

ADEMCO

Nos. 793, 794 4 CHANNEL DIGITAL COMMUNICATORS

INSTALLATION INSTRUCTIONS

GENERAL INFORMATION

The digital communicators described herein transmit coded messages over the telephone system to a digital receiver located at a central monitoring station. Special leased lines are **not** required.

The communicators can transmit in various formats to accommodate various receivers.

Both models (Nos. 793 and 794) can support the following formats:

- Ademco Standard (LOW SPEED) and Silent Knight (10 pps, 1400 Hz Ack/Kiss-off).
- SESCOA/Franklin/Radionics/DCI (20 pps, 2300 Hz Ack/Kiss-off).

In addition, the No. 794 can respond in Ademco HIGH SPEED format (10 DTMF Char/sec).

Except where differences are noted, all of the information herein applies to both models.

Each communicator consists of a printed circuit board and plastic housing that may be installed in any suitable enclosure.

The communicators may be **powered** from a **6VDC filtered rechargeable source** (or from 12VDC by cutting two BLUE jumpers), such as (for 6V) an Ademco No. 487 or 493NL Power Supply. An **unfiltered full-wave rectified source** may not be used. Sources containing NiCad batteries (such as the No. 96) that cannot supply 90 mA continuously may not be used. A common power supply from a control panel can be used, even with bells connected to the control.

The communicators may be **triggered** by: 1) Application (or removal) of 4.5-12VDC (battery or filtered full wave rectified) from an alarm control or other source, 2) Dry contact closure (or opening). **The unit may not be triggered from an unfiltered rectified source.**

The communicators are easily **programmed** by the positioning of four channel code leads on an 8 pin channel code selector block and the insertion of a programmed PROM (Programmable Read Only Memory) Chip, such as the 691. PROM Chips can be programmed with the No. 690 or 699 Programmer by the installer.

The communicators have built-in **double pole line seizure and telephone line surge arrestors**. Line seizure automatically disconnects all telephones in the premises on the same line with the communicator whenever the communicator is activated, to insure transmission without interruption. Surge arrestors help protect the unit from voltage surges on the telephone line.

The communicators are compatible with the Ademco family of ancillary communicator accessories, including the following:

Cat No.	Description
659EN	Line Fault Monitor
688-12	Opening/Closing Switching Module
4179	Test Timer

The following features, present in both models, afford increased versatility over earlier 4 channel digital communicators.

Further explanation of these features is given, where necessary, in the text.

- Double Pole Line Seizure is provided.
- Anti-jam is optionally programmable.
- Subscriber I.D. Number can support hexadecimal digits to expand the number of accounts that can be monitored (by receivers capable of handling hexadecimal).
- Four Digit Subscriber I.D. Number is optionally programmable for Ademco Standard (LOW SPEED) and SESCOA formats.
- Different Subscriber I.D. Number can be selected for channels that report to secondary telephone number.
- External Telco Dial Tone Wait Time options are 5, 11, or 30 seconds.
- Number of Dialing Attempts can be programmed to be 1 to 15, or unlimited.
- Single Message Checksum Verification is available for **LOW SPEED** and (794 only) **HIGH SPEED** transmissions.
- Kiss-off Wait Time (to compensate for **Satellite Delay**, applicable to No. 794 only) can be extended to 1.25 seconds (from 500 msec) for **HIGH SPEED** format transmissions via orbiting satellite links (e.g. 800/WATS lines).
- **HIGH SPEED** Only (for No. 794) transmission format can be selected for the communicator, independent of the acknowledgment tone received. Only the **HIGH SPEED** acknowledgment tone will be responded to.
- **Dialing Without Detection of Dial Tone** can be inhibited.
- Surface Mount Device (SMD) construction provides more capability and reliability in a more compact electronics package.
- Test Input is provided for triggering by active low (e.g. from No. 4179 Test Timer) or by application of ground.

OPERATION

Note: The following contains brief references to programming options which are fully explained in the PROGRAMMING OPTIONS section.

When a channel is activated, transmission to the central monitoring station occurs as follows:

1. **After the normal 150 millisecond response time (or 16 seconds delay...see "Long Delay Channels" option) the communicator executes double pole line seizure and forces a 1.6 second hang-up** to insure a disconnect if an outgoing call was being made.
2. **Next, the communicator checks for dial tone.** To shorten the time required for contacting the central monitoring station, the communicator listens for internal (PABX) dial tone as well as external (telephone company) dial tone.
3. **If dial tone is detected, the communicator immediately and automatically dials the preprogrammed telephone number**, which can consist of up to 4 access digits and up to 12 digits in the main (telephone company) number. Two telephone numbers can be programmed and dialed as explained in PROGRAMMING OPTIONS. Furthermore, if permitted by the telephone company for that sub-

scriber, the unit can be programmed to dial "TouchTone" in lieu of the slower "pulse dial" method (see "TouchTone Dial" option).

The probability of immediate dial tone detection is high, but if an internal dial tone is not "heard" within 5 seconds, or an external (telco) dial tone is not "heard" within 11 seconds (or 5 or 30 seconds, see "Reduced/Extended Dial Tone Wait" options) the unit will dial anyway (unless so inhibited during programming, see "Do Not Dial Without Dial Tone" option) on the assumption that the connection may be good, even though the dial tone is not clear.

4. **When connection is made with the central monitoring receiver, a "handshake" (acknowledgment) tone is sent over the telephone lines by the receiver to the communicator.** This handshake confirms to the unit, that connection has been established with the receiver. If handshake is not received within 30 seconds (or 60 seconds, see "Extended Acknowledge Wait" option) the communicator will disconnect itself from the telephone line. If "Anti-Jam" is programmed (see that option) the communicator will wait long enough (approximately 30 seconds) to disconnect any outgoing or incoming calls which might interfere with dialing. The communicator will then reconnect to the telephone line and again seize the line, check for dial tone and dial as described in Steps 1, 2 and 3.

