

MY COACH TALKS TO ME

WHAT MY COACH SAYS, AND WHAT IT MAY MEAN

On all Prevost forums, and often in private conversations we owners talk about problems we had or have with our coaches. Any potential buyer could read the forum or listen in on the conversation and conclude all coaches are unreliable, prone to failure, and expensive to maintain. New owners could certainly feel that way if they have to do a lot of work or spend a lot of money to take care of items that may have been ignored on their “new” coach. But when we consider how many systems and devices the average conversion has we really have pretty reliable coaches, and if we pay attention so we can deal with things before they are serious problems they are even more reliable.

Like people every coach starts life young and healthy, and again like people it may age gracefully or seem to be falling apart every time the owner turns around. With rare exception, how a coach ages is going to be dependent upon its owners and how they respond to the coach’s needs and the signals it sends regarding its health. There is no better way to eliminate or minimize problems than to establish and adhere to a strong preventive maintenance program.

All coaches come with a fairly comprehensive maintenance schedule. To that schedule we as owners need to add the maintenance schedules for everything from the generator to the air conditioners, to the refrigerator, to the carpets. Our coaches are comprised of a great number of devices and systems and as we all know these things are all likely to break. Some may never break, some may have decades of life with a little care, and some items will need regular scheduled maintenance. But even with a well structured preventive maintenance program we as owners need to be aware of how our coach is doing, and with very few exceptions our coaches are doing a good job of letting us know how healthy they are, and when we need to pay attention to a potential problem.

We cannot predict or prevent some sudden failures. It is an extremely unusual event if an engine suddenly fails without warning, but things like that happen. We can have a blowout on a new tire that has always been correctly inflated. But almost all of the time an impending problem is seen by us long before it becomes an issue if we are paying attention and noticing what our coach is telling us.

Some issues are so easily detected a person with no skills or knowledge is going to recognize a problem exists and needs attention. An example every one of us can relate to is if the coach begins to lean in a short period of time. We don’t require a gauge on the dashboard, an audible alarm, or a warning light to alert us to a problem

we call the leans. But not all problems have such obvious clues something is happening that requires attention.

Our starting point is “normal”. When we get a coach and start using it we see what is normal on the gauges. We listen for sounds, and soon recognize what sounds are normal. We might not realize it, but everything we see, hear, smell and feel about the coach is part of what we come to think of as normal. Just like our body’s temperature, our blood pressure, and other items we use to gauge how we feel normally, the bus is establishing what is considered normal. We as owners have to do whatever it takes to learn or remember this “normal”, because the deviation from normal is the coach telling us something has changed and we need to understand why. Normal for air systems might be a high air pressure of 120 PSI, and a low of 100 PSI when the engine driven compressor cuts back in to re-pressurize the system. It is important to know your readings so if a problem occurs you know what was normal with respect to pressures and perhaps how long it took to build them or for them to leak down compared to those values when a problem shows itself.

Let’s start with air leaks as an example because there are a great number of potential leaks, some more serious than others, and most evident with a variety of clues. If you have never heard of a pre-trip brake inspection, or don’t know how to do one, or even if you just have never taken the time, that is one of the best things you can do to have your coach tell you there is a problem. I will not go over how to do a DOT pre-trip brake inspection for a Class B vehicle. You can find all the necessary information on the internet by looking for almost any state’s commercial driver test manual for a CDL (Commercial Driver License).

When you do the test your coach will tell you the condition of your braking systems and the associated safety devices and warning devices. Up until you have serious braking issues, it will be the only time you may have a formal way of evaluating your coach’s braking systems’ condition. You will learn if you have any system leaks. You will learn if the warning alarms and lights are functioning. You will learn which part of the systems has the problem.

If you have never done the pre-trip brake inspection consider that you and your family are at risk if you head down the road assuming everything is OK. Consider your safety and the safety of others.

But let’s say the brake inspection went very well and everything proved satisfactory. That does not mean you can ignore what your coach tells you. Your brake systems likely each have a pressure gauge. The primary and secondary systems typically are not going to cycle up and down a lot. But if they do your coach is alerting you there may be a problem. By becoming familiar with and doing the pre-trip brake inspection

you can possibly learn what your coach is trying to say to you when the gauges fluctuate

Not all primary and secondary brake system leaks relate to the hoses or brake chambers. The leaks can be in a relay valve, a tank or system fitting, or even at the air dryer. But this is where putting clues together allow the bus to help tell you where problems are. Do the systems cycle up and down with the coach stopped and the parking brake engaged? Can you hear a big leak which shows as a rapidly dropping air pressure? Where can you hear a leak? You aren't expected to have to repair your coach, but a service tech might be able to diagnose the source of the leak, and provide you with advice regarding if it is safe to drive the coach for service. If you learn nothing else try to make sure you can test your brakes, you know how to evaluate what you see, and that you are alert to deviations from what you usually see and hear.

