

STATION SYSTEMS  
KEY TELEPHONE SYSTEM NO. 1A  
LISTENING-IN CIRCUITS

1. PURPOSE OF CIRCUIT

- 1.1 These circuits provide means for a secretary to listen in on a telephone conversation using either a handset or a headset. When the handset is used the secretary can also talk on the connection by operating the listening-in key to the nonlocking talking position.

The main station can cut off the secretary by using the cut-off key or the exclusion key in the telephone set or an externally mounted cut-off key.

Provision is made for signaling the secretary when the externally mounted cut-off key is provided.

2. WORKING LIMITS

- 2.1 Leads Between Subset and Repeating Coil, Fig. 8 Max. 5 feet

3. FUNCTIONS

- 3.1 Provides for a secretary to listen in on a main station using either a handset or a headset.
- 3.2 Provides for a secretary to talk on a listening-in connection when using a handset.
- 3.3 Provides for cutting-off the listening-in circuit at the main station using existing cut-off or exclusion keys or externally mounted keys.
- 3.4 Provides for increasing the volume to the secretary's headset.

- 3.5 Prevents origination or pickup of interference between listening-in circuits due to unbalance leads when the listening-in leads are connected to the induction coil at the main station.

#### 4. CONNECTING CIRCUITS

- 4.1 Standard Central Office Subscriber's Line Circuits - SD-25003-01 - Typical.
- 4.2 Standard P.B.X. Station Line Circuit - SD-66021-01 - Typical.
- 4.3 P.B.X. Long Line Circuits - SD-96034-01 - Typical.
- 4.4 Line and Signal Circuits of the 1A Key Telephone System - SD-69091-01.
- 4.5 Station Key and Telephone Circuits of the 1A Key Telephone System -  
SD-69096-01, SD-69104-01, SD-69128-01,  
SD-69129-01, SD-69132-01, SD-69133-01,  
SD-69140-01, SD-69161-01.
- 4.6 Standard Subscriber's Telephone Set - 302 Type-Typical.

#### DESCRIPTION OF OPERATION

#### 5. SECRETARY LISTENING-IN WITH HAND TELEPHONE SET, FIGS. 1 AND 2

- 5.1 The secretary's handset and induction coil are normally connected, in the case of a key telephone through the listening-in key to the regular pickup keys. In the case of a single line telephone set the secretary's telephone and induction coil are connected to the line through the listening-in key.

Operation of the listening-in key to the listening position transfers the induction coil from the pickup key leads to the listening-in leads from the main station induction coil, in this case the "L1" and "L2" leads. The secretary's transmitter circuit is opened at the listening-in key, thus there is no d-c drain and the induction coil steps up the impedance of the receiver to the line.

Operation of the listening-in key to the talking position connects the transmitter to the induction coil and the secretary can then talk to the main station and to the other parties on the line. This arrangement of connecting the listening-in leads to the "L1" and "L2" leads of the main station eliminates the need of indicating which line the secretary is to listen-in to in the case of multi-line installations.

#### 6. RINGER CUT-OFF

The ringer in either a multi-key or single line station is connected directly to the secretary's line or if it is used as a common audible signal, is connected in the usual manner to the signaling circuit. In cases where the operation of the key telephone set ringer during the listening-in period is objectionable the ringer can be connected through the contacts of the exclusion key (not shown on this drawing). If only one ringer is connected to the secretarial line and is connected through the exclusion key, it would be advisable to provide a visual line indicator to function when the ringer is disconnected.

#### 7. LISTENING-IN WITH HEADSET, FIG. 8

The repeating coil in Fig. 8 which is located at the main station is provided to eliminate interference (cross-talk and dial noise) which may be originated or picked up in the listening-in leads when connected directly to an induction coil. Where interference is not experienced, that is, when no other listening-in or key telephone circuits are in the same wiring run, the arrangements shown on Fig. 16 of SD-69091 may be provided

Where it is necessary to increase the volume to the headset the repeating coil, Fig. 8, is connected 1:2. The receiving loss to the main station is greater under this condition and, therefore, it is not recommended for general use.

#### 8. CUT-OFF OF LISTENING-IN FEATURE AT MAIN STATION, FIGS. 3 TO 7

The arrangements shown in Figs. 3, 4, 5 and 6 are

used at the main station to cut-off the handset listening-in feature. They are similar to other cut-off and exclusion key features in the LA key telephone system except that the connections are made to the "L1" and "L2" terminals of the induction coil instead of to the T and R terminals of a particular line so that the listening-in circuit will be connected to the main station instead of to a particular line when the handset is used.

The connections for cutting-off the headset listening-in arrangements, Fig. 8 are covered on the LA key telephone system line and signal drawings.

Fig. 7 is provided when a separately mounted key is required. In this case the nonlocking portion of the key can be used for signaling the secretary.

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