25-PAIR UNDERCARPET CABLE
INSTALLATION
INSIDE WIRE CABLE
CUSTOMER EQUIPMENT

1. GENERAL

1.01 This section covers 25-pair undercarpet telephone cable manufactured by the Brand-Rex Company, as described in their practice, Specification BDRX 461-200-207.

1.02 Whenever this section is reissued, the reason(s) for reissue will appear in this paragraph.

1.03 Descriptive information and installation methods for 25-pair undercarpet cable are contained in the attached reprint of the practice prepared by Brand-Rex.

2. LIMITATIONS

2.01 Paragraphs 2.02, 6.01.07, and 9.01.01(i) of the attached Brand-Rex practice refer to the use of the overlap fold. This fold is illustrated in Fig. 4 and Fig. 8 of the practice. This fold is not recommended unless alternative methods of cable storage are not possible.

2.02 Paragraph 4.01(a) of the Brand-Rex practice and the table shown on Page 4 describe the ordering information for 25-pair undercarpet cable in 5-foot incremental lengths up to 100 feet. Lengths greater than 35 feet are not recommended for use in the Bell System.

SPECIFICATION BDRX-461-200-207
April, 1981

INSTALLATION METHODS
UNDERCARPET TELEPHONE CABLE
TELETAPE™ (UTC)

BRAND-REX COMPANY
A PART OF Akzona INC.
TELECOMMUNICATIONS DIVISION
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BRAND REX **BRAND-REX COMPANY**

A PART OF Akzona INC.

TELETAPE™ (UTC) UNDERCARPET TELEPHONE CABLE INSTALLATION METHODS

1. GENERAL

1.01 This practice describes the methods for installation of Brand-Rex Teletape™ Flat Undercarpet Telephone Cable (UTC).

1.02 UTC cable is a flat, 25-pair coplanar cable. Its 26 AWG solid round copper conductors can be terminated to standard 50-pin miniature ribbon connectors using industry available tools. The cable measures approximately 2.25 inches wide by .038 inches thick and is designed to be installed so that a single layer of carpet conceals it from view.

1.03 Preconnectorized UTC cable is available in standard lengths of five foot increments.

1.04 Standard 25-pair 50-pin miniature ribbon connectors are preterminated to the prepared ends of UTC.

2. APPLICATION

2.01 UTC was designed primarily for use under carpet as an extension of inside distribution cables. UTC 25P26-B cable will serve one, six or ten-button keysets. Call directors can be served using multiples of up to five 25-pair UTC cables at a single station.

2.02 The cable should be installed with approximately three to five feet of extra length in place to facilitate later relocation, if necessary. UTC provides excellent crosstalk control, and it can therefore be folded back upon its own length where necessary.

3. INSTALLATION SCHEDULING

3.01 UTC should be scheduled to be installed after other construction activity is complete to ensure protection of the installed cable from damage, such as penetration by fasteners, cutting tools, chemicals and solvents, or heavy vehicular traffic. Ideally, UTC should be installed immediately prior to installation of carpet tile.

3.02 If flat power cable is to be installed in the same floor area with UTC, it **must be** installed prior to UTC.

3.03 The final telephone location should be specified by tenant and floor locations marked before installation of UTC begins.

3.04 THE FINAL FLOOR SURFACE MUST BE FREE OF HOLES AND CLEAR OF GRIT OR SHARP EDGES THAT COULD PENETRATE THE CABLE. ROUGH CONCRETE MUST BE MADE FLOAT SMOOTH IN AREAS WHERE INSTALLATION IS TO TAKE PLACE. INSTALLATION CANNOT PROCEED UNTIL THE FLOOR IS PROPERLY PREPARED.

3.04.01 Where dust inhibits adhesion of cable cover tape, a tape primer will be required during installation.

3.04.02 If concrete is not sealed, undertaping will be required in that installation.

3.04.03 Sealant products should be recommended by the carpet contractor and should be of the type that adequately seals concrete floors for UTC installation.

3.05 Carpet squares, tiles, modules, etc., normally should be used to enhance installation and ease of relocation of telephone stations at some later date.

4. APPARATUS

4.01 This section describes and identifies the components used in UTC installation.

(a) Brand-Rex Teletape™ UTC 25P26-B Connectorized cable is a 25-pair flat cable preterminated with industry standard 50-pin miniature ribbon connectors. It is furnished in lengths of five feet and longer, in increments of five feet. Jumper is **Brand-Rex Part No. UTC-25P26-B-5...to UTC-25P26-B-100. Refer to Section 5.01 below** for part numbers of the different cable lengths.

(b) Cable cover tape is 10-mil PVC tape, five inches wide, and is used as a protective material under UTC, where required in **Section 7.01,** and **over UTC in all cases.** It is obtainable in 100 foot rolls with releasable backing paper to protect the adhesive. **Brand-Rex Part No. TPVC-5.**

(c) Duct tape is obtainable in 60 yard rolls and is used to anchor UTC at required intervals. **Brand-Rex part No. TDC-2.**

(d) Armored tape is a metallic strip used under cable where rough floor surfaces might penetrate 10 mil PVC tape. It is obtainable in 100 foot rolls. **Brand-Rex Part No. TA-3.**

(e) The following floor monuments may be purchased from Brand-Rex Co.:

(1) Single Position Low Profile Kit, Brand-Rex Part No. BR-304.

