

ADDRESSABLE DATA BRIDGE AND CONTROL

CIRCUIT SD-1G245-01

DESCRIPTION

1. GENERAL

1.01 This section describes the addressable data bridge and control circuit and the associated testing and maintenance facilities for conferencing SAGE/BUIC data. The bridge is designed for use in the No. 1 ESS and No. 5 crossbar 4-wire CONUS AUTOVON switching centers. It provides the capability for data communication (4-phase type) between a site, such as long range radar, and up to four control centers, ie, direction centers (DCs) and NORAD control centers (NCCs). See Section 314-550-100 for general considerations and description of SAGE data.

1.02 The addressable data bridge and control circuit enables a maximum of four control centers to dial the number or address of the desired bridge and obtain the required data from a remote radar site.

1.03 The bridge is a 5-port, 4-wire circuit. One port is referred to as the input port and is normally connected to the radar site via a point-to-point facility with an AUTOVON switched appearance as an alternate access. The remaining four ports, called output ports, are connected to DCs or NCCs. One output port is dedicated to a switched access appearance while the remaining output ports may utilize switched access or dedicated facilities (see Fig. 2).

1.04 Each addressable data bridge will be assigned two 7-digit addresses, one 7-digit address to select the alternate input port and one 7-digit address for the output ports. The four output ports are arranged for trunk hunting.

1.05 Connection to the alternate input of the bridge from a remote site is established by the site attendant dialing the appropriate 7-digit AUTOVON number, followed by operation of the A button associated with the AUTOVON 16-button TOUCH-TONE® dial. Operation of the A button

(941 Hz plus 1477 Hz) transfers the connection from the point-to-point facility to the switched facility and precludes the possibility of an unauthorized connection. Four output ports are available, but it is anticipated that only three will be used; the remaining port, a switched access, will be available for a spare. To connect to the spare output port, the user will dial up the 7-digit access number over a new facility, and after establishing the new switched connection, will release the previous connection.

1.06 The input port sends data simultaneously to all four output ports, but the output ports are arranged on an exclusive OR basis. Only the DC or NCC in control of the bridge can transmit data back to the input port through the data bridge. Each DC or NCC is capable of seizing control of the bridge. The centers not in control of the bridge will send a 390 Hz continuity tone to the bridge and receive data plus 390 Hz tone from the bridge while the center in control sends 390 Hz and receives 460 Hz tone. When a center is to seize control of the bridge, the dial restoration panel (DRP) attendant momentarily operates the control (CONT) key for an individual circuit, a group control (GROUP CONT) key for a maximum of 15 circuits, or a MASTER CONTROL key for all data circuits, except BOMARC and crosstell, at that center. The 390 Hz tone being transmitted toward the bridge will be interrupted by two 50-msec tones of 460 Hz (double wink). The bridge recognizes which port transmitted the double wink signal and switches control of the bridge to that port. The control center, after obtaining control of the bridge, will receive 460 Hz plus data from the bridge. The 460 Hz tone from the bridge indicates to that control center, via a lamp indication, that it may now transmit data back to the remote site.

1.07 Testing, monitoring, and patching arrangements for the bridge are provided in the 19A testboard and its associated circuit patch bay for

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4-wire No. 5 crossbar installations and in the 21A testboard and its associated teletypewriter bay for 4-wire No. 1 ESS installations. See Sections 666-201-503 for the 19A and 666-400-503 for the 21A testboard; 314-550-306 contains maintenance of the bridge itself.

1.08 These maintenance facilities consist of monitoring and patching jacks for the transmission leads associated with the input and output ports, signaling jacks for the E and M leads associated with the output ports and switched input ports, and pads for adjusting the transmission levels of the input and output ports. These patch jacks are used for making signaling and transmission tests, and testing the control features of the bridge. A frequency counter and frequency meter should be available in the AUTOVON centers for testing the bridge control signal tones.

1.09 In addition to the testing arrangement from the testboard, test points are available in

the equipment bays for testing the various sections of the circuit.

