DATA SET 403D-TYPE

DESCRIPTION

1. GENERAL

1.01 Data Set 403D-type is a low-speed parallel data receiver designed to receive two-out-of-eight signals generated by a TOUCH-TONE® telephone and transmitted over the DDD network or private switched network facilities. Data Set 403D-type is used in multiple set installations, and is also the basic element in the Data Set 403E-type single set installation. These data sets supersede Data Set 403A-type which is rated Manufacture Discontinued (MD). This section provides a physical and functional description of Data Set (DS) 403D-type, describes its basic functions, discusses the general application of the data set, and provides a list of references for additional information on the data set and associated equipment.

1.02 This section is reissued for the following reasons:

- To show Data Sets 403D3, 4, 5, 6, 7, and 8 rated Manufacture Discontinued (MD).
- To show Data Sets 403D9, 10, 11, 12, 13, and 14 as the respective replacing data sets.
- To include new circuit packs (CPs) used in the current standard data sets, which provide for operation with ESS and on Unigauge loops and meet the signal level constraints of FCC Tariff No. 263.
- To include a call origination and return-to-data feature. This requires a 1B3 Data Mounting instead of a 1B2 and a CP AR462 instead of the CP AR252. The 1B2 Data Mounting and CP AR252 are rated MD. This feature also requires a modified CALL DIRECTOR.®
- To show CP AR250 rated A&M only.
- To delete references to 17A1, 2, and 3 Data Mountings.
- To show 8A3 and 8A4 Data Units rated MD and to show the 8A5 as the replacement. The 8A5 permits the use of a ground start telephone line arrangement for single set use.
- To show 3A2 Data Mounting rated MD and to show 3A3 Data Mounting as the replacement.
- To include a new attendant alert feature and to include third-wire out-of-service feature for single set use. These require a CP AR429 instead of CP AR253. The CP AR253 is rated MD.

Because many of the Data Sets 403D3 through 8 (MD) are still in use in the field, information on these units is retained. Since this reissue constitutes a general revision, arrows ordinarily used to indicate changes have been omitted.

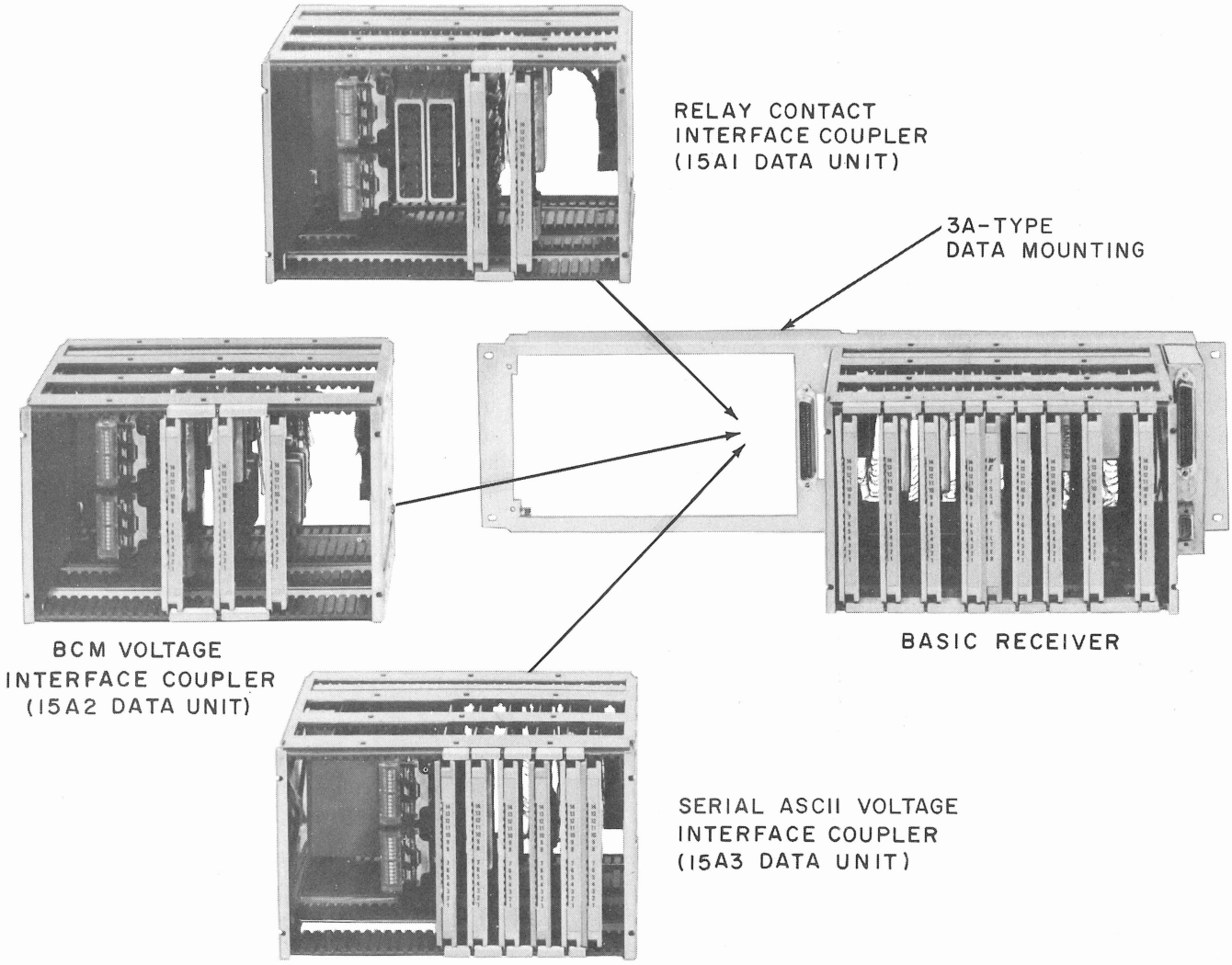

Fig. 1—Data Set 403D-Type Showing the Three Related Interface Units

TABLE A

DATA SETS 403D-TYPE USED IN MULTIPLE RECEIVER STATION

DATA SET CODE	DATA UNIT SUPPLIED	CP SUPPLYING MULTIPLE RECEIVER CONTROL	TYPE OF CUSTOMER INTERFACE PROVIDED
403D3 (MD) 403D9	15A1	AR252 (MD) AR462	2-out-of-8 Contact
403D5 (MD) 403D11	15A2	AR252 (MD) AR462	4-Level Binary Coded Matrix (EIA Voltage)
403D7 (MD) 403D13	15A3	AR252 (MD) AR462	Serial ASCII (EIA Voltage)

Note: These data sets are supplied with a P47M644 Adapter to fit 25-inch mounting space.

