

# No.669(A) JUMPER PROGRAMMED DIGITAL COMMUNICATOR

## GENERAL INFORMATION:

The 669 ("A" Version) Digital Communicator transmits coded messages over the telephone system to the Ademco 660 Digital Receiver located at a central monitoring station. Special leased lines are not required. The 669 complies with FCC Rules, Part 68. Its FCC Registration Number is AC398U-62859-AL-R and its Ringer Equivalence is 0.0B.

The 669 consists of a covered circuit board chassis (WS669) and a steel cabinet with locked cover (No. 205). When the communicator is ordered as a WS669, the same covered circuit board chassis is provided, but without a cabinet. It may be installed in the cabinet of an alarm processing center (such as No. 1024, BC1026 or BC1028), in a No. 205 Cabinet obtained separately or in any other suitable enclosure.

The 669 may be powered by a low cost 6V. dry battery (Ademco Nos. 460 or 866) or a rechargeable 6V. DC filtered power supply (Ademco Recharge-A-Packs Nos. 96, 97, 492, 493, 497 or the power supply of a No. 1024, BC1026 or BC1028 Alarm Processing Center). The No. 89 pack may not be used. It may be triggered from any alarm control or other equipment that has a 6 to 12V. DC output or normally open dry contacts.

The 669 has 3 sending channels plus a "test" channel. These can be used for a variety of purposes. For example, Channel A might be used to transmit a fire message, Channel B to send a burglar alarm message and Channel C to transmit a "panic" or hold-up message. Any of these channels can also be used to monitor other functions such as freezers, oil burners, building temperature, machine operations, etc. The test channel's distinctive message is sent whenever the system is tested, or it may be used for special messages such as abort, restore or opening and closing signals (see "Additional Features and Information" starting on page 117). The test channel may also be used as a fourth monitoring channel.

## OPERATION:

When a channel is triggered, the 669 pauses momentarily while it automatically disconnects all local handsets from the line (automatic line seizure) thereby "hanging up" the line if it was in use. Then (within two seconds) the 669 "picks up" the line and proceeds as follows:

Note: Channels A and B have built-in optional triggering delays of approximately 30 seconds to prevent unwanted transmission of short duration "alarm" conditions due to testing or accidental tripping of the local alarm system. If the trigger signal is removed before the delay elapses no transmission will take place. At the installer's option, the delay may be eliminated in one or both channels by cutting the appropriate jumper(s) provided on the PC board. (See Diagram 1).

1. First, the 669 checks for dial tone on the telephone line. If dial tone is detected, the 669 immediately and automatically dials the programmed telephone number of the central monitoring station. Any number of characters, from one to eleven, may be programmed.

The probability of immediate dial tone detection is high, but if a dial tone is not detected within several seconds, the 669 will dial anyway, on the

assumption that the connection may be good even though the dial tone is not clear.

2. When connection is made with the central monitoring receiver, a "handshake" tone (acknowledgment) is sent over the telephone lines by the Receiver to the 669. This "handshake" confirms, to the 669, that connection has been completed to the receiver.

If "handshake" is not received (see "Extended Acknowledge Wait Option" on page 120) the communicator will disconnect itself from the telephone line. After waiting long enough to disconnect any incoming calls which might interfere with dialing (anti-jam in most localities), the 669 will reconnect to the telephone line, and again check for dial tone and dial as described in Step 1.

If necessary, the 669 will make up to a total of 10 attempts to reach the central monitoring station as described later, in Step 4.

3. Upon receipt of the "handshake" tone, the 669 will start transmitting its message. In less than 5 seconds, the message, consisting of a 3 digit customer identification number, and a 1 digit alarm identification number (burglary, fire, panic, freezer temperature, etc.) is sent.

Since faulty phone lines can distort the numbers, the 669 sends the message up to 4 times while the receiver compares each message with the one before it. As soon as the 660 Receiver detects 2 successive identical messages, it considers the transmission "valid" and sends a "kiss-off" code (shutdown) to the Communicator.

If the 669 does not receive the "kiss-off" code by the time it has sent its message four times, it hangs up and dials again. Up to a total of 10 attempts will be made to reach the central monitoring station. See Step 4.

4. In the event that either the "handshake" or the "kiss-off" is not received, the Communicator hangs up and tries again. If necessary, the 669 will make up to a total of 10 attempts to reach the central monitoring station. (See "Alternate Telephone No." below) If after 10 attempts the Communicator has not made contact and received the "kiss-off" signal, it will shut down and stop dialing. (See "Unlimited Attempt Option" on page 120.)

**4 Message Shutdown Option:** To permit transmission to less sophisticated receivers manufactured by others which do not have the "kiss-off" (message validation and shutdown) capability, the 669 can be changed so that once "handshake" has been received, the unit will simply send 4 messages and then shut down without waiting for "kiss-off". This change is easily made by cutting a jumper resistor (J1) on the 669's PC board. (See Diagram 1).

## **ADDITIONAL FEATURES AND INFORMATION:**

**Line Seizure:** Line seizure is a built-in feature of the 669. This feature will automatically disconnect all telephones in the protected premises whenever the 669 is activated. This permits the 669 to send its emergency message without risk of interruption. Surge Arrestors are incorporated to protect the Communicator from voltage surges on the telephone line caused by lightning, phone line testing and other transients.

**Alternate Telephone Number:** At the installer's option, the 669 may be programmed to call a second telephone number if the first two attempts to reach the receiver are unsuccessful. The alternate number may differ from the primary number by

**CAUTION:** Push programming jumper connectors straight onto appropriate posts. If connectors are angled or if excessive pressure is applied they may loosen. If this occurs, tighten carefully with long nose pliers.

TERMINALS	USED FOR	SEE PAGES
1, 3	Incoming Telephone Line	131
2	Cold Water Pipe Ground	130
4, 5, 6	No. 664 Test Button (Optional)	129
7, 8	Line Seizure (Local Handsets)	117, 131
4, 9, 10, 11, 12	Triggering, Channels A, B, C	127

CUT	FOR	SEE PAGES
J1	4 Message Shutdown	117, 129
J2	Unlimited Attempt	120, 129
J3	Extended Acknowledge Wait	120, 129
J4	Restore Code 7	120, 129

## No. 669

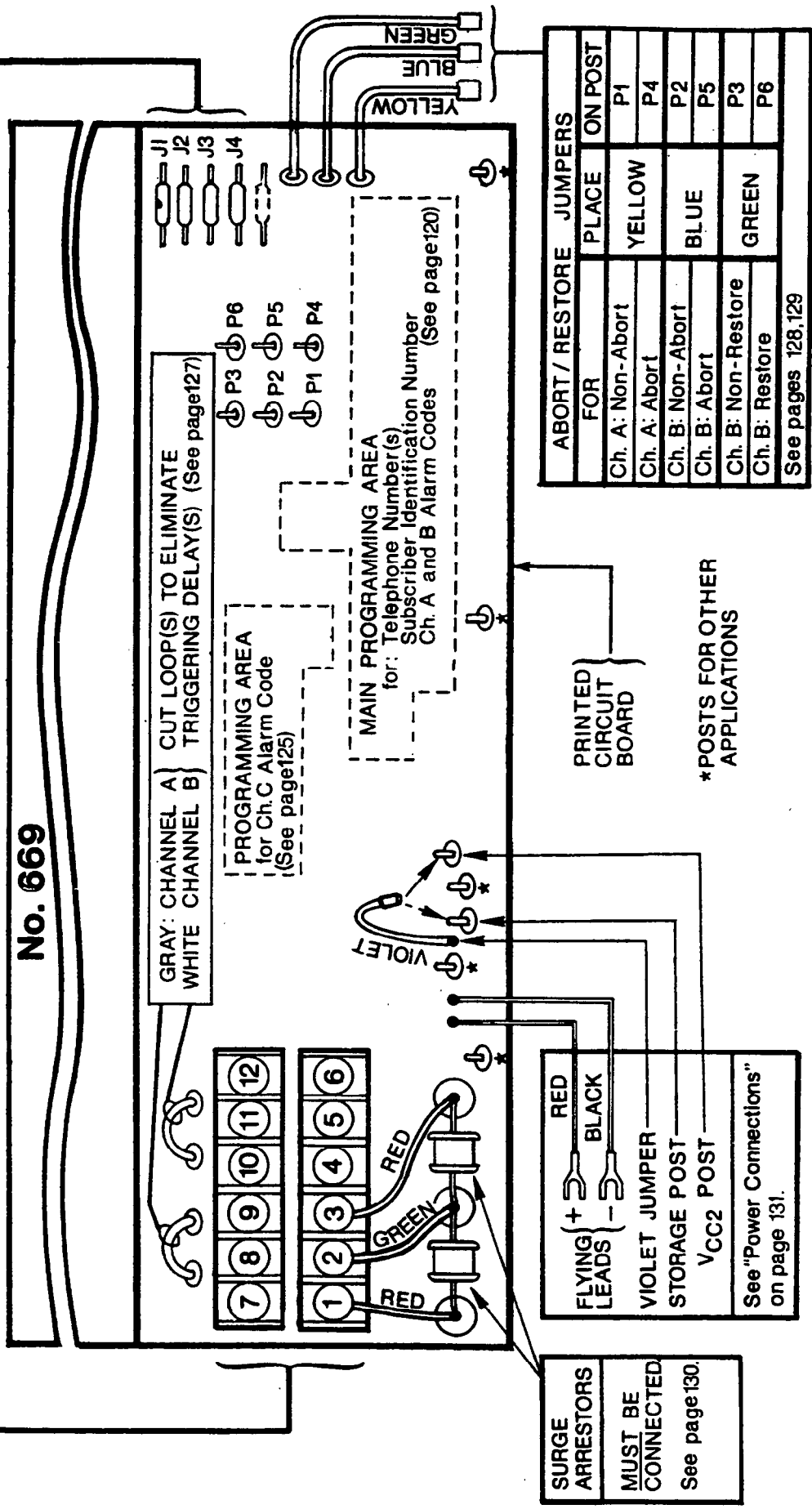


Diagram 1: TERMINALS, POSTS, JUMPERS, AND LEADS

any single digit. If an alternate number is programmed, two attempts will be made using the primary number, two using the alternate number, two using the primary, etc.

