



USATF MEASUREMENT SEMINAR

Scottsdale, Arizona

October 5, 2002



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By Pete Riegel & Mike Wickiser

The seminar was organized by Mike Wickiser, who put a notice in September *Measurement News* and *MNForum* notifying all that it would be held. Some interest had been expressed by measurers and others in Phoenix, and given the interest, it seemed a productive thing to do. Western Vice-Chairman Tom McBrayer, Arizona Certifier Gene Newman, and Ohio Certifier Pete Riegel came to help.

Tom LaBlonde, a Phoenix measurer and resident of Scottsdale, handled all the onsite planning and organization. He found a superlative venue at Gainey Ranch Community Center, located on quiet roads within a gated community, with the Community Center itself serving as a classroom. He designed the course and drew a map for students to follow. He arranged for dinner afterward. The seminar went well, thanks to his competence and planning.



Students and staff met at the Community Center at noon, and were given a brief orientation by Mike Wickiser, after which the group went to a nearby bike path and laid out parallel 875 foot calibration courses. We were trying for 1000 feet, but ran out of room when the path curved. One calibration course was laid out by a team using a 165 foot steel tape, and the other by a team using a 100 foot tape. After layout, each team checked the work of the other.

Because time was limited, and we did not wish to spend time on explanations of temperature correction, we decided to assume both courses were exactly 875 feet in subsequent calculations.

A group of four (Gary Grierson, Frank Cuda, Tom LaBlonde, Norm Janoff) calibrated their bikes, and, led by Tom LaBlonde, who knew the course, measured the circuit. During the ride, Janoff became separated from the others and aborted his ride. He rode again later when Pete Riegel led him around the course.



After the riding was done, all repaired to the Community Center to calculate, drink Gatorade and eat cookies, provided by LaBlonde. Calculated results were posted on a board and discussed by the group.



Results of calculations may be seen on following pages.

Noteworthy things that can be seen in the calculations:

- 1) The two measurements of the #1 calibration course differed by $\frac{3}{8}$ inch, which is acceptable. The two measurements of the #2 calibration course differed by $1\frac{3}{4}$ inches, which is not very good agreement. One team or the other likely made some taping mistakes, most likely in setting down the proper zero point.

- 2) On postcalibration, everybody either equaled or had less variation than on precalibration, indicating the effect of concentration on straight riding.
- 3) Tom LaBlonde, with his skinny, high-pressure tire had less calibration change than did the others, who were riding fat-tire mountain bikes.
- 4) Riegel improperly reported his final figure, because he had neglected to include the 1.001 Short Course Prevention Factor in his day's constant. Since he was assisting Janoff with his calculations, Janoff suffered the same error. These errors were caught and corrected later. Check, check, check! Mistakes are inevitable, and checking thoroughly will catch most of them.

What constitutes a "good" measurement? It's impossible to tell without checking the actual course, but good measurement generally has the following characteristics:

- 1) Low variation among the four precal and postcal rides. How low? 1 or 2 counts on a 300 m or 1000 foot course is OK. This level can be achieved with practice.
- 2) Low change of constant between precal and postcal. This is often outside the control of the measurer. If a long day is planned, an extra calibration at midday is a good idea.
- 3) Good agreement between the overall measurements of the course. Our course contained a high level of turns, and this tended to spread out the measurements. Nevertheless, four of the five measurements agreed pretty well. And the fifth rider was aware that he had not followed a tight line.

CONCLUSION

Given the short duration of the seminar, it can be deemed a success. All interested individuals gained "hands on" experience with in depth assistance from a highly experienced group of instructors. Gene Newman having recently been appointed Arizona certifier was available to establish familiarity with measurers in the Phoenix area.

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MEASUREMENT RESULTS - SATURDAY, OCTOBER 5, 2002

CALIBRATION COURSES

Two parallel courses were created.

#1 was laid out with a 165 foot steel tape and checked with a 100 foot steel tape.

#2 was laid out with a 100 foot steel tape and checked with a 165 foot steel tape

Temperature estimated at 90F

	#1	#2		
Layout Measurement, feet	875	875	874' 10 1/4 " =	874.8542
Check Measurement, feet	874.9688	874.8542	874' 11 5/8 " =	874.9688
Average Measurement, feet	874.9844	874.9271		
Temperature Correction factor	1-((90-68)*0.00000645)			
	1.000142			
Corrected length, feet	875.11	875.05		
Corrected Length, metres	266.73	266.72		

For the purposes of getting on with it, students were asked to use 875.00 feet as the calibration length.

Assumed calibration length, metres = 875.00*0.3048 = **266.70 metres**

RAW MEASUREMENT DATA OBTAINED AT SEMINAR

	Gary Grierson	Frank Cuda	Tom LaBlonde	Norm Janoff	Pete Riegel
Precalibration	12313	15200	64800	1258	18300
	15354	18185	67815	4339	21341
	18394		70828.5	7416	24381
	21434	18200	73843	10492	27422
	24473	21183.5	76857	13568.5	30461.5
		24167			
		27154			
Begin Loop	37000	39000	89000	84200	41900
End Loop	63763	65298	115503	111432	68650
Postcalibration	78856	76800	27500	23064	80130
	81896	79781.5	30515	26141	83171
	84935	82766	33529	29216.5	86213
	87975	85747	36543	32293	89255
	91015	88731	39556.5	35367.5	92297

CALCULATED VALUES

	Gary Grierson	Frank Cuda	Tom LaBlonde	Norm Janoff	Pete Riegel
Precal 1	3041	2985	3015	3081	3041
Precal 2	3040	2983.5	3013.5	3077	3040
Precal 3	3040	2983.5	3014.5	3076	3041
Precal 4	3039	2987	3014	3076.5	3039.5
Average	3040	2984.75	3014.25	3077.625	3040.375
Counts per metre	11.39858	11.19141	11.30202	11.53965	11.39998
Counts per metre x 1.001	11.40997	11.2026	11.31333	11.55119	11.41138
Variation, counts/4 rides	2	3.5	1.5	5	1.5
Postcal 1	3040	2981.5	3015	3077	3041
Postcal 2	3039	2984.5	3014	3075.5	3042
Postcal 3	3040	2981	3014	3076.5	3042
Postcal 4	3040	2984	3013.5	3074.5	3042
Average	3039.75	2982.75	3014.125	3075.875	3041.75
Counts per metre	11.39764	11.18391	11.30156	11.53309	11.40514
Counts per metre x 1.001	11.40904	11.1951	11.31286	11.54462	11.41654
Variation, counts/4 rides	1	3.5	1.5	2.5	1
Day's constant (larger), counts/m	11.40997	11.2026	11.31333	11.55119	11.41654
Average constant, counts/m	11.4095	11.19885	11.31309	11.54791	11.41396
Change in constant, counts/km	-0.9	-7.5	-0.5	-6.6	5.2
Counts obtained on course	26763	26298	26503	27232	26750
Metres by larger constant	2345.6	2347.5	2342.6	2357.5	2343.1
Metres by average constant	2345.7	2348.3	2342.7	2358.2	2343.6
Reported on Site, metres	2345.6	2347.0	2342.6	2360.7	2345.4

