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Fabrication and Power Test of last MCBXFB Magnets

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MCBXFB magnets are nested orbit combined correctors for the upgrade of the LHC. The first three magnets have been manufactured at CIEMAT and assembled at CERN, in the framework of the HL-LHC project. The power tests performed on the first prototype showed that the behaviour when the dipoles were individually powered was excellent, but the training to reach nominal currents in combined operation was very long. Memory was lost when the torque direction changed. A similar behaviour was found in the first power test of the second prototype described elsewhere. The origin of the problem has been identified as insufficient mechanical support at the inner dipole coil ends.
This paper depicts the results of the power test after the reassembly of the second magnet with increased pre-stress on the coils. Shimming plan is discussed. Furthermore, a fine tuning of the inner dipole design has been introduced in the third magnet. The results of the power tests on that magnet are also included.

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