

**Modular Coil Braze Joint R&D Activities**

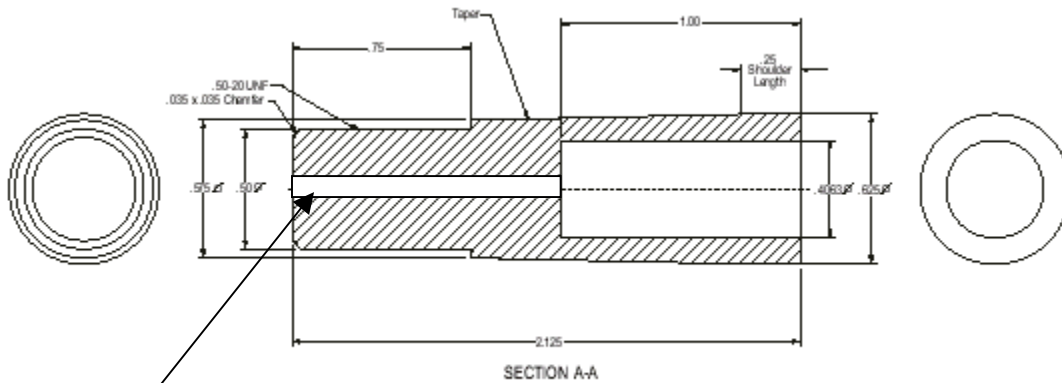
*NCSX*

**Modular Coil  
Lead Braze Development Program  
Preliminary Results**

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By James H. Chrzanowski

## Modular Coil Braze Joint R&D Activities

Several specimens for fabricated and tested for developing the techniques of terminating the modular coil leads. The copper termination leads are as shown in the figure 1 below.



**Figure 1**

Added braze feed hole to terminal (#49 drill size) 0.073 inch diameter

The compacted copper conductor was brazed into the lead termination blocks using Sil-Fos braze material. A Nibco carbon tong heating unit was utilized for heating the specimen to the braze temperature.



The copper conductor was first rounded using phenolic form blocks to provide a proper fit between the cable and terminal block.

**Figure 2**



A chill block provided the necessary cooling to protect the copper conductor from the advancing heat.

The carbon tongs were positioned over the solid part of the termination block

**Figure 3**

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The Sil-Fos was fed through the feed-hole  
**Figure 4**



Back feeding from the cable end  
**Figure 5**



Finished braze operations- **Figure 6**



Specimen dissected –**Figure 7**

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Specimen dissected- **Figure 8**

An additional specimen was fabricated with a lead termination on each end of the cable. The specimen was then pulled in the tensile tester. The cable joint broke at a load of 2300# adjacent to the braze joint in the heat affected zone. (See figures 9 and 10)



**Figure 9**

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**Figure 10**