EQUIPMENT NOMENCLATURE
GENERAL EQUIPMENT REQUIREMENTS
NO. 1 CROSSBAR SYSTEM

1. GENERAL

1.01 This section covers the approved terms relating to local No. 1 crossbar dial equipment.

1.02 This section is reissued to incorporate material from the addendum in its proper location.

1.03 Reference should be made to the Notes on Equipment Nomenclature which are a part of P.E.C. 777 for terminology which applies in common to this and other telephone equipment until that data are issued in Bell System Practice form.

2. EQUIPMENT NOMENCLATURE

2.01 Local Crossbar Dial System No. 1: A type of dial telephone system in which the switching apparatus is generally characterized by the following features:

(a) A switching mechanism, called the crossbar switch, consisting of a rectangular field of contact springs arranged in sets and operated on the coordinate principle by horizontal and vertical members.

(b) Common circuits which select and test the switching paths and control the operation of the selecting mechanisms.

(c) A method of operation in which the dial pulses are received and stored by controlling mechanisms which determine the operations necessary in establishing a telephone connection beyond the interoffice trunk by means of revertive pulses generated by the distant equipment and counted by these mechanisms.

2.02 Crossbar Switch: A unit of switching apparatus consisting of a rectangular field of contact springs arranged in sets and operated on the coordinate principle by horizontal and vertical members. Any set of contacts may be operated by the operation of a selecting magnet, which determines the row followed by the operation of a holding magnet, which operates the particular set in that row. The contact set then remains operated under the control of the holding magnet. The following are constituent parts of the crossbar switch.

(a) Switch Frame: The rectangular structure on which the various elements of the switch are mounted.

(b) Vertical Unit: The complete assembly of the vertically mounted unit of the switch.

(c) Vertical Unit Base: The supporting structure of the vertical unit.

(d) Multiple Strip: One of the vertical strips of fixed contacts of a vertical unit.

(e) Holding Armature: The armature of the holding magnet including the holding bar.

(f) Holding Bar: The element of the holding armature which presses the selecting fingers against the actuating springs to operate the desired contacts.

(g) Holding Magnet: The magnet of the vertical unit.

(h) Actuating Spring: The spring of the vertical unit which transmits the pressure of the holding bar to the moving contact springs.

(i) Trap: The space between the holding bar and the actuating spring to which the selecting finger is moved preparatory to operating a particular cross point.

(j) Holding Off Normal Springs: The common contact springs of the vertical unit which are operated whenever the holding armature operates.

(k) Retaining Spring: The flat spring which bears against the holding armature and serves the double purpose of a locating and retractile spring.

(l) Selecting Armature: The double armature attached to the selecting bar and actuated by either of two selecting magnets.

(m) Selecting Bar: The horizontal rod carrying the selecting fingers and the selecting armature.

(n) Centering Springs: The springs which determine the normal position of the selecting bar.

(o) Armature Extension: The operating arm of a selecting armature the stud of which engages the centering springs.

(p) Selecting Finger: One of the wires projecting from the selecting bar which, when the bar is rotated, is positioned to identify the particular set of

contacts to be closed by the operation of a holding bar.

(q) Damping Spring: The coil spring on the selecting finger provided for damping the finger.

(r) Selecting Magnet: The magnet which operates the selecting armature.

(s) Selecting Off Normal Springs: The common contact springs associated with the selecting armature and operated by it.

(t) Cross Point: The set of springs identified by the operation of one selecting and one holding magnet.

(u) Operated Cross Point: A particular set of contact springs being held in the operated position.

(v) Operating Springs: The moving springs of a cross point.

(w) Test Jack: The extension of the vertical unit multiple provided for temporary electrical access to this multiple.

2.03 100-Point Switch: A crossbar switch with a capacity of 100 cross points.

2.04 190-Point Switch: A crossbar switch with a capacity of 190 cross points.

2.05 200-Point Switch: A crossbar switch with a capacity of 200 cross points.

