



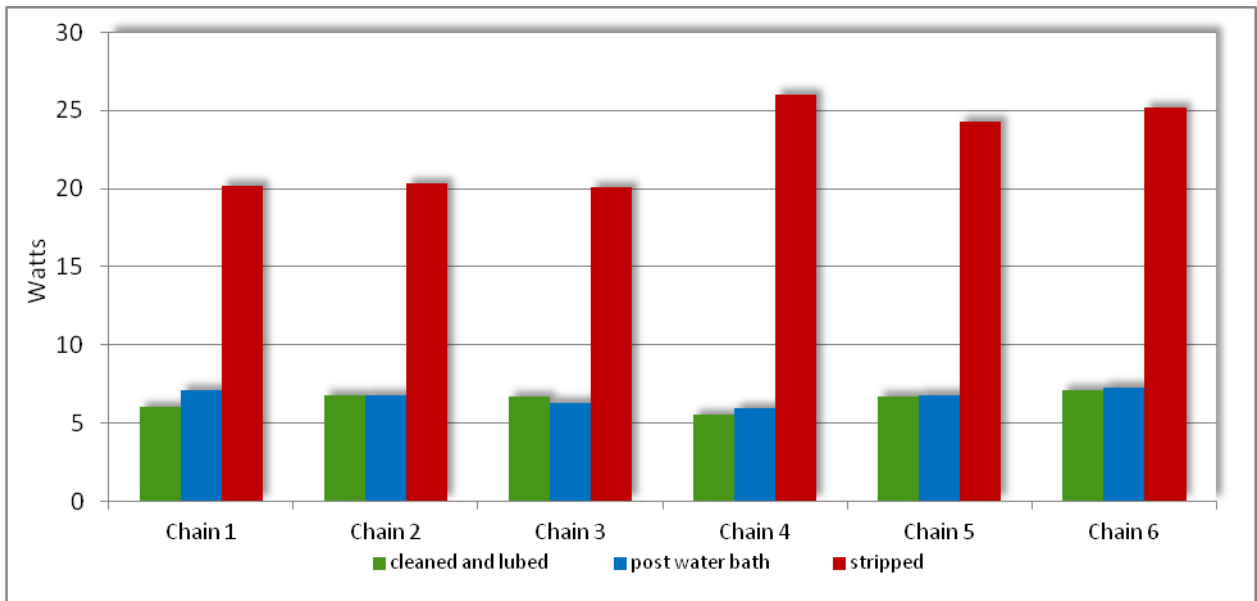
***Chain Efficiency Test:***

***Water Bath & Dry Chain***

*continuation of the 'Dirty Chain Efficiency Test'*

**SUMMARY OF RESULTS-**

- 6 cleaned and lubed chains were ultrasonically bathed in tap water, dried, then tested. The average efficiency of the chains after a water bath was 6.67 watts. This is an average increase of 0.24 watts from the average efficiency prior to the water bath.
- The 6 water-bathed chains were then ultrasonically cleaned in two baths of lacquer thinner. The average efficiency of the chains after the lacquer thinner baths was 22.65 watts. This is an increase of 16.22 watts from the clean and lubed state.
- This test is a continuation of the “Dirty Chain Efficiency Test”. The same 6 chains used in the Dirty Chain test were subsequently used in this “Dry Chain Test”.



*Graph 1: Chain friction vs sample in given conditions*



### **GOAL**

To determine the effects of water of chain efficiency. To determine the effects of stripping a chain of lubricant on efficiency. This test is not intended to simulate real world conditions. No contaminants were introduced. In a simulated real world test, dirt, sand, grime, etc would be incorporated at some level. This test is designed to evaluate the friction levels of metal-on-metal contact within the chain.

### **TEST DETAILS**

The 6 chain samples from the 'Dirty Chain Test' were used. The initial state (clean and lubed) of the chains was unchanged from the completion of the 'Dirty Chain Test'.

For the water bath testing, the chains were immersed in an ultrasonic bath of tap water (3 at a time), agitated for 15 minutes, then flipped and agitated for another 15 minutes. The chains were then dried overnight, and tested on the Tension Tester.

For the lacquer thinner bath testing, after water bath testing, the 6 chains were immersed in an ultrasonic bath of lacquer thinner (3 at a time), agitated for 15 minutes, flipped and agitated for another 15 minutes. This process was repeated on each chain with a second bath of clean lacquer thinner, to ensure complete stripping of lubricant. The chains were dried overnight, and tested on the Tension Tester.

### **ADDITIONAL DETAILS**

- All chains were tested with the Tension Test Method (FTT) at approximately 250 watts rider output. More information on the Full Tension Test Method can be found at [www.friction-facts.com/equipment](http://www.friction-facts.com/equipment).
- 95RPM cadence was used.
- 53T/11T FSA Ring/SRAM cog combination was used.
- The accuracy of the FTT is +/- 0.02W
- Equipment system losses (the losses due to the ceramic bearings in the equipment) were subtracted from the final results presented in this paper.



**DATA**

Chain #	Chain Model	Clean & Lubed	Post Water Bath	Post Lacquer Thinner Bath
1	SRAM 1051	5.98	7.07	20.17
2	SRAM 1091R	6.73	6.76	20.30
3	SRAM 1091	6.64	6.26	20.06
4	SRAM 1091	5.48	5.89	25.98
5	SRAM 1091	6.68	6.77	24.26
6	SRAM 1091	7.07	7.26	25.14

*Values in watts*