DATA AUXILIARY SET 811B-TYPE
DESCRIPTION AND OPERATION

1. GENERAL

1.01 This section provides information on the operation and function of the Data Auxiliary Set 811B-type (Fig. 1). It also includes a physical and functional description of the data auxiliary sets and general background information. The Data Auxiliary Set 811B-type will be referred to in this section as a DAS 811B-type (or appropriate model number).

1.02 This section is reissued to include coverage on the Data Auxiliary Set 811B3 and Data Auxiliary Set 811B4 and to update the information provided on the Data Auxiliary Set 811B1 and Data Auxiliary Set 811B2. Due to extensive changes, marginal arrows have been omitted.

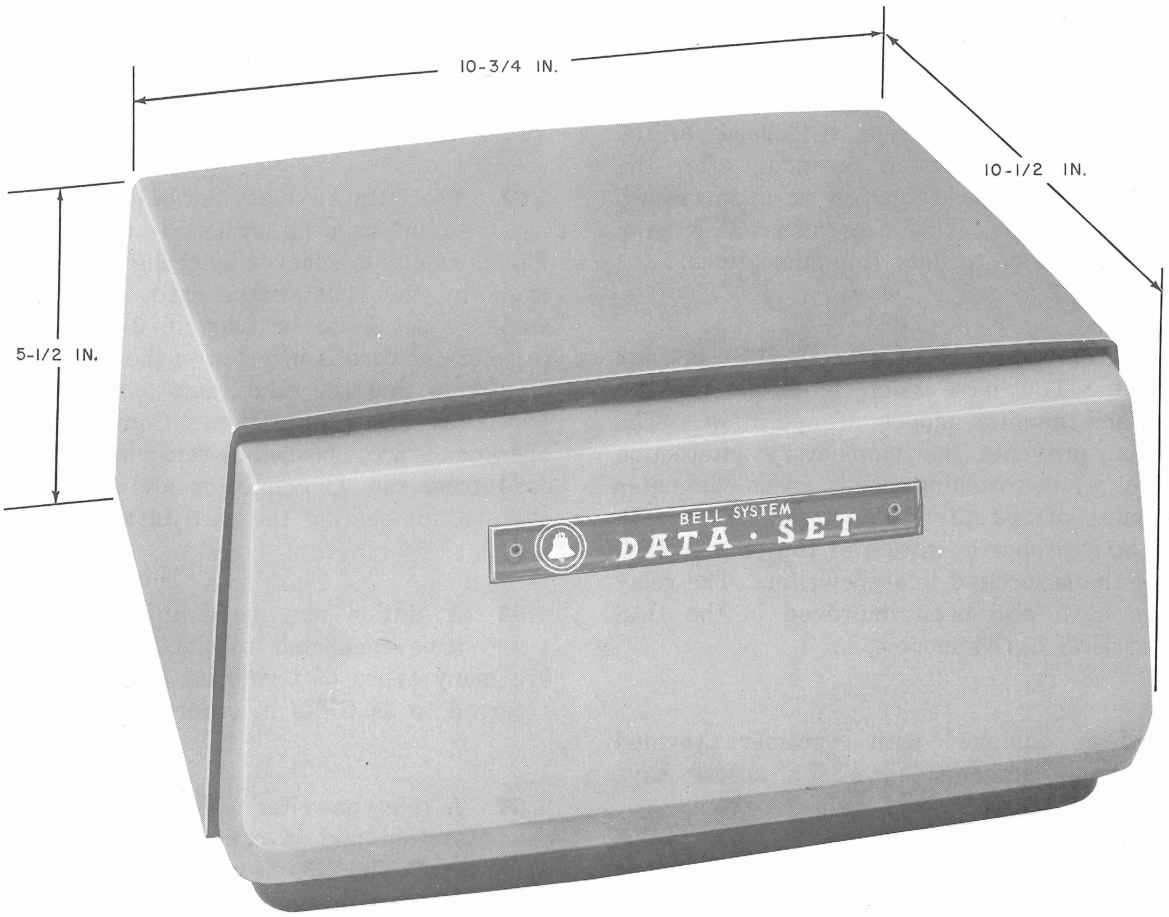


Fig. 1—Data Auxiliary Set 811B1 or 811B3—Front View

1.03 The Data Auxiliary Set 811B-type has been developed to allow customer provided terminals (CPTs) to be used on the regular TWX network for communication with 3- or 4-row TWX stations. In these station arrangements, customer provided terminals are connected to associated TWX station data sets via interface conversion and two-way data regeneration circuits. Provision is made for a common teletypewriter (one for 3-row and one for 4-row) at the station to monitor or intercept any one of the TWX lines connected to the customer provided terminal.

1.04 The DAS 811B3 and DAS 811B4 provide all of the functions that are provided by the DAS 811B1 and DAS 811B2. The DAS 811B1 and DAS 811B2 have been rated as "manufacture discontinued". The DAS 811B3 and DAS 811B4 provide an electronic delay circuit that is not provided in the DAS 811B1 or DAS 811B2 models. The delay circuit provides a nominal 250-millisecond interval before the ON signal is given to the carrier fail (CF) lead and clear-to-send (CB) lead, of the associated customer provided terminal, after the associated data set has connected or upon release of the intercept mode. This insures that all circuits are normalized prior to data communications.

1.05 The relay circuits of the DAS 811B3 and DAS 811B4 have been modified for the intercept and monitor modes of operation. The modification prevents the momentary interaction of two lines when switching modes. This eliminates the possibility of disrupting data transmission with the CPT or improper operation of the answer-back feature of the associated teletypewriter. The relay mountings have also been improved in the DAS 811B3 and DAS 811B4 models.

1.06 Stations equipped with customer provided terminals arranged for TWX access have the following features:

- Calls can be originated by the customer provided terminal via a Data Auxiliary Set 801-type automatic calling unit.
- Calls from a TWX station may be answered by the CPT.
- Normal TWX communication is effected via a Data Set 101-type.
- A teletypewriter equipped with an attendant circuit or a 689-type subscriber set provides a means for monitoring and is used for maintenance and testing purposes. Also, it can intercept any one of the associated TWX lines and operate in the normal TWX manner.
- A supplementary attendant set is provided for manually controlling the teletypewriter monitor and intercept modes.
- Both send and receive signals are regenerated by the Data Auxiliary Set 811B regenerator circuits.
- Interface leads to the customer provided terminals are arranged to conform to EIA specifications in accordance with RS-232B.

