

230A REPEATER FOR USE WITH NO. 1 AUTOMATIC MESSAGE ACCOUNTING RECORDING CENTER (AMARC)

DESCRIPTION

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1. GENERAL

1.01 The 230A Repeater is a self-contained unit intended for use as a remote teletypewriter driver. The 230A consists of four subcircuits; power, transmit, receive, and control (switch). The 230A is capable of performing as an interface for a computer terminal by connecting a channel with up to four remote locations via data service. The 230A repeats signals received from the driver and sends them to four bipolar voltage data set drivers, one bipolar voltage terminal port, and two 20-mA current loop ports for local use. Local terminals connected to the 230A may either be 20-mA current loop driver devices or EIA standard bipolar voltage teletypewriter drivers. The four data set connections are EIA standard. The 230A also permits remote locations to send data to the maintenance channel. However, keys have been provided on the 230A which allows the selective disabling of input from each remote location.

1.02 Whenever this section is reissued, the reasons for reissue will be stated in this paragraph.

1.03 The 230A is used between the computer (driver) and terminal. Connection is made

by separating the existing connection between these devices and then connecting plug ended cords from both the computer and the terminal into the 230A. (Refer to Fig. 1.) This arrangement reestablishes the original connection plus provides additional connectors on the 230A into which four data sets may be connected. Normal interaction of a computer and terminal is not affected by the insertion of the 230A in the line.

1.04 When a terminal prior to installation of the 230A operated in full duplex (does not print a character that is typed on it; but instead, the computer echoes the character to the terminal), the 230A can be used without any changes in circuit operation. This will allow any character that is entered on any terminal to be received by the computer and echoed back to all terminals.

1.05 When the original terminal arrangement is not full duplex (the terminal is wired to give a local copy of characters on it) and the 230A is used, each terminal will not be furnished a copy of information that is typed on other terminals. This can be changed by modifying all terminals to not provide a local copy and then looping the input to output of the 230A. With this arrangement, the 230A can now copy to all terminals no matter which terminal originates the message.

2. PHYSICAL DESCRIPTION

2.01 The 230A Repeater is a small, light weight remote teletypewriter repeater/driver. Fig. 2 illustrates the front and rear view of the 230A repeater/driver. The 230A is suitable for wall shelf, desk, or table top location as desired.

2.02 The 230A consists of a power supply, PWI apparatus coded circuit pack, a switch assembly, the connector and terminals housing, the 230A assembly housing, and front and rear

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covers. A fused power cord is also an integral part of the unit.

2.03 Separately coded interconnecting cords are required to associate this apparatus with the teletypewriter at the location to be monitored and/or controlled. Fig. 3 provides a block diagram of the external connections to the 230A, and also identifies the cords used for establishing the various connections.

2.04 The power supply (Fig. 2) consists of two modules colocated on a single slide-in metal plate. One of the modules is the Lambda LZD-35 which supplies an output of ± 12 Vdc at 230-mA with an input of 105-132 Vac at 57 to 63 Hz. The other module is the Lambda LZS-10 which provides +5 Vdc at 400 mA with an input of 105-132 Vac at 57 to 63 Hz.

2.05 The PW1 circuit pack containing the transmit and receive circuits is a double sided printed wiring board comprising seven integrated circuits, two opto-isolators, and an assortment of resistors and capacitors. A strap (option Z) permits the selection of the desired mode of operation (EIA or current loop). The 230A is initially arranged for current loop interface operation (DL11-A or DL11-C). Closing the strap (option Z) arranges the 230A for EIA loop interface operation (DL11-B or DL11-D).

2.06 The switch assembly (Fig. 2) consists of six double pole double throw (DPDT) switches, a LED, and a resistor, all of which are mounted on the switch mounting plate. The key switches numbered one through four are used to enable the associated data set input. Normally the four data set inputs are disabled. The red panel light (LED) when lighted indicates when an input from at least one data set is enabled thus alerting personnel to possible input from a remote location. When the inputs from all data sets are disabled, the red light is extinguished. However, a data set whose input is disabled is still capable of receiving data on all transmittals made over the network. Switches five and six are used to associate the desired TTY with a remote unit. When a teletypewriter is not connected to both J5 and J6, respective keyswitch 5 or 6 must be operated in order to close the current loop.