1.03 Data Set 403D-type (Fig. 1) is made of two basic items: a basic receiver and one of three types of interface coupler units (Data Units 15A1, 15A2, or 15A3). These interchangeable interface couplers, which plug into the frame containing the basic receiver, make the Data Set 403D-type adaptable to many different business machines. Nine printed wiring board circuit packs are used in the basic receiver and the data units. Combinations of the basic receiver and interface coupler units, combined with circuit pack substitutions in the receiver portion, provide six codes of Data Set 403D-type (Table A).

1.04 Data Set 403D-type is a receiver designed to be the basic building block for a single data set station (DS 403E-type) or for data stations requiring any number of receivers with the same or different interfaces for the detection of 2-out-of-8 coded information transmitted by a TOUCH-TONE telephone, Data Set 401A, or any transmitter using the TOUCH-TONE 2-out-of-8 frequencies transmission code over 2-wire private line or switched network facilities.

1.05 An external answer-back generator, such as Data Set 202D or 402C, may be used in single set applications to provide high-speed data answer-back. The calling station must be equipped to receive such high-speed answer-back signals.

1.06 In multiple data set installations, as well as single data set installations, common equipment, power supply, and a telephone control unit are necessary to provide a complete data receiver station.

1.07 The 15A1 Data Unit (interface coupler) provides a contact closure interface. When used in conjunction with the basic receiver, the combination becomes a Data Set 403D9 or Data Set 403D10. This combination provides a data set which may be used in a single or multiple data set configuration requiring a contact interface.

1.08 The 15A2 Data Unit (interface coupler) provides a binary coded matrix (four-level code) voltage interface. When used in conjunction with the basic receiver, the combination becomes a Data Set 403D11 or Data Set 403D12. This combination provides a data set which may be used in a single or multiple data set configuration requiring a binary coded matrix (BCM) voltage interface.

1.09 The 15A3 Data Unit (interface coupler) provides a serial ASCII voltage interface. When used in conjunction with the basic receiver, the combination becomes a Data Set 403D13 or Data Set 403D14. This combination provides a data set which may be used in a single or multiple data set configuration requiring a serial ASCII voltage interface.

1.10 The two circuit packs (AR462 and AR429), which may be interchanged within the basic receiver, perform the following functions:

(a) The CP AR429 provides the talk relay necessary to provide switching and control functions for a single data set station.

(b) The CP AR462 provides the relays necessary to provide switching and control functions when the receiver is being used in conjunction with other receivers in a multiple data set station. This permits origination and transfer of calls by an operator at the data station.

1.11 The circuit pack complement for both the current standard and the Manufacture Discontinued Data Set 403D-type basic receiver is listed in Table B.

1.12 Most single data stations utilizing Data Set 403D-type are housed in a KS-20018-L1 cabinet, while multiple data stations utilizing a number of Data Sets 403D-type and associated equipment are housed in a KS-20093-L1 cabinet.

1.13 Data Set 403D-type must be supplied with an external dc power supply (+18Vdc and −18Vdc when used in single set arrangements and, in addition, −24Vdc and 10Vac when used in multiple set arrangements). The 8A5 Data Unit, which includes a power unit, provides power for single receiver stations; the 31A Power Unit provides power for a multiple installation. The data set is designed for proper operation in an environment with an ambient temperature range of +40 to +120°F and a relative humidity range of 20 to 90 percent.

TABLE B

CIRCUIT PACK COMPLEMENT OF DATA SET 403D-TYPE BASIC RECEIVERS

DATA SET	CIRCUIT PACK USED							
	CONTROL UNIT	LINE CONTROL	OPTION BOARD	AGC	FILTER	GROUP LIMITERS	CHANNEL DETECTORS	TIMERS, DETECTOR
CURRENT STANDARD 403D9 403D10 403D11 403D12 403D13 493D14	AR462[1] or AR429[2]	AR422	AR461	AR249	755A	AR248	AR246 & AR247	AR245
RATED MD 403D3 403D4 403D5 403D6 403D7 403D8	AR252[1,4] or AR253[2,4]	AR251[4]	AR250[3]					

Notes:

1. For multiple set installation
2. For single set installation
3. Rated A&M only
4. Rated MD

2. PHYSICAL DESCRIPTION

Basic Receiver

2.01 The basic receiver consists of nine circuit packs, with accessible test points, plugged into a 3A3 Data Mounting. The data mounting serves as a frame for the basic receiver and the interface coupler. The data mounting contains plugs and wiring necessary for interconnecting the basic receiver and the interface unit (Fig. 2).

Note: The 3A2 Data Mounting formerly used is rated MD.

2.02 The basic receiver weighs approximately twelve pounds. It is always used with one of the three interface couplers (Data Unit 15A1, 15A2, or 15A3). The 3A3 Data Mounting permits mounting of the basic receiver and the interface coupler within a 23-inch wide by 6-inch high mounting space. A 2-inch mounting plate is supplied with Data Sets 403D9, 403D11, and 403D13 for installation in 25-inch wide mounting spaces.

