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ELECTRONIC SWITCHING SYSTEMS

NO. 3

FIRST AND SECOND STAGE ACCESS CIRCUIT

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 The purpose of the first and second stage access circuit is to provide the means by which 1 of 16 input levels for each of three first-stage switch groups and 1 of 16 output levels for each of two second-stage switch groups may be selected from peripheral control units 0 or 1.

2. GENERAL DESCRIPTION OF OPERATION

2.01 An output level for one second-stage switch group is selected by applying a positive voltage to one of the gate leads 0/1NOLV(A,B) (00 through 15) and grounding the node lead NONA,B for one of the output level-select circuit packs OLSA,B. An input level is selected in the same manner for one of the input level-select circuit packs ILSA,B,C. This circuit provides one level-select circuit pack for each of three first-stage switch groups and one for each of two second-stage switch groups.

SECTION II - DETAILED DESCRIPTION

1. INPUT-LEVEL SELECTION

1.01 An input level is selected by operating one PNPN device on one of the circuit packs ILSA,B,C. A PNPN device is operated by applying a positive voltage to the gate lead 0/1NILV(A,B,C) (00 through 15) and grounding a node resistor associated with the cathode NONA,B. This causes gate current to flow and hence the device is turned on and can carry current in the anode circuit.

2. OUTPUT-LEVEL SELECTION

2.01 An output level is selected by operating one PNPN device on one of the circuit packs OLSA,B. The device is operated exactly as described for the input-level selection.

3. OPERATION DURING PULSING

3.01 Once input and output levels have been selected as previously described, the network control circuit part of the peripheral control circuit checks this selection by monitoring the gate currents flowing into the devices selected. If these currents are normal, a signal is sent to the remreed pulser circuit to pulse the selected path.

3.02 Current from the pulser flows through the peripheral control unit into lead NPOA,B of this circuit. Current flows into the selected output level PNPN anode via lead NPOA,B through the device and out one of the leads (A,B)OLPN/O(0 through 7) to the 15B grid circuit. Current flows through the 15B grid and through the 15A grid circuit into one of the input-level leads (A,B,C)ILPN/O(0 through 7) of this circuit. Current flows through the selected input level PNPN and out lead NPGA,B,C, through the peripheral control unit, and back to the remreed pulser.

3.03 Once the current over the selected path reaches a level of 1 A, the gate voltages to selected PNPNs in this circuit, as well as others in this path, are turned off. The grounds supplied to the nodes are also removed. The selected PNPNs, however, remain on due to their holding characteristics. The current from the pulser continues building up in sine-wave fashion until a level of about 4.2 A is reached. After the current from the pulser goes to approximately 0.0 A, the selected PNPNs will turn off. The remreed contacts associated with the selected input and output levels will have been operated and latched due to their magnetic-holding property and a path through a concentrator will have been established.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 This circuit is designed to operate in room ambients between 35°F and 120°F.

2. FUNCTIONAL DESIGNATIONS

2.01 Circuit Packs

Designation	Meaning
IISA	Input Level Select A
ILSB	Input Level Select B
IISC	Input Level Select C
OLSA	Output Level Select A
OLSB	Output Level Select B

3. FUNCTIONS

3.01 Provides a means of selecting input and output levels for each of three input switch groups and two output switch groups from controller 0 or 1.

4. CONNECTING CIRCUITS

4.01 When this circuit is listed on a keysheet, the connecting information thereon is to be followed.

(a) Peripheral Control Circuit - SD-3H110-01.

(b) 15A Remreed Grid Circuit - SD-3H120-01.

(c) 15B Remreed Grid Circuit - SD-3H121-01.

(d) Network Frame Circuit - SD-3H901-01.

5. MANUFACTURING TESTING REQUIREMENTS

5.01 This circuit should be tested to verify that it is wired in accordance with the schematic and wiring drawings that the requirements of the circuit requirements table are met, and that the circuit is capable of performing all functions stated in this circuit description.

SECTION IV - REASONS FOR REISSUE

D. Description of Changes

D.1 Provided complete CD information.

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