(2) Multi-position, Two to Five Cables ("Call Director" type) **Hi Profile Kit Brand-Rex Part No. BR-525.**

5. ORDERING MATERIALS

5.01 UTC 25P26-B Cables

Order one cable for each plug on the telephone line cord. Determine length of required cable in accordance with procedure described in **Section 6.01.04. Also refer to Section 5.02 and 5.03 for estimating other materials.**

5.02 PVC Tape, Part No. TPVC-5

Order PVC 5″ cover tape equivalent to total footage of cable lengths required.

NORMAL
PVC LENGTH = CABLE LENGTH

Double this amount if undertaping will be required.

UNDERTAPING REQUIRED
PVC LENGTH = 2 x CABLE LENGTH

5.03 Duct Tape, Part No. TDC-2

Order approximately one foot per five feet of cable, adding more for installations requiring additional anchoring.

$$\frac{\text{CABLE LENGTHS}}{\text{5 FEET}} = \text{DUCT TAPE LENGTH}$$

5.04 Armored Tape, Part No. TA-3.

Order armored tape where rough floor surfaces require more protection than provided by 10 mil PVC tape.

BRAND-REX PART NUMBERS AND JUMPER LENGTHS

REQUIRED JUMPER LENGTH	ADD 3 FT. SLACK	NEXT LENGTH (5 FT. INCREMENTS)	B-REX PART NO. MALE-FEMALE CONNECTIONS
1-2	4-5	5	UTC-25P26-B-5
2-7	5-10	10	UTC-25P26-B-10
7-12	10-15	15	UTC-25P26-B-15
12-17	15-20	20	UTC-25P26-B-20
17-22	20-25	25	UTC-25P26-B-25
22-27	25-30	30	UTC-25P26-B-30
27-32	30-35	35	UTC-25P26-B-35
32-37	35-40	40	UTC-25P26-B-40
37-42	40-45	45	UTC-25P26-B-45
42-47	45-50	50	UTC-25P26-B-50
47-52	50-55	55	UTC-25P26-B-55
52-57	55-60	60	UTC-25P26-B-60
57-62	60-65	65	UTC-25P26-B-65
62-67	65-70	70	UTC-25P26-B-70
67-72	70-75	75	UTC-25P26-B-75
72-77	75-80	80	UTC-25P26-B-80
77-82	80-85	85	UTC-25P26-B-85
82-87	85-90	90	UTC-25P26-B-90
87-92	90-95	95	UTC-25P26-B-95
92-97	95-100	100	UTC-25P26-B-100

Standard jumpers have a male 25-pair miniature ribbon connector on one end and a female 25-pair miniature ribbon connector on the other end. Jumpers can also be furnished with male-male or female-female connectors on special request.

6. CABLE LAYOUT CONSIDERATIONS

6.01 This section describes actions required prior to installation of UTC.

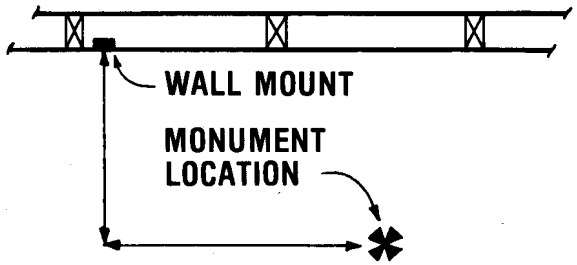
6.01.01 Locate connectorized round cable at baseboard or column.

6.01.02 Locate site for monument base plate installation and mark if not previously done.

6.01.03 CAUTION: ENSURE THAT FLOOR IS CLEAN OF ALL DEBRIS AND DUST. Adhesive backing on vinyl cable cover tape **will not adhere** to floor if dust is present.

6.01.04 To measure length of UTC cable required, proceed as follows:

Measure perpendicular and parallel to walls, with right angles at corners. DO NOT measure in a direct line from round cable access to each floor plate. Ensure that final cable length allows for at least three feet of extra material at each telephone station for future relocation requirements. Round off cable lengths to next higher five-foot increment.



