

CIRCUIT EXPLANATION

FIRE-REPORTING AND FIREMEN'S CONFERENCE CIRCUIT H-75607-A

(Written specifically for circuit issue 14, *
but may also apply to later issues. Refer
to H print for appropriate E issue number.)

FEATURES

- (a) Two Connector terminals are assigned to a trunk hunting group; if the first is busy, the second is automatically used.
- (b) Simultaneous ringing (interrupted or continuous) to all stations automatically until answered.
- (c) Any station can disconnect at will and reconnect to his line equipment for a local call, thus allowing one station to report a fire to another station.
- (d) Option to give an attention tone to a station with a local call in progress that a conference call is waiting or to immediately cut-off the local call and connect the conference call to the station.
- (e) Manual or automatic time-adjustable operation of a centrally located siren from a push-button on telephone.
- (f) Allows a fireman away from his own station to call in, upon hearing a siren, via unpublished trunk-hunting Connector terminals to enter fire conference and receive instructions.
- (g) Provides a ringing interrupter and a ringing interrupter pulse generator (if required).
- (h) Optional strap which allows fire station personnel to go to a fire after disconnecting from a

* SEE ADDENDUM SECTIONS, BEGINNING ON SHEET 14,
FOR DETAILS OF HOW SUBSEQUENT CIRCUIT ISSUES
AFFECT THE CIRCUIT OPERATION DESCRIBED HEREIN.

SIZE **A**

E- 75607-A

SHEET 1 TOTAL 16

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Added
Addendum
Section 1
To Cover
H Issues
15 thru 26
Jasurda
3/75 pm
ISSUE 6

Added
Addendum
Section 2
To Cover
H Issues
27 & 28
D. Danvir
1/76 pm
ISSUE 7

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APPROVED

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ISSUE

7

DRAWING NO.

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1.3 Release

1.31 From A Completed Call (Operated: Relays C, ST, R, and RBT)

When the called fireman disconnects after receiving a fire report, no relays restore.

When the calling party disconnects, ground is removed from lead C, opening C. Relay C restores, opens #2ST and #2R, grounds lead C, and removes ground from terminal TDD and lead L, extinguishing the answer supervision lamp. After its slow-to-release interval, relay ST restores and opens RBT and #1R. Relay RBT restores, transfers lead C from ground to resistance [C and possibly resistor R16, in multiple (see NOTE 57, H-75607-A)] battery, marking this circuit idle to the preceding Trunk Hunting Connector banks, and transfers leads "-" and "+" from leads "-" and "+" (Terminals -C and +C) to resistance (resistors R1 and R2, and R3 and R4 possibly in series, see NOTE 76, H-75607-A) ground. After its slow-to-release interval, R restores and removes ground from leads LG, ST, RM, ST, and 5. This circuit is now at normal.

1.32 From An Abandoned Call (Operated: Relays C, ST, and R)

When the calling party disconnects before a fireman answers, ground is removed from lead C, opening C. Relay C restores, opens #2ST and #2R, closes #1ST and FMO via thermistor TR2, and removes ground from lead L and terminal TDD. After the thermal delay time of thermistor TR2, FMO operates, locks, short-circuits thermistor TR2, and opens #1ST. Relay ST restores, transfers lead ANS from resistance (RBT) battery to resistance (#1R) battery, opens FMO and #1R, removes ground from lead STR, and disconnects lead RB TONE from lead "-" via capacitor C1. After its slow-to-release interval, relay FMO restores. After its slow-to-release interval, relay R restores and removes ground from leads LG, ST, RM ST, and 5. The circuit is now at normal.

2. FIRE - STATION TELEPHONE LINE CIRCUIT - FIG 4A

This circuit is used in lieu of FIG 1A. The Fire-station Attendant receives a fire report on a telephone and initiates a conference call via this circuit.

3. START EQUIPMENT - FIG 7A

This circuit is under control of FIG 1A or 4A and starts FIG 8A or 9A. Normally STR remains operated from when a call is initiated until a fireman answers.

When lead STR is grounded in FIG 1A or 4A as described in Sections 1 and 2, STR is closed. Relay STR operates and grounds leads ST (1-12), closing #1ST in FIG 8A or 9A.

When one fireman answers, ground is removed from lead STR in FIG 1A or 4A as described in Sections 1 and 2, opening STR. Relay STR restores and removes ground from leads ST (1-12), opening #1ST in FIG 8A or 9A.

4. FIREMAN'S LINE RELAYS - FIG 8A or 9A

4.1 Seizure

4.11 When A Called Fireman's Line is Idle

Absence of ground on lead C marks this circuit idle to preceding Connector banks. Upon seizure, ground is received via lead ST from FIG 7A as described in Section 3, closing #1ST. Relay ST operates, locks via its #2 winding (lead LG is grounded from FIG 1A or 4A), and closes B. Relay B operates, locks, transfers leads "-" and "+" from leads "-" and "+" (terminals -F and +F) to terminal TB via #1RC, and terminal GR, ringing the called fireman, and grounds lead C, marking this circuit busy to the preceding Connector banks.

