Tire Blanket Use for Autocross

Modern 200 tread wear tires perform their best when they're at their optimum temperature. Since SCCA rules don't allow heating after a period 30 minutes before the first car off in a run group, heat created from runs is the main heating source. At local autocross events, with relatively small run groups and short cycles between runs, the challenge is keeping tires from getting too warm, and water sprayers are used to cool the tires. When one moves to national level events, run groups get much larger, time between runs is significantly longer, and keeping heat in the tires becomes the challenge, particularly in cooler ambient temperatures and/or when it's windy.

Tire blankets then become the tool of choice, and are used between runs to prevent captured heat from escaping. Figure 1 shows an example of heat loss, with data from three scenarios. Scenario 1 is in still air with no tire blanket. A mounted tire at spec pressure (Yokohama A052), was heated to a 140 degree F tire surface temperature, and then was allowed to cool. The time to return to the ambient temperature of 82 degrees was measured and the plot shows that after 23 minutes it had achieved that. Scenario 2 is the same mounted tire heated to 140 degree F surface temperature, but this time it was subjected to a 3 mph constant air flow, simulating a light breeze. In this scenario, the return to ambient time was a very short 8 minutes, approximately half the typical 15 minutes between runs at national events. Scenario 3 was the same mounted tire again heated to 140 degrees F. In this scenario, it was subjected to a 3 mph constant air flow to simulate a light breeze, however a tire blanket was installed on the tire to insulate it and protect it from the breeze. In this scenario, the return to ambient time was extended to 47 minutes, and most importantly at 15 minutes it was 12 degrees above ambient.