- **Measure cable length perpendicular and parallel to walls.**
- **Add 3 feet to allow for minor relocations.**
- **Slack is stored with "Z" folds or "U" folds near monument.**

Figure 1 — Measuring Cable Lengths

6.01.05 Plan for U folds where practicable.

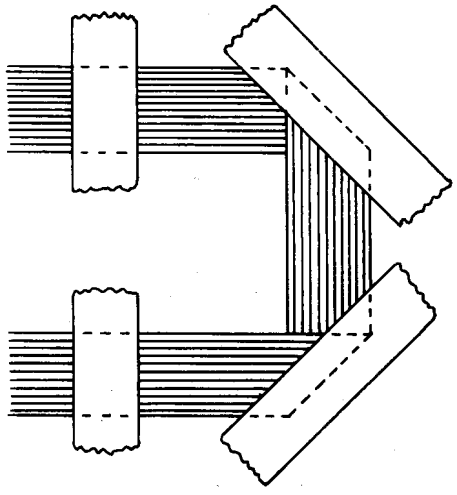


Figure 2 — U Fold

6.01.06 Plan for Z folds near obstructions.

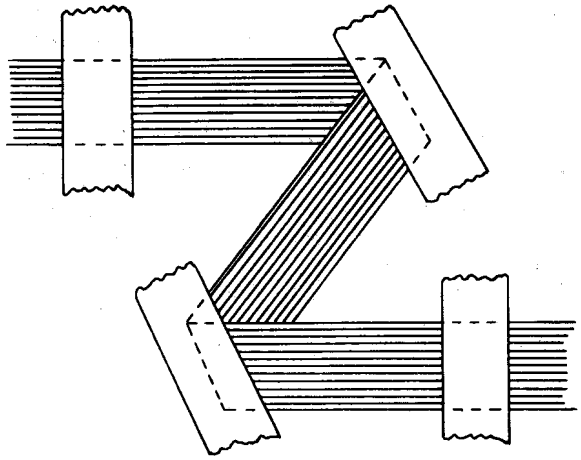


Figure 3 — Z Fold

6.01.07 When it is necessary to take up slack, UTC cable may be run through the base plate. Now fold the cable back over itself and return to the base plate.

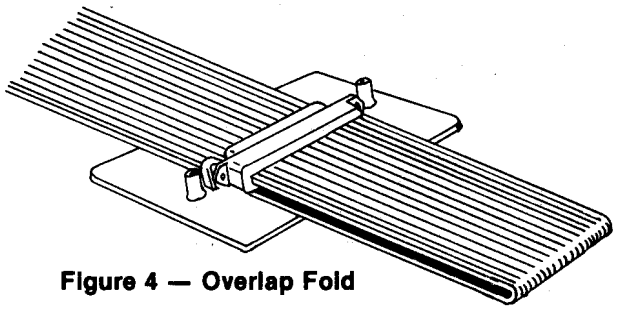


Figure 4 — Overlap Fold

6.01.08 Use combinations of U, Z, and overlap folds as appropriate to store excess cable near the monument.

6.01.09 In small zoned areas, cable runs are made using right angle turns with some extra cable stored at each station location.

6.01.10 Where multiple UTC cables follow the same path, cable runs should be made side-by-side and **not stacked** in order to minimize cable height under carpet.

6.01.11 It is acceptable to run one UTC cable across another.

6.02 CROSSING FLAT UNDERCARPET POWER CABLE

6.02.01 It is acceptable to cross properly installed flat undercarpet power cable that has a sheet metal shield in place. Always cross over, never under.

6.02.02 Always lay UTC over flat power cable.

6.02.03 Telephone UTC cable should avoid tap, splice, and thicker areas of undercarpet flat power cable to minimize raised areas in carpet.

7. PREPARATION

7.01 Five-inch vinyl tape will be used as a protective layer under UTC if any of the following conditions prevail:

(a) Unsealed concrete.

(b) Sealed concrete that is not float smooth.

(c) Where operating company practices dictate.

7.02 CAUTION: Rough concrete may penetrate undertape. If concrete is extremely rough, smoothing is preferred. If smoothing is prohibitive, the customer may choose to use armored tape underneath the cable instead of the 10 mil PVC tape.

8. TOOLS

8.01 Installation of UTC requires the following standard tools:

(a) Screwdriver.

(b) Scissors or shears.

(c) Tape measure.

9. INSTALLATION

A. INSTALLATION OF SINGLE UTC CABLE

9.01 In buildings with zone distribution facilities in walls or columns, UTC is used as a connecting cord from a connectorized inside distribution cable end in a wall or column at any point within the zone. The connector will ordinarily be brought to the location by traditional methods and can be found behind a removable baseboard section, in a column box, or at a point above the floor.

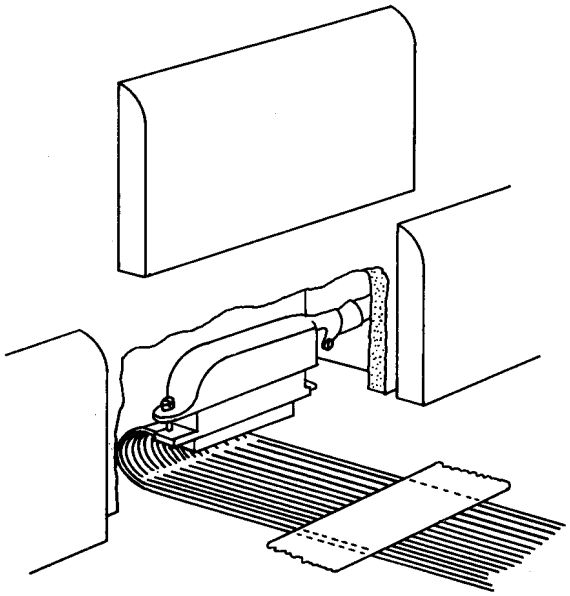


Figure 5 — Access Point

9.01.01 Install single UTC Teletape™ Cable as follows:

(a) Mark monument locations on floor as indicated on floor plan, and fasten base plate to floor.

