

*Keeping You Informed About Your VMS System.*

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## SilverLeaf Introduces Total Power™ System for New Coaches

SilverLeaf's VMS products have always been tremendous driving tools, and today over 3000 drivers are enjoying their many benefits. But there is more to RVing than just driving, so we've been working at making the VMS products useful even when the coach is standing still. And now a two-year long development effort has reached its conclusion as we have introduced the Total Power™ system for the VMS.

The Total Power™ system taps into the electronic controls of the generator and inverter/charger to provide intelligent, automatic power management for the coach. The concept is similar to what we've always done - but instead of the engine and transmission, we're talking to the sources of electrical power. With this system, the VMS provides readings on input and output amperages and voltages, operating temperatures and loads, and system diagnostics. As always, the information is easy to read and understand, and diagnostics information is provided in plain language.

But the Total Power™ system does much more than monitor - it also manages. The key is the PM-002 System Controller, a small electronic control module at the center of the system. The PM-002 monitors the inverter/charger, starts and stops the generator when necessary to keep the batteries charged (but not overcharged), watches for problems and hazards, and acts as an intelligent agent to make sure you always have the electrical power you need.

The PM-002 has an internal clock, which allows it to recognize and respect the "quiet time" that most parks and events require. It is also smart enough to "top off" the batteries just before quiet time, so you don't run out of power in the middle of the night. It can also be set to exercise the generator regularly, which helps keep the generator in good condition during storage.

The VMS serves as the control panel for the entire system. From the VMS you can easily adjust the settings for the battery charging, exercising, and quiet time features. You can also start and stop the generator and monitor the performance of the inverter, charger, and generator. And any failures in any of these components are shown on the VMS in plain language.

The Total Power™ system is compatible with most popular inverter/chargers, and specially equipped Onan QD Quiet Diesel™ generators. It is currently available on new coaches from Safari, Beaver, and Country Coach, including the Safari Serengeti and Panther, Beaver Patriot and Marquis, and Country Coach Magna and Affinity. At the current time the system is not available as an aftermarket upgrade to existing coaches.



# New for the VMS: Weather Station / Compass

Most of the ideas here at SilverLeaf come from customer suggestions. One very popular request over the last two years has been for a weather monitor for the VMS™. And after over a year of development, this January we unveiled the WM001 Weather Station - the most full-featured weather monitor available for an RV.

“Temperature is easy,” our engineers sneered when presented with the project. They demanded more of a challenge, so they got it. We all know, “It ain’t the heat, it’s the humidity”, and so we added a hygrometer, or humidity sensor, to the package. We harness the computing power of the VMS to combine heat and humidity into the all-important Heat Index - or just how hot it “really” is. An Altimeter / Barometer is also in the package.

When the coach is moving, the air pressure sensor acts as an altimeter. When stationary, it acts as a barometer. All readouts are available in both metric and standard unit.

To complete the package, we also added a high-quality, 72-point compass that filters out the magnetic fields in the coach to provide a true reading. It easily adjusts using the VMS to correct for the discrepancy between magnetic North and true North, a unique feature no other compass shares.

The WM001 is easy to install, requiring a roughly level exterior spot and just four wires. For most customers it also requires an upgrade of the VMS software, which can be done at our offices or by a member of our rally team. The price is \$595.00, which includes the necessary software upgrade.

## Tip of the Day : What is Torque, Horsepower?

There is an old saying the engine business. “The customer buys Horsepower. But he drives Torque.” The VMS calculates both for the edification of the driver, but few people understand the difference.

Torque is a measure of *rotational force*, simply enough, how hard the engine is pushing. Horsepower is a measure of *energy produced per unit time*. The difference isn’t intuitively obvious to most of us non-physicists, but an example may be useful.

Consider two horses, Mack and Mustang, each on a treadmill driving a winch. Mack is slowly lifting a 500-pound weight, which Mustang is lifting a mere 250-pound weight, but twice as fast. Then Mack is generating twice the *torque*, but the same amount of *horsepower*.

Which is more relevant for an RV? To push a 30,000-plus pound RV and its tow car up a mountain pass requires a lot of torque - if your engine can’t generate enough, you’ll slow down fast. To compare two engines for towing and hill-climbing capability, the key number is Peak Torque.

