Engine/Generator Fire Detection/Suppression System
Frequently Asked Questions

Updated 9/10/07

How does your system work?

The system consists of two major components: the EG-400™/ The EG-400-5™ fire detection monitor and the RValve™ fire suppression system. The detection is accomplished by continuously monitoring the temperature in the engine and generator compartments. The detection can give an early warning through an owner-established early alarm temperature setting. The system continuously monitors both compartments even if the owner is away from the RV. The fact that there is protection at all times allows the owner to run the generator or engine even when they are away from the vehicle with complete confidence that they are protected.

If the monitor detects a fire in either compartment, it triggers the RValve™ fire suppression system which dispenses a powerful fire suppressing material.

Why is your system better than the other systems on the market?

First of all, there are systems on the market that can offer good protection. The RV Safety Systems system is an active system that allows the owner to check on the status of the system at will. If the monitor is displaying the compartment temperature, the system is protecting the owner. The system has error detection for problems with sensor wiring. It also gives the owner information about the engine and generator compartment environment.

The system uses racing type swirl nozzles that can be placed in the compartment for optimum distribution of the fire suppression material.

Lastly, the system can shut down the generator and/or the propane supply if a fire is detected.

Bottom line, the system offers complete protection for fires that occur in the engine or generator compartment. We feel that it is a much better value than the other systems on the market.

Why does your system use only one relay and valve (dispense fire suppression material in both compartments if there is a fire)?

The system was designed to be robust, reliable and cost effective. A design with two relays, two valves and two supply tanks was considered. This would have allowed separating the two compartment suppression systems. However, this design option did not fit the original cost and reliability criteria. In addition, dispensing the fire suppression material in both compartments would not cause any damage and the cost of recharging the system is minimal.

We have had customers who felt strongly about separate systems and they purchased two systems – one for each compartment. We feel that this is "over-kill", but we were happy to oblige.

Why did you choose Cold Fire® as your fire suppression material?

About 15 years ago I had an assignment where I worked with the fuel class cars in NHRA. While working in the shut down area, I met the person who developed Cold Fire®. He told me that he was going to replace Halon as the fire suppression used on the fuel (nitromethane) cars. I thought he was crazy. I watched NHRA test the product and was familiar with the rigorous testing that on-board systems have to undergo (SFI 17.1). After Cold Fire® was approved by SFI and NHRA, I witnessed many horrendous fires that were quickly extinguished by Cold Fire®.

Years later, when I started this business, I obtained a distributorship. While I had confidence that the product was absolutely perfect for the needs of the RV owner, I still had to perform my own tests. Those tests confirmed that the fire suppression capability was well in excess of anticipated needs of the RV market.

Can the owner recharge the system?

Yes! This is one of the great features of the both the fire detection/suppression system as well as our hand-held extinguishers. The extinguishers/pressure vessels are easily charged by first adding water, then Cold Fire® concentrate. The system is then charged with either air or nitrogen via a normal Schrader (tire) valve.

Is 2.5 gallons of Cold Fire® sufficient to put out a large engine fire?

The quantity of material is equivalent to what is used for an on-board system for an NHRA Top Fuel Funny Car (20 pound requirement). They have horrendous fires which are quickly extinguished. In addition, the EG-400™/ the EG-400-5™ fire detection system has extremely fast response time that detects the fire before the fire becomes fully involved. Lastly, the careful placement of the swirl nozzles assures maximum efficiency of the fire suppression material. A typical discharge lasts approximately 40 seconds which allows maximum cooling of the ignition source.

If the owner feels that they want more fire suppression material, a second tank can be added to the system, but we feel that one tank is sufficient.

Why does your system not use Halon?

Halon is an excellent fire suppression material, but it has its limitations. It extinguishes the fire by displacing the oxygen. Halon works very well in an enclosed environment such as a marine engine compartment, or a generator compartment. However, it would not work well in an open engine compartment, especially if the huge cooling fan was still operating.

You base your products on automotive racing, why?

Automotive racing applications are among the most demanding of any fire suppression system. The sanctioning bodies are extremely diligent about approving only the best fire suppression components and materials. Further, the SFI Foundation has rigorous testing standards which on-board fire suppression systems must meet. In my opinion, SFI testing standards (SFI 17.1 for on-board systems) are significantly more demanding than other standards organizations. Lastly, SFI testing emphasizes liquid fuel fires which is much more appropriate for RV application than other standards.

Is your system UL listed?

UL does not address this type of application. This is also true of other standards organizations including NFPA and RVIA.

Can I install the system myself?

The system is designed to be installed with basic tools. Installing the monitor is of approximately the same complexity as installing a brake control unit. It has an optional mounting bracket that facilitates easy mounting of the monitor. The wiring connections are very straight forward. The plumbing of the fire suppression system is done with 3/8 flexible copper tubing (DOT tubing can be used for plumbing outside the compartments) that is connected with flair-less fittings that require two wrenches to make the connection. On most motorhomes, the plumbing and wiring can be run along the frame rails, and entrance to the engine compartment is not a problem. After reading the instructions thoroughly, the system can be installed by a person with average mechanical skills in approximately 8 to 10 hours (obviously this will vary depending on the skill level and unique vehicle “challenges”).