(b) Lay underlayer of PVC tape along route UTC will follow where required by **Section 7.01.**

(c) Insert flat cable 50-pin miniature ribbon connector into round cable connector at access point. Tighten connector screws.

(d) Anchor connector end of UTC with duct tape at a point 6″ to 18″ from access point.

(e) Unroll UTC cable and make cable layout, using hand folds at corners but not crimping folds.

(f) Use duct tape to anchor UTC to floor during layout. Use 8″ lengths of duct tape at five foot intervals along UTC.

(g) CAUTION: MAKE SURE CABLE IS PULLED TIGHT DURING ABOVE STEP TO PREVENT BULGES AND WRINKLES.

(h) Refer to Step 9.01(m) before proceeding.

(i) Excess cable should be accumulated in the area of the monument, NOT at the wall or column access point.

(j) Use up excess cable lengths by over-running the monument and return with two 90 degree hand folds U-fold. If the bracket is not properly aligned with the cable run, the last fold may be more or less than 90 degrees, as required.

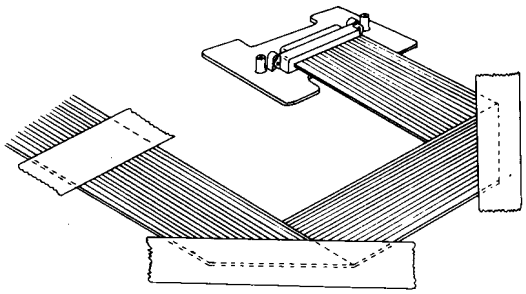


Figure 6 — Cable Storage with U Fold

(k) Alternately when space beyond the bracket is not available use the Z-storage fold.

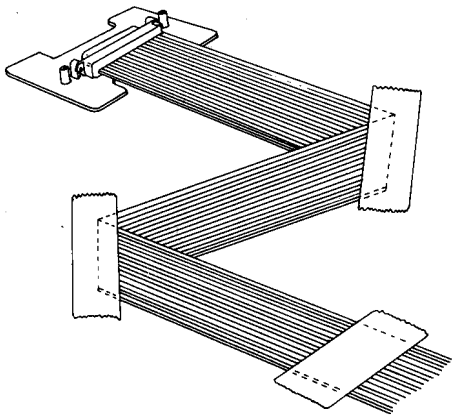


Figure 7 — Cable Storage with Z Fold

(l) Refer to **Section 6.01.07** on Overlap fold, as required.

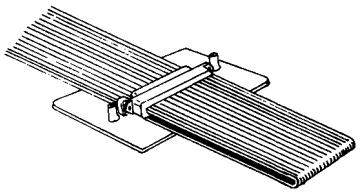


Figure 8 — Cable Storage with Overlap Fold

(m) Connect the monument end of the cable prior to making final fold(s). Use attachment screws provided.

(n) Crimp all corners between two pieces of **clean** wood by stepping firmly on the wood to create crimp.

(o) Tape down all corners diagonally and 3 inches on either side of corner fold.

(p) Cover the complete UTC cable with an overlayer of PVC cable cover tape (5″) to prevent dirt and grit from migrating under UTC.

(q) The cover tape should be smoothed down as it is installed,to avoid wrinkles and bulges.

(r) IF ANY SIGNIFICANT DELAY IS ANTICIPATED BETWEEN THE TIME OF INSTALLATION OF UTC AND THE TIME OF INSTALLATION OF FLOOR COVERING, EXTRA PROTECTION SHOULD BE PROVIDED FOR THE UTC IN THE FORM OF AN OVERLAYER OF CORRUGATED CARDBOARD, OR OTHER SUITABLE PROTECTION.

(s) Install cutting shield cover on the monument base plate to protect the connector and to serve as a template for the carpet installer.

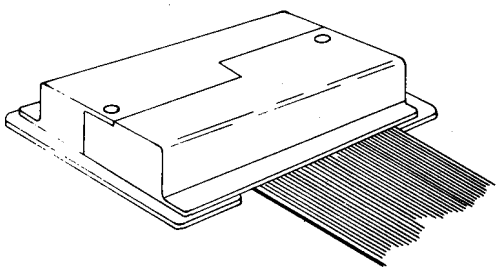


Figure 9 — Cutting Shield Cover

(t) The carpet installer should be advised to cut around the cutting shield with a C-cut as illustrated.