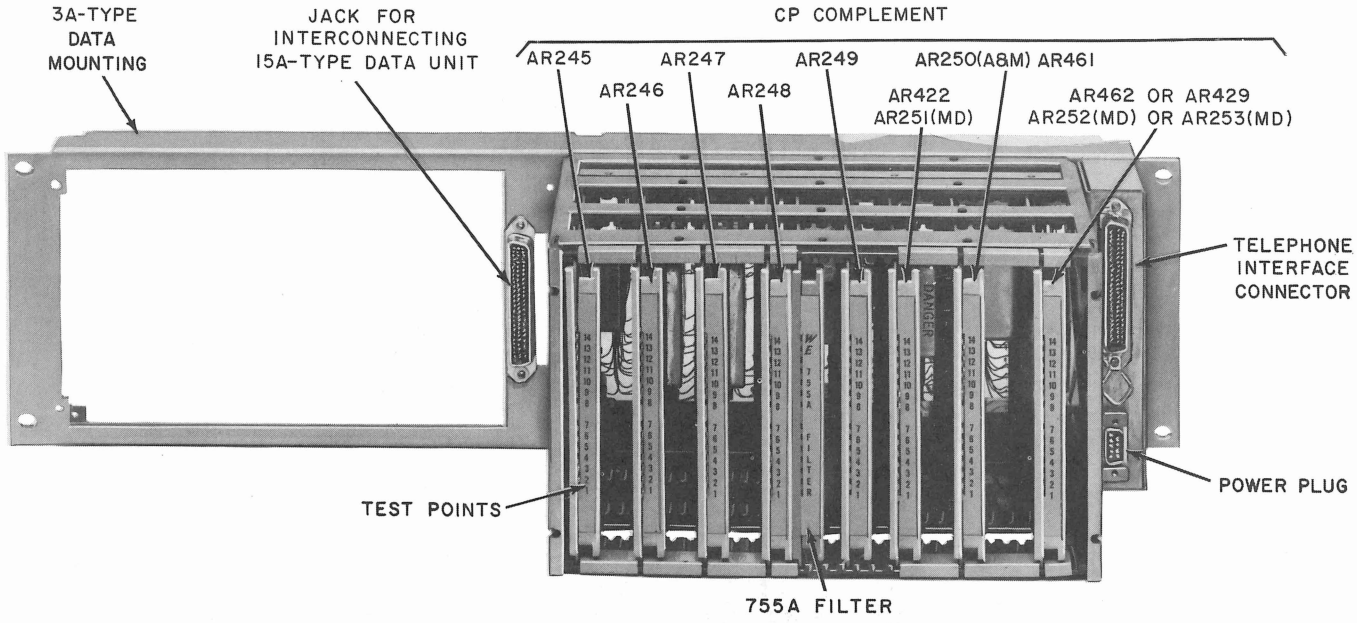

Fig. 2—Basic Receiver of Data Set 403D-Type

15A1 Data Unit (Interface Coupler)

2.03 The 15A1 Data Unit consists of two circuit packs and two wire spring relays for remote testing, and two relays for providing data information (Fig. 3). The 15A1 Data Unit and a basic receiver, mounted on a 3A3 Data Mounting, make a Data Set 403D9 or 403D10.

2.04 The 15A1 Data Unit measures 5.92 inches high, 7.69 inches deep, and 9.75 inches wide, and weighs approximately five pounds.

15A2 Data Unit (Interface Coupler)

2.05 The 15A2 Data Unit consists of three circuit packs, two wire spring relays, and a connector (Fig. 4). The binary coded matrix voltage interface uses a four-level code for transfer of information to the business machine. This unit provides a voltage-controlled interface which conforms (where applicable) to EIA standard RS-232-B. The 15A2 Data Unit and a basic receiver, mounted on a 3A3 Data Mounting, make a Data Set 403D11 or 403D12.

2.06 The data unit has the same dimensions and weighs approximately the same as the 15A1 Data Unit.

15A3 Data Unit (Interface Coupler)

2.07 The 15A3 Data Unit consists of six circuit packs, two relays, a voltage regulator, and a connector (Fig. 5). This unit permits the data set to operate with business machines on a serial ASCII, EIA voltage basis. The interface conforms to EIA standard RS-232-B. The 15A3 Data Unit and a basic receiver, mounted on a 3A3 Data Mounting, make a Data Set 403D13 or 403D14.

