

PROTOCOL FOR MOUNTING AND WIRING HAIMSON-STYLE AIR-CORE MAGNETS

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Haimson-style corrector magnet pairs are used in many places at Jlab. Mounting and wiring these magnets, although not technically challenging, can be cumbersome and is prone to error. A written procedure for the mounting and wiring of these magnets has not been found. Documented below is the protocol for mounting and wiring Haimson-style corrector magnets on the new Injector Test Stand BTLLEPG beamline. This convention is also consistent with a single Haimson-style magnet pair (MBH3103H/V) located in the CEBAF accelerator. To the extent that it is possible this convention is hereby declared our standard.

1 Mounting and Wiring the Haimson-style corrector magnets

Haimson-style corrector magnet pairs are used throughout the laboratory. They consist of two air-core magnets with one sitting atop the other. Each magnet itself consists of a pair of two coils. The coil geometry is set in a mechanical-fixing epoxy. As noted, an interesting aspect of this type of magnet is that the vertical corrector magnet sits atop the horizontal corrector magnet. The geometry of the coils are such that the outer radius of the inner magnet coils match the inner radius of the out magnet coils. Although the magnet best explains itself by viewing one an assembled pair on a beamline is shown in Fig. 1.

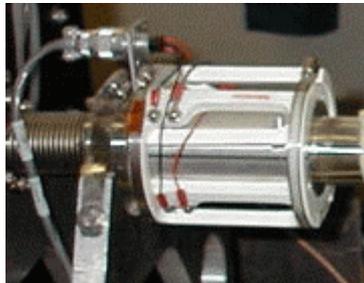


Figure 1. In the figure the beam travels from left to right through the 1.5" OD beampipe. This particular Haimson-style magnet has a 2" ID and therefore an aluminum collar can be seen inside the magnet and attached to the beampipe. The white fixtures are the epoxy bound magnet coils. Leads from the coils originate at terminals that penetrate the epoxy and are mounted to be upstream.

The magnet electrical wire color and typical connector pin-configuration that should be used to wire the magnet is listed in Table 1. Wiring diagrams are given in Fig. 2 (horizontal magnet) and Fig 3. (vertical magnet).

Table 1. Pin-out and wire-color for Haimson-style magnet pair.

PIN	A	B	C	D
WIRE	RED	BLACK	WHITE/BLUE	GREEN
POLARITY	HOT	GROUND	HOT	GROUND

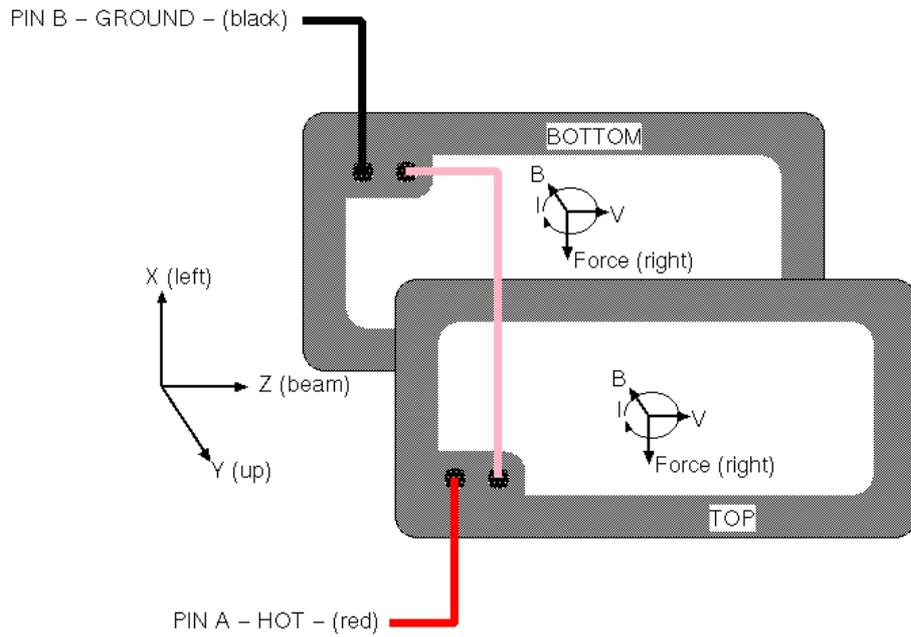


Figure 2. The cartoon shows the wiring scheme for the *smaller, inner* magnet coils that constitute the horizontal corrector magnet. The coordinate system shown defines physical locations that one would view looking along the beamline in the downstream direction. The force shown is on an electron.

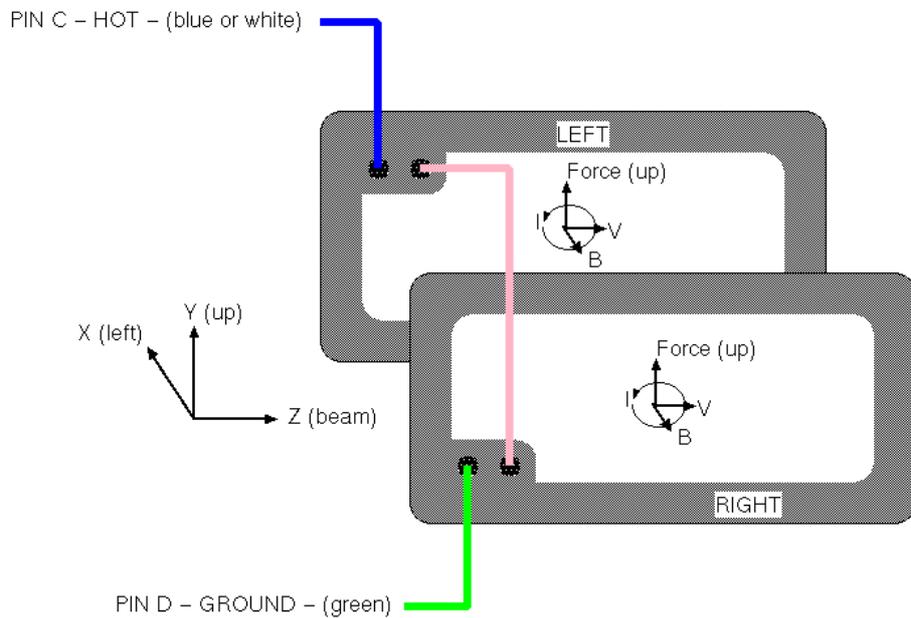


Figure 3. The cartoon shows the wiring scheme for the *larger, outer* magnet coils that constitute the vertical corrector magnet. The coordinate system shown defines physical locations that one would view looking along the beamline in the downstream direction. The force shown is on an electron.

2 Acknowledgements

Thanks to Jim Clark, Tony Day, and Phil Adderley who mount, un-mount, and re-mount these magnets as often as necessary. Thanks to Simon Wood for telling me whether a blue wire is typically hot or ground in this configuration (it's hot).