2.07 The connector and terminal housing assembly is comprised of two mounting plates to which a 908C connector, a terminal block, nine KS-19087-12

connectors, and the power cord are mounted. The 908C connector interconnects the PW1 circuit pack with all nine of the 25-pin connectors, and the terminal block. The terminal block connects the power cord to the power supply whose outputs are then fed back via the 908C connector to PW1.

2.08 The 230A housing is a 2-piece, interlocking aluminum extrusion forming two compartments to accommodate circuit packs. One side contains the power supply assembly, the other side the PW1 circuit pack. The switch assembly is mounted in the front opening of the housing. The connector terminal housing assembly is fitted into the rear of the housing to complete the assembly.

2.09 The plastic front cover is formed to accommodate the paddle type switch levers, the LED indicator, and panel designations. The rear cover has facilities to access a maximum of nine 25-pin connectors.

3. CIRCUIT DESCRIPTION

A. Transmit Circuit

3.01 Input to the transmit circuit is from the computer interface. The signal can be either current loop or EIA standard bipolar voltage. When using the voltage interface, circuit option Z must be provided to close the unused open current loop.

3.02 The signal from the computer interface is distributed to five EIA line drivers; four of which are used to drive data sets and the fifth used to drive a local EIA terminal. Full duplex channels are used for connections J1 through J4 because no provision has been made to control data set turn around.

3.03 The signal from the computer interface is also sent to current drivers for two local teletypewriters. Each current loop driver is two EIA line drivers with their outputs paralleled. The current loop interface connector has been arranged to permit normal paper tape reader operation of a Digital Equipment Corporation (DEC) LT35 teletypewriter.

B. Receive Circuit

3.04 The receive circuit logically "ORs" the inputs from the four data sets, the EIA terminal, and the two local teletypewriters and then transmits

signals received from the ORs to either a bipolar voltage or a 20-mA current loop computer interface. All terminals can have access to the computer; therefore, simultaneous inputs can interface with each other. Care must be taken to avoid such interference. Normally, the four data set inputs are disabled. Keys provided on the front panel of the 230A provides selective enabling of input signals from the four bipolar voltage data set ports.

4. DATA FACILITIES

4.01 The data service used in conjunction with the 230A repeater can either be a private

line facility with a terminal at the remote end of a DDD arrangement. The data sets used must have an EIA interface and a minimum baud data rate of 110. The remote end terminal should be arranged for full duplex operation (no local copy). The data sets and channel must be arranged for full duplex operation.

4.02 Monitoring is established when the remote terminal dials into the No. 1 AMARC. The data set at the No. 1 AMARC can be left in the manual answer mode when, for security purposes, automatic answer is not desired.