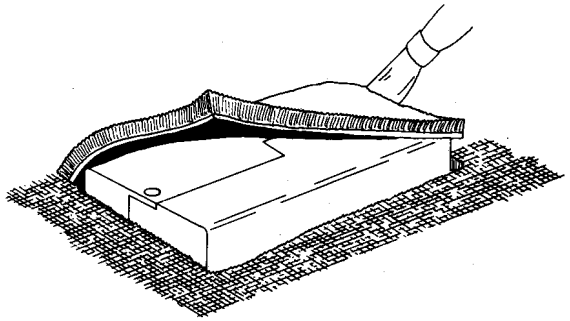


Figure 10 — C-cut

(u) Telephone company personnel will replace the cutting shield cover with a decorative cover following carpet installation.

B. INSTALLATION OF CALL DIRECTORS

9.02 PLANNING CALL DIRECTOR LAYOUTS

9.02.01 Call director layouts must be planned so that all connectors are aligned at a monument in proper orientation. Combinations of folds can be used to align connectors.

9.03 INSTALLATION

9.03.01 For best results, use the following sequence:

(a) Mark monument locations on floor as indicated on floor plan, and temporarily fasten base plate to floor with duct tape.

(b) Place center connector and make hand fold, anchoring corner fold temporarily with duct tape **but do not crimp.** Center flat cable should exit the monument perpendicular to the connector axis. One 180-degree fold and one 90-degree fold are required to permit perpendicular exiting of center cable.

NOTE: Step 1 not necessary with transverse cable connector.

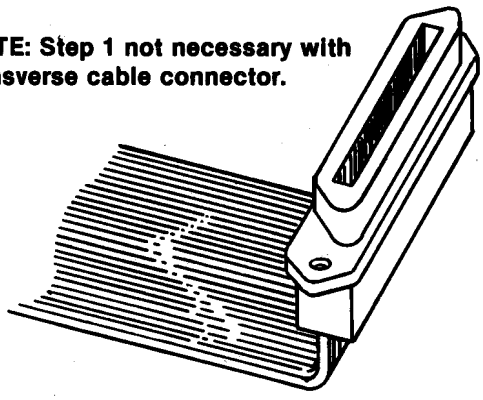


Figure 11 — Step One in Making Folds

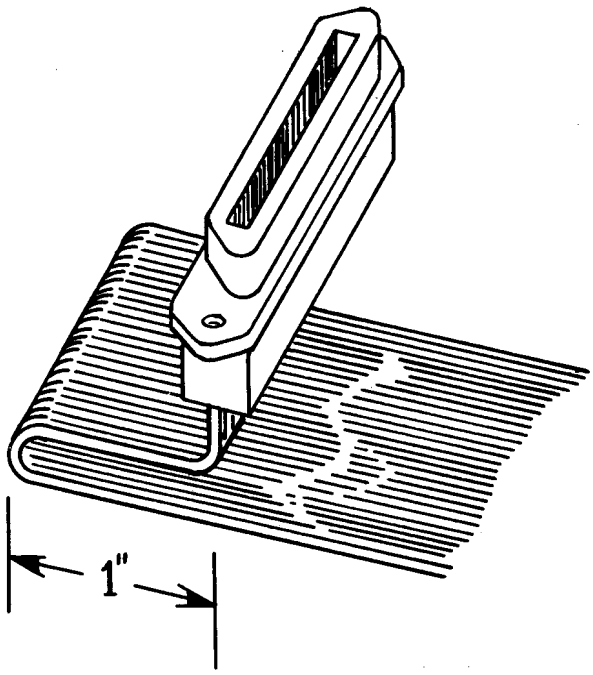


Figure 12 — Step Two in Making Folds

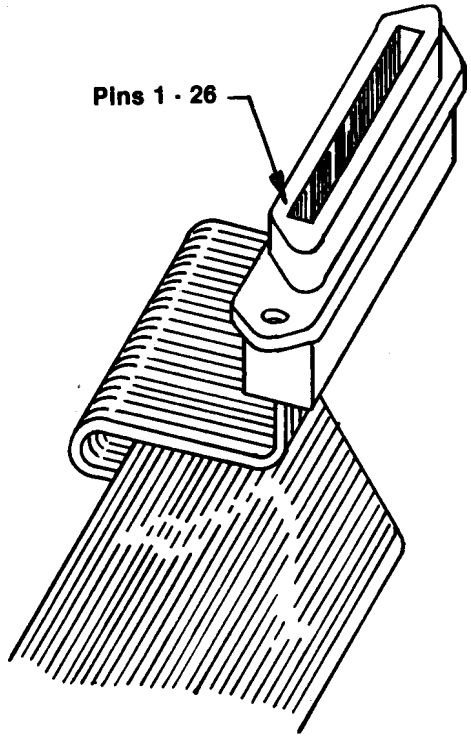


Figure 13 — Step Three in Making Folds

(c) UTC Cables connected to adjacent connectors must exit from corresponding side of monument. NOTE: No more than two cables should exit any particular side of the monument.

