



ARMOR RODS

Be sure to read and completely understand this procedure before applying product. Be sure to select the proper PREFORMED™ product before application.

1.00 ROD SUBSET ASSEMBLY

- 1.01 Form the rods into subsets by holding them flat, making sure that no rods are crossed and that the center marks are lined up. (Figure 1)



FIGURE 1

- 1.02 Twist the lay of the rods until the first subset is formed. (Figure 2)



FIGURE 2

- 1.03 Continue twisting the rods until the subset is completed. (Figure 3)



FIGURE 3

2.00 HAND APPLICATION

- 2.01 Start with half of the rods in the set, per General Notes Application Recommendation #5.01. If preferred, the subset method may be employed. Make certain that the rod ends are even, then place the center marks at the center of the insulator and apply at least one wrap. (Figure 4)



FIGURE 4

- 2.02 Repeat previous step with remaining rods. Make certain that no rods are crossed, then wrap on the rods completely. (Figure 5)



FIGURE 5

- 2.03 With a firm twist, snap the ends into place. Make certain that all rod ends are snapped into place completely. (Figure 6)



FIGURE 6

3.00 HOT APPLICATION

- 3.01 Armor Rod pin and subset. Any pin, dowel or circular rod of proper size may be used. (Figure 7)



FIGURE 7

- 3.02 Insert pin into subset and then clamp with hold stick. NOTE: Rod-ends are positioned on top of the pin. (Figure 8)



FIGURE 8

- 3.03 Lift the conductor. With the rod-ends on the top of the pin as shown, begin the application by applying at least one wrap of the subset. (Figure 9)

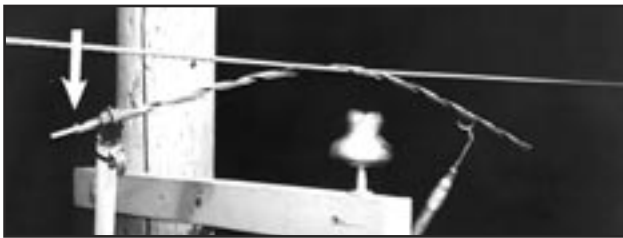


FIGURE 9

- 3.04 With the rod-ends of the second subset on the bottom of the pin as shown by arrow, the subsets phase properly. Align the center marks and begin the application of the second subset. After both subsets have been started, work them alternately out to the ends. (Figure 10)



FIGURE 10

- 3.05 Complete the application by snapping the rod-ends into place with the PREFORMED™ Applicator Ring. NOTE: Applicator Ring should always be worked perpendicular to the conductor (Figure 11)



FIGURE 11

- 3.06 PREFORMED Armor Rods completed application. (Figure 12)



FIGURE 12

4.00 REPAIR SITUATIONS

NOTE: When Armor Rods are used to repair a damaged aluminum based conductor, the following application steps will produce optimum electrical repair.

- 4.01 Thoroughly wire brush damaged conductor for the full length of the Armor Rod to be applied.
- 4.02 Apply a gritted inhibitor to the damaged conductor for the full length of the Armor Rod to be applied.

5.00 GENERAL NOTES - APPLICATION RECOMMENDATIONS

- 5.01 Apply no more than one-half the number of rods per set at a time on the smaller sizes. On conductors 4/0 and larger, do not attempt to apply more than 4 rods at a time.
- 5.02 A damaged conductor can result from the application of too many rods at one time. (Figure 13)

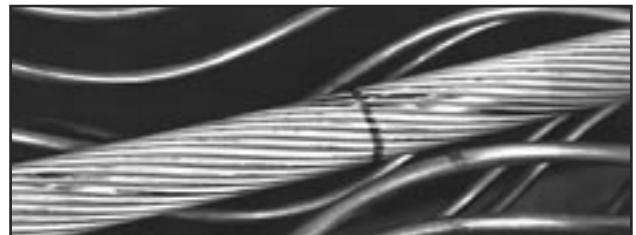


FIGURE 13

- 5.03 Distorting the rods during application will result in an assembly which is loose on the conductor. Under certain vibratory conditions, this could cause severe abrasion to the conductor and the Armor Rods.
- 5.04 The tube method of application is not recommended. This method of application can cause distortion to the rods and damage to the conductor. (Figure 14)

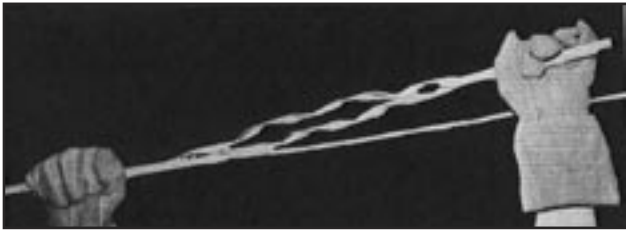


FIGURE 14

- 5.05 The alignment of the ends of the rods should be maintained within 2 inches for voltages of 230 KV and lower; for 345 KV and above the alignment of the ends of the rods should be maintained within 3/4".
- 5.06 The center of the Armor Rods should not be offset more than one pitch length from the center of the support point. (Figure 15)