Can I use DOT tubing instead of copper tubing for the plumbing?

DOT approved tubing can be used for all of the plumbing except for the runs within the engine and generator compartment. Since DOT tubing cannot withstand the temperatures encountered in a fire, it is imperative that the DOT tubing be terminated outside the engine and generator compartments. Copper tubing must be used inside the compartments.

DOT approved push-in fittings are acceptable.

Do you have installers in my area?

We have a long-term goal to establish a dealer/installer network. However, we do not have the resources needed to research reputable shops in major cities. As an alternative, we would be glad to consult with a shop that you determine is capable of performing the installation. Recall, that the work is well within the scope of virtually all RV mechanics.
The instruction manuals are available on-line. You can download them for discussion with your installer prior to purchasing the system.

Your installation instructions include a detailed system test process – can I avoid this process?

We require these tests, because of the critical nature of this system. We have thoroughly tested the design of both the EG-400™/EG-400-5™ fire detection monitor and the RValve™. In addition, each monitor is individually tested before it is sold to the customer. Nevertheless, the installed system MUST be tested. This test confirms that the system components are functioning correctly, and that the installation has been done properly. In addition, the test will also allow the fine tuning of the placement of the spray nozzles for proper distribution of the fire suppression material.

When I test the system, there is a small amount of water that "leaks" from the RValve™- is the valve defective?

This is normal. As the spool valve is vented on one side, a small amount of liquid will be released. This liquid will vent thru the small bore in the body of the RValve® and also appear at the solenoid/bracket interface.

You have a manual activation knob on the RValve™ - how does that work?

The manual push valve is included as a backup to the system in the event of a major electrical malfunction. Pulling the protective pin and pushing on the handle displaces the spool valve. Because of the design of the valve, it is necessary to continue pushing of the valve to completely empty the pressure vessel.

Can I leave my EG-400™ (or EG-400-5™) powered up at all times?

It is important to make sure the power supply to the monitor is non-interrupted. In other words, the monitor must be powered at all times when there is a possibility that the engine or generator could be running.

Our suggestion is to connect the monitor to a power source that is always "hot". It is acceptable to wire a dedicated switch into the system so that the system can be shut down during storage.

The monitor is designed with the highest quality components. That design should allow multiple years of continuous service.

You mention wiring the system with an auxiliary relay to shut the generator and/or propane off – is that really important?

In our opinion, it is extremely important to use an auxiliary relay to shut the generator off. This is especially true if the generator is operated when the owner is absent from the vehicle. The wiring should be installed so that the generator shut off is activated and the fuel pump power is shut off. We have a timed relay that will activate the "stop" circuit for a few seconds and that should shut most generators off. This will also shut off the fuel pump for most applications. The owner will need to refer to their generator manual to determine how the relay/generator wiring will be accomplished.

Along the same lines, we strongly recommend that a propane detection system with a shut off valve be wired into the fire detection/suppression system so that any detection of a fire will result in shutting off the propane at the tank. This is especially important if the generator is operated on propane. We carry a propane detection system with a shut off valve.

Some motorhomes are equipped with an electrical "emergency" shut off switch. If your motorhome has this option, it is a possible to install a "normally closed" relay in the circuit that will open if the system detects a fire.

Can I use this system to protect the interior of my RV?

The system would provide excellent protection for the interior of an RV. This would be accomplished by installing a second system in the RV. The temperature sensors (two) could be installed in the living and sleeping areas. The distribution heads could be installed in critical areas.

Such a system should be strongly considered by anyone who has a physical condition that does not permit rapid exit of the vehicle in the case of a fire.

Do I have to mount the EG-400™ (or EG-400-5™) where I can control it?

Since the system is automatic, it is not mandatory that the monitor be mounted in a prominent location. It is strongly suggested that the monitor be located where it can be observed by the driver or "co-pilot" occasionally to make sure the system is on and functioning properly. While the monitor can be somewhat remote, consideration should be given to locating it such that the driver can operate the system as a "data display system". An alternative way of restating the previous sentence is: if you are an "info junky", mount the monitor in a location accessible to the driver.

How do I know the system is working?

The easy answer is that if the monitor is displaying a temperature and the pressure vessel has the proper pressure, the system is protecting you. If the system detects a wiring problem with the sensor wiring (either a short or open circuit), it will sound an alarm and display the circuit with the problem and the type of problem. If the system has detected a fire and discharged the system while you were away, a continuous alarm will be sounding upon your return.

Obviously, the system relies of pressurization of the supply tank. The pressure of the tank must be checked before each trip.

How reliable is the system?

Because of the critical nature of the application, our design criteria focused on system reliability. The monitor was submitted to a beta-test user base. In addition, it has been in production for several years. The suppression valve has undergone extensive testing. Finally, the system has been tested using application-specific conditions to assure that the design resulted in a system that met our demanding goals.

Is the system guaranteed to put out all engine and generator fires?

All equipment and/or systems can experience a failure. We believe we have designed a system that has an extremely high probability of functioning as designed and providing the maximum protection possible. The fire suppressing material is among the very best in the industry and the quantity and distribution system for the fire suppressing material should be sufficient to extinguish any anticipated fire.