**Abort:** At the installer's option, Channels A and B of the 669 can be wired in either the abort or non-abort mode simply by positioning leads on the printed circuit board. (Channel C is non-abort only.) (See Diagram 1.)

In the abort mode, if the alarm system triggering the 669 is reset prior to "handshake", the message is cancelled and no transmission will occur. If the alarm system is reset after "handshake" but before "kiss-off" has occurred, a code 9 will be transmitted to the monitoring station, instead of the alarm code. In this instance the 669 will not redial, whether or not "kiss-off" is subsequently received.

In the non-abort mode, once the 669 is activated, the message cannot be cancelled.

**Restore Signal:** A restore signal indicates to the central monitoring station that the alarm system on the premises has been reset after an alarm has been transmitted. The programming of this feature is optional, is only available on Channel B, and can easily be programmed by positioning a jumper on the printed circuit board. At the installer's option, the restore code can be changed from its normal code 9 to a code 7 by cutting a jumper resistor (J4) on the 669's PC board. (See Diagram 1.)

**Test:** The special test channel of the 669 is used to check the operation of the entire transmission and receiving system. When activated from a No. 664 Test Button, the Communicator performs all its normal dialing and message transmission routines except it sends a special code 9 to indicate to the monitoring station that a test is being performed. During testing, an LED indicator on the Test Button will light. If the normal sequence of dialing, "handshake" and "kiss-off" occurs, the LED on the No. 664 will go out indicating that a successful test has occurred. (See page 129).

**Opening and Closing Signals:** One way that these signals may be transmitted is by using the Test capability of the 669. Using the 664 Test Button, the subscriber may manually signal the central monitoring station at a predetermined opening and/or closing time each day. The central monitoring station can then monitor the exact entry and exit of personnel. An alarm identification code 9 will normally be displayed along with the 3 digit customer identification. For an automatic alternative to depressing the Test Button, an open circuit magnetic switch on the entrance door, connected across Terminals 4 and 5 of the 669, will activate both the opening and closing signals. **Note:** CONTACT ACTION SHOULD BE MOMENTARY ONLY. A switch should be used to disable this contact during the day.

Opening/Closing signals can also be sent by using Channel B of the 669 in conjunction with its restore signal capability. A voltage (or contact closure) keyed to the arming of the alarm control unit can be used to trigger Channel B to transmit its programmed code as a "closing signal". Removal of the voltage (or opening of contacts) upon disarming will cause a code 9 (or 7, if chosen) "opening (restore) signal" to be sent. **Note:** The No. 688 Opening/Closing Switching Module can provide this capability for alarm processing centers such as the Nos. 1022, 1024, 1026, 1028.

**Low Battery Detection:** An important feature of the 669 is low battery detection. Whenever the battery voltage to the 669 drops to 4V., and the unit is called upon to transmit a test, abort, or restore signal, the usual code 9 will instead be sent as a code 8, signifying low battery. **Note:** If a code 7 restore signal has been selected, the code 7 signal will not change with low battery. If dry cells are used, frequent periodic testing is advised. When a low battery test code 8 is transmitted, the dry battery should be replaced.

**Low Battery Shutdown:** If the battery voltage to the 669 drops to a point where reliable transmission cannot take place, the Communicator shuts down completely.

**Unlimited Attempt Option:** At the time of installation, the 10 attempt shutdown feature may be disabled by cutting a jumper resistor on the 669's PC board (J2 shown in Diagram 1). The 669 will then, when activated, continue to try to reach the central monitoring station until "kiss-off" is received or (if "abort" has been selected for the triggered channel) until the alarm condition at its input terminals has been removed.

**Extended Acknowledge Wait Option:** In some geographical areas there still exist some slow speed telephone switching systems. To assist the 669 in getting through to the receiver, the time that the 669 waits to receive a "handshake" on each call (acknowledge wait time) may, at the installer's option be increased from its normal 25 seconds (approximate) to approximately 60 seconds. This is accomplished by cutting a jumper resistor (J3) on the 669's PC board. (See Diagram 1.)

**"Hold" Feature:** The 669 will function with Ademco receivers that are used with No. 671 Digital Call Directors to provide multiple telephone line capability. It can automatically detect the special "hold" signal that will be sent when the receiver is busy processing another call. When the receiver is ready, the 669 on "hold" will be signalled to proceed with its normal transmission. If the 669 is not taken off "hold" within approximately one minute, it will hang up and dial again.

## **MOUNTING:**

If the Communicator was ordered as a No. 669, a cabinet (No. 205) will accompany the chassis. Mount the cabinet in its desired location and install the communicator chassis in the cabinet, using the upper set of grooves provided at the side edges of the cabinet. Secure the chassis with a sheet metal screw through the upper hole in the cabinet's right hand edge.

If ordered as a No. WS669, no cabinet will be provided. The chassis may be installed in the cabinet of a No. 1024, BC1026 or BC1028 Alarm Processing Center, in a No. 205 Cabinet obtained separately, or elsewhere as required.

Current models of the Nos. 1024, BC1026 and BC1028 are provided with extra mounting grooves and hole at the sides of their cabinets to accommodate the communicator chassis. In addition, a small hole is provided in the top of these cabinets to enable the communicator chassis to be mounted vertically behind the alarm processing center's chassis after programming. (See Diagram 2.)

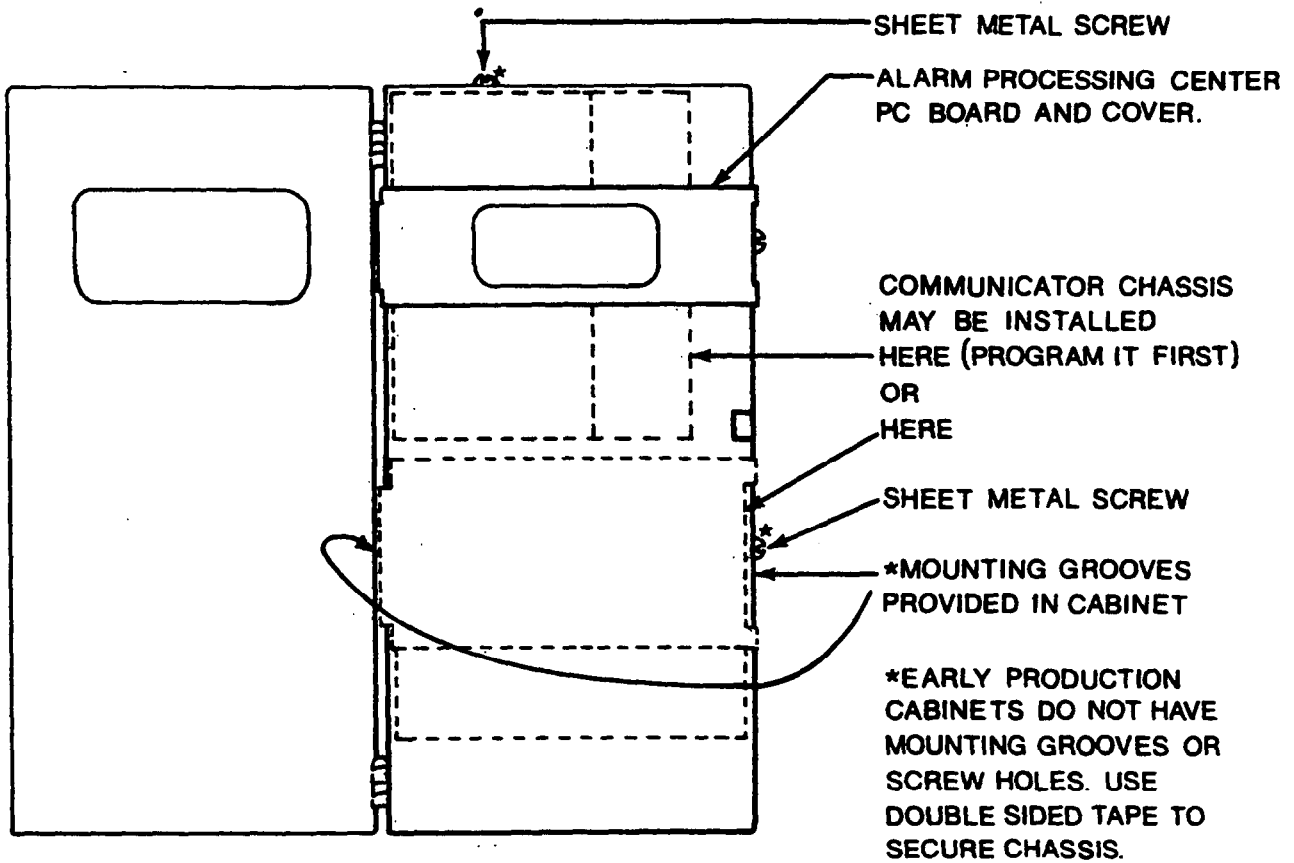
Note: In cabinets without mounting grooves, the communicator chassis may be secured in place with double sided tape.