1.07 The Data Auxiliary Set 811B-type is designed to be used in either 3- or 4-row service. This flexibility is achieved by changing the connections made by the regenerator card. When the data auxiliary set is to be used in 3-row service, the regenerator card is inserted in the appropriate slide or slot so that the card seats in the J3 connector wired for 3-row operation. Conversion to 4-row operation is accomplished by removing the regenerator card from the J3 connector and inserting it into the slot for seating the card in the J4 connector.

1.08 A station may have any number of TWX lines connected to the CPTs. Since there are many types of terminals, all terminals will be referred to as CPTs in order to avoid confusion.

1.09 A teletypewriter (TTY) is provided at each station and is common to all lines of the same type. The TTY is connected to any particular line by means of an appropriate keyset (Supplementary Attendant Set). The type keyset required is determined by the number of lines provided. Table A gives the line capacity of each keyset, the type keyset, the cords required, and the coding.

TABLE A

LINE CAPACITY	KEY UNIT SET	CORDS	
		NO. REC.	CODE
1-4	One 6040J Key	1	M30B
1-16	One Graybar Key Mounting	1 2	M30B M42B
1-16	630 D7 Telephone Set	1 2	M30B M42B
1-28	631 D12 Telephone Set	1 4	M30B M42B
5-9	One 6040J Key, One 6040G Key	1 1	M30B M42B
10-14	One 6040J Key, Two 6040G Key	1 2	M30B M42B
17-33	Two Graybar Key Mountings	1 5	M30B M42B
17-33	One 630 D7 Telephone Set, One Graybar Key Mounting	1 5	M30B M42B
17-45	One 631 D12 Telephone Set, One Graybar Key Mounting	1 7	M30B M42B
34-50	Three Graybar Key Mountings	1 8	M30B M42B

1.10 When more than one keyset is used, operation of the keysets differs from the operation of a single set. This is due to the fact that although the buttons of each individual set are exclusive the buttons of the two sets are not mutually exclusive when connected together, ie, operation of any button cancels the previously operated button on the set but will not cancel a button on the associated keyset. Because of this, it is necessary for the operator to release a depressed line key on a set before operating a key on another set.

1.11 The DAS 811B-type has three operating modes which are indicated as follows:

- ***Monitor Mode:*** In the monitor mode, the teletypewriter copies both incoming and outgoing traffic on the selected line. The

use of the teletypewriter does not interfere with the normal flow of signals. The TTY motor is started and stopped for each call.

- ***Intercept Mode:*** In the intercept mode, all the data and control circuits of the selected line are disconnected from the customer provided terminal and transferred to the TWX teletypewriter. This permits the teletypewriter and its associated TWX subscriber set or attendant circuit to be used in the conventional TWX manner. In cases where the customer provided terminal does not have call originating capabilities, this mode of operation may be used to originate calls. The intercept mode is also used for testing.

- ***Release Mode:*** In the release mode, all interface leads are connected to the CPT with no connections made to the TTY machine. In this mode, the TTY is available for monitoring or intercepting another line.

For testing information, refer to the section entitled Data Auxiliary Set 811B-Type—Test Procedures (598-049-500).

2. DESCRIPTION

2.01 Fig. 1 shows the Data Auxiliary Set 811B-type and gives the physical dimensions of the unit. Fig. 2 and Fig. 3 show the DAS 811B1 and DAS 811B3, respectively. The cover is removed to show some of the physical differences of these data auxiliary sets.

