



IMPORTANT INSTRUCTIONS

GEH 2636
6-75

ARMOR-CLAD® INDOOR FEEDER BUSWAY

STORAGE PRECAUTIONS

Before storing, unpack sufficiently to make a check of the busway for possible concealed damage resulting from shipping and handling. If damage has occurred, notify the shipper immediately. If the busway is free of damage, restore packing until ready for installation.

Store indoors in a clean, dry area, preferably close to the installation points.

Protect the busway from mechanical damage and any contact with, or exposure to, corrosive fumes, liquids, salts or concrete.

Failure to store and protect the busway properly can cause serious damage and **will void the warranty.**

PRE-INSTALLATION PROCEDURE

When possible, deliver the busway to its installation location before unpacking. Large labels on each shipping carton or crate designate the items contained. Additionally, each busway piece is identified with an item number label.

Inspect each busway piece for possible damage or contamination. Contact surfaces must be clean. However, no attempt should be made to polish tarnished contact surfaces.

Check to make certain that joint insulators are not damaged or cracked and are firmly in place.

Megger each piece before installation.

INSTALLATION TIPS

Establish busbar phase sequence (AØ side is labeled) to determine how the busway is to be installed so as to maintain correct phasing throughout the system.

Note that phase transposition lengths, when furnished, will relocate the AØ to the opposite side of the busway run.

In vertical risers the slot-ends should be up.

In vertical riser installations, it is easier to lower the busway into place than to raise it.

Each busway piece has a "bolt-end" and a "slot-end", see Figure 1. Normally the busway is oriented end for end with slot-ends pointing away from the source.

If installation drawings have been furnished, information regarding the orientation of the busway end for end, and location of the AØ side, as well as other pertinent data will be furnished. These drawings should be carefully followed to insure a proper busway system.

When lifting the busway by fork lift or by crane, distribute and balance the weight to avoid flexing or other damage to the housing.

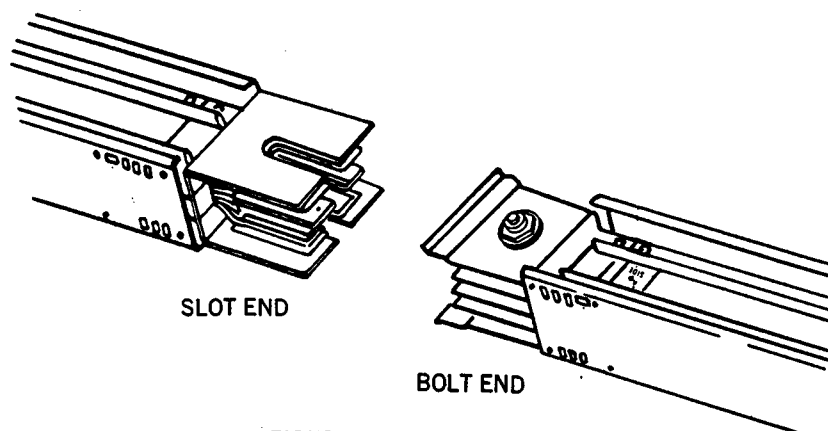


FIGURE 1

INSTALLATION

WHERE TO START

Start the installation, if at all possible, at the most critical point, such as a main feed box, switchboard or switchgear, an elbow, or other critical fitting or termination.

OBSTRUCTIONS

Where a busway run must pass thru a wall or floor, an opening two inches larger than the busway cross-section should be provided. Joints may not occur inside walls or floors per N.E.C. A flange is available to mask the opening after the busway is installed.

HANGING BUSWAY

Horizontal Runs of Busway

To minimize the possibility of overheating, maintain a clearance of six inches between the busway and walls, ceilings or other busways.

For clevis hangers (Figure 2 & 3), a minimum clearance of nine inches to walls is required for installation of straps. Trapeze hangers are shown in Figures 4 & 5.

Clevis hangers are designed so the hanger straps will swing away as the busway is raised into the hangers.

