

Report of lamination contour measurements using the Korda 83 with a touch probe (Renishaw TPI)

R. Phillips

July 1986

Collider Accelerator Department  
**Brookhaven National Laboratory**

**U.S. Department of Energy**

USDOE Office of Science (SC)

Notice: This technical note has been authored by employees of Brookhaven Science Associates, LLC under Contract No.DE-AC02-76CH00016 with the U.S. Department of Energy. The publisher by accepting the technical note for publication acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, world-wide license to publish or reproduce the published form of this technical note, or allow others to do so, for United States Government purposes.

## **DISCLAIMER**

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

REPORT OF LAMINATION CONTOUR MEASUREMENTS  
USING THE KORDA 83 WITH A TOUCH PROBE (RENISHAW TPI)

*Booster Technical Note*  
No. 44

R. PHILLIPS  
JULY 29, 1986

ACCELERATOR DEVELOPMENT DEPARTMENT  
*Brookhaven National Laboratory*  
*Upton, N.Y. 11973*

REPORT OF LAMINATION CONTOUR MEASUREMENTS  
USING THE KORDA 83 WITH A TOUCH PROBE (RENISHAW TPI)

R. Phillips

July 29, 1986

Generally this technique, (carried out carefully), should yield results to better than  $\pm 0.001$ ". The sensitivity is around  $0.0001$ ".

As long as the height (Z dimension) of the ball of the touch probe where it touches the edge of the lamination is unchanged neither the roundness of the ball nor the slant of the shear by the die will affect the relative value of the measured y dimensions.

If the lamination is not flat on the jig table both the ball roundness and shear slant will cause errors in the relative y dimension measurements.

When shifting from top edge to bottom edge measurements the absolute Z position must be maintained or the ball roundness and shear slant will obviously produce errors in the absolute numbers, and, of course, for absolute numbers twice the ball diameter provides the correction factor for the shift, provided the middle of the ball is doing the touching.

Minute (insignificant) burrs can also give false readings, so a number of check measurements need to be made on either side of a suspected reading.

The gap of the laminations appears to be flat to  $\pm 0.001$ " on the average. Gauge block measurements confirmed this.

Not all the original measurements made in April and May 1986 were done with the touch probe. Some were done optically with cross hairs. Measurements done this latter way are less accurate.

The projections at the sides of the gap to trim the field were also used as stacking supports. They are flat to  $< \pm 0.0005$ " on lamination N14.