24A-TYPE DATA UNIT
(COMMON CONTROL EQUIPMENT)
IDENTIFICATION

1. GENERAL

1.01 This section contains descriptive information to provide identification and related features of the 24A-type Data Unit (hereafter referred to as "common control equipment"). This section does not include information regarding associated data sets, associated equipment, or telephone customer business machines.

1.02 This section is being reissued to add Table A, add Table B, and incorporate new equipment identification applicable to the 24A-type Data Unit.

1.03 The common control equipment contains the customer and telephone line interface circuits, data set control circuits, remote test circuits, power supply, and provision for adding optional low-speed auxiliary channel apparatus.

1.04 The auxiliary channel can transmit nonsynchronous frequency shift-keying (FSK) data at a maximum rate up to 150 bits per second (bps). When used on 4-wire facilities, the auxiliary channel is normally sent on-line in the same direction as the high-speed channel. The auxiliary channel is required on 2-wire facilities and is normally used as a reverse channel.

1.05 The common control equipment was initially designed to be part of Data Set 203-type.

2. DESCRIPTION

2.01 The common control equipment consists of a mounting frame containing a nest for seven circuit packs (including the auxiliary channel), a 19A1 Data Unit, a position for connecting the auxiliary channel network, a 41A-type power unit to supply operating voltages to all data set circuits, and a panel containing control switches and both the TELEPHONE line and CUSTOMER interface connectors as shown in Fig. 1. The common control equipment also provides interface connections for the 22A- (TRMTR), 23A- (RCVR), and 25A-type (ERROR CONTROL TRMTR and ERROR CONTROL RCVR) Data Units as shown in Fig. 1.

2.02 The approximate overall dimensions are 17 inches long, 8 inches high, and 9 inches deep. The weight of the common control equipment is 28 pounds including the auxiliary channel apparatus.

2.03 Circuit packs for the basic common control equipment are as follows and are shown in Table A:

(a) AR386—Relays I, AR387—Relays II } 19A1 Data Unit

(b) AR335—Option board

(c) AR337—Remote test

(d) AR340 (Mfr. Disc.), AR503 (Standard)—Control Logic I

(e) AR341 (Mfr. Disc.), AR501 (Standard)—Control Logic II.

2.04 The remaining basic components of the common control equipment are the 41A-type power unit and the switch panel. A special ac power cord (P3BG) is provided to connect between the 117-volt (±10 percent) ac power source and the 41A-type power unit input connector.

2.05 Optional circuit packs and network required to complete the common control equipment according to established Data Set 203-type list coding are presented in Table B.