Support busway on maximum ten foot centers.

2 RODS REQ'D.
FOR 2 & 3 BARS/Ø

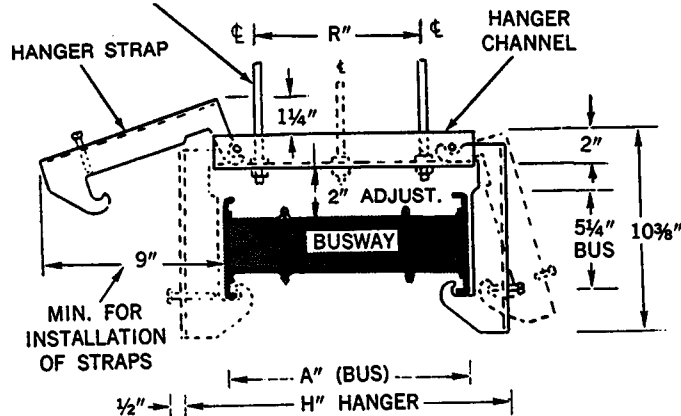


FIGURE 2

Overhead Support

1/2" drop rods are recommended. For number and spacing of rods see Table 1. Drop rods and other hardware must be furnished by the installer.

Maintain good alignment of the drop rods along the busway run.

Avoid hanging drop rods at a busway joint.

After the busway is secured in the hangers, adjust the hangers on the rods for correct elevation.

Sway braces may be required to keep the run straight (furnished by the installer).

Wall or Column Support

Clevis hangers (Figure 2 & 3) may be used for mounting busway on walls or columns by the addition of an angle support by the installer.