2.08 The 15A3 Data Unit has the same dimensions as the 15A1 Data Unit; it weighs approximately 7 pounds.

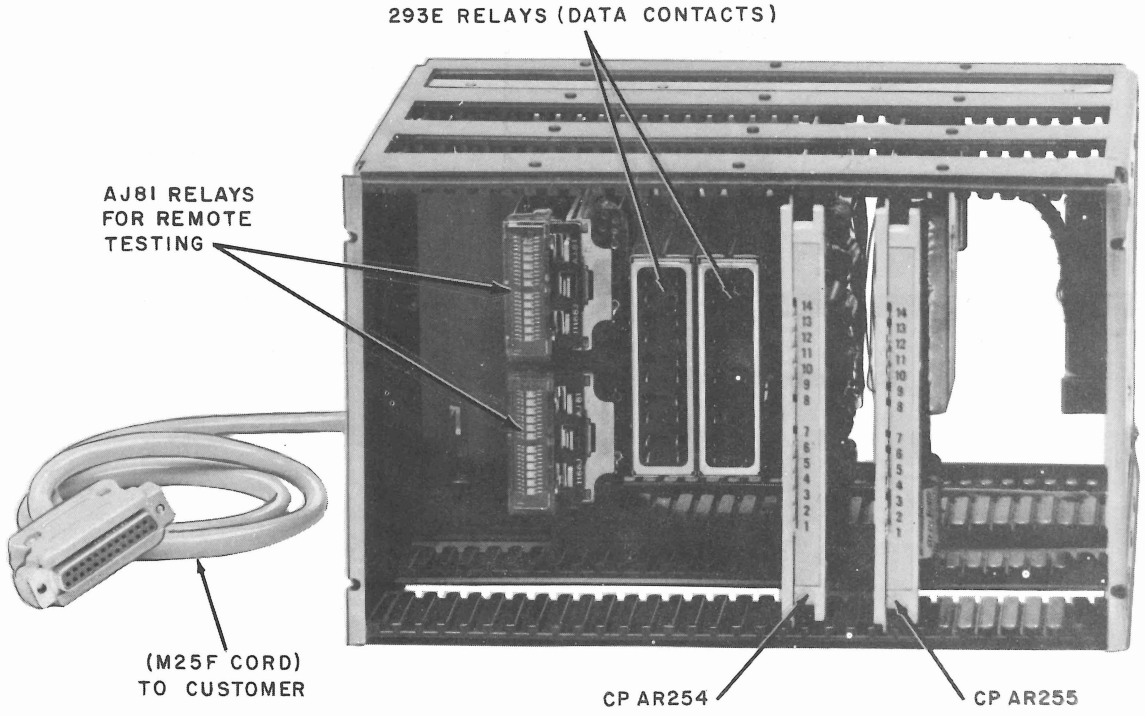

Fig. 3—15A1 Data Unit

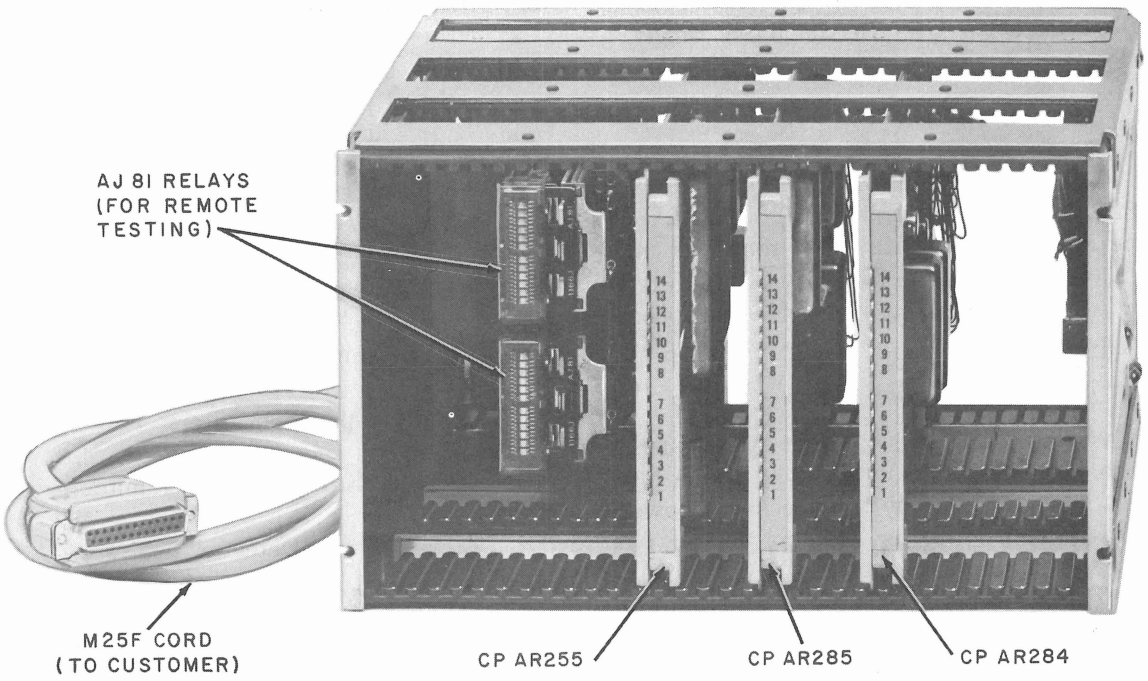

Fig. 4—15A2 Data Unit

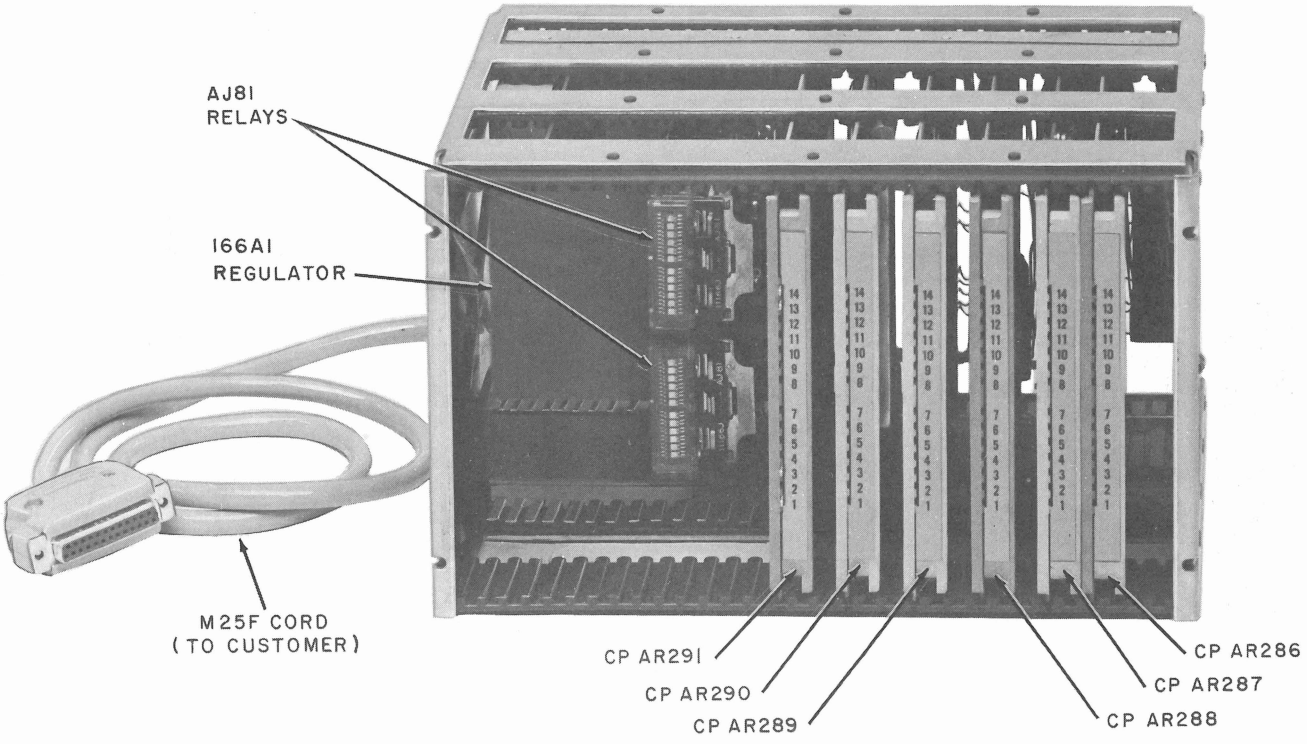

Fig. 5—15A3 Data Unit

2.09 Figure 6 illustrates the mounting of a 15A-type Data Unit to the basic receiver frame.

2.10 A single data set receiver station (Data Set 403E-type) is comprised of a Data Set 403D-type and an 8A5 Data Unit, mounted in a KS-20018-L1 Cabinet. A Data Auxiliary Set 804G-type is used with this arrangement to provide line control and talk functions.

2.11 To provide a multiple data set station using a number of Data Sets 403D-type, a 31A-type Power Unit is used to supply the necessary power. A 1B3 Data Mounting is also required for interconnection of the data sets and data auxiliary set and the distribution of power and control functions to the data sets. A Data Auxiliary Set 804K-type is required to supply the needed line control functions as well as to supply required telephone service. These items are housed in a KS-20093-type cabinet. For more details on the associated equipment, and interconnections for single or multiple data set installations, consult the references in Part 4 of this section.

3. FUNCTIONAL DESCRIPTION

3.01 The basic receiver is made of nine basic circuit packs, as follows:

- Single Set or Multiple Set Control Unit
- Line Control Circuit
- Option Board
- AGC Amplifier
- Band Separation Filters
- Channel Amplifier and Limiter
- High Group Detector
- Low Group Detector
- Signal Timer, Output Timer, Carrier Detector, and Threshold Circuit.

When these basic receiver circuits are used in conjunction with the circuits in a 15A-type Data Unit, the receiver becomes a 403D-type Data Set (Fig. 7).