## **PROGRAMMING:**

The 669 is easily programmed by placing programming jumpers on appropriate posts on the printed circuit board. The programming jumpers will be found in a package accompanying the 669.

The programming areas are located at the lower right hand corner of the PC board. (See Diagram 1.) The Main Programming Area is used for programming the central monitoring station's telephone number, the subscriber identification number and Channel A and B alarm codes only. A separate area is used for programming the Channel C alarm code and is described on page 125.

**Main Programming Area:** (See Diagrams 1 and 3). The telephone number for the central monitoring station, the subscriber identification number and Channel A and B alarm codes are programmed by interconnecting the row of 16 sets of



**Diagram 2: INSTALLATION OF COMMUNICATOR CHASSIS IN ALARM PROCESSING CENTER. (eg: No. 1024, BC 1026, BC 1028)**

lettered PAIRED posts and the row of numbered DIGIT posts. Each set of PAIRED posts consists of a CHARACTER post and a DIGIT EXTENDER post. ALTERNATE NUMBER POSTS are provided for optional programming of an alternate telephone number.

Character Posts

Description

P	For use if local requirements specify the use of a PREFIX NUMBER. If not used, it will be connected to the SKIP post with a programming jumper. Otherwise, it will be connected to the appropriate DIGIT post, as described later. There is a three second delay, after the prefix digit is dialed, before the remaining characters are dialed (to accomodate PBX System dialing requirements).
A,B,C	For AREA CODE, when required. If not used, it will be connected with jumpers for SKIP, as described later.
D-K	For programming the TELEPHONE NUMBER of the central monitoring station. For numbers with fewer than seven digits, the unused characters will be connected for SKIP as described later.
W,X,Y	For the SUBSCRIBER'S IDENTIFICATION (ACCOUNT) NUMBER. Up to 999 different account numbers can be programmed.

Character Posts

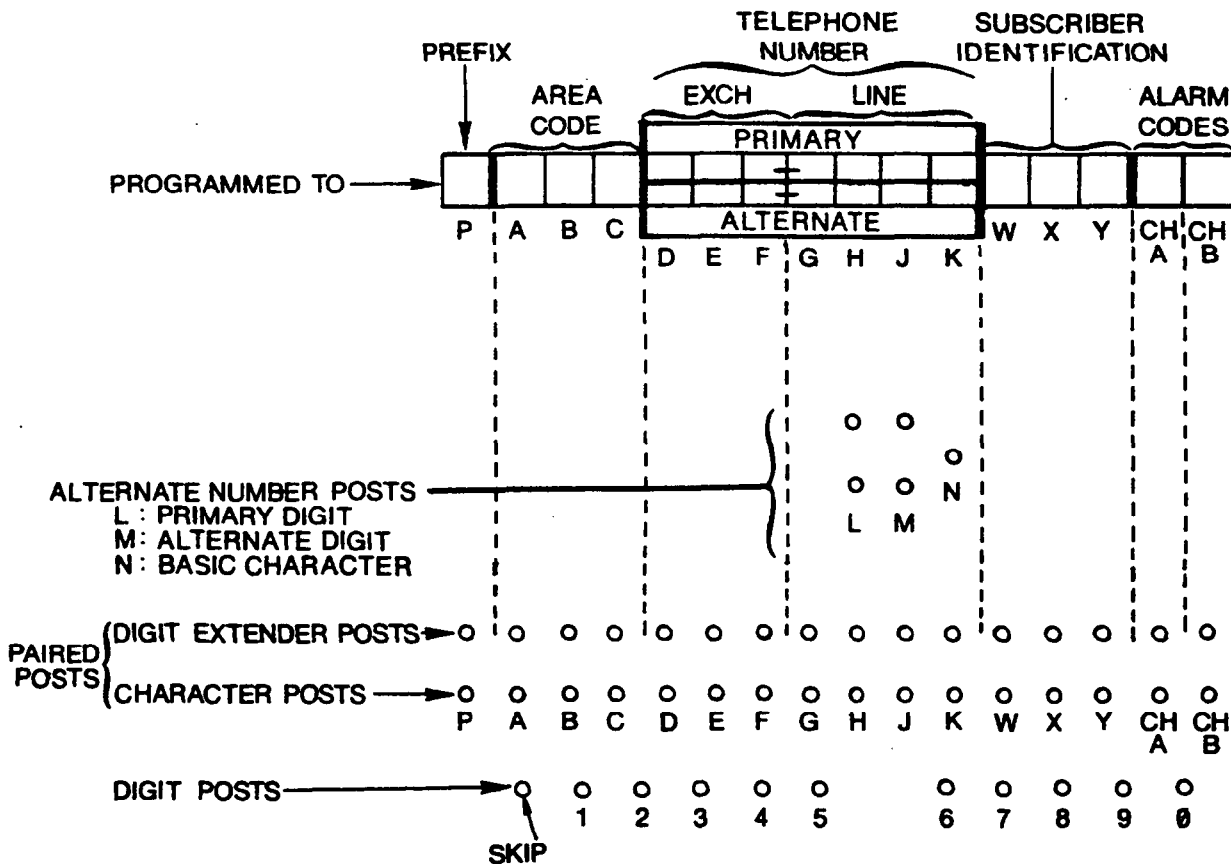
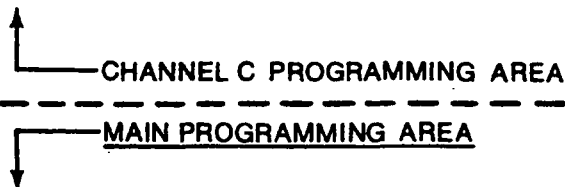
Description

CH A, CH B

For programming the ALARM CODE numbers for Channels A and B.

When two or more alarms occur simultaneously, the numerically lowest alarm code always takes priority over the higher. For example, if an alarm code 2 is tripped on Channel A and a code 1 is tripped on Channel B the lower code 1 will take priority and send its message.

C CODE → 0 0 0 0 0 0 0 0 } CHANNEL C PROGRAMMED  
 POSTS 1 2 3 4 5 6 7 8 } TO ALARM CODE:   
 O } (Use these posts, only to program  
 CH } Channel C Code.)  
 C }



**Diagram 3 PROGRAMMING AREA CHARTS**

(This diagram may be used to chart programming during actual installation. See examples described in text and Diagrams 4, 5 and 6.)

It is recommended, therefore, that codes be assigned as follows:

1. Fire
2. Hold-up (Panic)
3. Burglary
- 4 through 6. As required
7. Reserve for Channel B "Restore" code if jumper P4 is cut as explained on page 129.
- 8-9. Preset at factory and reserved for "Abort", "Test" and "Restore". Normally, 9 is transmitted. If low battery condition exists, a code 8 is transmitted.

Alternate Number Posts

Description

L,M,N

Used only when an alternate telephone number is programmed, as described later.

Programming is accomplished by connecting each CHARACTER post to an appropriate DIGIT post or DIGIT EXTENDER post. When a DIGIT post is already occupied and that same digit is needed for another CHARACTER post, connection should be made to the DIGIT EXTENDER post paired with a CHARACTER post that is already programmed to that digit.

CHARACTER posts that are not needed (PREFIX and AREA CODE posts often are not) must make use of the DIGIT post marked "SKIP", as explained below.

An ALTERNATE TELEPHONE NUMBER may be programmed, if desired. It may differ from the primary number in any single character position (for example: 123-6666 and 123-6646). Attempts to reach the central monitoring station will then alternate in pairs between the primary number and the alternate number. In programming, the ALTERNATE NUMBER posts L, M and N must be used in conjunction with the DIGIT and CHARACTER posts:

- L. Connect to the numerical value (1 through 0) of the character in the primary telephone number.
- M. Connect to the numerical value (1 through 0) of the character in the alternate telephone number.
- N. Connect to the CHARACTER post of the digit to be changed.

