METRO TEL'S QUIK CALL® 2000

Installation, Programming & System Manual

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SYSTEM PROGRAMMING TERMS AND SYMBOLS

QUIK CALL, DIALER, SYSTEM, QC - ALL REFER TO THE QUIK-CALL 2000:

1. ✱ - Asterisk (Star) Button on Telephone.
2. # - Octathorpe (Pound) Button on Telephone.
3. (....) - Parenthesis, Indicates programmer is to make an entry.
4. Password - A seven digit code; to gain entry into the dialers programming mode.
5. (098947✱) - Is the password.
6. Category - Five separate programming sequences that make the functional.
7. Category (1) - Initialization - clears away any of the options or categories listed below from the QUIK CALLS memory.
8. Category (2) - Options - User Codes, Billing Codes, Speed number capacity, digit entry timeout. Tone outpulse speed.
9. Category (3) - Dialing Patterns - Dial tone detection time, pauses, send digits, to conform to various OCC requirements.
10. Category (4) - Dialing Routes - Sets failed dialing pattern time, sets up which dialing pattern to use and number of attempts to use that pattern.
11. Category (5) - Area Codes - Matches area code to dialing route.
12. Mode - Four different user operating protocols, as defined in the "USERS MANUAL".

QUIK CALL TONE RESPONSES

1. RB (READY BEEP)	One Steady Tone - Signals programmer that QUIK CALL has been accessed.
2. SYB (SYSTEM BEEP)	Five Tones - LOW-MED-HIGH-MED-LOW - Signals programmer that command was accepted.
3. PB (PROGRESS BEEP)	One Rapid Tone - Prompts programmer for additional entries.
4. EB (ERROR BEEP)	Ten Rapid Tones - Indicates an entry error and command has not been accepted, or for timeout.

GENERAL DESCRIPTION

System Programming defines the QC Dialer Operating Parameters, dictated by user requirements and telephone service available.

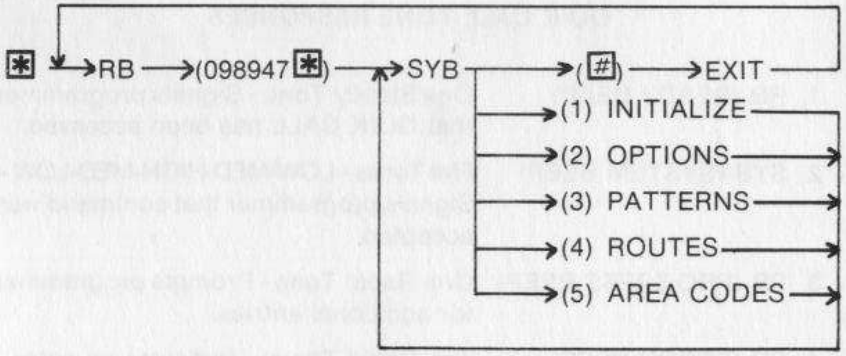
A thorough survey of customer requirements, and specifications of available OCC service is necessary. It is recommended that complete notes be kept on each customer's QC system outlining the parameters of each programming category.

Eight categories of system programming are available, of which only the first five are necessary to set up dialer. The last three are reserved for diagnostic testing of the dialer. The categories are as follows:

(1) DIALER INITIALIZATION (2) DIALER SYSTEM OPTIONS (3) DIALING PATTERNS (4) DIALING ROUTES (5) PHONE NUMBER AREA CODES	FUNCTIONAL
(6) DIALER SELF TEST (7) INFORMATION RECALL (8) DE-BUG	DIAGNOSTIC FOR FACTORY USE ONLY

Commands are sequentially entered into the dialer via a telephone handset, by entering the appropriate series of digits for that command. All commands within a category should be completed before proceeding to the next category.

Throughout the programming sequence the QC Dialer returns signal beeps, keeping programmer informed of progress. To exit from the program mode, press # key on telephone which returns user to ready mode, or simply hang up receiver.