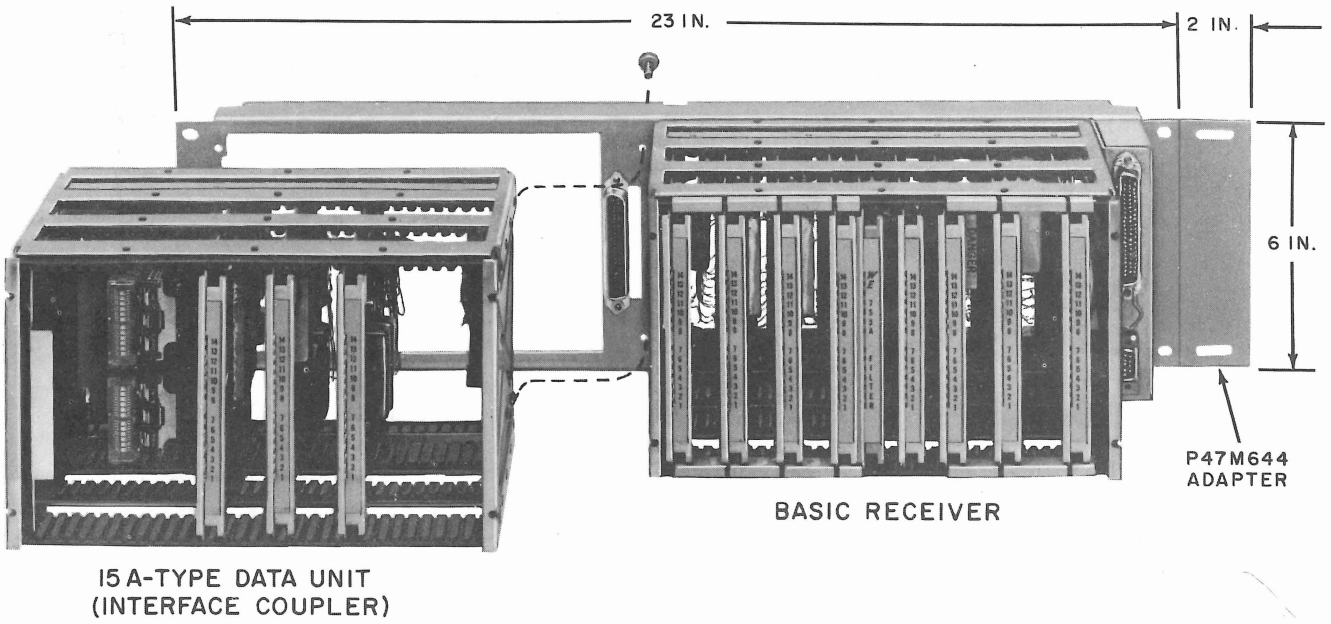

Fig. 6—Interconnection of 15A2 Data Unit to Basic Receiver—Typical

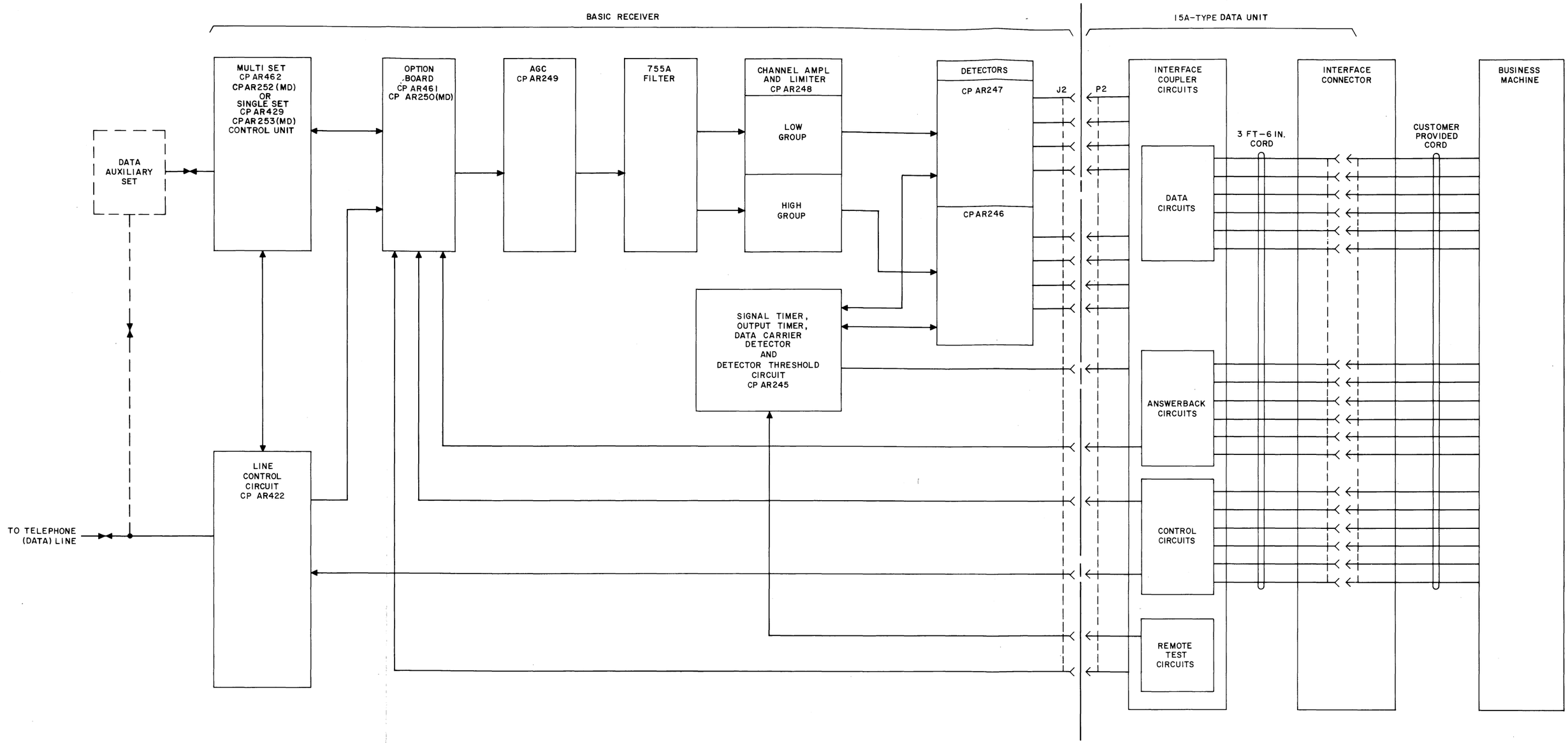

Fig. 7—Data Set 403D-Type—Functional Block Diagram

3.02 Data transmitted from a remote station is applied to the data line. It then passes through a control unit (either a Data Auxiliary Set 804G-type for single set installation or Data Auxiliary Set 804K-type for multiple set installations) and through the line control circuit. The line control circuit is the interface between the data line and the data receiver and answer-back channel portion of the data set and provides the following functions:

(a) Unattended call answering and disconnect for the data set

(b) Provision for normal voice telephone service with the associated data auxiliary set

- Customer interface controls
- Data-to-talk transfer
- Talk-to-data transfer

(c) Provides a 2025-Hz answer-tone signal as an indication to the calling party that the call has been answered

(d) Provides a 1.1 second delay following line seizure, which allows the off-hook signal to be transmitted from the called station to the originating central office

(e) Provides an impedance match for a 600- or 900-ohm line

(f) Provides lightning protection.

3.03 The signal is then applied to the option board, which conditions the data set to provide the service of the installed options. Table C describes the options for the data set. Most of these options are located on CP AR461 within the basic receiver; others are located on CP AR288 in the 15A3 Data Unit. Character options are provided on CP AR287 of the 15A3 Data Unit. These options determine the ASCII interface signal output for certain input characters (Table D). These characters are generally control characters, of which there are three classes, as follows:

(1) ***Communication Control (CC):*** A functional character intended to control or facilitiate transmission of information over communication networks.

(2) ***Format Effactor (FE):*** A functional character which controls the layout or positioning of information in printing or display devices.

(3) ***Information Separator (IS):*** A character which is used to separate and qualify information in a logical sense. There is a group of four such characters to be used in hierarchical order (starting at the top and descending to a lower form).

Note: The preceding definitions are taken from American National Standard Code for Information Interchange—ASCII-X3.4-1968.

3.04 The signal is applied to the AGC circuit, which has a fast attack and long release time. This long release time enables the receiver to ignore echo signals which could cause digit simulation.

Band Separation Filter

3.05 The output from the AGC is applied to the band separation filter circuitry where two filters separate the signals into a high group (1209 Hz to 1633 Hz) and a low group (697 Hz to 941 Hz).

Channel Threshold, Amplifier, and Limiter

3.06 Next, the signal is applied to the channel threshold, amplifier, and limiter circuits. All signals greater than a threshold presented by the limiter circuit produce a square-wave output of fixed amplitude and a frequency corresponding to that of the input signal. Signals below the threshold level are attenuated by the limiter circuit and are not applied to the detector input. This action selects signals of a proper level for reception.

