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## Test Cell Tips

Whether you run an engine or chassis dynamometer test cell, there are plenty of opportunities for little things to go wrong. Sometimes those “little things” may have big consequences, anything from invalidating the entire test’s results, to destroying expensive hardware. If you have been dyno testing long, you inevitably have made your own mistakes, like forgetting to turn on the engine cell’s ventilation, or miss communicating some



planned test step to the vehicle’s operator.

Over the years we have solved some of the most common trouble spots. Below is a list, in no particular order, of tips that may be applicable to your own test cell:

1) Lights, fans, pumps, outlets, etc. all need switches and knobs to run them. Things get confusing in a hurry. One

solution – color code your controls. Outlets controlled by switches may be color matched.

2) Install annunciator-type lights for critical controls. The image of the blue, yellow, and green lights (at right) are tied to coolant water, absorber power, and fresh-air blower switches – (respectively). Things work best when light colors are related to what they control – and when all lights must be on (or off) – to test.



3) If you customize your DYNOMAX consoles, maintain its copyrighted “Green to Go” design. This means that buttons, digital-gauge text, and status indicators are green when it is safe to test. This way, any red, yellow, or blue warning alarms really jump out at the operator. Notice how the console-screen image (at left) uses only a green and gray color scheme.

4) A traffic-light signal is a simple way for the dyno operator to communicate intentions to the vehicle’s driver. A color-coded selector switch at the

control console allows selecting red, yellow, green (or all off) status.

5) Use a remote control (e.g. Remote DYNO-MAX or wireless Pocket DYNO-MAX) to allow direct control of the testing from within the cell. Remote DYNO-MAX may be used, by one or more



users, to monitor (or optionally control) a running test from any PC on your network – even over the Internet! Pocket DYNO-MAX allows your wireless Windows Mobile PDA or cell phone to control tests, recordings, and printing – and even includes our copyrighted “Voice Alarms™.”



6) Wall-mounted fire extinguishers and CO monitors, like the ones shown in the images below, are inexpensive protection against serious problems. For a more sophisticated setup, consider a remote CO monitoring setup and a whole-cell fire-suppression system. Note: Be sure that the activation button for your fire system is interlocked to turn off the cell’s ventilation blowers (and any fuel pumps).



## Tip of the Month!



### BE SURE TO BACK UP ALL OF YOUR VALUABLE DYNO DATA

The question is not if your dyno computer’s hard drive will, but rather, when will it fail. Unless you do not care about losing all of your historical test data and software setup, you need to have a backup plan in place.

The trouble with backup plans is that if they are a pain to use, many users will not follow them. So, be sure to pick a solution that you are willing to actually utilize.

If you only want to bother backing up your DYNO-MAX data, you can simply use Windows Explorer to drag everything in the DYNO-MAX folder and subfolders to another physical drive. Ideally this would be to an off-premise storage device – so that you are protected from fire or theft. Think that’s overkill? One poor customer had his laptop, including all backups (on a second internal drive), stolen during a dyno-day event!

For easier backup recovery, it is nice to have your entire PC’s contents on a recent backup. Windows includes a competent backup utility, you just need to use it. However, we suggest buying a more convenient product, like what Acronis ([www.acronis.com](http://www.acronis.com)) sells. It fully automates the backup, and, turns a complete PC restore into a few mouse clicks.

Advanced backup programs like Acronis compress the archived data. So, in many cases you can pack your dyno PC’s entire contents onto a large USB thumb-drive backup. Not only is it easy to take off-site, but it can withstand a hard drop to the floor.

If your dyno PC has Internet access, you have another option. Several companies offer automatic backup of your PC via their web-based backup services.

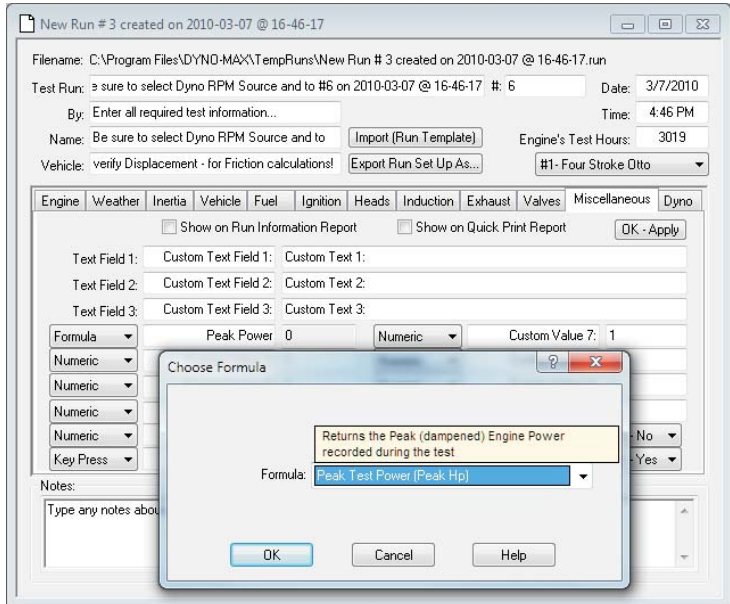
Again, no matter what backup plan you pick, you need to stick to it. The alternative is just no fun to deal with – it could even ruin your business.