You may also have an accessory air system gauge. The same thing applies with that system as it does with the braking systems. If the accessory gauge fluctuates up and down it may be normal, but if the cycling is frequent, it may be an indication the system has a leak, and without knowing where the leak is by listening, you may learn you can isolate where a leak occurs. Your brakes are not the only area you may experience leaks. An air bag may develop leaks. A bellows that adjusts belt tension may have a leak and maybe one of the hundreds of fittings has a leak. Whatever the reason your coach is indicating leaks, they cannot be ignored. Consider any indications of leaks, regardless of where on the coach to be a cry for help from your coach.

Any air leaks you hear, or see as fluctuating or fast dropping gauges is a clear indicator you have a problem, and you need to deal with it. Problems such as air leaks will not fix themselves. When the coach tells you there is an air leak, the problem has already progressed past the point where it is a tolerable annoyance and is approaching the point where it can get serious. If your pocket doors don't work that is annoying. If the air leak affects the brakes or the ability of the suspension to bring the coach to the driving height it has gone past annoying, and is getting serious, and maybe dangerous. So pay close attention to your coach when it starts indicating to you that air system problems are beginning.

Our coaches have a complex electrical system if we only consider the chassis and its two voltage system. But we cannot ignore the converter in this discussion. The converter adds another electrical system for the house in addition to the one Prevost creates for the chassis. If an electrical system has a problem we all have the ability to get a quick reading of what is going on by using the various gauges and warning lights. Electrical systems for the chassis and the house portion of the coach should

be independent of one another, except where they might share an alternator.

The chassis electrical system is usually equipped with instruments that provide a direct read out of the system's voltage. Almost. All of our coach chassis electrical systems are primarily 24 volt systems. Depending on the age of the coach however it can be expected that part of the chassis electrical system is also going to be 12 volts. Again depending on the age of the coach some chassis systems are going to be 24 volts or 12 volts, such as the lighting systems. Earlier XL coaches had 12 volt headlights, 12 volt DDEC engine control systems, but almost all else was 24 volts including the starter and the rear and side lights for example. Later model coaches might have all 12 volt lighting and 12 volt DDEC engine control systems.

Even though we speak of the chassis electrical system as 24 volts, that is merely a nominal value, and in reality when charging the chassis alternator is probably charging the system at around 27.7 volts, and when the engine is off and the batteries are fully charged they likely are at 25.6 to 26 volts. What is important for you as the operator of the coach is to learn "normal." What is likely not displayed on the dash is a gauge that shows the 12 volt values on the chassis. But because it is not shown on a gauge, don't think that is not important.

Prevost's later model coaches supplemented the voltage gauge with warning lights to alert of an electrical system problem. For example, the allowable range of voltages is 24 volts to 30 volts. Outside of that range a warning light will come on. But don't wait for a warning light. Except for a sudden failure like in the voltage regulator or alternator you may see a deviation from the normal voltage reading of 27.7 volts with a lower or higher than normal reading. If you are using a lot of electric like lights, fan motors, etc it could be considered normal if the voltage displayed is lower than usual, especially if the coach is at idle. But if the coach is at highway speeds, and there are no heavy electric loads and the voltage is showing lower than expected that can be your coach telling you something needs to be looked at before it fails totally.

To create a 12 and 24 volt electrical system Prevost connects the battery cables in such a way as to provide both 12 and 24 volts, and to insure each side of the system, the 12 and 24 volt side is correctly charged it provides a device called an equalizer. That device insures the 12 volt side of the system will always be exactly half of the voltage of the 24 volt side within $\frac{1}{2}$ of a volt. And if that should fail to happen it provides a warning light to indicate there is a problem. The device that sends power to the warning lights is a monitor located near the equalizer on most coaches. The system is reliable, but if it has a problem the system is designed to warn you of the problem. The burden on you is to verify what the warning light is saying so you know if you have a problem or a false alarm. Sometimes what the coach tells you is not correct, so you may have to use a volt meter or electrical tester to accurately read

“normal” with respect to the electrical system.