Note that the DIGIT EXTENDER post associated with the CHARACTER post in this case should not be used. Instead, extender posts have been provided at L and M.

Programming is best explained further by giving two examples. See EXAMPLES 1 and 2 and Diagrams 4 and 5.

**EXAMPLE 1: PROGRAMMING WITHOUT ALTERNATE TELEPHONE NUMBER**

See Diagram 4. Note: All Characters must be programmed. If not needed, program as "SKIPS".

In the example shown in Diagram 4 the following procedure was followed to accomplish the programming of:

<u>Prefix:</u>	None	<u>Subscriber:</u>	240
<u>Area Code:</u>	None	<u>Channel A Code:</u>	1
<u>Telephone No.:</u>	123-6666	<u>Channel B Code:</u>	4

Prefix: Since none is required, CHARACTER post "P" is connected to DIGIT post "SKIP" with a programming jumper.

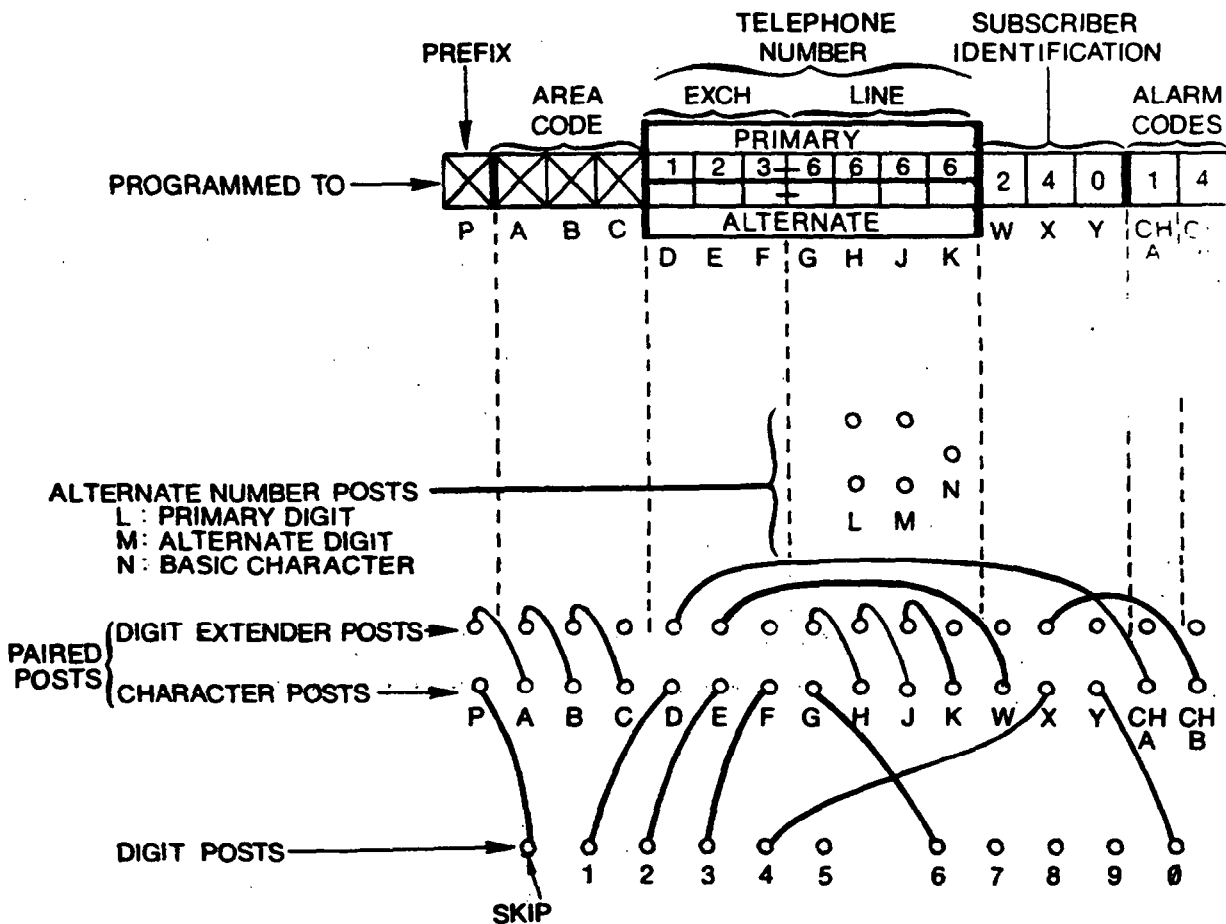
Area Code: Since none is required, but DIGIT post "SKIP" is already used, CHARACTER post "A" is connected to DIGIT EXTENDER post "P". Similarly, "B" is connected to "A" and "C" is connected to "B" in order to extend "SKIP" to all of these posts.

Telephone Number: CHARACTER posts "D", "E", "F" and "G" are connected to DIGIT posts, "1", "2", "3" and "6" respectively. CHARACTER posts "H", "J" and "K" are each connected to the DIGIT EXTENDER post just to their left in order to extend the "6" to all of these posts.

Subscriber Identification: The "2" for CHARACTER post "W" is obtained from DIGIT EXTENDER post "E". The "4" and "0" for posts "X" and "Y" are obtained directly from those DIGIT posts.

Alarm Codes: The "1" for Channel A is obtained from DIGIT EXTENDER post "D". The "4" for Channel B is obtained from DIGIT EXTENDER post "X". (Note: For Channel C, see Diagram 6.)

Note: Diagram 3 may be used to chart the programming for the actual installation to be made.



**Diagram 4: PROGRAMMING EXAMPLE 1: (No Alternate Number)**

## EXAMPLE 2: PROGRAMMING WITH ALTERNATE TELEPHONE NUMBER

See Diagram 5. Note: All characters must be programmed. If not needed, program as "SKIPs".

In the example shown in Diagram 5 the following procedure was followed to accomplish the programming of:

<u>Prefix:</u> None	<u>Subscriber:</u> 240
<u>Area Code:</u> None	<u>Channel A Code:</u> 1
<u>Telephone Nos.:</u> 123-6666 (Primary) 123-6646 (Alternate)	<u>Channel B Code:</u> 4

Prefix: Since none is required, CHARACTER post "P" is connected to DIGIT post "SKIP" with a programming jumper.

Area Code: Since none is required, but DIGIT post "SKIP" is already used, CHARACTER post "A" is connected to DIGIT EXTENDER post "P". Similarly, "B" is connected to "A" and "C" is connected to "B" in order to extend "SKIP" to all of these posts.

Telephone Numbers: CHARACTER posts "D", "E", "F" and "G" are connected to DIGIT posts "1", "2", "3" and "6" respectively. CHARACTER post "H" is connected to DIGIT EXTENDER POST G to obtain "6". CHARACTER post "J" is connected to ALTERNATE NUMBER post "N" since "J" is the character position with primary and alternate digits. ALTERNATE NUMBER post "L" is connected to DIGIT EXTENDER post "H" to obtain "6" for the primary digit. Post "M" obtains its "4" for the alternate digit directly from DIGIT post "4". CHARACTER post "K" obtains its "6" from the extender post associated with "L".

Subscriber Identification: The "2" for CHARACTER post "W" is obtained from DIGIT EXTENDER post "E". The "4" for post "X" is obtained from the extender post associated with "M". Post "Y" is connected directly to DIGIT post "0".

Alarm Codes: The "1" for Channel A is obtained from DIGIT EXTENDER post "D". The "4" for Channel B is obtained from DIGIT EXTENDER post "X". (Note: For Channel C, see Diagram 6.)

Note: Diagram 3 may be used to chart the programming for the actual installation to be made.

### Channel C Programming Area:

The alarm code for Channel C is programmed in a separate area on the communicator's circuit board. See Diagrams 1, 3 and 6. Posts for selection of codes 1 through 8 are provided.

The code for Channel C should be selected similarly to the guidelines for Channels A and B given above, on page 122. As stated there, the lowest alarm code takes priority if two or more alarms occur simultaneously. Code 7 should normally be reserved for Channel B Restore Code use if desired and Code 8 should be reserved for the communicator's low battery condition signal. Code 9 is preset at the factory for "Abort", "Test" and/or "Restore" messages.