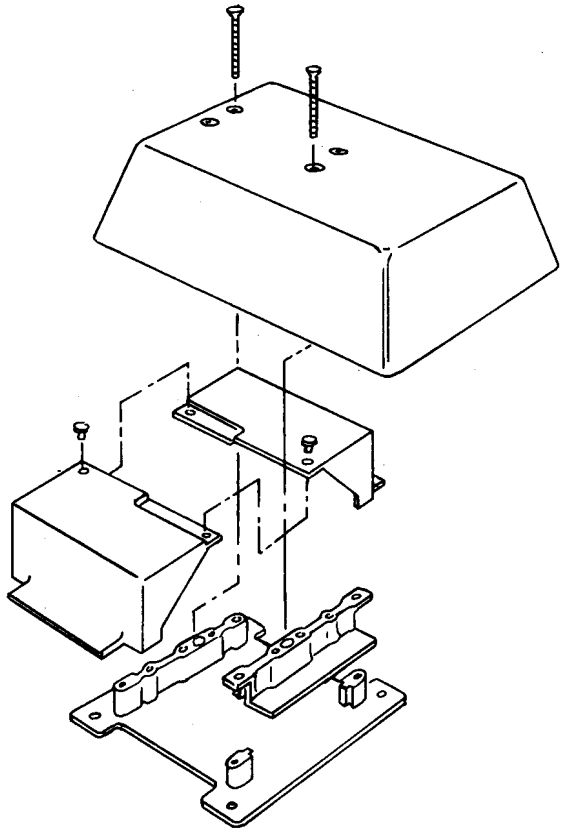


Figure 14 — BR525 Hi Profile Kit

(d) Attachment of center cable to connector support bracket is accomplished with one special 4-40 hex head screw. Then attach connector to other side of base bracket with another special 4-40 hex head standoff screw, assembling the bracket to the base.

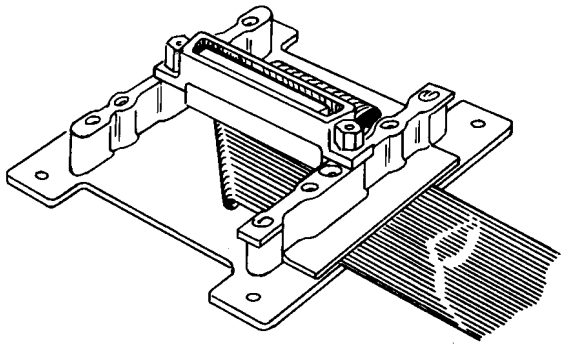


Figure 15 — Center Cable to Base Plate

(e) Place second cable connector adjacent to center connector, aligning properly. Attach the UTC cable connector to base with one special 4-40 hex head standoff screw on the numbered side of the base, and one 4-40 pan head screw on the opposite end of the connector. Make 90-degree hand fold at corner close to the connector and within the edge of the monument outline, but **do not crimp.** Anchor temporarily with duct tape.

(f) Place third cable connector on same side as the second and aligned with the first two. Attach the UTC cable connector to base with one special 4-40 hex head standoff screw on the numbered side of the base, and one 4-40 pan head screw on the opposite end of the connector.
Make temporary, hand corner fold close to the connector and within the edge of the floor monument outline. Do not crimp, but anchor temporarily with duct tape.

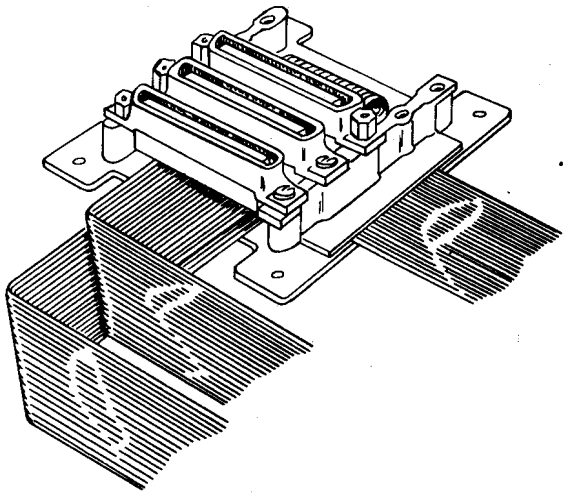
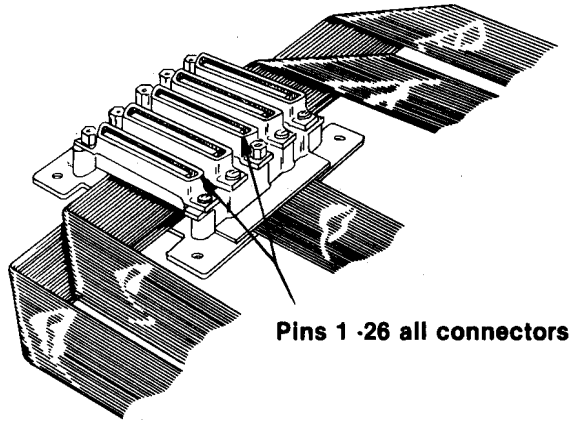


Figure 16 — Second and Third Cables in place

(g) Place fourth jumper set so that cable connector aligns on the opposite side of the center connector from cable number 3. Attach the UTC connector to base plate with one special 4-40 hex head standoff screw on the numbered side of the base, and one 4-40 pan head screw on the opposite end of the connector.