It is certain if you do experience an electrical problem, and you call for advice or assistance the technician on the phone is going to ask a lot of questions that will require you to answer regarding what was the normal electrical values before the problem became serious compared to the values when the problem showed itself.

Your conversion electrical system, or the house system is more varied than the chassis. You have to develop some basic understanding so if you develop a problem and need assistance you can answer questions from the technician. The chassis system is pretty much standard, with only a few variations. But the house has multiple variations, not only between converters, but even among the various models from the same converter.

As an example a Liberty Elegant Lady is often called a 24 volt coach meaning the house portion is predominantly a 24 volt system. That particular model uses a single chassis alternator to charge both the chassis and the house batteries, with the two systems shielded from one another with an isolator so no one set of dead batteries can kill the other set.

The Liberty Classic is often called a 12 volt coach because the house portion of the coach is predominantly 12 volts. It is common to find a 24 volt alternator dedicated to the chassis, while it has a separate 12 volt alternator dedicated to the house.

The point in the above is owners should know the basic design of the electrical system in the house because a technician that they may turn to for help may not be familiar with a Prevost or the differences between conversions. To successfully trouble shoot any problem the technician may have to have that basic understanding.

Like the chassis, conversions have gauges or digital displays that show the various electrical values, By understanding what is normal it is easy to note when something is abnormal and possibly identify and deal with a problem before it creates bigger issues. Again, here is where the coach owner has to go beyond knowing how to turn on the lights. When problems are suspected a coach owner has to be able to clearly define the issue, and even discern if required which part of the system may have a fault. Every conversion can have 12 or 24 volt house systems, but every conversion is likely to also have 120 volt house electrical systems. Central to both the DC (12 or 24 volt) systems and the 120V AC systems will be inverters and batteries.

It may not be required to understand the relationship of the battery charge, the inverters and the AC circuits in the coach, and how the coach functions when it has

shore or generator power, or how it functions when it does not have either source. But what is important is for the owner to pay attention to the information the coach is providing relative to the house electrical systems under the various conditions.

What this leads to is owners will have gauges to read 120 volt power which should be within a range of a minimum of 108 volts to a maximum of 132 volts. The owner will need to be able to read the loads on each leg of the AC (alternating current) circuits because under some circumstances there are going to be limits that should not be exceeded.

But the owner also needs to monitor the health of the house batteries. Those DC (direct current) power sources should be maintained within a 12 (24) volt low side reading to 14.2 (28.4) volts on the high side. Anything in between usually is a good indication. When the house batteries are being charged via the inverters it is likely the charging will show the voltages in one of the three stages of charging so owners need to understand what the voltages are at each stage because in this case normal could be three different readings. Our coach tells us about our batteries if we listen. At one time we might have been able to go all night without the auto-start kicking on the generator to recharge the house batteries. If it starts once or twice a night we are being told something has changed, possibly the batteries are aging, or possibly we have loads we don't realize.

The electrical systems are not easily understood because there are so many devices that come into play. But as owners we typically have dials or gauges that provide information on the status. We also have other clues. On some coaches when shore power is connected we can hear a transfer switch make a clunk to indicate power is entering the coach. Sometimes we know power is going into the coach because we hear a fan or a buzzing sound or we may have a light in the electric panel to be an indication. Look and listen for those sounds associated with "normal".

Often a problem is an isolated one in which something will just stop working. All of a sudden a light might not turn on, or maybe it won't turn off. Some problems will not be provided with a warning.

Unfortunately there is no list of things we should see, or hear, or otherwise sense to tell us something is wrong, or normal. As an example inverters have internal fans. The area in which the inverters are located may also have fans. Those fans may operate intermittently because they may be operated based on temperature. So we have to learn of those sounds which we sometimes may not hear which might be normal. Not only do we lack any mention of sounds such as fans being a clue to the health of the coach, it is entirely possible what might be normal for one type of conversion may not apply at all to another. We have to spend time with our coaches sensitive to the

readings, sounds, and other clues something is working.

Our coach air and electric systems are not the only things we should monitor. Obviously we need to monitor the gauges while driving to tell us about our engine, how well it is being cooled, how high our oil pressure is, etc. But we have other systems talking to us. Does the refrigerator seem to run more than normal? Do we still hear a fan in addition to the compressor? How well is the refrigerator holding temperatures? When we draw water we expect to hear or sense the water pump is running. Does it cycle on frequently? Does it run too long compared to what the normal run time was? Do we hear the water pump kick on even when no water is being drawn? Those subtle changes may mean nothing, or they might be an indication something is not right. In the case of the refrigerator the changes might be an indication the coils need to be cleaned, or the excessive running time might be because the refrigerator has a compressor or fan that might be failing. A water pump that cycles more often than expected might be a check valve that is leaking, or an accumulator tank may need its air charge adjusted, or there might be a leak.

