



FANTOM FLEX™

FLATWIRE™ CABLE SYSTEM for Undercarpet Wiring

INSTALLATION INSTRUCTIONS FOR 4-AND 5-CONDUCTOR SYSTEM

The Wiremold® FANTOM FLEX System provides high-flexibility undercarpet wiring for branch circuit power distribution in open office areas. FLATWIRE cable connects to wall, baseboard or underfloor wiring systems. Four- and five-conductor FLATWIRE cables . . . together with a complete range of fittings . . . offer a variety of power and communications outlet combinations. Planning and installation are simplified . . . modifications are easily implemented as needs change and expand.

Wiremold Electrical Systems conform to and should be installed and properly grounded in compliance with requirements of the current National Electrical Code or codes administered by local authorities.

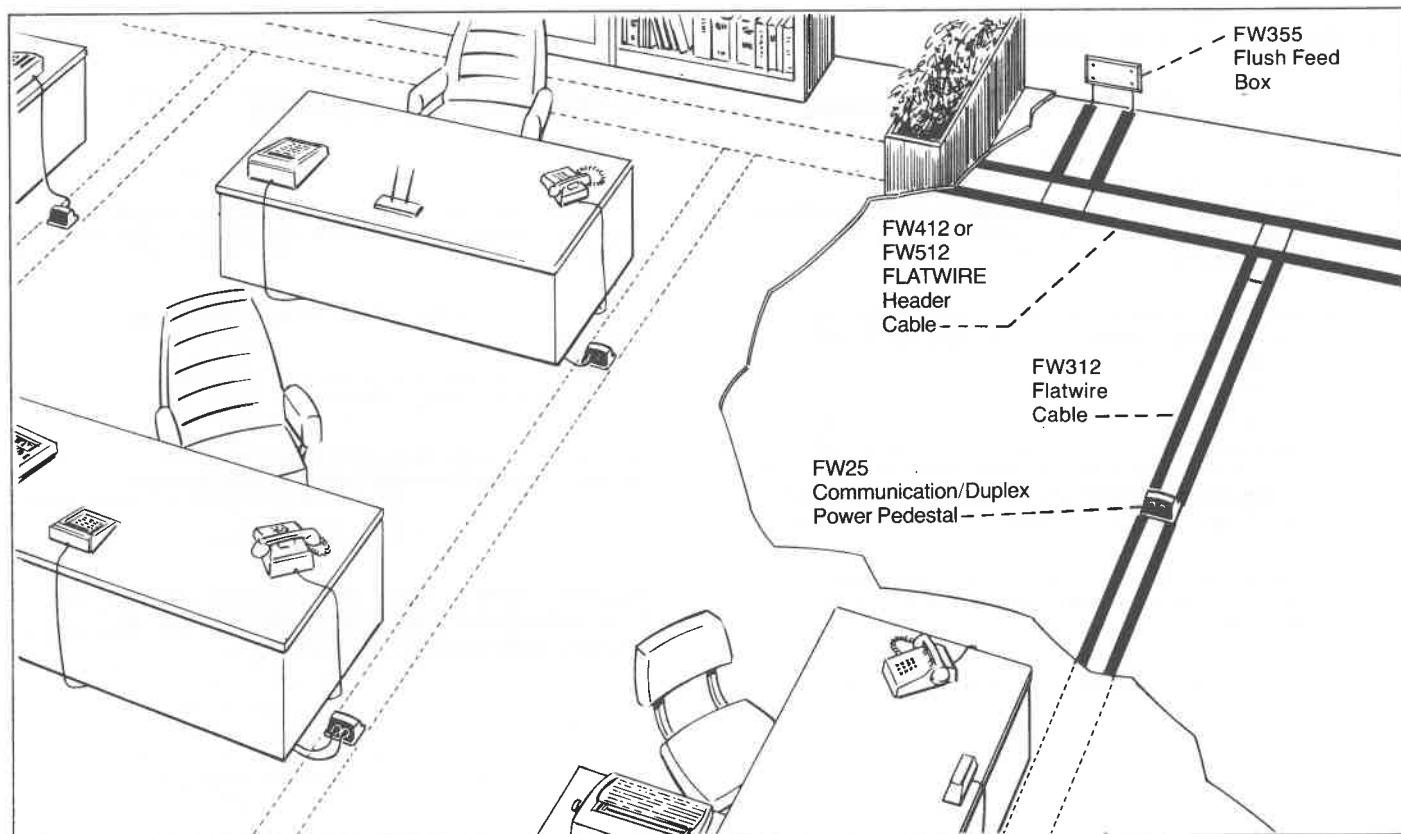
All electrical products may represent a possible shock or fire hazard if misused or improperly installed. Wiremold electrical products are UL listed, made for interior use only and should be installed in conformance with current local and/or the National Electrical Code.

The Wiremold FANTOM FLEX System includes all necessary fittings for transition from round wire to FLATWIRE cable. Flat undercarpet telephone and data wiring may be used in conjunction with Wiremold FLATWIRE cable.

FLATWIRE cable is for use with nominal 120 VAC and is specifically covered in Article 328 of the National Electrical Code. As stated in Article 328-5, uses not permitted are:

1. "Outdoors or in wet locations."
2. "Where subject to corrosive vapors."
3. "In any hazardous (classified) location."
4. "In residential, school and hospital buildings."