PROGRAMMING SEQUENCE

CATEGORY (1) - INITIALIZATION

A. (1) (10*) - Clear Speed number storage table.

B. (1) (1#) (X) - Clear all speed numbers stored under an individual code (X).
(X) = 0 thru 255

C. (1) (20*) - Clear all patterns, routes, area codes.

D. (1) (3) - Clear all failed pattern statuses.

E. (1) (40*) - Clear all routes.

F. (1) (50*) - Clear all area codes.

G. (1) (21*) - Master initialization - Performs all the operations listed below.

FROM CATEGORY (1) - Clears all patterns, routes, area codes and statuses.

FROM CATEGORY (2) - Places QC into Mode 4
Sets user number to 2 digits
Sets default billing code to 99
Sets maximum speed number location to 255
Sets maximum digit entry time to 10 seconds
Sets total entry time to 32 seconds
Sets default dialing speed to 50 MSEC. ON/50MSEC OFF
Sets secondary dialing speed to 50 MSEC. ON/50MSEC OFF

FROM CATEGORY (3) - Sets up dialing pattern No. 1
1 Sec. dial tone - send 7 digit phone number

Sets up dialing pattern No. 2
1 Sec. dial tone - send digit 1 - test area code - Send 7 or 10 digit phone numbers

FROM CATEGORY (4) - Clear and inhibit dialing pattern failure time

CATEGORY (1) EXAMPLES

1. PERFORM A MASTER INITIALIZATION:

   (✱) RB (098947✱) SYB (121✱) SYB (#) RB
   HANG UP PHONE

2. CLEAR USER NUMBER 88 SPEED NUMBERS.
   CLEAR FAILED DIALING PATTERN STATUSES:

   (✱) RB (098947✱) SYB (1) (1#) (88) SYB (1) (3)
   SYB HANG UP PHONE.

3. CLEAR ROUTES
   CLEAR AREA CODES:

   (✱) RB (098947✱) (1) (40✱) SYB (1) (50✱) SYB
   HANG UP PHONE.

CATEGORY (2) - SYSTEM OPTIONS

A. (2) (1) (X) - Set up user number for (X) digits
   1, 2, or 3 digits (MODES 3 & 4)
   0 digits (MODES 1 & 2)

B. (2) (20) - No billing codes (MODES 1 & 3)

C. (2) (21) - Use billing codes (MODES 2 & 4)

D. (2) (22) (X) (✱) - Set up fixed billing code, up to 5 digits.
   (X) = Billing Code (MODES 1 & 3)

E. (2) (3) (XXX) - Set up maximum speed numbers.
   (XXX) = 000 thru 255.

F. (2) (41) (X) - Set up maximum digit entry time.
   (X) = 0 thru 9, ✱ or #
   Digit entry time = (X) + 2 sec.

G. (2) (42) (X) - Set up maximum total entry time.
   (X) = 0 thru 9, ✱ or #
   Total entry time = 4 (X+2) sec.

H. (2) (5) (XXX) - Set up local area code
   (XXX) = 3 digit area code.

NOTE: This command is only useful when used with the H. command in category (3).

J. (2) (60) (XXX) - Set up default DTMF outpulse speed where (XXX) equals tone on and tone off time in MSEC.
   (XXX) = 000 thru 255.

K. (2) (61) (XXX) - Set up secondary DTMF outpulse speed. (Same as J.)

NOTE: In all cases, (X) is a telephone keyboard entry
(✱) equals 11 decimal
(#) equals 12 decimal

CATEGORY (2) EXAMPLES

1. SET-UP DIALER FOR MODE 1 AND NO USER CODE:

   (✱) RB (098947✱) SYB (2) (20) SYB (2) (10) SYB
   HANG UP PHONE.

2. SET-UP DIALER FOR MODE 2 AND NO USER CODE:

   (✱) RB (098947✱) SYB (2) (21) SYB (2) (10) SYB
   HANG UP PHONE.

3. SET-UP FOR MODE 3 WITH 1 DIGIT USER CODE:

   (✱) RB (098947✱) SYB (2) (20) SYB (2) (11) SYB
   HANG UP PHONE.

4. SET-UP FOR MODE 4 WITH 2 DIGIT USER CODE:

   (✱) RB (098947✱) SYB (2) (21) SYB (2) (12) SYB
   HANG UP PHONE.

