250-KILOBIT WIDEBAND LOOP
1 TO 250 KHZ
WLR-4 REPEATER
INSTALLATION

CONTENTS PAGE

1. GENERAL

1.01 The WLR-4 repeaters provide super group-bandwidth amplification for 250-kHz wideband data transmission loops. The repeaters also provide continuously adjustable loss equalization to postequalize the wideband loops over the 1- to 250-kHz band, and can be equipped for pilot-regulation to compensate for temperature changes. A completely equipped 2-way repeater requires ten plug-in units: a regulator, a preamplifier, an amplifier, a control unit or plug, and a power selector, for both directions of transmission.

1.02 This section is reissued to correctly identify Figures 3 and 4 and make minor corrections to 3.01.

1.03 Two enclosures are provided for the WLR-4 repeater for use in the outside plant, a KS-14296 L5 cabinet (Fig. 1), which is part of a J70171A pole-mounted cabinet and holds up to seven repeaters; and a 470A apparatus case (Fig. 2), which is part of a J70171B apparatus case for manhole or pole mounting and holds one repeater.

1.04 Furnished as a part of the J70171A cabinet is a 25-foot stub cable consisting of 54 pairs of 22-gauge conductors in a steel armor over alpeth with an outer polyethylene jacket, connected to a gastight terminal block. This terminal block contains carbon protector blocks for each stub cable pair. Seven repeater shelves are mounted in the cabinet and are wired to a 329A terminal strip. After the stub cable has been spliced in, cross connections may be made to the repeaters, as required, by strapping between the stub cable terminal blocks and the repeater terminal strip.

1.05 The watertight J70171B apparatus case is used to enclose the repeater for pole or manhole locations. Furnished as part of the apparatus case is a 25-foot length of CA1984 stub cable consisting of 16 pairs of 24-gauge polyvinyl-chloride (PVC) insulated wires in a PVC jacket, covered with a lead shield. Five pairs of the stub cable and the repeater equipment are terminated on a terminal block containing carbon protector blocks.

1.06 Additional installation information can be found in the references listed in Part 4.

2. PRECAUTIONS

2.01 Since the 470A apparatus case is pressurized and the KS-14296 L5 cabinet is not pressurized, 2.02 through 2.05 will apply ***only*** to the 470A apparatus case.

2.02 ***Always*** relieve the pressure on the apparatus case before loosening the V-band clamp preparatory to removing the container.

> ***Note:*** The clamp and chain assembly is a restraining device to prevent the container from being blown off if the V-band clamp should be accidentally loosened before the apparatus case pressure has been properly reduced. It should always be in place when the apparatus case is pressurized.

