

**BELL SYSTEM PRACTICES**  
Plant Series

This Practice Released on:..... **SECTION 226-187-900PT**  
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B.S.P.M. #..... O. & E. List #.....

**LINE BUSY RECORDER - STEP BY STEP OFFICES**

**1. GENERAL**

1.01 This section describes the Line Busy Recorder SD-31672-01 (J39202) which is designed to observe simultaneously a group of 100 subscribers' terminals on a shelf of connectors; record on a tape the numbers dialed into the connectors and mark each call on which the subscriber's line is found busy. From the record provided by the tape, the Telephone Company will be able to determine if a subscriber has adequate equipment to handle his calls.

**2. DESCRIPTION OF APPARATUS**

2.01 The recorder is a portable equipment mounted on a small table type test wagon as shown in Fig. 1. The recorder unit is equipped with flexible cords to connect it to the connector shelf to be observed, and to two pen registers.

2.02 The recorder unit includes a relay selector and two relay registers. The selector causes one or the other of the relay registers to function on each call. The relay selector is patched by means of a jack box through the flexible cords to pick up:

- (a) Two leads individual to each connector for registration of the digits dialed.
- (b) One (or two) busy tone leads per shelf for registration of busy lines.
- (c) 1-ring generator to time out and release the recorder in case of a permanent signal condition.

2.03 Two pen registers (KS-3107 Foote-Pierson, double pen) are provided, one for each relay register. The pen registers are connected directly to the relay registers by means of a flexible cord or thru an I.D.F. The tape obtained from the pen registers will indicate by a line of dots the last two digits of the called number. In case the called number is found busy, a line of dashes will be recorded on the tape immediately above the dots of the called number.

2.04 A cord is provided to pick up a regular battery supply. Where battery and 1-ring generator are not conveniently located a longer auxiliary flexible cord may be provided to reach the remote source.

**3. CORDS**

3.01 Each line busy recorder is provided with flexible connecting cords as follows:

- (a) Ten W2BD cords 20 feet long equipped on one end with a 47B plug (black shell) and on the other end with a 360C tool (white) on the tip conductor and a 360A tool (red) on the sleeve conductor.
- (b) Two W2BD cords 20 feet long equipped on one end with a 47A plug (red shell) and on the other end with a 360C tool (white) on the tip conductor and a 360A tool (red) on the sleeve conductor.
- (c) One MSC cord 75 feet long for connection to pen registers.
- (d) One P2J cord 9 feet long for battery supply.
- (e) One M24A cord 75 feet long for connecting jack box to recorder.

3.02 For connection to cords listed in 3.01 (a) and (b) there are provided twenty-four 240J Plugs and twelve KS-6278 connecting clips.

**4. OPERATION**

4.01 If it is not desired to locate the wagon in a wiring aisle near the connector shelf under observation, the wagon may be located in any desirable space limited by the length of the M24A cord connecting the jack box to the recorder. The cord may be run over the cable rack to bring the jack box to a location convenient to the shelf.

NOTE: Do not locate wagon or cords in such a position so as to cause accident hazards.

4.02 Plug one end of a W2BD cord equipped with a 47B plug into the jack box and connect the tip lead of the other end (terminated with a 360C tool) to the pulsing lead of the connector to be observed. The pulsing lead is the back contact of the "A" relay of the connector and is provided with a contact protection condenser. The tip of the cord should be connected to the switch side of the condenser using a 240J tool to connect to the shelf jack when the spark condenser is mounted

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on the shelf angle. Use the KS-6278 tool when the condenser is mounted on the rear cover of the switch. The sleeve lead should be connected to the switch jack associated with the connector incoming sleeve using the 240J plug. The "S" hook of each cord should be hooked over the shelf local cable bar to relieve strain on the plug or clip.

4.03 Using a W2BD cord equipped with a 47A plug on one end, patch the busy tone, serving the connector shelf under observation, to the jack box "BY" jack. The busy tone should be picked up at the switch side of the busy tone condenser.

