COMMON SYSTEMS
BUSY TONE CIRCUIT
ANNOUNCEMENT SYSTEM NO. 11A

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.1 This circuit is designed for use with 11A Announcement Systems to provide interruptions for Busy Tone.

SECTION II - DETAILED DESCRIPTION

1. SEIZURE

When the Control and Alarm Circuit seizes this circuit, capacitor (H) begins to charge. When the voltage across capacitor (H) is less than approximately 25 volts diode (D) is nonconducting.

Diode (D) Nonconducting

(a) Places Diode (C) in nonconducting state.

Diode (C) Not Conducting

(a) Transistor (Q1) oscillates. When capacitor (H) charges to approximately 25 volts Diode (D) conducts.

Diode (D) Conducting

(a) Causes diode (C) to conduct.

(b) Causes capacitor (H) to discharge.

Since capacitor (H) discharges quickly after diode (D) conducts, diode (D) will reach its minimum holding current and return back to its high resistance state. This will place diode (C) in its nonconducting state again. The quick switching of diode (D) will cause a negative pulse to appear at the base of transistor (Q1). The negative pulse causes transistor (Q1) to saturate.

Transistor (Q1) in Saturation

(a) Causes capacitor (F) to charge.

When the negative pulse is removed transistor (Q1) will cut-off from the charge left on capacitor F.

Transistor (Q-1) Cut-off

(a) Causes capacitor (F) to discharge.

The discharge on capacitor (F) will cause transistor (Q1) to oscillate again, subsequently the above operations are repeated.

2. SETTING AND CALIBRATION

There are two settings that must be on this circuit. The interruptions must be set to 120 IPM and -14DB reading must be observed across T_1 and R_1.

2.1 Setting -14DB Across T_1 and R_1

(a) The C lead is opened by opening the contacts on the "ST" relay in FS1 in the Control and Alarm Circuits - SD-95967-01.

(b) Set potentiometer A in its extreme clockwise position. Slowly turn potentiometer A in a counterclockwise direction until -14DB is read on the DB meter.

The DB meter used in reading the -14DB across T_1 and R_1 should be the Hewlett-Packard Model 400A type or equivalent.

2.2 Setting the 120 IPM

(a) The open is taken off the C lead, restoring -48 volts to the C lead.

(b) Potentiometer B is adjusted by clockwise or counterclockwise turning until 120 IPM is observed.

The 120 IPM calibration is made by simply listening and counting while observing a time piece or by any other acceptable standard.

3. FUNCTIONS

3.1 Provides Busy Tone at 120 IPM when seized by Control and Alarm Circuit.

4. CONNECTING CIRCUIT

4.1 Control and Alarm Circuit - SD-95967-01.

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