5. SET-UP DIGIT ENTRY TIME TO 7 SECS. TOTAL ENTRY TIME TO 20 SECS:

   (✱) RB (098947✱) SYB (2) (41) (5) SYB (2) (42) (3) SYB
   HANG UP PHONE.

6. ENTER LOCAL AREA CODE e.g. (301)
   SET DEFAULT TONE OUTPULSE SPEED TO 85 MSEC ON, 85 MSEC OFF:

   (✱) (RB) (098947✱) SYB (2) (5) (301) SYB (2) (60) (085) SYB
   HANG UP PHONE.

7. PERFORM 4, 5, and 6:

   (✱) RB (098947✱) SYB (2) (21) SYB (2) (12) SYB (2) (41) (5) SYB (2) (42) (3) SYB (2) (5) (301) SYB (2) (60) (085) SYB
   HANG UP PHONE.

CATEGORY (3) - DIALING PATTERNS

A. (3) (X) - Set Up Dialing Pattern - Where (X) is 1 of the 12 patterns that can be created. By convention, when a master initialization is performed, Pattern 1 notated as -
   (3) (1) is set up for local calls.
   Pattern 2 notated as -
   (3) (2) is set up for DDD.
   (X) can be 3 thru 9, 0, ✱ or # to set up an additional 10 patterns for OCC requirements or special functions.

A Dialing Patten consists of (3) (X) followed by the desired options listed below:

B. (X...X) - Send the DTMF digit (X).
(X) can be 0 thru 9.

C. (#) (#) - Send the DTMF digit (#).

D. (#) (1) (X) (Y) - Wait (Y) Ring Cylces (1 Ring Cycle equals 6 sec.)
(Y) = 0 thru 9, ✱ or #. For a tone lasting
(X) = 1 thru 9, 0, ✱, #. If not received, abort dialing pattern.

E. (#) (2) (X) - Pause (X) ÷ 2 secs.
(X) = 1 thru 9, 0, ✱, #

F. (#) (30) - Send 10 digit telephone number.

G. (#) (37) - Send 7 digit telephone number.

H. (#) (3✱) - Send 10 digit telephone number, if local area code send 7 digit telephone number.
NOTE: Used with H. command in category (2).

J. (#) (4) (X) - Send Billing Code as entered.
if (X) is (#)
Send Billing Code with preceding zeros to equal (X) digits.
(X) is 1 thru 9, 0, or ✱.

K. (#) (5) (X) (Y) - Pause (Y) secs. to receive DTMF digit (X) (not on network signal) and abort pattern.
(X) and (Y) can be 1 thru 9, 0, ✱, or #

L. (#) (60) - Use default DTMF outpulse dialing speed.

M. (#) (61) - Use secondary DTMF outpulse dialing speed.

P. (#) (✱) - Terminate dialing pattern.

CATEGORY (3) EXAMPLES:

1. CREATED DIALING PATTERN 2 AS FOLLOWS FOR (DDD)

A. Wait for 1 sec. of dial tone
B. Send the Digit 1
C. If local area code send 7 digit telephone number
D. Otherwise send 10 digit telephone number.

(✱) RB (098947✱) SYB (3) (2) (#121) (1) (#3✱) (#✱) SYB.
HANG UP PHONE.

2. CREATE DIALING PATTERN 3 AS FOLLOWS FOR (OCC)

A. Wait for 1 sec. of dial tone.
B. Send 7 digit access number. (555-1212).
C. Wait for 2.5 sec. of tone (for up to 7 ringing cycles)
D. Send 7 digit auth. number, (7654321)
E. Send 10 digit telephone number.
F. Send 2 digit billing code.

(✱) (098947✱) SYB (3) (3) (#121) (555-1212) (#157) (7654321) (#30) (#42) (#✱) SYB
HANG UP PHONE

CATEGORY (4) - DIALING ROUTES

A. (4) (0) (XXX) - Set failed pattern status time in minutes.
(XXX) = 000 thru 255

B. (4) (1) (Z) - Set up dialing route where (Z) is 1 of 12 different routes that can be created.
(Z) equals 1 thru 9, 0, ✱ or #.

C. (4) (1) (Z) (Y....Y) - Set up route to use (Y....Y) dialing patterns.
(Y) equals a dialing pattern as defined in category (3).

