

# CIRCUIT EXPLANATION

M

SELECTOR CIRCUIT LOCAL  
OR INCOMING BATTERY  
SEARCHING ROUTINER ACCESS  
H-580059-A

(Written specifically for circuit issue 13-22,  
but may also apply to later issues. Refer  
to H print for appropriate E issue number.)

## ISSUE 13:

A portion of "F" Wiring is designated "G" Wiring and a portion of "E" Wiring is designated "H" Wiring. "G" Wiring is superseded by "H" Wiring. These changes were made to correct a condition created at Issue 12 which disabled the "differential hold" feature for relay F.

## ISSUE 14:

To correct an error in the modification made at Issue 13, the wiring between B spring 10 and VON spring 1 is designated "C" Wiring.

## ISSUE 15:

Issue 12 changes removed A springs 1-2 from the release magnet operate circuit. This change created a problem when the circuit was accessed by the Central Office equipment router. The trouble would occur when the router shunted relay F and operated relay A. Since relay A would now no longer open the circuit to the release magnet, the circuit would release instead of stepping to the next idle terminal.

Issue 15 changes provide "J" Wiring to supersede "F" Wiring and part of "H" Wiring is designated "I" Wiring to be removed with this issue.

## ISSUE 16:

Corrected an Issue 15 drafting error.

## ISSUE 17:

Added new Figures 8 and 9 to provide a peg count lead on switch-through of this circuit.

Figures 8 and 9 will use "V" Wiring which will disable the SUPY and EC leads.

Added  
Addendum  
1 to  
Cover H  
Issues 13  
thru 22  
6/74: mb  
Issue 12

E-580059-A-ADDEND.1  
SHEET 1 TOTAL 5  
AUTOMATIC ELECTRIC CO.  
MORTGAGE, ILLINOIS U.S.A.

WRITTEN BY

E. G. Conner

APPROVED

RWO

ISSUE

12

DRAWING NO.

E-580059-A-ADDEND.1

ISSUE 18:

Added "S" Wiring and Apparatus to supersede "R" Wiring and "X" Wiring.

"S" apparatus consisted of diode CR1 which was formerly shown as FIG. RT and used in FIGS. 2-3, 6 and 7-8.

This change was made to open ground to the #1 winding of relay F when the A relay released and thereby prevent the operation of the "F" relay if the call is abandoned during rotary stepping.

ISSUE 19:

Rated Figures 3, 4 and 9 NAFM superseded by Figures 1, 2 and 8 respectively. This change was made to eliminate duplicate Figures which resulted with the discontinued use of "X" Wiring and the use of "S" Wiring in all Figures.

ISSUE 20:

Removed suffix "E" from TABLE B.

ISSUE 21:

Added diode CR3 ("K" Wiring and Apparatus).

This change was made to prevent the unguarded period on the C wiper during the operation of relay F on switch through.

ISSUE 22:

"U" Wiring supersedes "T" Wiring. Part of "E" or "J" Wiring is designated "N" Wiring and is removed with this issue.

"K" Wiring and Apparatus is discontinued. The purpose of this change was to permit the removal of CR3 ("K" Apparatus).

# CIRCUIT EXPLANATION

M

SELECTOR CIRCUIT  
LOCAL OR INCOMING  
BATTERY SEARCHING  
RELAY INTERRUPTED  
WITH ROUTINER ACCESS  
H-580059-A

(Written specifically for circuit issue #12  
but may also apply to later issues. Refer  
to H print for appropriate E issue number.)

## FEATURES

- (a) Supervisory ground for "permanent" alarm
- (b) Routiner access
- (c) Provides lead EC for restricted service as required
- (d) Arranged for use with type B SATT system
- (e) Quick seizure on incoming calls
- (f) Arranged for use with offices having timed disconnection

## OPERATION

1 00 Seizure (Operated: VON springs)

1.01 Intermediate Selector ("W" wiring)

When used as an intermediate Selector, resistance (#2C) battery on lead C marks this switch idle to preceding equipment. When seized, a loop is closed across leads +LINE and -LINE, closing A. Relay A operates and closes B. Relay B operates, grounds lead C to mark this switch busy, closes #2C and grounds ("P" wiring) lead SUPY. Relay C operates and connects lead DIAL TONE & GRD to lead +LINE via #2A.

E- 580059-A

TOTAL

SHEET 3

AUTOMATIC ELECTRIC CO.  
NORTHLAKE, ILLINOIS U.S.A.