NOTE: Since some connectors return battery over the T & R to the called party and others return ground, it is necessary to prepare the recorder for receiving either BAT. or GRD. over the busy lead. This is done by means of optional "X" or "Y" wiring at the unit terminal panel. When both types of connectors are mounted on the same shelf, two busy tone condensers are provided which requires that a lead from the switch side of each condenser be extended to the recorder by means of the W2BD cord. For additional information refer to circuit notes on SD-31762-011.

4.04 Using a W2BD cord equipped with a 47A plug, patch MR-R1 generator to the jack of the jack box. Generator may be picked up at any convenient shelf.

NOTE: If MR-1R generator is not available near the connector shelf under observation, MR-1R generator may be patched to the AUX. BAT. and GEN. jack using an M4R cord.

4.05 Using the P2J cord, patch BAT. to the recorder by connecting one end to the 48V BAT. supply JK. and the other into the connector frame BAT. supply jack.

NOTE: If a BAT. supply jack is not readily available, BAT. may be patched to the AUX. BAT. and GEN. jack using an M4R cord.

4.06 Operate the register cutout key.

4.07 If the pen registers are to be located in the switch room they may be placed on top of the wagon. Using the M8C cord patch the pen registers to the equipment jack. The excess cord may be stored on the cord hooks provided with the wagon. If the registers are to be located at a remote point in the same office they may be connected to station pairs and the M8C cord connected to these pairs at the IDF.

4.08 With tape loaded into the pen registers and the rollers inked as covered in BSP 030-341-701, restore the REG. cutout key. The recorder will now function to record numbers dialed into the connectors and to record busy indications.

