

Addendum Section 2ISSUE 27

Changed stubbing on Figs. 16A and 18A so that the transmission path to the conference is via capacitors and is not a connection that supports direct current continuity.

ISSUE 28

If Figs. 16A, 17A & 18A changed stubbing to indicate that a conference amplifier is to be used with this combination of Figs.

ADDENDUM SECTIONS TO EXPLANATIONAddendum Section 1ISSUE 15

Associated AH drawing was advanced to issue 14.

ISSUE 16

To facilitate GT&E SC standardization and mechanized ordering of switching equipment (MOOSE).

ISSUE 17

Provided new amplifier H-850749-A/H-840047-A Fig. 2A with only one line connected to each access.

ISSUE 18

Added punching for "RA" lead in Fig. 2A and designation "RA" to Term. Block for Figs. 29 and 28A required on new piece numbers.

ISSUE 19

To provide a fire reporting system for the Number 1 Electronic Automatic Exchange, Figures 16A, 17A, 18A, 19A and reference Figure EAX were added; stubbing information on existing Figures 6A, 10A, 11A, 13A, 14A and L were changed to reference the new figures; added ring generator return leads and terminals for each generator supply associated with EAX; added battery connected diodes on the CN leads to protect the correeds in the EAX line circuit and off hook, or answer supervision, is provided to prevent EAX Terminating Junctor (TJ) from timing out (12 to 14 seconds) after ring cut off.

ISSUE 20

Adapts Fig. 4A for use in a number 1 EAX system by providing optional precise interrupted ring back tone and changing stubbing information.

Thus, every odd numbered-time G restores, lead RC is grounded and on the even numbered restoration of G, lead RC is opened. These operations continue until ground is removed from lead LG (see Section 1).

11. TIME LIMITER FOR RINGING THRU FIG 8A OR 9A (FIG 14A)

When ground is connected to lead STR by the CONNECTOR FIRE-REPORTING-TERMINAL TRUNK (FIG 1A) or the FIRE-STATION TELEPHONE LINE CIRCUIT (FIG 4A), relay NC is closed. Relay NC operates, closes TS via ground on lead LG, and disconnects resistance (TO) battery from the TIMER terminal 7, (TIME-OUT OUTPUT). Relay TS operates, locks, and closes #2SF via resistor R2. When ground is removed from lead STR by the CONNECTOR FIRE-REPORTING-TERMINAL TRUNK or the FIRE-STATION TELEPHONE LINE CIRCUIT, NC is opened. After its slow-to-release interval, relay NC restores and connects resistance (TO) battery to terminal 7, (TIME-OUT OUTPUT) of the TIMER. If "L" wiring is disconnected and the FIRE STATION'S TIME CONTROL KEY (FIG TK) is not operated, SF operates to its "X" contacts only, connects resistance (#1SF) battery to terminal TK, and grounds terminal 6 (3-1/2-MINUTE START) of the TIMER (H-850615-A, FIG 3A) to request TIME OUT after 3-1/2 minutes. When the FIRE STATION'S TIME-CONTROL KEY is operated or "L" wiring is connected, #1SF is closed. Relay SF operates fully, short-circuits resistor R2, and transfers ground from terminal 6 to terminal 5 (1-MINUTE START) of the TIMER requesting TIME-OUT after 1-MINUTE. After 3-1/2 minutes or 1 minute, resistance ground is applied by the TIMER to terminal 7 (TIME-OUT OUTPUT), closing TO. Relay TO operates, opens TS, locks via ground on lead LG, removes ground from lead LGI and from lead 6 or lead 5 of the TIMER, grounds lead RO, and disconnects terminal 7 from TO. When ground is connected to lead RO, #2RO is closed in the ringing interrupter (FIG 12A), holding RO operated. When ground is disconnected from lead LGI, IS is opened (FIG 12A). Relay IS restores and opens RT. Relay RT restores. With only RO operated in the RINGING INTERRUPTER (FIG 12A) both groups of FIREMAN'S LINE RELAYS, G1 and G2, are disconnected from ringing current generator leads G(A) to G(E) and are connected to battery or ground (see NOTE 78, H-75607-A). Relay TS restores, opens #2SF and also opens #1SF (if closed). Relay SF restores. Relay TO remains operated as long as ground remains on lead LG. When ground is removed from lead LG, TO is opened. Relay TO restores,

7. REMOTE-ANSWERING-TERMINAL OPENING CIRCUIT - FIG 2A

After the siren is started, #1RAC is closed from FIG 10A or FIG 11A as described in Section 6. Relay RAC operates, locks via its #2 winding, removes ground from terminals C1-3 and connects resistance [resistor R6 and possibly resistor R17, in multiple (see NOTE 57, H-75607-A)] battery to terminals C1-3 via leads C1I-C3I to mark CONNECTOR REMOTE-ANSWERING-TERMINAL TRUNK (FIG 3A) idle to the Trunk-Hunting Connector.