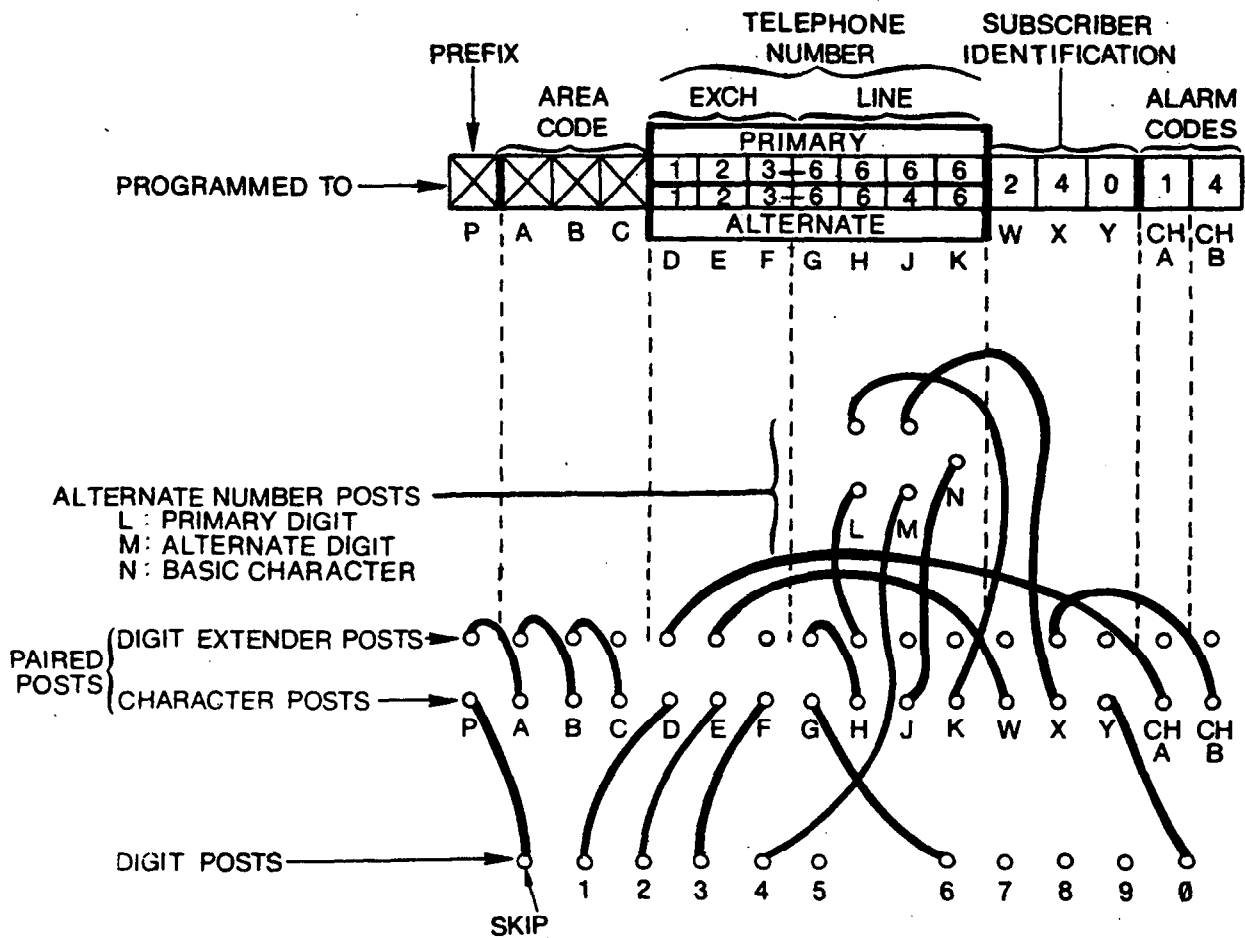


Diagram 5: PROGRAMMING EXAMPLE 2: (With Alternate Number)

Since Channel C is a non-abort, non-restore channel, it is often used for panic or emergency alarm.

To program Channel C, connect a programming jumper between the CH C (Channel C) Post and the desired numbered C CODE Post (from the row of numbered posts just above the CH C Post). Diagram 6 shows Channel C programmed to Code 2.

Note: If Channel C is not used, it is not necessary to program a code value. (unlike the Main Programming Area, which includes Channels A and B, where all characters must be programmed either with a numerical value or a "SKIP"). Unused posts in the "C" programming area may not be used to obtain digit values for the main programming area. They are for Channel C use only.

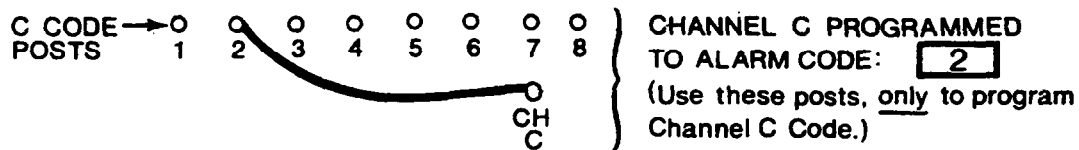


Diagram 6 PROGRAMMING EXAMPLE, CHANNEL C

## TRIGGERING CONNECTIONS:

### Triggering Delays:

Channels A and B have built-in optional triggering delays of approximately 30 seconds (when triggered from a 6V. DC source) to prevent unwanted transmission of short duration "alarm" conditions due to testing or accidental tripping of the local alarm system. If the triggering signal is removed before the delay elapses, no transmission will take place. Note: When triggered from a 12V. DC source, the delay will be approximately 10 seconds.

To eliminate triggering delays from Channel A and/or B, if desired, cut appropriate wire loop(s) as indicated on Diagram 1, and below:

Channel A: Cut GRAY loop.  
Channel B: Cut WHITE loop.

### Triggering Methods:

Channels A, B and/or C can each be triggered in either of two ways:

- I. By a 6-12V. DC voltage input from a control instrument (Diagram 7). This method is used when the 669 is connected as a "slave" to an existing local alarm. The communicator should be connected to the local alarm control's "bell" terminals as follows:
  - a. Connect the control's positive (+) bell terminal to communicator terminal 9 (Channel A), terminal 11 (Channel B) or terminal 12 (Channel C).
  - b. Connect the control's negative (-) bell terminal to communicator terminal 10 (Channel A or B), or terminal 4 (Channel C).

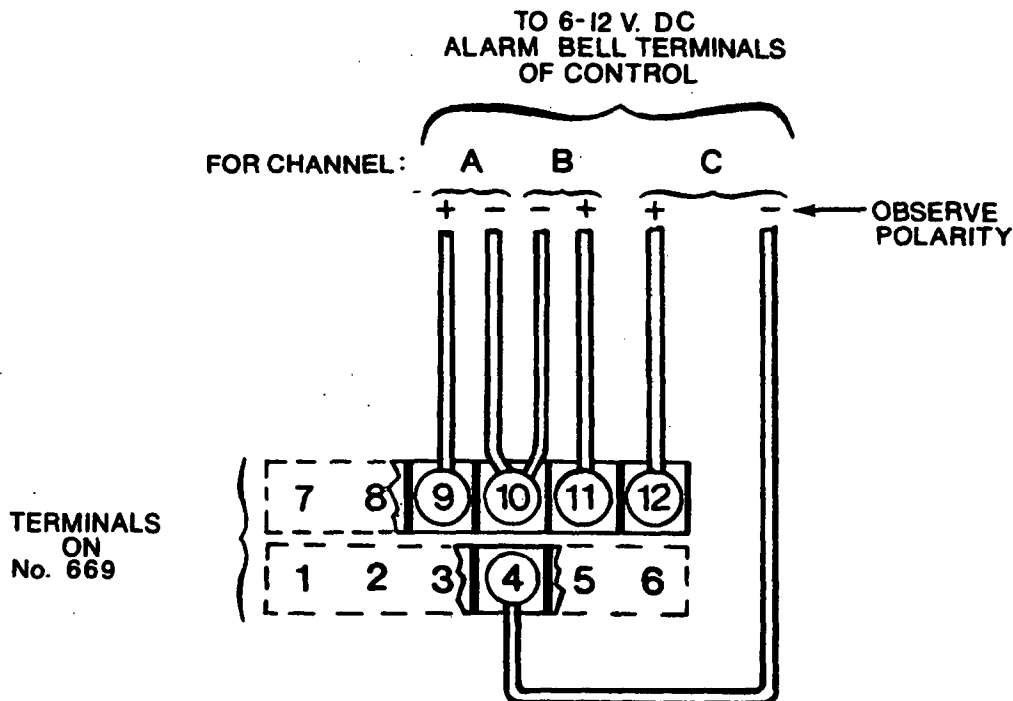
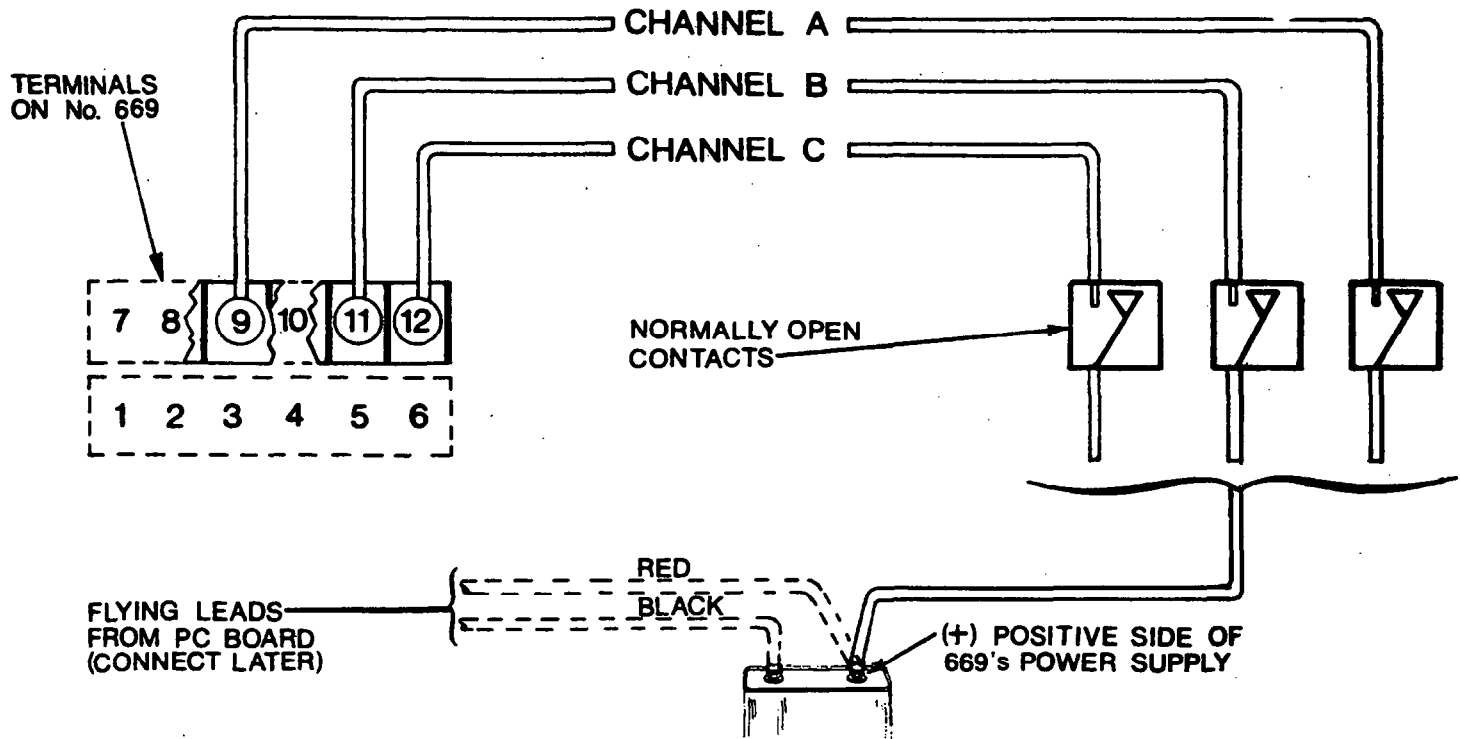