If necessary, the communicator will make up to a total of 8 attempts (or "Unlimited Attempts" or 1-15 "Maximum Attempts"...see those options) to reach the central monitoring station via primary and/or secondary programmed telephone numbers. See PROGRAMMING OPTIONS.

Note: If the "Dual Report" option is selected, the unit will make up to the programmed number of attempts (not "Unlimited Attempts") to reach each telephone number.

5. Upon receipt of the "handshake" (acknowledgment) tone from the receiver, the communicator will start transmitting its message(s) in LOW SPEED or (No. 794 only) HIGH SPEED format, depending upon the type of acknowledgment tone received (or "SESCOA" or No. 794 "HIGH SPEED only" format, if one of those options has been programmed) as described in REPORTING FORMATS.

Since faulty phone lines can distort the signals, the communicator sends each message up to 4 times while the receiver compares each message with the one before it. As soon as the receiver detects 2 successive identical messages, it considers the transmission "valid" and sends a "kiss-off" tone to the communicator. Alternatively, the communicator

may be programmed for "LOW SPEED Checksum" or No. 794 only) "HIGH SPEED Checksum" which allows **single** message verification in conjunction with receivers having that capability.

The standard kiss-off wait period is 500 msec. If HIGH SPEED message routing takes place via orbiting satellite transmission (800/WATS lines) the "Satellite Delay" option must be used to extend the kiss-off wait period to 1.25 seconds (see PROGRAMMING options).

If the communicator does not receive a kiss-off tone, it hangs up and dials again. Up to a total of 8 attempts (or "Unlimited Attempts" or 1-15 "Maximum Attempts" as programmed) will be made to reach the central monitoring station via primary and/or secondary programmed telephone numbers. **Note:** If the "Dual Report" option is selected, the unit will make up to the programmed number of attempts (not "Unlimited Attempts") to reach each telephone number.

5. In the event that handshake, or subsequently kiss-off, is not received as described in Steps 4 and 5 above, the communicator will shut down and stop dialing (unless programmed for "Unlimited Attempts").

REPORTING FORMATS

No. 793 Communicators will respond in Ademco Standard (LOW SPEED) format to 1400 Hz acknowledgment tones from receivers or in SESCOA format (if so programmed) to 2300 Hz acknowledgment tones from receivers.

No. 794 Communicators will automatically respond in HIGH SPEED or Ademco Standard (LOW SPEED) format depending upon the type of acknowledgment tone received (unless the "SESCOA" or "HIGH SPEED Only" option has been programmed).

Ademco Standard (LOW SPEED) Reporting Format

Receipt by the communicator of a 1400 Hz acknowledgment tone from a receiver will result in LOW SPEED format transmissions, each consisting of the last 3 digits of the 4 digit subscriber identification number (or the full 4 digits if so programmed) and a 1 digit channel code, as selected, for the channel that triggered.

If more than one channel has triggered, the triggered channels will report in order of priority (i.e.: low CHANNEL CODES first) unless subsequent channels trigger while one or more channels have commenced transmission. Each channel message must receive kiss-off before the next is sent.

Example: If Channels A and B of Subscriber 1890 go into alarm, the communicator will respond as follows, in conjunction with a receiver (codes of 3 for channel A and 6 for channel B are assumed here as well as that "LOW SPEED Checksum" single message verification has not been programmed).

```

890 3
890 3
kiss-off
890 6
890 6

```

Final kiss-off (unit hangs up)

Note: Only the last 3 digits of the subscriber identification number will in this case be sent, unless the "Four Digit LOW SPEED I.D." option programmed.

Other examples of LOW SPEED format appear in the PROGRAMMING OPTIONS section.

Ademco HIGH SPEED Reporting Format (No. 794 only)

Receipt by the No. 794 of a HIGH SPEED acknowledgment tone from a No. 685 2 or 685 8 Line Card in a No. 685 Digital Alarm Receiver will result in HIGH SPEED format transmissions, each containing up to 14 digits as follows:

- 4 SUBSCRIBER IDENTIFICATION (Account No.) DIGITS.
- 8 STATUS DIGITS indicating the individual status of each of the 8 CHANNEL CODE positions (whether assigned to one of the communicator's four channels, or not).

- 1 AUX DIGIT, normally "7", except when the "Low Battery Trigger" option is programmed and a low battery condition is present, at which time an "8" is transmitted, or when the Test Input is triggered, at which time a "9" is transmitted.
- 1 CHECKSUM DIGIT (if "HIGH SPEED Checksum" option is programmed) to indicate validity of message.

The time from detection, by the No. 685, of a call from the communicator, through transmission of two successive messages, to kiss-off, is less than 5 seconds [corresponding time for LOW SPEED format would be 15 seconds or more, depending upon the number of channels or type of message (closing report, for example) to be sent].

"OPEN/CLOSE" programming is restricted to a single channel when standard LOW SPEED Ademco (or SESCOA) format is used (since the particular channel is not identified on CLOSING). When HIGH SPEED format is used, however, this restriction does not apply, since each channel's status is sent individually (see Channel Programming Options); STATUS DIGITS applicable to each of the CHANNEL CODE positions are:

STATUS DIGIT	MEANING
1	NEW ALARM (previously unreported)
2	NEW OPENING (" ")
3	NEW RESTORE (" ")
4	NEW CLOSING (" ")
*5	NORMAL (no event since previously reported RESTORE or CLOSING)
6	PREVIOUSLY REPORTED ALARM (OR OPENING) STILL IN EFFECT

*CHANNEL CODE positions not assigned to any channel must be programmed for "CHANNEL DESELECT" (see Channel Programming Options) and will always yield a STATUS DIGIT of "5".

Only NEW events: ALARM (for OPENING) or RESTORE (or CLOSING) on any channel will trigger the 794, at which time all 8 CODE positions will report.

An ALARM (or OPENING, if so programmed) is triggered by application of an input. A RESTORE (or CLOSING, if so programmed) is triggered by removal of an input. If the "Inverted Channel" option is programmed (see Channel Programming Options) the words "application" and "removal" in the previous sentence should be reversed.

