DATA SET 108D- AND E-TYPES MULTIPLE PRIVATE LINE STATION ARRANGEMENT USING 28A1 DATA MOUNTING AND 27B1 DATA UNIT DESCRIPTION

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1. GENERAL

1.01 This section provides information on data set 108D- and E-types used in a multiple private line station arrangement for EIA (voltage) interface only. Data set 108D- and E-types perform similar functions as data set 108C- and A-types, respectively. Information is limited to the multiple data set arrangement using the 28A1 data mounting and the 27B1 data unit. In this section, data sets 108D- and E-types will be referred to as data sets 108D and E.

1.02 A multiple private line station consists of the following units:

- Data set 108D or E (as required)
- 27B1 data unit
- 28A1 data mounting
- KS-20575 rectifier (powers up to 16 data sets)
- Mounting rack arrangement (23- or 25-inch) in an appropriate housing, if required.

1.03 Data sets 108D and E are low-speed, full-duplex, FSK serial data sets for transmitting binary data up to 300 baud over either 2-wire or 4-wire private line or voiceband facilities. In a multiple private line system, the data sets work in conjunction with a 28A1 data mounting and a 27B1 data unit. Detailed information pertaining to data sets 108D and E may be found in the section entitled Data Sets 108D- and E-Type Used in Station Applications, Description (591-028-100).

1.04 One 28A1 data mounting will accommodate up to eight data sets 108D or E, one data set mounted in every odd slot (1, 3, 5, 7, etc) of the 28A1 data mounting, in a multiple private line station. The data mounting is arranged to house one KS-20575 rectifier.

1.05 The 27B1 data unit provides the EIA interface and is the means of interconnecting the customer-provided terminal equipment to the data set 108D or E mounted in the 28A1 data mounting. One 27B1 data unit is required per eight data sets and can be mounted on the rear of the 28A1 data mounting. The options that deal with the interface leads to the customer-provided terminal (CPT) are strapping connections which must be made on the 27B1 data unit at the time of installation.

1.06 Data sets other than the 108D and E may be used in a mixed 28A1 data mounting with data sets 108D and E, such as data sets 109E-type. Refer to Section 591-036-101 (Data Set 109E-Type

Multiple Data Set Arrangement Using 28A1 Data Mounting and 27-Type Data Unit—Description.

2. PHYSICAL DESCRIPTION

Data Sets 108D and E

2.01 Data sets 108D and E (Fig. 1 and 2, respectively) consist of two printed wiring circuit boards mounted together in piggyback fashion with a single connector. The data sets (AR-type circuit packs) are approximately 5-1/2 inches high, 7 inches deep, 1-1/8 inches wide, and weigh approximately 2 pounds. The data sets will operate in an ambient temperature range from 40°F to 120°F and in an ambient relative humidity range from 20 to 95 percent. The data sets plug into the 28A1 data mounting and require nominal power sources of $+24 \pm 3$ volts and -24 ± 3 volts.

28A1 Data Mounting

2.02 The 28A1 data mounting (Fig. 3) is approximately 6 inches high and 10 inches deep. It mounts on either a 23- or 25-inch rack and weighs approximately 15 pounds. The 28A1 data mounting consists of one 59C apparatus mounting, two KS-16786-L4 connectors, one KS-16671-L1 plug, sixteen 927D connectors, and one terminal block.

2.03 The dc voltages to be delivered to the data set via the data mounting must be supplied to the data mounting either from an external source or by a KS-20575 rectifier which must be ordered separately. Space is provided on the 28A1 data mounting for mounting the KS-20575 rectifier which can supply power for a maximum of two fully equipped 28A1 mountings.

27B1 Data Unit

2.04 The 27B1 data unit (Fig. 4) is approximately 4-3/4 inches high, 7 inches wide, 1-1/2 inches deep and weighs approximately 2 pounds. The unit consists of a mounting plate containing eight 25-pin interface connections, eight test switches, option straps, and a cord equipped with two 50-pin plugs. The data unit requires no external power.

3. FUNCTIONAL DESCRIPTION

3.01 Data set 108D or E multiple private line station arrangement provides a maximum of eight EIA interface connections per data mounting between line facilities and customer-provided terminals. A functional block diagram is shown in Fig. 5.

