DIAL SELECTIVE INTERCOMMUNICATING CIRCUIT - INSTALLATION AND MAINTENANCE

CONTENTS

576.1 GENERAL: This part covers the required materials and includes the installation and maintenance of the dial selective intercommunicating circuit. The use and description of this equipment is covered in Part 575 of these practices.

576.2 MATERIALS: The following materials are generally required:

BOX, APPARATUS: Spec. T or equivalent. (For mounting key telephone units.)

BUZZER: #7A or equivalent.

CABINET, APPARATUS: ED91472-70 Gr. 2 - (Used to mount the required key units including the 57A.)

DETAIL MOUNTING: ED69143-70 Gr. 1 "Z" bars. (To mount key telephone units in apparatus cabinets.)

FUSE: W. E. 24C - 3 per installation. (One each for battery feeds A, B and C.)

UNITS, KEY TELEPHONE:

*6C - Busy and line lamp release.
*11A - Generator Lamp.
**21A - Fuse Holder.
**25A - Automatic cut-off control.
**26B - Automatic cut-off
*29A - Flashing line lamp control.
57A - A 19" mounting plate equipped and wired to 2 terminal strips to provide intercommunicating with dial selection of from 2 to 9 stations.

* - Single Unit.
** - Double Unit.

576.3 INSTALLATION: The 57A KTU shall be mounted on the gate in a 4-plate cabinet. The two terminals connected to it shall be mounted on the wood backboard in the back of the cabinet. Should the key installation with which this circuit is being installed be equipped with an 11- or 18-plate cabinet and there is sufficient space, the 57A KTU shall be mounted at the bottom location in the cabinet. The 11A and 21A units shall be mounted on the backboard of the cabinet. One 2-ampere (24C) fuse shall be provided for each battery feed - A, B and C.

576.3-a When flashing lamps are not required, only the 57A KTU is used. See FIG. 1.

576.3-b When flashing lamps are required, one 6C KTU and one 29A KTU are required per station. See FIG. 2.

576.3-c When the automatic cut-off feature is required, one 25B KTU per station and one or two 26B KTUs per system are used (in addition to the 29A KTU) per station. See FIGS. 4, 5 and 6. In this case, the 6B KTU is not required.

576.3-d The key telephone units shall be mounted either in a cabinet using ED69143-70 Gr. 1 detail mountings or in the Spec. T apparatus boxes or on vertical strip mountings.

576.3-e Cabling, wiring and strapping of the units are covered in FIGS. 1 to 6.

576.3-f On 1A key system installations, the intercommunicating leads T-R shall be connected to a spare key termination. No line equipment is required, but if flashing lamps are to be used, the lamp lead is connected through the flashing unit of the system. The start lead for this feature is from terminal 6 of the 29A KTUs to terminal 2 of the 19B KTU, or in the case of 50A units, to punching #20 of terminal strip A. The 57A and associated units shall not be placed in a cabinet with 50A26 units but shall be mounted in a separate 4-plate cabinet.

576.3-g #100 Multi-line Systems. The installation is somewhat different with #100 multi-line key equipment, due to the separate line and busy lamps and because flashing line lamps are not provided. A line unit must be used and the line lamp connections modified as follows:

Disconnect the normal lamp lead from T. S. B punching #1. Line lamp current is now supplied from T. S. B punching #1 lead D (FIG. 1) to the 29A KTU punching #10 (FIG. 2) through the normally made contacts to punching #13 to the line lamp on lead L or B. In this type of installation, the lamp power shall be D. C. applied to T. S. B punchings #3 and #4 (FIG. 1). Busy lamp leads are not supplied from the 57A KTU since this is a function of the #100 multi-line system.

One circuit, as shown in FIG. 2, shall be used per station to control the line lamp circuit. The leads B - A - L (right hand side of FIG. 2) are not used. The leads T-R shall be connected to the T. R. of the line unit.

576.3-h 101A-B Key Systems. When this circuit is connected to the 101A-B key system and flashing lamps are to be provided, an idle key position and its associated signal circuit are required. The signaling circuit terminal block shall be modified as follows:

(1) Remove lead A from key box and tape end.

(2) Remove the T-R leads to key box and splice to the T-R leads of this equipment.

(3) Remove the L lead to the key box and splice to the L or B lead at this equipment.

(4) Connect the A lead from FIG. 2 of this equipment to the ST punching on the signal circuit connecting block of the 101A-B key equipment.

(5) Connect the B lead of this equipment to the B and FL punchings on the signal circuit connecting block of the 101A-B key equipment.