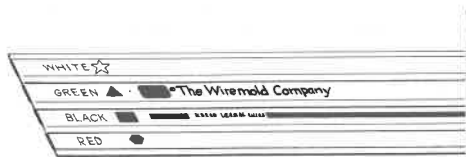
**CAUTION: INSTRUCTIONS SHOULD BE
READ THOROUGHLY BEFORE
INSTALLATION IS STARTED.**



Wiremold FANTOM FLEX™ FLATWIRE™ 4- or 5-Conductor System typically installed in office area.

07.33.3289555

Wiremold FANTOM FLEX System . . . Components



FW412 FLATWIRE Cable: 3.287" wide × .031" thick. Polyester/PVC laminate insulation bonded to four No. 12 AWG, flat conductors rated 20A, 300V at 60°C.

FW412-0, 50' long.

FW412-1, 100' long.

FW412-2, 250' long.

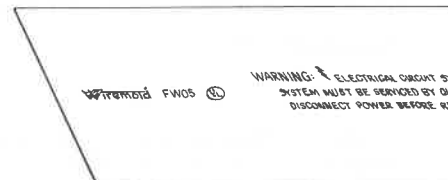


FW512 FLATWIRE Cable: 4.074" wide × .031" thick. Polyester/PVC laminate insulation bonded to five No. 12 AWG, flat conductors rated 20A, 300V at 60°C.

FW512-0, 50' long.

FW512-1, 100' long.

FW512-2, 250' long.

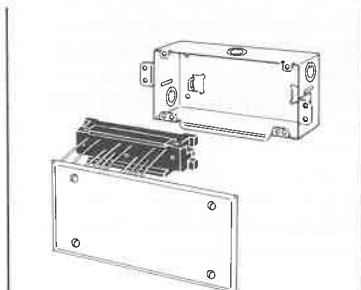


FW05 Metal Top Shield: 8" wide × .010" thick, galvanized steel. For use with 4-conductor or 5-conductor FLATWIRE cable.

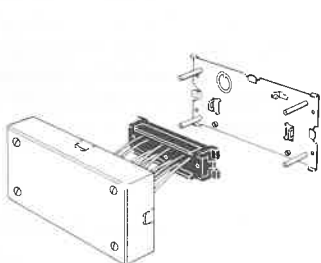
FW05-0, 50' long.

FW05-1, 100' long.

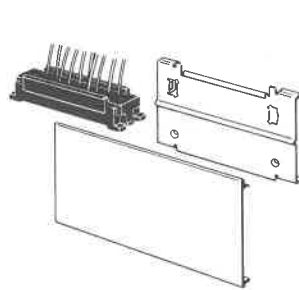
Transition Fittings (from round to FLATWIRE cable) for use with 4-conductor and 5-conductor cables. One transition connector is supplied with each transition fitting.



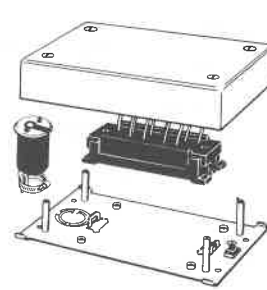
FW355 Flush Feed Box: Box, 7 $\frac{1}{4}$ " L × 3 $\frac{1}{16}$ " W × 2 $\frac{1}{8}$ " D; cover, 9 $\frac{1}{16}$ " L × 5 $\frac{1}{16}$ " W. For connecting 4- or 5-conductor FLATWIRE cable to concealed wiring in wall. Includes three concentric $\frac{1}{2}$ " and $\frac{3}{4}$ " KOs. Fantom silver finish on cover. Transition connector included.



FW365 Surface Feed Box: 8 $\frac{1}{2}$ " L × 4 $\frac{1}{4}$ " W × 1 $\frac{3}{4}$ " H. For connecting 4- or 5-conductor FLATWIRE cable to Wiremold 500/700 surface wiring on wall, or to backfeed through concentric $\frac{1}{2}$ " and $\frac{3}{4}$ " KOs. Transition connector included. Cover has fantom silver finish.



G-4074FW5 Feed Fitting: For feeding 4- or 5-conductor FLATWIRE cable from Wiremold G-4000 perimeter raceway system. Galvanized steel mounting plate. G-4000 cover section 9 $\frac{1}{4}$ " L with gray finish. Transition connector included.



G-5042FW5 Pole-Thru Feed Box: 8 $\frac{1}{2}$ " L × 4 $\frac{1}{4}$ " W × 1 $\frac{3}{4}$ " H. For feeding 4- or 5-conductor FLATWIRE cable with poke-thru floor fitting. Base has concentric $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" KOs. Transition connector and firestop fitting for poke-thru included. Fantom silver finish.

FANTOM FLEX System Accessories . . .

FW01 Tape Primer: For preparing surface to aid tape adhesion.

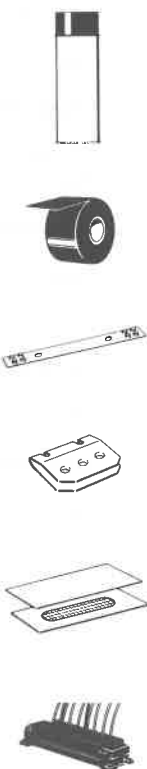
FW02 Hold-down Tape: Black vinyl tape (UL 510), 2" W × .007" thick × 36 yards; single side adhesive. For taping FLATWIRE cable and metal top shield to floor.

