



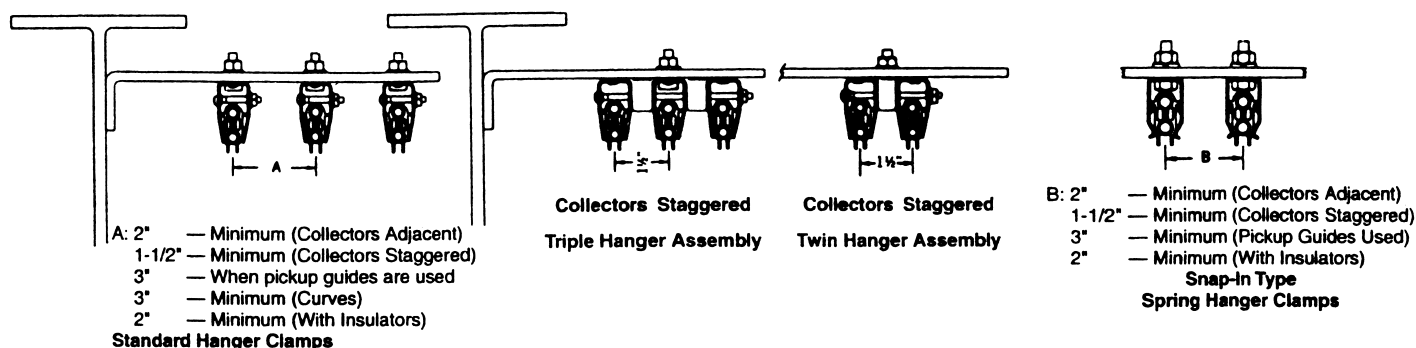
|   |                             |                                   |
|---|-----------------------------|-----------------------------------|
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# INSTALLATION INSTRUCTIONS • DUCT-O-BAR FIGURE 8 SYSTEMS

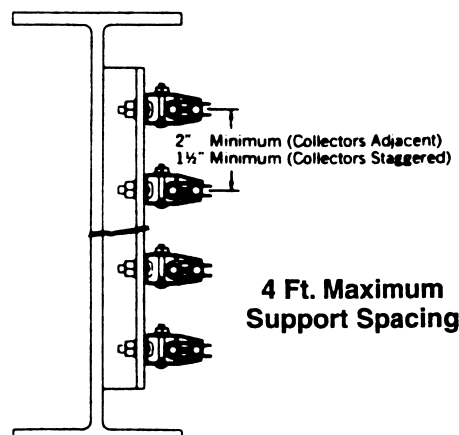
## I. TYPICAL INSTALLATIONS:

### A. Standard Vertical Mounted Conductors (3-Phase System — Bottom Contact)

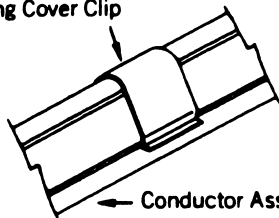
5 Ft. Maximum Support Spacing



### B. Lateral Mounted Conductors

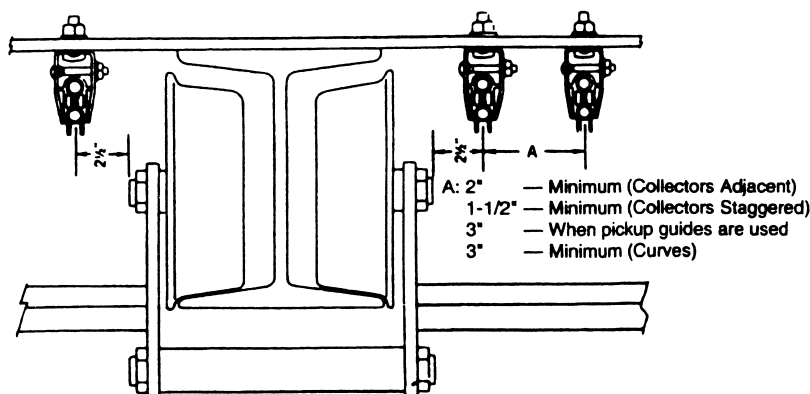


Spring Cover Clip



- NOTES:**
- 1) Spring cover clips are located at mid-span between each pair of hanger clamps on lateral mounted systems.
  - 2) Spring type hanger clamps may also be used as shown.