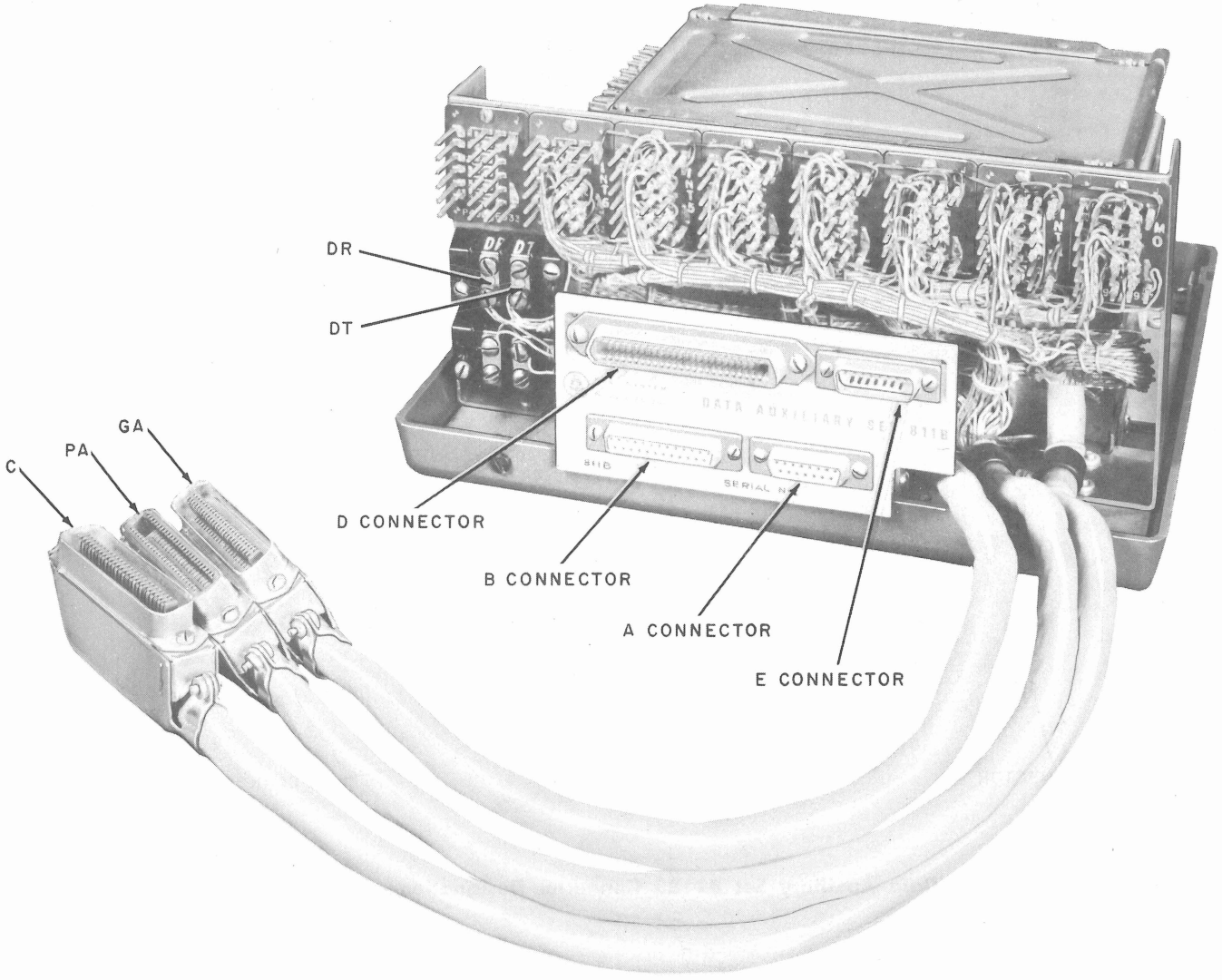


Fig. 2—Data Auxiliary Set 811B1 Connector Designation—Cover Removed

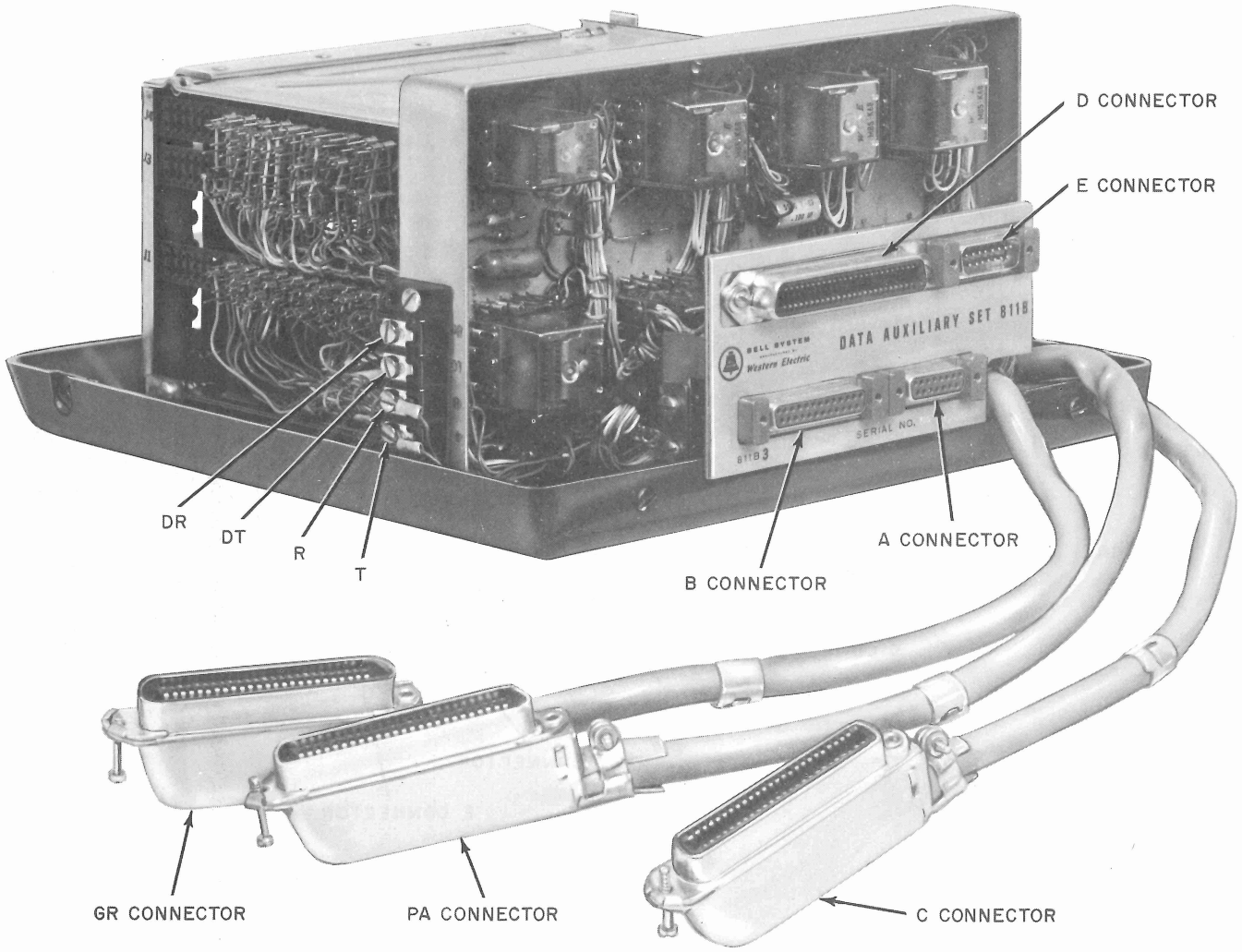


Fig. 3—Data Auxiliary Set 811B3 Connector Designation—Cover Removed

2.02 The DAS 811B1 and DAS 811B3 are housed in two-tone grey plastic cases. Refer to Fig. 1. When a case is provided with the data auxiliary set, there is no obvious physical difference in the appearance of the DAS 811B1 and DAS 811B3.

Note: The DAS 811B2 and DAS 811B4 are designed for cabinet mounting, therefore cases are not provided for these models of the data auxiliary set. Connector designations are the same for all models of the DAS 811B-type.

2.03 The data auxiliary set is designed to function properly within the specified range of the environmental conditions listed as follows:

Ambient Temperature Range: 50 to 110°F

Relative Humidity Range: 20 to 95 percent

2.04 The supplementary attendant units used to provide the necessary keys to control the lines are designated as shown by Fig. 4. The control button or key is designated according to the line it controls.

