

PROGRESS REPORT ON THE ENERGY DOUBLER/SAVER

Most of the magnet development work carried out so far for the Energy Doubler/Saver has been concentrated on dipole magnets; it has always been believed that many of the design solutions found for dipoles would be applicable to quadrupoles. Now this assumption has been tested experimentally, with good results.

Two superconducting quadrupoles have now undergone field measurements. Although the construction did not include the optimum mechanical shims to keep the coils accurately in place during excitation, the results are considered encouraging. A third quadrupole, this one with all appropriate shims, has been built and is now undergoing laboratory testing and measurement. A fourth quadrupole is being constructed and parts for four additional identical quads are being procured.

Design work is also continuing in order to investigate the possibility of making the assembly tooling for quadrupoles similar to that already developed for dipoles. At the same time, care must be taken to ensure that quadrupole quality is not compromised to overcome assembly problems.

An eight-magnet string of dipoles, a bending cell, has been constructed (see cover photograph). This string is, of course, a major systems test for the ED/S. Cryogenic tests have been completed on this string and excitation tests are in progress.

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During August and September, assembly of a 1500-W refrigerator for production-magnet field measurements was started. Test of the components of the system have been encouraging, and complete system tests will start by mid October with production magnet testing being expected in November.

The first completed satellite refrigerator will be moved to a Main-Ring service building for installation in the near future. Components for more satellite refrigerators are beginning to arrive.

Assembly of the compressor, coldbox, air cooler and other major components of the Central Helium Liquifier is now well underway. Component testing is expected to begin in late fall with systems tests anticipated in early winter.

An effort has begun to modify spare Main-Ring power supplies for use in the Energy Doubler/Saver and first testing will begin shortly.

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