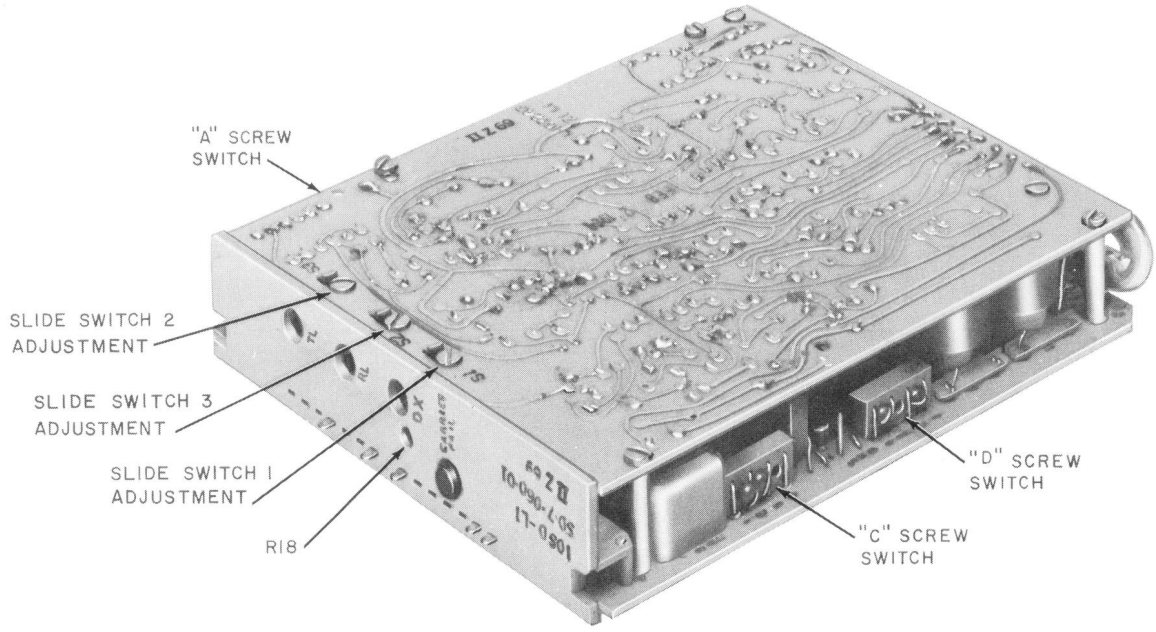


Fig. 1—Data Set 108D-Type

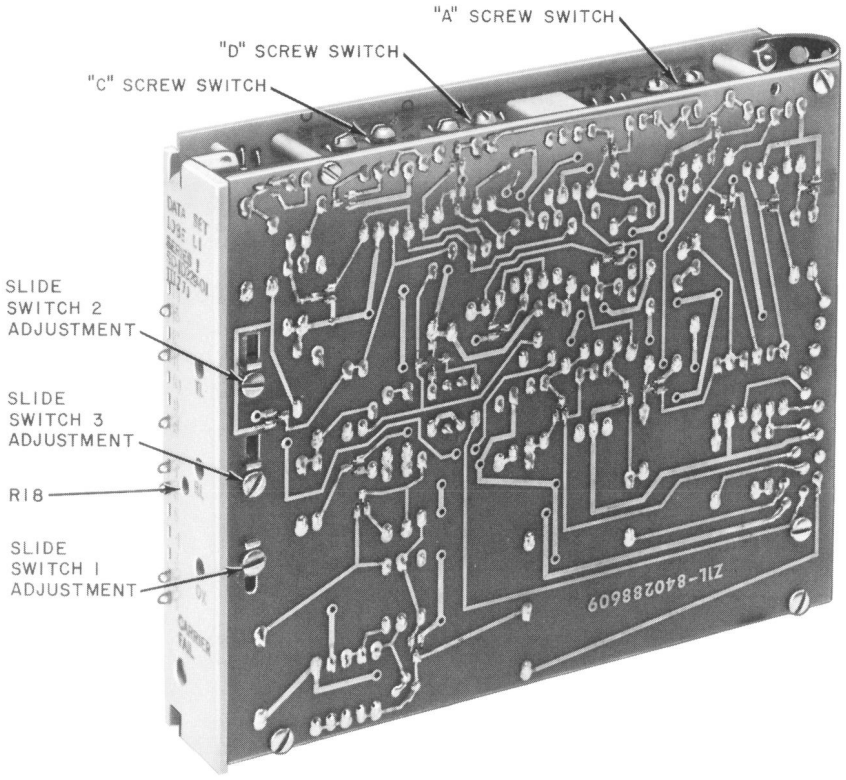


Fig. 2—Data Set 108E-Type

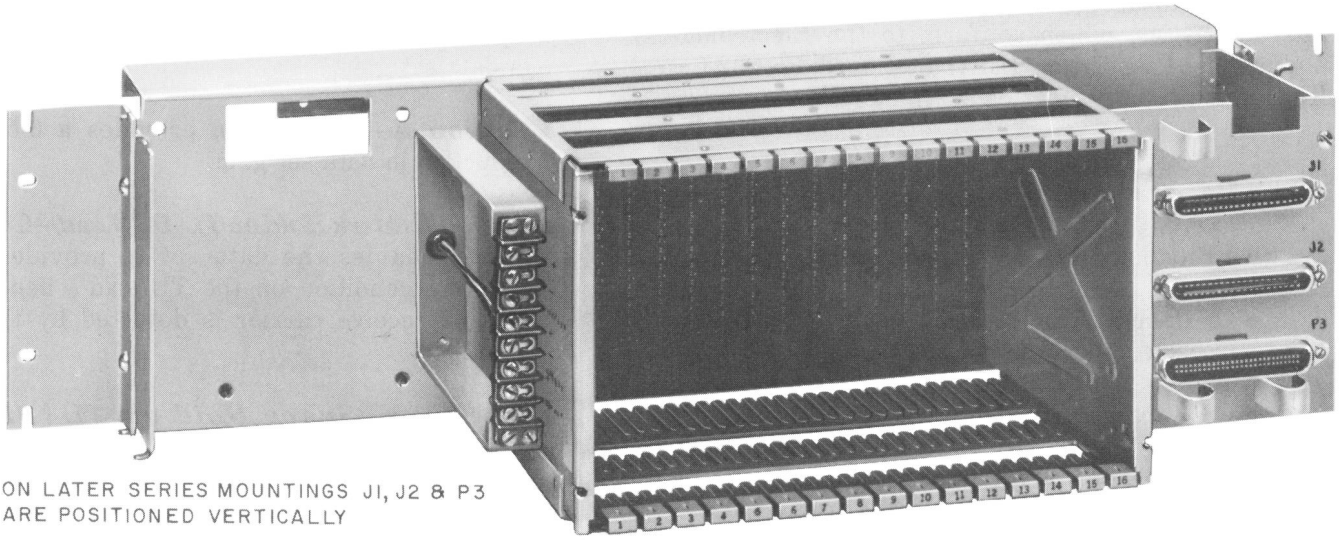


Fig. 3—28A1 Data Mounting

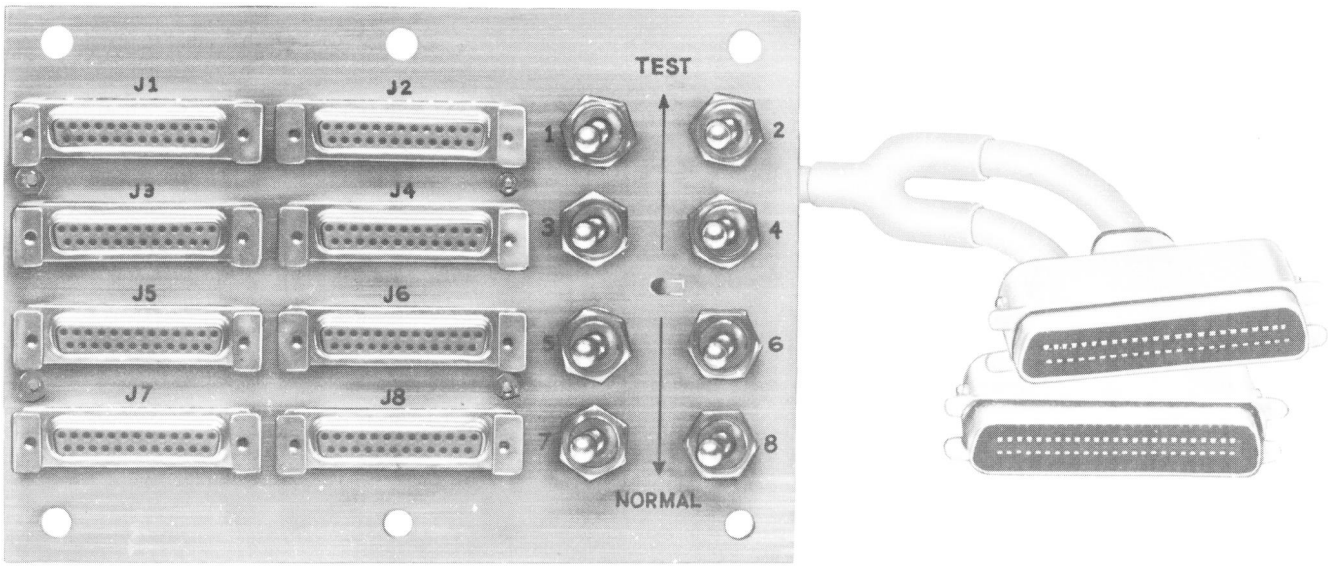


Fig. 4—27B1 Data Unit

3.02 Eight transmission facilities, each consisting of 2-wire