D. (1) - Terminate Dialing Pattern

EXAMPLE

(4) (1) (5) (44332) (1) - Route 5 is set up to use:
Dialing Pattern 4 twice -
Dialing Pattern 3 twice and
Dialing Pattern 2 once

NOTE: Pattern 1 is setup for local calls.
Pattern 2 is setup for DDD via AT&T.

CATEGORY (4) EXAMPLES

1. SET DIALING PATTERN FAILED STATUS TO 25 MIN.

(#✱) RB (098947✱) SYB (4) (0) (025).

2. SET-UP ROUTE 1 AS FOLLOWS:

A. Try dialing pattern 3 twice.
B. Try dialing pattern 4 once.
C. Try dialing pattern 2 twice.

(✱) RB (098947✱) SYB (4) (1) (1) (33422) (1) SYB
HANG UP PHONE.

CATEGORY (5) - AREA CODES

Matches the area code of a manually dialed telephone number, or speed number to a specific dialing route (as defined in category 4) and instructs the QUIK CALL to place the call over that route.

A. (5) (ABC) (Z) - (ABC) is the 3 digit area code.
A is first digit can be 2 thru 9
B is second digit can be 0 or 1
C is third digit can be 0 thru 9
(Z) Is the dialing route, defined in category (4) Z can be 0 thru 9, ✱ or #.

EXAMPLE: (5) (212) (6) - All 212 area code telephone numbers or speed numbers will use dialing route 6.

NOTE: If an area code does not have a match to a route, the dialer will automatically place the call over Route 1.

CATEGORY (5) EXAMPLE

A. Area Code 301 is to use Dialing Route 3.
B. Area Code 202 is to use Dialing Route 4.
C. Area Code 605 is to use Dialing Route 5.
D. Area Code 915 is to use Dialing Route 5.
E. Area Code 801 is to use Dialing Route 4.

(✱) RB (098947✱) SYB (5) (301) (3)
SYB (5) (202) (4)
SYB (5) (605) (5)
SYB (5) (915) (5)
SYB (5) (801) (4) SYB
HANG UP PHONE.

7. SAMPLE OCC DIALING PATTERN PROGRAMMING

In order to place a call over an OCC through a dial-up line, it is necessary to first place a local telephone call to the carrier's access number. One or more rings may occur before the switching equipment answers the call and provides a ready tone. It is necessary to wait until this occurs before transmitting any further information. Care must be taken so that the ringback tone does not falsely trigger the ready tone detector, yet the ready tone must reliably trigger the detection circuitry. Ringback tone lasts for two seconds, and is quiet for four seconds. The detection circuitry within the QUIK CALL 2000 is sensitive to any tone frequency between 350 and 475 Hz. By requiring the detection of ready tone to last more than two seconds, it will reliably ride through the ringback signal.

The (#) (1) command in the dialing patterns can be set to listen for tones lasting any increment of ½ second. It is generally sufficient to set this period to 2.5 seconds. It is further required that the maximum length of time to wait be selected. This is programmable from one to twelve rings, since the value is set in increments of six seconds. It is up to the user to determine how long he is willing to wait for a particular carrier to respond before advancing to the next route. If more than one OCC is programmed, it makes sense to set this value to no more than five rings; if only one carrier is available, and the only second choice is to direct dial at a significant monetary loss, a longer wait is reasonable.

In the examples given below for particular OCCs, it is assumed that only one OCC is being used. Route 1 is programmed for the OCC, and route 2 is programmed for AT&T. All programming information required to permit the carrier to be used is given.

TYPICAL PROTOCOLS

Telesaver:

The Telesaver switch expects to receive an authorization code after the ready tone is returned. After this code is received, a single beep tone is sent to so indicate. An area code and telephone number are expected next; when received, a double beep is returned. For customers with billing codes, the code is expected at this time, appended with a '✱' to expedite call processing. One to five digits may be used as the billing code as long as that number has a value between 1 and 32767 (inclusive). This permits the ✱NEW BC✱ option to be used to great advantage for cost allocation to case or client numbers, which are often greater than two digits in length.

