
BIX*

In-Building Cross-Connect System Material Description

Publication number: 631-4511-100

Document Status: Standard

Date: 86 01 17

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Contents

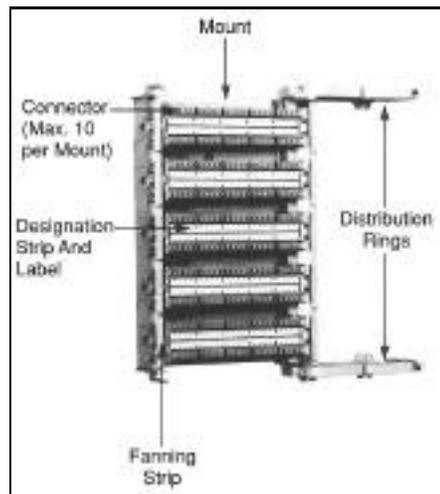
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Reason for Reissue: The practice is reissued to add information for the QMBIX 10 and 31 mounts. Changes are shown by arrowheads or bracketing arrows in the page margins.

General

- 1.01 This practice gives the material description of the BIX in-building cross-connect system.
- 1.02 The BIX system is a modular cross-connect system for in-building use only. It is designed for use in commercial, industrial, institutional, and multi-residential buildings.
- 1.03 A BIX module (Fig. 1-1) consists of a mount, ten BIX connectors, and five designation strips with the associated colored designation labels. Distribution rings are used for the vertical and horizontal jumper wire channel arrangements, and for cable distribution.

