

Accelerator Department  
BROOKHAVEN NATIONAL LABORATORY  
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AGS DIVISION TECHNICAL NOTE

NO. 160

HEBT STEERING (HEBST)

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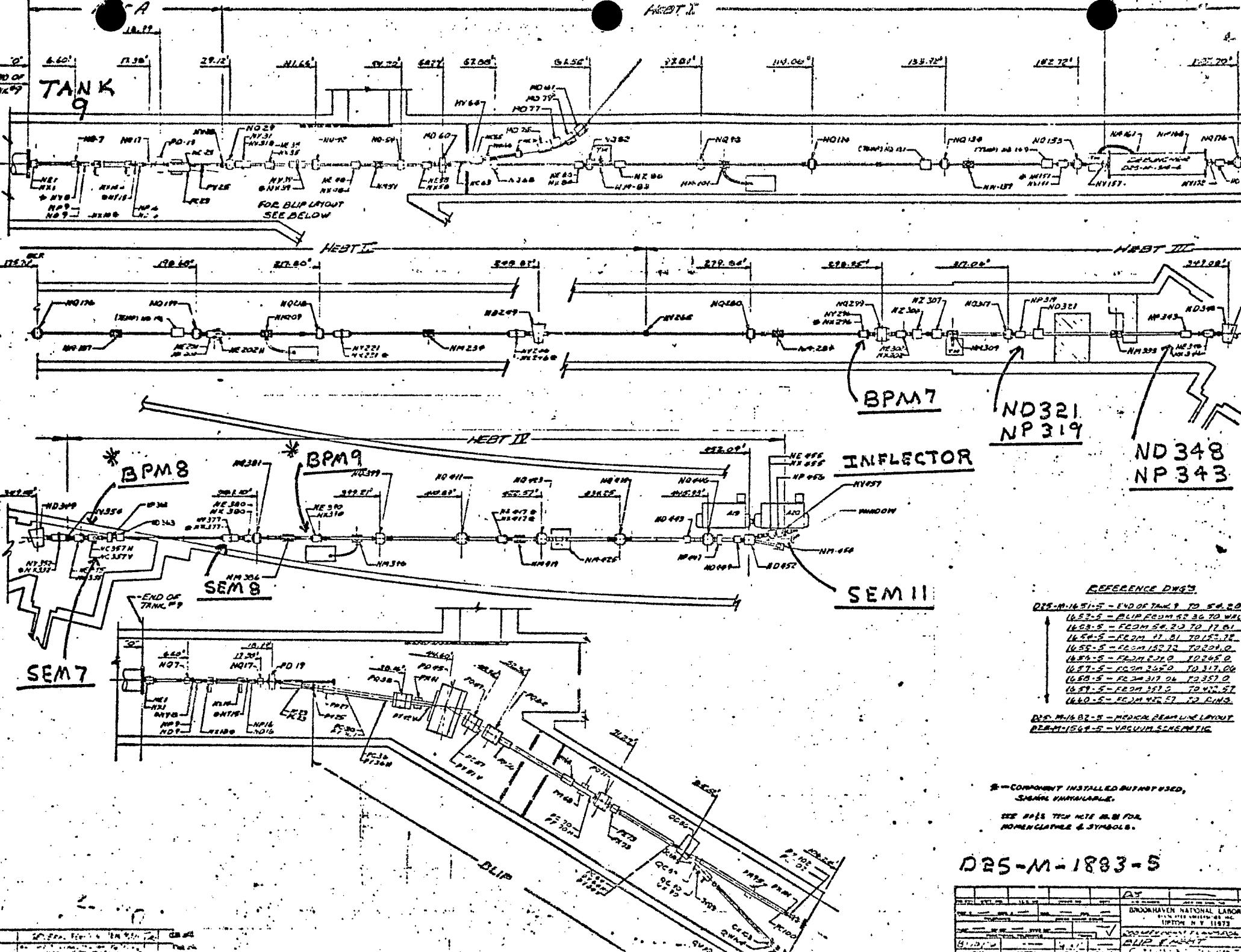
PURPOSE: To read position monitors and control four dipoles in HEBT line refer to HEBT drawing.