(6) Connect the L lead from FIG. 2 of this equipment to the L punching on the signal circuit connecting block of the 101A-B key equipment.

(7) The R relay of this unit shall be blocked in the nonoperated position to prevent accidental operation due to mechanical shock.

When flashing lamps are not required, FIG. 1 only is used and modifications 1, 2, 3 and 7 in the preceding paragraph shall be performed. When automatic cut-off is required, see paragraph 576.3-c of this practice. For audible signals, see Item 576.4 of this practice.

576.3-i A thorough test shall be made on completion of all installations to insure proper operation. Be certain that the subscriber or his authorized representative understands the operation of this feature.

576.4 LIMITATIONS: The audible signal may be a #7A buzzer, #7E bell or the station ringer. In all cases the same signal shall be used at all stations.

576.4-a The automatic cut-off feature shall not be provided without the flashing lamp feature, except with #100 multi-line key systems. This system shall not be provided with flashing lamps but may be equipped with the automatic cut-off feature.

576.4-b The power supply shall not be less than 18 volts D. C. Should the output supply on an existing system be less than 1 ampere, it shall be changed to one of larger capacity. The size selected will depend upon the total requirements of the key system and this circuit.

576.5 MAINTENANCE: Regular relay cleaning methods shall be used in case of trouble. A visual inspection for broken or loose connections shall also be made. No attempt to clean or adjust the 204E selector shall be made by the field forces. In case of failure, the entire 57A KTU shall be replaced and the faulty unit returned to the storeroom. It shall be sent with a standard rejection card to the Centralized Instrument Repair Shop.

576.5-a The operating sequence of the 57A KTU is as follows (see FIG. 1):

When a station having access to this line picks up the line to call one of the other stations, relay A (in the selector circuit) operates. Relay A operated, operates relay B. Relay B operated, prepares a circuit for stepping the A selector and thus causes the line and busy lamps (if provided) to light.

576.5-b When a single digit (2 to 0, inclusive - the digit 1 is not used) is dialed at the calling station, relay A releases and reoperates in unison with the dial pulses while the slow-releasing relay B remains operated during pulsing. Relay A operates and releases the rotary magnet which causes the (A) selector mechanism to step in a rotary direction. Slow-releasing relay C operates on the first release of relay A and remains operated during dialing. Relay C operated, operates relay T in parallel with resistance A and 1000 mf condenser. This charges the condenser through resistance A.

576.5-c When dialing is completed, relay A reoperates and relay C releases. Relay C released, closes the circuit to buzzer, bell or ringer at the station whose number had been dialed, also opens the circuit to relay T. The 1000 mf condenser A which had been charged is now discharged through resistance A and the winding of relay T. Relay T holds operated until the discharging current reaches a value that permits the release of relay T, which is from one to three seconds after relay C is released. Relay T released, opens the circuit to the buzzer, bell or ringer and operates the selector release magnet which restores the selector to normal. The buzzer, bell or ringer at the called station is operated for one single interval of one to three seconds.

576.5-d A talking connection is established between stations when the called station picks up the line. Talking battery is supplied through the windings of relay A to both stations. When both stations disconnect, relay A releases, which releases relay B. Relay B released, restores the circuit to normal.

576.5-e Should the called station fail to answer, it may be resignaled after waiting five seconds and then redialing without hanging up.