Owners should take a lot of time to learn the coach gauges, warning lights, sounds, vibrations, and other indications. That knowledge will go a long way to establishing a baseline. Then when a deviation is detected, even though it is a slight change in a reading or a sound the owner will be alerted to the potential start of a problem. Some impending problems are just that, and may require no immediate action. As an example, an auxiliary compressor may have only run once every 8 hours, but now it is running every 6 hours. The message the coach is telling us is the accessory air system is developing more or greater air leaks. The choice may be to do nothing until the compressor runs every one hour.

Some indications are going to require immediate action. If a chassis voltage exceeds the normal value that should get a close monitoring, and if it exceeds 30 volts for example something must be done immediately, including disabling the alternator if required to protect the coach and its electrical system against a fire.

All of the signals provided to us by the coach however should be suspect unless or until we can verify them. If we get a warning light of a voltage issue but the gauges do not show something wrong, it might be necessary to verify if there is a problem or if the warning light is wrong. That means sometimes when the coach talks to us, we have to have the tools to determine what we need to do next. Every owner should carry and be able to use the tools which will verify if a problem exists. Perhaps the tire pressure monitoring system has alerted to a low tire pressure. The response is to use an accurate tire pressure gauge to verify the reported pressure. If it is correct, the action taken should be to either add air or service the tire, but if it is wrong the correct response might be to continue driving but replace the sensor as soon as

possible.

One of the most common and valuable tools is going to be an electrical tester. Not only should every coach have one, the owner needs to understand how and where to get readings with it.

When something on our coaches alerts us to a problem and we verify the problem exists our reaction and response has to be correct. We cannot ignore the messages we get from the coach. Sometimes doing nothing is the correct response, Sometimes shutting things down is the response. Regardless the response should be a reaction based on a complete evaluation of the situation. Sometimes the response is to recognize something has failed, but to know there is an alternate way to keep the coach and its systems going until it is convenient to get service. Sometimes the message cannot be ignored and the response has to be immediate and decisive.

Very few problems our coach talks to us about are serious from the very beginning. The important thing to remember is as soon as something starts to reveal itself recognize what it is and the potential it has to get serious. Parallel with having the ability to recognize early if a problem is developing is the need to also create a plan for dealing with problems. As an example if you suspect the alternator has failed, your plan of action may be as simple as running the generator, turning on the chassis battery charger and continuing to drive without using lights or over the road air.

When you do notice your coach telling you something is happening, but you don't understand what, reach out to others. Talk to a service facility that has expertise in the area of the indicated problem. Develop a list of contacts and itemize their areas of expertise. It will not yield good answers or advice if the phone call for an inverter problem is made to a service center that works on the chassis. As an owner you have to be able to recognize Prevost is responsible for the shell or chassis. They are not the "go-to" people to help you with problems relating to your water pump. Conversely it doesn't make sense to talk to the converter about a problem relating to poor shifting of the transmission.

Going further, if you post a question on the forum, at the very least include a signature line which identifies your particular conversion, its model year, and the chassis type. You will not want a Vantare owner trying to answer house electrical issues on a Country Coach. (Not unless you know that owner has extensive experience with a CC conversion.) When you do reach out for help or advice try to provide a clear description of the problem. Too often an initial conversation either in person, on the phone or via a forum lacks vital information. The more specific the description the higher quality the feedback is going to be. It is a rare problem that is detected or analyzed using only one piece of information. When mechanics diagnose

problems they are using all their senses because the way a coach talks to us is not limited to just a gauge. We hear sounds, we smell burning wires, we see voltages or warning lights, or we feel something hot. You have to be that mechanic's eyes and ears.

Ownership of a Prevost conversion is a happy experience. It can be intimidating, but it does not need to be if as an owner you pay attention, get a basic understanding of the coach and its systems and you have a plan for how to identify and understand problems and deal with them.. Your comfort level goes way up as you begin to understand the coach, and even problems aren't going to diminish the pleasure of a trip as long as they are understood and don't need an immediate response. Let the coach provide you with information by being sensitive to it. It is always talking to you.

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