Place cable and fold corners so that path of cable is clear of first three. Anchor temporarily with duct tape.

(h) Place fifth cable to the outside of fourth cable so that its path is clear of other four. Attach the UTC connector to base plate with one special 4-40 hex head standoff screw on the numbered side of the base, and one 4-40 pan head screw on the opposite end of the connector.



Pins 1 -26 all connectors

Figure 17 — All Cables in place

(i) Check all cable jumper sets for connector alignment and placement of corner folds. **USE EXTRA CARE IN THIS STEP TO AVOID REARRANGING CABLES.**

(j) To confine area of folded UTC, make no folds farther than 18″ from call director floor monument.

(k) To complete installation use steps indicated in **Sections 9.01.01 (m) through 9.01.01 (t) above.**

10. CRIMPING AND RE-CRIMPING PROCEDURE

10.01 To crimp folds at corners and at Z, or U, overlap folds, place each fold between two pieces of **clean** wood and step firmly on the wood to create crimp. Standard sheetmetal crimping pliers may be used if available.

10.02 To un-crimp a crimped fold, open the fold and flatten using two pieces of wood in manner similar to **Step 10.01 above.**

10.03 To recrimp near a fold that has been straightened, move the point of the fold **a minimum of 3 inches** away from the original fold. Crimp at this new location.

10.04 Use care in layout and use hand folds at corners until layout is established. It is good practice to avoid recrimping. **NEVER SHOULD THE UTC CABLE BE FOLDED AND CRIMPED TWICE AT THE SAME SPOT.**

10.05 To complete installation, proceed as follows:

(a) Cover UTC with an overlayer of PVC cover tape (5″) to prevent dirt and grit migration under UTC.

(b) Install cutting shield cover on the monument base plate to protect the connectors and to serve as a template for carpet installer. If any significant delay is anticipated between the time of installation of UTC and the time of installation of floor covering, extra protection should be provided for the UTC in the form of corrguated cardboard or other suitable protection.

(c) The telephone installer will replace cutting shield cover with a decorative cover following telephone installation.

11. RELOCATION OF ORIGINAL UTC INSTALLATION

11.01 IF A FLOOR MONUMENT IS TO BE RELOCATED TO WITHIN THE ZONE OF THE EXISTING CABLE, proceed as follows:

(a) Remove decorative cover.

(b) Unplug telephone set.

(c) Remove 50-pin miniature ribbon connector from base plate.

(d) Determine new location for phone and base plate.

(e) Remove base plate from floor.

(f) Have customer remove carpet tiles from the present base plate location, following the course of the existing UTC cable, until sufficient storage folds have been uncovered to allow for relocation of base plate.

(g) Re-install base plate at new location.

(h) Re-install 50-pin miniature ribbon connector to connector support brackets as described in **Section 9.03.01 (d) above.**

(i) Smooth UTC cable in new path to base plate, making hand folds as required.

(j) If un-crimping and recrimping of UTC cable is required, use procedures described in **Section 10 above.**

(k) Have customer re-lay carpet tiles, after relocation and re-installation of floor monument(s) has been completed.

11.02 IF A FLOOR MONUMENT IS TO BE RELOCATED BEYOND THE ZONE OF THE EXISTING CABLE, proceed as follows:

(a) Cut UTC cable at the wall or column access point and remove 50-pin miniature ribbon connector from the round cable connector.

(b) Determine new location for base plate.

(c) Measuring cable length and path as described in **Sections 6.01.04 to 6.01.10 above.**

(d) Have customer remove carpet tile to allow laying of a new UTC cable in new path just determined.

(e) Cut existing UTC cable at the existing base plate and remove 50-pin miniature ribbon connector from the base plate support brackets.

(f) Remove base plate from the floor, and temporarily re-install in new location using duct tape.

(g) Select new length of preconnectorized UTC flat cable as required.

(h) Lay new UTC cable, complete installation as described in **Section 9.01.01 above.**

(i) Have customer re-lay carpet tiles, after relocation and re-installation of floor monument(s) has been completed.

12. INSTALLATIONS ALREADY USING OTHER METHODS OF TELEPHONE CABLE DISTRIBUTION

12.01 In buildings having some partition walls with telephone cabling in those walls, it may be desirable to use UTC cable runs to provide service to some desks or other stations away from those walls. Individual cable ends available at walls may be 'extended' to such stations using UTC.

12.02 If cable is available at a wall or column in a building, and a flat cable run is desired to permit telephone station location away from a wall, a wall box cover may be used to conceal a junction between that cable and a flat UTC cable run.