When ground is removed from lead LG (See Section 1), #2 RAC is opened. Relay RAC restores and grounds leads C1 to C3, marking FIG 3A busy to the Trunk-Hunting Connector.

8. CONNECTOR REMOTE-ANSWERING-TERMINAL TRUNK - FIG 3A

Upon hearing the siren, a fireman away from his own fire telephone can call in via unpublished adjacent Trunk-Hunting Connector terminals, which are marked idle as described in Section 7, to enter conference to receive instructions.

Upon seizure, lead CI is grounded, and ringing current over leads "-" and "+" "fires" Thyatron RA. Thyatron RA closes the ring cut-off relay in the Connector. The ring cut-off relay in the Connector operates and removes ringing current from leads "-" and "+". Thyatron RA restores and does not provide an operating path for the back bridge relay in the Connector, thus avoiding answer supervision. Relay RA is closed over leads "-" and "+" in series with resistors R8, R10, and possibly R9 and R11 (see NOTE 76, H-75607-A. Relay RA operates and closes RM via thermistor TR3. After the thermal delay time of thermistor TR3, RM operates to its "X" contacts, locks, short-circuits thermistor TR3, transfers leads "-" and "+" from RA to leads -C and +C, opening RA, and grounds leads L and TDD (if used), lighting an answer supervision lamp. Relay RA restores.

When a calling fireman disconnects, ground is removed from lead CI, opening RM. Relay RM restores, transfers leads "-" and "+" from leads -C and +C to RA, and removes ground from leads L and TDD (if used), extinguishing the answer supervision lamp. This circuit is now at normal.

9. RINGING INTERRUPTER - FIG 12A

If it is required to divide the ringing load into two parts, FIG 12A is used. Relay IS operates via ground on lead LG or

When a fireman presses his button, the loop is grounded, short-circuiting #1SD. Relay SD operates, grounds leads MC, RA, and HVR via lead LG, closing #1RAC (FIG 2A) and the siren's power relay, and closes SA and magnet SW. The siren's power relay operates and initiates the sounding of the siren. Relay SA operates. Magnet SW operates.

When the fireman releases his button, ground is removed from the loop, removing the short circuit from across #1SD, causing SD to restore. Relay SD restores since its windings are in magnetic opposition, removes ground from lead RA, opening #1RAC (FIG 2A), and opens SA and magnet SW. Magnet SW restores and steps its wipers one step, closing #2SC via its LEV A wiper, grounds leads HVR via its ON springs, holding the siren operated. Relay SC operates to its "X" contacts, operates fully, short-circuits #1SC via lead RA, and closes magnet SW via its INT springs. Magnet SW operates and opens its INT springs, opening its operating circuit. Magnet SW restores, steps its wipers one step, and closes its INT springs which reclose magnet SW. This self-interrupted stepping continues until switch SW steps to its "home" position and operates its ON springs, opening SA, #2SC, and removing ground from lead HVR. Relays SA and SC restore. The siren's power relay restores and stops the siren.

6.2 Automatic Control

When one or more strap(s) between ROT SW SW's bank contacts is/are removed, starting at LEV A contact #1, the siren starts and stops at a predetermined cycle for a predetermined time interval after a push-button is pressed once.

The operational cycle of SA and SB and the position from which the strap was removed determine the time interval of the operation of the siren.

Operation of the push-button short-circuits #1SD, causing SD to operate. Relay SD operates, grounds leads RA, MC and HVR, closing #1RAC (FIG 2A) and the siren's power relay, and closing SA and magnet SW. The siren's power relay operates and initiates the sounding of the siren. Relay SA operates and closes SB. After its slow-to-operate interval, relay SB operates, and locks. Magnet SW operates.

When the push-button is released, the short circuit is removed from #1SD, causing SD to restore. Relay SD restores

via #2RC, operates fully, closes A, and grounds lead L to light an answer supervision lamp. Relay A operates, connects leads "-" and "+" to leads -C and +C, completing the transmission path for conference, opens #2ST, and grounds lead ANS via lead LG closing RBT (FIG 1A) or ANS (FIG 4A) which operates and opens STR (FIG 7A). Relay STR (FIG 7A) restores and removes ground from lead ST, opening #1ST. Relay ST restores.

4.122 Terminals BY and HU Strapped Together

Lead C is grounded via ground on lead CN. Upon seizure, ground is received via lead ST from FIG 7A, closing #1ST. Relay ST operates, locks via #2ST, connects lead T via capacitor C7 and possibly capacitors C9 and/or C10 in multiple (see NOTE 80, H-75607-A) to lead "-", sending high pitch tone to urge the fireman to terminate his personal conversation, and short-circuits B.