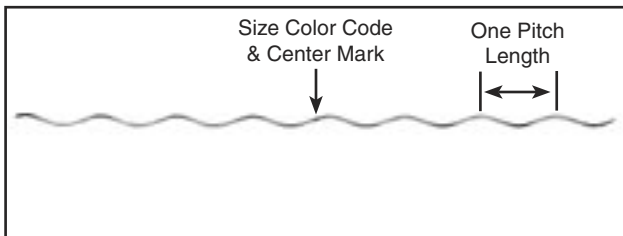


FIGURE 15

- 5.07 Center marking the conductor should be done with a felt marking pen or lumber crayon. Do not scratch the conductor.
- 5.08 When it is known that tapping clamps will be installed directly over the non-gritted Armor Rods, it is recommended that the instructions listed below be followed:
 - a) Apply a commercially available inhibitor in the area of the tapping clamp.
 - b) Wire brush the conductor's surface and the outside of the surface of the Armor Rod in the area of the tapping clamp.
 - c) Make copper-to-aluminum transition in the clamp body itself.
 - d) Use a compatible clamp.
 - e) Use a clamp with a well-contoured groove to provide good area contact over the rods.
 - f) Keep the clamp at least six inches from the ends of the Armor Rods.

- 5.09 Careful consideration should be given to the conductor while rigging prior to the application of the Armor Rods. The conductor can be lifted beyond the ends of the rods, as shown in Figure 17 & 18, by using a well padded hook, as shown in Figure 16, 18 inches off-center.

If the latter method is used, the rods should be started as close to the hook as possible, making sure that the center marks of the rods are properly centered on the conductor and applied away from the lifting device. After the free ends of the rods are applied, install the clamp, remove the rigging and then complete the application of the rods. **ARMORING OVER THE HOOK OF A HOIST OR OTHER SHARP EDGES IS NOT RECOMMENDED.**

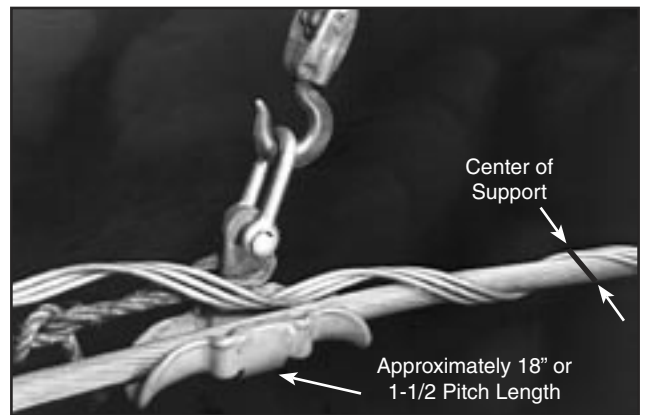


FIGURE 16



FIGURE 17



FIGURE 18

5.10 After application of the correct number of rods, a slight gap between the rods should be present. Study the examples in Figure 19.

Example 1: Excellent application

Example 2: Satisfactory, but may lead to applying an extra unneeded rod.

Example 3: Extra rod produces bridging condition and potential rod abrasion.

Example 4: Extra rod and expanded tube condition, affords little protection, allows severe abrasion and other conductor damage. If undecided about adding an extra rod follow this rule: **When in doubt, leave it out.**

5.11 Armor Rods are factory matched and packed in sets. Do not mix rods from different sets.

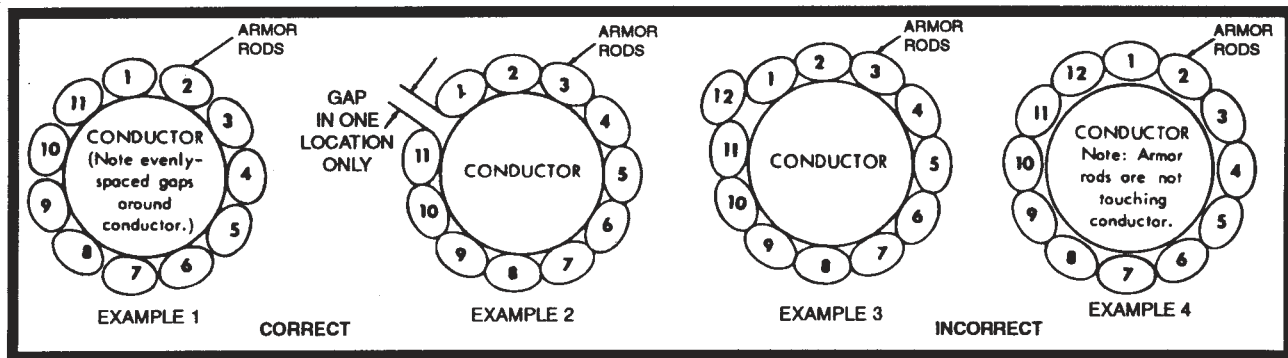


FIGURE 19

SAFETY CONSIDERATIONS

This application procedure is not intended to supersede any company construction or safety standards. This procedure is offered only to illustrate safe application for the individual.

FAILURE TO FOLLOW THESE PROCEDURES MAY RESULT IN PERSONAL INJURY OR DEATH.

This product is intended for a single (one time) use and for the specified application.

Do not reuse or modify this product under any circumstances.

This product is intended for use by trained technicians only. **This product should not be used by anyone who is not familiar with, and not trained to use it.**

When working in the area of energized lines, extra care should be taken to prevent accidental electrical contact.

For proper performance and personal safety, be sure to select the proper size PREFORMED™ product before application.

PREFORMED products are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.



PREFORMED LINE PRODUCTS

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