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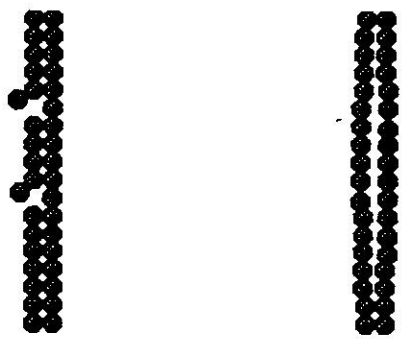
TS-SSC 91-098

50mm SSC Decabling Test

A test was done on 50mm SSC cable in an attempt to quantify the tension and bending limits which permanently deform the keystone cable shape. The deformed cable is known as decabled. A decable occurs in varying degrees, when one or all of the strands are out of place. A decable can also occur when the overall cross section of the cable changes shape, but the strands remain in place as shown in figure 1. This test examined both cases of decabling, using real and practice insulated outer cable.



STRANDS OUT OF PLACE CHANGE IN CROSS SECTION

figure 1

To conduct the test, a short length of cable was clamped to the short model winding table and tensioner. A two inch straight section of cable was twisted 180° using two adjustable wrenches, as shown in figure 2. A ≈0.06 inch gap was left between the wrench and cable. After twisting the cable, it was returned to its original position and the decabling effect was observed. Tests were conducted at tensions from 0 to 100 pounds, in ten pound increments.

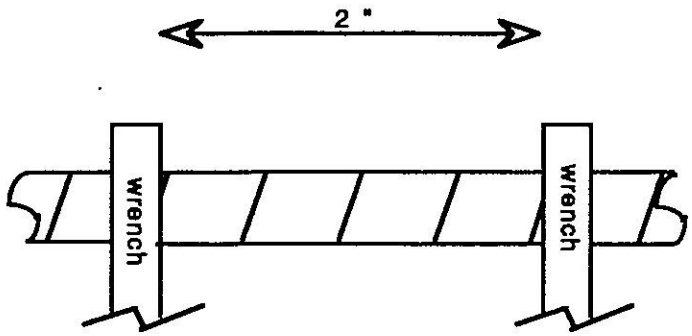


figure 2

The practice cable showed signs of decabling at 0 pounds of tension; however, the cable could be manipulated back to its original shape. The real cable required at least ten pounds of tension to show similar effects. At tensions from ten to thirty pounds the practice and real cable had from three to ten strands out of position. The practice cable would completely decable loosing all of the original shape at tensions greater than 40 pounds. The real cable generally required tensions of 50 to 70 pounds to completely decable.

Two conclusions can be drawn from this test:

- Increasing the tension on the cable increases the decabling effects.

- The real cable performs slightly better than the practice with respect to decabling.