TOLL SYSTEMS
"L" OR "N" CARRIER TELEPHONE
TELEPHONE CIRCUIT
FOR USE IN OFFICES WITH
24, 48, 130 OR 152 VOLT BATTERY SUPPLY

A. CHANGED AND ADDED FUNCTIONS

A.1 To provide for 152 Volt operation of this circuit on an optional basis.

B. CHANGES IN APPARATUS

B.1 Superseded	Superseded By
178G Ind. Coil) Figs. 307P Ret. Coil) 1&3	181C Ind. Coil) Figs. 274AH Ret. Coil) 7&8
KS-8512, L6B 150Ω - Figs. 1&3	KS-8512, L50B) Figs. 150Ω + 300Ω Res.) 7&8
KS-8512, L6B 280Ω - Figs. 1&3	

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Figures 1 and 3 were rated Mfr. Disc. and are superseded by Figures 8 and 7 respectively.

D.2 Note 202 was added.

D.3 The title was changed and formerly read:

TOLL SYSTEMS
"L" CARRIER TELEPHONE
TELEPHONE CIRCUIT
FOR OFFICES EQUIPPED WITH
24 VOLT BATTERY
N CARRIER TELEPHONE
TELEPHONE CIRCUIT
FOR USE WITH ORDER WIRE CIRCUIT
IN OFFICES EQUIPPED WITH
24 VOLT, 48 VOLT OR 130 VOLT BATTERY

D.4 References to the above changes were added to Notes 101, 102 and 104 and the "Options Used" table.

D.5 Changes were made in Figure 51 to bring this figure up to date.

D.6 The Type N Carrier Order Wire Circuit SD-95142-01 was added as a connecting circuit.

E. CHANGES IN TRANSMISSION REQUIREMENTS

E.1 Transmission requirements for the 181C induction coil were added to the ansmission Test Requirements Table.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 This circuit provides a telephone circuit for use in "L" or "N" carrier stations.

2. WORKING LIMITS

2.1 None.

3. FUNCTIONS

3.1 To provide means for talking on the order wire associated with "L" or "N" carrier systems.

3.2 To provide a talking circuit between Channel Bank and High Frequency Patching Jack Bays associated with "L" Carrier Systems.

3.3 To provide means for signaling the High Frequency Patch Bay from the Channel Bank Bay associated with "L" Carrier Systems.

4. CONNECTING CIRCUITS

When this circuit is listed on a key-sheet, the connecting information thereon is to be followed.

4.1 Telephone Order Wire Application Schematic - SD-55385-01

4.2 Telephone Set Balancing Network - SD-90517-01

4.3 Telephone Order Wire Circuit - DC Selective Signaling - SD-64413-01

4.4 Auxiliary Signaling Circuit - SD-63842-01

4.5 Type N Carrier Telephone Order Wire Circuit - SD-95142-01

5. DESCRIPTION OF OPERATION

5.1 Fig. 1 (MFR. DISC.) or 8 and Fig. 2 are provided at "L" carrier main repeater stations or "N" Carrier Terminal or Intermediate points. One of the telephone sets is connected to the TEL SET jacks and the TEL LINE jacks are patched to the order wire to provide a talking circuit.

When the DC selective signaling order wire circuit is provided in "L" carrier offices, [illegible] option in Fig. 2 is provided which furnishes a "RING" key for signaling on the order wire. The sleeve battery on the TEL LINE jacks of Fig. 2 is provided to enable the circuit to be used on local circuits within the office.

"N" carrier circuits utilize 1000 cycle or 1900 cycle signaling circuits for signaling.

5.2 Fig. 3 (MFR. DISC.) or 7 is for use at auxiliary stations associated with "L" carrier. When one of the handsets is connected to the TEL SET jacks, the "BR" lead is grounded operating a relay shown on the order wire application schematic which closes the transmission circuit through to the order wire. The TEL LINE jacks and sleeve battery are provided to enable the telephone circuit to be used on local circuits within the office. A break contact on the TEL LINE "R" jack opens the "BR" lead to prevent any disturbance on the order wire under this condition of operation.

5.3 Figs. 4, 5 and 6 in conjunction with Fig. 1 (MFR. DISC.) or 8 and Fig. 2 provide a talking circuit between Channel Bank and High Frequency Patching Jack Bays associated with "L" carrier. The TEL SET jacks in Fig. 6 are located at the Channel Bank, but its associated telephone circuit Fig. 1 (MFR. DISC.) or Fig. 8 is located at the H. F. Patch Bay. This arrangement is used since there is no room for a telephone circuit at the Channel Bank. A second telephone circuit per Fig. 1 (MFR. DISC.) or Fig. 8 is provided at the H. F. Patch Bay with jacks per Fig. 2 to complete the two way talking circuit. A Fig. 5 (CARR. EQ.) lamp is also located at the H. F. Patch Bay to indicate when a telephone set is patched into Fig. 6 (TEL. SET). The two telephone circuits are connected together by patching the TEL. LINE jacks in Fig. 2 to the CARR. EQ. jacks in Fig. 4.

When the telephone set is connected to the TEL. SET jacks in Fig. 6, the T1-R1 leads are connected together, lighting the (CARR. EQ.) lamp in Fig. 5. When the call is answered, by patching a telephone circuit Fig. 1 (MFR. DISC.) or Fig. 8 from the TEL LINE jacks in Fig. 2 to the CARR. EQ. jacks in Fig. 4, the lamp circuit is opened extinguishing the lamp in Fig. 5.

5.4 The induction coils in Figs. 1 and 3, (MFR. DISC.) and Figs. 7 and 8 are designed to produce a compromise impedance match and sidetone level, when used with the handset or headset, varistor and condenser shown.

The 3KF condenser is provided to attenuate the low frequency noise voltages that may be present in the transmitter circuit.

The retardation coils in Figs. 1 and 3 (MFR. DISC.) and Figs. 7 and 8 are provided to isolate the transmitter winding of the induction coil from high frequency noise voltages in the transmitter battery.

A varistor is included which shunts the receiver in the telephone set in order to prevent high amplitude clicks from causing physical harm to the operator. It is arranged to limit both the positive and negative peaks.

5.5 Figure 7 or 8 may be arranged to operate from 24, 48, 130 or 152 volt battery. The circuit is arranged for 24 volts by connecting the telephone circuit directly to 24 volt battery (option X). When operation on a higher voltage is required, vitreous resistor (B) is provided which may be strapped for 48, 130 or 152 volt operation (options W, V and S respectively).

BELL TELEPHONE LABORATORIES, INC.

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