When the fireman momentarily disconnect, ground is removed from lead CN, removing the short-circuit from B. Relay B operates. Following operation is the same as described in Section 4.121.

This feature and thermistor-delayed relay FMO (FIG 1A, See Section 1.32) allows a fireman to use his own telephone to report a fire to other firemen by momentarily disconnecting his telephone when he hears the high pitch tone.

4.2 A Fireman Answers

4.21 From Idle Line (Operated: Relays ST and B)

When the called fireman answers, #1RC is closed via the loop. Relay RC operates and the succeeding operation is the same as described in Section 4.121.

4.22 From Busy Line (Operated: Relays A, RC, and B)

When the called fireman reconnects after a momentary disconnection, A is closed via the loop. Relay A operates and the succeeding operation is the same as described in Section 4.121.

4.3 Release (Operated: Relays A, B, and RC)

When the calling party disconnects, no relay operation takes place.

If terminals LG and LO are strapped together, the fire-station Attendant can go to the fire after he disconnects, letting a tape recorder or any fireman who answered instruct firemen who answer later. If the strap is not used, disconnection by the fire-station Attendant completely disconnects the fire conference.

2.1 Seizure

Upon seizure, A is closed via leads "-" and "+". Relay A operates, closes B, and grounds leads STR, LG, and ST, if terminals LG and LO are connected together. Relay B operates, connects lead RB TONE to lead "-" via capacitor C8, sending ring-back tone to the calling fire-station Attendant, and grounds leads RM ST and 5.

2.2 A Fireman Answers (Operated: Relays A and B)

When one of called firemen at home answers, ground is received via lead ANS from FIG 8A or 9A as described in Section 4.2, closing #1ANS. Relay ANS operates and closes RB. After its slow-to-operate interval, relay RB operates, locks, disconnects lead RB TONE from lead "-", removing ring back tone from lead "-", and removes ground from lead STR. Conversation may now take place. Ground on lead HVR via FIG 10A closes #2ANS.

2.3 Release (Operated: Relays A, B, ANS, and RB)

When the last called fireman disconnects, ground is removed from lead ANS, opening #1ANS and when the SIREN TIMER CIRCUIT (FIG 10A) removes ground from lead HVR, #2ANS is opened. Relay ANS restores and, if terminals LG and LO are not strapped, removes ground from lead ST (if used). If terminals LG and LO are strapped, ground remains on lead ST after ANS restores.

When the fire-station Attendant disconnects, the loop to A is opened. Relay A restores and opens B. After its slow-to-release interval, B restores, removes ground from leads 5, RM, ST, and LG (terminals LG and LO not strapped), and opens RB. Relay RB restores. The circuit is now at normal. If terminals LG and LO are strapped, when B restores, ground is also removed from lead ST (see NOTE 84, H-75607-A).

conference while any fireman who has already answered, or a tape recorder, instructs firemen who answer later.

- (i) Provides a means to start a village fire siren via an electronic sentry sensitive to a pocket oscillator tone.
- (j) Provides a means for firehouse attendant to limit duration of fire-call rings.
- (k) Provides for timed disconnect (optional) (FIGS 1A & 3A)

CIRCUIT OPERATION

i. CONNECTOR FIRE - REPORTING - TERMINAL TRUNK - FIG 1A

1.1 Seizure

Resistance battery on lead C via relay C and possibly resistor R16, in multiple (see NOTE 57, H-75607-A) marks this circuit idle to the preceding Trunk Hunting Connector banks. Upon seizure, ground on lead C closes C and ringing current triggers thyatron FR. Relay C operates, locks, closes #2ST via thermistor TR1, closes #2R, and grounds leads STR and L and terminal TDD, closing STR (FIG 7A) or NC (FIG 14A if used) and lighting an answer supervision lamp respectively. Relay K operates and grounds leads ST (if used), LG, RM ST, and 5. Relay ST operates, after the thermistor's time delay, locks, short-circuits thermistor TR1, closes #1R, connects resistance (RBT) battery to lead ANS, replacing resistance (#1R) battery, and connects lead RB TONE via capacitor C1 to lead "+", to return ring-back tone to the calling party.

Thyatron FR conducts, closing the ring cut-off relay in the Connector. The ring cut-off relay operates and removes ringing current from leads "-" and "+". Thyatron FR stops conducting.

1.2 A Fireman Answers (Operated: Relays C, ST, and R)

When a fireman answers, ground is received via lead ANS from FIG 8A or 9A as described in Section 4.2, closing RBT. Relay RBT operates, locks, removes ground from lead STR, opening STR (FIG 7A) or NC (FIG 14A if used), and transfers leads "-" and "+" from terminal RBT and resistance (resistor R3 possibly in series with resistor R4, see NOTE 76, H-75607-A) ground, respectively, to leads "-" and "+" (Terminals -C and +C respectively), extending the transmission path to the succeeding figure.