LOCATIONS: Two horizontal dipoles ND 321 and ND 348, two vertical dipoles NP 319 and NP 343. Position monitors are located at BPM8 (NX355) and BPM9 (NX390), also read tank 9 current and BPM7.

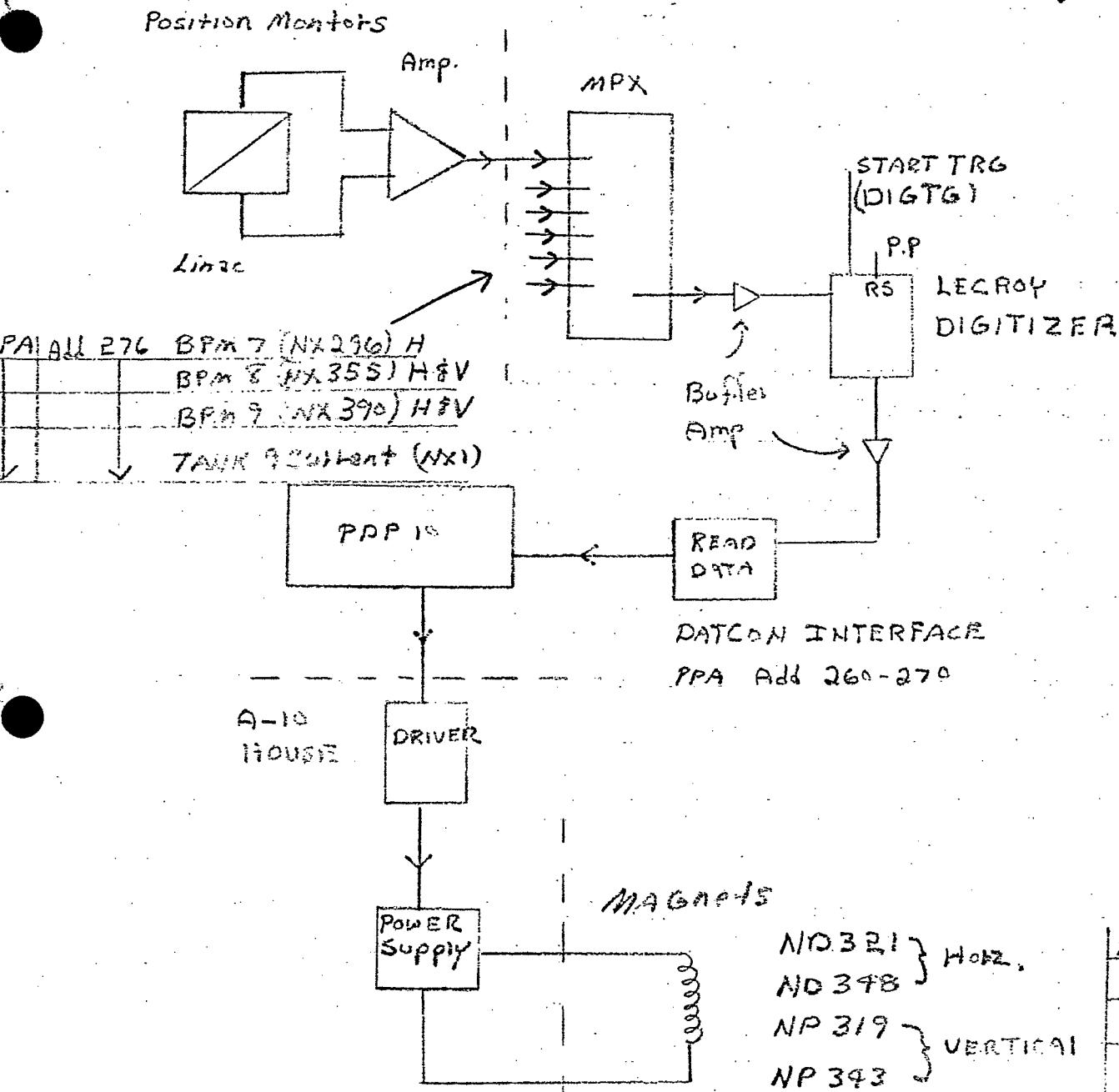
METHOD: Using a high speed digitizer and multiplex switch to read position monitors. Block diagram #1.