2.06 Three-Wire Unit or Switch: A unit or switch in which the contact springs are arranged to close three sets of contacts.

2.07 Four-Wire Unit or Switch: A unit or switch in which the contact springs are arranged to close four sets of contacts.

2.08 Five-Wire Unit or Switch: A unit or switch in which the contact springs are arranged to close five sets of contacts.

2.09 Six-Wire Unit or Switch: A unit or switch in which the contact springs are arranged to close six sets of contacts.

Note: Two sizes of units may be combined on the same switch, making for instance a three-wire five-wire switch.

2.10 Primary Line Switch: A crossbar switch on a line link frame through which connections are made between subscriber lines and line links.

2.11 Secondary Line Switch: A crossbar switch on a line link frame through which connections are made between line links and district junctors or line junctors.

2.12 Primary District Switch: A crossbar switch on a district link frame through which connections are made from district junctors to district links.

2.13 Secondary District Switch: A crossbar switch on a district link frame through which connections are made from district links to office junctors.

2.14 Primary Office Switch: A crossbar switch on an office link frame through which connections are made from office junctors to office links.

2.15 Secondary Office Switch: A crossbar switch on an office frame or office link extension frame through which connections are made from office links to trunks outgoing from the office link frame.

2.16 Primary Incoming Switch: A crossbar switch on an incoming link frame through which connections are made from incoming trunks to incoming links.

2.17 Secondary Incoming Switch: A crossbar switch on an incoming link frame or incoming link extension frame through which connections are made from incoming links to line junctors.

2.18 No-Test Switch: A crossbar switch which connects no-test incoming trunks to the desired no-test junctors.

2.19 Zone Registration Switch: A crossbar switch, which connects district junctors to zone registration circuits.

2.20 Line Secondary Multiple: The multiple of the secondary line switches of a line link frame outgoing to district junctors or incoming from line junctors.

2.21 District Secondary Multiple: The outgoing multiple of the secondary switches of a district link frame.

2.22 Office Secondary Multiple: The outgoing multiple of the secondary switches of an office link or extension frame.

2.23 Incoming Secondary Multiple: The outgoing multiple of the secondary switches of an incoming link or extension frame.

2.24 Line Choice: Four line link frames which are treated as a unit by the terminating markers.

2.25 Half. Choice: Two of the line link frames of a line choice which are served by the same line junctors.

2.26 Number Group: A group of subscriber numbers (one or more blocks of a hundred

numbers) which is treated as a unit by the terminating marker in setting up a call.

2.27 20-Block: A group of 20 consecutive subscriber numbers cut in simultaneously for test by the terminating marker. The last two digits of the first number of each 20-block are "00," "20," "40," "60," or "80."

2.28 100-Block: Five 20-blocks, normally consecutive and containing the numbers ending in "00" to "99."

2.29 Column of Lines: The files of a 100-line primary line switch bay or the left or right half of a 200-line primary line switch bay.

Note: Line Assignment Designation. The recommended method of designating subscriber line circuits for assignment purposes is as follows:

Choice	0 to 19
Frame	A, B, C or D
Column	00, 01, 02, etc.
Switch	0 to 9
Vertical	0 to 9

Thus, the designation 7B-62-94 identifies a line circuit in Choice 7, Frame B, (second frame), Column 62 (sixty-third column), Switch 9 (tenth switch from bottom), Vertical 4 (fifth vertical of the switch). The number of the "Switch" is the same as the horizontal line group.

2.30 File of Lines: Ten vertical units located one above another on a primary line switch bay.

2.31 Horizontal Line Group: All of the lines served by the same ten line links.

2.32 No-Test File: The ten vertical units located one above another on a primary line switch bay used for "no-test" operation.

2.33 Block-End Hunting: Hunting from the last terminal of one 20-block to the first terminal of another 20-block.

2.34 Jump-Hunting: Non-consecutive terminal hunting wherein the departure from consecutive hunting occurs within a 20-block and hunting recommences at a designated point in a hundred block which is assigned to jump hunting.