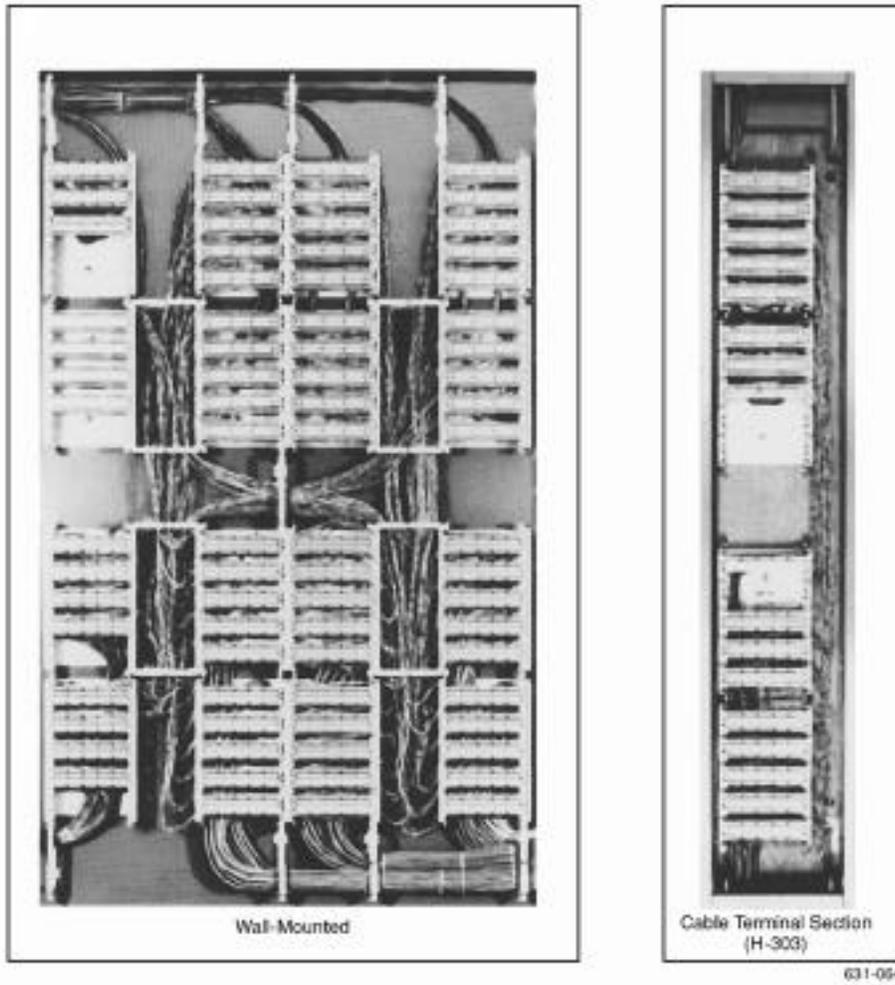
Fig 1-1
BIX System Module



631-063

- 1.04 BIX modules can be wall-mounted without the need for enclosures as electrical live parts are not exposed. To protect against physical damage, or for security or aesthetic reasons, BIX modules should be installed in closets, 'T' cabinets, or cable terminal sections (Fig. 1-2).
- 1.05 BIX modules should be suitably protected at locations where extreme physical conditions, such as vibration, temperature, humidity, dust or corrosive fumes, are encountered.
- 1.06 References
 - : 631-4511-150 BIX In-Building Cross-connect System. Planning and Application.
 - 631-4511-200 BIX In-Building Cross-connect System. Material Installation and Servicing (Wall-Mounted System).

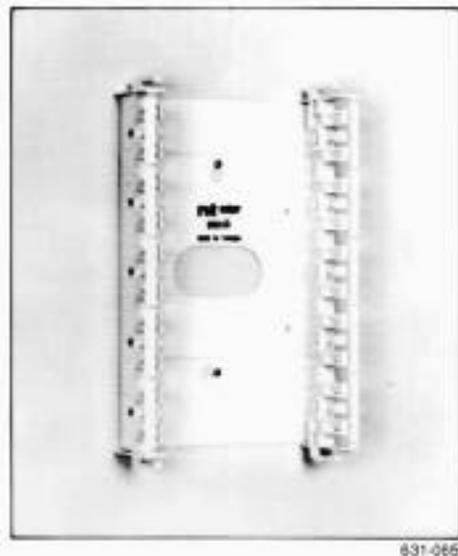
Fig 1-2
Typical BIX Modular Installations



Material Description

BASIC ASSEMBLY

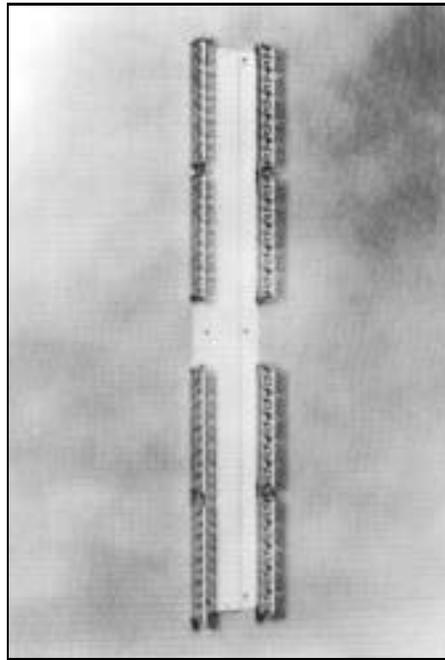
- 2.01 *QMBIX10A Mount (Fig. 2-1)*. The QMBIX10A mount consists of a sheet-metal base with two fire-retardant plastic fanning strips. The mount has mounting holes for wall-, and frame-mounting, and measures 330 by 194 by 76 mm (13 by 7 5/8 by 3 inches). A mount is normally installed on a plywood panel, but it may also be installed on any reasonably flat surface by using the appropriate fasteners.
- 2.02 The mount holds a maximum of ten BIX connectors and five designation strips, which are secured by plastic retainers on the fanning strips. The maximum cable capacity of a mount is:
- Ten 25-pair “D” inside wiring cables terminated in the mount (250 pairs), and
 - Ten 25-pair “D” inside wiring cables routed through the mount (250 pairs) or
 - Equivalent pairs of other cable types.

