

Hi-Tech Electronics for the '04 GTO

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Those of you who have carburetors and points can read this for amusement, but, fact is, this isn't your father's Pontiac. The new GTO has a phenomenal electronic fuel management and ignition system that not only keeps it emission legal, but also produces 20+ mpg on the highway and 13-second quarter mile times. And, while it's not politically correct to brag about GM these days, this latest version of the LS-1 engine and electronics is pretty slick in stock trim.

Prior to our first open road racing event, we wanted to be able to monitor a variety of parameters that might influence performance and found a new outfit producing just what we needed. Aeroforce Technology makes neat gauges that monitor, in real time, virtually all the outputs of the computer, ranging from ignition advance to fuel injection pulse duration to inlet air temperature. And they simply plug into the diagnostic terminal on the car. Since our GTO is a race car, we skipped the necessities and just mounted them on a piece of aluminum bolted to the dash, so our navigator could read and note them as

we made our way down the racecourse. What we learned then enabled us to make changes in the computer programming as required. For more info about Aeroforce Technology gauges, take a look at their website, www.aeroforcetech.com

Now that we knew what was happening in the stock computer, our friends at Superchips built us a programmer to modify the factory settings as required. These are pretty easy to use, plug into the diagnostic terminal and tune the pre-determined Superchips performance upgrade by just pushing a button or adjust your shift points, shift firmness, fan setting, rev limiter, speed limiter, and gear ratio as required for your specific needs. And, another push of the button will return the computer to its original stock configuration if necessary. Along with an increase in performance, customers report fuel economy gains of 1 to 2 mpg. Horsepower gains up to 10% over stock are typical through Superchips Performance tuning. It's worked so well on the GTO, that I'll be doing my tow vehicle, a GMC Dualie, next. For more information, look at www.superchips.com.

Then we built our own system for reading tire temperature in real time. One of the dangers in open road racing is tire failure. Obviously losing a tire at 165+ mph can be catastrophic and there hasn't been any way to satisfactorily monitor tire pressures and temperatures in real time. The tire pressure monitoring devices currently available don't react quickly enough for racing purposes though they're just fine on the highway. Since tire temperature is a prime indicator of impending tire problems, we found a simple infrared sensor-driven tire temperature measuring device would meet our needs. Most professional racing teams use some sort of data acquisition system to monitor a variety of



performance related items during a race and taking a line from them, we built a basic system using an infrared sensor mounted in the wheel well that reads each tire temperature on a rotating basis, changing every 10 seconds. Using a baseline of 200 degrees, an alarm system lights a warning light when that temperature is exceeded, giving us the opportunity to slow to reasonable speeds if necessary. It hasn't been, so far.

If you've been camping, fishing, flying, or driving a rental car, you've probably used a GPS. We use two, one to read top speed and average speed and another to function as a stopwatch and as a backup in case of driver or GPS failure. Accuracy on these is +/- 20 feet; close enough for what we're doing and they help if we can't find our way back to the hotel. If you look carefully, you'll see the GPS reads 159 mph as the maximum speed it's reached so far.

(For more information on the Dave Wolin GTO road racing project— as well as other race info— check out: www.davewolin.com/motorsports.)