FW06A Cable Connector: 5" L × 0.6" W × .015" thick. For splice and tap-off connections. Four connectors per pkg.

FW08 Metal Top Shield Connector: For all metal top shield direction change, splice and tap-off connections. One pair per pkg.

FW09 Insulation Patch (Replaces FW04): Polyester/PVC/adhesive laminate insulating patch. Each 7" × 11 $\frac{1}{2}$ " × .015" thick, including moisture-resistant gel. For closing FLATWIRE cable terminations, insulating FLATWIRE cable where transition connectors have been removed, and insulating splice, and tap connections. One FW09 required for each splice tap or end termination.

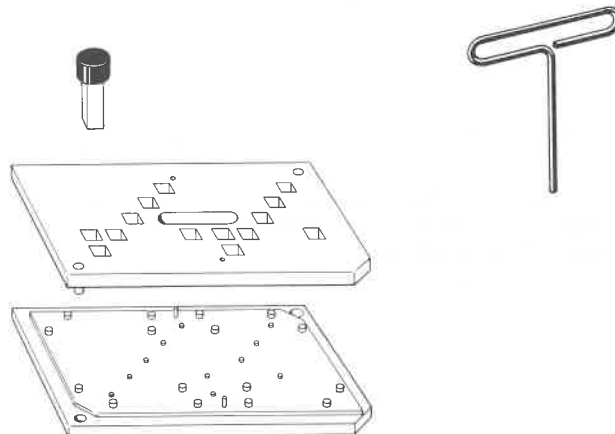
FW15 Transition Connector: For all transitions from round wire to 4-conductor and 5-conductor FLATWIRE cables.



Special tools . . .

680FW-5 FANTOM FLEX System Tool Kit: For making connections of FW312, 3-conductor; FW412IG, 4-conductor, isolated ground; FW412, 4-conductor; and FW512, 5-conductor FLATWIRE cables.

683FW Hex. Wrench, 1/8": For use with round- to-FLAT WIRE cable transition connectors.



Installation of FW412, 4-conductor and FW512, 5-conductor FLATWIRE cables . . .

1 Prepare the floor area.

Wiremold FLATWIRE cable may be installed on wood, tile, ceramic, composition or concrete floors. The floor surface **MUST** be smooth, clean and free of debris and protrusions. Clean floor thoroughly, fill cracks or voids, seal all porous floors, especially concrete to prevent chalking.

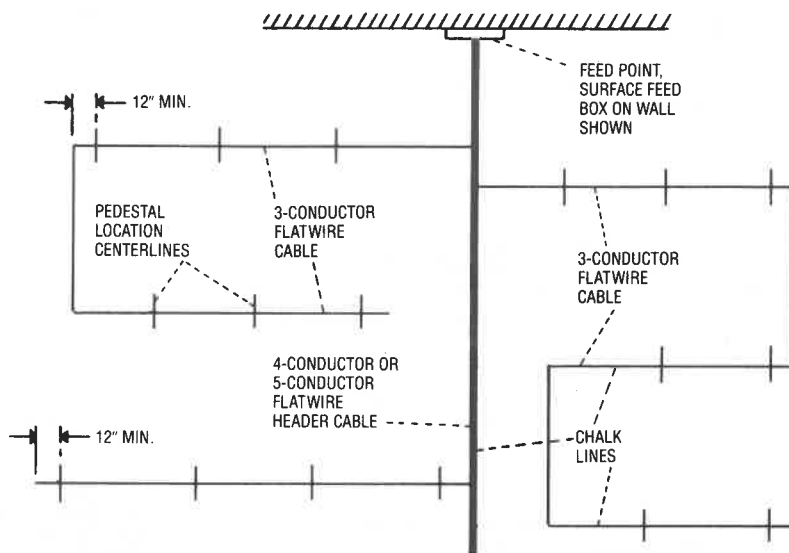
2 Lay out the FLATWIRE cable.

See typical system layout, Fig. 1. Determine and mark location of feed point on wall or floor.

Locate wall feed point as near floor as possible, while allowing enough height to bring FLATWIRE cable to floor (see Figs. 2 or 3). Leave enough room for rubber cove base or baseboard molding, if used.

Locate floor feed point so that transition fitting will not present a "trip" hazard when installed. Determine pedestal locations along straight lines on floor. Starting at feed point, snap a chalk line along entire proposed run of FLATWIRE cable (Fig. 1). Mark exact locations of all pedestals with a centerline extending across chalk line at least 4" on either side.

Note: Lay out entire system in one continuous run if possible, as in Fig. 1, to save installation time.



Note: Ten, 15A duplex receptacles, maximum, per 20A circuit (NEC, 210-21 and 220-13). Eight, 15A duplex receptacles suggested, allowing for future expansion.

Fig. 1

3 Install one of the following types of feed fittings:

FW355 Flush Feed Box . . .

Prepare wall opening. Remove proper feed K0 from flush feed box, bring in feed wires and install box in opening by means of adjustable mounting brackets as in Fig. 2. **CAUTION: Be sure that cable entry lip is downward.**

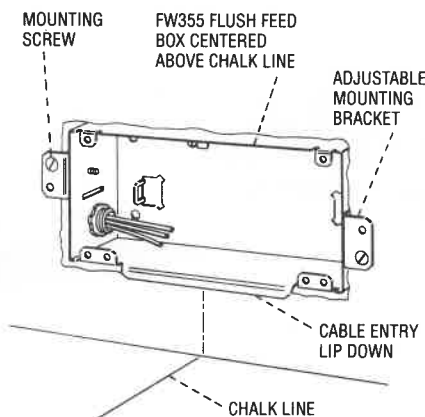


Fig. 2

FW365 Surface Feed Box . . .