or 4-wire metallic loops, are interfaced to the 28A1 data mounting through an intermediate distribution frame (IDF) or connecting block and an A25B-type connector cable (Fig. 5).

3.03 Data set 108D or E receives from and transmits data to a remote station. The data set provides five interface leads with signal characteristics, which conform to the Electronic Industries Association (EIA) Standard RS-232-C. The data set interface leads are as follows:

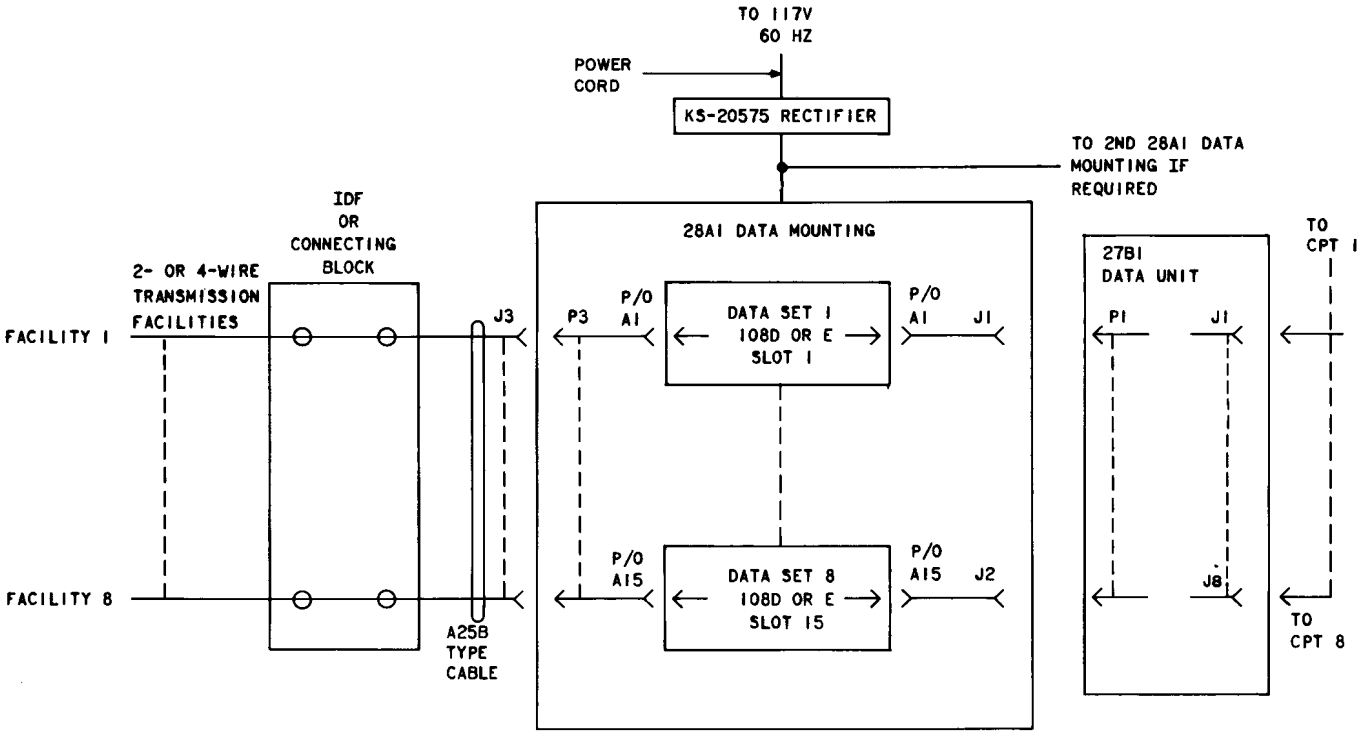
- BA—transmitted data
- BB (labeled TL)—received data
- CF (labeled RS)—received line signal detector (receive supervision)
- CSQ—carrier squelch
- CC (labeled ON)—data set ready.