2.06 The common control equipment provides the following circuits and functions when used with Data Set 203-type:

(a) Telephone facility interface

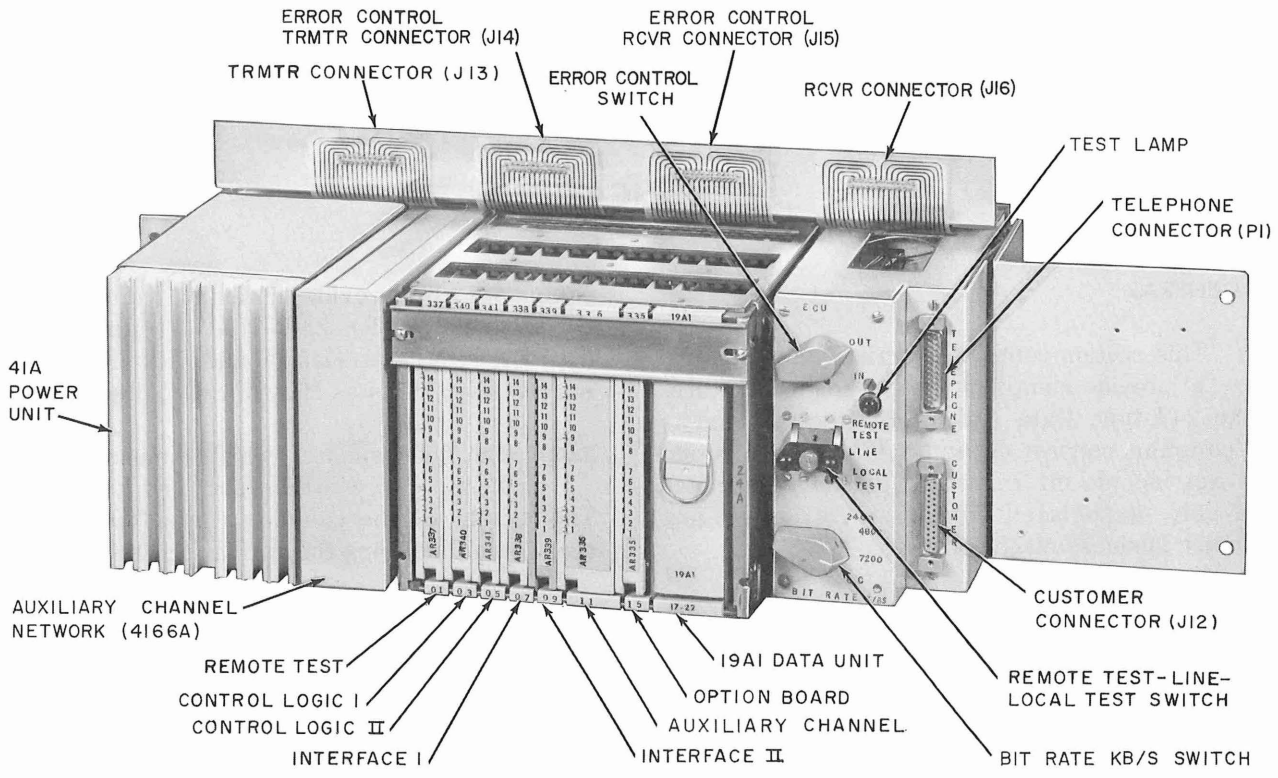

Fig. 1—24A-Type Data Unit Equipped With Interface and Auxiliary Channel Circuits

TABLE A

STANDARD APPARATUS FOR 24A-TYPE DATA UNIT

CIRCUIT PACK	CIRCUIT PACK POSITION	CIRCUIT PACK FUNCTION
AR386	17	Relays I (part of the 19A1 Data Unit)
AR387	22	Relays II (part of the 19A1 Data Unit)
AR335	15	Option board
AR337	01	Remote test
AR503 (STD) AR340 (MD)	03 03	Control logic I
AR501 (STD) AR341 (MD)	05 05	Control logic II

STD = Standard; MD = Manufacture Discontinued

TABLE B

OPTIONAL APPARATUS FOR 24A-TYPE DATA UNIT

DATA SET 203 LIST NUMBER	CIRCUIT PACK	CIRCUIT PACK POSITION	NETWORK	NETWORK CONNECTOR	FUNCTION
L7 (Note 1)	AR336	11	4166A	J11	To provide a low-speed ($\leq$150 bps) auxiliary channel
L8 (Notes 2 and 3)	AR338	07	—	—	To provide an EIA Standard interface
	AR502	09	—	—	
L9 (Notes 2 and 4)	AR496	07	—	—	To provide a MIL. Standard interface
	AR497	09	—	—	

Note 1: The auxiliary channel is optional only for Data Set 203A-type. Data Sets 203B-type and 203C-type are equipped with the auxiliary channel as common equipment.

Note 2: Optional only for 24A2 Data Unit. The 24A1 Data Unit, which has been replaced by the 24A2 Data Unit, contains an EIA Standard interface as common equipment.

Note 3: A 25-pin KS-19087-L2 connector is provided for the interface.

Note 4: A 15-pin KS-19087-L1 and a 25-pin KS-19087-L2 connector are provided on an adapter 840-128-573 with a cable and plug assembly for connecting to the 25-pin connector provided on the 24A2 Data Unit frame.