## Question of the Month...?

*“Can I use DYNO-MAX 2010 “Pro’s” Run Manager, or its search tool, to look up my saved runs by the owner’s name and the run’s peak Hp?”*

Yes you can. There are a couple of DYNO-MAX features that allow you to do this.

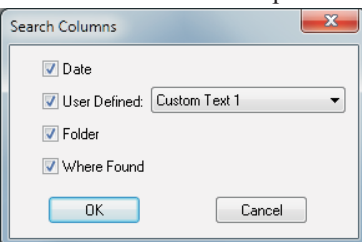
1) First, the “Peak Test Power” formula needs to be added to one of the Run Information - Miscellaneous tab’s ten “Custom Value” numeric fields – note the field # you use. (See the image below.)



Refer to DYNO-MAX’s online help – under the “Run Information (Miscellaneous)” topic for more information. *Note: You must add this field before capturing the runs you wish to search or sort by peak power. This is a one-time setup; all subsequent runs will include this Peak Power field on the Miscellaneous tab.*

2) Use “File - Search for Saved Runs...” (or Ctrl+H) to open the DYNO-MAX Search tool. Make sure its “Pro>>” button is pressed.

Uncheck the “Exclude non-text fields” box. Click the “Choose Columns...” button, to launch the Search Columns selector window. Be sure “User Defined” is checked and then browse for the Custom Text # field you defined in Step #1.



3) Now you are ready to use the Search tool to list all the runs by “Owner’s Name” (or any other search criteria). Refer to DYNO-MAX’s online help – under the “Search for Saved Run ...” topic – if you do not already know how to use Search.

4) The search listing will now include Peak Power in the User Defined column (only for runs recorded after you added that field to the Run Information - Miscellaneous tab). You can even click on that column’s heading to sort by peak power. *Note: This same column can be added to Run Manager - see Run Manager’s Help.*

## Customer Spotlight

### DAVE BUSH RACING (DBR)

...is an outboard engine development company located in Lake Havasu City, Arizona. Dave’s been testing, racing and developing Pro Gas APBA (and other sanctioning bodies) Johnson/Evinrude outboard drag and Formula-I outboard engines for over 15 years.

Dave says, “These motors were primarily designed for fishing boats, developing only about 200 stock Hp. We need at least 400+ to win our type of racing. Rules do not allow gearboxes, so building engines with wide power bands, which still rev to 10,000 RPM, is a must. We compete against factory-built Formula-I engines, so I rely on dyno testing to develop these outboards into winning power plants. We now pull over 650 Hp (on nitrous).

“Besides operating our own drag race championship team, we do some stealth development for a small clientele of enthusiasts and manufactures. So, we map a lot of ECUs, including: Motec, EFI Technologies, Simple Digital and Vipec systems. Using our on-board data, we recreate races on our DYNomite (with its powerful DYNO-MAX software) to successfully develop fuel injection and ignition mapping that is race-day ready.

“L&S has made serious dynoing affordable for the average shop. Before, you had to have OEM AVL type machines and budgets. I had always been a fan of liquid-cooled eddy-current absorbers, but this affordable water brake and its PID valve are amazing!

“Over the years we have owned as many as four dynamometers, from various manufacturers. I have over 35 years of dyno testing experience and found the DYNomite is without question the smartest tool purchase we have ever made. For three years now, we have unbolted our engines from the dyno and immediately won championships. Having a well-designed test cell and the right dyno has basically eliminated ‘at the track’ tuning. We have found the DYNO-MAX software to be awesome – and its tech support better than any other in all racing electronics... period!”





## Contact Us...

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or visit your

**DYNomite Users' Forum**

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## Blowby Transducer Kit

Monitor your engine's ring sealing, during engine or chassis dyno testing with the DYNomite blowby transducer. The transducer is inserted into the crankcase's breather hose – and plugs into any available DYNomite 0-5 volt channel. DYNO-MAX 2010 then records the exhaust gas CFM passing through the transducer's precision flat-plate orifice. The \$445 transducer kit is adaptable to engines passing 0.5 to 13.2 CFM – suitable for (healthy) IC combustion engines of up to about 1,300 horsepower.



## Dyno-Drags Truck

Even though this picture (above), from here at Land & Sea's DYNomite Dynamometer plant in Concord, NH, may not look it – winter is almost over! So, the Geico Motorsports / V-Twin Magazine-sponsored Dyno-Drags Truck is getting ready to roll for yet another season.

This side-by-side motorcycle drag-race simulation machine will soon be back on tour. Now updated to DYNO-MAX 2010, with even more sophisticated displays and hardware, Dan and Paul are anxious to start measuring elapsed times and horsepower for motorcycle enthusiasts at bike events all over North America.

This season's tour kicks off in Orlando, Florida, and will then head north. If you want to know when it will come to an area near you, visit their web site at [www.thedynodrags.com](http://www.thedynodrags.com). Then, take your own motorcycle and go check it out!