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TELEPHONE CONFERENCE BRIDGE

The Telephone Conference Bridge is a switching device capable of interconnecting as many as 4 telephone lines in such a manner that all parties on these lines may communicate with one another as a group. The circuit may be expanded to encompass as many lines as required or simplified to handle as few as two.

The Conference Bridge provides a number of switching features. For controlling each line, there are 4 switches and an indicator lamp. Because the circuit repeats 4 times, it is necessary to observe only one of these to gain an understanding of its operation. The switches which control line 1 circuitry are S1, S5, DMP1, and RST1.

S1 is essentially an on/off switch for line number 1. In the off position it disconnects all equipment from the line. When on, it allows the line to answer automatically into conference or into hold.

The position of S5 determines whether or not a line will answer into conference or hold. If a party calls in and this switch is in conference position, they will be connected with parties on the other lines. Should you wish to disconnect the party momentarily from the conference but not from the line, switch S5 should be placed in the hold position. Returning this switch to conference position will place the party back into conference.

If you wish to cut off the party on line 1 thus hanging up on them, press the DMP (dump) button. Under most circumstances the party will disconnect after a short time interval. If they do not disconnect after you have hung up, it is merely the equipment at the telephone company at fault, and not the Conference Bridge.

The RST (reset) button does just the opposite of the DMP button. It simulates a line ringing in. If you have a party on line 1, and you wish to place him into conference, press the RST button. They will then connect into conference or hold depending on the position of switch S5.

The lamp corresponding to each line serves as an indicator of the position of the relay for that line. Thus it indicates whether a party is on that line or not. It is advisable not to omit this, otherwise things may become confusing. Any other lamp voltage may be substituted for the six volt system.

Figure 1 is a partial schematic diagram of the Telephone Conference Bridge. Line 1 will be used as an example to explain the theory of operation. When a ring-in occurs, alternating current passes through C1 and operates RY1. The full-wave rectification serves to make the circuit more sensitive. RY1, thus operated, places its coil resistance across the line by shorting C1 through its contacts. This stops the ringing and answers the line just as lifting your telephone off-hook does. In addition, the operation of RY1 connects the line to points 1A and 1B, which lead to the conference network. When the party hangs up, a moment of zero voltage occurs on the line. However, in many systems it is necessary to press the DMP button to prepare the line for another incoming call.

It is advisable to use as sensitive a relay as possible, one requiring very little current. Telephone systems are current limiting and will power a limited number of devices at one time. In addition, your distance from the telephone central office is an important factor because distance decreases power.

Figure 2 is a schematic indicating two different ways you can wire the conference network. The first employs capacitors which are readily obtainable. The second involves a communications transformer consisting of 4 windings of equal impedance such as an Automatic Electric C-111. The transformer is usually better in terms of sound transmission though the difference is negligible.

Figure 3 is a wiring diagram indicating one way in which parts may be positioned. The parts should be mounted on 1/8 inch hardboard, bolted to the bottom of the chassis through spacers. We will not suggest any particular chassis size due to the variations the individual might employ in constructing his unit. The relays used may be of various shapes and sizes, you may wish to add or subtract lines, or you might arrange your switches differently. Therefore the chassis may be any size as long as it accommodates the parts comfortably. A good idea is to purchase your parts first and determine afterwards what chassis size would be adequate.

Most Bell System and independent telephone companies provide "plug and jack" telephones. We would recommend that you acquire a jack so that no screw terminal wiring is necessary to install your Conference Bridge. This also makes it easier to disconnect it from the line should you wish to take it somewhere else. If this is not possible, refer to figure 4 for wiring instructions on connecting the Conference Bridge to a screw terminal wall jack.