Fig 2.1 QMBIX10A Mount

- : 2.03 **QMBIX10B Mount Assembly (Fig. 2-2).** The QMBIX10B mount assembly is equivalent to four BIX mounts. The mount assembly consists of sheet metal base with the retardant plastic fanning strips attached. The mount assembly has six mounting holes and measures 1422 by 194 by 79 mm (56 by 7-5/8 by 3-1/8 inches). A mount assembly can be installed on any reasonably flat surface using the appropriate fasteners.
- : 2.04 The mount assembly is divided into an upper and a lower section. Space is provided at the center of the mount assembly for a single width horizontal jumper channel. The upper and lower sections have a maximum terminating capacity of 20 connectors each.
- : 2.05 The mount assembly is for use in H303 terminal sections and in apparatus and satellite closets. When the mount assembly is used in a single H303 terminal section, the wooden backboard is not required as the mounting holes in the mount assembly match the threaded holes in the H303 terminal section. When more than one H303 terminal section is used with mount assemblies, wooden backboards must be used to allow for proper jumper channel spacing. Due to the capacity of the horizontal jumper channel, the

maximum number of mount assemblies per cross-connecting field should not exceed six.

Fig 2.2
: QMBIX10B Mount Assembly

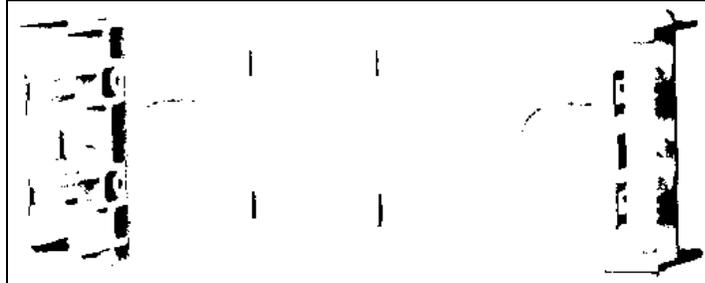


631-066

- 2.06 **QMBIX10C Mount (Fig. 2-3).** The QMBIX10C mount assembly consists of a sheet metal base equipped with two fire-retardant plastic fanning strips. The assembly measures 200 x 90 by 55 mm (78-3/4 x 3-1/2 x 2-1/4 inches) and may be mounted on any reasonably flat surface (wall or frame mounting).
- 2.07 The mount holds a maximum of two BIX connectors of any type and one designation strip. The fanning strips on both sides of the base incorporate snap fasteners which ensure positive locking of the connectors and the designation strips. The maximum cable capacity is:
- two 25-pair “D” inside wiring cables terminated in the mount (50 pairs), and

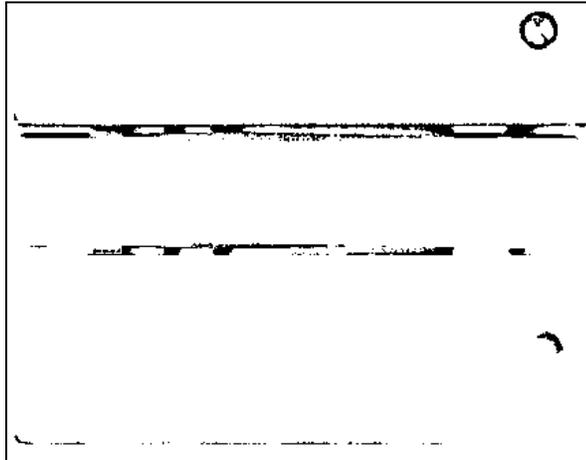
- two 25-pair “D” inside wiring cables routed through the mount (50 pairs), or
- equivalent pairs of other cable types.

Fig 2.3
QMBIX10C Mount



- 2.08 ***QMBIX31A Mount*** (Fig. 2-4). The QMBIX31A mount assembly is a QMBIX10C mount equipped with a fire-retardant plastic, integrated hinged cover. Dimensions are 235 x 85 x 60 mm (9-1/4 x 3-1/2 x 2-1/4 inches). This cover has a locking device, which hooks under the right hand side fanning strip. An NSQ 2000 L1 tool is used to operate the locking device. The eight cable entries (four on the top and four on the bottom) on the cover accepts up to two 25-pair and two 50-pair through cables (22, 24, and 26 AWG), or the equivalent.
- 2.09 ***QMBIX31B Mount*** (Fig. 2-4). The QMBIX31B mount assembly is identical to the QMBIX31A mount except for the cover which only snaps on the right hand side fanning strip (there is no locking device).