2.40 Keyset Number Checking (May be abbreviated to Keyset Checking): A number checking arrangement wherein the operator employs a keyset for setting up the number to be checked.

2.41 Dial Number Checking (May be abbreviated to Dial Checking): A number checking arrangement wherein the operator employs a position dial for setting up the number to be checked.

2.50 No-Connection Position - District Junctor: A condition of the district junctor, established by the originating marker, wherein the junctor is held by an originating bridge with the sender link released and the primary district link cross points not closed.

2.51 No-Connection Position - Incoming Trunk: A condition of the incoming trunk circuit established by the terminating sender or marker, wherein the trunk circuit is held by a trunk bridge with the sender link released and the primary incoming link cross points not closed.

2.52 Extra Number: A number outside the call number series and identified by a two digit number preceded by a letter. In effect, it is a four digit number, the letter prefix A, B, C, etc., used represents the digits 00, 01, 02, etc., respectively. The letters I and O are omitted. Thus, an arrangement of this kind provides a group of 2400 "extra numbers." Such "extra numbers," like numbers in the regular series, are furnished in 20 blocks.

2.53 Zone Call (As applied to multiple registration): A call (attempted or completed) dialed by a customer for a destination which involves zone registration.

2.54 Non-Zone Call (As applied to multiple registration): A call (attempted or completed) dialed by a customer for a destination which does not involve zone registration. A completed non-zone call is referred to as a non-zone message.

2.55 Originating Service Only: A term applied to the service on a subscriber line (usually a P.B.X. trunk) which handles calls outgoing from the customer only.

2.56 Terminating Service Only: A term applied to the service on a subscriber line (usually a P.B.X. trunk) which handles calls to the customer only.

2.57 Mate: Where a frame or circuit is paired with another frame or circuit for circuit operation, either is referred to as the mate of the other.

2.58 Coin Timer: A timer used to control overtime collection on coin service.

2.59 Zone Timer: A timer used to control zone and overtime registrations on zone calls.

2.60 Non-Zone Timer: A timer used to control overtime registration on non-zone calls.

2.61 Coin Supervisory Circuit: A circuit arrangement which is called in by the

district junctor to dispose of the initial coin and to test for the presence of additional coins for subsequent intervals, etc.

2.62 Zone Registration Circuit: A circuit arrangement for furnishing on zone calls the proper pulses for the operation of the subscriber message register via the district junctor.

2.63 Incoming Trunk Circuit: A trunk circuit connecting incoming trunks with incoming links. The incoming trunk circuits contain relay and other equipment for performing additional functions such as supplying ringing current and transmission battery.

2.64 Manual Auxiliary Trunk Circuit: A circuit arrangement ahead of an incoming trunk circuit to convert manual cord supervision to the proper supervision for the incoming trunk.

2.65 Non-Discriminating Incoming Trunk: A trunk (actually a trunk decade) which cancels the physical-theoretical discriminating feature.

2.66 District Junctor Decade (May be abbreviated to District Decade): The ten district junctors connected to the same district primary link switch.

2.67 Incoming Trunk Decade (May be abbreviated to Incoming Decade): The ten incoming trunks connected to the same incoming primary link switch.

2.68 Terminating Office Selecting Feature: The feature in a multi-office terminating unit by which the desired 10,000 number series is indicated. The selecting may be by (1) Incoming Decade, (2) Pulsing, (3) Incoming Frame Number.

2.69 Physical-Theoretical Discriminating Feature: The feature by which it is indicated to the marker as to whether the physical or the theoretical office is wanted and as to whether the number is a physical or a theoretical number.

2.70 Junctor: A circuit extending between frames and terminating in a switching device on each frame.

(a) District Junctor: A junctor extending from line link frames to a district link frame and used for connecting line links with district links. This junctor contains relay and other equipment for performing additional functions such as supplying supervision, transmission battery, message registering, connecting to senders via sender links, etc.

(b) Office Junctor: A junctor extending from a district link frame to an office link frame and used for connecting district links with office links.