57A KTU

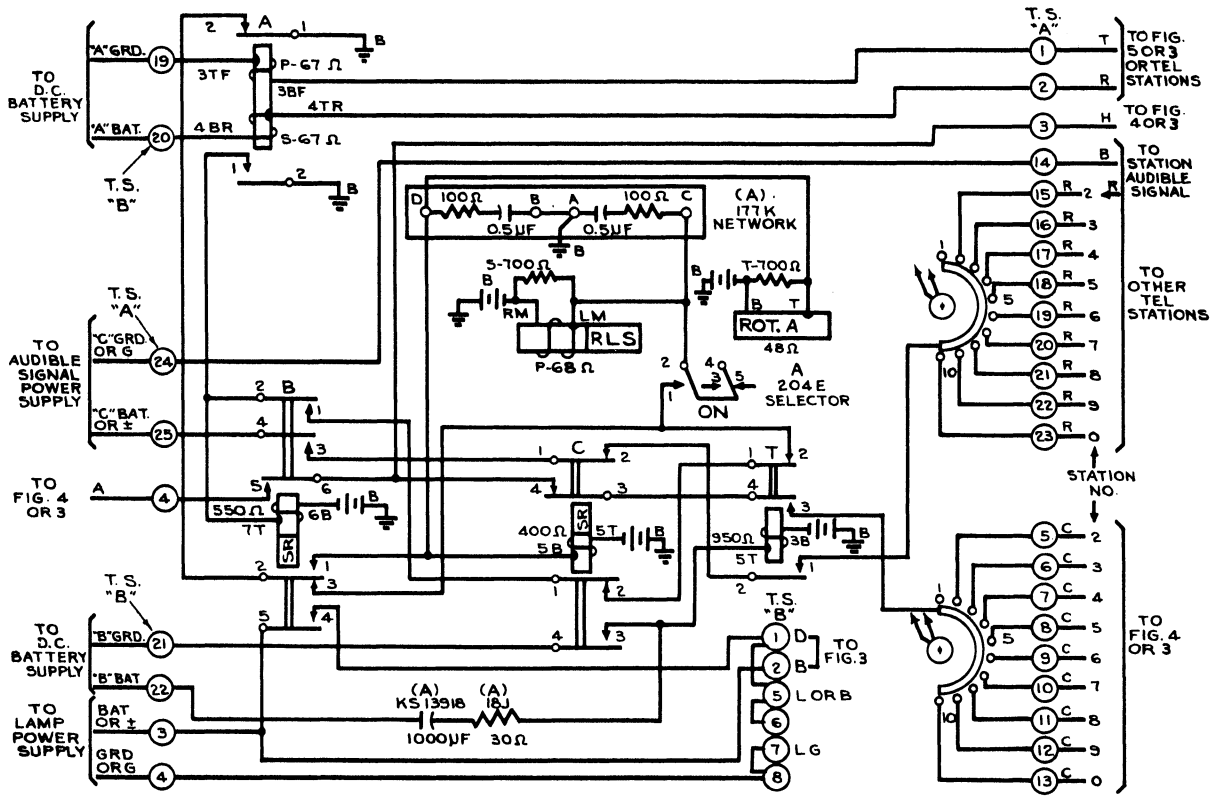

TO D.C. BATTERY SUPPLY
"A" GRD.
"A" BAT.
T.S. "B"
3TF
3BF
4TR
4BR
P-67 Ω
S-67 Ω
100Ω
0.5μF
(A) 177K NETWORK
5-700Ω
T-700Ω
RM
LM
RLS
P-68 Ω
ROT. A
48Ω
A 204E SELECTOR
ON
T.S. "A"
TO AUDIBLE SIGNAL POWER SUPPLY
"C" GRD. OR G
"C" BAT. OR ±
TO FIG. 4 OR 3
550Ω
7T
6B
SR
400Ω
5B
5T
950Ω
3B
"B" GRD.
"B" BAT
TO LAMP POWER SUPPLY
BAT. OR ±
GRD OR G
(A) KS 13918 1000μF
(A) 18J 30Ω
TO FIG. 3
L OR B
LG
TO FIG. 5 OR 3 OR TEL STATIONS
TO FIG. 4 OR 3
TO STATION AUDIBLE SIGNAL
TO OTHER TEL STATIONS
STATION NO.
TO FIG. 4 OR 3