Fig 2.4
QMBIX31B Mount



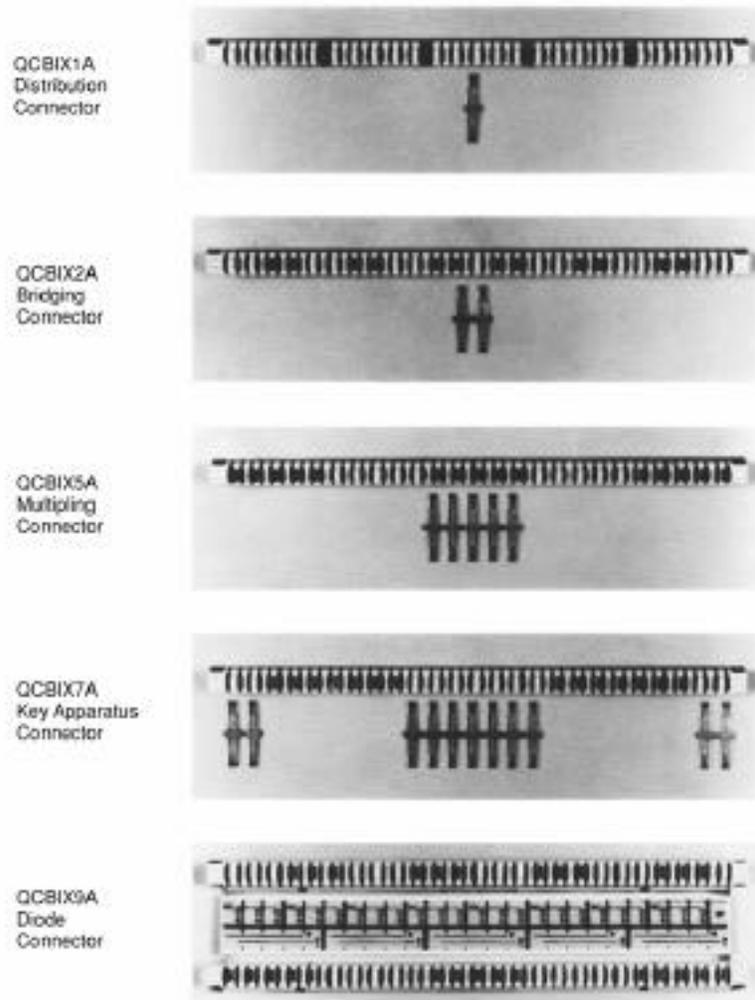
- 2.10 ***QCBIX-Type Connectors*** (Fig. 2-5). BIX connectors are intended for use with 0.4, 0.5 and 0.63 mm conductor diameter (22, 24 and 26 AWG) plastic-insulated wire and cable normally used in buildings. The connector is made of fire-retardant plastic and contains double-sided quick-connect clips. The clips have an insulation slicing feature so that prior removal of the plastic insulation is not required. Cable pairs are terminated at one end of the clips, and cross-connecting wires are terminated at the other end. A BIX connector measures 168 by 32 by 10 mm (6-5/8 by 1-1/4 by 3/8 inches).
- 2.11 The five types of connectors used in the BIX system are given in Table 2-A. All connector types are symmetrical, and are identified by the product code number stamped on the connector, and by the markings on the front and back edge of the connector (Fig. 2-6). The product code indicates the internal bridging arrangement of the clips.