Examples:

1. Local Access Number =555-1212; Authorization Code = 654321; No Billing Codes; Mode 3 two digit user number

(*) RB (098947*) SYB (1) (21✱)
SYB (2) (20)
(3) (3 #121 5551212 #157 654321 #21 #30 #✱)
SYB (4) (1 1 332 1)
SYB (4) (1 2 22 1)
SYB (5) (800 2)
SYB (5) (900 2)
SYB HANG UP

2. Local Access Number = 555-1212; Authorization Code = 654321; Billing Codes; Mode 4 two digit user number.

(✱) RB (098947✱) SYB (1) (21✱)
SYB (3) (3 #121 5551212 #157 654321✱21 #30 #21 #4# ✱ #✱)
SYB (4) (1 1 332 1)

ITT City Call:

City Call expects the area code and telephone number upon detection of the ready tone, followed by the authorization code. Billing codes are not available.

Example:

1. Local Access Number = 555-1212; Authorization Code = 7654321; Mode = 3

```
(*) RB (098947*) SYB (1) (21*)
                 SYB (2) (20)
                 SYB (3) (2 #121 5551212 #157 #30 7654321 #*)
                 SYB (4) (1 1 332 1)
                 SYB (4) (1 2 22 1)
                 SYB (5) (800 2)
                 SYB (5) (900 2)
                 SYB     HANG UP
```

Sprint:

The Sprint equipment requires the authorization code after the ready tone, followed by the area code and telephone number. If billing codes are used, two digits are sent at the end.

Example:

1. Local Access Number = 555-1212; Authorization Code = 654321; No Billing Codes Mode 3

```
(*) RB (098947*) SYB (1) (21*)
                 SYB (2) (20)
                 SYB (3) (3 #121 5551212 #157 654321 #30 #*)
                 SYB (4) (1 1 332 1)
                 SYB (4) (1 2 22 1)
                 SYB (5) (800 2)
                 SYB (5) (900 2)
                 SYB     HANG UP
```

2. Local Access Number = 555-1212; Authorization Code = 654321; Billing Codes Mode 4

```
(*) RB (098947*) SYB (1) (21*)
                 SYB (3) (3 #121 5551212 #157 654321 #30 #*)
                 SYB (4) 1 1 332 1)
                 SYB (4) (1 2 22 1)
                 SYB (5) (800 2)
                 SYB (5) (900 2)
                 SYB     HANG UP
```


MCI

MCI requires the authorization code followed by the area code and telephone number when the ready tone is received. Billing codes are not supported.

Example:

1. Local Access Number = 555-1212; Authorization Code = 54321; Mode = 3

```
(*) RB (098947*) SYB (1) (21*)
                 SYB (2) (20)
                 SYB (3) (3 #121 5551212 #157 54321 #30 #*)
                 SYB (4) (1 1 3322 1)
                 SYB (4) (1 2 22 1)
                 SYB (5) (800 2)
                 SYB (5) (900 2)
                 SYB HANG UP
```

Special Considerations:

Occasional users may find that the local telephone company central office is slow, and cannot handle rapid DTMF signalling. In these instances, the default dialing speed should be slowed down. However, for OCC calls, once the local access number has been dialed, rapid DTMF signalling should present no problem if the OCC can handle it. In this case, the secondary DTMF dialing speed should be used in the dialing pattern to speed up the call.

The QUIK CALL-2000 has a special provision to permit dialing an OCC's local access number, sending the authorization code and turning the OCC over directly to the user. There is generally no need to do so, since the dialer is a true store-and-forward unit. Should there be some special feature that the OCC provides which would require direct access, a special speed number can be set up to perform this function. Pick an area code which is not assigned (200, 300, 400, 500, 600, and 700 are good choices), and program a speed number using this area code; it matters not what the telephone number selected is. Create a route specifically for that area code, and enter that area code to select that special route. Provide a special dialing pattern for that route which simply dials the local access number and sends the authorization code. All the user need so is recall that speed number.

8. ORDERING AND INSTALLATION

The QUIK CALL 2000 provides service to all stations on all equipped central office lines or trunks. The QUIK CALL 2000 may be ordered in various central office line capacities by suffixing the line requirement to the model number e.g. QC-2000-1 for one central office line, QC-2000-2 for two, etc.