(b) Customer interface and control logic circuits

(c) Remote and local test capabilities

(d) Data speed selection capability

(e) All installer strapping options

(f) Power supply and distribution

(g) Auxiliary channel circuitry (when required)

(h) Error control IN or OUT selection.

2.07 The interface and control logic circuits are provided on four of the eight circuit packs located in common control equipment. The interface I and II circuit packs provide circuits to convert customer interface signal levels into internal data set logic levels and to convert the internal data set logic levels to meet the customer requirements at the interface connection. The Control logic I and Control logic II circuit packs contain circuitry which generates and/or controls various functions of the data set.

2.08 Remote and local test capabilities are provided through circuitry mounted on the remote test circuit pack AR337 and the switches contained on the 24A-type Data Unit. The circuitry of AR337 permits the remote testing of (a) a high-speed channel transmitter and/or receiver and (b) a low-speed auxiliary channel transmitter and receiver. The local test capability is provided for Data Set 203-type through contacts of the REMOTE TEST—LINE—LOCAL TEST switch on the switch panel. In REMOTE TEST position, the data set is conditioned to be remotely tested by the serving data test center. (A red lamp is provided to indicate when the set is in REMOTE TEST condition.) The LOCAL TEST position loops the data set high-speed transmitter (22A-type Data Unit) to the high-speed receiver (23A-type Data Unit) to permit testing through the CUSTOMER interface connector. The switch should be locked in LINE position during normal operation.

2.09 Data rate selection capability is provided with the control panel BIT RATE switch. The lowest speed, midrange speed, and highest speed capabilities are represented by switch positions labeled accordingly for the functional option provided.

Switch position CC permits the customer to select either of the two higher speeds through the interface. When the customer business machine applies a positive voltage on the SS lead, the highest speed capability is provided. If a negative voltage is applied to the SS lead, the midrange speed capability is provided.

2.10 Option strapping, which is to be performed during installation or prior to testing, is accomplished by proper connections of the 38 pairs of screw terminals located on option board circuit pack AR335. This circuit pack also provides signal attenuator pad which is adjustable between 0 and 15 dB in 1.0 dB steps and another attenuator pad which provides either 0-dB or 10-dB attenuation.

2.11 The 41A-type power unit provides the operating voltages required by Data Set 203-type components. A distributing system from the power unit to all data units provides connection to the regulated +4.5 Vdc source and circuit ground. The power unit is also the source of both +18.5 Vdc and −18.5 Vdc which are distributed to other data units through the connectors at the rear of the common control equipment.

2.12 When required, the auxiliary channel transmitter/receiver circuitry is provided in the common control equipment by circuit pack AR336. The circuit consists of an FSK transmitter, a differential detector receiver, and an energy-level carrier detector. The circuit operates with the 4166A network to provide a low-speed nonsynchronous auxiliary channel.

2.13 ▶The common control equipment has provisions for connecting an error control unit (25-type Data Units) into the data set circuitry. A switch is provided on the control panel for the purpose of switching the error control IN or OUT as required.◀

3. REFERENCES

3.01 The following publications and documents provide detailed information regarding various aspects of the common control equipment and related equipment:

SECTION	TITLE
592-019-100	Data Set 203-Type, Description and Operation
592-019-150	Data Set 203-Type, Theory of Operation and Supplementary Information
592-019-180	Data Set 203-Type, Transmitter Receiver Summarizing Specification, Data Systems Station
592-019-200	Data Set 203-Type, Installation and Connections
592-019-300	Data Set 203-Type, Maintenance
592-019-500	Data Set 203-Type, Test Procedures
CD- & SD-1D151-01	Circuit Description and Schematic Drawing for Data Systems Station—Data Set 203-Type
CD- & SD-1D152-01	Circuit Description and Schematic Drawing for Data Systems Station—22A-Type Data Unit
CD- & SD-1D153-01	Circuit Description and Schematic Drawing for Data Systems Station—23A-Type Data Unit
CD- & SD-1D154-01	Circuit Description and Schematic Drawing for Data Systems Station—24A-Type Data Unit