Fig 2.5
Typical QCBIX-Type Connector



631-067

Fig 2.6
BIX Connectors, Product Code and Edge Marking



631-068

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- 2.12 ***QCBIX1A Distribution Connector*** (Table 2-A). has 25 separate pairs of clips for single pair termination. The 1A connector is typically used for terminating PIC cable and station cable. The connector is marked to indicate 5-pair groups for ease of pair identification and to assist in their termination of colour-coded cables.
- 2.13 ***QCBIX2A Bridging Connector*** (Table 2-A) has 12 pairs of clips bridged in groups of two (typically one pair in, and two pairs out). The -2A connector is intended for multiplying. The single pair at the center of the connector (pair 13) is not normally used. Alternate pairs on either side of the center pair are marked for ease of identification.
- 2.14 ***QCBIX5A Multiple Connector*** (Table 2-A) has 5 pairs of clips bridged in groups of five (typically one pair in, and one to five pairs out). The -5A connector is intended for making multiple connections, or for terminating tie cables in satellite closets. Alternate groups of five are marked in black for ease of pair identification.
- 2.15 ***QCBIX7A Key Apparatus Connector*** (Table 2-A) has 3 pairs of clips bridged in groups of seven and 2 pairs of clips bridged in groups of two. The -7A connector accommodates the wiring from one line of key equipment (provides two appearances of T R and B RC and seven appearances of T1 R1, A A1 and LG L leads). The connector is marked to indicate the two and seven pair groupings.
- 2.16 ***QCBIX9A Diode Connector*** (Table 2-A) occupies a pair of connector positions in the BIX mount or the mount assembly. The diode connector is made up of a special connector, and a QCBIX5A connector fastened together. On the special connector, the Tip clips are internally strapped in groups of three. The diode connector has 24 diodes factory-wired in eight groups of three diodes each. Groups of diodes can be field-strapped together to increase the number of lines connected to any common ringer. The common ringers and ringing leads are field-connected to the QCBIX5A connector. The diode connector comes equipped with a designation strip and a preprinted label.

Table 2-A
BIX Connectors

PRODUCT CODE	DESCRIPTION	TERMINATING CAPACITY	CLIP ARRANGEMENT
QCBIX1A	Distribution	25-pair	111----111
QCBIX2A	Bridging	Twelve 2-pair and one pair	2222221222222
QCBIX5A	Multiplying	Five 5-pair	5 5 5 5 5
QCBIX7A	Key Apparatus	Two 2-pair and three 7-pair	2 7 7 7 2
QCBIX9A	Diode	Eight ringer circuits	Special

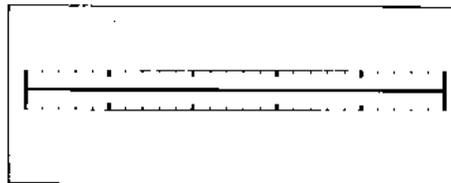
- 2.17 On all BIX connectors, the wire slots on the front and back provide wire strain relief as well as a means of securing the pairs before being terminated. The pointed projections along the front and back edge of the connector act as pair splitters for the insertion of the cable pairs into the wire strain relief slots. The splitters also identify the center of each pair (Tip to the left, Ring to the right). The slots at each end of the connector (top and bottom) are provided for cable ties for securing the cable pairs to the connector.
- 2.18 **Cable Tie.** The cable tie is a plastic self-clinching tie measuring 89 by 2.4 by 0.8 mm (3-1/2 by 3/32 by 1/32 inches). The cable tie is not provided as part of the connector.
- 2.19 **QSBIX20A Designation Strip (Fig. 2-7)** is a plastic strip which is held in place by the plastic snaps on the fanning strips. The top and bottom ridges on the designation strip are provided for the proper alignment of the designation label. The designation strip is made of fire-retardant plastic, and measures 168 by 19 by 5 mm (6-5/8 by 3/4 by 3/16 inches).

Fig. 2-7
QSBIX20A Designation Strip



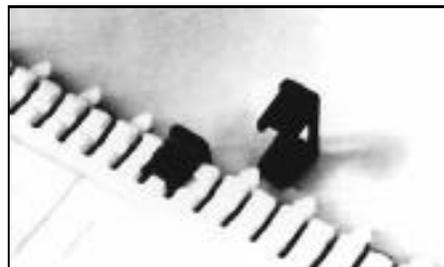
- 2.20 **Designation Labels** (Fig. 2-8). BIX designation labels are color-coded and are available for standard and special wiring arrangements. The designation label has an adhesive backing for attachment to the designation strip. Designation labels can be marked with pen or pencil.