The QC-2000-1 consists of a Control Module equipped with one QC-2000-C Line Card. This unit will service one central office line. To expand service to more than one central office line, a QC-2000-M Interface Module is needed for each group of lines up to eight. In addition, one QC-2000-C Line Card for each addtional central office line is required.

When multi-line units are ordered initially, all necessary components are furnished to provide service for the specified number of central office lines. Each module, designed for wall mounting, is provided with a beige plastic cover. The system is powered by 117 volts (60 Hertz) AC. Internal to the QUIK CALL 2000 is a standby battery. In the event of commercial power failure, the battery prevents ioss of stored speed numbers and system parameters. In areas where momentary power failures occur or AC voltages fluctuate, it is recommended that a surge suppressor be installed at the A.C. outlet.

5. REMOTE PROGRAMMING

The QUIK CALL 2000 can be remotely programmed; this includes speed number storage as well as system programming. The remote programming sequence must be initiated from within the establishment where the dialer is located, preventing others with the password from calling into the location and changing the programming without permission.

To initiate the remote programming function, a line must be selected, the receiver taken off-hook, and the "✱" entered to reach the ready beep. At this point, the six-digit remote programming password (654321) must be entered, followed by "✱". When this is received, the dialer returns local dial tone to the user directly, who must then manually dial up the person who is to perform the remote programming action. When the remote individual answers the telephone and is informed that the programming session is to begin, the caller can either place the line on hold or listen in, being careful not to talk or hit the keypad while programming is being performed.

The remote individual initiates the sequence by entering a "✱"; a ready beep is returned, and from this point any function which can be performed locally on the dialer can be performed remotely. The only operation which cannot be handled remotely, is actually placing a telephone call with the dialer — this is impossible, since the telephone line is already in use.

Example:

(✱) RB (654321) (✱)
Dial tone is returned.
The remote person who is to perform the programming is called normally.
He answers the telephone.
The caller puts the line on hold.
The remote party enters:
(✱) RB (098947✱) SYB
Dialer programming continued as if done locally.
When complete, the remote party hangs up.
The dialer is returned to normal operation.

Installation:

The QC-2000-1 is installed by mounting securely to a wall using two screws through holes provided. The modular cord is plugged into the QC-2000 Line Card and the other end is plugged into the RJ-31X jack, not supplied. The jack must be wired as follows:

Pin 1 - Ring lead to customer equipment
Pin 4 - Ring lead of telephone line
Pin 5 - Tip lead of telephone line
Pin 8 - Tip lead to customer equipment
Pin 7 - Earth ground (ground start trunks only)

In this configuration, if the modular plug is removed from the RJ-31X jack, the customer equipment is automatically cut through to the telephone line, and operation is completely normal. For this reason, when connecting a line to the dialer, first plug the modular cord into the Line Card, and then into the RJ-31X jack; follow the reverse procedure for removal. In this way, telephone calls will not be disrupted.

To expand the QC-2000-1 for mutli-line service, mount the QC-2000-M Interface Module next to the QC-2000 control Module. Plug the ribbon cable into the connector from which the Line Card was removed. Additional Line Cards may now be inserted into the Interface Module. Connect a modular cable between each QC-2000-C Line Card and the RJ-31X jack.

The green light emitting diode indicator lamp mounted inside the Control Module illuminates when the dialer is being used. This lamp is visible through the slot on the plastic cover. If the indicator is out, the AC power can be removed without fear of disrupting service.

No maintenance is required. If the unit fails to operate properly, call the salesman who will verify that programming has been performed properly. If the unit is defective, return it to the factory for repair or

replacement. Do not attempt to repair the unit in the field. Only qualified representatives of METRO TEL CORP. may attempt to do so. Warranty may be voided if repairs are attempted. Send repairs to:

METRO TEL CORP.
15 Burke Lane
Syosset, New York 11791
ATTN: REPAIR DEPT.

INSTALLATION

The QC-2000 is installed by mounting securely to a wall using two screws through holes provided. The modular cord is plugged into the QC-2000 Line Card and the other end is plugged into the RJ-31X jack, not supplied. *(See fig. 5 for RJ-31X jack wiring).* Plug power cord into an unswitched 117V Hz outlet. The QC-2000 is now ready to operate.