Install feed box base on wall as in Fig. 3, using two (or four) mounting holes. Connect Wiremold 500 or 700 raceway to top or side tongues in accordance with standard raceway installation procedures. Feed box may be back-fed through 1/2" or 3/4" concentric K0's in base.

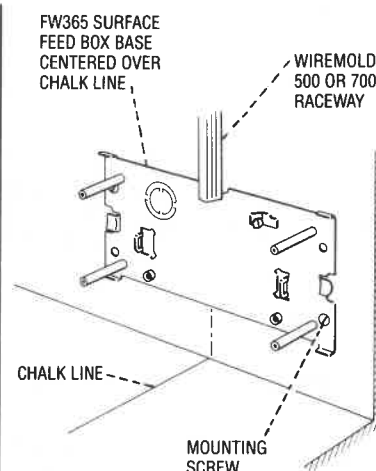


Fig. 3

G-4074FW5 Feed Fitting . . .

Remove cover (if previously installed) from Wiremold G-4000 perimeter raceway. Cut 9 1/4" length from cover to allow for feed fitting cover section. See Fig. 4.

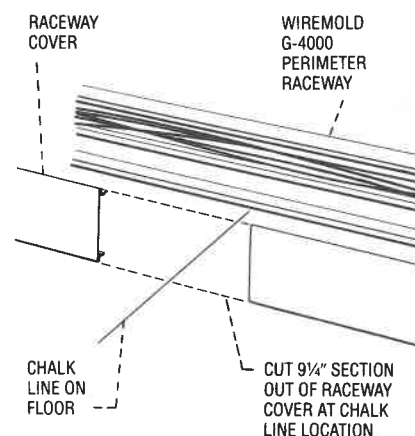


Fig. 4

G-5042FW5 Poke-Thru Feed Box . . .

Remove 1" K0 (1 3/8" dia.) from feed box base. Locate and drill 1 3/8" dia. hole through floor as in Fig. 5. Place feed box base on floor so that 1" K0 aligns with 1 3/8" dia. hole. Mount base by means of two (or four) mounting holes.

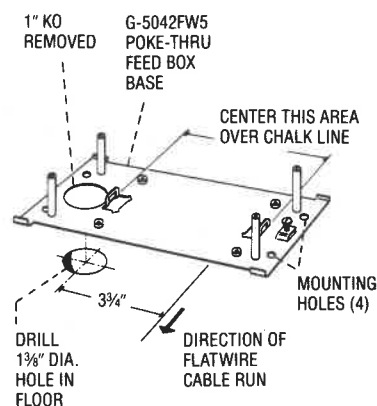


Fig. 5

For FW365 Surface Feed Box . . .

A. Loop FLATWIRE cable under transition connector (for strain relief) and snap connector into feed box base (Fig. 11). Crease cable firmly at floor line and cross-tape to floor near crease. Continue installing cable to end of entire run as in Step 6, page 8.

B. Prepare end of FW05 metal top shield as in Fig. 9, using metal shears and punch or drill. Attach shield to threaded bushings on surface feed box base with No. 6 screws (furnished). Crease shield firmly at floor line and cross-tape to floor close to crease. Continue installing metal top shield over entire run as in Step 7, page 12.

C. **After system has been completely installed:** bring feed wiring into box from Wiremold 500 or 700 raceway and connect to transition connector pigtailed in accordance with approved methods. Connect one green pigtail to green grounding screw on feed box base (Fig. 12).

Close off all unused pigtailed with wirenuts. Remove proper twistout from FW365 cover and assemble cover to threaded posts on feed box base with four screws furnished (No. 6-32 x $\frac{3}{8}$ " oval head).

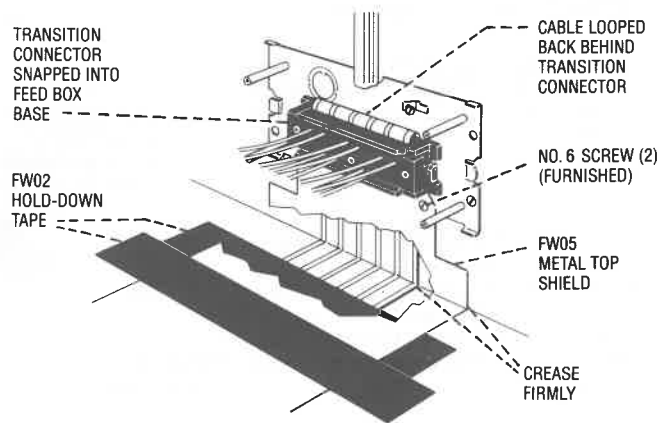


Fig. 11

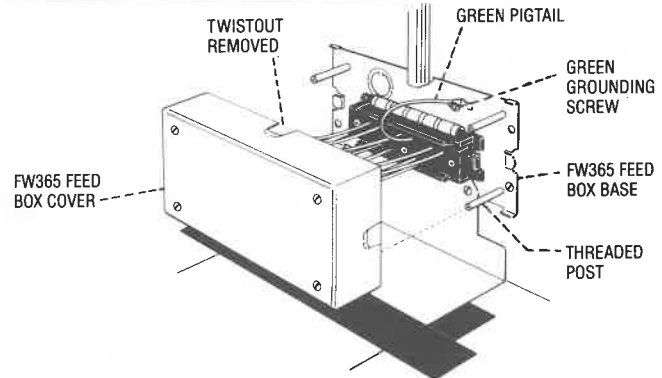


Fig. 12

For G-4074FW5 Feed Fitting . . .