12.03 In buildings having under floor ducting systems there may be proposed station locations beyond the reach of such ducting system runs, or between suitable accessible duct locations. Alternatively, the cost or inconvenience of opening new duct access holes may be undesirable. In either of these events, it is possible to initiate a UTC cable run from existing or new duct access holes.

12.04 Two installation methods are possible:

12.04.01 If the nearest duct access point is also the location of a station which could be served by a floor fitting, proceed as follows:

(a) Remove, or do not install the underfloor system floor fitting.

(b) Bring to the duct access hole the required number of cables, one for the station at that location, and up to four additional cables.

(c) Install BR-525 base bracket adjacent to the duct access hole, and with the removable connector support side extending ¾" over the edge of the hole.

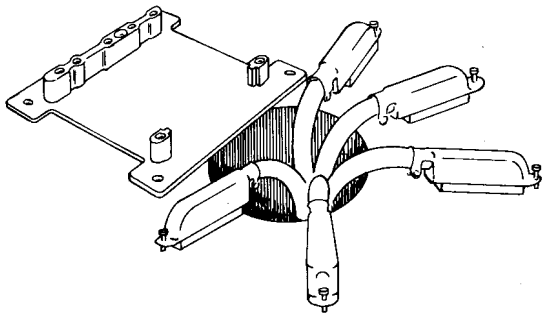


Figure 18 — Base Plate located at Duct Opening

(d) Install the flat UTC cable or cables in the BR-525 bracket as described in **Figure 19.**

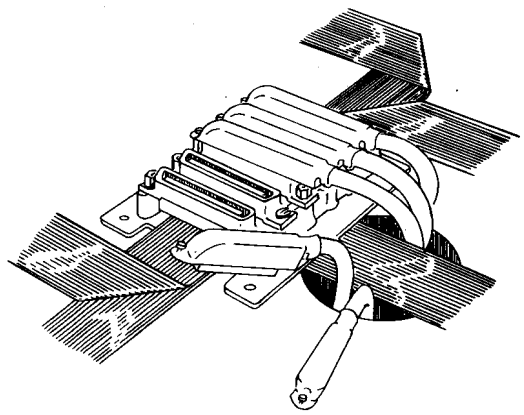


Figure 19 — Cable Connections at Duct Opening

(e) After carpet installation, pull the connector cables from the duct access hole far enough to enable them to be plugged into the UTC cable ends mounted in the BR-525 bracket.

(f) Connect the remaining cable to the station plug mounting cord, and install the rubber grommet on that cord.

(g) Install high profile housing to the base plate. The duct access hole should be within the housing area, and fully concealed.

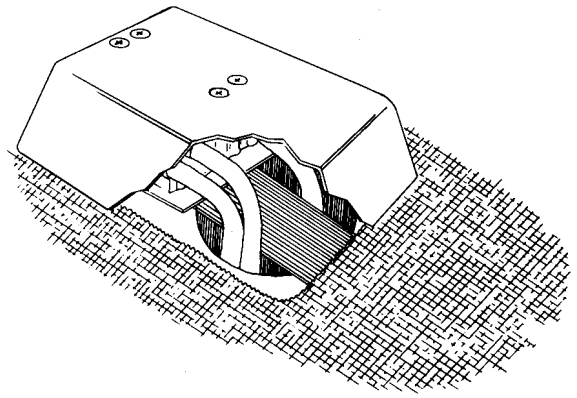


Figure 20 — Hi Profile Cover in place

12.05 ALTERNATE PROCEDURE WHEN A MONUMENT CANNOT BE USED

12.05.01 CAUTION: MOISTURE AND HUMIDITY NORMALLY PRESENT IN DUCT RUNS MAY HAVE AN ADVERSE EFFECT ON THE CONNECTOR JUNCTION. WHERE MOISTURE IS EVIDENT, THIS INSTALLATION IS NOT RECOMMENDED, AND CAUTION IS ADVISED IN ANY EVENT.

12.05.02 If the available duct access point will **not** be the location of a station, and is **not** likely to be concealed under a desk, the access point must be flush rather than covered by a high profile housing. **Refer to Section 12.05.03 (e) below.**

12.05.03 Proceed as follows:

(a) For upper floor installations in a multi-story building, core the concrete to the duct in the conventional way, except use a 4″ core drill.

(b) Tape the UTC cable to the floor, with the male connector end folded down into the hole area.

(c) Connect to the connector cable run from the duct and fasten the attaching screws in the usual manner.

(d) If a second or third run is to be made from the same 4″ duct access hole, repeat, bringing the cables out from different sides of the hole. Use a tape shim under the core cover to provide a space through which the UTC can exit.

(e) Cover the hole with the hole cover plate. Tape it to the floor on all four sides, using the cable cover tape.

(f) Proceed normally with the UTC installation and lay carpet.

12.05.04 For ground level slab floors, or first floor locations over unvented crawl space, the only recommended usage of duct systems is to bring the cables up into a furred column space or up into high profile housings using the BR-525 floor bracket. Such systems in floors on grade are known to be very wet and humid and an unsuitable environment for connector junctions.