Diagram 7: TRIGGERING BY VOLTAGE INPUT

2. By a normally open "dry" contact closure (Diagram 8). In this mode, the channel will trigger when it senses the closure of a normally open circuit.
  - a. Connect one lead from the normally open circuit to the positive (+) terminal of the 669's power source.
  - b. Connect the other lead from the normally open circuit to 669 terminal 9 (Channel A); terminal 11 (Channel B) or terminal 12 (Channel C).



**Diagram 8: TRIGGERING BY DRY CONTACT CLOSURE**

**ABORT/NON-ABORT CONNECTIONS (Channels A and B):**

See Diagram 1 and the "Abort" description on page 119.

If the alarm condition that has triggered Channel A or B is reset before the Communicator has sent its message, the message will be cancelled (aborted) or allowed to go through (non-aborted) depending on which option the installer has selected. These options may be selected by placing the abort jumpers provided at the right edge of the circuit board (YELLOW for Channel A, BLUE for Channel B) on the appropriate posts as indicated in the tabulation shown in Diagram 1 and as follows:

- a. If the channel triggering signal might be momentary, the abort jumper for that channel must be placed on its NON-ABORT post to insure that messages will be sent (Channel A: YELLOW on P1, Channel B: BLUE on P2). Note: The channel's triggering delay loop should also be cut if immediate lock-in of the triggering signal is desired.
- b. If the channel triggering signal will be continuous and you DO NOT want messages to be aborted, place the abort jumper for that channel on its NON-ABORT Post (Channel A: YELLOW on P1, Channel B: BLUE on P2).

- c. If the channel triggering signal will be continuous and you DO want messages to be aborted if the alarm system is reset quickly, place the abort jumper for that channel on its ABORT Post. (Channel A: YELLOW on P4; Channel B: BLUE on P5).

Note: In the ABORT mode, if the input signal is removed from Channel A or B before the 669 receives the "handshake" (acknowledge signal) from the receiver, the Communicator will hang up (although not necessarily at the instant the input signal is removed) and not send any message at all. If the input signal is removed after "handshake", but before "kiss-off", a code 9 message will be sent and the 669 will not redial, whether or not "kiss-off" is subsequently received.

### **RESTORE/NON-RESTORE CONNECTIONS(Channel B):**

See Diagram 1 and "Restore Signal" on page 119.

Channel B can be connected to send a restore message automatically when the alarm condition is removed from the channel after the monitoring station has received the full alarm message and "kiss-off" has taken place.

Connection for "restore" may be made by placing the GREEN restore jumper provided at the right edge of the circuit board on post P6. If no restore signal is desired, place the jumper on post P3.

The normal code 9 restore signal can be changed to a distinctive code 7, if desired, by cutting JUMPER RESISTOR J4 at the right edge of the circuit board (code 9 will remain as the test/abort signal message. A code 9 restore signal will be transmitted as a code 8 if a low battery condition exists. If code 7 is selected, however, a low battery condition will not alter the code 7 restore signal. In any event, a low battery condition will still be revealed by test signals being transmitted as code 8 instead of code 9.

### **MISCELLANEOUS OPTIONS:**

These options, discussed earlier, may be selected at the time of installation by cutting the appropriate jumper resistors on the 669's PC board. See Diagram 1.

**4 Message Shutdown Option:** Discussed on page 117. To select, cut jumper resistor J1.

**Unlimited Attempt Option:** Discussed on page 120. To select, cut jumper resistor J2.

**Extended Acknowledge Wait Option:** Discussed on page 120. To select, cut jumper resistor J3.

**Restore Code 7 for Channel B:** Discussed on page 119. To select, cut jumper resistor J4.

### **TEST PROVISION:**

It is advisable to connect a No. 664 Digital Communicator Tester (test button with LED) to the 669 to enable the communicator's operation to be tested periodically with the central monitoring station. Improper conditions (such as "low battery") can thus be monitored.

### **No. 664 Digital Communicator Tester Connections:**

The No. 664 may be mounted in any convenient location. Diagram 9 shows how its three leads should be connected to the 669's terminals (WHITE to 4, BLACK to 5, RED to 6).