4.12 When A Called Fireman's Line Is Busy

4.121 Terminals BY and HU Not Strapped Together

Lead C is grounded via lead CN. Upon seizure, ground is received on lead ST from FIG 7A, closing #1ST. Relay ST operates, locks via #2ST (as in Section 4.11) and closes B. Relay B operates, locks, transfers leads "-" and "+" from leads "-" and "+" (terminals -F and +F) to terminal TB via #1RC and terminal GR, cutting off the called fireman's conversation instantly without warning and closing #1RC, and grounds leads C and CN. After its slow-to-operate interval, relay RC operates to its "X" contacts, locks

When the called fireman disconnects, the loop to A is opened. Relay A restores, disconnects lead LG from lead ANS, removes ground from lead L extinguishing the answer supervision lamps, disconnects leads "-" and "+" from leads -C and +C, respectively, and opens B. After its slow-to-release interval, relay B restores and removes ground from leads C and CN, marking this circuit idle to the preceding Connector banks and opening #2RC. Relay RC restores. This circuit is now at normal.

5. SIREN CONTROL - FIG 11A ("S" Wiring in FIG 8A or 9A)

When this Siren Control feature is provided, one or more telephone(s) is/are provided with push-button(s) that ground the line loop. Relay SDI is connected in series with A in FIG 8A or 9A, but does not operate when A operates since its windings are in magnetic opposition. When a fireman pushes the button, the line loop is grounded, short circuiting #1SDI, causing SDI to operate. Relay SDI operates and connects leads LG and MC to leads RA and HVR, respectively, closing #1RAC (FIG 2A) and the siren's power relay. Relay RAC operates and transfers terminals C3, C2, and C1 from ground to leads C3I, C2I, and C1I, respectively. When a fireman releases the push-button, ground is removed from the line loop, removing the short-circuit from #1SDI. Relay SDI restores since its windings are closed in magnetic opposition, and disconnects leads RA and HVR from leads LG and MC respectively, opening #1RAC and the siren's power relay.

6. SIREN TIMER - FIG 10A ("S" wiring in FIG 8A or 9A)

This feature has Siren Timer in addition to Siren Control which is similar to that described in Section 5.

Relay SD is connected in series with A in FIG 8A or 9A, but does not operate when A operates since its windings are in magnetic opposition.

6.1 Manual Operation

When all ROT SW bank contacts are strapped except contact N on LEV C, the siren runs only while the fireman presses his push-button on the telephone.

since its windings are in magnetic opposition, opens magnet SW and SA, and removes ground from leads MC, HVR and RA, opening RAC and the siren's power relay. Magnet SW restores, steps its wipers one step to bank contact 1, and restores its ON springs, grounding lead HVR to close the siren's power relay. The momentary restoration of the power relay has no effect on the running siren. Relay SA restores, setting its weighted spring in motion. When the amplitude of the vibrations of the weighted spring of SA decreases sufficiently, the holding circuit of SB is opened. Relay SB restores and closes SA and magnet SW. Magnet SW operates. Relay SA operates and closes SB. Relay SB operates and opens SA and magnet SW. Relay SA restores as described previously. Magnet SW restores and steps its wipers one step (to bank contact 2). Thus the ROT SW steps its wipers once every operational cycle of SA and SB.

This stepping continues until the wiper passes a strap-removed position. When the wiper passes the strap-removed position, #2SC is closed via the wiper. Relay SC operates to its "X" contacts, operates fully, and closes motor magnet SW via the INT springs. Magnet SW operates and steps self-interrupted to its "home" position as described in Section 6.1. Reoperation of the push-button restarts this operation.

If it is desired to stop the siren while it runs, (terminal ST strapped to terminal SS, see NOTE 88, H-75607-A) the push-button is operated, short-circuiting #1SD. Relay SD operates and closes #1SC. Relay SC operates to its "X" contacts, operates fully, and closes magnet SW. Magnet SW "homes" self-interrupted to stop the siren as described in Section 6.1. When terminal ST is disconnected from terminal SS, operation of SD does not close #1SC and fireman's telephone pushbutton cannot stop the siren while it runs (see NOTE 88, H-75607-A).

6.3 Electronic Sentry (see FIG 10A)

When an authorized fireman holds a pocket oscillator to a telephone transmitter, an ELECTRONIC SENTRY, WW-6565-54 connects resistance (resistor R10) ground to terminal -P1, closing #2SD. Relay SD and the SIREN TIMER circuit (FIG 10A) operate as described in Section 6.2 except that the SIREN TIMER is seized via ELECTRONIC SENTRY.

LGI (see Section 1), grounds lead RM ST, connects lead RC to resistance (#1RO) battery and connects leads G (A-E) to leads G1 (A-E).