### C. Monorail Application

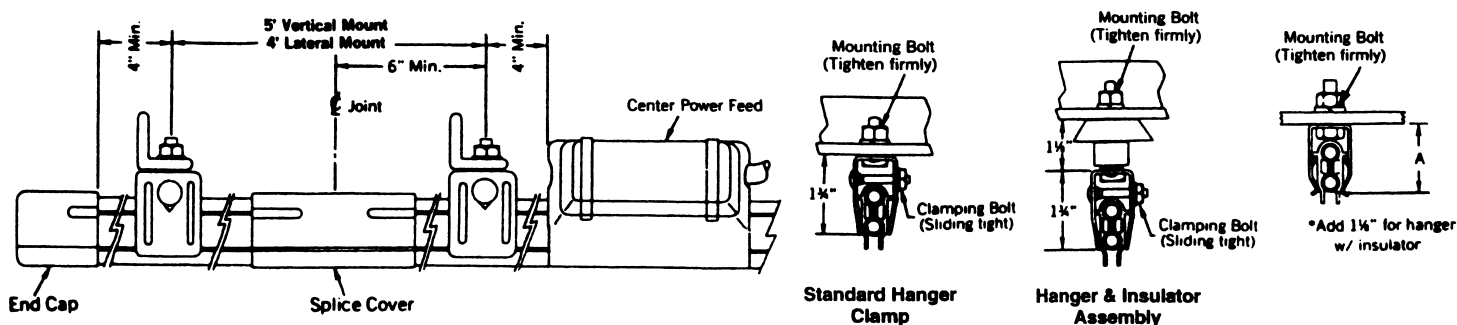


- NOTES:**
- 1) Spring type hanger clamps may also be used as shown except on curves.
  - 2) Install two conductors on one side of the beam and one conductor on the opposite side to balance the collector spring forces, particularly on light weight hoists.

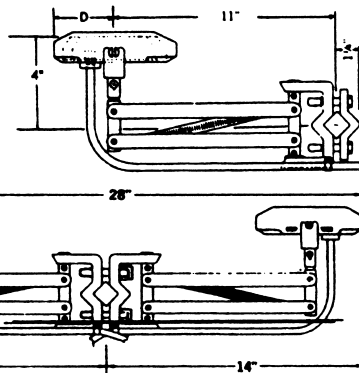
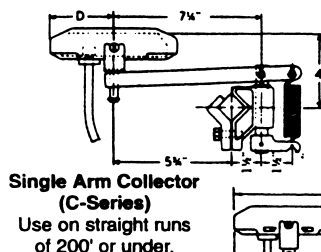
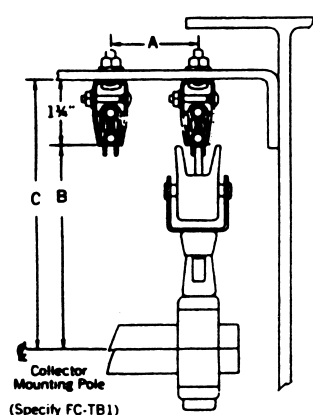
## CAUTION

MAKE CERTAIN POWER SUPPLY IS DISCONNECTED BEFORE INSTALLING, REPAIRING, OR WORKING IN THE PROXIMITY OF ANY ELECTRICAL SYSTEM. ONLY QUALIFIED ELECTRICAL PERSONNEL SHOULD INSTALL OR REPAIR THESE PRODUCTS.

## II. INSTALLATION DIMENSIONS — CONDUCTOR ASSEMBLY



## III. INSTALLATION DIMENSIONS — COLLECTORS



| Dim. A  | Snap-In Hanger Clamp       |
|---------|----------------------------|
| 1-5/16" | Spring Steel<br>FE-908-2SF |
| 1-1/2"  | Plastic<br>FE-908-2PF      |

**Double Arm Collector (P-Series)**  
Use on runs greater than 200' and for curved systems.

Pantograph lateral mount collector assemblies are provided with spring balance. 3" conductor spacing required.

### DIMENSION A (MINIMUM)

- 2" — Minimum collectors are adjacent
- 1-1/2" — Minimum collectors are staggered
- 3" or 4" — When pickup guides are used
- 2" — When insulators are used

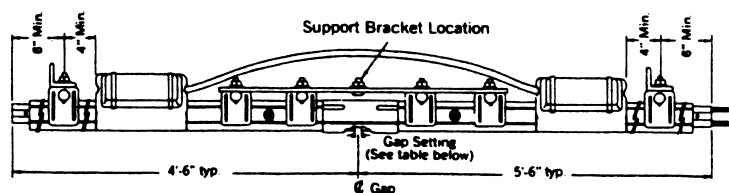
### DIMENSION

|                     | B      | C      |
|---------------------|--------|--------|
| B Series Collectors | 5-1/2" | 7-1/4" |
| P Series Collectors | 4"     | 5-1/4" |
| C Series Collectors | 4"     | 5-1/4" |

### DIMENSION D

|                    |    |
|--------------------|----|
| 40 AMP Collectors  | 2" |
| 100 AMP Collectors | 3" |

## IV. EXPANSION GAP AND ANCHORING REQUIREMENTS



### EXPANSION GAP AND ANCHORING INSTRUCTIONS

The number of expansion gap assemblies and anchor clamp sets varies with each system. Before starting the installation, unpack and count the items included in the shipment, so a layout sketch can be made for positioning the expansion gaps and anchors in the runway conductors.