(c) Line Junctor: A junctor extending from an incoming link frame to one or two line link frames and used for connecting incoming links with line links.

(d) "A" Operator District Junctor (May be abbreviated to "A" District Junctor): A junctor extending from the "A" switchboard to the district link frame and used for connecting the operator with district links. This circuit contains relay and other equipment for performing additional functions such as connecting to "A" operator senders via "A" operator sender links.

(e) Key Pulsing District Junctor: An "A" operator district junctor used with key pulsing "A" switchboards.

(f) Dialing District Junctor: An "A" operator district junctor used with dialing "A" switchboards.

(g) No-Test Junctor: A junctor extending from the no-test switch to vertical units in the no-test file on the line link frame.

2.71 Links

(a) Line Link: A switching arrangement for connecting subscriber lines to district junctors on originating calls and line junctors to subscriber lines on terminating calls.

(b) District Link: A switching arrangement for connecting district junctors to the junctors outgoing from a district link frame.

(c) Office Link: A switching arrangement for connecting office junctors to trunks outgoing from an office link frame.

(d) Incoming Link: A switching arrangement for connecting incoming trunks to line junctors.

(e) Number Checking Trunk Link: A circuit arrangement for connecting a position number checking circuit with a number checking incoming trunk.

(f) Subscriber Sender Link: A switching arrangement for connecting district junctors to subscriber senders.

(g) Terminating Sender Link: A switching arrangement for connecting incoming trunks with terminating senders, either full selector or "B" operator.

(h) Number Checking Sender Link: A switching arrangement for connecting

a number checking incoming trunk with a number checking sender.

(i) Coin Supervisory Link: A switching arrangement for connecting coin district junctors to coin supervisory circuits.

(j) "A" Operator Sender Link (May be abbreviated to "A" Sender Link): A switching arrangement for connecting "A" operator district junctors, "A" operator incoming trunks, and "A" operator outgoing trunks to "A" operator senders.

(k) Key Pulsing Sender Link: An "A" operator sender link operated on a key pulsing basis.

(l) Dialing Sender Link: An "A" operator sender link operated on a dialing basis.

2.72 Connector

(a) District Connector: A connecting arrangement through which the originating markers control switching operations on a district frame.

(b) Office Connector: A connecting arrangement through which the originating markers control switching operations on an office frame.

(c) Incoming Connector: A connecting arrangement through which the terminating markers control switching operations on an incoming frame.

(d) Number Group Connector: A connecting arrangement through which the terminating markers have access to a number group.

(e) Line Choice Connector: A connecting arrangement through which on terminating calls the terminating markers control switching operations on a line choice.

(f) Line Junctor Connector: A connecting arrangement through which on terminating calls the terminating markers have access to the line junctors.

(g) Originating Marker Connector: A connecting arrangement through which the subscriber senders have access to an originating marker.

(h) Terminating Marker Connector: A connecting arrangement through which the terminating senders have access to a terminating marker.

(i) Zone Registration Connector: A connecting arrangement through which the originating marker has access to a zone registration circuit.

2.73 Controllers

(a) Line Link Controller (May be abbreviated to Line Controller): A circuit arrangement common to the links of a line link frame, which controls the operation of line links in associating a line with a district junctor.

(b) Subscriber Sender Link Controller (May be abbreviated to Subscriber Sender Controller): A circuit arrangement common to the links of a subscriber sender link frame which controls the operation of these links in associating a district junctor with a sender.

(c) "A" Operator Sender Link Controller (May be abbreviated to "A" Sender Controller): A circuit arrangement common to the links on the operator sender link frame which controls the operation of these links in associating an incoming trunk with an operator sender.

(d) Terminating Sender Link Controller (May be abbreviated to Terminating Sender Controller): A circuit arrangement common to the links on a terminating sender link frame which controls the operations of these links in associating an incoming trunk with a terminating sender (either full selector or "B" operator).

(e) Coin Supervisory Controller: A circuit arrangement common to the links of a coin district frame for controlling the connection of coin district junctors to coin supervisory circuits.