Note that in LOW SPEED format, a selected CHANNEL CODE also serves as the "alarm reporting" code. In HIGH SPEED format, the CHANNEL CODE corresponds to its position in the format and STATUS DIGITS serve as the channel's "alarm reporting" codes.

Examples (HIGH SPEED format):

A. At subscriber #5890, channels B (CHANNEL CODE: 2) and C (CHANNEL CODE: 5) go into alarm:

Subscriber Identification	Status Digits	CHANNEL CODE 1 2 3 4 5 6 7 8	Aux. Digit
Message: 5 8 9 0		5 1 5 5 1 5 5 5	7
Channel B: NEW ALARM	→	↑	
Channel C: NEW ALARM	→	↑	

B. Still at subscriber #5890, following the events of Example A above, channel B restores (initiating the call) and channel C remains in alarm.

Message: 5 8 9 0 5 3 5 5 6 5 5 5 7
 Channel B: NEW RESTORE —————
 Channel C: PREVIOUSLY REPORTED
 ALARM STILL IN EFFECT —————

C. Subscriber #0135 sends an opening on Channel A (CHANNEL CODE: 3), a new alarm on Channel C (CHANNEL CODE: 5) and a restore on Channel D (CHANNEL CODE: 6).

Message: 0 1 3 5 5 5 2 5 1 3 5 5 7
 Channel A: NEW OPENING —————
 Channel C: NEW ALARM —————
 Channel D: NEW RESTORE —————

D. After transmission of Example C, subscriber #0135 sends a closing on Channel A.

Message: 0 1 3 5 5 5 4 5 6 5 5 5 7
 Channel B: NEW CLOSING —————
 Channel C: PREVIOUSLY REPORTED
 ALARM STILL IN EFFECT —————
 Channel D: NORMAL (previously reported a restore) —————

SESCOA Reporting Format

When this option is selected (see PROGRAMMING OPTIONS section), the communicator will respond to 2300 Hz acknowledge-hold signals in SESCOA format. Ademco HIGH SPEED format response is not possible when the SESCOA format has been selected. Operation is similar to Ademco LOW SPEED format.

PROGRAMMING OPTIONS

The communicator may be programmed with a number of options which affect its sensing of alarms and reporting to the central monitoring station. Channel Codes are programmed during installation by positioning four flying leads in the unit. Telephone Number(s), Subscriber I.D. Number(s), System Options and Channel Options are contained in a PROM Chip (No. 691) which can be programmed (with a No. 690 or 699 Programmer) and inserted in the communicator by the installer.

The PROM Programming Form shown herein should be used to record the information for the actual installation. It shows the switch settings required for PROM programming via a No. 690, but may be used as a guide for the No. 699 as well.

Remove the communicator's cover by grasping it at the end with the large wiring opening and pull firmly.

Channel Codes

Channel codes are programmed by positioning four (CHANNEL CODE) flying leads on an 8 pin connector (CHANNEL CODE SELECTOR) block provided on the circuit board. Channel A's code is selected with the BROWN lead, Channel B uses RED, Channel C uses ORANGE and Channel D uses YELLOW.

The numerical value of the code is selected by inserting the tip of each wire in the desired position as shown in Diagram 1. As shipped, the channel code leads are positioned for: Code 1 for Channel A (BROWN), Code 2 for Channel B (RED), Code 3 for Channel C (ORANGE), Code 4 for Channel D (YELLOW) but they may be repositioned in any of the 8 holes for different codes as desired. **Note:** All four leads must be inserted regardless of the number of channels to be used. **The four code positions not used must be PROM programmed for "Inverted" and "Channel Deselect" as described later.**

Record the positions used for the A, B, C, and D Channel Code Leads on the CHANNEL OPTIONS portion of the programming form.

Telephone Numbers

Primary and Secondary PABX Access Numbers (up to 4 digits) and Telco Numbers (up to 12 digits) should be selected and programmed as described on the Programming Form.

NOTE: (No. 794 only) In certain telco networks (e.g., General Telephone), the telco central offices may use TouchTone converters that convert TouchTone from the premises phone into pulses for dialing because their network is still a pulse dial network. Ademco HIGH SPEED transmission has difficulty with these networks because the message transmissions get converted to pulse dialing. In order to shut down the telco TouchTone-to-dial pulse converters during message transmission so that Ademco's HIGH SPEED Format can be transmitted, **it is necessary to program an 11 into the communicator PROM at the end of the primary (and secondary, if used) telephone number.** This is accomplished by keying an 8 in that location in a first pass through the telco number, and then by keying a 3 in that same location on a second pass (repeating the keying of the telco number).

Subscriber I.D. Numbers

Primary and Secondary Subscriber I.D. Numbers should be selected and programmed as described on the Programming Form. Only the last 3 digits of the 4 digit subscriber identification code will be sent during LOW SPEED or SESCOA transmissions (unless the "Four Digit LOW SPEED I.D." option has been programmed for receivers that can accommodate

it). Where appropriate, the first digit should be programmed as "0" to ensure the same identification at HIGH SPEED as at LOW SPEED. The full 4 digits will always be sent during HIGH SPEED transmissions.

System Programming Options

These options affect the communicator as a whole (as opposed to the Channel Options described later which affect only the desired channels).