There should be one more set of anchor clamps in each run than the number of expansion gap assemblies. Expansion gap assemblies should be placed so that equal lengths of conductor are between the gaps and the ends of the runway. If a system used one expansion gap set, the expansion gap would be placed in the center of the runway, and the anchors would be placed on either side, half way between the expansion gap and the end of the runway.

The following information will provide a guide for the installer for placing the assemblies and anchors in the system and how to determine the gap settings. *The gap settings must be made as the assemblies are installed.*

### ANCHORS

Anchor clamps are required at midpoint on all systems without expansion gaps. Systems with expansion gaps require an anchor point midspan between expansion gap and each end of the runway. When 2 or more expansion gaps are used, anchor points must also be placed midpoint between gaps. The use of an anchor clamp set permits controlled expansion toward the expansion gap and toward the end of the run. (Specify part no. B100-2FEA).

### EXPANSION GAP INSTALLATION

A 10' Expansion Gap Assembly is installed in the same manner as other 10' sections of conductor bar. The connector pins have been left off and attached to the lead wire in a bag. This will allow you to position the expansion gap assembly in the proper direction to match the support location with your mounting bracket. It is critical that the expansion gap is mounted as shown in the above picture to secure the assembly and allow the bar to expand as designed. For shipping purposes, the gap has been completely closed and must be adjusted accordingly to the ambient temperature during installation. Set the gap according to the table below. Install the anchor clamps (also attached to the expansion gap) as shown on the enclosed supplementary installation instructions. Recheck the gap setting after installation of conductor bars.

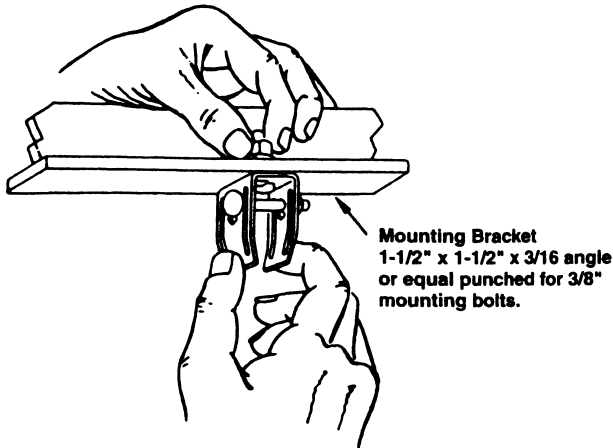
### OPERATING TEMPERATURES

### GAP SETTING

| Min. | Max.  | Ambient Temperature | Gap Width |
|------|-------|---------------------|-----------|
| 0    | 100°F | 25°F                | 1-1/2"    |
|      |       | 50°F                | 1"        |
|      |       | 75°F                | 1/2"      |
| 25°F | 125°F | 50°F                | 1-1/2"    |
|      |       | 75°F                | 1"        |
|      |       | 100°F               | 1/2"      |
| 50°F | 150°F | 75°F                | 1-1/2"    |
|      |       | 100°F               | 1"        |
|      |       | 125°F               | 1/2"      |

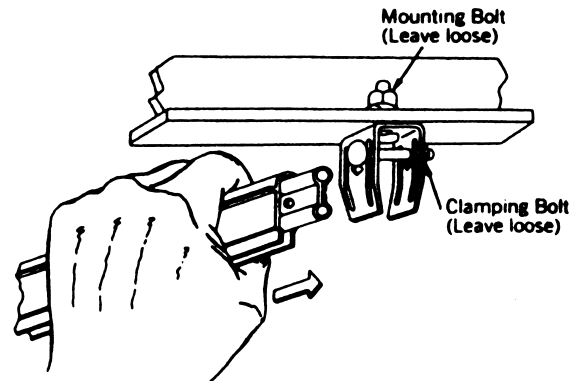
# INSTALLATION PROCEDURE

## Step 1 — Hanger Clamp Installation



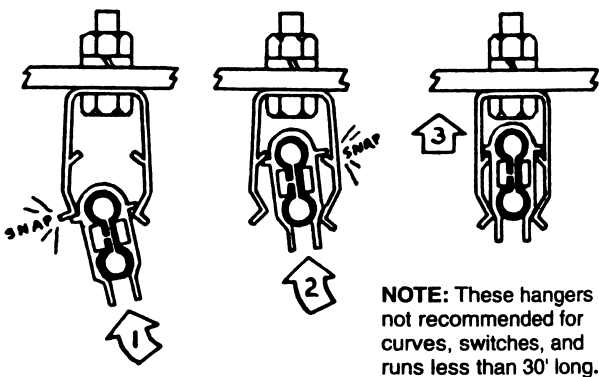
Fasten the hanger clamps on the hanger brackets and leave the mounting and clamping bolts loose.