FOR A 6040J KEY

BSY RLS	LINE 1	LINE 2	LINE 3	LINE 4	MON INT

FOR A 6040G KEY

RLS	LINE	LINE	LINE	LINE	LINE

NUMBER BUTTONS ACCORDING TO THE LINES THEY CONTROL

FOR A 599B KEY

TTY BSY RLS	LINE 4	LINE 3	LINE 2	LINE 1	MON INT

FOR A 599A KEY

RLS	LINE	LINE	LINE	LINE	LINE

NUMBER BUTTONS ACCORDING TO THE LINES THEY CONTROL

FOR A 598A KEY

LINE	LINE	LINE	LINE	LINE	LINE

NUMBER BUTTONS ACCORDING TO THE LINES THEY CONTROL

Fig. 4—Attendant Unit Key Designation

2.05 The components or units which make up a 3- or 4-row station are listed in the following paragraphs. Components which are shared by all TWX lines at a station are listed as being required "per station." Components which are individual to each TWX line are listed as being required "per line."

2.06 The following components are required "per line" for 3-row stations:

(1) Data Auxiliary Set 811B-type.

(2) Data Auxiliary Set 801A- or C-type (for CPTs where automatic call originating capabilities are required).

(3) Data Set 101A or B.

(4) Cords and connection cables per 2.08.

2.07 The following components are required "per station" for 3-row stations:

(1) 689-type subscriber set.

(2) Teletype 1A coupler.

(3) KS-19643 L1 or L2 cabinet as required for mounting the data sets and data auxiliary sets for multiple line installations.

(4) Semiconductor rectifier (J86738A-1).

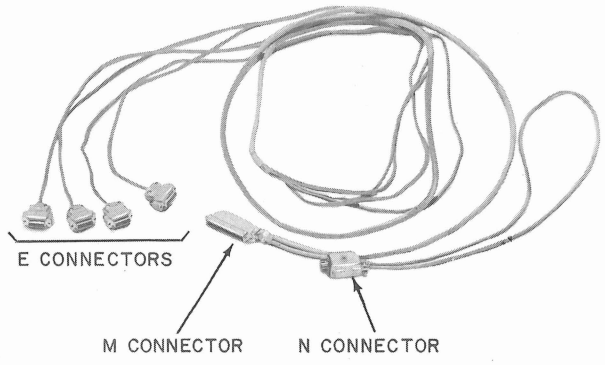
(5) 28-KSR or ASR teletypewriter for TWX unattended service equipped with the subscriber set listed in (1).

(6) Teletypewriter select magnet driver (TP177010).

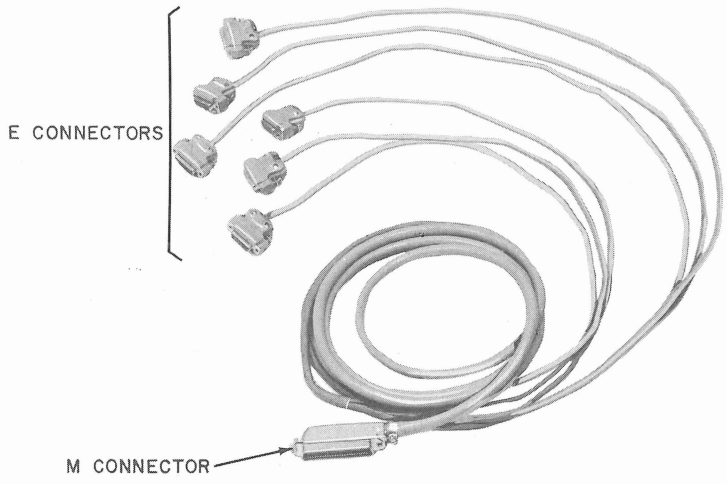
(7) Keyset as required by the number of lines being installed (see Table A).

(8) Cords as required.

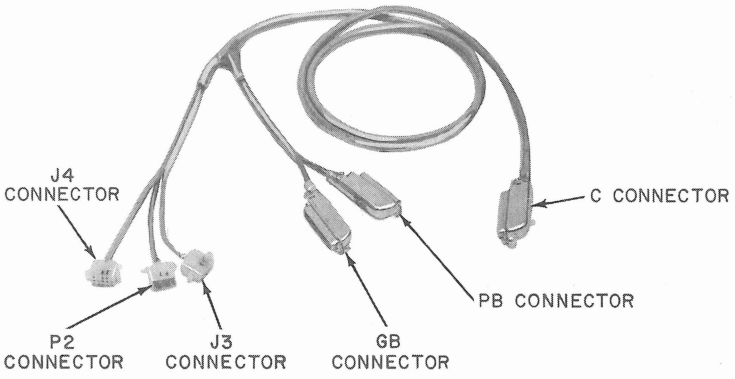
2.08 The cords required to hook up a 3-row station are shown by Fig. 5 which also gives the connector designations. The number of cords required to install a station depends on the number of lines that are provided for the station. The B25A cables will be used as required to hook up the station. Fig. 6 gives a block diagram of a typical 3-row multiple line station showing the proper connections of the station units and the required connecting cords.



