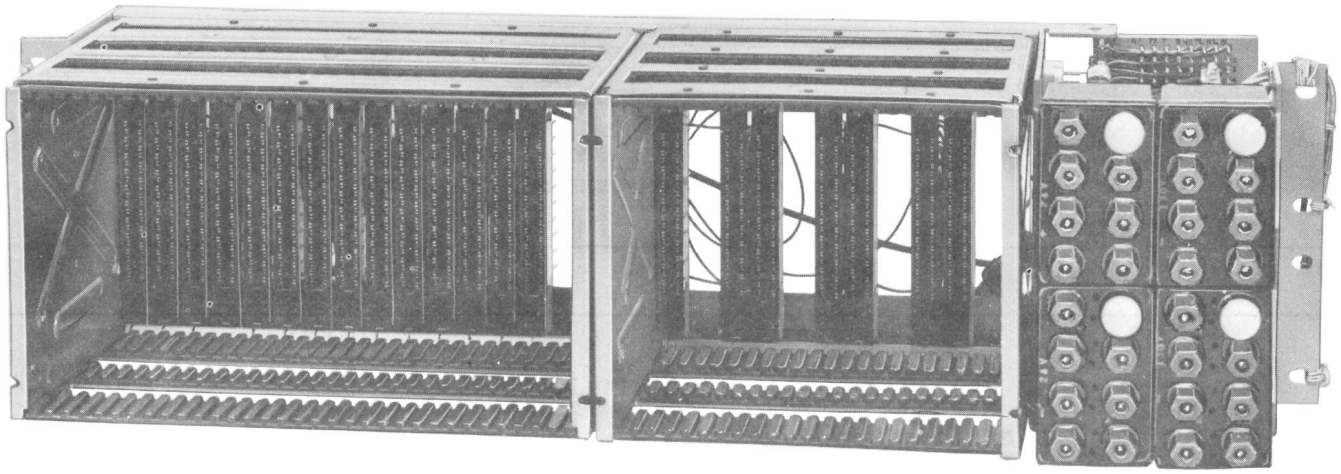

Fig. 3—J70165 Mounting Panel

sets correctly in the data mounting. Refer to Table B for connector designations.

- Data Sets 108D and their associated Data Auxiliary Sets 811K are installed first. A Data Set 108D is located in the extreme right-hand connector (as viewed from the front J22C) and the associated DAS 811K is located in the adjacent connector (J21C). The rest of the Data Sets 108D and Data Auxiliary Sets 811K are alternately installed, proceeding from right to left until all the Data Sets 108D and their associated Data Auxiliary Sets 811K are installed (see Table B).

- Data Sets 109G and their associated Data Auxiliary Sets 811K are installed last. The DAS 811K associated with the first Data Set 109G is located in the extreme left-hand connector (as viewed from the front J1C). The Data Set 109G is then located in the adjacent connector (J2C). The rest of the Data Auxiliary Sets 811K and Data Sets 109G are alternately installed, proceeding from left to right until all the sets are installed (refer to Table B).

3. FUNCTIONAL DESCRIPTION

3.01 A functional block diagram of the DAS 811K is shown in Fig. 4.

3.02 Signals from the hub are connected to a mark-space slicer circuit. In half-duplex service this provides the required conversion of mark, space, and double space from the hub to the EIA output amplifier. Full-duplex service is detected by the HDX-FDX detection circuit, causing automatic adjustment for full-duplex operation by providing mark and double space signals from the mark-space slicer to the EIA output amplifier. The EIA output amplifier provides a compatible signal for driving the data set associated with the DAS 811K.

3.03 Signals received from the data set are connected to the high voltage hub driver circuit. The HDX-FDX detection circuit detects the increased load on the RL lead that indicates FDX operation and causes the mark-space slicer circuit to provide the required double space signals. Double space signals override the directional control circuits of the data set and provide for FDX operation of the data set.

3.04 A high voltage amplifier is connected to the TL lead to interface the data set to the high voltage hub. The hit indicator lead (TL) follows the signal except during a carrier fail condition, when it is clamped to either a mark or space condition, depending on the optional arrangement of the data set.

TABLE B

PHYSICAL LOCATION OF DATA SETS AND DATA AUXILIARY SETS IN J70165G MOUNTING

COMBINATIONS		LOCATION OF DATA SETS – CONNECTOR DESIGNATION																					
NUMBER OF DATA SETS 108D USED	NUMBER OF DATA SETS 109G USED	J1C	J2C	J3C	J4C	J5C	J6C	J7C	J8C	J9C	J10C	J11C	J12C	J13C	J14C	J15C	J16C	J17C	J18C	J19C	J20C	J21C	J22C
0	11	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G
1	10	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	108D
2	9	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	108D	811K	108D
3	8	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	108D	811K	108D	811K	108D
4	7	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	108D	811K	108D	811K	108D	811K	108D
5	6	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	811K	108D	811K	108D	811K	108D	811K	108D	811K	108D
5	5	811K	109G	811K	109G	811K	109G	811K	109G	811K	109G	NC	NC	811K	108D	811K	108D	811K	108D	811K	108D	811K	108D
6	4	811K	109G	811K	109G	811K	109G	811K	109G	NC	811K	108D	NC	811K	108D	811K	108D	811K	108D	811K	108D	811K	108D
7	3	811K	109G	811K	109G	811K	109G	811K	108D	NC	811K	108D	NC	811K	108D	811K	108D	811K	108D	811K	108D	811K	108D
7	2	811K	109G	811K	109G	NC	NC	811K	108D	NC	811K	108D	NC	811K	108D	811K	108D	811K	108D	811K	108D	811K	108D
8	1	811K	109G	NC	811K	108D	NC	811K	108D	NC	811K	108D	NC	811K	108D	811K	108D	811K	108D	811K	108D	811K	108D
9	0	811K	108D	NC	811K	108D	NC	811K	108D	NC	811K	108D	NC	811K	108D	811K	108D	811K	108D	811K	108D	811K	108D