2.74 Zone Registration Control Circuit: A circuit common to a district frame for controlling the connection of district junctors to zone registration circuits.

2.75 Senders

(a) Originating Sender: A generic term applying to both subscriber senders and "A" operator senders.

(b) Subscriber Sender: A sender arranged to receive the pulses dialed by the subscriber and, with the assistance of the originating marker, to direct the call to the proper destination.

(c) "A" Operator Sender (May be abbreviated to "A" sender): A sender arranged to receive pulses from the "A" operator and, with the assistance of the originating marker, to direct the call to the proper destination.

(d) "A" Operator Key Pulsing Sender (May be abbreviated to Key Pulsing Sender): An "A" operator sender of the key pulsing type.

(e) "A" Operator Dialing Sender (May be abbreviated to Dialing Sender): An "A" operator sender of the dialing type.

(f) Terminating Sender: A generic term applying to the senders which work with the terminating markers. Included are full selector senders, "B" operator senders, and number checking senders.

(g) Full Selector Sender: A sender arranged to receive from another sender, pulses representing the called number and to furnish the terminating marker with the information required for it to complete the connection.

(h) "B" Operator Sender (May be abbreviated to "B" Sender): A sender arranged to receive the four digits keyed by the "B" operator to furnish the terminating marker with the information required for it to complete the connection.

(i) Number Checking Sender: A sender arranged to receive pulses from the "A" operator and with the assistance of the terminating marker to direct the equipment to the number on which a check is desired.

(j) Key Pulsing Number Checking Sender: A number checking sender of the key pulsing type.

(k) Dialing Number Checking Sender: A number checking sender of the dialing type.

2.76 Sender Group: All of the senders (originating or terminating) associated together on sender link frames.

2.77 Sender Sub-group: All of the senders to which a particular secondary switch of a primary-secondary link arrangement has access.

2.78 Marker Group: All of the markers to which a sender group has access.

2.79 Marker

(a) Originating Marker: A unit of equipment arranged to receive from the originating sender the office code registration, originating class of service, and other related information; to translate these data in accordance with cross connections associated with the code into the proper routing information for completing the call; to return to the sender the information required by it; and to control the switching operations on the district and office frames.

(b) Terminating Marker: A unit of equipment which on terminating calls controls the switching operations on the incoming and line link frames.

2.80 Line and District Frames

(a) Line Distribution Frame (LDF): The cross connecting frame in a crossbar office where the sleeve and message register leads of the line circuits are cross-connected to the number sleeves and subscriber message registers respectively.

(b) Line Link Frame (May be abbreviated to Line Frame): A frame containing line links with associated equipment and subscriber line relays.

Basic Unit of Line Link Frame: A unit of the line link frame containing the secondary switch bay or bays and one or more primary switch bays.

Supplementary Unit of Line Link Frames: A unit of the line link frame containing only primary switch bays.

Note: A complete line link frame always contains a basic unit and the proper number of supplementary units required to build out the frame to the desired line capacity. The subscriber line relays are mounted on the primary bays of the basic and supplementary units.

(c) District Frame: A term referring to a district junctor frame and its associated district link frame and sender link frame.

(d) District Junctor Frame: A frame containing the relays and other equipment of the district junctors.

(e) District Link Frame: A frame containing district links and other equipment for connecting district junctors with office junctors.

(f) Subscriber Sender Link Frame: A frame containing subscriber sender links and other equipment for connecting district junctors with subscriber senders.

2.81 Office and Incoming Frames

(a) Office Frame: A term referring to an office link frame with its associated office link extension frame if one is provided.

(b) Office Link Frame: A frame containing office links and other equipment for connecting office junctors with outgoing trunks.

(c) Office Link Extension Frame (May be abbreviated to Office Extension Frame): A frame containing supplementary secondary switches to extend the outgoing terminal capacity of one or more office frames.