M30B



M42B



M42A

B25A

Fig. 5—Connecting Cables

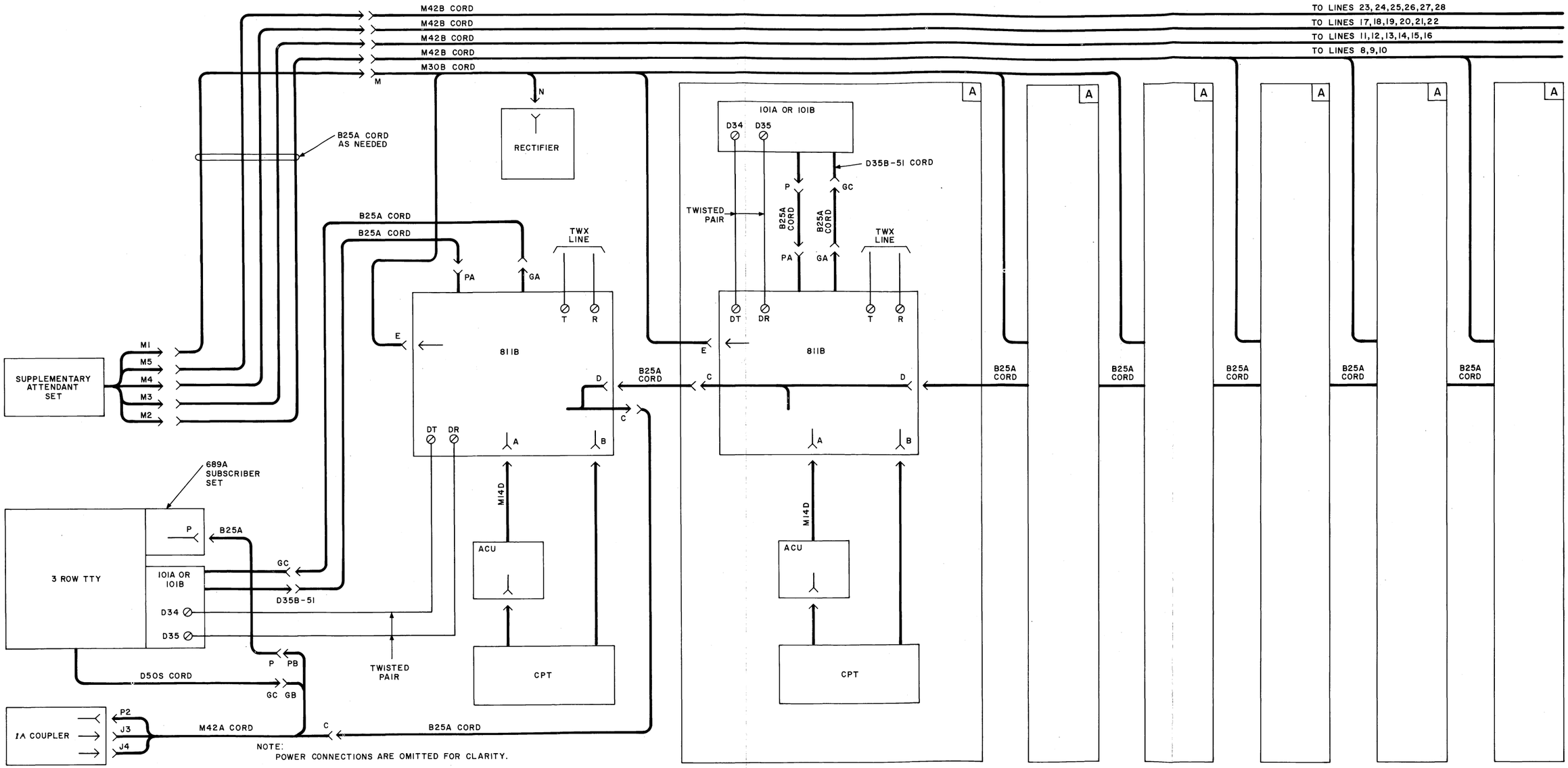


Fig. 6—Block Diagram of a General Station Arrangement—CPTs Connected for 3-Row Multiple Line TWX Service

2.09 The following components are required "per line" for a 4-row station:

(1) Data Auxiliary Set 811B-type.

(2) Data Auxiliary Set 801A- or C-type (for CPTs where automatic call originating capabilities are required).

(3) Data Set 101C.

2.10 The following components are required "per station" for a 4-row station:

(1) Teletype 1A coupler.

(2) Semiconductor rectifier (J86738A-1).

(3) 33- or 35-type KSR or ASR teletypewriter for 4-row TWX unattended service.

(4) Keyset as required by the number of lines being installed. See Table A.

2.11 The cords required to hook up a 4-row station are shown by Fig. 5 which also gives connector designations. The number of cords required to install a station depends on the number of lines that are provided for the station. Fig. 7 gives a block diagram of a typical 4-row multiple line station showing the proper connections of the station units and the required connecting cords. The B25A cables will be used as required to hook up the station components.