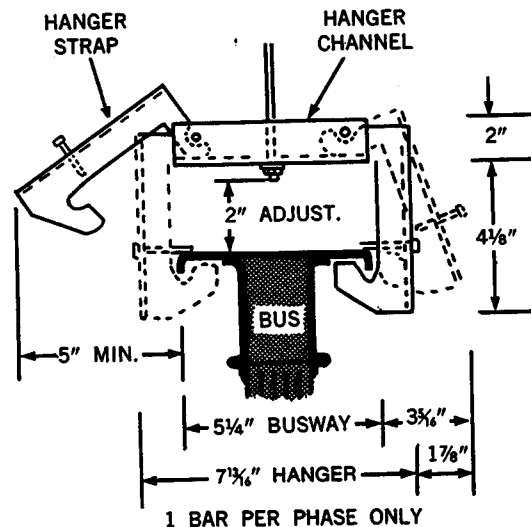


FIGURE 3

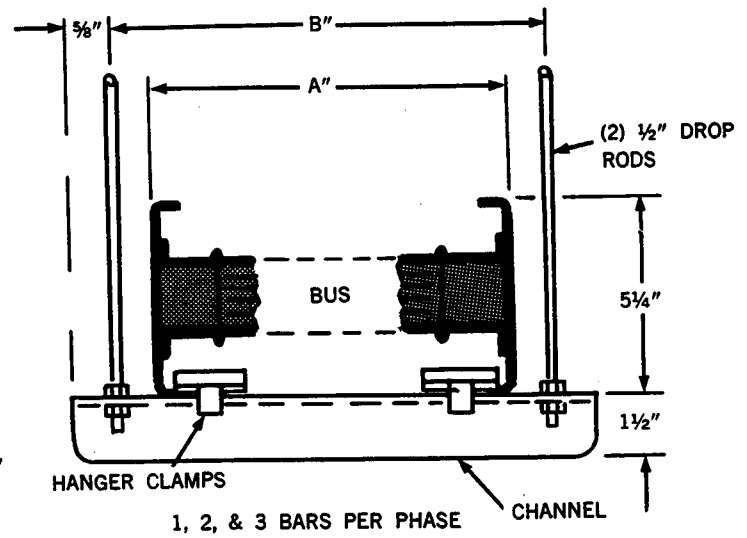


FIGURE 4

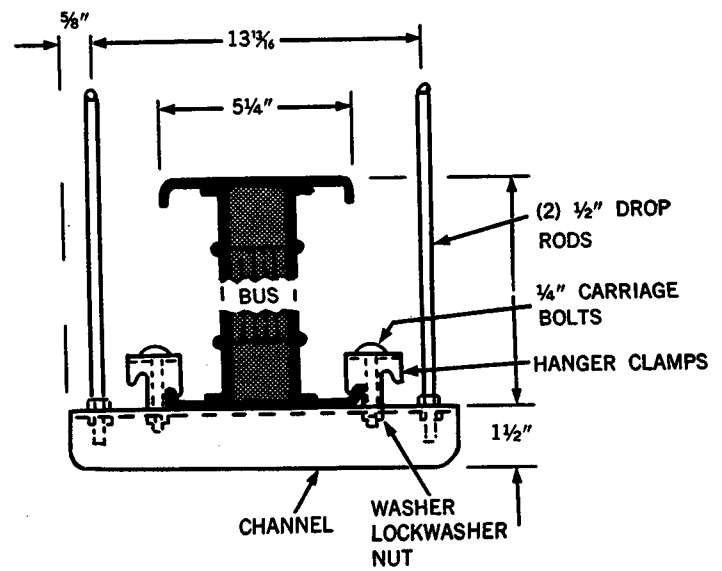


FIGURE 5

INSTALLATION (cont.)

TABLE 1. Hanger Dimensions

| BARS PER PHASE | AMPERE RATING | | BUSWAY "A" | DIMENSIONS (Inches) | | |
|----------------------|---------------|-------|---------------|---------------------|-----|-----|
| | COPPER | ALUM. | | B | H | R |
| 1 | 600 | — | 5¾ | 13¾ | 9¾ | 2½ |
| | 800 | 600 | 6¾ | | 9¾ | 3 |
| | 1000 | 800 | 7¾ | | 10¾ | 4 |
| | 1200 | 1000 | 8¾ | | 11¾ | 5 |
| | 1350 | — | 8½ | | 12 | 5¼ |
| | 1600 | 1200 | 9¾ | | 12¾ | 6 |
| | — | 1350 | 10¾ | | 13¾ | 7 |
| 2 | 2000 | — | 14¾ | 23¾ | 17¾ | 11 |
| | — | 1600 | 14¾ | | 18¾ | 11½ |
| | 2500 | — | 16¾ | | 19¾ | 13 |
| | — | 2000 | 16¾ | | 20¾ | 13½ |
| | 3000 | — | 18¾ | | 21¾ | 15 |
| | — | 2500 | 20¾ | | 23¾ | 17 |
| 3 | 4000 | 3000 | 25¾ | 33¾ | 29¾ | 22½ |
| | 5000 | — | 30¾ | | 33¾ | 27 |
| | — | 4000 | 31 | | 34½ | 27¾ |

| BUSWAY WEIGHT (LBS.) | NO. SPRINGS REQ'D. |
|----------------------------|--------------------------|
| 0-600 | 1 |
| 601-1200 | 2 |
| OVER 1200 | 3 |

VERTICAL RUNS OF BUSWAY

For standard riser hangers (Figure 6 & 7) it is necessary to maintain four inch clearance to walls or other obstructions, and eight inch clearance between busway runs. This clearance will also provide for adequate heat dissipation.

Support busway on maximum 16' centers.

To assemble hangers to busway (Figure 6 & 7) after placing the length in position thru the floor.

1. Loosen hanger bolts (A)
2. Assemble hanger to each side of busway
3. Position the hangers on the busway so that the base channel (B) rests on the floor or other support (such as floor flange (C)).
4. Hand tighten hanger bolts (A)
5. Anchor base channels (B) to their support
6. Tighten hanger bolts (A)

Install the next length and make the joint assembly (see instruction on Page 4). Assemble hangers as above. Repeat these steps until the entire run is installed.

