AUTOMATIC CONFERENCE CIRCUIT
FOR 4-WIRE NO. 5 CROSSBAR OFFICES
DESCRIPTION

1. GENERAL

1.01 This section describes transmission features of the Automatic Conference Circuit for 4-wire No. 5 Crossbar Offices. Testing methods and requirements are covered in Section 310-291-500. The circuits are special features of Switched Services Network for military services. A general description of SSNs is found in Section 310-200-100.

1.02 The Automatic Conference Circuit provides for automatically seizing trunks or line circuits dialing pre-selected stations and connecting them to a conference bridge. Supervisory features are provided to ring the selected stations and advise the conference originator when all stations are off-hook.

1.03 A maximum of 17 stations can be connected to the conference bridge. A maximum of 20 telephone numbers can be stored in the repertory of the conference controller. The stations can be arranged in five pre-set combinations. A station may be a part of one or more combinations.

1.04 A conference may be established from either of two remote locations. Any pre-set conference combination can be established by dialing a seven-digit code at either of the

two originating locations. The first three digits of the number determine which of the pre-set combinations will be established.

1.05 The Automatic Conference Circuit consists of a conference controller per SD-27613-01, conference trunk circuit per SD-27635-01, and conference Bridge and Line Circuit per SD-27636-01. Also associated with the conferences circuit are markers, marker connectors, registers, etc, part of the central office equipment.

2. OPERATION OF THE CONFERENCE CIRCUIT

2.01 A typical arrangement of Automatic Conference Circuits is shown in Fig. 1. Two circuits are shown arranged to connect five stations. The conference originator may have access to more than one conference circuit.

2.02 A conference is initiated by dialing a seven-digit code at one of the conference originator locations. The conference trunk locks out the other originator location and the controller proceeds to establish the conference.

2.03 The conference controller connects the conference originator to the bridge through a conference trunk circuit. The trunk circuit provides the supervisory functions necessary for the originator to control the conference.

2.04 The conference controller signals the bridge and line circuit to seize the lines of conference stations served by the same office, ring the stations and connect them to the conference bridge. When an off-hook signal is received from each station the controller stores the signal for future use.

2.05 The conference controller connects stations in other offices by seizing a network trunk from a line link frame appearance and furnishing an address to the marker. If there

are no idle trunks, the controller pre-empts busy trunks. The controller connects the line link appearance to the conference bridge, rings the stations and accepts off-hook signals from the station.

2.06 When all stations are off-hook, the controller returns an off-hook signal to the originator through the conference trunk circuit. The originator can start the conference if one or more stations do not answer. The conference can be continued if any station disconnects or a circuit fails.

3. DESCRIPTION OF COMPONENTS

A. Conference Trunk Circuit

3.01 The Conference Trunk Circuit per SD-27635-01 is a 4-wire circuit designed to function with the Conference Controller per SD-27613-01 and the Conference Bridge and Line Circuit per SD-27636-01.

3.02 The Conference Trunk Circuit is reached from an originator location by dialing an assigned telephone number. The office code of the number is screened by a marker which indicates to the conference controller the conference pattern to be established. The trunk circuit then closes a talking path to the Conference Bridge Circuit.

3.03 When the controller receives an off-hook signal from all conference stations, it returns a signal to the trunk circuit, which in turn sends an off-hook signal to the originator.

3.04 When the trunk circuit receives a disconnect signal from the originator it signals the controller to restore all circuits to normal.

3.05 A make busy switch is provided to take the circuit out of service. The 19A Testboard can also make the trunk busy by putting ground on the OS lead.

3.06 A lock-out feature is also provided. When a trouble is reported or indicated on a conference in progress, the 19A Testboard can lock up the conference trunk and all outgoing network trunks to identify any outgoing trunk that may be in trouble.

B. Conference Controller

3.07 The Conference Controller per SD-27613-01 starts operation on a signal from the Conference Trunk Circuit per SD-27635-01, determines the conference pattern to be established and proceeds to connect the desired stations to the Conference Bridge and Line Circuit per SD-27636-01.

3.08 The Conference Controller seizes a marker, connects a bridge appearance to a line link frame appearance, and proceeds to establish a connection to the first station. When the connection is completed, the controller then proceeds to connect the next station.

3.09 When a station is served from the same office, the Conference Controller connects a path directly from a bridge appearance to the selected line circuit and rings the station. When all stations are connected and return an off-hook signal, the Conference Controller signals the Conference Trunk Circuit to return an off-hook signal to the conference originator to start the conference.

3.10 The Conference Controller will make successive attempts to complete a call if the first one fails. If no idle trunks are found, a busy trunk is pre-empted.

3.11 If a trouble release is received from the marker, the controller sends a signal to the Conference Trunk Circuit to release the line in trouble and continues serving the remaining conferees.

