

SPOOL PIECE APERTURE
WARM TO COLD TEMPERATURE
POSITION CHANGES

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December 1982

In an effort to determine the position of the correction coil system contained in the spool piece in operation, a series of experiments were done in Lab 2 during the cryogenic testing of the spools. A special turn-around box was constructed which had a window through which a sighting could be made of the aperture of the coil packages. A set of four survey monuments were constructed with three point suspension, which were back-lighted by placing a small bulb behind each target which could be turned on individually external to the spool string while under vacuum and at any temperature. The targets were located at the ends of each correction coil package in their beam tube.

In the course of the above experiments it was found that the spools' outside walls had to be firmly bolted to the floor to prevent distortion when they were evacuated. Once this point was appreciated, all experimental results were obtained with the spools heavily restrained, and the subsequent data are summarized in Table I.

Standard experimental consistancies were checked; i.e., effect of the window, effect of evacuation, and position of observation point.

TABLE I

RESULTS

- VERTICAL -

(inches)

±.002

<u>Spool</u>	<u>DSQ</u>	<u>OSQ</u>	<u>Aver.</u>
TSE 162	+ .003	- .017	- .011
TSC 164	- .001	- .028	- .016
TSF 157	- .001	- .038	- .019
TSB 138	- .007		
TSA 022	- .007		

The horizontal results were random and less than 0.008".
Graphs of the vertical motion are given in Figures 1 and 2.

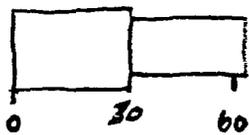


Figure 1.
Vertical motion during
cooldown - 300K→4.2K

Long Spools

TSE	162	1
TSC	164	2
TSF	157	3

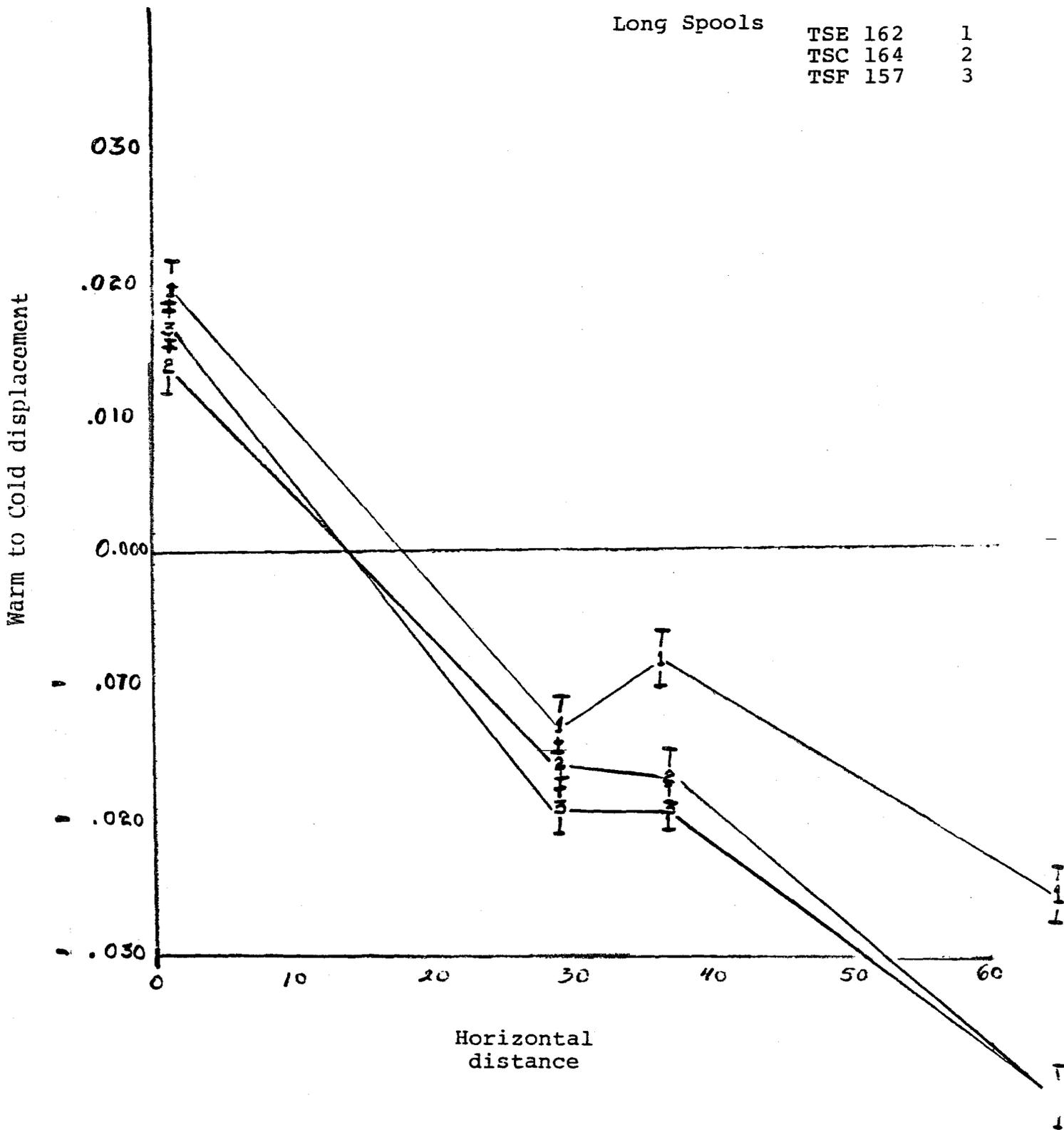
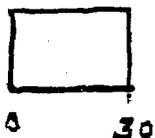


Figure 2.
Vertical motion during
cooldown - 300K to 4.2K



Short Spools
 TSB 138 1
 TSA 022 2