## Step 2 — Conductor Assembly Installation (Standard Hangers)



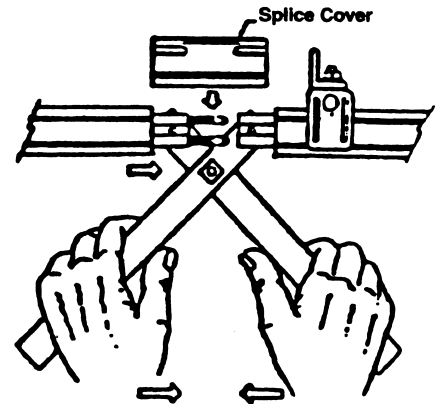
Slide the conductor bar into the hanger clamps. Proceed to Step 3.

## Step 2A — Conductor Assembly Installation (Spring Hangers)

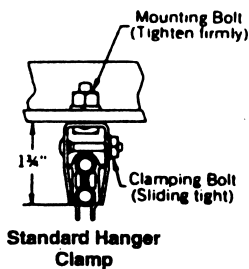


## Step 3 — Joining Conductor Bar Sections

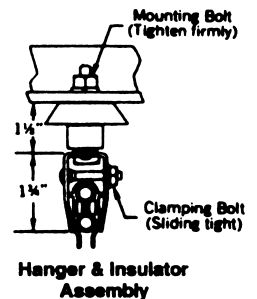
Draw the adjacent conductor bars together with the connector tool. Snap splice cover over completed joint. Proceed to the next joint.



## Step 4 — Hanger Clamp Tightening and Adjustment (Standard Hangers Only)

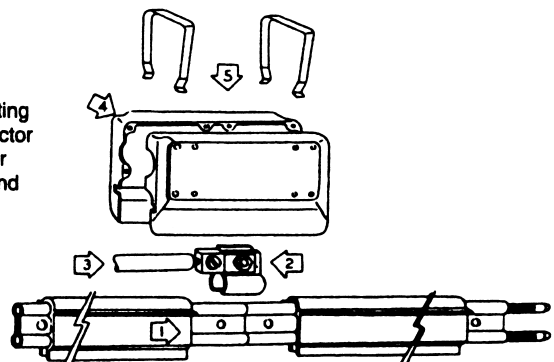


Tighten the mounting bolts firmly after aligning the conductor bar in the hanger clamps. Adjust the Clamping Bolts to SLIDING TIGHT (max. 3 ft./lbs.) as the conductor assembly should be able to slide freely through the hangers and yet be held securely in place. Hangers can also be used as anchors, in which case they should be tightened to 7 ft./lbs.



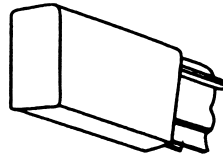
## Step 5 — Center Power Feed Installation

(1) Locate at conductor joint or notch the conductor insulating cover to accept the connector clamp. (2) Install the Connector clamp and (3) the power feed-in cable. (4) Place the power feed insulating case halves around the connector clamp and (5) secure with the two spring clips.



## Step 6 — End Cap Installation

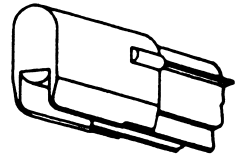
Cut off the exposed ends of all conductors flush with the cover and install the end cap all the way on.



FE-IGC END CAP

## TRANSFER CAP

The transfer cap is installed in lieu of end cap at all switches, interlocks and discontinuous circuits with pickup guides.



USE FE-758-GCT  
WITH FE-758-2  
CONDUCTOR

USE FE-908-GCT  
WITH 110, 160, 250, & 350  
AMP CONDUCTORS

## Step 7 — Collector Installation (Refer to Installation Dimensions on Page 2.)

## Step 8 — General Comments — Final Inspection

In either type of mounting, sight down the installed conductors and straighten any chance bends or misalignment. **Make sure that the hanger clamps are not drawn too tightly.**

Check to be sure that the collector shoe passes freely around the cover, and that the collector brush passes freely between the lips of the cover without rubbing, and that makes good contact with the conductor bar.