4.09 Fig. 2 shows a typical installation of the line busy recorder.

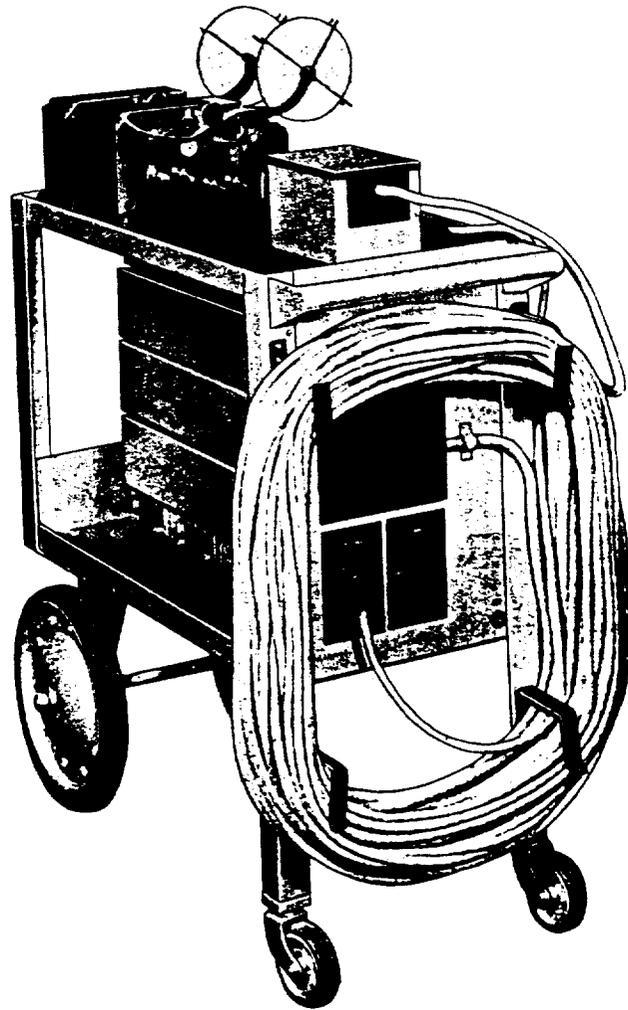


Fig. 1 - Line Busy Recorder Unit and Auxiliary Equipment

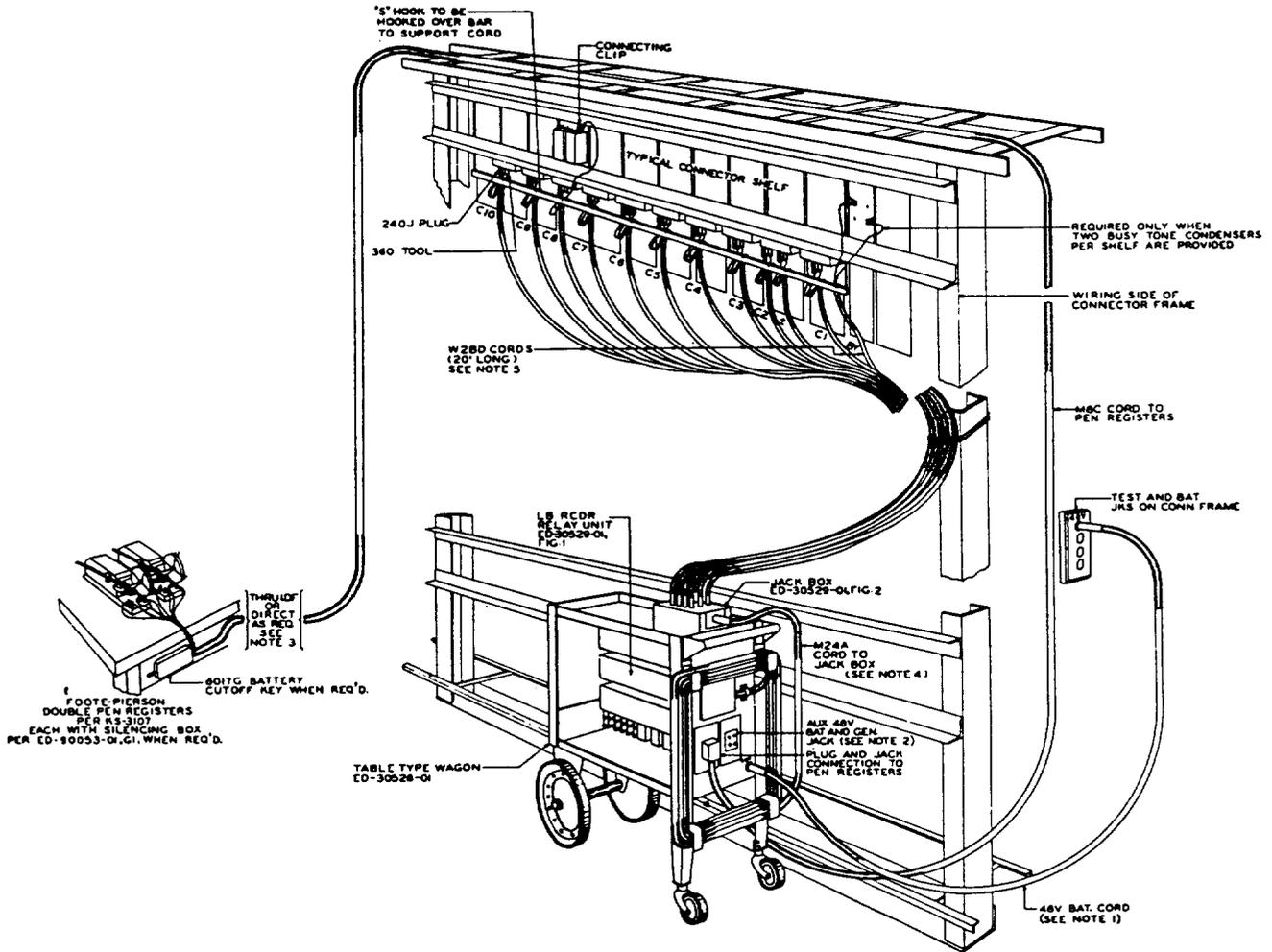


Fig. 2 - Method of Connecting Recorder to Associated Circuits.