Adjustment of springs (if furnished, Figure 6)

1. Raise initial adjusting nuts (D) of all hangers to the top of the spring studs. The top of the studs are crimped to hold the nut in the uppermost position.
2. Check hanger dimension ("H"): If it falls between 3⅞" and 4⅞", no further adjustment is necessary.
3. When the dimension ("H") is outside the range, raise or lower the final adjusting nuts (E) to set the springs within this range.
4. Tighten jam nut (F)
5. All springs in any set of hangers should be within ⅛" of each other.
6. It is best to start at the top floor and work down when adjusting the springs.

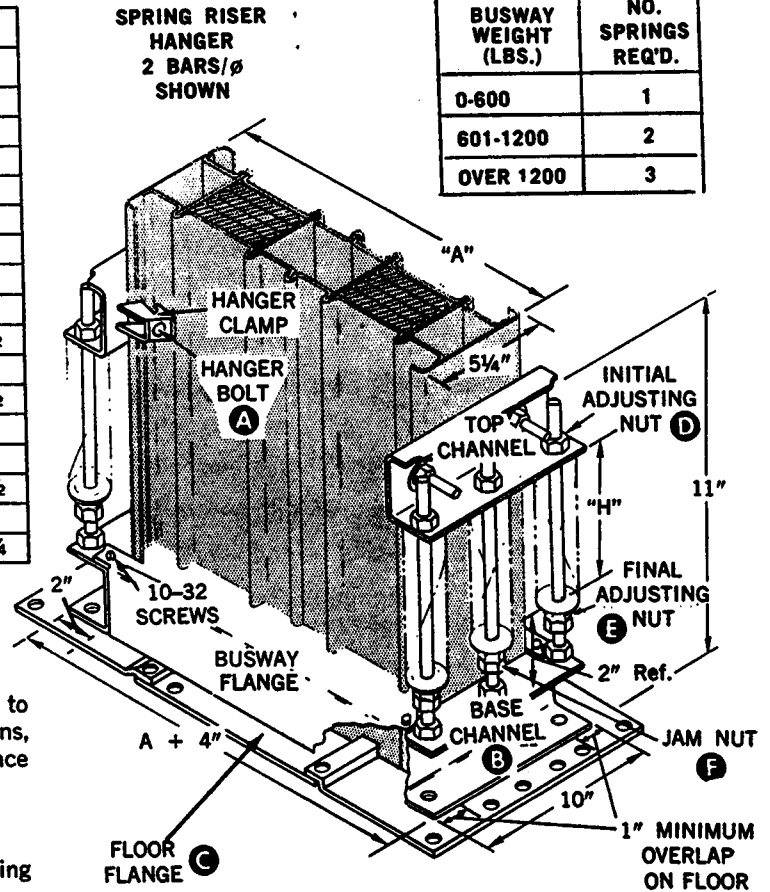


FIGURE 6

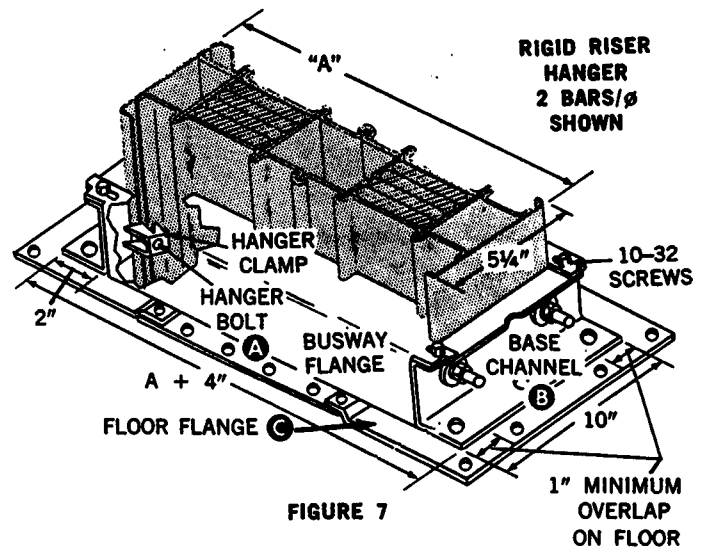


FIGURE 7

PROTECTING THE BUSWAY

Particular care must be exercised during installation to protect the busway from contaminants.