Horsepower does have some relevance - it indicates how responsive the engine is at high rpms. Specifically, a higher horsepower engine will be better at passing at highway speeds.

To a certain extent the chassis designer can vary the rear differential ratio and trade torque for horsepower. “Taller” gears will provide better fuel economy and cruising power, at a cost of hill-climbing capability. (Larger tires will have the same effect.) But there is only a small amount of leeway allowed, and this doesn’t change the basic performance of the engine.

The VMS is the only product that can tell you the horsepower and torque output of the engine *as you drive*. The VMS accomplishes this by monitoring all the engine indicators, and comparing the data to a set of calibration

values for that engine type. It is a calculated value, not a true dynamometer measurement. However, it nicely serves the purpose for which it was intended - to give the driver guidance to get the best performance from the engine.

Every vehicle could use a gauge on the dash that simply said “Performance”. The Torque gauge is certainly the closest equivalent available on any machine. When performance matters - hill climbing, for example - drive to maximize this reading. In general that means working the engine in its optimum power band - which for most diesels is the lower end of its rpm range. You can see this explicitly with the Torque gauge - as rpms increase, performance goes down, and more fuel is burnt to less effect.

When simply cruising at low load, the Torque output will normally be well below peak levels, and the gauge will not be particularly relevant. The gauge is meaningful mostly in high-demand situations - accelerating and climbing.

The Horsepower gauge has a different purpose: bragging rights! It exists merely to satisfy curiosity, as it correlates more to fuel consumption than true engine performance. Ironically, you are best off driving to *minimize* horsepower output - at least if fuel consumption is an issue.

The latest versions of the VMS also have a gauge for “Power Factor”. This indicates how efficiently the engine is converting fuel to horsepower. If no other information was available, this would be useful for improving your fuel economy. But fortunately the VMS has an even better gauge for this purpose: Rolling MPG. Like Horsepower, Power Factor is primarily for satisfying curiosity.

The Torque gauge is a unique and important feature of the VMS. There is no better way to learn how your engine really wants to be driven.

# Our Catalog of Fine VMS Products



**VMS II**

<b>VMSII</b>	VMS Monitor w/ 6.5" VFD Display	\$1995.00
<b>VMS 120 LC</b>	VMS Monitor w/ 2.5" LCD Display	\$1195.00
<b>VMS 200 EL</b>	VMS Monitor w/ 3.5" EL Display	\$1995.00
<b>VMS 320 EL</b>	VMS Monitor w/ 5.6" EL Display	\$3995.00
<b>VMS 606 CL</b>	VMS Monitor w/ 10.4" Color LCD Display	\$19,995.00



**VMS 120**

<b>RoadWatch</b>	Road Temperature Sensor	\$595.00
<b>Weather Station</b>	Temp, Humidity, Barometer, Compass, and more	\$595.00

<b>VMSpc</b>	PC Engine Monitor	\$395.00
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## Software Upgrades

VMSII - 20RVxx	Metric, Expanded Trip & Diagnostic Memory	\$95.00
VMS 200 - 21RVxx	Metric, Programmable Drive Gauges, Cruise Monitor	\$95.00
VMS 320 - 21RVxx	Redesigned Screens, Metric, Programmable Gauges	\$95.00
VMSpc - v1.3.3	Available for Downloading at <a href="http://www.simply-smarter.com">www.simply-smarter.com</a>	Free



**VMS 200**

## New Products on the Horizon at SilverLeaf

We continue to work feverishly here at SilverLeaf to provide new products for our customers. Lately we've been asked by some of the RV builders for some special products, and some of these products you may start seeing in new coaches later this year.

One project we are particularly enjoying is a "glass dash" - that is, an entirely computerized dashboard in which every gauge is replaced by a VMS™. Over the past year we have supplied several of these dashes to Kenworth Truck for their "Tech Truck" program, using our VMS 320 model as a base. Now we're developing a dash based on the full-color VMS 600. We can supply all the necessary components - all the RV builder has to do is design the panel into the dash for the ultimate high-tech dash.