SIZE A

Added  
Feature  
(f) and  
Changed  
Sections

4.00 &

6.00

3/70:jk

D. YAMASAKI

W. Yamazaki  
3.24.70

Ketay

Issue 11

WRITTEN BY

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APPROVED

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ISSUE

12

DRAWING NO.

E- 580059-A

## 1.02 Incoming Selector ("Z" Wiring)

When used as an incoming Selector, absence of ground on lead C marks this switch idle to preceding equipment. When seized, a loop is closed across leads +LINE and -LINE, closing A. Relay A operates and closes B and #2C in multiple. Relays B and C operate as described in Section 1.01.

## 2.00 Vertical Stepping (Operated: Relays A, B, C; and VON springs)

Relay A follows the dial pulse(s) and when at normal, opens B and closes #1C and the VERT magnet in series. Relays B and C remain operated during pulsing due to their slow-to-release characteristics. The VERT magnet operates and steps the wipers to the dialed level. On the first vertical step the VON springs restores, close D and open #2C. Relay D operates and locks. At the completion of the digit, A re-operates, closes B and opens #1C and the VERT magnet. After its slow-to-release interval, C restores, disconnects lead DIAL TONE & GRD from lead +LINE via #2A, connects ground to lead +LINE via #2A, and closes the ROT magnet. The VERT magnet restores. When the dialed level is intended for restricted service, the LT NP SPGS operate, connecting ground via lead EC1 to wiper C marking this level busy.

## 3.00 Rotary Stepping (Operated: Relays A, B and D)

The ROT magnet operates, steps its wipers to the first bank contact, and opens D via its interrupter springs. Relay D restores and opens the ROT magnet. The ROT magnet restores, closing D. When the associated trunk is busy, D re-operates and closes the ROT magnet. The ROT magnet operates and steps its wipers to the next bank contact. This relay-interrupted stepping continues until resistance battery is encountered by wiper C or the eleventh rotary step is taken, (All-Trunks-Busy).

## 4.00 Switch Through (Operated: Relays A, B and D)

Idle trunks are marked by resistance battery on the C bank contacts. When an idle trunk is found, resistance battery via wiper C closes #1F. Relay F operates its "X" contacts only, and locks via #2F and the ROT magnet. Relay F operates fully, opens A, connects leads +LINE, -LINE, EC, and C to wipers "+" and "-", EC, and C, respectively, connects ground to lead TONE ST, opens B. Relay A restore. After its slow-to-release interval, relay B restores, and disconnects ground ("P" wiring) from lead SUPY, and opens relay D. Relay D restores.

### 5 00 All-Trunks-Busy (Operated: Relays A, B and D)

When an idle trunk is not found, relay-interrupted stepping continues until the eleventh rotary step is taken. On the eleventh rotary step, the CAM SPGS operate, open D to prevent further rotary stepping and transfer +LINE via #2A from ground to lead BUSY TONE & GRD. Relay D restores.

### 6.00 Release

#### 6.01 After Switch-Through (Operated: Relay F)

When ground is removed from wiper C by the succeeding equipment, F is opened. Relay F restores, (the magnetically opposed windings of #1 and #2F provide for a fast release), disconnects leads +LINE, -LINE, EC, and C from wipers "+", "-", EC, and C, respectively, removes ground from lead TONE ST, and closes the RLS magnet. The RLS magnet operates and releases the shaft. When the shaft returns to normal, the VON springs operate, open the RLS magnet and connect resistance (#2C) battery to lead C marking this switch idle. The RLS magnet restores. The switch is now at normal.

#### 6.02 From All-Trunk-Busy (Operated: Relays A and B)

When the calling party disconnects after receiving busy tone, the line loop is opened to A. Relay A restores and opens B. Relay B restores after its slow-to-release interval, removes ground from lead C, disconnects ground ("P" wiring) from lead SUPY, and closes the RLS magnet operates and releases the shaft. When the shaft returns to normal, the VON springs operate, connect resistance (#2C) battery to lead C, and opens the RLS magnet. The RLS magnet restores. The switch is now at normal.

### 7.00 Routiner Access

When Routiner access is required, leads +LINE, -LINE, BH, EC, C and RM are connected to the Routiner. Operation is the same as described in Sections 1.00, 2.00, 3.00, 4.00, 5.00 and 6.00. During rotary stepping, ground pulses are sent to the Selector via lead RM. After testing, the Routiner grounds lead BH, closing A to hold the switch operated, opens the line loop to release the line under test, and grounds lead RM to step the Selector to the next circuit.