SYSTEM OPTIONS GROUP 1

- 1. Low Battery Trigger and Report :** Initiates a call to the central monitoring station and sends Code 8 when in LOW SPEED format and (794 only) Code 8 at the 9th channel while using HIGH SPEED format, when the rechargeable power source drops below 5 volts (10V for 12V rechargeable source). This report will **not** be repeated during later alarm transmissions.
- 2. Dual Report:** Reports all information to the second telephone number after receiving kiss-off from the receiver **at the primary number.** In the event that 1-15 (as programmed) attempts are made, but no kiss-off is received from the primary number, the communicator will then make the same number of attempts to report to the secondary number.
Note: When "Dual Report" is used, "Unlimited Attempts" (System Option 7, Group 1), should **not** be programmed.
- 3. Alternate by Pairs:** The communicator will attempt to call the primary number twice, then, if kiss-off has not been received, it will make two attempts to reach the receiver at the secondary number. It will alternate by pairs of calls until a total of 8 attempts have been completed, or kiss-off is received.
- 4. Extended Acknowledge Wait:** Doubles the acknowledgment wait period from 30 seconds to 60 seconds. Helpful on phone networks with long switching time.
- 5. Extended Dial Tone Wait:** Triples the telco dial tone waiting period from 10 seconds to 30 seconds. Useful in slow dial tone areas. **Note:** The internal PABX dial tone waiting period (5 seconds) is not altered.
- 6. TouchTone Dial:** Instructs the communicator to dial TouchTone instead of the slower pulse dial method.

CAUTION: Some telephone lines that were accepting pulse (rotary) dialing and TouchTone dialing are being or will be restricted to pulse dialing if the subscriber is not paying for TouchTone service. Communicators that are set to use TouchTone dialing may cease to be able to place their calls if they happen to be on one of these lines. **DO NOT SELECT A DIALING METHOD THAT IS NOT LEGALLY PERMITTED BY THE TELEPHONE COMPANY FOR THE SUBSCRIBER.**

NOTE: Whether or not it is legal for **call placement** is permitted. **communication by the use of TouchTone (DTMF) signaling.** Ademco HIGH SPEED in the 794) can be performed once the connection is made.

- 7. Unlimited Attempts:** Causes the communicator to continue making attempts to reach the receiver until kiss-off is received rather than ceasing after 1-15 (as programmed) attempts. Unlimited Attempts should **not** be programmed when "Dual Report" (System Option 2, Group 1) is used.

8. SESCOA: Causes the communicator to look for the 2300 Hz acknowledge and acknowledge hold signals and to report in SESCOA format. If this option is not selected, the communicator will respond in LOW SPEED (Ademco standard) or (794 only) HIGH SPEED format (the 794) can be programmed for HIGH SPEED only).

SYSTEM OPTIONS GROUP 2

- 1. HIGH SPEED Only (794 only):** Inhibits transmission of Ademco Standard (LOW SPEED) Format so that only a HIGH SPEED acknowledgment will be accepted.
- 2. HIGH SPEED Checksum (794 only):** Allows single message verification by appending a 14th digit to a single HIGH SPEED transmission. Use only in conjunction with receivers that have HIGH SPEED checksum capability.
- 3. Satellite Kiss-off Delay (794 only):** Extends the kiss-off wait time from 500msec to 1.25 seconds. For use when HIGH SPEED format is being transmitted over telephone lines that may use orbiting satellite links (e.g. 800/WATTS lines). Can be used in conjunction with an Ademco No. 685 Receiver (software version 3.7 or higher). When other receivers are used, consult with the manufacturer.
- 4. Anti-Jam:** Many U.S. telephone networks will automatically disconnect the calling party if the called party hangs up for a period of time. With "Anti-jam" enabled, the communicator will hang up for 30 seconds after the first call attempt, and each successive call, to prevent any incoming calls from blocking transmission.
- 5. Reduced Dial Tone Wait:** Halves the external (telco) dial period from 11 sec. to 5 sec. Useful for quick disconnect telco systems. **Note:** The internal PABX dial tone waiting period (5 sec.) is not altered.

SYSTEM OPTIONS GROUP 3

- 1. Maximum Attempts:** Sets the maximum number of attempts to dial from 1 to 15. If a specific number is not programmed, the system defaults to 8 attempts, unless "Unlimited Attempts" (System Option 7, Group 1) is programmed.

SYSTEM OPTIONS GROUP 4

- 1. Four Digit LOW SPEED I.D.:** Select for full 4 digit LOW SPEED/ SESCOA subscriber I.D. Use only in conjunction with receivers having 4 digit LOW SPEED I.D. capability.
- 2. LOW SPEED Checksum:** Allows single message verification by appending a checksum digit to a LOW SPEED transmission. Use only in conjunction with receivers having LOW SPEED checksum capability.
- 3. Do Not Dial Without Dial Tone:** Inhibits dialing if dial tone is not detected. Communicator will then go to the next attempt (instead of dialing anyway).

Channel Programming Options

These options affect only those channels which the user desires.

- 1. Inverted Channels:** Any number of channels may be programmed for inverted operation. This means that the microprocessor will interpret the presence of a voltage on that channel's input terminal as normal (restored). The **absence** of a voltage will then be treated as abnormal (alarm).

All alarm reporting and timing features described below in the other channel options still apply, but with the reversed definition of normal and alarm. Inverted operation can be used to obtain triggering upon dry contact **opening** by connecting the channel input as for dry closure, but substituting a closed circuit switch for the open circuit switch.

The ability to invert a channel also provides features not otherwise easily available. For example, suppose it is desired to send opening and closing information, but the fixed code 9 (see Channel Option 4) is found unacceptable. Suppose further that a **code 4** is wanted for closing (input going low) and **code 5** for opening (input going high). Simply tie the inputs of channels with assigned codes 4 and 5 together and then to the control unit. Program the "4" channel for inverted operation. In this case DO NOT program either the "4" or "5" channel for Open/Close or for Restore. **Note:** 16sec. delay, if selected, will apply when signal is applied to the non-inverted channel.

Channels with codes 4 and/or 5 or any other combination used this way may be programmed for "Long Delay" or "Second Number Only" (as desired) but the option should be applied to both channels. **Note:** The four code positions not used by the four channel code leads must be programmed for "Inverted" operation.

- 2. Long Delay Channels:** Any number of channels may be programmed for a 16 second delay. Thus, the normal 150 millisecond response time can be extended to 16 seconds to minimize false triggering due to inadvertent alarm activation.
- 3. Secondary Telco Number Only Channels:** Any channel or channels may be selected to call and report only to the secondary number. This feature can be used to force openings and closings to call the secondary number, leaving the primary number open for emergency calls, such as fire, holdup, burglary, etc. This channel option takes precedence over the **system** options of "Alternate by Pairs" and "Dual Report."
- 4. Open/Close Channels:** Channels selected as Open/Close Channels will report when there is a triggering voltage, as well as when the input voltage is removed.