1.10 Due to the high reliability required for this system, a spare bridge should be provided in each AUTOVON office where this service is provided. The bridge should have patching capability at the testboard. Circuit packs are used in the control portion of the bridge and spares will be required. The standard TOUCH-TONE calling receiver is a portion of the bridge and will also require spare circuit packs as necessary.

2. IDENTIFICATION

2.01 The addressable data bridge and control unit (J1G023A) is 18 inches high and consists of a tray of circuit packs and conventional apparatus mounted on 2-inch by 23-inch mounting plates. It will mount on bulb angle framework having a 10-inch wide guardrail, on sheet metal framework, or using adapters, on No. 1 ESS framework (see Fig. 1).

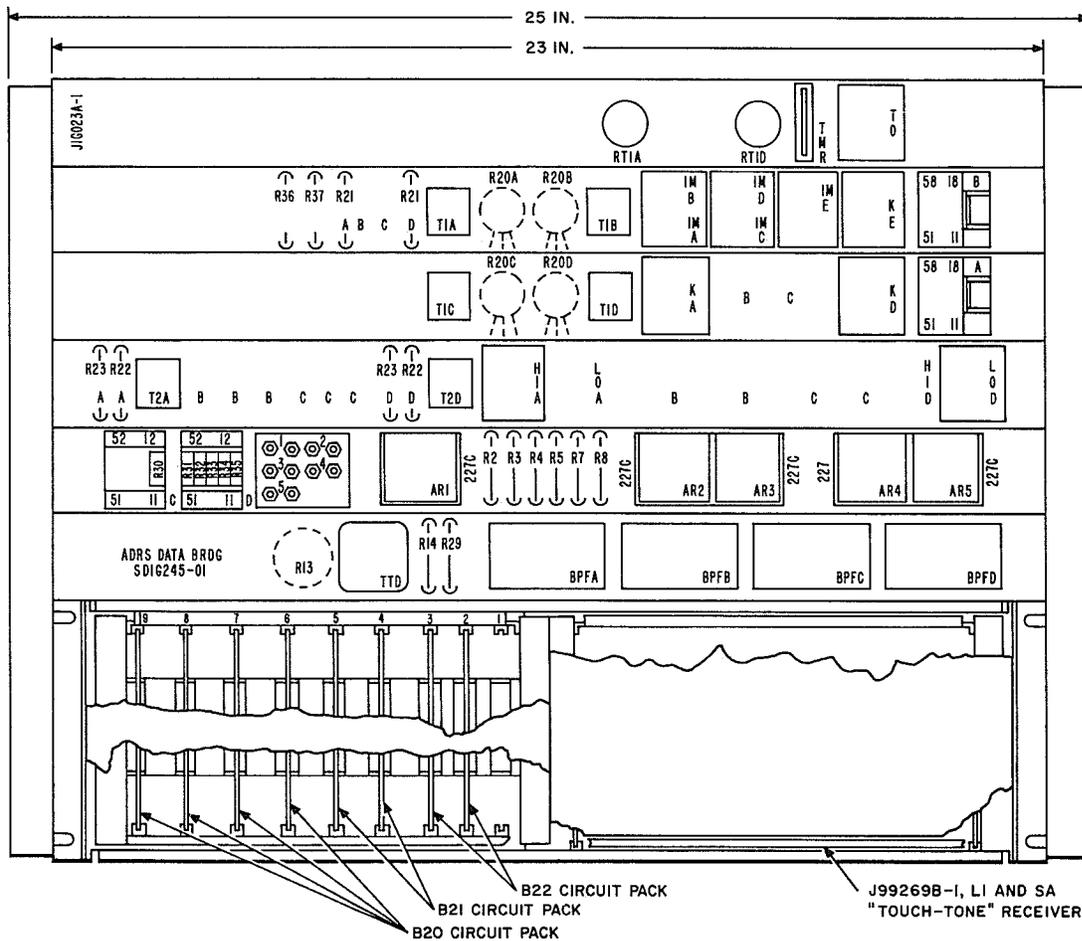


Fig. 1—Addressable Data Bridge and Control Circuit Assembled on Relay Rack

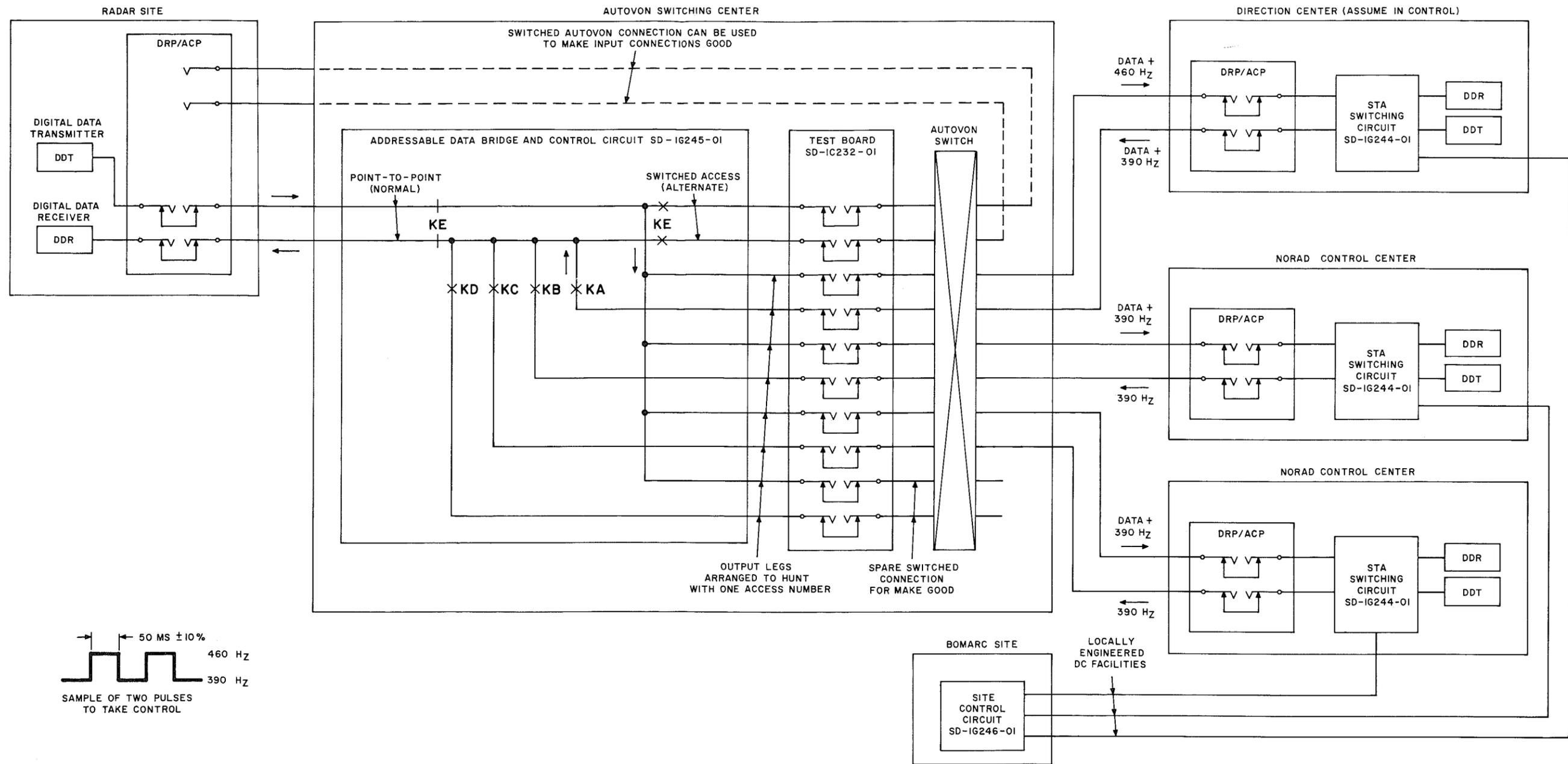


Fig. 2—Addressable Data Bridge and Control Circuit Arrangement