A. Snap transition connector onto inner surface of feed fitting and connect one green pigtail to green grounding screw on inner surface as in Fig. 13.

B. Loop FLATWIRE cable over entry recess and outside of feed fitting. Center feed fitting over chalk line on floor and snap into G-4000 raceway as in Fig. 14. Crease cable firmly at floor line and cross-tape to floor close to raceway. Continue installing cable to end of entire run as in Step 6, page 8.

C. Prepare end of FW05 Metal Top Shield as in Fig. 9, using metal shears and punch or drill. Attach shield to threaded bushing on feed fitting with No. 6 screws (furnished) as in Fig. 14. Crease shield firmly at floor line and cross-tape to floor close to crease. Continue installing metal top shield to end of entire run as in Step 7, page 12.

D. **After system has been completely installed:** connect transition connector pigtailed to appropriate conductors in G-4000 perimeter raceway, using approved means. Close off all unused pigtailed with wirenuts. Snap feed fitting cover into G-4000 raceway, over feed fitting, as in Fig. 15. Snap raceway covers into raceway, abutting feed fitting cover.

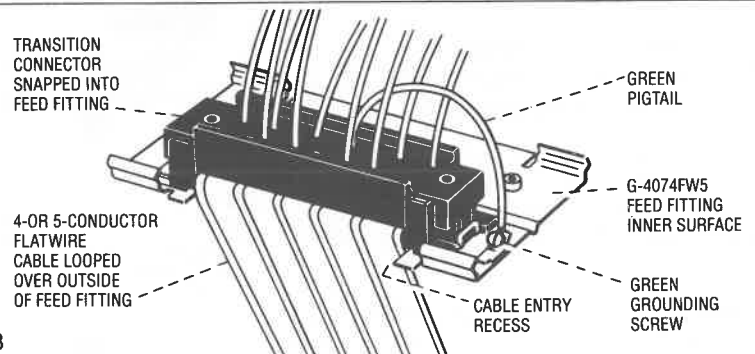


Fig. 13

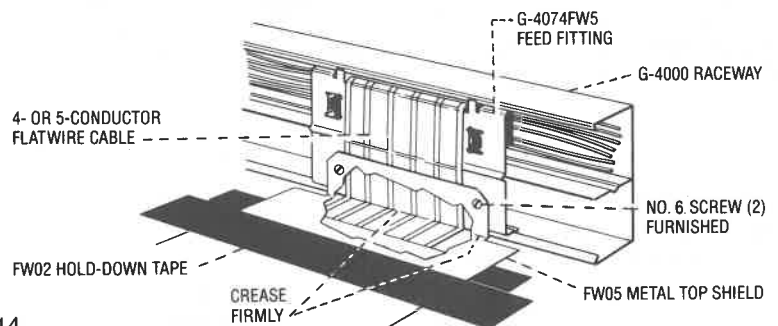


Fig. 14

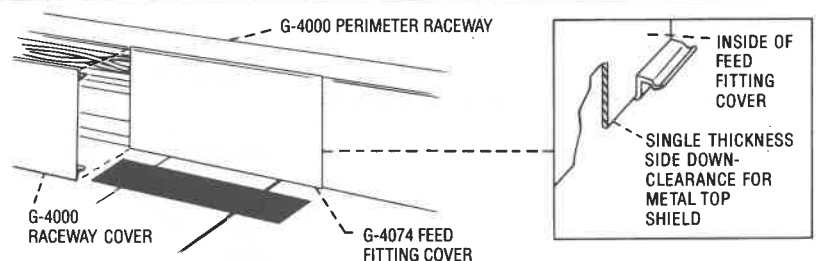


Fig. 15

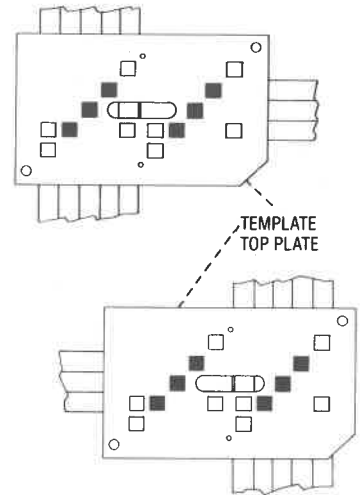
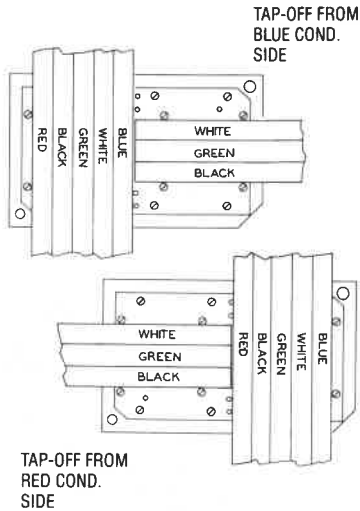
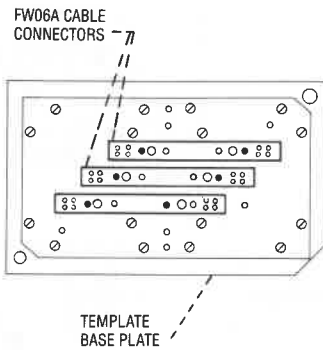
Connecting FLATWIRE cable using 680FW-5 FANTOM FLEX Tool Kit . . .