(d) Incoming Frame: A term referring to an incoming trunk frame and its associated incoming link frame, incoming link extension frame if provided, and terminating sender link frame.

(e) Incoming Trunk Frame: A frame containing the relays and other apparatus associated with incoming trunks.

(f) Incoming Link Frame: A frame containing incoming links and other equipment for connecting incoming trunks with line junctors.

(g) Incoming Link Extension Frame: A frame containing supplementary secondary switches to extend the outgoing terminal capacity of an incoming link frame.

(h) Terminating Sender Link Frame: A frame containing the terminating sender links and other equipment for connecting incoming trunks with terminating senders.

2.82 Sender and Grouping Frames

(a) "A" Operator Sender Link Frame (May be abbreviated to "A" Sender Link Frame): A frame containing "A" operator sender links and other equipment for connecting district junctors with "A" operator senders.

(b) Terminating Sender Link Frame: A frame containing the terminating sender links and other equipment for connecting incoming trunks with terminating senders.

(c) Originating Sender Frame: A frame arranged for mounting subscriber senders and "A" operator senders as required.

(d) District Junctor Grouping Frame: The frame at which the line secondary multiple is connected to district junctors.

(e) Office Junctor Grouping Frame: The frame at which the district secondary multiple is connected to office junctors.

(f) Line Junctor Grouping Frame: The frame at which the incoming secondary multiple is connected to line junctors.

2.83 Test Frames

(a) District Junctor Test Frame: An automatic test frame for testing district junctors.

(b) Originating Sender Test Frame: An automatic test frame for testing originating senders.

(c) Terminating Sender Test Frame: An automatic test frame for testing terminating senders.

(d) Incoming Trunk Test Frame: An automatic test frame for testing incoming trunk circuits in its own office and incoming selectors and other terminating trunk circuits in connecting offices.

2.84 Connector Frames

(a) Number Group Connector Frame: A frame containing number group connector equipment.

(b) Line Junctor Connector Frame: A frame containing line junctor connectors.

(c) Line Choice Connector Frame: A frame containing line choice connectors.

2.85 Miscellaneous Frames

(a) Block Relay Frame: A frame containing 20-block and 100-block relays and the "F" and "C" cross-connecting field associated with these relays.

"F" Cross-Connecting Field: The cross-connecting field on the block relay frame whereon subscriber numbers are assigned to line choices and the type of ringing and terminal hunting feature determined.

"C" Cross-Connecting Field: The cross-connecting field on the block relay frame whereon subscriber numbers are assigned to horizontal line groups.

(b) Zone Registration Frame: A frame containing the zone registration switches and zone registration circuits.

2.86 Registers

(a) Peg Count Register: A traffic register, associated with a group of facilities, which operates each time one of these facilities is used.

(b) Time Register: A traffic register, operated by the six-second clock pulses. The reading of this register is taken along with other traffic registers and indicates the elapsed time between register readings.

(c) Overflow Register: A traffic register, associated with a group of facilities, which operates each time an attempt to use the facilities fails due to the entire group being busy.

(d) Group Busy Register: A traffic register, associated with a group of facilities, which operates each time the entire group is busy. In the past this register has also been known as a "paths busy" (PB) register or as an "all trunks busy" (ATB) register.

(e) Delay Register: A traffic register, associated with a group of facilities, which operates when an attempt to use these facilities encounters a delay greater than a predetermined interval.

(f) Load Register: A traffic register, associated with a group of facilities, which operates when a specified portion of the facilities in the group is busy.

2.87 Trouble Indicators

(a) Originating Trouble Indicator: A circuit used for indicating trouble conditions in originating equipment and also for making routine tests of the originating marker and originating marker connector circuits.

(b) Terminating Trouble Indicator: A circuit used for indicating trouble conditions in terminating equipment and also for making routine tests of the terminating marker and terminating marker connector circuits.

2.88 Unrestricted Numbers: Numbers in an office having the physical-thecretical discriminating feature for which the discriminating feature is cancelled. This feature is intended for Telephone Company numbers (usually 9900-9999).