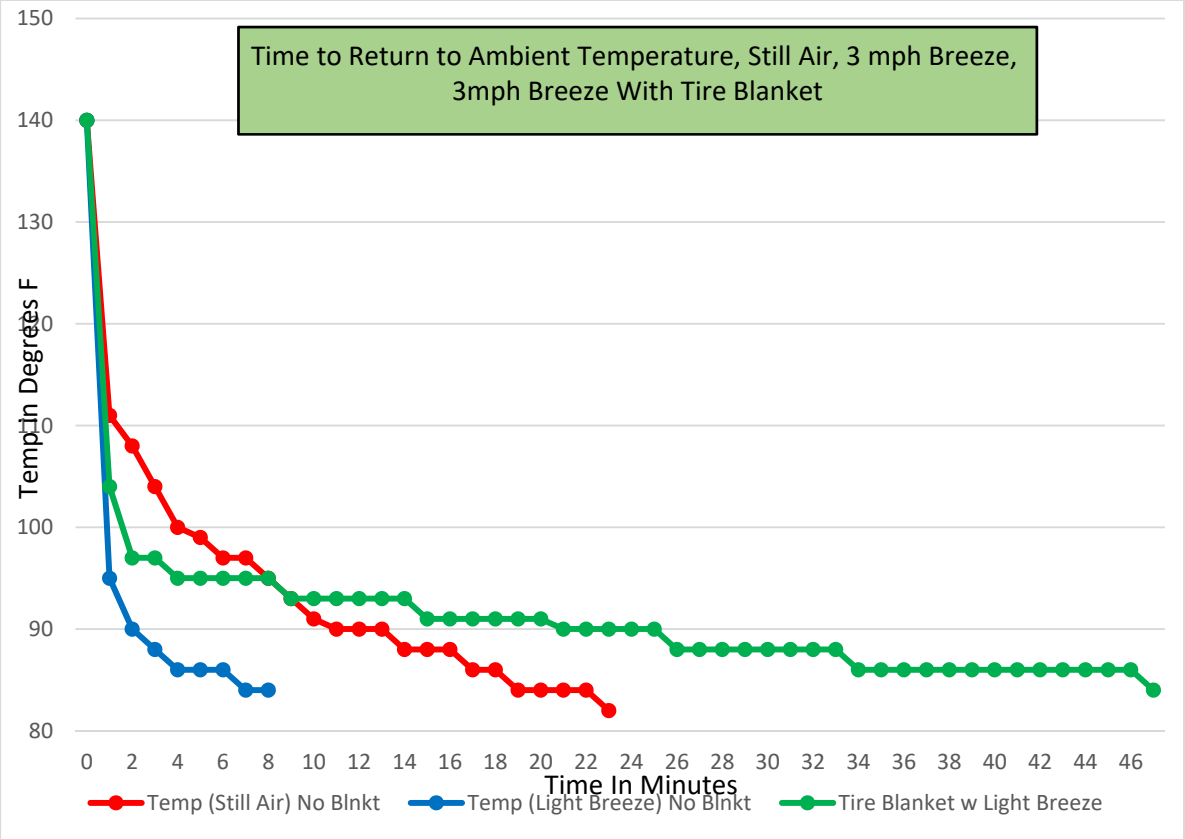

Figure 1: Time to Cool to Ambient Temperature Data Plots

Tire Blanket Use for Autocross

Exploring this further, testing was performed to simulate the temperatures achieved from a typical 3 run scenario as would be expected at a national level event. The same tire setup was used, however this time instead of heating the tire to 140 degrees surface temperature and waiting for it to completely cool, the surface temperature was checked at 15 minute intervals and the tire was reheated to a 140 degree F surface temperature. Figure 2 shows the temperature profile for both no tire blanket and also with a tire blanket. A 3 mph breeze was used, and three cycles were run for when the tire blankets were applied to determine if there was consistency and to account for any variables in applying and removing the tire blankets. The data shows that without a tire blanket, the tire has cooled to ambient temp well before the 15 minute time increment expired, indicating every run would have been made on effectively "cold" tires. The scenarios with the tire blanket applied not only maintained heat, but gained temperature each cycle, indicating that the tire blanket was highly effective and controlling heat loss.

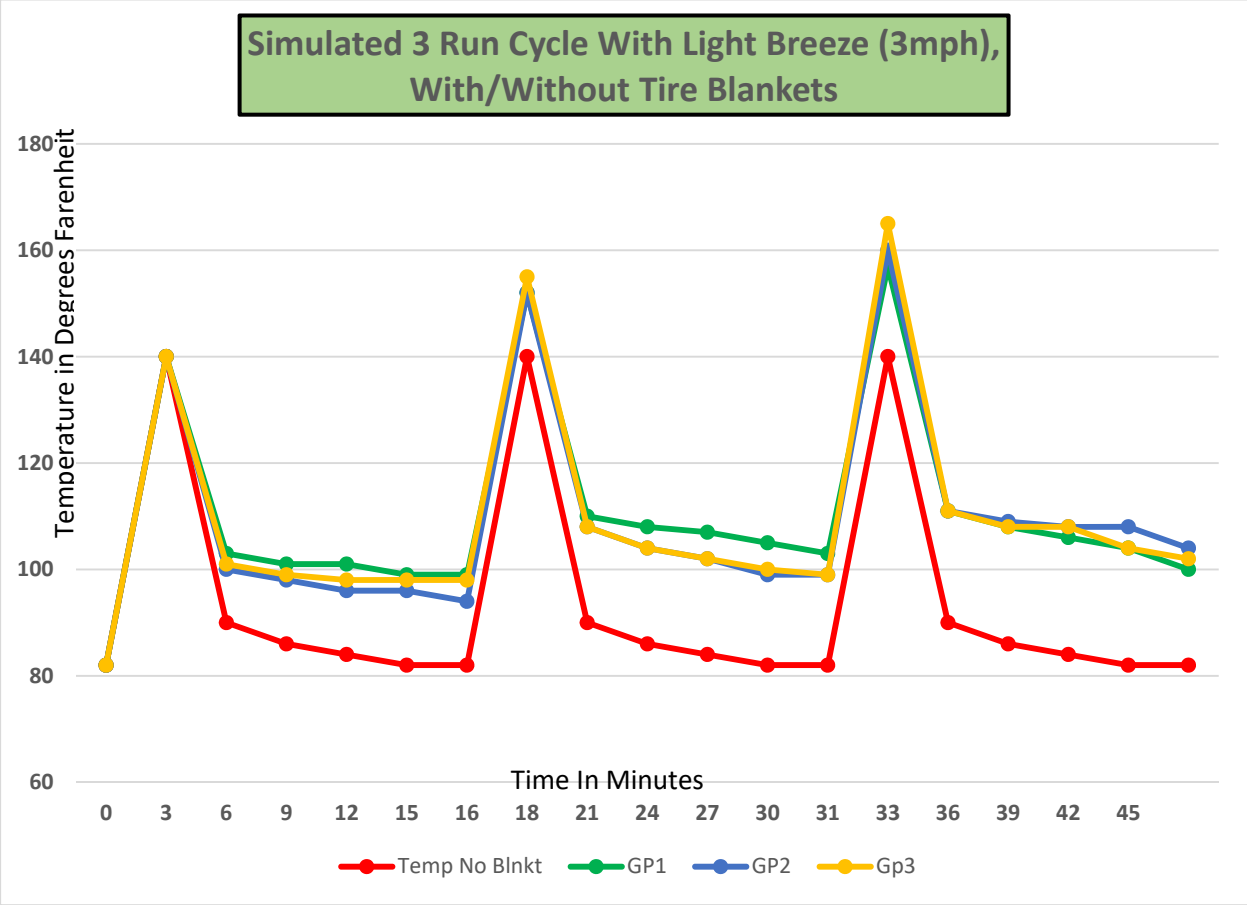

Figure 2: Heat Gain/Loss With/Without Tire Blanket

The conclusion to be gained from this testing and data is that tire blankets can be an effective tool to optimize tire temperatures at events where long waits between runs are expected, and should be a part of any serious Autocrosser's tool set.