3.12 When a disconnect signal is received from the Conference Trunk Circuit, the controller disconnects all conferees and restores itself to normal.

3.13 The controller can select only special grade trunks if the proper class mark or code is advanced by conference originator station line.

C. Conference Bridge and Line Circuit

3.14 The Conference Bridge and Line Circuit per SD-27636-01 provides four-wire talking paths between the Conference Trunk Circuit per SD-27635-01 and stations connected by the Conference Controller per SD-27613-01. Line cir-

cuits and amplifiers are associated with the bridges to provide suitable connections and permit transmission adjustments. The first five line circuits are arranged to connect switched or nonswitched conferees.

3.15 Up to four 4-wire six way bridges may be connected as shown in Fig. 2 to provide talking paths between the conference originator and up to 17 conferees. The bridge can be adjusted to provide zero loss paths on all connections through the use of 227-type amplifiers.

4. TRANSMISSION DESIGN

4.01 The conference circuit is normally adjusted to provide zero net loss between line circuits and between the Conference Trunk Circuit and all line circuits. When a conference does not use all bridge appearances, the idle appearances are connected to idle circuit terminations in their associated line circuits in order to maintain uniform transmission characteristics.

4.02 The loss on over-all connections is controlled by the loss in the associated facilities. The associated network trunks will normally also be operated at zero net loss. Therefore, the losses are controlled primarily by the design of the subscriber line circuits. Losses on over-all connections will normally be about 16db for voice and about 8db for secure voice operation.
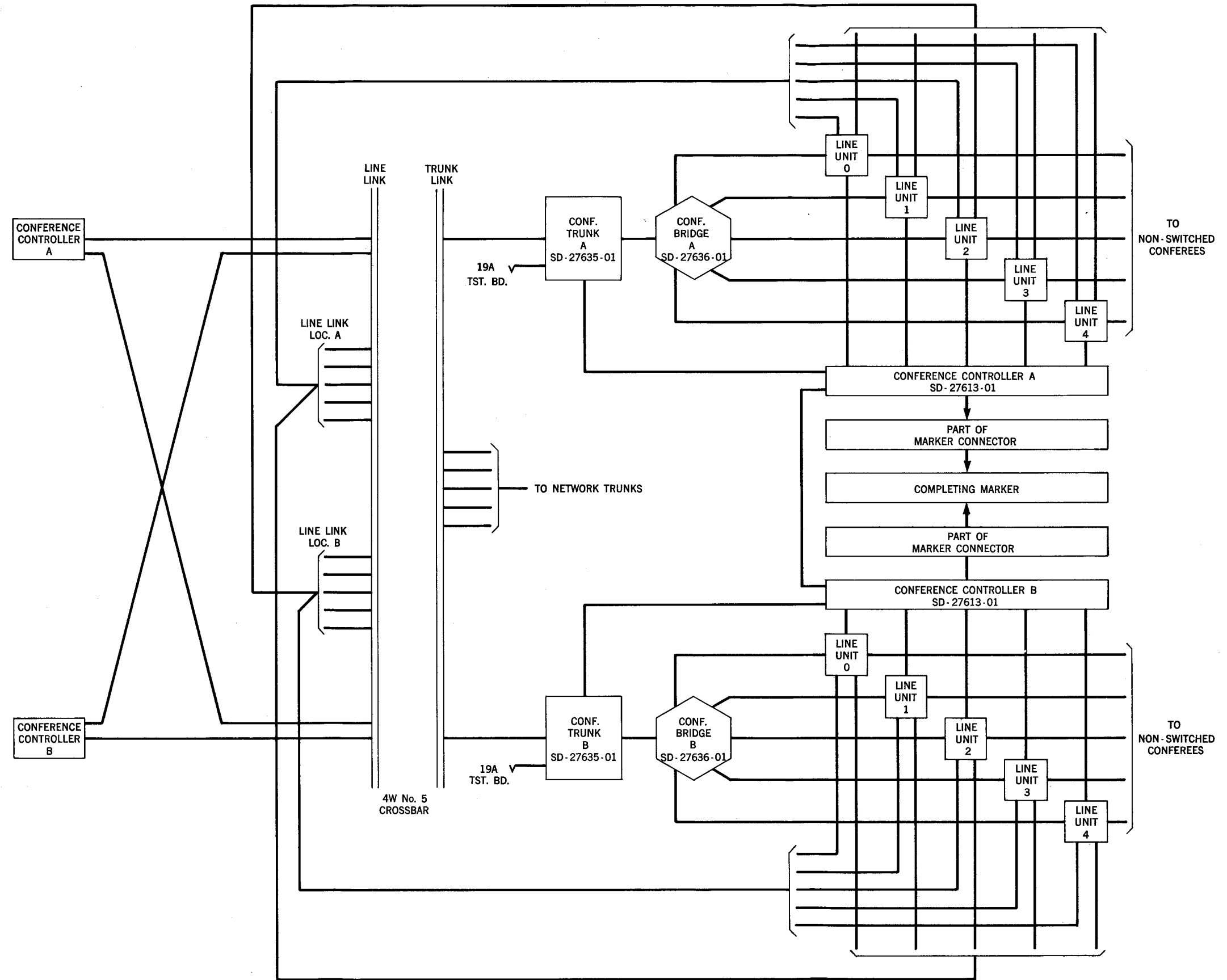
Fig. 1 — Typical Arrangement of an Automatic
Conference Circuit for 4-Wire
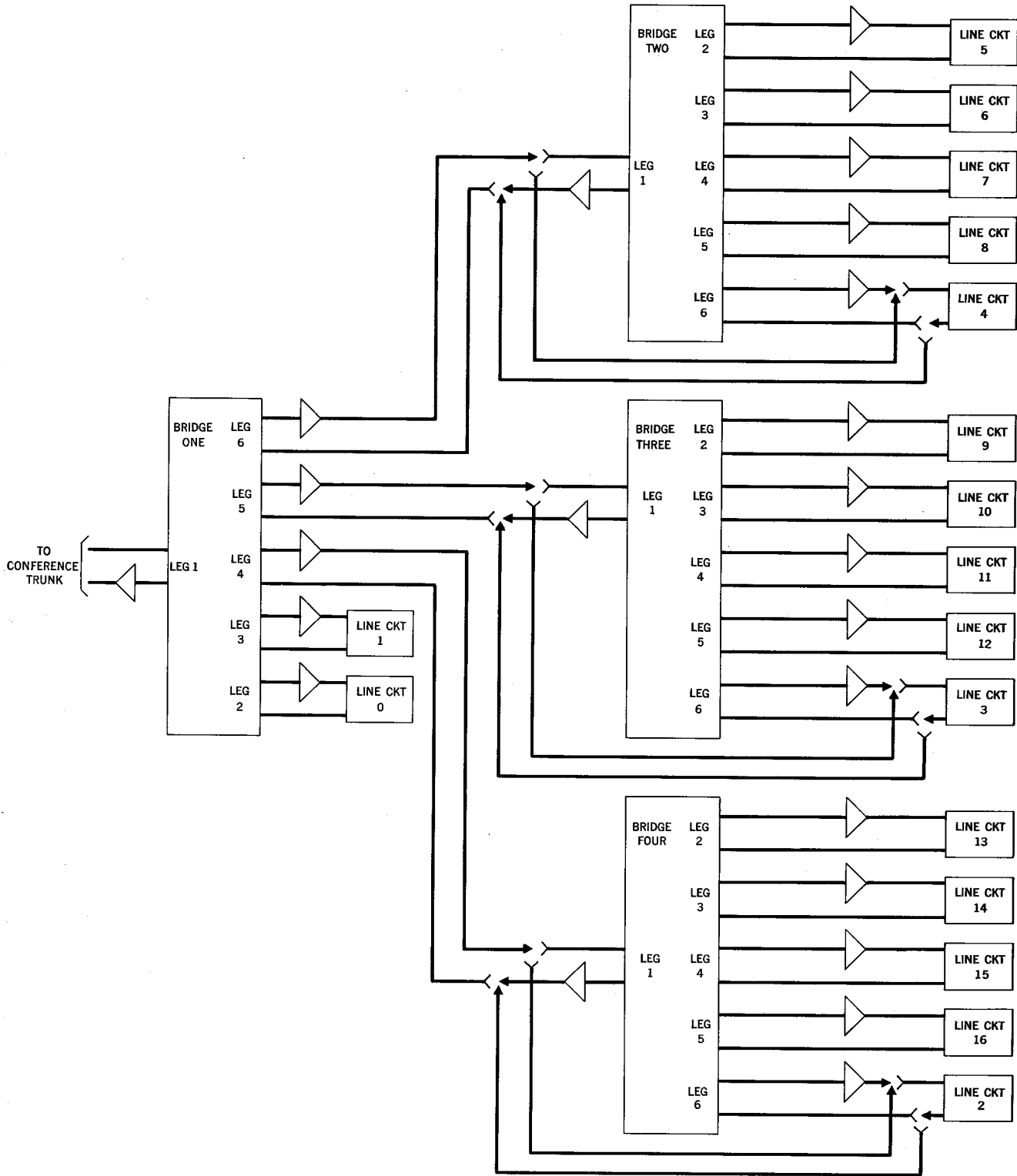No. 5 Crossbar Offices

Fig. 2 — Typical Arrangement of the 4-Wire Conference Bridge per SD-27636-01