• PARTS LIST •

- B1 - 6 V Battery
- C1-C4 - 10-30 Mfd., 150 V Electrolytic
- C5-C12 - 1 Mfd., 100 V
- D1-D16 - 2 Amp., 200 PIV
- L1-L4 - 6 V Lamps
- RY1-RY4 - 4PDP Relay, 24 VDC, 500 Ohms
- RST1-RST4 - SPST Momen. Con. Pushbutton Switch
- DMP1-DMP4 - SPST Momen. Con. Pushbutton Switch
- S1-S4 - SPST Toggle Switch
- S5-S8 - DPST Toggle Switch

FIGURE 4

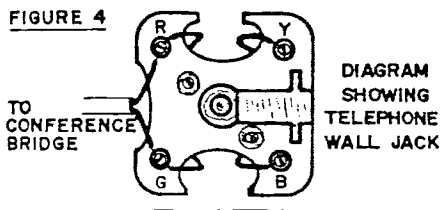


FIGURE 1

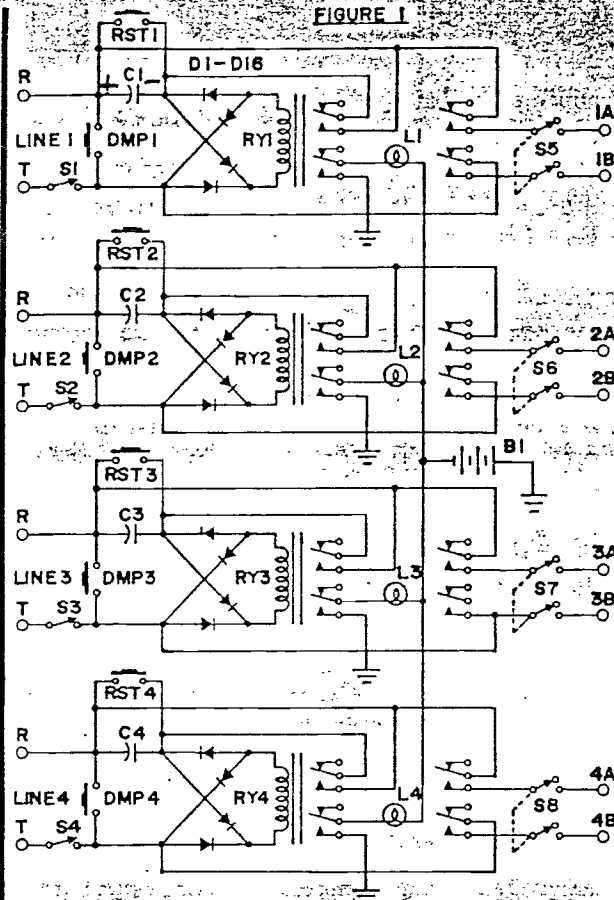
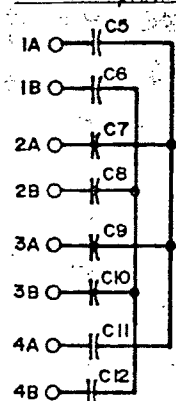


FIGURE 2

CAPACITOR NETWORK



TRANSFORMER NETWORK

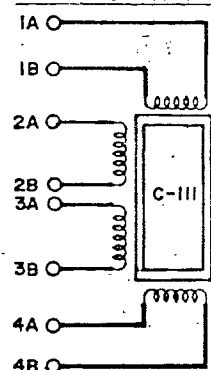
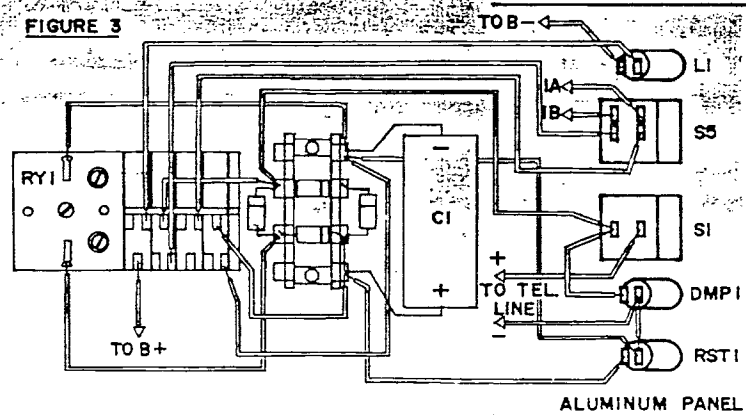


FIGURE 3



ALUMINUM PANEL