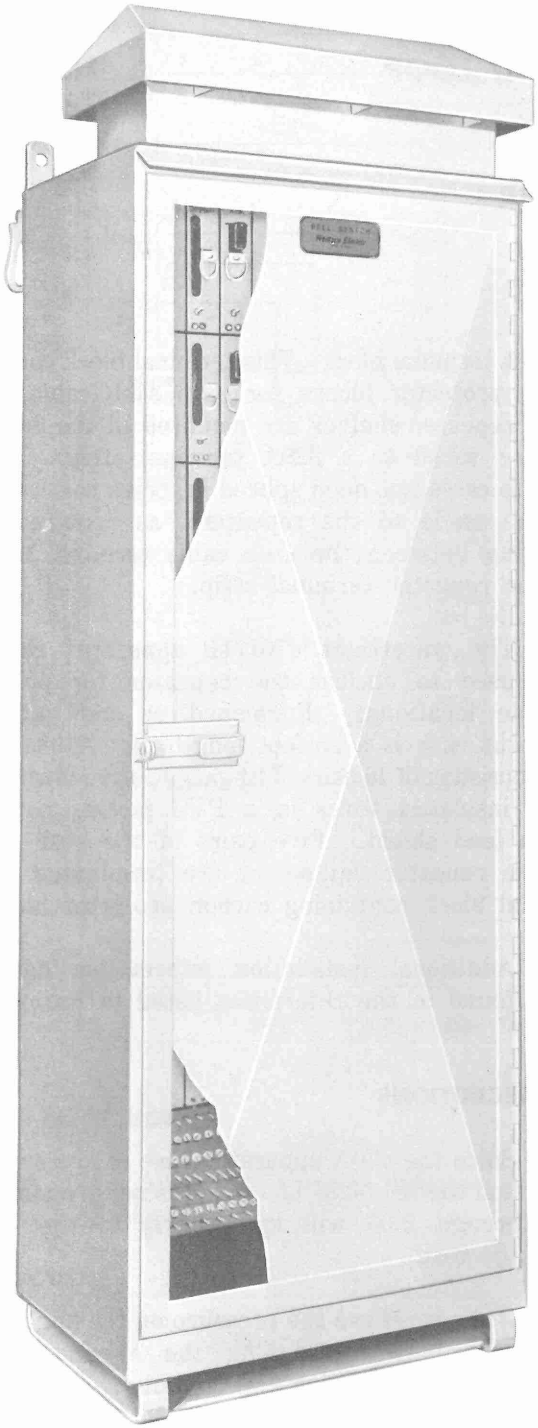

Fig. 1—J70171A Pole-Mounted Cabinet

2.03 *Never* use an apparatus case as a step.

2.04 After removing the container of an apparatus case, install a new O-ring (Part No. P48D378),

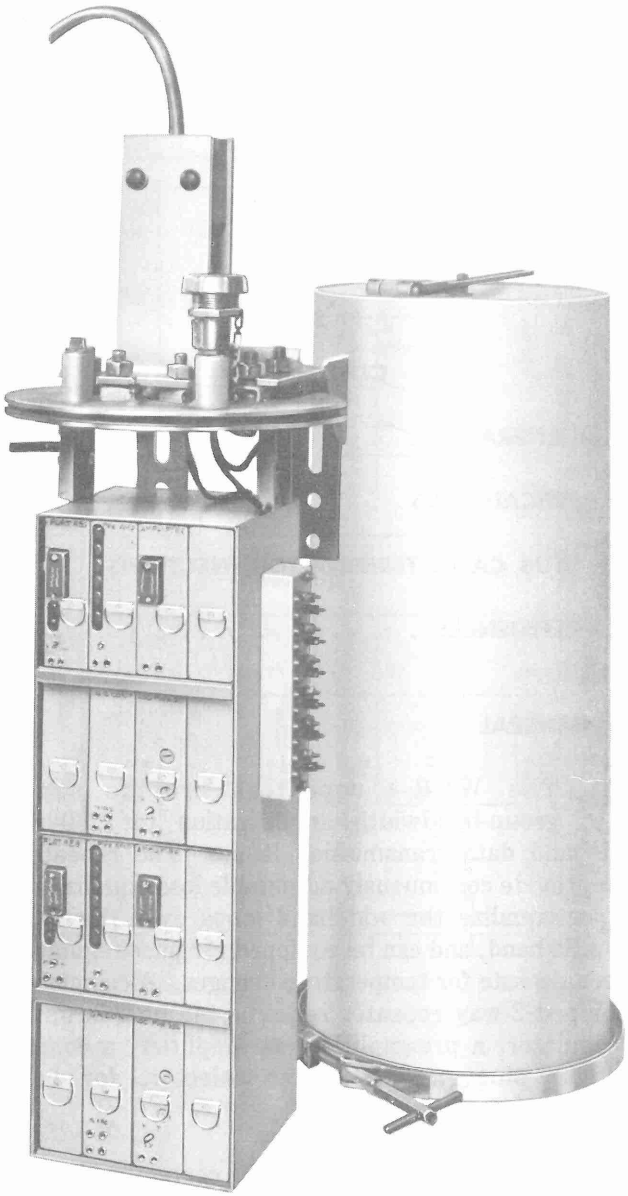

Fig. 2—J70171B Apparatus Case

if required, before replacing the container. The gasketed surface must be free of dirt before reassembly of the apparatus case.

2.05 After replacing the container, apply air pressure to the apparatus case and test the seal for leaks with pressure testing gauge or other suitable method.

2.06 The growth of brush and grass or the accumulation of rubbish around the base of pole-mounted cabinet installations should be controlled

to prevent possible damage by fire. Such growth or rubbish accumulation around the base of the cabinet may also interfere with proper cabinet ventilation and result in overheating of the equipment.

3. STUB CABLE TERMINAL CONNECTIONS

3.01 The connections for a single repeater mounted in J70171B apparatus case are shown in Fig. 3. The order-wire connections for this repeater terminate at the order-wire terminals on the outside of the apparatus case. This makes the order wire available without removing the container from the apparatus case. A 1011B handset is connected to standoff terminals in the order-wire terminal to establish communications.