Fig. 1

SIGNAL CKT. FOR FLASHING LINE LAMP FOR KEY TEL. SYS. NO. 1A

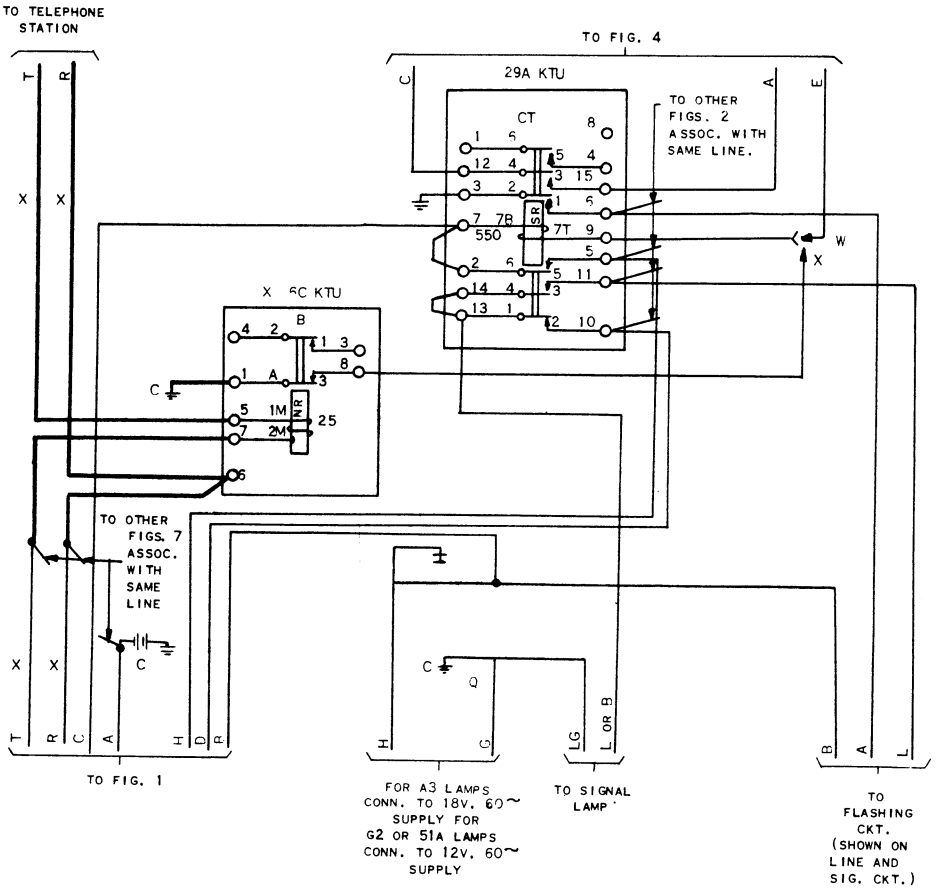


Fig. 2

1A KEY TELEPHONE SYSTEM
57A KEY TELEPHONE UNIT
(FOR FIG. 1)

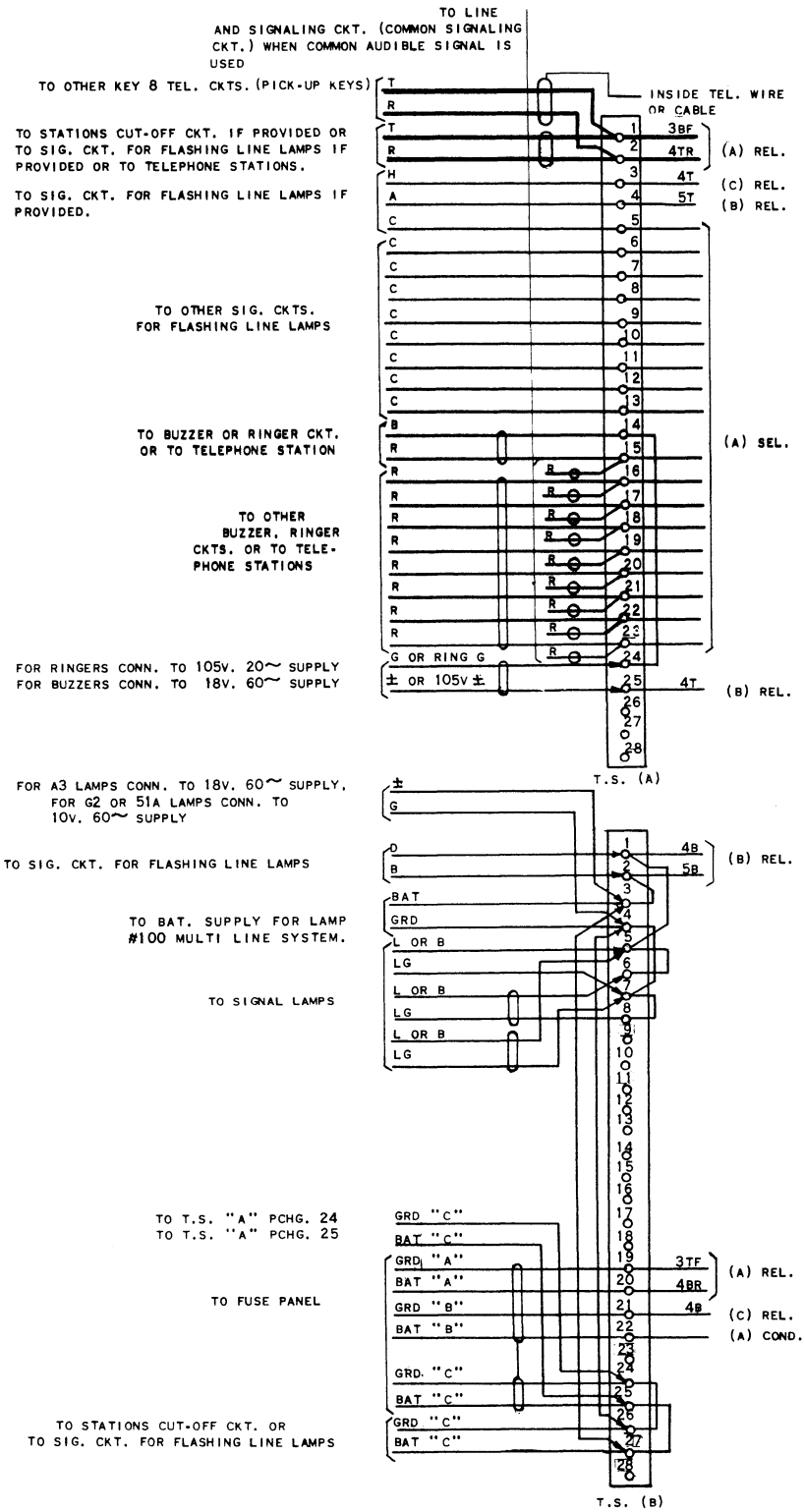
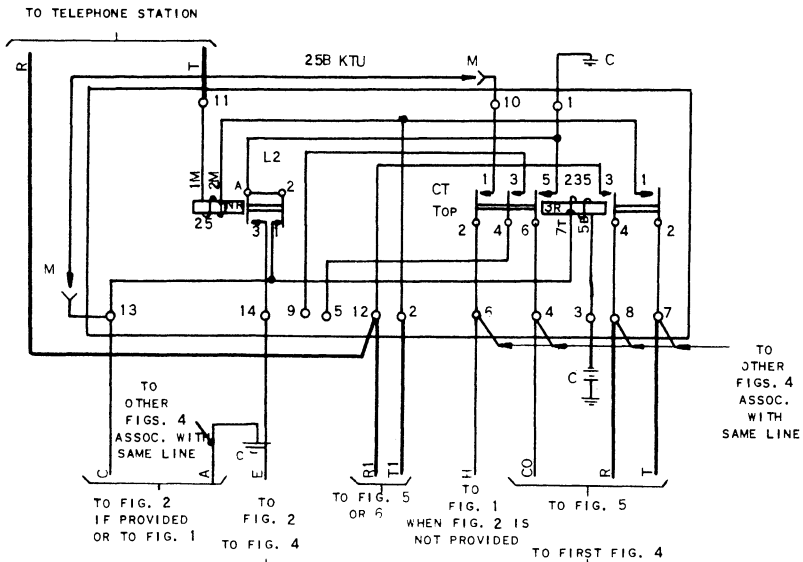


