MULTIPORT CONFERENCE BRIDGE CIRCUIT

WITH SWITCHED-GAIN AMPLIFIERS (SD-5G099-01)

TRANSMISSION DESIGN

SPECIAL SERVICES SYSTEMS ENGINEERING

1. GENERAL

1.01 This section covers transmission engineering information and data on an improved multiport conference bridge circuit (SD-5G099-01) for use in toll switching offices under manual control of a toll conference operator.

1.02 This section is reissued to change the balancing network from $600\Omega + 1.09\mu F$ TO $600\Omega + 2.15\mu F$ and the 227A amplifier to 227F. Revision arrows have been used to denote significant changes.

1.03 The conference bridge circuit is designed to introduce essentially no transmission loss in any forward talker-to-listener path through the bridge and to provide protection against internally-generated echos by insertion of sufficiently high return loss between the transmit (talker) and receive (listener) path of each individual branch or port.

1.04 Unlike earlier toll conference bridge arrangements, switched-gain transistor amplifiers are used in **each branch** of the bridge. These amplifiers are designed to perform a function similar to that of the older voice-operated loss control and echo suppressor (VOLCAS) units normally used in only one branch of each bridge. These new amplifiers also obviate the need for other amplifiers, such as V-type amplifiers, to be associated with the bridge circuit.

1.05 The conference bridge circuit will have application in the regular Bell System toll message network where new toll conference bridges are required and as replacements for older types of bridges in order to improve toll conference service generally.

2. DESCRIPTION

A. General

2.01 The basic conference bridge circuit is arranged to provide either 2-way or 1-way (lecture) conferencing. The equipment consists of four principal transmission elements:

(a) 2-wire connecting circuits to provide the necessary conversion for connecting the 4-wire bridge branches to 2-wire trunks or loops.
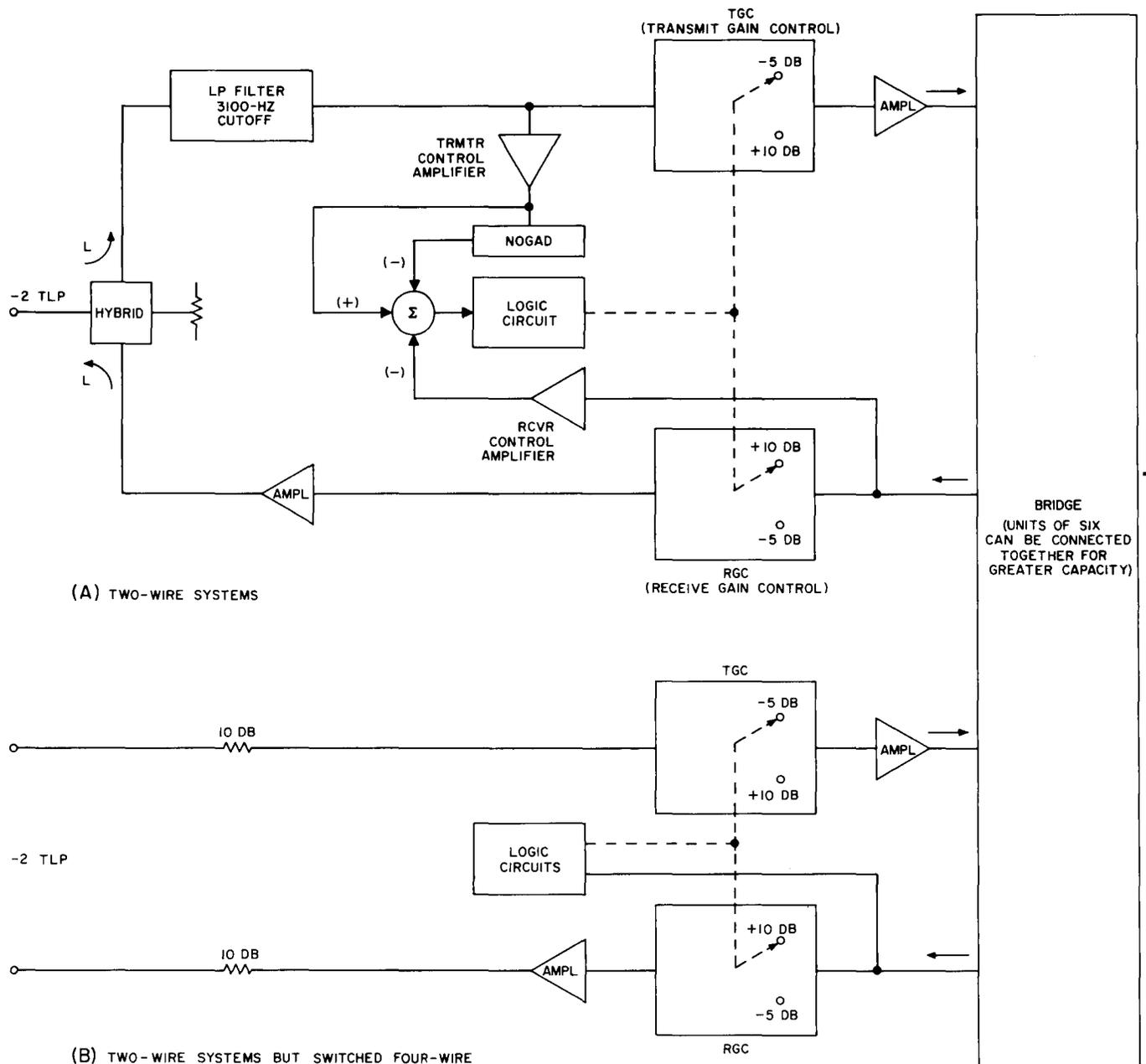
Fig. 1 — Functional Block Diagram

position and the noise is not transmitted to the bridge circuit.