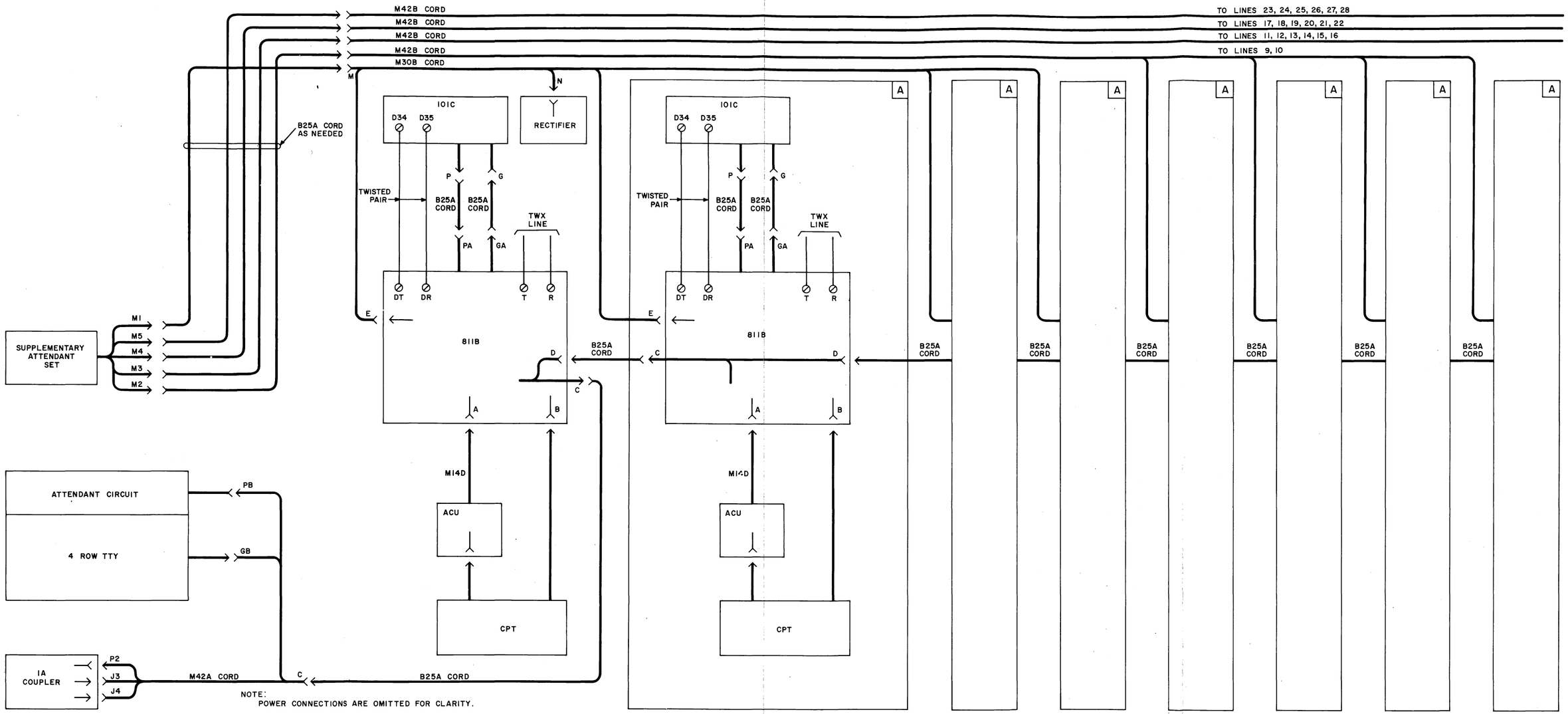


Fig. 7—Block Diagram of a General Station Arrangement—CPTs Connected for 4-Row Multiple Line TWX Service

3. OPERATION

3.01 The operating mode of the Data Auxiliary Set 811B is controlled by the keyset. The INT-MON turn button is used to place the data auxiliary set in the desired operating mode, ie, the intercept or monitor mode. When the RLS key is depressed, all of the keys on the attendant set are released and the data auxiliary set is in the released mode.

3.02 With the line keys released, ie, the released mode, the CPTs are connected to the TWX line via the data set and data auxiliary set. Any time the line is busy, the line key lights, thereby informing the operator of the traffic condition.

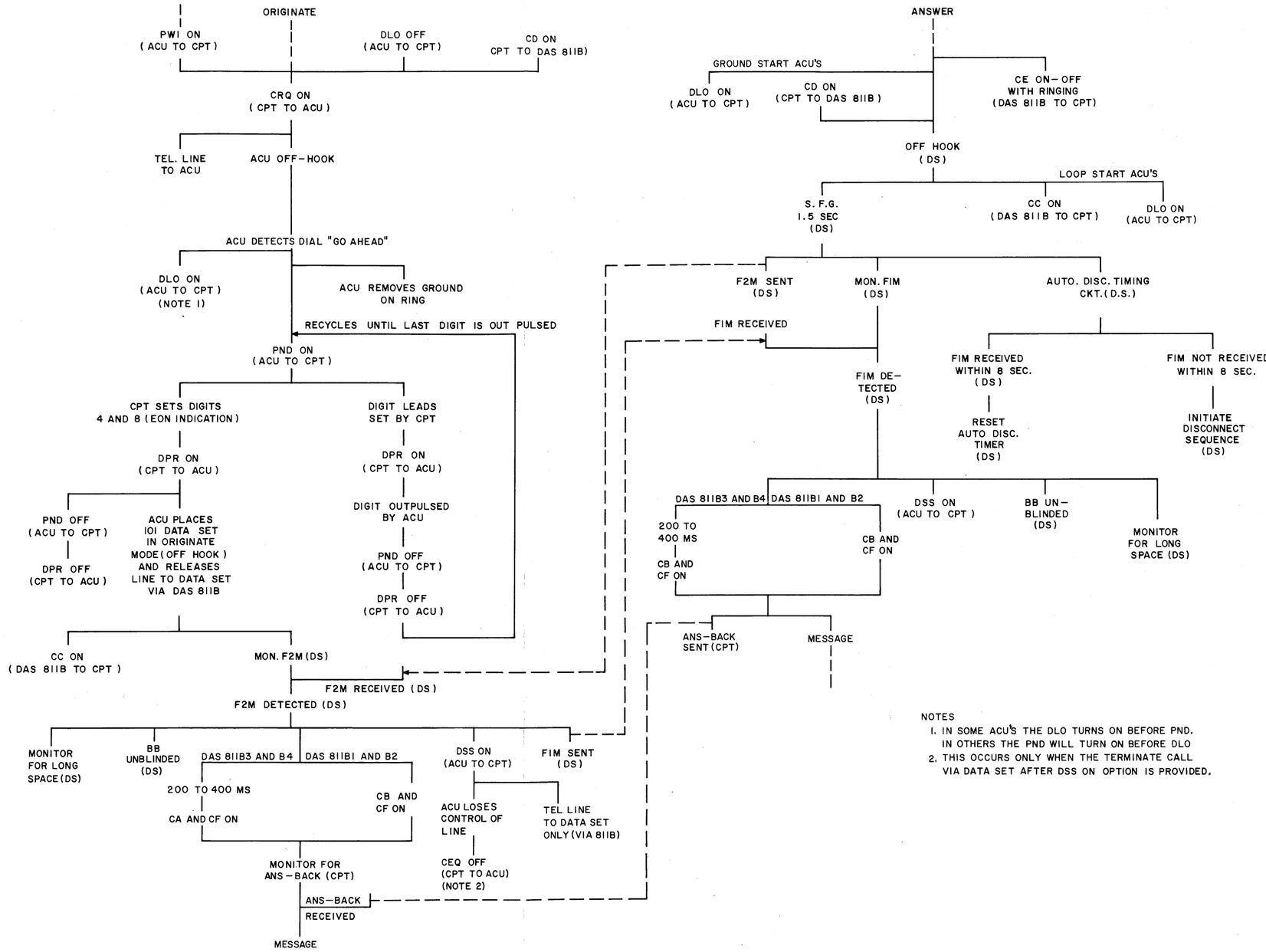
3.03 Monitoring of the traffic on any TWX line is accomplished by setting the turn button to the MON position and by depressing the desired line key. When this is done, the TTY RLS key will light to indicate that the TTY is in use. During a call on the line, the line key lights and the TTY motor runs. The ORIG or ANS lamp lights on the TTY to indicate whether the call was incoming or outgoing. All text is copied on the TTY in this monitor mode.