Should the busway inadvertently become contaminated with water, it should be baked dry or replaced. Contact the company for instructions.

INSTALLATION (cont.)

JOINING LENGTHS

1. Remove all joint caps from the two pieces to be joined, retaining the screws.
2. The joint cap required between a plug-in straight length and feeder type busway piece is 13 $\frac{3}{8}$ " long, and these joint caps will be assembled to the feeder piece when shipped from the factory. See Figure 8. The joint cap between two feeder busway pieces is 18" long.
3. Discard any disposable shipping caps (disposable caps do not have jimmy holes or polarizing tabs, and are normally assembled to the slot end).
4. Arrange the pieces to be joined so that the $A\phi$ sides align. Identified by $A\phi$ label on housing side and polarizing slot in housing cap. See figure 9. Note that phase transposition lengths, when furnished, will relocate the $A\phi$ to the opposite side of the busway run.
5. Recheck to insure that all joint insulators are firmly in place.
6. If necessary, loosen the joint bolt slightly allowing the "bolt-end" joint side covers to flare out.
7. Slide the joints together, making sure as the bars interleave that the joint side covers on the slot-end pass inside the joint side covers on the bolt-end. Figure 10. For 3-pole joint assemblies also make certain that the slot-end joint side cover passes between the bolt-end joint side cover and the C-phase insulator. Edges of the joint sides must be flush.
8. When fully joined the distance between the housing caps will be nine inches when joining feeder to feeder and 4 $\frac{5}{8}$ " between housing cap and housing side when joining feeder to plug-in.
9. To assist in telescoping the lengths together, one (or both) of the joint caps may be placed loosely in position on one length of busway with the polarizing tab inserted into the polarizing slot on the housing cap, see Figure 11.
10. A screwdriver placed in the "jimmy holes" of the joint cap can then be used to lever the lengths together until the other polarizing tab falls into its mating slot, indicating the joint is aligned. If the polarizing tabs do not coincide with the polarizing slots, the assembly is incorrect.
11. If not already in place, assemble joint caps and insert all mounting screws LOOSELY.
12. Inspect busway run for straightness in all planes and make adjustments if necessary for good alignment.
13. Lubrication grease has been applied to the joint bolt head and thread to reduce friction. Do not remove this grease.
14. Tighten the joint bolt to 50 foot-pounds. When the Belleville springs on both sides of the joint are flattened, the bolt is fully torqued. The bolt head may be relocated to the opposite side of the busway if it is inaccessible.
15. Tighten all joint cap screws.
16. During installation occasional checking with a megger should reveal any improperly made assemblies. The resistance should not drop below one megohm for 100 feet of busway.
17. Megger the complete run before energizing.

