

CIRCUIT DESCRIPTION

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POWER SYSTEMS
SIGNALING CIRCUIT
TRANSISTOR LOW TONE SUPPLY
756A PBX
J86464G

CHANGES

D. Description of Changes

D.1 Changed the rating of the schematic drawing from AT&TCo Standard to A&M Only, as a result of 756A PBX being rated Manufacture Discontinued.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 2426-COR

WE DEPT 81450-SDL-JK

POWER SYSTEMS
SIGNALING CIRCUIT
TRANSISTOR LOW TONE SUPPLY
756A PBX
J864646

CHANGES

B. CHANGES IN APPARATUS

B.1 In CAD1 under Transformers the 530A output transformers (T1 & T2) "Z" option, have been replaced by the 530C output transformers "Y" option.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 To provide low tone signals for dial tone and busy tone as required by the 756A PBX.

2. WORKING LIMITS

2.1 0.5 Volts ac for Dial Tone
2.0 Volts ac for Busy Tone
45-52 Volts dc

3. FUNCTIONS

3.1 To provide low tone, for dial tone, at the voltage required by the 756A PBX.

3.2 To provide low tone, for busy tone, at the voltage required by the 756A PBX.

4. CONNECTING CIRCUITS

This circuit was originally designed to connect to the following circuit.

4.1 Transistor Transfer & Alarm Circuit - SD-81331-01.

DESCRIPTION OF OPERATION

5. GENERAL

5.1 Oscillators

The oscillators for the 600 cps and 120 cps are L-C tuned Colpitts type using a single pnp junction transistor per oscillator. The transistors are connected in the common collector configuration. Feedback is taken from the emitter through the ADJ 600 ω (or ADJ 120 ω) potentiometer to the junction of capacitors C1 & C2 (or C3 & C4). The oscillator outputs are taken through transformers T1 and T2.

5.2 The modulator is a shunt diode bridge type with the diodes switching at the 120 cps rate. The output of the modulator is a double sideband amplitude modulated signal, with the 600 cps as carrier and the 120 cps as the modulating frequency. This is the actual low tone signal.

5.3 The output amplifiers are common emitter type using a single pnp junction transistor each. Resistor R1 in series with the base of the transistor of LT1 provides the correct signal input to the amplifier to provide 2 volts output for busy tone. Similarly, resistor R5 provides the correct signal input for LT2 to provide 0.5 volt output for dial tone.

5.4 Adjustments

Only two adjustments are provided in this circuit. These are the ADJ 600 ω and the ADJ 120 ω potentiometers. The potentiometers are first turned completely counter-clockwise. A high impedance ac voltmeter is connected in turn across the primaries of T1 & T2. A KS-14510, L1 Volt-Ohm-Milliammeter, or equivalent, is satisfactory for the voltage measurements. The voltmeter leads are connected to A6R & C4L for T1 and to B6R & C4L for T2. Then, starting with the 600 ω oscillator each potentiometer is slowly turned clockwise until the voltmeter reaches a peak. Initially the 600 ω output will peak at 5 volts. and the 120 ω output will peak at 4.5 volts. After the 120 ω potentiometer has been adjusted it will be found that the 600 ω output now peaks at about 4.5 volts also. the correct adjustment is at this peak in output and provides a maximum undistorted oscillator output with the correct modulation percentage and with no drift between the two frequencies in the modulated signal. These adjustments may require resetting if the oscillator printed wire boards are changed.

Connect the voltmeter to terminals 2 & 3 on the LT T.S. This voltage read on the 3V ac scale, should be in the range 0.4 to 0.65 volts. Then connect the voltmeter to terminals 2 & 4 on the LT T.S. This voltage should be in the range 1.6 to 2.0 volts.

For all of the above adjustments the applied voltage should be 52V dc.

5.5 The networks shown in FS2, FS3 and FS4 consist of the transistors and other small components such as resistors, diodes and capacitors. These networks are mounted on 1-1/2 by 4 inch printed wire boards and may easily be replaced in case of failure of transistors or other components. Both the printed wire boards and their respective connectors are keyed so

that only the correct board can be inserted in each socket.

Caution: Disconnect the battery supply before removing or inserting any of the networks (printed wire boards). All continuity tests on the networks or the circuit when the networks are in place should be made with an ohm-meter.

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