In order to transmit opening and closing signals, the communicator must receive signals when the control panel is armed and disarmed. These signals are available directly from the Nos. 1023 and 1023-12 Alarm Processing Centers. The signal may be applied to the communicator when the control is armed and removed when the control is disarmed, or vice versa.

With the LOW SPEED (Ademco Standard) or SESCOA format, when an input is applied to the Open/Close Channel, it will report the last 3 digits of the 4 digit subscriber identification number contained in the PROM (or the full 4 digit number, if so programmed), followed by the CHANNEL CODE number assigned to the channel.

When the input is removed, an Open/Close Channel will report the subscriber identification followed by a fixed **code 9**. For example, for subscriber No. 1890 the unit will report:

```
890 9
890 9
kiss-off hang up
```

Since the channel is not identified upon removal of input, **restrict this method to one** channel, unless (with the 794) HIGH SPEED reporting format is to be used. If a channel is selected as both an Open/Close Channel **and** a Delay Channel, the delay applies to the input being applied **and** the input being removed.

- 5. Restore Channels:** Channels so designated will **not only** report when the input voltage goes high (alarm) but will report again when the input voltage goes low (restore). In LOW SPEED format, when the input goes high (alarm), the affected channel will report subscriber identification and channel code number. to be followed by kiss-off.

However, when the input goes low, the channel (if it is selected as a "Restore" Channel) will report the subscriber identification followed by the assigned channel code number; **then**, after kiss-off, the communicator will report the subscriber identification followed by a fixed code 9. For example, in LOW SPEED format, should a channel with assigned channel code 4 restore, the message sequence will be:

```
890 4
890 4
kiss-off
890 9
890 9
kiss-off...hang up
```

If, in addition to being selected as a "Restore" Channel, a channel is selected as a "Long (16 sec) Delay" Channel, the delay applies **only** to the input going high (alarm). If the input goes low (restores), 150 msec delay applies. This feature permits the communicator to report a restore on the same call as it reports an alarm, thus reducing the frequency with which emergency services will be notified in the event of false alarms.

- 6. Channel Deselect:** The four code positions not used by the four channel code leads must be programmed for "Channel Deselect."
- 7. Secondary Subscriber I.D. Number Channels:** Permits channels that report to the secondary telco number to be identified by a secondary subscriber I.D. number. Do not use with the Dual Report system option.

INSTALLATION PROCEDURE

Mounting:

The communicator is self-contained in a plastic enclosure with a metal clip that may be slipped onto the edge of the control or other cabinet in which it is installed (and secured in place with a screw if desired). Alternatively, double-sided tape may be used to secure the unit to the inside of any enclosure.

Connections: (See Diagram 1)

- 1. With the communicator unpowered, plug a previously programmed PROM (No. 691, programmed by means of a No. 690 or 699 Programmer) into the socket provided.** See Diagram 1. Care should be taken to orient it properly and avoid bending any pins. For best results, use an Ademco No. 692 PROM Insertion Tool. To remove a PROM, use a No. 692-1 PROM Removal Tool.
- 2. Observe the channel code flying leads** and make sure that they are inserted in the 8 pin channel code selector in accordance with the "Channel Codes" section of PROGRAMMING OPTIONS.
- 3. Connect the alarm inputs to the appropriate terminals** (terminal 1 is used for Channel A, 2 for B, 3 for C and 4 for D) as follows:
 - a. DC Signal Triggering:** Connect (+) to terminal 1, 2, 3 or 4 and (-) to terminal 6.
 - b. Dry Contact Triggering:** Connect contacts between terminals 5 (+) and terminal 1, 2, 3 or 4. For triggering upon contact **closure**, use an **open** circuit contact. For triggering by contact **opening** use a **closed** circuit contact (in this case, the channel must be programmed for "Inverted" operation).
- 4. Connect the telephone line (and handsets)** to terminals 7, 8, 9 and 10. Diagram 1 shows connection via an RJ31X Direct Connect Cord.
- 5. Connect terminal 6 to an earth ground** using #16 (or heavier) gauge wire.
- 6. Cut the appropriate jumpers on the communicator, if necessary:**
 - a. If a 6VDC filtered rechargeable power source is to be used,** leave the unit's BLUE jumpers intact.
 - b. If a 12VDC filtered rechargeable power source is to be used,** cut the unit's **two** BLUE jumpers.
 - c. (793 only) If the SESCOA option has been selected,** cut the WHITE jumper.
- 7. Apply power to the control unit** (if it is not already powered) if one is to be used in conjunction with the communicator.
- 8. Connect the power source to the communicator's terminals 5 (+) and 6 (-)** (make certain that the appropriate jumpers have been cut, if necessary...see Step 6). The communicator's dial relay and line seizure relay will be activated for about ¼ second and the unit will initialize to the alarm status present at the input terminals. Any changes in the alarm conditions will be monitored by the communicator and those which require that a call be made will activate the unit.
- 9. Test the communicator** by triggering the Test Input or one of the alarm channels.

GENERAL SPECIFICATIONS

Physical: Width: 3-7/8" (98 mm)
Height: 7" (178 mm)
Depth: 1-7/8" (35 mm)

FCC Registration No. AC398U-68192-AL-E
Ringer Equivalence 0.0B

Power: 6VDC Filtered Rechargeable Source (BLUE jumpers intact)
or
12VDC Filtered Rechargeable Source (Cut both BLUE jumpers)

Notes: Power sources with nickel cadmium batteries may not be used, unless they can meet standby current requirements.

See GENERAL INFORMATION for additional information.

Activating Channel Inputs (Triggering): Application (or removal) of 4-5 to 12VDC (battery or filtered full-wave rectified) or dry contact closure or opening) with DC excitation.