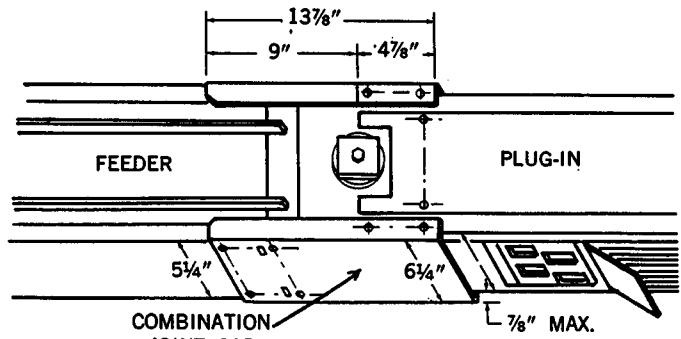


FIGURE 8

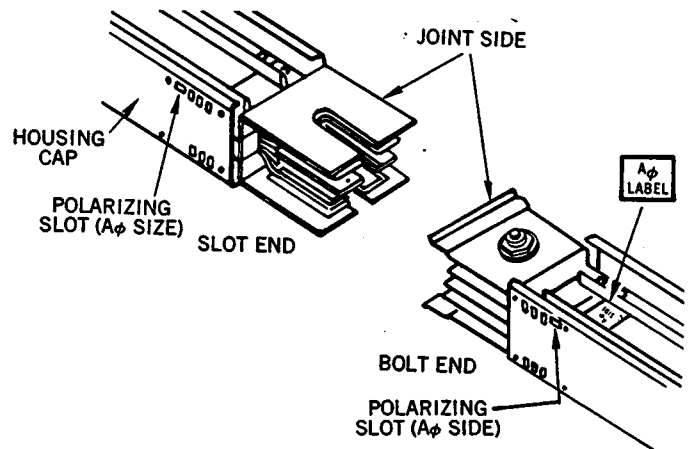


FIGURE 9

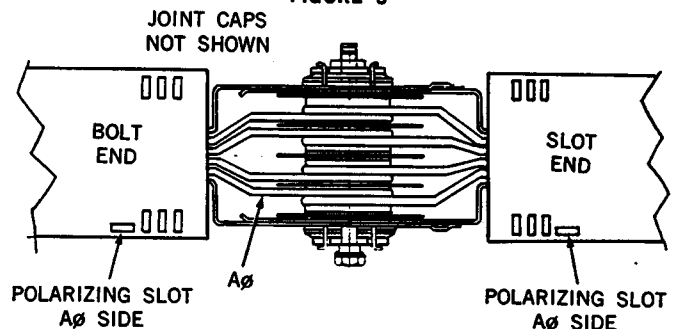


FIGURE 10

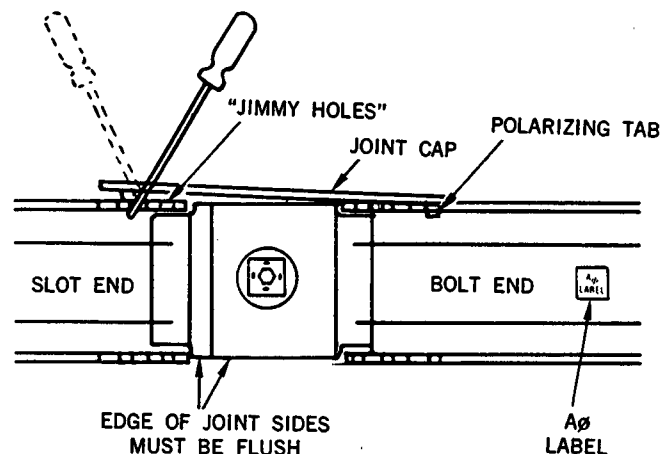


FIGURE 11

MAINTENANCE

Periodic inspections should be made to spot trouble areas or changes in operating conditions.

Accumulations of dust, dirt or foreign matter should be removed.

Moisture from leaks or condensation dripping from pipes should be eliminated.

Check for any equipments installed near the busway that may cause damage because of undue external heating, moisture or corrosive fumes, etc.

Visually inspect the belleville springs at the joint to insure that the springs are flat. Flat springs indicate that proper joint pressure is being maintained.

WARNING: *De-energize the busway before performing any of the following operations.*

Carefully inspect all visible electrical joints and terminations for tightness of bolts, nuts, etc.

Check for signs of overheating at joints, terminations, fuse clips, etc., or deterioration in insulating material or melting of sealing compound.

Be sure the condition which caused any overheating has been eliminated.

Check for missing or broken parts, proper spring tension, free movement, rusting or corrosion, dirt, excessive wear, arc spatter, sooty deposits, tracking. Clean or replace parts as required.

Megger the system before re-energizing. The resistance should not be below one megohm for 100 feet of busway.