Main Injector Note #0191

8 GeV Line Instrumentation: Locations and Rack Layouts

G. Vogel 10/29/96

This note is intended to provide information on the installation locations for the 8 GeV transfer line diagnostics, both detectors and electronics. The electronics for the 8 GeV line will be divided between three service buildings, MI-10, MI-8 and the Booster West tower. In order to accomodate the required 8 GeV systems (vacuum, correctors, diagnostics, etc.) a new row of four relay racks will be installed in Booster West facing the G04-RR1 group. They will be designated G04-RR0-xx.

Beam Loss Monitors (BLMs)

There are 67 BLMs spaced along the 8 GeV transfer line. 35 are cabled back to the Booster West tower BPM/BLM instrumentation rack (G04-RR1-5), the other 32 are cabled to the MI-8 service building CR (MI8117).

Beam Position Monitors (BPMs)

There are 59 BPMs associated with the 8 GeV line, 54 single-plane, split-plate detectors and 5 dual-plane stripline detectors. The 5 dual-plane detectors and 18 of the single-plane units are cabled to Booster West with the remaining 36 detectors being cabled to MI-8 (MI8117/6).

Toroids

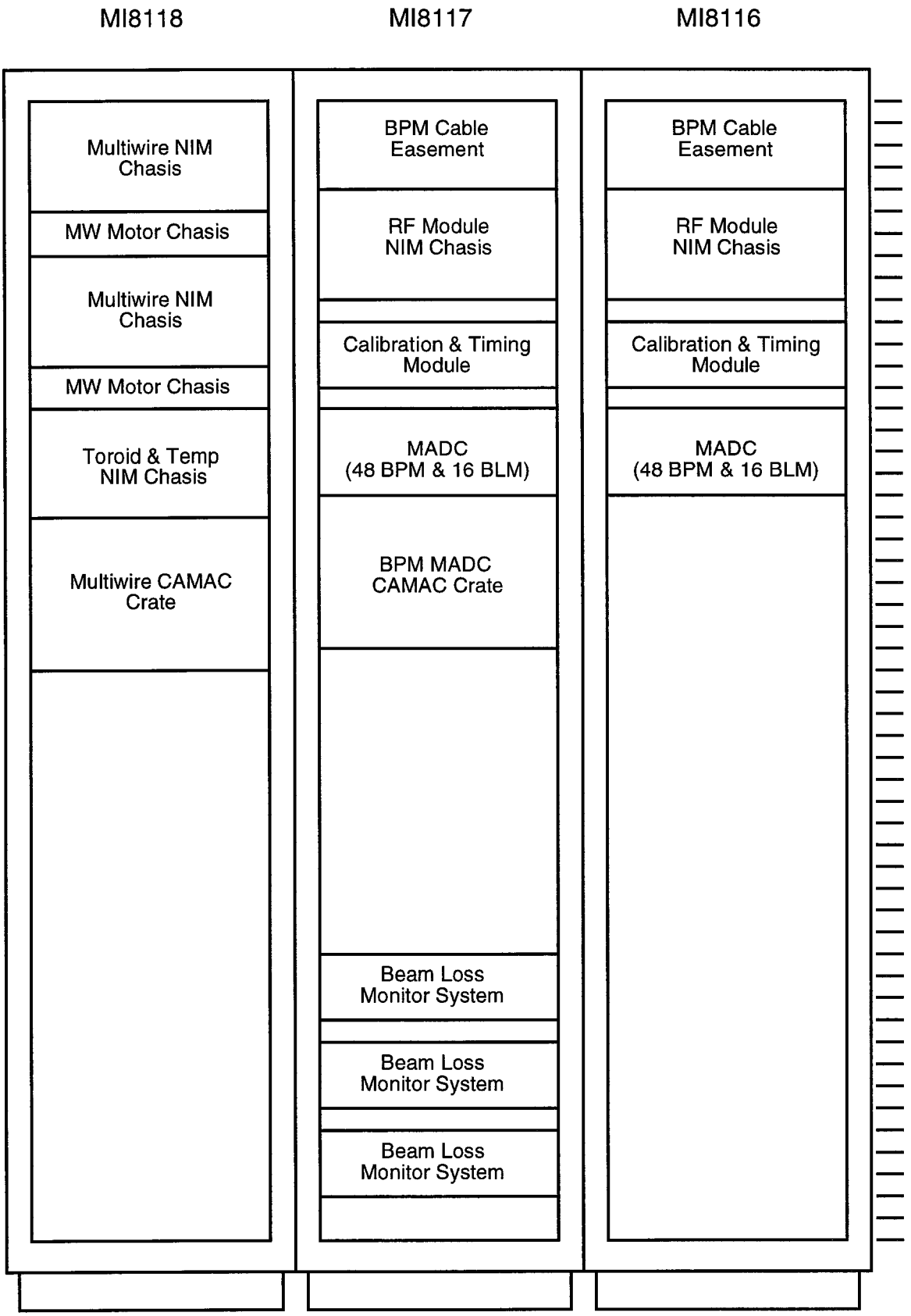
There are two toroids in the 8 GeV line, One at the "top" of the line near VBC1 and one at the "bottom" of the line downstream of Q852. The toroid at VBC1 is already installed, while the unit at Q852 will be cabled to MI-10 (MI10117). The downstream toroid will be temporarily installed downstream of Q832 and cabled to MI-8 (MI8118) for the initial 8 GeV line testing.