3.04 A line may be intercepted by setting the turn button to the INT position and by depressing the corresponding line key. The TTY RLS key lights as before. All of the calls on this line are now handled from the TTY in the same manner as at any TWX station. The interface leads presented by the 811B to the CPT are opened in this mode of operation. Also, if an automatic calling unit is provided, a DLO signal is provided to the unit to prevent call origination.

3.05 Four sequences of operation or flow charts are shown by Fig. 8 through Fig. 11. These flow charts show the originating-answering and disconnect sequences of operation for 3- and 4-row stations. These charts are included in this practice to provide general background information on the operation of the station.

3.06 The data auxiliary set to CPT interface connector pin assignment is given by Table B.

3.07 This practice does not cover the operation or the installation, etc, of the associated equipment that makes up this station. For specific information on the equipment associated with this data auxiliary set, refer to the applicable practices on the associated equipment.



NOTES
1. IN SOME ACU'S THE DLO TURNS ON BEFORE PND. IN OTHERS THE PND WILL TURN ON BEFORE DLO
2. THIS OCCURS ONLY WHEN THE TERMINATE CALL VIA DATA SET AFTER DSS ON OPTION IS PROVIDED.

Fig. 8—Originating and Answering Flow Chart for CPTs—3- or 4-Row TWX Service—Data Set Tone Detection With EON

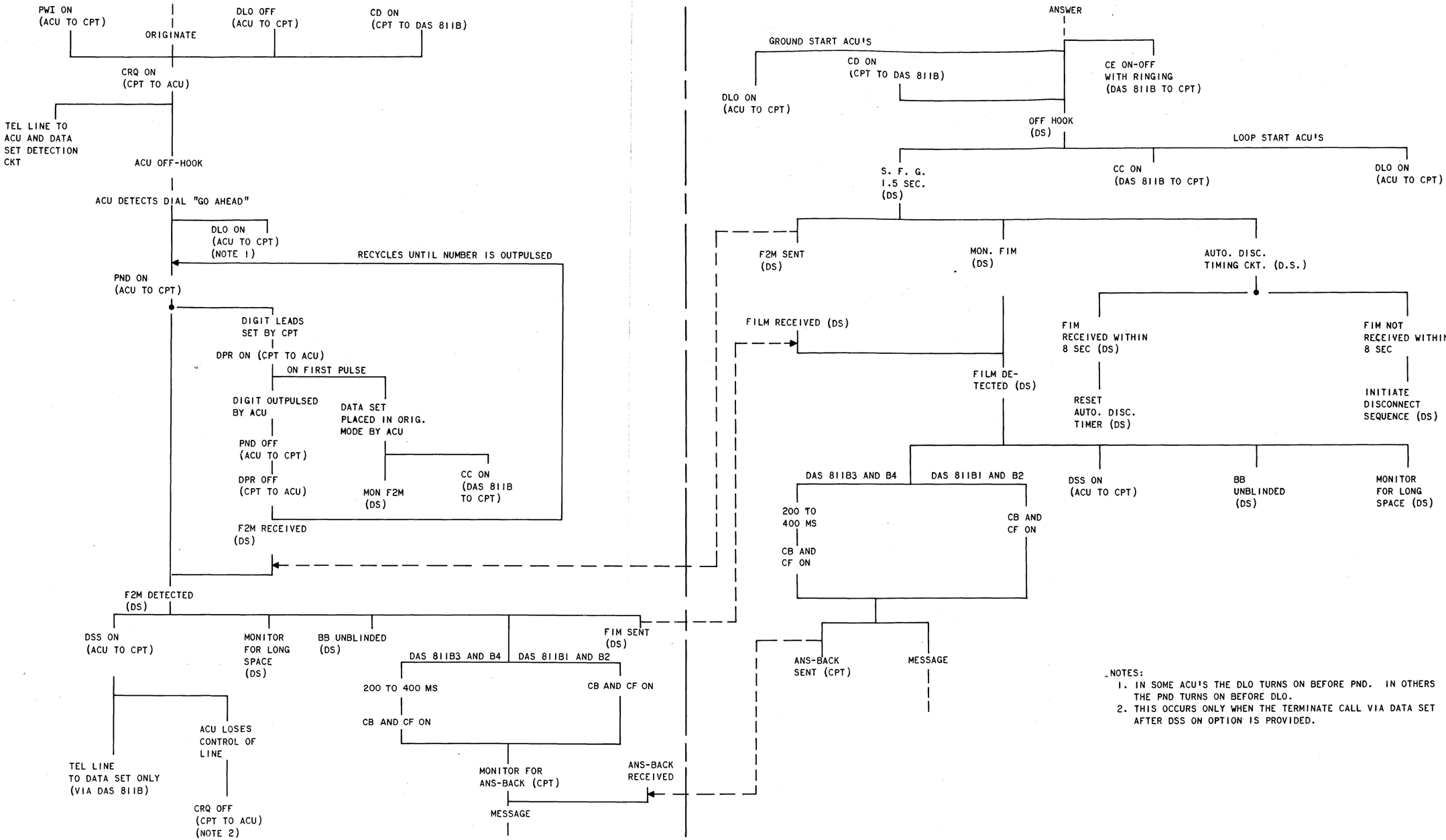


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Fig. 9—Originating and Answering Flow Chart for CPTs—3- or 4-Row TWX Service—Data Set Tone Detection Without EON