Data Sets 108D and E

3.04 Data sets 108D and E in a muliple private line station arrangement provide full duplex (FDX) operation. FDX operation enables the data set to disable the directional control circuit to allow proper operation of a private line station. For a functional description of data sets 108D and E, refer to the section entitled Data Sets 108D- and 108E-Type Used in Station Applications—Description (591-028-100).

3.05 Data sets 108D and E functionally provide the following options:

- ***Option J***—This option provides 0-dB reduction in data set gain.
- ***Option K***—This option provides a 6-dB reduction in data set gain.
- ***Option U (Mark Hold on TL [BB] Lead)***—This option enables the data set to provide a marking condition on the TL lead when a loss of receive carrier is detected by the data set.
- ***Option V (Space Hold on TL [BB] Lead)***—This option enables the data set to provide a spacing condition on the TL lead when a loss of receive carrier is detected by the data set.
- ***Option Y***—2-wire service.
- ***Option Z***—4-wire service.



NOTE:
DATA SETS ARE PLUGGED INTO EVERY ODD SLOT (1, 3, 5, 7 FOR LEFT HALF AND 9, 11, 13, 15 FOR RIGHT HALF) OF 28A1 DATA MOUNTING.

Fig. 5—Functional Block Diagram—Data Set 108D or E Multiple Arrangement

28A1 Data Mounting

3.06 The 28A1 data mounting is a multiple apparatus housing which will accommodate a maximum of eight data sets 108D or E. In multiple data set arrangements, the 28A1 data mounting provides mounting space for eight data sets 108D or E and a power unit. Connectors J1 and J2 on the 28A1 data mounting provide interconnection from the data sets to the 27B1 data unit.

3.07 The 28A1 data mounting is electrically divided into two halves. Connector jack J1 and terminals 1, 2, and 3 of terminal block 1 (TB1) are associated with interface and power connections for the data sets in slots 1 through 8. Connector jack J2 and terminals 4, 5, and 6 of TB1 are associated with interface and power connections for the data sets in slots 9 through 16. Connector P3 on the 28A1 data mounting (common to the two halves) provides interconnection from the data sets to the transmission facilities.

3.08 The KS-20575 rectifier is used to supply power to both halves of the data mounting. The +24V of KS-20575 rectifier is connected to terminals 1 and 4 of TB1, the −24V is connected to terminals 2 and 5 of TB1, and signal ground is connected to terminals 3 and 6 of TB1. Terminal 7 is not used and terminal 8 is connected to frame ground on the KS-20575 rectifier.

27B Data Unit

3.09 The data set 108D or E multiple private line station arrangement uses one 27B1 data unit which provides interface connections between eight data sets and eight CPTs. P1 and P2 of the 27B1 data unit connect to J1 and J2 of the 28A1 data mounting. The EIA outputs of the CPTs are connected to the data unit via the customer-provided cables which plug into J1 through J8 on the data unit. The EIA connectors 1 through 4 serve the four data sets in the left half of the 28A1 data mounting while connectors 5 through 8 serve the four data sets on the right half.

3.10 Eight toggle switches (one for each data set) located on the 27B1 data unit are designated TEST—NORMAL. When the toggle switch is in the TEST position, the associated data set is placed in the test mode (loop-back testing). When the toggle switch is in the NORMAL position, the associated data set is in the normal mode.

4. REFERENCES

4.01 The following documents pertain to data set 108D or E multiple private line station:

SD- & CD-73060-01 Data Set 108D

SD- & CD-1D229-01 Data Set 108E

SD- & CD-1D176-01 Data Systems Station 28-Type Data Mounting

SD- & CD-1D183-01 Data Systems 27-Type Data Unit

SECTION	TITLE
590-100-114	27A1 and 27B1 Data Unit—Identification
590-102-124	28A1 Data Mounting—Identification
591-028-100	Data Sets 108D- and 108E-Types Used in Station Applications—Description
591-028-202	Data Sets 108D- and E-Types, Multiple Private Line Station Arrangement Using 28A1 Data Mounting and 27B1 Data Unit, Installation and Connections
591-028-302	Data Sets 108D- and E-Types, Multiple Private Line Station Arrangement Using 28A1 Data Mounting and 27B1 Data Unit—Maintenance
591-028-502	Data Sets 108D- and E-Types, Multiple Private Line Station Arrangement Using 28A1 Data Mounting and 27B1 Data Unit—Test Procedures.