Multiwires

There are 14 positions for multiwires in the 8 GeV line. They are located near the following quads; 800, 801, 810, 811, 813, 814, 825, 826, 830, 836, 839, 840, 851 and 852. At present it is expected that not all positions will be permanently populated. The systems for Q800 and Q801 are already installed. The units for Q810-Q814 will be cabled to Booster West (G04-RR0-4), units for Q825-Q840 will be cabled to the MI-8 CR (MI8118) and the remaining units (Q851 & Q852) will be cabled to the MI-10 CR (MI10117). The multiwire for Q836 will be temporarily installed at Q832 for initial 8 GeV line testing.

8-GeV Detector Cable List

Detector	Detector Location	Electronics Location	Cabling (per detector)
8 GeV Line Detectors			
Multiwires	Q800, Q801	Booster Gallery	2 - 26C bundle RG174; 1 - 10C#22
	Q810, Q811, Q813, Q814	Booster West Rack G04-RR0-4	2 - 26C bundle RG174; 1 - 10C#22
	Q825, Q826, Q830	MI-8 CR; Rack #MI8118	2 - 26C bundle RG174; 1 - 10C#22
	Q836, Q839, Q840		
	Q851, Q852	MI-10 CR; Rack #MI10117	2 - 26C bundle RG174; 1 - 10C#22
Upstream Toroid	VBC1	Booster Gallery	1 - 3/8" Heliax; 1 - RG58
Downstream Toroid	Q852	Booster West Rack G04-RR0-4	1 - 3/8" Heliax; 1 - RG58
	(Temp. Q832)	(MI-8 CR; Rack #MI8118)	
BLMs	Q800-Q822 (35)	Booster West Rack G04-RR1-5	1 - RG58; 1 - RG58 RED
	Q823-Q852 (32)	MI-8 CR; Rack #MI8117	1 - RG58; 1 - RG58 RED
BPMs	Q800-Q816	Booster West Rack G04-RR1-5	2 - RG8
	Q817-Q852	MI-8 CR; Rack #MI8116/#MI8117	2 - RG8



Main Injector MI-8 Instrumentation Rack Layout

← STORAGE ROOM

POWER SUPPLIES

MI8120 Power Supply	MI8119 Unassign.	MI8118 Multiwires ~~BPM~~	MI8117 BPM	MI8116 BPM	MI8115 Unassign.	MI8114 Vacuum	MI8113 Unassign.	MI8112 Corr. Element	MI8111 Corr. Element
4H	4H	4H	4H	4H	4H	4H	4H	4H	4H

MI8101 Network	MI8102 Controls Links	MI8103 CATV	MI8104 Unassign.	MI8105 Unassign.	MI8106 Controls	MI8107 Unassign.	MI8108 Unassign.	MI8109 LCW	MI8110 Safety
6H	6H	4H	6H	6H	6HF	6H	6H	6HF	6H