Lead RC is connected to a source of ground pulses (FIG 13A or equivalent) with equal "on" and "off" periods of a predetermined time interval. Relay RO operates on the ground pulse, transfers leads G1(A-E) to battery or ground (see NOTE 78, H-75607-A) from leads G (A-E) and closes RT. Relay RT operates, grounds terminal RO and closes #2RO, and transfers leads G2 (A-E) from battery or ground to leads G (A-E). When ground is removed from lead RC, RT and #1RO are opened. RT restores and opens #2RO (if terminal RO is not grounded via FIG 14A), transfers leads G2(A) to G2(E) from leads G(A) to G(E) to battery or ground. Relay RO restores (provided terminal RO is not grounded) and transfers leads G1(A) to G1(E) from battery or ground to leads G(A) to G(E).

Relay IS remains operated by ground on lead LG or lead LGI. Thus, by the operations of RO and RT, leads G1 (A-E) are closed alternately to battery or ground and a direct generator via leads G (A-E) while leads G2 (A-E) are closed in the reverse sequence, thus rapidly dividing the ringing source between two separate line groups.

10. RINGING INT. PULSE GEN. - FIG 13A

Ground closed to lead LG (see Section 1) closes G. After its slow-to-operate interval, relay G operates, removes the short circuit from F, closes #1 and #2H in magnetic opposition and closes #1J. Relay H does not operate. Relay J operates, locks, and transfers #1H to ground on lead LG. After its slow-to-operate interval, F operates and short-circuits G.

Relay G restores, short-circuits F and opens #2H, causing H to operate. Relay H operates and grounds lead RC (see Section 9). Relay F restores and removes the short-circuit from G. Relay G reoperates, removes the short-circuit from F and closes #1 and #2J in magnetic opposition, causing J to restore. Relay J restores. Relay F reoperates and short-circuits G.

Relay G restores, short-circuits F, and opens #1H. Relay H restores and removes ground from lead RC. Relay F restores and recloses G to lead LG. The cycle repeats.

removes ground from lead RO, connects lead LGI to lead LG, and connects terminal 7 (TIME-OUT OUTPUT) to TO. The circuit is now at normal.

12. ADAPTER (FIG 15A)

This circuit is used when associated equipment requires that the current drain on lead CN (FIG 8A or 9A) be low. The strap between terminals BY and HU of FIG 8A or 9A is then removed. When ground is connected to lead BY (via lead CN in FIG 8A or 9A), BY is closed. Relay BY operates and grounds lead HU. When ground is removed from lead BY, BY is opened. Relay BY restores and removes ground from lead HU.

ISSUE 17

Provided new amplifier B-85070-A/N-84007-A Fig. 1A with only one line connected to each access.

ISSUE 18

Added pumping for "BA" lead in Fig. 1A and designation "BA" to Term. Block for Fig. 1A and 1BA required on new place numbers.

ISSUE 19

To provide a fire reporting system for the Number 1 Electronic Automatic Exchange, Figures 10A, 11A, 12A, 13A and reference Figure 14A were added; stripping information on existing Figures 10A, 11A, 12A, 13A and 14A were changed to reference the new figures; added ring generator return leads and terminals for each generator supply associated with 14A; added battery connected diodes on the CN leads to protect the contacts in the 14A line circuit and all hook or answer supervision; is provided to prevent 14A terminating jumper (Y) from timing out (11 to 14 seconds) after ring cut off.

ISSUE 20

Adapted Fig. 14A for use in a number 1 14A system by providing optional ground interrupted ring back cone and changing stripping information.

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ISSUE 21

Changed the fire reporting system to accommodate new EAX systems going to five frequency ringing service by adding the generator return ground leads and terminals for ringing frequencies 4 and 5 in Figs. 7A and 12A.

ISSUE 22

Removed the wire between relay RC spring 3 and the terminal block terminal GR and replaced it with a ground at relay RC spring 3 because the ringing generator supply originates within the EAX equipment. The generator return lead is grounded there for inductive noise considerations and is not intended for carrying a relay operating current load.

ISSUE 23

Corrected drafting in Fig. 18A showing the "IN" terminal of relay RM coil wired to relay RM spring 10. Remove wire from relay RM spring 10 and wire to spring 9.

In Fig. 16A show busy key as a single lever key rather than two separate turn keys to prevent the possible metallic shorting of two H leads and prevent the inadvertent busy out of both emergency fire circuits.

ISSUE 24

Add terminal block for 2 ckts of Fig. 8A for new PC No. DH-75607-723A.

ISSUE 25

Associated AH drawing advanced to issue 18.

ISSUE 26

Made changes to accomodate No. 2 EAX.

In Figures 16A and 18A added Y apparatus. These figures now remain seized by loop line current or via a No. 2 EAX ground on lead CN. No. 2 EAX can dry the line toward the station.

In Figure 17A added warning tone capacitor configuration which is not a balanced tone arrangement.

In figure 19A added "C lead" stubbing to No. 2 EAX.

In Figure EAX, added stubbing for No. 2 EAX.