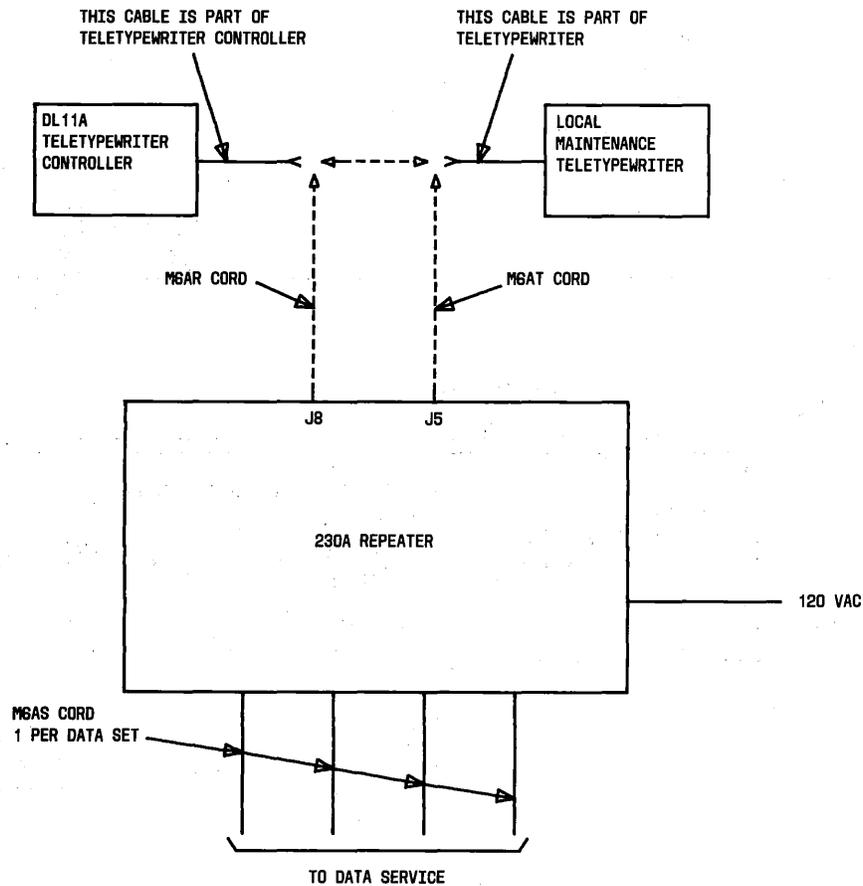


Fig. 1—Connection of 230A Repeater to Processor

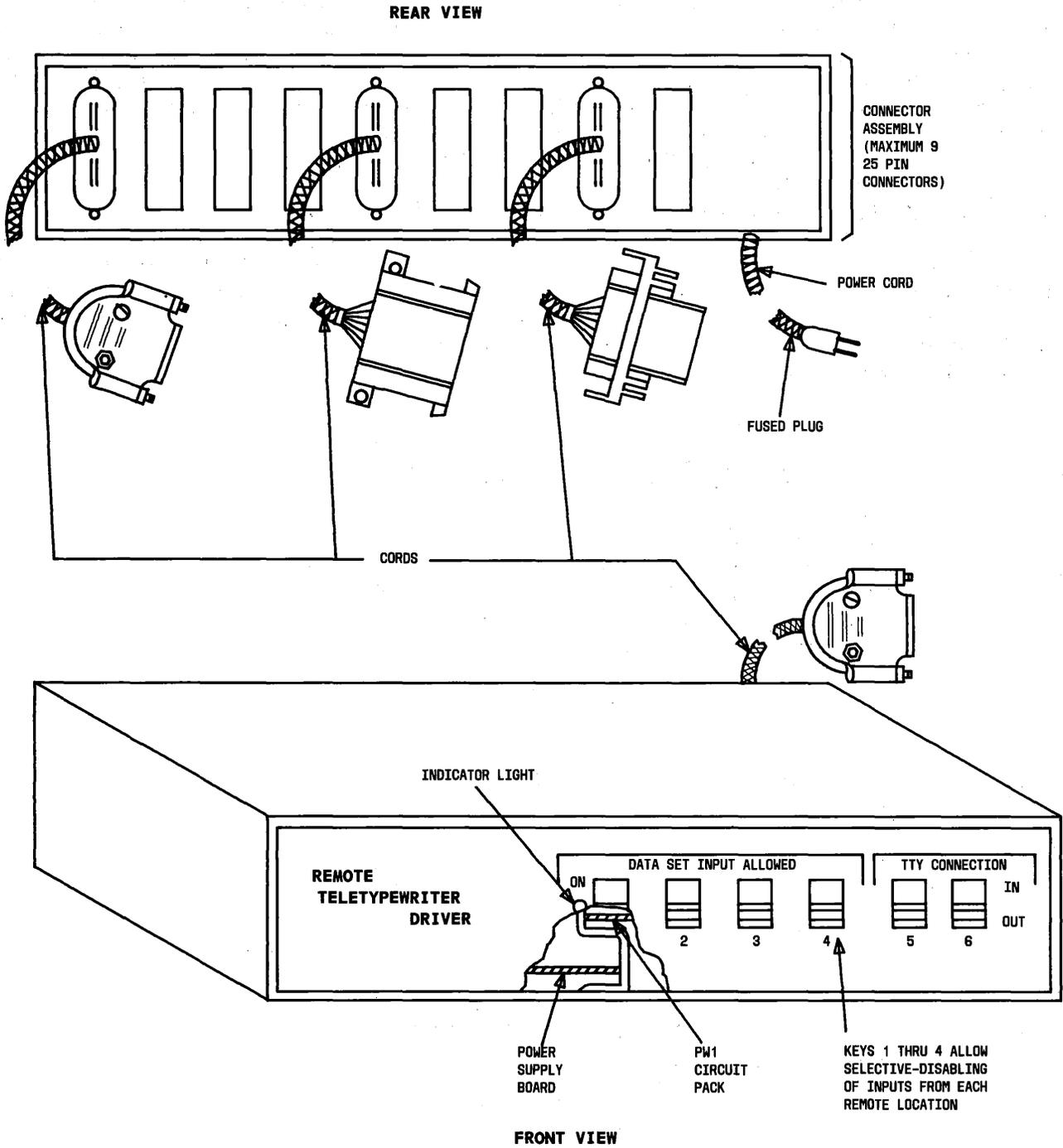