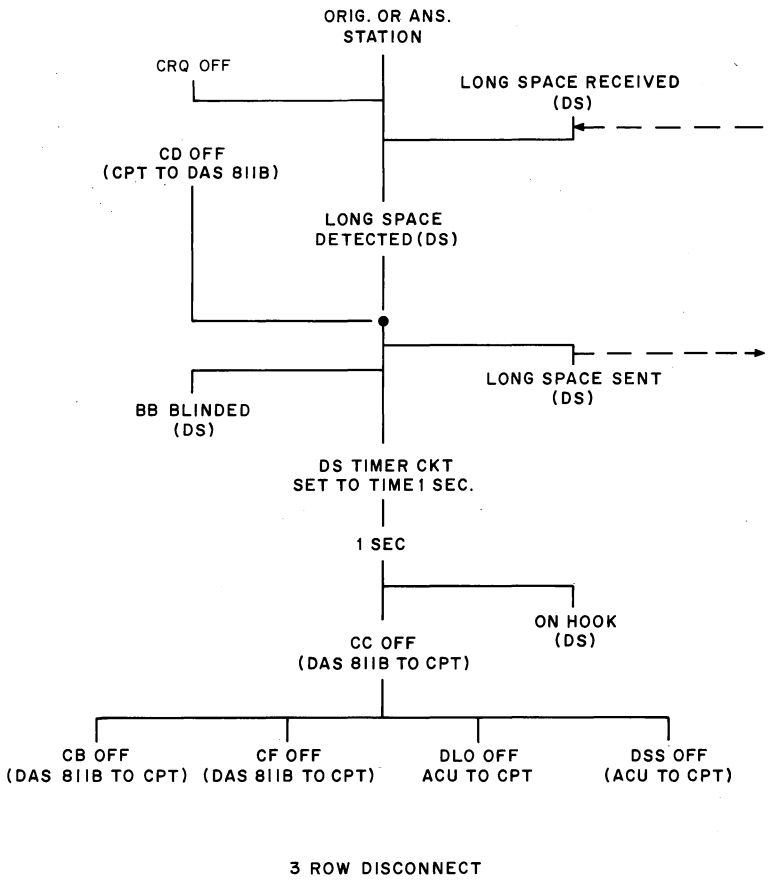

Fig. 10—Clearing Flow Chart for CPT for 3-Row TWX Service Using the Terminate Call Via Data Set After DSS ON Option

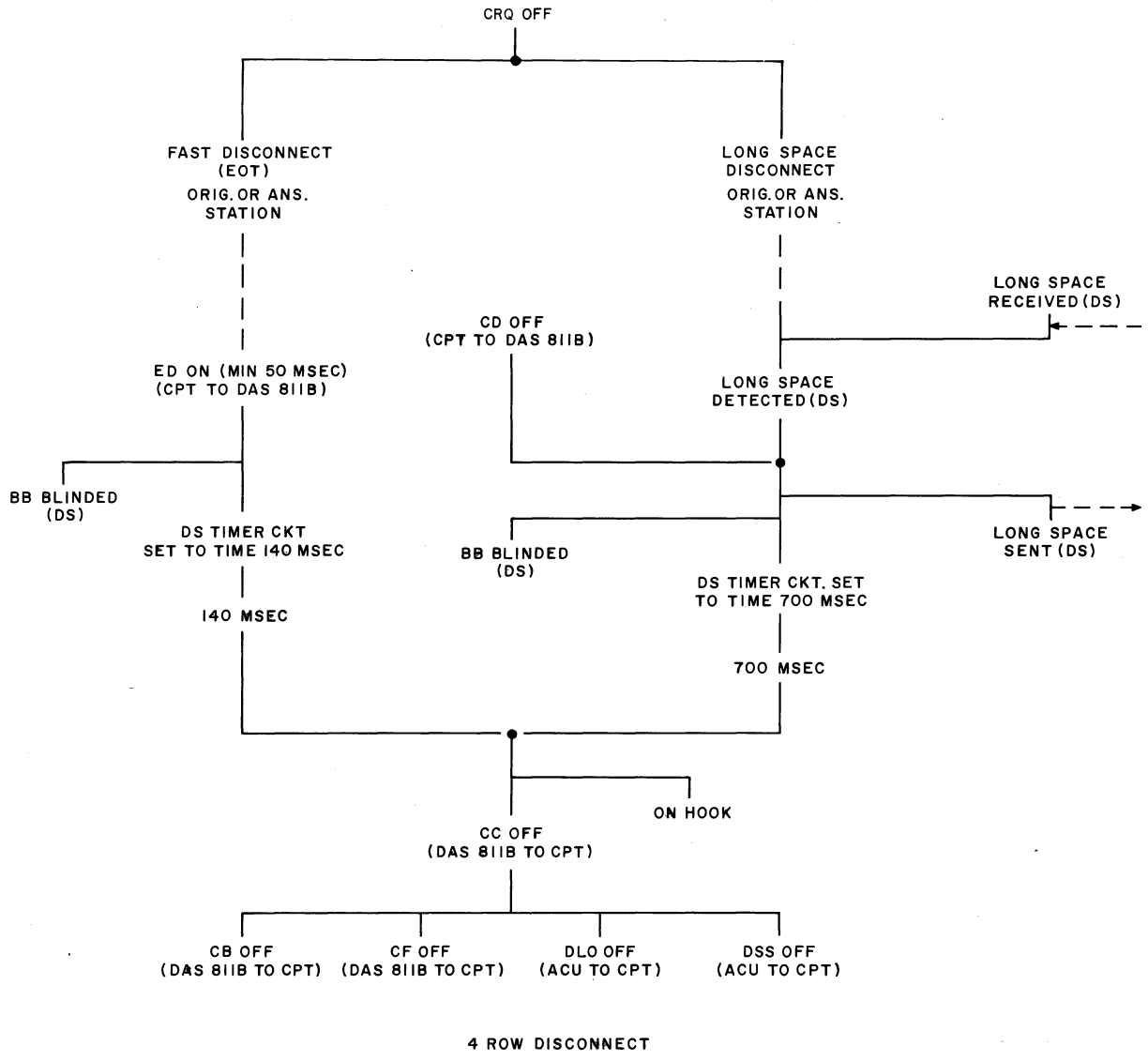

Fig. 11—Clearing Flow Chart for CPT for 4-Row TWX Service Using the Terminate Call Via Data Set After DSS ON Option

TABLE B

DATA AUXILIARY SET — CPT INTERFACE CONNECTOR PIN ASSIGNMENTS

PIN	CIRCUIT	FUNCTION
1	AA	Protective Ground
2	BA	Transmitted Data
3	BB	Received Data
4	–	–
5	CB	Clear to Send
6	CC	Data Set Ready
7	AB	Signal Ground
8	CF	–
9	–	–
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	DD	Restraint Detected (4-row only)
18	–	–
19	–	–
20	CD	Data Terminal Ready
21	–	–
22	CE	Ringing Indicator
23	–	–
24	ED	EOT Detected (4-row only)
25	–	–