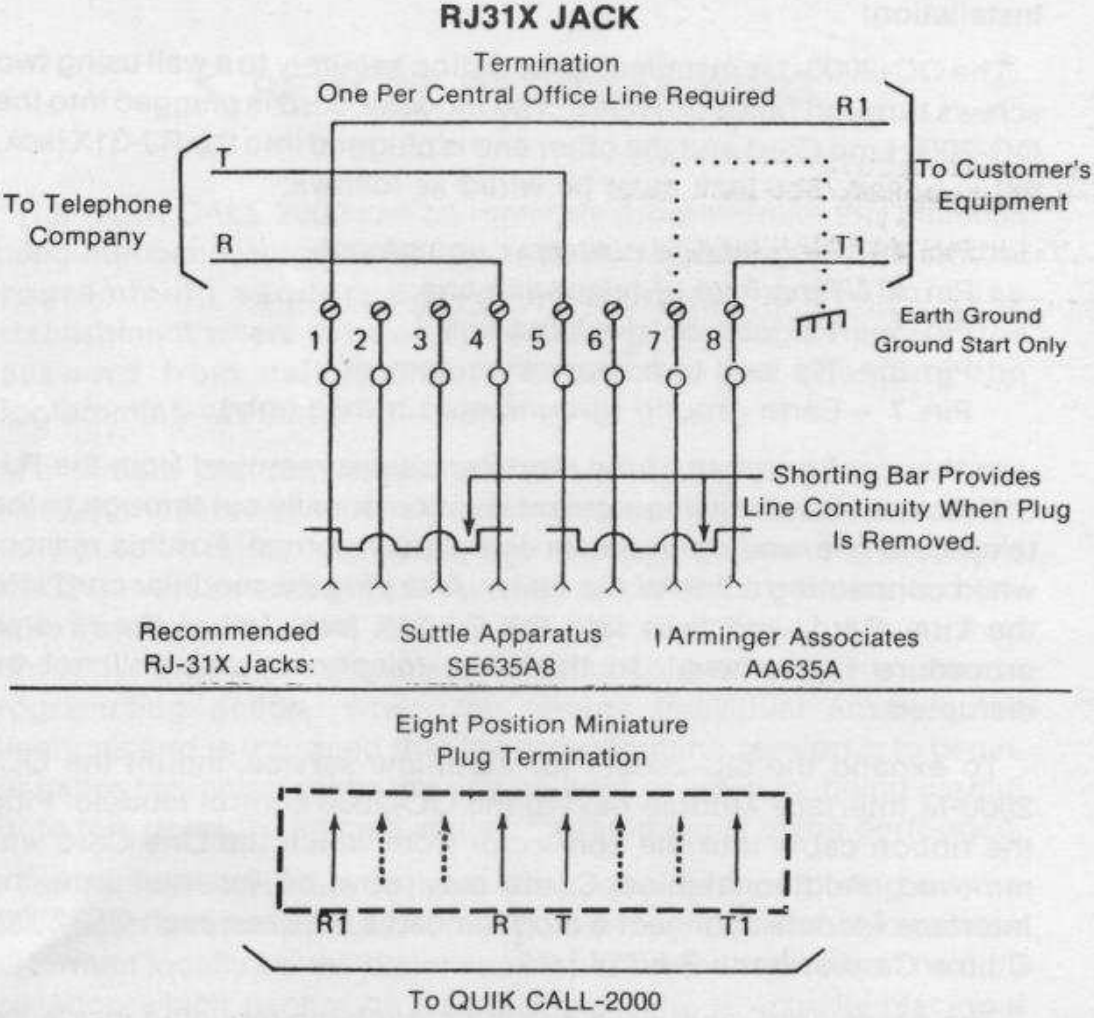


Fig. 5 Typical wiring or RJ-31X jacks.

Multi-line units are similarly installed except the Interface Module must also be mounted with two screws in the holes provided and all Line Cards are mounted in the Interface Module. A ribbon cable is provided to connect the Control Module to the Interface Module. *(See fig. 2)*

FCC REGISTRATION NO. AG-997G-69632D1-T
RINGER EQUIV. 0.0B