Fig. 2-8
Typical BIX Designation Label



- 2.21 **QGBIX23A Special Service Guard** (Fig. 2-9) is of red plastic and covers one pair position. The guard protects special circuits by preventing wires or tools from entering the pair slots of the connector.

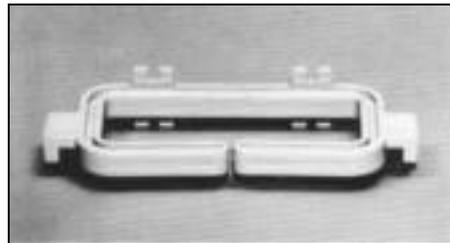
Fig. 2-9
QGBIX23A Special Service Guard



631-070

- 2.22 **QRBIX19A Distribution Ring (Fig. 2-10)** attaches to the retainers at the top and bottom of the fanning strip. The distribution ring is used for the vertical and horizontal jumper channels, and can also be used for cable distribution. Distribution rings are used during installation to ensure the correct alignment and spacing of the mounts. The distribution ring is made of fire-retardant plastic and measures 171 by 76 by 13 mm (6-3/4 by 3 by 1/2 inches). The distribution ring has screw-slots for additional support when the ring is not supported at each end by a mount, or where double distribution rings are required for the horizontal jumper channel.

Fig. 2-10
QRBIX19A Distribution Ring

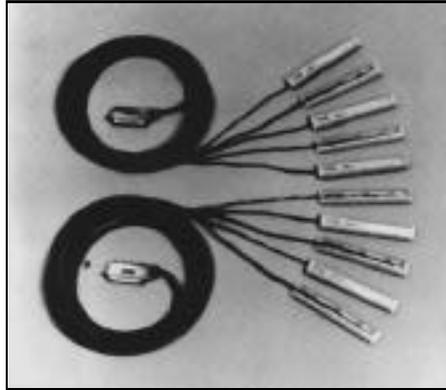


631-071

: CONNECTORIZED KEY SYSTEM ASSEMBLIES

- 2.23 **Connectorized Harness (Fig. 2-11).** The QHBIX12A and B connectorized harnesses are used for terminating key system apparatus leads in the red field. Each harness consists of five QCBIX7A connectors prewired on a 6.1 m (20 ft) stub cable to a 25-pair miniature ribbon connector. Both harnesses are required to fill one mount: the QHBIX12A for the upper position (with connectors numbered 1 through 5) and the QHBIX12B for the lower position (with connectors numbered 6 through 10) Each connectorized harness accommodates one 25-pair cable from a key telephone equipment panel.

Fig. 2-11
: QHBIX12A or B Connectorized Assembly Harness



631-072

MISCELLANEOUS HARDWARE

- 2.24** *QTBIX17A Test Probe (Fig. 2-12)* attaches to any BIX connector to access a single pair. The two spring-pressure contacts on the test probe engage the clips of the connector to provide electrical continuity. When the test probe is in use and the red side is to the right, the red lead is connected to the Ring, and the black lead is connected to the Tip of the pair. The metal lugs on the top and bottom of the probe are for direct testing of individual conductors. The alligator clips are for connection to various types of test set. The test probe is made of moulded fire-retardant plastic and measures 45 by 19 by 6 mm (1-3/4 by 3/4 by 1/4 inches).

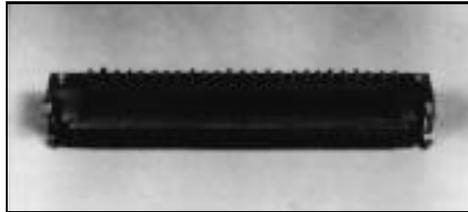
Fig. 2-12
QTBIX17A Test Probe



631-073

- 2.25 ***QTBIX22A Test Connector (Fig. 2-13)*** attaches to any BIX connector to access all 25-pair. The fifty spring-pressure contacts on the test connector engage the clips of the BIX connector. The test connector is held in place in the mount by spring clips which attach to the fanning strips of the mount.
- 2.26 With the test connector in place, the top row of exposed contacts are for direct testing of the Tip appearances, and the bottom row are for the Ring appearances. The exposed contacts are marked in 5-pair groups for ease of pair identification. The test connector is made of fire-retardant plastic, and measures 188 by 21.6 by 45.7mm (7.4 by 0.85 by 1.8 inches).