Caution: Tape one of the test clips to avoid shorting the order-wire leads, in case the test clips accidentally touch.

The method of connecting up to seven repeaters, mounted in the J70171A cabinet is shown in Fig. 4. Order-wire connections for each circuit must be assigned at the terminal block.

3.02 As used in this procedure, the data station is designated A and the wideband service bay is designated B. For loops with data stations at both ends, one end should be arbitrarily labeled A and the other B. The A-to-B direction of transmission is called direction 1 and the B-to-A direction of transmission is called direction 2. The first five plug-in units in a repeater shelf are designated DIR 1 units and the second five plug-in units are designated DIR 2 units, counting from left to right. These designations are used most extensively in the tables of options and power connections, particularly those for intermediate repeaters.

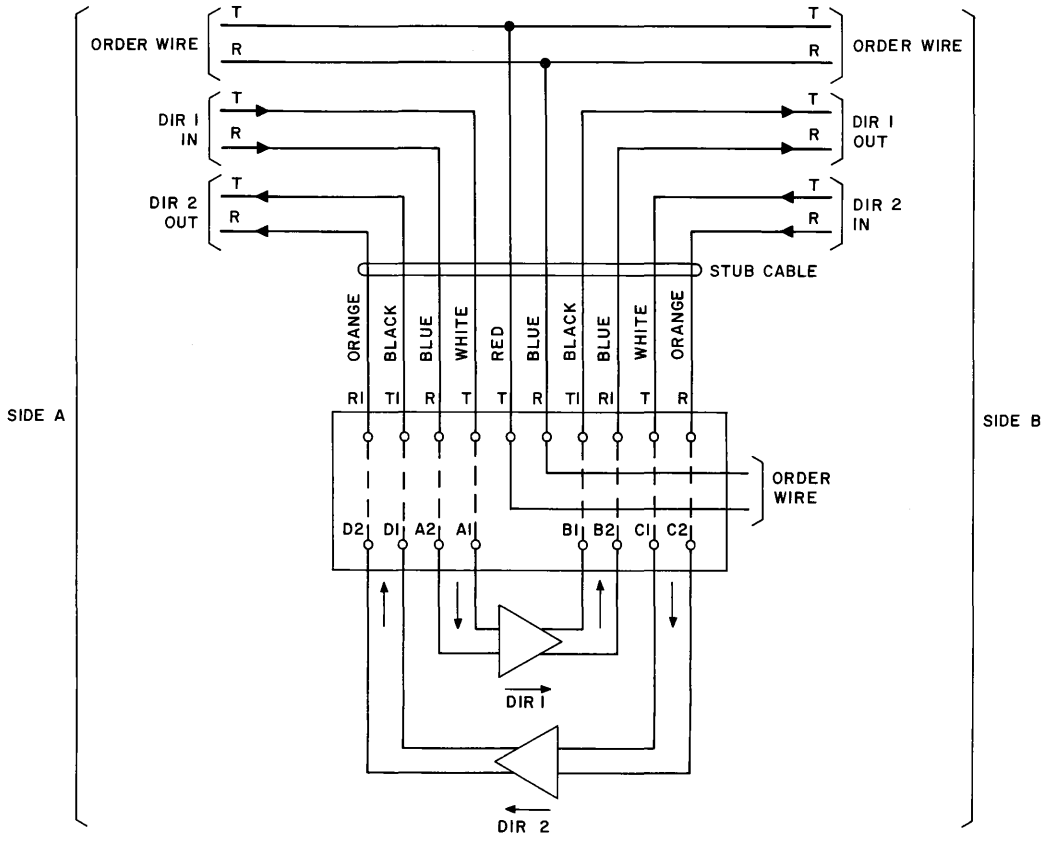

Fig. 3—Stub Cable Terminal Connections—J70171B Apparatus Case

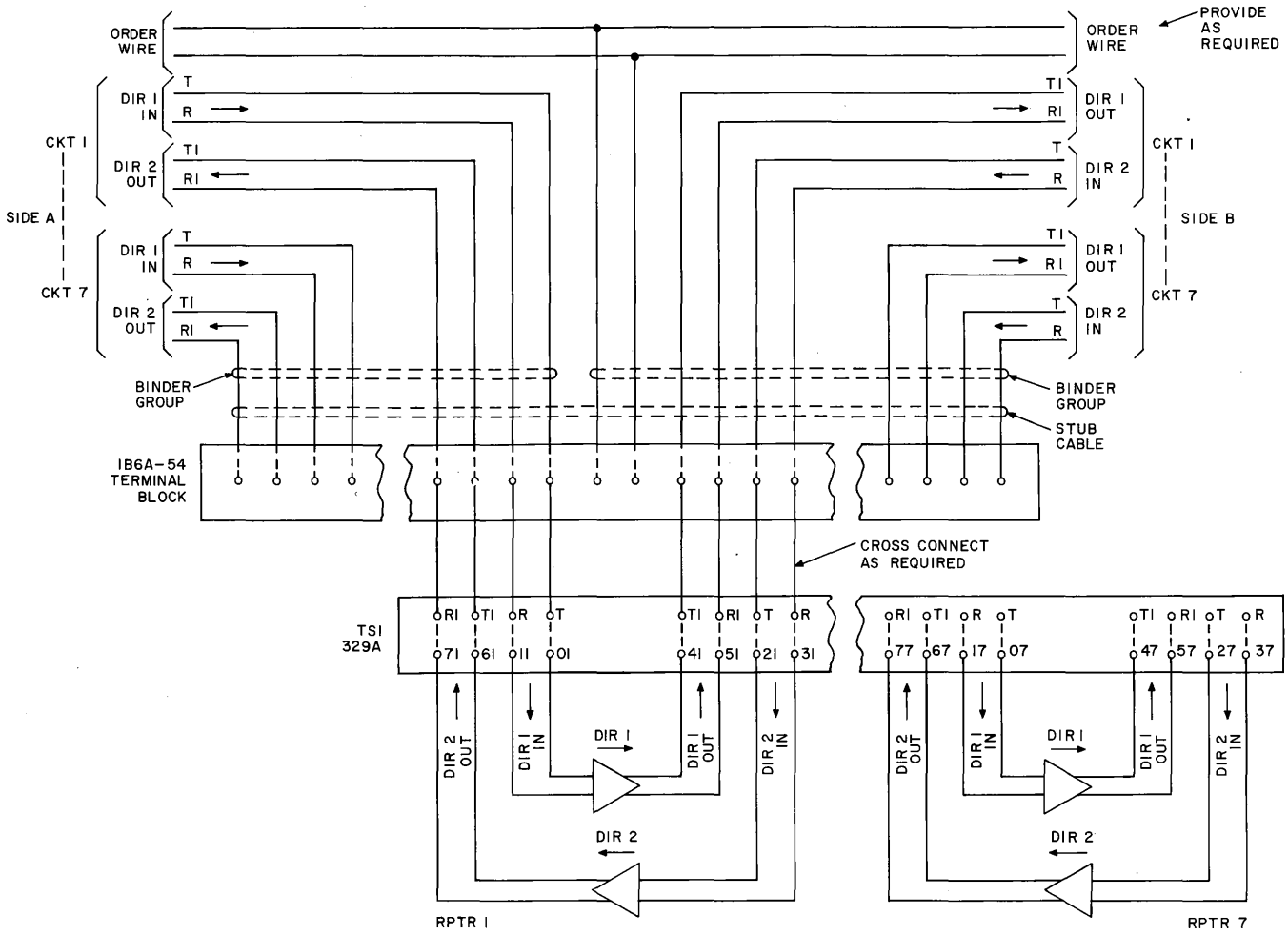

Fig. 4—Stub Cable Terminal Connections—J70171A Cabinet

4. REFERENCES

4.01 The following sections provide additional information:

SECTION	TITLE
632-515-206	Placing—460- and 470-Type Apparatus Cases—Aerial and Underground
632-535-106	WLR2 and WLR3 Repeaters—470A Apparatus Case
632-610-200	1B-Type Cable Terminal Blocks
640-300-200	Type N and ON Carrier System—Description and Installation of Outdoor Repeater Cabinets
640-305-200	Pile-Mounted Equipment Cabinets—Installation

4.02 Detailed information on the WLR-4 wideband data loop is shown on schematic diagram SD-73051-01 and circuit description CD-73051-01.