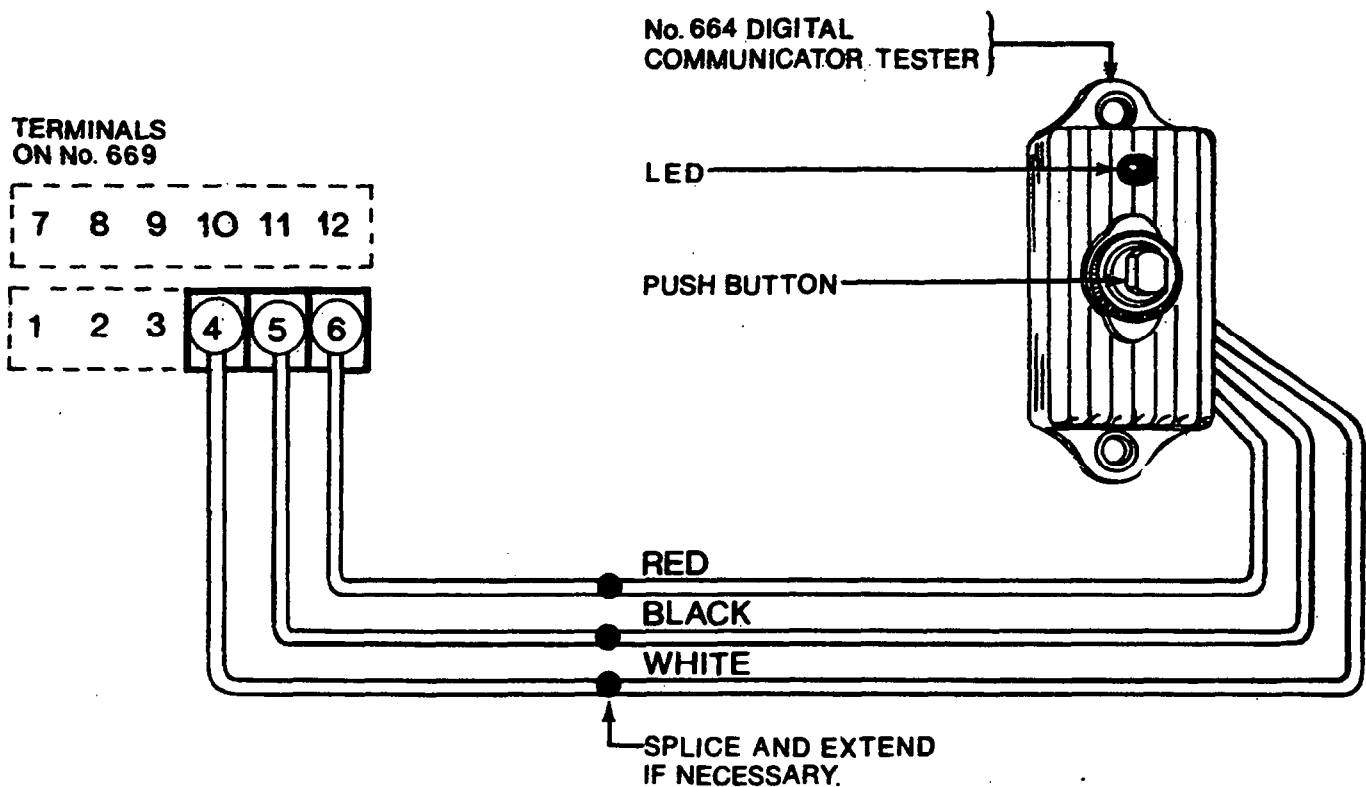


Diagram 9: No. 664 TESTER CONNECTIONS

### Test Procedure:

After GROUND, TELEPHONE LINE and POWER connections have been completed (as described in the next three sections), operation of the 669 may be tested at any time with the central monitoring station by using the No. 664 Tester.

The No. 664 contains a normally open momentary contact pushbutton switch and an LED Indicator.

1. Push the button on the No. 664 momentarily. This will initiate the test function and cause the 669 to dial the No. 660 Receiver at the central monitoring station and send a code 9 test signal (or code 8 if a low battery condition exists).
2. The LED indicator on the No. 664 will be lit while the 669 is operating.
3. The LED will turn off when the 669 shuts off. Under normal conditions the LED will turn off within 1 minute. Transmission time for the test will be longer if the central monitoring station is busy or if telephone problems exist. If the LED is still on after 5 minutes the subscriber should check with the central monitoring station.

### GROUND AND SURGE ARRESTOR CONNECTIONS:

The 669 contains surge arrestors to help protect the dialer circuits from voltage surges on the telephone line. For proper protection, terminal 2 of the 669 must be connected to a cold water pipe ground. A GREEN 18" lead with a "U" lug at one end has been provided for this purpose.

**IMPORTANT:** The 3 leads from the surge arrestors must be connected to terminals 1, 2, 3 as shown in Diagram 10 (RED leads to 1 and 3, GREEN to 2).

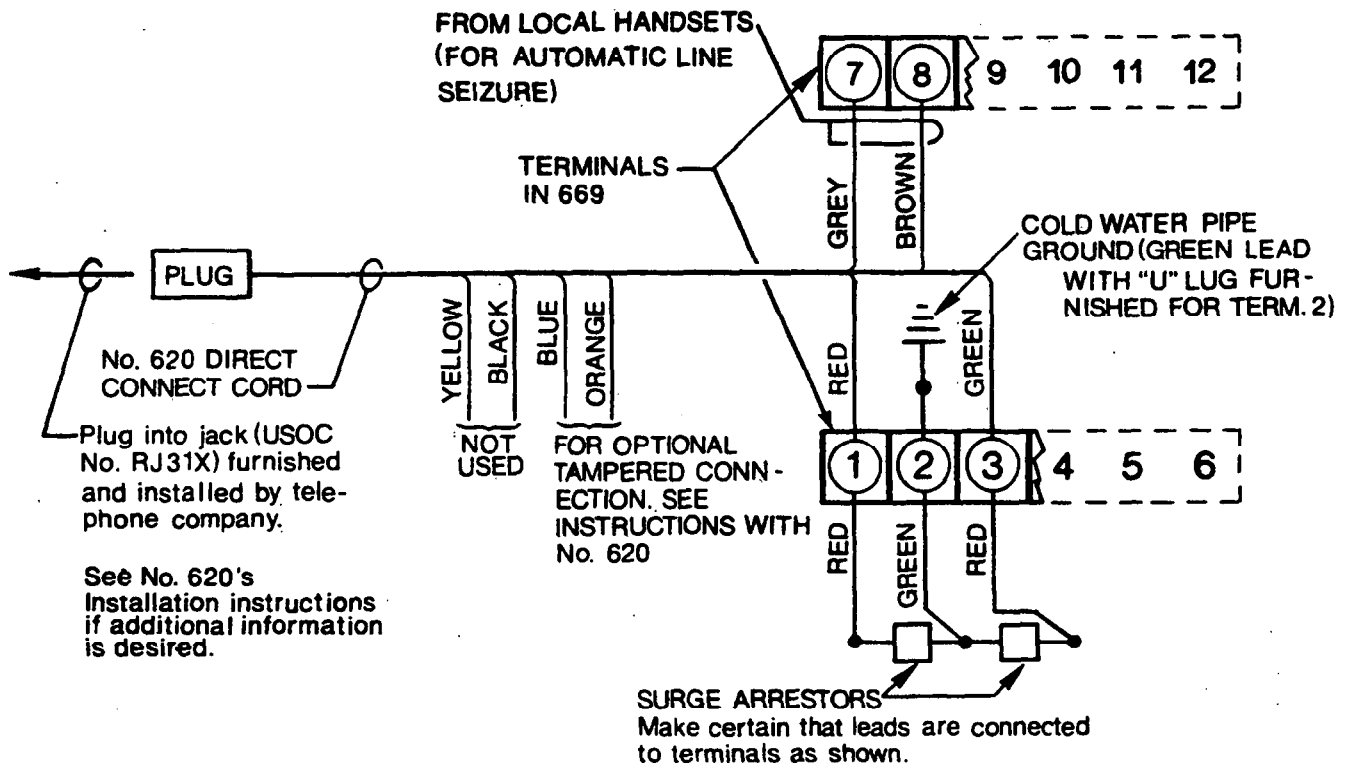


Diagram 10: TELEPHONE LINE CONNECTIONS

**TELEPHONE LINE CONNECTIONS:**

Connection of the 669 to the telephone line and local handsets (for automatic line seizure) should be made via an Ademco No. 620 Direct Connect Cord which plugs into a telephone company supplied jack (USOC No. RJ31X). See Diagram 10.

Alternatively, if local regulations permit, terminals 1 and 3 may be connected directly to the telephone line and terminals 7 and 8 connected to local handsets in parallel (for automatic line seizure, if required).

Automatic line seizure is built into the 669. This insures that the 669 will control the telephone line and that a handset off-hook will not prevent the completion of a call to the central monitoring station.

**POWER CONNECTIONS:**

Note: Before connecting power to the 669, inspect the PC board for any loose bits of wire or other foreign matter and recheck to insure that all connections are according to the instructions given so far. Furthermore, it is imperative that the following instructions concerning the VIOLET jumper be followed.

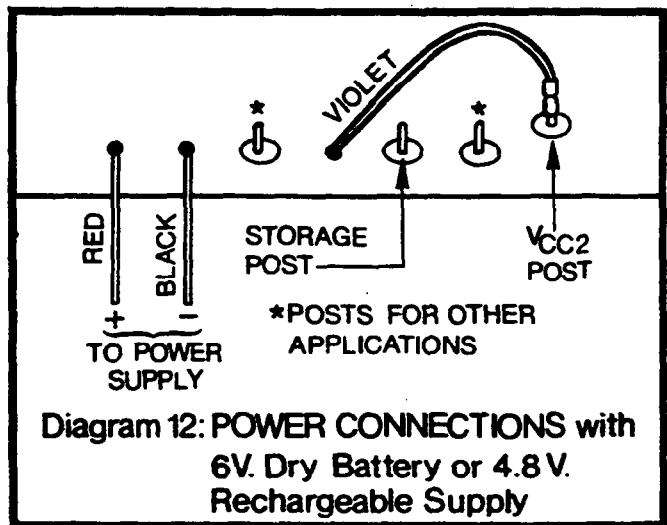
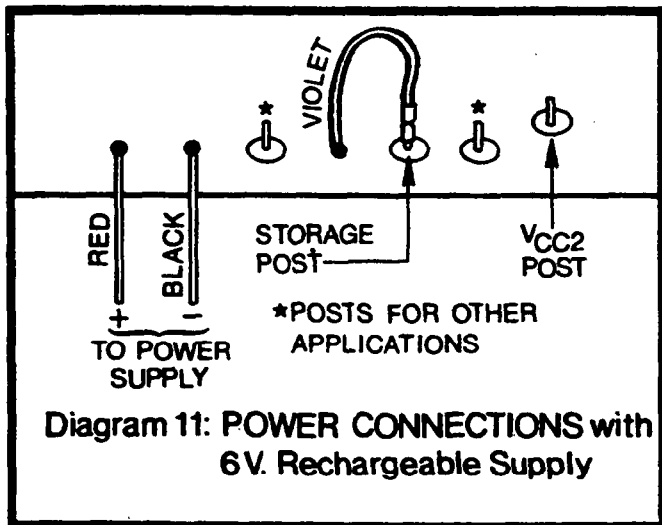
The 689 can be powered by:

- a. Rechargeable 6V. DC Filtered Power Supply, such as the Ademco Nos. 96, 97, 492, 493, 497 or the power supply of a No. 1024, BC1026 or BC1028 Alarm Processing Center. The 669's VIOLET jumper should be connected to the STORAGE post just to the right of the Jumper. (See Diagrams 1 and 11.)
- b. 6V. Dry Lantern Battery such as the Ademco No. 460 or 866. The VIOLET jumper should be connected to the Vcc2 Post. (See Diagrams 1 and 12.)
- c. Rechargeable 4.8V. DC Battery Pack. The VIOLET jumper should be connected to the Vcc2 Post. (See Diagrams 1 and 12.)