A. Place FW06A Cable Connectors on locating pins on 680FW-5 Template base plate as shown. See Fig. 21.

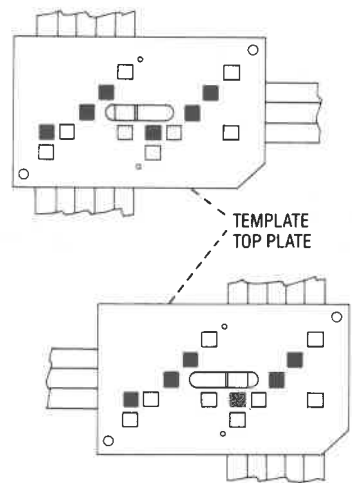
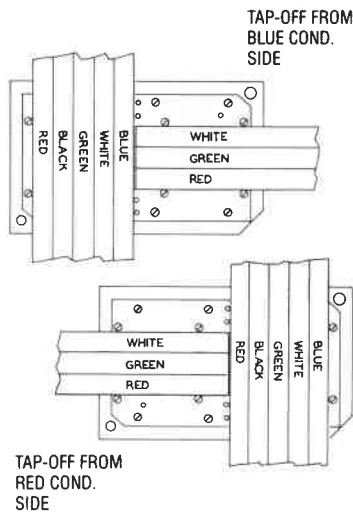
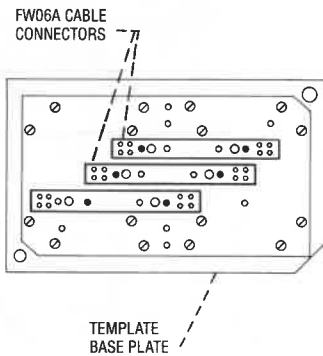
B. Place cables over connectors and between guide pins on base plate as shown. Depress unused guide pins as in Fig. 20 before placing cables in position.

C. Assemble template top plate over cables and base plate as shown. Insert crimp tool successively in each square hole shown in solid black in top plate and strike sharply as in Fig. 22 to complete cable connections. Remove cables from template.

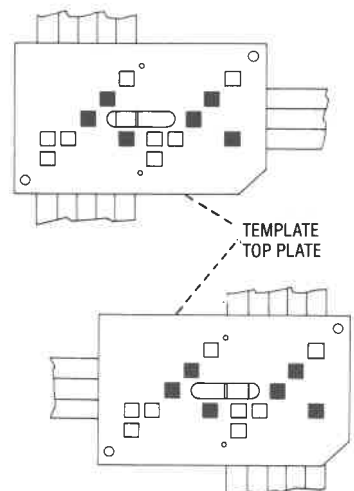
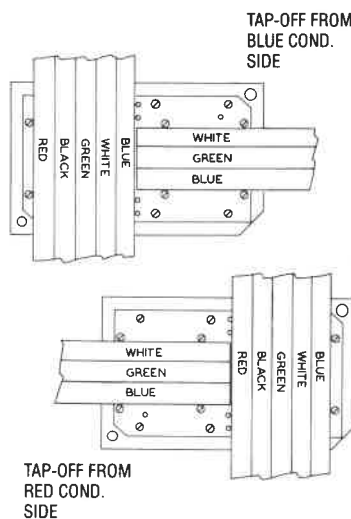
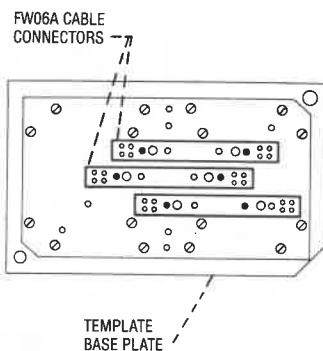
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FW512
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Tap-off
FW312RED
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Tap-off
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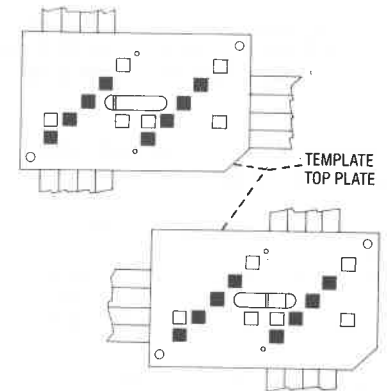
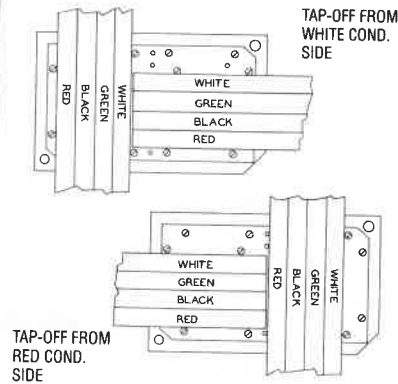
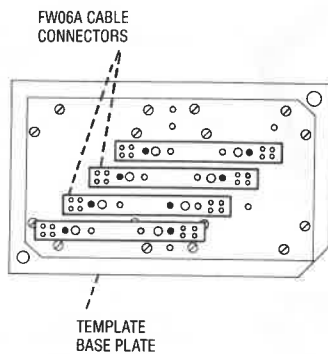
Connecting FLATWIRE cable using 680FW-5 FANTOM FLEX Tool Kit . . .