Fig. 3

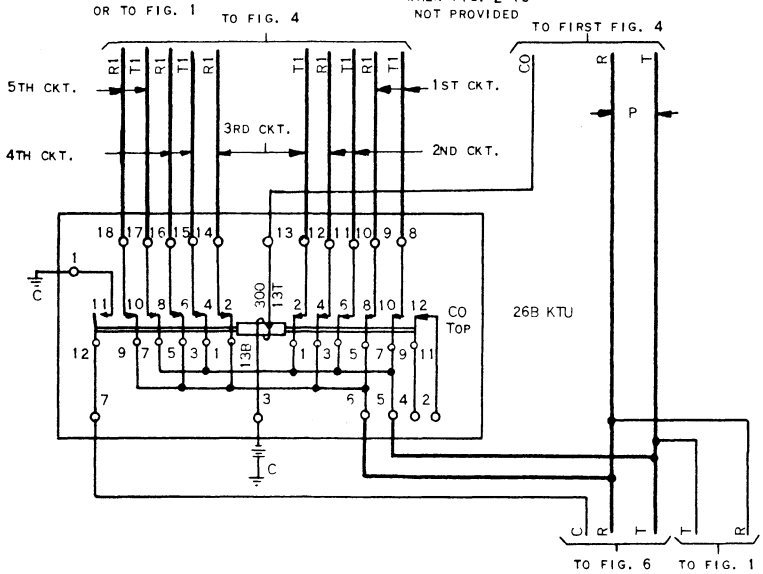
AUTOMATIC CUT-OFF CONTROL CKT. FOR KEY TELEPHONE SYSTEM NO. 1A

Fig. 4



STATIONS CUT-OFF CKT. FOR KEY TELEPHONE SYSTEM NO. 1A

Fig. 5



AUXILIARY STATIONS CUT-OFF CKT. FOR KEY TELEPHONE SYSTEM NO. 1A

Fig. 6