Fig. 2-13
QTBIX22A Test Connector



631-074

- 2.27 ***QTBIX21A Test Shoe (Fig. 2-14)*** is similar to the QTBIX22A test connector except that the rear test contacts have a protective cover and are prewired to a 3 meter (10 foot) cable with a 25-pair Cinch-Jones connector. The test shoe is intended for use in conjunction with automatic pair identification test sets.
- 2.28 The test shoe secures to the BIX connector by spring clips which attach to the fanning strips of the mount. The test shoe is made of fire-retardant plastic and measures 188 by 25.4 by 60.9 mm (7.4 by 1.0 by 2.4 inches).

Fig. 2-14
QTBI21A Test Shoe



631-075

2.29 *QTBI16A Connection Tool* (Fig. 2-15) is designed for use with Bix connectors only. The tool has two functions:

- to insert the wire into connector, and cut off the excess wire, or
- to insert the wire into the connector without cutting the wire.

2.30 A button in the handle of the tool selects either the CUT or the NO CUT position (insert only). The metal blade projecting from the handle is equipped with a scissor-action. (the black blade indicates the cutting side of the tool). The connection tool measures 152 by 38 by 25 mm (6 by 1-1/2 by 1 inches).

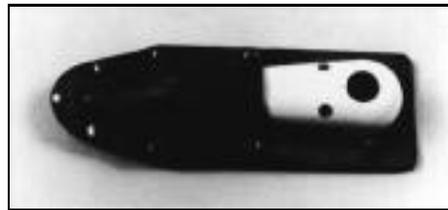
Fig. 2-15
QTBI16A Connection Tool



631-076

- 2.31 **Leather Pouch (Fig. 2-16).** The leather pouch provides protection for the QTBI16A connection tool. The pouch attaches to the craftsman's belt.

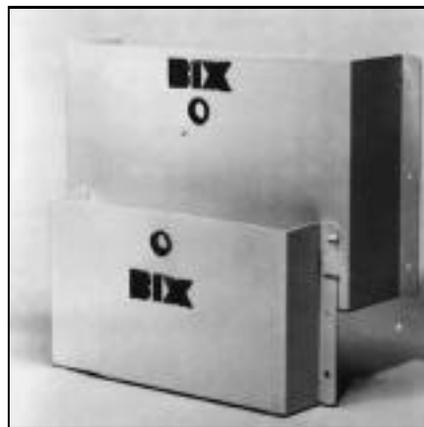
Fig. 2-16
Leather Pouch



631-077

- : 2.32 **QDY1A and QDY2A Wire Dispensers (Fig. 2-17).** Two types of wire dispenser are used with the BIX system. The larger dispenser, QDY1A, stores 3-pair cross-connecting wire, and the smaller dispenser, QDY2A, stores single pair cross connecting wire. Work sheets may be stored in the dispensers also. The two dispensers are usually fitted together and wall-mounted as one assembly, but either can be used independently. The dispensers are usually mounted at a convenient height and location using the appropriate fasteners. The QDY1A dispenser measures 343 by 203 by 76 mm (13-1/2 by 8 by 3 inches), and the QDY2A measures 286 by 152 by 51 mm (11-1/2 by 6 by 2 inches).