LEGEND:

108D indicates Data Set 108D is installed in this connector.
109G indicates Data Set 109G is installed in this connector.
811K indicates Data Auxiliary Set 811K is installed in this connector.
NC indicates no card is inserted in this connector.

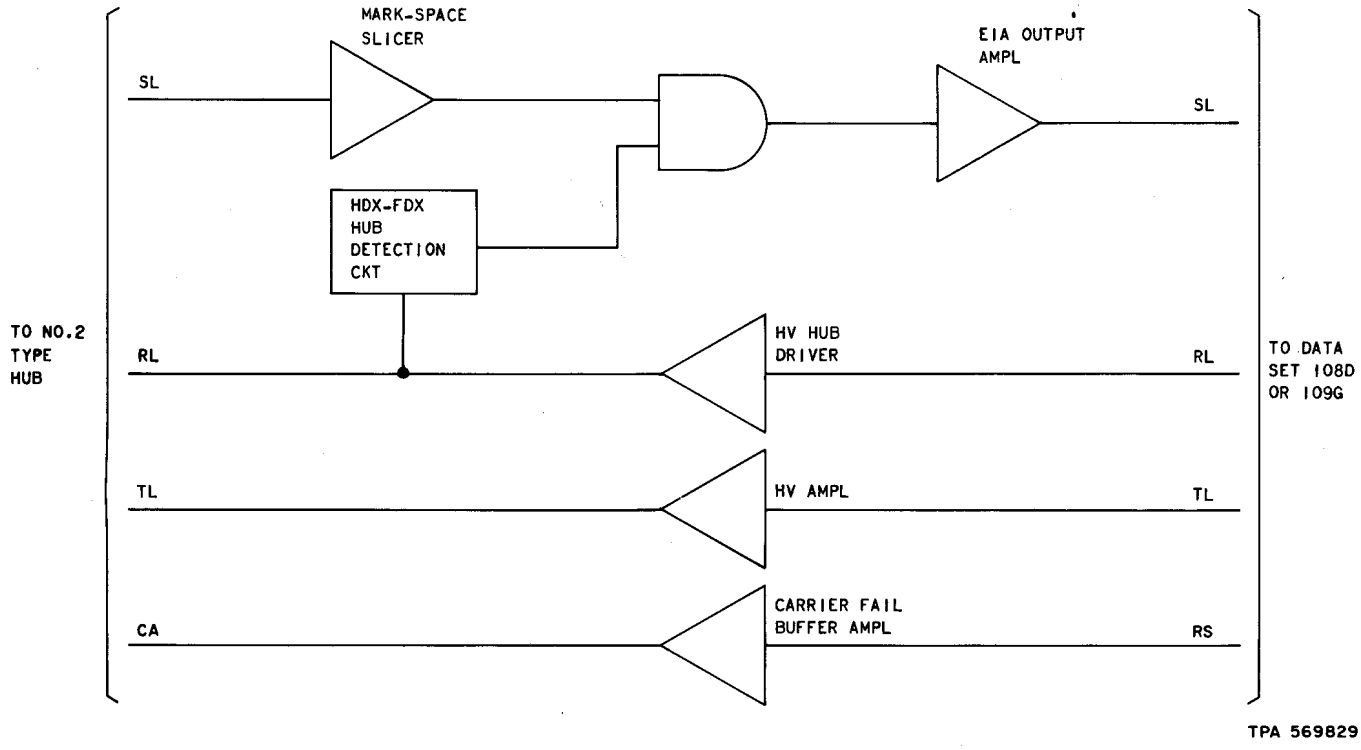

Fig. 4—Data Auxiliary Set 811K—Functional Block Diagram

3.05 A carrier fail buffer amplifier provides a ground signal which can be used with an external circuit to indicate an alarm condition when the associated data set gives a carrier fail indication.

4. REFERENCES

4.01 For additional source information refer to the following documents.

- Data Systems Central Office Data Auxiliary Set 811K-L1—Schematic Diagram SD-73070-01
- Data Systems Central Office Data Auxiliary Set 811K-L1—Circuit Description CD-73070-01
- Data Systems Connecting Circuit for Data Sets 108B, 108D, 109G, and 110B and Data Auxiliary Sets 811C and 811K in Central Office—Schematic Diagram SD-70955-01.