E. Bridging Circuit

2.11 The bridging circuit consists of two amplifiers and a resistive network. A bridging circuit is used on each branch of the conference bridge circuit to permit all branches to be bridged in parallel. The amplifiers in the bridging circuit compensate for the loss introduced by the resistive bridging network.

3. TRANSMISSION CONSIDERATIONS

A. Characteristics

3.01 The conference bridge transmission characteristics are summarized in Table A.
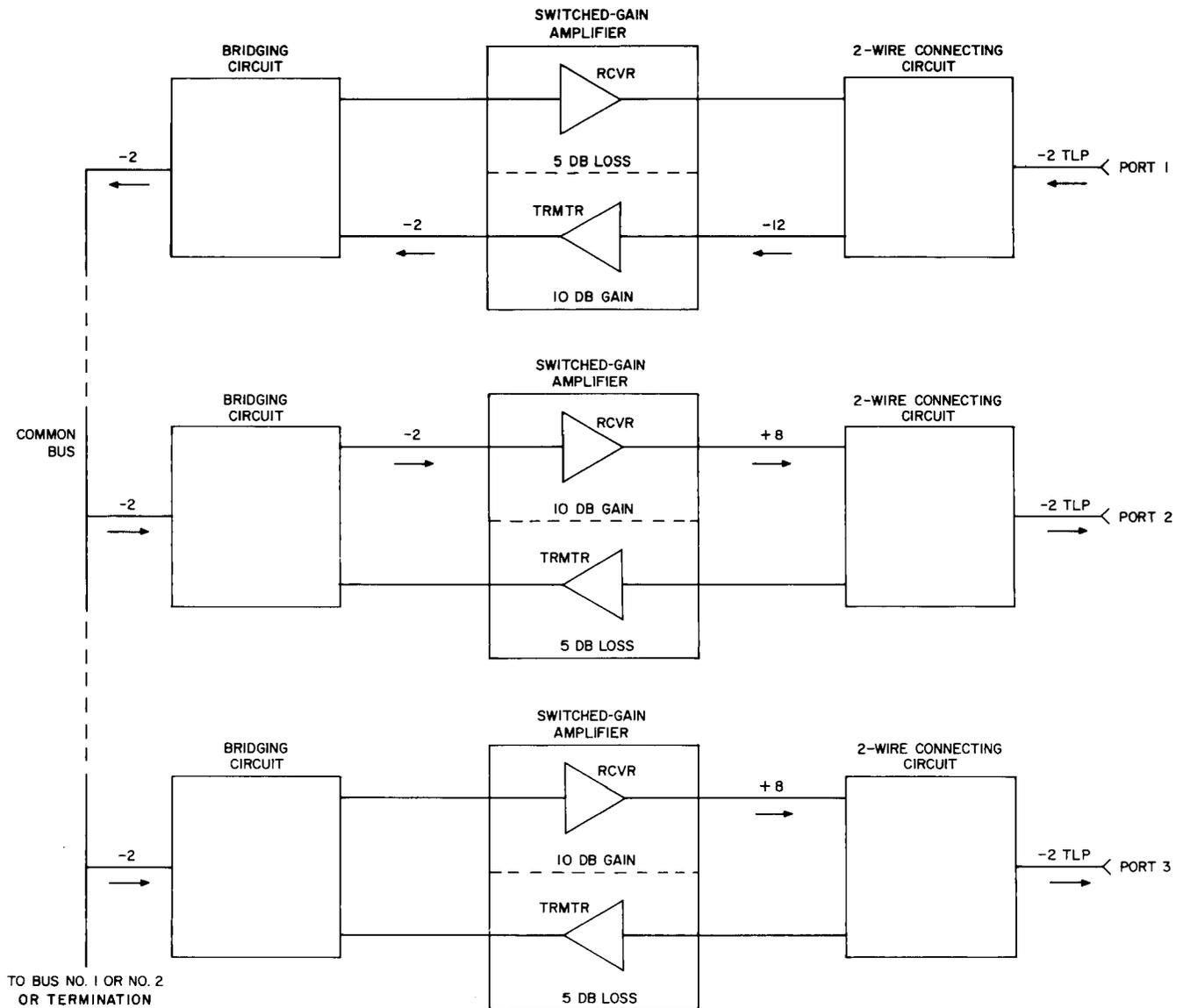
Fig. 2—Level Diagram 2-Wire System, No. 1 or No. 3 Toll Switchboards

(c) Two groups on common bus No. 2 (12 conferees).

4.04 Each group is provided with a port or jack position (No. 6) for connections to groups located on a remote bridge. When connecting to a remote bridge group, a key must be operated that disables the switched-gain amplifier in this position. This function must be performed by the operators at both bridge locations. While groups can be combined on the same bridge without the loss of a port, remote interconnection of groups requires the loss of one port on each bridge. For example, five conferees in New York can confer with five subscribers in Los Angeles and only one trunk across the country is required. If more than two bridges are to be interconnected, the originating bridge must use one group for each remote bridge. This will require coupling the groups to the common bus, although the number of conferees may be less than five.

4.05 A holding circuit consisting of a hold relay is associated with each group. The relay, when operated, disconnects each subscriber transmit path