A. Place FW06A Cable Connectors on locating pins on 680FW-5 Template base plate as shown. See Fig. 21.

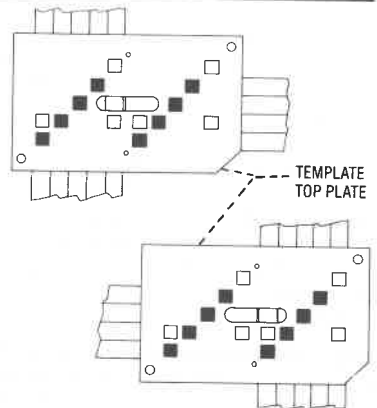
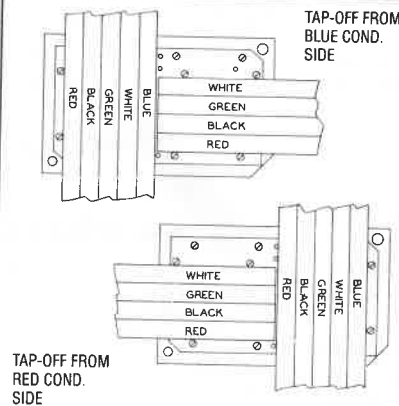
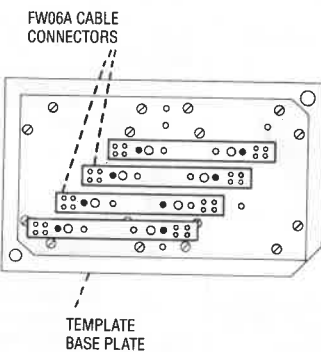
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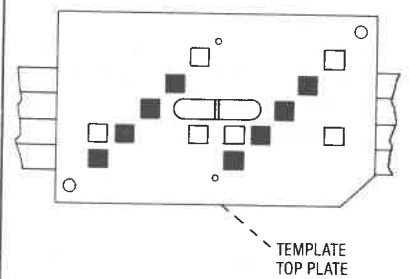
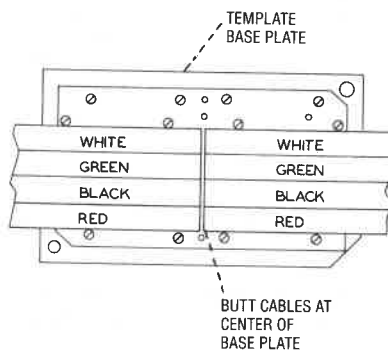
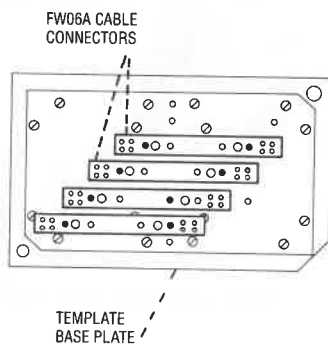
Tap-off
FW412
cable
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FW412
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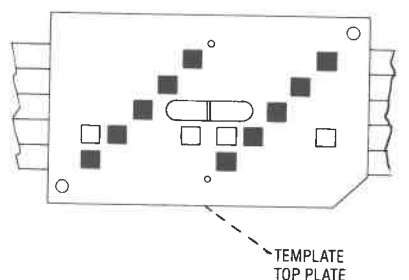
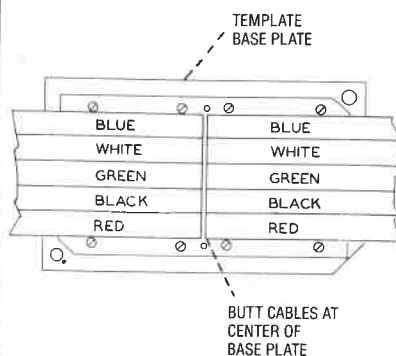
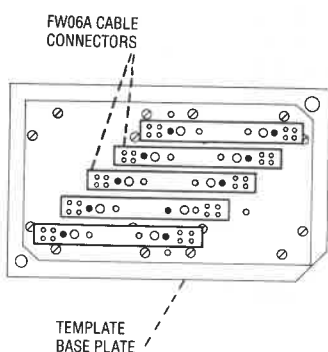
Tap-off
FW412
cable
from
FW512
cable . . .



Splice all
four-
conductor
cable . . .



Splice
five-
conductor
cable . . .



7

Install FW05 Metal Top Shield over entire run . . .

After installing 4- or 5-conductor FLATWIRE cable, install metal top shield over entire run. Keep shield centered over green conductor of cable and under slight tension, and cross-tape to floor at approximately 12' intervals to end of shield to floor. See Fig. 24. Cross-tape end of shield to floor.

CAUTION: TAPE ANY EDGE OF METAL TOP SHIELD WHEREVER IT COMES IN CONTACT WITH FLATWIRE CABLE.

To change direction of metal top shield 45° or 90° . . .

