DCA318 Lead and Return End Extra Kapton for Final End Clamp Installations

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The DCA318 lead and return end clamp assemblies were installed as part of tests following the rebuild of this magnet brought about by the turn-to-turn short in coil 15M-50-1017 and its subsequent repair [1,2]. For the test, the DCA318 lead and return end clamps were installed with 5 mils dry + 3 mils adhesive-backed kapton [3] placed on the insulator inner surfaces. All can and insulator surfaces were cleaned and re-lubricated before the test installation. All normal external diameter measurements in free and loaded state were performed on both end clamps and recorded in the special traveller reserved for the test end clamp installations. Hydraulic installation pressures were also recorded. (The old installation fixture with 10kpsi maximum hydralic pressure was used for the test installations.)

The results from the test installations are shown in Table 1. The pi-tape deflection values shown are the average and rms over the eight positions. The return end deflection is within the acceptable range of 4 - 5 mils. The lead end deflection is rather small.

	pi tape deflection (mils)	hydraulic installation pressure (kpsi)
Lead End	2.0 ± 0.5	6.9
Return End	4.4 ± 0.7	7.8

Table 1. Results of DCA318 Test End Clamp Installation with 8 mils of Kapton on Insulator Surfaces

Conclusion: Based on these tests, the return end clamp may be installed with 5 mils dry + 3 mils adhesive-backed kapton placed on the insulator inner surfaces. At the lead end, two layers of dry 5 mil kapton should be applied to the insulator surfaces prior to end clamp installation. All insulator surfaces should be cleaned and relubricated before installation, and new kapton should be used on the insulator surfaces.

References

1. J. Strait, "Location of turn-to-turn short in DCA318 (revised)", TS-SSC 91-234, November 27, 1991.

2. S. Delchamps, "DCA318: Turn-to-Turn Short Location and Repair", TS-SSC 91-246, December 12, 1991.

3. S. Delchamps, "DCA318 Lead and Return End Extra Kapton for Test End Clamp Installations", TS-SSC 91-253, Delchamp 20, 1991.