**IMPORTANT:** No. 89 Energy Packs or other power sources supplying unfiltered or pulsating DC MUST NOT be used.

Connect power to the 669 as follows and as shown in Diagrams 11 and 12.

1. Connect the BLACK (flying) lead from the PC board to the negative (-) terminal of the power source.
2. Connect the RED (flying) lead to the positive (+) terminal of the power source.
3. If a rechargeable power supply is used, its plug-in transformer should be installed in an outlet that is ON 24 hours a day.



**GENERAL SPECIFICATIONS:**

Physical:

	Circuit Board Chassis (WS669)	Cabinet (205)
Width:	8" (20.3 cm)	8" (20.3 cm)
Height:	5 3/4" (14.6 cm)	10" (25.4 cm)
Depth:	1" (2.5 cm)	3" (7.6 cm)

Note: Chassis (WS669) may be mounted in other cabinets (see GENERAL INFORMATION)

Electrical:

Power: 6V. DC (dry battery or rechargeable, filtered power source) or 4.8V. DC (rechargeable battery pack). For additional information, see GENERAL INFORMATION.

Activating Inputs (Triggering) to Channel A or B: 6 to 12V. DC (battery or full wave rectified) or "dry closure".

Current Drain: In standby (non-activated): negligible (below 0.01 ma)

During call (activated): 0.25 Amps

# TROUBLESHOOTING No. 669 (A VERSION)

<u>PROBLEM</u>	<u>CHECKS</u>
1. COMMUNICATOR WILL NOT START (LINE SEIZURE RELAY DOES NOT PULL IN).	A,D,I,R,T
2. COMMUNICATOR STARTS BUT WILL NOT DIAL OUT (LINE SEIZURE RELAY DOES PULL IN).	A,B,D,F,G,H,J,K,T
3. COMMUNICATOR DIALS INCORRECT TELEPHONE NUMBER.	A,B,D
4. COMMUNICATOR GETS THROUGH TO RECEIVER BUT DOES NOT TRANSMIT MESSAGE.	A,B,D,L,N
5. RECEIVER HANGS UP BEFORE COMPLETION OF CODE TRANSMISSION BY THE COMMUNICATOR.	A,B,D,N
6. COMMUNICATOR TRANSMITS INCORRECT OR JUMBLED CUSTOMER AND ALARM CODES.	A,B,D,H,I,N,Q
7. COMMUNICATOR TRANSMITS INCONSISTENT ALARM CODES ALTHOUGH CUSTOMER CODE IS CORRECT.	I,O
8. COMMUNICATOR TRANSMITS LOW BATTERY CODE (8) INSTEAD OF TEST CODE (9).	A,D
9. COMMUNICATOR DOES NOT SHUT-DOWN AFTER A VALID PAIR HAS BEEN RECEIVED BY THE RECEIVER.	C,M,N,O
10. COMMUNICATOR SHUTS DOWN PROPERLY BUT STARTS AGAIN SHORTLY THEREAFTER.	C,O
11. COMMUNICATOR STARTS AS SOON AS POWER SUPPLY IS CONNECTED.	E
12. COMMUNICATOR DOES NOT RELEASE PHONE LINES TO HOUSE PHONES AFTER SHUT-DOWN.	K
13. COMMUNICATOR SENDS 4 TRANSMISSIONS TO RECEIVER AND THEN SHUTS DOWN.	P
14. THE COMMUNICATOR TRIPS (LINE SEIZURE RELAY ENERGIZES) BUT DOES NOT GET THROUGH TO THE RECEIVER DURING AN ALARM OR DURING THE TESTING PROCEDURE.	S

PROBLEM

CHECKS

15. THE CHANNEL B RESTORE CODE IS "7"  
WHEN "9" IS EXPECTED.

U

## CHECKS AND POSSIBLE REMEDIES

- A. Check power supply. Only a well-filtered supply or lantern battery should be used to power the communicator. Use a voltmeter to determine if there is adequate voltage present at the red and the black power leads when the communicator is activated. If batteries are low, the voltmeter will show a substantial dip upon the activation of the communicator.
- B. If a rechargeable 6 volt DC battery pack is used, make certain the the violet jumper at the bottom edge of the communicator is placed on the storage post just to the right of the jumper.
- C. A rechargeable power pack that pulses after ringout should not be used to power the communicator or the alarm panel which activates the communicator.
- D. If using a 6 volt lantern battery or a 4.8 volt DC rechargeable power pack, check that the violet jumper at the bottom edge of the communicator has been connected to the Vcc2 Post.
- E. If a single power supply (e.g. Nos. 96, 97, 492, 493, 497 or power supply of Nos. 1023, 1024, 1026 or 1028 APC ) is used to power both the panel and the communicator, check to see that the positive leg of the panel's alarm output is used to activate the communicator, and NOT the continuous output of the power supply. The negative half of the panel alarm output is already completed to the communicator by the use of the single power supply.
- F. Check for correct jumper programming. All lettered posts, P and A through Y, should have at least one jumper (with the exception of L, M, and N, should an alternate phone number NOT be desired).
- G. If a prefix or area code is used, there should NOT be a jumper(s) on the SKIP position for any of these required digits.
- H. Check that all jumpers are properly placed and secure.
- I. Check that the ABORT and RESTORE jumpers are pushed down completely on their selected posts. Also check the Installation Instructions for proper jumper connections.
- J. Check telephone line and line seizure connections. Terminals 1 and 3 should be connected to the incoming telephone lines. Terminals 7 and 8 should be connected to house telephones.

- K. Check that you have the correct telephone wire pair. Approximately 48 volts DC should be present at the tip and ring pair with an "on hook" condition in most areas. If a Touch Tone line is used, polarity is important; try reversing phone lines at the communicator.
- L. Check the receiver end by dialing the number on a telephone. Listen for a one second acknowledgement tone after the receiver picks up. The acknowledgement tone tells the communicator to transmit. Without this tone, the communicator will not send its message.
- M. Check that the MANUAL/AUTO switch on the central station's receiver is in the AUTO (automatic) position.
- N. Check that the receiver is processing calls correctly by testing from a communicator which is known to be working correctly.
- O. Check that the test channel is only activated by a momentary dry closure because it will continue to dial and transmit as long as there is a closure present at its input. This will cause inconsistencies and failure to shut down.
- P. The 4 message shutdown option has been selected. Restore connection of resistor J1 on the right side of the printed circuit board.
- Q. Check for correct channel programming. Channels A and B alarm codes are programmed directly to the digit posts near the bottom of the printed circuit board. Channel C alarm codes are programmed separately higher up in the middle of the board.
- R. The communicator has built in 30 second delays on Channels A and B which prevent a line seizure relay activation during the delay time. To eliminate delay(s) and have immediate dial-out, cut the appropriate jumper loop. See Installation Instructions.
- S. A phone line outage exists, or the receiver at the central station is busy or not processing calls.
- T. When Channel A or B is NOT being used, its post (found at the right-hand side on the printed circuit board) MUST be jumpered to a low priority code (high number).
- U. Jumper resistor J4 has been cut, thus changing the restore code from a "9" to a "7". If code 9 is desired, be sure the resistor is intact.

## A NOTE ON NO. 669(A)

The No. 669 (screw programmed model) had the following feature:

If Channel B was programmed for restore with abort and the input was removed prior to the acknowledgement (handshake) signal, a code 9 would be transmitted. The new 669 ("A" version) with jumper programming was designed with true abort, so that if the input was removed prior to acknowledgement, no transmission would take place.

The No. 669 ("A" version) will be modified to duplicate the action of the former No. 669. The modification can be identified by a capacitor in the upper left hand side of the printed circuit board and an orange flying lead. If the lead is connected to a ground terminal (terminal 4 or 10) on the terminal block, a code 9 will be sent even if the input is removed prior to acknowledgement. THIS WILL OCCUR ONLY IF CHANNEL B IS PROGRAMMED FOR RESTORE WITH ABORT.

In any event, Channels A or B of all models will, in the ABORT mode, send a code 9 if the triggering input is removed after "handshake" but before "kiss-off".