Overlap shield ends (do not fold) as in Fig. 25. Trim excess from metal top shield (as shown in Fig. 25) when using a 45° direction change. Assemble and crimp FW08 Top Shield Connector, with Wiremold logo facing upward, (Figs. 26 and 27) at two locations.

To splice metal top shield . . .

Overlap shield ends approx. 5" as in Fig. 28. Assemble and crimp FW08 Top Shield Connector, with Wiremold logo facing upward, (Figs. 26 and 27) at two locations. Cross-tape shield to floor on both sides of splice (Fig. 28).

To tap-off metal top shield . . .

Overlap tap-off run on continuous run of shield as in Fig. 29. Assemble and crimp FW08 Top Shield Connector, with Wiremold logo facing upward, (Figs. 26 and 27) at two locations. Cross-tape shield to floor close to tap-off connection (Fig. 29).

After metal top shield has been completely installed and floor has been checked for cleanliness: apply FW01 Tape Primer along both edges of top shield and adjacent floor surfaces (for better tape adhesion). Apply FW02 Hold-down Tape continuously along both edges of shield over full length of run. See Fig. 30. Hold shield flat while taping.

Caution: All warnings and directions on FW01 Tape Primer spray can must be read and followed because of potential hazards to the user.

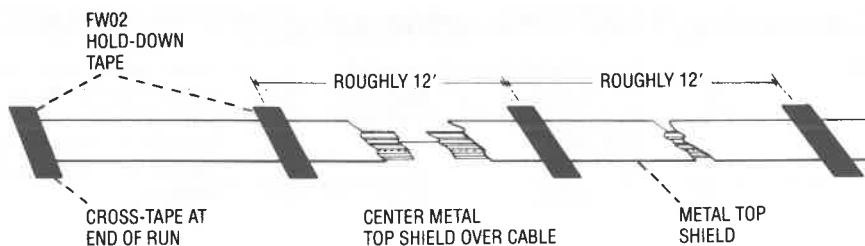


Fig. 24

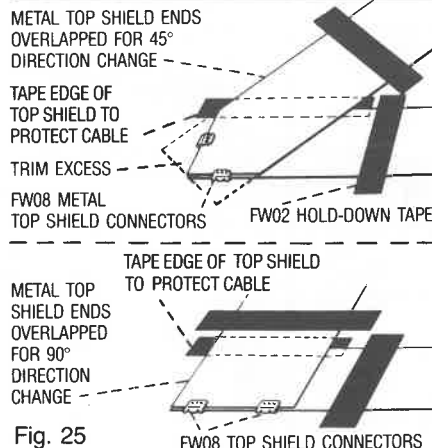


Fig. 25

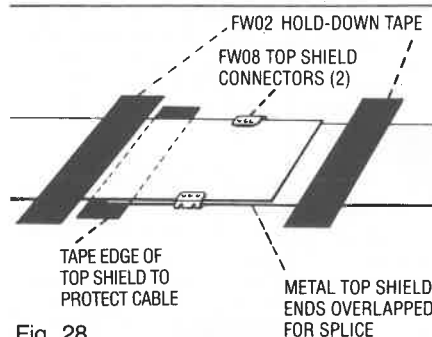


Fig. 28

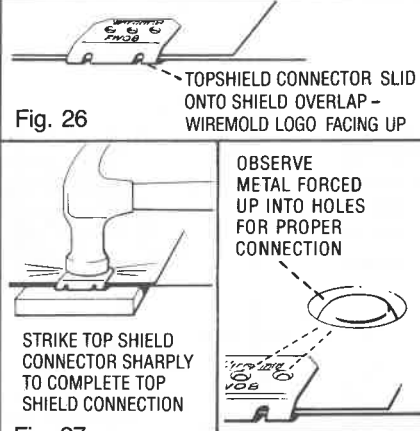


Fig. 26

Fig. 27

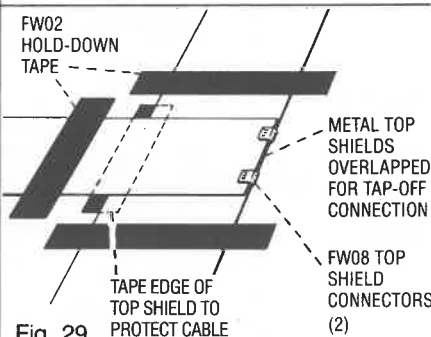


Fig. 29

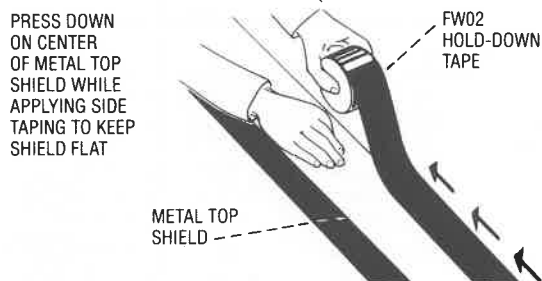


Fig. 30

FOR INSTALLATION OF REMAINING PORTIONS OF COMPLETE FANTOM FLEX SYSTEM, SEE INSTALLATION INSTRUCTION MANUAL FOR 3-CONDUCTOR SYSTEM, INS 495.

For special applications or unusual situations beyond the scope of this instruction manual, contact Product Manager, FANTOM FLEX System, The Wiremold Company, Electrical Division, West Hartford, Ct. 06110. Telephone 203/233-6251.



The Wiremold Company
Electrical Division
West Hartford, CT 06110