Activating Test Input: Application of active low (e.g. from No. 4179 Test Timer) or ground.

Current Drain: Standby (non-activated): 90 mA
During call (activated): 65 mA

Transmission Formats: Nos. 793 and 794 transmit Ademco standard (LOW SPEED) format (10pps, 1400 Hz Ack/Kiss-off) and SESCOA format (20pps, 2300 Hz Ack/Kiss-off). No. 794 additionally transmits Ademco HIGH SPEED format (10 char/sec., 1400, 2300 Hz Ack, 1400 Hz Kiss-off).

TO THE INSTALLER

Regular maintenance and inspection (at least annually) by the installer and frequent testing by the user are vital to continuous satisfactory operation of any alarm system.

The installer should assume the responsibility of developing and offering a regular maintenance program to the user as well as acquainting the user with the proper operation and limitations of the alarm system and its component parts. Recommendations must be included for a specific program of frequent testing (at least weekly) to insure the system's proper operation at all times.

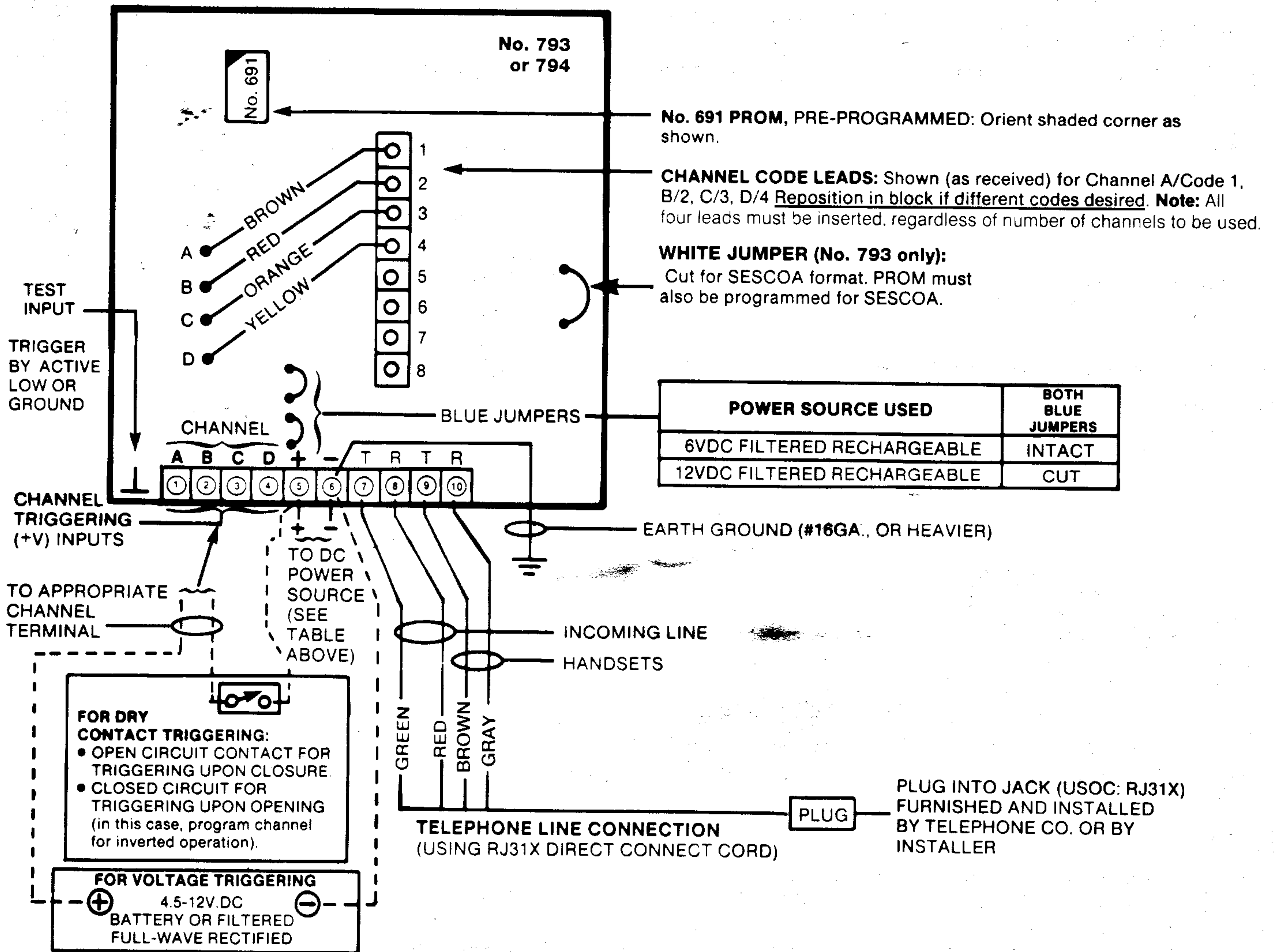


Diagram 1: FIELD CONNECTIONS

**PROGRAMMING FORM for No. 691 PROM
used with**

No. 793 **No. 794**

4 CHANNEL DIGITAL COMMUNICATOR

TELEPHONE NUMBERS

Primary PABX Access Number

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- Notes:**
1. Select from 0 thru 9, *, #; up to 4 "digits" (if any, such as a 9 for PABX systems).
 2. Trailing blanks are permissible for entry of fewer than the maximum number of digits but leading or intermediate blanks are NOT allowed.
 3. In installations where a call waiting service is present on the phone line used, this field should be programmed with a *70 (if TouchTone dialing is used) or 1170 [if rotary (pulse) dialing is used]. This code can prevent call waiting from interrupting the outbound communication on such lines, if the service inhibit option is present.
 4. To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 1 (Access #) on No. 690 PROM Programmer. If * or # is to be used, program an 8 in its location on a first pass through the entire access number and then key a 3 for * or 4 for # in that same location on a second pass (repeating the keying of the other digits).