Tire pressure is a hot topic, and has been even before the Firestone debacle. We started work on a monitoring system for RVs two years ago, and had to abandon the project for technical reasons. But tire pressure is back on the front burner with a new sensor from a new manufacturer. We can't provide a timetable yet, but the project is moving quickly.

Now that the Total Power™ system has the VMS™ hooked into the generator and inverter/charger, we're looking at monitoring other parts of the "house". Tank levels are an obvious target - we are all tired of the ridiculous probes that are fouled before the end of our first trip. Better tank sensors exist, and we plan on introducing two new ways to monitor the tanks this year. We also are working on AC/DC power monitoring - what will be by far the most sophisticated system on an RV.

With all these "house" system being monitored by the VMS, it is becoming clear that the dash is not the only place the VMS belongs. We will show at the Redmond FMCA a VMS designed for the galley. A single VMS will

replace the monitor panels for the inverter/charger, generator, water tanks, LP tank, and battery level. It will be easier to understand and easier to use - and with all the space saved you might get a few more dishes in the cabinets!

We've talked about a pyrometer and oil quality sensor in the past, but there is bad news. The manufacturer has had a change in management, and the new executive in charge decided the RV market simply was not big enough to be worth their while. As a result some good products won't make it to market. However, we have begun working with another sensor manufacturer with similar capabilities - and a lot better attitude towards the RV industry. We'll see.

## Engine Support Grows

As fast as the engine builders devise new ratings, we update our software. The current engine list includes:

Model		Rating
	<b><u>Caterpillar</u></b>	
3126, 3126B		250, 275, 300, 330
3176		365
C-10		385
C-12		425, 455, 505
3406E		500
C-15		515
	<b><u>Cummins</u></b>	
5.9L ISB		260, 275
8.3L ISC		300, 330, 350
8.7L ISL		370
M-11, ISM		400, 450, 500
	<b><u>Detroit Diesel</u></b>	
Series 60		500
	<b><u>Navistar</u></b>	
DT-530E		300, 330
	<b><u>Banks</u></b>	
ISB Stinger Package		305



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## **Martin's Musings: Solving the Little Problems**

by Martin Perlot, President

A few years ago I helped my brother, Mike, buy a new Class C coach. We got quite a bargain, courtesy of a dealer bankruptcy. Unfortunately, that meant that Mike didn't get a "walk-through" - he just signed the papers, took the keys, and was gone. So for the next few weeks he kept calling me with questions.

"How do I plug it in to shore power?" Open the compartment, pull out the cord, plug it into the socket. "Isn't there a switch?" It's called a transfer switch, and it's automatic. "Cool!"

"How do I light the refrigerator?" You don't. Just turn it on. Mike was remembering the Open Road coach our parents owned when we were kids. Nothing was automatic in those days. You had to light the stove, the refrigerator, the water heater - and light them again a few hours later. He naturally expected the same in his new coach.

Mike was so impressed when he realized that even this "bargain" coach had all sorts of wonderful amenities that it was a long time before he started to realize that a few things haven't changed since the '70s.

"My waste tank is always 2/3 full." The probes are fouled. Same as in my coach, and everyone else's. "My battery went bad." Don't leave the coach plugged in too long, or the charger will do that to them. "Sometimes I get 7 mpg, sometimes I get 10." Hills and wind affect a coach a lot more than they do a little car.

It is to my brother - and all the rest of us who have to deal with the realities of modern RVing, that I dedicate this company. I'm not going to suggest that SilverLeaf can solve *all* the little frustrations of using a motorhome, but we certainly aim to solve the problems that we know the best. And we also aim to help other companies that have good solutions get their products into coaches. Our Total Power™ system is an example of how we can work with other companies to solve problems together that none of us could solve separately.

And we have more examples in our labs - products like tank level sensors, tire pressure monitors, on-board weight scales, power protection systems - which we expect will soon start showing up in new coaches. Some of these projects have their origin in comments and stories I hear at the rallies. Some are requests from the coach builders. Some are things that I see in my personal travels. None are just bells-and-whistles. All are solutions to real problems.

I never said SilverLeaf was going to change the world. Only that we can make the RVing lifestyle a little bit more enjoyable.