### SPRAY PAINTING

If at all possible, all spray painting of the surroundings should be done prior to installation of the DUCT-O-BAR run. If spray painting must be done after the installation has been made, **extreme care** must be taken, by the use of masks, tape or similar methods, to protect the **contact surfaces** of the conductors. Paint on these surfaces will cause serious inoperative difficulties.

### HEAT

Standard DUCT-O-BAR Vinyl Cover is not meant to be used in high heat areas. The standard cover will not support combustion, but will start to flow at 160°F. A special High Temperature Vinyl Cover is recommended when surface heat exceeds 150°F. Consult the factory.

### CAUTION

**Do not over tighten hangers. DUCT-O-BAR must be able to slide freely during temperature variations to allow for expansion and contraction of bar and cover.**

# MISCELLANEOUS APPLICATIONS

### CURVES

Standard Figure-8 bars can be bent to form curved sections without damaging the insulating cover or conductor. Bends with a five-foot radius or greater can be done in the field by using a fly wheel, monorail beam, or similar object to bend the conductor to approximately the necessary radius. Hangers used on curved sections must be placed at intervals of 2-1/2 feet maximum — and closer if required. Use B-100 cross bolt clamp type hangers and P-Series collectors. The minimum spacing between conductors on curves is three inches. For curves with a five-foot radius or more, use five-inch collector shoes. For curves with less than a five-foot radius, use three-inch collector shoes. Consult the factory for radii of less than 48 inches.

### DISCONTINUOUS CIRCUITS

On discontinuous circuits, a pickup guide assembly must be installed to ensure that the self-centering type collectors engage and disengage the conductor bar. The pickup guide (FE-2JNN3 is illustrated) must have its own support point. Refer to the chart below for proper spacing.

| SUPPORT BRACKET LOCATION FOR PICKUP GUIDE |                                      |
|---|--------------------------------------|
| Hanger Clamps Used on System              | Move Pickup Guide Support Bracket Up |
| B-100-2FF                                 | 5/16"                                |
| FE-908-2SF                                | 3/4"                                 |
| FE-908-2PF                                | 9/16"                                |
| Mushroom Type Insulator                   | Add 1-1/8" to Above Dimensions       |

### INTERLOCKS, SWITCHES, OR FIXED GAPS

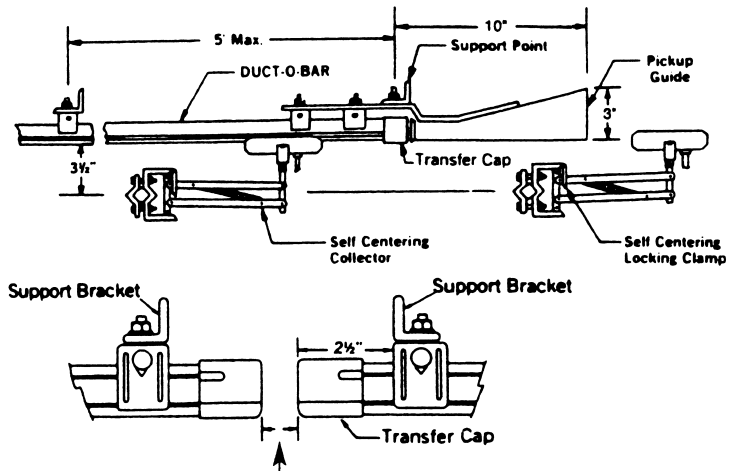
The maximum fixed gap occurring at interlocks is one inch when using 100 amp P-Series collectors and 1/2 inch when using 40 amp collectors. Use transfer caps as shown to ensure that the collector brushes transfer evenly and smoothly. Also round both ends of the contact brushes to facilitate the transfer. Use clamp type hangers only. When both interlocks and curves of less than a four-foot radius are encountered, the tandem 40 amp collector is recommended.

### FIELD CUTTING

Conductor bar ends must be drilled as follows to accept proper connector pins:

|         |                  |         |                  |
|---------|------------------|---------|------------------|
| FE-758  | Letter "M" Drill | FE-2008 | Letter "G" Drill |
| FE-908  | 17/64" Drill     | FE-1608 | Letter "G" Drill |
| FE-3008 | 17/64" Drill     |         |                  |

De-burr bar ends after cutting



Max. 1/2" gap for 40 amp collectors.  
Max. 1" gap for 100 amp collectors.

### OTHER SPECIAL APPLICATIONS

Consult the factory for installation procedures and recommendations on special applications not shown.