Secondary PABX Access Number

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- Notes:**
1. See Notes 1, 2, 3 under Primary PABX Access No.
 2. To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 1 (Access #) on No. 690 PROM Programmer.
If * or # is to be used, follow the two pass procedure described in Note 4 under Primary PABX Access Number.

Primary Telco Number

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- Notes:**
1. Select from 0 thru 9, *, #; up to 12 "digits" [e.g. Out of Area Access digit (1), Area Code, Exchange, Line Number].
 2. Trailing blanks are permissible for entry of fewer than the maximum number of digits but leading or intermediate blanks are NOT allowed.
 3. In certain Telco networks, for satisfactory HIGH SPEED transmission, it may be necessary to program an 11 in the position immediately following the last digit of the telco number. See Note on Page 3 of the instructions for details (794 only).
 4. To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 2 (Main Phone No.) on No. 690 PROM Programmer. If * or # is to be used, program an 8 in its location on a first pass through the entire telco number and then key a 3 for * or 4 for # in that same location on a second pass (repeating the keying of the other digits).

Secondary Telco Number

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- Notes:**
1. See Notes 1, 2, 3 under Primary Telco No.
 2. To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 2 (Main Phone No.) on No. 690 PROM Programmer. If * or # is to be used, follow the two pass procedure described in Note 4 under Primary Telco No.

SUBSCRIBER I.D. NUMBERS

Primary Subscriber I.D.

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- Notes:**
1. Select from 0 thru 9, B thru F. Select B thru F only if the receiver to be used can handle hexadecimal digits (Ademco No. 685 can, but Nos. 660 and 673T cannot).
 2. All four boxes must be filled in. The leading digit will not be transmitted for Ademco Standard (LOW SPEED) or SESCOA unless the "Four Digit LOW SPEED I.D." option is programmed (see System Programming Options, Group 4).
 3. To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 3 (Subs ID #) on No. 690 PROM Programmer.

If a hexadecimal B thru F has been selected for any box, a double pass programming procedure will be required when the No. 690 PROM Programmer is being used. Along with the other digits, key an 8 for that box on a first pass through the four digit I.D. number. Then, on a **second** pass, **repeat** all other digits, but for that box, key a **different** digit, as follows: 3 for B, 4 for C, 5 for D, 6 for E, 7 for F. **Note:** If subsequently viewing the I.D. number's programming in the No. 690's digital DISPLAY window, a box programmed for hexadecimal B thru F will appear blank. A printout at the receiver, however, can confirm that the I.D. number has been correctly programmed.

Secondary Subscriber I.D.

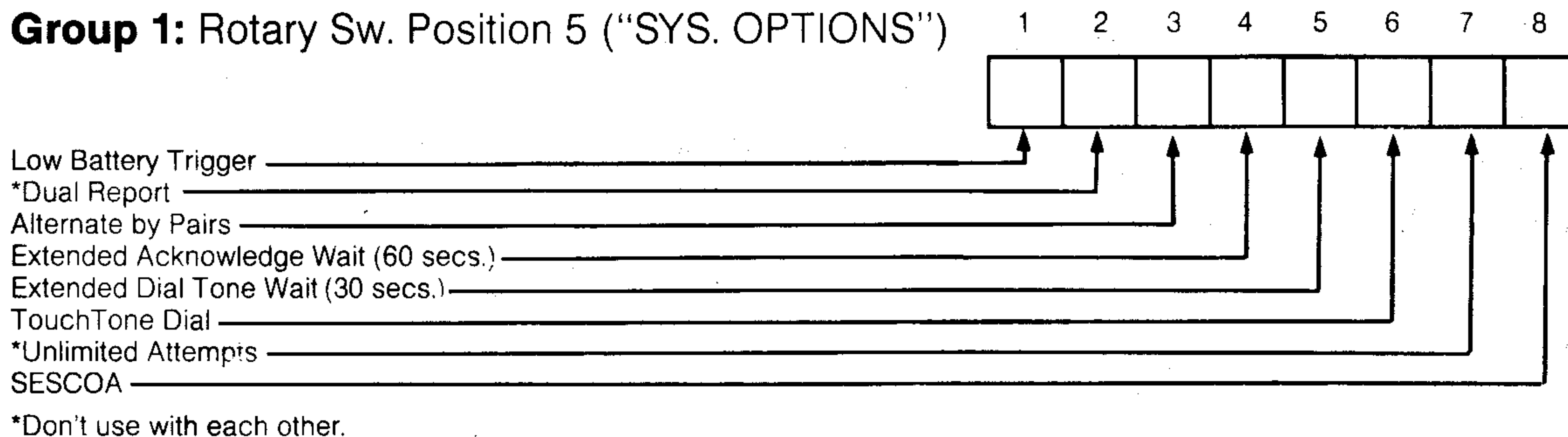
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- Notes:**
1. See Notes 1, 2 under Primary Subscriber I.D.
 2. To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 3 (Subs ID #) on No. 690 PROM Programmer.
See hexadecimal programming information in Note 3 under Primary Subscriber I.D.

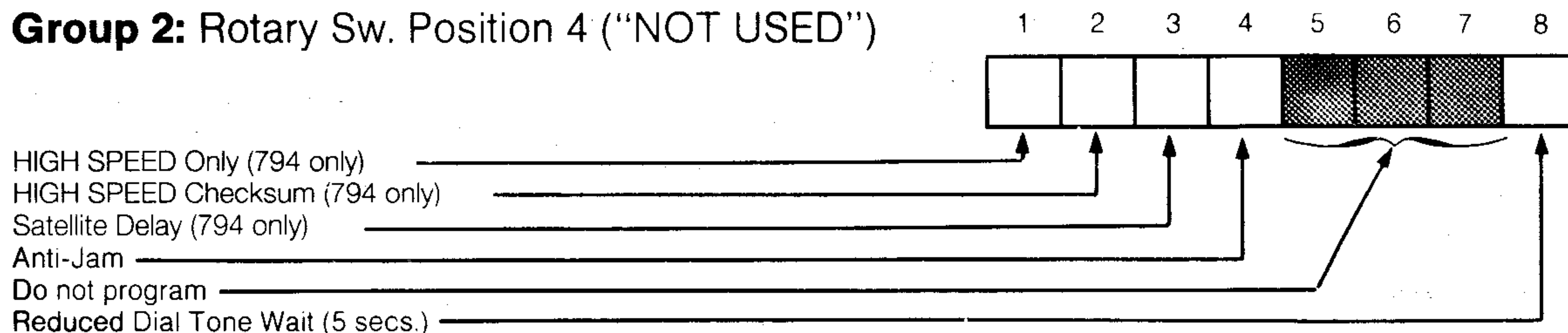
SYSTEM OPTIONS

Check boxes for options desired. Program with No. 690's ROTARY SWITCH turned to position indicated and SLIDE switches for checked boxes raised.