OPERATION: Program name HEBST located in R R (25,13) - This program allows the user to read or correct the steering at BPM8 and BPM9 it also reads tank 9 current and BPM7. The device used to read is a 1024 bit digitizer which start reading data by DIGTG (Digitizer Trigger). It is also necessary to read multiplex DIMXA to switch position monitor signals.

If you go into feedback loop it will read data and correct automatically till tolerance is reached. If you just want to plot data it will switch through position monitors and store data and let you display in many forms. See examples of different plots. It will take about one minute to iterate all four dipoles to a tolerance of  $\pm$  6 counts. The calibration is 20 counts per mm.



DiG #1



ring hebt line

DRAWING# Position Monitor D2BBL 1349-3

MPX switch D09-E499-3

Buffer Amp D09-E1180-2

DATCON Interface D09-E1181-3

CAI 20 counts / mm PLOT DATA

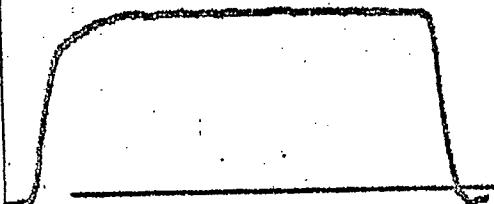
+128

TNK91

61.6MA

4-DEC-79 08:59

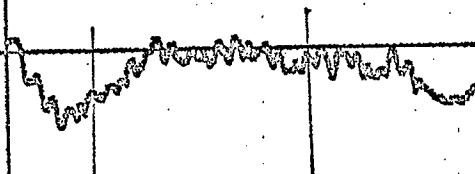
PM8H diff AV 13.3



OFFSET 10 channels

PN9H

0.1



window

-128  
+128

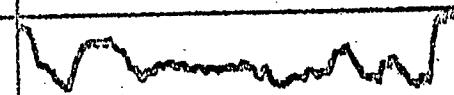
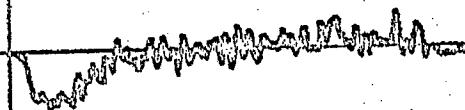
PM8U

3.3

PM9U

2.0

PM7H



-128

1X1 RIN DIG .SEL 11-OCT-79 10:21 14.2  
 EQUIPMENT MODE COMMAND READBACK AT UNTM  
 \* HD321 -568 ON -570 2 3 3 1 2 2  
 \* HD348 392 ON 395 -1 3 3 1 2 2  
 HD449 2180 ON 2177 -1 3 3 1 2 2  
 \* MP319 -92 ON -93 -4 8 9 1 3 6 4 5  
 \* MP343 569 ON 617 -1 3 3 1 2 2  
 MP447 40 ON 40 -1 3 3 1 2 2  
 MP456 -270 ON -269 -1 3 3 1 2 2  
 PM8H 2 AMP -1 3 3 1 2 2  
 PM8V 3 AMP -1 3 3 1 2 2  
 PM9H 4 AMP -1 3 3 1 2 2  
 PM9V 12 AMP -1 3 3 1 2 2  
 DIMXA TNK9I 0 -1 3 3 1 2 2  
 DIMXB PM7H 1 -1 3 3 1 2 2  
 TNK9I 1 AMP -1 3 3 1 2 2  
 PM7H 0 AMP -1 3 3 1 2 2  
 LINW HD249 465 468 458 2  
 DIGTG 633 ON 10US INJ P

1 2 3 4 5 6 7 8  
 SEL SET GETT SAVT CHNG BACK NEXT LIB