TABLE C

DESCRIPTION OF FEATURES AND OPTIONS OF DATA SET 403D-TYPE

FEATURE	OPTION	DESIGNATION	DESCRIPTION	WHERE USED
Answering	Z	Attended	Call answered manually. Manual transfer to data mode if business machine ready.	All 403D-type
	Y	Unattended	Call automatically answered in data mode if business machine ready.	
Termination	X	600Ω	Match 600Ω line impedance — principally private line service.	All 403D-type
	W	900Ω	Match 900Ω line impedance — principally switched network service.	
Answer-Back Attenuator	V	0 dB	Option chosen at time of installation to make received level of answer-back signal no greater than —12 dBm at serving office. Nominally, data set answer-back signal output in option V is —3 dBm. See AB27.425.00.	All 403D-type
	T	—4 dB		
	S	—9 dB		
6 dB Input Pad	R	In	Normal sensitivity — principally used for TOUCH-TONE or mixed TOUCH-TONE/401-type transmitting stations.	All 403D-type
	Q	Out	Increased sensitivity — principally used for 401-type transmitting stations.	
2025 Hz Answer-Tone Duration	N	0.57 Sec	Normal answer-tone timing.	All 403D-type
	M	1.25 Sec	Answer-tone timing for use with ACU at transmitting station.	
Answer-Back	A	Internal	Answer-back circuit in data set used.	All 403D-type
	F[1]	External	Customer-provided answer-back generator used.	
Line Intercept	E	Attendant Control	Attendant may access data line at any time.	403D3,5,7 (MD) 403D9,11,13
	B[2]	Business Machine Control	Attendant may access data line only when requested by business machine.	403D3,5 403D9,11

TABLE C (Cont)

FEATURE	OPTION	DESIGNATION		DESCRIPTION	WHERE USED
Out-of-Service (Make-Busy)	K	Control Circuit OFF	Third Wire Control	Provides means for making data line appear busy by placing ground on third wire (sleeve). Line is made busy either by turning control circuit ON or OFF, depending on customer equipment.	403D3,5,7 (MD) 403D9,10,11,12,13,14
	J	Control Circuit ON			403D4,5 (MD) 403D9,10,11,12
	H	Control Circuit OFF	Tip to Ring Shorted	This feature should be used as outlined in AT&TCo. PEM 9197, dated April 19, 1965.	All 403D-type
	G	Control Circuit ON			403D3,4,5,6 (MD) 403D9,10,11,12
	ZC	Disabled			All 403D-type
Private Line Service Without Ringing	ZA	Dry Line (without talk battery)		Allows incoming data calls to be received when ringing signal is not provided. Data set is controlled by DTR interface circuit. Alternate voice service available only with wet line.	All 403D-type
	ZB	Wet Line (with talk battery)			
Control Function (15A3 Data Unit Only) — Initial ## Character Insertion	XA	Enabled		Provides automatic initial ASCII character for separation of messages.	403D7,8 (MD) 403D13,14
	XB	Disabled			
Control Function (15A3 Data Unit Only) — Interdigit Timeout	XC	45 Sec		Permits data set to terminate call after specified period of inactivity.	403D7,8 (MD) 403D13,14
	XD	15 Sec			
	XE	Disabled			
Control Function (15A3 Data Unit Only) — * Answer-Back	XF	Enabled		Provides answer-back tone (2025 Hz) when TOUCH-TONE star (*) is received.	403D7,8 (MD) 403D13,14
	XG	Disabled			
Control Function (15A3 Data Unit Only) — # Answer-Back	XH	Enabled		Provides answer-back tone (2025 Hz) when TOUCH-TONE number sign (#) is received.	403D7,8 (MD) 403D13,14
	XJ	Disabled			
Control Function (15A3 Data Unit Only) — ## Answer-Back	XK	Enabled		Provides answer-back tone (2025 Hz) when second consecutive TOUCH-TONE number sign (##) is received.	403D7,8 (MD) 403D13,14
	XL	Disabled			

Note 1: Not recommended for use on DS 403D7, 8, 13, and 14 because there is no interface control.

Note 2: Not recommended for use on DS 403D7 and 13 because there is no interface control.

TABLE D

IDENTIFICATION OF ASCII CHARACTERS AVAILABLE AS CHARACTER OPTIONS FOR DATA SETS 403D13 AND 403D14

OPTION	DESIGNATION	DESCRIPTION
NUL	NULL	The "all zeros" character which may serve to accomplish time and media fill.
SOH	START OF HEADING	A communication control character used at the beginning of a sequence of characters which constitute a machine-sensitive address or routing information. Such a sequence is referred to as the "heading".
STX	START OF TEXT	A communication control character which precedes a sequence of characters that is to be treated as an entity and entirely transmitted through to the ultimate destination. Such a sequence is referred to as "text". STX may be used to terminate a sequence of characters started by SOM.
ETX	END OF TEXT	A communication control character used to terminate a sequence of characters started with STX and transmitted as an entity.
EOT	END OF TRANSMISSION	A communication control character used to indicate the conclusion of a transmission, which may have contained one or more texts and any associated headings.
ENQ	ENQUIRY	A communication control character used in data communication systems as a request for a response from a remote station. It may be used as a "Who Are You" (WRU) to obtain identification, or may be used to obtain station status, or both.
ACK	ACKNOWLEDGE	A communication control character transmitted by a receiver as an affirmative response to a sender.
BEL	BELL	A character for use when there is a need to call for human attention. It may control alarm or attention devices.
BS	BACKSPACE	A format effector which controls the movement of the printing position one printing space backward on the same printing line. (Applicable also to display devices.)
HT	HORIZONTAL TABULATION	A format effector which controls the movement of the printing position to the next in a series of predetermined positions along the printing line. (Applicable also to display devices and the skip function on punched cards.)

TABLE D (Cont)

OPTION	DESIGNATION	DESCRIPTION
LF	LINE FEED	A format effector which controls the movement of the printing position to the next printing line. (Applicable also to display devices.)
VT	VERTICAL TABULATION	A format effector which controls the movement of the printing position to the next in a series of predetermined printing lines. (Applicable also to display devices.)
FF	FORM FEED	A format effector which controls the movement of the printing position to the first predetermined printing line on the next form or page. (Applicable also to display devices.)
CR	CARRIAGE RETURN	A format effector which controls the movement of the printing position to the first printing position on the same printing line. (Applicable also to display devices.)
SO	SHIFT OUT	A control character indicating that the code combinations which follow shall be interpreted as outside of the character set of the standard code table until a shift in character is reached.
SI	SHIFT IN	A control character indicating that the code combinations which follow shall be interpreted according to the standard code table.
DLE	DATA LINK ESCAPE	A communication control character which will change the meaning of a limited number of continuously following characters. It is used exclusively to provide supplementary controls in data communication networks.
DC1, DC2, DC3, DC4	DEVICE CONTROLS	Characters for the control of auxiliary devices associated with data processing or telecommunication systems, more especially switching devices "on" or "off". (If a single "stop" control is required to interrupt or turn off auxiliary devices, DC4 is the preferred assignment.)
NAK	NEGATIVE ACKNOWLEDGE	A communication control character transmitted by a receiver as a negative response to the sender.
SYN	SYNCHRONOUS IDLE	A communication control character used by a synchronous transmission system in the absence of any other character to provide a signal from which synchronism may be achieved or retained.