Fig. 2—230A Repeater

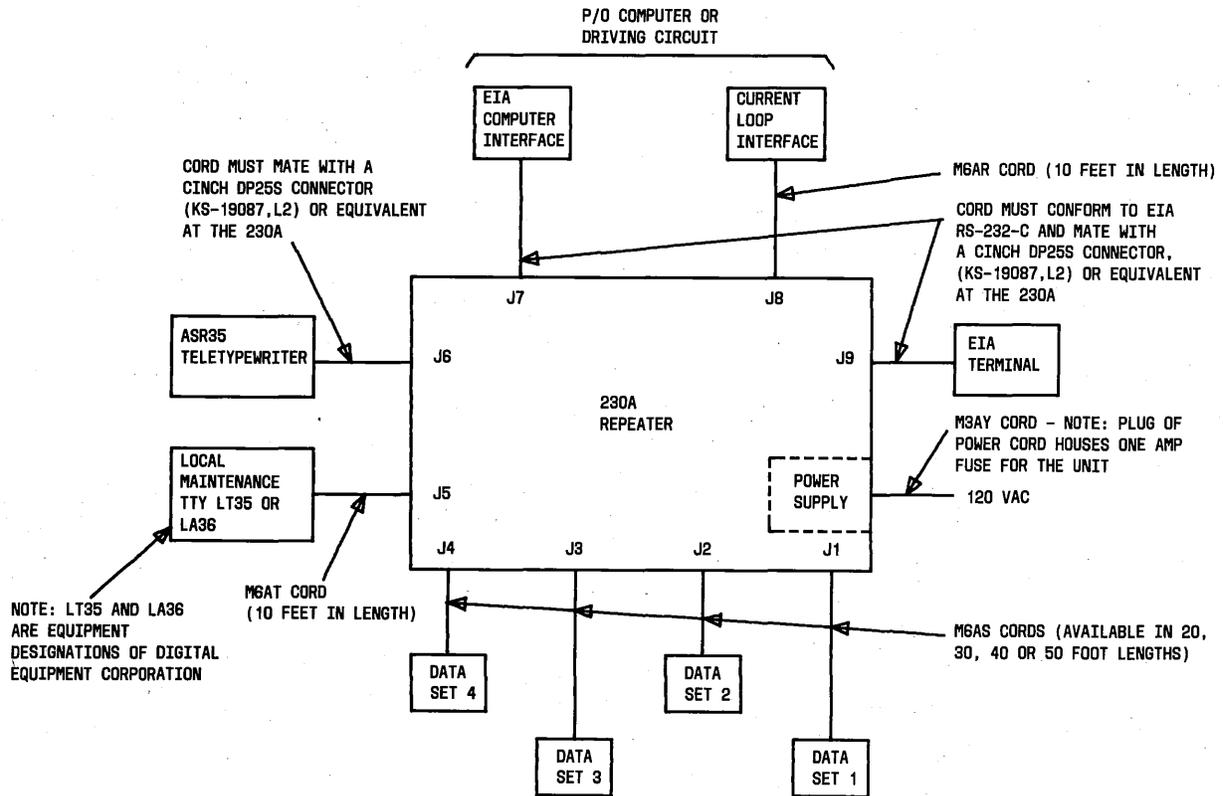


Fig. 3—Block Diagram—External Connections