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EQUIPMENT ROOM
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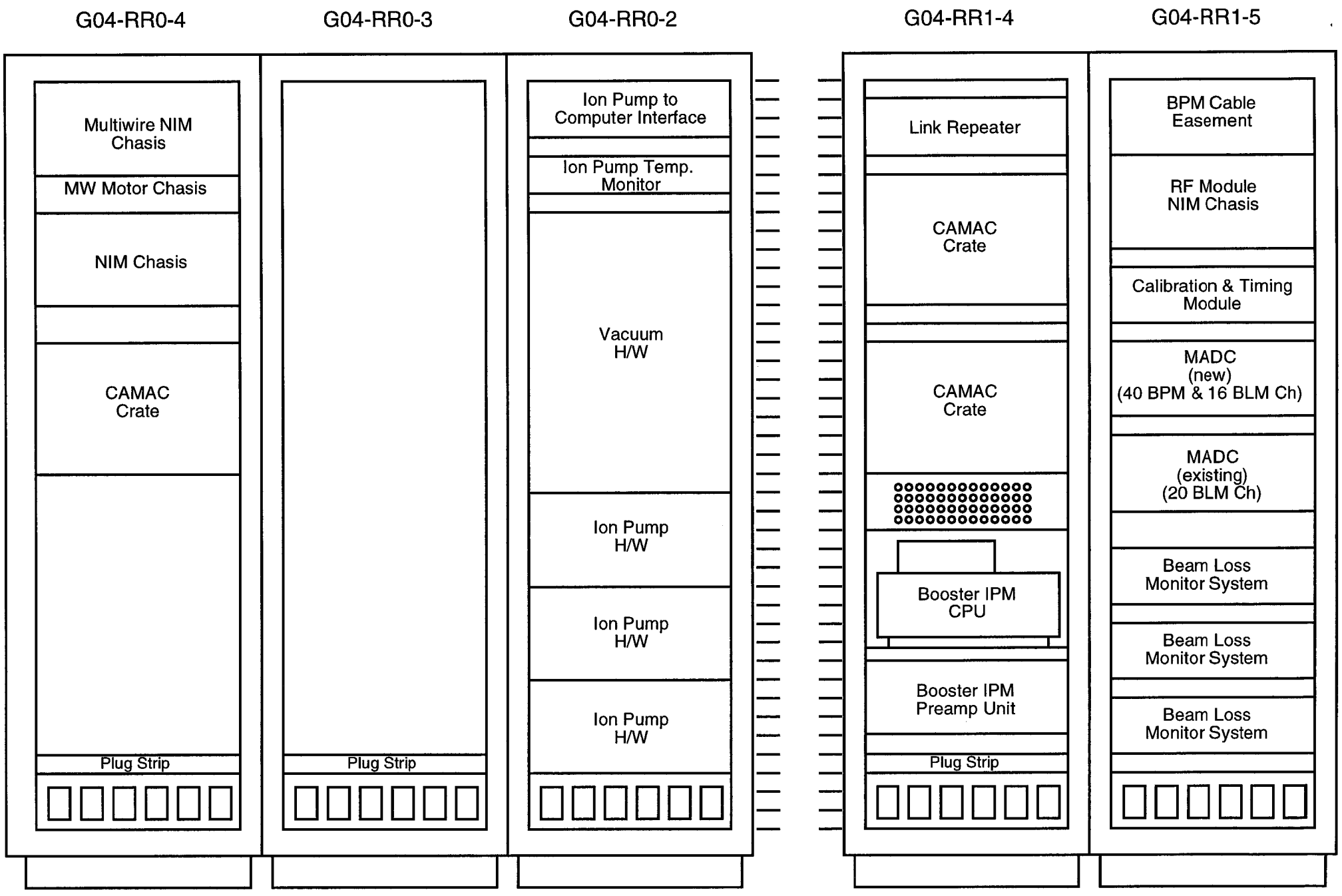
RACK ALLOCATION FOR MI-8 EQUIPMENT ROOM
JUNE 1996



Main Injector BW Instrumentation Rack Layout

Booster West High Bay Area

Central Aisle

8 GeV Multiwire	Unassigned	Vacuum	8 GeV Correctors
G04-RR0-4	G04-RR0-3	G04-RR0-2	G04-RR0-1

Outside Wall

	G04-RR1-5	G04-RR1-4	G04-RR1-3	G04-RR1-2	G04-RR1-1
Existing Rack to be Removed	8 GeV BPM/BLM	Booster H/W	Booster H/W	Booster H/W	Booster H/W

Main Injector Instrumentation Racks in Booster West