TABLE D (Cont)

OPTION	DESIGNATION	DESCRIPTION
ETB	END OF TRANSMISSION BLOCK	A communication control character used to indicate the end of a block of data for communication purposes. ETB is used for blocking data where the block structure is not necessarily related to the processing format.
CAN	CANCEL	A control character used to indicate that the data with which it is sent is in error or is to be disregarded.
EM	END OF MEDIUM	A control character associated with the sent data which may be used to identify the physical end of the medium, or the end of the used, or wanted, portion of information recorded on a medium. (The position of this character does not necessarily correspond to the physical end of the medium.)
SUB	SUBSTITUTE	A character that may be substituted for a character which is determined to be invalid or in error.
ESC	ESCAPE	A control character intended to provide code extension (supplementary characters) in general information interchange. The escape character itself is a prefix affecting the interpretation of a limited number of continuously following characters.
FS GS RS US	FILE SEPARATOR GROUP SEPARATOR RECORD SEPARATOR UNIT SEPARATOR	These information separators may be used within data in optional fashion, except that their hierarchical relationship shall be: FS is the most inclusive, then GS, then RS, and US is least inclusive. (The content and length of a File, Group, Record, or Unit are not specified.)
SP	SPACE	A normally nonprinting graphic character used to separate words. It is also a format effector which controls the movement of the printing position, one printing position forward. (Applicable also to display devices.)

Detectors

3.07 The signal is then applied to eight detector circuits, four in each group, with one for each signaling frequency. The detector circuitry is driven by the limiters: the low-group limiter drives the low-group detectors (697, 770, 852, and 941 Hz) and the high-group limiter drives the high-group detectors (1209, 1336, 1477, and 1633 Hz). The detector operating threshold is approximately 2.5 dB below the output of the limiter. The detector operates when the output of the limiter exceeds this threshold and remains operated as long as the signal is present at the detector. When the detected signal is applied to the 15A-type Data Unit, the threshold level of the detector is raised approximately 1 dB above the peak output of the limiter to prevent operation of any of the other detectors. A feedback path from the output drivers, together with an increase in the threshold level, insures proper operation of the detector.

15A1, 15A2, and 15A3 Data Units

3.08 The signal is then applied to a 15A1, 15A2, or a 15A3 Data Unit, depending upon which of the 3 units is used. A 15A1 Data Unit provides a contact interface; the 15A2 Data Unit provides a special four-level binary voltage interface; the 15A3 Data Unit provides a serial ASCII voltage interface. The type of business machine the Data Set 403D is being used with determines which data unit is to be used. For more details on the 15A1, 15A2, and 15A3 Data Unit functions and interface designations, refer to the section entitled Data Units 15A1, 15A2, and 15A3—Identification (590-100-111). The data unit conditions the signal for acceptance by the receiving business machine and provides circuitry for remote testing of the data set.

Customer Interface

3.09 The signal is then applied through a 3-1/2 foot cord to the interface connector, and then through a customer-provided cord to the receiving business machine.

4. REFERENCES

4.01 The following Bell System Practices provide additional information on Data Sets 403A-, D-, and E-types and associated equipment.

Reference Guide

590-004-106	Data Sets 403A-, D-, and E-Types

Data Set 403A-Type

594-023-100	Identification and Operation
594-023-200	Installation and Connections
594-023-300	Maintenance
594-023-500	Test Procedures

Data Set 403D-Type

594-025-101	Multiple Data Set Station—Description and Operation
594-025-201	Multiple Data Set Station—Installation and Connections
594-025-301	Multiple Data Set Station—Maintenance
594-025-501	Multiple Data Set Station—Test Procedures
594-010-201	Data Sets—Multiple Installation Information
590-100-111	15A1, 15A2, and 15A3 Data Units—Identification
590-102-101	1B-Type Data Mounting—Identification

Data Set 403E-Type

594-026-100	Single Receiver Station—Description and Operation
594-026-200	Installation and Connections
594-026-300	Single Receiver Station—Maintenance
594-026-500	Single Receiver Station—Test Procedures
590-100-110	8A-Type Data Unit—Identification

Data Auxiliary Set 804C-Type

598-039-100	Identification and Operation

Data Auxiliary Set 804G-Type

598-048-100	Description and Operation

Data Auxiliary Set 804K-Type

598-055-100	Identification

4.02 The following schematic drawings (SDs) and circuit descriptions (CDs) provide additional information on Data Sets 403A-, D-, and E-types and associated equipment.

SD- & CD-1D072-01	Data Set 403A-Type
SD- & CD-1D074-01	Data Auxiliary Set 804C
SD- & CD-1D092-01	8A-Type Data Unit
SD- & CD-1D093-01	Data Set 403E-Type
SD- & CD-1D102-01	Data Auxiliary Set 804G-Type
SD- & CD-1D109-01	Data Auxiliary Set 804K-Type
SD- & CD-1D130-01	Data Set 403D-Type
SD- & CD-1D135-01	1B2 Data Mounting
SD- & CD-81878-01	31A-Type Power Unit

4.03 The following Engineering Letters (ELs) and Plant Engineering Letters (PELs) contain pertinent information on Data Sets 403A-, D-, and E-types and associated equipment.

EL 51	Data Sets 403D- and 403E-types; Data Auxiliary Sets 804G- and 804K-types
EL 194	Data Sets 403D7, 403D8, and 403E4; Data Unit 15A3
PEL 7497	Data Set 403A-type; Data Auxiliary Set 804C

4.04 Interface information is given in the following:

Data Set 403A Interface Specification
Data Sets 403D and 403E Interface Specification.