Fig. 2-17
: QDY1A and QDY2A Wire Dispensers



Product Identification

ITEM	DESCRIPTION	PART NUMBER
1	Designation Labels, Standard	
(a)	Blanks:	



: • Green	P0588400
• Yellow	P0588401
• Red	P0588402
• Blue	P0588403
• Silver	P0588404
: • Purple	P0588405
• White	P0588406

ITEM	DESCRIPTION	PART NUMBER
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(b) Cable Blanks



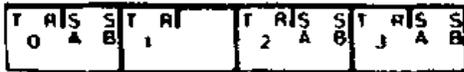
- Red P0588418
- Green P0588415
- Blue P0588416

ITEM	DESCRIPTION	PART NUMBER
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2 (b)
Cont.d

Trunk Designations

SL-1 Sets



• WHITE

PO587229

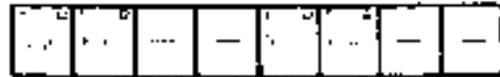
CO/FX/WATS TRUNK



• GREEN

PO587230

LOOP SIGNAL TRUNK



• RED

PO587231

E & M DX SIGNAL AND
PAGING TRUNK



• YELLOW

PO587233

ITEM	DESCRIPTION	PART NUMBER
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2 (b)
Cont.d

REC. TEL DKT TRUNK APLQ



• ORANGE

P0587232

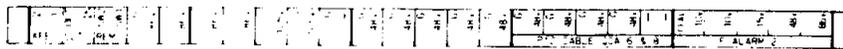
REC. ANN. TRUNK



• PURPLE

P0587234

Miscellaneous
P10 CABLE FROM QCA6
AND QCA8 CABINETS



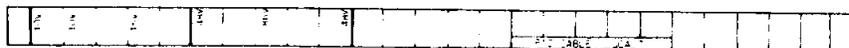
• YELLOW

P0588425

ITEM	DESCRIPTION	PART NUMBER
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2 (b)
Cont.d

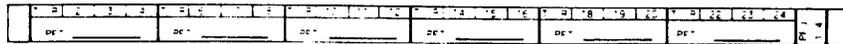
P10 CABLES FROM QCA7
CABINETS



• YELLOW

P0588426

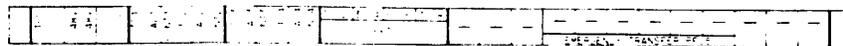
EMERGENCY TRANSFER CABLES
PFJ1-PFJ4



• YELLOW

P0588427

EMERGENCY TRANSFER CABLES PFJ5



• YELLOW

P0588428

ITEM	DESCRIPTION	PART NUMBER
3	Designation Labels, Private Branch Exchange (PBX)	
(a)	SG-1 (Pulse 80) • WHITE	P0588495
(b)	SG-1A (Pulse 120) •WHITE	P0588496
(c)	SE-2 CABINET No. 1 • WHITE	P0588497
	CABINET No. 2 • WHITE	P0588498
	CABINET No. 3 • WHITE	P0588499

Note: each PO number consists of a complete set of PBX designation labels.

ITEM	DESCRIPTION	PRODUCT CODE
4	Connector, Distribution	QCBIX1A
5	Connector, Bridging	QCBIX2A
6	Connector, Multipling	QCBIX5A
7	Connector, Key Apparatus	QCBIX7A
8	Connector, Diode	QCBIX9A
9	Cover	QCABIX28A
10	Mount Assembly	QCABIX32A
11	Mount*	QMBIX10A
12	: Mount Assembly*	QMBIX10B
13	Mount Assembly	QMBIX10C
14	Mount	QMBIX31A
15	Mount	QMBIX31B
16	: Harness, Connectorized Assy (Upper)	QHBIX12A
17	: Harness, Connectorized Assy (Lower)	QHBIX12B
18	Connection Tool	QTBIX16A
19	Test Probe	QTBIX17A
20	Test Shoe, 25 pair	QTBIX21A
21	Test Connector, 25 pair	QTBIX22A
22	: Wire Dispenser, Large*	QDY1A
23	: Wire Dispenser, Small*	QDY2A
24	Distribution Ring*	QRBIX19A
25	Designation Strip	QSBIX20A
26	Guard, Special Service	QGBIX23A
27	Tool Pouch	C0054642
28	: Cable Ties	C0039222

* Mounting screws are not supplied with these items.

BIX*

In-Building Cross-Connect System Material Description

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Information subject to change without notice.

Standard

86 01 17

Printed in Canada.