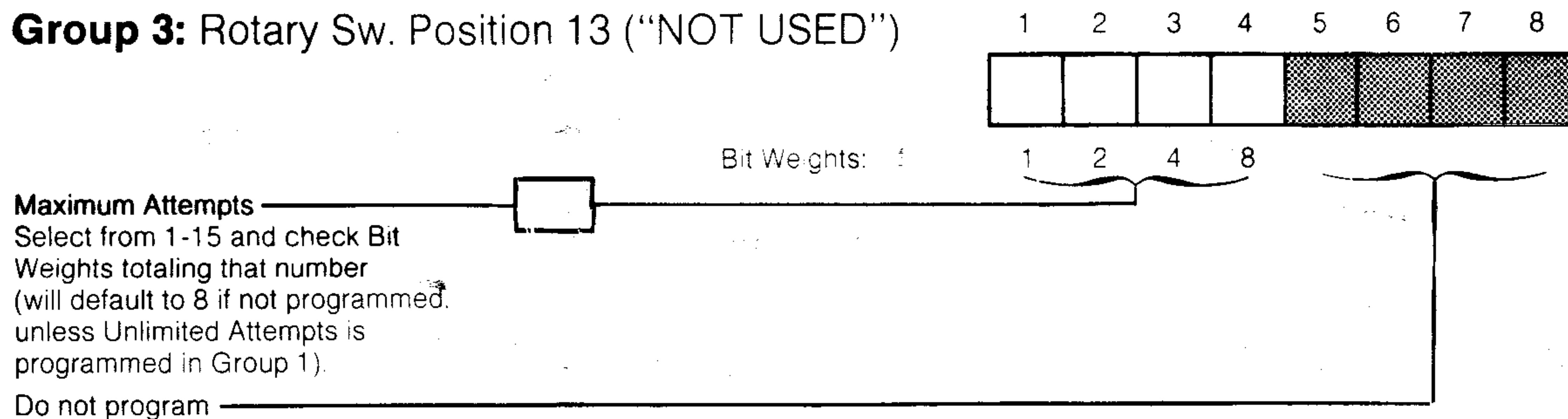
Group 1: Rotary Sw. Position 5 ("SYS. OPTIONS")



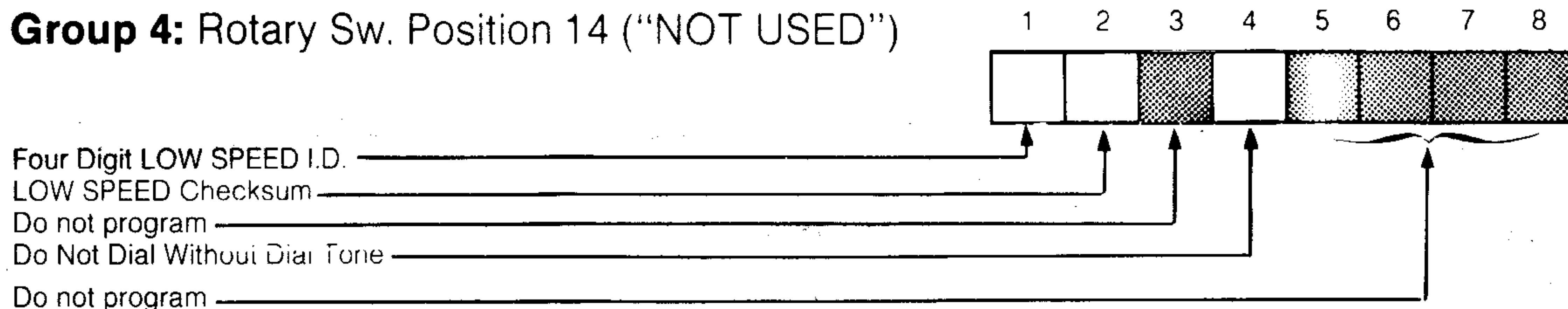
Group 2: Rotary Sw. Position 4 ("NOT USED")



Group 3: Rotary Sw. Position 13 ("NOT USED")



Group 4: Rotary Sw. Position 14 ("NOT USED")



CHANNEL OPTIONS

In the chart below, note (above the Channel Code Nos.) the four positions selected for the channel code leads A, B, C, and D and check the appropriate option boxes below them. Program each option with the ROTARY SWITCH turned to the position indicated and the SLIDE SWITCHES for the checked boxes raised.

ROTARY SW. POS.	OPTION	CHANNEL CODE No.							
		1	2	3	4	5	6	7	8
6	INVERTED								
7	LONG (16 SEC) DELAY								
8	SEC. TELCO No. ONLY								
9	OPEN/CLOSE								
10	RESTORE								
11	CHANNEL DESELECT								
12	SECONDARY SUB. ID								

Do not use code 8 if "Low Battery Trigger" system option is selected, unless HIGH SPEED reporting format is used.

Enter positions selected for channel code leads A, B, C and D

Restrict OPEN/CLOSE to single channel, unless HIGH SPEED reporting format is to be used.

Do not select **both** for **same** channel.

The four numbers not used by the four CHANNEL CODE LEADS must be programmed for INVERTED and CHANNEL DESELECT.

Do not use with DUAL REPORT system option.